Greater Miami Valley
Emergency Medical Services Council

Paramedic

2008 Standing Orders Training Manual

Effective January 1, 2008

ADULT ORDERS INDEX

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2008 Adult Standing Orders

(Patients 16 Years Old and Above)

Effective January 1, 2008

STIPULATIONS

- This protocol is for use by those individuals operating in and under the authority of the Greater Miami Valley EMS Council (GMVEMSC) Drug Box Exchange Program and certified by the State of Ohio as an EMT-Paramedic.
- This protocol is to be used in the field only. Communications must be attempted as soon as practical for potentially unstable patients or hospitals that request contact on all patients being transferred to their facility.
- Procedures that are marked with a diamond (♦) are never to be performed without a physician's order. The diamond provides rapid 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.
- 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 ($EtCO_2$ detectors or monitors, and/or Esophageal Detection Devices).
- *Infrequently*, unusual patient situations and multiple complaints with competing priorities may prevent stepwise adherence to a specific section of this protocol. However, at no time should treatment options exceed those authorized here in without direct consultation with medical control. In all such cases, contact with medical control should be considered when logistically feasible.

ADMINISTRATION

Non-Initiation of Care

- Resuscitation will not be initiated in the following circumstances:
  - Burned beyond recognition
  - Decapitation
  - Deep, penetrating, cranial injuries
  - Massive truncal wounds
  - DNR Order - present and valid
  - Frozen body
  - Hemicorporectomy (body cut in half)
  - Rigor mortis, tissue decomposition, or severe dependent post-mortem lividity
  - Triage demands
  - Blunt trauma found in cardiac arrest *unless* one of the following conditions are present:
    - Patient can be delivered to an emergency department in 5 minutes
    - If the arrest is caused by a medical condition
    - Focused blunt trauma to the chest (such as a baseball to the chest)
  - 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 / Comfort Care Arrest

DNR-Comfort Care (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
- Splint/immobilization
- Control bleeding
- Pain control

The following treatments are *not* permitted:

- Chest compressions
- Airway adjuncts
- Resuscitative drugs
- Defibrillation/cardioversion/monitoring
- Respiratory assistance (oxygen, suctioning are permitted)

DNR-Comfort Care Arrest (CCA)

(Permits any medical treatment until the patient goes into cardiac or respiratory arrest.)

- Any appropriate standing orders treatment until cardiac or respiratory arrest/agonal breathing occurs.

  Note: When a Durable Power of Attorney for Healthcare (DPA-HC) is present and the "Living Will and Qualifying Condition" box is checked, the DPA-HC cannot override the patient's DNR status. A patient may change their DNR status at anytime verbally, in writing or action.

Field Termination of Resuscitation Efforts

When a patient in cardiac arrest has failed to respond to Advanced Life Support (ALS), it may be decided to terminate the effort and not transport the patient to the hospital. When the paramedic determines that this option is appropriate, the following criteria must be met:

- The victim must:
  - Be 18 years or older
  - Be in asystole or PEA
  - Not be in arrest due to hypothermia, or apparent drug overdose
  - Have an advanced airway
  - Have vascular access
- Contact medical control directly to receive consent for field term

  Note: Ensure that the EMS Coordinator of the hospital that authorized the field termination receives a copy of the run sheet for his/her records.

Field Termination of Resuscitation Efforts With No Available ALS Equipment

- ♦ When faced with a patient in Cardiac Arrest, no ALS equipment is available at the scene, and transport time to a medical facility will exceed 20 minutes, they may consider contacting a MCP for orders to terminate the resuscitation.
- ♦ MCP must be contacted and the physician must speak directly with the EMS provider, and must give consent for the resuscitation effort to cease.
- The intent of this section is to avoid the risks of emergency transport of patients who are almost certainly non-viable.
- **Ensure that the EMS Coordinator of the hospital that authorized the Field Termination receives a copy of the run sheet for his/her records.**

PATIENT COMPETENCY / CONSENT

There are times when a "pink slip" or Involuntary Committal Form should be used. This REQUIRES coordination with and support from on scene law enforcement or health department officials, physician, or psychiatrist to "pink slip". Consult local rules, laws, policies, and / or guidelines.

- Determine patient competency and consent. Consider a patient may be incapable to make medical decisions if they are:
  - Suicidal
  - Confused
  - Severely developmentally or mentally disabled and injured/ill
  - Intoxicated and injured/ill with an altered mental status
  - Physically/verbally hostile
  - Unconscious

Per Ohio Revised Code 5122.01 and 5122.10, an EMTB, I or P 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, licensed physician) can "pink slip" a person. The GMVEMSC strongly recommends that your fire/EMS department, in consultation with your medical director/advisor and local law enforcement, have a procedure to deal with these types of situations.

INITIAL CARE

- Follow basic, advanced life support and airway algorithms as indicated based on current AHA Guidelines.
- Obtain chief complaint (OPQRST), SAMPLE history, and vital signs per patient condition.
- Utilize cardiac monitor and/or other monitoring device {pulse oximeter, etc.**}** as appropriate.
- Start IV of **Normal Saline (NS)** or a **Saline Lock (SL)** as appropriate.
- **IVs:**
  - Shock: run wide-open using regular, macro-drip, or blood tubing. Decrease fluid rate if SBP >100.
  - Medical Emergencies, Head Trauma, Cardiac Problems (with stable BP): Use TKO rate.
  - IV Medication Administration – Slow IV = over 1-2 minutes, unless otherwise specified.
- **{**IV pump}
- {Adult IO devices} only when less invasive means are not available or are ineffective (i.e. Glucagon IM, Narcan MAD, Versed MAD, etc.).
  - **Lidocaine 1.5 mg/kg, IVP up to 100 mg** via the IO site for the pain caused by pressure of fluid administration, unless contraindicated (allergies, third degree heart block etc.)
- Existing central venous catheters, dialysis catheters, fistulas, or grafts may be utilized for infusion of IV fluids and medication if the patient is in cardiac arrest, profoundly unstable or rapidly deteriorating
- ♦ In a patient with an existing IV pump who is experiencing an allergic reaction, the pump may only be discontinued after receiving approval from Medical Control. Otherwise, the IV pump must be maintained. Exception: hypoglycemic diabetic patients with an insulin pump (see "Maintenance of Existing Medication Pumps" section for details)
- Bring the patient's medications, or a list of the medications, with the patient to the hospital. When supplying the hospitals with documentation of patient medications, be certain to include the dose, and frequency of administration.

  NOTE: For patient with a insulin pump: take extra tubing and medication packet(s) to receiving facility with patient, if available.

AIRWAY MAINTENANCE

- **O_2** as needed. Use the following rates as guidelines:
  - **2 LPM by NC** for patient with COPD
  - **4 - 6 LPM by NC** for other patients
  - **12 - 15 LPM by NRB** for severe trauma patients, distressed cardiac patients, patients with respiratory distress, and other patients who appear to need high flow **O_2**
- Ventilate patients who are symptomatic with an insufficient respiratory rate or depth
- Consider intubation if airway compromise or insufficient ventilations are present.
- Consider patient airway anatomy and condition for the appropriate selection of the proper airway adjunct.
  - If approved, adjuncts considered "rescue airways" such as the LMA or Dual Lumen Airways may be appropriate for a primary airway device.
- 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 airway with clinical assessment and devices. CO2 detection methods are recommended.

Assessment Methods:

- Physical assessment including auscultation of the epigastrium, anterior chest, midaxillary areas, then the epigastrium again.
- Repeat visualization of the tube between the vocal cords.
- Condensation in the tube.
- Keeping an oral endotracheal tube at the 20-22 cm mark at the teeth will prevent inserting the ETT too far, greatly reduces the chances of a right mainstem bronchus intubations. Don't confuse right mainstem intubation for a pneumothorax.
- Nasotracheal tubes need to be placed more deeply, or the tube will only reach the pharynx, not the trachea. A nasotracheal tube that is at 22 cm at the nose is unlikely to reach the glottis. When a nasotracheal tube is correctly placed, there is often only an inch or so between the nose and the ET adapter. Finally, remember that EDDs and $EtCO_2$ detectors can help prevent the disaster of esophageal intubation, but they cannot identify placement in a mainstem bronchus. That requires physical assessment, including depth of the tube, and auscultation.

Confirmation Devices:

- {$EtCO_2$ Monitor}
- {$EtCO_2$ with waveform}
- {$EtCO_2$ Detector}
- {Esophageal Detection Device (EDD)}

End Tidal CO_2 Detector ($ETCO_2$) -- Colorimetric

Limitations

- The patient must have adequate perfusion. If CO_2 is not transported to the lungs, the device will not register CO_2. It can then appear that the tube is in the esophagus, when, in fact, it is correctly placed. Therefore, Colorimetric $EtCO_2$ Detectors are not recommended for patients in cardiac arrest.
- Secretions, emesis, etc., can ruin the device.
- A patient with large amounts of carbonated beverage (i.e., beer) in his stomach can give a false positive. The device may sense the CO_2 given off by that beverage and indicate that the tube in the trachea, when it is in the esophagus.
- Use the device for no more than two hours.
- For weight restrictions, follow manufactures' recommendations.

Medication Issues:

- If you administer medications via ETT, remove the $EtCO_2$ detector for several ventilations, until no medication returns through the tube during exhalation. Medications splashing up the tube can alter color change.
- Intravenous sodium bicarbonate will produce more carbon dioxide resulting in enhanced color.

Electronic End Tidal CO_2 ($ETCO_2$) Monitors - Capnography

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 samples the ventilation more remotely from the patient. Capnography can be used with patients who are not intubated. In-line $EtCO_2$ monitors can be used on patient with or without adequate perfusion. Electronic monitors are more sensitive therefore changes can be seen in real-time.

Esophageal Detector Device (EDD)

These devices confirm 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 the ETT 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.

Limitations:

- A large amount of gastric air (i.e. caused by carbonated beverage, aggressive ventilations, misplacement of ETT) and late term pregnancy can give a false positive finding. According to the AHA, the EDD may yield misleading results in patients with morbid obesity, late pregnancy, or status asthmaticus, or when there are copious endotracheal secretions because with these conditions the trachea tends to collapse.
- 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).
- Cannot be used continuously. It must be removed after confirmation, though you may reuse it after patient movement.
- May only be used on pediatric patients who are older than 5 years of age and 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.

Indications for Various Intubation Confirmation Devices

	Nasopharyngeal ETT	Oral ETT	Pulseless Pt.	Apneic Patient
Colorimetric $EtCO_2$	Useful	Useful	Contraindicated	Useful
Electronic Waveform $EtCO_2$	Useful	Useful	Useful	Useful
EDD	Contraindicated	Useful	Useful	Useful
BAAM	Useful	Contraindicated	Contraindicated	Contraindicated
Pulse-Ox	Useful	Useful	Contraindicated	Useful

NOTE: Intubation is not permitted unless at least one of the above devices is utilized.

- Always secure the ET tube in place as effectively as possible, preferably with a commercial tube-securing device.
- Cervical collar is effective in maintaining patient's head in a neutral position.
- Re-assess ET tube placement every time the patient is moved.
- {Digital Intubation and Lighted Stylet Intubation} may be utilized.
- {Dual Lumen Airways (i.e., Combitube, Pharyngotracheal Lumen Airway (PtL), or a Laryngeal Mask Airway (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 (similar to use of oral airways).
- If routine ventilation procedures are unsuccessful, try to visualize obstruction with laryngoscope. If foreign body is seen, attempt to remove it using suction, and/or Magill forceps, if possible.
- If an awake patient requires intubation, consider the following:
    - Applying **Lidocaine Jelly** to the ET tube
    - **Lidocaine, 80 mg IN** {half dose per nostril} or **nebulized** with 8-12 LPM **O_2**

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

- If intubating nasally, the BAAM may be used to assist with intubation.
- After intubation, if the patient is resisting and SBP >100, consider **Midazolam, 2-4 mg slow IV over 1-2 minutes.**
- If a patient would benefit from intubation but is combative, agitated, or has jaws clenched, paramedics may use {Sedate to Intubate} procedures.
- Tension Pneumothorax Relief: If indications of Tension Pneumothorax are present, decompress the chest with a 14 gauge, 2 1/4 inch (or longer) angiocath placed in the second or third intercostal space in the mid-clavicular line.
- Whenever all reasonable attempts to provide an adequate airway by less invasive means have failed, perform a cricothyrotomy utilizing an approved method.

{Sedate to Intubate}

Sedate to intubate may only be utilized with department and medical director approval. Do not attempt if successful intubation is unlikely due to foreseeable complications.

- Pre-oxygenate the patient. If possible, avoid using a BVM to reduce gastric distention.
- Apply a cardiac monitor and pulse oximeter.
- In suspected stroke, intracranial hemorrhage, head injury, or signs of increased intracranial pressure, administer **Lidocaine 100 mg, IVP.**
- Administer **Etomidate 0.3 mg/kg, IVP** (average initial dose is 15-25 mg). Repeat initial dose within 2 minutes as needed. Apply cricoid pressure to reduce the possibility of aspiration and facilitate intubation.

- After the jaw relaxes (30-60 seconds), intubate. Confirm tube placement as below!
- After intubation, if the patient is resisting and SBP >100, administer **Midazolam 2-4 mg, IVP** over 1-2 minutes.
- If you are unable to immediately intubate the patient, rapidly begin ventilating with a BVM with cricoid pressure or other rescue ventilation device (i.e. LMA, Combitube, etc.).
- For problems, contact medical control.
- Whenever all reasonable attempts to provide an adequate airway by less invasive means have failed, perform a cricothyrotomy utilizing an approved method.

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 you have only one oxygen source, attach it to the nebulizer until nebulized medication delivery is complete, then attach to BVM. Refer to the diagram and skill sheet for further information.

Central Venous Catheters

Patients who require long-term intravascular therapy often have Central Vascular Access Devices (CVAD) in place. There are three types of CVADs: central catheters, Peripherally Inserted Central Catheters (PICC lines), and subcutaneously implanted ports. Paramedics are only permitted to access central catheters and PICC lines, not subcutaneously implanted ports. Central catheters are placed through the chest wall into the internal jugular or subclavian veins and may extend into the superior vena cava. Central catheters can be single or multilumen.

Description of CVADs:

- Central catheter: Catheter placed through chest wall into the internal jugular or subclavian veins and may extend into the superior vena cava. Central catheters can be single or multilumen. Distal portion of catheter is external with access ports. Paramedics are permitted to access this catheter.
- Subcutaneously Implanted Port: Device surgically placed under the skin on the chest. No external access. Paramedics are not permitted to access this device.
- 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 size creates significant resistance to fluid flow making it difficult to flow large quantities of fluids or D_{50}. IM Glucagon is preferable to trying to give D_{50} by PICC. Paramedics are permitted to access this device.

Direct access into the central circulation can result in the following complications:

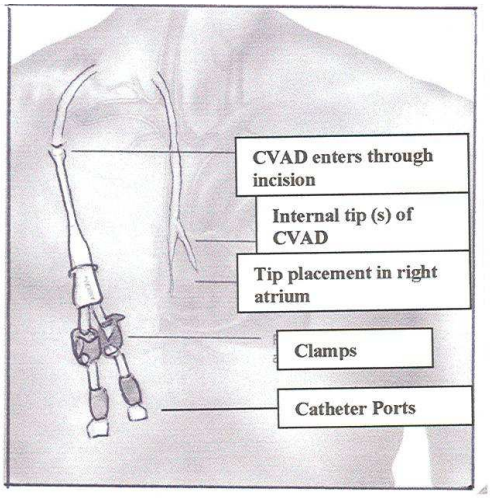
- Infection: Thorough cleaning of the selected port must be done three times during the procedure, before attaching the syringes and before attaching the IV tubing.
- Air Embolism: All central venous catheters have clamps. The catheter must be clamped before attaching the syringes and before removing 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 anticlotting agents will be in the catheter. 5 ml of blood must be removed so 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 5 ml blood as smaller syringes create too much pressure. After verifying blood return, flush catheter with 10 ml of NS using a 10 ml or greater 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 CVAD's**.

Internal Dialysis Fistula

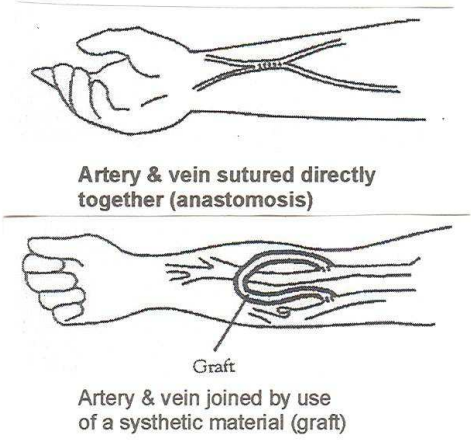
A dialysis fistula is an artificial passage between an artery and a vein used to gain access to the bloodstream for hemodialysis. In hemodialysis, the patient's blood is pumped through the internal arteriovenous fistula. These internal shunts may be a result of the artery and vein being sutured directly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

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

While utilizing an aseptic technique, be careful not to puncture the back wall of the vessel. **Use pressure infusion device (bag) for infusion**. Blood may still backup in the IV tubing. Patients receiving dialysis have an increased risk of hemorrhage because of their regular exposure to anticoagulants during hemodialysis. Control bleeding with direct pressure.



CENTRAL VENOUS ACCESS



VASCULAR ACCESS - HEMODIALYSIS

Maintenance of Existing Medication Pumps

Do not stop the flow of medication unless you receive direct orders from Medical Control. There are some drugs, such as Flolan that could kill the patient if stopped. If you think the patient is experiencing an allergic reaction, call Medical Control. A possible reason for Medical Control to have you shut off the pump would be a patient having an allergic reaction who is receiving a new antibiotic being administered IV with the pump.

> *NOTE: The exception is a diabetic patient with an Insulin Pump who is hypoglycemic as confirmed by a blood glucose monitor. If you are NOT familiar with the device, disconnect the tubing from the pump (first choice) or remove needle assembly from the patient (second choice). Do NOT turn off the pump. You may hit the wrong button and, inadvertently bolus the patient with a large amount of Insulin. If you are familiar with the device it is permissible to "Suspend" the administration of Insulin.*

Further info: http://www.ems.ohio.gov/policies/boardpolicypts%20preexisitingmedicaldevices.pdf

CARDIOVASCULAR EMERGENCIES

General Considerations:

- CPR should not be interrupted for more than 10 seconds until spontaneous pulse is established.
- You are expected to provide resuscitative care at the scene. Cardiac arrests should not be transported unless the patient has Return of Spontaneous Circulation (ROSC) or you are unable to secure an airway and establish vascular access.

- An unstable cardiac patient is one who is hypotensive or has chest pain with poor skin color or diaphoresis.
- In all cardiac arrests, consider the ACLS "Treatable Causes:"

"H's"	**"T's"**
Hypovolemia	Toxins
Hypoxia	Tamponade, Cardiac
Hypo-/hyperkalemia	Tension Pneumothorax
Hydrogen Ion (Acidosis)	Thrombosis (Coronary, Pulmonary)
Hypoglycemia	Trauma
Hypothermia	

- For renal dialysis patients in arrest:
  - **Calcium Chloride 10% (1,000 mg)**
  - *Flush IV line thoroughly* between Calcium and Sodium Bicarb. It is critical that these drugs not be given together, as they will precipitate.
  - **Sodium Bicarb, 100 mEq IVP**
- For pregnant patient in arrest consider need for manual uterine displacement and perform chest compressions slightly higher on the sternum than normal.

CARDIAC ARREST: Basic Life Support

- Assess patient for respiratory and cardiac arrest
- Initiate CPR and {AED/Defibrillator} using most current American Heart Association Guidelines
- Ratio of compressions to breaths of 30:2 at a rate of about 100 compressions per minute
- Consider {Impedence Threshold Device (i.e. Res Q Pod)}
- Transport patient as appropriate
- Consider treatable causes

<u>NOTE:</u> Current AEDs may not be programmed to the current AHA Guidelines. Utilize AED as it is programmed.

CARDIAC ARREST: V-Fib/Pulseless V-Tach

- If unwitnessed arrest, initiate CPR for 2 minutes, Defibrillate 360 J (or biphasic equivalent)
- If witnessed arrest, Defibrillate 360 J (or biphasic equivalent)
- CPR for 2 minutes
- Defibrillate 360 J (or biphasic equivalent)
- **Epinephrine 1 mg, IV/IO, repeat every 3-5 minutes**
  - **if unable to establish IV, Epinephrine 2 mg, ETT, repeat every 3-5 minutes** (1mg 1:10,000 and 1mg 1:1,000).
- CPR for 2 minutes
- Defibrillate 360 J (or biphasic equivalent)
- **Amiodarone 300 mg, IV/IO,**
  - **if unable to establish IV, Lidocaine, 1-1.5 mg/kg ETT**
- Defibrillate 360 J (or biphasic equivalent)
- Repeat **Amiodarone 150 mg, IV/IO**
  - or **Lidocaine 0.5-0.75 mg/kg, up to 3 mg/kg ETT**
- Continue CPR and repeat treatment as indicated
- If patient converts with **Lidocaine**, and IV access is obtained, start a **Lidocaine drip at 2-4 mg/min**.
- Consider treatable causes
- {12-lead EKG}

CARDIAC ARREST: Asystole/PEA

- CPR for 2 minutes
- **Vasopressin 40 U IV/IO,**
  - **if unable to establish IV, Epinephrine 2 mg, ETT, repeat every 3-5 minutes** (1mg 1:10,000 and 1mg 1:1,000). If IV is subsequently established, Vasopressin is permitted after either first or second dose of Epinephrine
- CPR for 2 minutes
- Consider **Atropine 1mg, IV/IO** for asystole or slow PEA (repeat every 3-5 minutes up to 3 doses)
- CPR for 2 minutes
- **Epinephrine 1 mg, IV/IO repeat every 3-5 minutes, no sooner than 10 minutes after Vasopressin.**
- Continue CPR and repeat treatment as indicated
- Consider treatable causes
- {12-lead EKG}

Suspected Cardiac Chest Pain

- Ask male and female patients if they are taking Viagra, Revatio, or similar medications within the last 24 hours. Do not administer Nitroglycerin if taking above medications.
- Give **ASA, 324 mg** to every patient with symptoms of ACS. Patient MUST CHEW the ASA.
- If possible, prior to moving patient, acquire a supine {12 Lead} EKG on all patients with any of the following: ACS symptoms including anginal chest pain, shortness of breath, syncope, diaphoresis, weakness or patients with atypical signs and symptoms (i.e., women and diabetics).
- If SBP >100, and the patient is at least 25 years of age administer **Nitroglycerin, 0.4 mg SL every 5 minutes x 3** with vital signs between doses. Prior to nitroglycerin adminstration, establish vascular access for patients who have not previously had nitroglycerin.
  - OR {Nitroglycerin drip} 10 mcg/min titrated up to 50 mcgs/min, Increase is in 5 mcg /min increments every 5 minutes.
- Consider **Morphine, up to 5mg slow IVP**, provided SBP >100
  - If unable to obtain IV, give **Morphine 5 mg SQ**, provided SBP >100 is indicated only if transport time is greater than 30 minutes.
  - After five minutes, may consider repeating **Morphine IV**, provided SBP >100
  - Repeat dose of **Morphine, 5 mg SQ** (repeat no sooner than 30 minutes) is indicated only if transport time is greater than 30 minutes
- All patients with evidence of an AMI should be transported to an appropriate interventional facility.
- Transport patient and complete the "EMS Checklist: Chest Pain Check List"
- **NS, up to 250 ml** may be administered to a patient with SBP <100 without pulmonary edema. If RVI is suspected with hypotension, consult medical control for fluid bolus.
- Consider repeat {12 Lead} EKGs during transport

<u>NOTE:</u> Revatio is a drug approved for treatment of pulmonary arterial hypertension (same disease that may be treated with Flolan at end stage). The drug improves exercise ability and contains Sildenafil *which is Viagra. For this reason, organic nitrates are contraindicated with Revatio as they are with Viagra. One major difference with Revatio is that it is indicated for both men and women. Fortunately, a history of pulmonary hypertension is more likely to be shared than one of erectile dysfunction. Providers should query patients, particularly PAH patients, about Revatio before giving nitro.*

Acute Myocardial Infarction (AMI)

Establish communications with medical control as early as possible and advise them of a cardiac alert. It is imperative that the paramedic speaks directly with the physician. If patient is having a confirmed AMI and the interventional facility is rerouting, contact that MCP and discuss destination options. Follow the appropriate treatment considerations for specific AMI types listed below.

Destination Considerations:

- Interventional facility is a hospital that provides PCI 24 hours a day.
- AMIs should be transported directly to an interventional facility, if it is within 30 minutes, even if other hospitals are closer. Consider air medical transport if interventional facility is over 30 minutes away..
- EKG evidence of an AMI with contraindications to thrombolytics should be transported to an interventional facility when transport time will not exceed 45 minutes.
- It is medically necessary to transport the patient to the closest hospital for stabilization.
- It is unsafe or medically inappropriate 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.
- Interventional facility is rerouting all cardiac patients.
- 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.

Interventional Facilities

The following hospitals have PCI capabilities:

Dayton Heart Hospital
Good Samaritan Hospital
Grandview Hospital
Kettering Medical Center
Miami Valley Hospital
Springfield Mercy Hospital
Springfield Community Hospital

Treatment Considerations for AMIs

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 Nitroglycerin and Morphine administration, monitor BP frequently.
    - Treat hypotension with a fluid challenge and administer Nitroglycerin or Morphine with caution.
- If 2° type II or 3° block, prepare to pace immediately
    - Consider **Atropine, 0.5 mg IVP up to 3 mg** while awaiting pacer
    - Set at 70 BPM, 20 mA and increase until mechanical capture is obtained
        - Consider **Midazolam**, **2-4 mg IVP**.
- **Dopamine** use is discouraged.

Anterior Wall

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

- ST elevation in more than 2 leads is at higher risk for sudden cardiac death.
- High risk for developing CHF or cardiogenic shock.
- May also develop BBB's, PVC's or 3° blocks.
- **Dopamine** should be the first treatment for significant hypotension rather than fluid boluses.

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.

CARDIAC DYSRHYTHMIAS

Bradycardia

- For adequate perfusion, observe and monitor.
- For poor perfusion,
  - If 2° type II or 3° block, prepare to pace immediately
    - Consider **Atropine, 0.5 mg IVP up to 3 mg** while awaiting pacer
    - Set at 70 BPM, 20 mA and increase until mechanical capture is obtained
      - Consider **Midazolam**, **2-4 mg IVP**
  - For other bradycardias,
    - **Atropine, 0.5 mg IVP up to 3 mg.** If ineffective begin pacing as above.
  - Consider **Dopamine, 2-10 mcg/kg/min**

Tachycardia

Stable

- Narrow Complex - Regular
  - Vagal maneuvers
  - **Adenosine, 6 mg rapid IVP**
    - If patient has history of PSVT and advises it takes 12 mg of Adenosine then skip the 6 mg dose**.**
  - May repeat **Adenosine, 12 mg rapid IVP x 2**
- Wide Complex – Regular
  - **Amiodarone, 150 mg IV over 10 minutes**
- Wide Complex – Irregular
  - Consider **Amiodarone, 150 mg IV over 10 minutes**

Unstable

- **Cardioversion 100 J, 200 J, 300 J, 360J (or biphasic equivalent)**
  - Consider **Midazolam**, **2-4 mg IVP**

Non-Traumatic Shock

Without Pulmonary Edema

(No JVD, edema, or rales noted)

- **NS, 500 ml IV bolus**
- ♦ Repeat **NS, 500 ml IV bolus,** if needed
- For persistent shock, establish additional vascular access.
- If SBP remains <100, **Dopamine drip, start at 5 mcg/kg/min.** Titrate to maintain SBP >100

With Pulmonary Edema

(JVD, edema, or rales present)

- Treat arrhythmias as indicated.
- Consider **NS, 250 ml IV bolus**
- If SBP remains <100, **Dopamine drip, start at 5 mcg/kg/min.** Titrate to maintain SBP >100

Exsanguinating Hemorrhage (Medical / Non Traumatic in Nature)

- Vascular access(es) **NS** to maintain SBP >100 en route to the hospital.

Stroke

- Complete GMVEMSC Prehospital Suspected CVA/TIA Checklist.
- Be prepared to ventilate at a rate of 20 respirations per minute (if signs of cerebral herniation are present) and/or assist ventilations with oral or nasal airway and BVM or {FROPVD}.
    - {If signs of cerebral herniation are present and quantitative (i.e., numeric) End Tidal CO_2 ($EtCO_2$) readings are available, ventilate at a rate to maintain $EtCO_2$ readings at approximately 30 mmHg (30 torr)}.
- Re-evaluate patient condition, contact Medical Control to advise you are en route with a stroke patient, and transport to hospital.
- If glucose <60, or there is strong suspicion of hypoglycemia despite glucometer readings
    - **D_{50}, 25 grams IVP**.
    - **D_{50}** may be repeated as appropriate.
    - If unable to establish vascular access, **Glucagon, 1 mg IM**.

Symptoms Mimicking Stroke

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

TRAUMA EMERGENCIES

General Considerations

- 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, per destination protocols.
- 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.
- Document GCS including the individual components.
- Hypothermia is a significant and frequent problem in shock and 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 receiving Trauma Center.
- The *only* procedures that should take precedence to transport of Major Trauma patients are:
    - Extrication
    - Airway Management
    - Stabilization of neck/back or obvious femur and pelvic fractures on a backboard
    - Exsanguinating Hemorrhage Control
- IVs should be attempted en route to the hospital unless the patient is trapped or 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, the largest tubing available, and 1,000 ml of **0.9% NS**. **IV** flow rates are as follows:
    - Keep open rate for major head trauma with adequate perfusion
    - IV wide open if the patient has inadequate perfusion (including head trauma) utilizing {**IV** Pressure Infusion Pump or Bag} or similar equipment if available
- Titrate all IV flow rates to maintain SBP >100.
- A second IV may be established en route.
- For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine, up to 5 mg slow IVP** (2-3 minutes) based on patient weight, provided SBP>100. If unable to obtain IV, give **Morphine, 5 mg SQ**

- May repeat **Morphine**, up to 5 mg, slow IVP (2-3 minutes) based on patient weight, provided SBP > 100.
- Repeat dose of **SQ Morphine 5 mg** (repeat no sooner than 30 minutes) is indicated when transport is greater than 30 minutes.

Exsanguinating Hemorrhage

- Control external bleeding with direct pressure, elevation, pressure points, etc.
- Treat for hypovolemic shock as indicated.

Triage and Transport Guidelines

Concepts

- After the trauma patient's extrication, the on-scene time should be limited to 10 minutes or less, except when there are extenuating circumstances.
- Trauma Patients, as identified in the document, should be transported to the nearest appropriate trauma center.
- Use of on-line, active Medical Control for medical direction in the field, particularly for difficult cases, is encouraged in compliance with regional standing orders.
- *Pre-arrival notification of the receiving facility is essential!* Give Mechanism of Injury, Injuries, Vital Signs, Treatment (MIVT) and ETA.
- List in the EMS Run Report which of the State Trauma Triage Criteria was met by the patient.

Trauma Center/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 for the trauma patient.
- In areas of the region where the Level III Trauma Center is the only verified 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 in close proximity to a Level III trauma center and a Level I or Level II trauma center is still within the 30 minute transport guidelines established in this document, the EMS Provider should exercise professional judgment as to whether the patient would benefit more from an immediate evaluation, stabilization treatment at the proximate Level III trauma center or from direct transport by EMS Provider to the Level I or Level II trauma center.
- Regional Trauma Centers
    - Level I Miami Valley Hospital Fax # 937-208-2521
    - Level II Children's Medical Center Fax # 937-641-6176
    - Level III Greene Memorial Hospital N/A Helicopter will take trauma Pt. to Level I or II.
    - Level III Middletown Regional Hosp. N/A Helicopter will take trauma Pt. to Level I or II
- In areas of the region where there are no verified Trauma Centers (within 30 minutes ground transport time), the acute care hospital may act as the primary receiving facility for the critically injured trauma patients. EMS Provider may arrange for air medical transport from the scene.
- If a pediatric patient meets the trauma triage guidelines, then they are taken to a pediatric trauma center. If transportation time is > 30 minutes to a pediatric trauma center, then transport to the nearest acute care hospital for stabilization and transfer. EMS Provider may arrange for air medical transport from the scene.
- All pregnant trauma patients should be transported to the nearest adult Trauma Center, unless transport time > 30 minutes.

Air Medical Transportation

- Pre-arrival notification of the receiving facility is essential.
- Prolonged delays at the scene waiting for air medical transport should be avoided.
- Traumatic cardiac arrest due to blunt trauma 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 Triage and Transportation Guidelines

- It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to an adult or pediatric trauma center.
- It is unsafe or medically inappropriate to transport the victim directly to an adult or pediatric trauma center due to adverse weather or ground conditions or excessive transport time.
- Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical services resources.
- No appropriate trauma center is able to receive and provide trauma care to the victim without undue delay.
- Before transport of a patient begins, the patient requests to be taken to a particular hospital that is not a trauma center or, if the patient is less than 18 years of age or is not able to communicate, and such a request is made by an adult member of the patient's family or legal representative of the patient.

Pre-Hospital Field Adult Triage

- Utilize for persons 16 and above
- Patients to be taken to nearest hospital:
  - Unstable airway
  - Blunt trauma arrest, no pulse or respirations
- All pregnant trauma patients should be transported to the nearest adult Trauma Center, unless transport time >30 minutes.

Anatomy of Injury

- All penetrating trauma to head, neck, torso, and extremities proximal to elbow and knee
- Abdominal injury with tenderness, distention, or seat belt sign
- Chest injury: Flail chest and/or tension pneumothorax
- Two or more proximal long bone fractures
- Evidence of pelvic fracture (exception: isolated hip fracture)
- Spinal cord injury with signs and symptoms of paralysis
- Burns greater than 10% Total BSA or other significant burns involving the face, feet, hands, genitals or airway
- Amputation proximal to wrist and/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

YES = Consider Trauma Center	NO – Assess Physiologic
Alert Trauma Team	

Physiological

- Glasgow Coma Scale (GCS) less than or equal to 13, loss of consciousness at any time greater than five minutes or alteration in level of consciousness with evidence of head injury at time of exam or thereafter, or fails to localize pain.
- Respirations < 10 or >29 or intubation or relief tension pneumothorax
- Pulse >120 in combination with any other physiologic criteria
- SBP < 90 or absent radial pulse with carotid pulse present

YES = Consider Trauma Center	NO = Evaluate Mechanism of Injury if high energy impact
Alert Trauma Team	

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
- Falls > 20 feet
- High Speed Auto Crash
    - Initial 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

YES = Consider Trauma Center	NO = Check Special Situations

Special Situations

- Age > 55
- Pre-existing cardiac and/or respiratory disease
- Insulin dependent diabetes, cirrhosis, morbid obesity, seizure
- Patient with bleeding disorder or on anticoagulants
- Immuno-suppressed patients (renal dialysis, transplant, cancer, HIV)
- All pregnant trauma patients should go to the nearest adult trauma center, if within 30 minutes transport time.

YES = Consider Trauma Center	NO = To Local Hospital
May consult with Medical Control Physician (MCP)	

Multiple Trauma

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

- Place the patient in correct position to maintain the airway.
- Open pneumothorax: cover with an occlusive dressing, tape three sides down.
- 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: immobilize with a bulky dressing or towels taped to the chest.

- Contact Medical Control and advise of patient condition with MIVT and ETA, and need for Trauma Team.
- For pregnant patient in arrest consider need for manual uterine displacement and perform chest compressions slightly higher on the sternum than normal.

Head Injury

- Evaluate patient condition:
  - Level of Consciousness
  - Pupillary size and reaction
  - Glasgow Coma Scale
- Ventilate at 20 BPM when the following signs of cerebral herniation are present:
  - Blown or unequal pupil(s), bradycardia, posturing, and decreased mental status.
  - {Ventilate to maintain $EtCO_2$ readings of 30 mmHg (30 torr)}.

GLASGOW COMA SCALE

		GCS
EYES	SPONTANEOUSLY	4
	TO VERBAL COMMAND	3
	TO PAIN	2
	NO RESPONSE	1
VERBAL	ORIENTED & CONVERSES	5
	DISORIENTED & CONVERSES	4
	INAPPROPRIATE WORDS	3
	INCOMPREHENSIBLE SOUNDS	2
	NO RESPONSE	1
MOTOR	OBEYS VERBAL COMMAND	6
	PURPOSEFUL MOVEMENT TO PAIN	5
	WITHDRAWAL	4
	FLEXION	3
	EXTENSION	2
	NO RESPONSE	1

Maintain good ventilation at rate of about one breath every 5-6 seconds, 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) is indicated.

An increase in the level of CO_2 (hypoventilation) promotes cerebral vasodilation and increased swelling, while lowering the level of CO_2 (hyperventilation) promotes cerebral vasoconstriction and cerebral ischemia. Hyperventilation causes a significant decrease in cerebral perfusion from vasoconstriction, which results in cerebral hypoxia. Thus, both hyperventilation and hypoventilation cause cerebral hypoxia and increase mortality.

The one time you may hyperventilate is cerebral herniation syndrome. 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 and 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, and/or decerebrate posturing. When this is occurring, 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 ICP. In this situation, the danger of immediate herniation outweighs the risk of ischemia.

Extremity Fractures, Dislocations, Sprains

- Assess pulse, motor and sensation before/after splinting and during transport.
- For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing.
- Apply appropriate splinting device.
- To reduce swelling, elevate extremity and {apply ice}.
- Consider **Morphine, up to 5 mg slow IVP (2-3 minutes)** based on patient weight, provided SBP>100. If unable to obtain IV, give **Morphine, 5 mg SQ**
- May repeat **Morphine**, **up to 5 mg, slow IVP, (2-3 minutes)** based on patient weight, provided SBP > 100.
- Repeat dose of **SQ Morphine 5 mg** (repeat no sooner than 30 minutes) is indicated only if transport time > 30 minutes.

Good Splinting Practices

- Document distal sensation and circulation pre & post splinting.
- If the extremity is severely angulated and pulses are absent, you should apply gentle traction in an attempt to straighten it. If resistance is encountered, splint the extremity in the angulated position. When you are attempting to straighten an extremity, it is very important to be honest with yourself with regard to resistance. It takes very little force to lacerate the wall of a vessel or to interrupt the blood supply to a large nerve.
- Open wounds should be covered with a sterile dressing before you apply the splint.
- Apply a well-padded splint to immobilize above and below the injury.
- Do not attempt to push bone ends back under the skin. If you apply traction and the bone end retracts back into the wound, do not increase the amount of traction. Bone ends should be padded before pneumatic splints are applied. Keep bone ends moist to promote healing.
- If in doubt, splint a possible injury.

  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 permits.

Drowning and Near Drowning

- Consider spinal immobilization.
- Consider hypothermia.
- Evaluate neurological status.
- Near drowning patients should be transported to a trauma center.

Hypothermia

- Move patient to warm environment, remove all wet clothing, dry the patient, and cover with blankets.
- Avoid any rough movement that may cause cardiac dysrhythmias It may be beneficial to immobilize the patient on the backboard.
- Assess neurological status.
- It may be necessary to assess pulse and respirations for up to 30-45 seconds to confirm arrest.
- Consider possibility of other medical conditions (i.e. overdose, hypoglycemia)
- Hypothermic patients should be transported to a trauma center.
- If patient arrests:

- CPR continuously
- If severe hypothermia (<86°F (30°C)) is strongly suspected, limit defibrillation attempts to 1 and withhold medications except on orders from Medical Control
- If body temperature is >86°F (30°C), follow normal arrest protocols
- Intubate and oxygenate the patient with {warmed and humidified} 100% $\mathbf{O_2}$
- Continue resuscitative efforts while in transit, even if there is no response

Hypothermia Without Arrest

- Do not initiate CPR if there is any pulse present, no matter how slow.
- Rough handling and unnecessary stimulation may cause cardiac arrest.
- Minimize movement.
- Use the least invasive means possible to secure airway. Intubate if necessary, as gently as possible.
- Consider other medical conditions (i.e. overdose, hypoglycemia, CVA)
- Complete the following steps during transport:
  - Establish vascular access and consider {warmed} fluids
  - Treat bradycardia only if hypotensive
  - Hypothermia patients should be transported to a trauma center

Frostbite

- Protect injured area(s). 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.
- For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine, up to 5 mg slow IVP** (2-3 minutes) based on patient weight, provided SBP >100. If unable to obtain IV, give **Morphine, 5 mg SQ**
- May repeat **Morphine, up to 5 mg, slow IVP** (2-3 minutes) based on patient weight, provided SBP >100.
- Repeat dose of **SQ Morphine 5 mg** (repeat no sooner than 30 minutes) is indicated when transport is greater than 30 minutes.

Burns / Smoke Inhalation

General Considerations

- Stop the burning and minimize contamination.
- Severe burns should be transported to a burn center unless ETA >30 minutes.
- Keep patient warm.
- Superficial and partial thickness burns <10% may have wet dressings applied. Cover burn areas with clean, dry sheets or dressings after cooling burns < 10% first.
- Remove clothing and jewelry from injured parts. Do not remove items, which have adhered to the skin.
- Inhalation injuries with 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 been involved with a lightning strike or electrical burn.
- Determine type of burn and treat as follows:
  - Radiation burns:
    - Treat as thermal burns except when burn is contaminated with radioactive source. Then treat as Hazmat situation
    - Consider contacting Haz-Mat team for assistance in contamination cases

  - Inhalation Burns:
    - Provide {humidified} **O_2** with **Saline**.
    - If no humidifier is available, administer a **Saline Nebulizer**, **3 ml**. Repeat PRN.
    - Provide early endotracheal intubation as indicated. Do not wait for complete airway obstruction or respiratory arrest to intubate!
- ♦ **Sodium Thiosulfate, 12.5 gm (50ml)** for unconscious smoke inhalation patients.
- {CO oximeter}
- Consider Hyperbaric Oxygen Treatment for the following:
  - Underlying cardiovascular or symptoms such as chest pain or shortness of breath
  - > 60 years of age
  - Obvious neurological symptoms, such as any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory
  - Pregnancy

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/or psychiatric medications.

- Heat exposure can occur either due to 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.
- Strip the patient of clothing, cool the patient, and apply water to the skin.
- Apply cold packs to underarms and groin area.
- If conscious and neither vomiting nor extremely nauseous provide oral fluids.
  - If hypotensive or mental status changes are present administer **NS, 1000 ml bolus**.
- Be prepared for seizures.
- Consider other medical conditions (i.e. overdose, hypoglycemia, CVA) and treat accordingly.
- Hyperthermia patients should be transported to a trauma center.

Carbon Monoxide (CO) Poisoning

- Provide high flow **O_2** 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:
  - Underlying cardiovascular or symptoms such as chest pain or shortness of breath
  - > 60 years of age
  - Obvious neurological symptoms, such as any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory
  - Pregnancy
- Contact medical control to discuss transport considerations.

Eye Injuries

- If possible, contact lenses should be removed. Transport contacts with patient.
- Chemical Burns:
  - Irrigate immediately with **NS** or water for a minimum of 20 minutes
  - Determine chemical involved. Bring MSDS, if available
- Major Eye Trauma:
  - Do not irrigate or use Tetracaine if penetrating trauma
  - Cover injured eye. Do not use a pressure or absorbent dressing on or near any eye that may have ruptured, or have any penetrating trauma
  - Cover both eyes to limit movement
  - Transport with head elevated at least 30°.
- Prior to irrigation with **NS** or for significant eye pain, **Tetracaine 2 drops** in affected eye(s).
- {Morgan Lens} or nasal cannula and IV tubing for irrigation.

{Spinal Injury Clearance }

Spinal injury clearance may be utilized, when authorized by the Medical Director and the patient is over 16. It is critical that each step be evaluated in sequence, since the steps proceed from the least to the greatest risk for the patient. It is just as critical that the patient be manually immobilized until the evaluation is complete.

1. If patient unconscious with potential mechanism of injury: Immobilize.
2. If patient not alert, is disoriented, or has GCS < 15: Immobilize.
3. If patient had loss of consciousness: Immobilize.
4. If suspicion of ETOH or drug intoxication: Immobilize.
5. If possible acute stress reaction: Immobilize.
6. If other painful or distracting injury: Immobilize.
7. If cervical pain or other spinal column pain (patient complaint) is present: Immobilize.
8. If neurological deficit (motor or sensory): Immobilize.
9. If cervical tenderness (on palpitation) or deformity: Immobilize.
10. If pain with cervical motion: Immobilize.

If none of the above are present, personnel may opt to transport the patient without spinal immobilization. In any case where there is the slightest doubt about the possible need for spinal immobilization, the patient is to be fully and effectively immobilized.

All of the above items must be documented, and the EMS agency must have a mechanism in place for Quality Improvement monitoring of each run where this procedure is employed.

START Triage System (MCI)

Use the **S**imple **T**riage **A**nd **R**apid **Treatment** (START) method of triage to assess a large number of victims rapidly. It can be used easily and effectively by all EMS personnel.

Procedure

- Initial Triage
  - Utilize {Triage Ribbons [color-coded strips]}. One should be tied to an upper extremity in a VISIBLE location (wrist if possible, preferably on the right).
    - RED – Immediate
    - YELLOW – Delayed
    - GREEN – Ambulatory (minor)
    - BLACK – Deceased (non-salvageable)
  - If borderline decisions are encountered, always triage to the most urgent priority (i.e., GREEN/YELLOW patient, tag YELLOW). Move as quickly as possible.

- Secondary Triage
    - Will be performed on all victims in the Treatment Area.
    - Utilize the Triage Tags (METTAGs or START tags) and attempt to assess for and complete all information required on the tag. Affix the tag to the victim and remove ribbon. This is done after patients enter the Treatment Area, not at the initial triage site!
- The Triage priority determined in the Treatment Area should be the priority used for transport.
- Locate and remove all of the walking wounded into one location away from the incident, if possible. Assign someone to keep them together (i.e., PD, FD, or initially a bystander) and notify COMMAND of their location. *Do not forget these victims.* Someone should re-triage them as soon as possible.
- Begin assessing all non-ambulatory victims where they lie, if possible. Each victim should be triaged in 60 seconds or less, preferably much less.
- Assess **RESPIRATIONS**:
    - If respiratory rate is 30/min. or less, go to PERFUSION assessment
    - If respiratory rate is > 30/min., tag RED
    - If victim is not breathing, open airway, remove obstructions, if seen and assess for above
    - If victim is still not breathing, tag BLACK

- Assess **PERFUSION**:
    - Performed by palpating a radial pulse or assessing capillary refill (CR) time
    - If radial pulse is present or CR is two seconds or less, go to MENTAL STATUS assessment
    - No radial pulse or CR is > two seconds, tag RED
- Assess **MENTAL STATUS**:
    - Assess the victim's ability to follow simple commands and their orientation to time, place and person
    - If the victim follows commands and is oriented x3, tag GREEN. NOTE: Depending on injuries (i.e., burns, fractures, bleeding), it may be necessary to tag YELLOW
    - If the victim does not follow commands, is unconscious, or is disoriented, tag RED

Special Considerations

- Only correction of life-threatening problems (i.e., airway obstruction or severe hemorrhage) should be managed during triage.
- To help speed the process, consider utilizing colored (Red, Yellow, Green, Black) ribbons to initially mark patient categories. Triage Tags are then attached and filled out once the patient reaches the Treatment Area.
- When using Triage Tags, if the patient's condition or the triage priority changes, the bottom portion of the tag should be removed, leaving only the injury information. Add a new tag to identify the new triage priority, and if time permits, the reason for the change.

RESPIRATORY DISTRESS

- Evaluate breath sounds, and obtain {Pulse Oximeter and/or capnography} reading:
    - Clear: Treat cause (i.e. MI, pulmonary embolism, metabolic disturbance, and hyperventilation)
    - Wheezes: Treat cause (i.e. pulmonary edema, FBAO, asthma or allergic reaction)
    - Rales: Treat cause (i.e. pulmonary edema or pneumonia)
    - Diminished or absent:
        - Unilateral: Treat cause (i.e. pneumothorax, hemothorax, pneumonia, surgically removed lung)
        - Bilateral: Treat cause (i.e. respiratory failure, end stage COPD or asthma)
- 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.

- If patient has SBP > 100, **Nitroglycerin 0.4 mg SL up to X 3 every 5 minutes**. Maintain SBP >100.
    - OR {Nitroglycerin drip} 20 mcg/min titrated up to 50 mcgs/min, Increase is in 5 mcg /min increments every 5 minutes.
- {CPAP or Bi-PAP}.
- **Furosemide 80 mg, IVP over 2 minutes**. Maintain SBP >100.
- **Morphine up to 5 mg IVP over 2 minutes.** Maintain SBP >100.
- May repeat **Morphine up to 5 mg IVP over 2 minutes.** Maintain SBP >100.

NOTE: It is important to differentiate between CHF with pulmonary edema and pneumonia *when considering the administration of Furosemide. At times, pneumonia may look like CHF with Pulmonary Edema. However, the pneumonia patient is often dehydrated and has an elevated temperature. Not only will the patient not benefit from Furosemide, but a borderline dehydrated pneumonia patient may go into hypovolemic shock.*

Asthma/Emphysema/COPD

- Consider **Albuterol 2.5 mg** and **Ipratropium 0.5 mg, nebulized** with **O_2** 8-12 LPM.
- May repeat **Albuterol 2.5 mg nebulized X 2**.
- COPD: **{**CPAP or Bi-PAP}
- After intubation of an asthma patient, limit rate of ventilation to 8-10 BPM to avoid auto-PEEP and hypotension, provided that you can adequately oxygenate the patient at that rate.
- If patient arrests, tension pneumothorax is a likely cause. Strongly consider bilateral needle decompression for relief of tension pneumothorax.
- For asthmatics in severe distress: **Epinephrine (1:1,000) 0.3 mg SQ or autoinjector**.
- ♦ May repeat **Epinephrine (1:1,000) 0.3 mg SQ or autoinjector.**

ALTERED LEVEL OF CONSCIOUSNESS: Diabetic or Unknown Cause

- If glucose <60, or there is strong suspicion of hypoglycemia despite glucometer readings
    - **D_{50}, 25 grams IVP**.
    - **D_{50}** may be repeated as appropriate.
    - If unable to establish vascular access, **Glucagon, 1 mg IM**.
    - In a diabetic patient with an insulin pump and a glucose <60, disconnect patient from the pump or "suspend" the device if you are familiar with its operation.
    - Maintain normothermia.
- Consider patient restraint before administration of **Naloxone**.
- If respiration is impaired, or there is a high index of suspicion of narcotic overdose and patient does not respond to **D_{50}**, administer **Naloxone, up to 4 mg, IVP**, varying rate according to patient severity titrate to respiratory rate and depth.
    - As an alternative to IV **Naloxone**, **Naloxone, 2 mg IN**, **or up to 4 mg IM** or other appropriate routes.

Oral Glucose Administration*: Oral glucose is indicated for any awake but disoriented patient with BS <60 or strong suspicion of hypoglycemia despite blood sugar readings. Oral glucose may also 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 Treatment

- Patients 18 years of age or older, may be permitted to refuse. Follow these guidelines:
    - Repeat physical examination and vital signs. Patient must be A&O X 3
    - 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, if possible
- Follow normal patient refusal procedures

Note: Ensure that the EMS Coordinator of the hospital that replaces your Drug Bag and Supplies receives a copy of the run sheet for his/her records.

ALLERGIC REACTION/ANAPHYLAXIS

- If severe allergic reaction, **Epi-Pen or Epi 1:1,000 0.3 mg SQ**.
- If applicable, apply {ice pack} and/or constricting band.
- If hypotensive, **NS, bolus to maintain SBP >100**.
- If patient deteriorating or unresponsive, consider early intubation, possibly with smaller than normal ET tube.
- If patient is wheezing: **Albuterol, 2.5 mg and Ipratropium**, **0.5 mg in nebulizer with O_2 flowing at 8-12 LPM**.
- **Lidocaine, 80 mg** may also be placed in the nebulizer with the other two medications.
- **Albuterol** may be repeated x 2.
- If patient is intubated, **Albuterol, 2.5 mg** by nebulizer into the endotracheal tube. If **Ipratropium** not given before intubation, add to first **Albuterol**.
- **Diphenhydramine 50 mg, IM/IV**.
- If patient remains hypotensive after a fluid bolus, **Epinephrine (1:10,000) 0.5 mg, very slow IV.**
- For patients unresponsive to **Epinephrine**, **Glucagon 2 mg, IV/IM**.
- If cardiac arrest, **Epinephrine (1:10,000) 3 mg IV**.

SEIZURES

- BVM and nasopharyngeal airway *during* seizure as needed.
- If seizing, **Diazepam, 5 mg slow IV or Midazolam, 10 mg, IN**.
- If still seizing, **Diazepam, 5 mg slow IV or Midazolam, 5 mg, IN.**
- If no vascular access or {MAD}, **Diazepam, 10 mg PR**.
- If glucose <60, or there is strong suspicion of hypoglycemia despite glucometer readings
  - **D_{50}, 25 grams IVP**
  - **D_{50}** may be repeated as appropriate
  - If unable to establish vascular access, **Glucagon, 1 mg IM**
  - In a diabetic patient with an insulin pump and a glucose <60, disconnect patient from the pump or "suspend" the device if you are familiar with its operation
  - Maintain normothermia

When obtaining history be sure to include the following:

- *Description of seizures, areas of body involved, and duration*
- *Other known medical history; i.e. head injury, diabetes, drugs, alcohol, stroke, heart disease.*

OVERDOSE

Narcotic Overdose

- Consider patient **restraint** before administration of **Naloxone**.
- **Naloxone, up to 4 mg IVP**, varying rate according to patient severity.
  - If patient has a pulse, **Naloxone** can be administered *before* inserting an ETT
- As an alternative to IV **Naloxone**, **Naloxone, 2 mg IN**.
  - If no arousal occurs after three minutes, establish an IV and administer IV **Naloxone**
- If unable to establish an IV and no {MAD}, **Naloxone up to 4 mg IM**

Crack/Cocaine

- If chest pain;
  - **Ntg, 0.4 mg SL,** if SBP >100.
  - **Diazepam, 5 mg, IV,** if SBP >100.

Tricyclic Overdose

- ♦ **Sodium Bicarbonate, 1 mEq/kg, IV**.
- ♦ Repeat **Sodium Bicarbonate 0.5 mEq/kg, IV** for persistent QRS prolongation.

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 and prolongation of the QRS complex. Risk of rapid deterioration or sudden onset V. Fib is high.

Calcium Channel Blocker Overdose

- ♦ **Calcium Chloride, 1 gm IV**
- ♦ **Glucagon, 1 mg IM or IV**

Calcium Channel Blocker Examples:

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

Beta Blocker Overdose

- ♦ **Glucagon** 1 mg, IM or IV.

  Beta Blocker Examples:
  - Acebutolol (Sectral)
  - Atenolol (Tenormin)
  - Carvedilol (Coreg)
  - Corzide, Inderide, Lopressor, HCT, Tenoretic, Timolide, Ziac
  - Labetalol (Normodyne, Trandate)
  - Metoprolol (Topral, Lopressor)
  - Nadolol (Corgard)
  - Pindolol (Viskin)
  - Propranolol (Inderal)
  - Sotalol (Betapace)
  - Timolol (Blocadren)

HAZ-MAT

Contact receiving hospital immediately to allow for set up of decontamination equipment. If substance is determined, notify receiving facility as early as possible.

Important steps in field decontamination:

- Remove contaminated clothing.
- Thoroughly wash with {Dawn} paying special attention to skin folds and other areas where simple irrigation may not remove it.
- Do not transport a patient until gross decontamination is completed.
- Obtain permission from hospital personnel before entering hospital with a potentially contaminated patient and/or crew.
- Consider decontamination of vehicle prior to leaving.

Field decontamination must be initiated. An example of the often overlooked importance of decon is a patient soaked in diesel fuel. Diesel fuel can cause chemical burns when left in contact with the skin.

The Centers for Disease Control (CDC) has made recommendations about antidotes for Mass Casualty Incidents (MCIs), including the following:

- It is likely that a terrorist attack would utilize materials that could be stolen or purchased in the U.S., rather than importing weapons such as nerve gas. Improvised weapons could include cyanide stolen from industry, or organophosphates, which have essentially the same effect as Nerve Agents, yet can be purchased inexpensively. In spite of what is commonly believed, many people exposed to cyanide, organophosphates, or nerve gas are potentially salvageable.
- It is critically important that the antidotes be given as quickly as possible.
- Atropine is the most important drug to be given rapidly for organophosphate or nerve agent poisons, and often the patients need repeated doses of Atropine.

- Nitrites (the first two components of Cyanide Kits) provide increased effectiveness, but require careful and time-consuming monitoring, and have significant side effects. They may be impractical in a Mass Casualty Incident. Sodium Thiosulfate has fewer side effects and much lower risk, especially when the diagnosis is not certain, or when combinations of poisons (i.e., carbon monoxide) may be present. CDC recommends that suspected victims of cyanide poisoning in MCIs should be treated with Oxygen and Sodium Thiosulfate, skipping the use of both nitrites.
- EMS agencies in major cities should be prepared to deal with at least 500 - 1,000 casualties from either cyanide or organophosphates/Nerve Agents, and thus should deploy antidotes on prehospital apparatus.

Guidelines for Dealing With Exposure To Hazardous Drug

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

- PPE should be worn whenever there is a risk of hazardous drug being released into the environment. For EMS personnel, the situations might include:
    - 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
    - Additional situations apply to healthcare workers who mix and administer hazardous drugs
- Guidelines for PPE:
    - Gloves: disposable, powder-free, latex or nitrile. Double gloves are recommended. Change gloves immediately after each use, if a tear, puncture, or drug spill occurs; or after 30 minutes of wear
    - Gowns: disposable, lint-free, low-permeability fabric. Solid front, long-sleeves, tight cuffs, back closure. Inner glove cuffs should be worn under the gown cuffs and the outer glove cuffs should extend over the gown cuffs
    - Respirators: Wear a NIOSH-approved respirator mask when cleaning hazardous drug spills. Surgical masks do not provide adequate protection
    - Eye and face protection: wear a face shield whenever there is a possibility of splashing
- Body Fluids – use universal (standard) precautions when handling the blood, emesis, or excreta of a patient who has received IV or oral chemotherapy within the previous 48 hours.
- Accidental skin exposure: Remove contaminated garments, place in leakproof plastic bag, and immediately wash contaminated skin with soap and water. Rinse thoroughly. Report to physician for examination and documentation.
- Accidental eye exposure: immediately flush eye with saline solution or water for at least 15 minutes. Report to for examination and documentation.
- Contaminated Linen/Clothing – place linens in a plastic bag. Wash items twice in hot water, separately from other items. (Hospital linens are placed in a bag labeled "contaminated linen" and pre-washed before being added to other linen.)
- Spills, contaminated equipment: DO NOT touch the spill with bare hands. Post a sign or warn others to prevent spread of contamination and others from being exposed. Wipe up liquids with an absorbent pad or spill-control pillow. Clean the spill area from most contaminated to least contaminated three times, using a detergent solution followed by clean water. Rinse thoroughly.
- Disposal of hazardous drugs and materials contaminated with hazardous drugs - place items in a sealable, leakproof plastic bag or rigid cytoxic waste container marked with a brightly-colored label that cites the hazardous nature of the contents. Dispose of needles and syringes intact – DO NOT break or recap needles or crush syringes.
- Report and document spills as required (consider EPA, OSHA, and Regional/local HazMat team if more than 5 ml)

Who should you call for more help? (the patient should have these phone numbers)

- the homecare agency that is supplying/monitoring the infusion
- the physician who ordered the infusion (usually a medical oncologist)
- ask for pharmacy support from a hospital, if necessary (there should be a label on the IV bag with the name of the drug and the dosage/concentration)
- Consult with the Regional HazMat team (or local HazMat team for areas outside the Dayton area)

HAZ-MAT: Hydrofluoric Acid (HF)

- Deaths have been reported after burns involving < 3% Body Surface Area. Assure safety of all personnel!
- Begin decon immediately, as soon as it can be accomplished without putting EMS personnel at risk! Strip the patient of any clothing, which may be contaminated.

- 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). However, getting water on the burn is more urgent than the use of Epsom salt. DON'T DELAY IRRIGATION/DECON! Continue to flush affected skin and eyes with copious amounts of water or **Saline**, and 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.
- {12-Lead EKG} 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.
- For pain relief consider **Morphine, up to 5mg slow IVP**, provided SBP > 100.
    - If unable to obtain IV, give **Morphine 5 mg SQ**, provided SBP > 100.
    - After five minutes, may consider repeating **Morphine IV**, provided SBP > 100.
    - Repeat dose of **Morphine, 5 mg SQ** (repeat no sooner than 30 minutes) is indicated only if transport time is greater than 30 minutes, provided SBP > 100.
- ♦ If patient with HF exposure experiences tetany or cardiac arrest, administer 10 ml **Calcium Chloride 10%**, IVP. Calcium Chloride 10% should be considered a first line drug in cardiac arrest associated with Hydrofluoric Acid. Only ABCs, defibrillation, intubation and Epinephrine or Vasopressin should precede its administration.
- ♦ If victim was exposed to high concentration HF (> 40%), discuss prophylactic 4 ml **Calcium Chloride 10%** (400 mg), IV with Medical Control.

HAZ MAT: Cyanide

♦ In any case of known or strongly suspected cyanide intoxication, paramedics will utilize the following components of the **{Cyanide Kit}**.

- **Conscious Patients of Known or Strongly Suspected Cyanide Poisoning**:
    - ♦ {For patients of cyanide poisoning who are awake, administer one **Amyl Nitrite** pearl every ten minutes}
    - ♦ {If the patient's condition is deteriorating, administer 300 mg of **Sodium Nitrite** (10 ml of 3% solution), ***slow*** IVP over 5 minutes}
    - ♦ Administer **Sodium Thiosulfate**, **50 ml of 25% solution (12.5 grams), slow IVP** over 3 minutes.
    - ♦ {OR administer **Hydroxocobalamin (Cyanokit), 5grams (both vials), via slow IV infusion**, over 15 minutes. DO NOT ADMINISTER both Hydroxocobalamin and other Cyanide antidotes to the same patient in the field}
        - {Each vial must be administered separately, after diluting the powder with 100 ml of NS}
        - {NOTE: Hydroxocabalamin is incompatible with numerous drugs carried by EMS, including Diazepam. Whenever possible, administer Hydroxocabalamin through a separate IV line.}
        - ♦ {If patient is in critical condition, a second dose of **Hydroxocabalamin may be administered via slow IV infusion**, over 15 minutes}
    - It is critical to control any seizure activity, using **Diazepam** or **Midazolam**
- **<u>Unconscious</u> Patients of Known or Strongly Suspected Cyanide Poisoning:**
    - Provide 100% **O_2** by BVM, preferably via Endotracheal tube
    - CPR if indicated. In cases of cardiac arrest associated with cyanide poisoning, the cyanide antidotes must have a high priority. Only ABCs, defibrillation, intubation, and Epinephrine should precede use of the **Cyanide Antidotes** as authorized by Medical Control
    - ♦ {While preparing to intubate, place one ampoule of **Amyl Nitrite** into a nebulizer after breaking the ampoule, and attach it to the BVM while ventilating}

- ♦ {If patient is not responding to treatment, administer **300 mg** of **Sodium Nitrite** (10 ml of 3% solution), ***slow*** **IVP** over five minutes. If possible establish two IV lines, one for standard code drugs, and one for cyanide antidotes.}
- ♦ Administer **Sodium Thiosulfate**, **50 ml of 25% solution (12.5 grams), slow IVP** over 3 minutes
- ♦{OR administer **Hydroxocobalamin (Cyanokit), 5grams (both vials), via slow IV infusion**, over 15 minutes. DO NOT ADMINISTER both Hydroxocobalamin and other Cyanide antidotes to the same patient in the field}
  - {Each vial must be administered separately, after diluting the powder with 100 ml of NS}
  - {NOTE: Hydroxocabalamin is incompatible with numerous drugs carried by EMS, including Diazepam. Whenever possible, administer Hydroxocabalamin through a separate IV line.}
  - ♦ {If patient is not in arrest, but in critical condition, a second dose of **Hydroxocabalamin may be administered via slow IV infusion**, over 15 minutes}
- It is critical to control any seizure activity, using **Diazepam** or **Midazolam**.

- **For pediatric patients, follow the orders above, using the doses below:**
  - ♦ {Limit exposure to **Amyl Nitrite** ampule for 15 seconds, followed by 15 seconds of rest, then repeat until next Cyanide Antidote can be administered}
  - ♦ {<u>Do not administer **Sodium Nitrite** in the field unless lab values are available</u>}
  - ♦ Administer **Sodium Thiosulfate**, 50 ml (12.5 g) if > 25kg, if < 25kg then **1.65 ml/kg (412.5 mg/kg)** of the 25% solution, not to exceed 50ml (12.5 grams), **slow IVP** over 3 minutes
  - Control any seizure activity, using **Diazepam** or **Midazolam**
- **In MCIs with suspected cyanide poisoning:**
  - ♦ Administer **Sodium Thiosulfate**, 50 ml of 25% solution, **slow IVP** over three minutes
  - Control any seizure activity, using **Diazepam** or **Midazolam**
  - Contact 937-333-USAR and request additional cyanide antidotes
- **In cases of smoke inhaltion where cyanide is a likely component of the smoke:**
  - Only ABCs, defibrillation, and epinephrine should precede the use of the cyanide kit as authorized by MCP
  - ♦ **Sodium Thiosulfate, 50 ml of 25% solution, slow IVP**
  - ♦{OR administer **Hydroxocobalamin (Cyanokit), 5grams (both vials), via slow IV infusion**, over 15 minutes. DO NOT ADMINISTER both Hydroxocobalamin and other Cyanide antidotes to the same patient in the field}
    - {Each vial must be administered separately, after diluting the powder with 100 ml of NS}
    - {NOTE: Hydroxocabalamin is incompatible with numerous drugs carried by EMS, including Diazepam. Whenever possible, administer Hydroxocabalamin through a separate IV line.}
    - ♦ {If patient is not in arrest, but in critical condition, a second dose of **Hydroxocabalamin may be administered via slow IV infusion**, over 15 minutes}

- ♦ When faced with any of the above scenarios, but you do not have all three components of the Cyanide Kit, or have insufficient numbers to provide to all patients with all three components, any one component (**Amyl Nitrite, Sodium Nitrite, or Sodium Thiosulfate**) is better than none, and may be administered alone. *The only exception is that Sodium Nitrite should not be used in pediatric patients.*

HAZ-MAT: Organophosphate or Nerve Gas Poisoning

- Any case of known or strong suspected organophosphate or carbamate (i.e., insecticides such as parathion or malathion); or nerve agent (i.e., Tabun, Sarin, Soman, VX, etc.) exposure, symptoms may include miosis (pinpoint pupils), rhinorrhea (runny nose), copious secretions, localized sweating, nausea, vomiting, weakness, seizures, dyspnea, loss of consciousness, apnea, diarrhea, flaccid paralysis and cardiac arrest.
- Patients with severe poisoning may or may not be bradycardic.

- ♦ Administer 1 - 2 mg. **Atropine** every 3-5 minutes, as available until lungs are clear to auscultation. **Atropine** may be given IV or IM, or IM by **Mark I** auto-injector #1.
    - Atropine is administered as 1-2 mg in conventional form, or by the 2 mg Autoinjector, for adults and children weighing over 90 pounds.
    - Children weighing 40 - 90 pounds should be given 1.0 mg Atropine, or the 1.0 mg Atropen autoinjector.
    - Children weighing less than 40 pounds should be given 0.5 mg Atropine, or the 0.5 mg Atropen autoinjector.
- ♦**Atropine** should be followed with 600 mg IM♦ **Pralidoxime (2-PAM), which is Mark I autoinjector**
- In some cases, the Mark I Kits have been replaced by "**DuoDotes**". **DuoDotes** have the same drugs as Mark I Kits, but administered through a single autoinjector.
- Treat seizures with **Diazepam, Midazolam**, or **Diazepam Autoinjector**.
- **In a Mass Casualty Incident, contact 866-599-LERP and request a CHEMPACK, <u>AND</u> contact 937-333-USAR and request additional Nerve Agent Antidotes**

In the event of a large Mass Casualty Incident involving Weapons of Mass Destruction such as Cyanide or Nerve Agents, contact Medical Control, and request an "Antidote free" order, allowing you to treat all of the patients on the scene with the appropriate antidote. Calling for separate orders for each individual patient is utterly impractical. Multi-dose vials or Atropine have been added to the Drug Box. However, Squads must carry syringes and needles for administering the Atropine.

Departments are authorized to {stockpile large quantities of Atropine and supplies (syringes, needles, etc.), as well as 2-PAM, if desired on selected units. The stockpiles can also be in the form of auto-injectors, such as the Mark I kits or DuoDotes. Auto-injectors can be quite expensive, but enough atropine in multi-dose vials for an initial dose of Atropine for between 200 and 400 patients, with syringes, needles and alcohol preps, for example, is very inexpensive}.

Administering The Nerve Agent Antidote Auto-Injector Kit (Mark I)

When first responder arrives on a scene potentially contaminated with nerve agents, s/he must don appropriate PPE. If symptoms of nerve agent exposure manifest:

1. Remove Mark I kit from protective pouch
2. Hold unit by plastic clip
3. Remove AtroPen from slot number 1 of the plastic clip. The yellow safety cap will remain in the clip and the AtroPen will now be armed. Do not hold unit by green tip. The needle ejects from the green tip
4. Grasp the unit and position the green tip of the AtroPen on victim's outer thigh
5. Push firmly until auto-injector fires
6. Hold in place for 10 seconds to ensure Atropine has been properly delivered
7. Remove 2-PAM Cl ComboPen from slot number 2 of the plastic clip. The gray safety cap will remain in the clip and the ComboPen will now be armed. Do not hold the unit by the black tip. The needle ejects from the black tip
8. Grasp the unit and position the black tip of the Combo Pen on victim's outer thigh.
9. Push firmly until auto-injector fires
10. Hold in place for 10 seconds to ensure Pralidoxime has been properly delivered
11. If nerve agent symptoms are still present after 15 minutes, repeat injections. If symptoms still exist after an additional 15 minutes, repeat injections for a third time. If after the third set of injections, symptoms remain, do not give any more antidotes but seek medial help

Recommended Autoinjector Site:

Anterolateral Thigh

CHEMPACKS and Resources for Mass Casualty Incidents (MCIs)

In addition to our "WMD" medications in the GMVEMSC Drug Bags, there are now additional resources for use in mass casualty incidents (MCI). Among those resources are **CHEMPACKS: containers with enough antidotes to treat roughly 500 victims,** placed by the Centers for Disease Control (CDC) in hospitals around the nation.

The Ohio Region 2 Regional Physician Advisory Board (**RPAB**), in concert with the Dayton Metropolitan Medical Response System (DMMRS), Greater Dayton Area Hospital Association Domestic Preparedness Committee, GMVEMSC, and others, has developed a "Deployment Protocol" for preparation, transport, training, and usage of CHEMPACKS in the West Central Ohio Region. This protocol has been revised to be compliant with the newly enacted State of Ohio CHEMPACK PLAN.

All EMS personnel must now know how to recognize the use of chemical agents, when to utilize antidotes, and how they are administered. Ohio Law and Region 2 EMS Standing Orders now permit EMT-Intermediates, EMT-Basics, and First Responders to utilize WMD autoinjectors in a Mass Casualty Incident. They must also understand the process for using the CHEMPACK agents. A training video on signs, symptoms, and the CHEMPACK protocol is being produced and distributed. **Personnel must further understand that the CHEMPACK agents are antidotes used to treat symptomatic patients; they are not to be given prophylactically (i.e., to persons who do not have symptoms).**

CHEMPACKS contain three drugs:

- Atropine (which blocks the effects of excess acetylcholine at its site of action);
- Pralidoxime Chloride (2-PAM) (which reactivates acetylcholinesterase and therefore reduces the levels of acetylcholine); and
- Diazepam (which lessens the severity of convulsions that can contribute).

There are two types of CHEMPACKS: Hospital and EMS. Both contain **the same drugs**. The difference between the two is the ratio of drug packaging: autoinjectors to multi-dose vials. Hospital CHEMPACKS have more multi-dose vials to permit precise dosing of children and patients requiring

prolonged treatment. EMS CHEMPACKS have more autoinjectors to ease administration at the site, and by personnel wearing high levels of Personal Protective Equipment (PPE).

There are five types of autoinjectors in CHEMPACKS. All five work just like the Epi-pens you are already familiar with.

- 0.5 mg Atropens – Pediatric dose of Atropine
- 1.0 mg Atropens – Pediatric dose of Atropine
- Mark 1 Kits containing a 2 mg Atropine autoinjector, and another autoinjector with 2-PAM
- CANA's – ("Convulsive Antidote, Nerve Agent") containing 10 mg Diazepam for seizures

The RPAB also developed a series of Job Aids, which will be distributed to all EMS agencies and hospitals in our region. "Job Aid" is NIMS-terminology for a step-by-step checklist. There are CHEMPACK Job Aids for Incident Commanders, EMS Sector Commanders, Dispatchers, public safety personnel who transport CHEMPACK Antidotes, hospital personnel, and MCPs.

To request a CHEMPACK, EMS or hospitals simply contact the Ohio Joint Dispatch Facility at **866-599-LERP (5377).** 866-599-LERP will notify the closest CHEMPACK hospital and dispatch an OSP Trooper or other Law Enforcement agency to pick up the contents of the CHEMPACK, and deliver it to a Staging Location designated by you. You must advise **866-599-LERP** that the incident meets **both** of the following criteria:

- A large number (50 or more) of confirmed or potential adult or pediatric patients **AND**
- Either a Nerve agent/Organophosphate was identified **or** there are patients exhibiting signs or symptoms consistent with exposure to a nerve agent

CHEMPACK antidotes are only useful against nerve agents or chemical pesticides. There is no provision for biological releases, cyanide incidents, etc. Furthermore, CHEMPACKS may **only** be utilized when other resources (antidotes in regional Drug Boxes and area hospitals) are inadequate for the number of victims.

However, our region does have other resources for cyanide and biological incidents. In addition to the drugs in regional Drug Bags, all area hospitals have antidotes. More than that, EMS can access regional WMD Drug Caches for Mass Casualty Incidents by calling the "Regional Rescue Coordination Center" at **937-333-USAR (8727)**. You will see that information listed in the Job Aids. Contact 333-USAR when you need additional antidotes for Cyanide, Nerve Agent, or Organophosphate Mass Casualty Incidents.

If a hospital opens its own CHEMPACK, it also must notify 866-599-LERP, so they are aware the resources are not available for use elsewhere. Hospital CHEMPACKS have been partitioned into thirds. Each third is marked with colored dots (Red, Blue, and Yellow). Hospitals keep at least the materials with the Yellow dots for potential use at the Storing Hospital.

The information following is excerpted from the RPAB Region 2 CHEMPACK Job Aids:

Mnemonic for Signs & Symptoms of Nerve Agents or Organophosphates: SLUDGEMM	
	Salivation **G**astrointestinal upset **L**acrimation **E**mesis **U**rination **M**uscle twitching **D**efecation **M**iosis (abnormally constricted pupils)
Initial Actions:	
	Personnel safety (Distance, Uphill/Upwind, PPE, etc.)
	Call for additional resources (Medic Units, Engines for personnel/resources/Decon, **Haz-Mat**, Law Enforcement, etc.)
	Consider potential for secondary devices
	DECON!
	Antidotes in ALS Drug Bags and/or County Caches: • Mark I Kits or DuoDotes • Atropine • Oxygen • CANA for seizures (Diazepam Autoinjectors) • Diazepam or Midazolam for seizures **Note: First Responders, EMT-B's, and EMT-I's may only administer O2 and Autoinjector WMD Drugs**
Contact Medical Control	
	Provide the following information: ▪ Estimated number of confirmed or potential adult and pediatric patients ▪ Signs and symptoms exhibited by the patients ▪ Name and/or identification information of the nerve agent if known ▪ Form of the released nerve agent (liquid, gas, etc.) if known ▪ Routes of exposure of the patients (percutaneous, inhalation, ingestion, etc.) if known ▪ Additional anticipated decontamination needs if necessary
Incident Is Appropriate for CHEMPACK Utilization <u>IF</u> BOTH of the following are present:	
	• A large number (50 or more) of confirmed or potential adult or pediatric patients **<u>AND</u>** • Nerve agent/Organophosphate identified or Patients are exhibiting signs or symptoms consistent with an exposure to a nerve agent
	If incident is less than 50 victims, or involves cyanide or bio agents, contact 937-333-USAR and request antidotes. **If incident does meet the criteria in the box above, immediately have your Dispatch contact the Ohio Joint Dispatch Facility at 1-866-599-LERP, and request CHEMPACK deployment to the scene. Simultaneously, contact 937-333-USAR and request additional Nerve Agent Antidotes.**
Receive CHEMPACK from Transporting Law Enforcement Agency	
	Sign the "**CHEMPACK CONTROLLED SUBSTANCE TRANSFER FORM"** and receive copy
	Obtain authorization **from Medical Control to administer** CHEMPACK antidotes.
	To avoid the need for numerous calls to Medical Control in a Mass Casualty Incident, request an "Antidote Free" order, allowing you to treat all patients on the scene ▪ Region 2 EMS personnel need authorization from a MCP to administer CHEMPACK drugs, as well as cyanide antidotes. ▪ Calling for separate orders for each individual patient is impractical. ▪ This terminology ("Antidote Free") has been adopted from law enforcement and the military for this type of medical scenario. It is a blanket order to allow EMS to treat Mass Casualty victims as needed. "Weapons free" (as opposed to weapons tight) is a weapon control order whereby weapons systems may be fired at any target not positively recognized as friendly.

Once Authorized, Administer Antidotes to Patients as Needed	
	Antidote dosing and administration of treatment (field, transport, and hospital): ♦ Administer **1-2 mg. Atropine (Atropine Sulfate)** every 3 - 5 minutes, as available until lungs are clear to auscultation. **Atropine** may be given IV or IM, or IM by **Mark I or DuoDote** auto-injector ➢ Atropine is administered as 1-2 mg in conventional form, or by the 2 mg Autoinjector, for adults and children weighing over 90 pounds ➢ Children weighing 40 - 90 pounds should be give 1 mg Atropine, or the 1 mg Atropen autoinjector ➢ Children weighing less than 40 pounds should be given 0.5 mg Atropine, or the 0.5 mg Atropen autoinjector ➢ Or children may be given IV/IM Atropine 0.02 mg/kg every 5 minutes until excessive airway secretions diminish ♦ Follow Atropine with **2-PAM (Pralidoxime),** 600 mg IM, **which is Mark I autoinjector Item 2 for older children and adults, or 1 gram IV drip or IM.** If **DuoDote** was used, no second autoinjector is needed. ➢ Infants and young children should receive Pralidoxime, 25-50 mg/kg IV drip or IM Treat any seizures with **Diazepam, Midazolam**, or **{Diazepam Autoinjector}**
	Rules of Thumb: • Mild to moderate cases should be treated with one or two doses of Atropine and 2-PAM • Severe doses will generally require repeating every 5 minutes up to 3 doses • Organophosphate poisonings will require more Atropine (> 3 Mark I Kits or 3 DuoDotes) than Nerve Agent poisonings, but no more 2-PAM than the 3 Mark I's or DuoDotes. • Atropine in these circumstances is **not** for bradycardia, which may or may not be present • Primary endpoints for treatment are diminished airway secretions, hypoxia improves, airway resistance decreases, and dyspnea improves
	Provide all needed Supportive Care (ventilation, eye/skin/oral care, etc.)
	Monitor all patients for delayed or recurring effects
After Incident is Resolved	
	Return all unused treatment supplies to the Hospital which supplied the CHEMPACK. Properly dispose of all Medical Waste
MCPs:	
	Must authorize use of any WMD Antidotes (CHEMPACK or Drug Bag) by EMS personnel
	Must understand that inappropriate CHEMPACK opening will result in loss of a $250,000 asset. (As soon as CHEMPACK is opened, the drugs become ineligible for the Shelf Life Extension Program. If CHEMPACK is opened contrary to guidelines, the antidotes will not be replaced by CDC.)

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.

HAZMAT: Pepper Spray

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

ABDOMINAL PAIN

- Use inspection, auscultation and palpation to assess the patient with abdominal pain.
- Assess and document pain using the PQRST acronym:
  - 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 and Type of Onset
    - When did it begin?
    - How often does it occur?
    - Was the onset sudden or gradual?
- Consider **Ondansetron (Zofran), 4 mg IV** for nausea or vomiting.
  - If unable to obtain IV, **a single IM dose may be administered Ondansetron (Zofran), 4 mg IM**
- Pregnant patients of any age $\geq$ 20 weeks gestation should be taken to maternity department; < 20 weeks should go to the emergency department.

- For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine, up to 5mg slow IVP**
  - If unable to obtain IV, give **Morphine 5 mg SQ**
  - After five minutes, may consider repeating **Morphine up to 5mg slow IVP**.
  - Repeat dose of **Morphine, 5 mg SQ** (repeat no sooner than 30 minutes) is indicated only if transport time is greater than 30 minutes.

***Orthostatic Vital Signs**: Consider evaluation of orthostatic vital signs in a conscious patient suspected of being volume depleted, provided that there is no suspicion of spinal injury or another condition precluding this assessment. A rise from a recumbent position to a sitting or standing position associated with a fall in systolic pressure (after 1 minute) of 10 to 15 mmHG and/or a concurrent rise in pulse rate (after 1 minute of 10 – 15 beats per minutes) indicates a significant (at least 10%) volume depletion (postural hypotension) and a decrease in perfusion status.*

OBSTETRICAL EMERGENCIES

- Aggressively treat for hypovolemic shock (do not rely on standard vital sign parameters).
- Give psychological support to patient and family.
- Be sure to take all expelled tissue with you to the hospital.
- Ask for first day of last menstrual period.
- Pregnant patients of any age $\geq$ 20 weeks gestation should be taken to maternity department; < 20 weeks gestation should go to the emergency department.

Cardiac Arrest in Pregnancy

- Precipitating events for cardiac arrest include: Pulmonary embolism, trauma, hemorrhage or 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 wedge (pillow) under the right abdominal flank and hip.
- Administer chest compressions slightly higher on the sternum than normal.

Third Trimester Bleeding

- Place patient in left lateral recumbent position.
- Apply continuous manual displacement of the uterus to the left, or place a wedge (pillow) under the right abdominal flank and hip.

Childbirth

General Considerations

- Unless delivery is imminent, transport to a hospital with obstetrical capabilities. Imminent delivery is when the baby is crowning during a contraction.
- Visualize the perineal area only when contractions are less than five minutes apart.
- Place a gloved hand inside the vagina only in the case of breech delivery with entrapped head, or a prolapsed umbilical cord.
- During delivery, gentle pressure with a flat hand on the baby's head should be applied to prevent an explosive delivery.
- Separate 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 children, prenatal care, multiple births and possible complications, and drug use.
- After delivery, keep infant warm.
- Cut the umbilical cord, then place the baby to suckle at the mother's breast.
- Obtain one and five minute APGAR scores if time and patient condition permits.

NOTE: Fundal Height refers to the level of the upper part of the uterus. Fundal height changes as the uterus enlarges during the course of pregnancy. You can palpate the top of the uterus and get a general idea of the weeks of gestation by relating fundal height with anatomical landmarks of the mother.

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

APGAR scores at 1 minute, and 5 minutes post delivery

	0	1	2
Heart rate	Absent	Slow (< 100)	> 100
Resp. effort	Absent	Slow or Irregular	Good crying
Muscle tone	Limp	Some flexion of extremities	Active motion
Response to catheter in nostril	No response	Grimace	Cough or sneeze
Color	Blue or pale	Body pink; extremities blue	Completely pink

Newborn Care & Resuscitation

General Considerations

- As soon as the baby is born, dry, warm, maintain airway.
  - Place in the sniffing position (1" towel under shoulders).
  - Suction infant until all secretions are clear of airway.

- If the newborn delivers with meconium-stained amniotic fluid and is vigorous, with strong respirations, good muscle tone, and heart rate > 100 BPM, suction the mouth and nose in the same way as for infants with clear fluid.
- 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-intubated with a new tube each time
- Mechanical suction may be used on infants, but only if the suction pressure does not exceed 100 mmHg or 136 cm H_2O. Bulb suctioning is preferred.
- If drying and suctioning has not provided enough tactile stimulation, try flicking the infant's feet and/or rubbing the infant's back. If this stimulation does not improve the infant's breathing, then BVM may be necessary.
- Avoid direct application of cool oxygen to infant's facial area as may cause respiratory depression due to a strong mammalian dive reflex immediately after birth.
- Use length / weight based resuscitation tape (i.e., Broselow Tape).

Specific Care

- After delivery of the infant, assess the airway and breathing while drying and positioning head down.
- If HR <100, BVM ventilation is necessary to increase heart rate.
    - Ventilation is also indicated for apnea and/or persistent central cyanosis.
    - Ventilate at 40-60/min.
    - Despite adequate ventilation, if HR <60 begin CPR
        - Compress at 120/min. (Compression to Ventilation ratio of 3:1)
- If asystole or spontaneous HR <60 despite adequate ventilation and stimulation:
    - Compress at 120/min. (Compression to Ventilation ratio of 3:1)
    - **Epinephrine 1:10,000, 0.01 mg/kg IV/IO** or **Epinephrine (1:1,000) 0.1 mg/kg ETT**.
    - If no response, repeat **Epinephrine 1:10,000** every 3-5 minutes.
- If hypovolemic, **NS, 10 ml/kg** over 5-10 minutes.
- Consider **Naloxone, 0.1 mg/kg, IV/IO/ETT** every 3 minutes until respirations improve.
- **Dextrose 12.5% 1 ml/kg** (**D_{25}** diluted with equal amounts of **NS**) if BS <40 mg/dl.

Delivery Complications

- Place mother on O_2 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 the appendage(s) or buttocks first become 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 the cord, distribute pressure evenly if/when occiput presents.
    - Do not attempt to reinsert cord.

PSYCHIATRIC EMERGENCIES

- For violent or non-compliant patients, consider staging until police have assured scene safety
- Have patient searched for weapons
- Obtain previous mental health history:
    - Suicidal or violent history
    - Previous psychiatric hospitalization, when and where
    - Location that 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 and/or threats to the health and well being of others are not considered rational.

Per Ohio Revised Code 5122.01 and 5122.10, an EMTB, I or P 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, licensed physician) can "pink slip" a person. The GMVEMSC strongly recommends that your fire/EMS department, in consultation with your medical director/advisor and local law enforcement, have a procedure to deal with these types of situations.

Violent Patients

There are times when a "pink slip" or Involuntary Committal Form should be used. This REQUIRES coordination with and support from on scene law enforcement or health department officials, physician, or psychiatrist to "pink slip". Consult local rules, laws, policies, and / or guidelines.

- Determine patient competency and consent. Consider a patient may be incapable to make medical decisions if they are:
    - Suicidal
    - Confused
    - Severely developmentally or mentally disabled and injured/ill
    - Intoxicated and injured/ill with an altered mental status
    - Physically/verbally hostile
    - Unconscious
- Consider medical causes for patient's condition (consider adding)
- Consider staging until police have assured scene safety
- Have patient searched for weapons
- Do not transport restrained patients in a prone position with the hands and feet behind the back or sandwiched between backboards or other items.
- Recheck a restrained patient's ability to breathe often
- Have the ability to remove/cut restraints if the patient vomits or develops respiratory distress
- Explain the need for restraint to the patient
- Document the restraints used and on which limbs and your justification for the restraints thoroughly
- Consider **Midazolam, 10 mg IN** or **Diazepam, 5 mg slow IVP or IM** as a chemical restraint

ELDER ABUSE NEGLECT

- You MUST, by law, report all alleged or suspected adult abuse or neglect to the appropriate agency. Ohio Revised Code 2151.42 requires providers to report incidents of abuse to their county's adult protective services agency or local law enforcement as soon as possible. **Simply notifying hospital personnel about concerns of maltreatment does NOT meet the mandated EMS reporting responsibilities.**

- Hospitals have copies of the EMS Social Services Referral Form, supplied by GDAHA, for documenting cases of abuse. Use this form to provide information to the appropriate agency and so the receiving hospital social services staff can provide a continuum of care. GDAHA (228-1000 or www.gdaha.org) can also send this form to your department to have on hand.

    - White copy of the form – send to the appropriate agency (as well as call)
    - Yellow copy of the form – leave with the hospital records
    - Pink copy of the form – retain with your department EMS report

- Document on your run sheet or an addendum if you fill out a Social Services Referral form or if you inform local law enforcement concerning the abuse / neglect. Include the names of the personnel at the protective services or law enforcement agency that you 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) 562-6000	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

PEDIATRIC
2008

(Patients Under 16 Years Old)

Effective January 1, 2008

STIPULATIONS

- This protocol is for use by those individuals operating in and under the authority of the Greater Miami Valley EMS Council (GMVEMSC) Drug Box Exchange Program and certified by the State of Ohio as an EMT-Paramedic.
- This protocol is to be used in the field only. Communications must be attempted as soon as practical for potentially unstable patients or hospitals that request contact on all patients being transferred to their facility.
- Procedures that are marked with a diamond (♦) are never to be performed without a physician's order. The diamond provides rapid 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.
- 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 ($EtCO_2$ detectors or monitors, and/or Esophageal Detection Devices).
- *Infrequently*, unusual patient situations and multiple complaints with competing priorities may prevent stepwise adherence to a specific section of this protocol. However, at no time should treatment options exceed those authorized here in without direct consultation with medical control. In all such cases, contact with medical control should be considered when logistically feasible.

ADMINISTRATION

Non-Initiation of Care

- Resuscitation will not be initiated in the following circumstances:
  - Burned beyond recognition
  - Decapitation
  - Deep, penetrating, cranial injuries
  - Massive truncal wounds
  - DNR Order - present and valid
  - Frozen body
  - Hemicorporectomy (body cut in half)
  - Rigor mortis, tissue decomposition, or severe dependent post-mortem lividity
  - Triage demands
  - Blunt trauma found in cardiac arrest *unless* one of the following conditions are present:
    - Patient can be delivered to an emergency department in 5 minutes
    - If the arrest is caused by a medical condition
    - Focused blunt trauma to the chest (such as a baseball to the chest)
  - 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.

PATIENT COMPETENCY / CONSENT

There are times when a "pink slip" or Involuntary Committal Form should be used. This REQUIRES coordination with and support from on scene law enforcement or health department officials, physician, or psychiatrist to "pink slip". Consult local rules, laws, policies, and / or guidelines.

- Determine patient competency and consent. Consider a patient may be incapable to make medical decisions if they are:
  - Suicidal
  - Confused
  - Severely developmentally or mentally disabled and injured/ill
  - Intoxicated and injured/ill with an altered mental status
  - Physically/verbally hostile
  - Unconscious

Per Ohio Revised Code 5122.01 and 5122.10, an EMTB, I or P 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, licensed physician) can "pink slip" a person. The GMVEMSC strongly recommends that your fire/EMS department, in consultation with your medical director/advisor and local law enforcement, have a procedure to deal with these types of situations.

INITIAL CARE

- Follow basic, advanced life support and airway algorithms as indicated.
- Obtain chief complaint (OPQRST), SAMPLE history, and vital signs per patient condition.
- Utilize cardiac monitor and/or other monitoring device {pulse oximeter, etc.**}** as appropriate.
- Start IV of **Normal Saline (NS)** or a **Saline Lock (SL)** as appropriate.
- **IVs:**
  - Shock: Establish an IV/IO of **NS**, **bolus of 20 ml/kg** using regular or macro drip tubing. Titrate fluids to maintain perfusion.
  - Medical Emergencies, Head Trauma, Cardiac Problems (with stable BP): Use TKO rate.
  - IV Medication Administration – Slow IV = over 1-2 minutes, unless otherwise specified.
  - Spend no more than 5 minutes at the scene on this procedure.
- IO devices: Use of manual or mechanically inserted IO devices should be limited to patient that are unresponsive and hemodynamically unstable and when less invasive means are not available or are ineffective (i.e. Glucagon IM, Narcan MAD, Midazolam MAD, etc.).
- Existing central venous catheters, dialysis catheters, fistulas, or grafts may be utilized for infusion of IV fluids and medication if the patient is in cardiac arrest, profoundly unstable or rapidly deteriorating.
- **{**IV pump} Pumps with pediatric specificity are recommended. Follow manufacturer's guidelines for use.
- ♦ In a patient with an existing IV pump who is experiencing an allergic reaction, the pump may only be discontinued after receiving approval from Medical Control. Otherwise, the IV pump must be maintained. . Exception: hypoglycemic diabetic patients with an insulin pump (see "Maintenance of Existing Medication Pumps" section for details)
- Bring the patient's medications, or a list of the medications, with the patient to the hospital. When supplying the hospitals with documentation of patient medications, be certain to include the dose, and frequency of administration.

NOTE: For patient with a insulin pump: take extra tubing and medication packet(s) to receiving facility with patient, if available

AIRWAY MAINTENANCE

- **O_2** as needed. Use the following rates as guidelines:
  - **2 LPM by NC** for patient with known congenital heart defects.
  - **4 - 6 LPM by NC** for other patients.
  - **12 - 15 LPM by NRB** for severe trauma patients, distressed cardiac patients, patients with respiratory distress, and other patients who appear to need high flow **O_2**.

  NOTE: Congenital heart defect patients in severe respiratory distress or with chest pain need the same O_2 devices and flow rates as any other patient in such condition. Be prepared to stimulate breathing and/or ventilate should the patient become apneic.

- Consider intubation if airway compromise or insufficient ventilations are present.
- Consider patient airway anatomy and condition for the appropriate selection of the proper airway adjunct.
  - If approved, adjuncts considered "rescue airways" such as the LMA or Dual Lumen Airways may be appropriate for a primary airway device.
- When deciding whether to intubate, consider the following:
  - Insufficient respiratory rates based on patients age group norms 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 airway with clinical assessment and devices.

Respiratory Rates by Age	
Up to 1year	**30-60**
1 – 3 years	**20-40**
4 – 6 years	**20-30**
7 – 9 years	**16-24**
10 – 14 years	**16-20**
15+ years	**12-20**

Assessment Methods:

- Physical assessment including auscultation of the epigastrium, anterior chest, midaxillary areas, then the epigastrium again.
- Repeat visualization of the tube between the vocal cords.
- Condensation in the tube.
- Proper depth placement of tracheal tube in the pediatric patient can be calculated by the following formula: Depth of Insertion (marking on tube at teeth or gum line) = tube size x 3.

Confirmation Devices:

- {$EtCO_2$ Monitor}
- {$EtCO_2$ with waveform}
- {$EtCO_2$ Detector}
- {Esophageal Detection Device (EDD)}

End Tidal CO_2 Detector ($ETCO_2$) -- Colorimetric

Limitations

- The patient must have adequate perfusion. If CO_2 is not transported to the lungs, the device will not register CO_2. It can then appear that the tube is in the esophagus, when, in fact, it is correctly placed. Therefore, Colorimetric $EtCO_2$ Detectors are not recommended for patients in cardiac arrest.
- Secretions, emesis, etc., can ruin the device.
- A patient with large amounts of carbonated beverage (i.e., soda) in his stomach can give a false positive. The device may sense the CO_2 given off by that beverage and indicate that the tube in the trachea, when it is in the esophagus.
- Use the device for no more than two hours.
- Pediatric and adult colorimetric devices should be used for monitoring ETCO2 based on the weight restrictions of the device recommended by the manufacturer.

Medication Issues:

- If you administer medications via ETT, remove the $EtCO_2$ detector for several ventilations, until no medication returns through the tube during exhalation. Medications splashing up the tube can alter color change.
- Intravenous sodium bicarbonate will produce more carbon dioxide resulting in enhanced color.

Electronic End Tidal CO_2 ($ETCO_2$) Monitors - Capnography

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 samples the ventilation more remotely from the patient. Capnography can be used with patients who are not intubated. In-line $EtCO_2$ monitors can be used on patient with or without adequate perfusion. Electronic monitors are more sensitive therefore changes can be seen in real-time.

Esophageal Detector Device (EDD)

These devices confirm 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 the ETT 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.

Limitations:

- A large amount of gastric air (i.e. caused by carbonated beverage, aggressive ventilations, misplacement of ETT) and late term pregnancy can give a false positive finding
- 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).
- Cannot be used continuously. It must be removed after confirmation, though you may reuse it after patient movement.
- May only be used on pediatric patients who are older than 5 years of age and weigh at least 20kg/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.

Indications for Various Intubation Confirmation Devices

	Nasopharyngeal ETT	Oral ETT	Pulseless Pt.	Apneic Patient
Colorimetric $EtCO_2$	Useful	Useful	Contraindicated	Useful
Electronic Waveform $EtCO_2$	Useful	Useful	Useful	Useful
EDD	Contraindicated	Useful	Useful	Useful
BAAM	Useful	Contraindicated	Contraindicated	Contraindicated
Pulse-Ox	Useful	Useful	Contraindicated	Useful

NOTE: Intubation is not permitted unless at least one of these devices is utilized.

- Always secure the ET tube in place as effectively as possible, preferably with a commercial tube-securing device.
- Cervical collar is effective in maintaining patient's head in a neutral position.
- Re-assess ET tube placement every time the patient is moved.
- {Digital Intubation and Lighted Stylet Intubation} may be utilized.
- {Dual Lumen Airways (i.e., Combitube, Pharyngotracheal Lumen Airway (PtL), or a Laryngeal Mask Airway (LMA), are acceptable airway devices and satisfy the "rescue airway". Use of these devices is limited to patients who need an artificial airway, and who are able to tolerate the device (similar to use of oral airways).
- If routine ventilation procedures are unsuccessful, try to visualize obstruction with laryngoscope. If foreign body is seen, attempt to remove it using suction, and/or Magill Forceps, if possible.
- If an awake patient requires intubation, consider the following:
    - Applying **Lidocaine Jelly** to the ET tube
    - **Lidocaine , 2 mg/kg nebulized** with 8-12 LPM **O_2**. Maximum dose is 80 mg.

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

- If intubating nasally, the BAAM may be used to assist with intubation.
- After intubation, if the patient is resisting and SBP is appropriate and after ETT placement confirmation , consider **Midazolam, 0.1 mg/kg (Max dose 4 mg), IVP over 2 - 5 minutes.**
- Tension Pneumothorax Relief: If indications of Tension Pneumothorax are present, decompress the chest with a 14 gauge, 2 1/4-inch angiocath placed in the second or third intercostal space in the mid-clavicular line.
- Whenever all reasonable attempts to provide an adequate airway by less invasive means have failed, perform a cricothyrotomy utilizing an approved method.

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 you have only one oxygen source, attach it to the nebulizer until nebulized medication delivery is complete, then attach to BVM. Refer to the diagram and skill sheet for further information.

Central Venous Catheters

Patients who require long-term intravascular therapy often have Central Vascular Access Devices (CVAD) in place. There are three types of CVADs: central catheters, Peripherally Inserted Central Catheters (PICC lines), and

subcutaneously implanted ports. Paramedics are only permitted to access central catheters and PICC lines, not subcutaneously implanted ports.

Description of CVADs:

- Central catheter: Catheter placed through chest wall into the internal jugular or subclavian veins and may extend into the superior vena cava. Central catheters can be single or multilumen. Distal portion of catheter is external with access ports. Paramedics are permitted to access this catheter.
- Subcutaneously Implanted Port: Device surgically placed under the skin on the chest. No external access. Paramedics are not permitted to access this device.
- 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 size creates significant resistance to fluid flow making it difficult to flow large quantities of fluids or D_{50}. IM Glucagon is preferable to trying to give D_{50} by PICC. Paramedics are permitted to access this device.

Direct access into the central circulation can result in the following complications:

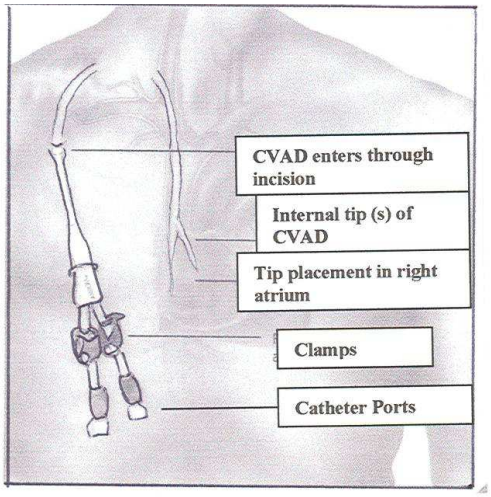
- Infection: Thorough cleaning of the selected port must be done three times during the procedure, before attaching the syringes and before attaching the IV tubing.
- Air Embolism: All central venous catheters have clamps. The catheter must be clamped before attaching the syringes and before removing 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 anticlotting agents will be in the catheter. 5 ml of blood must be removed so 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 5 ml blood as smaller syringes create too much pressure. After verifying blood return, flush catheter with 10 ml of NS using a 10 ml or greater 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 CVAD's**.

Internal Dialysis Fistula

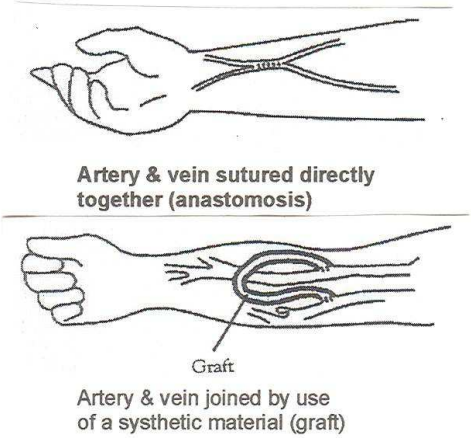
A dialysis fistula is an artificial passage between an artery and a vein used to gain access to the bloodstream for hemodialysis. In hemodialysis, the patient's blood is pumped through the internal arteriovenous fistula. These internal shunts may be a result of the artery and vein being sutured directly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

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

While utilizing an aseptic technique, be careful not to puncture the back wall of the vessel. **Use pressure infusion device (bag) for infusion**. Blood may still backup in the IV tubing. Patients receiving dialysis have an increased risk of hemorrhage because of their regular exposure to anticoagulants during hemodialysis. Control bleeding with direct pressure.



CENTRAL VENOUS ACCESS



VASCULAR ACCESS - HEMODIALYSIS

Maintenance of Existing Medication Pumps

Do not stop the flow of medication unless you receive direct orders from Medical Control. There are some drugs, such as Flolan that could kill the patient if stopped. If you think the patient is experiencing an allergic reaction, call Medical Control. A possible reason for Medical Control to have you shut off the pump would be a patient having an allergic reaction who is receiving a new antibiotic being administered IV with the pump.

> *NOTE: The exception is a diabetic patient with an Insulin Pump who is hypoglycemic as confirmed by a blood glucose monitor. If you are NOT familiar with the device, disconnect the tubing from the pump (first choice) or remove needle assembly from the patient (second choice). Do NOT turn off the pump. You may hit the wrong button and, inadvertently bolus the patient with a large amount of Insulin. If you are familiar with the device it is permissible to "Suspend" the administration of Insulin.*

Further info: http://www.ems.ohio.gov/policies/boardpolicypts%20preexisitingmedicaldevices.pdf

CARDIOVASCULAR EMERGENCIES

General Conditions

- CPR should not be interrupted for more than 10 seconds until spontaneous pulse is established.
- You are expected to provide initial resuscitative care at the scene.
- Any cardiac dysrhythmia that adversely affects the patient's cardiac output and clinical stability are considered unstable.
- In all cardiac arrests, consider the ACLS "Treatable Causes:"

"H's"	**"T's"**
Hypovolemia	Toxins
Hypoxia	Tamponade, Cardiac
Hypo-/hyperkalemia	Tension Pneumothorax
Hydrogen Ion (Acidosis)	Thrombosis (Coronary, Pulmonary)
Hypoglycemia	Trauma
Hypothermia	

- For renal dialysis patients in arrest:
  - **Calcium Chloride 10%, 0.2ml/Kg (20 mg/Kg) IV slowly.**
  - *Flush IV line thoroughly* between Calcium and Sodium Bicarb. It is critical that these drugs not be given together, as they will precipitate.
  - **Sodium Bicarb, 1 mEq/kg slow IVP**.
- For pregnant patient in arrest consider need for manual uterine displacement and perform chest compressions slightly higher on the sternum than normal.

CARDIAC ARREST: Basic Life Support

- Assess patient for respiratory and cardiac arrest
- Initiate CPR and {AED/Defibrillator} using most current American Heart Association Guidelines
- Compressions should be at a rate of about 100 per minute
- Transport patient as appropriate
- Consider treatable causes

NOTE: Current AEDs may not be programmed to the current AHA Guidelines. Utilize AED as it is programmed. AEDs are to be used only on patient over 1 year of age. If available, use AEDs or pads which are designed for pediatric use for children 1 – 8 years of age.

CARDIAC ARREST: V-Fib/Pulseless V-Tach

- If unwitnessed arrest, initiate CPR for 2 minutes, Defibrillate 2 J/kg (or biphasic equivalent)
- If witnessed arrest, Defibrillate 2 J/kg(or biphasic equivalent)
- CPR for 2 minutes
- Defibrillate 4 J/kg (or biphasic equivalent)
- **Epinephrine (1:10,000) 0.01 mg/kg, IV/IO or Epinephrine (1:1,000) 0.1 mg/kg, ETT** repeat every 3-5 minutes.
- CPR for 2 minutes
- Defibrillate 4 J/kg (or biphasic equivalent)
- **Amiodarone 5 mg/kg (Max. dose 300 mg), IV/IO, if unable to establish IV, Lidocaine, 1-1.5 mg/kg ETT**
- Repeat **Amiodarone 5 mg/kg, IV/IO (Max dose 300 mg)** or **Lidocaine 1 mg/kg (Max dose 100 mg)**
- Continue CPR and repeat treatment as indicated.
- If patient converts with **Lidocaine**, start a **Lidocaine drip at 20 to 50 mcg/kg/min**. (The premix currently carried is **Lidocaine, 1 gram** in 250ml D5W, yielding 4mg / ml equating to 4000mcg / ml)
  - 4000mcg / min = 60gtts / min
  - 3000mcg / min = 45 gtts / min
  - 2000mcg / min = 30gtts / min
  - 1000mcg / min = 15gtts / min
- Consider treatable causes

CARDIAC ARREST: Asystole/PEA

- CPR for 2 minutes
- **Epinephrine (1:10,000) 0.01 mg/kg, IV/IO, if unable to establish IV, Epinephrine (1:1,000) 0.1 mg/kg, ETT** repeat every 3-5 minutes
- Continue CPR and repeat treatment as indicated
- Consider treatable causes

Suspected Cardiac Chest Pain

Chest pain in the pediatric patient is rarely related to a cardiac event. Assessment of other causes (i.e. muscle pain, respiratory difficulties, injury) should be completed to ensure the cause of pain. Application of supplemental oxygen and transport should be the management of care for these patients. Contact medical control for further advice when needed.

CARDIAC DYSRHYTHMIAS

Bradycardia

- For adequate perfusion, observe, monitor, and apply oxygen if needed.
- For poor perfusion,
  - Perform CPR if HR <60/min
  - **Epinephrine (1:10,000) 0.01 mg/kg, IV/IO or Epinephrine (1:1,000) 0.1 mg/kg, ETT** repeat every 3-5 minutes
  - If increased vagal tone or primary AV block)
    - Consider **Atropine, 0.02mg/kg IVP (Minimum dose 0.1mg /Maximum total dose 1 mg),** may repeat dose**.**
    - Consider pacing.
      - Pediatric electrodes should be used on patients <15 kg
      - Start with 5 mA increasing as needed to 200 mA at a rate of 80 bpm until capture is verified
      - Consider **Midazolam**, **0.1 mg/kg (Max dose 4 mg), slow IV/IO over 1 – 2 minutes**

Tachycardia

Stable

- Vagal maneuvers (Blowing through a straw or oxygen tubing, etc.)

Unstable

- Vagal maneuvers (Blowing through a straw or oxygen tubing, etc.)
- **Adenosine, 0.1 mg/kg rapid IVP** (Max dose 6 mg)
- If no response, **Adenosine, 0.2 mg/kg rapid IVP** (Max dose 12 mg)
- Consider cardioversion
  - Consider **Midazolam 0.1 mg/kg (Max dose 4 mg), slow IVP** over 1 –2 minutes
  - Cardioversion 1 J/kg
  - If no response, Cardioversion 2 J/kg

Non-Traumatic Shock

Without Pulmonary Edema

(No JVD, edema, or rales noted)

- **NS, 20 ml/kg IV bolus**
- ♦ Repeat **NS, 20 ml/kg IV bolus,** if needed
- For persistent shock, establish additional vascular access.
- If SBP remains <100, **Dopamine drip,** titrated to maintain SBP >100 (Start at 5 mcg/kg/min) (Maximum dose is 20 mcg/Kg/min)

Exsanguinating Hemorrhage (Medical / Non Traumatic in Nature)

- Vascular access(es) **NS** 20 ml/kg bolus to maintain adequate perfusion en route to the hospital.
- Repeat twice if needed to maintain adequate perfusion.

TRAUMA EMERGENCIES

General Considerations

- 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, per destination protocols.
- 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.
- Document Glasgow Coma Scale including the individual components.
- Hypothermia is a significant, and frequent, problem in shock and major trauma patients. Do all that you can to maintain patients body temperature.
- If patient condition changes, notify hospital. When patient is transported by helicopter, the EMS run sheet should be faxed to receiving Trauma Center.
- The *only* procedures that should take precedence to transport of major trauma patients are:
    - Extrication
    - Airway Management
    - Stabilization of neck/back or obvious femur and pelvic fractures on a backboard
    - Exsanguinating Hemorrhage Control
- IVs should be attempted en route to the hospital unless the patient is trapped or 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, the largest tubing available, and 20 ml/kg of **0.9% NS**. **IV** flow rates are as follows:
    - Keep open rate for major head trauma with adequate perfusion.
    - IV wide open if the patient has inadequate perfusion (including Head Trauma) utilizing {**IV** Pressure Infusion Pump or Bag} or similar equipment if available.
- Titrate all IV flow rates to maintain adequate SBP.
- A second IV may be established en route.
- For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine, up to 0.1 mg/kg slow IVP** (2-3 minutes) (Max dose 5 mg) based on patient weight, provided appropriate normal SBP. If unable to obtain IV, give **Morphine, 0.1 mg/kg SQ**
    - Not to be administered to anyone < 2 year of age.
- ♦May repeat **Morphine, 0.1 mg/kg, slow IVP** (2-3 minutes).
- ♦Repeat dose of **SQ Morphine, 0.1 mg/kg SQ** (Max dose 5 mg) (repeat no sooner than 30 minutes) is indicated when transport is greater than 30 minutes.

Exsanguinating Hemorrhage

- Control external bleeding with direct pressure, elevation, pressure points, etc.
- Treat for hypovolemic shock as indicated.

Triage and Transport Guidelines

Concepts

- After the trauma patient's extrication, the on-scene time should be limited to TEN MINUTES or less, except when there are extenuating circumstances.
- Trauma Patients, as identified in the document, should be transported to "THE NEAREST APPROPRIATE TRAUMA CENTER".
- Use of on-line, active Medical Control for medical direction in the field, particularly for difficult cases, is encouraged in compliance with regional standing orders.

- **PRE-ARRIVAL NOTIFICATION OF THE RECEIVING FACILITY IS ESSENTIAL!** Give Mechanism Of Injury, Injuries, Vital Signs, Treatment (MIVT) and ETA.
- List in the EMS Run Report which of the State Trauma Triage Criteria was met by the patient.

Trauma Center/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 for the trauma patient.
- In areas of the region where the Level III Trauma Center is the only verified 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 in close proximity to a Level III trauma center and a Level I or Level II trauma center is still within the 30 minute transport guidelines established in this document, the EMS Provider should exercise professional judgment as to whether the patient would benefit more from an immediate evaluation, stabilization treatment at the proximate Level III trauma center or from direct transport by EMS Provider to the Level I or Level II trauma center.
- Regional Trauma Centers
- Level I Miami Valley Hospital Fax # 937-208-2521
- Level II Children's Medical Center Fax # 937-641-5402
- Level III Greene Memorial Hospital N/A Helicopter will take trauma Pt. to Level I or II.
- Level III Middletown Regional Hosp. N/A Helicopter will take trauma Pt. to Level I or II
- In areas of the region where there are no verified Trauma Centers (within 30 minutes ground transport time), the acute care hospital may act as the primary receiving facility for the critically injured trauma patients. EMS Provider may arrange for air medical transport from the scene.
- If a pediatric patient meets the trauma triage guidelines, then they are taken to a pediatric trauma center. If transportation time is > 30 minutes to a pediatric trauma center, then transport to the nearest acute care hospital for stabilization and transfer. EMS Provider may arrange for air medical transport from the scene.
- **All pregnant trauma patients should be transported to the NEAREST ADULT Trauma Center, unless transport time > 30 minutes**.

Air Medical Transportation

- Pre-arrival notification of the receiving facility is essential.
- Prolonged delays at the scene waiting for air medical transport should be avoided.
- Traumatic cardiac arrest due to blunt trauma 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 Triage and Transportation Guidelines

- It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to a pediatric trauma center.
- It is unsafe or medically inappropriate to transport the victim directly to an adult or pediatric trauma center due to adverse weather or ground conditions or excessive transport time.
- Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical services resources.
- No appropriate trauma center is able to receive and provide trauma care to the victim without undue delay.
- Before transport of a patient begins, the patient requests to be taken to a particular hospital that is not a trauma center or, if the patient is less than 18 years of age or is not able to communicate, and such a request is made by an adult member of the patient's family or legal representative of the patient.

Pre-hospital Field Pediatric Triage

- Utilize for under 16 years of age
- Patients to be taken to nearest hospital:
    - Unstable airway
    - Blunt trauma arrest, no pulse or respirations
- **All pregnant trauma patients should be transported to the NEAREST ADULT Trauma Center, unless transport time > 30 minutes**

Anatomy of Injury

- All penetrating trauma to head, neck, torso, and extremities proximal to elbow and knee
- Abdominal injury with tenderness, distention, or seat belt sign
- Chest injury: Flail chest and/or tension pneumothorax
- Two or more proximal long bone fractures
- Evidence of pelvic fracture (exception: isolated hip fracture)
- Spinal cord injury with signs and symptoms of paralysis
- Burns greater than 10% Total BSA or other significant burns involving the face, feet, hands, genitals or airway
- Amputation proximal to wrist and/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

YES = Consider Pediatric Trauma Center	NO – Assess Physiologic
Alert Trauma Team	

Physiological

- **Glasgow Coma Scale (GCS) less than or equal to 13** (**see Section 4.3.1**), loss of consciousness at any time greater than five minutes or alteration in level of consciousness with evidence of head injury at time of exam or thereafter, or fails to localize pain.
- Evidence of poor perfusion (i.e., weak distal pulse, pallor, cyanosis, delayed capillary refill, tachycardia)
- Evidence of respiratory distress or failure (i.e., stridor, grunting, retractions, cyanosis, nasal flaring, hoarseness or difficulty speaking

YES = Consider Pediatric Trauma Center	NO = Evaluate Mechanism of Injury if high energy impact
Alert Trauma Team	

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
- Falls > three times child's height
- High Speed Auto Crash
- Initial 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

YES = Consider Pediatric Trauma Center	NO = Check Special Situations

Special Situations

- Congenital disorders
- Pre-existing cardiac and/or respiratory disease
- Insulin dependent diabetes, cirrhosis, morbid obesity, seizure
- Patient with bleeding disorder or on anticoagulants
- Immuno-suppressed patients (renal dialysis, transplant, cancer, HIV)
- **All pregnant trauma patients should go to the nearest adult trauma center, if within 30 minutes transport time**.

YES = Consider Pediatric Trauma Center	NO = To Local Hospital

Head Injury

Evaluate:

- Level of Consciousness
- Pupillary size and reaction
- Glasgow Coma Scale results

Ventilate at a rate of ten faster than normal respiratory rate when the following signs of cerebral herniation are present:

- Blown or unequal pupil(s), bradycardia, posturing, and decreased mental status.
- {Ventilate to maintain $EtCO_2$ readings of 30 mmHg (30 torr)}.

GLASGOW COMA SCALE

	< 2 Years Old		> 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, BABBLES	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

Maintain good ventilation with high flow oxygen. Prophylactic hyperventilation for head injury is not recommended. Cerebral herniation syndrome is the only situation in which hyperventilation (ventilating at a rate of 10 faster than the normal rate) is indicated.

Extremity Fractures, Dislocations, Sprains

- Assess pulse, motor and sensation before/after splinting and during transport.
- For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing.
- Apply appropriate splinting device.
- To reduce swelling, elevate extremity and {apply ice}.
- Consider **Morphine, 0.1 mg/kg IVP** (2-3 minutes) (Max Dose 5 mg). If unable to obtain IV, give **Morphine, 0.1 mg/kg SQ**
    - Not to be administered to anyone < 2 year of age.
- ♦May repeat **Morphine, 0.1 mg/kg, slow IVP** (2-3 minutes).
- ♦Repeat dose of **SQ Morphine , 0.1 mg/kg** (Max dose 5 mg) (repeat no sooner than 30 minutes) is indicated when transport is greater than 30 minutes.

Drowning and Near Drowning

- Consider spinal immobilization.
- Consider hypothermia.
- Establish vascular access.
- Evaluate neurological status.
- Near drowning patients should be transported to a trauma center.

Hypothermia

- Move patient to warm environment, remove all wet clothing, dry the patient, and cover with blankets.
- Avoid any rough movement that may cause cardiac dysrhythmias. It may be beneficial to immobilize the patient on the backboard.
- Assess neurological status.
- It may be necessary to assess pulse and respirations for up to 30-45 seconds to confirm arrest.
- Consider possibility of other medical conditions (i.e. overdose, hypoglycemia)
- Hypothermic patients should be transported to a trauma center.
- If patient arrest:
    - CPR continuously
    - If severe hypothermia (<86°F (30°C)) is strongly suspected, limit defibrillation attempts to 1 and withhold medications except on orders from Medical Control.
    - If body temperature is >86°F (30°C), follow normal arrest protocols.
    - Intubate and oxygenate the patient with {warmed and humidified} 100% **O_2**.
    - Continue resuscitative efforts while in transit, even if there is no response.

Hypothermia Without Arrest

- Do not initiate CPR if there is any pulse present, no matter how slow.
- Rough handling and unnecessary stimulation may cause cardiac arrest.
- Minimize movement.
- Use the least invasive means possible to secure airway. Intubate if necessary, as gently as possible.
- Consider other medical conditions (i.e. overdose, hypoglycemia, CVA)
- Complete the following steps during transport:
    - Establish vascular access and consider {warmed} fluids.
    - Treat bradycardia only if hypotensive
    - Hypothermia patients should be transported to a trauma center.

Frostbite

- Protect injured area(s). 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.
- Establish vascular access and consider {warmed} fluids.
- For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine, 0.1 mg/kg IVP** (2-3 minutes) (Max Dose 5 mg). If unable to obtain IV, give **Morphine, 0.1 mg/kg SQ**
    - Not to be administered to anyone < 2 year of age.
- ♦May repeat **Morphine, 0.1 mg/kg, slow IVP** (2-3 minutes).
- ♦Repeat dose of **SQ Morphine , 0.1 mg/kg** (Max dose 5 mg) (repeat no sooner than 30 minutes) is indicated when transport is greater than 30 minutes.

Burns / Smoke Inhalation

General Considerations

- Stop the burning and minimize contamination.
- Severe burns should be transported to a burn center unless >30 minutes.
- Patient with extensive burns must be monitored for hypothermia.
- Superficial and partial thickness burns <10% may have wet dressings applied. Cover burn areas with clean, dry sheets or dressings after cooling <10% burns first.
- Remove clothing and jewelry from injured parts. Do not remove items, which have adhered to the skin.
- Inhalation injuries with unsecured airway should be transported to the nearest facility.
- Chemical burns are Haz-Mat situations and must be grossly decontaminated at the scene.
- Keep patient warm.
- 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 been involved with a lightning strike or electrical burn.
- Determine type of burn and treat as follows:
    - Radiation burns:
        - Treat as thermal burns except when burn is contaminated with radioactive source, then treat as Hazmat.
        - Consider contacting Haz-Mat team for assistance in contamination cases.
    - Inhalation Burns:
        - Provide {humidified} **O_2** using a {wall humidifier} with **Saline**.
        - If no humidifier is available, administer a **Saline Nebulizer**, **3 ml**. Repeat PRN.
        - Provide early endotracheal intubation as indicated. Do not wait for complete airway obstruction or respiratory arrest to intubate!
- ♦ **Sodium Thiosulfate, 50ml (12.5 gm)** for unconscious smoke inhalation patients > 25 kg OR **1.65 ml/kg (412.5 mg/kg)** for patients < 25Kg. (Max dose 12.5gm) **slow IVP <u>over 3 minutes</u>**
- {CO oximeter}

- Consider Hyperbaric Oxygen Treatment for the following:
  - Underlying cardiovascular disease, or cardiovascular symptoms such as chest pain or shortness of breath.
  - > 60 years of age.
  - Obvious neurological symptoms, such as any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory.
  - Pregnancy.

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/or psychiatric medications.
- Heat exposure can occur either due to 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.
- Strip the patient of clothing, cool the patient, and apply water to the skin.
- If conscious and not vomiting or extremely nauseous provide oral fluids.
  - If hypotensive or mental status changes are present administer **NS, 20 ml/kg bolus**.
- Be prepared for seizures.
- Consider other medical conditions (i.e. overdose, hypoglycemia)
- Hyperthermia patients should be transported to a trauma center.

Carbon Monoxide (CO) Poisoning

- Provide high flow **O_2** to all suspected CO poisonings.
- Pulse Oximeter will give false readings and should not be utilized.
- {CO Monitor}
- Consider Hyperbaric Oxygen Treatment for the following:
  - Underlying cardiovascular symptoms such as chest pain or shortness of breath.
  - Obvious neurological symptoms, such as any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory.
  - Smoke inhalation victims.
  - Pregnancy.
- Contact medical control to discuss transport considerations.

Eye Injuries

- If possible, contact lenses should be removed. Transport contacts with patient.
- Chemical Burns:
  - Irrigate immediately with **NS** or water for a minimum of 20 minutes.
  - Determine chemical involved. Bring MSDS if possible.
- Major Eye Trauma:
  - Do not irrigate or use Tetracaine if penetrating trauma.
  - Cover injured eye. Do not use a pressure or absorbent dressing on or near any eye that may have ruptured, or have any penetrating trauma.

  - Cover both eyes to limit movement.
  - Transport with head elevated at least 30°.
- Prior to irrigation with **NS** or for significant eye pain, **Tetracaine 2 drops** in affected eye(s).
- {Morgan Lens} or nasal cannula and IV tubing for irrigation.

JumpSTART Triage for (MCIs)

Introduction

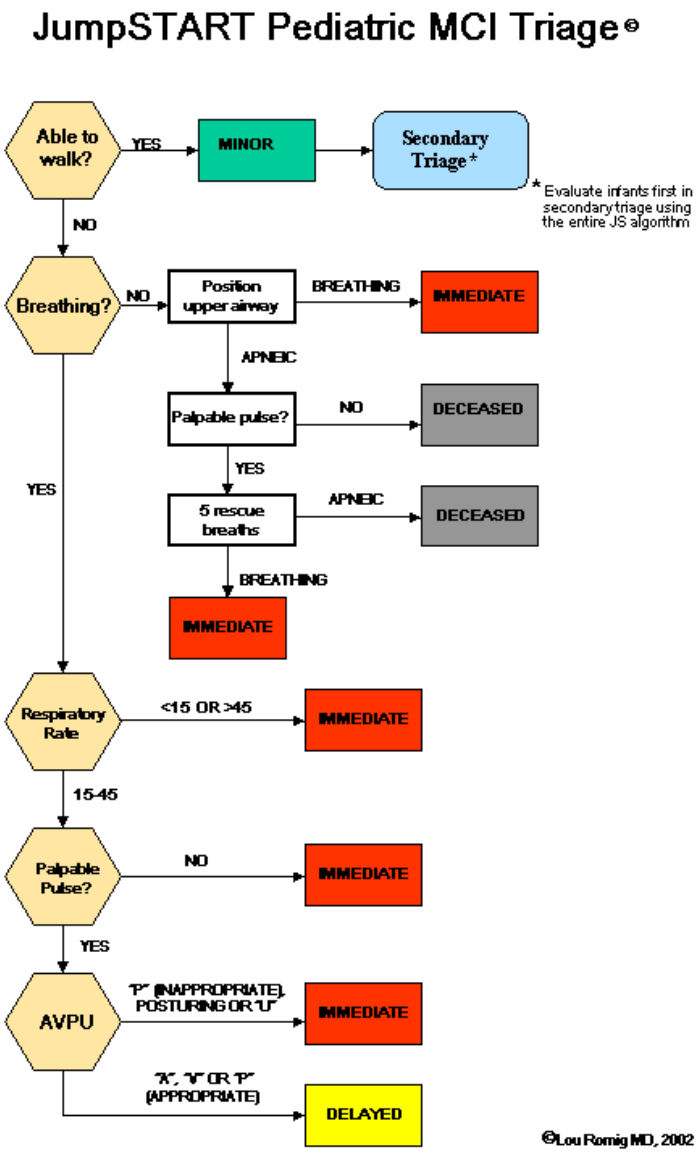
- Use the Jump **S**imple **T**riage **A**nd **R**apid **T**reatment (START) method of triage to assess a large number of pediatric victims rapidly. It is based on the START principles with considerations for pediatric response to trauma injury. It can be used effectively by all EMS personnel. However, there are limitations to JumpSTART

Procedure

- Initial Triage (Using the JumpSTART Method).
  - Utilize {Triage Ribbons [color-coded strips]}. One should be tied to an upper extremity in a VISIBLE location (wrist if possible, preferably on the right).
    - RED – Immediate
    - YELLOW – Delayed
    - GREEN – Ambulatory (minor)
    - BLACK – Deceased (non-salvageable)
- Independent decisions should be made for each victim. Do not base triage decisions on the perception that too many REDs, not enough GREENs, etc.
- If borderline decisions are encountered, always triage to the most urgent priority (i.e., GREEN/YELLOW patient, tag YELLOW). Move as quickly as possible.
- Secondary Triage
  - Will be performed on all victims in the Treatment Area.
  - Utilize the Triage Tags (METTAGs or START tags) and attempt to assess for and complete all information required on the tag (as time permits). Affix the tag to the victim and remove ribbon. This is done after patients enter the Treatment Area, not at the initial triage site!
  - The Triage priority determined **in the Treatment Area** should be the priority used for transport.
- JumpSTART
  - Locate and remove all of the walking wounded into one location away from the incident, if possible. Assign someone to keep them together (i.e., PD, FD, or initially a bystander) and notify COMMAND of their location. **Do not forget these victims.** Someone should re-triage them as soon as possible.
  - Begin assessing all non-ambulatory victims where they lie, if possible. Each victim should be triaged in 60 seconds or less, preferably much less. NOTE: Remember the mnemonic **RPM (Respirations, Perfusion, Mental Status)**.
  - Assess **RESPIRATIONS**:
    - If patient is breathing continue to assesses RESPIRATORY RATE, If not, position airway
    - If position corrects breathing, tag RED
    - If patient remains apneic, check pulse
    - If no pulse, tag BLACK
    - If pulse, Give 5 rescue breaths. If no pulse, tag BLACK
    - If rescue breathes return respirations, tag RED
    - If patient remains apneic, tag BLACK
    - Assess RESPIRATORY RATE
    - If rate is < 15 or > 45, tag RED
    - If rate is 15 to 45 assess pulse
  - Assess PULSE (Perfusion)
    - If no pulse is palpable, tag RED
    - If pulse is present, assess AVPU (Mental Status)

- Assess AVPU
  - If patient is unconscious, posturing in response to pain, tag RED
  - If patient is alert, responds to verbal or pain without posturing, tag YELLOW

- Special Considerations
  - The **first** assessment that produces a RED tag stops further assessment.
  - Only correction of life-threatening problems (i.e., airway obstruction or severe hemorrhage) should be managed during triage.
  - To help speed the process, Departments should consider utilizing colored (Red, Yellow, Green, Black) {Ribbons} to initially mark patient categories. Triage Tags are then attached and filled out once the patient reaches the Treatment Area.
  - When using Triage Tags, if the patient's condition or the triage priority changes, the bottom portion of the tag should be removed, leaving only the injury information. Add a new tag to identify the new triage priority, and if time permits, the reason for the change.



RESPIRATORY DISTRESS

- Evaluate breath sounds, and obtain {Pulse Oximeter and/or capnography} reading:
  - Clear: Treat cause (i.e. metabolic disturbance, hyperventilation, fever).
  - Wheezes: Treat cause (i.e. pulmonary edema, FBAO, asthma, allergic reaction).
  - Rales: Treat cause (i.e. pneumonia)
  - Diminished or absent:
    - Unilateral: Treat cause (i.e. asthma, pneumonia, FBAO, pneumothorax, hemothorax, pneumonia)
    - Bilateral: Treat cause (i.e. asthma, respiratory failure)
- Establish vascular access
- Cardiac monitor and {12-lead EKG}

Asthma

- Consider **Albuterol 2.5 mg** and **Ipratropium 0.5 mg, nebulized** with **O_2** 8-12 LPM.
- May repeat **Albuterol 2.5 mg nebulized X 2**.
- After intubation of an asthma patient, limit rate of ventilation to 10-15 BPM to avoid auto-PEEP and hypotension, provided that you can adequately oxygenate the patient at that rate.
- If patient arrests, tension pneumothorax is a likely cause. Strongly consider bilateral needle decompression for relief of tension pneumothorax.
- For asthmatics in severe distress, **Epinephrine (1:1,000) 0.01 mg/kg < 30 Kg or 0.3mg** ≥ 30 Kg SQ.
- ♦ May repeat **Epinephrine (1:1,000) .01 mg/kg < 30 Kg or 0.3mg** ≥ 30 Kg SQ**.**

ALTERED LEVEL OF CONSCIOUSNESS: Diabetic or Unknown Cause

- If glucose <60, or there is strong suspicion of hypoglycemia despite glucometer readings
  - **D_{50}, 1 ml/kg IVP for children over 25 kg**
  - **D_{25}, 2 ml/kg for children under 25 kg or 1 ml/kg of D_{50} dilute with equal volume of saline**.
  - **For infants (< 1 year), D_{25}, 2 ml/kg diluted with equal volume of saline**.
  - **Dextrose** may be repeated in ten minutes if blood sugar remains < 60.
  - If unable to establish vascular access, **Glucagon, 1 mg IM**.
  - In a diabetic patient with an insulin pump and a glucose <60, disconnect patient from the pump or "suspend" the device if you are familiar with its operation.
  - Unconscious diabetics are often hypothermic. Be prepared to treat hypothermia.
- Consider patient restraint before administration of **Naloxone**.
- If respiration is impaired, or there is a high index of suspicion of narcotic overdose and patient does not respond to **D_{50}**, administer **Naloxone**
  - **Naloxone, 0.1 mg/kg, IVP, (Max Dose 2 mg)** varying rate according to patient severity titrate to respiratory rate and depth.

***Oral Glucose Administration**: Oral glucose is indicated for any awake but disoriented patient with blood sugar reading less than 60 or strong suspicion of hypoglycemia despite blood sugar readings. Glucose paste may also 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.*

ALLERGIC REACTION/ANAPHYLAXIS

- If severe allergic reaction, **Epi-Pen**
  - **Epi-Pen Jr – 0.15 mg for patients < 30 kg (< 66 pounds)**
  - **Adult Epi-Pen – 0.3 mg for patient > 30 kg (> 66 pounds)**
  - If applicable, apply {ice pack} and/or constricting band.
  - If hypotensive, **NS, 20 ml/kg to maintain appropriate SBP**.
  - If patient deteriorating or unresponsive, consider early intubation, possibly with smaller than normal ET tube.
  - If patient is wheezing: **Albuterol, 2.5 mg and Ipratropium**, **0.5 mg in nebulizer with O_2 flow at 8 - 12 LPM**.
  - **Lidocaine, 2 mg/Kg (Max dose 80 mg)** may also be placed in the nebulizer with the other two medications.
  - **Albuterol** may be repeated x 2.
  - If patient is intubated, **Albuterol, 2.5 mg** by nebulizer into the endotracheal tube. If **Ipratropium** not given before intubation, add to first **Albuterol**.
  - **Diphenhydramine 1 mg/kg, IM/IV (Max Dose 50 mg)**.

SEIZURES

- BVM and nasopharyngeal airway *during* seizure as needed.
- If seizing, **Diazepam, 0.2 mg/kg (Max Dose 5 mg) slow IVP or Midazolam, 0.1 mg/kg (Max Dose 4 mg) IN**.
- If still seizing, repeat **Diazepam, 0.2 mg/kg slow IVP or Midazolam, 0.1 mg/kg IN**.
- If no vascular access or {MAD}, **Diazepam, 0.5 mg/kg PR (Max Dose 10 mg)**.
- If BS <60, or suspicion of hypoglycemia despite glucometer readings give:
  - **D_{50}, 1 ml/kg IVP for children over 25 kg**
  - **D_{25}, 2 ml/kg for children under 25 kg or 1 ml/kg of D_{50} dilute with equal volume of saline**.
  - **For infants (< 1 year), D_{25}, 2 ml/kg diluted with equal volume of saline**.
  - **Dextrose** may be repeated in ten minutes if blood sugar remains < 60 mg/dl.
- If no vascular access, **Glucagon, 1 mg IM**.
- In a diabetic patient with an insulin pump and a glucose <60, disconnect patient from the pump or "suspend" the device if you are familiar with its operation.
- Maintain normothermia.
- When obtaining history be sure to include the following:
- Description of seizures, areas of body involved, and duration
- Other known medical history – especially head trauma, diabetes, *recent fever/illness, possible toxicological agents.*

POISONING/OVERDOSE

Consider patient **restraint** before administration of **Naloxone**. If respiration is impaired, or there is a high index of suspicion of narcotic overdose, administer **Naloxone**, 0.1 mg/kg (Max Dose 2 mg). IVP, varying rate according to patient severity. If patient has a pulse, **Naloxone** should be administered before inserting an Endotracheal tube.

- As an alternative to IV **Naloxone**, Paramedics may administer **Naloxone, 0.1 mg/kg IN** via {Mucosal Atomization Device (MAD)}, if appropriately trained/tested with Medical Director approval. Give 1 ml in each nostril by briskly compressing the syringe. If no arousal occurs after three minutes, establish an IV and administer IV **Naloxone**.

- Tricyclic overdose,.
  - ♦ **Sodium Bicarbonate, 1 mEq/kg, slow IVP**

    Tricyclic Examples:

Amitriptyline (Elavil, Endep, Etrafon, Limbitrol)
Nortriptyline (Pamelor, Aventyl)
Amoxapine (Asendin)
Clomipramine (Anafranil)
Desipramine (Norpramine)
Doxepin (Sinequan)
Imipramine (Tofranil)
Protriptyline (Vivactil)
Trimipramine (Surmontil)

Overdose with tricyclic antidepressant medications may be evidenced by bradycardia, tachycardia, hypotension and prolongation of the QRS complex. Risk of rapid deterioration or sudden onset Ventricular Fibrillation is high.

- Calcium Channel Blocker Overdose
  - ♦ **Calcium Chloride 10%, 0.2 ml (20 mg)/kg (Max Dose 500 mg) IV.**
  - ♦ **Glucagon, 1 mg IM or IV**

Calcium Channel Blocker Examples:

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

- Beta Blocker Overdose
  - ♦ **Glucagon** 1 mg, IM or IV.

Beta Blocker Examples:

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

HAZ-MAT

Contact receiving hospital immediately to allow for set up of decontamination equipment. If substance is determined, notify receiving facility as early as possible.

Important steps in field decontamination:

- **Initiate field decontamination**.
  - o Remove contaminated clothing.
  - o Thoroughly wash with {Dawn} paying special attention to skin folds and other areas where simple irrigation may not remove it.
  - o Do not transport a patient until gross decontamination is completed.
  - o Obtain permission from hospital personnel before entering hospital with a potentially contaminated patient and/or crew.
  - o Consider decontamination of vehicle prior to leaving.

Field decontamination must be initiated. An example of the often overlooked importance of decon is a patient soaked in diesel fuel. Diesel fuel can cause chemical burns when left in contact with the skin.

The Centers for Disease Control (CDC) has made recommendations about antidotes for MCIs, including the following:

- It is likely that a terrorist attack would utilize materials that could be stolen or purchased in the U.S., rather than importing weapons such as Nerve Gas. Improvised weapons could include cyanide stolen from industry, or organophosphates, which have essentially the same effect as Nerve Agents, yet can be purchased inexpensively. In spite of what is commonly believed, many people exposed to cyanide, organophosphates, or Nerve Gas are potentially salvageable.
- It is critically important that the antidotes be given as quickly as possible.
- Atropine is the most important drug to be given rapidly for organophosphate or nerve agent poisons, and often the patients need repeated doses of Atropine.
- CDC recommends that suspected victims of cyanide poisoning in MCIs should be treated with Oxygen and Sodium Thiosulfate.
- EMS agencies in major cities should be prepared to deal with at least 500 - 1,000 casualties from either cyanide or organophosphates/Nerve Agents, and thus should deploy antidotes on prehospital apparatus.

HAZMAT: Cyanide

♦ In any case of known or strongly suspected cyanide intoxication:

- **Conscious Patients of Known or Strongly Suspected Cyanide Poisoning**.
  - ♦ **Sodium Thiosulfate, 50ml (12.5 gm)** for patients > 25 kg OR **1.65 ml/kg (412.5 mg/kg)** for patients < 25Kg. (Max dose 12.5gm) **slow IVP** over 3 minutes
  - It is critical to control any seizure activity, using **Diazepam** or **Midazolam**.
- **<u>Unconscious</u> Patients of Known or Strongly Suspected Cyanide Poisoning**
  - Provide 100% **O_2** by BVM, preferably via Endotracheal tube.
  - CPR if indicated. In cases of cardiac arrest associated with cyanide poisoning, the cyanide antidotes must have a high priority. Only ABCs, defibrillation, intubation, and Epinephrine should precede use of the **Sodium Thiosulfate** as authorized by MCP.
  - ♦ **Sodium Thiosulfate, 50ml (12.5 gm)** for unconscious smoke inhalation patients > 25 kg OR **1.65 ml/kg (412.5 mg/kg)** for patients < 25Kg. (Max dose 12.5gm) **slow IVP** over 3 minutes
  - It is critical to control any seizure activity, using **Diazepam** or **Midazolam**.
- In Multiple Casualty Incidents with suspected cyanide poisoning:
  - Provide 100% **O_2** by BVM, preferably via Endotracheal tube.
  - ♦ **Sodium Thiosulfate, 50ml (12.5 gm)** for patients > 25 kg OR **1.65 ml/kg (412.5 mg/kg)** for patients < 25Kg. (Max dose 12.5gm) **slow IVP** over 3 minutes
  - It is critical to control any seizure activity, using **Diazepam** or **Midazolam.**
- **In cases of smoke inhalation where cyanide is a likely component of the smoke (i.e., structure fires), cases where cyanide intoxication is uncertain, or cases where multiple toxins may be present:**
  - Provide 100% **O_2** by BVM, preferably via Endotracheal tube.
  - CPR if indicated. In cases of cardiac arrest associated with cyanide poisoning, the cyanide antidotes must have a very high priority. Only ABCs, defibrillation, intubation and Epinephrine should precede use of the **Sodium Thiosulfate** as authorized by MCP.
  - ♦ **Sodium Thiosulfate, 50ml (12.5 gm)** for patients > 25 kg OR **1.65 ml/kg (412.5 mg/kg)** for patients < 25Kg. (Max dose 12.5gm) **slow IVP** over 3 minutes
- It is critical to control any seizure activity, using **Diazepam and Midazolam.**

HAZ-MAT: Organophosphate or Nerve Gas Poisoning

- Any case of known or strong suspected organophosphate or carbamate (i.e., insecticides such as parathion or malathion); or nerve agent (i.e., Tabun, Sarin, Soman, VX, etc.) exposure, symptoms may include miosis (pinpoint pupils), rhinorrhea (runny nose), copious secretions, localized sweating, nausea, vomiting, weakness, seizures, dyspnea, loss of consciousness, apnea, diarrhea, flaccid paralysis and cardiac arrest.
- **Note well: Patients with severe poisoning may or *may not* be bradycardic**.
- ♦ **Atropine 0.02 mg/kg (Minimum dose 0.1 mg – Maximum dose 2.0 mg) every 3-5 minutes**, as available until lungs are clear to auscultation. **Atropine** may be given IV, IO or IM, or IM by **Mark I** auto-injector.
  - Atropine is administered as 1 - 2 mg in conventional form, or by the 2 mg Autoinjector, for adults and children weighing over 90 pounds.
  - Children weighing 40 - 90 pounds should be given 1.0 mg Atropine, or the 1.0 mg Atropen autoinjector.
  - Children weighing less than 40 pounds should be given 0.5 mg Atropine, or the 0.5 mg Atropen autoinjector.
- ♦ If child is greater than 20 kg, **Atropine** should be followed with **2-PAM,** 600 mg IM **which is Mark I autoinjector**.
- Treat any seizures with **Diazepam, Midazolam**, or **Diazepam Autoinjector**.

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.

HAZMAT: Pepper Spray

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

ABDOMINAL PAIN

- Use inspection, auscultation and palpation to assess the patient with abdominal pain.
- Assess and document pain using the PQRST acronym:
  - 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 and Type of Onset
    - When did it begin?
    - How often does it occur?
    - Was the onset sudden or gradual?
- Position of comfort
- Give nothing by mouth
- **IV of NS 20 ml/kg at TKO** rate if there is significant potential for hypotension.
- Assess for trauma, pregnancy, illness or potential ingestion.

FEVER

- Transport all infants < 2months of age with a history or reported temperature of > 38.0^{C} (100.4^{F}) or < 35.6^{C} (96.0^{F}).

NEWBORN CARE & RESUSCITATION

General Considerations

- As soon as the baby is born, dry, warm, maintain airway.
  - Place in the sniffing position (1" towel under shoulders).
  - Suction infant until all secretions are clear of airway.
- If the newborn delivers with meconium-stained amniotic fluid and is vigorous, with strong respirations, good muscle tone, and heart rate > 100 BPM, suction the mouth and nose in the same way as for infants with clear fluid.
- 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-intubated with a new tube each time
- Mechanical suction may be used on infants, but only if the suction pressure does not exceed 100 mmHg or 136 cm H_2O. Bulb suctioning is preferred.
- If drying and suctioning has not provided enough tactile stimulation, try flicking the infant's feet and/or rubbing the infant's back. If this stimulation does not improve the infant's breathing, then BVM may be necessary.
- Avoid direct application of cool oxygen to infant's facial area as may cause respiratory depression due to a strong mammalian dive reflex immediately after birth.
- Use length / weight based resuscitation tape (i.e., Broselow Tape).

Specific Care

- After delivery of the infant, suction mouth then nose, dry, provide warm environment, stimulate and assess the airway and breathing. If patient remain depressed after providing beginning care:
- Provide oxygen.
- If HR <100, BVM ventilation is necessary to increase heart rate.
  - Ventilation is also indicated for apnea and/or persistent central cyanosis.
  - Ventilate at 40-60/min.
  - Despite adequate ventilation, if HR <60 begin CPR.
    - Compress at 120/min. (Compression to Ventilation ratio of 3:1)
- If asystole or spontaneous HR <60 despite adequate ventilation and stimulation:
  - Compress at 120/min. (Compression to Ventilation ratio of 3:1
  - **Epinephrine 1:10,000, 0.01 mg/kg IV/IO** or **Epinephrine (1:1,000) 0.1 mg/kg ETT**.
  - If no response, repeat **Epinephrine 1:10,000** every 3-5 minutes.
- If hypovolemic, **NS, 10 ml/kg** over 5-10 minutes.
- Consider **Naloxone, 0.1 mg/kg, IV/IO/ETT** every 3 minutes until respirations improve.
- **Dextrose 25% 0.5 ml/kg** (**D_{25}** diluted with equal amounts of **NS = total volume 1ml/kg**) if BS <40 mg/dl.

Delivery Complications

- Place mother on O_2 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 the appendage(s) or buttocks first become 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 the cord, distribute pressure evenly if/when occiput presents.
  - Do not attempt to reinsert cord.

PSYCHIATRIC EMERGENCIES

- For violent or non-compliant patients, consider staging until police have assured scene safety
- Have patient searched for weapons
- Obtain previous mental health history:
  - Suicidal or violent history
  - Previous psychiatric hospitalization, when and where
  - Location that 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 and/or threats to the health and well being of others are not considered rational.

Per Ohio Revised Code 5122.01 and 5122.10, an EMTB, I or P 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, licensed physician) can "pink slip" a person. The GMVEMSC strongly recommends that your fire/EMS department, in consultation with your medical director/advisor and local law enforcement, have a procedure to deal with these types of situations.

Violent Patients

There are times when a "pink slip" or Involuntary Committal Form should be used. This REQUIRES coordination with and support from on scene law enforcement or health department officials, physician, or psychiatrist to "pink slip". Consult local rules, laws, policies, and / or guidelines.

- Determine patient competency and consent. Consider a patient may be incapable to make medical decisions if they are:
  - Suicidal
  - Confused
  - Severely developmentally or mentally disabled and injured/ill

  - Intoxicated and injured/ill with an altered mental status
  - Physically/verbally hostile
  - Unconscious
- Consider medical causes for patient's condition
- Consider staging until police have assured scene safety
- Have patient searched for weapons
- Do not transport restrained patients in a prone position with the hands and feet behind the back or sandwiched between backboards or other items.
- Recheck a restrained patient's ability to breathe often
- Have the ability to remove/cut restraints if the patient vomits or develops respiratory distress
- Explain the need for restraint to the patient
- Document the restraints used and on which limbs and your justification for the restraints thoroughly
- Consider **Midazolam, 0.2 mg/kg (Maximum dose 4 mg) IN or Midazolam, 0.1 mg/kg IV/IM** or **Diazepam, 0.1 mg/kg IV/IM/PR (Maximum dose 5 mg)** as a chemical restraint

CHILD ABUSE/NEGLECT

- Report all alleged or suspected child abuse or neglect to the appropriate agency. Ohio Revised Code 2151.421 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 do not meet mandated EMS reporting responsibilities. If any maltreatment is suspected, the EMS provider MUST, by law, notify the local public children services agency or law enforcement as soon as possible.

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) 562-6000	(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) 695-1588	(513) 659-2698	(513) 695-1800

SAFE HARBOR

- Voluntary Separation of Newborn Infant
  - Safe Harbor (Ohio House Bill 660) is designed to allow desperate parents to separate from their babies confidentially to hospitals, EMS, or law enforcement agencies.
  - Stipulations of separation:
    - Infant must be 3 days old or less
    - No signs of abuse or neglect
  - History which should be obtained:
    - Date and time of birth
    - Any 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.
  - Transport the infant to the hospital.

- 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.

A	A
Abdomen	ABD
abdominal aortic aneurysm	AAA
Abortion	Ab
above the elbow	AE
Acetaminophen	APAP
acquired immune def syndrome	AIDS
activities of daily living	ADL
acute coronary syndrome	ACS
acute myocardial infarction	AMI
acute pulmonary edema	APE
acute renal failure	ARF
acute respiratory distress syndrome	ARDS
acute respiratory distress	ARD
administer rectally	p.r.
advanced cardiac life support	ACLS
advanced directive	AD
advanced life support	ALS
After	p
Afternoon	P.M.
against medical advice	AMA
AIDS related complex	ARC
Airborne	A/B
Alcohol	ETOH
alert & oriented	A&O
alert/verbal/pain/unresponsive	AVPU
all terrain vehicle	ATV
antecubital fossa	AC
aortic valve replacement	AVR
Approximately	(~)
arterial blood gas	ABG
arteriosclerotic heart disease	ASHD
as desired	ad lib
as necessary or needed	Prn
as soon as possible	ASAP
Aspirin	ASA
assessment & plan	A&P or A/P
At	@
at bedtime	h.s.
atrial fibrillation	a-fib
atrial flutter	AF
atrial tachycardia	AT
Atrioventricular	AV
atrioventricular node	AV node
auscultation & percussion	A&P
automatic external defibrillator	AED
automatic transport ventilator	ATV
B	**B**
backboard	BB
bag-valve-mask	BVM
basic life support	BLS
beats / breaths per minute	bpm
Before	a
below the elbow	BE
below the knee	BK
below the knee amputation	BKA
birth control (pills)	BC(P)
births, number of	para
Black	B
blood alcohol concentration	BAC
blood glucose	bG
blood pressure	BP
blood sugar	BS
body substance isolation	BSI
body surface area	BSA
both ears	AU
both eyes	OU
bowel movement	BM
Bradycardia	brady
breath or bowel sounds	BS
by mouth	PO
by or through	per
by way of	via
C	**C**
Calcium	Ca^{++}
Canceled	CANX
Cancer	CA
capillary refill time	CRT
carbon dioxide	CO_2
carbon monoxide	CO
cardiac care unit	CCU
cardiac output	co
cardiopulmonary resuscitation	CPR
carotid sinus massage	CSM
Centimeter	cm.
central nervous system	CNS
central venous pressure	CVP
Cerebral palsy	CP
cerebrospinal fluid	CSF
cerebrovascular accident	CVA
Cervical (1,2,3,4,5,6,7)	C
Cervical immobilization device	CID
Cervical spine	C-spine
Change	D
chest pain	CP
chest x-ray	CXR
chief complaint	CC
Chloride	Cl^-
Chronic obstructive lung disease	COLD

chronic obstructive pulmonary disease	COPD
chronic renal failure	CRF
circulatory/sensory/motor	CSM
clear to auscultation	CTA
complaining of	c/o
complete blood count	CBC
computerized tomography	CAT/CT
congestive heart failure	CHF
conscious alert & oriented	CAO
consistent with	C/w
coronary artery bypass graft	CABG
coronary artery disease	CAD
cubic centimeter	cc.
D	**D**
daily	q.d.
date of birth	DOB
day	D
dead on arrival	DOA
decibel(s)	dB
decreasing	↓
deep tendon reflex	DTR
degree(s)	°
delirium tremens	DT's
dextrose in water - 25%	D25
dextrose in water - 5%	D5W
dextrose in water - 50%	D50
diabetes insipidus	DI
diabetes mellitus	DM
diabetic ketoacidosis	DKA
diagnosis	Dx
diastolic blood pressure	DBP
dilation & curettage	D&C
discontinue	d/c
disease	DZ
do not resuscitate	DNR
dressing	dsg.
drops	gtt(s)
dry sterile dressing	DSD
due to	d/t
dyspnea on exertion	DOE
E	**E**
ear, nose, & throat	ENT
ectopic pregnancy	EP
electrocardiogram	ECG / EKG
electroencephalogram	EEG
emergency department	ED / ER
emergency department physician	EDP
emergency medical services	EMS
endotracheal (tube)	ET(T)
epinephrine	EPI
equal	(=)
esophageal detection device	EDD
esophageal gastric tube airway	EGTA
esophageal obturator airway	EOA
Estimated	Est.
estimated blood loss	EBL
estimated date of confinement	EDC
estimated date of delivery	EDD
estimated time of arrival	ETA
Evaluation	eval.
Every	Q
every evening	q.p.m.
every morning	q.a.m.
every other day	q.o.d.
external jugular vein	EJV
extraocular movement	EOM
F	**F**
Fahrenheit	F
family history	FH
fetal heart rate	FHR
fever of unknown origin	FOU
flow restricted O_2 powered ventilation device	FROPVD
fluid	Fld
follow-up	f/u
foot / feet	Ft.
for example	e.g.
foreign body	FB
four times a day	q.i.d.
fracture	Fx
french	Fr.
front to back	AP
full range of motion	FROM
full term normal delivery	FTND
full weight bearing	FWB
funny looking beats (ECG)	FLB's
G	**G**
gallbladder	GB
gastrointestinal	GI
gauge	Ga
genitourinary	GU
Glasgow coma score / scale	GCS
grain	Gr
gram	Gm
grand mal or grandmother	GM
grandfather	GF
grandmother or grand mal	GM
greater than	>
gun shot wound	GSW
gynecology	GYN
H	**H**
hazardous materials	HazMat
head, ears, eyes, nose, throat	HEENT
headache	H/a
headblocks	HB's
health related facility	HRF
heart block	HB

heart rate	HR
heart sounds	HS
head of bed	HOB
hematocrit	Hct.
hemoglobin	Hgb.
hepatitis A(BC) virus	HA(BC)V
history	Hx
history & physical	H&P
history of	h/o
history of present illness	HPI
hour	H or hr.
human immunodeficiency virus	HIV
hydrochlorothiazide	HCTZ
hydrogen ion concentration	pH
hypertension	HTN
I	**I**
identity or identification	ID
if necessary	Sos
immediately	STAT
increasing	↑
inferior	inf.
insulin dependent diabetes	IDDM
intake & output	I&O
intensive care unit	ICU
intercostal space	ICS
intermittent positive pressure breathing	IPPB
intraaortic balloon pump	IABP
intracranial pressure	ICP
intramuscular	IM
Intranasal	IN
intraosseous	IO
intravenous	IV
intravenous drip (or IVPB)	IVD
intravenous piggyback	IVPB
intravenous push	IVP
iron	Fe
J	**J**
joule	J
jugular venous distension	JVD
junctional rhythm	JR
K	**K**
keep vein open	KVO
Kendrick extrication device	KED
Kendrick traction device	KTD
kilogram	kg.
kilometer	km.
kilometers per hour	Kph
knee, above the	AK
knee, below the	BK
L	**L**
L lower extremity	LLE
L lower lobe (lung)	LLL
L upper extremity	LUE
L upper lobe (lung)	LUL

labor & delivery	L&D
large	lg.
laryngotracheal mask airway	LMA
last menstrual period	LMP
last normal menstrual period	LNMP
law enforcement	LE
lead	Pb
leading to or progressing	→
left	(L)
left bundle branch block	LBBB
left ear (auris sinistra)	AS
left eye (oculus sinister)	OS
left heart failure	LHF
left lower quadrant	LLQ
left upper quadrant	LUQ
less than	<
licensed practical nurse	LPN
lidocaine	LIDO
liters per minute	LPM
litre / liter	L.
liver, kidney & spleen	LK&S
longboard	LB
loss or limit of motion	LOM
loss or level of consciousness	LOC
low back pain	LBP
lower back	LB
lower extremity	LE
lumbar vertebrae (1,2,3,4,5)	L
lung sounds	LS
M	**M**
magnesium	Mg.
magnetic resonance imaging	MRI
MAST	PASG
mean arterial pressure	MAP
mechanism of injury	MOI
medial	med.
medical antishock trousers	MAST
medical control physician	MCP
medical doctor	MD
medications	Meds
mercury	Hg.
meter	m.
metered dose inhaler	MDI
methicillin resistant staphylococcus aureus	MRSA
microgram	mcg.
mid-clavicular line	MCL
miles per hour	Mph
milk of magnesia	MOM
milliequivalent	mEq
milligram	mg.
milligrams per deciliter	mg/DL
milliliter (same as cc.)	ml.
millimeter	Mm
millimeters of mercury	mmHg

minute	min.
mitral valve prolapse	MVP
month(s)	mo(s).
morning	AM
motor vehicle accident	MVA
motor vehicle collision	MVC
multiple casualty incident	MCI
multiple sclerosis	MS
musculoskeletal	MS
myocardial infarction	MI
N	**N**
nasal cannula	NC
nasogastric (tube)	NG(T)
nasopharyngeal airway	NPA
nasotracheal	NT
nausea & vomiting	N&V
nausea, vomiting, & diarrhea	NVD
negative / no / absent	(-)
neuro-muscular blockade (RSI)	NMB
newborn	NB
nitroglycerine	NTG
nitroprusside	NTP
no apparent distress	NAD
no known drug allergies	NKDA
non weight bearing	NWB
non-insulin dependent diabetes	NIDDM
non-rebreather mask	NRBM
nonsteroidal anti-inflammatory	NSAID
normal saline	NS
normal saline lock	NSL
normal sinus rhythm	NSR
not applicable / available	n/a
nothing by mouth	NPO
number	#
nurse practitioner	NP
O	**O**
O2 % of arterial blood	SpO2
obstetrics	OB
of each	Aa
ointment	Ung
once a day	Od
operating room / suite	OR
orogastric (tube)	OG(T)
oropharyngeal airway	OPA
ounce	oz.
over the counter	OTC
overdose	OD
oxygen	O_2
P	**P**
packs per day	p/d
pain	pn.
pair	pr.
paroxysmal atrial tachycardia	PAT
paroxysmal nocturnal dyspnea	PND
paroxysmal SVT	PSVT
partial pressure of CO_2	PCO_2
partial pressure of O_2	PO_2
partial rebreather mask	PRBM
partial weight bearing	PWB
parts per million	Ppm
past medical history	PMH
past medical illness	PMI
patient	Pt.
peak expiratory flow	PEF
pediatric intensive care unit	PICU
pelvic inflammatory disease	PID
penicillin	PCN
peptic ulcer disease	PUD
per	/
percent	%
percutaneous coronary intervention	PCI
peripheral inserted central cath	PICC
peripheral vascular resistance	PVR
pharyngo tracheal lumen airway	PtL
physical exam	PE
physician on scene	POS
physician's assistant	PA
physician's desk reference	PDR
police (department)	PD
positive / yes / present	(+)
positive end expiratory pressure	PEEP
positive or negative	(+/-)
post-operative diagnosis	PODx
potassium	K^+
pound	lb.
pounds per square inch	Psi
pregnancies, number of	Gravida
premature rupture of membranes	PROM
premature atrial contraction	PAC
premature junctional complex	PJC
premature nodal contraction	PND
premature ventricular complex	PVC
premenstrual syndrome	PMS
primary care physician	PCP
primary / 1st degree	1°
prior to my arrival	PTA
pulmonary edema / embolism	PE
pulmonary function test	PFT
pulse	P=
pulse oximetry	POX/SPO_2
pulse rate	PR
pulse, motor, sensation	PMS
pulseless electrical activity	PEA
pupils (=) & reactive to light	PERL
pupils (=) round reactive to light & accomodation	PERRLA
Q	**Q**
QRS complex	QRS

quart	Qt.
questionable / possible	?
R	**R**
R bundle branch block	RBBB
R lower extremity	RLE
R lower lobe (lung)	RLL
R middle lobe (lung)	RML
R upper extremity	RUE
R upper lobe (lung)	RUL
range of motion	ROM
rapid sequence induction	RSI
Rate	R
red blood cell / count	RBC
red lights & siren	RLS
Regarding	re:
registered nurse	RN
respiratory rate	RR
respiratory syncytial virus	RSV
returned to service	RTS
rheumatic heart disease	RHD
Right	(R)
right ear (auris dextra)	AD
right eye (oculus dexter)	OD
right heart failure	RHF
right lower quadrant	RLQ
right upper quadrant	RUQ
rule out	r/o
S	**S**
sacral vertebrae (1-5)	S
secondary / second degree	2°
sexually transmitted disease	STD
shortness of breath	SOB
signs & symptoms	S&S
sino-atrial	SA
sinus bradycardia	SB
sinus tachycardia	ST
small	sm.
small volume nebulizer	SVN
sodium	Na^+
sodium bicarbonate	$NaHCO_3$
sodium chloride	NaCl
solution	soln.
spinal cord	sp.cd.
stable angina	SA
standard	std.
standard operating procedure	SOP
standing orders	SO
stand-by	S/B
stroke volume	SV
subcutaneous	SC or SQ
sublingual	SL
sudden death	SD
sudden infant death syndrome	SIDS
supraventricular tachycardia	SVT

surgical intensive care unit	SICU
symmetry	sym.
symptoms	Sx
systemic vascular resistant	SVR
systolic blood pressure	SBP
T	**T**
tablespoon	Tbsp.
tachycardia	tach(y)
teaspoon	Tsp.
telephone order	TO
temperature	T
temperature, pulse, & respiration	TPR
temporomandibular joint	TMJ
tender loving care	TLC
therefore / in conclusion	\
thoracic vertebrae (1-12)	T
three times a day	t.i.d.
tibia	Tib
tidal volume	TV
times	×
to keep open	TKO
tourniquet	TQ
tracheal deviation	TD
traction or transport	Tx
transcutaneous pacing	TCP
transfer	x-fer
transient ischemic attack	TIA
transplant	Txp
transport or traction	Tx
treatment / medication	Rx
tuberculosis	TB
turned over to	TOT
twice a day	b.i.d.
Tylenol™	APAP
tympanic membrane	TM
U	**U**
ultra-high frequency	UHF
umbilical vein	UV
unconscious	unc.
unequal / not equal	
unknown	unk. or u/k
unstable angina	USA
upper & lower	U+L
upper extremity	UE
upper respirator infection	URI
urinary tract infection	UTI
US pharmacopeia	USP
V	**V**
vancomycin resistant enterococcus	VRE
vein	V
ventricular fibrillation	VF/ VFIB
ventricular tachycardia	VT/ VTACH
verbal order	VO

versus	vs.
very high frequency	VHF
vital signs	VS
vital signs stable	VSS
W	**W**
warm & dry	w/d
water	H_2O
watt/seconds (joules)	w/s
week	wk.
weight	wt.
white	W
white blood count	WBC

with	c
within normal limits	WNL
without	s or w/o
Wolff Parkinson-White	WPW
work of breathing	WOB
X	**X**
x-ray	XR
Y	**Y**
year	yr.
years old	y/o - y.o
Z	**Z**

Greater Miami Valley EMS Council & Ohio EMS Region 2
Quality Improvement Program
EMS CHECKLIST: 12-LEAD EKG USAGE

Patient Name:_____ **EMS Agency/Unit:**_____

Date:_____ **Run #**_____ **Time of Pain Onset:**_____

This form is to be completed by the paramedic for each patient on whom a 12-Lead EKG is performed, regardless of whether the EKG is normal or abnormal.

_____ **1. If patient has 12-Lead EKG evidence of Acute MI, consider transport to an Interventional Facility.**

- **Presently, those facilities include DHH, GSH, GvH, KMH, MVH, Springfield Mercy & Springfield Community.**

_____ *2.*	*CARDIAC ALERT CHECKLIST*	
INCLUSION CRITERIA		
	YES	***NO***
Anginal Chest Pain or Equivalent **(weakness, diaphoresis, SOB, syncope, nausea, back or jaw pain, abdominal pain)**		
Evidence of AMI on 12 Lead: **(1 mm of ST elevation in 2 or more contiguous leads)**		
EXCLUSION CRITERIA		
Is the QRS Greater than 120 ms (LBBB)?		
Does the Patient have a Pacemaker Rhythm?		
If all boxes in shaded areas are checked, the patient qualifies for a Cardiac Alert. Make contact with Medical Control Physician at receiving facility as soon as practical to relay information.		

_____ **3. Contact hospital by radio or phone when transporting any suspected MI patient. NOTIFY of the following:**
- _____ **a) Speak directly to the medical control physician (MCP) whenever possible.**
- _____ **b) Advise MCP ASAP that you are transporting a CARDIC ALERT patient.**
- _____ **c) Give patient report with vitals, history, PE, and other pertinent information.**
- _____ **d) Give your interpretation of 12-Lead EKG, and/or machine interpretation**
- _____ **e) Give name of patient's cardiologist (if known)** _____

_____ **4. On arrival at hospital with a suspected MI patient:**
- _____ **a) Give verbal report, speaking directly to the physician when possible, including your evaluation of the 12-Lead EKG.**
- _____ **b) Attach a copy of 12-Lead EKG to this form.**
- _____ **c) Attach a copy of 12-Lead EKG to hospital copy of EMS runsheet.**

  - **Label all copies of EKG/12-Lead EKG with patient name, date, and time.**
  - **Document Name of Medical Control Physician:** _____
  - **Document Name of patient's cardiologist (as above).**

Revised 3/7/07

Greater Miami Valley EMS Council
PREHOSPITAL SUSPECTED CVA/TIA CHECKLIST

Patient Name:_____ EMS Agency/Unit:_____

Date:_____ Run #:_____ Time Onset of S/S:_____

(Y)es or (N)o

_____ 1. HISTORY compatible with CVA?

_____ 2. PHYSICAL EXAM compatible with acute CVA?

Cincinnati Prehospital Stroke Scale:

Facial Droop (pt. shows teeth or smiles)
_____ Normal _____ Abnormal

Arm Drift (pt. closes eyes and holds both arms straight out for about 10 seconds):
_____ Normal _____ Abnormal

Abnormal Speech (have pt. say "you can't teach an old dog new tricks"):
_____ Normal _____ Abnormal

Glascow Coma Component Scores (Scores of 8 or less have poor prognosis and need ALS ASAP).
_____ EYE OPENING (1 – 4) _____ **Total GCS** (3 – 15)
_____ BEST VERBAL RESPONSE (1 – 5)
_____ BEST MOTOR RESPONSE (1 – 6)

_____ 3. Time of onset of signs and symptoms: _____

_____ 4. INITIAL THERAPY per Standing Orders?
Oxygen, Blood Sugar, EKG Monitor, IV or Saline Lock.
Intubate if indicated. Hyperventilation if signs of herniation.

_____ 5. TRANSPORT WITHOUT DELAY to most appropriate hospital. NOTIFY hospital ASAP.
Contact MCP for advice on transport to facility offering thrombolytics for stroke ***if*** you can arrive within **two hours** of onset of symptoms. Consider air transport for Stroke patients with long transport times.

_____ 6. CONTRAINDICATIONS to Thrombolytic Therapy (i.e. tPA)?

ABSOLUTE (Check only those with a positive history.)
_____ a) Active internal bleeding.
_____ b) Hx of CVA in past three months.
_____ c) Spinal or intracranial surgery or trauma within three months.
_____ d) Intracranial neoplasm, AV malformation or aneurysm.
_____ e) Known bleeding disorder
_____ f) Pregnancy (certain lytic agents)
_____ g) Seizure at time of onset of symptoms.

Relative
_____ a) Abnormal blood glucose (< 60 or > 400 mg/dl).
_____ b) Recent major surgery or trauma (< 2 months).
_____ c) BP > 200 / >120.
_____ d) Active peptic ulcer or guaiac positive stools (GI or GU bleeding).
_____ e) Recent prolonged or traumatic CPR.
_____ f) Hx of CVA, or brain tumor/injury/surgery.
_____ g) Current use of anticoagulants (i.e., Coumadin)

Revised: 10/2006

2008 PARAMEDIC DRUG INFORMATION

Revised 10/2007

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. Confirm that the medication is appropriate for your patient per the GMV Standing Orders.
    c. 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. If you aren't familiar with the medication, 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, SQ, IV, PO, IN, ETT, Neb
    c. Confirm that the dose is correct for the chosen route, since some dosages will vary depending on the route.
    d. Make sure the route is accessible; 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.

Adult - Paramedic

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Adenosine (Adenocard)	Stable PSVT.	6 mg rapid IVP followed by up to 12 mg rapid IVP if not successful. Go directly to 12 mg if pt w/hx of PSVT advises it takes 12 mg.	No
	Albuterol (Proventil) Metered Dose Inhaler	Asthma/Emphysema/COPD	2 puffs from Inhaler	No
	Albuterol (Proventil)	Bronchospasm in Asthma/COPD, Allergic Reaction with wheezing	2.5 mg (3 ml) with 8-10 l/min high flow O2 by nebulizer. Combine Ipratropium with first Albuterol. May repeat Albuterol up to 2X for a total of 3 doses.	No
	Amiodarone (Cordarone)	V Fib/Pulseless V Tach. Stable Wide Complex Tach	V Fib/Pulseless V Tach: 300 mg IVP. May repeat ½ initial dose (150 mg) in 5-10 min. Wide Complex Tachycardia: IV Infusion – Add 150 mg to 250 ml Bag of NS with Microdrip tubing wide open (over 10 min).	No
	Aspirin (abbreviated as ASA)	Suspected Cardiac Chest Pain	325 mg 4 chewable 81 mg tablets – MUST CHEW	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Atropine	Symptomatic Brady, Asystole, PEA with slow rate Organophosphate, or Nerve Agent Poisoning (regardless of cardiac rate)	Bradycardia: 0.5 mg IVP q 3 – 5 min Asystole, PEA with brady: 1 mg (0.01 mg/Kg) IVP q 3 min, repeated up to 3 mg. total dose. Organophosphate, or Nerve Gas Poisoning: 1-2 mg IVP or IM q 3 – 5 min or Mark 1 Item 1, 2 mg until lungs are clear to auscultation Atropine concentration in multiple-dose vial is 0.4 mg/ml.	Brady – No Asystole, PEA - No Organophosphate, Nerve Agent Poisoning – Yes
	Calcium Chloride 10%	Renal dialysis patient in cardiac arrest. Ca. Channel Blocker OD HF exposure with tetany OR cardiac arrest . Tetany may present as: overactive neurological reflexes, spasms of the hands and feet, cramps, and laryngospasm.	Arrest & OD: 1,000 mg. (10 ml) IVP HF Exposure with tetany or cardiac arrest 1,000 mg. (10 ml) IVP HF Exposure Prophylaxis: 400mg IVP	Arrest – No Ca. Channel Blocker OD – Yes HF Exposure – Yes
	Ciprofloxacin (Cipro)	As prophylaxis against Anthrax, Cholera or Plague	500 mg tablet by mouth	Yes

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Cyanide Kit: -- {Amyl Nitrite} -- {Sodium Nitrite} -- Sodium Thiosulfate	Smoke Inhalation in unconscious pt. Known or strongly suspected Cyanide Poisoning	<u>Conscious pt w/known or strongly suspected Cyanide Poisoning</u>: Amyl Nitrite pearl – Break & inhale for 30 seconds out of each minute q 10 min. Sodium Nitrite – 300 mg (10 ml). 3% solution, slow IVP over 5 minutes. Sodium Thiosulfate – 50 ml. 25% solution (12.5 gm) slow IVP over 3 minutes immediately following Sodium Nitrite. <u>Unconscious pt. w/known or strongly suspected Cyanide Poisoning</u> Amyl Nitrite pearl – break & place 1 ampule into nebulizer. Attach to BVM & ventilate until Sodium Nitrite and Sodium Thiosulfate can be administered. <u>Smoke Inhalation where Cyanide is likely:</u> Sodium Thiosulfate – 50 ml. 25% solution (12.5 gm) slow IVP over 3 minutes	Yes
	Dawn Soap	Decontamination of tenacious hazardous material on skin	Solution of Dawn soap & water	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Dextrose	Diabetic with mental status changes. Evidence of hypoglycemia in cardiac arrest. Stroke, generalized hypothermia with or without arrest, altered level of consciousness of unknown cause, or seizures with BS<60, no BS monitor available, or strong suspicion of hypoglycemia despite BS readings	50% solution, 25 gm IVP In Non Arrest Pt: May repeat in 10 min. if pt. fails to respond or BS remains <60.	No
	Diazepam (Valium)	Seizures As "chemical restraint" in violent patient Recent Cocaine/Crack use with significant hypertension or hemodynamically significant tachycardia (HR>100 SBP <100)	<u>Seizures</u> 5 mg slow IVP over 2 minutes. May repeat dose once. If unable to start IV, consider Diazepam 10 mg. Rectally using syringe with needle removed or 5 mg. IM. <u>Other</u> 5 mg slow IVP over 2 minutes. May repeat dose once. If unable to start IV, consider Diazepam 5 mg. IM.	No
	Diazepam (Valium) CANA	Seizures associated with Organophosphate or Nerve Agent MCI	10mg IM Autoinjector	No
	Diltiazem (Cardizem)	Stable Narrow Complex Tachycardia unresponsive to Adenocard.	0.25 mg/Kg (average about 20 mg) slow IVP over 2 minutes	No
	Diphenhydramine (Benadryl)	Allergic Reaction/Anaphylaxis: Wheezes Present In anaphylaxis pt. who goes into arrest if not already given	<u>Allergic Reaction/Anaphylaxis</u>: 1 mg/Kg (Max dose 50 mg) **IM or** slow IVP over 3 minutes	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Dopamine	Non-Traumatic Shock With or Without Pulmonary Edema. Bradycardia w/ BP <100.	Dopamine Drip – 5 to 20 mcg/Kg/min of premix drip with 400 mg/250 ml. Start @ 5 mcg/kg/min (15 gtts/min) Titrate to keep BP > 100	No
For Public Safety personnel and immediate family members	Doxycycline	As prophylaxis against Anthrax, Cholera & Plague	500 mg tablet by mouth	Yes
	Epinephrine	V Fib, Pulseless V tach, Asystole, PEA Asthma in severe distress, anaphylaxis Allergic Reaction/Anaphylaxis who remains hypotensive after fluid bolus. Allergic Reaction/Anaphylaxis who goes into arrest.	<u>V Fib & Pulseless tach:</u> 1 mg IVP 1:10,000 or 2 mg ETT (1 mg of both 1:10,000 and 1:1,000) <u>Asystole & PEA:</u> 1 mg IVP 1:10,000 IV/IO 10-15 minutes post Vasopressin Repeat q 3 min . 2 mg ETT (1 mg of both 1:10,000 and 1:1,000) if no IV access. <u>Asthma:</u> 0.3 mg of 1:1,000 SC. May be repeated during transport. <u>Allergic Reaction/Anaphylaxis – pt. remains hypotensive after fluid bolus:</u> 0.5 mg of 1:10,000 very slow IVP <u>Allergic Reaction/Anaphylaxis – pt. goes into cardiac arrest:</u> 3 mg of 1:10,000 rapid IVP	For arrest – No For repeat in asthmas – Yes For anaphylaxis – No
	EpiPen	Severe symptomatic allergic reaction	0.3 mg Auto injector	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Etomidate	To provide sedation prior to Sedate to Intubate procedure.	0.3 mg/kg IVP. May repeat within 2 min. if pt. resistant to intubation Average dose is 15 – 30 mg.	**No – Must be authorized by dept. Med. Dir.**
	Furosemide (Lasix)	Pulmonary Edema with BP > 100	80 mg slow IVP over 2 min	No
	Glucagon	Hypoglycemia if no IV access. Stroke, generalized hypothermia without arrest, altered level of consciousness of unknown cause, or seizures with BS < 60, no BS monitor available, or strong suspicion of hypoglycemia despite BS reading, if no IV access. Calcium Channel Blocker or Beta Blocker OD. Allergic Reaction/Anaphylaxis unresponsive to Epinephrine.	Hypoglycemia: 1 mg IM Ca. Channel Blocker or Beta Blocker OD: 1 mg IVP/IM Allergic Reaction/Anaphylaxis unresponsive to Epinephrine: 2 mg IVP or IM	Hypoglycemia – No Ca. Channel Blocker or Beta Blocker OD – Yes Allergic Reaction/Anaphylaxis – No
New Optional	Hydroxocobalamin (Cyanokit)	Known or strongly suspected cyanide intoxication	5 grams (both vials) via slow IV infusion over 15 minutes. Must not be used in conjuction with other Cyanide antidotes. May be repeated X 1 if patient is critical but not in arrest.	**Yes – must also be authorized by department Medical Director.**
	Ipratropium (Atrovent)	Bronchospasm in Asthma/COPD, Allergic Reaction with wheezing	0.5 mg combined w/first dose of Albuterol nebulized	No
	Lidocaine 2% Gel	Intubation on awake patient.	Apply to ETT.	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Lidocaine 2%	V Fib, Pulseless V Tach, When V fib/Pulseless V Tach pt. converts to perfusing rhythm. Intubation on awake patient {Premedication for Sedate To Intubate for pt. with suspected stroke, intracranial hemorrhage, head injury or signs of increased ICP} For pain caused by pressure of intraosseous fluid administration	V fib/Pulseless V Tach: 1.5 mg/kg IVP. Repeat bolus one-half initial dose (0.75 mg/kg) after 5 min. Conversion to perfusing rhythm: Lidocaine Drip @ 2-4 mg/min. For drips, use pre-mix 1 gm/250 ml. Intubation on awake patient: 4 ml. 2% nebulized or 2 ml (40mg) in each nostril with {MAD} {Premedication for Sedate to Intubate 100 mg. IVP.} Pain of IO Fluid Administration 1.5 mg/kg up to 100 mg via {IO} site..	No
	Magnesium – containing antacid (Maalox or Mylanta)	Ingestion of Hydrofluoric Acid Hydrofluoric Acid on Skin	Ingestion of HF acid: Following dilution with water or milk, have pt. drink 3-4 oz. Maalox or Mylanta HF Acid on Skin: Following irrigation, apply topically to burned area unless industry has already applied topical agents.	No
	Magnesium Sulfate solution (Epsom salt)	Hydrofluoric Acid on Skin	Following irrigation with water, use as additional irrigating solution for at least 30 minutes.	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Midazolam (Versed)	Conscious pt. requiring cardioversion. Conscious pt. requiring pacing. In Allergic Reaction/Anaphylaxis, before intubation of conscious patient For seizures during Valium Shortage, or for seizures if Departments carry the {Mucosal Atomizer Devices (MAD)}. After intubation (not limited to "Sedate to Intubate"), if patient is resisting and SBP>100. As "chemical restraint" in violent patient	2 – 4 mg IVP over 1 – 2 minutes. <u>Seizures</u> Versed.10 mg. intranasally using {MAD}. Administer 5 mg in each nostril. If seizure persists 5 minutes after treatment, consider repeating 1/2 dose IN. After intubation: 2-4 mg IVP over 1-2 minutes. <u>Violent Patient</u> Versed. 10 mg. intranasally using {MAD} or 4 mg. IM	No Sedate to Intubate requires Med. Dir. approval.
	Morphine	Pain relief in AMI and other painful conditions	1st dose - Up to 5 mg slow IVP (2-3 minutes) based on patient's weight, provided SBP>100. Repeat Dose - May repeat up to 5 mg If unable to establish IV, Morphine SQ 5 mg. Repeat SQ is indicated no sooner than 30 minutes only if transport time is greater than 30 min. SQ is NOT indicated for Pulmonary Edema	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Naloxone (Narcan)	Respirations depressed or high index of suspicion of narcotic overdose. If patient has a pulse, Narcan should be administered before intubating, as per ACLS. Suspicion of drug abuse in cardiac arrest.	Up to 4 mg IVP varying rate according to pt. severity. IM or SQ, ETT if IV unsuccessful. OR 2 mg intranasally using Mucosal Atomization device (MAD) – Administer 1 mg in each nostril. If no arousal occurs after 3 minutes, establish IV and administer IV dose.	No
	Nitroglycerine (abbreviated as NTG in the orders) (Nitrostat)	Chest pain or pulmonary edema with BP over 100 in pt. who is at least 25 yrs old or has prescribed Nitro. Crack / Cocaine Overdose with Chest Pain and at least 25 yrs. Old.	0.4 mg SL q 5 min for continued chest pain up to a total of 3 tablets. <u>Exception</u>: 1 mm ST elevation in any 2 inferior leads – must contact MCP for repeat doses	No <u>Exception</u>: Repeat dose in pt. with 1 mm ST elevation in any 2 inferior leads.
	Oral Glucose	Hypoglycemia if no IV access or available Glucagon. Stroke, generalized hypothermia without arrest, altered level of consciousness of unknown cause, or seizures with BS < 60, no BS monitor available, or strong suspicion of hypoglycemia despite BS reading, if no IV access.	1 tube May be repeated in 10 mins. If BS remains < 60.	No
Replaces Promethazine	Ondansetron (Zofran)	For nausea or active vomiting under Abdominal Pain protocol	4 mg. slow IVP If unable to obtain IV, may give Ondansetron 4mg. IM	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Pralidoxime (2-PAM) (Mark I Auto-injector, Item 2) to be used following Atropine	To be used following Atropine in Organophosphate, or Nerve Gas Poisoning. Both for protection of public safety personnel who walk into scene & become unexpectedly contaminated as well as for treatment of civilian patients at the scene.	600 mg IM AutoInjector	Yes
	Sodium Bicarbonate	Renal dialysis pt. in asystole or PEA cardiac arrest. Known tricyclic overdose	Arrest in renal dialysis pt.: 100 mEq IVP Tricyclic antidepressant OD: 1 mEq/Kg IVP. May repeat dose of 0.5 mEq/Kg for persistent or prolonged QRS.	Arrest – No Tricyclic OD – Yes
	Sudecon Wipes	Pepper Spray	Use as needed to assist with decontamination	No
	Tetracaine	Prior to eye irrigation in Rx. of chemical injury to eye & in other situations with significant eye pain without possibility of penetrating trauma to eye.	2 drops in each affected eye	No
	Vasopressin	Asystole / PEA	40 units IVP	No

Pediatric - Paramedic

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Adenosine (Adenocard)	PSVT	0.1 mg/kg rapid IVP followed by 10 ml rapid saline flush. Max. dose 6 mg. If unsuccessful, 0.2 mg/kg rapid IVP followed by rapid saline flush. Max. dose 12 mg.	No
	Albuterol (Proventil) Metered Dose Inhaler	Asthma/Emphysema/COPD	2 puffs from Inhaler	No
	Albuterol (Proventil)	Bronchospasm in Asthma/COPD, Allergic Reaction with wheezing	2.5 mg (3 ml) with 8-10 l/min high flow O2 by nebulizer. Combine Ipratropium with first Albuterol. May repeat Albuterol up to 2X for a total of 3 doses.	No
	Amiodarone (Cordarone)	V Fib/Pulseless V Tach.	5 mg/kg IV/IO. May repeat initial dose (5 mg/kg) in 5-10 min. if V Fib persists or reoccurs. Max dose 15 mg/kg	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Atropine	Symptomatic Brady, Asystole, PEA with slow rate Organophosphate, or Nerve Agent Poisoning (regardless of cardiac rate)	Bradycardia: 0.02 mg/kg IVP (max dose 1mg) q 3 – 5 min Asystole, PEA with brady: 0.02 mg/kg IVP OR 0.03 mg/kg ETT q 3-5 min, repeated up to 3 doses. Organophosphate or Nerve Gas Poisoning <40 lbs: 0.5 mg IVP/IO/IM or 0.5 mg Atropine Auto-injector >40 lbs: 1.0 mg IVP/IO/IM or 1.0 mg Atropine Auto-injector > 90 lbs: 2.0 mg IVP/IO/IM or 2.0 mg Atropine Auto-injector Atropine concentration in multiple-dose vial is 0.4 mg/ml.	Brady – No Asystole, PEA - No Organophosphate, Nerve Agent Poisoning – Yes
	Calcium Chloride 10% Renal dialysis patient in cardiac arrest. Ca. Channel Blocker OD	Arrest & OD: 20 mg/kg IVP (max dose 500 mg in Ca. Channel Blocker OD)	Arrest – No Ca. Channel Blocker OD – Yes	
	Ciprofloxacin (Cipro)	As prophylaxis against Anthrax, Cholera or Plague	500 mg tablet by mouth	Yes

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Cyanide Kit: -- {Amyl Nitrite} -- {Sodium Nitrite} -- Sodium Thiosulfate	Smoke Inhalation in unconscious pt. Known or strongly suspected Cyanide Poisoning	<u>Conscious pt w/known or strongly suspected Cyanide Poisoning</u>: Sodium Thiosulfate – Children > 25 kg, 50 ml. 25% solution (12.5 gm) slow IVP over 3 minutes. Children < 25 kg, 1.65 ml/kg (412.5 mg/kg) of 25% solution (max dose 50 ml or 12.5 gm) slow IVP over 3 minutes. <u>Unconscious pt. w/known or strongly suspected Cyanide Poisoning</u> Same as above <u>Smoke Inhalation where Cyanide is likely:</u> Same as above	Yes Smoke Inhalation: Children < 25 kg, contact MCP for dose of Sodium Thiosulfate
	Dawn Soap	Decontamination of tenacious hazardous material on skin	Solution of Dawn soap & water	No
	Dextrose	Diabetic with mental status changes. Evidence of hypoglycemia in cardiac arrest. Stroke, generalized hypothermia with or without arrest, altered level of consciousness of unknown cause, or seizures with BS<60, no BS monitor available, or strong suspicion of hypoglycemia despite BS readings	Children < 25 kg – 25% solution IVP, 2 ml/kg OR 1 ml/kg 50% solution diluted with equal volume of saline IVP. Children > 25 kg – 1 ml/kg 50% solution IVP Infants < 1 year old – 25% solution 2 ml/kg diluted with equal volume of saline IVP. Newborn brady *** In Non Arrest Pt: May repeat in 10 min. if pt. fails to respond or BS remains <60.	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Diazepam (Valium)	Seizures As "chemical restraint" in violent patient	Seizures 0.2 mg/kg IVP slowly (1 mg/min) Maximum dose 5 mg. OR 0.5 mg/kg rectally. Maximum dose 10 mg. May repeat 0.2 mg/kg IVP slowly (1 mg/min) up to 5 mg max slow IVP.	No
	Diazepam (Valium) CANA	Seizures associated with Organophosphate or Nerve Agent MCI	10mg IM Autoinjector	No
	Diphenhydramine (Benadryl)	Allergic Reaction/Anaphylaxis: Wheezes Present In anaphylaxis pt. who goes into arrest if not already given	Allergic Reaction/Anaphylaxis: 1 mg/Kg (Max dose 50 mg) **IM or** slow IVP over 3 minutes	No
	Dopamine	Non-Traumatic Shock With or Without Pulmonary Edema.	Dopamine Drip – 20 mcg/Kg/min of premix drip with 400 mg/250 ml. Start @ 5 mcg/kg/min (15 gtts/min) Titrate to keep BP > 100	No
For Public Safety personnel and immediate family members	Doxycycline	As prophylaxis against Anthrax, Cholera & Plague	500 mg tablet by mouth	Yes

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Epinephrine	V Fib, Pulseless V tach, Asystole, PEA	V Fib & Pulseless tach: 0.01 mg/kg of 1:10,000 IVP, or 0.1 mg/kg of 1:1,000 ETT. Repeat q 3-5 min. Asystole & PEA: 0.01 mg/kg of 1:10,000 IVP, or 0.1 mg/kg ETT. Repeat q 3-5 min.	For arrest – No
		Bradycardia	Bradycardia: 0.01 mg/kg of 1:10,000 IVP, or 0.1 mg/kg ETT. Repeat q 3-5 min.	
		Asthma in severe distress, anaphylaxis	Asthma: 0.01 mg/kg of 1:1,000 SQ. May be repeated during transport.	For repeat in asthmas – Yes
	EpiPen	Severe symptomatic allergic reaction	Patients < 30 kg – 0.15 mg Auto injector Patients > 30 kg - 0.3 mg Auto injector	No
	Glucagon	Hypoglycemia if no IV access. Stroke, generalized hypothermia without arrest, altered level of consciousness of unknown cause, or seizures with BS < 60, no BS monitor available, or strong suspicion of hypoglycemia despite BS reading, if no IV access.	Hypoglycemia: 1 mg IM	Hypoglycemia – No
		Calcium Channel Blocker or Beta Blocker OD.	Ca. Channel Blocker or Beta Blocker OD: 1 mg IVP/IM	Ca. Channel Blocker or Beta Blocker OD – Yes

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Ipratropium (Atrovent)	Bronchospasm in Asthma/COPD, Allergic Reaction with wheezing	0.5 mg combined w/first dose of Albuterol nebulized	No
	Lidocaine 2% Gel	Intubation on awake patient.	Apply to ETT.	No
	Lidocaine 2%	V Fib, Pulseless V Tach, When V fib/Pulseless V Tach pt. converts to perfusing rhythm. Intubation on awake patient For pain caused by pressure of intraosseous fluid administration	<u>V fib/Pulseless V Tach:</u> 1-1.5 mg/kg IVP. Repeat bolus 1 mg/kg. <u>Conversion to perfusing rhythm:</u> Lidocaine Drip @ 20-50 mcg/min. For drips, use pre-mix 1 gm/250 ml. This yields 4 mg/ml or 4000 mcg/ml. Intubation on awake patient: 4 mg/kg (max dose 80mg or 4 ml.) 2% nebulized <u>Pain of IO Fluid Administration</u> <u>1.5 mg/kg up to 100 mg via {IO} site..</u>	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Midazolam (Versed)	Conscious pt. requiring cardioversion. Conscious pt. requiring pacing. For seizures during Valium Shortage, or for seizures if Departments carry the {Mucosal Atomizer Devices (MAD)}. After intubation, if patient is resisting and SBP is normal for age. As "chemical restraint" in violent patient	Sedation: 0.1 mg/kg IVP over 1 –2 minutes. <u>Seizures</u> 0.1 mg/kg intranasally using {MAD} (max dose 4mg). Administer ½ dose in each nostril. If seizure persists 5 minutes after treatment, consider repeating dose either intranasally or IV. After intubation: 0.1 mg/kg IVP over 2-5 minutes. <u>Violent Patient</u> 0.2 mg/kg intranasally using {MAD} (max dose 4mg). Administer ½ dose in each nostril. OR 0.1 mg/kg IV/IM.	No
	Morphine	Pain relief in peds $\geq$ 2 years old	1st dose – 0.1 mg/kg slow IVP (2-3 minutes) (max dose 5 mg) provided appropriate SBP. Repeat Dose - May repeat up to 5 mg If unable to establish IV, Morphine SQ 5 mg. Repeat SQ is indicated no sooner than 30 minutes only if transport time is greater than 30 min.	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Naloxone (Narcan)	Respirations depressed or high index of suspicion of narcotic overdose. If patient has a pulse, Narcan should be administered before intubating, as per ACLS. Suspicion of drug abuse in cardiac arrest.	0.1 mg/kg (max dose 4 mg) IVP varying rate according to pt. severity. OR 0.1 mg/kg (max dose 2mg) intranasally using Mucosal Atomization device (MAD) – Administer ½ dose in each nostril. If no arousal occurs after 3 minutes, establish IV and administer IV dose.	No
	Oral Glucose	Hypoglycemia if no IV access or available Glucagon. Stroke, generalized hypothermia without arrest, altered level of consciousness of unknown cause, or seizures with BS < 60, no BS monitor available, or strong suspicion of hypoglycemia despite BS reading, if no IV access.	1 tube May be repeated in 10 mins. If BS remains < 60.	No
	Pralidoxime (2-PAM) (Mark I Auto-injector, Item 2) to be used following Atropine	To be used following Atropine in Organophosphate, or Nerve Gas Poisoning. Both for protection of public safety personnel who walk into scene & become unexpectedly contaminated as well as for treatment of civilian patients at the scene.	Children > 20 kg: 600 mg IM AutoInjector	Yes

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (PEDI)	REQUIRES MCP
	Sodium Bicarbonate	Renal dialysis pt. in asystole or PEA cardiac arrest. Known tricyclic overdose	Arrest in renal dialysis pt.: 1 mEq/kg slow IVP Tricyclic antidepressant OD: 1 mEq/Kg IVP.	Arrest – No Tricyclic OD – Yes
	Sudecon Wipes	Pepper Spray	Use as needed to assist with decontamination	No
	Tetracaine	Prior to eye irrigation in Rx. of chemical injury to eye & in other situations with significant eye pain without possibility of penetrating trauma to eye.	2 drops in each affected eye	No

Paramedic - Therapeutic Actions, Contraindications, and Precautions

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Adenosine (Adenocard)	Decreases electrical conduction through the A V node without causing negative inotropic effects. Acts directly on SA node to decrease chronotropic activity.	Second or third degree AV block, or sick sinus syndrome. Hypersensitivity to adenosine, atrial flutter, atrial fibrillation, ventricular tachycardia.	Lightheadedness, paresthesias, headache, diaphoresis, palpitations, chest pain, hypotension, shortness of breath, transient periods of sinus bradycardia, sinus pause, or bradyasystole, ventricular ectopy, nausea, metallic taste. May produce bronchoconstriction in patients with asthmas and in patients with bronchopulmonary disease.
Albuterol (Proventil)	Bronchodilator	Prior hypersensitivity reaction to Albuterol, cardiac dysrhythmias associated with tachycardia.	Usually dose related, restlessness, apprehension, dizziness, palpitations, tachycardia, dysrhythmias. May precipitate angina pectoris and dysrhythmias.
Amiodarone (Cordarone)	Antidysrhythmic agent with multiple mechanisms of action.	Pulmonary congestion, cardiogenic shock, hypotension, sensitivity to Amiodarone.	Hypotension, headache, dizziness, bradycardia, AV conduction abnormalities, flushing, abnormal salivation. Continuous ECG monitoring is required.
Aspirin (ASA)	Anti platelet	Hypersensitivity to salicylates, GI bleeding, active ulcer disease, hemorrhagic stroke, bleeding disorders, children with flu-like symptoms.	Stomach irritation, heartburn or indigestion, nausea or vomiting, allergic reaction. Should be given as soon as possible to the patient with AMI.

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Atropine	Anticholinergic	Tachycardia, hypersensitivity to atropine, obstructive disease of GI tract, obstructive uropathy, unstable cardiovascular status in acute hemorrhage with myocardial ischemia, narrow angle glaucoma, thyrotoxicosis.	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.
Calcium Chloride 10%	Antagonizes cardiac toxicity in hyperkalemia assoc. w/dialysis pts. Reverses symptoms of Ca. Channel Blocker.	VF during cardiac resuscitation, in patients with digitalis toxicity, hypercalcemia, renal or cardiac disease.	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.
Dextrose	Principal form of carbohydrate utilized by the body.	Intracranial hemorrhage, increased intracranial pressure, known or suspected CVA in the absence of hypoglycemia.	Warmth, pain, burning from medication infusion, hyperglycemia, thrombophlebitis. Extravasation may cause tissue necrosis; use large vein and aspirate occasionally to ensure route patency. May precipitate severe neurologic symptoms in thiamine deficient patients.

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Diazepam (Valium)	Treats alcohol withdrawal and grand mal seizure activity. Used to treat anxiety and stress.	Hypersensitivity to the drug, substance abuse (use with caution), coma (unless the patient has seizures or severe muscle rigidity or myoclonus), shock, CNS depression as a result of head injury, respiratory depression.	Hypotension, reflex tachycardia (rare), respiratory depression, ataxia, psychomotor impairment, confusion, nausea. May cause local venous irritation.
Diltiazem (Cardizem)	Stable narrow complex tachycardia unresponsive to Adenocard. As a brief trial in unstable A Fib/A. Flutter with rapid vent. response unless pt. is profoundly hypotensive or unconscious.	Sick sinus syndrome, second or third degree A V block (except with a functioning pacemaker, hypotension [less than 90 mmHg]), cardiogenic shock, hypersensitivity to diltiazem, atrial fib or atrial flutter assoc. with WPW syndrome or a short PR syndrome, concomitant use of IV beta blockers, ventricular tachycardia, wide complex tachycardia of unknown origin, and AMI.	Atrial flutter, first and second degree A V block, bradycardia, hypotension, chest pain, congestive heart failure, peripheral edema, syncope, ventricular dysrhythmias, sweating, nausea and vomiting, dizziness, dry mouth, dyspnea, headache. Use with caution in patients with impaired renal or hepatic function. Hypotension may occasionally result (carefully monitor vital signs).
Diphenhydramine (Benadryl)	Prevents the physiologic actions of histamine by blocking histamine receptors.	Patients taking nonoamine oxidase (MAO) inhibitors, hypersensitivity, narrow angle glaucoma (relative), newborns and nursing mothers.	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.

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Dopamine	Acts on alpha, beta and dopaminergic receptors in dose-dependent fashion. Increases cardiac output in higher doses.	Tachydysrhythmias, ventricular fib, patients with pheochromocytoma.	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 in hypotensive patients.
Epinephrine	Directly stimulates alpha and beta adrenergic receptors in dose-related fashion. Causes bronchodilation, vasoconstriction, and increased cardiac output.	Hypersensitivity (not an issue especially in emergencies – the dose should be lowered or given slowly in noncardiac arrest patients with heart disease), hypovolemic shock (as with other catecholamines, correct hypovolemia prior to use), coronary insufficiency (use with caution).	Headache, nausea, restlessness, weakness, dysrhythmias, including ventricular tachycardia and ventricular fib., hypertension, precipitation of angina pectoris, tachycardia. May increase myocardial oxygen demand. Syncope has occurred following epinephrine administration to asthmatic children.
EpiPen	Causes bronchodilation	Same as Epinephrine	Same as Epinephrine at low doses
Furosemide (Lasix)	Diuretic. Reduces cardiac preload by increasing venous capacitance.	Anuria, hypersensitivity, hypovolemia/dehydration, known hypersensitivity to sulfonamides, severe electrolyte depletion (hypokalemia).	Hypotension, ECG changes associated with electrolyte disturbances, dry mouth, hypochloremia, hypokalemia, hyponatremia, hypercalcemia, hyperglycemia, hearing loss can rarely occur after too rapid infusion of large doses especially in patients with renal impairment.
Glucagon	Increases breakdown of glycogen to glucose and stimulates glucose synthesis thereby raising blood sugar.	Hypersensitivity (allergy to proteins)	Tachycardia, hypotension, nausea and vomiting, urticaria. Should not be considered a first line choice for hypoglycemia.

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Hydroxocobalamin (Cyanokit)	Binds to cyanide molecules and is eliminated as waste	None	Do not administer other cyanide antidotes to the same patient.. May cause hypertension.
Ipratropium (Atrovent)	Causes bronchodilation by anticholenergic effect.	Hypersensitivity to atropine, ipratropium, or derivatives.	Use w/caution in pt. w/narrow-angle glaucoma, prostatic hypertrophy, or bladder neck obstruction, and ruing lactation.
Lidocaine Gel or Nebulized 2%	Suppresses stimulation of the upper airway (activation of swallowing, gagging or coughing) that can cause cardiovascular stimulation & elevation in intracranial pressure	Hypersensitivity	
Lidocaine 2%	Decreases automaticity	Hypersensitivity, Adams-Stokes syndrome, second or third degree heart block in absence of an artificial pacemaker	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.
Midazolam (Versed)	Provides sedation.	Hypersensitivity to benzadiazepines. Acute narrow glaucoma. Do not use in obstetrics, coma, shock or acute alcohol intoxication where vital signs are depressed.	Use with caution during lactation. Geriatric & debilitated pts. require lower doses & are more prone to side effects. Provide continuous monitoring of respiratory & cardiac function. Have resuscitation equipment & medication readily at hand.

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Morphine	Provides analgesia. Reduces cardiac preload by increasing venous capacitance and decreased afterload.	Hypersensitivity to narcotics, hypovolemia, hypotension, head injury or undiagnosed abdominal pain, increased ICP, severe respiratory depression, patients who have taken MAO inhibitors within 14 days.	Hypotension, tachycardia, bradycardia, palpitations, syncope, facial flushing, respiratory depression, euphoria, broncospasm, 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).
Naloxone (Narcan)	A competitive narcotic antagonist.	Hypersensitivity, use with caution in narcotic-dependent patients who may experience withdrawal syndrome (including neonates of narcotic-dependent mothers).	Tachycardia, hypertension, dysrhythmias, nausea and vomiting, diaphoresis, blurred vision, withdrawal (opiate). May not reverse hypotension. Caution should be exercised when administering to narcotic addicts (may precipitate withdrawal with hypertension, tachycardia and violent behavior).
Nitroglycerine (Nitrostat) (NTG)	Vasodilator which decreased preload and to a lesser extent, afterload.	Hypersensitivity, hypotension, head injury, cerebral hemorrhage.	Transient headache, reflex tachycardia, hypotension, nausea & vomiting, postural syncope, diaphoresis.
Ondansetron (Zofran)	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.	Known hypersensitivity to Ondansetron.	During pregnancy it should only be used where clearly needed.. Sudden blindness of 2-3 minute duration has occurred in pt's receiving IV. It is suggested that the speed of delivery may contribute to this untoward effect. Constipation, diarrhea, fever, headache

DRUG NAME	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
Pralidoxime (2-PAM) (Mark I Auto-injector, Item 2) to be used following Atropine	Reactivates cholinesterase after poisoning with anticholinesterase agents. (Organophosphate or Nerve Gas) Reverses muscle paralysis after organophosphate poisoning.	Hypersensitivity	Use with caution in myasthenia gravis, renal impairment, pregnancy, lactation or children.
Sodium Bicarbonate	Buffers metabolic acidosis	In pts. with chloride loss from vomiting, metabolic & respiratory alkalosis, severe pulmonary edema, abdominal pain of unknown origin, hypoglycemia, hypokalemia, hypernatremia.	Metabolic alkalosis, hypoxia, rise in intracellular PCO2 and increased tissue acidosis, electrolyte imbalance (hypernatremia), seizures, tissue sloughing at injection site.
Tetracaine	Provides rapid, brief, superficial anesthesia by inhibiting conduction of nerve impulses from sensory nerves.	Hypersensitivity to tetracaine. Open injury to eye.	May cause burning or stinging sensation or irritation. Can cause epithelial damage & systemic toxicity. Incompatible w/ mercury or silver salts often found in ophthalmic products.
Vasopressin	Potent peripheral vasoconstrictor. May be used as an alternative pressor to epinephrine in the treatment of adult shock-refractory VF and PEA.	Not recommended for responsive pts. with coronary artery disease.	May produce cardiac ischemia & angina.

2008 GMVEMSC Standing Orders
Paramedic Pretest

Disclaimer:
The pretest is not inclusive of the questions and content of the post test. You as the provider are responsible for all material contained within the appropriate Standing Orders Training Manual.

Name:_____ Date:_____

Focus Area: Airway Management:

1. Intubating an awake patient in severe respiratory distress would call for which of the following medications:
   A. Lidocaine Jelly, Lidocaine via Nebulizer, Midazolam
   B. Etomidate, Succicoline, Norcuron
   C. Albuterol, Ipratropium, Diphenhydramine
   D. EpiPen, Diphenhydramine

2. To reduce the risk of right main stem intubation in an adult, what is the typical tube marking at the lips on an endotracheal tube if it is properly placed (orally)? _____

3. You are treating an intubated patient who is in need of a breathing treatment. You only have one (1) source of oxygen. Knowing this you will be unable to administer the breathing treatment through the BVM because it requires 2 sources of oxygen.

   A. True
   B. False

4. EDDs and $EtCO_2$ detectors can help prevent the disaster of esophageal intubation, but they cannot identify placement in a mainstem bronchus.
   A. True
   B. False

5. LMAs are appropriate devices:
   A) As a first line airway device when intubation is improbable or unsuccessful
   B) As a rescue airway for Termination of Resuscitation
   C) As a primary airway device for pediatric patients
   D) All of the above

6. Which of the following patient needs ***immediate*** intubation?
   A. An apneic patient whose chest does not rise with bag-mask ventilations
   B. An elderly woman with severe chest pain and shallow respirations at 30 breaths per minute
   C. A 55-year-old insulin dependent diabetic with ST segment elevation and runs of ventricular Tachycardia
   D. An intoxicated college student with vomiting

7. Why is a cervical collar recommended for an intubated patient?

8. A nasal ETT with the 22cm mark at the nares will probably be in the correct position.
   A. True
   B. False

9. List the limitations/contraindications of colorimetric ETCO2 device:
   A.
   B.
   C.
   D.

10. When deciding whether to intubate, list some of the criteria that should be considered:
   A.
   B.
   C.
   D.
   E.
   F.
   G.
   H.
   I.

Focus Area: Medication Administration and Drug Bag

11. List and describe the "6 Rights" of Medication Administration
   1.
   2.
   3.
   4.
   5.
   6.

12. Match the following medication generic names to their trade names:

A. Diphenhydramine	____	2 -Pam
B. Amiodarone	____	Versed
C. Diazapam	____	Zofran
D. Furosemide	____	Adenocard
E. Ipratropium	____	Atrovent
F. Midazolam	____	Valium
G. Naloxone	____	Narcan
H. Pralidoxime	____	Lasix
I. Adenosine	____	Benedryl
J. Ondansetron	____	Cordarone

13. Per Standing Orders, a drug to be given "Slow IV" should be given over _____.

14. You have administered ASA 324mg to a coronary syndrome patient. Before exchanging the drug bag at the receiving hospital you should:
    A. Inventory the remaining contents of the opened pouch, apply the red seal and log the bag in using the hospital's usual procedure
    B. Apply the red seal and log the bag in using the hospital's usual procedure
    C. Place the blue seal in the pouch, apply the red seal and log the bag in using the hospital's usual procedure
    D. Inventory the entire bag and log the bag in using the hospital's usual procedure

15. The Drug Bag Discrepancy form should be completed when:
    A. Missing drugs are discovered
    B. Expired drugs are found in the pouch
    C. Meds are found in the wrong pouch
    D. All of the above

16. Which statement applies to the Controlled Drug Usage form:
    A. It must be completed each time a Controlled Drug is used, but requires a witness signature only if a controlled drug is wasted
    B. It must be completed only when a controlled drug is wasted
    C. It must be completed each time a Controlled Drug is used and must always have a witness
    D. It is to be used only when a discrepancy is found

17. When completing a Drug Bag Discrepancy form, the Blue Seal should be attached if to the form if it is available
    A. True
    B. False

18. Describe the indications, dose, route, and any precautions/adverse reactions for ondansetron:
    A. Indications:
    B. Dose:
    C. Route:
    D. Precautions/Adverse Reactions:

Focus Area: Pediatrics

19. What is the minimum weight for the pediatric patient to receive 50% dextrose as opposed to 25%?
    A. 15 kg
    B. 20 kg
    C. 25 kg
    D. 30 kg

20. LMAs should be considered *only* as a rescue airway device for infants.
    A. True
    B. False

21. All infants < ___ months of age with a history or reported temperature of > _____or < _____ should be transported.

22. List some of the signs/symptoms of respiratory distress in the young pediatric patient:
    A.
    B.
    C.
    D.
    E.

23. You have been called to a scene where a child was burned while playing with matches. While on scene, you observe filthy and unsafe conditions. In addition to transporting the child, what actions must you take?

24. In the previous question scenario, is it acceptable to pass the suspected negligence on to the nursing staff for them to report? Explain your rationale.

25. The fluid bolus for a pediatric patient in Non-Traumatic Shock is:

26. Chest pain in the pediatric patient is rarely related to a cardiac event. Assessment of other causes (i.e. muscle pain, respiratory difficulties, injury) should be completed to ensure the cause of pain.
    A. True
    B. False

27. Proper tube markings at the lips for pediatric oral intubation can be calculated using the following formula: Depth of Insertion = _____

28. An EDD may only be used on pediatric patients who are older than ____ years of age and weigh at least _____ pounds.

Focus Area: Abdominal Pain

29. You are called for a 60 year old male with a complaint of abdominal pain and nausea. His blood pressure is 160/80, HR 100, RR 20. List appropriate physical assessment techniques for this patient:

30. How would you assess the above patient's pain level?

31. Which medications would you consider administering to the above patient? List doses, routes and how you would determine effectiveness.

32. A pregnant patient of 15 weeks gestation with abdominal pain should be transported to:
_____

33. Your patient is a 30 year old female 30 weeks pregnant complaining of vaginal bleeding and abdominal pain. You should consider all of the following ***except***:
   A. Transporting patient in the supine position
   B. Give psychological support to the patient
   C. Palpate the abdomen and assess the level of the uterine fundus
   D. Document the quality, location and level of the pain and when it started

Focus Area: Trauma Triage

34. All of the following statements in reference Air Medical Transport are correct except:
   A. Prolonged delay at the scene awaiting air medical transport should be avoided
   B. A run report should be faxed immediately to the receiving facility by EMS
   C. Blunt trauma arrests should be transported by air medical transport
   D. Air Medical Transport of severe trauma patients in the rural setting is discouraged

35. Listed below are some "General Considerations" regarding trauma patient triage. The most correct answer is:
   A. Even minor trauma patients must be transported to trauma centers.
   B. Unstable trauma patients are to be transported only to a verified trauma center
   C. Scene size-up, with rapid assessment and recognition of major trauma/multiple body system trauma, and effective prehospital triage decisions are essential to the positive patient outcomes.
   D. All the above

36. What information is the receiving trauma center expecting to get from an EMS provider when giving verbal report on a trauma patient?
   A)
   B)
   C)
   D)
   E)

37. List our Region 2 Trauma Centers and their level:
    A)
    B)
    C)
    D)

38. List the three types of Trauma Triage Criteria used to determine appropriate trauma destinations:
    A)
    B)
    C)

39. List at least 5 of the Mechanism of Injury criteria which indicate that the patient should be considered for trauma Center transport:
    1.
    2.
    3.
    4.
    5.

40. List at least three of the Physiologic Criteria which indicate that the patient should be considered for trauma Center transport:
    1.
    2.
    3.

41. List at least 6 of the Anatomical Injury Criteria which indicate that the patient should be considered for trauma Center transport:
    1.
    2.
    3.
    4.
    5.
    6.

Focus Area: Decontamination of HazMat Patients

42. Why is it important to remove diesel fuel saturated clothing from the patient as soon as possible?

43. Which of the following is ***not*** a true statement about dealing with the de-contamination of a hazardous materials patient?
    A. Remove contaminated clothing and place in a plastic bag
    B. Cardiac arrest patients may be decontaminated enroute to ED
    C. Thoroughly wash patient with substance similar to Dawn Detergent
    D. Obtain permission from hospital prior to entering ED with possibly contaminated patient

44. Which of the following are critical actions that MUST occur with the care of any potentially contaminated victim?
    A. Providers must ensure that they themselves do not become contaminated by observing appropriate scene safety
    B. ALL victims have ALL their clothing removed and receive at minimum gross decon by personnel who have donned appropriate personal protective equipment
    C. The receiving hospital is notified as early in the incident as possible
    D. All of the above

45. List some important considerations for Field Decontamination:

46. Pepper spray is not a Hazardous Material and never requires decon.
    A. True
    B. False

Additional Questions

47. You are called for a 54 year old male with severe chest pain and ST elevation in Lead II. His BP is 170/90, HR 88, R 20. He has a history of a coronary stent placed 3 years ago. You are 5 minutes from a facility without interventional capabilities, and 25 minutes from a facility with 24 hour interventional capabilities. What is your ***best*** transport plan:
    A. Transport to closest facility for stabilization
    B. Transport to the facility without interventional capabilities
    C. Transport to the facility with interventional capabilities
    D. None of the above

48. You arrive to find a middle-aged patient on the sidewalk in grand-mal seizures. A bystander states they have been seizing non-stop for approximately 10 minutes. No one is around who knows the patient. You will be unable to safely attempt an IV. Which of the following treatments would be considered inappropriate?
    A. Assist ventilations with a nasopharyngeal airway and BVM
    B. Administration of 10mg Diazepam rectally (PR)
    C. Administration of 10mg Midazolam IN
    D. Administration of 25g D_{50} IM

49. You respond for a 77-year-old with a fever of 104 degrees F. The patient has rhonchi and a productive cough of green sputum over the last 4 days. BP is 78/64. The section of your protocol book you should go to for treatment modalities is:
    A. Allergic Reaction/Anaphylaxis: Wheezes
    B. Non Traumatic Shock with Pulmonary Edema
    C. Exsanguinating Hemorrhage
    D. Non Traumatic Shock without Pulmonary Edema

50. A patient who is experiencing non-traumatic shock without pulmonary edema should be administered _____ mL fluid bolus of 0.9% NS.

GREATER MIAMI VALLEY EMS COUNCIL
YEAR 2008 PARAMEDIC SKILL SHEETS

EMT-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 Train the Trainer sessions).

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

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

IV and Medications

Trauma

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

NAME_____ DATE_____

LEVEL: _____Paramedic _____ Intermediate _____Basic

STEPS	**1st Test**	**2nd Test**	**3rd 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 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 the End Tidal CO2 Detector for patients with a perfusing rhythm, or the Esophageal Detection Device for patients in cardiac arrest. Be able to discuss the indications and limitations of each device.			
a. *NOTE: EDDs will fill more slowly in humans than in manikins			
b. Compress EDD first, then place it on the ETT before ventilating pt.			
c. If bulb fills in <5 seconds, ETT is likely successful			
d. If bulb fails to fill, or takes >5 seconds, or fills with emesis, esophageal placement is probable.			
e. Contraindicated in pregnancy or children less than 5 yoa or 20 kg.			
P. Confirm tube placement with at least 3 other methods of verification and document the outcomes.			
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
2. Stylet
3. Laryngoscope Blade & handle
4. Magill forceps
5. 10 ml. syringe
6. Suction equipment
7. Stethescope
8. Gloves & Eye protection
9. Commercial tube holder or proper taping method.
10. Confirmation Device
11. C-collar
12. Adult Intubation Manikin

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: AUTOMATED EXTERNAL DEFIBRILLATORS

NAME_____ DATE_____

LEVEL: _____Paramedic _____ Intermediate _____Basic ____ First Responder

STEPS	**1st Test**	**2nd Test**	**3rd Test**
A. Perform an initial assessment of the patient.			
B. Begin CPR with 100% oxygen while preparing AED.			
a. If witnessed arrest and no defibrillator available, precordial thump.			
b. If unwitnessed arrest two minutes of CPR prior to defibrillation.			
c. CPR continuously until AED is attached to patient.			
C. Turn on the AED.			
D. Place the defibrillator pads onto the patient.			
E. Stop CPR. Allow AED to analyze rhythm.			
F. If shock is advised, clear all personnel from around the patient.			
G. Resume CPR if no response to the shocks.			
H. Repeat steps E, F and G in one minute if needed.			

EQUIPMENT

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

PEDIATRIC PROTOCOL SKILL EVALUATION
SUBJECT: PEDIATRIC OROTRACHEAL INTUBATION

NAME_____ DATE_____

LEVEL: _____Paramedic _____ Intermediate _____Basic

STEPS	**1st Test**	**2nd Test**	**3rd 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, selects proper size ETT and laryngoscope blade (Uses Length / Weight Based Tape)			
G. Insert Laryngoscope			
H.. Elevate the mandible			
I. Insert the ET tube			
J Remove the stylet			
K. Document ETT depth at at front teeth.			
L. Ventilate the patient.			
M. Confirm tube placement, using the End Tidal CO2 Detector for patients with a perfusing rhythm, or the Esophageal Detection Device for patients in cardiac arrest (only if weight appropriate). Be able to discuss the indications and limitations of each device.			
a. Contraindicated in pregnancy, or children under 5 yoa or 20 kg.			
N. Confirm tube placement with at least 3 other methods of verification and document the outcomes.			
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
2. Proper size Stylet
3. Laryngoscope Blade & handle
4. Magill forceps
5. Suction equipment
6. Stethescope
7. Gloves & Eye protection
8. Commercial tube holder or proper taping method.
9. Confirmation Device
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.

See page 147 for pediatric LMA Skills Sheet

PEDIATRIC PROTOCOL SKILL EVALUATION
SUBJECT: INTRAOSSEOUS INFUSION

NAME_____ DATE_____

LEVEL: _____Paramedic _____Intermediate

STEPS	1st Test	2nd Test	3rd 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. Insert the needle perpendicular to the insertion site, directed away from the epiphyseal plate. Advance through the periosteum			
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 and/or mediation, using pressure infuser.			
J. Tape the tubing to the skin. Secure the I.O.			
K. List the signs of possible infiltration.			

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 Kerlix.
9. I.O. 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 to the appropriate I.O. device carried by the department. Follow manufacturer recommendations for the device.

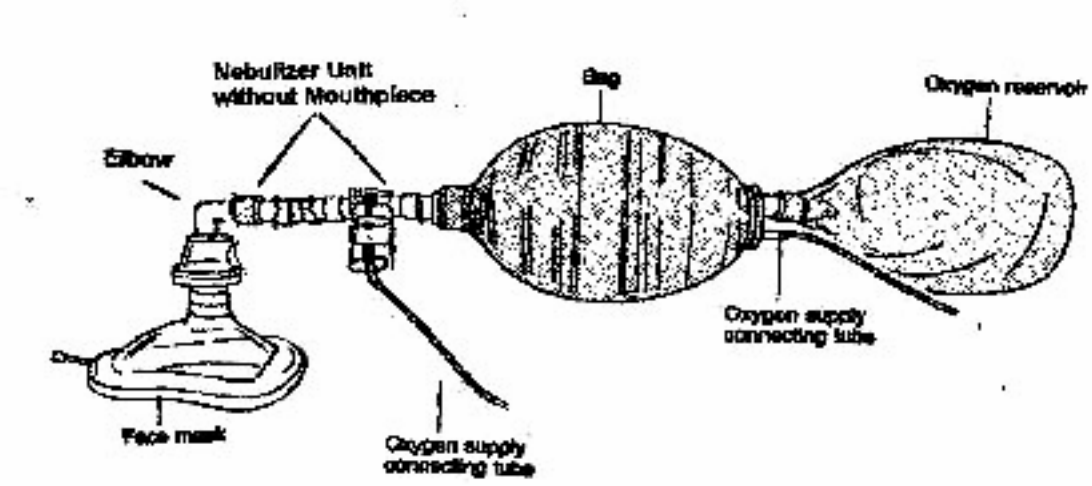
ADULT PROTOCOL SKILL EVALUATION
SUBJECT: USE OF NEBULIZER WITH BAG-VALVE DEVICE

NAME_____ DATE_____

LEVEL: _____Paramedic _____Intermediate

STEPS	1st Test	2nd Test	3rd 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 s aline solution in the reservoir well of the nebulizer.			
E. Connect 1st oxygen supply to nebulizer @ 8-12L/min. and. 2nd oxygen supply to bag-valve @ 12-15 L/min. (If only one oxygen source, attach to nebulizer.			
F. Use mask with nonintubated 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, connect 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: MEDICATION ADMINISTRATION

NAME_____ DATE_____

LEVEL: _____Paramedic

STEPS – Focus is achieving the "Rights" which is expanded to six.	**1st Test**	**2nd Test**	**3rd Test**
AMIODARONE			
A. **RIGHT PATIENT** - List the indications for the medication.			
B. **RIGHT MEDICATION** - Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
EPINEPHRINE 1:1,000 30 ml MULTI-DOSE VIAL			
A. **RIGHT PATIENT** - List the indications for the medication.			
B. **RIGHT MEDICATION** - Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
EPIPEN ADMINISTRATION			
A. **RIGHT PATIENT** - List the indications for the medication.			
B. **RIGHT MEDICATION** - Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
DEXTROSE 50% & 25%			
A. **RIGHT PATIENT** - List the indications for the medication.			
B. **RIGHT MEDICATION** - Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
GLUCAGON			
A. **RIGHT PATIENT** - List the indications for the medication.			
B. **RIGHT MEDICATION** - Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			

STEPS – Focus is achieving the "Rights" which is expanded to six.	**1st Test**	**2nd Test**	**3rd Test**
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
MARK I KITS			
A. **RIGHT PATIENT -** List the indications for the medication.			
B. **RIGHT MEDICATION -** Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
MIDAZOLAM (VERSED)			
A. **RIGHT PATIENT -** List the indications for the medication.			
B. **RIGHT MEDICATION -** Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
MORPHINE			
A. **RIGHT PATIENT -** List the indications for the medication.			
B. **RIGHT MEDICATION -** Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
NALOXONE (NARCAN)			
A. **RIGHT PATIENT -** List the indications for the medication.			
B. **RIGHT MEDICATION -** Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			
ONDANSETRON (ZOFRAN)			
A. **RIGHT PATIENT -** List the indications for the medication.			
B. **RIGHT MEDICATION -** Check the medication for; medication name, expiration date and for cloudiness or discoloration.			
C. **RIGHT DOSE –** Discuss cardiac arrest vs. non-arrest			
D. **RIGHT ROUTE** - List the routes of administration.			
E. **RIGHT TIME** – List duration of infusion or frequency of repeat dose.			
F. **RIGHT DOCUMENTATION**			

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

NAME_____ DATE_____

LEVEL: _____Paramedic

STEPS	**1st Test**	**2nd Test**	**3rd 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			
D. Insert 10 ml. or greater Luer Lock needleless syringe.			
E. Unclamp catheter. State reason why it is done after inserting syringe.			
F. Aspirate with very LITTLE force to withdraw 5 ml blood. State reason why blood is withdrawn.			
G. If you CANNOT aspirate blood, STOP the procedure.			
H Reclamp catheter. State reason for reclamping before removing syringe.			
I. Remove blood-filled syringe and discard into Sharps Container.			
J. Cleanse catheter again with alcohol prep. State why recleansing is so important.			
K. Insert 10 ml or greater Luer Lock needleless syringe filled with 10 ml of 0.9 NS.			
L. Unclamp catheter and flush catheter with 10 ml using a pulsating technique.			
M. Reclamp catheter & then remove syringe.			
N. Cleanse catheter again with alcohol prep.			
O. Insert IV tubing with Luer-Lok connector into access port.			
P. Unclamp catheter. State why it is done after attaching IV tubing.			
Q. Adjust flow rate.			
R. Tape IV tubing securely in place two places on patient's skin.			
S. Administer medications through IV tubing port, if indicated.			

EQUIPMENT:
1. IV tubing w/ Luer Lock connector and IV fluid
2. Two 10 ml or greater Luer Lock. Needleless Syringes, one with 10 ml 0.9 % NS
3. Minimum of 6 Alcohol Preps

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

NAME_____ DATE_____

LEVEL: _____Paramedic

STEPS	**1st Test**	**2nd Test**	**3rd Test**
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. Catheter-over –Needle device
3. Alcohol Preps
4. Pressure Infuser, BP Cuff, or IV Pump

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: INLINE OROTRACHEAL INTUBATION OF THE TRAUMA PATIENT

NAME_____ DATE_____

LEVEL: _____Paramedic _____ Intermediate _____Basic

STEPS	**1st Test**	**2nd Test**	**3rd 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 with C-Spine precautions.			
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 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 the End Tidal CO2 Detector for patients with a perfusing rhythm, or the Esophageal Detection Device for patients in cardiac arrest. Be able to discuss the indications and limitations of each device.			
a. *NOTE: EDDs will fill more slowly in humans than in manikins			
b. Compress EDD first, then place it on the ETT before ventilating pt.			
c. If bulb fills in <5 seconds, ETT is likely successful			
d. If bulb fails to fill, or takes >5 seconds, or fills with emesis, esophageal placement is probable.			
e. Contraindicated in pregnancy or children less than 5 yoa or 20 kg.			
P. Confirm tube placement with at least 3 other methods of verification and document the outcomes.			
Q. Secure tube in place & reassess placement after any movement of patient.			
R. Apply cervical collar.			

EQUIPMENT

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

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	**1st Test**	**2nd Test**	**3rd Test**
A. List the indications for nasotracheal intubation.			
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. If patient's condition is potentially due to trauma, maintain C-spine precautions.			
G. Assemble equipment, select the appropriate ET tube. (6.0 usually too small for most adults, resulting in an unsuccessful intubation)			
H. 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)			
a. If the tube passes into the esophagus, air flow stops via the tube and continues from the mouth.			
b. If the tube passes into the trachea, often the patient will cough. Air will continue via the tube but stop via the mouth, except for slight flow. Asking the patient to take a deep breath can also help pass the tube.			
c. If using an endotrol, flexing the tube with its control loop will help align it with the trachea.			
d. Once the tube is in the trachea, inflate the cuff. Tape the ETT in place after asssuring proper position.			
K. Inflate cuff with 5 to 10 ml. of air. If using BAAM, there should be a definite increase in the sound of the whistle. (Document and remove BAAM)			
L. Ventilate the patient.			
M. Confirm tube placement, specifying at least three methods of verification			
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)
2. Lubricant
3. Laryngoscope Blade & handle
4. Magill forceps
5. 10 ml. syringe
6. Suction equipment
7. Stethescope
8. Gloves & Eye protection
9. Commercial tube holder or proper taping method.
10. Confirmation Device
11. C-collar
12. Adult Intubation Manikin
13. BAAM device

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

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: NEEDLE CRICOTHYROTOMY

NAME_____ DATE_____

LEVEL: _____Paramedic

STEPS	**1st Test**	**2nd Test**	**3rd 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 to cric.			
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.			
a. If dealing with a trauma patient, stabilize cervical spine and insert needle at 90 degree angle.			
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.			
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 _____ Intermediate

STEPS	**1st Test**	**2nd Test**	**3rd Test**
A. List the signs and symptoms which identify a tension pneumothorax.			
B. Administer high concentration Oxygen			
C. If wound is a sucking chest wound, tape nonporous dressing on 3 sides so that air can escape.			
D. Locate the 2nd or 3rd intercostal space in the mid-clavicular line on the affected side. Locate site on the affected side just above the rib margin.			
E. Prepare the skin.			
F. Remove plastic cap from hub of needle so that air can escape.			
G. Insert the needle at a 90 degree angle into the pleural cavity, just above the rib margin.			
H. Advance the catheter while holding the needle in position. Withdraw the needle.			
I. Securely tape the catheter in place without kinking it.			

EQUIPMENT
1. 14 gauge over-the-needle 2 1/4" (or longer) catheter
2. Safety glasses and gloves
3. Stethoscope
4. Alcohol preps
5. Tape

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

I. DRUG BAG EXCHANGE PROGRAM

PURPOSE

To administer and monitor a drug bag exchange program between participating Fire/EMS/ Private Ambulance departments and hospitals to improve the level and quality of pre-hospital care by ensuring that participating members are in full-service at all times.

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 GMVEMS Council member

MEETINGS

Scheduled:	Two meetings per year: March and September
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 Greater Miami Valley EMS Council.
- There is an initiation fee for each new bag added to the program.
- There is an annual maintenance fee for each ALS/BLS bag and BLS bag.
- There is an approved policy for the replacement of lost or stolen drug bags (see Addendum A).
- To maintain the integrity of the drug bag contents, pharmacy departments seal stocked drug bags with a blue plastic device. The only time the seal should be broken is for the administration of pre-hospital emergency medical treatment by approved EMS personnel. After pre-hospital emergency medical treatment use, the drug bag should be cleaned and re-sealed with the red plastic device contained inside the drug bag.
- The following action will 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, i.e. city council, trustees, OMTB for private ambulance service, etc., will be notified that action is being initiated for the Fire/EMS/Private ambulance service.
    - All drug bags will be removed from all locations of said Fire/EMS/Private ambulance service.
    - The GMVEMS Council will distribute 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.
- Area hospital participation according to Council guidelines. (See Addendum C.)
- Medical advisor approval for the use of the GMVEMS Council Operating Protocols. Approval consists of 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 new medication or 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 D).
- Agreement to complete an annual skills check and annual written test between 1 January-31 May unless otherwise scheduled by Council (see Non-Compliance Procedures).
- Maintain all drugs in a clean and 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 should be immediately available:
  - BLS Provider:
    - Oxygen
    - Suction (non-powered is acceptable)
    - AED & Intubation Equipment (only if Medical Advisor approved)
    - Submission of a copy of the annual OH State Board of Pharmacy drug license(s) for each location(s) with vehicles that carry drug bags no later than 1 February ***to GMVEMS Council***
  - ALS Provider:
    - Oxygen
    - Suction (non-powered is acceptable)
    - Monitor/Defibrillator or AED & Intubation Equipment
    - Submission of a copy of the annual OH State Board of Pharmacy drug license(s) for each location(s) with vehicles that carry drug bags no later than 1 January to GMVEMS Council**.** *Council will verify all licenses no later than January 1st.*
    - ***Submission of a copy of a current DEA license to GMVEMS Council office. It is the responsibility of the Agency to keep the DEA license current and submit a renewed copy to Council.***
    - EMS providers are required to inventory each opened pouch, discard any used sharps and clean any contaminants from bag used and apply a red seal before exchanging for replacement bag. 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 EMS provider will discard any used sharps and clean any contaminants from bag used and will then take the red seal from inside the bag (supplied by pharmacy when restocking the ALS/BLS or BLS bag) and seal the appropriate bag used. The red seal will be looped through the proximal portion of the zipper tab (not the outermost portion of the zipper tab).

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 his/her 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.*
- When you open a controlled drug 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. DO NOT throw blue seals in drug bag

Intermediate Level

- *A side compartment labeled "intermediate"*
  The Intermediate can access all outside compartments to obtain medications per their protocol. They cannot access the Center inside compartment or Center Controlled medication compartment.
  When you open a controlled drug 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. DO NOT throw blue seals in drug bag

Basic Life Support

- **The RED BLS compartment on a ALS/BLS bag** or BLS fanny-pack style bag will carry the following medications ONLY: Nitrostat, EpiPen, EpiPen Jr. and baby Aspirin. The Basic EMT can only access this compartment to treat his/her 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.*
- DO NOT throw the blue seal in drug bag. Once you have verified the contents and seal compartment with RED tag you can then dispose of blue seal.

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/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.
- 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.
- Each hospital designates a specific location for the exchange of drug bags. EMS personnel are **required** to complete the Sign In/Out log when exchanging a drug bag.
- EMS Providers are responsible for ensuring that all blue seals are intact when logging out an exchanged bag.
- When you open a controlled drug 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. DO NOT throw blue seals in drug bag.

Documentation of Drug Usage

- Morphine, Versed and Valium are scheduled drugs, which means they must be tracked from the time they are dispensed into the drug bag through the time of administration.

- To insure the medications are properly accounted for, all Intermediate/Paramedics will document:
    - The drug name
    - The amount used
    - The amount wasted
    - The signature of the two witnesses if wastage (the person wasting the medication can sign as a witness).
- The GMVEMSC run sheets have a dedicated area for this documentation and required signature lines. Those using other ***types*** of run sheets should document the above information and the required signatures. **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 scheduled 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.

WASTED DRUG PROCEDURE

- Morphine, Versed and Valium are scheduled drugs. If a medication is partially administered then all of the unused portion must be accounted for.
- The provider shall have a nurse or physician witness the waste of the drug. A pharmacist can also be a witness if a nurse or physician is not available. Using another EMS provider to witness wastage should be avoided unless the EMS provider cannot obtain a nurse, physician, or pharmacist to witness same. If an EMT does witness the wastage, he/she shall be at the same certification level or higher.
- To insure the medications are properly accounted for, all Paramedics and Intermediates will document:
    - The drug name
    - The amount used
    - The amount wasted
    - The signature of the two witnesses
- One witness will be the paramedic or Intermediate wasting the medication and the second witness signature will be the nurse/physician/pharmacist who witnessed the disposal of the medication. Both witnesses will sign the run sheet.
- The GMVEMSC run sheets have a dedicated area for this documentation and required signature lines. Those using other *types* of run sheets should document the above information and the required signatures. 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 scheduled 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.

GENERAL NON-COMPLIANCE PROCEDURES

- Each department and department medical director(s) will be notified that 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 skills and written test and information about individual reasons for non-compliance noted in the Standing Orders database, then appropriate action, up to and including the removal of department from the Drug Bag program by the chair of the drug bag committee, may be taken

- 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 ~~t~~hat does not provide documentation for drug license(s) renewal.
- If a department does not have a current DEA license (it is the responsibility of the EMS Department to submit a copy of the DEA renewal license when the license on file has expired), 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 ~~t~~hat 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 the GMVEMSC using the Drug Bag Discrepancy Report (Addendum E).
- **If at any time, an EMS provider encounters a discrepancy he/she will:**
    - Notify his/her 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, s/he will log the bag in using the normal procedure at that hospital.
    - S/he will advise the pharmacist or EMS Coordinator of the discrepancy and that s/he 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 and/or Potential Tampering:

- When an issue arises concerning:
    - A controlled drug (Valium, Versed, or Morphine)
    - A stolen, missing or lost bag
    - Any medication that appears to have been altered or tampered with
- A collaborative effort between the EMS organization/provider and the Hospital EMS Coordinator/Pharmacist shall be made in an attempt to resolve the issue.
- 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 issued involving Controlled Drug or potential/suspected tampering or lost or stolen drug bags pursuant Federal and State Laws and GMVEMSC Protocol:

    - Contact the Ohio State Board of Pharmacy by telephone at (614) 466-4143. Advise them you want to report a dangerous 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 30 days 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 GMVMESMC.

Discrepancies Not involving Controlled Drugs and/or Potential Tampering

- Examples may include:
  - Non-controlled drugs not in the bag
  - Wrong number of medications doses
  - Wrong drug concentration
  - Expired medications found
  - No expiration date on tag
  - Medications improperly labeled
  - Empty vials/packaged left in 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. He/she 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 (937.586.3699).
- 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/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:

- Will report all at the bi-annual Drug Bag Committee meetings for discussion and resolutions to discrepancies encountered.
- Will 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. When EMS opens a controlled drug 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. ***DO NOT throw used blue seals in drug bag.***

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 will then take red seal from the inside compartment (supplied by pharmacy when restocking the ALS/BLS bag and seal the appropriate bag used. 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.

ADDENDUM A

Lost or Stolen Drug Bag Policy

RE: Lost or Stolen Drug Bags
APPROVED: June 1994
PURPOSE: To provide a uniform mechanism for the investigation and reporting of lost or stolen drug bags.

EMS DEPARTMENT SHALL:

- Develop and implement an internal investigation mechanism for lost or stolen drug bags. The internal investigation mechanism should include:

1. Determine if drug bag was left at the scene.
2. Determine if drug bag was not exchanged on last run.
3. Determine if drug bag is in the wrong vehicle.
4. Interview all personnel who had access to the drug bag.

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:

a. 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 & DEA* drug license 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

PO Box 2307

Dayton OH 45401-2307

Phone: 937.586.3703

Fax: 937.586.3699

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. They have provided a copy of their DEA license or proof of submission for a DEA license if agency is an intermediate or ALS agency .
4. Have been given a provisional membership by the GMVEMSC Executive Committee if the inspection is before regularly scheduled Council meeting.
5. Personnel must be checked off on Standing Orders and data entered on GMVEMSC data base.

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 he/she 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)

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

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

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 emergency medical technician-paramedics, emergency medical technician-intermediates, 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 an emergency medical technician-paramedic, an emergency medical technician-intermediate 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 emergency medical technician-intermediate, 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.

2004 EMS Standing Orders Synopsis of the Greater Dayton Hospital Association/Greater Miami Valley EMS Council Policy on Emergency Department Re-routing Due to Overcrowding (Update in process 9/2007)

To avoid misunderstanding, all parties are cautioned to use the word **"rerouting"** never "closed." Patients are never rerouted for patient's economic considerations.

Major changes from the last synopsis of the Reroute Policy are marked with an asterisk (*).

When conditions exist that may hinder the timely treatment of additional emergency cases the designated hospital official declares, "rerouting of emergency patients to be in effect." The intent is to provide for best patient care at the rerouted institution and throughout the EMS system.

Rerouting Does **Not** Apply (DNA) to**:**

1. **Respiratory/Cardiac Arrest**
2. ***Major Trauma**
3. **Serious Burns**
4. **Maternity**
5. **High Risk Neonatal**
6. ***Dialysis Patient**
7. **Hyperbaric needs**
8. **Air Medical Transport**
9. ***Recently Discharged Patients (48 Hours)**

*Psychiatric was deleted from the DNA List, and Recently Discharged Patients was added. Trauma and Dialysis Patients should NOT be rerouted. They should be taken to the hospital where they are normally treated.

When conditions exist the Designated Hospital Official will:

1. **Update GDAHA Reroute web page**
2. **Notify Dayton FD Dispatch or their appropriate county dispatch**
3. **Notify appropriate EMS organizations**
4. **Notify other hospitals**

Important: hospitals must always show correct designation on website**:**

- **"Normal Operation"**
- **"Reroute all Emergency Patients"**
- **"Reroute all but Major Trauma"**
- **"Reroute ICU &/or CCU patients Only"**
- **"Forced Open"**
- **"Reroute Emergency"**
- **Lockdown**
- **Special Situation: See website Notes or Call**

Reroute status for any hospital must be reviewed after not more than four hours. The rerouting hospital is responsible for cancellation and will update GDAHA Reroute Web Page, notify Dayton Fire Department Dispatch, and follow the same notification protocols used to initiate the reroute.

Rerouting Categories Defined

- "Reroute All Emergency Patients"
  - No patients brought to the rerouted hospital ED, with two groups of exceptions:
    - Permission of the MCP (MCP)
    - Patient is in one of the "DNA" categories
- "Reroute All But Major Trauma"
  - Used only by Trauma Centers. No patients brought to the rerouted hospital ED, with three groups of exceptions:
    - Permission of the MCP
    - Patient is in one of the "DNA" categories
    - Significant trauma
  - Intent is to permit patients needing 'immediate surgical intervention' to go to Trauma Centers
- "Reroute Intensive and/or Coronary Care Patients Only"
  - No patients who require monitoring or ICU are brought to rerouted hospital ED, unless:

        - Permission of MCP
        - Patient is in one of the "DNA" categories
- **Informational Categories**
    - Hospital not able to handle a limited category of patients
    - Examples
        - Stroke or head trauma patients due to CT Scan down
        - Haz-Mat patients
        - Absence of a physician specialty
    - Duration of reroute could be brief or extended
    - Shown on the web page as "Special Situation." Hospitals diverting these categories of patients are **not** rerouted.
    - These categories **do not** trigger "Tie-Breaker" actions
- Lockdown
    - Hospital has activated its disaster plan because of an internal emergency, bomb threat, or other situation rendering it unable to accept patients. "Home Base Hospital" and "Does Not Apply" list are both not applicable in these situations.

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 the MCP in the emergency department of the rerouted hospital and his/her decision will be binding.

If EMS transports to rerouted hospital, the patient will be attended to. Any discussion concerning the transport decision should be private, and after patient care has been initiated.

Emergency medical service personnel should use their BLS radios, cellular phone or dispatcher to notify the rerouting hospital in unusual circumstances (critical illness or injury, multi-victim incidents, etc.). If a patient is to be transported to a rerouted hospital, EMS personnel must contact the receiving facility by radio or telephone.

"Tie-Breakers"
If a three hospitals in a "geographic area" attempt to reroute, all hospitals in that area will terminate rerouting for a minimum of two hours, and each of the three hospitals enters "Forced Open" on the web page. Hospitals have agreed to educate the staff and use Forced Open first, before Reroute Emergency. This is not a change in the policy, but a change in the hospital procedures. Affected hospitals should re-notify EMS of "Forced Open" status.

EMS personnel should realize a "Forced Open" hospital would be rerouted if other hospitals were not. EMS personnel may want to **consider other destinations** when appropriate for patient care.

Following are the geographical areas and the hospitals in each area**:**

Metro	East	North	South	West
Good Samaritan Hospital **Grandview Hospital** **Kettering Memorial Hospital** **Miami Valley Hospital**	**Greene Memorial and any other two:** **Miami Valley** **Kettering** **Grandview** **Southview**	**UVMC and any other two:** **Good Samaritan** **Grandview** **Miami Valley** **Wilson Hospital in Sidney**	**Any three:** **Middletown** **Southview** **Sycamore** **Kettering**	**All three:** **Wayne Hospital** **Good Samaritan** **Grandview**

It is the responsibility of the third rerouting hospital to check the website, and initiate communication with other rerouted hospitals. If one or more hospitals stop rerouting before changes to website are made, "Tie-Breaker" rules are not initiated.

"Rerouting Emergency"
If none of the three hospitals in a geographic area can stop rerouting, then a "rerouting emergency" will be declared. During "Reroute Emergency," all squads will transport primarily to their "Home Base Hospitals," except for patients with one of the DNA categories. If responding on a mutual aid call, EMS personnel will use the aided community's "Home Base Hospital" as much as possible.

Hospitals which are not considered "Home Bases" (i.e., VA, WP, CMC, DHH) are not affected by Emergency Rerouting rules. Children's Medical Center, will accept patients up to 21 years of age (no maternity patients). Also, EMS personnel should consider transports to outlying hospitals not affected by the "Reroute Emergency" when practical. Consider the patient's needs, departmental needs (EMS out of service times), hospital situations, and patient delays.

EMS systems and their "Home Base Hospitals are as follows:

Good Samaritan Hospital	Grandview	Kettering	Miami Valley	Southview
Brookville **Clayton** **Englewood** **Union** **Dayton FD Co.'s 16 & 14** **Harrison Twp. - Main St.** **New Lebanon** **Lewisburg** **Trotwood** **West Alexandria** **North Central** **Phillipsburg**	**Butler Twp.** **DFD Co.'s 8 & 13** **Harrison Twp. – I75 &** **Needmore** **Huber Heights** **Vandalia**	**DFD Co.'s 15 & 18** **Kettering FD (4 units)** **Miami Twp. # 48** **Moraine (4 units)**	**DFD Co. 11** **Fairborn** **Jefferson Twp.** **Oakwood** **Riverside** **U.D. Public Safety**	**Bellbrook** **Clearcreek Twp.** **Miami Twp. # 50** **Sugarcreek (2 units)** **Washington Twp.** **Wayne Twp.**
Sycamore	Greene Memorial	Middletown	Community Hospital	Mercy Medical Cntr.
Farmersville **Miamisburg (2 units)** **Miami Twp. # 49** **West Carrollton** **Germantown** **JEMS**	**Beavercreek** **Cedarville Twp.** **Cedarville** **University** **Central State University** **Fairborn** **Jefferson Twp.** **Miami Twp.** **New Jasper Twp.** **Silvercreek Twp.** **Xenia** **Xenia Twp.**	**Gratis** **Lebanon** **Mason** **Turtlecreek** **Monroe**	**Hustead EMS** **Madison Twp.** **Harmony Twp.** **Springfield Twp. Stations 1 & 2** **Pleasant Twp.** **SFRD Medic 3, 6, 8**	**German Twp.** **New Carlisle** **Pike Twp.** **Bethel Twp.** **Springfield Twp. Station 3** **Mad River Twp.** **Moorefield Twp.** **SFRD Medic 2, 7, 10**

U.V.M.C.	Wayne	Wilson		
Miami County Squads	**Darke County Squads**	**Shelby County Squads**		
Reid	Clinton	McCullough		
Eaton **NW Fire - New Paris**	**Massie Twp**	**Camden**		

Hospitals Capabilities List

Below is a list of hospitals, and the specialty capabilities of each (Stroke, PCI, Trauma, etc.).

Hospital	Adult Trauma Center & Level	Pedi Trauma Center & Level	Inpt. Burn Servc	Interventional Cath Lab 24/7	If Cath Lab, Cardiac Alert Program	If No Cath Lab, Thrombolytics for AMI	Labor & Delivery Srvcs	24 hr Neuro Coverage	Stroke Protocol with Thrombolytics	Other (see below)
Children's		Level 2	YES					YES		
Community				YES			YES	YES	YES	
Dayton Heart				YES	YES					
Good Sam				YES	YES		YES	YES	YES	
Grandview				YES	YES			YES	YES	*
Greene Memorial	Level 3					YES	YES	YES	YES	** ***
Kettering				YES	YES		YES	YES	YES	*
Mercy (Sprfld)				YES					YES	
Mercy (Urbana)						YES			YES	
Miami Valley	Level 1	Level 1	YES	YES	YES		YES	YES	YES	**
Middletown	Level 3									
Southview						YES	YES	YES	YES	* #
Sycamore						YES		YES	YES	* #
Upper Valley						YES	YES	YES		
Wayne						YES	YES			***
WPAFB						YES	YES			

*** Accredited Chest Pain Eval Center**
**** Sexual Assault Nurse Examiners 24/7**
***** Treats superficial/minor burns.**
****** Thrombolytics for stroke pts at receiving hosp. direction**
 # Has a "cardiac alert program" but no cath lab on site

Revised 9/21/2007

Hospitals' Guide for Public Safety Worker (PSW) Exposures

Updated 9-07 (Data subject to change-check periodically to ensure most current)

Step	9-04 Childrens	Community 9-07	DHH 6-06	9-07 GSH	9-07 GVH/SVH	GMH 9-07	9-07 KMH/SYC	MMC & MMH 9-07	MVH	MRH	Wayne 9-07
Wash Area	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Notify Supervisor	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Report to hospital	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Hospital Contact	NICU Charge Nurse	ED Staff -> EMS Coord	ED Staff -> EMS Coord.	ED staff, or Infection Control	ED Staff -> EMS Coord.	ED Staff -> EMS Coord.	ED Staff -> Infection Control	ED Staff -> EMS Coord	Security -> AOC	ED Charge Nurse	Infection Control
Complete "Request for Information Form for HCWs"	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Type into ED	If desired	Y	Y	If desired	Y	Y	If desired	If desired	If desired	Encouraged	Y
Have ***your*** lab drawn	If source is high risk (not routine)	If indicated	Y	If indicated	Y	Y	If desired	If indicated	If desired	If Desired	If indicated
Have ***source*** lab drawn (HIV, Hep B, Hep C)	Y	Y (Rapid HIV avail.)	Y (Rapid HIV avail.)	Y (Rapid HIV avail)	Y (Rapid HIV avail.)	Y	Y	Y	Y (Rapid HIV avail.)	Y (Rapid HIV Available)	Y
Follow-up: Consult ***YOUR*** ***Fire/EMS/Police*** Dept policies/procedures as well	Follow dept policy	Infection Control	EMS Coord. or designee & Follow dept policy	Infection Control	EMS Coord. or designee & Follow dept policy	WorkPlus Dept	Infection Control & Follow dept policy	Infection Control	Infection Control or Admin Officer	Follow Dept. Policy	Infection Control
Comments	Infection Control Doc available 24/7 for RN contact if needed	Give form to EMS Coord. who forwards to Infection Control for follow up	EMS Coord. is to be paged 24/7 by ED or Prehospital provider	Infection control is notified of Exposure Incident by EMS coordinator	EMS Coord. is to be paged 24/7 by ED or Prehospital provider	Give form to EMS Coord. who forwards to infection control for follow-up	Infection Control to be paged 24/7 by ED	Give form to EMS Coord who forwards to Infection Control for follow up	Security page Infection Control Mon-Fri 8-4. Admin Officer to be paged at all other times including holidays	Exposure packets located by EMS radio. Anti Viral meds available in ER if needed.	Give form to Infection Control, ED Manager or House Supervisor

Updated by: Steve Stein, Education Committee Chair, GMVEMSC after consult with hospitals' EMS Coordinators 09/12/2007

PEDIATRIC PROTOCOL SKILL EVALUATION (Adult is an Optional Skill)
SUBJECT: LARYNGEAL MASK AIRWAY

NAME_____ DATE_____

LEVEL: _____Paramedic _____ Intermediate _____Basic

STEPS	1st Test	2nd Test	3rd 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. NonTrauma 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. H2O). See the instructions for appropriate volumes. Never overinflate the cuff.			
L. Ventilate & check breath sounds			
M. Confirm sufficient cuff inflation using the End Tidal CO2 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 CO2 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. (22lb.)	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

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Region 2 EMS Providers, September 21, 2007

This Training Manual has been produced as a result of countless hours of work by a diverse cross section of the EMS community in the Region. The members of the Standing Orders and Continuing Education Committees, and the RPAB have poured input in this document. The groups have responded to changes in medication availability and have received your input to improve these documents.

There are companion documents and additional resources that are available for you to either view online / download for further explanation on the Training / Testing process for 2008. The first of those is the "2008 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 websites soon.

The Training Manuals and processes would not have been possible without the strong foundation left by the past chairpersons of the Continuing Education Committee, Anne Boyd and Standing Orders, David Gerstner. Thank you both. We would also like to thank the members of the two committees that made this possible:

Continuing Education	Standing Orders
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Karen Basso	Denny Powell, Co-Chair
Jeff Bruggeman	Tom Baltes
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Sincerely,

Steve M. Stein

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