Greater Miami Valley
Emergency Medical Services Council, Inc.
and
Ohio EMS Region 2

Intermediate Standing Orders Training Manual

Pre-hospital Protocols

2006

for EMT-Intermediates

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Table of Contents

TABLE OF CONTENTS

1.0 - STIPULATIONS

1. 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 Ohio EMS Region 2 and certified by the State of Ohio at the following levels:
   - Only EMT-Intermediates who have completed the 2002 State of Ohio EMT-Intermediate Curriculum and Certification Examination or EMT-Is who were certified prior to 2002 and have successfully completed the 2002 State of Ohio EMT-I Curriculum Transitional Update Course.
2. 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 facili**ty.**
3. 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.
4. 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 Advisor for the local department or agency. **Items that are enclosed in braces ({ }) are at the option of the Department, and its Medical Director.**
5. EMS personnel are not authorized to intubate, unless they have and can use appropriate secondary confirmation devices (EtCO2 Detectors or Monitors, and/or Esophageal Detection Devices).
6. Bring the patient's medications, or a list of the medications, with the patient to the hospital. When supplying hospitals with documentation of patient medications, be certain to include the proper **dos**e, and the **frequency** of administration.

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Identify yourself and Level of Certification as well as the person receiving the message at the medical facility.

2.0 - INITIAL CARE

1. Institute Basic and Advanced Life Support as indicated:
   - Establish unresponsiveness.
   - Stabilize neck and immobilize if history of trauma.
   - Open airway and assess breathing.
2. If not breathing, institute artificial ventilation (using mouth-to-mask, Bag-Valve-Mask (BVM), and
3. adjuncts such as oropharyngeal and nasopharyngeal airways).
4. Administer **Oxygen (O2**).
5. EMT-Intermediates may perform orotracheal intubation in patients who are "apneic" and
6. patients who are " pulseless and apneic".
7. 5. Check pulse. If absent, CPR continuously until **{AED}** or other defibrillator is available.
8. Start IV of **0.9% Normal Saline (NS)** (TKO) or a **Saline Loc**k.
   A. **IV Rates:**
      - **Shock** - Establish an IV of **0.9% N**S, run wide open using regular or macro-drip tubing. Decrease fluid rate if Systolic Blood Pressure (SBP) is greater than (>) 100.
      - **Medical Emergencies, Head Trauma, Cardiac Problems (with stable BP)** - Use TKO (to keep open) rate.
   B. **Saline Lock:** If appropriate for patient condition, establish a **Saline Lock** in place of an I**V.** Contraindications: Cases where an **IV Bolus** may be required, **IV Drip** medications are indicated, or multiple trauma related injuries.

NOTE: IN ALL CASES WHEN ATTEMPTING TO START AN IV, SPEND NO MORE THAN FIVE (5) MINUTES AT THE SCENE ON THIS PROCEDURE.

C. {Properly trained and tested EMT-Intermediates, with the approval of their Medical Director, may utilize **Adult Intraosseous (IO)** devices including but not limited to the **Bone Injection Gun (BIG),** "First Access for Shock or Trauma" **(FAST),** .in Cardiac Arrest and unconscious, profoundly unstable or rapidly deteriorating medical and trauma patients.} Adult IOs should not be used if less invasive means are available and effective.(e.g., Glucagon IM, Narcan MAD, Versed MAD

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{Dual Lumen Airways} and the {LMA} may only be used for apneic patients with no gag reflex.

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It is very important for Crews to realize that the section of the Drug Box that was used for a Supply Pouch will no longer be available for that purpose. All the supplies (syringes, alcohol preps, saline locks, needles, and IV tubing) that used to be carried in that pocket must now be stocked on your Medic.

2.1 - PATIENT ASSESSMENT

1. Airway (Assess, establish, and maintain as needed)
2. Breathing
3. Circulation (Skin - warm, cool, dry, or moist; capillary refill; peripheral pulses)
4. Present Complaint
5. Vital Signs
6. Signs & Symptoms (90 second survey)
7. Allergies
8. Medications - Current, with dose and frequency
9. Past Medical History
10. Last oral intake
11. Events leading up to illness/injury
12. Approximate Age/Weight.

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May use {Doppler Stethoscope} to assist in obtaining accurate BP, or to verify effectiveness of treatment.

2.2 - AIRWAY MAINTENANCE

1. Administer **O2** to all patients with respiratory distress, or whenever your impression indicates that it is appropriate. Use the following rates as guidelines:
   A. Two liters per minute per nasal cannula for patients with a history of Chronic Pulmonary Disease (COPD).
   NOTE: COPD patients in severe respiratory distress or with Chest Pain need the same oxygen devices and flow rates as any other patient in such condition. Be prepared to stimulate breathing and/or ventilate should the patient become apneic.
   B. Four to six (4-6) liters per minute by nasal cannula for other patients.
   C. 100% by a non-rebreather mask (12-15 liters per minute) for severe trauma patients, verydistressed cardiac patients, and other patients who appear to need high flow **O2.**
2. Ventilate patients who are symptomatic with an insufficient respiratory rate, or insufficient respiratory depth. Patients who are apneic should be intubated.

A. **EMS personnel are *required* to use both a Primary and at least one appropriate Secondary Method of tube placement confirmation** (as defined below) **on every intubatio**n. These include:
   - Primary Methods:
     - ❖ Physical Assessment including auscultation of the epigastrium, anterior chest, midaxillary areas, then the epigastrium again.
     - ❖ Repeat visualization of the tube between the cords
     - ❖ Condensation in the tube
     - ❖ Pulse Oximeter
     - ❖ Keeping the Endotracheal tube at the 20 - 22 cm. mark at the teeth will prevent inserting the ETT too far, and greatly reduce the chances of right mainstem bronchi intubations.
   - Secondary Methods:
     - % **{End Tidal Carbon Dioxide Monitor}** (electronic waveform $EtCO_2$ may be used for all intubations).
     - % **{End Tidal Carbon Dioxide Detector}**. (colorimetric EtCO2 is limited to patients with pulses) **Esophageal Detection Device (EDD).** (may be used with any intubation, though EtCO2 is preferable for patients who are still breathing).
     - % **Unless at least one appropriate secondary devices is available and used to verify tube placement, EMS personnel are not authorized to intubate.**

B. **Always secure the ET tube in place as effectively as possible, preferably with a commercial tube-securing device.**

C. **Re-assess tube placement EVERY TIME THE PATIENT IS MOVED.**

3. {Dual Lumen Airways (e.g., {Combitube} . or {Pharyngotracheal Lumen Airway} (PtL).), or a {Laryngeal Mask Airway} (LMA)}, are acceptable rescue airway devices for properly trained and tested EMT-Intermediates with the approval of their Medical Director, and may be used after two failed attempts to intubate the pulseless and apneic patient. 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).}
4. If routine ventilation procedures are unsuccessful, try to visualize obstruction with laryngoscope. If foreign body is seen, attempt to remove it using **suctio**n, and/or {Magill Forceps}, if possible.
5. **Tension Pneumothorax Relief:** If indications of Tension Pneumothorax are present, decompress the chest with a 14 gauge, 2 inch Angiocath placed in the second or third Intercostal Space (ICS), in the mid-clavicular line.

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EtCO2 with Waveform is the most accurate method of airway confirmation.

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Definition - Rescue Airway, use of an alternative device such as a Dual Lumen Airway or LMA after attempts to use endotracheal intubation have failed.

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Optional Skills Training: See new skill sheet -- "Insertion of LMA" Skill Evaluation Sheet

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End Tidal Co_2 Detector (EtCo_2): An inline detector for intubated patients that senses the presence of carbon dioxide (Co_2) in expired air. If Co_2 is detected, correct tube placement is confirmed. If no Co_2 is detected, placement is suspect. One disposable $EtCo_2$ Detector is the "Nellcor Easy Cap." The Easy Cap can be used continuously after the patient is intubated.

Limitations:

1. The patient must have adequate perfusion. If Co_2 is not transported to the lungs, the device will not register CO2. It can then appear that the tube is in the esophagus, when, in fact, it is correctly placed. Therefore, Easy Cap EtCO2 Detectors are **not recommended** for patients in cardiac

arrest. (Please note that electronic EtCO2 Detectors with waveform readings are useful in cardiac arrest patients, although they are significantly more expensive, and are not available to many departments at this time.)

2. Secretions, emesis, etc. can ruin the device.
3. A patient with large amounts of carbonated beverage (e.g., 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 is in the trachea, when it is in the esophagus.
4. Use the device for no more than two hours.
5. **Do not use the device on children weighing less than 15 kg, due to the dead space within the detectors.**
6. Medication issues:
   - If you administer epinephrine or other medications via the ETT, remove the EtCO2 Detector for several ventilations, until no medication returns through the tube during exhalation. If you do not, medications splashing up the tube onto the EtCO2 can ruin the ability of the device to show color changes.
   - Be aware that if you give intravenous sodium bicarbonate, more carbon dioxide will be produced. The yellow color on the Easy Cap may be enhanced.

End Tidal CO2 (EtCO2) Monitors: These are electronic devices that measure the amount of carbon dioxide in the exhaled ventilations of patients. They can use mainstream sensors, which are located directly on the endotracheal tube, or sidestream sensors, which sample the ventilations more remotely from the patient. Sidestream sensors can be used with patients who are not intubated. Electronic EtCO2 Monitors can provide only a numeric readout, or can include a "waveform." EtCO2s with waveform graphically and constantly display the changes in exhaled carbon dioxide, thus providing a moment by moment assessment of the patient.

Limitations and Benefits of Electronic EtCO2 Monitors:

1. Electronic EtCO2 monitors have all the benefits of EtCO2 Detectors (see above), plus EtCO2 Monitors with Waveform can even be used in patients with poor perfusion, such as cardiac arrest patients. That is partly because the Electronic Monitors are more sensitive, but mostly because watching the changes in the waveform lets you see changes, just as you see changes in an EKG. By knowing how EtCO2 waveforms appear in different situations, you can determine tube placement even during cardiac arrest.
2. Can be used to assess the patient's chances for survival.
3. Sidestream monitoring can be useful to help guide treatment in asthma or COPD patients even before they are intubated.
4. The biggest limitation of electronic $EtCO_2$ Monitors with waveform readings is that they are significantly more expensive.
5. You are much less likely to be misled by readings from a patient with large amounts of carbonated beverage (e.g., beer) in his stomach when using the waveform. Even though the device may sense the CO_2 given off by that beverage, the paramedic will be able to determine by the pattern of the waveform whether the CO2 is respiratory or not.
6. Electronic EtCO2 Monitors can be used in all situations described for EtCO2 Detectors. Additionally, if the Monitor includes a waveform, it can be used with cardiac arrest patients.

Esophageal Detector Device (EDD): A device to confirm tube placement mechanically. It is based on the principle that the esophagus is a collapsible tube, while the trachea, on the other hand, is rigid. An EDD looks something like a bulb syringe. Collapse the bulb, and place the device on the end of the ETT. 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. That prevents air movement up the tube and into the bulb. So 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, which is rigid, there is nothing to occlude the movement of air into the tube. The bulb will rapidly refill, indicating that the ETT is properly placed.

Limitations:

1. A large amount of gastric air can give a false positive finding (tube seems to be in the trachea, but is not).
2. 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.)
3. EDD cannot be used continuously. It must be removed after confirmation, though you may reuse it after patient movement.
4. EDDs may only be used on pediatric patients who are older than 5 years of age, and weigh at least 20 Kg/44 pounds.
5. Pregnancy is a relative contraindication to use of the EDD.

Indications for Various Devices

	Nasopharyngeal ETT	Oral ETT	Pulseless Pt.	Apneic Patient
Colormetric $EtCO_2$	Useful	Useful	Contraindicated	Useful
Electronic Waveform $EtCO_2$	Useful	Useful	Useful	Useful
EDD	May be used	Useful	Useful	Useful
Nasoscope	Useful	Contraindicated	Contraindicated	Contraindicated
BAAM	Useful	Contraindicated	Contraindicated	Contraindicated
Pulse-Ox	Useful	Useful	May be useful	Useful

To prevent endotracheal tube dislodgement, secure the tube in place as effectively as possible and prevent patient's head from moving. Cervical immobilization is effective in maintaining patient's head in a neutral position.

3 - CARDIOVASCULAR EMERGENCIES

3.1 - CARDIAC ARREST

GENERAL CONSIDERATIONS

1. CPR should not be interrupted for more than 30 seconds until spontaneous pulse is established.
2. IV push medication should be followed by a 20ml **NS** flush.
3. In all Cardiac Arrests, consider the ACLS "Treatable Causes:"

The "H's"
Hydrogen Ion (Acidosis)
Hyperkalemia/Hypokalemia and Other Metabolic Causes
Hypoglycemia/Hyperglycemia
Hypothermia/Hyperthermia
Hypovolemia (Tank/Anaphylaxis/Gravid)
Hypoxia

The "T"S"
Tablets (Drugs, OD, Accidents)
Tamponade, Cardiac
Tension Pneumothorax
Thrombosis, Coronary (ACS)
Thrombosis, Pulmonary (Embolism)
Trauma

3.1.1 - CARDIAC ARREST: PULSELESS APNEIC PATIENT (AED PROTOCOL)

1. Evaluate ABCs.
2. Provide ventilations during CPR with a {Bag-Valve-Mask (BVM)} or {Positive Pressure Ventilation (PPV)} with 100% {oxygen}.
3. CPR continuously until **{AED}** . or Monitor/Defibrillator is attached to patient. Press to analyze. If no shock advised, continue CPR.
4. If shock advised, provide set of three (3) Stacked shocks.
5. CPR continuously for one minute, if no pulse, then press to analyze. If shock advised, repeat set of three (3) stacked shocks.
6. If no shock advised by {**AED**} . or Monitor/Defibrillator at any point, transport as soon as possible
7. CPR continuously.
8. Intubate patient.
9. Approximately every five (5) minutes, stop the vehicle, and reanalyze the patient as long as shock advised. Never analyze or defibrillate in a moving vehicle.

AED Use: If your AED has recording capabilities, start verbal documentation at the time you attach AED to patient. On monophasic AEDs, the manufacturer's recommended energy settings for the first three stacked shocks is 200 J., 200 - 300 J. , 360 J., with all subsequent shocks @ 360 J.. Departments who have purchased one of the new biphasic AEDs will have equivalent energy settings.

Costs/Benefits of Stopping to Analyze on Long Transports: As stated in Section 3.1.6 A of this protocol, when faced with a patient in cardiac arrest and no advanced life support capabilities at the scene, time to the receiving medical facility is critical. Stopping to analyze on long transports will increase that time. A good rule of thumb: If AED is recommending you shock, stop for analysis; if no shock is advised, make less stops for analysis.

3.1.2 - CARDIAC ARREST: V-FIB/PULSELESS V-TACH

1. Evaluate ABCs; provide ventilations during CPR with a BVM or {Flow Restricted O2 Powered Device (FROPVD)} with 100% **O2**.
2. If witnessed arrest, and no defibrillator available, administer one (1) **Precordial Thump**.
3. CPR continuously, until {AED}. or Monitor/Defibrillator is available.
4. Defibrillate up to three (3) times if needed for persistent pulseless VF/VT (200J, 200-300J, 360J, or equivalent (biphasic defibrillation) doses).
5. Intubate the patient. Confirm tube placement using **Primary and appropriate Secondary Method**s, and secure tube
6. Establish an IV of **0.9% NS.** Use an external jugular (EJ) or antecubital vein for cardiac arrest patients. EJ is the preferred IV site for prehospital cardiac arrests.
7. Defibrillate at 360 Joules.
8. Consider "treatable causes" (H's and T's). **NOTE: Nearly all medical cardiac arrests are "Altered Level of Consciousness – Unknown Cause." If there is any evidence of hypoglycemia prior to arrest, administer 50 ml of 50% Dextrose IVP. If there is a suspicion of drug abuse, administer 4 mg. Narcan IVP.**
9. Defibrillate at 360 joules.

FROPVD are only appropriate for adult patients.

3.1.3 - CARDIAC ARREST: ASYSTOLE & PEA

1. Evaluate ABCs; provide ventilations during CPR with BVM or {Flow Restricted O2 Powered Device} with 100% **O2.**
2. CPR continuously, until {AED}. or Monitor/Defibrillator is available.
3. Intubate the patient. Confirm tube placement using **Primary and appropriate Secondary Method**s, and secure tube**.**
4. Establish an IV of **0.9% NS.** Use an external jugular (EJ) or antecubital vein for cardiac arrest patients. EJ is the preferred IV site for prehospital cardiac arrests.
4. Confirm asystole.
5. Consider "treatable causes" (H's and T's**). NOTE: Nearly all medical cardiac arrests are "Altered Level of Consciousness – Unknown Cause." If there is any evidence of hypoglycemia prior to arrest, administer 50 ml of 50% Dextrose IVP. If there is a suspicion of drug abuse, administer 4 mg. Narcan IVP.**

3.1.4 - CARDIAC ARREST: PULSELESS ELECTRICAL ACTIVITY: (PEA)

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3.1.5 - NON-INITIATION OF CPR

1. **No** resuscitation will be attempted in cardiac arrest patients with the following:
   A. Burned beyond recognition
   B. Decapitation
   C. Deep, penetrating, cranial injuries or massive truncal wounds.
   D. DNR Order - present and valid
   E. Frozen body (so severe that chest compression is impossible, or the nose and mouth are blocked with ice)
   F. Hemicorporectomy (body cut in half)
   G. Rigor mortis, tissue decomposition or severe dependent post-mortem lividity (any one or more)
   H. Scene Safety - Situations where the danger to rescuers is excessive
   I. Triage
2. If CPR has been started on a patient with <u>any condition listed in # 1</u> of this Section, EMS may discontinue the resuscitation efforts.
3. EMS will **not** initiate resuscitation on victims of **blunt trauma** who are **found in cardiac arrest upon EMS arriva**l, or who **arrest before** being placed in the EMS vehicle, unless either of the following conditions are present:
   A. Patient can be **delivered** to an Emergency Department within **5 minutes** of the time patient is found to be in arrest; **or**
   B. You suspect that the arrest may have been caused by a medical condition (e.g., AMI) or a focused blunt trauma to the chest (e.g., baseball to the chest.
      - If you suspect that the arrest resulted from medical conditions or focused trauma, follow all normal cardiac arrest procedures.
4. EMS will **not** initiate resuscitation on victims of **penetrating trauma** who are in <u>cardiac arrest upon EMS</u> arrival, **unless** the patient can be delivered to an Emergency Department within 15 minutes.
   A. Resuscitation **will** be attempted on victims of penetrating trauma who arrest after they are in EMS care.
5. Once enroute, continue care even if the above time limits cannot be met.

Risks and Benefits of Departments accepting DNR Orders that are not on Comfort Care forms: Some EMS agencies do accept formal DNR orders that are not on State of Ohio forms, as long as you are comfortable with the identification of the patient. There are several reasons why this may be beneficial to your patients:

- There are still physicians who are unfamiliar with the Comfort Care Law, and who are writing older style DNR orders.
- A terminal patient from another state may be visiting Ohio. Obviously, a person coming from out of the state to visit their relatives for one last time, is going to have a DNR Order from their home state, and would want it to be honored.
- As a result of a quirk in the law, DNR Comfort Care does not apply to children. As such, any DNR Orders for pediatric patients will be a format other than the Comfort Care style.

See Appendix for more complete information on Ohio DNR.

Blunt Trauma Patient in V Fib/V Tach: When you find a patient with blunt trauma in cardiac arrest at an accident scene, it can be difficult to know if s/he is in arrest from blunt trauma due to the accident or if s/he had an AMI ,went into arrest, and that caused the accident. If, in your judgment, the patient's injuries caused the cardiac arrest, make no resuscitative efforts, unless you can arrive at the hospital within five minutes of the time the patient arrested. On the other hand, if you have reason to suspect that the patient had a medical condition that caused his arrest, follow all of your normal cardiac arrest procedures.

3.1.5.A – DNR COMFORT CARE SYNOPSIS

1. Two Comfort Care trigger points:
   A. DNR **Comfort Care** means **"comfort care <u>only</u>"**.
      - In effect when the order is written. Allows any medical treatment to diminish pain or discomfort that is not used to postpone the patient's death.
   B. DNR **Comfort Care-Arrest** means care is limited **only** after the patient goes into cardiac or respiratory arrest.
      - Until arrest, patient receives all usual medical care.
2. The following treatments are prohibited for apneic or pulseless patients with DNR **Comfort Care-Arrest** orders, and **for DNR Comfort Care Patients at any time**:
   A. Artificial airways (oral airways, or endotracheal tubes)
   B. Cardiac monitoring
   C. Chest compressions
   D. Defibrillation or cardioversion
   E. Respiratory assistance
   F. Resuscitative drugs
   G. Resuscitative IV line
3. The following treatments are **<u>always permissible, regardless of a patient's DNR status</u>**:
   A. Clearing the airway, other than as an attempt at resuscitation
   B. Contacting Medical Control or your supervisor
   C. Controlling bleeding
   D. Oxygen
   E. Pain management
   F. Position for comfort
   G. Providing emotional support

H. Splinting or immobilizing suspected fractures

4. If a person holds a Durable Power of Attorney for **Healthcare** (DPA-HC), they can request CPR for the patient if:
   A. The Durable Power of Attorney is for **Healthcare**, **and** the DNR Comfort Care form does **NOT** have the box for "Living Will and Qualifying Condition" checked under "Certification of DNR Comfort Care Status (to be completed by the physician)".
   B. **If the Living Will box (second box) is checked**, the DNR Comfort Care protocol applies, regardless of wishes of the DPA-HC.

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After the body is released by the Coroner, or a physician has agreed to sign the death certificate, you may remove endotracheal tubes, IVs, etc. If for any reason, the body will not be released (i.e. it will be a Coroner's case), do not remove any such equipment.

3.1.6 - FIELD TERMINATION OF RESUSCITATION EFFORTS

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3.1.6.A - FIELD TERMINATION OF RESUSCITATION EFFORTS WITH NO AVAILABLE PARAMEDIC

1. ◆When faced with a patient in Cardiac Arrest, no paramedics are available at the scene, and Transport time to a medical facility will exceed 30 minutes, they may consider contacting a Medical Control Physician for orders to terminate the resuscitation.
2. ◆Medical control must be contacted and the physician must speak directly with the EMS provider, and must give consent for the resuscitation effort to cease.
3. The intent of this section is to avoid the risks of emergency transport of patients who are almost certainly non-viable.
4. **Ensure that the EMS Coordinator of the hospital that authorized the Field Termination receives a copy of the runsheet for his/her records.**

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ALS equipment means having full ALS capabilities, including Monitor/Defibrillator, Intubation equipment, IV supplies, and an ALS Drug Box.

3.2 - SUSPECTED CARDIAC CHEST PAIN OR CHEST PAIN EQUIVALENTS

1. Secure and maintain airway, administer **O2** at 4 - 6 l/m via Nasal Cannula. Increase oxygen delivery as needed for respiratory distress.
2. Obtain vital signs.
3. Complete patient assessment, **including Pain Scale (1-10)**, and pain radiation.
4. Place patient on Cardiac Monitor and {Pulse Oximete**r**}.
5. Ask patient about allergies.
6. Ask both male and female patients if they are taking Viagra. or similar medication. **Nitroglycerin** must not be given to patients who have taken Viagra within the last 24 hours.
7. Give 325 mg. of **Aspirin** (4 Baby Aspirin, or one regular Adult Aspirin) to every patient with symptoms of Acute Coronary Syndrome (ACS). Patient MUST CHEW the aspirin.
8. If SBP > 100, and patient is at least 25 years of age (or has prescription for **Nitr**o), administer **Nitrostat (Nitroglycerin),** (1) 1/150 grn. (0.4 mg.) **S**L. Re-assess the patient's vitals.
   A. Patients who have not taken NTG previously must have IV started prior to Nitroglycerin administration.

B. **Nitro** may be repeated every 5 minutes as needed for pain control, up to a total of three tablets given by EMS, except as noted below. Monitor and document the patient's BP before and after each Nitro administration.

9. Establish IV **0.9% NS** 250 ml. at TKO or **Saline Lock**, while en route to hospital. Establish IV **0.9% NS** 1,000 ml. at TKO with Macro-drip tubing, or a **Saline Lock**, preferably with an 18 ga. or larger Angiocath.
10. For persistent chest pain, consider **Morphine Sulfate** up to 5mg. slow IVP (2-3 minutes) based on patient weight, provided SBP>100). If unable to obtain IV, give **Morphine** 5 mg. SQ
    A. ♦ After 5 minutes, may repeat **Morphine Sulfate** up to 5 mg slow IVP (2-3 minutes), based on patient weight, provided SBP>100. only with direct authorization from medical control.
    B. ♦ Repeat dose of SQ Morphine 5 mg. is indicated only if transport time is greater than 30 minutes.
11. Notify hospital of the transport of a possible MI patient, if patient is displaying high risk signs/symptoms.
12. Transport as rapidly as is possible and safe. While en route, if time permits, obtain further patient history regarding possible eligibility for thrombolytics, completing the "EMS CHECKLIST: SUSPECTED CARDIAC CHEST PAIN OR PAIN EQUIVALENTS". The following is a list of contraindications to thrombolytics:

Absolute and Relative Contraindications to Thrombolytic Therapy (Adapted from ACLS)		
Time Frame	**Absolute Contraindications**	**Relative Contraindications**
Right now	Suspected aortic dissection Known intracranial neoplasm Pregnancy (certain lytic agents)	Severe, uncontrolled hypertension (BP > 180/110) Current anticoagulant use Prolonged (> 10 minutes) and potentially traumatic CPR
Past 2 – 4 Weeks	Active internal bleeding (except menses)	Trauma, especially head trauma Major surgery Noncompressible vascular punctures Internal bleeding
Past Year	Non-hemorrhagic stroke or TIA Prior exposure to specific lytic agent	Intracerebral pathology
Ever	Hemorrhagic stroke Prior allergic reaction to streptokinase	Known bleeding disorder

13. **Fluid challenges** of up to 250 ml may be administered to a patient with SBP < 100, in the absence of pulmonary edema.

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Monitoring of BP with Nitro Administration: All levels of EMS Personnel are required to monitor and document the patient's BP reading before and after each administration of Nitroglycerin (Nitro).

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Administration of Morphine SQ may cause local histamine reaction. Do not confuse with anaphylaxis. Although SQ Morphine will take longer to provide pain relief, the effects of SQ Morphine are much longer lasting than IV; that is why the Orders for repeat dosing state "only after 30 minutes".

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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.

3.2.1 - ACUTE MYOCARDIAL INFARCTION

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3.3 - ARRHYTHMIAS

1. Open and maintain the airway. Administer **O**2. Increase rate as needed for respiratory distress.
2. Transport **IMMEDIATELY** unless a paramedic unit is en route and has an ETA of less than 5 minutes to the scene.
3. Place patient on {Pulse Oximeter} and Cardiac Monitor. Obtain a strip from Cardiac Monitor, and mark it with the date and patient's name.
4. Establish IV **0.9% NS** 250 ml. at TKO or **Saline Loc**k, while en route to hospital.

3.3.1 BRADYCARDIAS

1. Open and maintain the airway. Administer **O**2. Increase rate as needed for respiratory distress.
2. Cardiac Monitor
3. Establish IV **0.9% NS** TKO or **Saline Loc**k, while en route to hospital. **If poor perfusion is present DO NOT DELAY TRANSPOR**T. Serious signs and symptoms of poor perfusion include chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, pulmonary congestion, or congestive heart failure.

3.3.2A TACHYCARDIAS: UNSTABLE

1. If serious signs and symptoms (including chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, pulmonary congestion, congestive heart failure, or Acute MI) are present that are **likely to be related to the tachycardia,** treat as follows. Rate-related signs and symptoms occur at different rates, but seldom less than 150 bpm.
2. Airway, **O**2, IV, Cardiac Monitor.
3. Establish IV **0.9% NS** TKO or **Saline Loc**k, while en route to hospital. **DO NOT DELAY TRANSPOR**T.

3.3.2B TACHYCARDIAS: STABLE

1. Airway, **O2,** Cardiac Monitor
2. Establish IV **0.9% NS** TKO or **Saline Loc**k, while en route to hospital.

3.4 - SHOCK

1. Establish and maintain airway. Administer **100% O2** with NRB, regardless of {Pulse-ox readings}.
2. Transport immediately.
3. During transport to the hospital, start IV of **0.9% NS** and titrate flow to maintain perfusion, DO NOT DELAY TRANSPORT.
4. Apply Cardiac Monitor.
5. Hypothermia is a significant, and frequent, problem in Shock or Major Trauma patients. Do all that you can to maintain patients' body temperature.

3.4.1 - NON-TRAUMATIC SHOCK WITHOUT PULMONARY EDEMA

1. Place patient on 100% **O2** with NRB, regardless of {Pulse-ox readings}.
2. Administer a 500 ml. fluid challenge bolus of **0.9% NS,** IVP.
3. ♦Repeat the fluid challenge bolus with an additional 500 ml on orders from Medical Control.

3.4.2 - NON-TRAUMATIC SHOCK WITH PULMONARY EDEMA

In Non-Traumatic Shock With Acute Pulmonary Edema, especially if associated with **JVD, Rales, Cold/Clammy Skin, Shortness of Breath, Pre-Sacral and Pedal Edema:**

1. Place patient on 100% **O2** with NRB, regardless of {Pulse-ox readings}.
2. Administer a 250 ml. fluid challenge bolus of **0.9% NS** IVP
3. ♦Additional fluid challenges given only on orders from Medical Control.

3.4.3 – EXSANGUINATING HEMORRHAGE

1. Establish and control Airway. Place patient on 100% **O2** with NRB, regardless of {Pulse-ox readings}.
2. Control external bleeding.
3. Place patient on 100% **O2** with NRB, regardless of {Pulse-ox readings}
4. Establish multiple IV's of **0.9% NS** at wide-open rate with an IV pressure infusion device **while en rout**e. Titrate IV flow to obtain and maintain SBP > 100.
5. Cardiac Monitor.

3.5 - STROKE

GENERAL CONSIDERATIONS

1. The patient needs to be transported without delay to the most appropriate hospital.
2. NOTIFY HOSPITAL AS SOON AS POSSIBLE.
3. Hypertension in stroke patients should rarely be treated in the prehospital setting.
4. Nitroglycerin should not be used unless signs and symptoms consistent with AMI or APE are present.
5. **Time of onset of signs and symptoms must always be obtained, documented and relayed to the receiving facility.**
6. Evaluate the patient using the **"Prehospital CVA Checklist"**, including the three tests of the Cincinnati Prehospital Stroke Scale:
   A. Facial Droop (have the patient show teeth or smile):
      - Normal – both sides of face move equally
      - Abnormal – one side of face does not move as well as other side
   B. Arm Drift (have the patient close both eyes and hold both arms straight out for 10 seconds):
      - Normal – both arms move the same, or both arms do not move at all (other findings such as pronator grip may be helpful)
      - Abnormal – one arm does not move, or one arm drifts down compared with the other
   C. Abnormal speech (have the patient say "you can't teach an old dog new tricks"):
      - Normal – patient uses correct words with no slurring
      - Abnormal – patient slurs words, uses wrong words, or is unable to speak

7. Assessment should also include Glasgow Coma Score with components. Patients with scores of 8 or less have poor prognosis and need ALS as soon as possible.
8. **Consider transporting acute CVA/TIA patients to a facility offering thrombolytics for stroke *if* you will be able to arrive within two hours from the time of onset of symptoms. Contact Medical Control for advice**.

SPECIFIC CARE

1. Open and manage airway. Provide **O_2** by nasal cannula at 4 LPM, and increase flow as needed for respiratory distress.
2. Apply {Pulse Oximeter}, and evaluate relevant history of condition, and Cincinnati Stroke Scale. {Maintain > 92% {SpO_2}.
3. Be prepared to hyperventilate at a rate of 24 respirations per minute and/or assist ventilations with oral or nasal airway and BVM or Flow Restricted O2 Powered Device (FROPVD).
   A. {If signs of cerebral herniation are present (**See: Section 4.3 - Head Injury**) 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)}.
4. Apply Cardiac Monitor.
5. Start IV of 0**.9% N**S, TKO, and draw blood chemistry tube while en route to hospital.
   - Do Not Delay Transport For IV.
6. Determine blood sugar level .
7. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
   A. Administer 50ml of **50% Dextrose** (25 grams), IV bolus.
   B. D50 may be repeated in 10 minutes if patient fails to respond, or BS remains <60.
   C. If unable to obtain IV, give **Glucagon** 1mg IM.
8. Re-evaluate patient condition, contact Medical Control to advise Stroke patient en route, and transport to hospital.
9. DO NOT DELAY TRANSPORT

Symptoms Mimicking Stroke

- Unrecognized seizures
- Subdural hematoma
- Brain tumor
- Confusional states
- Syncope
- Toxic or metabolic disorders (eg, hypoglycemia)

4.0 - TRAUMA EMERGENCIES
4.0.1 - GENERAL CONSIDERATIONS

1. **Minor Trauma** patients may be transported to non-Trauma Centers Vital Signs should be recorded, all necessary splinting and bandaging completed as needed.
2. Administer **O2** at 12-15 liters/minute by NRB mask to all significant trauma patients, regardless of {Pulse-ox readings}.
3. **Major Trauma** patients are to be transported as soon as possible to the nearest appropriate facility, per destination protocols.
   A. 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.

B. Limit on-scene time to 10 minutes or less whenever feasible.
C. The Glasgow Coma Scale can be completed in seconds, and the component scores relayed to Medical Control. Communicate and document components, rather than overall score.
D. Hyopthermia is a significant and frequent problem in Major Trauma patients. Do all that you can to maintain patients' body temperature.
E. **MIVT** and **ETA** are used to determine if Trauma Alert should be called. If patient condition changes, call back. When patient is transported by helicopter , EMS run sheet should be faxed to receiving Trauma Center. See 4.0.2.2 or last page of Protocol Pocket Booklet for fax numbers.
- Mechanism of Injury
- Injuries
- Vitals
- Treatment

4. The **ONLY** procedures that should take precedence to transport are:
A. **Extrication**
B. **Airway Management**
C. **Stabilization of neck, back, femur and pelvic fractures on a backboard**
D. **Exsanguinating Hemorrhage Control**

✪ **Mnemonic: EASE**

5. **IV's 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 1000 ml of **0.9% NS. IV** flow rates are as follows:
A. Keep open rate for Major Head Trauma with adequate perfusion.
B. IV wide open if the patient has inadequate perfusion (including Head Trauma) utilizing **IV** Pressure Infuser Bag or similar equipment if available.
C. Titrate all IV flow rates to maintain SBP > 100.
D. A second IV may be started en route.
6. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate,** 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
7. ♦ May repeat up to 5 mg of **Morphine Sulfate** up to 5 mg.slow IVP (2-3 minutes) based on patient weight, provided SBP>100. only with direct order from Medical Control.
A. ♦ Repeat dose of SQ Morphine 5 mg. is indicated only if transport time is greater than 30 minutes.

4.0.2 TRIAGE and TRANSPORTATION GUIDELINES

4.0.2.1 CONCEPTS:

1. After the trauma patient's extrication, the on-scene time should be limited to TEN MINUTES or less, except when there are extenuating circumstances.
2. Major Trauma Patients, as identified in this document, should be transported to "THE NEAREST APPROPRIATE TRAUMA CENTER".
3. 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.
4. **PRE-ARRIVAL NOTIFICATION OF THE RECEIVING FACILITY IS ESSENTIA**L! Give Mechanism of Injury, Injuries, Vital Signs, Treatment (MVIT) and ETA.
5. List in the EMS Run Report which of the State Trauma Triage Criteria were met by the patient.

4.0.2.2 TRAUMA CENTER/FACILITY CAPABILITIES:

1. Level I and II Trauma Centers can care for the same trauma patients.
   A. Level III Trauma Centers offer services, based on individual hospital resources that provide for initial assessment, resuscitation, stabilization, and treatment for the trauma patient.
   B. 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.
   C. In areas where the trauma patient is in close proximity to a Level III trauma center and a Level I or 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 and treatment at the proximate Level III trauma center or from direct transport by EMS Provider to the Level I or II trauma center.
   D. Regional Adult Trauma Centers
      - Level I Miami Valley Hospital Fax # 937-208-2521
      - Level II Children's Medical Center Fax # 937-641-6176
      - Level II Good Samaritan Hospital Fax # 937-567-4116
      - Level III Greene Memorial Hospital N/A Helicopter will take trauma Pt. to Level I or II.
      - Level III Middletown Reg.l Hospital. N/A Helicopter will take trauma Pt. to Level I or II.
2. Regional Pediatric Trauma Centers:
   - Pediatric: Children's Medical Center
   - Adult and Pediatric: Miami Valley Hospital
3. 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 critically injured trauma patients. EMS provider may arrange for air medical transport from the scene.
4. 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 nearest acute care hospital for stabilization and transfer. EMS provider may arrange for air medical transport from the scene.
5. **All pregnant trauma patients should be transported to the NEAREST ADULT Trauma Center, unless transport time > 30 minutes.**

4.0.2.3 AIR MEDICAL TRANSPORTATION
PRE-ARRIVAL NOTIFICATION OF THE RECEIVING FACILITY IS ESSENTIAL.

1. Prolonged delays at the scene waiting for air medical transport should be avoided.
2. Traumatic cardiac arrest due to blunt trauma is not appropriate for air transport.
3. In the rural environment, direct transfer of trauma patients by air medical transport may be appropriate and should be encouraged.

4.0.2.4 USE OF GUIDELINES:

1. EXCEPTIONS:
   A. 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;
   B. 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;
   C. Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical services resources.
   D. No appropriate trauma center is able to receive and provide trauma care to the victim without undue delay;
   E. 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 ommunicate,

such a request is made by an adult member of the patient's family or legal representative of the patient.

4.0.3 - PREHOSPITAL FIELD ADULT TRAUMA TRIAGE GUIDELINES

1. Utilize for persons 16 and above
2. 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

1. All penetrating trauma to head, neck, torso, and extremities proximal to elbow and knee
2. Abdominal injury with tenderness, distention, or seat belt sign
3. Chest injury: Flail chest and/or tension pneumothorax
4. Two or more proximal long bone fractures
5. Evidence of pelvic fracture (exception: isolated hip fracture)
6. Spinal cord injury with signs and symptoms of paralysis
7. Burns greater than 10% Total BSA or other significant burns involving the face, feet, hands, genitalia, or airway
8. Amputation proximal to wrist and/or ankle
9. Evidence of serious injury of 2 or more body systems
10. Crush injury to head, neck, torso, or extremities proximal to knee or elbow

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

PHYSIOLOGIC

1. **GCS less than or equal to 13 (See Section 4.3.1),** loss of consciousness at anytime greater than 5 minutes or alteration in level of consciousness with evidence of head injury at time of exam or thereafter, or fails to localize pain.
2. Respirations less than 10 or greater than 29 or intubation or relief tension pneumothorax.
3. Pulse greater than 120 in combination with any other physiologic criteria.
4. SBP < 90 or absent radial pulse with carotid pulse present

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

MECHANISM OF INJURY

1. Auto-pedestrian/auto-bicycle injury with significant (> 5 mph) impact
2. Death in same passenger compartment
3. Ejection from motor vehicle
4. Extrication time >20 minutes
5. Falls > 20 feet.
6. High Speed auto crash
   A. Initial speed > 40 mph
   B. Intrusion into passenger compartment > 12 inches
   C. Major auto deformity > 20 inches
7. Open motor vehicle crash >20 mph or with separation of rider from vehicle

8. Pedestrian thrown or run over
9. Unrestrained rollover

YES = Consider Trauma Center	NO = Check Special Situations

SPECIAL SITUATIONS

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

YES = To Trauma Center	NO = To Local Hospital

4.1 - MULTIPLE TRAUMA

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

1. Establish airway, breathing and circulation. Maintain C-spine immobilization. Use the modified jaw-thrust if airway needs to be opened.
2. Assess patient and initiate 100 % **O2** therapy via non-rebreather mask.
3. If snoring is heard or patient unconscious,: insert an oral or nasopharyngeal airway, and assist ventilations with 100% **O2**.
4. If gurgling heard or secretions/blood/vomitus present: {**suctio**n} airway.
5. Assure adequate ventilation. If breathing is slow (less than 10 breaths per minute) or shallow and rapid (greater than 29 breaths per minute), assist breathing using bag-valve mask with 100% **O2** and reservoir.
6. Control hemorrhage by appropriate method, and splint/immobilize as indicated.
7. If patient resuscitation is consistent with **Section 3.1.5, "Non-Initiation of CP**R," perform endotracheal intubation using in-line immobilization technique. Confirm tube placement using **Primary and appropriate Secondary Method**s, and secure tube.
8. Manage any injury that may compromise breathing. Place/maintain the patient in correct position to maintain the airway. Apply {Pulse Oximeter}.
   - Open pneumothorax: cover with an occlusive dressing, tape three sides down.
   - Tension pneumothorax:
     - Lift one side of any occlusive dressing;
     - If patient has signs and symptoms of tension pneumothorax, perform needle decompression on the affected side.
     - If patient with torso trauma has rapidly and profoundly dropping or non-palpable BP, perform bilateral needle chest decompression.
     - After chest decompression, provide positive pressure ventilation.
   - Flail chest: immobilize with a bulky dressing or towels taped to the chest.
9. **TRANSPORT immediately!**
10. Contact Medical Control and advise of patient condition with MIVT & ETA, and need for Trauma Team.

11. **IV's should be attempted en route to the hospital unless the patient is trapped.** Start the IV with a large bore catheter, the largest tubing available and 1000 ml of **0.9% NS. IV** flow rates are as follows:
    A. Keep open rate for Major Head Trauma with adequate perfusion.
    B. IV wide open if the patient has inadequate perfusion (including Head Trauma) utilizing {IV Pressure Infuser**s}** or other similar device if available.
    C. Titrate all IV flow rates to maintain SBP > 100.
    D. A second IV may be started en route.
12. Apply Cardiac Monitor and check rhythm.
13. During transportation:
    A. Continue to evaluate patient.
    B. Splint individual fractures.
    C. Check pulses distal to the fracture site.
    D. Check distal skin color, temperature, neurologic status.
    E. Obtain relevant history.

In lieu of an IV Pressure Infuser, you can use a BP cuff or squeeze IV bag by hand.

4.2 - TRAUMATIC FULL ARRESTS AFTER INITIATION OF CARE

1. Open, assess, and maintain the airway, using the modified jaw-thrust, always assume C-spine injury.
2. Ventilate with 100% **O2** using BVM.. Ventilate at a rate of 24/minute with severe head injury.
3. Begin CPR unless patient meets the criteria for **Non-Initiation of CPR** in **Section 3.1.**5.
4. Place on a Cardiac Monitor
5. Contact Medical Control and advise of patient condition, while continuing CPR and rapid transport to appropriate facility by ground, if appropriate.
6. Perform endotracheal intubation using in-line immobilization technique. Confirm tube placement using **Primary and appropriate Secondary Method**s, and secure tube.
7. Establish two (2) IV's of **0.9% NS** to maintain perfusion. IVs should be started en route to hospital unless patient is trapped.
8. If the patient has potential chest trauma, perform bilateral relief of tension pneumothorax

4.3 - HEAD INJURY

GENERAL CONSIDERATIONS

1. Evaluate patient condition:
    A. Level of Consciousness
    B. Pupillary size and reaction
    C. Glasgow Coma Scale results
2. Take control of airway gently with in-line C-spine immobilization.
3. {Orotracheal intubation}, if patient arrests, should be accomplished gently with in-line C-spine immobilization. Confirm tube placement using **Primary and Secondary Method**s, and secure tube.
4. Ventilate at a rate of 24 per minute when there are the following signs of cerebral herniation:
    A. Blown pupil(s), left and right pupil sizes different, bradycardia, posturing, and decreased Level of Consciousness.
    B. **{**If quantitative (i.e. numeric) End Tidal CO2 (EtCO2) readings are available, ventilate at a rate to maintain EtCO2 readings at approximately 30 mmHg (30 torr)}.
5. Notify hospital for all patients with serious signs and symptoms of Head Injury; advise of all three components of GCS.

4.3.1 – GLASGOW COMA SCALE

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

Hyperventilation and EtCO2 Levels: Maintain good ventilation at rate of about one breath every 4 – 5 seconds with high flow oxygen. Prophylactic hyperventilation for head injury is no longer recommended. Cerebral herniation syndrome is the only situation in which hyperventilation (rate of 24 per minute) is still indicated.

An increase in the level of CO2 (hypoventilation) promotes cerebral vasodilation and increased swelling, while lowering the level of CO2 (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 when 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, 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.

4.4 - EXTREMITY FRACTURES, DISLOCATIONS, SPRAINS

1. ABC's with C-spine control as indicated.
2. Control bleeding by direct pressure.
3. Assess extremity distal to the injury for color, pulses, sensation, temperature and movement.

4. For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing.
5. Apply appropriate splinting device.
6. Re-assess color, pulses, sensation and movement after splinting and during transport.
7. Elevate extremity applying ice/cold pack to site if available.
8. If signs/symptoms of hypovolemic shock are present, establish an IV of 0.9% **NS** to maintain perfusion. Do NOT delay transport to establish venous access.
9. IV should be started en route to hospital unless patient is trapped or patient has no life threatening injuries, and transport prior to analgesia would be extremely painful..
10. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate,** 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
11. ♦ May repeat **Morphine Sulfate,** up to 5 mg slow IVP (2-3 minutes) based on patient weight, provided SBP>100 only with direct order from Medical Control.

    A. ♦ Repeat dose of SQ Morphine 5 mg. is indicated only if transport time is greater than 30 minutes.

Rules of Splinting

1. Adequately visualize the injured part.
   - Check and record distal sensation and circulation before and after splinting. Check movement distal to the fracture if possible (ask conscious patient to wiggle fingers or observe motion of the unconscious patient when a painful stimulus is applied).
   - If the extremity is severely angulated and pulses are absent, you should apply gentle traction in an attempt to straighten it. This traction should never exceed 10 pounds of pressure. 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. If the trauma center is near, always splint in the position found. Consider pain relief as needed and appropriate!
   - Open wounds should be covered with a sterile dressing before you apply the splint. Splints should always be applied on the side of the extremity away from open wounds to prevent pressure necrosis.
   - Use the splint that will immobilize one joint above and below the injury.
   - Pad the splint well.
   - 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. You should not use your hands or any tools to try to pull the bone ends back out, but be sure to notify the receiving physician. Bone ends should be carefully padded by bandages before pneumatic splints are applied to the lower extremities. The healing of bone is improved if the bone ends are kept moist when transport time is prolonged.
   - In a life-threatening situation, injuries may be splinted while the patient is being transported. When the patient is stable, splint all injuries before moving the patient.
   - If in doubt, splint a possible injury.

   Reference: BTLS

   Note: The patient who requires a load and go approach can be adequately immobilized by careful packaging on the long spine board. You can do some additional splinting in the vehicle en route to the hospital as time and the patient's condition permits.

✪ Management of Specific Orthopedic Injuries

SITE	INJURY	SUGGESTED IMMOBILIZATION
Clavicle	Fracture	Sling and swath
Shoulder	Dislocation	Splint in position found with pillow, sling and swath
Humerus	Fracture	Short board splint & sling and swath
Elbow	Fracture	Splint in position found
Elbow	Dislocation	Splint in position found
Forearm	Fracture	Rigid splint and sling
Wrist	Fracture	Splint in position found
Hand	Fracture	Splint in position of function
Finger	Fracture	Malleable padded splint in position of function
Pelvis	Fracture	PASG & long board
Hip	Fracture	Blanket between legs & secure injured leg to uninjured leg, backward
Hip	Dislocation	Long board with leg supported with pillow
Femur	Fracture	Traction splint, PASG
Knee	Fracture	Splint in position found
Knee	Dislocation	Splint in position found unless instructed to reduce
Tibia/fibula	Fracture	Air splint, padded board splint or PASG
Ankle	Fracture	Pillow splint or air splint
Ankle	Dislocation	Pillow splint or air splint
Toe	Fracture	Tape to adjacent toe

4.5- DROWNING AND NEAR DROWNING

1. **Maintain personal safety at all times.**
2. Assure ABCs, starting in the water if necessary
3. Consider spinal immobilization and deliver 100% **O2**.
4. If patient arrests, or is found in arrest, attempt to evaluate for the presence of hypothermia. If severe hypothemia is strongly suspected, limit defibrillation attempts to no more than three.
5. Check pulse, assure ABCs, intubate apneic patient and continue CPR.
6. Remove wet clothing, and try to maintain the victim's body temperature.
7. Apply Cardiac Monitor and check rhythm. Follow cardiac arrest guidelines.
8. Start IV of **0.9% NS [**warmed if possible} while en route.
9. Evaluate neurological status including level of consciousness (GCSGCS), pupillary response, and movement.
10. If feasible for patient condition, Near Drowning patients should be transported to a Trauma Center.

4.6 - HYPOTHERMIA/FROSTBITE

1. Secure airway, and consider C-spine immobilization.
2. Administer **{**warmed, humidified} 100% **O2**, by NRB mask and /or BVM.
3. Attempt to evaluate the severity of hypothermia, if means are available.
4. Evaluate neurological status including level of consciousness (GCS) and pupillary response.
5. Notify hospital immediately.
6. Move patient to warm environment, remove all wet clothing and cover with blankets.

7. Take great care to avoid any rough movement, since that can precipitate V Fib. It may be beneficial to immobilize the victim on a backboard.
8. Assess vital signs, mental status, temperature of patient and environment, and evidence of local injury. It may be necessary to assess pulse and respirations for up to 30 seconds or more to confirm arrest in the profoundly hypothermic patient.
9. Diabetics are highly susceptible to cold illnesses. Consider the possibility of hypoglycemia and treat accordingly.
10. If patient condition warrants, Hypothermia patients should be transported to a Trauma Center, and severe Frostbite patients should be transported to a Burn Center.

4.6.1 - HYPOTHERMIA WITH ARREST

1. CPR continuously.
2. Consider spinal immobilization. Evaluate for other traumatic injuries.
3. Apply Cardiac Monitor or {AED}, check rhythm and shock if indicated. Maximum of three (3) shocks, 200J, 300 J, and 360 J.
4. **{** Use a hypothermia thermometer**.}** If body temperature is < 30 degrees centigrade (86 degrees Fahrenheit), or severe hypothermia is strongly suspected, limit defibrillation attempts to no more than three.
5. If body temperature is > 30 degrees centigrade (86 degrees Fahrenheit), follow normal arrest protocols.
6. Intubate and oxygenate the patient with {warmed and humidified} 100% **O2**. Confirm tube placement using **Primary and appropriate Secondary Method**s, and secure tube.
7. Transport IMMEDIATELY after ABC's and appropriate defibrillations (as above), unless a Paramedic is en route and has an ETA of less than 5 minutes to the scene.
8. Continue resuscitative efforts for longer than normal **while in transi**t, even if there is no response.
9. IV of **0.9% NS** {warm}. If hypotensive, give 250 ml IV bolus {warmed} fluid.
10. Contact Medical Control.
11. {Determine blood sugar level}.
12. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer 50 ml of **50% Dextrose** (25 grams)., IV bolus,
13. Consider possibility of other medical issues, including drug overdose and trauma.
14. Consider transport to a Level I or II Trauma Center. If Trauma Center is distant, consider aeromedical transport.

4.6.2 - HYPOTHERMIA WITHOUT ARREST

1. Do not initiate CPR if there is any pulse present, no matter how slow.
2. Consider spinal immobilization; evaluate for other trauma.
3. Use **O2**, high flow. Do not hyperventilate. Do not use adjunctive airway equipment unless necessary. If necessary, use least intrusive measures that will adequately assure airway and ventilation
4. Ventilate if necessary, and oxygenate with 100% {warmed/humidified}**.O2**.
5. Intubate if necessary, as gently as possible.
6. Avoid rough handling and unnecessary stimulation.
7. Apply Cardiac Monitor, check rhythm and treat according to cardiac protocol.
8. Do not allow conscious patients to ambulate, exercise or move about.

9. Start IV of **0.9% NS**, TKO, and draw blood chemistry tube while enroute to hospital. DO NOT DELAY TRANSPORT FOR IV.
10. {Determine blood sugar level}
11. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer 50ml of **50% Dextrose** (25 grams), IV bolus.
    B. **D50** may be repeated in 10 minutes if patient fails to respond, or BS remains <60.
    C. If unable to obtain IV, give **Glucagon,** 1mg IM.
12. Consider possibility of other medical issues, including drug overdose and trauma.
13. If feasible for patient condition, Hypothermia patients should be transported to a Trauma Center.

4.6.3 – FROSTBITE

1. Protect injured areas from pressure, trauma, and friction. Remove all covering, including jewelry, from injured parts.
2. Do not rub. Do not break blisters.
3. Do not attempt to thaw injured part with local heat.
4. Do not allow limb to thaw if there is a chance that limb may refreeze before evacuation is complete.
5. Maintain core temperature by keeping patient warm with blankets, warm fluids, etc.
6. Transport and contact Medical Control.
7. Apply Cardiac Monitor.
8. IV of **0.9% NS** þwarm .
9. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate,** 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
10. ♦ May repeat **Morphine Sulfate,** up to 5 mg . slow IVP (2-3 minutes) based on patient weight, provided SBP>100. only with direct order from Medical Control.
    A. ♦ Repeat dose of SQ Morphine requires Medical Control approval and is indicated only if transport time is greater than 30 minutes.
11. If patient condition warrants, severe Frostbite patients should be transported to a Burn Center.

4.7 - BURNS/SMOKE INHALATION

GENERAL CONSIDERATIONS

1. **Burn Referral Centers:**
    A. Transport patients under 16 years of age with severe burns to the pediatric regional burn center at the Children's Medical Center, unless > 30 minute transport time.
    B. Transport patients 16 years of age and older with severe burns to the adult regional burn center at Miami Valley Hospital, unless > 30 minute transport.
2. The first priority is to assure scene safety and then remove the patient from the heat and/or flame, electrical or chemical exposure.
    A. When dealing with contaminated environments, EMS must have appropriate protective clothing. If not available, contact appropriate Haz Mat service for such equipment.
3. Airway, Breathing, and Circulation must be stabilized before addressing to the burn. Establish and maintain C-spine control if indication of neck/head trauma.
4. Patient with extensive burns must be monitored for hypothermia. Do not use ice or prolonged cold compresses. When in doubt, cover with dry dressing. Cover burn areas with clean, dry sheets or dressings after cooling first. Remove all rings, watches, and jewelry. Superficial and partial thickness burns of less than 10% may have wet dressings applied if there is no clothing adhered to the burn.
5. In caring for the burn:

A. Stop the Burning
B. Reduce the pain
C. Prevent contamination

8. Major burns should be transported directly to a Burn Center when possible, as above. Inhalation injuries **with unsecured airway** should be transported to the nearest facility. For patients with major burns, and long transports, you may contact Medical Control for destination:
   A. Closest Hospital or
   B. Burn Center
7. For chemical burns, gross decontamination **must be done at the scen**e. **Always include removal of all involved clothin**g. Advise receiving facility, and be prepared to transport to decontamination area. See **Section 6.6 – Haz-Ma**t.
8. Keep patient warm – turn off air conditioner if appropriate.
9. The burn patient should be managed as any other trauma victim. The burn itself has a low priority over other associated injuries for which the patient must be completely evaluated. Vital signs may be taken over damaged tissue if no other area is accessible.

SPECIFIC CARE

1. Assess for respiratory distress, stridor, hoarseness, sooty sputum, singed eyebrows and nares or burns of the face or airway. Suspect airway injury and request a Paramedic. Do not wait to transport unless paramedic is en route and has an ETA of less than 5 minutes to the scene. Assess neuro status.
2. Administer 100% **O2** by NRB or BVM.
3. Initiate cardiac monitoring, especially if patient has been involved with a lighting strike or electrical burn.
4. Determine types of burn and treat as follows:
   A. Thermal (dry and moist):
      1) Stop burning process! i.e., remove patient from heat source, cool skin by applying water; remove clothing.
      2) If patient starts to shiver or skin is cool, stop cooling process
      3) Estimate extent (%), depth, and seriousness of the burn. Contact Medical Control and transport.
      4) Avoid wet dressings if burn area is greater than 10% body surface area (BSA).
   B. Radiation Burns:
      1) Treat as thermal burns except when burn is contaminated with radioactive source, then treat as chemical burn.
      2) Contact HAZ-MAT TEAM for assistance in contamination cases
   C. Chemical Burns:
      1) Wear appropriate protective clothing and respirators
      2) Remove patient from contaminated area to decontamination site (NOT AMBULANCE).
      3) Determine chemicals involved; contact appropriate agency for chemical information.
      4) If any possibility of continuing contamination, notify hospital promptly.
      5) Remove patient's clothing and flush skin.
      6) Leave contaminated clothes at scene. Cover patient completely before loading into squad.
      7) Personnel not involved in decontamination process should transport patient.
      8) See **Section 6.6 - Haz-Ma**t, for some specific treatments.
      9) For Chemical Burns, notify hospital as early as possible! It is imperative that the hospital be notified prior to your arrival
   D. Electrical Burns
      1) Shut down electrical source; do not attempt to remove patient until electricity is confirmed to be shut off.
      2) If no pulse, apply {**AED**} or Monitor/Defibrillator and follow **Section 3.1.1 AED Protoco**l.
      3) Assess for visible entrance and exit wounds and treat as thermal burns.

4) Assess for internal injury, i.e., vascular damage, tissue damage, fractures, and treat.

E. For Inhalation Burns, Thermal Burns, and Smoke Inhalation:
   1) {Provide humidified **O2** using a wall humidifier with **Saline**}.
   2) If no humidifier is available, provide a **Saline Nebulizer** treatment by adding 3 mls of **Saline** to a nebulizer and give repeated treatments as needed while in transit.
   3) Be prepared to Provide Endotracheal Intubation in case of ARREST .

5. Determine the severity of the burn, contact Medical Control and transport.
6. If indicated, establish an IV, en route, of **0.9% NS.** Titrate to maintain a systolic BP greater than 100.

Subcutaneous Morphine has been added to the Adult Standing Orders. The two exceptions when you cannot use SQ Morphine are all pediatric patients, and both adult and pediatric burn patients. In both, altered cutaneous blood flow can cause very irregular absorption of SQ drugs. This can result in the patient receiving a potentially lethal bolus of Morphine some time after you gave it.

4.8 - HEAT EXPOSURE

GENERAL CONSIDERATIONS

1. Geriatric patients, pediatric patients, and patients with a history of spinal injury or diabetes mellitus are the ones most likely to suffer heat-related illness. Other contributory factors may include heart medications, diuretics, cold medications and/ or psychiatric medications.
2. Heat exposure can occur either due to increased environmental temperatures, prolonged exercise or a combination of both. Environments with temperature above 90 degrees Fahrenheit and humidity over 60% present the most risk.
3. When altered mental status is present consider other causes such as hypoglycemia, stroke and/ or shock.

SPECIFIC CARE

1. Secure and maintain airway, and consider cervical spine injury.
2. Administer **O**2, maintaining at least 95% **{**SpO2**}**. Use BVM if needed.
3. Move patient to cool environment.
4. Assess mental status, temperature of patient and of environment. Assess vital signs at least every 15 minutes.
5. Strip the patient of clothing, cool the patient, and apply water to the skin. Provide oral fluids if patient is conscious, and not vomiting or extremely nauseous.
6. Apply Cardiac Monitor.
7. During transport, start IV of **0.9% NS** if the patient is hypotensive or there are mental status changes, and give 1,000 ml bolus of **0.9% N**S.
8. Be prepared for seizures.
9. Intubate the apneic patient, if indicated, and oxygenate with 100% **O2**.
10. If feasible for patient condition, significant Heat Exposure patients should be transported to a Trauma Center.

Heat Stroke: Most serious type of exposure illness, usually due to prolonged exposure to heat, inadequate fluid replacement and deficient thermoregulatory function. Patient often experiences inadequate perspiration with body temperatures reaching 105 degrees F or greater. Skin is usually hot and dry and there may be an altered LOC and/or coma. Seizures may occur. Cardiovascular collapse is the usual cause of death.

Heat Exhaustion: More moderate form of heat exposure associated with dehydration combined with overexertion. Skin is cooler and the core temperature is below 105 degrees F. The patient may experience syncope with orthostatic hypotension.

Heat Cramps: the mildest form of heat exposure caused by dehydration, overexertion, and electrolyte abnormalities. the skin is moist with muscle cramps, usually affecting large muscle groups.

Altered Mental Status: When altered mental status is present, consider other causes such as hypoglycemia, stroke and/or shock.

4.9 – SYMPTOMATIC CARBON MONOXIDE POISONING

1. Remove the victim from the contaminated area.
2. Airway with c-spine control as indicated.
3. Provide high flow **O2** to all suspected CO poisonings **continuousl**y, including from Medic to ER.
   A. Provide {humidified **O2}** using a {wall humidifie**r}** with **Salin**e.
   B. If no humidifier is available, provide a **Saline Nebulizer** treatment by adding 3 ml **Saline** to a nebulizer, and give repeated treatments as needed while in transit. .
4. Evaluate for associated injuries.
5. **Pulse Oximetry will give false positive readings. Do not use it.**
6. If CO is suspected, and any of the following High Risk Factors are present, strongly consider Hyperbaric Oxygen (HBO) Treatment. Contact the closest hospital, and discuss where the patient should be transported.
   A. Underlying cardiovascular disease, or cardiovascular symptoms such as chest pain or shortness of breath.
   B. > 60 years of age.
   C. Obvious neuro-psychological symptoms, such as ANY interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory.
   D. Smoke inhalation victims.
   E. Pregnancy.
7. If signs/symptoms of hypovolemic shock are present, establish an IV of **NS** to maintain systolic pressure of 100.
   A. Do NOT delay transport to establish venous access.
8. Place patient on Cardiac Monitor & treat any dysrhythmias.

4.10 - EYE INJURY

GENERAL CONSIDERATION: CONTACT LENSES

1. If possible, contact lenses should be removed from the eye. Be sure to transport them to the hospital with the patient. If the lenses cannot be removed, notify the ED personnel as soon as possible.

SPECIFIC CARE

1. Use Nasal Cannula and IV tubing for irrigation

Eye Irrigation with Nasal Cannula:

- Place cannula over bridge of the nose with nasal prongs pointing down toward the eyes.
- Attach cannula to an intravenous administration set using NS.
- Run continually into both eyes.

4.10.1 - EYE INJURY: CHEMICAL BURNS

1. When possible, determine type of chemical involved first. The eye should be flushed with copious amounts of water or **Saline**, for a minimum of 20 minutes, starting as soon as possible. Any delay may result in serious damage to the eye.
2. Always obtain name and, if possible, the Material Safety Data Sheet (MSDS), or ask that name or MSDS be brought to the hospital as soon as possible. . Knowing the **pH** of the chemical is crucial information for the ER.
3. Use Nasal Cannula and IV tubing for irrigation

4.10.2 – MAJOR EYE TRAUMA

1. Keep patient quiet.
2. Cover injured eye with Metal Eye Shield or Cardboard or Styrofoam cup, taped onto bony prominences.
3. Do not use a pressure patch, or any absorbent dressing on or near any eye that may have ruptured, or have any penetrating trauma.
4. Cover both eyes to limit movement.
5. Transport with head elevated.
6. Establish IV and consider Morphine for pain relief.

4.11 – SPINAL INJURY CLEARANCE ALGORITHM

Only to be used by personnel **specifically authorized** by their Medical Director and Department. Limited to use in patients age 16 and over.

The Spinal Injury Clearance Algorithm, when authorized by the Medical Director, permits carefully trained personnel to determine which patients can safely be transported without spinal immobilization. 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 by another EMS provider until all ten evaluation steps are completed.

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 palpation) or deformity: Immobilize.
10. If pain with cervical motion: Immobilize.
11. **If none** of the above are present, personnel who have been appropriately trained, and who are specifically authorized by their Department and Medical Director, 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.
12. 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.

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Spinal Injury Clearance: All personnel need to realize that this protocol is designed for the patient's safety. This will only permit avoidance of spinal immobiliation in a relatively small number of patients. 80 - 90% of the patients we currently immobilize will still require a backboard and associated equipment under this protocol.

Patient's complaint of cervical or other spinal column pain refers to the patient's subjective assessment of pain prior to palpation by EMS personnel.

4.12 - START TRIAGE SYSTEM FOR MASS CASUALTY INCIDENTS (MCIs)

START SYSTEM OF TRIAGE

1. INTRODUCTION
   A. Use the **S**imple **T**riage **A**nd **R**apid **T**ransit (START) method of triage to assess a large number of victims rapidly. It can be used easily and effectively by all EMS personnel. However, there are limitations to START (see Section 4.12.A, below).
2. PROCEDURE
   A. Initial Triage (Using the START Method).
      1) 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).
         a) RED – Immediate
         b) YELLOW – Delayed
         c) GREEN – Ambulatory (minor)
         d) BLACK – Deceased (non-salvageable)
      2) Independent decisions should be made for each victim. Do not base triage decisions on the perception that too many REDs, not enough GREENs, etc.
      3) If borderline decisions are encountered, always triage to the most urgent priority (e.g., GREEN/YELLOW patient, tag YELLOW). Move as quickly as possible.
   B. Secondary Triage
      1) Will be performed on all victims in the Treatment Area.
      2) 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!
      3) The Triage priority determined **in the Treatment Area** should be the priority used for transport.
3. START
   A. Locate and remove all of the walking wounded into one location away from the incident, if possible. Assign someone to keep them together (e.g., 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.
   B. 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)**.
      1) Assess **RESPIRATIONS**:
         a) If respiratory rate is 30/min. or less go to PERFUSION assessment.
         b) If respiratory rate is over 30/min., tag RED.
         c) If victim is not breathing, open airway, remove obstructions, if seen and assess for (a) or (b) above.

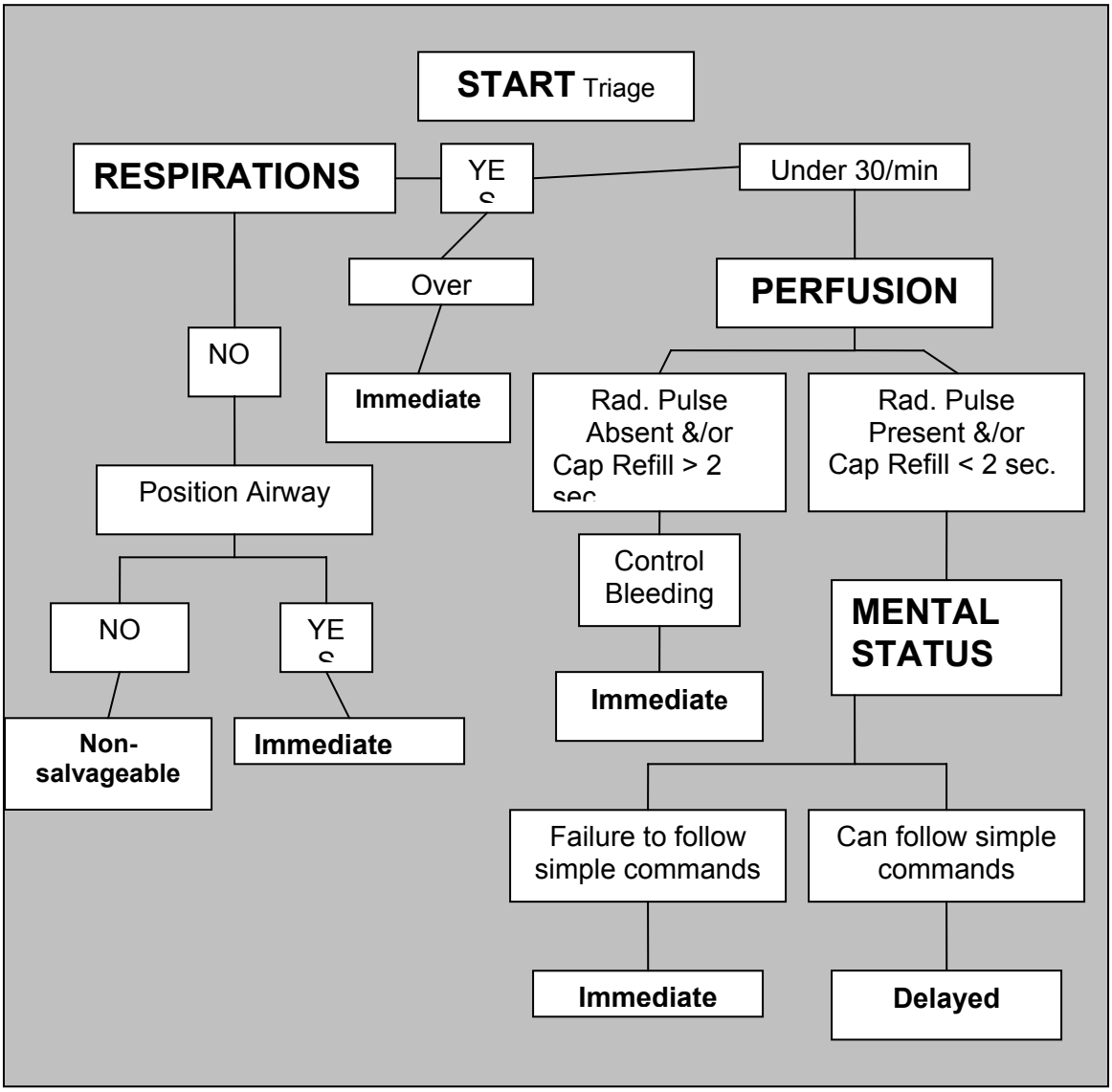
d) If victim is still not breathing, tag BLACK. (Depending on circumstances, you may attempt three rapid defibrillations before triage to BLACK).

2) Assess **PERFUSION**:
   a) Performed by palpating a radial pulse or assessing capillary refill (CR) time.
   b) If radial pulse is present or CR is two seconds or less, go to MENTAL STATUS assessment.
   c) No radial pulse or CR is greater than two seconds, tag RED. NOTE: In addition, any major external bleeding should also be controlled.
3) Assess **Mental Status**:
   a) Assess the victim's ability to follow simple commands and their orientation to time, place and person.
   b) If the victim follows commands and is oriented x3, tag GREEN. NOTE: Depending on injuries (e.g., burns, fractures, bleeding), it may be necessary to tag YELLOW.
   c) If the victim does not follow commands, is unconscious, or is disoriented, tag RED.

4. SPECIAL CONSIDERATIONS
   A. The **first** assessment that produces a RED tag stops further assessment.
   B. Only correction of life-threatening problems (e.g., airway obstruction or severe hemorrhage) should be managed during triage.
   C. 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.
   D. 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.

RPM: 30, 2, Can Do!
R: Respirations – 30
P: Perfusion – 2
M: Mental Status – Can do

Above was adapted from http://www.co.broward.fl.us/tmi02719.htm



4.12.A - START SYSTEM LIMITATIONS

Why do we use START? There are several reasons. It is:

- Fast
- Simple
- Easy to Use
- Easy to Remember
- Consistent

Given massive situations, such as the first bombing of the World Trade Center in New York, or the Alfred P. Murrah Federal building in Oklahoma City, START is the most effective system we know of to rapidly help us sort out the casualties, from the "walking wounded" and the "worried well." There are also other things that we can do to provide the most effective care in a disastrous situation. In reviews of previous Mass Casualty Incidents, some of the greatest pitfalls that occur include:

- • Failure to alert hospitals quickly

- Failure to perform any triage at all
- Spending too much time triaging each patient
- Lack of focus on critical patients
- Rendering time-consuming care on scene
- Sending too many patients too quickly to nearby hospitals (i.e., "relocating the disaster to the hospital")
- Improper use of personnel (BLS does BLS stuff. ALS does ALS stuff)
- Patients not uniformly distributed to hospitals
- Lack of strong, visible Command
- Lack of preparation or training
- Failure to adapt to circumstances
- Poor communication

When incidents involve more than 50 casualties, the Transport Sector should initially direct patients away from the nearest hospital or trauma center until they can be checked for availability. Why? Because in the past large disasters, more than 75% of patients were sent to the nearest hospital or trauma center. Those facilities were then quickly overloaded. Again: Don't relocate the disaster to the nearest hospital!

It is also crucial to remember that Triage is a process, not an event. The importance of repeated Triage, that is re-evaluating each patient over and over until they can be transported to an appropriate facility, cannot be overstated.

However, START has some very significant limitations, especially for smaller incidents. The greatest concern is the initial command to have all patients who can stand to move to another area. Those patients are then classified, at least initially, as "Green".

Obviously, there are risks to this. With trauma patients, the potential to exacerbate an injury is very high. A patient with a spinal fracture may move in such a way that their spinal cord is severed, creating a permanent quadriplegic. A person having a cardiac event triggered by the stress of the incident may well be triaged to Green in this way, and then suffer a cardiac arrest which could have been prevented. Inhalation injuries during Haz-Mat events may be missed. Still another victim may try to stand on a fractured lower leg, and turn a closed fracture into an open one. On the other hand, a patient with a relatively minor injury, such as an ankle fracture, may be unable to walk, and slow the triage process.

In small events, use of that component of START may put not only the patient at risk, but you, as well. Exacerbation of injuries, such as those just discussed, put you at legal risk.

Finally, even patients who receive the full START evaluation may be mis-categorized. One example is a patient who fails the "Can do" Mental Status component. The assumption is that the patient's deterioration is due to the event, but obviously, there are many conditions, from dementia to intoxication, that can impact the patient's mental status.
A modification of the START system can be used in smaller multiple casualty incidents, especially motor vehicle crashes, and incidents with less than 10 patients. First, **don't** yell out to move the MINOR "walking wounded" to a collection area. Don't move the Minor (Green) patients! **It is not the standard of care** to ask these patients to move at a smaller incident.

After that, continue to use RPM to assess and categorize patients. But do not assume that those assessments are flawless, and don't forget that patient conditions change. Re-triage as the patient is

moved to the Treatment Area, and repeatedly while they are in Treatment. Be prepared to upgrade and downgrade triage categories as you develop more information about the patient's condition.

The last set of concerns that we will discuss is the use of START with Children. Apneic children are more likely to have primary respiratory problems than adults. Perfusion may be maintained for a short time, and those children may be salvageable.

More frequently, pediatric patients can be either over-triaged or under-triaged depending on age and stress levels, by using the Respiratory Rate of 30 as measure. Capillary refill, though usually more reliable in children, may not adequately reflect peripheral hemodynamic status in a cold environment. Obeying commands may not be an appropriate gauge of mental status for younger children.

There is a companion triage system, called "JumpSTART", that tries to address these concerns. It is more complex, and we have chosen not to utilize it in this region, at least for now. However, you can consider making the following modifications to your assessment of patients who are 8 years old or less:

- If a child is not breathing, even after opening the airway, consider attempting 15 seconds of ventilations (e.g., Mouth to Mask), which would be about 5 breaths, if the patient still has a peripheral pulse.
- If breathing resumes after this "jumpstart", tag patient Red (Immediate) and move on.
- When assessing Respiratory Rate, consider using 15-45, rather than 30. Patients with a respiratory rate <15 or >45, or that are irregular, should be tagged as Immediate.
- If the respiratory rate is in the 15-45 range, proceed to assess perfusion.

These additional points should help you better utilize the START triage system to care for your patients.

5.0 - RESPIRATORY DISTRESS

1. Open airway and check for breathing
2. Administer **O2** by NRB mask or nasal cannula; be prepared to assist ventilations by BVM or FROPVD with 100% **O2**.
3. Evaluate breath sounds, and obtain Pulse Oximetry reading:
   A. **Clear breath sound**s: Treat cause (metabolic disturbance, and hyperventilation) and transport in position of comfort.
   B. **If wheezes presen**t: Consider possibility of allergic reaction. See **Section 6.3, Anaphylaxi**s.
   C. **If wheezes present and not an allergic reactio**n, and patient has history of **COPD (emphysema, asthma, bronchitis):**
      - Consider breathing treatment, using 2.5mg (3ml), of **Proventil (Albuterol)** combined with **Atrovent,** 0.5 mg. in nebulizer with **O2** flow at 8-12 liters per minute, or give 2 puffs from an **Albuterol** inhaler.
   D. **Patient with Severe Distress**: Sit patient up, assist ventilations, and give HIGH flow **O2**.
   E. **Rales present (pulmonary edema**): Sit patient up, administer HIGH flow **O2** by NRB and/or BVM and transport.
   F. **Sucking chest wound:** Seal open wound on 3 sides, monitor for development of Tension Pneumothorax.
4. Reassess breath sounds.
5. Start Saline Lock or IV **of 0.9% N**S, TKO, while en route to hospital DO NOT DELAY TRANSPORT.
6. Apply Cardiac Monitor and check rhythm.

7. If breath sounds are asymmetrical or absent, consider possibility of pneumothorax, spontaneous or otherwise.
8. Transport in position of comfort.
9. Monitor for development of Tension Pneumothorax. If found perform immediate chest decompression.

5.1 - PULMONARY EDEMA

Look for and note cyanosis, clammy skin, absence of fever, coughing, wheezing, labored breathing, diaphoresis, rales in bilateral lower lung fields, tachypnea, apprehension, and inability to talk.

1. Open airway and check for breathing
2. Evaluate breath sounds and obtain {Pulse Oximetry} reading:
3. Administer **O2** by NRB mask or nasal cannual; be prepared to assist ventilations by BVM or FROPVD with 100% **O2**.
4. Apply Cardiac Monitor and check rhythm.
5. Establish Saline Lock or IV of **0.9% NS** at TKO.
6. Look for and note cyanosis, coughing, wheezing, labored breathing, diaphoresis, pitting edema, tachypnea, apprehension, JVD, absence of fever, and inability to talk.
7. If patient has SBP > 100, administer sublingual **Nitroglycerin** 0.4mg up to three times at five-minute intervals. Maintain BP above 100 systolic.
8. ⊄Administer **Morphine Sulfate**, up to 5 mg. Maintain SBP > 100.
9. ⊄May repeat up to 5 mg of **Morphine Sulfate** only with direct order from Medical Control.
10. Consider breathing treatment, using 2.5mg (3ml), of **Proventil (Albuterol)** combined with **Atrovent**, 0.5 mg, in nebulizer with **O2** flow at 8-12 liters per minute, or give 2 puffs from an **Albuterol** inhaler for patients if there is any suspicion of bronchospasm.
    A. May repeat **Proventil** continuously in patients with any signs of benefit from the **Proventil.**
11. Monitor vital signs, especially respirations and blood pressure, every 5 minutes.

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It is important to differentiate between CHF with pulmonary edema and pneumonia. At times, pneumonia may look like CHF with Pulmonary Edema. However, the pneumonia patient is often dehydrated and has an elevated temperature.

5.2 - ASTHMA/EMPHYSEMA/COPD

1. Open airway and check for breathing
2. Administer **O2** by NRB mask or nasal cannula; be prepared to assist ventilations by BVM or FROPVD with 100% **O2**.
3. Evaluate breath sounds, and obtain {Pulse Oximetry} reading:
4. **Transport as soon as practical.**
5. Apply Cardiac Monitor and check rhythm.
6. Establish Saline Lock or IV of 0.9% NS at TKO.
7. Consider breathing treatment, using 2.5mg (3ml), of **Proventil (Albuterol)** combined with **Atrovent** 0.5 mg. in nebulizer with **O2** flow at 8-12 liters per minute, or give 2 puffs from an **Albuterol** inhaler.
    A. May give repeat dose of **Proventil** times three.
8. **If patient arrest**s, tension pneumothorax is a likely cause. Strongly consider bilateral needle decompression for relief of tension pneumothorax.
9. After above procedure in arrested asthma patient, perform endotracheal intubation.

10. After intubation of asthma patient, limit rate of ventilation to eight to ten breaths per minute, to avoid auto-PEEP and hypotension, provided that you can adequately ventilate the patient at that rate.
11. 11.If patient with asthma, **not emphysema or bronchiti**s, is in severe distress, give **Epinephrine 1:1,000,** 0.3 mg Sub-Q.
12. ♦If patient condition does not improve, SUB-Q **Epinephrine** may be repeated during transport on orders from Medical Control. **Needle decompression may be needed even if patient has not been intubated:** If asthma patient arrests, consider bilateral needle decompression for relief of tension pneumothorax even if patient has not been intubated.

6.0 - OTHER MEDICAL ISSUES
6.1 - ALTERED LEVEL OF CONSCIOUSNESS – UNKNOWN CAUSE

1. Secure airway and consider cervical spine injury.
2. Administer 100% **O2** by NRB mask.
3. Apply {Pulse Oximete**r**}.
4. Be prepared to hyperventilate and/or assist ventilations with oral or nasal airway and BVM.
5. Apply Cardiac Monitor and check rhythm.
6. Treat signs and symptoms of shock.
7. Start IV of **0.9% N**S, TKO, and draw blood chemistry tube while en route to hospital.
   - Do Not Delay Transport For IV.
8. **{Determine blood sugar level}**.
9. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
   A. Administer 50ml of **50% Dextrose** (25 grams), IV bolus.
   B. **D50** may be repeated in 10 minutes if patient fails to respond, or BS remains <60.
   C. If unable to obtain IV, give **Glucagon,** 1mg IM.
   D. If unable to establish IV, and/or Glucagon is unavailable may administer 1 tube of **Oral Glucose.**
10. If blood sugar checks within normal range, consider overdose.
11. Consider patient **restraint** before administration of **Narca**n.
12. If respiration is impaired, or there is a high index of suspicion of narcotic overdose and patient does not respond to **Dextros**e, administer **Narcan,** up to 4 mg IV push, varying rate according to patient severity.
    A. As an **alternative to IV Narcan,** EMT-Intermediates have the option to administer **Narcan** 2 mg. **intranasally** via {Mucosal Atomization Device (MAD)} if appropriately trained/tested with Medical Director approval. Give 1 mg. in each nostril by briskly compressing syringe. If no arousal occurs after 3 minutes, establish an IV and administer IV **Narcan.**
    B. If unable to obtain IV and no { MAD}, **Narcan** may be administered SQ or IM.

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Oral Glucose Administration: Oral glucose is indicated for any awake but disoriented patient with blood sugar readings 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.

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Narcan Administration: Caution should be exercised when administering Narcan to narcotic addicts as rapid administration may precipitate withdrawal with hypertension, tachycardia, and violent behavior. Titrate to maintain adequate respiratory rate. and to avoid dealing with an agitated patient.

6.2 - DIABETIC EMERGENCIES

1. Secure and maintain airway. Support with 100% **O2** by NRB mask.
2. Apply Cardiac Monitor and check rhythm.
3. Start Saline Lock or IV of **0.9% N**S, TKO, and draw blood chemistry tube.
4. Treat signs and symptoms of shock.
5. Start IV of **0.9% N**S, TKO, and draw blood chemistry tube while en route to hospital.
   - Do Not Delay Transport For IV.
6. **{Determine blood sugar level}**.
7. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
   A. Administer 50ml of **50% Dextrose** (25 grams), IV bolus.
   B. **D50** may be repeated in 10 minutes if patient fails to respond, or BS remains <60.
   C. If unable to obtain IV, give **Glucagon** 1mg IM.
   D. If unable to establish IV, and/or Glucagon is unavailable may administer 1 tube of **Oral Glucose.**
8. **Unconscious diabetics are often hypothermic. Be prepared, and treat hypothermia when indicated.**

6.2.1 - DIABETIC EMERGENCIES: REFUSAL AFTER TREATMENT

1. It is not uncommon for a diabetic, hypoglycemic patient who responds to being given sugar (IV Dextrose, Glucagon, or Oral Glucose) at the scene, to refuse transportation after awakening. **These patients may be permitted to refuse.** Before doing so, follow these guidelines:
   A. Perform a **repeat physical examinatio**n, and **repeat vital sign**s. The **patient must be alert and oriented x 3.**
   B. Warn the patient that there is a significant risk of going back into hypoglycemia, especially if the patient is on oral hypoglycemic agents.
   C. Advise the patient that he or she should eat something substantial as quickly as possible, before the sugar given by EMS "wears off."
   D. Advise the patient to contact his/her family physician as soon as possible, to try to prevent future episodes.
   E. Advise the patient to stay with someone who could call for help if necessary.
   F. Discontinue the IV line, follow normal patient refusal procedures (Refusal Form, etc.), and go to the nearest hospital to replace your Drug Box and IV supplies.
2. Meticulously document all of the above. **Ensure that the EMS Coordinator of the hospital that replaces your Drug Box and Supplies receives a copy of the runsheet for his/her records.**

Importance/Difficulty of Determining Competence: A mentally competent adult has the right to refuse medical care, even if the decision could result in death or permanent disability. The problem for the EMS provider is determining if the patient is mentally competent. This is especially difficult in a diabetic patient. You need to make sure the patient is able to understand situation. At very least, patient needs to be oriented x 3. This means s/he is oriented to time (time of day, day of week, and date), to place, and to person. Follow guidelines listed above. Remember, if you leave person and they are hypoglycemic, they may die.

6.3 - ALLERGIC REACTION/ANAPHYLAXIS: WHEEZES PRESENT

1. Secure airway and support with **O2**.
2. If severe allergic reaction, administer **Epi-Pen**
3. Apply ice pack to stings to slow swelling and spread of poison.
4. Start Saline Lock or IV of **0.9% N**S, TKO, while en route to hospital. DO NOT DELAY TRANSPORT
5. If patient is wheezing: Administer **Atroven**t, 0.5 mg and **Proventi**l 2.5 mg **(Albuterol)** in the nebulizer with an **O2** flow rate of 8-12 liters per minute.
6. May give repeat dose of **Proventil** times three.
7. Administer **Benadryl (Diphenhydramine)** 1mg/Kg (Max dose: 50 mg) IM or slow IV.
   NOTE: This is especially indicated when drug reactions are suspected and SBP > 100.
8. If patient is hypotensive and/or in respiratory compromise, run IV wide open to maintain systolic pressure above 100 mm Hg. Large volumes of fluid may be needed.
9. If patient remains hypotensive after a fluid bolus, give **Epinephrine 1:1,000,** 0.3 mg Sub-Q.
10. If patient remains hypotensive after Epinephrine, administer **Glucagon,** 1-2 mg IV or IM.
11. If patient goes into cardiac arrest, intubate, possibly with smaller than normal ET tube.

Assisting with EpiPen: When assisting patient with severe allergic reaction with their own prescribed EpiPen, do the following:

- Assure medication is prescribed for patient
- Check medication for expiration date.
- Contact Medical Control, if possible.
- Administer medication in mid-thigh and hold injector firmly against leg for at least 10 seconds to assure all medication is injected.
- Record patient reaction to medication and relay to Medical Control – be sure to have vital signs.

6.4 - SEIZURES

GENERAL CONSIDERATIONS

1. Provide Aspiration precautions:
   A. Recovery position: a side lying position with the head lowered 15 to 30 degrees
   B. **Suction readily available**
   C. If possible, mouth cleared of foreign bodies (food, gum, and dentures)

SPECIFIC CARE

1. Clear and maintain airway, consider cervical spine injury.
2. Administer 100% **O2** with NRB mask.
3. Apply Cardiac Monitor and check rhythm.
4. Consider using a BVM and {nasopharyngeal airway**s}** during seizure.
5. Start Saline Lock or IV of **0.9% N**S, TKO, and draw blood chemistry tube while en route to hospital.
6. If repeated or continuing seizure activity, administer **Valium (diazepa**m) 5 mg **slow** IV push.
7. If seizures continue or recur, may repeat **Valium ,**5 mg **slow** IV push once.
8. After **Valiu**m, monitor airway, be prepared to intubate if patient becomes apneic.
9. {**Determine blood sugar level}**.
10. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer 50 ml of **50% Dextrose** (25 grams), IV bolus.
    B. **D50** may be repeated in 10 minutes if patient fails to respond, or BS remains <60.

C. If unable to obtain IV, give **Glucagon** 1mg IM.
D. If unable to establish IV, and/or Glucagon is unavailable may administer 1 tube of **Oral Glucose.**

The basic rule with seizures is to "protect and support" the patient. The seizure has usually stopped by the time the EMS personnel arrive and the patient is in the postictal state. Place the patient away from objects on which they might injure themselves; protect but do not restrain them. Evaluate for drug abuse and evidence of head trauma. If trauma is suspected, consider cervical immobilization. Obtain history from bystanders. Bring medication with patient if available.

When obtaining history, include the following:

- Seizure history
- Description of seizures, areas of body involved, and duration
- Medications
- Other know medical history – especially head trauma, diabetes, drugs, alcohol, stroke, heart disease.

Status Epilepticus: If patient is in status epilepticus, paramedics should consider nasotracheal intubation or, if trained and authorized by department medical director, use of the Sedate to Intubate Protocol.

6.5 - POISONING/OVERDOSE

GENERAL CONSIDERATIONS

1. WHEN DEALING WITH CONTAMINATED ENVIRONMENTS, EMS personnel MUST HAVE APPROPRIATE PROTECTIVE CLOTHING. IF NOT AVAILABLE, CONTACT HAZ-MAT.
2. **Patient should be searched for weapons.** Consider having police perform search, but don't assume that their search was adequate.
3. Consider the possibility of accidental or intentional poisoning whenever any of the following conditions are present:
   A. History of observed or admitted accidental or intentional ingestion.
   B. Coma.
   C. History of known suicide gesture.
   D. Suggestive intoxicated behavior (hyperactive, hypoactive, unstable walk, lethargic).
4. **Bring all patient's prescription medications and bottle or remaining poison to the hospital**, unless this results in unreasonable delay of transport. **Consider having police take custody of substance and means**.

SPECIFIC CARE

1. Establish airway.
2. Obtain relevant history
   A. What, when, why taken (if known)
   B. Quantity taken (if known)
   C. Patient's age and weight
3. Make a thorough search for any and all potential poisonous substances (i.e., medications, drugs).
4. Evaluate patient's:
   A. Breath sounds (rales)
   B. Level of consciousness and gag reflex
   C. Pupil size

D. Evidence of head injury

5. {Determine blood sugar level}.
6. If an **Ingested Poison** – Transport.
7. If an **Inhaled Poison**:
   A. Remove from toxic area
   B. Secure airway, support with 100% $\mathbf{O_2}$.
   C. Assist ventilations, if necessary.
8. If an **Absorbed Poison**:
   A. Remove patient's clothing – protect EMS personnel from contaminated clothing. Consider Haz-Mat Team contact.
   B. Identify substance.
   C. Flush skin with water before and during transport if possible – at least 10 - 15 minutes.
   D. If the eyes are involved, flush with water or **Saline** continuously.
9. If an **Injected Poison**:
   A. Secure and maintain airway
   B. If possible, identify substance and method of injection.
10. Apply Cardiac Monitor and check rhythm.
11. Establish Saline Lock or IV **Saline**, TKO, while en route to hospital. DO NOT DELAY TRANSPORT
12. If patient has an altered level of consciousness, follow the **Section 6.1 -Altered Level of Consciousness**.
13. Consider patient **restraint** before administration of **Narcan.** If respiration is impaired, or there is a high index of suspicion of narcotic overdose**,** administer **Narcan,** up to 4 mg. IV push, varying rate according to patient severity
    A. As an **alternative to IV Narcan,** EMT-Intermediates have the option to administer **Narcan** 2 mg. **intranasally** via {Mucosal Atomization Device (MAD)} if appropriately trained/tested with Medical Director approval. Give 1 mg. in each nostril by briskly compressing syringe. If no arousal occurs after 3 minutes, establish an IV and administer IV **Narcan.**
    B. Narcan may be given IM, or SUB-Q, if IV unsuccessful.
14. ♦If known Calcium Channel Blocker overdose or Beta Blocker overdose Administer **Glucagon** 1 mg IM or IVP (preferred)

Calcium Channel Blocker Examples:

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

15. ♦Administer **Glucagon** 1 mg IM or IVP (preferred) if known Calcium Channel Blocker overdose (examples above) or Beta-Blocker (examples below) overdose.

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)

16. ♦If chest pain is present in a patient who is known to have recently used cocaine or "Crack", give **Nitr**o, 0.4 mg SL, provided SBP > 100 on orders from Medical Control.
17. ♦If patient known to have recently used cocaine or "Crack" is significantly hypertensive, **or** has hemodynamically significant tachycardia (HR > 100, and SBP < 100), administer **Valium** 5.0 mg, IV on orders from Medical Control.

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In ingested poisoning, it is not necessary to transport emesis. Document if pills or fragments were seen in emesis. Do not give Ipecac or Activated Charcoal.

✪

Narcan Administration: Caution should be exercised when administering Narcan to narcotic overdose patients, as rapid administration may precipitate withdrawal with hypertension, tachycardia, and violent behavior. Titrate to maintain adequate respiratory rate. and to avoid dealing with an agitated patient.

6.6 - HAZ-MAT

Contact receiving hospital immediately to allow for set up time on all Haz-Mat situations!
Any chemical burn is, by definition, a Haz-Mat incident.

1. Perform scene survey and practice Body Substance Isolation.
2. Do not attempt to treat patient until you have adequately protected yourself.
3. Consider calling for assistance.
4. **Initiate field decontaminatio**n. First step is to remove contaminated clothing.
5. If hazardous material is tenacious, thoroughly wash the patient using a solution of {Daw**n}** Soap and water, paying special attention to skin folds and other areas where simple irrigation may not remove it. Do not abrade the skin!
6. **Do not** transport a patient until gross decontamination is completed.
7. ♦Obtain **permission** from Medical Control before entering hospital with a potentially contaminated patient.
8. ♦If patient is suffering effects from an identified Hazardous Material, refer to the relevant section below, and contact Medical Control for orders.
9. EMS crews should decontaminate themselves and vehicle before leaving hospital.

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Field decontamination must be initiated. An example of the often overlooked importance of decon is a patient soaked in diesel fuel.

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CDC Recommendations about Antidotes

The Centers for Disease Control (CDC) has made recommendations about antidotes for Mass Casualty Incidents (MCI's), 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.
- 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.

6.6.A - Guidelines for dealing with exposure to hazardous drug

There are a number of patients on IV chemo therapy at home who have had a bio spill kit issued to them. Would you know what to do when called to the home of one of these patients because the IV starts leaking and the patient and family are experiencing burning sensations from the chemo solution where it touched their skin? The following guidelines and recommendations were developed by .KMC's Oncology Specialist after the EMS run described above.

Hazardous Drug: Exposures and Spills

From the Oncology Nursing Society Chemotherapy and Biotherapy
Guidelines and Recommendations for Practice (second edition) 2005

What is the chance that EMS personnel would be exposed to a hazardous drug?

a. Patients who have continuous IV chemotherapy at home (should have a homecare agency or physician's office providing daily check-up, spill kit, and disposal of contaminated items)
b. 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
c. Patients who are taking oral chemotherapy drugs

1. **Hazardous** refers to drugs that require special handling because of potential health risks. These risks are a result of the inherent toxicities of the drugs (National Institute for Occupational Safety and Health [**NIOSH**], 2004.)
   http://www.cdc.gov/niosh/docs/2004-165/2004-165d.html has a complete list of drugs.
   Hazardous drugs meet one or more of the following criteria:
   a. **carcinogenicity** – can cause cancer
   b. **teratogenicity** – can cause birth defects
   c. reproductive toxicity – such as infertility, spontaneous abortion
   d. organ toxicity – skin rash, elevated liver enzymes, hair loss
   e. **genotoxicity** – damage to genes (chromosomes)
   f. drugs similar in structure or toxicity to hazardous drugs

2. According to **OSHA**, **1995**, safe levels of occupational exposure to hazardous agents cannot be determined, and no reliable method of monitoring exposure exists. Therefore, it is imperative that those who work with hazardous drugs adhere to practices designed to minimize occupational exposure. Potential routes of exposure include:
   a. absorption through skin or mucous membranes
   b. accidental injection by needle stick or contaminated sharps
   c. inhalation of drug aerosols, dust, or droplets
   d. ingestion through contaminated food, tobacco products, beverage, or other hand-to-mouth behavior (NIOSH, 2004)

3. **PPE (personal protective equipment)** should be worn whenever there is a risk of hazardous drug being released into the environment. For EMS personnel, the situations might include:

a. Handling leakage from tubing, syringe, and connection sites.
b. Disposing of hazardous drugs and items contaminated by hazardous drugs.
c. Handling the body fluids of a patient who received hazardous drugs in the past 48 hours.
d. Cleaning hazardous drug spills.
e. Additional situations apply to healthcare workers who mix and administer hazardous drugs.

4. Guidelines for **PPE**:
   a. **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 (NIOSH, 2004).
   b. **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.
   c. **Respirators**: Wear a NIOSH-approved respirator mask when cleaning hazardous drug spills. Surgical masks do not provide adequate protection.
   d. **Eye and face protection**: wear a face shield whenever there is a possibility of splashing.

5. 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.

6. **Accidental skin exposure:** Remove contaminated garments, place in leakproof plastic bag, and immediately wash contaminated skin with soap and water. Rinse thoroughly. Report to patient's physician (if it is the patient) or to Employee Health Clinic (if it is an employee) for examination and documentation.

7. **Accidental eye exposure:** immediately flush eye with saline solution or water for at least 15 minutes. Report to patient's physician (if it is the patient) or to Employee Health Clinic (if it is an employee) for examination and documentation.

8. **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.)

9. **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.

10. **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.

11. **Report and document spills as required** (consider EPA, OSHA, and Regional/local HazMat team if more than 5 mL)

12. **Who should you call for more help**? (the patient should have these phone numbers)
   a. the homecare agency that is supplying/monitoring the infusion
   b. the physician who ordered the infusion (usually a medical oncologist)
   c. 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)

d. Consult with the Regional HazMat team (or local HazMat team for areas outside the Dayton area).

6.6.1 - HAZ-MAT: HYDROFLUORIC ACID (HF)

1. Substance is **extremely** hazardous! Deaths have been reported after burns involving < 3% Body Surface Area. Assure safety of all personnel!
2. Begin decon **immediatel**y, as soon as it can be accomplished without putting EMS personnel at risk! Strip the patient of any clothing which may be contaminated, avoiding contact of clothes and the patient's face.
3. Irrigate the chemical burn with water as quickly as possible. **DON'T DELAY IRRIGATION!**
4. Continue to flush affected skin and eyes with copious amounts of water or **Saline** for at least 30 minutes.
5. Place Cardiac Monitor on patient.
6. Establish IV with 1,000 ml of **0.9% NS** at TKO, or as necessary to treat hypovolemia.
7. If ingested, **do not** induce vomiting. Dilute with water or milk.
8. Treat as indicated for shock, pulmonary edema, and cardiac dysrhythmias.
9. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate,** 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
10. ♦ May repeat **Morphine Sulfate** up to 5 mg slow IVP (2-3 minutes) based on patient weight, provided SBP>100).
    A. ♦ Repeat dose of SQ Morphine requires Medical Control approval and is indicated only if transport time is greater than 30 minutes.

6.6.2 - HAZ-MAT: CYANIDE

1. Substance is **extremely** hazardous Assure safety of all personnel!
2. Conscious Victims – {100% **O2** by mask}.
3. Unconscious Victims of Known or Strongly Suspected Cyanide Poisoning.
   A. Evaluate ABCs.
   B. If patient in cardiac arrest - CPR continuously, apply AED.
4. If patient is apneic and in arrest Endotracheal intubation is indicated and provide 100% **Oxygen** by BVM.
5. 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:
   A. Provide 100% **oxygen** by Bag-Valve, preferably via endotracheal tube if apneic and without pulse.
   B. CPR if indicated. In cases of cardiac arrest associated with cyanide poisoning, the cyanide antidotes must have a very high priority.
6. Transport immediately unless an Advanced Life Support unit is en route and has an ETA of less than 5 minutes.

6.6.3 - HAZ-MAT: ORGANOPHOSPHATE OR NERVE GAS POISONING

1. **Mass Casualty Incidents (MCI's)** involving known or strongly suspected organophosphate or carbamate (e.g., insecticides such as parathion or malathion); or nerve agent (e.g., 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.

2. Substance is **extremely** hazardous. Assure safety of all personnel before entering or attempting to treat victims.
3. ♦ **In a Mass Casualty Incident (MCI)** involving Nerve Agents or Organophosphates, First Responders, EMT-Basics, or EMT-Intermediates may administer **Atropine** every 3-5 minutes, as available, until lungs are clear to auscultation by **Mark I** auto-injector Item 1, or by Atropen Autoinjector for children.
   - Atropine is given by the 2 mg Autoinjector, for adults and children weighing over 90 pounds.
   - Children weighing 40 – 90 pounds should be given the 1.0 mg Atropen autoinjector.
   - Children weighing less than 40 pounds should be given the 0.5 mg Atropen autoinjector.
4. ♦ **Atropine** should be followed in adults with 600 mg IM **Pralidoxime (2-PAM), which is Mark I auto-injector Item 2**.
5. ♦ Treat any seizures with the **Valium Autoinjector**.

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The Mark I Kits and other agents for use against Weapons of Mass Destruction (pediatric Atropens, multi-dose vials of Atropine, and Sodium Thiosulfate for EMS use in cases of cyanide poisoning) are now included in the Drug Box.

Use extreme caution! Having Mark I Kits available does not suggest that entry can be made into a hazardous environment with impunity or safety. They are to provide protection for public safety personnel who walk into a scene and become unexpectedly contaminated. They are also intended for the treatment of civilian patients at the scene.

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 of Atropine have been added to the Drug Box. However, Squads must carry syringes and needles for administering that Atropine.

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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. 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}.

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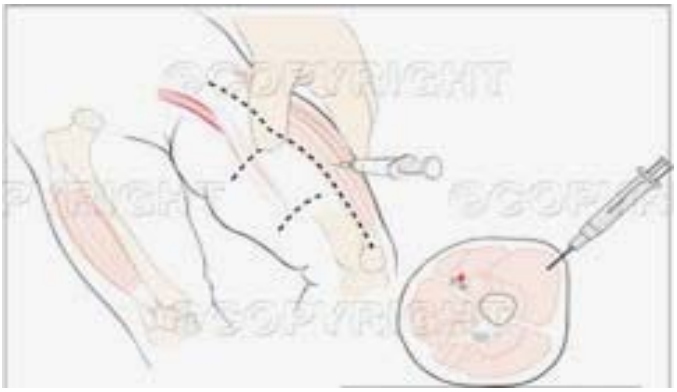
Administering the Nerve Agent Antidote Auto-Injector Kit (Mark I) (or other Autoinjector):
When a first responder or EMT arrives on a scene potentially contaminated with nerve agents, s/he must don a protective mask. If symptoms of nerve agent exposure manifest:

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 ComboPen on victim's outer thigh.
9. Push firmly until auto-injector fires.
10. Hold in place for 10 seconds to ensure Pralidoxime Chloride has been properly delivered.

The best way to administer the autoinjector is to 1) hold it between your thumb and index finger ("like a pen"), 2) rest the heel of your hand against the victim's thigh, 3) push the tip of the injector against the thigh until it "fires", 4) then hold the injector against the simulated thigh for 10 seconds to insure complete discharge of contents.

Recommended Autoinjector Site



Anterolateral Thigh

CHEMPACKS and Other Resources for Mass Casualty Incidents

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 1000 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.

All EMS personnel must now know how to recognize the use of chemical agents, when to utilize antidotes, and how they are administered. **NOTE**: **Under a new Ohio Law, and the revised Region 2 EMS Standing Orders, EMT-Intermediates, EMT-Basics, and First Responders may all 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 (e.g., to public safety personnel).**

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. 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 I Kits containing a 2 mg Atropine Autoinjector, and another Autoinjector with 2-PAM
- CANA's – (which believe it or not, stands for "Convulsive Antidote, Nerve Agent") containing 10 mg Diazepam (Valium) for treating convulsions

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 Medical Control Physicians. **It is the specific responsibility of the Medical Control Physician (MCP) at the hospital whose CHEMPACK is to be used to authorize release of the CHEMPACKS, and authorize use of the antidotes by field providers.**

To request a CHEMPACK, EMS or hospitals simply contact the "Regional Rescue Coordination Center" at **937-333-USAR.** 333-USAR will notify the closest CHEMPACK hospital and notify a Transport agency for you. You must advise **937-333-USAR** 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 333-USAR.

If a hospital opens its own CHEMPACK, it also must notify 333-USAR, 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 below is excerpted from the RPAB 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 Kit CANA for seizures (Valium Autoinjectors) Atropine Valium or Versed for seizures
Incident Is Appropriate for CHEMPACK Utilization IF BOTH of the following are present:	
	• A large number (50 or more) of confirmed or potential adult or pediatric patients **AND** • Nerve agent/Organophosphate identified or Patients are exhibiting signs or symptoms consistent with an exposure to a nerve agent
	If so, immediately contact your Dispatch and request CHEMPACK deployment to the scene.
Communication with SOURCE HOSPITAL Medical Control	
	EMS personnel MUST contact the Hospital which 333-USAR says will be the source of the CHEMPACK
	Provide the following information: ▪ Estimated number of confirmed or potential adult patients ▪ Estimated number of confirmed or potential 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

Sensitive information: not to be released to press or public.

Receive CHEMPACK from Transport Agency	
	CHEMPACK antidotes **may not be administered** until you have authorization **from the Medical Control Physician at the CHEMPACK Supplying Hospital**
	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 Medical Control Physician (MCP) to administer Nerve Agent/Organophosphate antidotes. ▪ Calling for separate orders for each individual patient would be 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** Autoinjector ➢ 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 IV/IM Atropine 0.02 mg/Kg for children 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** ➢ Infants and young children should receive Pralidoxime, 25-50 mg/kg IV drip or IM Treat any seizures with **Valium, Versed**, or **Valium 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) than Nerve Agent poisonings, but no more 2-PAM than the 3 Mark I's • 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 Supplying Hospital Properly dispose of all Medical Waste
Medical Control Physician at Hospital Storing CHEMPACK:	
	Is solely responsible for authorizing opening CHEMPACK
	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.)

Sensitive information: not to be released to press or public.

6.6.4 - HAZ-MAT: BIOLOGICAL AGENTS

This section intentionally left blank.

6.6.5 - HAZ-MAT: PEPPER SPRAY

1. **Departments may purchase and utilize {Sudecon Wipes} to assist in the decontamination of patients or public safety personnel who have been sprayed with Pepper Spray.**

6.7 - ABDOMINAL PAIN

1. Airway with C-spine control, if indicated. Provide **O2** as indicated.
2. Transport in position of comfort.
3. Give nothing by mouth.
4. Start an IV of **0.9% NS** at a keep open rate if there is significant potential for hypotension, especially for positive orthostatic vital signs. (Do not perform tilt test if unsafe or impractical.)
5. If hypotensive, follow **Shock Protocol, Section 3.4**
6. Monitor Cardiac Monitor during transport.
7. If patient has vaginal bleeding, ask for an estimate of blood loss. Perform a visual perineal exam if any of the following are present:
   - Patient pregnant, voices possibility of pregnancy, or has had multiple missed menstrual periods, **and** has significant abdominal pains.
   - Presenting large clots and/or suspected products of conception.
   - Any history of trauma below umbilicus with vaginal bleeding.
   - Patient states use of more than two pads saturated with blood per hour.
   - Visual observation of large vaginal blood loss.
8. Pregnant patients > 20 weeks gestation should be taken to a Maternity Department if feasible; < 20 weeks should go to the Emergency Room.
9. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate,** 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
10. ♦ May repeat **Morphine Sulfate** up to 5 mg , only with direct order from Medical Control.
    A. ◆ **Repeat dose of SQ Morphine requires Medical Control approval and is not indicated unless transport time is greater than 30 minutes.**

✪

The position of comfort for most patients with abdominal pain is supine with knees flexed, unless there is respiratory distress.

✪

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 mm Hg. and/or a concurrent rise in pulse rate (after 1 minute of 10 – 15 beats per minute indicates a significant (at least 10%) volume depletion (postural hypotension) and a decrease in perfusion status.

7.0 - OBSTETRICAL EMERGENCIES

7.1 - MISCARRIAGE/ABORTION

1. Aggressively treat for **Hypovolemic Shock, Section 3.4.**
2. Give psychological support to patient and family.
3. Be sure to take all expelled tissue with you to the hospital.

✪

Miscarriage/Abortion refers to premature termination of a pregnancy

7.2 - ECTOPIC PREGNANCY

1. Patient may experience severe abdominal pain, and may have intra-abdominal and/or vaginal bleeding and discharge. Patient may not know she is pregnant.
2. Aggressively treat for **Hypovolemic Shock, Section 3.4.**
3. Transport supine with knees flexed.
4. Take any expelled tissue with you to the hospital.
5. Obtain history, including Last Menstrual Period.
6. Pregnant patients > 20 weeks gestation should be taken to a Maternity Department if feasible; <20 weeks should go to the Emergency Room.

Ectopic Pregnancy refers to growth and development of a fertilized egg occurs outside the uterus, most commonly in the fallopian tube, but sometimes in the ovary or (rarely) the abdominal cavity or cervix. It is usually discovered in the first two months, often before the woman realizes she is pregnant.

7.3 - CARDIAC ARREST IN PREGNANT FEMALE

1. Precipitating events for cardiac arrest include: Pulmonary embolism, trauma, hemorrhage or congenital or acquired cardiac disease. Load and go to closest hospital! Follow all normal cardiac arrest protocols en route per **Section 3**.
2. 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.
3. Administer chest compressions slightly higher on the sternum than normal.

Manual Displacement of Uterus: When working cardiac arrest in pregnant patient, manually displace the uterus to the left. This helps to take the weight of the uterus off the Vena Cava, which will help maximize the blood flow to the fetus.

7.4 - THIRD TRIMESTER BLEEDING

1. Never do vaginal exam! Visualize the perineal area.
2. Place patient in left lateral recumbent position.
3. Treat for **Hypovolemic Shock Section 3.4**, if indicated,.
4. Apply continuous manual displacement of the uterus to the left, or place a wedge (pillow) under the right abdominal flank and hip.

8.0 - CHILDBIRTH

GENERAL CONSIDERATIONS

1. Unless delivery is imminent, transport to a hospital with obstetrical capabilities. Imminent delivery is when the baby is crowning during a contraction.
1. A **visual** inspection of the perineal area should only be done when contractions are less than 5 minutes apart and/or there is bleeding or fluid discharge.
2. DO NOT place a gloved hand inside the vagina except in the case of breech delivery with entrapped head, or a prolapsed umbilical cord.
5. During delivery, gentle pressure with a flat hand on the baby's head should be applied to prevent an explosive delivery.

6. Pregnant patients > 20 weeks gestation should be taken to a Maternity Department if feasible; < 20 weeks should go to the Emergency Room.

SPECIFIC CARE

1. Obtain history of patient condition and pregnancy, including contraction duration and interval, due date, number of pregnancies, number of live children, prenatal care, multiple births and possible complications, and drug use.
2. Determine transport or delivery. Transport unless crowning is present.
3. Always try to transport mother to appropriate hospital designated for delivery.
4. Transport mother on left side with head slightly elevated to relieve pressure on mother's vena cava created by baby. Pressure could cause a decrease in mother's and baby's heart rate.
5. After delivery, keep mother and child warm and monitor airways and signs of shock.
6. Obtain one and five minute APGAR scores if time and patient condition permits.
7. Cut the umbilical cord, then place the baby to suckle at the mother's breast.
8. Call MCP for orders and advice as needed.
9. Start IV of **0.9% N**S, especially if hypovolemic shock, excessive bleeding, or crowning is present.

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 ideal 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	At 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

Separate run reports must be completed for each patient. The newborn is a separate patient from the mother.

8.0.A - NEWBORN RESUSCITATION

GENERAL CONSIDERATIONS

1. *Thermal regulation is an important aspect of the new born.* Body heat must always be maintained. As soon as the baby is born, wipe the baby dry and place in a warm environment. Ways to maintain body heat:

   A. Cover infant's head with a cap, place infant against mother's skin, and cover both.
   B. Use car seat with heat packs under and beside infant. Be sure to place towels between heat packs and infant.
   C. Use {heated, humidified} **Oxygen**.
2. Always position infant in the sniffing position (1" towel under shoulders). This will allow for an adequate open airway and drainage of secretions.
3. Suction infant until all secretions are clear of airway.
   A. Meconium aspiration is a major cause of death and morbidity among infants. If thick meconium is present and not removed adequately a high percentage (60%) of these infants will aspirate the meconium.
   B. If the newborn delivers with meconium-stained amniotic fluid and is vigorous, with strong respirations, good muscle tone, and heart rate greater than 100 BPM, suction the mouth and nose in the same way as for infants with clear fluid.
   C. If the newborn delivers with meconium-stained amniotic fluid and is depressed, has poor respiratory effort, decreased muscle tone, or heart rate less than 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. Each time this suctioning is done, the infant will have to be re-intubated with a new tube. This lower airway suctioning is only done when thick meconium is present. Watery or thin meconium does not require routine endotracheal intubation.
   D. Mechanical suction may be used on infants, but only if the suction pressure does not exceed 100 mmHg or 136cmH2O. Bulb suctioning is preferred.
4. 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.
5. 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.
6. Refer to length-based drug treatment guide (e.g., Broselow Pediatric Emergency Tape) when unsure about patient weight, age, and/or drug overdose.

SPECIFIC CARE

1. Suction airway during delivery; continue suctioning with infant's head down until airway is clear and infant is breathing adequately.
2. After delivery of the infant, assess the airway and breathing while drying and positioning head down.
3. If heart rate is < 100, BVM ventilation is necessary to increase heart rate.
4. Despite adequate ventilation, is heart rate is < 60 BPM cardiac compressions should be initiated.
5. BVM ventilation is also indicated for apnea and persistent central cyanosis.
6. BVM ventilation rate should be between 30 - 60 breaths per minute. Cardiac compression rate should be at a rate of 120 times per minute (Compression to Breath ration 3:1.
7. Establish communication with Medical Control and advise of patient condition.
8. Apply Cardiac Monitor and check rhythm.
9. If asystole or spontaneous heart rate is < 60 bpm despite adequate ventilation and stimulation:
   A. Establish IV/IO of **0.9% NS** (Do NOT DELAY transport to establish IV).
10. If infant shows signs of hypovolemia, administer saline 10ml/Kg over 5 minutes.
11. If respirations are depressed and narcotic dependence is suspected, consider **Narcan**: 0.1mg/Kg IV/IO repeated every 3 minutes until respirations improve.
12. Check blood sugar level and administer 1ml/Kg of **12.5% Dextrose** (D25 diluted with equal amounts of saline) if level is below 40mg/dl.

8.1 - DELIVERY COMPLICATIONS

1. CONTACT MEDICAL CONTROL AS SOON AS FEASIBLE AFTER ANY COMPLICATION IS DISCOVERED.
2. **Cord around Baby's Neck**:
   A. As baby's head passes out of the vaginal opening, feel for the cord.
   B. Initially try to slip cord over baby's head.
   C. If too tight, clamp cord in two places and cut between clamps.
3. **Breech Delivery**:
   A. May be **Footling Breech**, which is one or both feet delivered first, or **Frank Breech**, which is the buttocks first presentation.
   B. When the feet or buttocks first become visible, there is usually time to transport patient to the nearest facility.
   C. If upper thighs or the buttock have come out of the vagina, the delivery is imminent.
   D. If the child's body has delivered and head appears caught in the vagina, the EMT must support the child's body and insert two fingers in the vagina along the child's neck until the chin is located. At this point, the two fingers should be placed between the chin and vaginal canal and then advanced past the mouth and nose.
   E. After achieving this position, a passage for air must be created by pushing the vaginal canal away from the child's face. This air passage must be maintained until the child is completely delivered.
4. **Excessive Bleeding Pre-Delivery**:
   A. If bleeding is excessive pre-delivery and delivery is imminent, in addition to normal delivery procedures, the EMT should use the **Hypovolemic Shock Protocol, Section 3.4**.
   B. If delivery is not imminent, patient should be transported on her left side and **Shock** protocol followed, **Section 3.4**.
   C. In either case, Load and Go to nearby hospital, preferably one with obstetrical capabilities.
   D. Establish IV of **Saline** while en route to the hospital!
5. **Excessive Bleeding Post-delivery**:
   A. If bleeding appears to be excessive, establish IV of **Saline** while en route to the hospital!
   B. If placenta has been delivered, massage uterus firmly and put baby to mother's breast.
   C. Follow **Hypovolemic Shock Protocol, Section 3.4**.
6. **Prolapsed Cord**:
   A. When the umbilical cord passes through the vagina and is exposed, prior to the baby's delivery, the EMT should check cord for a pulse.
   B. The mother should be transported with hips elevated and a moist dressing around cord.
   C. If umbilical cord is seen or felt in the vagina, insert two fingers to elevate presenting part away from the cord, distribute pressure evenly when occiput presents.
   D. DO NOT attempt to push the cord back.
   E. Provide High Flow $\mathbf{O_2}$ by NRB mask to mother and transport IMMEDIATELY!

Excessive postpartum bleeding is characterized by more than 500 ml. of blood loss after delivery of the newborn.

9.0 - PSYCHIATRIC EMERGENCIES

1. **Patient should be searched for weapons**. Consider having police perform search, but don't assume that their search was adequate.
2. If not already contacted, contact local law enforcement for assistance with violent patients.
3. Obtain relevant history:

   A. Note any suicidal or violent intent
   B. Previous psychiatric hospitalization, when and where
   C. Where does patient receive psychiatric care?
   D. What drugs does patient take (including alcohol)?
4. **Is patient a danger to himself or others**?
5. Calm the patient.
6. Evaluate patient's Vital Signs and general appearance.
7. Transport patient to appropriate facility.
8. Contact Medical Control.
9. ALL patients who are not making rational decisions and who are a threat to themselves or others should be transported 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.

9.1 - VIOLENT PATIENTS

"Quick Look" for Determining Patient Incompetency

- acutely suicidal patient
- child under age 18, with urgent need for medical care
- confused patient
- developmentally or mentally disabled patient who is injured/ill
- intoxicated patient who is injured/ill
- physically/verbally hostile patient
- unconscious patient

1. **Patient should be searched for weapons.** Consider having police perform search, but don't assume that their search was adequate.
2. Consider need for restraint. Call for police.
3. Patients should never be transported while restrained in a prone position with hands and feet behind the back, or sandwiched between backboards and mattresses. Restraint techniques must never constrict the neck or compromise the airway.
4. EMS personnel must have the ability to rapidly remove any restraints if the patient vomits or develops respiratory distress (e.g., there must be a handcuff key in the vehicle during transit).
5. Handcuffs are generally not appropriate medical restraints. If they are used, the handcuff key must accompany the patient during treatment and transportation.
6. Explain need for restraint to patient, and document both the need and the explanation.
7. Any form of restraint must be informed restraint.
8. Employ "reasonable force". Reasonable force is the use of force equal to or minimally greater than the amount of force being exerted by the patient.
9. Request that police fill out the "Pink Slip".
10. Preferably transport the patient to the facility where he or she was last hospitalized.
11. Attempt to rule out the following conditions by the given method:
    A. CVA must be ruled out by the absence of risk factors and focal neural deficits.
    B. Ethanol withdrawal must be ruled out by patient history. Benzodiazepines **(Valiu**m, 5 mg slow IV push) should be used initially in these patients.
    C. Head injury must be ruled out by physical exam and incident history.
    D. Hypoglycemia must be ruled out by {blood glucose measurement**}** or by administering 25 grams of **50% Dextrose**
    E. Hypotension must be ruled out by determining the presence of SBP > 100.
    F. Hypoxia must be ruled out by **{O2** saturation measurement**}** or by supplemental **O2**.

Hypercapnia /hypercarbia (elevated levels of CO2 caused by inadequate ventilation/respirations) can cause a respiratory failure patient (especially young asthmatics) to be combative **despite normal Pulse Ox reading**s. EMS personnel have been successfully sued for failure to recognize medical causes of violent/bizarre behavior, including diabetic problems, head injuries, and other problems. The medical evaluation is a crucial component of this Standing Order.

9.2 - ELDER ABUSE/NEGLECT

1. Report all alleged or suspected elder abuse or neglect to the appropriate agency. This can be accomplished by completing the Social Services Referral Form provided by GMVEMSC.
2. EMS personnel **must** report any alleged abuse or neglect (including adults) to the appropriate agency, generally to the police, rather than social services, if victim is neither elderly or pediatric. Simply giving your report to hospital staff does not meet your burden under the law.

10.0 – HOSPITALS' GUIDE FOR PUBLIC SAFETY WORKER (PSW) EXPOSURES

Updated 9-2003 (Data subject to change – check periodically to ensure most current)

Step	Childre n's	Community	DHH	GSH	GVH/SVH	GMH	KMH/SYC	MMC & MMH	MVH
Wash Area	Y	Y	Y	Y	Y	Y	Y	Y	Y
Notify Supervisor	Y	Y	Y	Y	Y	Y	Y	Y	Y
Report to hospital	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hospital Contact	NICU Charge Nurse	Infection Control	Resource Leader	ED or Infection Control	ED Staff -> EMS Coord.	Infection Control	ED Staff -> Infection Control	Infection Control	Security -> AOC
Complete "Request for Information Form for HCWs"	Y	Y	Y	Y	Y	Y	Y	Y	Y
Type into ED	If desired	Y	If desired	Y	Y	Y	If desired	Y	If desired
Have your lab drawn	If source is high risk (not routine)	If indicated	If desired	If indicated	Y	Y	If desired	If indicated	If desired
Have source lab drawn (HIV, Hep B, Hep C)	Y	Y (Rapid HIV avail.)	Y (Rapid HIV avail.)	Y	Y (Rapid HIV avail.)	Y	Y	Y	Y (Rapid HIV avail.)
Follow up: Consult **YOUR Fire/EMS/ Police** Dept. policies/procedures as well	Follow dept policy	Infection Control	Infection Control & EMS Liaison	Infection Control	EMS Coord. or designee & follow dept policy	WorkPlus Dept.	Infection Control & Follow Up policy	Infection Control	Infection Control or Admin. Officer
Comments	Infection Control Doc avail. 24/7 for RN contact if needed	Give form to EMS Coord. who forwards to Infection Control for follow up		Infection Control	EMS Coord is to be paged 24/7 by ED or Pre-hospital care provider		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

Prepared by Lisa Faulkner, Infection Control Chair, after consult with hospitals' EMS Coordinators and Infection Control Officers

✪ Ohio Hospital Emergency Codes

All hospitals in Ohio, as well as some Nursing Homes and other facilities (including possibly some EMS agencies), are in the process of converting the Ohio Hospital Association's standardized "Ohio Emergency Codes" for overhead emergency paging. Those codes are listed here for your information.

Not all hospitals will use all Codes. However, if a hospital uses a code, it must be used as written. The intent of the color and names is to standardize codes across our healthcare systems. If a hospital changes the color or name of a code, it defeats the purpose.

The list of Hospital Emergency Codes is not considered to be required information for EMS personnel. **No questions will be drawn from this section.**

CODE NAME	EVENT
Code Red	Fire
Code Adam	Infant/Child Abduction
Code Black	Bomb/Bomb Threat
Code Gray	Severe Weather
Code Orange	Hazardous Material Spill/Release
Code Blue	Medical Emergency – Adult
Code Pink	Medical Emergency – Pediatric
Code Yellow	Disaster
Code Violet	Violent Patient/Combative
Code Silver	Person with Weapon/ Hostage Situation
Code Brown	Missing Adult Patient

Dangerous Latex

Crews need to be aware of a relatively new problem in the healthcare field: allergies to latex. This can involve our patients and our coworkers. Many EMS personnel have latex allergies, and there are numerous patients in this area known to have this problem. Nationally, a number of people have dies from allergic reactions to latex.

A few years ago, it was thought the problem was just an allergy to the powder in latex gloves. Although some people are allergic to the powder, allergies to the latex itself are actually more common.

And Paramedics: our endotracheal tubes are latex. Imagine intubating someone who is allergic. By the time we figure out what's going on (if we do!) and extubate the patient, they can have inflammation extending from their mouth well into their lungs, to the point that it's impossible to ever get an airway again.

These allergies can get worse. The more the person is exposed to latex, the more likely it is that the allergy will become more severe. Therefore, whether we are dealing with our patients, or our own firefighters, EMTs and Paramedics, or with hospital personnel, we need to do all we can to minimize their exposures.

So what can we do? Nationally, many groups are working on it. A Department may want to purchase Latex-free equipment and supplies to use on selected patients. There was an excellent article on the topic in JEMS, and there will undoubtedly be more.

In the meantime, there are some things you can do. If you, or any member of your agency is allergic to latex, get non-latex gloves. Other members of the company need to be careful, as well. Try to remove gloves without "snapping" them or doing anything that spreads dust into the air. Take the gloves off away from the allergic person if at all possible. After taking them off, wash your hands before touching a person who is allergic, cooking or doing anything which would bring them into contact with the latex dust.

Every EMS unit and First Responder unit should carry at least a small supply of non-latex gloves, both to be prepared for patients you may encounter, and so you have some for a visiting co-worker. Wipe off the steering wheel before driving if another driver was wearing latex gloves.

When you are told a patient has this problem, use great caution. Ask the family if they have latex free gloves, stethoscopes, and other medical paraphernalia. If they do, use it! Don't intubate these patients. A latex ET tube is guaranteed to make things worse. Try to avoid having wires from ECG leads, Pulse-Ox cables, etc., resting on the patient, unless you know **for certain** that the wires are not latex-covered.

Contacting Hospitals

ALS Medic Crews are not the only ones who should contact a hospital wile on EMS runs. BLS Ambulances, as well as First Responder Engine or Ladder Crews should, at times, contact hospitals. All personnel should be familiar with the communications devices that their Department supplies to alert the hospitals.

There are basically three reasons for EMS crews to contact hospitals:

1. To notify the hospital of a patient (or a situation) and give them time to prepare.
   - Examples would include a patient in cardiac arrest, calling a "Trauma Alert" for a major trauma patient, any critical or combative patient, warnings about multiple or combative patents, and advising the ER about patients contaminated with hazardous materials, among others.
   - Several hospitals have requested that EMS crews contact them before arrival with ***every*** **patient**. Other hospitals may also make the same request. The Standing Orders Booklets identify hospitals desiring contact for all patients.
     A. Children's Medical Center
     B. Veterans Administration Medical Center
     C. Dayton Heart Hospital
     D. Wright Patterson Air Force Base Medical Center
     E. Kettering Medical Center

2. To ask for advice.
   - As an example, a crew dealing with a patient who has borderline vital signs could ask for advice on whether a certain medication would be appropriate.

3. To request orders
   - There are numerous treatments in both EMT-B and Paramedic Standing Orders that can be administered only with direct permission from Medical Control. When calling for orders, make sure you do the following:
     A. State who you are and your certification level, then give a very brief synopsis of the patient's problem, and **ask to speak with a physician**: "This is Paramedic Simpson with Dayton Fire Department Medic 19. We have a 54-year old male with severe pulmonary edema. We need to speak with a physician for orders".
     B. Paint a clear, concise verbal picture of the patient, so that the physician will understand the need for the order.
     C. Don't assume that the orders you want will be obvious. Ask for the order!

There are four primary methods of contacting hospitals:

1. BLS radios, or other direct EMS to Hospital Radio Contact
2. Cellular or Wireless Telephones
3. Telephones at scenes in homes or businesses.
4. Request Dispatch to pass on a message

Generally speaking, contact through a Dispatch is the least effective method of communications with hospitals. Contacting the hospital directly allows a more complete report, permits the hospital to ask questions, helps ensure accuracy, and reduces the workload of your Dispatchers.

Physicians on Emergency Scenes

PURPOSE
This SOP defines how EMS personnel interface with physicians who are present at emergency medical scenes.

DEFINITIONS;
Patient's Personal Physician: A Medical Doctor (MD) or Doctor of Osteopathy (DO) who is the private physician of a patient at an emergency scene.

Intervenor Physician: A physician at an emergency scene other than the physician's office, who is not the Patient's Personal Physician.

Medical Control Physician: An Emergency Medicine Physician who practices in a local Hospital Emergency Room, and who provides on-line medical control via radio or telephone to EMS.

PROCEDURES:
Intervernor Physician at an Emergency Scene
Some physicians may stop at emergency scenes to offer assistance. Their efforts and their interest are to be encouraged, so long as they do not place themselves, the patient, EMS personnel, or other persons at risk. As such, the following procedures will apply:

1. **Assure scene safety.** Physicians who are in a location or environment which places them at risk should be asked to leave, especially in view of the fact that they are unlikely to have personal protective equipment, or training in how to use it.
2. Provide the physician with a copy of the Physician on Scene Card. You may permit the physician to **assist with care** at the scene or en route to the hospital. Request to see a copy of the physician's medical license. An example of this license is provided in the "Definitions" section of this SOP.
3. If the intervenor physician wishes to provide **on-site medical direction,** ***all*** of the following conditions must be met. If so, EMT-Bs and Paramedics will defer to the orders of the physician.
   A. The physician must provide evidence of a State of Ohio Medical License.
   B. Physician must speak with an on-line Medical Control Physician.
   C. The physician must agree to assume full responsibility for the patient and the patient's care, and the **on-line Medical Control Physician must directly advise the crews** that they may take medical direction from the intervenor physician.
   D. The physician must accompany the patient to the hospital ***in the Ambulance or Medic***.
   E. The physician must provide guidance for the run documentation, and sign three copies of the run sheet.
4. If all of the above stipulations do not apply, the physician may not provide on scene medical direction. Further participation at the scene is at the discretion of the crew.
5. Neither EMT-Bs nor Paramedics are to accept orders that are outside of your scope of practice, or beyond your training or capabilities.
6. If there is any disagreement, crews will defer to the on-line Medical Control Physician, and request the presence of their supervisor.
7. If the physician's actions jeopardize the safety of the patient or any other person, or jeopardize patient care in any way, crews should immediately call for their supervisor and the Police.

Please note the following exception: If the physician is a local Emergency Room physician who is personally known to the crew, only the stipulations concerning scene safety apply. Otherwise the crews should take direction from the doctor just as they would if they were speaking over the radio or telephone.

Patient's in a Physician's Office, or Patient's Personal Physician on Scene
At a physician's office, there is little issue of identification. At other locations, if the patient or family members firm that the person is the patient's private medical physician, and the physician confirms that

there is a pre-existing doctor/patient relationship; the doctor enjoys special privileges by virtue of that relationship. As such, the following procedures will apply:

1. EMT-Bs and Paramedics will defer to the orders of the physician. This includes, but is not limited to, the right of that physician to pronounce death.
2. Provide the physician with a copy of the Physician on Scene Card.
3. Neither EMT-Bs nor Paramedics are to accept orders that are outside of your scope of practice, or beyond your training or capabilities.
4. If the physician's actions or orders would, in the opinion of our crews, put the patient at risk, or if the physician gives orders which are beyond our capabilities (see #3), crews are to immediately contact the Medical Control Physician, and your supervisor. You must handle this situation with great sensitivity. Attempt to have the situation reconciled via peer-to-peer (doctor to doctor) consultation. That is, have the Medical Control Physician speak directly to the private physician, utilizing our communications gear if needed.
5. The physician may choose to continue care en route to the hospital. If the physician is willing to do **all** of the following, that physician will continue to be in charge of the patient's care:
   A. Assume full responsibility for the patient and the patient's care.
   B. Accompany the patient to the hospital ***in the Ambulance or Medic Unit***
   C. Provide guidance for the run documentation, and sign three copies of the runsheet.
6. If the physician is not willing to comply with all of the above stipulations, the physician may not accompany the patient to the hospital. Once the physician is no longer in attendance, revert to normal procedures and protocols.

Other Medical Personnel on Scene

From time to time, EMS personnel encounter dentists, paramedics, nurses, nurse anesthetists, nurse practitioners physician's assistants, respiratory therapists, EMTs, and other medical professionals or para-professionals on emergency scenes. Although some of those personnel are legally authorized to write prescriptions, they may **NOT** assume medical control over EMTs and paramedics at scenes.

You may at your discretion, allow such personnel to assist you at emergency scenes, as in fact, you may utilize any bystander for appropriate tasks. Some of these personnel have special skills, including intubation and IV placement. However, it is generally not appropriate for us to permit them to perform invasive procedures (such as intubations, starting IVs, or administering medications) unless they are riding with us, or have otherwise been positively identified.

DISCUSSION;

You must handle these situates with great sensitivity. Crews should maintain a supply of the Physician on Scene Cards in each apparatus, and hand them out to any medical professional they encounter at an emergency scene.

Greater Miami Valley EMS Council
Physician on Scene Hand-out

Thank you for your efforts. We appreciate your willingness to assist with an emergency situation.

Paramedics and EMTs are not permitted to accept assistance from other medical professionals unless those personnel can be positively identified. Please offer to show them your State Medical License.

Please understand that our Paramedics and Emergency Medical Technicians (EMTs) are trained to National EMS Standards, and are tested and expected to operate according to local operating protocols, also known as "Standing Orders." Paramedics and EMTs are not permitted to perform procedures or offer treatments that exceed their training or scope of practice. If they decline any part of your help, advice, or orders, please understand that they are performing according to their protocols.

You should also realize that many of the situations which EMS deals with are:

- extremely hazardous
- may require use of specialized personal protective equipment
- may require train in hazard recognition and mitigation
- **If our crews ask you to leave the scene, it may be for your personal safety.**

If you believe that the crew's actions are inappropriate, or in error, ask them to put you in contact with their Medical Control Physician, or ask them to contact their supervisor. Either or both will be immediately available.

If you, the physician, wish to provide on-site medical direction, or wish to continue care en route to the hospital, you MUST AGREE TO *ALL* of the following conditions:

- Provide evidence of a State of Ohio Medical License.
- Speak with the on-line Medical Control Physician.
- Agree to assume full responsibility for the patient and the patient's care, and the **on-line Medical Control Physician must directly advise the crews** that they may take your medical directions.
- Accompany the patient to the hospital ***in the Ambulance or Medic Unit.***
- Provide guidance for the run sheet documentation, and sign three copies of the runsheet.

The Hard Part — Dealing with the Family

Whether you find a patient who meets the criteria for not initiating CPR, or you are a Paramedic who goes the process to terminate in the field, you need to inform the family of the patient's death. An unthinking comment like, "If only you had called us sooner..." can cause a person to suffer terribly, blaming themselves for that death.

Try to sequester the family, or close friends, away from the body. Act concerned, professional caring, and respectful, of the group. Unless the group is hostile, try to sit down with them, and become a part of the group. This helps build mutual rapport. Finding out who is present, and their relationship to the patient, can help you gain control of the room. Try to pick out one of the one of the family who seems to be relatively stable, and address that person. Introduce yourself, and your crew, giving names, position, and department.

After the introductions briefly give the facts of the situation as you know them. Ask a question or two to establish your understanding. You might, for instance, ask about when they last spoke with the patient, or if he had expressed any physical complaints. This helps establish your leadership. Expect that different families can have varied reactions, ranging from quiet, to hysterics, to calm weeping.

Once you have some control, gently inform them that the patient has died. You must refer to the patient by name, you must use the word "dead," or some form of it (such as "died"). Any other terminology (e.g., "passed on," "expired," "gone to a better world,") allows too much chance for misunderstanding or denial. Allow the family 30 to 60 seconds for a grief response. Even if it seems that they were aware of the death before your arrival, your statements have removed any lingering hope. A minute to recover from that shock is needed.

After a minute, ask a question. This will generally break the pattern of emotions quite sharply, snapping the person back to a rational mindset, so that you can discuss other matters. Something along the lines of "What do you think happened?" can be a good starting point.

That forces them to focus on you. Use the moment to minimize some of the long-term emotional difficulties which can result from the loss of a loved one. Some reassurances, that the patient did not appear to suffered unduly, that the suffering of a chronic illness had at last ended, that everything feasible was done to care for the patient, chosen carefully, and as appropriate to the circumstance, can greatly ease the pain of the living.

Guilt can be an even worse burden than loss. Not only should you try to avoid creating guilt ("If only you had known how to open her airway…"), you should make strong efforts to alleviate its potential. Certainty is a hard commodity to come by; use that fact to help. When the family members begin their own series of "What if s," point out how unlikely it would have been to have changed the outcome. A few words can be the best emergency care for those family members.

In some situations, there is no reassurance to be found. When there are major problems involved, with the death, the care, or whatever, else, simply evade them for the time. If no other way can be found, equivocate. Problems will be far easier to deal with after a little time has passed.

Offer to call someone to be them, or to notify someone of what has happened. You do not need to telephone a long list of friends, but placing the first call to a clergyman, or family member, is sometimes the hardest. After you have left, the presence of another caring person can give comfort to all concerned.

Stand up, express your sorrow to the family, and explain that you need to complete some legal formalities. Call the coroner's office, and the police department. Make any other calls required by your

department's standard procedures, such as to medical control, or your supervisor. Then return to the family, and explain what will be happening. Let them know if the body will removed to the morgue. Suggest that they contact a funeral director and their clergy, who will help them deal with the procedures that follow a death.

Until the release of the body has been approved by the coroner, the immediate vicinity of the body must be treated as a crime scene, and everyone, including the family, kept out. You cannot allow the family to remove anything from the body, or the immediate area. Also, you may not remove any medical devices without the coroner's release, including endotracheal tubes, IVs, etc. Finally, make sure that you document everything you did, including IVs you missed, or other needle sticks. The coroner may need an explanation for that hole in the patient's skin.

If the body is released, cover it with a sheet or blanket. You can then offer to allow the family to view the body if they wish. Before they do so, and when you are absolutely certain that no further investigation will be taking place, arrange the body and surroundings to avoid presenting a gruesome scene.

Some organs such as eyes can be donated even several hours post mortem. If you wish, you can consider suggesting this to the family. Many people receive comfort from such an action. If you are interested, contact your local organ procurement officer, who will give you information and suggestions on how best to broach the subject.

Forthrightly answer any questions the family asks, but don't hesitate to refer the questioner to some other authority if needed. Look around the family and friends, making certain that no one is immediately in need of your services or your support. Re-emphasize your sorrow for their loss. Explain that you need to return to duty, and leave as gracefully as possible.

DO NOT RESUSCITATE ORDERS

"DNR" stands for Do Not Resuscitate. For years, many of us have been frustrated because legal issues forces us to perform CPR on patients when they did not want it, and could not benefit from it. The law in Ohio has changed. The law and rules are in effect now. EMS personnel can and will honor DNR orders, within the limits of the law, effective immediately.

Ohio's program is called, "DNR Comfort Care". The concept is that terminally ill persons have the right to dies with dignity, in comfort, and with their wishes respected. Comfort Care means that a dying person receives care that eases pain and suffering at the end of life, but without resuscitative measures. DNR Comfort Care **does not mean "do not treat "**. The law does not allow or condone mercy killing, assisted suicide, or euthanasia.

There are some terms that may be confusing because of the way that they are used in the law. In this section of Ohio law, **"emergency medical services (EMS) personnel"** includes EMTs Paramedics and police officers.

The term **"DNR Comfort Care"** is used three ways:

1. **DNR Comfort Care** is the title of the overall program for limiting care. As such, it appears on all of the forms and identifications. A copy of the DNR Comfort Care Order Form is attached to this order. It is not valid unless it has been signed by a physician (MD or DO), a certified nurse practitioner (CRNP), or a clinical nurse specialist (CNS).
2. When referring to the specific type of limited care, the term **DNR Comfort Care** should be thought of as meaning "comfort care only". These are usually (but not always) patients with terminal conditions, or patients who are frail and elderly and not likely to survive CPR.
   - Giving **"Comfort Care"** means providing **any medical treatment** to diminish pain or discomfort **that is not used to postpone the patient's death**. You can, and should, provide treatments that will ease pain and suffering, but you may not attempt any resuscitative measure to sustain life.
3. The term **"DNR Comfort Care-Arrest"** means care is limited to comfort care **only after the patient goes into cardiac or respiratory arrest**. At that point, we cannot use component of **"CPR"** listed in the new law (see below). Comfort Care-Arrest patients may be on DNR orders for a long period of time, 12-18 months or longer).
   - Many of these patients are less concerned about palliation of pain, and more concerned with the quality of life after stroke or heart attack. These patients can receive standard EMS care for problems other than cardiac or respiratory arrest, such as Lasix for pulmonary edema, epinephrine for anaphylaxis and D50 for hypoglycemia, as long as they are still breathing. If they are in cardiac or respiratory arrest, they are not to receive any of the components of **"CPR"** listed in the new Ohio law.
   - Therefore DNR Comfort Care and DNR Comfort-Care Arrest are exactly the same, except for what triggers them. With DNR Comfort Care, the protocol is in effect as soon as the order is written. You cannot at any time perform intubation, or any of the components of **"CPR"**.
   - With DNR Comfort Care-Arrest, the DNR protocol does not apply until the patient stops breathing, or has no pulse. You can intubate these patients, provide resuscitative IVs, apply cardiac monitors, and give all normal care, until the patient stops breathing, or loses a pulse. After that, you may not start any of the components of **"CPR"** as listed in the law.

"IDENTIFICATION" AND **"VERIFICATION"**

IDENTIFICATION, in the law, refers to ways to determine that a patient has a DNR status. **There are several forms of appropriate DNR identification. The State's DNR Comfort Care Order form, wallet card, or photocopy are among them. There are other forms of identification, including a bracelet, a necklace and a hospital-type bracelet (in Dayton area hospitals, it will be**

pink) approved by the Ohio Department of Health. Medical bracelets or medallions other than those using the DNR Comfort Care logo and approved by the Department of Health are unacceptable for identification.

Identification of Non-Comfort Care Orders

Acceptance of DNR Orders other than Ohio Comfort Care Orders is at the option of each Department or EMS Agency. Consult your Chief, Medical Director and Legal Advisor!

Some EMS agencies do accept formal DNR orders that are not on State of Ohio forms, as long as you are comfortable with the identification of the patient. There are several reasons why this may be beneficial to your patients:

1. There are still some physicians who are unfamiliar with the Comfort Care Law, and who are writing older style DNR orders.
2. A terminal patient from another state may be visiting Ohio. Obviously, a person coming from out of the state to visit relatives for one last time, is going to have a DNR Order from their home state, and would want it to be honored.
3. As a result of a quirk in the law, DNR Comfort Care does not apply to children. As such, any DNR Orders for pediatric patients will be a format other than the Comfort Care style.

On the other hand, the Ohio Comfort Care law specifically exempts you from civil liability if you follow Comfort Care DNR Orders. DNR Orders which do not follow the Comfort Care formats do not give you that protection. That does not mean you will be sued if you accept them, and you can also be sued for failing to accept them. It simply removes the "Good Samaritan" protection of the Comfort Care law.

If your agency accepts other format DNR Orders, you should follow these guidelines:

- The order must be typed or printed, and signed by a physician (MD or DO), a certified nurse practitioner (CRNP), or a clinical nurse specialist (CNS).
- This does not apply to Living Wills. See the discussion on Living Wills, in the section below, titled "What Can't We Do".
- If the patient is a child, the parent or guardian should be present, and agree to withhold resuscitation.

VERIFICATION means confirming that your patient is the same person specified in the DNR order. We must use "reasonable steps" to verify who the person is. Provided we do, we are not liable for civil damages (i.e., lawsuit) for withholding or withdrawing CPR, provided we are following Ohio's protocol. However, failure to comply with a DNR Order removes the law's protection. Reasonable steps for verification include:

1. Verification by family, friend or caregiver.
2. Known by EMS or physician
3. Wearing a healthcare facility ID band
4. Driver's license, passport, or other ID with both name and photograph

If you are unable to verify the patient's identity, you should still follow the DNR protocol.

Finally, in the context of this law, "**CPR**" has a very different meaning from the way we usually think of it. "**CPR**" is defined as **any one or more** of the following:

1. Chest compressions
2. Artificial airways (oral airways, nasal airways, or endotracheal tubes)
3. Resuscitative drugs
4. Defibrillation or cardioversion
5. Respiratory assistance
6. A resuscitative IV line
7. **Cardiac monitoring**

Now that we know the terminology, what do we do?

When we find a person with an emergency situation, we are **not** required to search for DNR identification. We simply perform our normal procedures. Unless we have reason to believe that a DNR may be present, we can and will perform CPR, and provide all other appropriate treatments.

However, once we have become aware of a DNR identification, we must verify that our patient is, in fact, the person named in the DNR. See **identification** and **verification** in the section on terminology.

Once we know of a DNR identification, and have verified the patient's identify, we need to know whether they are DNR Comfort Care, or DNR Comfort Care-Arrest. We are **required** to comply with DNR orders, whether they are in writing, or by verbal order from a physician. If you receive a verbal order from a physician, whether in person or by phone, you must take "reasonable steps" to verify the identity of the physician. Regardless of how we get the information, we will withhold **"CPR"** from that patient, as appropriate for his/her DNR protocol. Remember that **"CPR"** in this context means any of the seven items listed in the definition above, not just ventilations and compressions.

If we become aware on the patient's DNR status after we have begun **"CPR"**, we must cease immediately. Unlike other situations, it is not necessary for EMS personnel to obtain a physician's order to halt CPR if DNR identification is found.

> Comfort Care and Comfort Care-Arrest are essentially two "trigger points" for the DNR protocol. If a patient's status is **DNR Comfort Care**, the protocol is in effect at any time. If their status is DNR Comfort Care-Arrest, it only becomes effective if the patient goes into cardiac or respiratory arrest.

If the patient has no respirations at the scene, contact the Coroner's office. Advise them of the DNR. They will almost certainly release the body to the family in a very short order. Explain the situation to the family and return to service.

If the patient is near death, but is still breathing, you may transport or not, according to their wishes. If they have a DNR order and are unable to respond but the family is asking that they be removed to a hospital, let the family know that no resuscitative care will be provided at the hospital. If they still request transport, you may do so. According to legal counsel, in such a situation, assuming that there is no emergency, we are not required to remove the patient under the doctrine of implied consent, as normally do with unresponsive patients.

If the patient arrests while you are en route to a hospital, simple continue transport to the most appropriate healthcare facility, but without further **"CPR"** (by the law's definition). That may seem difficult to do, but please remember that you are following the patient's wishes.

What is the most appropriate facility? Generally, that will be the hospital. However, if you removed the patient from a nursing home, you may return that patient to the nursing home. Doing so avoids the necessity of creating a hospital bill for the family. Please use discretion: try not to give the appearance to bystanders that you are taking a dead body into a nursing home. And notify the facility (hospital or nursing home) by cellular phone.

What can't we do?

If the patient's status is DNR Comfort Care-**Arrest**, we cannot perform any resuscitation **once the patient arrests**. That includes all of the components of **"CPR"** listed above.

If the patient's status is DNR **Comfort Care**, then we are **even more limited**. We cannot use any of the components of **"CPR"** listed above at any time. That means we can't even place the patient on a cardiac monitor.
We cannot perform CPR even if families or bystander demand it. The PATIENT has the final right to determine DNR status. Provide comfort and supportive measures, and try to aid the family in understanding the dying process and the patient's choice.

There is one exception: if the person demanding CPR holds Durable Power of Attorney (DPA) for Healthcare (DAP-HC), they may be able to request CPR for the patient. To determine if that is valid, you must do things. First, make sure that the person holds Durable Power of Attorney **for Healthcare**, not simply a monetary DPA. If so, then look at the DNR Comfort Care form (see the attachments to this General Order). The bottom half of the form has two checkboxes for "Certification of DNR Comfort Care Status (to be completed by the physician)". If the first box ("Do Not Resuscitate Order") is checked, the person holding DPA-HC may give you valid orders contrary to the DNR Comfort Care protocol. If the second box ("Living Will and Qualifying Condition") is checked, the DNR Comfort Care protocol applies, regardless of the wishes of the DPA-HC.

You should also know that Living Wills (referred to as "declaration" in the law) generally **do not apply** to EMS. A Living Will only takes effect after two physicians certify that a patient is terminal, or in a permanently unconscious state. Therefore, the only way that a Living Will applies to prehospital personnel is when it is the basis of a DNR Comfort Care Order (as discussed in the preceding paragraph). For EMS personnel to honor a **Living Will**, it must be accompanied by a DNR order, which has been signed by a physician.

We cannot conceal, cancel, deface, or obliterate the DNR identification of another person without their consent. We cannot forge or falsify a DNR order, or a revocation of a DNR. Doing so is a crime.

What can we do?

Clearing a person's airway, such as by suctioning, for any purpose other than as part of CPR, is permissible. We can administer oxygen, place the patient in a position of comfort, and provide pain management. We can control bleeding, splint suspected fractures, and provide emotional support. We can contact the physician, hospice or home health care. We can call Medical Control and a supervisor for advice and assistance.

If at any time, the patient **revokes** Comfort Care, we can do **anything** within normal EMS procedures to help him or her. Any person who has a DNR may change their mind at any time, and request medical care including CPR. Regardless of age or competence, that is the choice of the patient. Patients can revoke it verbally, or in writing. Even saying, "Help me", may be enough to require us to use all of our normal resuscitative procedures. If the patient requests help, we will provide it to the best of our ability.

Healthcare facilities that are transferring a patient are required to notify us of the existence of a DNR order. For example, if we remove a patient to a nursing home, the nursing home should provide DNR information before we leave. By the same token, we are required to notify the emergency room staff, once we arrive.

How do we document this?

Record the patient's name, gender, age and attending physicians in the appropriate fields. Note "DNR Comfort Care", and the type of Comfort Care on the runsheet.

In your narrative, explain when the DNR order was found. Describe what steps you took to verify the identity of the patient. If a verbal order is obtained from a physician at the scene, the EMS personnel

must verify the physician's identify and document verification. Document your assessment, and what care you provided.

If EMS personnel witness a patient revoke the DNR, document it. If the patient revokes that DNR, you must communicate that to the receiving hospital.

If you have questions or concerns about this law when you are on the scene, contact the Medical Control Physician, and your supervisor.

MEDICAL ABBREVIATIONS

Following are approved and recommended abbreviations for use in writing EMS Run Reports. *NB: Computers may not be able to produce some of these abbreviations exactly. For example, "c", rather than "c", may be used as an abbreviation for "with".*

a — before
aa — of each
A&Ox3 — alert and oriented to time, place, and person
A&Ox4 — alert and oriented to time, place, person, and event (accident, fall, or whatever)
AAA — abdominal aortic aneurysm
AB — abortion
abd. — abdomen or abdominal
AER — aerosol (i.e., nebulizer)
AIDS — Acquired Immune Deficiency Syndrome
AKA — above the knee amputation
APE — acute pulmonary edema
approx. or ~ — approximately
≅ — approx. equal to
ASTI — acute soft tissue injury
BB — backboard
bid — (med) twice a day
BKA — below the knee amputation
BVM — bag-valve-mask
↑ BP or HTN — hypertension
c — with
Ca — cancer
CABG — coronary artery bypass graft
cap. — capsule
Capt. — Captain
cc. — ~~cubic centime-tor~~ *No longer used, per JCAHO.* ***Use ml.***
CC — chief complaint or cervical collar
CF — cystic fibrosis
CHF — congestive heart failure
CID — cervical immobilization device
c/o — complains of
COPD — Chronic Obstructive Pulmonary Disease
CO — carbon dioxide
CP — Chest Pain or Cerebral Palsy
CPR — cardiopulmonary resuscitation
CSF — cerebrospinal fluid
CVA — cerebrovascular accident
cx. — complication(s)
□ — down or decreased(ing)
D50 — 50% Dextrose
DC — District Chief
DM — diabetes mellitus
DO — Doctor of Osteopathy
Dx. — diagnosis or disease
EGG — electrocardiagram
EDC — due date
EDD — Esophageal Intubation Detection Device
EDP — Emergency Department Physician
EMT — Emergency Medical Technician
= — Equal (to)
equip. — equipment
epi — epinephrine
esp. — especially
ET — endotracheal
$EtCO_2$ — End Tidal Carbon Dioxide Detector
EtOH —alcohol
ETT — endotracheal tube
FMP — family physician
fx. — fracture
Gravida — number of pregnancies
> — greater than or more than
GSW — gunshot wound
GYN — gynecology or gynecological
HA — headache
HIV — Human Immunodeficiency Virus
hr. ----- hour
hs — ~~(med) hour of sleep~~ *No longer used*
Hx — history
IDDM — insulin dependent diabetes mellitus
IM — intramuscular

IO — intraosseous
IV — intravenous
IVD — intravenous drip
IVP — intravenous push
JVD — jugular venous distension
lac. — laceration
< — less than
1pm or 1/m — liters per minute
LPN — Licensed Practical Nurse
Lt. — Lieutenant
LUQ — left upper quadrant of abdomen (RUQ, LLQ, RLQ)
meg — micrograms
MCP — Medical Control Physician
MD — Medical Doctor or Medical Director
med — medication
meds — medications
mg. — milligrams
MI — myocardial infarction
min. — minute
ml. — milliliters
MS&P— motor, sensation, and pulse
MVA — motor vehicle accident
MVC — motor vehicle crash
N&V — nausea and vomiting
$NaHCO_3$ — sodium bicarbonate
NC — nasal cannula
NIDDM — non-insulin dependent diabetes mellitus
no. or # — number
NS — Normal Saline
NSR — normal sinus rhythm
NTG — nitroglycerin
OB — obstetrics or obstetrical
O_2 — oxygen
O_2 Sat. — oxygen saturation
OPT — ophthalmically
p — after
PAC — premature atrial contraction(s)
Para — number of live births
PE — physical examination
PEA — pulseless electromechanical activity
PJC — premature junctional contraction(s)
PM — Paramedic
po — by mouth
POS — physician on scene
postop. — postoperative
pr — by rectum
prn — as needed
Pt. — patient
PTCA — angioplasty
PVC — premature ventricular contraction(s)
PVD — peripheral venous distension
q — every
qd — every day *No longer used, per JCAHO*
q4h — every four hours
qid — four times a day
qod — ~~every other day~~ *No longer used, per JCAHO*
RAD — reactive airway disease (asthma)
RN — Registered Nurse
ROM — Range of Motion or Rupture of Membranes
Rx. — treatment
s — without
S & S — signs and symptoms
SC or SQ — ~~subcutaneous~~ *No longer used, per JCAHO*
Sub-Q — subcutaneous
SL — saline lock
SO — Standing Orders
SOB — shortness of breath
SPM — Senior Paramedic
sts. — states
SYT — supraventricular tachycardia
SW — shotgun or stab wound
sxs. —symptoms
tab. — a tablet
TB ---tuberculosis
TIA ---transient ischemic attack
tid — three times a day
TOP — topically
TRN --- transdermally
Tx. — transport
↑ — up or increased (increasing)
VF — ventricular fibrillation
VS — vital signs
VT — ventricular tachycardia
WNL — within normal limits
yo — years old

Greater Miami Valley
Emergency Medical Services Council, Inc.

and

Ohio EMS Region 2

Intermediate Standing Orders Training Manual

Pediatric

Pre-hospital Protocols
2006
for EMT-Intermediates

(For Use in Patients Under the Age of 16)

VERSION: December 2, 2005
EFFECTIVE: January 1, 2006

TABLE OF CONTENTS

1.0 - STIPULATIONS

1. This protocol is for use by those individuals operating in the Greater Miami Valley EMS Council (GMVEMSC) Drug Box Exchange Program and State of Ohio EMS Region 2 under their authority and certified by the State of Ohio at the following levels:
   - Only EMT-Intermediates who have completed the 2002 State of Ohio EMT-Intermediate Curriculum and Certification Examination or EMT-Is who were certified prior to 2002 and have successfully completed the 2002 State of Ohio EMT-I Curriculum Transitional Update Course.2.
2. This protocol is to be used in the field only. Communications must be attempted **AS SOON AS PRACTICAL.**
3. **This protocol applies only to patients under age 16.**
4. Procedures that are marked with a diamond (⊄) ARE **NEVER** TO BE PERFORMED WITHOUT A PHYSICIAN'S ORDER. The diamond was selected to make it easier to rapidly identify procedures and medications that require **on-line medical control** authorization.
5. 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 Advisor for the local department or agency. **Items enclosed in braces ({ }) are at the option of the Department, and its Medical Director.**
6. Secondary intubation confirmation devices (EtCO2 Detectors or Monitors, or Esophageal Detection Devices) are less available for pediatric patients than for adults. Nonetheless, it is **strongly** recommended that EMS personnel use all appropriate confirmation methods available when intubating children. Those confirmation methods include EtCO2 Detectors or Monitors, and/or Esophageal Detection Devices (EDD) that are appropriate for the age and weight of the patient.
7. Bring the patient's medications, or a list of the medications, with the patient to the hospital. When supplying hospitals with documentation of patient meds, be certain to include the proper **dos**e, and the **frequency** of administration

✪

Identify yourself and Level of Certification as well as the person receiving the message at the medical facility.

2.0 - INITIAL CARE

1. Institute Basic and Advanced Life Support as indicated:
   - • Establish unresponsiveness.
   - • Stabilize neck and immobilize if history of trauma.
   - • Open airway and assess breathing.
2. If not breathing, institute artificial ventilation (using mouth-to-mask, bag mask, and adjuncts such as oropharyngeal and nasopharyngeal airways).
3. Administer **Oxygen (O2)**.
4. EMT-Intermediates may perform orotracheal intubation in patients who are "apneic" and patients who are "pulseless and apneic".
5. Check pulse. If absent, CPR continuously until {AED} or other defibrillator is available.
6. Utilize Cardiac Monitor or other monitor {Pulse Oximeter, etc .} as appropriate.
7. Start IV of **0.9% Normal Saline (NS)** (TKO) or a **Saline Loc**k. **If peripheral IVs cannot be established and pt is unresponsive, access should be obtained by intraosseous route (IO),** if appropriate.
   A. **IV Rates:**
      - **Shock** : Establish an IV/IO of **0.9% N**S, IV 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 (to keep open) rate.

B. **Saline Lock:** If appropriate for patient condition, establish a Saline Lock in place of an I**V.** Contraindications: Cases where an **IV Bolus** may be required, **IV Drip** medications are indicated, or multiple trauma related injuries.
NOTE: IN ALL CASES WHEN ATTEMPTING TO START AN IV, MAKE NO MORE THAN THREE (3) ATTEMPTS AND/OR SPEND NO MORE THAN FIVE (5) MINUTES ON THIS PROCEDURE.

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IOs should not be used on postictal patients unless the patient is unresponsive and hemodynamically unstable..

2.1 – PATIENT ASSESSMENT

1. Airway (Assess, establish, and maintain as needed)
2. Breathing
3. Circulation (Skin - capillary refill, warm, cool, dry, or moist; peripheral pulses)
4. Present Complaint
5. Vital Signs
6. **S**igns & Symptoms (90 second survey)
8. **A**llergies
9. **M**edications - Current with dose and frequency
10. **P**ast Medical History
11. **L**ast oral intake
12. **E**vents leading up to illness/injury
13. Approximate Age/Weight

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EMT-Is may use {Doppler Stethoscope} to assist in obtaining accurate BP, or to verify effectiveness of treatment.

2.2 - AIRWAY MAINTENANCE

1. Administer Supplemental **O2** to all patients with respiratory distress, or whenever the working impression indicates that it is appropriate.
   A. Four to six (4-6) liters per minute by nasal cannula for most patients, or "blow-by **O2**.
   B. 100% by a NRB (12-15 liters per minute) for severe trauma patients, very distressed cardiac patients, and other patients who appear to need high flow **O2.**
   C. When using BVM, ventilation, cricoid pressure **should** be applied to occlude the esophagus and prevent gastric distention.
   D. If patient becomes apneic, intubate
2. Ventilate patients who are symptomatic with an insufficient respiratory rate, or insufficient respiratory depth. Patients with airway compromise or insufficient ventilations should be intubated.
   A. It is **strongly** recommended that EMS personnel at all levels use all **appropriate** confirmation methods available when intubating children.
   Primary and appropriate {Secondary Methods} of tube placement confirmation are listed below:
   - Primary Methods:

- ❖ Physical Assessment including auscultation of the epigastrium, midaxillary areas, and anterior chest.
- ❖ Repeat visualization of the tube between the cords
- ❖ Condensation in the tube
- ❖ Pulse Oximeter

- Secondary Methods:
  - ❖ **{End Tidal Carbon Dioxide Monitor}** (electronic waveform $EtCO_2$ may be used for all intubations)
  - ❖ **{End Tidal Carbon Dioxide Detector}** (colorimetric $EtCO_2$ is limited to patients with pulses)
    - Pedi-Cap Detectors may be used in patients weighing 1 – 15 Kg.
    - Easy-Cap II Detectors may be used in patients weighing > 15 Kg.
  - ❖ **{Esophageal Detection Device} is limited to patients over the age of 5 years who weigh > 20 Kg** (may be used with any intubation, although $EtCO_2$ is preferable for patients who are still breathing)

B. Always secure the ET tube in place as effectively as possible, preferably with a commercial tube-securing device.
C. Re-assess tube placement EVERY TIME THE PATIENT IS MOVED.

3. {Dual Lumen Airways (e.g., {Combitube} or {Pharyngotracheal Lumen Airway (PtL)}), or a {Laryngeal Mask Airway (LMA)} , if available in a size appropriate for the pediatric patient, are acceptable rescue airway devices for properly trained and tested paramedics with the approval of their Medical Director, and may be used after two failed attempts to intubate patients in cardiac or respiratory arrest. 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).}
4. If basic procedures are unsuccessful, try to visualize obstruction with laryngoscope. If foreign body is seen, attempt to remove it using Magill Forceps if possible.
5. **Tension Pneumothorax Relief** - if indications of Tension Pneumothorax are present, decompress the chest with a 14 gauge Angiocath in the second intercostal space in the midclavicula r line.

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Dual Lumen Airways and the LMA may only be used for apneic patients with no gag reflex.

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Optional Skills Training: See new skill sheet - "Insertion of LMA" Skill Evaluation.

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Definition – Rescue Airway: use of an alternative device such as a Dual Lumen Airway or LMA after attempts to use endotracheal intubation have failed.

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Cervical spine immobilization is recommended to help avoid tube dislodgement.

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Nebulized medication(s) may be administered while bagging a patient. 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 bag-valve device. See the diagram of the proper way to combine the nebulizer kit with a bag-valve device in the Skill Sheets.

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If relief of tension pneumothorax is indicated, be careful not to push too deeply in children. The tip of the needle should be just deeper than the ribs; stop as soon as you hear the rush of air.

3.0 - CARDIOVASCULAR EMERGENCIES
3.1 - CARDIAC ARREST

GENERAL CONSIDERATIONS

1. Cardiac arrest in children is primarily due to the lack of an adequate airway, resulting in hypoxia.
2. When using BVM ventilation, cricoid pressure **should** be applied to occlude the esophagus and prevent gastric distention.
3. Transport immediately when excessive hemorrhage or hypothermia is present.
4. If peripheral IVs cannot be established, access should be obtained by intraosseous route (IO).
5. **CPR should not be interrupted for more than 30 seconds until spontaneous pulse is established.**
6. **In all Cardiac Arrests, consider the ACLS "Treatable Causes:"**

The "H's"	**The "T"s"**
Hydrogen ion (acidosis)	**Tablets (Drugs, OD, Accidents)**
Hyperkalemia/Hypokalemia	**Tamponade, cardiac**
and Other Metabolic Causes	**Tension Pneumothorax**
Hypoglycemia/Hyperglycemia	**Thrombosis, Pulmonary (embolism)**
Hypothermia/Hyperthermia	**Trauma**
Hypovolemia (Tank/Anaphylaxis/Gravid)	
Hypoxia	

3.1.1 - CARDIAC ARREST: AED PROTOCOL

Apply AED if patient is 8 years or older or greater than 25 Kg/55 l*b.*

AEDs with Pediatric Capability may be used on children 1 year of age or greater, with appropriate training, equipment, and pads, and approval of Department Medical Director

1. Evaluate ABCs.
2. Provide ventilations during CPR with a {Bag-Valve-Mask (BVM) or Positive Pressure Ventilation (PPV) with 100% {**oxygen**}.
3. CPR continuously until **{AED}**. or Monitor/Defibrillator is attached to patient.
4. Press to analyze. If no shock advised, continue CPR.
5. If shock advised, provide set of three Stacked shocks.
6. CPR continuously for one minute, if no pulse, then press to analyze. If shock advised, repeat set of three (3) stacked shocks.
7. If no shock advised by **{AED}**. or Monitor/Defibrillator at any point, transport as soon as possible
8. CPR continuously.
9. Intubate patient.
10. Approximately every five (5) minutes, stop the vehicle, and reanalyze the patient as long as shocks are advised. Never analyze or defibrillate in a moving vehicle.

If your AED has recording capabilities, start verbal documentation at the time you attach AED to patient. Departments with biphasic AEDs will have to use equivalent energy settings.

✪

Costs/Benefits of Stopping to Analyze on Long Transports: When faced with a pediatric patient in cardiac arrest and no advanced life support capabilities at the scene, time to the receiving medical facility is critical. Stopping to analyze on long transports will increase that time. A good rule of thumb: If AED is recommending you shock, stop for analysis; if no shock is advised, make less stops for analysis.

3.1.2 - CARDIAC ARREST: V-FIB/PULSELESS V-TACH

1. Evaluate ABCs; provide ventilations during CPR with a (BVM) with 100% **O2**.
2. Apply **{AED}**. for appropriate age and weight **(per AED Protocol 3.1.1)** or conventional Monitor/Defibrillator. May also use {biphasic defibrillation} at equivalent doses. (Use length-based drug treatment guide, e.g. Broselow Pediatric Emergency Tape when unsure about patient weight, age and/or drug dosage.
3. If ventricular fibrillation or pulseless ventricular tachycardia exists:
   A. Defibrillate 2 joules/Kg.
   B. If no change, defibrillate 4 joules/Kg.
   C. If no change, defibrillate 4 joules/Kg.
   D. If no change, continue CPR and transport.
4. Intubate the patient. Confirm tube placement using **Primary and appropriate {Secondary Methods}**, and secure tube.
5. Establish an IV/IO of **0.9% N**S. Use an Intraosseous (IO), external jugular (EJ) or antecubital vein for cardiac arrest patients. IO is the preferred IV site for prehospital pediatric cardiac arrests under the age of 8. EJ is preferred for arrest in children 8 years of age and older. Use the site which can be established most quickly.
6. Consider "treatable causes" (H's and T's) **NOTE: Nearly all medical cardiac arrests are "Altered Level of Consciousness – Unknown Cause." If there is any evidence of hypoglycemia prior to arrest, administer 1 ml/Kg of 50% Dextrose IVP/IO if child > 25 Kg, or 2 ml/Kg D25 if < 25 Kg. If there is a suspicion of drug abuse, administer Narcan 0.1 mg/KG IVP/IO.**

3.1.3 - CARDIAC ARREST: ASYSTOLE & PEA

1. Evaluate ABCs; provide ventilations during CPR with BVM with 100% **O2**.
2. CPR continuously, until **{AED}**. or Monitor/Defibrillator is available. Apply Cardiac Monitor and check rhythm.
3. If monitor shows Asystole, check rhythm in two leads.
4. Intubate the patient. Confirm tube placement using **Primary and appropriate {Secondary Methods}**, and secure tube.
5. Establish an IV/IO of **0.9% NS** and administer 20ml/Kg bolus. Use an Intraosseous (IO), external jugular (EJ) or antecubital vein for cardiac arrest patients. IO is the preferred IV site for prehospital pediatric cardiac arrests under the age of 8; EJ is preferred for arrest in children 8 years of age and older. Use the site which can be established most quickly.
6. Consider "treatable causes" (H's and T's). **NOTE: Nearly all medical cardiac arrests are "Altered Level of Consciousness – Unknown Cause." If there is any evidence of hypoglycemia prior to arrest, administer 1 ml/Kg of 50% Dextrose IVP/IO if child > 25 Kg, or 2 ml/Kg D25 if < 25 Kg. If there is a suspicion of drug overdose, administer Narcan 0. mg/kg up to 2mg Max dose IVP/IO.**

3.1.4 - CARDIAC ARREST: PEA

This section intentionally left blank to match numbering in Adult Protocols.
PEA included with Asystole in Pediatric Protocols.

3.1.5 - NON-INITIATION OF CPR

1. **No** resuscitation will be attempted in cardiac arrest patients with the following:
   A. Burned beyond recognition
   B. Decapitation
   C. Deep, penetrating, cranial injuries or massive truncal wounds
   D. {DNR Order - present and valid, with parent or guardian present}. **IF** your Department decides to accept Pediatric (non-Comfort Care) DNR orders, you must follow these guidelines:
      - You must be comfortable with ID of patient
      - Order must be formal: typed or printed
      - Must be signed by MD, DO, CRNP or CNS
      - Does not apply to Living Wills
   E. Frozen body (so severe that chest compression is impossible, or the nose and mouth are blocked with ice)
   F. Hemicorporectomy (body cut in half)
   G. Rigor mortis, tissue decompositions, or severe dependent post-mortem lividity (any one or more)
   H. Scene Safety - Situations where the danger to rescuers is excessive
   I. Triage demands
2. If CPR has been started on a patient with <u>any condition listed in #1</u> of this Section, EMS may discontinue the resuscitation efforts.
3. EMS will **not** initiate resuscitation on victims of **blunt trauma** who are found in cardiac arrest upon EMS arrival, or who arrest before being placed in the EMS vehicle, **unless** one or more of the following conditions are present:
   A. Patient can be **delivered** to an Emergency Department within **<u>5 minutes</u>** <u>of the time patient is found to be in arrest</u>; **or**
   B. You suspect that the arrest may have been caused by a medical condition (e.g., AMI) or a focused blunt trauma to the chest (e.g., baseball to the chest).
      - If you suspect that the arrest resulted from medical conditions or focused trauma, follow all normal cardiac arrest procedures.
4. EMS will **not** initiate resuscitation on victims of **penetrating trauma** who are <u>in cardiac arrest upon EMS arrival</u>, **unless** patient can be delivered to an Emergency Department within 15 minutes.
   A. Resuscitation **will** be attempted on victims of penetrating trauma who arrest after they are in EMS care.
5. Once en route, continue care even if the above time limits have elapsed.

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Risks and Benefits of Departments accepting DNR Orders that are not on Comfort Care forms:
Some EMS agencies do accept formal DNR orders that are not on State of Ohio forms, as long as you are comfortable with the identification of the patient. There are several reasons why this may be beneficial to your patients:

1. There are still some physicians who are unfamiliar with the Comfort Care Law, and who are writing older style DNR orders.
2. A terminal patient from another state may be visiting Ohio. Obviously, a person coming from out of the state to visit relatives for one last time, is going to have a DNR Order from their home state, and would want it to be honored.
3. As a result of a quirk in the law, DNR Comfort Care does not apply to children. As such, any DNR Orders for pediatric patients will be a format other than the Comfort Care style.

See Appendix for more complete information on Ohio DNR.

Blunt Trauma Patient in V Fib/V Tach: When you find a patient with blunt trauma in cardiac arrest at an accident scene, it can be difficult to know if s/he is in arrest from blunt trauma due to the accident or if s/he had a congenital heart problem which could have caused him or her to go into arrest, and that caused the accident. If, in your judgment, the patient's injuries caused the cardiac arrest, make no resuscitative efforts, unless you can arrive at the hospital within five minutes of the time the patient arrested. On the other hand, if you have reason to suspect that the patient had a medical condition that caused his arrest, follow all of your normal cardiac arrest procedures.

One case which might be thought of as trauma is a child in cardiac arrest after being hit in the chest with a baseball. There have been numerous cases where this has occurred. There is actually no injury to the heart, however. The blow has essentially the same effect as a PVC, and if it falls on the T-wave, can cause VF or VT. These patients generally respond quickly to defibrillation, and have a good chance for survival.

3.1.5.A – DNR COMFORT CARE SYNOPSIS

This section intentionally left blank. Ohio Comfort Care law does not apply to pediatric patients.

3.1.6 and 3.1.6.A – FIELD TERMINATION OF RESUSCITATION EFFORT

These sections intentionally left blank. Does not apply to Pediatrics

3.2 – SUSPECTED CARDIAC CHEST PAIN

This section intentionally left blank. Very rare in Pediatrics

3.3 – ARRHYTHMIAS

1. Open and maintain the airway. Administer 100% **O2.**
2. Place patient on {Pulse **Oximeter}** and Cardiac Monitor. Obtain a strip from Cardiac Monitor, and mark it with the date and patient's name.
3. Establish IV/IO **0.9% NS** TKO or Saline Lock, while en route to hospital. DO NOT DELAY TRANSPORT.

3.3.1 – BRADYCARDIAS

Definition: Rate less than 60 with poor perfusion.

1. Open and maintain the airway.
2. Administer **O2**. Increase rate as needed for respiratory distress.
3. Cardiac Monitor
4. Establish IV/IO **0.9% NS** TKO, while en route to hospital.
5. **If poor perfusion is present** and a heart rate less than 60 bpm in children less than age 8, initiate CPR. **DO NOT DELAY TRANSPOR**T. Serious signs and symptoms of poor perfusion include chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, pulmonary congestion, or congestive heart failure.

3.3.2.A – TACHYCARDIAS: UNSTABLE
(Tachycardia with Poor Perfusion: SVT and V-Tach)
(HR > 220 in infants or > 180 in children under age 8)

GENERAL CONSIDERATIONS

1. Unstable tachycardias result in hemodynamic instability, and are evidenced by loss of consciousness, CHF and diminished peripheral pulses, diminished capillary refill, increased respiratory effort, or hypotension.

SPECIFIC CARE

1. Open and maintain the airway.
2. Administer **O2.** Increase rate as needed for respiratory distress.
3. Cardiac Monitor
4. Establish IV/IO **0.9% NS** TKO, while en route to hospital.
5. If serious signs and symptoms (including chest pain, shortness of breath, decreased level of consciousness, hypotension, shock, pulmonary congestion, congestive heart failure, or Acute MI) are present that are **likely to be related to the tachycardia,** treat as follows. Rate-related signs and symptoms occur at different rates. **DO NOT DELAY TRANSPOR**T.

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Poor Perfusion: Early shock is more difficult to diagnose in a child than an adult. Persistent tachycardia and delayed capillary refill are the most reliable indicators of shock in a child. A weak rapid pulse with a rate over 130 is usually a sign of shock in all children except neonates. Decreased tissue perfusion may be manifested by prolonged capillary refill and cool extremities. The child's level of consciousness is also a useful indicator of circulatory status, yet note that circulation can be poor even though the child appears awake. If the child is able to focus on the parent, or is consolable by the parent or member of the EMS team, there is enough circulation to allow the child's brain to be working.

3.3.2.B – TACHYCARDIAS: STABLE
(Tachycardia with Adequate Perfusion: Stable SVT and V-Tach)
(HR > 220 in infants or > 180 in children under age 8)

GENERAL CONSIDERATIONS

1. Children with stable tachycardias are alert with good blood pressure and palpable distal pulses, and with good perfusion.

SPECIFIC CARE

1. Open and maintain the airway.
2. Administer **O2**. Increase rate as needed for respiratory distress.
3. Cardiac Monitor
4. Transport as soon as feasible

3.4 - SHOCK

1. Open and maintain airway.
2. Administer 100% **O2** with NRB, regardless of {Pulse-ox readings}.
3. Cardiac monitor.
4. During transport to the hospital, start IV/IO of **0.9% NS** and deliver 20 ml/Kg, to maintain perfusion, DO NOT DELAY TRANSPORT.
5. Hypothermia is a significant, and frequent, problem in Shock or Major Trauma patients. Do all that you can to maintain patients' body temperature.

3.4.1 - NON-TRAUMATIC SHOCK WITHOUT PULMONARY EDEMA

1. Open and maintain airway.
2. Administer 100% **O2** with NRB, regardless of {Pulse-ox readings}.
3. Identify type of shock.
4. Establish IV/IO of **0.9% NS** at 20ml/Kg bolus as quickly as possible *while enroute to hospita*l.
5. ♦ Repeat the **fluid challenge** bolus **0.9 NS** at 20ml/Kg bolus while enroute to the hospital.
6. If Shock persists despite above measures or if transport will be prolonged, start second saline IV/IO.
7. ♦Repeat the fluid challenge bolus on orders from Medical Control.

3.4.2 – NON-TRAUMATIC SHOCK WITH PULMONARY EDEMA

This section intentionally left blank.

3.4.3 – EXSANGUINATING HEMORRHAGE

1. Establish and control airway.
2. Control external bleeding.
3. Place patient on 100% **O2** with NRB, regardless of {Pulse-ox readings}.
4. Transport as soon as practical.
5. Establish multiple IV/IOs of **0.9% NS,** and use a pressure infusion device to deliver a 20 ml/Kg fluid bolus **while en route.** Titrate IV flow to obtain and maintain age appropriate SBP.
6. Administer repeated IV/IO fluid boluses of 20 ml/Kg, checking vital signs including BP before and after each bolus.
7. **Monitor perfusion and BP frequently, and avoid giving more IV/IO fluid than is needed.**
8. ⊄After a total of three fluid boluses (60 ml/Kg), you must contact Medical Control before administering further fluids.

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Exsanguination is the loss of blood to the point at which life can no longer be sustained. A child's blood volume is about 80 – 90 ml/kg. Pay closer attention to blood loss in a child than you do an adult. What appears to be a relatively small amount of bleed loss may be life threatening.

Age Appropriate Ranges for Vital Signs

AGE	WEIGHT (KG)	RESPIRATIONS	PULSE	SYSTOLIC BP
Newborn	3 – 4	30 – 50	120 – 160	> 60
6 mo – 1 yr	8 – 10	30 – 40	120 – 140	70 – 80
2 – 4 yr	12 – 16	20 – 30	100 – 110	80 – 95
5 – 8 yr	18 – 26	14 – 20	90 – 100	90 – 100
8 – 12 yr	26 – 50	12 – 20	80 – 100	100 – 110
> 12 yr	> 50	12 – 16	80 – 100	100 - 120

3.5 – STROKE

This section intentionally left blank.

4.0 - TRAUMA EMERGENCIES

4.0.1 - GENERAL CONSIDERATION

1. **Minor Trauma** patients may be transported to non-Trauma Centers. Vital Signs should be recorded, all necessary splinting and bandaging completed as needed.
2. Administer **O_2** at 12 - 15 LPM by NRB Mask to all significant trauma patients, regardless of {Pulse-Oximeter} readings.
3. **Major Trauma** patients are to be transported as soon as possible to the nearest appropriate facility, according to **Prehospital Field Pediatric Trauma Triage Guidelines** (below).
   A. 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.
   B. Limit on-scene time to 10 minutes or less whenever feasible.
   C. The Glasgow Coma Scale can be completed in seconds, and the component scores relayed to Medical Control. Communicate and document components, rather than overall score.
   D. Hypothermia is a significant, and frequent, problem in Shock and Major Trauma patients. Do all that you can to maintain patients' body temperature.
   E. **MIVT** and **ETA** are used to determine if Trauma Alert should be called. If patient condition changes, call back. When patient is transported by helicopter, EMS run sheet should be faxed to receiving Trauma Center. See 4.0.2.2 for fax numbers.
      - **M**echanism of Injury
      - **I**njuries
      - **V**ital Signs
      - **T**reatment
4. The **ONLY** procedures that should take precedence to transport of Major Trauma patients are:
   A. **Extrication**
   B. **Airway Management**
   C. **Stabilization of neck/back or obvious femur and pelvic fractures on a backboard**
   D. **Exsanguinating Hemorrhage Control**

   ✪ **Mnemonic: EASE**
5. **IV's should be attempted en route to the hospital unless the patient is trapped**, or patient has no life threatening injuries, and transport prior to analgesia would be extremely painful. Start IV/IO **0.9% NS.**
6. **Pain Relief (Trauma Related)**
   A. Only to be used if there is NO EVIDENCE of head trauma, intoxication, ingestion, overdose, major facial injuries, severe chest or abdominal injuries, or suspected decompression injury.
   B. Isolated extremity injuries should be treated with proper immobilization, ice and elevation. Use traction splint for femur fracture when appropriate.
   C. For Isolated extremity injury only. When pain is not relieved adequately by the above measures, the patient is conscious, alert, is not hypotensive, and an IV is established, consider **Morphine Sulfate** 0.1mg/Kg, (not to be given to anyone less than 2 years of age) slow IV (2-3 min) Maximum dose 5 mg.
   D. ♦ May repeat **Morphine Sulfate** only with direct order from Medical Control. Maximum total dose 10mg.

✪**Morphine Sulfate:** There are major differences in indications for Morphine Sulfate between the adult and pediatric protocols. EMS is encouraged to be more liberal in administering morphine to **adult** patients who have chest pain, abdominal pain, pain associated with burns, frostbite, extremity fractures, dislocations, and sprains. The first dose is at the paramedic's discretion with subsequent doses requiring medical control approval. In the pediatric patient, morphine is only to be given for isolated extremity injuries, or for burns (not limited to extremities), when pain is not relieved by immobilization, ice, and elevation.

4.0.2 - TRIAGE and TRANSPORTATION GUIDELINES

4.0.2.1 - CONCEPTS

1. After the trauma patient's extrication, the on-scene time should be limited to TEN MINUTES or less, except when there are extenuating circumstances.
2. Trauma Patients, as identified in the document, should be transported to "THE NEAREST APPROPRIATE TRAUMA CENTER".
3. 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.
4. **PRE-ARRIVAL NOTIFICATION OF THE RECEIVING FACILITY IS ESSENTIAL!** Give **Mechanism of Injury, Injuries, Vital Signs, Treatment (MVT) and ETA**.
5. List in the EMS Run Report which of the State Trauma Triage Criteria were met by the patient.

4.0.2.2. - TRAUMA CENTER/FACILITY CAPABILITIES

1. Regional Trauma Centers
   - Level I Miami Valley Hospital Fax # 937-208-2521
   - Level II Children's Medical Center Fax # 937-641-6176
   - Level II Good Samaritan Hospital Fax # 937-567-4116
   - 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
2. Regional Pediatric Trauma Centers:
   - Pediatric: Children's Medical Center
   - Adult and Pediatric: Miami Valley Hospital
3. 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.
4. 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.
5. **All pregnant trauma patients should be transported to the NEAREST ADULT Trauma Center, unless transport time > 30 minutes**.

4.0.2.3 - AIR MEDICAL TRANSPORTATION

PRE-ARRIVAL NOTIFICATION OF THE RECEIVING FACILITY IS ESSENTIAL.

1. Prolonged delays at the scene waiting for air medical transport should be avoided.
2. Traumatic cardiac arrest due to blunt trauma is **not** appropriate for air transport.
3. In the rural environment, direct transfer of trauma patients by air medical transport may be appropriate and should be encouraged.

4.0.2.4 - USE OF GUIDELINES

1. EXCEPTIONS:
   A. 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.
   B. 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.
   C. Transporting the victim to an adult or pediatric trauma center would cause a shortage of local emergency medical services resources.

D. No appropriate trauma center is able to receive and provide trauma care to the victim without undue delay.
E. 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, such a request is made by an adult member of the patient's family or legal representative of the patient.

4.0.3 - PRE-HOSPITAL FIELD PEDIATRIC TRAUMA TRIAGE GUIDELINES

1. Utilize for persons under 16 years of age
2. Patients to be taken to nearest hospital:
   A. Unstable airway
   B. Blunt trauma arrest, no pulse or respirations
   C. **All pregnant trauma patients should be transported to the NEAREST ADULT Trauma Center, unless transport time > 30 minutes**
3. Pediatric Trauma Center – Utilize length-based drug treatment guide (e.g., Broselow Pediatric Emergency Tape). Use Pedi-Wheel for determining normal vital signs.

ANATOMY OF INJURY

1. Penetrating trauma to head, neck, torso, and extremities proximal to elbow and knee
2. Abdominal injury with tenderness, distention, or seat belt sign
3. Chest injury: Flail chest and/or tension pneumothorax
4. Two or more proximal long bone fractures
5. Evidence of pelvic fracture (exception: isolated hip fracture)
6. Spinal cord injury with signs and symptoms of paralysis
7. Burns greater than 5% Total BSA or other significant burns involving the face, feet, hands, genitals or airway
8. Amputation proximal to wrist and/or ankle
9. Evidence of serious injury of two or more body systems
10. Crush injury to head, neck, torso, or extremities proximal to knee or elbow

YES = To Pediatric Trauma Center Or Adult & Pediatric Trauma Center	**NO – Assess Physiologic**
Alert Trauma Team	

PHYSIOLOGIC

1. GCS **less than or equal to 13**, Loss of consciousness or alteration in level of consciousness with evidence of head injury at time of exam or thereafter, or fails to localize pain.
2. Evidence of poor perfusion (i.e., weak distal pulse, pallor, cyanosis, delayed capillary refill, tachycardia)
3. Evidence of respiratory distress or failure (i.e., stridor, grunting, retractions, cyanosis, nasal flaring, hoarseness or difficulty speaking

YES = To Pediatric Trauma Center Or Adult & Pediatric Trauma Center	**NO = Evaluate Mechanism of Injury if high energy impact**
Alert Trauma Team	

MECHANISM OF INJURY

1. Auto-pedestrian/auto-bicycle injury with significant (>5 mph) impact
2. Death in same passenger compartment
3. Ejection from motor vehicle
4. Extrication time > 20 minutes
5. Falls three times child's height
6. High Speed Auto Crash
   A. Initial speed > 40 mph
   B. Intrusion into passenger compartment > 12 inches
   C. Major auto deformity > 20 inches
7. Open motor vehicle crash > 20 mph or with separation of rider from vehicle
8. Pedestrian thrown or run over
9. Unrestrained rollover

YES = Consider Trauma Center	NO = Check Special Situations

SPECIAL SITUATIONS

1. Congenital disorders
2. Cardiac or chronic respiratory condition
3. Insulin dependent diabetes, cirrhosis, morbid obesity
4. Patient with bleeding disorder or on anticoagulants
5. Immuno-suppressed patients (renal dialysis, transplant, cancer, HIV)
6. **All pregnant trauma patients should go to the nearest adult trauma center, if within 30 minutes transport time**.

YES = To Trauma Center	NO = To Local Hospital

4.1 – MULTIPLE TRAUMA

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

1. Establish airway, breathing and circulation. Maintain C-spine immobilization. Use the modified jaw-thrust if airway needs to be opened.
2. Assess patient and initiate 100% **O2** therapy via NRB MASK regardless of {Pulse-ox readings}.
3. If snoring is heard or patient unconscious: insert an oral or nasopharyngeal airway, and assist with ventilations with 100% **O2.**
4. If gurgling heard or secretions/blood/vomitus present: suction upper airway.
5. Assure adequate ventilation. If breathing shallow and rapid (greater than 29 breaths per minute), or slow (less than 10 breaths per minute), assist breathing using bag-valve mask with 100% **O2** and reservoir.
6. Control hemorrhage by appropriate method, and splint/immobilize as indicated.
7. If patient resuscitation is consistent with **Section 3.1.**5, **Non-Initiation of CP**R, perform endotracheal intubation using in-line immobilization technique. Confirm tube placement using **Primary and appropriate {Secondary Methods**}, and secure tube.
8. Manage any injury that may compromise breathing. Place/maintain the patient in correct position to maintain the airway. Apply {Pulse Oximete**r**}.
   - Open pneumothorax: cover with an occlusive dressing, tape three sides down.
   - Tension pneumothorax:
     - Lift one side of any occlusive dressing;

- If patient has signs and symptoms of tension pneumothorax, perform needle decompression on the affected side;
- If patient with torso trauma has rapidly and profoundly dropping or non-palpable BP, perform bilateral needle chest decompression.
- After chest decompression, provide positive pressure ventilation.

- • Flail chest: immobilize with a bulky dressing or towels taped to the chest.

9. **TRANSPORT immediately**
10. Contact Medical Control and advise of patient condition with MIVT & ETA and need for Trauma Team.
11. **IV's should be attempted en route to the hospital unless the patient is trapped.** Start IV/IO of **0.9% NS** at the following rates:
    A. Keep open rate for Major Head Trauma with adequate perfusion.
    B. In shock (inadequate perfusion, including head trauma), give fluid bolus of **0.9% NS** 20ml/Kg, rapidly. Use of pressure infusion device is appropriate if available.
    C. Titrate all IV/IO flow rates to maintain systolic blood pressure appropriate for patient's weight or size per length based resuscitation guide.
    D. A second IV/IO should be started enroute if poor perfusion persists.
12. If signs of shock persist, the fluid bolus of 20ml/Kg may be repeated twice. Breath sounds must be reassessed, and the BP must be checked before and after each fluid bolus.
    A. ♦ No more than 60 ml/Kg may be given without orders from Medical Control.
13. Apply Cardiac Monitor and check rhythm.
14. During transportation:
    A. Continue to evaluate patient.
    B. Splint individual fractures.
    C. Check pulses distal to the fracture site.
    D. Check distal skin color, temperature, neurologic status.
    E. Obtain relevant history.

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In lieu of an IV Pressure Infuser, you can use a BP cuff or squeeze IV bag by hand.

4.2 - TRAUMATIC FULL ARRESTS AFTER ARRIVAL OF EMS

1. Open, assess and maintain the airway, using the modified jaw-thrust, always assume C-spine injury.
2. Ventilate with 100% **O2** using BVM. If patient has severe head injury, ventilate at a rate of 10 faster than the normal respiratory rate. Avoid hyperventilation.
3. Check carotid or brachial pulse. If no pulse, or HR < 60 bpm, begin CPR and rapid transport to appropriate facility by ground, unless patient meets the criteria for **Non-Initiation of CP**R. in **Section 3.1.5**.
4. Place on a Cardiac Monitor.
5. Contact Medical Control and advise of patient condition, while continuing CPR.
6. Perform endotracheal intubation using in-line immobilization technique. Confirm tube placement using **Primary** and **appropriate {Secondary Methods}**, and secure tube.
7. Establish two (2) IV/IOs of **0.9% NS** to maintain perfusion. IV/IOs should be started en route to hospital unless patient is trapped.
8. If a patient has potential chest trauma, perform bilateral relief of tension pneumothorax.

4.3 - HEAD INJURY

GENERAL CONSIDERATIONS

1. Evaluate patient condition:
   A. Level of Consciousness
   B. Pupillary size and reaction
   C. Glasgow Coma Scale results
2. Take control of airway gently with in-line C-spine immobilization.
3. {Orotracheal intubation}, if patient arrests, should be accomplished gently with in-line C-spine immobilization. Confirm tube placement using **Primary and Secondary Method**s, and secure tube.
4. Ventilate at a rate of 10 faster than the normal respiratory rate with severe head injury and the following signs of cerebral herniation, according to age. Avoid hyperventilation.
   A. Blown pupil(s), left and right pupil sizes different, bradycardia, posturing, and decreased Level of Consciousness.
   B. {If quantitative (i.e., numeric) End Tidal CO2 (EtCO2) readings are available, ventilate at a rate to maintain EtCO2 readings at approximately 30 mmHg (30 torr).}
5. Notify hospital for all patients with serious signs and symptoms of Head Injury; advise of all three components of GCS.

4.3.1 – PEDIATRIC GLASGOW COMA SCALE
Use Adult GCS for children > 5 years.

	Infant < 2 years	GCS	Child Age 2-5 years	GCS
EYES	**SPONTANEOUSLY**	**4**	**SPONTANEOUSLY**	**4**
	TO VOICE	**3**	**TO VOICE**	**3**
	TO PAIN	**2**	**TO PAIN**	**2**
	NO RESONSE	**1**	**NO RESPONSE**	**1**
BEST VERBAL RESPONSE	**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**
BEST MOTOR RESPONSE	**NORMAL MOVEMENT**	**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**

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Hyperventilation and EtCO2 levels: Maintain good ventilation with high flow oxygen. Prophylactic

hyperventilation for head injury is no longer recommended. Cerebral herniation syndrome is the only situation in which hyperventilation (ventilating @ a rate of 10 faster than the normal respiratory rate) is still indicated.

An increase in the level of CO2 (hypoventilation) promotes cerebral vasodilation and increased swelling, while lowering the level of CO2 (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 when you may hyperventilate is cerebral herniation syndrome. With 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, or decererbrate posturing. When this occurs, there will often be 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.

4.4 – EXTREMITY FRACTURES, DISLOCATIONS, SPRAINS

1. ABC's with C-spine control as indicated.
2. Control bleeding by direct pressure.
3. Assess extremity distal to the injury for color, pulses, sensation, temperature and movement.
4. For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing.
5. Apply appropriate splinting device.
6. Re-assess color, pulses, sensation and movement after splinting and during transport.
7. Elevate extremity applying ice/cold pack to site if available.
8. If signs/symptoms of hypovolemic shock are present, establish an IV/IO of **0.9% NS** to maintain perfusion. Do NOT delay transport to establish venous access.
9. IV should be started en route to hospital unless patient is trapped.
10. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, **Morphine Sulfate** 0.1mg/Kg, (Max. Dose 5.0 mg) slow IV (2-3 min). Not to be given to anyone less than 2 years of age
11. ∠ May repeat **Morphine** only with direct order from Medical Control. Max Total Dose 10 mg.

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Rules of Splinting

1. Adequately visualize the injured part.
   - Check and record distal sensation and circulation before and after splinting. Check movement distal to the fracture if possible (ask conscious patient to wiggle fingers or observe motion of the unconscious patient when a painful stimulus is applied).
   - If the extremity is severely angulated and pulses are absent, you should apply gentle traction in an attempt to straighten it. This traction should never exceed 10 pounds of pressure. 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. If the trauma center is near, always splint in the position found. Consider pain relief as needed and appropriate!

- Open wounds should be covered with a sterile dressing before you apply the splint. Splints should always be applied on the side of the extremity away from open wounds to prevent pressure necrosis.
- Use the splint that will immobilize one joint above and below the injury.
- Pad the splint well.
- 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. You should not use your hands or any tools to try to pull the bone ends back out, but be sure to notify the receiving physician. Bone ends should be carefully padded by bandages before pneumatic splints are applied to the lower extremities. The healing of bone is improved if the bone ends are kept moist when transport time is prolonged.
- In a life-threatening situation, injuries may be splinted while the patient is being transported. When the patient is stable, splint all injuries before moving the patient.
- If in doubt, splint a possible injury.

Reference: BTLS

Note: The patient who requires a load and go approach can be adequately immobilized by careful packaging on the long spine board. You can do some additional splinting in the vehicle en route to the hospital as time and the patient's condition permits.

Immobilization devices must be appropriately sized for infants and children. The pediatric patient should be placed supine and immobilized in a neutral in-line position. Infants, toddlers, and preschoolers should be padded from shoulders to hips. Equipment that may be used includes the following:

• Rigid, cervical collar
• Towel/blanket roll
• Child safety seat
• Pediatric immobilization device
• Vest-type/short spine board
• Long spine board
• Straps, cravats
• Tape
• Padding

Management of Specific Orthopedic Injuries

SITE	INJURY	SUGGESTED IMMOBILIZATION
Clavicle	Fracture	Sling and swath
Shoulder	Dislocation	Splint in position found with pillow, sling and swath
Humerus	Fracture	Short board splint & sling and swath
Elbow	Fracture	Splint in position found
Elbow	Dislocation	Splint in position found
Forearm	Fracture	Rigid splint and sling
Wrist	Fracture	Splint in position found
Hand	Fracture	Splint in position of function
Finger	Fracture	Malleable padded splint in position of function
Pelvis	Fracture	PASG & long board
Hip	Fracture	Blanket between legs & secure injured leg to uninjured leg, backward

Hip	Dislocation	Long board with leg supported with pillow
Femur	Fracture	Traction splint, PASG
Knee	Fracture	Splint in position found
Knee	Dislocation	Splint in position found unless instructed to reduce
Tibia/fibula	Fracture	Air splint, padded board splint or PASG
Ankle	Fracture	Pillow splint or air splint
Ankle	Dislocation	Pillow splint or air splint
Toe	Fracture	Tape to adjacent toe

4.5 - DROWNING AND NEAR DROWNING

1. **Maintain personal safety at all times.**
2. Assure ABCs, starting in the water if necessary
3. Consider spinal immobilization, and deliver 100% **O2**.
4. If patient arrests, or is found in arrest, attempt to evaluate for the presence of hypothermia. If severe hypothermia is strongly suspected, limit defibrillation attempts to no more than three.
5. Check pulse, intubate patient and continue CPR.
6. .Remove wet clothing, dry the child, wrap in warm blankets, and try to maintain the child's body temperature.
7. Apply Cardiac Monitor and check rhythm. Follow cardiac arrest guidelines.
8. Start IV/IO of **NS** {warmed if possible} while en route.
9. Evaluate neurological status including level of consciousness (AVPU), pupillary response, and movement.
10. If feasible for patient condition, Near Drowning patients should be transported to a Trauma Center.

4.6 - HYPOTHERMIA/FROSTBITE

GENERAL CONSIDERATIONS

1. Secure airway, and consider cervical spine immobilization.
2. Administer {warmed, humidified}. 100% **O2**, if available, by NRB mask and or BVM.
3. Attempt to evaluate the severity of hypothermia, if means are available.
4. Evaluate neurological status including level of consciousness (GCS) and pupillary response.
5. Notify hospital immediately.
6. Move patient to warm environment, remove all wet clothing and cover with blankets.
7. Take great care to avoid any rough movement, since that can precipitate VF. It may be beneficial to immobilize the victim on a backboard.
8. Assess vital signs, mental status, temperature of patient and environment, and evidence of local injury. It may be necessary to assess pulse and respirations for up to 30 seconds or more to confirm arrest in the profoundly hypothermic patient.
9. Diabetics are highly susceptible to cold illnesses. Consider the possibility of hypoglycemia, and treat accordingly.
10. If patient condition warrants, Hypothermia patients should be transported to a Trauma Center. Patients with severe Frostbite should be transported to a Burn Center.

4.6.1 - HYPOTHERMIA WITH ARREST

1. CPR continuously.
2. Consider spinal immobilization. Evaluate for other traumatic injuries.

3. Apply {AED} or Monitor/Defibrillator, and shock if indicated at 2 j/Kg, 4 j/Kg, and 4 j/Kg..
4. {Use a hypothermia thermometer**.}** If body temperature is < 30 degrees centigrade (86 degrees Fahrenheit), or severe hypothermia is strongly suspected, limit defibrillation attempts to no more than three.
5. If body temperature is > 30 degrees centigrade (86 degrees Fahrenheit), follow normal arrest protocols.
6. Intubate and oxygenate the patient with 100% {warmed, humidifie**d} O2.** Confirm tube placement using **Primary** and appropriate **{Secondary Methods**}, and secure tube.
7. Transport IMMEDIATELY after ABC's and appropriate defibrillations (as above).
8. Continue resuscitative efforts for longer than normal, while in transit, even if there is no response.
9. IV/IO with {warm} **0.9% N**S. If hypotensive, give 20 ml/Kg push {warmed IV fluid}.
10. {Determine blood sugar level.}
11. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    B. Administer IV Bolus:
    - Use 1ml/Kg **50% Dextrose** for children over 25Kg
    - Use 2ml/Kg **25% Dextrose** for children under 25Kg, or 1ml/Kg of **50% Dextrose** diluted with equal volume of saline.
    - For infants (< 1 year), use 2 ml/Kg **25% Dextrose** diluted with equal volume of saline. If dilution is not feasible and straight **D25** is used, it must be given very slowly (minimum 1 – 2 minutes).

    C. **Dextrose** may be repeated in 10 minutes if patient fails to respond, or blood sugar remains < 60mg/dl.
12. Consider possibility of other medical issues, including drug overdose and trauma.
13. Consider transport to a Level I or II Trauma Center. If Trauma Center is distant, consider aeromedical transport.

4.6.2 - HYPOTHERMIA WITHOUT ARREST

1. Do not initiate CPR if there is any pulse present, no matter how slow.
2. Consider spinal immobilization; evaluate for other trauma.
3. Use **O2**, high flow. Do not hyperventilate. Do not use adjunctive airway equipment unless necessary. If necessary, use least intrusive measures that will adequately assure airway and ventilation.
4. Ventilate if necessary, and oxygenate with 100% **O2**, that is {warmed/humidified}.
5. Avoid rough handling and unnecessary stimulation.
6. Apply Cardiac Monitor.
7. Do not allow conscious patients to ambulate, exercise or move about.

Complete the following Steps During Transport:

8. IV with {war**m} 0.9% N**S. May use IO if patient is unresponsive. If hypotensive, give 20 ml/Kg bolus.
9. {Determine blood sugar level.}
10. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer IV Bolus:
    - Use 1ml/Kg **50% Dextrose** for children over 25Kg
    - Use 2ml/Kg **25% Dextrose** for children under 25Kg or 1ml/Kg of **50% Dextrose** diluted with equal volume of saline.
    - For infants (< 1 year), 2 ml/Kg **25% Dextrose** diluted with equal volume of saline is preferred. If straight **D25** is used, it must be given very slowly (minimum 1 – 2 minutes).

B. **Dextrose** may be repeated in 10 minutes if patient fails to respond, or blood sugar **remains < 60mg/dl.**
C. IF unable to obtain IV, give **Glucagon, 1mg IM.**

11. Consider possibility of other medical issues, including drug overdose and trauma.
12. If feasible for patient condition, Hypothermia patients should be transported to a Trauma Center.

4.6.3 - FROSTBITE

1. Protect injured areas from pressure, trauma, and friction. Remove all covering, including jewelry, from injured parts. Do not rub. Do not break blisters.
2. Do not attempt to thaw injured part with local heat.
3. Do not allow limb to thaw if there is a chance that limb may refreeze before evacuation is complete.
4. Maintain core temperature by keeping patient warm with blankets, warm fluids, etc.
5. Transport and contact Medical Control.
6. Apply Cardiac Monitor.
7. IV with warm **N**S, if available.
8. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, and an IV is established, consider **Morphine Sulfate** 0.1mg/Kg. Slow IVP over 2-3 minutes (Maximum dose 5 mg). Not to be give to anyone 2 years of age or under.
9. ♦ May repeat **Morphine** only with direct order from Medical Control.
11. If patient condition warrants, severe Frostbite patients should be transported to a Burn Center.

4.7 - BURNS/SMOKE INHALATION

GENERAL CONSIDERATIONS

1. **Burn Referral Centers**
   A. Transport patients under 16 years of age with severe burns to the pediatric regional burn center at the Children's Medical Center, unless > 30 minutes transport time.
   B. Transport patients 16 years of age and older with severe burns to the adult regional hospital center at Miami Valley Hospital, unless > 30 minutes transport time.
2. The first priority is to assure scene safety and then remove the patient from the heat and/or flame, electrical or chemical exposure.
   A. When dealing with contaminated environments, EMS must have appropriate protective clothing. If not available, contact appropriate Haz-Mat service for such equipment.
3. Airway, Breathing and Circulation (ABCs) must be stabilized before addressing the burn. Establish and maintain C-spine control if indication of neck/head trauma.
4. Patient with extensive burns must be monitored for hypothermia. Do not use ice or prolonged cold compresses. When in doubt, cover with dry dressing. Cover burn areas with clean, dry sheets or dressings after cooling first. Remove all rings, watches and jewelry. Superficial and partial thickness burns of less than 10% may have wet dressings applied. Do not remove items which have adhered to the skin.
5. In caring for the burn:
   A. Stop the burning
   B. Reduce the pain
   C. Prevent contamination
6. Major burns should be transported directly to a Burn Center if possible, as above. Inhalation injuries **with unsecured airway** should be transported to the nearest facility For patients with major burns, and long transports, you may contact Medical Control for destination:
   A. Closest Hospital or
   B. Burn Center

7. For chemical burns, gross decontamination **must be done at the scene. Always include removal of all involved clothing.** Advise receiving facility, and be prepared to transport to decontamination area. See **Section 6.6 – Haz-Mat**.
8. Keep patient warm – turn off air conditioner if appropriate.
9. The burn patient should be managed as any other trauma victim. The burn itself has a low priority over other associated injuries for which the patient must be completely evaluated.
10. Vital signs may be taken over damaged tissue if no other is accessible.

SPECIFIC CARE

1. Assess for respiratory distress, stridor, hoarseness, sooty sputum, singed eyebrows and nares, or burns of the face or airway. If any are present, suspect airway injury. Assess neuro status.
2. Administer 100% **O_2** by NRB mask or BVM.
3. Initiate Cardiac Monitor, especially if patient has been involved with a lightning strike or electrical burn.
4. Determine types of burn and treat as follows:
   A. Thermal (dry and moist):
      1) Stop burning process: i.e., remove patient from heat source, cool skin by applying water; remove clothing.
      2) If patient starts to shiver or skin is cool, stop cooling process.
      3) Estimate extent (%), depth, and seriousness of the burn. Contact Medical Control and transport.
      4) Avoid wet dressings if burn area is greater than 10% body surface area (BSA).
   B. Radiation Burns:
      1) Treat as thermal burns except when burn is contaminated with radioactive source, then treat as chemical burn.
      2) Consider contacting HAZ-MAT TEAM for assistance in contamination cases.
   C. Chemical burns:
      1) EMS personnel must wear appropriate protective clothing and respirators.
      2) Remove patient from contaminated area to decontamination site (NOT TO THE AMBULANCE).
      3) Determine chemical involved; contact appropriate agency for chemical information.
      4) If any possibility of continuing contamination, notify hospital immediately.
      5) Remove patient's clothing and flush skin.
      6) Leave contaminated clothes at scene. Cover patient completely before loading into ambulance.
      7) Personnel not involved in decontamination process should transport patient.
      8) See **Section 6.6 – Haz-Mat**, for some specific treatments.
      9) For Chemical Burns, notify hospital as early as possible! It is imperative that the hospital be notified prior to your arrival!
   D. Electrical Burns:
      1) Shut down electrical source; do not attempt to remove patient until electricity is confirmed to be shut off.
      2) If no pulse, apply **{AED} or Monitor/Defibrillator and follow Section 3.1.1**.
      3) Assess for visible entrance and exit wounds and treat as thermal burns.
      4) Assess for internal injury, i.e., vascular damage, tissue damage, fractures, and treat.
   E. For Inhalation Burns, Thermal Burns and Smoke Inhalation:
      1) Provide {humidified} **O_2** using a {wall humidifier} with **Saline**.
      2) If no humidifier is available, administer a **Saline Nebulizer** treatment by adding 3 ml **Saline** to a nebulizer, and administer repeated treatments as needed while in transit.
5. Estimate extent (%), depth, and seriousness of the burn. Contact Medical Control and transport.

6. For Chemical Burns, notify the hospital as early as possible! It is imperative that the hospital be notified prior to your arrival.
7. If sign/symptoms of hypovolemic shock are present, establish an IV of **0.9% NS** at 20 ml/Kg bolus as quickly as possible *while enroute to hospital*.. Titrate to maintain a systolic BP > 100.
   A. Re-assess pulse rate and peripheral perfusion, if no improvement, repeat bolus of **NS**.
8. Initiate cardiac monitoring if patient has been involved with a lightening strike or electrical burn.
   A. Treat arrhythmias per protocol.
9. For pain relief, if IV is established and the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfate**, up to 5 mg, slow IVP (2-3 minutes). Not bo be given to anyone 2 years of age or under.
   A. ♦Call for orders for a repeat dose of Morphine Sulfate.

4.8 – HEAT EXPOSURE

GENERAL CONSIDERATIONS

1. Geriatric patients, pediatric patients, and patients with a history of spinal injury or diabetes mellitus are the ones most likely to suffer heat-related illness. Other contributory factors may include heart medications, diuretics, cold medications and/ or psychiatric medications.
2. Heat exposure can occur either due to increased environmental temperatures, prolonged exercise or a combination of both. Environments with temperature above 90 degrees Fahrenheit and humidity over 60% present the most risk.
3. When altered mental status is present consider other causes such as hypoglycemia, stroke and/ or shock

SPECIFIC CARE

1. Secure and maintain airway, and consider cervical spine injury.
2. Administer **O2**, maintaining at least 95% {SpO2}. Use BVM if needed.
3. Move patient to cool environment.
4. Assess mental status, temperature of patient and of environment. Assess vital signs at least every 15 minutes.
5. Strip the patient of clothing, cool the patient, and apply water to the skin. Provide oral fluids if patient is conscious, and not vomiting or extremely nauseous.
6. Apply Cardiac Monitor.
7. During transport, start IV/IO of **0.9% NS** if the patient is hypotensive or there are mental status changes, and give 20 ml/kg bolus of **0.9% N**S.
8. Be prepared for seizures.
9. If feasible for patient condition, significant Heat Exposure patients should be transported to a Trauma Center.

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Heat Stroke: Most serious type of exposure illness, usually due to prolonged exposure to heat, inadequate fluid replacement and deficient thermoregulatory function. Patient often experiences inadequate perspiration with body temperatures reaching 105 degrees F. or greater. Skin is usually hot and dry and there may be an altered LOC and/or coma. Seizures may occur. Cardiovascular collapse is the usual cause of death.

Heat Exhaustion: More moderate form of heat exposure associated with dehydration combined with overexertion. Skin is cooler and the core temperature is below 105 degrees F. The patient may experience syncope with orthostatic hypotension.

Heat Cramps: The mildest form of heat exposure caused by dehydration, overexertion, and electrolyte

abnormalities. The skin is moist with muscle cramps, usually affecting large muscle groups.
Altered Mental Status: When altered mental status is present, consider other causes such as hypoglycemia, stroke and/or shock.

4.9 – SYMPTOMATIC CARBON MONOXIDE POISONING

1. Remove the victim from the contaminated area.
2. Airway with C-spine control as indicated.
3. Provide high flow **O2** to all suspected CO poisonings **continuousl**y, including from Medic to ER.
   A. Provide {humidified} **O2** using a {wall humidifie**r}** with **Salin**e.
   B. If no humidifier is available, provide a **Saline Nebulizer** treatment by adding 3 ml **Saline** to a nebulizer, and give repeated treatments as needed while in transit.
4. **Pulse Oximetry will give false readings: Do not use it.**
5. If CO is suspected, and any of the following High Risk Factors are present, consider Hyperbaric Oxygen (HBO) Treatment. Contact Medical Control and discuss where the patient should be transported.
   A. Underlying cardiovascular disease, or cardiovascular symptoms such as chest pain or shortness of breath.
   B. ANY interval of unconsciousness, or obvious neuro-psychological symptoms, such as loss of time, inability to perform simple motor tasks, or loss of memory.
   C. Smoke inhalation victims.
   D. Pregnancy.
6. If signs/symptoms of hypovolemic shock are present, establish an IV/IO of **0.9% NS,** 20 ml/Kg, to maintain systolic pressure of 100.
   A. Do NOT delay transport to establish venous access.
7. Place patient on Cardiac Monitor and treat any dysrhythmias.

4.10 - EYE INJURY

GENERAL CONSIDERATION: CONTACT LENSES
1. If possible, contact lenses should be removed from the eye. Be sure to transport them to the hospital with the patient. If the lenses cannot be removed, notify the ED personnel as soon as possible.

SPECIFIC CARE
1. Use Nasal Cannula connected to bag of **0.9% Normal Saline** for irrigation, when indicated.

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When eye irrigation is indicated, the eyes can be irrigated with a nasal cannula.
- Place cannula over bridge of the nose with nasal prongs pointing down gtoward the eyes.
- Attach cannula to an intravenous administration set using normal saline.
- Run continually into both eyes.

4.10.1 - EYE INJURY: CHEMICAL BURNS

1. When possible determine type of chemical involved first. The eye should be flushed with copious amounts of water or saline. Irrigate for a minimum of 20 minutes, starting as soon as possible and continue until the pain is relieved.. Any delay may result in serious damage to the eye.
2. Always obtain name and, if possible, the Material Safety Data Sheet (MSDS), or ask that they be brought to the hospital as soon as possible. Knowing the **pH** of the chemical is crucial information for the ER.

3. Use Nasal Cannula and IV tubing for irrigation.

4.10.2 – MAJOR EYE TRAUMA

1. Keep patient quiet.
2. Cover injured eye with Metal Eye Shield or Cardboard or Styrofoam cup, taped onto bony prominences.
3. Do not use a pressure patch, or any absorbent dressing on or near any eye that may have ruptured, or have any penetrating trauma.
4. Cover both eyes to limit movement.
5. Transport with head elevated.
6. Do not use eye drops.
7. In pediatric patients, it may be best to withhold IVs, unless otherwise essential.

4.11 – {SPINAL INJURY CLEARANCE ALGORITHM)

This section intentionally left blank. Not recommended for pediatric patients.
See ADULT 4.11 FOR CHILDREN >16 YRS.

4.12 – START TRIAGE SYSTEM FOR MASS CASUALTY INCIDENTS (MCIs)

START SYSTEM OF TRIAGE

1. INTRODUCTION
   A. Use the **S**imple **T**riage **A**nd **R**apid **T**ransit (START) method of triage to assess a large number of victims rapidly. It can be used easily and effectively by all EMS personnel. However, there are limitations to START (see Section 4.12.A, below).
2. PROCEDURE
   A. Initial Triage (Using the START Method).
      1) 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).
         a) RED – Immediate
         b) YELLOW – Delayed
         c) GREEN – Ambulatory (minor)
         d) BLACK – Deceased (non-salvageable)
      2) Independent decisions should be made for each victim. Do not base triage decisions on the perception that too many REDs, not enough GREENs, etc.
      3) If borderline decisions are encountered, always triage to the most urgent priority (e.g., GREEN/YELLOW patient, tag YELLOW). Move as quickly as possible.
   B. Secondary Triage
      1) Will be performed on all victims in the Treatment Area.
      2) 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!
      3) The Triage priority determined **in the Treatment Area** should be the priority used for transport.
3. START
   A. Locate and remove all of the walking wounded into one location away from the incident, if possible. Assign someone to keep them together (e.g., 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.

B. 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)**.
   1) Assess **RESPIRATIONS**:
      a) If respiratory rate is 30/min. or less go to PERFUSION assessment.
      b) If respiratory rate is over 30/min., tag RED.
      c) If victim is not breathing, open airway, remove obstructions, if seen and assess for (a) or (b) above.
      d) If victim is still not breathing, tag BLACK. (Depending on circumstances, you may attempt three rapid defibrillations before triage to BLACK).
   2) Assess **PERFUSION**:
      a) Performed by palpating a radial pulse or assessing capillary refill (CR) time.
      b) If radial pulse is present or CR is two seconds or less, go to MENTAL STATUS assessment.
      c) No radial pulse or CR is greater than two seconds, tag RED. NOTE: In addition, any major external bleeding should also be controlled.
   3) Assess **Mental Status**:
      a) Assess the victim's ability to follow simple commands and their orientation to time, place and person.
      b) If the victim follows commands and is oriented x3, tag GREEN. NOTE: Depending on injuries (e.g., burns, fractures, bleeding), it may be necessary to tag YELLOW.
      c) If the victim does not follow commands, is unconscious, or is disoriented, tag RED.

4. SPECIAL CONSIDERATIONS
   A. The **first** assessment that produces a RED tag stops further assessment.
   B. Only correction of life-threatening problems (e.g., airway obstruction or severe hemorrhage) should be managed during triage.
   C. 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.
   D. 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.

RPM: 30, 2, Can Do!
R: Respirations – 30
P: Perfusion – 2
M: Mental Status – Can do

Above was adapted from http://www.co.broward.fl.us/tmi02719.htm

4.12.A - START SYSTEM LIMITATIONS

See the Adult Standing Orders Training Manual for this Section,
including information on triaging pediatric patients.

5.0 - RESPIRATORY DISTRESS

GENERAL CONSIDERATIONS

1. In children, open airway by using sniffing position.
2. Do not attempt to visualize the airway; unless a foreign body is suspected.

3. The use of **suction** may be critical.
4. Keep patient calm and transport upright.
5. Cricoid pressure can be applied while ventilating to minimize gastric distention.

SPECIFIC CARE

1. Open airway and check for breathing
2. Administer **O2** by NRB mask or nasal cannula; be prepared to assist ventilations by BVM with 100% **O2.**
3. Evaluate breath sounds, and obtain {Pulse Oximetry} reading:
   A. **Clear breath sound**s: Treat cause (pulmonary embolism, metabolic disturbance, hyperventilation) and transport in position of comfort.
   B. **If wheezes presen**t: Consider possibility of allergic reaction. See **Section 6.3 Anaphylaxi**s.
   C. **If wheezes present and not an allergic reactio**n, and patient has history of **asthma, bronchitis, etc, see Section 5.2 Lower Airway Obstruction/Wheezing.**
   D. **Patient with Severe Distres**s: Sit patient up, assist ventilations, and give HIGH flow **O2.**
   E. **Rales presen**t: Sit patient up, administer HIGH flow **O2** by NRB mask and/or BVM and transport.
   F. **Sucking chest wound:** Seal open wound on 3 sides, monitor for development of Tension Pneumothorax.
4. Reassess breath sounds.
5. Start Saline Lock or IV **of 0.9% N**S, TKO, while en route to hospital. DO NOT DELAY TRANSPORT.
6. Apply Cardiac Monitor and check rhythm.
7. If breath sounds are asymmetrical or absent, consider possibility of pneumothorax, spontaneous or otherwise.
8. Transport in position of comfort.
9. Monitor for development of Tension Pneumothorax. If found perform immediate chest decompression.

5.1 - UPPER AIRWAY OBSTRUCTION

1. Manually clear airway if foreign body is visible
2. Apply appropriate obstructed airway maneuver.
3. Administer **O2** by NRB mask or blow-by.
4. Transport in upright position
5. If foreign body is in airway in an unconscious patient with complete obstruction and basic procedures are unsuccessful, try to visualize obstruction with laryngoscope.
6. **If foreign body is visualized with laryngoscope in an unconscious patient, attempt to remove obstruction with Magill Forceps**

5.2 - LOWER AIRWAY OBSTRUCTION/WHEEZING

1. Open airway and check for breathing
2. Administer **O2** by NRB mask or nasal cannula..
3. Evaluate breath sounds, and obtain {Pulse Oximetry} reading:
4. If respiratory effort is insufficient or patient becomes unconscious, be prepared to assist ventilations by BVM with 100%. **O2**.
5. If allergic reaction is suspected, follow **Anaphylaxis** protocol, See **Section 6.**3.
6. Apply Cardiac Monitor and check rhythm.

7. **Transport as soon as practical.**
8. Administer breathing treatment using 2.5mg (3ml), of **Proventil (Albuterol)** combined with **Atrovent** 0.5 mg. in nebulizer with **O2** flow at 8-12 liters per minute.
9. If patient's condition is severe, may start an IV of **0.9% N**S, TKO.
10. May give repeat dose of **Proventil** times three.
11. ◆ If patient remains in respiratory distress, call for **Epinephrine 1:1,000** 0.01ml/Kg **(0.01 mg/Kg) SUB-Q. (Maximum dose 0.3 mg, 0.3 ml).**
12. If patient arrests, tension pneumothorax is a likely cause. Strongly consider bilateral needle decompression for relief of tension pneumothorax.
13. Consider intubation for asthma patient who goes into cardiac arrest and limit rate of ventilation to ten to fifteen breaths per minute, to avoid auto-PEEP and hypotension, provided that you can adequately ventilate the patient at that rate.

6 - OTHER MEDICAL ISSUES

6.1 - ALTERED LEVEL OF CONSCIOUSNESS – UNKNOWN CAUSE

1. Secure airway and consider cervical spine injury.
2. Administer 100% **O2** by NRB mask.
3. Apply {Pulse Oximete**r**}.
4. Apply restraints as necessary per restraint guidelines.
5. Consider **Oral Glucose** for patient
6. Be prepared to hyperventilate and/or assist ventilations with oral or nasal airway and BVM.
7. Apply Cardiac Monitor and check rhythm.
8. Start Saline Lock or IV of **0.9% N**S, TKO, and draw blood chemistry tube. **If peripheral IVs cannot be established and pt is unresponsive and hemodynamically unstable access start IO.**
9. Treat signs and symptoms of shock.
10. {Determine blood sugar level**.}**
11. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer IV Bolus:
    - Use 1ml/Kg **50% Dextrose** for children over 25Kg
    - Use 2ml/Kg **25% Dextrose** for children under 25Kg, or 1ml/Kg of **50% Dextrose** diluted with equal volume of sterile water or saline.
    - For infants (< 1 year), use 2 ml/Kg **25% Dextrose** diluted with equal volume ofsaline. If dilution is not feasible and straight **D25** is used, it must be given very slowly (minimum 1 – 2 minutes).

    B. **Dextrose** may be repeated in 10 minutes if patient fails to respond, or blood sugar remains < 60mg/dl.
    C. IF unable to obtain IV, give **Glucagon**, 1mg IM.
12. If any of the following are present: patient is unresponsive, appears dry, has a low BP, poor capillary refill give IV fluid bolus 20ml/Kg of **0.9% N**S. Do not delay transport for IV start, accomplish enroute.
13. Consider patient **restraint** before administration of **Narcan**.
14. If blood sugar is > 60mg/dl, respirations are impaired, or patient does not respond to **Dextrose** or fluid bolus, or history of ingestion of narcotic, administer **Narcan**, 0.1mg/Kg IV/IO/ETT/Sublingual.
15. If patient improves somewhat with **Narcan**, but is not fully awake, a repeat dose may be given.
16. Re-evaluate patient condition, contact Medical Control, and transport.

6.2 - DIABETIC EMERGENCIES

1. Secure and maintain airway. Support with 100% **O2** by NRB mask.
2. Apply Cardiac Monitor and check rhythm.
3. Start Saline Lock or IV **0.9% N**S, TKO, and draw blood chemistry tube. **If peripheral IVs cannot be established and pt is unresponsive and hemodynamically unstable, start IO.**
4. Treat signs and symptoms of shock.
5. **{Determine blood sugar level.}**
6. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
   A. Administer IV Bolus:
      - Use 1ml/Kg **50% Dextrose** for children over 25Kg
      - Use 2ml/Kg **25% Dextrose** for children under 25Kg, or 1ml/Kg of **50% Dextrose** diluted with equal volume of saline.
      - For infants (< 1 year), use 2 ml/Kg **25% Dextrose** diluted with equal volume of saline. If dilution is not feasible and straight **D25** is used, it must be given very slowly (minimum 1 – 2 minutes).

   B. **Dextrose** may be repeated in 10 minutes if patient fails to respond, or blood sugar remains <60mg/dl.
   C. IF unable to obtain IV, give **Glucagon**, 1mg IM.
7. If patient has a low BP and poor capillary refill, give IV fluid bolus 20ml/Kg of **NS**. Do not delay transport for IV start, accomplish enroute.
8. **Unconscious diabetics are often hypothermic. Be prepared, and treat hypothermia when indicated.**

6.2.1 – DIABETIC EMERGENCIES: REFUSAL AFTER TREATMENT

This section intentionally left blank.

6.3 - ALLERGIC REACTION/ANAPHYLAXIS: WHEEZES PRESENT

1. Secure airway, and support with 100% **O2** by NRB mask.
2. If severe allergic reaction, administer **Epi-Pe**n.
   - **Epi-Pen J**R. 0.15mg for patients < 30 Kg (< 66 pounds).
   - **Adult Epi-Pen** 0.3mg for patients > 30 Kg (> 66 pounds).
3. Apply {Pulse Oximete**r**}.
4. Apply ice pack to stings to slow swelling and spread of poison.
5. Start Saline Lock or IV **0.9% NS**, TKO. DO NOT DELAY TRANSPORT
6. Severe systemic allergic reaction:
   A. Administer 0.01 mg/Kg (0.01 ml/Kg) 1:1,000 **Epinephrine** subcutaneously (SUB-Q) (Maximum dose 0.3 mg, 0.3ml) if patient has not received **Epi-Pen** or it has been 20 minutes since last dose.
   B. ♦ Dose can be repeated during transport if patient's condition does not improve with approval from medical control.
7. If signs of hypovolemia or hypoperfusion are present, give IV fluid bolus of **NS**, 20ml/Kg.
8. Apply Cardiac Monitor and check rhythm.
9. If patient develops wheezing, administer **Proventil (Albuterol)** 3.0 ml solution with high flow **O2** at 8-12 lpm.
10. May also provide **Atroven**t, 0.5 mg in the nebulizer with an **O2** flow rate of 8-12 lpm. **Proventil** and **Atrovent** may be placed in the nebulizer simultaneously.
11. Severe systemic allergic reaction:

A. **Benadryl (Diphenhydramine)** 1mg/Kg IV (or IM), enroute, maximum dose 50 mg.

12. If patient goes into cardiac arrest, intubate, possibly with smaller than normal ET tube.

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Assisting with EpiPen: When assisting patient with severe allergic reaction with their own prescribed EpiPen, do the following:

- Assure medication is prescribed for patient
- Check medication for expiration date.
- Contact Medical Control, if possible.
- Administer medication in mid-thigh and hold injector firmly against leg for at least 10 seconds to assure all medication is injected.
- Record patient reaction to medication and relay to Medical Control – be sure to have vital signs.

6.4 - SEIZURES

GENERAL CONSIDERATIONS

1. Protect and support the patient.
2. Aspiration precautions should include:
   A. Recovery position.
   B. Suction as needed.
   C. If possible, mouth cleared of foreign bodies (food and gum)
3. Pediatric patients who present with new onset of seizures or have no history of known seizure activity need to be transported for evaluation.

SPECIFIC CARE

1. Clear and maintain airway. Consider C-spine injury.
2. Administer 100% **O2**.
3. Be prepared to assist ventilations.
4. Obtain history from family and/or bystanders
   A. Seizure history.
   B. Description of onset of seizure.
   C. Medication.
   D. Other known history (i.e., fever, head trauma, drugs, etc).
5. Evaluate for evidence of injury, especially head trauma.
6. Febrile Seizures
   A. Remove clothing.
   B. Do not cool with water or alcohol
7. Bring any medications with child to the hospital
8. Apply Cardiac Monitor and check rhythm.
9. Establish IV of **0.9% NS** at TKO.
10. **Ensure patent airway, monitor respirations. Assist as needed.**
11. If patient is actively convulsing use **Valium (Diazepam):**
    A. 0.2 mg/Kg, IV push slowly (1mg/min) (Maximum dose of 5mg) or:
12. {Determine blood sugar level.}
13. If blood sugar (BS) less than 60, no {blood sugar monitor} is available, or there is a strong suspicion of hypoglycemia despite blood sugar readings:
    A. Administer IV Bolus:
    - Use 1ml/Kg **50% Dextrose** for children over 25Kg
    - Use 2ml/Kg **25% Dextrose** for children under 25Kg, or 1ml/Kg of **50% Dextrose** diluted with equal volume of sterile water or saline.

- For infants (< 1 year), use 2 ml/Kg **25% Dextrose** diluted with equal volume of sterile water or saline. If dilution is not feasible and straight **D25** is used, it must be given very slowly (minimum 1 – 2 minutes).

B. **Dextrose** may be repeated in 10 minutes if patient fails to respond, or blood sugar remains < 60mg/dl.

C. If unable to obtain IV, give **Glucagon**, 1mg IM.

14. ♦ **If patient is still actively seizing:** Repeat **Valium** as ordered by Medical Control.
15. Be prepared to assist ventilation if apnea or inadequate respirations occur

6.5 - POISONING/OVERDOSE

GENERAL CONSIDERATIONS

1. WHEN DEALING WITH CONTAMINATED ENVIRONMENTS, EMTs MUST HAVE APPROPRIATE PROTECTIVE CLOTHING. IF NOT AVAILABLE, CONTACT HAZ-MAT.
2. **Patient should be searched for weapons.** Consider having police perform search, but don't assume that their search was adequate.
3. Consider the possibility of accidental or intentional poisoning whenever any of the following conditions are present:
   - History of observed or admitted accidental or intentional ingestion.
   - Coma.
   - History of known suicide gesture.
   - Suggestive intoxicated behavior (hyperactive, hypoactive, unstable walk, lethargic)
4. **Bring all patients' prescription medications and bottle or remaining poison to the hospital, unless this results in an unreasonable delay of transport. Consider having police take custody of substance and means.**

SPECIFIC CARE

1. Establish airway
2. Obtain relevant history
   A. What, when, why taken (if known)
   B. Quantity taken (if known)
   D. Victim's age and weight
3. Make a thorough search for any and all potential poisonous substances (i.e. medications, drugs).
4. Evaluate patient's:
   A. Breath sounds (rales)
   B. Level of consciousness and gag reflex
   C. Pupil size
   E. Evidence of head injury
5. {Check finger stick blood sugar}.
6. If an **Ingested Poison** – Transport.
7. If an **Inhaled Poison**:
   A. Remove from toxic area
   B. Secure airway, support with 100% **O2**
   C. Assist in ventilation if necessary
8. If an **Absorbed Poison:**
   A. Remove victim's clothing - protect EMS personnel from contaminated clothing. Consider Haz-Mat Team contact.
   B. Identify substance.
   C. Flush skin with water before and during transport if possible - at least 10-15 minutes.
   D. If eyes are involved flush with water or **Saline** continuously.

9. If an **Injected Poison:**
   A. Secure and maintain airway.
   B. If possible, identify substance and method of injection.
10. Apply monitor and check rhythm.
11. Start IV **of 0.9% NS**, TKO, while en route to hospital. DO NOT DELAY TRANSPORT
12. If patient has an altered level of consciousness, follow the **Altered Level of Consciousness Protocol, Section 6.**1.
13. Consider patient **restraint** before administration of **Narca**n.
14. If respiration is impaired, or there is a high index of suspicion of narcotic overdose, administer **Narca**n, 0.1mg/Kg IV/IO up to 2 mg. Max. Dose.
15. If patient improves somewhat with **Narca**n, but is not fully awake, a repeat dose may be given.
16. ♦ Administer **Glucagon** 1 mg. IM or IVP/IO (preferred) if known symptomatic Calcium Channel Blocker overdose (examples above) or Beta-Blocker (examples below) overdose.
    Calcium Channel Blocker Examples:
    Amlodipine (Norvasc)
    Diltiazem (Cardizem, Dilacos)
    Felodipine (Plendil)
    Isradipine (Dynacirc)
    Nifedipine (Procardia, Adalat)
    Verapamil (Calan, Isoptin, Verelan)
17. ♦ Administer **Glucagon** 1 mg IM or IVP (preferred) if known Calcium Channel Blocker overdose (examples above) or Beta-Blocker (examples below) overdose.
    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)

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In ingested poisoning, it is not necessary to transport emesis. Document if pills or fragments were seen in emesis. Do not give Ipecac or Activated Charcoal.

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Narcan Administration: Caution should be exercised when administering Narcan to narcotic overdose patients, as rapid administration may precipitate withdrawal with hypertension, tachycardia, and violent behavior. Titrate to maintain adequate respiratory rate. and to avoid dealing with an agitated patient.

6.6 - HAZ-MAT

Contact receiving hospital immediately to allow for set up time on all Haz-Mat situations!
Any chemical burn is, by definition, a Haz-Mat incident.

1. Perform scene survey and practice Body Substance Isolation.
2. Do not attempt to treat patient until you have adequately protected yourself.
3. Consider calling for assistance.

4. **Initiate field decontaminatio**n. First step is to remove contaminated clothing.
5. If hazardous material is tenacious, thoroughly wash the patient using a solution of **Dawn Soap** (or equivalent) and water, paying special attention to skin folds and other areas where simple irrigation may not remove it. Do not abrade the skin!
6. **Do not** transport a patient until gross decontamination is completed.
7. ♦ Obtain **permission** from Medical Control before entering hospital with a potentially contaminated patient.
8. ♦ If patient is suffering effects from an identified Hazardous Material, refer to the relevant section below, and contact Medical Control for orders.
9. EMS crews should decontaminate themselves and vehicle before leaving hospital.

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Field decontamination must be initiated. An example of the often overlooked importance of decon is a patient soaked in diesel fuel.

6.6.A -- GUIDELINES FOR DEALING WITH EXPOSURE TO HAZARDOUS DRUG

There are a number of patients on IV chemo therapy at home who have had a bio spill kit issued to them. Would you know what to do when called to the home of one of these patients because the IV starts leaking and the patient and family are experiencing burning sensations from the chemo solution where it touched their skin? The following guidelines and recommendations were developed by .KMC's Oncology Specialist after the EMS run described above.

Hazardous Drug: Exposures and Spills
From the Oncology Nursing Society Chemotherapy and Biotherapy
Guidelines and Recommendations for Practice (second edition) 2005

What is the chance that EMS personnel would be exposed to a hazardous drug?

a. Patients who have continuous IV chemotherapy at home (should have a homecare agency or physician's office providing daily check-up, spill kit, and disposal of contaminated items)
b. 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
c. Patients who are taking oral chemotherapy drugs

1. **Hazardous** refers to drugs that require special handling because of potential health risks. These risks are a result of the inherent toxicities of the drugs (National Institute for Occupational Safety and Health [**NIOSH**], 2004.)
http://www.cdc.gov/niosh/docs/2004-165/2004-165d.html has a complete list of drugs.
Hazardous drugs meet one or more of the following criteria:
   a. **carcinogenicity** – can cause cancer
   b. **teratogenicity** – can cause birth defects
   c. **reproductive toxicity –** such as infertility, spontaneous abortion
   d. **organ toxicity –** skin rash, elevated liver enzymes, hair loss
   e. **genotoxicity** – damage to genes (chromosomes)
   f. drugs similar in structure or toxicity to hazardous drugs

2. According to **OSHA**, **1995**, safe levels of occupational exposure to hazardous agents cannot be determined, and no reliable method of monitoring exposure exists. Therefore, it is imperative

that those who work with hazardous drugs adhere to practices designed to minimize occupational exposure. Potential routes of exposure include:

a. absorption through skin or mucous membranes
b. accidental injection by needle stick or contaminated sharps
c. inhalation of drug aerosols, dust, or droplets
d. ingestion through contaminated food, tobacco products, beverage, or other hand-to-mouth behavior (NIOSH, 2004)

3. **PPE (personal protective equipment)** should be worn whenever there is a risk of hazardous drug being released into the environment. For EMS personnel, the situations might include:
   a. Handling leakage from tubing, syringe, and connection sites.
   b. Disposing of hazardous drugs and items contaminated by hazardous drugs.
   c. Handling the body fluids of a patient who received hazardous drugs in the past 48 hours.
   d. Cleaning hazardous drug spills.
   e. Additional situations apply to healthcare workers who mix and administer hazardous drugs.

4. Guidelines for **PPE**:
   a. **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 (NIOSH, 2004).
   b. **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.
   c. **Respirators**: Wear a NIOSH-approved respirator mask when cleaning hazardous drug spills. Surgical masks do not provide adequate protection.
   d. **Eye and face protection**: wear a face shield whenever there is a possibility of splashing.

5. **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.

6. **Accidental skin exposure:** Remove contaminated garments, place in leakproof plastic bag, and immediately wash contaminated skin with soap and water. Rinse thoroughly. Report to patient's physician (if it is the patient) or to Employee Health Clinic (if it is an employee) for examination and documentation.

7. **Accidental eye exposure:** immediately flush eye with saline solution or water for at least 15 minutes. Report to patient's physician (if it is the patient) or to Employee Health Clinic (if it is an employee) for examination and documentation.

8. **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.)

9. **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.

10. **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.

11. **Report and document spills as required** (consider EPA, OSHA, and Regional/local HazMat team if more than 5 mL)

12. **Who should you call for more help**? (the patient should have these phone numbers)
    a. the homecare agency that is supplying/monitoring the infusion
    b. the physician who ordered the infusion (usually a medical oncologist)
    c. 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)
    d. Consult with the Regional HazMat team (or local HazMat team for areas outside the Dayton area).

6.6.1 - HAZ-MAT: HYDROFLUORIC ACID (HF)

1. Substance is **extremely** hazardous! Deaths have been reported after burns involving < 3% Body Surface Area. Assure safety of all personnel!
2. Begin decon **immediatel**y, as soon as it can be accomplished without putting EMS personnel at risk! Strip the patient of any clothing which may be contaminated, avoiding contact of clothes and the patient's face.
3. Irrigate the chemical burn with water as quickly as possible. **DON'T DELAY IRRIGATION!**
4. Continue to flush affected skin and eyes with copious amounts of water or **Saline** for at least 30 minutes.
5. Place Cardiac Monitor on patient.
6. Establish IV/IO of **0.9% NS** at TKO, as necessary to treat hypovolemia.
7. If ingested, **do not** induce vomiting. Dilute with water or milk..
8. Treat as indicated for shock, pulmonary edema, and cardiac dysrhythmias.
9. For pain relief when the patient is conscious, alert, is not hypotensive, and is complaining of severe pain, consider **Morphine Sulfat**e, **0.1mg/kg, <2 yo ,** slow IVP [2-3min.] Maximum Dose 5 mg slow IVP (2-3 minutes) based on patient weight, provided SBP>100).
10. ⊄ May repeat **Morphine Sulfate** up to 5 mg slow IVP (2-3 minutes) based on patient weight, provided SBP>100). Contact Medical control for orders.

6.6.2 - HAZ-MAT: CYANIDE

1. Substance is **extremely** hazardous Assure safety of all personnel!
2. Conscious Victims – {100% **O2** by mask}.
3. Unconscious Victims of Known or Strongly Suspected Cyanide Poisoning.
   A. Evaluate ABCs.
   B. If patient in cardiac arrest - CPR continuously, apply **{AED}**.
4. If patient is apneic and in arrest - Endotracheal intubation is indicated and provide 100% **Oxygen** by BVM.
5. 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:
   A. Provide 100% **oxygen** by Bag-Valve, preferably via endotracheal tube if apneic and without pulse.
   B. CPR if indicated. In cases of cardiac arrest associated with cyanide poisoning, the cyanide antidotes must have a very high priority.

6. Transport immediately unless an Advanced Life Support unit is en route and has an ETA of less than 5 minutes.

6.6.3 - HAZ-MAT: ORGANOPHOSPHATE OR NERVE GAS POISONING

1. **Mass Casualty Incidents (MCI's)** involving of known or strongly suspected organophosphate or carbamate (e.g., insecticides such as parathion or malathion); or nerve agent (e.g., 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.
2. Substance is **extremely** hazardous. Assure safety of all personnel before entering or attempting to treat victims.
3. ♦ **In a Mass Casualty Incident (MCI)** involving Nerve Agents or Organophosphates, First Responders, EMT-Basics, or EMT-Intermediates may administer **Atropine** every 3-5 minutes, as available, until lungs are clear to auscultation by **Mark I** auto-injector Item 1, or by Atropen Autoinjector for children.
   - Atropine is given by the 2 mg Autoinjector, for adults and children weighing over 90 pounds.
   - Children weighing 40 – 90 pounds should be given the 1.0 mg Atropen autoinjector.
   - Children weighing less than 40 pounds should be given the 0.5 mg Atropen autoinjector.
4. ♦ **Atropine** should be followed in adults or children weighing greater than 20 Kg with 600 mg IM **Pralidoxime (2-PAM), which is Mark I auto-injector Item 2**.
5. ♦Treat any seizures with the **Valium Autoinjector**.

✪

The Mark I Kits and other agents for use against Weapons of Mass Destruction (pediatric Atropens, multi-dose vials of Atropine, and Sodium Thiosulfate for cyanide poisoning) are now included in the Drug Box.

Use extreme caution! Having Mark I Kits available does not suggest that entry can be made into a hazardous environment with impunity or safety. They are to provide protection for public safety personnel who walk into a scene and become unexpectedly contaminated. They are also intended for the treatment of civilian patients at the scene.

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. 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 ten (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 ten (1) seconds to ensure Pralidoxime Chloride 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 Other Resources for Mass Casualty Incidents

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 1000 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.

All EMS personnel must now know how to recognize the use of chemical agents, when to utilize antidotes, and how they are administered. **Under a new Ohio Law, and the revised Region 2 EMS Standing Orders, EMT-Intermediates, EMT-Basics, and First Responders may all 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 (e.g., to public safety personnel).**

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. 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 I Kits containing a 2 mg Atropine Autoinjector, and another Autoinjector with 2-PAM
- CANA's – (which believe it or not, stands for "Convulsive Antidote, Nerve Agent") containing 10 mg Diazepam (Valium) for treating convulsions

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 Medical Control Physicians. **It is the specific responsibility of the Medical Control Physician (MCP) at the hospital whose CHEMPACK is to be used to authorize release of the CHEMPACKS, and authorize use of the antidotes by field providers.**

To request a CHEMPACK, EMS or hospitals simply contact the "Regional Rescue Coordination Center" at **937-333-USAR.** 333-USAR will notify the closest CHEMPACK hospital and notify a Transport agency for you. You must advise **937-333-USAR** 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 333-USAR.

If a hospital opens its own CHEMPACK, it also must notify 333-USAR, 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 below is excerpted from the RPAB 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 Kit — CANA for seizures (Valium Autoinjectors) Atropine — Valium or Versed for seizures
Incident Is Appropriate for CHEMPACK Utilization IF BOTH of the following are present:	
	• A large number (50 or more) of confirmed or potential adult or pediatric patients **AND** • Nerve agent/Organophosphate identified or Patients are exhibiting signs or symptoms consistent with an exposure to a nerve agent
	If so, immediately contact your Dispatch and request CHEMPACK deployment to the scene.
Communication with SOURCE HOSPITAL Medical Control	
	EMS personnel MUST contact the Hospital which 333-USAR says will be the source of the CHEMPACK
	Provide the following information: ▪ Estimated number of confirmed or potential adult patients ▪ Estimated number of confirmed or potential 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

Sensitive information: not to be released to press or public.

Receive CHEMPACK from Transport Agency	
	CHEMPACK antidotes **may not be administered** until you have authorization **from the Medical Control Physician at the CHEMPACK Supplying Hospital**
	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 Medical Control Physician (MCP) to administer Nerve Agent/Organophosphate antidotes. ▪ Calling for separate orders for each individual patient would be 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** Autoinjector ➢ 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 IV/IM Atropine 0.02 mg/Kg for children 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** ➢ Infants and young children should receive Pralidoxime, 25-50 mg/kg IV drip or IM Treat any seizures with **Valium, Versed**, or **Valium 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) than Nerve Agent poisonings, but no more 2-PAM than the 3 Mark I's • 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 Supplying Hospital Properly dispose of all Medical Waste
Medical Control Physician at Hospital Storing CHEMPACK:	
	Is solely responsible for authorizing opening CHEMPACK
	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.)

Sensitive information: not to be released to press or public.

6.6.4 - HAZ-MAT: BIOLOGICAL AGENTS

This section intentionally left blank.
See Section in Adult Orders regarding families of Public Safety personnel.

6.6.5 - HAZ-MAT: PEPPER SPRAY

1. **Departments may purchase and utilize {Sudecon Wipes} to assist in the decontamination of patients or public safety personnel who have been sprayed with Pepper Spray.**

6.7 - ABDOMINAL PAIN

1. Airway with C-spine control, if indicated. Provide **O2** as indicated.
2. Transport in position of comfort.
3. Give nothing by mouth.
4. Transport in position of comfort. Start an IV of **0.9% NS** at a keep open rate if there is significant potential for hypotension.
5. If hypotensive, follow shock protocol. **See Section 3.**4.
6. Monitor Cardiac Monitor during transport
7. If patient is adolescent female, ask for an estimate of blood loss, and perform a visual perineal exam if any of the following are present:
   A. Patient pregnant, voices possibility of pregnancy, or has had multiple missed menstrual periods, **and** has significant abdominal pains.
   B. Presenting large clots and/or suspected products of conception.
   C. Any history of trauma below umbilicus with vaginal bleeding.
   D. Patient states use of more than two pads saturated with blood per hour.
   E. Visual observation of large vaginal blood loss.
   F. If any of the above are present, consider transport to an adult facility.
8. Pregnant patients > 20 weeks gestation should be taken to a Maternity Department if feasible; < 20 weeks should go to the Emergency Room.

The position of comfort for most patients with abdominal pain is supine with knees flexed, unless there is respiratory distress.

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 mm Hg. And/or a concurrent rise in pulse rate (after 1 minute of 10 – 15 beats per minute indicates a significant (at least 10%) volume depletion (postural hypotension) and a decrease in perfusion status.

6.8 - FEVER

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

7.0- OBSTETRICAL EMERGENCIES

See Section 7 of the Adult Orders.
Unless delivery is imminent, transport to a hospital with obstetrical capabilities.
Delivery is imminent when the baby is crowning during a contraction.

8.0 – CHILDBIRTH

See Adult Orders, Section 8.0

8.0.A - NEWBORN RESUSCITATION

GENERAL CONSIDERATIONS

1. *Thermal regulation is an important aspect of the new bor*n. Body heat must always be maintained. As soon as the baby is born, wipe the baby dry and place in a warm environment. Ways to maintain body heat:
   A. Cover infant's head with a cap, place infant against mother's skin, and cover both.
   B. Use car seat with heat packs under and beside infant. Be sure to place towels between heat packs and infant.
   C. Use {heated, humidified} **O2** if available.
2. Always position infant in the sniffing position (1" towel under shoulders). This will allow for an adequate open airway and drainage of secretions.
3. Suction infant until all secretions are clear of airway.
   A. Meconium aspiration is a major cause of death and morbidity among infants. If thick meconium is present and not removed adequately a high percentage (60%) of these infants will aspirate the meconium.
   B. If the newborn delivers with meconium-stained amniotic fluid and is vigorous, with strong respirations, good muscle tone, and heart rate greater than 100 bpm, suction the mouth and nose in the same way as for infants with clear fluid.
   C. If the newborn delivers with meconium-stained amniotic fluid and is depressed, has poor respiratory effort, decreased muscle tone, or heart rate less than 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. Each time this suctioning is done, the infant will have to be re-intubated with a new tube. This lower airway suctioning is only done when thick meconium is present. Watery or thin meconium does not require routine endotracheal intubation.
   D. Mechanical suction may be used on infants but only if the suction pressure does not exceed 100 mmHg or 136 cm H2O. Bulb suctioning is preferred.
4. 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.
5. Avoid direct application of cool oxygen to infant's facial area as this may cause respiratory depression due to a strong mammalian dive reflex immediately after birth.
6. Refer to length-based drug treatment guide (e.g. Broselow Pediatric Emergency Tape) when unsure about patient weight, age and/or drug dosage.

SPECIFIC CARE

1. {Suction airway during delivery; continue suctioning with infant's head down until airway is clear and infant is breathing adequately}.
2. After delivery of the infant, assess the airway and breathing while drying and positioning head down. If amniotic fluid not clear, continue to suction prior to ventilating and stimulating.
3. If heart rate is <100, BVM ventilation is necessary to increase heart rate.
4. Despite adequate ventilation, if heart rate is < 60 bpm cardiac compressions should be initiated.
5. BVM ventilation is also indicated for apnea and persistent central cyanosis
6. BVM ventilation rate should be between 30 – 60 breaths per minute. Cardiac compression rate should be at a rate of 120 times per minute (Compression to Breath Ratio 3:1)
7. Establish communications with Medical Control and advise of patient condition. Transport immediately unless a Paramedic is enroute and has an ETA of less than 5 minutes to the scene.
8. Apply Cardiac Monitor and check rhythm.
9. If asystole or spontaneous heart rate is < 60 bpm despite adequate ventilation and stimulation establish IV/IO of **0.9% N**S. Do NOT DELAY Transport to establish IV).
10. If infant shows signs of hypovolemia, administer saline 10 ml/Kg over 5 minutes.

A. Consider **NARCAN:** 0.1mg/Kg IV/IO repeated every 3 minutes until respirations improve, if respirations are depressed and narcotic dependence is suspected.

11. Check blood sugar level and administer 1ml/Kg of **12.5% DEXTROSE (D25** diluted with equal amount of sterile water or saline) if level is below 40mg/dl.

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

9.0 -- PSYCHIATRIC EMERGENCIES

1. **Patient should be searched for weapons.** Consider having police perform search, but don't assume that their search was adequate.
2. Contact local law enforcement for assistance with violent patients, if not already contacted.
3. Obtain relevant history:
   A. Note any suicidal or violent intent
   B. Previous psychiatric hospitalization, when and where
   C. Where does patient receive psychiatric care?
   D. What drugs does patient take (including alcohol)?
4. **Is patient a danger to self or others?**
5. Calm the patient.
6. Evaluate patient's Vital Signs and general appearance.
7. Transport patients to appropriate facility.
8. Contact Medical Control.
9. ALL patients who are not making rational decisions and who are a threat to themselves or others should be transported for medical evaluation.
10. Threat of suicide, overdose of medication, drugs, or alcohol, and/or threats to the health and well being of others are NOT considered rational.

9.1 - VIOLENT PATIENTS

"Quick Look" for Determining Patient Incompetency

- acutely suicidal patient
- confused patient
- developmentally or mentally disabled patient who is injured/ill
- intoxicated patient who is injured/ill
- physically/verbally hostile patient
- unconscious patient
- **any child under age 18, with urgent need for medical care**

1. **Patient should be searched for weapons.** Consider having police perform search, but don't assume that their search was adequate.
2. Consider need for restraint. Call for police.
3. Patients should never be transported while restrained in a prone position with hands and feet behind the back, or sandwiched between backboards and mattresses. Restraint techniques must never constrict the neck or compromise the airway.
4. EMS personnel must have the ability to rapidly remove any restraints if the patient vomits or develops respiratory distress (e.g., there must be a handcuff key in the vehicle during transit).
5. Handcuffs are generally not appropriate medical restraints. If they are used, the handcuff key must accompany the patient during treatment and transportation.
6. Explain and Document need for restraint to patient.
7. Any form of restraint must be informed restraint.
8. Employ "reasonable force." Reasonable force is the use of force equal to or minimally greater than the amount of force being exerted by the patient.
9. Request that police fill out a "Pink Slip."
10. Attempt to rule out the following conditions by the given method:
    - Hypoglycemia must be ruled out by blood glucose measurement or by administering **Dextrose**.
    - Hypoxia must be ruled out by **{O2** saturation measurement**}** oxygen saturation or by supplemental **O2**.
    - Hypotension must be ruled out by checking the BP.
    - Head injury must be ruled out by physical exam and incident history.
    - Anticholinergic poisoning must be ruled out by physical exam and incident history.
    - CVA must be ruled out by the absence of risk factors and focal neural deficits.
    - ⊄ Ethanol withdrawal must be ruled out by patient history. **Benzodiazepines (Valium 0.1 mg/kg**. may be given under direct order from Medical Control) should be used initially in these patients.
    - Hypercapnia /hypercarbia (elevated levels of CO2 caused by inadequate ventilation/respirations) can cause a respiratory failure patient (especially young asthmatics) to be combative **despite normal Pulse Ox readings**.

9.2 – CHILD ABUSE / NEGLECT

1. Report all alleged or suspected child abuse or neglect to the appropriate agency. This can be accomplished by completing the Social Services Referral Form provided by GMVEMSC.
2. EMS personnel **must** report any alleged abuse or neglect (including adults) to the appropriate agency. Generally contact the police, rather than social services, if victim is not pediatric. **Simply giving your report to hospital staff does not meet your burden under the law.**

9.3 - SAFE HARBOR

1. **Voluntary Separation of Newborn Infant**
   A. 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.
   B. Stipulations of separation:
      - Infant must be 3 days old or less
      - No signs of abuse or neglect
   C. History which should be obtained:
      - Date and time of birth
      - Any family medical history
      - Information concerning prenatal care

- Information concerning birth

D. Information should be obtained in a manner, which will not lead to the revealing the identity of the parents. Information collected should be based on patient (infant) care needs and assure confidentiality.

E. Transport infant.

Ethan Allen Pediatric IV/IO Drug Dosage Mnemonic

This is just a quick reminder, not a replacement for your Standing Orders Pocket Guide!

"**E**than **A**llen **N**ever **A**te **V**ery **M**uch **B**reakfast, **L**unch or **D**inner."

Pennies

E – Epinephrine	0.01 mg/Kg (0.1 mg/Kg by ETT)
A – Atropine	0.01 – 0.02 mg/Kg (min. 0.1 mg)

Dimes

N – Narcan	0.1 mg/Kg
A – Adenosine	0.1 mg/Kg
V – Versed, Valium	0.1 mg/Kg (know max dose)
M – Morphine	0.1 mg/Kg

Dollars

B – Bicarb	1.0 mEq/Kg
L – Lidocaine	1.0 mg/Kg (1.5 mg/Kg also common)
D – Dextrose 50%	1.0 ml/Kg, diluted 1:1 or 2 ml/Kg 25%

0.01 = penny
0.1 = dime (0.10)
1.0 = dollar (1.00)

Calculations

Weight 2.2 lbs. = 1 Kg

To Calculate mcg/kg/min to ml/hr from premixed medications:

(mcg/kg/min) x (weight in kg) x 60 min/hr)
(1000 mcg/mg) x (#mg/ml medication)

Pediatric Rule of Nines

Child

Head (back & front)	12%
Chest & Abdomen	18%
Back	18%
Arms (back & front) each	9%
Legs (back & front) each	16%
Buttocks (each side)	2%
Genitals	1%

Infant

Head (back & front)	18%
Chest & Abdomen	18%

Back	18%
Arms (back & front) each	8%
Legs (back & front) each	14%
Buttocks (each side)	2%
Genitals	1%

Trauma Fluid Resuscitation

20 ml/Kg IV Bolus if systolic pressure below normal

Defibrillation Guidelines

Defibrillation 2 – 4 joules/Kg
Start with 2 joules/Kg, then go to 4 joules/Kg if no effect.

Synchronized Cardioversion 0.5 – 1 joules/Kg
Use with SVT, start with 0.5 joules/Kg, then double, if no effect

Patient Report Guidelines

- Children's Medical Center asks that you call with report for all patients being transported to the emergency department.
- Please report the following:
  - Squad name
  - Age and Sex of the Patient
  - Mechanism of Injury
  - Injuries Sustained
  - Vital Signs
  - Treatment
  - Estimated Time of Arrival

Prehospital Medications

Drug	Dose	Route	Indications	Notes
Adenosine	0.1 mg/Kg	IV	SVT	Rapid push/rapid flush
Albuterol	2.5 mg	Neb	Asthma, wheezing	
Atropine	0.02 mg/Kg	IV, IO, ET	Bradycardia	Max dose 2 mg; Min Dose 0.1 mg
Atrovent	0.5 mg	Neb	Asthma, wheezing	
Calcium Chloride 10%	0.2 ml/Kg	IV	Suspected OD calcium channel blockers	Max 500
Diphenhydramine	1 mg/Kg	IV, IM	Allergic reaction	Max dose 50 mg
Dextrose 25%	2 mg/Kg	IV	Diabetic	Children < 25 Kg
Dextrose 50%	1 mg/Kg	IV	Diabetic	Children > 25 Kg
Diazepam	0.2 mg/Kg	IV	Seizure	Max dose 5 mg/slow IVP
	0.5 mg/Kg	PR	Seizure	Max dose 10 mg
Epinephrine 1:10,000	0.01 mg/Kg	IV, IO	Bradycardia, arrest	May repeat every 3-5 min.
Epinephrine 1:1,000	0.1 mg/Kg	ET	Arrest	May repeat every 3-5 min
	0.01 mg/Kg	SUB-Q	Allergic reaction	Max dose 0.3 mg
Glucagon	1 mg	IM	Diabetic	
Lidocaine	1 mg/Kg	IV, IO, ET	Arrest	
Morphine Sulfate	0.1 mg/Kg	IV	Injury	Max dose 5 mg/isolated injury only
Naloxone	0.1 mg/Kg	IV, IO, ET	Altered LOC	0.1 mg/Kg; Max of 2.0 mg
Sodium Bicarbonate	1 mEq/Kg	IV, IO	Suspected OD tricyclic antidepressants	0.1 mg/Kg; Max of 2.0 mg
Tetracaine	2 gtts	TOP	Eye irrigation; not to be used if penetrating injury	

Greater Miami Valley EMS Council & Ohio EMS Region 2
EMS CHECKLIST: SUSPECTED CARDIAC ARREST CHEST PAIN OR EQUIVALENTS

Patient Name:_____ EMS Agency/Unit:_____

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

(Y)es or (N)o

_____ 1. HISTORY & PHYSICAN EXAM compatible with Acute MI? Pain Scale (1-10):_____

_____ 2. INITIAL THERAPY per Standing Orders?
Oxygen, Aspirin, Nitro, IV, possibly Morphine. Check for Aspirin Allergy and Viagra use. Monitor cardiac rhythm.

_____ 3. 12-LEAD EKG CHANGES compatible with Acute MI?
Use 12-Lead liberally in women, diabetics and the elderly. (N/A if no 12-Lead available).

_____ 4. TRANSPORT as rapidly as is possible and safe.

_____ 5. If patient has 12-Lead EKG evidence of Acute MI, follow destination consideration regarding transport to an Interventional Facility, especially if patient has contraindication to thrombolytics, pulmonary edema or signs of shock.
Presently, those facilities include DHH, GSH, GvH, KMH, MVH, Springfield Mercy & Springfield Community.

_____ 6. CONTRAINDICATIONS: Circle any Contraindications to Thrombolytic Therapy (e.g., tPA) that your patient has:

Absolute & Relative Contraindications to Thrombolytic Therapy (Adapted from ACLS)		
Time Frame	**Absolute Contraindications**	**Relative Contraindications**
Right Now	___Suspected aortic dissection ___Known intracranial neoplasm ___Pregnancy (certain lytic agents)	___Sever, uncontrolled hypertension ___(BP > 180/110) ___Current anticoagulant use ___Prolonged (>10 minutes) and potentially traumatic CPR
Past 2 – 4 Weeks	___Active internal bleeding (except menses)	___Trauma, especially head trauma ___Major surgery ___Noncompressible vascular punctures ___Internal bleeding
Past Year	___Non-hemorrhagic stroke or TIA ___Prior exposure to specific lytic agent	___Intracerebral pathology
Ever	___Hemorrhagic stroke ___Prior allergic reaction to streptokinase	___Known bleeding disorder

_____ 7. NOTIFY the hospital of the transport of all possible MI patients, with or without 12-Lead EKG.
- **_____ a) Give verbal report**
- **_____ b) Include evaluation of EKG.**
  (Label copy of EKG Strip/12-Lead EKG with patient name and leave at hospital)
- **_____ c) Complete this Checklist**

_____ 8. If patient has 12-Lead EKG evidence of Acute MI, follow destination considerations regarding
- **_____ a) Complete Cardiac Arrest Checklist**
- **_____ b) Advise MCP ASAP that you are transporting a CARDIC ALERT patient.**
- **_____ c) Attempt to limit scene time 10 minutes or less**
- **_____ d) Follow appropriate Treatment Considerations for Specific AMI types.**

Revised: 12/17/03

Greater Miami Valley EMS Council & Ohio Region 2
PREHOSPITAL SUSPECTED CVA/TIA CHECKLIST – Revised 10/2005

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

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

S/S:	Unilateral weakness Unilateral numbness Facial droop Slurred speech Inappropriate words
Exam:	Facial droop Arm drift Abnormal speech

(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 (e.g. 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 (e.g., Coumadin)

Revised: 10/2005

2006 EMT-INTERMEDIATE DRUG INFORMATION

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
	Aspirin	Suspected Cardiac Chest Pain w/ symptoms consistent with an Acute Coronary Syndrome	325 mg MUST CHEW. If baby aspirin available, administer 4.	No
	Atrovent	Bronchospasm in Asthma/COPD, Pulmonary Edema Asthma Allergic Reaction/Anaphylaxis: Wheezes Present	0.5 mg combined w/first dose of Proventil nebulized	NO
New: 2006 Use of Autoinjector in MCI	**Atropine by Autoinjector One of two drugs in Mark I Kit**	**In Mass Casualty Incident (MCI), EMT-I may administer autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK** **2 Criteria for CHEMPACK utilization - BOTH must be present.** **- Large number (50 or more) of confirmed or potential adult or pediatric patients AND** **- Nerve agent/organophosphate identified or patients exhibiting signs/symptoms consistent with an exposure to a nerve agent.**	**2 mg. by autoinjector every 3 - 5 minutes, as available, until lungs are clear to auscultation**	**Yes**

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
New: 2006 Use of Autoinjector in MCI	**2-PAM (Pralidoxime) by Autoinjector One of two drugs in Mark I Kit**	**In Mass Casualty Incident (MCI), EMT-I may administer autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK** **2 Criteria for CHEMPACK utilization - BOTH must be present.** **- Large number (50 or more) of confirmed or potential adult or pediatric patients AND** **- Nerve agent/organophosphate identified or Patients exhibiting signs/symptoms consistent with an exposure to a nerve agent**	2-PAM by autoinjector 600 mg. following administration of Atropine .	**Yes**
New: 2006 Listing IM Route (should have been listed last year.	Benadryl (Diphenhydramine)	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
	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. Violent pt. with suspected hypoglycemia.	50% solution, 25 gm IVP 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 (ADULT)	REQUIRES MCP
	Epinephrine	Asthma in severe distress Allergic Reaction/Anaphylaxis.	0.3 mg of 1:1,000 SC. May be repeated during transport.	Initial Dose: No Repeat Dose: Yes
	EpiPen	Allergic Reaction/Anaphylaxis: Wheezes Present	Auto-inject (0.3 mg)	No
	Glucagon	Hypoglycemia if no IV access. Calcium Channel Blocker or Beta Blocker OD. 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. Allergic Reaction/Anaphylaxis if pt. remains hypotensive after fluid bolus and Epinephrine.	Hypoglycemia: 1 mg IM Ca. Channel Blocker or Beta Blocker OD: 1 mg IM/IVP preferred Allergic Reaction/Anaphylaxis if pt. remains hypotensive after fluid bolus & Epinephrine: 1-2 mg IV or IM	Hypoglycemia – No Ca. Channel Blocker or Beta Blocker OD – Yes Allergic Reaction/Anaphylaxis – No
New: 2006 SQ administration	Morphine	Pulmonary Edema with CHF. 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 only if transport time is greater than 30 min.** **SQ is NOT indicated for Pulmonary Edema**	Yes for repeat regardless of route.

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
New: 2006 Additional route for Narcan. May be given by {MAD}	Narcan	Respirations depressed or high index of suspicion of narcotic overdose. Suspicion of drug abuse in cardiac arrest.	NonArrest Pt. Up to 4 mg IVP varying rate according to patient severity. May administer IM, SC, or ETT if IV unsuccessful. **As an alternative to IV Narcan, Intermediates may administer Narcan 2 mg intranasally by {Mucosal Atomization Device (MAD)}** Arrest Pt. 4 mg. IVP	No
	Nitrostat (Nitroglycerin)	Chest pain or pulmonary edema with BP over 100 in pt. who is at least 25 yrs old or has prescribed Nitro. If pt's prescribed Nitrostat is not unavailable, EMT-I may access BLS Drug Bag.	0.4 mg SL q 5 min for continued chest pain up to a total of 3 tablets.	No
	Oral Glucose	In NonArrest pts. if unable to establish IV, give Dextrose and no Glucagon available.	1 tube May be repeated in 10 min. if BS remains < 60.	No
	Proventil by Nebulizer	Bronchospasm in Asthma/COPD Pulmonary Edema with wheezing Allergic Reaction/Anaphylaxis	2.5 mg (3 ml) with 8-10 l/min high flow O2 by nebulizer. Combine Atrovent with first Proventil. Repeat Proventil x 3. May repeat continuously in pulmonary edema with pt. who shows signs of benefit.	No
	Sudecon Wipes	Pepper Spray	Use as needed to assist with decontamination	No

SPECIAL INFO	DRUG NAME	INDICATION	DOSAGE (ADULT)	REQUIRES MCP
New: 2006 Rectal Valium is no longer approved route of administration for EMT-I	Valium	Seizures Violent pt. in whom Ethanol Withdrawal must be ruled out. Recent Cocaine/Crack use with significant hypertension or hemodynamically significant tachycardia (HR>100 SBP<100)	5 mg slow IVP over 2 minutes.. May repeat dose once. **Delete**: If unable to start IV, consider Valium 10 mg. Rectally using syringe with needle removed. - **Rectal route no longer in EMT-I Scope of Practice**	Seizures & Violent Pts: No Recent Cocaine/Crack use: Yes
New: 2006 Use of Autoinjector in MCI	**Valium(CANA) by Autoinjector**	**In Mass Casualty Incident (MCI), EMT-I may administer Autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK** **2 Criteria for CHEMPACK utilization - BOTH must be present.** **- Large number (50 or more) of confirmed or potential adult or pediatric patients AND** **- Nerve agent/organophosphate identified or Patients exhibiting signs/symptoms consistent with an exposure to a nerve agent**	**Valium by autoinjector**	**Yes**

SPECIAL INFO.	DRUG NAME	INDICATION	DOSAGE (PEDIATRIC) Maximum dose should not exceed adult dose.	REQUIRES MCP
New: 2006 Use of Autoinjector in MCI	Atropine by Pediatric Autoinjector (Atropens)	In Mass Casualty Incident (MCI), EMT-I may administer Autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK 2 Criteria for CHEMPACK utilization - BOTH must be present. - Large number (50 or more) of confirmed or potential adult or pediatric patients AND - Nerve agent/organophosphate identified or Patients exhibiting signs/symptoms consistent with an exposure to a nerve agent.	There are two different pediatric autoinjectors. One contains 1 mg. One contains 0.5 mg. Children weighing 40 - 90 lb. should be given 1 mg. by Atropen Autoinjector every 5 minutes, as available, until excessive airway secretions diminish. Children weighing less than 40 lb. should be given 0.5 mg. by Atropen Autoinjector every 5 minutes, as available, until excessive airway secretions diminish	Yes
New: 2006 Use of Autoinjector in MCI	2-PAM (Pralidoxime) by Autoinjector One of two drugs in Mark I Kit	In Mass Casualty Incident (MCI), EMT-I may administer Autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK 2 Criteria for CHEMPACK utilization - BOTH must be present. - Large number (50 or more) of confirmed or potential adult or pediatric patients AND - Nerve agent/organophosphate identified or Patients exhibiting signs/symptoms consistent with an exposure to a nerve agent	2-PAM by autoinjector for children weighing greater than 20 kg.	Yes

	Atrovent	Lower Airway Obstruction/Wheezing Allergic Reaction/Anaphylaxis: Wheezes Present	0.5 mg combined w/first dose of Proventil nebulized.	No
	Benadryl (Diphenhydramine)	Allergic Reaction/Anaphylaxis: Wheezes Present	1 mg/kg IVP (or IM) en route. Max. dose 50 mg.	No
	Dawn Soap	Decontamination of tenacious hazardous material on skin	Solution of Dawn soap & water	No

SPECIAL INFO.	DRUG NAME	INDICATION	DOSAGE (PEDIATRIC) Maximum dose should not exceed adult dose.	REQUIRES MCP
	Dextrose	Diabetic emergency, altered LOC, or seizures with BS>60 in diabetic emergency. No blood sugar monitor available or strong suspicion of hypoglycemia despite BS reading. Altered LOC, hypothermia with or without arrest, cardiac arrest if hypoglycemia suspected. Neonate w/BS<40	Children under 25 kg – 2 ml/kg 25% Dextrose or 1 ml/kg of 50% Dextrose diluted with equal volume of saline IVP. May repeat in 10 min. in non-arrest pt. if pt. fails to respond or BS remains <60. Children over 25 kg – 1 ml/kg 50% Dextrose. May repeat as stated above. Infants < 1 yr. – 2 ml/kg 25% Dextrose diluted with equal volume of saline IVP. If dilution is not feasible and straight D25 is used, it must be given very slowly (minimum 1-2 min.) Neonate – 12.5% Dextrose 1 ml/kg of D25 diluted with equal amounts of saline IVP	No
	Epinephrine	Lower Airway Obstruction/Wheezing Allergic Reaction/Anaphylaxis: Wheezes Present	Lower Airway Obstruction: 0.01 mg/kg (0.01 ml/kg) 1:1,000 SUB-Q (Max. dose 0.3 mg [0.3 ml]) Allergic Reaction/Anaphylaxis: Same dose as above in lower airway obstruction if pt. has not received EpiPen or it has been 20 minutes since last dose. May repeat en route.	For lower airway obstruction/Wheezing & for repeat dose in allergic reaction – Yes
	EpiPen	Allergic Reaction/Anaplylaxis: Wheezes Present	Children < 30 kg (< 66 lbs) EpiPen Jr. – 0.15 mg Auto-injector Children > 30 kg (. 66 lbs) EpiPen – 0.3 mg	No

SPECIAL INFO.	DRUG NAME	INDICATION	DOSAGE (PEDIATRIC) Maximum dose should not exceed adult dose.	REQUIRES MCP
	Glucagon	Diabetic emergencies, altered LOC or seizures, with BS<60. No blood sugar monitor available or strong suspicion of hypoglycemia despite BS reading & unable to obtain IV. Known Ca. Channel Blocker/Beta Blocker OD. Hypoglycemia Without Arrest & unable to start IV.	1 mg IM <u>Known Ca. Channel Blocker/Beta Blocker OD:</u> 1 mg IM or IVP/IO (preferred	Hypoglycemia: No Ca. Channel/Beta Blocker OD – Yes
	Morphine	Pain relief in trauma, local hypothermia, burns	0.1 mg/kg slow IVP over 2-3 min. May repeat. Max. total dose – 10 mg. Pt. must be 2 yrs. old or older	Initial Dose: No Repeat Dose: Yes
	Narcan	Poisoning/OD, altered LOC-Unknown Cause with respirations impaired, or pt. doesn't respond to Dextrose or fluid bolus or Hx of ingestion of narcotic. Suspicion of drug abuse in cardiac arrest Neonate w/resp. depression & narcotic OD is suspected.	0.1 mg/kg IV/IO up to 2 mg. Max dose. May repeat dose if pt. improves somewhat with Narcan but is not fully awake. <u>Neonate</u> 0.1 mg/kg IV/IO/ETT q 3 min. until respirations improve.	No
	Oral Glucose	Diabetic emergency, altered LOC-unknown cause w/ BS < 60 in diabetic emergency or if no BS monitor available, or there is strong suspicion of hypoglycemia despite BS readings.	1 tube May be repeated in 10 min. if BS remains < 60 in diabetic emergency or < 70 in altered LOC.	No
	Prescribed Bronchodilator	Lower Airway Obstruction/Wheezing and pt. has prescribed bronchodilator	Assist w/ self administration	No

SPECIAL INFO.	DRUG NAME	INDICATION	DOSAGE (PEDIATRIC) Maximum dose should not exceed adult dose.	REQUIRES MCP
	Proventil	Lower Airway Obstruction/Wheezing Allergic Reaction/Anaphylaxis: Wheezes present	Lower Airway Obstruction/Wheezing 2.5 mg (2 ml) with 8 l/min high flow O2 nebulized. Combine Atrovent with 1st Proventil. If wheezing continues: May repeat Proventil aerosol x 3 Allergic Reaction/Anaphylaxis: Wheezes Present Same dose as above	No
Optional Drug	Sudecon Wipes	Pepper Spray	Use as needed to assist with decontamination	No
New: 2006 Rectal Valium is no longer approved route of admin-istration for EMT-I	Valium	Seizures – pt. actively convulsing. Violent pt. in whom Ethanol Withdrawal must be ruled out.	5 mg slow IVP over 2 minutes.. May repeat dose once. **Delete**: If unable to start IV, consider Valium 10 mg. Rectally using syringe with needle removed. **- Rectal route no longer in EMT-I Scope of Practice**	Seizures: No Violent Pt.: No
New: 2006 Use of Autoinjector in MCI	**Valium(CANA) by Autoinjector**	**In Mass Casualty Incident (MCI), EMT-I may administer Autoinjector from the GMVEMSC Drug Bag, county or regional cache, or CHEMPACK** **2 Criteria for CHEMPACK utilization - BOTH must be present.** **- Large number (50 or more) of confirmed or potential adult or pediatric patients AND** **- Nerve agent/organophosphate identified or Patients exhibiting signs/symptoms consistent with an exposure to a nerve agent**	**Valium by autoinjector**	**Yes**

DRUG	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
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.
Aspirin	Antiplatelet	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.
Atrovent (Ipratropium Bromide)	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.
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.
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.

DRUG	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
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.
Epinephrine (Adrenalin)	Directly stimulates alpha and beta adrenergic receptors in dose-related fashion. Causes brochodilation, 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
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.
Morphine Sulfate	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).

DRUG	THERAPEUTIC ACTION	CONTRAINDICATION	PRECAUTIONS/SIDE EFFECTS
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).
Nitroglycerin (Nitrostat)	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.

Avulsed Teeth

If the patient's injury involves a single tooth, you may attempt to re-implant. Simply rinse or brush any obvious dirt off, and gently push it back into the socket. Do not wipe the tooth with any pressure.

Any tooth that you do not re-implant should be transported in a saline or milk solution to the hospital.

Bring all avulsed teeth, as well as any dental appliances (dentures, retainers, etc.) to the hospital. Notify the triage nurse immediately upon your arrival of the potential for re-implantation of a tooth or teeth.

2006 GMVEMSC PROTOCOL
INTERMEDIATE PRETEST ANSWER SHEET

NAME _____ DATE _____

1.	**19.**	**37.**	**55.**
2.	**20.**	**38.**	**56.**
3.	**21.**	**39.**	**57.**
4.	**22.**	**40.**	**58.**
5.	**23.**	**41.**	**59.**
6.	**24.**	**42.**	**60.**
7.	**25.**	**43.**	**61.**
8.	**26.**	**44.**	**62.**
9.	**27.**	**45.**	**63.**
10.	**28.**	**46.**	**64.**
11.	**29.**	**47.**	**65.**
12.	**30.**	**48.**	**66.**
13.	**31.**	**49.**	**67.**
14.	**32.**	**50.**	**68.**
15.	**33.**	**51.**	**69.**
16.	**34.**	**52.**	**70.**
17.	**35.**	**53.**	
18.	**36.**	**54.**	

2006 GMVEMSC PROTOCOL INTERMEDIATE PRETEST

1. Which of the following actions should the EMS provider do with a used Drug Bag before turning it in to the hospital?

   a. Place red seals on both the compartment used and outside of bag.
   b. Place a red seal on only the compartment used
   c. Place blue seals on both compartment used and outside of bag.
   d. Place a blue seal on only the compartment used

2. Which of the following secondary confirmation devices is contraindicated in oral intubation?

   a. Colorimetric EtCO2
   b. Electronic Waveform EtCO2
   c. Esophageal Detection Device
   d. BAAM

3.. Indications for Glucagon include:

   1. Calcium Channel Blocker or Beta Blocker Overdose
   2 Stroke with suspicion of hypoglycemia
   3. Allergic Reaction/Anaphylaxis unresponsive to fluid bolus & Epinephrine
   4. Generalized hypothermia without arrest with suspicion of hypoglycemia

   a. All of the above
   b. All of the above EXCEPT 3.
   c. All of the above EXCEPT 2
   d. All of the above EXCEPT 2 and 3

4. When administering oxygen by nonrebreather mask to a patient who appears in need of high flow oxygen, set the flow rate at :

   a. 2 - 4 L/min
   b. 4 - 8 L/min
   c. 12 - 15 L/min.
   d. None of the above.

5. All of the following factors limit the use of the colormetric CO2 detection device (Nellcor Easy Cap) EXCEPT:

   a. Perfusion
   b. Patient position
   c. Emesis
   d. Carbonated beverage

6.. Causes for false positive or false negative readings when using the Esophageal Detector Device (EDD) include the following:

   a. Large amount of gastric air
   b. Cold device
   c. Both a and b
   d. Neither a nor b

7. Contraindications to the use of Dextrose include all of the following EXCEPT:.

   a. Seizures
   b. Intracranial hemorrhage
   c. Increased intracranial pressure
   d. Known or suspected CVA in the absence of hypoglycemia

8. Indications for the use of Diazepam include:

   a. Seizures
   b. Shock
   c. CNS depression as a result of head injury
   d. Respiratory depression

9. Reasons to begin resuscitation on a victim of blunt trauma found in arrest include all of the following EXCEPT:.

   a. You suspect that the arrest may have been caused by a medical condition (e.g., AMI)
   b. You suspect that the arrest may have been caused by a focused blunt trauma to the chest (e.g., baseball to the chest).
   c. You suspect the patient is in hypovolemic shock.
   d. You can deliver patient to the ED within 5 minutes of time patient is found to be in arrest.

10. You have a farmer who was spraying in his fields with an organophosphate and is exhibiting "SLUDGEMM" symptoms consistent with organophosphate poisoning. You should

    1. Administer Atropine Autoinjector
    2. Administer 2-PAM Autoinjector
    3. Administer Valium Autoinjector

       a. All of the above
       b. 1 & 2
       c. 1 only
       d. None of the above

11. All of the following drugs can cause hypotension as a side effect EXCEPT:

    a. Glucagon
    b. Mophine Sulfate
    c. Narcan
    d. Nitroglycerin

12. Contraindications to the use of Morphine include all of the following EXCEPT:.

    a. Hypovolemia
    b. Hypotension
    c. Head Injury
    d. Pulmonary Edema w/ CHF

13. When dealing with a Major Trauma patient, you are to contact the receiving hospital and provide Medical Control with "MIVT" (and ETA). The letters MIVT stand for all of the following EXCEPT::

a. Mechanism of Injury
b. Injuries
c. Vital Signs
d. Transport Mode

14. Patients with severe organophosphate poisoning:

a. Are nearly always bradycardic.
b. Are nearly always tachycardic.
c. May or may not be bradycardic.
d. Rarely have a pulse.

15. CHEMPACKS are stored:

a. In fire stations.
b. In hospitals.
c. At the Centers for Disease Control.
d. At police stations

16. CHEMPACKS contain enough antidotes to treat roughly how many victims?

a. 100
b. 250
c. 500
d. 1,000

17.. To open and use the materials in a CHEMPACK, EMS personnel must have authorization and permission from:

a. The Regional Physicians Advisory Board (RPAB)
b. The Incident Commanders or EMS Sector Commander
c. A Medical Control Physician (MCP)
d. The Medical Control Physician (MCP) at the hospital whose CHEMPACK is to be used

18. The only procedures that should take precedence to transport of Major Trauma patients are remembered by the mnemonic "EASE". Those letters stand for all of the following EXCEPT:

a. Extrication
b. Airway Management
c. Starting IV
d. Exsanguinating Hemorrhage Control

19 All of the following are **absolute** contraindications to the use of thrombolytics EXCEPT.:

a. Suspected aortic dissection
b. Current anticoagulant usage
c. Abnormal blood glucose
d. Known intracranial neoplasm

20. Treatments that are always permissible, regardless of a patient's DNR status, include:.

1. Controlling bleeding
2. Oxygen
3. Pain management
4. Splinting or immobilizing suspected fractures

a. 2, 3
b. 1, 2, 3
c. 1, 3
d. 1, 2, 3, 4

21. Contraindications to giving Nitroglycerin include all of the following EXCEPT:

a. Patient is allergic to Nitroglycerin
b .Patient has taken Viagra. or similar medication within the last 48 hours.
c. Patient's systolic blood pressure is < 100
d. Patient is less than 25 years of age and does not have a prescription for Nitro,

22. In a patient with symptomatic Carbon Monoxide poisoning, all of the following are indicated EXCEPT:

a. Humidified Oxygen
b. Pulse Oximetry
c. Establish IV to keep BP of 100
d. a and b

23. The dose for SQ Morphine is:

a. 2 mg.
b. 2 - 5 mg.
c. 5 mg.
d. 10 mg.

24. In the GMVEMSC Drug Box Exchange Program, what drug (s) that may be administered by EMT-Is is (are) listed in the Wasted Drug Procedure section as scheduled drug (s)?

1. Versed
2. Valium
3. Morphine

a. All of the above
b 1, 3
c. 2, 3
d. 3.

25 - 28. Match the following drugs with the correct dose. Use each answer only once.

25. Atrovent	a. 5 mg.
26.. Benadryl.	b. 25 gm.
27. 50% Dextrose	c. 1 mg./kg
28. Valium	d. 0.5 mg

29 - 32. Match the route for the following drugs when unable to obtain an IV.
(Answers may be used more than once.)

29. Morphine	a. Sublingual
30. Benadryl	b. Subcutaneous
31. Glucagon	c. Intramuscular
32. Epinephrine	d. Nebulized

33 . All of the following are reasons to begin resuscitation of a Traumatic Arrest patient EXCEPT:

a. You suspect that the arrest may have been caused by a medical condition (e.g., AMI) or a focused blunt trauma to the chest (e.g., baseball to the chest).
b. You can deliver victim of blunt trauma to hospital within 15 minutes of time patient is found to be in arrest.
c. You can deliver victim of penetrating trauma to hospital within 15 minutes of time patient is found to be in arrest.
d. Victim of penetrating trauma arrested after he/she was in EMS care.

34. All of the following drugs can cause hypotension as a side effect EXCEPT:

a. Narcan
b. Valium
c. Benadryl
d. Glucagon

35. With the 2006 change to the Prehospital Suspected CVA/TIA Checklist, which of the following has been changed from an absolute contraindication to a relative contraindications to the use of thrombolytics:

a. Seizure at time of onset of symptoms
b. Trauma within three months
c. BP >200/>120
d. Brain tumor

36. What effects does hyperventilation have on cerebral circulation and intracranial pressure?

a. Vasoconstriction resulting in decreased intracranial pressure
b. Vasoconstriction resulting in increased intracranial pressure
c. Vasodilation resulting in decreased intracranial pressure
d. Vasodilation resulting in increased intracranial pressure

37. Indications for Chest decompression may include all the following patients EXCEPT:.

a. The patient with tension pneumothorax
b. The traumatic full arrest patient who is appropriate for resuscitation and has potential chest trauma.
c. The asthmatic who goes into cardiac arrest.
d. All of the above are indications for chest decompression.

38. The age and/or weight limits for use of the EDD in the pediatric patient are:

a. The EDD may be used in pediatric patients who are > 5 years or weigh > 20 kg
b. The EDD may be used in pediatric patients who are > 5 years or weigh > 44 kg.
c. The EDD may be used in pediatric patients who are > 5 years or > 30 kg.
d. The EDD may be used in pediatric patients who are > 5 years or weigh > 66 kg.

39. Given a 45 lb. child who is hypoglycemic, what dose and concentration of Dextrose should be administered?

a. 25% Dextrose 1 ml/kg.
b. 50% Dextrose 1 ml/kg.
c. 25% Dextrose 2 ml/kg.
d. 50% Dextrose 2 ml/kg.

40. Reliable indicators of compensated shock in a child are:

1. Blood pressure
2. Tachypnea
3. Persistent tachycardia
4. Delayed capillary refill

a. 1, 2, 4
b. 1, 3, 4
c. 2, 3, 4
4. 1, 2, 3, 4

41. Which of the following is (are) correct rates for tachycardia?

a. > 220 for infants
b. > 180 for children under age 8.
c. > 100 for adults
d. All of the above rates are correct.

42. In a child less than 8 years of age with poor perfusion, below what heart rate should CPR is started?

a. Less than 60 BPM
b. Less than 80 BPM
c. Less than 100 BPM
d. None of the above rates are correct.

43. What sign(s) will pneumonia patients often have that will differentiate them from a CHF patient with pulmonary edema?

a. Dehydrated with low temperature
b. Dehydrated with elevated temperature.
c. Neither a nor b.
d. Either a or b

44. You arrive at a dental office, where you find a 35 year old woman who rapidly developed hives, angioedema, wheezes and stridor after an injection of local anesthetic. She is unconscious, with labored, stridorous respirations, no radial pulse, and a rapid, irregular, barely palpable carotid pulse. Which of the following drugs/dosages would be appropriate for this patient?

    a. Albuterol 2.5 mg
    b. Atrovent 5 mg.
    c. Epinephrine 1: 1,000 0.3 mg
    d. All of the above

45. What amount of Dextrose is contained in 1 ml. of 50% Dextrose?

    a. 0.25 mg.
    b. 250 mg
    c. 500 mg
    d. None of the above

46. A chef at a local restaurant has spilled hot grease down the anterior surface of his body. The wound is extremely painful, moist, and red, with many blisters. The burns cover the anterior surfaces of his chest, abdomen, both arms and left leg. The % of area burned is:

    a. 18%
    b. 24%
    c. 36%
    d. 42%

47. A 28 year old woman was involved in a frontal collision, during which her chest struck the steering wheel. She complains of crushing substernal chest pain and palpitations. Her blood pressure is normal, her pulse is 110 and irregular, and her lungs clear. You suspect:

    a. Myocardial contusion
    b. Cardiac Tamponade
    c. Tension Pneumothorax
    d. Traumatic asphyxia

48. A 27 year old was splitting wood when a metal splinter flew off the ax and penetrated his chest. On your arrival, he is confused, with a systolic blood pressure of 80 mm Hg., a narrow pulse pressure, muffled heart sounds, and distended neck veins. You suspect:

    a. Myocardial contusion
    b. Cardiac Tamponade
    c. Hemothorax
    d. Traumatic asphyxia

49. Your 65 year old patient has a history of chronic bronchitis and emphysema. She states that she has become acutely short of breath today and cannot complete a sentence without gasping for air. Loud wheezing is audible without a stethoscope. All of the following drugs may be indicated EXCEPT:

    a. Albuterol by inhaler
    b. Albuterol by nebulizer
    c. Atrovent by nebulizer
    d. Epinephrine SQ

50. Your patient who is sitting upright in bed is a man who appears to be in his late 50s and is in severe respiratory distress. He is too dyspneic to give you any history but his wife states that he woke up about half an hour ago complaining of difficulty breathing. He has a history of high blood pressure and had a previous heart attack 8 years ago. On physical examination he is in extreme distress. He is struggling to breathe and pink-tinged foam is coming from his mouth. His pulse is strong and blood pressure is 190/100. He is in sinus tachycardia. Which of the following drugs/doses may be indicated for this patient.

    a. Nitroglycerin 0.2 mg SL up to 3 doses
    b. Morphine 5 mg. SQ
    c. Epinephrine 0.3 mg.
    d. None of the above

51. Which of the following positions should the hypotensive patient, who is 5 months pregnant be transported?

    a. Prone
    b. Supine
    c. Left lateral recumbent
    d. High Fowler's

52. The phrase “Sensitive information” in the new Standing Orders information means:

    a. The material is not to be released to press or public.
    b. The material is painful
    c. The material is only for Chiefs and Training Officers
    d. The material cannot be talked about in fire stations

53. An APGAR score should be obtained on an infant:

    a. 10 minutes after delivery
    b. 1 and 5 minutes after delivery
    c. 5 minutes after delivery
    d. 1 minutes after delivery

54. While transporting your patient to the emergency department, you are asked to start an IV of Normal Saline to run at 120 ml/hr. You have a microdrip set (60 gtts/min). What is the required drip rate?.

    a. 30 gtts/min
    b. 60 gtts/min
    c. 120 gtts/min
    d. 240 gtts/min

55. The Cincinnati Prehospital Stroke Scale includes all of the following EXCEPT:

    a. Arm drift
    b. Facial droop
    c. Abnormal speech
    d. Visual disturbances

56. A patient who has been sprayed with nerve gas is likely to exhibit any or all of the following EXCEPT:

    a. Miosis (pinpoint pupils).
    b. Unilateral paralysis.
    c. Rhinorrhea (runny nose) & copious secretions.
    d. Seizures.

57. When using the mnemonic SLUDGEMM for the signs and symptoms of Nerve Agent or Organophosphate poisoning, the S stands for:

    a. Sexy
    b. Socialization
    c. Salivation
    d. Sacrimation

58. A pediatric victim of organophosphate poisoning who weighs 50 pounds should be given _____ mg Atropine: with an Autoinjector

    a. 0.5 mg
    b. 1 mg
    c. 2 mg
    d. 4 mg

59. All of the following terms are represented in the acronym SLUDGEMM EXCEPT:

    a. Lacrimation
    b. Euphoria
    c. Muscle Twitching
    d. Urination

60. You are ordered to administer 1 mg/kg of a drug for a patient who weighs 110 pounds. The drug comes packaged 50 mg/ml. What volume of the drug concentrate should you administer?

    a. 0.5 ml
    b. 1.0 ml
    c. 5 ml
    d. 11 ml

61. You are ordered to administer 0.1 mg/kg of a drug for a patient who weighs 66 pounds. The drug comes packaged 5 mg/ml. What volume of the drug concentrate should you administer?

    a. 0.4 ml
    b. 0.6 ml
    c. 0.8 ml
    d. 1.2 ml

.

62. You are ordered to administer 0.2 mg/kg of a drug for a patient who weighs 88 pounds. The drug comes packaged 10 mg/2ml. What volume of the drug concentrate should you administer?

    a. 0.6 ml
    b. 0.8 ml
    c. 1.2 ml
    d. 1.6 ml

63. When giving care to a patient with a flail chest:

a. Stabilize with a bulky dressing
b Stabilize with a sand bag
c. Tape around the chest
d. Place the patient in a sitting position

64. The method for opening an airway in an individual with a suspected neck injury is:

a. Head tilt chin lift
b. Flex head and chin lift
c. Head tilt neck lift
d. Modified jaw thrust

65. All of the following are effects of nitroglycerin EXCEPT:

a. Increases the blood pressure
b. Reduces the heart's workload
c. Dilates the blood vessels
d. Allows more blood to remain in the veins

66. When transporting a patient with significant frostbite on both of her hands, the most appropriate care is:

a. Place hands in hot water and rapidly transport
b. Quickly remove all jewelry from her hands
c. Rub her hands briskly to reestablish circulation
d. All of the above are correct

67. Which of the following treatments are permitted for a apneic or pulseless patients with DNR COMFORT CARE - ARREST orders and for DNR COMFORT CARE patients at any time.

a. Artificial airways (oral airways, nasal airways, or endotracheal tubes)
b. Oxygen
c. Cardiac monitoring
d. Respiratory assistance

68. Regular AED's (not pediatric models) may be used for pediatric patients if the patients meet the following criteria:

a. 8 years or older, weigh greater than 55 kg.
b. 12 years or older, weigh greater than 55 lb.
c. 8 years or older, weigh greater than 55 lb.
d. 12 years or older, weigh greater than 55 kg.

69. All of the following statements are true regarding splinting of a severely angulated extremity fracture with absent pulses EXCEPT:

a. Apply gentle traction in an attempt to straighten it.
b. Gentle traction should never exceed 5 pounds of pressure .
c. If resistance is encountered, splint the extremity in the angulated position.
d. If the trauma center is near, always splint in the position found.

70. The categories of patients that may be at risk to develop heat-related illness include all of the following:

1. Geriatric patients
2. Pediatric patients
3. Patients with a history of spinal injury
4. Patients with a history of diabetes mellitus
5. Patients who take certain medications, including heart medications, diuretics, cold medications and/ or psychiatric medications.

a. 1, 2
b. 1, 2, 5
c. 1, 2, 4, 5
d. 1, 2, 3, 4, 5

Greater Miami Valley EMS Council
Year 2006 INTERMEDIATE SKILL SHEETS

EMT-INTERMEDIATES: 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 Megacode – Separate EMT-Intermediate Megacode sheets used for testing.

Pediatric Megacode – Separate EMT-Intermediate Megacode sheets used for testing

IV and Medications

Trauma

Optional

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Orotracheal Intubation of the Non-Trauma Patient

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	**1st Testing Comments**	**2nd Testing Comments**
A. List the indications for endotracheal intubation, with emphasis on situation 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. Position the head.		
G. Demonstrate the performance of cricoid pressure.		
H. Assemble equipment.		
I. Insert Laryngoscope.		
J. Elevate the mandible.		
K. Insert the ET tube.		
L. Remove the stylet.		
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 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 fails to fill in < 5 seconds, ETT is likely successful.		
d. If bulb fails to fill, or takes > 5 seconds, or fills with vomit, esophageal placement is probable.		
e. Contraindicated in pregnancy, or children under 5 yoa or 20 kg.		
P. Confirm tube placement with at least 3 other methods of verification.		
Q. Secure tube in place & re-assess placement after any movement of pt.		

EQUIPMENT

1. Proper size Endotracheal tube
2. Stylet
3. Laryngoscope and handle
4. Magill forceps
5. 10 ml syringe
6. Suction equipment
7. Stethoscope
8. Gloves & Eye protection
9. Commercial tube holder or proper taping method.

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

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Automated External Defibrillators

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	**1st Testing Comments**	**2nd Testing Comments**
A. Perform an initial assessment of the patient.		
B. Begin CPR with 100% oxygen if AED delayed.		
a. If witnessed arrest & no defibrillator available, precordial thump.		
b. 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. Deliver up to three (3) shocks if indicated.		
H. Resume CPR if no response to shocks.		
I. Repeat steps E, F, and G in one minute if needed.		

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Pediatric Orotracheal Intubation

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	**1st Testing Comments**	**2nd Testing Comments**
A. List the indications for endotracheal intubation, with emphasis on situation in addition to cardiac arrest.		
B. List the equipment required to perform endotracheal intuabtion.		
C. List the potential complications of endotracheal intubation.		
D. Open the airway.		
E. Pre-oxygenate patient during preparations to intubate.		
F. Position the head.		
G. Assemble equipment, choosing the proper size ETT and laryngoscope blade.		
H. Insert Laryngoscope.		
I. Elevate the mandible slightly to visualize the cords.		
J. Insert the ET tube.		
K. Remove the stylet.		
L. Ventilate the patient.		
M. Confirm tube placement, using at least three methods of verification.		
N. Secure the ET tube.		
O. Re-assess the ET tube after any movement of pt.		

EQUIPMENT
1. Proper size Endotracheal tube
2. Stylet
3. Laryngoscope and handle
4. Magill forceps
5. 10 ml syringe
6. Suction equipment
7. Stethoscope
8. Gloves & Eye protection
9. Commercial tube holder or proper taping method.

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

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Intraosseous Infusion

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
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 fingerbreaths below the tibial tuberosity.		
D. Place a small sandbag or towel behind the knee for support.		
E. Prepare the skin with iodine or alcohol.		
F. Adjust the depth guard on the needle.		
G. Insert the needle perpendicular to the skin, 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 medication, using pressure infuser.		
J. Tape the tubing to the skin. Secure the bone marrow needle.		
K. List the signs of possible infiltration.		

EQUIPMENT

1. Bone marrow aspiration needle
2. Iodine/Alcohol prep
3. Small sandbag or towels
4. IV solution & tubing
5. 10 ml syringe
6. Tape, 4x4s
7. 2 Rolls Kerlix
8. Gloves

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.

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Saline Lock

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	**1st Testing Comments**	**2nd Testing Comments**
A. List at least five indications for a Saline Lock.		
B. List the contraindications for a Saline Lock.		
C. Gather the necessary equipment.		
D. Draw up 3 ml of 0.9 NS.		
E. Insert the angiocath.		
F. Place cap onto the hub of the angiocath.		
G. Inject the 3 ml of 0.9% NS into the IV access.		
H. Secure the IV site.		

This procedure applies to all patients that require intravenous access but do not require fluid resuscitation. NOTE: Any patients requiring IV fluids should be immediately placed on fluid administration when indicated.

Examples of indications for a Saline Lock include the following:
1. Chest pain/cardiac related
2. Syncopal episode
3. Pulmonary problems
4. Hypertensive crisis
5. Postictal seizure patient
6. Possible stroke
7. Combative or unruly patient.

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.

NOTE: The saline vial is for one time patient use. Please dispose of the vial after use. DO NOT save for another patient.

Note also that the protocols have changed. Use of the Saline Lock is now at your discretion. The list above consists of examples of indications for saline locks, but there are many other situations in which it will be appropriate. Make sure that you remember the contraindications of use.

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Nebulizer with Mouthpiece

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. List the indications for the use of Proventil & Atrovent.		
B. Unscrew plastic cap from container.		
C. Assemble the parts of the nebulizer.		
D. Empty the Proventil (Albuterol) and Atrovent into the nebulizer, stating the correct dosage.		
E. Connect the Oxygen supply.		
F. Place the nebulizer or mask to the patient.		
G. Set the Oxygen flow rate at 8-10 liters/minute.		
H. Allow patient to begin inhaling slow and deep. Every 3-5 breaths have the patient take a slow deep breath and hold it about 5 seconds, then exhale slowly.		
I. Repeat step G until all medication is gone.		

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Epi-Pen Administration

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. Evaluate the patient, with attention to S&S of anaphylaxis.		
B. Obtain the patient's EpiPen auto-injector.		
C. Assure that is prescribed to the patient.		
D. Check the medication for expiration date and for cloudiness or discoloration.		
E. Remove the safety cap.		
F. Select the injection site.		
G. Push the injector firmly against the site.		
H. Properly discard the injector.		
I. Monitor the patient and record the results of the treatment.		

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: METERED DOSE INHALER

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. Obtain inhaler from the patient.		
B. Remove the dust cap.		
C. Shake contents of inhaler.		
D. Place inhaler in patient's mouth.		
E. Instruct patient to depress the inhaler, inhale medication, and hold his/her breath for a few seconds.		
F. List the indication for the use of Proventil (Albuterol).		
G. List the contraindications and warnings for use of the Proventil aerosol.		

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: NITROGLYCERIN Administration

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. Evaluate the patient. Verify SBP > 100.		
B. Place patient on Oxygen.		
C. Verify patient has physician-prescribed Nitroglycerin (EMT-B).		
D. Verify patient alertness.		
E. Place on Nitroglycerin tablet under the patient's tongue.		
F. Re-assess patient vital signs in 2-3 minutes.		
G. Document results for the drug being administered.		

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Subcutaneous Administration of Epinephrine

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. List the indication(s) for subcutaneous administration of Epinephrine.		
B. Demonstrate or voice infection precautions.		
C. Select the proper ampule and concentration.		
D. Calculate the volume of medication needed.		
E. Select a TB syringe and needle of appropriate gauge.		
F. Leave the cap on the needle and attach it to the syringe		
G. Prepare the ampule: --Lightly tap or rotate ampule to dislodge any solution from the tip. --The ampule may be snapped open immediately if it is scored (has a colored band around the neck.		
H. Insert the needle into the solution without touching the edge of the ampule.		
I. Withdraw the desired amount of medication. Remove the needle from the ampule.		
J. Hold the syringe with the needle pointed straight up and depress the plunger until all air is ejected.		
K. Check the label and desired dosage again.		
L. Protect the needle until ready to administer the medication.		
M. Dispose of used ampule and remaining glass in appropriate container.		
N. Gently grasp the skin over the injection site and pinch it away from the underlying muscle.		
O. Insert the needle into the injection site at a 45 degree angle to the skin with the bevel up. Insert the needle quickly to minimize any pain.		
P. Pull back slightly on the plunger to ascertain that there is no blood return. Presence of blood return indicates that if the medication were given, it would be injected intravenously.		
Q. Inject the contents of the syringe at a slow, steady rate.		
R. Withdraw the needle quickly and smoothly at the same angle in which it was inserted.		
S. Apply direct pressure over the injection site with a sterile 2x2, then apply a sterile adhesive strip.		
T. Dispose of equipment appropriately.		
U. Note any effect of medication on the patient.		
V. Document on run report: Time medication given; name; concentration and dosage given; and medication's effect on patient.		

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Orotracheal Intubation of the Trauma Patient

NAME_____ DATE_____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
A. List the indications for endotracheal intubation, with emphasis on situation 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. Keep head in a neutral position.		
G. Demonstrate the performance of cricoid pressure.		
H. Assemble equipment.		
I. Insert Laryngoscope		
J. Elevate the mandible.		
K. Insert the ET tube.		
L. Remove the stylet.		
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 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 fails to fill in < 5 seconds, ETT is likely successful.		
d. If bulb fails to fill, or takes > 5 seconds, or fills with vomit, esophageal placement is probable.		
e. Contraindicated in pregnancy, or children under 5 yoa or 20 kg.		
P. Confirm tube placement with at least 3 other methods of verification.		
Q. Secure tube in place & re-assess placement after any movement of pt.		

EQUIPMENT

1. Proper size Endotracheal tube
2. Stylet
3. Laryngoscope and handle
4. Magill forceps
5. 10 ml syringe
6. Suction equipment
7. Stethoscope
8. Gloves & Eye protection
9. Commercial tube holder or proper taping method.

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

Revised: 12/03

ADULT PROTOCOL SKILL EVALUATION
SUBJECT: Chest Decompression Revised 11/1/05

NAME: _____ DATE: _____

LEVEL: _____ Paramedic _____ Intermediate Evaluator _____

STEPS	1st Testing Comments	2nd Testing Comments
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 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
14 gauge over-the-needle 2" catheter
Scissors
Stethoscope
Betadine or alcohol swab
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.

ADULT PROTOCOL SKILL EVALUATION (Optional Skill)
SUBJECT: Insertion of the LMA - Revised 11/1/05

NAME: _____ DATE: _____

LEVEL: _____ Paramedic _____ Intermediate _____ Basic

STEPS	1st Testing Comments	2nd Testing Comments
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. Tightly 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)		

EQUIPMENT

LMA (correct size)
50 ml. Syringe
Stethoscope
Suction
Water-Soluble Lubricant
Bag-valve-Mask
End Tidal CO2 Detector (Nellcor Easy Cap)

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	Infants 5 - 10 kg. (22lb.)	7 ml. air
2	Infants/Children 10 - 20 kg. (44 lb.)	10 ml. air
2	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

There are maximum clinical volumes that should never be exceeded. It is recommended the cuff be inflated to 60 cm H2O intracuff pressure.

GMVEMS COUNCIL OPERATING GUIDELINES
I. DRUG BOX EXCHANGE PROGRAM
II. STANDING ORDERS

Revised: November 1999; November 2000; May 2002; November 12, 2003; October 5, 2005

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 BOX EXCHANGE COMMITTEE

Co-Chairmen:	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 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 bags.
- 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 boxes will be removed from all locations of said Fire/EMS/Private ambulance service.
  - The GMVEMS Council will distribute written notification that the said service is in violation of the operating policy of the Drug Box Exchange Program:
    - Medical Director
    - Regional Physician Advisory Board
    - OH State Pharmacy Board
    - OH Division of EMS
    - All hospitals participating in the drug box exchange program

- GMVEMS Council maintains an information database for all EMT personnel authorized to participate in the Drug Bag Exchange Program.

- Rosters with expiration dates for EMT-P, EMT-B and ACLS certifications are distributed annually 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.
- Signed agreement to abide by the Operating Guidelines for the Drug Bag Exchange Program (see Addendum D).
- Agreement to complete an annual skills check and written test 1 January-30 April 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 ideal temperature span is 59-86 degrees F.
- In order to utilize an ALS 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 GMVEMSC Council office. It is the responsibility of the Agency to keep the DEA license current and submit a renewed copy to Council.***

LEVELS OF PARTICIPATION

Paramedic Level

- Each drug bag consists of a navy, standard issue drug bag with a separate, red outside pouch sewn into it.
- The red pouch is used to carry the following medications: Albuterol ***Inhaler***, Nitrostat, EpiPen, EpiPen Jr. and baby Aspirin. All other medications are carried in the standard issue drug bag.
- Each standard issue bag is labeled with a metal tag from 850 – up.
- Upon completion of a transport, the entire unit is exchanged at the receiving hospital ***with the appropriate paperwork.***

Intermediate Level

A side compartment labeled "intermediate" to carry the following medications ONLY: 50% Dextrose in Water, 25% Dextrose in Water, Diazepam, Diphenhydramine,

Epinephrine 1:1,000 multidose vial, Glucagon, Morphine Sulfate, Narcan

Basic Life Support

- A fanny-pack style bag used to carry the following medications ONLY: Albuterol ***Inhaler***, Nitrostat, EpiPen, EpiPen Jr., and baby Aspirin.
- 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.***

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 combo-bags may be exchanged one-for-one with another ALS/BLS combo-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 sheets when exchanging a drug bag.

Documentation 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 up to the time of administration.
- There are two methods of documenting
- To insure the medications are properly accounted for, all Intermediate/Paramedics will document:
    1. The drug name
    2. The amount used
    3. The amount wasted
    4. The signature of the two witnesses if wastage (the person wasting the medication can also 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 medication sheet in addition to documentation on the run sheet.*** 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, any unused portion must also be accounted for. If a medication is drawn up in a syringe for administration, then the partially used syringe shall have the name of the drug put on the syringe by the person drawing the medication. That unused portion can be left with the nurse or physician who is caring for the patient, should they decide to use the remaining portions.

- If the unused portion is not going to be used and needs to be wasted, then the provider must have a nurse or physician present to witness the waste of the drug. A pharmacist can also be a witness if a nurse or physician is not available.
- 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 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 medication sheet in addition to documentation on the run sheet.*** 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 advisors will be notified that the annual 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 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 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, will be taken***
- If copy of drug license(s) is not received by due date, GMVEMS Council notifies EMS department medical advisor. GMVEMS Council reserves the right to initiate the non-compliance action process for any Fire/EMS/Private Ambulance service ~~t~~hat cannot 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 advisor. GMVEMS Council reserves the right to initiate the non-compliance action process for any Fire/EMS/Private Ambulance service ~~t~~hat cannot provide documentation for drug license(s) renewal.

Drug Bag Discrepancies

All discrepancies (missing meds, expired meds, wrong medication or dose, altered or tampered meds, drug box number discrepancy, etc.) that are found by any agency or department (EMS provider, pharmacist, and/or EMS Coordinator) shall be reported to the GMVEMSC and to the appropriate state agency as noted in the following. This information will be forwarded to the Drug Box Committee Chairperson.

EMS Provider:

A. If, while on a call, an EMS provider encounters a discrepancy he/she will:

1. Log the ALS/BLS bag into the ED using the Drug Box check-in form (patient name, metal tag # of bag being checked in and metal # of bag being taken).
2. Turn in the blue seal with hospital sticker that was attached to the drug bag in question, along with a written description of the problem noted to his/her EMS Officer. This written description shall include the Drug Bag # of the bag in question. The written description of the discrepancy shall be dated and signed by the EMS provider reporting the complaint.

EMS Officer:

The EMS Officer will:

1. Contact the EMS Coordinator of the hospital in which the bag originated (hospital name on Blue Seal).
2. Contact the State Pharmacy Office of the nature of the following discrepancies:
   a. Missing medication
   b. Wrong medication in drug bag
   c. Missing or Stolen drug bag
   d. Altered medications

   The EMS Officer will report the following:
   e. Name of drug
   f. What occurred
   g. What hospital the bag originated from
   h. What EMS Agency was involved

   *The State Pharmacy Board number is **614.466.4143**. Advise them you want to report a drug bag discrepancy and they will connect you to the appropriate person.*
3. If the drug is a controlled drug (Valium, Versed or Morphine), or the bag has been stolen or is missing, or any medication appears altered or tampered with, the EMS Agency will:
   - Make a police report to the department in which the discrepancy was found.
   - ***Contact the DEA and submit*** DEA Form 106 within 30 days of notification and send electronically (http://www.deadiversion.usdoj.gov/21cfr_reports/theft/106/announce_106.htm)
     - Original to the DEA
     - Copy to the State Pharmacy Board
     - copy to the Fire/EMS/Private Ambulance department
     - Maintain one copy for your records
4. A copy of the police report if bag was stolen lost, or controlled meds missing and or any medications altered.
5. Send the following to the Hospital EMS Coordinator from which the discrepancy occurred:
   a. The blue seal with hospital name and tag number on drug bag to which seal was attached.
   b. A statement of what occurred.
   c. A statement indicating that the Pharmacy Board was contacted and to whom the report was given.
   d. A copy of the police report, if requested by the Hospital Pharmacist.
6. Send the following to the GMVEMSC:
   a. A statement of what occurred.
   b. A statement indicating that the Pharmacy Board was contacted and to whom the report was given.
   c. A statement indicating that the DEA form 106 was submitted.
   d. A copy of the police report if the bag was stolen, lost, or controlled meds are missing and /or any medications altered.

EMS Coordinators:

A. When the EMS agency contacts you about a drug bag discrepancy that occurred that had a blue seal from your hospital pharmacy, you shall:
   1. Insure that agency has completed the tasks listed in the EMS providers responsibilities listed in part A.

B. If the EMS Coordinator discovers any discrepancies (missing meds, expired meds, wrong medication or dose, altered or tampered meds, drug box number discrepancy, etc.) the EMS Coordinator will:
   1. Contact the EMS Coordinator of the hospital in which the discrepancy originated (hospital name on Blue Seal). The EMS Coordinator who discovers the discrepancy will also send the blue seal to that EMS Coordinator so he/she can follow up with the pharmacy that filled the bag.
   2. The EMS Coordinator who discovers the discrepancy will contact the State Pharmacy Office of the following discrepancies:
      a. Missing medication
      b. Wrong medication in drug bag
      c. Missing or Stolen drug bag
      d. Altered medication

      The EMS Coordinator who discovers this will also report to the pharmacist:
      a. Name of drug
      b. What occurred
      c. What hospital the bag originated from
      d. What EMS Agency was involved

The State Pharmacy number is 614.466.4143. They shall be contacted immediately of any discprency. Advise them you want to report a drug bag discrepancy and they will connect you to the appropriate person.

   3. If the drug involved is a controlled medication (Valium, ***Versed*** or Morphine), the bag has been stolen or is missing or any medication appears altered or tampered with, the EMS Coordinator will:

      a. Contact his/her hospital pharmacist

      b. A police report is made according to their hospital protocol

   4. The EMS Coordinator discovering discrepancy will then send the following to the GMVEMSC:
      a. A statement of what occurred

      b. A statement indicating that the Pharmacy Board was contacted (if indicated i.e. controlled meds, lost or stolen bags) and whom the report was given.
      If the drug is a controlled drug (Valium, Versed or Morphine), the bag has been stolen or is missing, or any medication appears altered or tampered with, the EMS Agency will make also contact the DEA and submit DEA Form 106 within 30 days of notification and send electronically (http://www.deadiversion.usdoj.gov/21cfr_reports/theft/106/announce_106.htm)
      - Original to the DEA
      - Copy to the State Pharmacy Board
      - Copy to the Fire/EMS/Private Ambulance department
      - Maintain one copy

   5. A copy of the police report if bag was stolen lost, or controlled meds missing and or any medications altered.

Pharmacy department personnel:

When a discrepancy is noted, notify the EMS Coordinator of your facility and advise him/her of the discrepancy encountered and he/she will assist you with the steps outlined in the EMS Coordinator section.

The GMVEMSC will:

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

The Drug Box Committee Chairperson will:

- Will report all at the bi-annual Drug Box 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 Box 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).

Red Seals:

Red seals identify ALS/BLS boxes as being used. 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 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.

- Notify the following upon determination that a drug bag has been lost or stolen:
    1. "Responsible party" as listed on the drug license
    2. GMVEMS Council
    3. Assigned hospital pharmacy
    4. Assigned hospital EMS Coordinator
    5. Local police department

- Send copy of the police report to the assigned hospital pharmacy.

ASSIGNED HOSPITAL PHARMACY WILL:

1. Check hospital inventory to determine if appropriate number of bags are present and accounted for.
2. Distribute a replacement drug bag to the Fire/EMS/Private Ambulance department.
3. Contact hospital EMS Coordinator who in turn will contact the GMVEMS Council to obtain new bag for the hospital pharmacy inventory.
4. Number new drug bag with the next sequential number per the numbering system.
5. ***Submit*** DEA Form 106 within 30 days of notification and send electronically (http://www.deadiversion.usdoj.gov/21cfr_reports/theft/106/announce_106.htm)
    - Original to the DEA
    - Copy to the State Pharmacy Board
    - One copy to the Fire/EMS/Private Ambulance department
    - Maintain one copy

EMS COORDINATOR WILL:

- Contact other hospitals to determine if the drug bag is in another hospital's inventory. This can be checked through the pre-assigned numbering system, or by counting the number of drug bags at the hospital.

ADDENDUM B

Hospital Participation Policy

APPROVED: 29 November 2001

GENERAL PURPOSE:

- To assure uniformity of hospital pharmacy participation in the DBEP.

THE HOSPITAL SHALL:

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

GMVEMSC SHALL:

- Maintain a current State *& 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 boxes 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 Box 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 Ambulance Licensing Board (OALB) 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 OALB 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.

II. STANDING ORDERS/PROTOCOLS

PURPOSE

To develop and approve Standing Orders Protocols (Adult and Pediatric) for the Greater Miami Valley EMS Council.

STANDING ORDERS COMMITTEE

Co-Chairmen:	1 EMS squad representative
	1 Hospital EMS Physician representative
Members:	EMS Coordinator representatives from participating hospitals
	1 Squad representative from each participating county
	1 Physician representative from each participating county
	Any interested GMVEMS Council member

OPERATING GUIDELINES

GENERAL

- Standing Orders/Protocols (Adult and Pediatric) are submitted to each participating department in the Drug Box Exchange Program for approval.
- Approval of the Guidelines Standing Orders includes a signed and notarized letter from the department medical director to the Ohio State Board of Pharmacy. Copies of the letters are kept on file at GMVEMS Council.
- The Standing Orders Committee develops a training package for the Standing Orders.
- Participation in the Drug Bag Exchange Program requires that all EMT-P, EMT-B and EMT-I personnel from each participating department complete an annual skills check and written test between 1 January-30 April unless otherwise scheduled by Council.

REVIEW/APPROVAL PROCESS

- Department and hospital representatives cooperate to review the Standing Orders as needed. The schedule for the review process is four years.
    - Year One: Evaluation of field operations for any changes made in that year.
    - Year Two: Review and evaluation of field operation; discussion of new medications or clinical procedures.
    - Year Three: Review, evaluation, and field trials of proposed changes to the operating protocols.
    - Year Four: Months 1-3: The Standing Orders Committee requests information from all DBEP participants, medical advisors, hospital EMS coordinators, hospital Emergency Department directors, hospital EMS physician representatives and educational representatives on the efficiency of the Standing Orders, proposed changes, and new procedures or medications to be reviewed for inclusion in the Standing Orders and the Drug Bag Exchange Program.
    - Month Four: Standing Orders Committee compiles the information for Committee review. The review process includes: a review of all submitted information and discussions as necessary to clarify any item. If new procedures or medications are recommended, each request is assigned to a subcommittee for a literature review, evaluation and recommendation.
    - May 1st: A draft of the Standing Orders is prepared. It is distributed for review to: DBEP participants, medical advisors, hospital Emergency Department directors, hospital EMS coordinators and education representatives. Comments and/or revisions to the draft must be submitted in writing.

- The draft/review process is repeated as many times as necessary to achieve consensus of all interest groups involved.
- The Standing Orders are submitted to participating departments for approvals for approval.
- Revised Standing Orders/Protocols and new medical lists are distributed to each participating department to correspond with the annual drug license renewal period.
- Revised Standing Orders/Protocols may be implemented by a participating department upon completion of these requirements.
    - Completion of the annual training exercise
    - Completion of the scheduled drug bag updates

INTERIM CHANGES TO THE STANDING ORDERS

Each proposed revision will be evaluated by the Standing Orders Committee and the Drug Bag Committee. The Ohio State Board of Pharmacy will be notified. General guidelines to be followed are:

- All interest groups are notified and requested to respond to the proposed revision. The Standing Orders Committee and the Drug Bag Committee convene as many times as necessary to achieve a consensus among the interest groups.
- The proposed revision is submitted to participating department medical directors for approval. Approval consists of a signed, notarized letter from each department medical director. GMVEMS Council collects the letters and submits them to the Ohio State Board of Pharmacy with a revised drug list for the Drug Bag Exchange Program. GMVEMS Council maintains copies of the letters in a master file. The Standing Orders are revised and distributed to DBEP participants.

EM42.01/42.06

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

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.
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 Cal**

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 Medical Control Physician (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 medical control physician 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" (e.g., 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**	**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, Throm-bolytics for AMI	Labor & Delivry Srvcs	24 hr Neuro Cover-age	Stroke Protocol with Throm-bolytics	Other (see below)
Children's		Level 2	YES					YES		
Community				YES			YES	YES	YES	
Dayton Heart				YES	YES					
Good Sam	Level 2			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	**
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