2024 Standing Orders

Last Update	3/20/2024

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Acknowledgement

Region 3 EMS Providers,

This Protocol and the supporting Training Manual has been produced as a result of countless hours of work by a diverse cross section of the regional EMS community. This group includes the members of the Standing Orders Committee and the Regional Physician's Advisory Board. In editing the protocol many things were considered to include changes in State of Ohio- EMS scope of practice changes, medication availability, patient management best practices and EMS care procedural improvements. Additionally, the input given by you, the providers operating under this protocol, were integral in making this document possible. The overall goal of this document is to make it easier to provide quality care to your patients.

There are companion documents and additional resources that are available for you to view online or download for further explanation on the Training and Testing process for 2024. The first of these is the "2024 Implementation Guide". It addresses the new philosophy, CEUs, and other important information regarding the testing process. These documents, along with the GMVEMSC Quick Sheet and the mobile app are available through the website at https://www.gmvemsc.org/index.html under the Regional Protocols tab.

The entire protocol, the training manual and testing processes would not have been possible without the strong foundation left by the many past chairpersons of the Standing Orders and Education Committees and all of the other council members. Thank you to all who have volunteered to edit and critique these manuals.

I would also like to thank Dr. Randy Marriott and all the many RPAB members for their work.

Sincerely,

John Russell
Standing Orders Co-Chair

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Greater Miami Valley EMS Council

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1000 Series

General Protocol

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1001.1 Introduction to Treatment Protocols

a. Each protocol has been approved by the Greater Miami Valley EMS Council and the Regional Physician Advisory Board for Region 3 (as defined by the State Board of Emergency Medical, Fire and Transportation Services [EMFTS]).
b. Each tab bears an effective date and a last modified date marking it as the latest version.
c. A new addition to protocol would reflect a duplicate "Effective" and "Last Modified" date.
d. When changes or revisions are made to a tab, only the "Last Modified" date will be changed.
e. Each time changes or additions are made; they can be referred to by their specific line in the protocol. i.e. *A change was made to "1001.1.e".*
f. Each year, changes or additions will be listed in an addendum in the appendix.

1001.2 Printing, Retention, and Display

a. All GMVEMSC Treatment Protocols are intended for color printing, and hard copy retention.
b. These protocols are also intended for electronic display in Adobe Portable Document Format (PDF).
    i. The PDF version includes links to the different tabs throughout the document.
    ii. The GMVEMSC logo on most pages is a hyperlink back to the table of contents.
c. Distribution is provided by means of the GMVEMSC official website.

1001.3 Application

a. This protocol is for use by those individuals operating in and under the authority of the Greater Miami Valley EMS Council (GMVEMSC) Drug Bag Exchange Program and certified by the State of Ohio as an EMS provider.
b. The provider must pass both the skills check-off and Computer Based Testing (CBT) for the current year.
c. The GMVEMSC Treatment Protocols apply to the following certification levels:
    i. Emergency Medical Responder (EMR)
    ii. Emergency Medical Technician (EMT)
    iii. Advanced Emergency Medical Technician (AEMT)
    iv. Paramedic (PM)

1001.4 Stipulations

a. The protocol is to be used in the field only.
b. Communicate with the receiving facility as soon as practical:
    i. When transporting unstable patients
    ii. Transporting to hospitals that request contact for all patients delivered to their facility.
c. No procedures, techniques, or drugs will be used without the proper equipment or beyond the training or capabilities of the prehospital personnel.
d. Nothing in this protocol may be used without specific pre-approval of the Medical Director for the local department or agency.
e. The protocol is to be utilized as clinically indicated. Not every standing order in a treatment protocol must be carried out on every patient treated under that treatment protocol.
f. Discretionary judgment is required and stepwise adherence to specific protocols may not be in the patient's best interest.

g. At no time should treatment options exceed those authorized without direct consultation with the Medical Control Physician (MCP).

1001.5 **Protocol Design**

a. The GMVEMSC protocols are organized around the General Patient Management Protocol which must be followed for all patients. This universally applicable protocol/flowchart allows the providers to integrate additional treatment protocols beyond general patient management as clinically necessary for specific patient care, emergency stabilization, and treatment.
    i. As an example, while caring for a specific patient with chest pain, shortness of breath, and nausea the provider would:
        1. Follow the General Patient Management Protocol
        2. Integrate and follow the Chest Pain Protocol
        3. Integrate and follow the Respiratory Distress Protocol if indicated
        4. Integrate and follow the Cardiac Alert Protocol if indicated
        5. Integrate and follow the Abdominal Pain Protocol if indicated
        6. Refer to protocol for specific medication concentrations, dosages, and volumes.
        7. Complete the General Patient Management Protocol
b. In most cases, a specific guideline will only be mentioned once within the protocol. All other circumstances where that guideline would be applicable will simply refer to the original guideline.
c. Where applicable, a guideline mentioned in another section will have a hyperlink provided.
d. Formatting
    i. All attempts will be made to keep the protocol focused and specific.
    ii. Extracurricular and enhancing information will be provided in an official study guide.
    iii. All levels of providers will be addressed within a single protocol.
    iv. Procedures and treatments marked with a diamond (♦) always require a physician's order.
    v. Items enclosed in brackets ({ }) are at the option of the agency and their Medical Director.
    vi. Sections that apply only to adults are bulleted with an "**A**".
    vii. All pediatric treatments will be in pink and bulleted with a "**P**".
    viii. There are also sections which apply to only Geriatric patients and are bulleted with a **"G."**

1001.6 **Clinical Management Tables**

a. In addition to general statements, this protocol will utilize table-based algorithms where applicable.
b. The table will demonstrate what care can be given at each provider level.
    i. The level of certifications will be signified by the colored tabs to the right of each section.
c. Even with a step-by-step algorithm in place, critical thinking is encouraged.
d. While the table is sequential and listed by provider level, many elements in each section can be completed simultaneously.
e. The following is an annotated example of a Clinical Management Table:

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• This is where pediatric specific info might go. • Dosing and treatment will still be listed in the algorithm	• This is where S&S will go	• This is where differentials will go

Treatment Algorithm

- This will be where guidelines for all certification levels will go
- Any EMR and above information will be listed in this box.

EMR

- Treatment directives for the EMT and above will be here.
- If no EMT directives apply, then this box would read “No additional orders at this level”.

EMT

- Treatment directives for the AEMT and above will be here.
- If no AEMT specific directives apply, then this box would read “No additional orders at this level”.

AEMT

- Treatment directives for the Paramedic will be listed here.
- If no Paramedic specific directives apply, then this box would read “No additional orders at this level”.

Paramedic

Consult

- If requirements exist for any level to call for orders, that will be listed here.
- If there is a guideline to call an alert, that will be listed here.
- If there is a recommendation to call for MCP advice, that will be listed here.
- If there is a request to call the receiving facility prior to arrival, that will be listed here.

Clinical Pearls

- Any important guidelines or clinical information will be added here.
- This will not be a study guide nor a skill sheet. That information will be supplied in a separate format.

END OF SECTION

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1002.1 Reasons to Contact the Hospital

a. To notify the hospital when time is needed to prepare for patient arrival. Examples include:
   i. Cardiac arrest
   ii. Any of the defined alerts such as Cardiac Alert, Stroke Alert, Trauma Alert
   iii. Indications of sepsis
   iv. Significant communicable disease
   v. Other serious patients that may require acute care
   vi. Hazardous material exposures *(mandatory)*
   vii. Bedbugs

1002.2 Reasons to Contact Medical Control

a. To obtain orders for procedures or medications as indicated within the protocol.
b. For field termination or DNR clarification.
c. To obtain advice in a difficult situation or circumstance. Examples include:
   i. Before a medication is given, even though protocol allows it to be used without permission.
   ii. A situation where the patient has an unfamiliar condition.
   iii. To discuss a destination decision.

1002.3 Call-in Procedures

a. When contacting a hospital, make sure a clear picture is painted.
b. When calling about a trauma patient, include:
   i. MIVT – **M**echanism, **I**njuries, **V**ital Signs and **T**reatment
   ii. Estimated time of arrival (ETA)
   iii. The components of the Glasgow Coma Score (GCS)
   iv. Patient assessment findings which are relevant to the decision to transport to a Trauma Center.
c. If consultation with a physician is desired, specifically request the Medical Control Physician.
d. When calling with an Alert (Cardiac, Stroke, Trauma, etc.):
   i. Request to speak directly to the Medical Control Physician at the beginning of the call.
   ii. Verbalize, "We recommend a _____ Alert."
   iii. The MCP has the discretion to withhold the Alert and may decide not to activate it.

END OF SECTION

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1003.1 General Guidelines

a. This protocol may be applied by EMT, AEMT and Paramedic providers only. The EMR cannot determine that a patient is deceased.
b. All patients (Adult, Pediatric, and Geriatric) may meet criteria for non-initiation of care.
c. If care had begun and is readily apparent to the provider that the patient meets non-initiation of care criteria, **RESUSCITATION EFFORTS MAY CEASE.**

1003.2 Criteria for Non-Initiation of Care

a. Resuscitation will not be initiated in the following circumstances:
    i. Deep, penetrating, cranial injuries
    ii. Massive truncal wounds
    iii. DNR Order—present and valid (see 1004 Do Not Resuscitate)
    iv. Frozen body
    v. Rigor mortis, tissue decomposition, or severe dependent lividity
    vi. Triage demands
    vii. For patients in arrest resulting from **BLUNT OR PENETRATING TRAUMA** consider not initiating care for injuries obviously incompatible with life.
        1. Prolonged arrest (greater than 10 minutes)
        2. Consider possibility of MIXED MECHANISMS

1003.3 Exclusionary Conditions

a. The following conditions will not meet non-initiation of care criteria:
    i. Traumatic arrest in female patient with either:
        1. Known pregnancy greater than 24 weeks or
        2. Uterine fundus palpable at or above the umbilicus
    ii. Possible medical etiology for traumatic cardiac arrest
    iii. Arrest witnessed by EMS providers
    iv. Lightning strike
    v. Signs or symptoms of a hypothermic patient
    vi. Focused blunt trauma to the chest, (commotio cordis)

1003.4 For an inquiry about organ donation, direct the call to Life Connection of Ohio at 1-800-535-9206.

END OF SECTION

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1004.1 General Guideline

a. Per ORC *2133.21-2133.26*, providers will consider and honor all valid Ohio Do Not Resuscitate orders.
b. The two valid DNR orders are DNR: Comfort Care and DNR: Comfort Care Arrest.

1004.2 Do-Not-Resuscitate Orders Defined

a. Do-Not-Resuscitate: Comfort Care Arrest (DNR-CCA)
   i. Permits any GMVEMSC Protocol treatment until the order is initiated.
   ii. The order is initiated at the moment the patient goes into cardiac or respiratory arrest.
   iii. Once the patient meets the above criteria, then only permitted DNR treatment is performed.

b. Do-Not-Resuscitate: Comfort Care (DNR-CC)
   i. Permits any medical treatment to diminish pain or discomfort
   ii. No treatment should be used to postpone the patient's death.
   iii. The order is initiated at the moment it is signed by the patient's physician.

1004.3 Permissible and Impermissible Treatments Once the DNR is Initiated

a. The following treatments are permitted once an order is valid and effective:
   i. Conduct an initial assessment
   ii. Perform basic medical care
   iii. Clear airway of obstruction or suctioning
   iv. If necessary, for comfort or to relieve distress, may administer oxygen, CPAP or BiPAP
   v. If necessary, may obtain IV access for hydration or pain medication to relieve discomfort, but not to postpone death
   vi. If possible, may contact other appropriate health care providers

b. The following treatments are not permitted once an order is valid and effective:
   i. Perform CPR
   ii. Administer resuscitation medications with the intent of restarting the heart or breathing
   iii. Insert an airway adjunct
   iv. Defibrillation, cardioversion or initiate pacing
   v. Initiate continuous cardiac monitoring

1004.4 Stipulations

a. If more than one living will declaration or DNR exists, the most recent supersedes the previous.
b. The authority of a DPOA-HC supersedes the DNR if the DPOA-HC previously consented to the DNR.
c. The GMVEMSC protocol will recognize the following special situations as valid. If these scenarios present, then contact MCP and request to honor the DNR with physician permission.
   i. Out-of-State DNR orders
   ii. Pediatric DNR orders
d. Blood glucose checks and treatment of 4008 Diabetic Emergencies – Hypoglycemia/Hyperglycemia, is acceptable even with a valid DNR.
e. While 1005 General Patient Management requires continuous cardiac monitoring when administering pain medications, this focused protocol supersedes that requirement in valid DNR patients.
f. In situations where there are questions about the documents, try to keep the patient's intent in mind.
g. If there is any confusion on scene, ♦ Call MCP for clarification.

END OF SECTION

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1005.1 Guideline

a. The General Patient Management protocol is to be applied to all patients.

b. Once a primary impression and differential diagnosis is made, then the provider should look to specific treatment algorithms within these standing orders.

1005.2 Basic Patient Care

a. The emphasis in patient care should ensure airway protection, oxygenation, and adequate ventilation without causing harm.
b. Injury reduction strategies may include noninvasive ventilation when appropriate, titration of oxygen in certain settings, and being cautious not to over ventilate.
c. Tailor treatment to the overall clinical picture.
d. With the exception of suspected acute cerebral herniation, the rate and depth of ventilation in the prehospital setting should not be guided by the $EtCO_2$ reading alone.
e. For the patient with cerebral herniation, ventilate the patient at approximately 20 times per minute to obtain an $EtCO_2$ of 30 mmHg.
f. "Permissive hypercapnia" in most cases is appropriate, particularly in those with chronic lung disease who may chronically retain CO_2.
g. It is recommended to listen to the chest to ensure that adequate exhalation is occurring during manual ventilation.

1005.3 EMT Assisting the Advanced Provider

a. Per Ohio Revised Code, the EMT is permitted to assist the advanced provider with skills that are outside of the EMT's scope of practice.
b. The EMT is only allowed to prepare ALS equipment under the direct supervision of the AEMT or Paramedic.
c. The skills that an EMT may set up for and assist with are:
    i. Endotracheal intubation
    ii. Intravenous access
    iii. IV fluid administration
    iv. Saline locks
    v. Placement of 4 Lead and/or {12 Lead EKG} for cardiac monitoring
    vi. Accessing the GMVEMSC Drug Bag to locate drugs and/or to assemble pre-jects.

1005.4 General Patient Management

Assessment		
Pediatric Considerations • Pediatric patients are defined as patients less than 16 years old • A Pediatric reference guide or length-based resuscitation tape may be used to reference pediatric equipment recommendations. • Pedi-Wheel may be used as a reference for pediatric vital signs. • Unless otherwise specified, the maximum dose for pediatric medication administration is the adult dose.	**Signs & Symptoms** • None	**Differential Diagnosis** • None

Treatment Algorithm

- Scene/Crew Safety/PPE; with appropriate equipment/medications to patient side.
- Initial Assessment/Physical Exam
- Follow basic life support and airway algorithms as indicated based on current AHA guidelines.
- An unresponsive patient with gasping breaths and poor color should get supplemental oxygen via BVM
- Obtain chief complaint, OPQRST, SAMPLE history, and other pertinent information.
- Vital Signs
  - Blood Pressure (EMR are limited to obtaining manual blood pressures)
  - Pulse, rate and quality
  - Respirations; Rate, quality, and work-of-breathing
  - Assess every 5 to 15 minutes per patient condition
  - Temperature as needed
- Utilize monitoring devices, pulse oximeter, CO-oximetry, capnography, etc. as appropriate and approved by medical direction.

EMR

- Perform blood glucose check.
- Where indicated, the EMT may obtain a {12 Lead EKG} for the purpose of transmission.
- The EMT may assist the advanced provider with:
  - {12 Lead EKG} application assisting a Paramedic who is present
  - Set up an IV administration kit in the presence of an AEMT or Paramedic

EMT

- Utilize cardiac monitor as appropriate.
- Where indicated, the AEMT may obtain a {12 Lead EKG} for the purpose of transmission.
- The AEMT may apply a {12 Lead EKG} when assisting a Paramedic who is present.
- Start IV crystalloid solutions or saline lock as appropriate.
- **IV Therapy:** Follow 4016 Shock Protocol.
  - For medical emergencies, head trauma, cardiac issues with stable BP, etc.: Use **TKO** rate.
  - Shock (not related to penetrating trauma):
    - Run **IV fluid** wide-open
    - Use macro-drip or blood tubing
    - Decrease fluid rate if SBP greater than 100
    - P **IV fluid 20 ml/kg** using macro-drip tubing. Titrate to maintain adequate perfusion.
- Use of IO devices for both adults and pediatrics is limited to patients who are unresponsive or hemodynamically unstable, and only when less invasive means are not available or are ineffective (e.g**., Narcan** IN, and **Versed** IN).
- Provide continuous cardiac monitoring, $EtCO_2$ and pulse oximetry (if available) for all patients with fentanyl, ketamine, morphine or midazolam if not already doing so.
- ♦ If a patient with an existing IV pump experiences an allergic reaction, consider discontinuing the pump.

AEMT

- Use of an {IV pump} is optional for any agency with approval from their Medical Director.
- Existing central venous catheters, dialysis catheters, fistulas, or grafts may be utilized for infusion of IV fluids and medication if the patient is hemodynamically unstable. These may also be used when the patient is deteriorating rapidly.

Paramedic

Consult

- Do not stop the flow of medication in an established medication pump except under direct orders from Medical Control.
- If a patient with an existing IV pump experiences an allergic reaction, call the MCP for an order to discontinue the pump.

Clinical Pearls

- If a patient was discharged from a hospital in the last 24 hours, it is recommended to return to the same facility or at the very least, the same network of hospitals.
- If the patient is experiencing complications from a recent surgery, if possible, transport the patient back to the facility where the surgery was performed. If that is not practical, then try to transport to the same network.
- If possible, bring medications or a list of the medications to the hospital; include the dose and frequency of administration.
- Crystalloid fluids include Normosol, Plasmalyte, Lactated Ringers or Normal Saline in that order. Their pH is closer to neutral.
  - Medical emergencies, head trauma, cardiac problems with stable BP: Use TKO rate.
- IV medication administration: **Slow IV = over 2 minutes**, unless otherwise specified**.**
- Any medication given IV can also be administered intraosseous, IO**.**
- Maintain normothermia.

END OF SECTION

1006.1 Guideline

a. EMS providers MUST, by law, report all alleged or suspected pediatric and adult abuse/neglect.

b. Ohio Revised Code requires providers to report incidents of pediatric and adult abuse/neglect to:

A Their county's adult protective services agency (for patients over 60 years old)

P Their county's public children services agency

iii. Or for both adults and pediatrics; Law enforcement

iv. For adult patients see ORC 5101.63 and for pediatric patients see ORC 2151.421

c. Simply notifying hospital personnel does not meet mandated EMS reporting responsibilities.

d. Hospitals have copies of the EMS Social Services Referral Form, supplied by GDAHA, for documenting cases of abuse/neglect.

e. Use of this form can help providers in providing information needed to their reporting agency, as well as provide for a continuum of care with hospital social services departments.

f. Document on the Patient Care Report, all efforts that EMS made to report the suspected abuse; include name of agency notified, method used, and name of person contacted.

1006.2 Pediatric Abuse and Neglect

P Report all alleged or suspected child abuse or neglect to the appropriate agency.

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

1006.3 Adult Abuse or Neglect

A Report all alleged or suspected abuse or neglect to the appropriate agency.

Adult Public Social Services Agencies			
County	Phone	After Hours Phone	Fax
Butler	513-887-4081	Contact County SO: 513-785-1000	513-785-5969
Champaign	937- 484-1500	Contact County SO: 937-484-6092	937-484-1506
Clark	937-327-1700	937-324-8687	937-327-1910
Darke	937-548-7129	937-548-2020	937-548-4928
Greene	937-562-6315	Contact County SO: 937-562-4800	937-562-6177
Miami	937-440-3471	Contact County SO: 937-440-3965	937-335-2225
Montgomery	937-225-4906	Contact County SO: 937-225-4357	937-496-7464
Preble	937-456-1135	937-456-1135 (same as daytime)	937-456-6086
Shelby	937-498-4981	Contact County SO: 937-498-1111	937-498-1492
Warren	513-695-1420	513-425-1423	513-695-2940

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1007.1 Clinical Management

Assessment

Pediatric Considerations

- Repeated and prolonged suctioning could cause hypoxia and bradycardia.

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

Signs & Symptoms

- Respiratory difficulty or distress
- Poor SpO_2 or $EtCO_2$
- Mechanism of Injury or Nature of Illness that would require O_2 therapy
- Impending airway issues
- Adventitious respiratory sounds

Differential Diagnosis

- None

Treatment Algorithm

- $EtCO_2$ monitors can be used on all patients with or without adequate perfusion, and with or without artificial airways.
- Administer **Oxygen** as needed. Use the following rates as guidelines:
  - **2 LPM** by nasal cannula (NC) for patient with COPD, or as prescribed.
  - **4-6 LPM** by nasal cannula (NC) for other patients.
  - **12-15 LPM** by non-rebreather mask (NRM) for any patients with increased respiratory rates or effort (including COPD).
  - Ventilate patients who are symptomatic with an insufficient respiratory rate, depth or effort.

P Patient less than 2 years old showing respiratory distress with nasal congestion, cough, rales, rhonchi or wheezing - without previous history of wheezing, reactive airway disease, breathing treatments:

- P **Nasopharyngeal suctioning in both nares (3-5 seconds)** with an appropriate device
- P If distress continues, **repeat nasopharyngeal suctioning for 3-5 seconds**

P For patients less than 6 years old showing respiratory distress with agitation, upper airway noise, stridor, and/or "barky cough,":

- P Lower temperature of ambulance as much as possible.
- P Deliver oxygen as the patient tolerates.
- P Often these symptoms resolve with less intervention.
- P Consider keeping distance from the patient.

EMR

- Consider patient airway anatomy for the appropriate selection of the airway adjunct.
- If indicated, suction the tracheostomy.

P If patient has history of reactive airway disease with prescribed breathing treatments then treat with 4003 Asthma protocol.

- Consider the need for a supraglottic or dual lumen rescue airway.
  - The EMT may only place a rescue airway in a pulseless, apneic patient.
  - For guidelines to placement of rescue airways, see protocol 1008 Advanced Airway Management
- Oxygen flow rate for nebulized medications should be **8-10 LPM**.
  - Nebulized medication may be administered while ventilating a patient with a BVM. Preferably use two oxygen sources.

EMT

- Consider the need for intubation.
  - The AEMT may only intubate if patient is apneic.
- If routine ventilation procedures are unsuccessful, try to visualize obstruction with laryngoscope.
- If a foreign body is seen, attempt to remove it using suction or Magill forceps.

AEMT

- When deciding whether to intubate, consider the following:
  - Insufficient respiratory rates, less than 10 or greater than 29, that are not rapidly controlled by other measures
  - Irregular respiratory rhythm
  - Abnormal breath sounds
  - Inadequate chest expansion and respiratory depth
  - Excessive effort to breathe
  - Use of accessory muscles
  - Nasal flaring
  - Pallor or cyanosis
  - Cardiac dysrhythmias

Paramedic

Consult

- None

Clinical Pearls

- COPD patients in severe respiratory distress or with chest pain need the same O_2 devices and flow rates as any other patient in such condition.

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1008.1 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Patient unable to manage their own airway • Patient in cardiac arrest • Patient in respiratory arrest (AEMT & Paramedic) • Rapidly collapsing airway	• None

Treatment Algorithm

EMR

- Advanced Airway Management is not an EMR skill

EMT

- The EMT may only place a rescue airway in a pulseless, apneic patient
- If approved, "rescue airways" such as the Supraglottic Airways or Dual Lumen Airways are appropriate airway devices for both adult and pediatric patients.
- Confirm correct placement of advanced airways by at least 5 methods, see protocol 1009 Advanced Airway Confirmation Devices
- Always secure the advanced airway in place, preferably with a commercial tube-securing device.
- Reassess advanced airway placement every time the patient is moved.

AEMT

- An AEMT may only intubate if patient is apneic.
- Consider patient airway anatomy and condition for proper advanced airway device selection.
- If a total of two attempts with an ET tube are not successful, move to a rescue airway.
  - P Supraglottic airway is recommended as the primary airway except in extreme cases such as airway edema.
- A cervical collar is effective in maintaining patient's head in a neutral position during the intubation process.
- If there are indications of tension pneumothorax and the patient is hemodynamically unstable:
  - o Decompress the chest with a 14-gauge or larger, 3 ¼" angiocath
  - o Location options include:
    - ▪ Fourth or fifth intercostal space in the mid-axillary line
    - ▪ Second or third intercostal space in the mid-clavicular line
    - P If less than 8 years old, site choice will be limited to the second or third intercostal space at the mid-clavicular

Paramedic

- Approved advanced airways satisfy the "rescue airway" component for 1010 {Sedate-to-Intubate or RSI}.
- If a conscious patient requires intubation, consider the following:
  - A Apply **Lidocaine Jelly** to the ET tube.
  - A **Lidocaine 100 mg IN** (half dose per nostril) or nebulized with **8-10 LPM O_2**.
  - P **Lidocaine 1.5 mg/kg** nebulized with **8-10 LPM O_2** or **IN**. Maximum dose is 100 mg.
- If the patient resists the tube after confirmed intubation:
  - A SBP is greater than 100, consider **Midazolam 2.5 mg slow IV**.
  - A SBP less than 100, consider **Ketamine 100 mg slow IV**.
  - G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses.
  - P SBP is age/weight appropriate consider **Midazolam 0.1 mg/kg** (max dose 2.5 mg), **slow IV**.

A As an alternative to advanced oral airway procedures, consider nasal intubation.

A {If a patient needs intubation but is combative, agitated, or has jaws clenched, use 1010 {Sedate to Intubate or RSI} procedures if approved to do so by Medical Direction.}

- Whenever all reasonable attempts to provide an adequate airway by less invasive means have failed due to a total airway occlusion and you are unable to ventilate:
  - A Perform a needle cricothyrotomy or surgical airway utilizing an approved method.
  - P Patient must be 8 years old or greater for a surgical airway.

Consult

- None

Clinical Pearls

- Each agency should check with their individual Medical Director(s) to determine what approved basic and advanced airway devices will be.
- For the AEMT and Paramedic, {Lighted Stylet Intubation} or {Camera Assisted Intubation} may be utilized.
- For the Paramedic, **Nebulized Lidocaine** can be administered simultaneously with **Albuterol** and **Ipratropium**.
  - o If feasible, wait one to two minutes before intubation

END OF SECTION

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1009.1 General Guidelines

a. Confirm correct placement of advanced airways with waveform capnography and at least 4 other methods as listed below.
b. Reassess advanced airway placement every time the patient is moved.

1009.2 Confirmation Methods

Assessment		
Pediatric Considerations	**Signs & Symptoms**	**Differential Diagnosis**
• None	• Inserted advanced airway	• None

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Advanced Airway Management is not an EMR skill				
• Advance airway device confirmations (Utilize at least 5 methods after airway insertion) 1. Continuous $EtCO_2$ detection is mandatory for advanced airway confirmation 2. Auscultate the epigastrium, the lungs at the anterior chest, the lungs at the mid-axillary areas, and then the epigastrium again for ventilation sounds. 3. Observe rise and fall of the chest with each breath 4. Look for condensation in the tube of the advanced airway 5. Look at patient's appearance • If signs of cerebral herniation are present, hyperventilate at 20 ventilations per minute to an $EtCO_2$ value of 30 mmHg.				
• For ETT depth placement and measurement: A Keeping an oral endotracheal tube at the 21-23 cm mark at the teeth is recommended in most cases. P Proper endotracheal tube placement in the pediatric patient can be calculated by: P Depth of insertion (length of tube at teeth or gum line) = Tube size x 3. • Avoid placing the ETT too deeply and the possibility of a right main stem bronchus intubation. • Do not confuse right main stem intubation for a pneumothorax.				
A A nasotracheal tube that is 22 cm at the nose is unlikely to reach the glottis in most cases. Nasotracheal tubes need to be deeper. A Avoid nasal intubation after trauma, if there is central facial movement or cerebrospinal fluid present.				

Consult
• None

Clinical Pearls
• Intravenous sodium bicarbonate will produce more carbon dioxide and affect $EtCO_2$ values.

1009.3 Confirmation Devices

a. These devices can help recognize esophageal intubation, but cannot identify bronchial placement.
b. Maintain $EtCO_2$ devices until patient care is transferred to the receiving ED staff.
c. Electronic End Tidal CO_2 ($EtCO_2$) Monitors (Capnography)
    i. Continuous waveform capnography is a required confirmation device.
    ii. $EtCO_2$ should be used on **EVERY** advanced airway
d. End Tidal CO_2 Detector ($EtCO_2$) – Colorimetric
    i. In cardiac arrest, if there is no color change, use other confirmation methods.
    ii. Secretions, emesis, etc. can ruin the device.
    iii. Large amounts of carbonated beverage in the stomach can give a false positive.
    iv. The device can be used for no more than two hours.
    v. Follow manufacturer's recommendations for weight restrictions.
e. Beck Airway Airflow Monitor (BAAM) is authorized for use by the Paramedic during nasal intubation.

END OF SECTION

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1010.1 General Guidelines

a. Sedate to Intubate and Rapid Sequence Intubation are optional skills in the GMVEMSC protocol.
b. These skills are to be performed by the Paramedic only.
c. This standing order applies to agencies whose personnel have received the appropriate training and Medical Director's approval only.
d. Under no circumstances is RSI to be used as "behavioral control" or restraint in patients with otherwise intact airways.
e. Some Medical Directors may recommend Rapid Sequence Intubation as a primary airway control procedure.
f. While this protocol recommends Succinylcholine as a short-term paralytic, a Medical Director may choose to use a different medication. Should a different paralytic be used, the Medical Director will be responsible to establish dosing and training.
g. Inclusion criteria:
    i. The patient must be 16 years old or older
    ii. The patient cannot have suffered a paralyzing injury more than one week and less than 6 months ago (specific to Succinylcholine)

1010.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• This protocol does not apply to pediatric patients.	• Decreased LOC • Ineffective or absent breathing • Patient unable to maintain their own airway • Respiratory failure or inevitable loss of airway	• Cardiac arrest • Anaphylaxis • Esophageal obstruction

Treatment Algorithm

- Sedate-to-Intubate nor Rapid Sequence Intubation are EMR skills (EMR)
- Sedate-to-Intubate nor Rapid Sequence Intubation are EMT skills (EMT)
- Sedate-to-Intubate nor Rapid Sequence Intubation are EMT skills (AEMT)

(Paramedic)

- {Sedate-to-Intubate}:
    - {Pre-oxygenate the patient with O_2 via BVM at **15 lpm**}
    - {Complete an airway assessment. Remove dentures or dental appliances.}
        - {If the paramedics doubt that they will be able to successfully intubate, the procedure should be avoided}
    - {**Must** have cardiac monitor, IV and pulse oximetry in place}
    - {Sedate the patient}:
        - {Administer **Etomidate 0.3 mg/kg IV** (maximum dose 40 mg)
          OR
        - **{Ketamine 100 mg IV** (in hemodynamically unstable patients), may repeat **100 mg IV** after 5 minutes}
          OR
        - {**Midazolam 5 mg slow IV** (in patients who are normotensive), may repeat up to **10 mg**}
    - DO NOT reduce Ketamine or Midazolam doses by half for patients greater than 69 y/o.
    - Instead, give full doses to all patients over 16 y/o in order to achieve sedation.
- If stopping at {Sedate-to-Intubate}, then intubate the patient.
- {Rapid Sequence Intubation}:
    - {Sedate the patient as outlined above}
    - {Paralyze the patient with **Succinylcholine 200 mg IV**}
    - {Once paralyzed, intubate the patient and maintain continuous waveform capnography}
    - {Maintain sedation}:
        - {**Midazolam 5-10 mg IV**}
        - {If hypotensive, then **Ketamine 100-200 mg IV**}
- Maintain continuous waveform capnography after intubation.

Consult
• Paramedics may seek guidance or approval from medical control prior to initiating the protocol; however, this is not required
Clinical Pearls
• Paralytics or sedation do not change poor airway anatomy. • The most important decision may be when NOT to paralyze the patient or intubate them. • Succinylcholine paralyzes the muscles but does not affect LOC. ALWAYS SEDATE THE PATIENT. • Tachycardia may be a sign that the patient is paralyzed but not adequately sedated. • No more than 2 intubation attempts. • If you can still ventilate the patient with a BLS airway, a cricothyroidotomy is not necessary.

1010.3 RSI Educational Recommendations

a. Rapid Sequence Intubation should not be available to all paramedics in the system.

b. Only those paramedics willing to undergo additional initial training and continuing training should be allowed to perform it.

c. In initial training, the paramedic should demonstrate proficiency during the following practical evaluations:
   i. 2 endotracheal intubations on airway simulators
   ii. 3 endotracheal intubations on airway simulator with C-spine immobilization
   iii. 5 surgical cricothyrotomies on simulators using surgical technique or an approved device
   iv. 4 intubations using the eschmann stylet (gum bougie) on airway simulators *(optional)*
   v. 5 insertions of a rescue airway on airway simulators

d. Once a quarter, the paramedic should demonstrate proficiency during the following practical evaluations:
   i. 1 endotracheal intubation on airway simulators
   ii. 2 endotracheal intubations on airway simulator with C-spine immobilization
   iii. 1 surgical cricothyrotomy on airway simulator
   iv. 1 intubation using the eschmann stylet (gum bougie) on airway simulators *(optional)*
   v. 1 insertion of rescue airway on airway simulators

e. Any of the above evaluations could be credited if the procedure is performed under direct supervision by the Medical Director, Supervisor or Training Officer the field or a clinical setting.

END OF SECTION

1011.1 General Guidelines

a. Consult the patient's caregiver for assistance. They are typically trained to manage these airways.
b. Find out why they have an artificial airway (cancer, stroke, ventilator dependent, etc.)
c. Ask if there have been any prior difficulties (reinserting, plugging, etc).
d. Find out when the airway was first placed (newer airways may be more difficult to replace).
e. For assessing failed tracheostomies and laryngectomies, consider:
    i. D - displaced, dislodged or damaged
    ii. O - obstructed (mucus, food, blood, secretions)
    iii. P - pulmonary problems
    iv. E - equipment failure (bent tubing, ventilator malfunction, depleted oxygen supply
f. Look for subcutaneous air in the neck as it might indicate a false passage of tube.

1011.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Patient with tracheostomy or laryngectomy tube with signs of respiratory distress or failure	• None

Treatment Algorithm

- Place the patient on high-flow O_2
- Assess pulse oximetry
- Assess and frequently reassess the artificial airway for easily reversible causes of distress (D.O.P.E.)
- Administer high-flow oxygen over the stoma or tube.
- Consider assisting ventilations using a bag-valve-mask attached to the device end.
    - BVM typically will only attach over the inner cannula
    - If there is no inner cannula, an endotracheal tube adapter (BVM end of ETT) a half size larger than the trach tube may be inserted into the outer cannula.
- Consider infant BVM to stoma ventilation if the tracheostomy or laryngectomy tube has been removed.

EMR

- Assess $EtCO_2$
- Pre-oxygenate when possible for 30-60 seconds prior to suctioning
- Suction the tracheostomy tube if:
    - Unable to ventilate with BVM.
    - Coarse upper airway sounds are heard.
    - If respiratory distress continues despite BVM ventilation.
    - If the airway tube has an inner cannula, remove it prior to suctioning.
    - Use the patient's suctioning supplies or a catheter that is no more than 1/2 the tube diameter. (typical size is 10 fr)
    - DO NOT force the suction catheter into the tracheostomy tube.
    - Determine the proper suction catheter depth by measuring the length of the obturator or inner cannula and advancing slightly beyond this measure.
    - If no obturator is available:
        - **A** Insert the suction catheter 2-3 inches into the tube.
        - **P** Use the patient's pinky finger as an approximate length to insert the suction tubing.
- Consider inserting 2 - 3 mL of saline or nebulized saline to help loosen thick or hard secretions.
- Suction on the way out, for no more than 10 seconds, rotating the catheter as you go.
- If respiratory distress continues, consider likely cause and reference appropriate protocol.

EMT

- Place patient on cardiac monitor.
- If measures have not succeeded in improving respiratory status, consider replacing the airway tube as defined in 1011.3
- If no replacement tube is available, insert an ETT as a replacement.

AEMT

- If all other means fail, including tube replacement, consider attempting oral tracheal intubation.

Paramedic

Consult

- None

Clinical Pearls

• Patients with laryngectomy airways have the larynx removed, completely separating oral- and nasal- pharynx from the trachea and lungs.
  ○ These patients are sometimes referred to as neck breathers.
• Established stomas are less likely to close off.
  ○ Closed off stomas require surgical techniques to replace the tube and replacement should be avoided in the field.
• Often the cuff is deflated allowing the patient to have more air movement past the vocal cords thus enabling speech.
• There may also be speaking valve (a one-way valve allowing air in – not out) attached to the outside end of the tracheal tube.
• Tube replacement is a clean procedure (mask, splash protection, and clean gloves). Keep the patient's airway as clean as possible.

1011.3 Artificial Airway Tube Replacement (AEMT & Paramedic)

a. Necessary Equipment:
   i. Replacement tracheostomy tube or laryngectomy tube (from the patient or care giver).
      1. If patient is pediatric, there is a one size smaller tracheostomy tube in the GoBag that should always be with the patient.
   ii. If no replacement tracheostomy tube is available, use an ETT of similar internal diameter
   iii. If possible, water-based lubricant jelly.

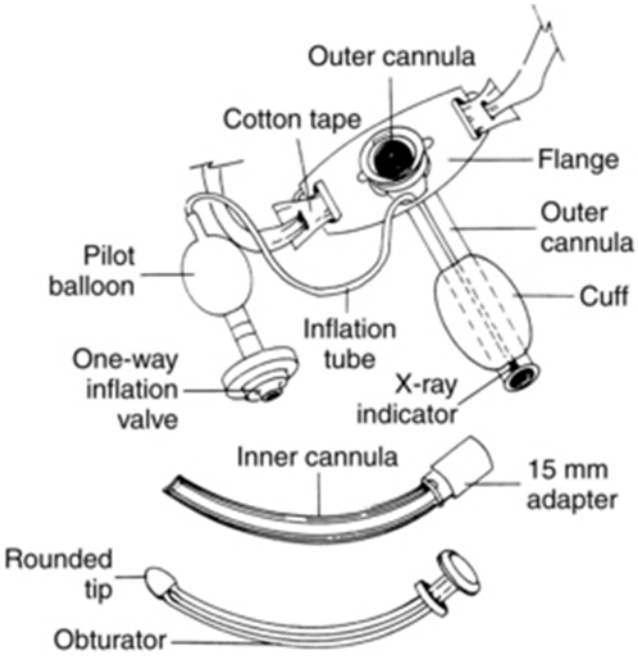
b. Procedure:
   i. Apply high-flow O_2, pulse oximetery, $EtCO_2$, and cardiac monitor.
   ii. Place patient semi-recumbent with slight neck extension (consider a roll under the neck).
   iii. Keep the head midline (May need additional personnel to maintain head position).
   iv. For adults, consider use of a bougie when removing the old tube. (this is **not** a pediatric practice)
   v. Lubricate the new tracheostomy tube or replacement ETT.
   vi. Deflate the old tracheostomy tube's balloon and remove during exhalation by gently pulling and rotating towards the patient's feet.
   vii. Remove the stoma dressing, then wipe area clean with only saline or medically packaged water.
   viii. Using the replacement tracheostomy tube's obturator or (in adults only)the bougie, gently advance the replacement tracheostomy tube in a fluid fashion, using the natural curvature of the tube until the flange is flush against the neck.
   ix. If present, remove the obturator and insert the hollow internal cannula
      1. Internal cannulas are not part of the most commonly used tracheostomy tubes for pediatric patients).
      2. If possible, use a non-fenestrated (no window) inner cannula.
         a. Note: A fenestrated inner cannula will allow air leak through the glottis; potentially allowing air to enter the stomach and not allowing PEEP (positive end-expiratory pressure) to be achieved.
   x. If using an ETT as a replacement:
      1. Insert a bougie (adults only) into the stoma directed downward.
      2. Slowly advance the lubricated ETT into the stoma.
      3. Only advance the ETT a few centimeters into the stoma (as deep as the trach tube).
      4. Consider shortening the ETT by cutting the tube AFTER the takeoff for the pilot balloon.
   xi. Inflate the cuff of the replacement tracheostomy tube or ETT with the minimum amount of air to stop any audible leak at the stoma.
   xii. Place clean gauze around the stoma to absorb mucous.
      1. Never cut this gauze.

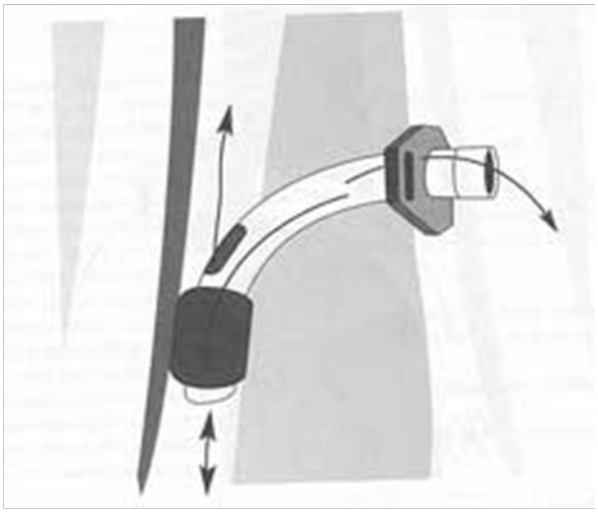
2. Fold it to size, to avoid creating small particulates of lint that could enter the airway.

xiii. Secure the device to the patient's neck.

c. Emergency Procedures

i. If the airway has been surgically altered and the glottis is hard to recognize, consider pushing on the chest to force air into the pharynx. Where air bubbles are seen, insert bougie (in adults) and/or insert the ETT into the opening.





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1012.1 General Guidelines

a. Use of IO devices is limited to patients who are unresponsive or hemodynamically unstable; and then, only when less invasive means are ineffective or not available (e.g., IN Narcan or Versed).

b. In patients with acceptable perfusion, and all other routes of access have failed, then consider an intraosseous access of the proximal tibia.

c. For an adult in cardiac arrest, the preferable order of vascular access is:

i. External jugular (EJ) vein IV

ii. Antecubital (AC) vein IV

iii. Proximal humeral head IO (the proximal tibia is not to be used in cardiac arrest)

1012.2 Intraosseous Equipment Sizing

A The longer yellow (45 mm) needle should be used for proximal humeral IOs in adults.

P For pediatrics, access the proximal tibia in all cases.

P Use the blue IO needle for 3-30 kg.

P Use the pink IO needle for 0-3 kg.

1012.3 Clinical Management

Assessment		
Pediatric Considerations	**Signs & Symptoms**	**Differential Diagnosis**
• Consider weight for IO selection	• Hemodynamically unstable patient needing vascular access with no IV	• None

Treatment Algorithm

• IO Insertion is not an EMR skill	EMR			
• IO Insertion is not an EMT skill		EMT		
• After IO confirmation, IV pressure bags may facilitate infusion. • For the pain associated with infusion: A **Lidocaine 2% 1.5 mg/kg** via IO up to 100 mg. P **Lidocaine 2% 0.5 mg/kg** via IO (max 100 mg)			AEMT	
• No additional orders at this level				Paramedic

Consult

- None

Clinical Pearls

- None

END OF SECTION

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1013.1 General Guidelines

a. This guideline is not for EMR, EMT or AEMT. Only Paramedics may utilize alternative vascular routes.

1013.2 Central Vascular Access Devices (CVAD)

a. Patients who require long-term intravascular therapy may have Central Vascular Access Devices (CVAD).
b. CVADs may be used for IV access if the patient is hemodynamically unstable or in arrest.
    i. Central catheter: Catheter placed through chest wall into the internal jugular or subclavian vein.
        1. Central catheters can be single or multilumen.
        2. Distal portion of catheter has two access ports, either of which may be used for access.
    ii. PICC Line: Catheter placed in arm.
        1. Distal portion of catheter is external with access port.
        2. Do not force fluids or drugs through the device or failure could result in an embolism.
        3. PICC line diameter creates significant resistance to fluid flow making it difficult to infuse large quantities of fluids.
    iii. Subcutaneously Implanted Port: Device surgically placed under the skin on the chest.
        1. No external access.
        2. PARAMEDICS ARE NOT PERMITTED TO ACCESS THIS DEVICE.
c. Complications of CVADs
    i. Infection: Thorough cleaning of the port must be done three times during the procedure:
        1. Before attaching each syringe
        2. Before attaching the IV tubing.
    ii. Air Embolism: The catheter must be clamped before attaching or removing the syringes.
    iii. Heparin Bolus: These catheters remain in place without fluids continually flowing through them. To prevent blood clot formation, a bolus of Heparin or other anticlotting agents will be in the catheter. Remove 5 ml of blood to insure that the Heparin is not systemically administered to the patient resulting in a potentially significant complication.
    iv. Catheter Damage:
        1. Use a 10 ml syringe or larger when drawing off the blood. Smaller syringes create too much pressure.
        2. After verifying blood return, flush catheter with 10 ml of NS with a 10 ml or larger syringe utilizing a pulsating technique.
        3. Administer medications slowly to avoid creating too much pressure. Do not use catheter if unable to get blood return.
        4. DO NOT USE A PRESSURE INFUSION DEVICE ON CVADs.

1013.3 Internal Dialysis Fistula

a. An artificial passage between an artery and a vein used to gain access for hemodialysis.
b. Usually located in the inner aspect of the patient's forearm or bicep.
c. A bulge under the skin that should be visible or easily palpated.
d. In cardiac arrest or with a profoundly unstable patient, a dialysis fistula may be used to administer IV fluids or medication.
    i. Use aseptic technique.
    ii. Be careful not to puncture back wall of vessel.
    iii. Use IV pressure bag.
    iv. Blood may still back-up into tubing.
    v. Control bleeding with direct pressure.
e. Dialysis patients are usually on anticoagulants.

END OF SECTION

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1014.1 General Considerations

a. This protocol is for management of acute moderate to severe pain, including pain from suspected cardiac events, trauma (including thermal and chemical burns), crush syndrome, frostbite, fractures, dislocations, sprains, and abdominal pain (including unilateral flank pain).

b. It is not for the treatment of exacerbations of chronic pain.

c. Prehospital pain management reduces time to pain relief, avoids exacerbation of pain during movement, is compassionate, and is good medical care.

d. **Ketamine** is **not** to be administered to patients with suspected cardiac chest pain

1014.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• **Fentanyl** is not to be administered to anyone less than 2 years old • If unable to obtain a blood pressure, look for evidence adequate perfusion (skin color, capillary refill and mental status) prior to **Fentanyl** administration. • To account for medication remaining in the needle and syringe, add an additional 0.1 ml **Fentanyl** for pediatric intranasal doses. • **Ketamine** not to be administered for pain to anyone less than 16 years old • **Fentanyl IN**, is the first choice for pediatrics	• Severity of pain (pain scale) • Quality (sharp, dull, etc.) • Radiation of pain • Pain upon movement • Increased pain upon palpation	• Chronic pain

Treatment Algorithm

EMR

- Use ice packs, position of comfort, and splinting to reduce pain.
- Provide oxygen as indicated.

EMT

- No additional orders at this level.

AEMT

- For an alert patient with moderate to severe pain, give **Fentanyl** for relief.
  - **Ketamine** should be considered a second line medication for the management of pain
  - If **Fentanyl** dosing does not relieve pain or if the patient refuses **Fentanyl**, then administer **Ketamine**
- ♦ Call for orders if you feel narcotics are needed for pain from a chronic condition.

G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses.

A If SBP is greater than 100, then **Fentanyl 50-100 mcg IV**

  A May repeat **Fentanyl 50-100 mcg IV** after 5 minutes.

A If no IV, **Fentanyl 50-100 mcg IN**, **SQ,** or **IM**

  A May repeat **Fentanyl 50-100 mcg IN, SQ** or **IM** after 10 minutes.

P If SBP is normal for patient's age (80 + 2 times age) or evidence of adequate perfusion then **Fentanyl 1 mcg/kg IN**, max 100 mcg

  P May repeat **Fentanyl 1 mcg/kg IN,** max 100 mcg after 10 minutes

P If unable to administer IN, **Fentanyl 1 mcg/kg IV**, max 100 mcg

  P May repeat **Fentanyl 1 mcg/kg IV**, max 100 mcg after 5 minutes

P As a last resort, **Fentanyl 1 mcg/kg SQ** or **IM,** max 100 mcg

  P May repeat **Fentanyl 1 mcg/kg SQ** or **IM**, max 100 mcg after 10 minutes

A **Ketamine 25 mg IV**

  A May repeat **Ketamine 25 mg IV** after 5 minutes

A If no IV, **Ketamine 25 mg IN** or **50 mg IM**

  A May repeat **Ketamine 25 mg IN** or **50 mg IM** after 10 minutes

Paramedic

- No additional orders at this level.

Consult

P MCP contact required before administration of **Fentanyl** for pediatric patients with abdominal pain.

Clinical Pearls

- Always consider the weight of your patient when dosing pain meds, especially for the elderly.
- Document patient's reported pain during initial patient contact, during treatment, and after any intervention.

END OF SECTION

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2000 Series

Cardiac Protocol

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Greater Miami Valley EMS Council	Cardiac Protocol	2001
Subject: Resuscitation Guidelines	Effective: June 1, 2021	Last Modified: Feb. 5, 2023

2001.1 Guideline

a. A patient's BEST CHANCE for resuscitation is at the scene with high quality CPR and code management.

b. Paramedics are expected to provide ALS resuscitative care at the scene.

2001.2 Resuscitation and Field Termination

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• FIELD TERMINATION DOES NOT APPLY TO PEDIATRIC PATIENTS	• Pulseless and apneic • Does not meet Non-initiation of Care Guideline	• Meets Non-initiation of Care Guideline

Treatment Algorithm

EMR

- The EMR will continue resuscitation until the patient is handed off to a higher-level provider.

EMT

- The EMT will continue resuscitation until the patient is handed off to a higher-level provider.
- If no higher-level provider is available, then transport.
- Patient with return of spontaneous circulation (ROSC) should be transported to an interventional facility if transport time is less than 30 minutes.
- ♦ If no ALS equipment is available at the scene, and transport time to a medical facility will exceed 20 minutes, field termination may be considered.

AEMT

- Patients will require prolonged resuscitation efforts if:
  - They have PEA with a rate greater than 40 per minute
  - They have an upward trending or persistent $EtCO_2$ greater than or equal to 20 mmHg, refractory to VF or VT.
- If arrest due to profound hypothermia, then rapidly transport to a Trauma Center.
- ♦ Following all appropriate efforts, field termination requires MCP approval, and may only be considered when the following criteria are met:
  - 18 years or older
  - In asystole or PEA, with rates less than 40
  - Not be in arrest due to hypothermia
  - Have an advanced airway in place
  - Have vascular access in place
  - There are no signs of neurological function such as reactive pupils, response to pain or spontaneous movement

Paramedic

- The following should be transported to a cardiac interventional facility if transport time is less than 30 minutes:
  - A documented STEMI and a witnessed cardiac arrest
  - A return of spontaneous circulation (ROSC)

Consult

- When the AEMT or Paramedic contacts MCP directly to receive consent for field termination, they must provide the following information:
  - The duration of the resuscitation
  - How long the patient may have been in arrest prior to EMS arrival
  - Whether it was a witnessed or unwitnessed event
  - The current $EtCO_2$
  - The presenting rhythm

Clinical Pearls

- There are situations where resuscitation may take 30 minutes or more.
- Research has shown that CPR quality diminishes while being transported.
- Consider aeromedical transport for transports greater than 30 minutes if the patient has ROSC.
- In pseudo PEA, the patient may not be in true cardiac arrest, but simply not have palpable pulses due to profound shock.
- Send a copy of the run sheet to the EMS Coordinator of the authorizing MCP's hospital.

END OF SECTION

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Greater Miami Valley EMS Council	Cardiac Protocol	2002
Subject: Cardiac Arrest - BLS	Effective: June 1, 2021	Last Modified: Dec. 21, 2023

2002.1 This protocol has adopted the 2020 American Heart Association CPR Guidelines

	ADULTS	CHILDREN	INFANTS	NEWBORNS
CPR Order	CAB: Compression, Airway, Breathing			
Compression to Breaths Ratio Without Advanced Airway	**1 or 2 Rescuers** 30:2	**1 Rescuer** - 30:2 **2+ Rescuers** - 15:2		3:1
Compression to Breaths Ratio With Advanced Airway	Continuous compressions at a rate of 100-120 /min. Give 1 breath every 6 seconds.	Continuous compressions at a rate of 100-120 /min. Give 1 breath every 2-3 seconds.		40-60 breaths/min
Compression Rate	100 to 120 per minute			120 per minute
Compression Notes	Minimize interruptions in chest compressions. Limit interruptions to less than 10 seconds			
Compression Depth	At Least 2 Inches	1/3 Depth of Chest (About 2")	1/3 Depth of Chest (About 1 ½ ")	1/3 Depth of Chest
Rescue Breathing	1 breath every 5-6 seconds (10-12 breaths/min)	1 breath every 2-3 seconds (20-30 breaths/min)		40-60 breaths/min

2002.2 Basic Life Support

Pediatric Considerations
- If available, use age-appropriate AEDs or pads

Signs & Symptoms
- Unresponsive
- Pulseless and apneic

Differential Diagnosis
- Signs of irreversible death
- Other causes of unresponsiveness

Treatment Algorithm

EMR
- If witnessed or unwitnessed arrest, initiate quality CPR for 1-2 minutes
- If available, initiate mechanical CPR using an approved device
- Attach and use AED after at least 2 minutes of CPR
- Utilize AED as it is programmed. (Even if it is not to AHA guidelines)
- Repeat cycles of defibrillation and CPR for 2 minutes

EMT
- Patient should be transported as appropriate
- Patient with return of spontaneous circulation (ROSC) should be transported to an interventional facility if transport time is less than 30 minutes.
- Obtain and transmit 12 Lead EKG if patient has ROSC

AEMT
- No additional orders at this level

Paramedic
- Paramedics are expected to provide resuscitative care at the scene.
- Cardiac arrests should not be transported unless:
  - Return of spontaneous circulation (ROSC)
  - The airway cannot be secured
  - Vascular access is not established
  - MCP declines to authorize Field Termination

Consult
- No consult required unless applying Field Termination Guideline

Clinical Pearls
- Use jaw-thrust method to open airway on trauma patients
- Allow the chest to fully recoil after each compression
- Change person compressing chest every 2 minutes
- Resume CPR beginning with compressions after each defibrillation
- Minimize interruptions to compressions before and after each shock to less than 10 seconds
- For pregnant patients in cardiac arrest
  - Consider need for manual uterine displacement
- In all cardiac arrests, consider the ACLS treatable causes (Hs & Ts) to your level of certification:

EMR	EMT	AEMT	Paramedic
• Hypoxia • Hypothermia	• Toxins	• Hypovolemia • Tension pneumothorax	• Hydrogen Ion • Tamponade, Cardiac • Thrombosis (Coronary, Pulmonary)

END OF SECTION

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Greater Miami Valley EMS Council	Cardiac Protocol	2003
Subject: Cardiac Arrest: Asystole or PEA	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

2003.1 Guideline

a. In all cardiac arrest patients, apply the 2002 Cardiac Arrest: Basic Life Support protocol.
b. Apply the appropriate guideline after rhythm interpretation.
c. The rhythms may change and will require flexibility to move between the different protocols.
d. If ROSC, then follow 2001 Resuscitation Guidelines

2003.2 Asystole or PEA

Assessment

Pediatric Considerations
- Pediatric dosing should never exceed adult doses

Signs & Symptoms
- Unresponsive
- Pulseless and apneic
- Either:
  - No electrical activity on cardiac monitor
  - Electrical activity on monitor with no pulse present

Differential Diagnosis
- Ventricular Fibrillation
- Pulseless Ventricular Tachycardia
- Other causes of unresponsiveness
- Device (lead) error
- Signs of irreversible death

Treatment Algorithm

- If witnessed or unwitnessed arrest, initiate quality CPR for up to 2 minutes.
- Follow 2002 Cardiac Arrest -BLS protocol
- Apply the Automatic External Defibrillator (AED) and check for a shockable rhythm.
- If no defibrillation is indicated, continuous CPR

EMR

- Obtain and transmit {12 Lead EKG} if patient has ROSC

EMT

- Consider possible causes
- Consider Field Termination as identified in 2001 Resuscitation Guidelines

AEMT

A **Epinephrine (1:10,000) 1 mg**, IV or IO, repeat every 3-5 minutes.
P **Epinephrine (1:10,000) 0.01 mg/kg**, IV or IO, repeat every 3-5 minutes.
- The Paramedic may consider Field Termination after administering Epinephrine

Paramedic

Consult

- No consult required unless applying Field Termination Guideline.
- The AEMT or paramedic may consult MCP to field terminate
- Contact for Cardiac Alert if applicable

Clinical Pearls

- Contact receiving hospital prior to arrival

END OF SECTION

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2004.1 Guideline

a. This protocol is for cardiac patients who receive renal dialysis treatment and is only to be administered by Paramedics.

b. Dialysis patients who are bradycardic or experience cardiac arrest should be given both calcium (chloride or gluconate) and sodium bicarbonate.

2004.2 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Cardiac arrest • Confirmed history of renal dialysis	**Differential Diagnosis** • None

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• No additional orders at this level				
• No additional orders at this level				
• No additional orders at this level				
• For renal dialysis patients in arrest: A **Calcium Chloride 10% 1 g IV** P **Calcium Chloride 10%, 20 mg/kg (0.2 ml/kg) IV** (max dose 500 mg) A **Sodium Bicarbonate 100 mEq IV** P **Sodium Bicarbonate 1 mEq/kg IV** • ♦ For a renal dialysis patient presenting with a wide complex bradycardia: A **Calcium Chloride 10% 1 g IV**. P **Calcium Chloride 10%, 20 mg/kg (0.2 ml/kg) IV** (max dose 500 mg) A **Sodium Bicarbonate 100 mEq IV** P **Sodium Bicarbonate 1 mEq/kg IV**				

Consult

- In the treatment of hyperkalemia (wide complex bradycardia)

Clinical Pearls

- It is critical that these drugs not be given together, as they will precipitate.
- Flush well between these medications.

END OF SECTION

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Greater Miami Valley EMS Council	Cardiac Protocol	2005
Subject: Cardiac Arrest: V-Fib or Pulseless V-Tach(PVT)	Effective: June 1, 2021	Last Modified: Mar. 20, 2024

2005.1 Guideline

a. In all cardiac arrest patients, apply the 2002 Cardiac Arrest: Basic Life Support protocol.
b. Apply the appropriate guideline after rhythm interpretation.
c. The rhythms may change and will require flexibility to move between the different protocols.
d. If ROSC, then follow 2001 Resuscitation Guidelines

2005.2 Alternate Defibrillation Techniques

a. Vector Change and Double Sequential Defibrillation are optional skills in the GMVEMSC Protocol
b. Providers SHOULD NOT apply these techniques without the explicit consent of their Medical Director.
c. These procedures are approved for adult patients only.
d. Vector Change Defibrillation (for Advanced EMTs and Paramedics)
    i. This technique is for refractory ventricular fibrillation/pulseless ventricular tachycardia.
    ii. Refractory V-Fib/PVT is defined as NOT CONVERTED by three standard defibrillations.
    iii. The AEMT or Paramedic will place a second set of defib pads in an anterior-posterior position.
    iv. There should be minimal interruption in CPR when placing the second set of pads.
    v. Subsequent defibrillations will be through the anterior-posterior placed pads.
e. Double Sequential Defibrillation (for Paramedics)
    i. This technique is for refractory V-Fib/PVT following three standard defibrillations and a least one round of an antiarrhythmic agent (amiodarone or lidocaine).
    ii. This requires the presence of two manual biphasic defibrillators.
    iii. One set of pads will be placed in the anterior-apical (traditional) position and one set will be placed in the anterior-posterior position.
    iv. With both sets of pads in place and both machines charged to maximum energy level, the discharge of the monitors should be as simultaneous as possible.
    v. Repeat as indicated. All subsequent defibrillations should be double sequential.
    vi. CAUTION: Every agency considering applying this procedure needs to consult with the manufacturer of their cardiac monitor for advice. This technique is considered “off-label”.
f. Neither Vector Change nor Double Sequential Defibrillation is indicated in Recurrent V-Fib/PVT, which is defined as V-Fib/PVT that reoccurs episodically after successful conversion with intervening episodes of organized electrical activity.

2005.3 Ventricular Fibrillation and Pulseless Ventricular Tachycardia

Assessment		
Pediatric Considerations • Pediatric dosing should never exceed adult doses	**Signs & Symptoms** • Unresponsive • Pulseless and apneic • Ventricular fibrillation or ventricular tachycardia on cardiac monitor or AED	**Differential Diagnosis** • Asystole • Artifact/Device failure • Signs of irreversible death • Other causes of unresponsiveness

Treatment Algorithm				
• If witnessed or unwitnessed arrest, initiate quality CPR for 1-2 minutes and proceed to first defibrillation • Follow Basic Life Support protocol • Defibrillate as indicated by the Automatic External Defibrillator (AED)	EMR			
• Obtain and transmit 12 Lead EKG if patient has ROSC		EMT		

Subject: Cardiac Arrest: V-Fib or Pulseless V-Tach(PVT)

Effective: June 1, 2021

Last Modified: Mar. 20, 2023

AEMT

- Defibrillate as required based on EKG interpretation

A {For refractory V-Fib/PVT after three shocks, consider Vector Change Defibrillation for subsequent shocks}

- Consider possible causes

Paramedic

- Alternate between CPR/Defibrillation/Medication Administration

A **Epinephrine 1 mg 1:10,000, IV** or **IO,** repeat every 3-5 minutes

P **Epinephrine (1:10,000) 0.01 mg/kg, IV** or **IO,** repeat every 3-5 minutes

- After third defibrillation:
  - A **Amiodarone 300 mg, IV** or **IO**
  - P **Amiodarone 5 mg/kg IV** or **IO (**max first dose 300 mg)
  - o If Amiodarone is not available, use Lidocaine
    - A **Lidocaine 150 mg, IV** or **IO**
    - P **Lidocaine 1.0 mg/kg IV** or **IO (**max first dose 100 mg)

A {After three traditional defibrillations and at least one antiarrhythmic medication, consider Double Sequential Defibrillation for subsequent shocks}

- After sixth defibrillation:
  - A **Amiodarone 150 mg, IV** or **IO**
  - P **Amiodarone 5 mg/kg IV** or **IO** (max first dose 150 mg)
  - o If Amiodarone is not available, use Lidocaine
    - A **Lidocaine 75 mg, IV** or **IO**
    - P **Lidocaine 1.0 mg/kg IV** or **IO** (max first dose 75 mg)
- If patient converts with ROSC from a ventricular arrhythmia and no anti-arrhythmic has been given, then:
  - A **Amiodarone 150 mg in 250 ml NS, IV over 10 minutes** using 60 drop/ml tubing
    - Do not infuse unless SBP is greater than 100
    - Consider **IV fluid 500 ml** to increase SBP to 100 or higher prior to infusion

Consult

- The AEMT or Paramedic may consult MCP to field terminate
- Contact for Cardiac Alert if applicable

Clinical Pearls

- For initial and subsequent defibrillations, follow manufacturer recommendation for energy settings
- Pediatric defibrillation settings will start at **2 J/kg** (or biphasic equivalent) and increase by **2 J/kg** (or biphasic equivalent) each shock.
- Maximum pediatric shock will be 10 J/kg (or biphasic equivalent)
- Resume chest compressions immediately following each defibrillation, without performing pulse check, for 1-2 minutes
- Contacting receiving hospital prior to arrival.

END OF SECTION

2006.1 General Guidelines

a. A patient experiencing repeated AICD (Automatic Implantable Cardioverter-Defibrillator) activations should receive sedation or pain management from the AEMT or Paramedic.

2006.2 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • AICD in place and firing • Sudden pain • Muscle spasms	**Differential Diagnosis** • None

Treatment Algorithm	EMR	EMT	AEMT	Paramedic
• Monitor and be prepared to provide BLS care. • Be prepared to defibrillate in the event of AICD failure.	■			
• Monitor and transport as indicated. • Consider calling for ALS care.		■		
• Be prepared to defibrillate in the event of AICD failure. • **Midazolam 2.5 mg slow IV** for sedation. • Consider 1014 Pain Management Protocol. G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses.			■	
• Be prepared to manually cardiovert in the event of AICD failure.				■

Consult
• None

Clinical Pearls
• None

END OF SECTION

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2007.1 General Guidelines

a. It is important to recognize the patient with a ventricular assist device (VAD).
b. Routinely, your agency will be advised when a VAD patient is in your community.
c. Otherwise, these patients could be travelling through, or visiting in your jurisdiction.
d. The patient or family members are generally knowledgeable about the VAD and how to troubleshoot it.

2007.2 Assessing the VAD Patient

a. Skin color and mental status are the best indicators of stability in the VAD patient.
b. A pulse is usually not palpable in the VAD patient. Nearly all VADs are continuous flow devices.
c. If the device is a pulsatile flow device, a pulse should be palpable.
d. Blood pressure may or may not be obtainable and auscultated readings are usually unreliable.
    i. In a continuous flow device, mean arterial blood pressure (MAP) can be obtained by auscultating with a {Doppler}.
    ii. The first sound heard during auscultation reflects the MAP.
    iii. The MAP displayed by an automated non-invasive measurement may also be used.
    iv. A normal MAP is 65 – 90 mmHg.
    v. If the device is a pulsatile flow device, a blood pressure should be measurable.
e. Pulse oximetry readings seem to be accurate, despite the manufacturer stating otherwise.
f. Quantitative waveform capnography should be accurate and can be reflective of cardiac output
g. An $EtCO_2$ of less than 30 mmHg can be indicative of low perfusion secondary to poor pump function.
h. {ECG 12-lead} as usual, no interference from the VAD is expected
i. Temperature should be measured as infection and sepsis are common.

2007.3 Transporting the VAD Patient

a. Patients with or without a VAD problem should be transported to the nearest appropriate Hospital ED.
b. Do NOT delay ground transportation waiting to speak with the patient's VAD Coordinator.
c. Always bring the patients resource bag with you. It should contain:
    i. Spare batteries and a battery charging unit
    ii. Spare control unit
    iii. Contact information for the VAD Coordinator.
    iv. Directions for equipment and alarm troubleshooting.
d. Always bring spare batteries for the VAD with the patient, even if it is not a VAD related problem.
e. If the transport is going to be prolonged or it is expected that the patient will be away for a while, try to bring the VAD base power unit with you.
    i. Alternately, you can ask the patient's family/caregiver to bring it to the hospital.
    ii. There may be a need to bring it with the patient and plug it into an inverter for power.

2007.4 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- VAD equipment
- VAD vests or battery packs

Differential Diagnosis
- None

Treatment Algorithm

- Determine if you have a patient with a VAD problem, or a patient with a VAD that has a medical/trauma problem.
- If there is no indication of possible VAD malfunction or failure, exit to appropriate protocols.
- Assess the VAD:
  - Auscultate over the VAD pump location (Should be just to the left of the epigastrium, immediately below the heart)
    - If the pump is functioning, a low hum should be audible.
    - Do not assume that the pump is functioning just because the control unit does not indicate a problem.
  - Palpate the control unit.
    - A hot control unit indicates the pump may be working harder than it should be
    - This often indicates a pump problem such as a thrombosis.
  - Look at the alarms on the control panel
    - Trouble with the VAD will usually be identified by an alarm.
    - The patient will usually have a resource guide to direct alarm troubleshooting.
  - Ask if the device is a continuous or pulsatile flow device.
  - Ask if the patient can receive electrical therapy.
  - Ask if chest compressions can be performed in the event of pump failure.
- Inquire about DNR status.
- If there is indication of possible device malfunction or failure:
  - Attempt to restart VAD if previously off for less than 5 minutes.
  - If VAD off longer than 5 minutes, then:
    - Locate the patients "Emergency Contact Card"/VAD ID Card
    - Contact the VAD coordinator.
  - Discuss the plan with caregivers.
- If a VAD patient is unresponsive and pulseless with a non-functioning VAD and has previously indicated a desire for resuscitative efforts, begin chest compressions.
  - AVOID THE USE OF MECHANICAL CPR DEVICES
  - Defibrillation pads should be placed anterior/posterior
  - Ensure that all troubleshooting efforts (reconnecting wires, changing batteries, replacing the control unit) have failed prior to starting chest compressions.
- Follow BLS protocol.

EMR

- Transport urgently.
- No additional directives at this level.

EMT

- No additional directives at this level.

AEMT

- Only symptomatic dysrhythmias not at the patient's baseline should be treated.
- If indicated, place electrical therapy/defibrillation pads away from VAD site and AICD.
- VAD patients may receive ACLS interventions.

Paramedic

Consult

- None

Clinical Pearls

- Utilize the patient and family as a resource.
- Always contact the VAD Coordinator if there is a VAD related problem or question.
- Common complications in VAD patients include stroke (incidence up to 25%), bleeding, dysrhythmias, and infection.
- The most common causes of death in VAD patients are sepsis and stroke. Consider this with a VAD patient showing altered mental status.
- VAD patients are preload dependent. Consider that a fluid bolus can often reverse hypoperfusion.

END OF SECTION

Greater Miami Valley EMS Council	Cardiac Protocol	2008
Subject: Suspected Cardiac Chest Pain	Effective: June 1, 2021	Last Modified: Feb. 13, 2023

2008.1 General Guidelines

a. Unstable cardiac patients are hypotensive, or have chest pain with poor skin color or diaphoresis.

2008.2 Clinical Management

Assessment

Pediatric Considerations

- Chest pain in the pediatric patient is rarely related to a cardiac event.
- Assessment for other causes (e.g., muscle pain, respiratory difficulties, injury) should be completed to determine the source of pain.
- Apply supplemental oxygen and transport.
- **THE REST OF CHEST PAIN ALGORITHM DOES NOT APPLY TO PEDS.**

Signs & Symptoms

- Chest pain
- Shortness of breath
- Syncope
- Pallor, Diaphoresis
- Radiation of pain
- Weakness
- Nausea
- Vomiting

Differential Diagnosis

- Pericarditis
- Pulmonary embolism
- Asthma/COPD
- Pneumothorax
- Aortic dissection or aneurysm
- GE reflux or hiatal hernia
- Chest trauma
- Esophageal spasm

Treatment Algorithm

EMR

- Arrange for rapid ALS transport.
- Apply O_2 as appropriate.
  - Oxygen saturations less than 94%, should be given oxygen via NC and titrated to 94%.
  - Oxygen saturations 94% or higher, should not get any oxygen.
- Do not withhold oxygen from a patient with SOB or respiratory distress.

EMT

- ◆ Give **Aspirin (ASA) 324 mg** (chewed) to every patient greater than 25 y/o with symptoms of Acute Coronary Syndrome (ACS).
- ◆ Administer **Nitroglycerin 0.4 mg SL**, every 5 minutes, for pain, to a total of three pills with vital signs between doses.
  - SBP must be greater than 100.
  - Patient must be greater than 25 y/o.
- Prior to moving patient, acquire a supine {12-lead EKG} on all patients with ACS symptoms.
- {Transmit 12 Lead EKG} with two identifiers to MCP.
- The MCP shall be contacted after at least the initial {12-lead EKG transmission} is completed.
- Consult MCP for appropriate destination.
- Consider and transmit repeat {12-lead EKGs} during transport.

AEMT

- ◆ Must obtain MCP permission to administer Aspirin (ASA) to patients 25 y/o or younger
- The AEMT must also transmit the {12-Lead EKGs}
- Administer **Nitroglycerin 0.4 mg SL**, every 5 minutes, for pain, to a total of three pills with vital signs between doses.
- Prior to Nitroglycerin administration, establish vascular access for patients who have not previously had Nitroglycerin.
- Consider 1014 Pain Management Protocol, provided SBP greater than 100 after first dose of nitroglycerin.
  - **DO NOT WAIT UNTIL 3 NITROGLYCERIN TABLETS ARE GIVEN BEFORE CONSIDERING FENTANYL**.
- **IV fluid, up to 500 ml**, may be administered to a patient with SBP less than 100 without pulmonary edema.

Paramedic

- Treat cardiogenic shock with or without pulmonary edema as identified in 4016 Shock .
- If evidence of STEMI, transport to an interventional cardiac catherization lab.
- The Paramedic should only transmit a {12-lead EKG} that meets Cardiac Alert criteria, or that is questionable.

Consult

- Without consultation, the Suspected Cardiac Chest Pain protocol only applies to patients greater than 25 years old with ACS symptoms.
- Contact MCP for further advice with pediatric chest pain as needed.
- For the EMT, the following requires MCP orders:
  - Aspirin administration
  - Nitroglycerin administration
  - Accessing the GMVEMSC Drug Bag

Clinical Pearls

- No significant change in patient condition in the field should be expected from the administration of Aspirin.
- Patient must chew Aspirin.
- Aspirin is contraindicated in third trimester of pregnancy.
- Do not administer Nitroglycerin (NTG) if the patient has taken Viagra, Cialis, Levitra, Revatio, or similar medications within the last 24 hours.

END OF SECTION

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2009.1 General Guidelines

a. The intent of the Program is to decrease the "Door to Balloon" time for pre-hospital AMI Patients.
b. Providers will make early notification to the receiving facility and speak directly with the Physician.
c. The Physician may activate a Cardiac Alert, based on provider impression and {12 Lead EKG} interpretations.

2009.2 Inclusionary Criteria

a. Patients presenting with anginal-type chest pain or an equivalent anginal event may be candidates.
b. Evidence of an AMI (greater than 1mm ST elevation in 2 contiguous leads) on a diagnostic {12-lead EKG}.

2009.3 Exclusionary Criteria

a. Patient with a Left Bundle Branch Block (QRS greater than 120 milliseconds).
b. Patients with a pacemaker rhythm.

2009.4 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• Consider differential diagnosis	• Chest pain • Difficulty breathing • Syncope • Anginal equivalents	• None in the presence of ACS symptoms • Chest trauma • Pulmonary issues • Cardiac Alert imitators on 12 Lead EKG

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• No additional orders at this level.				
• Acquire and transmit the {12 Lead ECG} in any suspected AMI or in cardiac arrest with ROSC. • Contact the receiving hospital for further orders and/or destination directives. • Acquire serial {12 Lead ECGs} enroute to the hospital. ○ The recommendation is to repeat {12 Lead ECGs} every 5 minutes *or* with any change in condition/presentation) • Consider applying defibrillation pads to confirmed myocardial infarction patients. • Transport patients with ST Elevation MI (STEMI) or ROSC after cardiac arrest to an Interventional facility.		✓		
• Consider aggressive fluid administration of **up to 500 ml** to manage cardiogenic shock.			✓	
• Reassess lungs frequently. • In significant AMIs, patients may develop cardiac conduction disorders (PVCs, BBB and 2º or 3º blocks). • If patient develops significant bradycardia, then utilize 2010 Bradycardia • Monitor blood pressure and administer Nitroglycerin or Fentanyl cautiously. **A** If patient is still hypotensive after other therapy, begin **Norepinephrine** by adding 4 mg to 250 ml of IV fluids. Infuse starting at **30 drops per minute (max. 45 drops)** with 60 drop tubing and titrate to effect. Increase by **5 drops/minute** every 5 minutes.				✓

Consult

- The EMT and AEMT should contact the MCP after {12 Lead EKG} transmissions for further orders.
- The Paramedic is expected to read and interpret the {12-lead EKG}.
  - Do not rely solely on the computer interpretation or expect the physician to interpret the transmitted {12 Lead EKG} for you.

Clinical Pearls

- An interventional facility is a hospital that provides Percutaneous Cardiac Interventions 24 hours a day.
- To determine the regional interventional facilities, see 7013 Hospital Capabilities Chart.
- Rerouting at interventional facilities does not apply to Cardiac Alerts.
- Consider air medical transport if the interventional facility is over 30 minutes away.
- Exceptions to transporting to an interventional facility include:
  - It is medically necessary to transport the patient to the closest hospital for stabilization.
  - It is unsafe to transport the patient directly due to adverse weather/ground conditions or excessive transport time.
  - Transporting the patient to would cause a critical shortage of local EMS resources.
  - Patient requests transport to a different facility, despite EMS education of patient.

END OF SECTION

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2010.1 General Guidelines

a. Bradycardia is any rate less than 60 bpm.
b. Non-symptomatic bradycardia may be a normal finding in otherwise healthy individuals.
c. Assess the patient and determine medical history.
d. Treat unexplained or symptomatic bradycardia

2010.2 Clinical Management

Assessment

Pediatric Considerations
- With adequate perfusion, monitor vital signs, and apply oxygen if needed.
- Hypoxia in pediatric patients will produce bradycardia.

Signs & Symptoms
- Heart rate less than 60 bpm
- Syncope
- Unstable bradycardia
  - Hypotension
  - Altered mental status
  - Unresolved chest pain
  - Poor skin color
  - Diaphoresis

Differential Diagnosis
- Acute myocardial infarction
- Hypoxia
- Hypothermia
- Elevated ICP (Stroke or Trauma)
- Spinal cord lesion
- Sick sinus syndrome
- Athletic patients

Treatment Algorithm

- Administer oxygen as indicated.
- Call for transport immediately.
- For adequate perfusion, observe and monitor vital signs.

EMR

- Obtain {12-lead EKG}, transmit and call receiving facility.
- Transport immediately unless ALS intercept is less than 5 minutes.

P For Pediatric patients less than 2 years old:
- P Look for signs and symptoms of shock or hypoperfusion
- P Secure the airway and ventilate with BVM at 1 breath every 3-4 seconds
- P If heart rate and perfusion do not increase within 30 to 60 seconds, then perform CPR.

EMT

- No additional orders at this level.

AEMT

- Obtain and interpret {12 Lead EKG}
- Wide complex bradycardia patients should spark consideration of treatment of hyperkalemia.
  - A ♦ Administer both **Calcium Chloride 10% 1 g** (Calcium Chloride or Gluconate) and **Sodium Bicarbonate 100 mEq**.
  - o Flush well between these medications. It is critical that these drugs not be given together, as they will precipitate.
- With evidence of poor perfusion in adults and pediatrics:
  - A Consider **Atropine 1 mg IV**, up to total of 3 mg.
  - o If treatments are ineffective begin pacing:
    - A If time permits, **Ketamine 25 mg IV** (preferred method) or **Midazolam 2.5 mg slow IV** prior to pacing.
    - A DO NOT reduce Ketamine or Midazolam doses by half for patients greater than 69 y/o
    - A Set at 70 BPM, 20 mA and increase until mechanical capture is obtained.
  - P **Epinephrine (1:10,000) 0.01 mg/kg, IV**, repeat every 5 minutes.
  - o If AV block:
    - P Consider **Atropine 0.02 mg/kg IV** (minimum dose 0.1 mg, maximum single dose 0.5 mg)
    - P May repeat dose every 5 minutes. Max total dose of 1 mg.
    - P Consider pacing:
      - P Pediatric electrodes should be used on patients less than 15 kg.
      - P Consider **Midazolam 0.1 mg/kg** (max dose 2.5 mg) slow IV prior to pacing.
      - P Start with **5 mA** increasing as needed to 200 mA at a rate of 80 bpm until capture.

Paramedic

Consult

- The paramedic will consult for administration of Calcium Chloride 10% (or Gluconate) and Sodium Bicarbonate.

Clinical Pearls

- None

END OF SECTION

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Greater Miami Valley EMS Council	Cardiac Protocol	2011
Subject: Tachycardia	Effective: June 1, 2021	Last Modified: Feb. 11, 2024

2011.1 General Guidelines

a. Tachycardia is any heart rate greater than 100 bpm.
b. Assess the patient and determine medical history.
c. Treat unexplained or symptomatic tachycardia

2011.2 Clinical Management

Assessment

Pediatric Considerations
- With adequate perfusion, monitor vital signs, and apply oxygen if needed.

Signs & Symptoms
- Heart rate greater than 100 bpm
- Dizziness
- Chest pain
- Shortness of breath
- Unstable tachycardia
  - Hypotension
  - Altered mental status thought to be due to tachycardic rhythms

Differential Diagnosis
- Myocardial infarction
- Electrolyte imbalance
- Exertion/pain/emotional stress
- Fever
- Hypoxia
- Hypovolemia or anemia
- Drug overdose
- Hyperthyroidism
- Pulmonary embolus

Treatment Algorithm

EMR
- Administer oxygen as indicated.
- Call for transport immediately.

EMT
- Obtain {12-lead ECG}, transmit and call receiving facility.
- Transport immediately unless ALS intercept is less than 5 minutes.

AEMT
- No additional orders at this level.

Paramedic
- Obtain and interpret {12 Lead ECG}
- Stable:
  - Narrow Complex - Regular
    - A Vagal maneuvers
    - A **Adenosine 6 mg rapid IVP**, saline flush
    - A May repeat **Adenosine 12 mg rapid IVP** x 2, saline flush
  - Wide Complex – Regular or Irregular
    - A **Amiodarone 150 mg in 250 ml NS, IV** over 10 minutes using 60 drop/ml tubing.
    - A If Amiodarone not available use Lidocaine
    - A **Lidocaine 150 mg IV/IO**
- Unstable:
  - A Consider administration of a sedative/analgesic prior to cardioversion
    - A **Ketamine 25 mg IV** (preferred method) or **Midazolam 2.5 mg slow IV**
    - A DO NOT reduce Ketamine or Midazolam doses by half for patients greater than 69 y/o
  - A **Cardioversion: 100, 200, 300, 360 J** for monophasic or biphasic equivalent
- Stable Pediatrics:
  - P Vagal maneuvers (blowing through a straw or oxygen tubing, etc.)
- Unstable Pediatrics:
  - P **Adenosine 0.1 mg/kg rapid IVP** (max dose 6 mg), saline flush.
  - P If no response, **Adenosine 0.2 mg/kg rapid IVP** (max dose 12 mg), saline flush. Repeat x 1.
  - Consider cardioversion.
    - P If time permits, **Midazolam 0.1 mg/kg slow IV** (max dose 2.5 mg).
    - P **Cardioversion 1 J/kg**
    - P If no response, repeat cardioversion at 2 J/kg

Consult

- None

Clinical Pearls

- Paramedics should **not** cardiovert:
  - Patients without hemodynamic changes.
  - Patients whose hemodynamic changes have other apparent causes (e.g., blood loss).
- If patient has history of Paroxysmal Supraventricular Tachycardia (PSVT) and advises it takes 12 mg of Adenosine, then skip the 6 mg dose.

END OF SECTION

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3000 Series

Trauma Protocol

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Greater Miami Valley EMS Council	Trauma Protocol	3001
Subject: General Trauma Management	Effective: June 1, 2021	Last Modified: Feb. 11, 2024

3001.1 General Guidelines for Care of a Trauma Patient

a. Minor trauma patients may be transported to non-trauma centers.

b. Major trauma patients are to be transported as soon as possible to the nearest appropriate facility.

c. 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.

d. If patient meets criteria as defined in 3018 Trauma Transport Guidelines, then call "Trauma Alert".

e. If transporting by helicopter, ensure a copy of the patient care report gets to the receiving facility.

3001.2 Clinical Management

Assessment		
Pediatric Considerations • May not exhibit typically • Injuries may not present as an adults do • Will present decompensated shock late	**Signs & Symptoms** • Traumatic injuries • DCAP-BTLS	**Differential Diagnosis** • Medical complaints with S/S that mimic traumatic injuries

Treatment Algorithm

- The *only* procedures that should take precedence to transport of major trauma patients are:
  - Airway management
  - Stabilization of neck/back or obvious femur and pelvic fractures on a backboard
  - Exsanguinating hemorrhage control
  - Extrication
- Maintain patient's body temperature.
- Take a manual BP on all trauma patients.
- Repeat vitals on trauma patients every 5 minutes.

EMR

- On-scene time should be limited to **10 minutes or less**, except when there are extenuating circumstances
- Report Mechanism of Injury, Injuries, Vital signs, Treatment (MIVT), GCS with components, and ETA to the receiving facility

EMT

- IVs should be established en route to the hospital unless the patient is trapped, transport is otherwise delayed, or patient has no life-threatening injuries, and transport prior to analgesia would be extremely painful.
  - A Start the IV with a large bore catheter and macro drip tubing.
  - A Administer up to a **1000 ml IV fluid** bolus
  - P Administer **20 ml/kg of IV fluid**
  - A IV flow rates are as follows:
    - Keep open rate for major head trauma with adequate perfusion
    - IV wide open if the patient has inadequate perfusion (including head trauma) utilizing {**IV** Pressure Infusion Pump or Bag} or similar equipment if available
- Titrate all IV flow rates to maintain SBP ~ 100
- For penetrating trauma to the chest and abdomen:
  - If a radial pulse is present and the patient is conscious and mentating, load and go.
  - If no radial pulse, infuse IV fluid in 250 ml boluses until radial pulse is present and then stop fluid.
- Consider 1014 Pain Management Protocol.

AEMT

- No additional orders at this level.

Paramedic

Consult

- Use of on-line MCP for medical direction in the field for difficult cases is encouraged.
- **Pre-arrival notification of the receiving facility is essential!**
- Keep the receiving hospital informed on the patient's condition, significant changes should be reported.

Clinical Pearls

- Hypothermia is a significant and frequent problem in shock for major trauma patients.
- Surgical emergencies with increased fluid administration cause dilution, lower body temperatures and increase coagulopathies, all of which increase mortality.
  - To address this, allow for "permissive hypotension,"
  - This means that IV fluids are not administered to these patients unless there is loss of radial pulse.

END OF SECTION

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3002.1 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Significant injuries or life threats	**Differential Diagnosis** • None

Treatment Algorithm

EMR

- Patients meeting criteria for transport to a Trauma Center are considered "Load and Go."
- Place the patient in a correct position to maintain the airway.
- Open pneumothorax: cover wound with an occlusive dressing, tape down three sides.
- Tension pneumothorax: lift one side of any occlusive dressing.
- Flail chest: stabilize immediately with a gloved hand, then immobilize with a bulky dressing or towels taped to the chest
- Apply positive pressure ventilation where indicated.
- Oxygenate the patient with 100% O_2.

EMT

- No additional orders at this level.

AEMT

- Tension pneumothorax:
  - Use caution not to confuse right main stem intubation for a pneumothorax.
  - Perform needle decompression as indicated
    - Decompress the chest with a 14-gauge or larger, 3 ¼" angiocath
    - Location options include:
      - Fourth or fifth intercostal space in the mid-axillary line
      - Second or third intercostal space in the mid-clavicular line (use nipple line as a guide)

      P In patients less than 8 years old, decompression site choice will be limited to the second or third intercostal space at the mid-clavicular line

Paramedic

- No additional orders at this level.

Consult

- Contact Medical Control and advise them of patient condition with MIVT, ETA, and GCS components.

Clinical Pearls

- For pregnant patient in arrest consider need for manual uterine displacement.

END OF SECTION

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3003.1 General Guideline

a. When assessing the level of consciousness, use the Glasgow Coma Score.

b. All patients should have at least one recorded and reported GCS.

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

END OF SECTION

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3004.1 General Guidelines

a. Traumatic cardiac arrest care will follow the same algorithm as other cardiac arrest scenarios.

b. If appropriate, providers may consider termination of resuscitation (TOR).

3004.2 Termination of Resuscitation

a. Emergency medical responders (EMRs) may **not** terminate a trauma cardiac arrest.

b. The criteria for termination of resuscitation in arrest from blunt or penetrating trauma is:

i. No immediately reversible cause can be determined after rapid primary survey and treatment.

ii. No signs of life after BLS (e.g. respiratory effort, purposeful movement, reactive pupils, etc.)

iii. Sustained $EtCO_2$ of below 10 mmHg

iv. If no ALS equipment is available at the scene and transport will exceed 20 minutes.

c. Continue care and transport if patient arrests **after** in the care of EMS.

3004.3 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• If the pediatric patient does not meet non-initiation criteria, then begin resuscitation.	• Cardiac arrest with traumatic injury or significant mechanism of injury • Unresponsive, pulseless and apneic • Excessive hemorrhage	• Signs of irreversible death • Other causes of unresponsiveness • Meets 1003 Non-initiation of Care Protocol

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Initiate basic life support as defined in 2002 Cardiac Arrest – BLS • Internal/External hemorrhage control (e.g., tourniquets, pelvic binders, etc.)	■			
• Consider the possibility of both medical and traumatic causes (mixed mechanisms). • Initiate a Rapid Primary Survey for reversible causes. TREATMENT OF REVERSIBLE CAUSES SHOULD BE A PRIORITY. • Cardiac monitoring/defibrillations via AED. • ♦ Consider Termination of Resuscitation. (AEMT and Paramedic will continue through the algorithm before termination).		■		
• Continue treating any organized rhythm with rate greater than 40 because of the potential of pseudo-PEA. • Secure airway and confirm with continuous $EtCO_2$. • Bilateral needle decompression as indicated (ex. high airway resistance, chest trauma, subcutaneous air). ○ Fourth or fifth intercostal space in the mid-axillary line ○ Second or third intercostal space in the mid-clavicular line (use nipple line as a guide) P In patients less than 8 years old, decompression site choice will be limited to the 2nd or 3rd intercostal space at the mid-clavicular line • Repeat needle decompression as indicated (continued high airway pressure). • Administer rapid IV fluid administration: P Administer up to **1000 ml IV fluid** P Administer **20 ml/kg of IV fluid** • If ROSC is achieved, transport immediately.			■	
• No additional orders at this level				■

Consult

- Contact MCP for Field Termination
- Be ready to provide the following information:
  - Duration of resuscitation
  - How long the patient was in arrest prior to EMS arrival
  - Witnessed or unwitnessed cardiac arrest
  - Capnography values
  - Presenting rhythm (for AEMT and Paramedic)

Clinical Pearls

- For pregnant patient in arrest consider manual uterine displacement
- In field terminations, send a copy of the run sheet to the EMS Coordinator of the authorizing MCP's hospital

END OF SECTION

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3005.1 General Guidelines

a. It is strongly recommended that at dispatch, agencies immediately call for the nearest available cyanide antidote cache whenever any of the following occur:
   i. Dispatched on a report of a person trapped with exposure to fire or smoke in an enclosed area.
   ii. Dispatched on a report of an incident involving cyanide.
   iii. Report of a Mayday or firefighter down with exposure to fire or smoke in an enclosed area.
b. Estimate and report total Body Surface Area (BSA) involved using universally accepted methods.
   i. BSA estimates should include only full and partial thickness burns.
c. Inhalation injuries with an unsecured airway should be transported to the nearest facility.
d. Chemical burns are hazardous material situations and must be grossly decontaminated at the scene.

3005.2 Specific Care for Different Burns

a. Radiation burns:
   i. If there is radioactive material on the patient, then they must be decontaminated.
      1. Consider contacting a Hazardous Materials Team for assistance with decontamination.
      2. Contact the hospital prior to arrival like with any other hazardous materials case.
   ii. Treat critical medical conditions first.
   iii. Treat injuries like thermal burns once the area is decontaminated

3005.3 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Burns, pain, swelling • Loss of consciousness • Hypotension/shock • Airway compromise/distress • Singed facial or nasal hair • Hoarseness/wheezing	• Superficial burns • Partial thickness burns • Full thickness burns • Chemical, Thermal, Electrical, Radiation burns

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Stop the burning and minimize contamination. • Assess for respiratory distress, stridor, hoarseness, sooty sputum, singed eyebrows and nares, or burns of the face or airway. • If available, use {CO oximeter}. • For inhalation burns: Administer high flow **oxygen** via non-rebreather mask. • Keep patient warm. • Superficial or partial thickness burns 10% BSA or less may have wet dressings applied. • Burns greater than 10% BSA may be covered with clean, dry sheets or dressings. • Do not apply ice or ice packs to burns, if ice was applied prior to arrival, then remove. • Remove clothing and jewelry from injured parts. **Do not remove items which have adhered to the skin.**				
• If available deliver {humidified} oxygen. • For inhalation burns: If no humidifier is available, administer **Saline 3 ml** via nebulizer. Repeat PRN				
• Apply cardiac monitor, especially if patient has suffered a lightning strike or electrical burn. • Provide endotracheal intubation if apneic. • Administer fluids to maintain perfusion, do not overhydrate. Fluids should be a balanced electrolyte solution when available. • IV access can be acquired in areas with burnt tissue if necessary and before intraosseous needle access. • Consider 1014 Pain Management Protocol.				
• Early intubation as indicated. Do not wait for complete airway obstruction or respiratory arrest. • For known or suspected cyanide poisoning, use 3014 Cyanide Poisoning and Antidotes				

Consult

- None

Clinical Pearls

- Patients with severe burns should be transported to a Burn Center unless ETA greater than 30 minutes.
- BP may be taken over damaged tissue if no other site is accessible.

END OF SECTION

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3006.1 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Malaise, fatigue, drowsiness • Flu like symptoms • Headache • Dyspnea • Nausea/vomiting • Diarrhea • Abdominal pain • Syncope • Seizures	• Flu/Severe cold • Chronic fatigue • Myocardial infarction • Diabetic crisis • Altitude sickness • Ingested toxins • Hypothyroidism

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Remove patients from the environment. • Provide high flow O_2 to all suspected carbon monoxide poisonings. • Pulse oximeter will give false readings and should not be utilized. • {CO oximeter}				
• Contact MCP to discuss transport considerations.				
• No additional orders at this level.				
• No additional orders at this level.				

Consult

- Look to Medical Control for guidance on transport destination.

Clinical Pearls

- When determining destination, consider possible hyperbaric oxygen treatment for the following patients with suspected CO exposure:
  - Underlying cardiovascular disease or symptoms such as chest pain or shortness of breath
  - Greater than 60 years of age
  - Obvious neurological symptoms, such as any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory
  - Smoke inhalation victims
  - Pregnancy

END OF SECTION

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3007.1 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• No pediatric medication doses should exceed total adult doses.	• Patient entrapped • Patient under a heavy load and crushed • Hypotension • Hypothermia • Abnormal ECG findings • Pain • Anxiety	• None

Treatment Algorithm

- ♦ Contact MCP immediately and prior to relieving the load. (EMR)
- Prepare for the patient to decompensate when extricated. (EMR)
- Monitor and reassess (EMR)
- {12-lead ECG} as soon as feasible (EMT)

A **1 liter IV** fluid bolus IV. Then **500 ml/hour IV**
P IV fluid, **20 ml/kg IV**

- Follow 1014 Pain Management protocol (AEMT)
- If hypotensive and the patient has been entrapped > 1 hour: (AEMT)
  - A Give additional IV fluid, **1 liter IV**.
  - P Give additional IV fluid, **20 ml/kg IV**.
- ♦ Consider sedation: (AEMT)
  - A **Ketamine 250 mg IM**, may repeat after 10 minutes
  - G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses
  - P **Ketamine 5 mg/kg IM**, max dose of **250 mg**
- Monitor for fluid overload (AEMT)

- Normal ECG and hemodynamically stable, immediately prior to extrication: (Paramedic)
  - A **Sodium Bicarbonate 100 mEq IV**
  - P **Sodium Bicarbonate 1mEq/kg IV**

or

- Abnormal ECG and hemodynamically unstable: (Paramedic)
  - If after release, hyperkalemia causes wide bizarre EKG complexes with:
    - Peaked T waves with a QRS greater than or equal to 0.12 seconds
    - QT ≥ 0.46 seconds
    - Loss of P wave
    - Bundle Branch Blocks
    - Premature ventricular contractions
    - Bradycardia
  - ♦ Consider **Calcium Chloride, 1 gm**, flush line well before **Sodium Bicarbonate**
  - **Albuterol 10 mg** nebulized
  - A **Sodium Bicarbonate 100 mEq IV**
  - P **Sodium Bicarbonate 1mEq/kg IV**

Consult

- Contact MCP immediately and prior to relieving the load.
- MCP orders needed for sedation.
- The paramedic must call MCP for orders to give Calcium Chloride to the unstable patient.

Clinical Pearls

- Consider the potential for multiple system trauma
- Consider the potential for hypo or hyperthermia

END OF SECTION

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3008.1 General Guidelines

a. Cyanide antidotes are located in multiple caches in each of the counties throughout the region, and are available by contacting 937-333-USAR (8727).

b. The cache agency closest to your incident will be dispatched, which will respond with both a Cyanokit and 3 doses of Sodium Thiosulfate, to provide for the potential of multiple patients.

3008.2 Indications To Call For The Cache

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

i. Report of a person trapped with exposure to fire or smoke in an enclosed area.

ii. Report of an incident involving cyanide.

iii. Report of a Mayday or firefighter down with exposure to fire or smoke in an enclosed area.

3008.3 General Treatment

a. Treatment of cyanide poisoning must include immediate attention to airway patency, adequacy of oxygenation and hydration, cardiovascular support, and management of any seizure activity.

3008.4 Clinical Management

Assessment

Pediatric Considerations

- For pediatric administration of Hydroxocobalamin (Cyanokit):
  - Mix 200 ml NaCl in 5 g vial (concentration is 25 mg/ml)
  - 70 mg x patient weight in kg = total dose administered over 15 minutes.
  - Divide doses in half for repeat administration
- See dosing chart at end of this tab for calculating pediatric doses

Signs & Symptoms

- Known or strongly suspected cyanide exposure
- Altered mental status
- Seizures
- Shock
- Difficulty breathing

Differential Diagnosis

- None

Treatment Algorithm

- Provide 100% O_2 via non-rebreather mask.
- If unconscious, provide 100% O_2 by BVM

EMR

- Consider CPAP for suspected smoke inhalation.

EMT

- Intubate if patient is apneic
- Establish one IV in each arm if possible.
- It is critical to control any seizure activity, as defined in 4014 Seizures

AEMT

- If available consider {BiPAP} for suspected smoke inhalation.
- ♦ Hydroxocobalamin (Cyanokit):
  - A ♦ Administer **5 grams via slow IV** infusion over 15 minutes at a rate of 15 ml/min., using supplied 20 ml/min infusion set
  - A ♦ May repeat **5 grams via slow IV** infusion over 15 min to 2 hours, depending on clinical response.
  - P ♦ Administer **70 mg/kg slow IV** over 15 minutes; max dose of 5000 mg (5 grams), using supplied 20 ml/min infusion set
  - P ♦ May repeat **35 mg/kg slow IV**; max dose 2500 mg (2.5 grams), depending on clinical response.

or

- ♦ Sodium Thiosulfate:
  - A ♦ If greater than 25 kg: Administer **12.5 grams (50 ml) 25% solution slow IV**.
  - P ♦ If less than 25 kg: Administer **412.5 mg/kg (1.65 ml/kg) 25% solution, slow IV** (max dose 12.5 g (50 ml)).

Paramedic

Consult

- Orders for cyanide antidotes are **not** needed in cardiac arrest.
- ♦ Contact MCP to administer both Hydroxocobalamin (Cyanokit) and Sodium Thiosulfate to the same patient.

Clinical Pearls

- If a patient is in arrest, administer Hydroxocobalamin as quickly as possible.
- Only CAB, defibrillation, intubation, and epinephrine should precede use of the cyanide antidotes.
- Hydroxocobalamin is incompatible with numerous drugs including Diazepam.
- Whenever possible establish two IV lines in a different vein or limb, one for standard protocol drugs and one for cyanide antidotes.
- While IV infusion is the preferred method of cyanide antidote administration, in extreme cases the medications could be given via IO.
    - If administering cyanide antidotes via IO, a traditional drip set may not be effective and measures may need to be taken to slowly push the medication in.

3008.5 Pediatric Dosing Chart

Weight (kg)	5	10	15	20	25	30	35	40	50	60	>70
Dose (mg)	350	700	1050	1400	1750	2100	2450	2800	3500	4200	5000
Amount needed for 70mg/kg	**14 ml**	**28 ml**	**42 ml**	**56 ml**	**70 ml**	**84 ml**	**98 ml**	**112 ml**	**140 ml**	**168 ml**	**200 ml**

END OF SECTION

Greater Miami Valley EMS Council	Trauma Protocol	3009
Subject: Drowning	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

3009.1 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • History of submersion • Period of unconsciousness • Decreased or absent vital signs • Vomiting • Coughing	**Differential Diagnosis** • Trauma • Pre-existing medical problem • Barotrauma (diving) • Decompression sickness

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Consider Spinal Motion Restriction • Consider possibility of hypothermia. If present follow 3016 Hypothermia • Evaluate neurological status.	■			
• Drowning patients should be transported to a Trauma Center.		■		
• Establish vascular access.			■	
• No additional orders at this level				■

Consult

- None

Clinical Pearls

- All submersion victims should be transported due to potential for worsening over the subsequent few hours.

END OF SECTION

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3010.1 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Deformities • Inflammation • Pain upon movement • Immobility • Paresthesia	**Differential Diagnosis** • None

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing. • If practical consider elevating the limb. • Apply appropriate splinting device. • If the extremity is severely angulated and pulses are absent, apply gentle traction in an attempt to bring the limb back into a natural anatomic position. If resistance is encountered, splint the extremity in the angulated position. • Apply cold pack to reduce swelling.	■			
• No additional orders at this level		■		
• Consider 1014 Pain Management Protocol			■	
• No additional orders at this level				■

Consult

- None

Clinical Pearls

- Document distal motor, sensation and circulation before and after splinting, or spinal motion restriction.
- Open wounds should be covered with a sterile dressing before splinting.
- Immobilize above and below the injury.
- The patient who requires a load and go approach can be adequately immobilized by careful packaging on the long spine board. Do additional splinting enroute to the hospital as time and the patient's condition permit.

END OF SECTION

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Greater Miami Valley EMS Council	Trauma Protocol	3011
Subject: Eye Injuries	Effective: June 1, 2021	Last Modified: Oct. 11, 2021

3011.1 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Irritation to eye • Visual disturbances or loss of vision • Obvious penetrating injury • Burns • Nausea	**Differential Diagnosis** • Hypertension • Contact lens issue

Treatment Algorithm

- If possible, contact lenses should be removed. Contacts should be transported with patient.
- Use nasal cannula with IV tubing for irrigation.
- Chemical Burns:
  - Irrigate immediately with **IV fluid** or water for a minimum of 30 minutes or until patient transport is completed.
  - Determine chemical involved. Bring Safety Data Sheets, if available.
- Major Eye Trauma:
  - Do not irrigate if there is penetrating trauma to the eye.
  - Cover both eyes to limit movement.
  - Do not use a pressure or absorbent dressing on or near any eye that may have ruptured or have any penetrating trauma.
- The patient should be transported with head elevated at least 30°.

EMR

- No additional orders at this level.

EMT

- No additional orders at this level.

AEMT

- Prior to irrigation with IV fluid or for significant eye pain, **Tetracaine** 2 drops in affected eye.
  - Do not irrigate or use Tetracaine if penetrating trauma to the eye is present.
- Use {Morgan Lens} or nasal cannula with IV tubing for irrigation.

Paramedic

Consult

- None

Clinical Pearls

- None

END OF SECTION

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3012.1 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Cold, clammy skin • Shivering • Mental status changes • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock	**Differential Diagnosis** • Head Injury • Spinal cord injury

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Protect injured areas. • Remove clothing and jewelry from injured parts. • Do not attempt to thaw injured part with local heat. • Maintain core temperature.	■			
• Severe frostbite injuries should be transported to a Burn Center.		■		
• Establish vascular access and consider {warmed} fluids. • Consider 1014 Pain Management Protocol.			■	
• No additional orders at this level				■

Consult

- None

Clinical Pearls

- None

END OF SECTION

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3013.1 Clinical Management

Assessment		

Pediatric Considerations
• Assess the fontanelles in younger patients
	Signs & Symptoms
	• Visible head trauma
	• Altered LOC
	• Cushing's Triad or similar V/S
	  ○ Ataxic Respirations
	  ○ Increased B/P
	  ○ Bradycardia
	• Pupillary changes
	• Posturing
		Differential Diagnosis
		• Alcohol/Acidosis
		• Epilepsy/Endocrine
		• Infection
		• Overdose/Oxygen Deficiency
		• Uremia
		• Tumor
		• Insulin
		• Psychogenic/Poison
		• Stroke/Shock

Treatment Algorithm	EMR	EMT	AEMT	Paramedic

• Evaluate level of consciousness, pupillary size and reaction.
• Establish Glasgow Coma Score and reassess frequently.
• Ventilate at 20 breaths per minute when signs of cerebral herniation are present:
  ○ {Ventilate to maintain $EtCO_2$ readings of 30 mmHg (30 torr)}.
  ○ Never ventilate at less than 8 per minute.
P Ventilate at a rate of ten faster than normal respiratory rate when the signs of cerebral herniation are present.				

• No additional orders at this level				
• No additional orders at this level				
• No additional orders at this level				

Consult
• None

Clinical Pearls
• Signs of cerebral herniation: Dilated and unresponsive pupils, bradycardia, posturing, decreased mental status. • Hyperventilation will decrease intracranial pressure (ICP).

END OF SECTION

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Subject:	Effective:	Last Modified:
Heat Exposure	June 1, 2021	Oct. 10, 2021

3014.1 Clinical Management

Assessment

Pediatric Considerations
- May not exhibit typically
- Do not thermoregulate well

Signs & Symptoms
- History of heat exposure
- Cramping
- Hot or flushed skin
- Excessive sweating
- Nausea/vomiting
- Mental status changes

Differential Diagnosis
- Thyroid storm
- Excited delirium
- Malignant hyperthermia
- Alcohol
- Epilepsy
- Insulin
- Trauma
- Infection
- Psychosis
- Stroke

Treatment Algorithm

- Move patient to a cool environment
- Remove patient's clothing
- Continuously apply water to the skin to cool the patient, use fan for evaporation if available
- Apply cold packs to underarms and groin area
- Cold water submersion is an acceptable method for cooling heat stroke patients. You may encounter patients in cooling body bags. The goal is to lower temperature to less than 102.5^{0}F
- If conscious and not vomiting or extremely nauseous, provide oral fluids
- Be prepared for seizures
- Consider other medical conditions (e.g., overdose, hypoglycemia, CVA) and treat accordingly

EMR

- Hyperthermia patients should be transported to a Trauma Center

EMT

- If hypotensive or mental status changes:
  - A **IV fluid 500 ml IV**
  - P **IV fluid 20 ml/kg IV** (max 500)
- May repeat both adult and pediatric fluid bolus one time
- ♦ Additional **IV fluid,** if indicated
- Consider other medical conditions (e.g., overdose, hypoglycemia, CVA) and treat accordingly

AEMT

- No additional orders at this level

Paramedic

Consult

- For additional (more than 2) fluid challenges in adults

Clinical Pearls

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

END OF SECTION

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3015.1 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Significant bleeding • Shock-like symptoms	• None

Treatment Algorithm

- Control of life-threatening external hemorrhage takes priority over any other treatment.
- Constant, direct pressure is the primary method of bleeding control.
- If direct pressure fails to control bleeding from extremities, use a tourniquet.
  - {Commercial tourniquets such as the CAT or SOFTT are recommended}
  - Only use wide, flat materials such as cravats or BP cuffs as improvised tourniquets
  - Place a tourniquet as proximal as possible to the torso on the femur or humerus
  - Tighten the tourniquet until the bleeding stops
  - If bleeding persists, place another tourniquet abutted to the first tourniquet
  - Document time and location
  - Be sure that the ER staff is aware of the tourniquet
- {For life-threatening hemorrhage that can't be controlled by tourniquets, consider hemostatic dressings}.
  - Combat Gauze, or ChitoFlex PRO are examples
  - These can be used on the chest or abdomen
  - Place in direct contact with the source of bleeding and apply a pressure dressing or use Kerlix
  - DO NOT USE GRANULAR AGENTS
- {Wound Packing may be performed by providers at any level, as long as they have received proper training}
  - This procedure is not to be used on open wounds to the head, chest or abdomen
  - Use sterile gauze or approved hemostatic products
  - Gauze should be placed as deeply in the wound as possible using a gloved digit and continuous pressure
  - Excessive force is not necessary and may be harmful.
  - Apply a pressure dressing and manual direct pressure over the packed wound for at least 3 minutes
  - Do not remove wound packing once placed in the cavity
  - Notify the ED staff of the use of wound packing on arrival at the destination
- Treat for hypovolemic shock as indicated.

EMR

- No additional orders at this level

EMT

- No additional orders at this level

AEMT

- No additional orders at this level

Paramedic

Consult

- None

Clinical Pearls

- None

END OF SECTION

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3016.1 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Cold, clammy skin
- Shivering
- Mental status changes
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

Differential Diagnosis
- Sepsis
- Hypoglycemia
- Stroke
- Head Injury
- Spinal cord injury

Treatment Algorithm

- Move patient to warm environment, remove all wet clothing, dry the patient, and cover with blankets.
- Avoid any rough movement that may cause cardiac dysrhythmias or cardiac arrest.
- It may be beneficial to consider spinal motion restriction measures.
- Assess neurological status.
- Oxygenate the patient with 100% O_2.
- If patient goes into cardiac arrest:
  - CPR continuously
  - In severe hypothermia (less than 86°F [30°C]), limit defibrillation attempts to one except on orders from MCP.
  - If body temperature is (more than 86°F [30°C]), follow normal arrest protocols.

EMR

- If available, provide {warmed and humidified} 100% O_2.
- Hypothermic patients should be transported to a Trauma Center.
- Resuscitative efforts should be continued while in transit, even if there is no response.

EMT

- Use the least invasive means possible to secure airway.
- Intubate if necessary, as gently as possible.
- Establish vascular access and consider {warmed} fluids.

AEMT

- Treat bradycardia only if patient is hypotensive.

Paramedic

Consult

- Consult with MCP for cardiac arrest management of the severely hypothermic patient.
  - All levels should consult with MCP for orders to administer second and subsequent defibrillations.
  - Paramedics must consult with MCP for orders to administer cardiac arrest medications.

Clinical Pearls

- It may be necessary to assess pulse and respirations for up to 45 seconds to confirm arrest.
- Do not initiate CPR if there is any pulse present, no matter how slow.

END OF SECTION

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3017.1 General Guidelines

a. Studies indicate traditional spinal restriction has risks and may even cause harm in some cases.

b. Spinal Motion Restrictions allows for an assessment-based management of the injured patient.

c. Spinal precautions should always be taken when dealing with at risk patients.

d. This protocol does not indicate that providers do not immobilize the spine; it simply provides a different means of restriction in selected patients.

e. These guidelines apply to providers at all certification levels.

3017.2 Blunt Trauma Patients – Full Immobilization

A All patients with clinical indications of a spinal injury and/or with altered levels of consciousness must be immobilized with both a C-collar and a spinal restriction device. (e.g., spine board, KED, vacuum splint).

P Pediatric trauma patients less than 3 years of age with a GCS of less than 15 must be immobilized with both a C-collar and a spinal restriction device.

3017.3 Blunt Trauma Patients – SMR

a. Other alert trauma patients, including all those listed below, should have a c-collar placed and moved with caution in-line as a unit to the cot. They would not need a backboard:
   i. Patients with neck pain
   ii. Patients with midline neck or spinal tenderness
   iii. Patients with pain upon motion of the neck
   iv. Cases with high risk mechanism (high speed MVC, fall greater than 10 feet, axial loading injury)

3017.4 Penetrating Trauma

a. Patients with penetrating trauma do not need immobilization with either a cervical collar or backboard.

b. Delays in transport are to be minimized and place the patient at greater risk.

3017.5 Airway or Ventilatory Management

a. Patients who are immobilized and require airway and or ventilatory interventions (including intubation) may have the cervical collar removed during the intervention.
   i. In-line stabilization should be maintained while the intervention is performed.

b. The cervical collar should be reapplied after the intervention is either accomplished or abandoned.

3017.6 Equipment Issues

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

b. Helmets of any kind that prevent either effective SMR or airway management should be removed.

3017.7 Other Considerations

a. Patients greater than 69 y/o should be considered “high risk” patients for spinal injury and require closer assessment. With these patients, lean towards applying a cervical collar.

b. If the patient meets the standards for a Trauma Alert Activation, consider a cervical collar at a minimum.

c. Patients who do not tolerate any level of restriction should have that restriction adjusted to the point of removal if necessary based on clinical response.
   i. Examples include shortness of breath, anxiety, and body habitus
   ii. They should be transported in the manner of restriction that they can tolerate.

d. Spinal restriction of the purpose of patient movement
   i. Spinal restriction devices may be utilized for movement from a site of injury to the cot.
   ii. Patients who do not require restriction should be removed from the device prior to transport.

3017.8 Clinical Management

Full Spinal Motion Restriction

- Patients with GCS less than 15 including confusion and intoxication
- Patients with altered LOC
- Patients with neurologic deficits including paralysis
- Patients with clinical indications of a spinal injury
- Patients less than 3 y/o with GCS less than 15

C-Collar and Move In-line to Cot

- Patients that have a GCS of 15 and present with:
  - Neck pain
  - Midline neck tenderness
  - Pain on motion of the neck
  - High risk Mechanism of Injury (MOI)

SMR Is Not Required

- Penetrating trauma
- Patients that do not fall into the other two conditions

EXCEPTIONS

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

END OF SECTION

3018.1 Interpretation of Trauma Triage Guidelines

a. This guideline meets the requirement of OAC 4765-14, defining Trauma Triage Guidelines for the region
b. This guideline can separately provide direction as to when a provider should call a "Trauma Alert"
c. Not all patients who meet Trauma Triage Criteria may need a trauma alert

3018.2 State of Ohio Trauma Triage Age Considerations

a. For the purposes of trauma guidelines, the criteria for patient age are:
   - **P** Less than 16 years old will be pediatric patients
   - **A** 16 years old to 69 years old will be adult patients
   - **G** Greater than 69 years old will be geriatric patients

3018.3 Trauma Center or Facility Capabilities:

a. Level I and II Trauma Centers can care for the same trauma patients.
b. Level III Trauma Centers offer services, based on individual hospital resources that provide for initial assessment, resuscitation, stabilization, and treatment of the trauma patient.
c. In some areas of the region a Level III Trauma Center is the only trauma facility within 30 minutes ground transport time. This hospital may act as the primary receiving facility for the critically injured patient.
d. In areas where the trauma patient is closer to a Level III Trauma Center, but a Level I or Level II Trauma Center is still within 30 minutes, the EMS Provider should decide whether the patient would benefit more from an immediate evaluation, stabilization, and treatment at the Level III Trauma Center, or from direct transport to a Level I or Level II Trauma Center.
e. In areas of the region where there are no Trauma Centers within 30 minutes ground transport time, the acute care hospital may act as the primary receiving facility for critically injured trauma patients, or EMS Provider may arrange for air medical transport from the scene.

P If a pediatric patient meets the trauma triage guidelines, transport to a Pediatric Trauma Center.

P Pediatric patients should be transported in an appropriately sized child restraint system.

f. If transportation time is greater than 30 minutes, transport to the nearest acute care hospital, or EMS providers may arrange for air medical transport from the scene.
g. All pregnant trauma patients should be rapidly transported to the nearest Adult Trauma Center with labor and delivery capabilities, unless transport time is greater than 30 minutes.

3018.4 Air Medical Transportation:

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

3018.5 Exceptions to Transportation Guidelines:

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

3018.6 Trauma Criteria:

a. Anatomical Criteria:

i. Penetrating trauma to head, neck, torso

ii. Significant, penetrating trauma to extremities proximal to elbow or knee with evidence of neurovascular compromise.

iii. Injuries to the head, neck, or torso where the following physical findings are present:

1. Visible crush injuries
2. Abdominal injury with tenderness, distention, or seat belt sign
3. Evidence of pelvic fracture
4. Flail chest

iv. Injuries to extremities where the following physical findings are present:

1. Amputation proximal to wrist or ankle
2. Visible crush injuries
3. Fractures of two or more proximal long bones
   - **G** One proximal long bone fracture in MVC only
4. Evidence of neurovascular compromise

v. Signs and symptoms of spinal cord injury

vi. 2nd or 3rd degree burns greater than 10% total body surface area (BSA) or other significant burns involving the face, feet, hands, genitals, or airway

G Injury sustained in two or more body regions

vii. Open skull fracture

Meets Anatomical Criteria = Transport to Trauma Center	Does Not Meet Above Criteria = Continue Assessment
Call Trauma Alert if patient presentation indicates	Assess for Physiologic Criteria

b. Physiological Criteria:

i. Adult Physiological Criteria:

- **A** GCS less than or equal to 13
- **A** Loss of consciousness greater than five minutes
- **A** Deterioration in level of consciousness at the scene or during transport
- **A** Failure to localize pain
- **A** Respirations less than 10 or greater than 29
- **A** Needs ventilatory support
- **A** Requires relief of tension pneumothorax
- **A** Pulse greater than 120 in combination with evidence of hemorrhagic shock
- **A** SBP less than 90 or absent radial pulse with carotid pulse present

ii. Pediatric Physiological Criteria:

- **P** GCS less than or equal to 13
- **P** Loss of consciousness greater than five minutes
- **P** Deterioration in level of consciousness at the scene or during transport
- **P** Failure to localize pain
- **P** Evidence of poor perfusion (e.g., weak distal pulse, pallor, cyanosis, delayed capillary refill, tachycardia)
- **P** Evidence of respiratory distress or failure (e.g., stridor, grunting, retractions, cyanosis, nasal flaring, hoarseness, or difficulty speaking)
- **P** Respiratory rate less than 20 per minute in infants less than 1 year old.

iii. Geriatric Physiological Criteria:
- G GCS less than or equal to 13
  a. GCS less than or equal to 14 with evidence of Traumatic Brain Injury
- G Loss of consciousness greater than five minutes
- G Deterioration in level of consciousness at the scene or during transport
- G Failure to localize pain
- G Respirations less than 10 or greater than 29
- G Needs ventilatory support
- G Requires relief of tension pneumothorax
- G Pulse greater than 120 in combination with evidence of hemorrhagic shock
- G SBP less than 100 or absent radial pulse with carotid pulse present

Meets Physiological Criteria = Transport to Trauma Center	Does Not Meet Above Criteria = Continue Assessment
Call Trauma Alert if patient presentation indicates	Look at Special Considerations

c. Special Considerations:
- i. Vehicle telemetry provides data consistent with high risk of injury
- ii. On scene fatality in the same vehicle
- G Pedestrian struck by a motor vehicle
- G Falls from any height, including standing falls, with evidence of traumatic brain injury

Special Considerations = Transport to Trauma Center	Does Not Meet Above Criteria = Consider MOI
Call Trauma Alert if patient presentation indicates	Transport to most appropriate hospital

d. Mechanism of Injury:
- i. Auto-pedestrian/auto-bicycle injury with significant (faster than 5 mph) impact
- ii. Ejection from motor vehicle or unrestrained rollover
- iii. Extrication time longer than 20 minutes
- iv. Fall of more than 20 feet
  - P Fall greater than 3 times child's height
- v. High-speed auto crash
  1. Estimated speed faster than 40 mph
  2. Intrusion into passenger compartment of more than 12 inches
  3. Major auto deformity of more than 20 inches
- vi. Open motor vehicle crashes faster than 20 mph or with separation of rider from vehicle
- vii. Pedestrian thrown or run over

e. Special Situations:
- i. Pre-existing cardiac or respiratory disease
- ii. Diabetes, cirrhosis, morbid obesity, seizure disorder
- iii. Patient with bleeding disorder or on anticoagulants or anti-platelets
- iv. Immuno-suppressed patients (renal dialysis, transplant, cancer, HIV)
- v. Congenital disorder

MOI or Special Considerations = Consider Trauma Center	No Significant MOI or Special Considerations
No need to call Trauma Alert if no significant symptoms	Transport to most appropriate hospital

END OF SECTION

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3019.1 General Guidelines

a. SALT stands for Sort, Assess, Life-Saving Intervention, and Treatment/Transport.
b. Developed by the Centers for Disease Control and Prevention to address limitations in other systems.
c. The CDC has proposed SALT as the national standard for Mass Casualty Incident (MCI) triage.
d. SALT has the advantage of being the **fastest mass casualty triage system**.
e. Notify hospitals of any MCI, especially a MCI involving contaminated patients.
    i. Consider use of the 3020 Regional Hospital Notification System (RHNS)

3019.2 Primary and Secondary Triage Prior to Transport

a. Initial Triage:
    i. Use triage ribbons (color-coded strips), not treatment tags, during initial triage.
        1. Treatment tags slow the process and should be used later, in the treatment areas.
        2. Treatment tags do need to be used at some point as they are sometimes the only documentation of EMS assessments and treatments.
    ii. Tie the triage ribbon to an upper extremity in a VISIBLE location (on the right wrist, if possible).
    iii. SALT Triage Levels:
        1. **RED – Immediate**
        2. **YELLOW – Delayed**
        3. **GREEN – Minimal**
        4. **GRAY – Expectant** (The patient is unlikely to survive given the current resources)
        5. **BLACK – Dead** (black & white zebra stripe for easier visibility in low light)
        6. **ORANGE and Polka Dot** - used in addition to one of the above ribbons to indicate victim has been contaminated with a hazardous material.
    iv. Move as quickly and safely as possible; making quick decisions.
    v. Victims will be re-triaged, probably multiple times. Revise the triage category as often as indicated.
    vi. Over-triage can be as harmful as under-triage. If everyone is tagged red, those who are truly red will receive delayed treatment, delayed transport, and delayed definitive care.
    vii. Treatment and transport should NOT be delayed especially for critical patients. Get the reds out.
    viii. If there are extensive delays in the field, consider requesting orders for palliative care, e.g., pain medications if time and resources allow.

b. Secondary Triage:
    i. Reassess (i.e. secondary triage) as often as practical, including when the patient is moved to the Casualty Collection Point (CCP) or Treatment Area, and on all victims prior to transport.
        1. Also reassess patients when their condition or resources available change.
    ii. Apply Treatment Tags after patients enter the CCP, or in the Transport Area (by the Transport Officer/Group) if the patient is being directly removed without going to the Treatment Area.
    iii. Crews can also fill in pertinent and available information on the Tag during transport.
    iv. Use the patient's ribbon to tie on the treatment tag
        1. Use treatment tags with individual barcodes consistent with this Standing Order and the Ohio patient tracking system (OHTrac).
    v. Orange & Polka-dot ribbons (indicating contaminated patients) are removed after decontamination.
        1. Each contaminated patient initially receives two ribbons: one with the triage category (**Red**, **Yellow**, **Green**, **Gray**, or **Black)**, and the second, the **Orange & Polka-dot** ribbon indicating contamination.
        2. EMS is responsible for performing primary decontamination prior to transport. However, the hospital must be made aware of both contamination and the

decontamination procedures taken.
3. Make sure to decontaminate under the ribbons.
4. After decontamination, remove the **Orange & Polka-dot** ribbon.
5. Mark treatment tags for contaminated patients with two check marks on the orange strip:
    a. Mark both the "dirty" and "decontaminated" boxes.
    b. This indicates to the hospital personnel that the patient has had field decontamination, but may still be somewhat "dirty".

c. Transport
    i. Treatment Area or Transport Group personnel determine priority for transport.
    ii. Distribution of patients among various hospitals is one of EMS' most crucial tasks.
    iii. **Do not overload any hospital**, regardless of transport distance to other hospitals.
    iv. In an MCI, transport trauma patients to non-Trauma Centers as necessary.
        1. All hospitals will accept and stabilize trauma patients during MCIs.
        2. Consider transporting minor (**GREEN**) patients to satellite EDs to relieve pressure on Trauma Centers and other hospitals.
    v. When assigning patient allocation, consider the likelihood that the closest hospitals may be overwhelmed by patients who were not transported by EMS.
    vi. In large scenarios, consider activation of the Forward Movement of Patients Plan as defined in 3021.0 Crisis Standards of Care in Massive Events.

3019.3 Sort, Assess, Life-Saving Intervention, Treatment/Transport Process

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

b. Assess
   i. Is the patient breathing?
      1. If not, open the airway. In children, consider giving two rescue breaths.
      2. If the patient is still not breathing, triage them to **BLACK** (dead).
      3. Do not move patients triaged **BLACK** except to gain access to a living patient.
      4. If patient is breathing, conduct next assessment.
   ii. Assess for the following:
      1. Can the patient follow commands or make purposeful movements?
      2. Does the patient have a peripheral pulse?
      3. Is the patient not in respiratory distress?
      4. Is hemorrhaging under control?

   iii. Grading the Assessment
      1. If the answer to **any** of those questions is no (bad) and the patient **IS** likely to survive given current resources, tag them as **RED** (Immediate).
      2. If the answer to **any** of those questions is no (bad) and the patient is **NOT** likely to survive given current resources, tag them as **GRAY** (Expectant)**.**
      3. If the answer to **all** of those questions is yes but injuries are not minor and require care, tag patient as **YELLOW** (Delayed).
         a. **YELLOWs** have serious injuries and need care, though not as urgently as **REDs**.
         b. On secondary triage, some **Yellows** will need higher priority transport than others.
      4. If the answers to **all** of those questions is yes and the injuries are minor, tag patient as **GREEN** (Minimal).

Two mnemonics to remember the four assessment questions	
C – follows Commands R – No Respiratory distress A – No (uncontrolled) Arterial bleeding P – Peripheral Pulse Present	Think of the questions in terms of "bad" or "good" If the answer to any of the questions is "bad" then the patient is tagged either **RED** (Immediate) or **GRAY** (Expectant)

c. Life Saving Interventions
   i. Only correct life-threatening problems during triage.
      1. Control major hemorrhage
      2. Open airway (if child, consider giving two rescue breaths)
      3. Needle chest decompression
      4. Auto injector antidotes
      5. See 3019.5 Special Situations

d. Treatment/Transport
   i. Transport/treatment priority is typically given (in order) to
      1. **RED** (Immediate)
      2. **YELLOW** (Delayed)
      3. **GREEN** (Minimal)
      4. **GRAY** (Expectant) patients should be treated and transported as resources allow.

3019.4 General Considerations

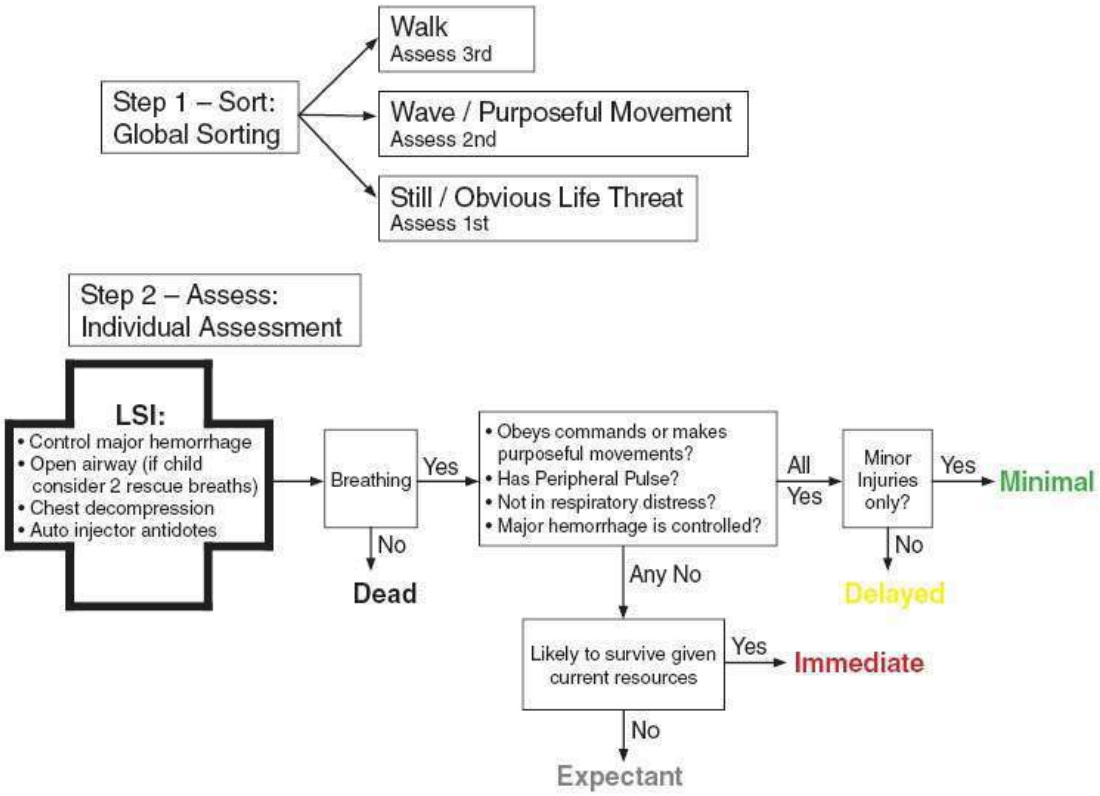
a. Patients must be reassessed periodically, including when moved to the CCP, or when their condition or resources change.

b. Even after applying treatment tags, the main indicator of patient condition is the triage ribbon.
c. Continue to use the same tag, even if the condition changes repeatedly, changing the ribbon to indicate the patient's current condition.
d. If the patient's condition or the triage priority changes, indicate that on the tag.

3019.5 Special Considerations

a. SALT is a clinical guideline, not an absolute.
b. Every MCI is extraordinary - use your clinical judgement
c. A patient who is **GRAY** (Expectant) initially can become **RED** (Immediate) as soon as resources are available.
d. MCIs with patients suffering traumatic (aka, compression) asphyxia who are not breathing initially, may start breathing after just a few ventilations.
    i. Common to crowding situations and crowd surges (i.e the Houston Astroworld Music Fest), it is worth attempting a few ventilations during the LSI step, even in adults.
e. In MCIs due to lightning strikes, the pathology can be very complex.
    i. Consider attempting ventilation or defibrillation, depending on resources and the conditions of other victims.

3019.6 SALT Triage Flow Chart



END OF SECTION

3020.1 General Guidelines

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

b. The system can be used when an incident could involve a significant number of the region's hospitals.

3020.2 RHNS Activation

a. To activate the system, an incident commander calls 937-333-USAR (8727), and requests a "Regional Hospital Notification."

b. The agency calling must ask for a Dispatch Supervisor, and should provide the information below:
   i. Name of agency
   ii. Nature of emergency
   iii. Location of emergency
   iv. General statement on severity, such as approximate number of victims
   v. Any other information to be conveyed

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

END OF SECTION

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3021.1 General Guidelines

a. Some incidents are so large as to require extraordinary EMS procedures. Those scenarios are sometimes referred to as Mass Casualty Events (MCEs), instead of Mass Casualty Incidents (MCIs).
b. These EMS procedures should be utilized in very large emergency scenarios, or when the duration is extended.
c. In the event of an MCE, especially one lasting days or longer, Greater Miami Valley EMS Council, with the approval of the Regional Physicians Advisory Board (RPAB), may promulgate "Just in Time Standing Orders" (JITSO).
d. With approval from Ohio Department of Public Safety, these orders might include triage standards for transport to other healthcare facilities and other crisis standards of care; possibly exceeding the standard scope of practice for EMS.
e. Full information on the process can be found in the Dayton MMRS Regional MCI Plan Template

3021.2 Alternate Transports

a. In some circumstances, EMS may be authorized to triage selected patients for transport to other healthcare facilities, including:
    i. Urgent Care Centers
    ii. Acute Care Center (ACC)
    iii. Neighborhood Emergency Help Center (NEHC)
    iv. Disaster Medical Assistance Team (DMAT)

3021.3 Forward Movement of Patients

a. Planned by Dayton MMRS
b. The intent is to relieve the burden on local hospitals by transporting patients, possibly directly from the scene, to more distant hospitals.

3021.4 Functional Needs Shelter Triage

a. A regional protocol for Functional Needs Shelter Triage has been added to the Optional Standing Orders Manual and is also available at gmvemsc.org on the Training Materials page.
b. Will help determine whether individuals with functional needs can be safely sheltered in a Red Cross Shelter during a disaster
c. This Shelter Triage Protocol is a pre-approved Just-In-Time Standing Order (JITSO), authorized by the RPAB for use by an EMS agency assisting the Red Cross with shelter triage.
d. It is intended to be printed and given to paramedics, nurses, and other healthcare personnel at the time of a shelter operation.
e. At the option of local department chiefs and medical directors, the same protocol can be used during a disaster to determine patients who would be more appropriate for transport to Red Cross Shelters than to hospitals.
f. In those cases, EMS should, if possible, contact the shelter before transporting.
g. If locations or contact information for shelters is not known, contact the County EMA or the Red Cross.
h. When transporting these non-emergency patients to shelters, it is critical that the patients bring their medications and medical equipment with them.

END OF SECTION

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4000 Series

Medical Protocol

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Greater Miami Valley EMS Council	Medical Protocol	4001
Subject: Abdominal Pain	Effective: June 1, 2021	Last Modified: Feb. 16, 2023

4001.1 General Guidelines

a. Ensure an abdominal exam which includes inspection, auscultation and palpation is performed and documented on every patient with abdominal pain.

b. Assess all abdominal pain patients for trauma, pregnancy, illness, or potential ingestion.

4001.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Pain (location/migration) • Tenderness (point, palpation, rebound) • Nausea and/or vomiting • Diarrhea • Dysuria • Constipation • Vaginal bleeding/discharge • Pregnancy	• Hepatitis • Peptic ulcer disease/gastritis • Gallbladder • Pancreatitis • Abdominal aneurysm • Appendicitis • Pelvic (PID, ovarian cyst, ectopic pregnancy) • Diverticulitis • Gastroenteritis • Bladder/prostate disorders • Kidney stone • Myocardial infarction • Pneumonia • Pulmonary embolus

Treatment Algorithm

EMR

- Place patient in position of comfort.
- Give nothing by mouth.

EMT

- No additional orders at this level.

AEMT

A Consider **Ondansetron (Zofran) 4 mg PO** dissolving tablet for nausea or active vomiting.
P **Ondansetron (Zofran) 4 mg PO** if patient is 12 y/o or older and weight is more than or equal to 40 kg.
A For pain relief, including with unilateral flank pain, consider 1014 Pain Management Protocol.
P ♦ For pain relief, call MCP for orders.

Paramedic

A For active vomiting, **Ondansetron 4 mg slow IV.**
A For nausea or if no IV access established, **Ondansetron (Zofran) 4 mg PO** (dissolving tablet) or consider administering **4 mg (2 ml)** of the IV form **PO** by spraying it into the patient's mouth.
P **Ondansetron 0.1 mg/kg IV** (max 4 mg) if the patient is 12 y/o or older and weight is more than or equal to 40 kg.

Consult

- The AEMT and Paramedic need MCP orders when providing abdominal pain relief to pediatric patients.

Clinical Pearls

- The Paramedic can administer the IV form of Ondansetron orally to adults by spraying it into the patient's mouth.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4002
Subject: Allergic Reaction/Anaphylaxis	Effective: June 1, 2021	Last Modified: Jan. 21, 2024

4002.1 General Guidelines

a. Epinephrine is the mainstay of anaphylaxis in allergic reaction treatment.
b. Epinephrine is particularly important in cases of any airway edema, hypotension, or when multiple body systems are involved.
c. Advanced age is not a contraindication to epinephrine.

4002.2 Clinical Management

Assessment

Pediatric Considerations
- Epinephrine is dosed based on weight not age.
- While the protocol lists those patients under 15 kg as pediatric, it is understood that patients equal to or greater than 30 kg will get both the Adult EpiPen and the EpiPen Jr., no matter what their age.

Signs & Symptoms
- Itching
- Hoarseness or stridor
- Wheezing
- Respiratory distress
- Altered level of consciousness
- Cyanosis
- Pulmonary edema
- Facial/airway edema
- Urticaria/hives

Differential Diagnosis
- Rash only
- Shock (vascular effect)
- Angioedema
- Aspiration/airway obstruction
- Vasovagal event
- Asthma

Treatment Algorithm

- Provide **O_2** as needed.
- If allergic reaction:
  - o If equal to or greater than 30 kg, give both **Adult EpiPen** *and* **EpiPen Jr.**
  - P If less than 15 kg, **EpiPen Jr**.
  - P If equal to or greater than 15 kg and less than 30 kg, **Adult EpiPen**
- If applicable, apply ice pack.
- ♦ If symptoms persist, may repeat **Epinephrine** in 10 minutes.
- Call for transport.

EMR

- If patient develops wheezing, assist them with their prescribed metered dose inhaler or
  - o ♦ **Albuterol 2.5 mg** and **Ipratropium 0.5 mg**, nebulized with **O_2** flowing at **8-10 LPM.**
  - o ♦ Albuterol may be repeated two times.
- {If allergic reaction and an absence of Epi-pens in the drug bag, EMTs are permitted to administer Epinephrine IM via a syringe}
  - ▪ {The EMT may only perform this skill after authorization and training from their Medical Director}
  - A If equal to or greater than 30 kg, **Epinephrine (1:1,000) 0.5 IM**}
  - P {If less than 15 kg, **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.15 mg)}
  - P {If equal to or greater than 15 kg and less than 30 kg, **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.3 mg)}
  - A ♦ {May repeat **Epinephrine (1:1,000) 0.5 mg IM** after 10 minutes}
  - P ♦ {May repeat **Epinephrine (1:1,000) 0.01 mg/kg IM** (max dose equal to initial dose) after 10 minutes}

EMT

- If an allergic reaction:
  - o If equal to or greater than 30 kg, give both **Adult EpiPen** *and* **EpiPen Jr** or **Epinephrine (1:1,000) 0.5 mg IM**
  - P If less than 15 kg, **EpiPen Jr** or **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.15 mg).
  - P If equal to or greater than 15 kg and less than 30 kg, **Adult EpiPen** or **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.3 mg)
  - o May repeat **Epinephrine (1:1,000) 0.5 mg IM** after 10 minutes.
  - P May repeat **Epinephrine (1:1,000) 0.01 mg/kg IM** (max dose equal to initial dose) after 10 minutes.
- If apneic, intubate, possibly with smaller than normal ET tube.
- For wheezing, no orders needed for **Albuterol 2.5 mg** and **Ipratropium 0.5 mg**, nebulized with **O_2** flowing at **8-10 LPM**
- If patient intubated, **Albuterol 2.5 mg** by nebulizer into the ETT. If Ipratropium not given before intubation, add to first Albuterol.
- If hypotensive, **IV fluid** to maintain adequate BP.

P If hypotensive, **IV fluid 20 ml/kg IV** to maintain adequate BP.

A **Diphenhydramine 50 mg IM or IV**

P **Diphenhydramine 1 mg/kg IM** or **IV** (max dose 50 mg).

AEMT

Paramedic

- If patient deteriorating or unresponsive, consider early intubation, possibly with a smaller than normal size endotracheal tube
- If a conscious patient requires intubation:
  - A **Lidocaine 100 mg IN** half dose per nostril or added to nebulizer with breathing treatment.
  - P **Lidocaine 1.5 mg/kg** nebulized with **O_2 8-10 LPM** or **IN**. Maximum dose is 100 mg.

A If patient remains hypotensive after IV fluid, **Epinephrine (1:10,000) 0.1 mg**, **slow IV**, every 3 minutes up to 0.5 mg.

A **Solu-Medrol 125 mg IV**

P **Solu-Medrol 2 mg/kg IV**, max dose 125 mg.

Consult

- The EMR and EMT need MCP orders to administer repeat epinephrine.
- EMT needs MCP orders to administer breathing treatments.

Clinical Pearls

- No significant change in patient condition in the field should be expected from the administration of Solu-Medrol.
- Solu-Medrol will be given to all patients treated within the allergic reaction or anaphylaxis protocol only after all other applicable first-line medications have been delivered.

END OF SECTION

Subject:	Effective:	Last Modified:
Asthma/Emphysema/COPD	June 1, 2021	Jan. 17, 2024

4003.1 Clinical Management

Assessment

Pediatric Considerations
- Younger patients may exhibit nasal flaring
- Epinephrine is dosed based on weight not age.
- While the protocol lists those patients under 15 kg as pediatric, it is understood that patients equal to or greater than 30 kg will get both the Adult EpiPen and the EpiPen Jr., no matter what their age.

Signs & Symptoms
- Shortness of breath
- Pursed lip breathing
- Increased respiratory rate and effort
- Wheezing, rhonchi
- Accessory muscle use
- Cough
- Tachycardia
- Tripod position

Differential Diagnosis
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac event (AMI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxins

Treatment Algorithm

EMR
- Provide **O_2** as needed.
- Call for transport.

EMT
- If patient develops wheezing, assist them with taking their prescribed metered dose inhaler.
- ♦ Consider **Albuterol 2.5 mg** and **Ipratropium 0.5 mg**, nebulized with **O_2** flowing at **8-10 LPM**
- ♦ May repeat **Albuterol 2.5 mg** nebulized X 2.
- For any patient who is bronchial constricted: **CPAP**
- Transport unless ALS intercept is less than 5 minutes.

AEMT
- No orders needed for **Albuterol 2.5 mg** and **Ipratropium 0.5 mg**, nebulized with **O_2** flowing at **8-10 LPM**
- If patient intubated, **Albuterol 2.5 mg** by nebulizer into the ETT. If Ipratropium not given before intubation, add to first Albuterol.
- After intubation of an asthma patient, limit rate of ventilation to avoid auto-PEEP and hypotension, provided that you can adequately oxygenate the patient at below rate:
  - 8-10 breaths per minute for adults
  - P 10-15 breaths per minute for pediatric patients
- Consider needle decompression in the presence of auto-PEEP or hyperinflation:
  - If the patient is in cardiac arrest, perform bilateral needle decompression
  - If unilateral or bilateral diminished breath sounds and the patient is hemodynamically unstable, consider decompression of only the affected sides
  - Decompression sites:
    - Fourth or fifth intercostal space in the mid-axillary line
    - Second or third intercostal space in the mid-clavicular line (use nipple line as a guide)
    - P In patients less than 8 years old, decompression site choice will be limited to the 2nd or 3rd intercostal space at the mid-clavicular line
- Asthmatics in severe distress (NOT for emphysema or COPD):
  - If equal to or greater than 30 kg, give both **Adult EpiPen** *and* **EpiPen Jr** or **Epinephrine (1:1,000) 0.5 mg IM**
  - P If less than 15 kg, **EpiPen Jr** or **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.15 mg).
  - P If equal to or greater than 15 kg and less than 30 kg, **Adult EpiPen** or **Epinephrine (1:1,000) 0.01 mg/kg IM** (max 0.3 mg)
  - May repeat **Epinephrine (1:1,000) 0.5 mg IM** after 10 minutes.
  - P May repeat **Epinephrine (1:1,000) 0.01 mg/kg IM** (max dose should equal initial dose) after 10 minutes.

Paramedic
- If a conscious patient requires intubation:
  - A **Lidocaine 100 mg IN** half dose per nostril or added to nebulizer with breathing treatment.
  - P **Lidocaine 1.5 mg/kg** nebulized with **O_2 8-10 LPM** or **IN**. Maximum dose is 100 mg.
- For any patient who is bronchial constricted: **CPAP** or **{Bi-PAP}**

A **Solu-Medrol 125 mg IV**

P **Solu-Medrol 2 mg/kg IV**, max dose 125 mg.

Consult
- The EMT needs MCP orders to administer breathing treatments.

Clinical Pearls
- A patient who has received a breathing treatment should be transported for evaluation.
- No significant change in patient condition in the field should be expected from the administration of Solu-Medrol.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4004
Subject: Behavioral Emergencies	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

4004.1 General Guidelines

a. Per Ohio Revised Code, EMS providers may not "pink slip" an individual even if they are threatening harm to themselves or others.

b. Only a health officer such as a police officer, crisis worker, psychiatrist or licensed physician can administer an involuntary admission form ("pink slip") for a patient.

c. Each EMS department, in consultation with its medical director and local law enforcement, should have a procedure to deal with these types of situations.

4004.2 Precautions

a. Consider staging until law enforcement has made the scene safe.

b. Have law enforcement search patient for weapons.

c. Consider possible medical causes for patient's condition:

i. Anemia
ii. Hypoxia
iii. Hypoglycemia
iv. Stroke
v. Dysrhythmias
vi. Hypertension
vii. Toxicological ingestion
viii. Pulmonary embolism
ix. Hemorrhage
x. Metabolic disorders
xi. Seizures and postictal states
xii. Shock
xiii. Infection (especially meningitis /encephalitis)
xiv. Electrolyte imbalance
xiv. Myocardial ischemia or infarction
xv. Head trauma or intracranial
xvi. Drug or alcohol intoxication, side effects, drug withdrawal

4004.3 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Violent or combative
- Expression of suicidal/homicidal ideations

Differential Diagnosis
- Other altered mental status issues
- Alcohol intoxication
- Substance abuse
- Medication effect/overdose
- Withdrawal symptoms
- Depression
- Bipolar (manic-depressive)
- Schizophrenia
- Anxiety disorders

Treatment Algorithm

- Determine patient capacity and consent.
- Take actions to prevent imminent harm to the patient or others, if it is safe to do so.
- Do not judge, just treat.
- Consider possible medical causes for patient's condition

EMR

- If patient is unwilling to go to a facility, consider whether they are a candidate for a "pink slip"
- Transport all patients who are not making rational decisions and who are a threat to themselves or others for medical evaluation.

A If possible, transport a mental health patient to the facility where the individual has been previously treated.

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

P Pediatric patients with mental health issues should be transported to a facility with pediatric mental health capabilities.

EMT

- No additional orders at this level.

AEMT

- Severe agitation is a medical emergency, and should be treated. See 4007 Combative Patient/Emergency Sedation

Paramedic

Consult

- Consult with MCP if requesting a "pink slip" and no one else is able to request it.

Clinical Pearls

- Consider that a patient may be incapable to make medical decisions (incompetent) if they are:
  - Suicidal
  - Confused
  - Severely developmentally or mentally disabled
  - Intoxicated
  - Injured/ill with an altered mental status
  - Physically/verbally hostile
  - Unconscious
- When obtaining medical history, determine:
  - Suicidal or violent history
  - Previous psychiatric hospitalization, when and where
  - Location where patient receives mental health care
  - Medications
  - Recreational drugs/alcohol: amount, names
- Exceptions to the outlined transport recommendations include:
  - It is medically necessary to transport the patient to the closest hospital for stabilization.
  - It is unsafe to transport the patient to the preferred/recommended facility due to adverse weather or ground conditions or excessive transport time.
  - Transporting the patient to the preferred/recommended facility would cause a critical shortage of local EMS resources.
  - Patient requests transport to a different facility.

END OF SECTION

4005.1 General Guidelines

a. Obtain history of patient condition and pregnancy, including:
   i. Contraction duration and interval
   ii. Gestation age should be expressed in weeks whenever possible
   iii. Due date
   iv. First day of last menstrual period
   v. Number of pregnancies and number of live births (gravida/para)
   vi. Presence or absence of prenatal care
   vii. Possibility of multiple births
   viii. Any possible complications
   ix. Any drug use by the mother
b. The patient should be transported to a hospital with obstetrical capabilities
   i. Unless delivery is imminent (the baby is crowning during a contraction).
   ii. **ABSOLUTELY NO PREGNANT PATIENTS TO DAYTON or CINCINNATI CHILDREN'S HOSPITALS.**
c. Visualize the perineal area only when contractions are less than five minutes apart.
d. Run reports must be completed for each patient. The newborn is a separate patient from the mother.

4005.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None, unless the pregnant patient is under 16 years old, then manage in the same manner.	• Spasmodic pain • Vaginal discharge or bleeding • Lengthening and narrowing contractions • Urge to push • Crowning	• Abnormal presentations (foot, and, buttocks) • Prolapsed cord • Placentia previa • Abruptio placenta

Treatment Algorithm

	EMT	AEMT	Paramedic
• The EMR may only assist with emergency childbirth management			

• Apply gentle pressure on the baby's head with a flat hand to prevent an explosive delivery.
• Place a gloved hand inside the birth canal only in the case of:
  o Breech delivery with entrapped head
  o Prolapsed umbilical cord limiting fetal circulation
• Keep the newborn warm.
• Cut the umbilical cord and then place the baby to suckle at the mother's breast.
• Obtain one, five and ten minute APGAR scores if time and patient condition permit. (see table below)
	✓		

• Establish an IV for patients in active labor.		✓	
• No additional orders at this level.			✓

Consult

- None

Clinical Pearls

- When transporting potentially complicated deliveries or emergent childbirths, consider transporting to the closest L & D capable facility
- Changes in fundal (upper part of the uterus) height during pregnancy:
  - Above the symphysis pubis = Greater than 12 to 16 weeks gestation
  - At the level of the umbilicus = Greater than 20 weeks gestation
  - Near the xiphoid process = Within a few weeks of term

APGAR Score	0	1	2
Appearance	Full body cyanosis	Cyanosis at the extremities	No cyanosis present
Pulse	Absent	Slow (less than 100)	Greater than 100
Grimace	Flaccid	Grimace with stimulation	Cough or sneeze with stimulation
Activity	Absent	Some flexion of extremities	Active motion
Respiratory Effort	Absent	Slow or irregular	Good, vigorous cry

END OF SECTION

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4006.1 General Guidelines

a. With all complicated childbirth scenarios, evaluate the need for rapid transport to a birthing center or possibly, the nearest hospital.
b. These guidelines apply to all levels of certification.
c. In all complicated childbirth scenarios, place the mother on oxygen by non-rebreather mask.

4006.2 Clinical Management

a. Cord around Baby's Neck:
   i. As baby's head passes out of the vaginal opening, feel for the cord.
   ii. Initially try to slip cord over baby's head.
   iii. If too tight, clamp cord in two places and cut between clamps.

b. Breech Delivery:
   i. When an appendage or buttocks first becomes visible, position patient to discourage delivery, coach patient to avoid pushing and transport patient immediately .
   ii. If the delivery is in progress, take care to support the baby's body.
   iii. If the head is caught in the birth canal:
      1. Apply gentle pressure above the pubis symphysis as the mother pushes.
      2. If the head will not deliver, you must create an airway for the baby.
      3. Support the body and insert two fingers into the birth canal, forming a "V" around the mouth and nose.

c. Prolapsed Cord:
   i. When the umbilical cord is exposed prior to delivery, check cord for pulse.
   ii. Transport immediately with hips elevated and a moist dressing around cord.
   iii. Insert two fingers into the birth canal to displace the presenting part away from cord, distribute pressure evenly if occiput presents.
   iv. Do not attempt to reinsert cord.

d. Excessive Bleeding:
   i. Treat for shock.
   ii. Post-delivery, massage uterus firmly and put baby to mother's breast.

END OF SECTION

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4007.1 General Guidelines

a. Restrained patients should **not** be transported in a prone position with hands & feet behind their back.
b. Restrained patient should **not** be sandwiched between backboards or other items.
c. Always maintain the ability to remove restraints if the patient vomits or develops respiratory distress

4007.2 Combative Patients

a. Identified as irrational behavior like aggression, violence, and/or paranoia in the patient.
b. This state can result from a number of causes including:
   i. Stimulant intoxication
   ii. Psychiatric illness
   iii. Hypoglycemia
   iv. Other medical illnesses.
c. In excited delirium the patient often becomes significantly hyperthermic and/or hypoxic.

4007.3 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Patient out of control and dangerous to self or others.
- Restraint required for patient control without causing harm
- Combative or violent patient

Differential Diagnosis
- Alcohol intoxication
- Substance abuse
- Medication effect/overdose
- Withdrawal symptoms
- Mental health history

Treatment Algorithm

- Explain the need for restraint to the patient.
- Recheck often a restrained patient's ability to breathe and distal circulation.

EMR

- No additional orders at this level.

EMT

G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses
A **Ketamine 250 mg IM** (in anterolateral thigh) *or* **Ketamine 100 mg slow IV**.
A No change after 10 minutes with IM dose and 5 minutes with IV dose, consider additional medication:
- DO NOT ADMINISTER KETAMINE AND MIDAZOLAM SIMULTANEOUSLY.
- Give the administered sedative time to work before moving on to a secondary medication and dosing.

A **Ketamine 250 mg IM** (in opposite anterolateral thigh) *or* repeat **Ketamine 100 mg IV**.
AND/OR:
A **Midazolam 10 mg IN** (5 mg in each nostril), *or* **Midazolam 2.5 mg slow IV**, or **Midazolam 5 mg IM.**
A If necessary, repeat Midazolam doses:
A Repeat **Midazolam 5 mg IN** (2.5 mg in each nostril) after 10 minutes.
A or repeat **Midazolam 2.5 mg slow IV** after 5 minutes.
A *or* repeat **Midazolam 5 mg IM** after 10 minutes.
P If the patient is age 8 or greater, consider **Ketamine 1 mg/kg** slow IV (max dose 100 mg) *or* **Ketamine 5 mg/kg IM** (max dose 250).
or
P **Midazolam 0.2 mg/kg IN** (max IN dose 10 mg) *or* **Midazolam 0.1 mg/kg slow IV** (max IV dose 2.5 mg) *or* **Midazolam 0.2 mg/kg IM** (max IM dose 5 mg)
P ♦ Call MCP for additional Ketamine or Midazolam.

AEMT

A If an excited delirium patient goes into arrest: ♦ Consider **Sodium Bicarbonate 100 mEq IV**

Paramedic

Consult

- MCP needed for pediatric repeat medications and (for the paramedic) Sodium Bicarbonate in cardiac arrest.

Clinical Pearls

- Any patients who are restrained or sedated should be constantly monitored for an effective airway, adequate breathing and circulation
- Patients who have been sedated with Ketamine can be deeply unconscious and present with hypersalivation. Management should include use of an nasopharyngeal airway, proper positioning and persistent suctioning to maintain a clear airway.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4008
Subject: Diabetic Emergencies – Hypoglycemia/Hyperglycemia	Effective: June 1, 2021	Last Modified: Mar. 20, 2024

4008.1 General Guidelines

a. Hypoglycemia is defined as a blood glucose level less than 60 mg/dL, or there is strong suspicion of hypoglycemia despite glucometer readings

b. Hyperglycemia is defined as a blood glucose level at or above 250 mg/dL. EMS will treat patients with a BGL greater than 400 mg/dL or when the glucometer reads "High"

4008.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms (Hypo)	Signs & Symptoms (Hyper)	Differential Diagnosis
• None	• Altered LOC • Dizziness • Irritability • Diaphoresis • Seizures • Hunger • Confusion • Acute onset	• Altered LOC • Malaise • Hypotension • Dehydration • Polydipsia • Muscle cramps • Nausea • Delayed onset	• Alcohol related issues • Toxic overdose • Trauma • Seizure • Syncope • CNS disorder • Stroke or TIA • Pre-existing condition

Treatment Algorithm

EMR

- Provide basic care.
- Call for transport.

EMT

- Obtain blood sample via finger stick and measure blood glucose level
- If Hypoglycemic:
  - Administer **1 tube** of **Oral Glucose.**
  - Maintain normothermia. Unconscious diabetics are often hypothermic.
  - In a diabetic patient with an insulin pump and blood glucose less than 60 mg/dL, treat the hypoglycemia.
- If Hyperglycemic:
  - Monitor and transport

AEMT

- If Hypoglycemic:
  - A Administer **Dextrose 10% (D10), 250 ml** at wide open rate, (250 ml = 25 g of Dextrose)
  - P Administer **Dextrose 10% (D10) 5 ml/kg**, maximum single dose of 250 ml.
  - P For newborn, **Dextrose 10% (D10) 2 ml/kg** if BGL is less than 40 mg/dL.
  - A **Dextrose 10% (D10)** may be repeated in ten minutes if blood sugar remains less than 60 mg/dL.
- If Hyperglycemic:
  - A If BGL reads over 400 mg/dL or "High" on glucometer, administer **500 ml** fluid IV – **wide open.**
  - P Do **not** administer fluid to a hyperglycemic pediatric patient, unless otherwise indicated.

Paramedic

- No additional orders at this level.

Consult

- None

Clinical Pearls

- Oral glucose is indicated for any conscious but disoriented patient with BGL less than 60 mg/dL, or in a strong suspicion of hypoglycemia despite BGL readings.
- Oral glucose may be administered carefully under the tongue or between the gum and cheek of an unresponsive patient who then must be placed in the lateral recumbent position to promote drainage of secretions away from the airway.
- When documenting the administration of **Dextrose 10% (D10)**, do so in terms of milliliters.
- Insulin Pumps
  - For a diabetic patient with an insulin pump who is hypoglycemic, treat the hypoglycemia.
  - **Do not disconnect or turn off pump.**
  - Take extra tubing and medication reservoir or vials to the receiving facility for patients with insulin pumps.

END OF SECTION

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4009.1 General Guidelines

a. EMTs and above may allow for diabetic patients to refuse transport after treatment.
b. EMRs should call for transport or a provider of a higher level certification.

4009.2 Procedures

a. Patients 18 years of age or older may be permitted to refuse. Follow these guidelines:
    i. Repeat physical examination and vital signs. Patient must be A&O x 3.
    ii. Warn the patient that there is a significant risk of going back into hypoglycemia, especially if on oral hypoglycemics.
    iii. Advise the patient to eat something substantial immediately.
    iv. Advise the patient to contact their family physician as soon as possible to minimize future episodes.
    v. Advise the patient to stay with someone.
    vi. Follow normal patient refusal procedures.

b. If the diabetic patient is under 18, but a parent or guardian is present, then the responsible adult may refuse patient trasnportation under the same guidelines as listed above in 4009.2.a.

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

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4010.1 General Guidelines

a. A patient who is currently on a phenothiazine (e.g., Phenergan, Thorazine, Compazine) or a butyrophenone (e.g., Haldol, Droperidol) and exhibiting signs of acute muscle spasm or motor restlessness may be suffering from an Extrapyramidal Reaction.
b. Extrapyramidal reactions can occur with ingestion of recreational drugs
c. Physical examination findings may include any of the following:
   i. Oculogyric crisis (spasmodic deviation of eyes in all directions generally fixed upward.)
   ii. Buccolingual crisis (protrusion of tongue with slurred speech)
   iii. Trismus (closing of the jaw due to spasm of the muscles also called lockjaw.)
   iv. Difficulty in speaking
   v. Facial grimacing
   vi. Torticollis crisis (stiff neck with deviation of the head with the chin pointing to the other side)
   vii. Opisthotonus (extreme back arching)
   viii. Tortipelvic crisis—Involves hip, pelvis, and abdominal wall muscles, causes difficulty walking.
   ix. Mental status is unaffected.
   x. Vital signs are usually normal.
   xi. Remaining physical examination findings are normal.

4010.2 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • As listed above	**Differential Diagnosis** • Alcohol intoxication • Toxin/substance abuse • Medication effect • Withdrawal syndromes • Anxiety disorders • Mental health history

Treatment Algorithm	EMR	EMT	AEMT	Paramedic
• Provide basic care. • Call for transport.	EMR			
• If blood glucose less than 60, or there is strong suspicion of hypoglycemia despite glucometer readings, then follow 4008 Diabetic Emergencies - Hypoglycemia protocol		EMT		
• Initiate **IV fluid** to maintain adequate BP. • ♦ **Diphenhydramine 50 mg IV** or **IM** P ♦ **Diphenhydramine 1 mg/kg IV** or **IM** (max dose 50 mg)			AEMT	
• Paramedics do not need a MCP order to administer **Diphenhydramine**.				Paramedic

Consult
• The AEMT needs orders for Diphenhydramine

Clinical Pearls
• None

END OF SECTION

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4011.1 General Guidelines

a. Consider the possibility of ectopic pregnancy in females of child-bearing age.
b. Ask for first day of last menstrual period.
c. Gestational age should be expressed in weeks whenever possible.
d. Aggressively treat for hypovolemic shock (do not rely on standard vital sign parameters).
e. Give psychological support to patient and family.
f. Be sure to take all expelled tissue with you to the hospital.

4011.2 Transport Decisions

a. Transport to Maternity Department:
    i. Pregnant patients, 20 weeks or greater gestation with obstetric complaints
    ii. If unsure of time of gestation, then consider transport to a maternity department
b. Transport to Emergency Department:
    i. Pregnant patients with minor trauma or medical (non-obstetric) complaints
    ii. Pregnant patients less than 20 weeks gestation
c. Pregnant trauma patients should be rapidly transported to the ED at an Adult Trauma Center with labor and delivery capabilities.
d. Positional transport considerations:
    i. Prepare for postural hypotension caused by fetus pressure on venous return.
    ii. Passively or actively move the fetus off the vena cava by doing either:
        1. Place in left lateral recumbent position or place a pillow under the right abdominal flank/hip.
        2. Apply continuous manual displacement of the uterus towards the patient's left side.

4011.3 Cardiac Arrest In Pregnancy

a. Causes of cardiac arrest in pregnant patients can include:
    i. Pulmonary embolism
    ii. Trauma
    iii. Hemorrhage
    iv. Congenital or acquired cardiac disease.
b. Load and go to the closest hospital and follow all cardiac arrest protocols enroute.

4011.4 Third Trimester Bleeding

a. Aspirin is contraindicated in third trimester.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4012
Subject: Overdose/Poisoning	Effective: June 1, 2021	Last Modified: July 22, 2023

4012.1 General Guidelines

a. ♦ EMS personnel should contact MCP for direction on suspected poisonings.
b. Poison Control is intended for use by the general public.
c. If possible, provide receiving facility all available information about the substance:
   i. Safety data sheets (SDS)
   ii. The container (if it is safe to do so)
   iii. The label or an image of the label and warning information if it is unsafe or unpractical to transport the actual substance container

4012.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• Most pediatric patients with respiratory depression do not have narcotic overdose. They are either septic or have respiratory failure.	• Mental status changes • Hypo/hypertension • Decreased respiratory rate • Tachycardia or bradycardia • Cardiac dysrhythmias • Seizures	• Respiratory depression • Insecticides (organophosphates) • Solvents, cleaning agents • Cardiac medications • Stimulants • Depressants

Treatment Algorithm

- If respirations are impaired or there is suspicion of narcotic overdose:
  - A Administer **Naloxone, up to 4 mg IN** (half dose per nostril)
  - A May repeat Naloxone doses in 2 minutes
  - P Naloxone:
    - P Less than or equal to 20 kg then **0.1 mg/kg IN**, (max dose 2 mg), may repeat x one
    - P Greater than 20 kg **2 mg, IN**, may repeat as needed
- Titrate Naloxone to adequate respirations.
- Consider patient restraint before administration of Naloxone.

EMR

- No additional orders at this level.

EMT

- If patient has a pulse, Naloxone should be administered before inserting an ETT.
- When given IV or IN, the onset of action for Naloxone is approximately 2 minutes.
- If respirations are impaired or there is suspicion of narcotic overdose:
  - A Administer **Naloxone, up to 4 mg IN, 2mg IV** or **4 mg IM**
  - A May repeat Naloxone doses in 2 minutes.
    - A Consider repeat **IV** dosing if no or inadequate response is noted
  - P Administer Naloxone:
    - P Less than or equal to 20 kg then **0.1 mg/kg IN, IV, IM** (max dose 2 mg), may repeat x one
    - P Greater than 20 kg **2 mg, IN, IV, IM**, may repeat as needed
    - P Naloxone slow IV is preferred, but it may be given IN or IM before IV is established.
    - P Titrate to adequate respirations.
    - P If using IN route and respirations don't improve after 2 minutes, establish IV and administer IV dose.

- Stimulant Overdose (cocaine, methamphetamines, amphetamines, crack cocaine) with chest pain:
  - A **Nitroglycerin 0.4 mg SL**, if SBP >100, every 5 minutes to a total of three doses with vital signs between doses
  - A **Midazolam 10 mg, IN** (5 mg in each nostril) *or* **2.5 mg slow IV**, *or* **5 mg IM**
  - A **Repeat Midazolam 5 mg IN** (2.5 mg in each nostril) *or* **2.5 mg slow IV** *or* **5 mg IM** for unrelieved chest pain
  - G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses.

AEMT

Paramedic

- Tricyclic Antidepressant Overdose may be evidenced by bradycardia, tachycardia, hypotension and prolongation of the QRS complex. Risk of rapid deterioration or sudden onset V Fib is high.
  - A ♦ **Sodium Bicarbonate 100 mEq, slow IV**
  - P ♦ **Sodium Bicarbonate 1 mEq/kg slow IV**
  - A ♦ Repeat **Sodium Bicarbonate 50 mEq, slow IV** for persistent QRS prolongation
  - P ♦ Repeat **Sodium Bicarbonate 0.5 mEq/kg slow IV** for persistent QRS prolongation
- Calcium Channel Blocker Overdose:
  - A ♦ **Calcium Chloride, 1 Gm slow IV**
  - P ♦ **Calcium Chloride, 0.2 ml/kg (20 mg/kg) slow IV** (max dose 500 mg)

Consult

- For guidance on suspected poisonings contact MCP.
- Calcium Channel Blocker, Beta Blocker and Trycyclic antidotes in this protocol are by MCP order only.

Clinical Pearls

- Consider other causes of altered mental status such as hypoglycemia, head trauma, sepsis, and stroke.
- When Naloxone is given intranasal (IN), the onset of action is approximately 2 minutes.
- Naloxone is not felt to be effective in the reversal of cardiac arrest from opioid overdose. Airway control, ventilation, and quality CPR are still the mainstay of treatment.
- Ondansetron (Zofran) is NOT to be given prophylactically with Naloxone.
- Tricyclic Antidepressant Examples:
  - Amitriptyline (Elavil, Endep, Etrafon, Limbitrol)
  - Nortriptyline (Pamelor, Aventyl)
  - Amoxapine (Asendin)
  - Clomipramine (Anafranil)
  - Desipramine (Norpramine)
  - Doxepin (Sinequan)
  - Imipramine (Tofranil)
  - Protriptyline (Vivactil)
  - Trimipramine (Surmontil)
- Calcium Channel Blocker examples:
  - Amlodipine (Norvasc)
  - Diltiazem (Cardizem, Dilacos)
  - Felodipine (Plendil)
  - Isradipine (Dynacirc)
  - Nifedipine (Procardia, Adalat)
  - Verapamil (Calan, Isoptin, Verelan)
- Beta Blocker examples
  - Acebutolol (Sectral)
  - Atenolol (Tenormin)
  - Carvedilol (Coreg)
  - Corzide, Inderide, Lopressor, HCT, Tenoretic, Timolide, Ziac
  - Labetalol (Normodyne, Trandate)
  - Metoprolol (Topral, Lopressor)
  - Nadolol (Corgard)
  - Pindolol (Viskin)
  - Propranolol (Inderal)
  - Sotalol (Betapace)
  - Timolol (Blocadren)

END OF SECTION

4013.1 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Cyanosis
- Clammy skin
- Presence/Absence of fever
- Coughing
- Wheezing
- Labored breathing
- Diaphoresis
- Pitting edema
- Bilateral lower lobe rales
- Tachypnea
- Apprehension
- Jugular vein distension (JVD)
- Inability to talk.

Differential Diagnosis
- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- Chronic obstructive pulmonary disease
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade

Treatment Algorithm

- Evaluate breath sounds.
- Obtain pulse oximetry reading.
- Obtain capnography reading.
- Provide high flow O_2.
- Call for transport.

EMR

- {Obtain and transmit 12 Lead EKG}

A If Pulmonary Edema, then Continuous Positive Pressure Airway (CPAP)

EMT

- If Pulmonary Edema:
  - **A** CPAP use is encouraged prior to the initiation of drug therapy.
  - **A** If patient has SBP greater than 100, **Nitroglycerin 0.4 mg SL** up to 3, 1 every 5 minutes.

AEMT

- Cardiac monitoring
- If Pulmonary Edema:
  - CPAP or {Bi-PAP} use is encouraged prior to the initiation of drug therapy.
  - Consider need for possible early endotracheal intubation.

Paramedic

Consult

- None

Clinical Pearls

- Evaluate breath sounds:
  - Clear: treat cause (e.g. MI, pulmonary embolism, metabolic disturbance, and hyperventilation).
  - Wheezes: treat cause (e.g. pulmonary edema, FBAO, asthma, allergic reaction).
  - Rales: treat cause (e.g. pulmonary edema, pneumonia).
  - Diminished or absent:
    - Unilateral: treat cause (e.g., pneumothorax, hemothorax, pneumonia, surgically removed lung).
    - Bilateral: treat cause (e.g., respiratory failure, COPD, asthma).
- Pneumonia may look like CHF with pulmonary edema. However, the pneumonia patient is often dehydrated and has an elevated temperature.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4014
Subject: Seizures	Effective: June 1, 2021	Last Modified: Dec. 23, 2023

4014.1 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma

Differential Diagnosis
- Head trauma
- Tumor
- Metabolic, hepatic or renal failure
- Hypoxia
- Electrolyte abnormality
- Drugs, medications
- Infection/fever
- Alcohol withdrawal
- Eclampsia
- Stroke/TIA
- Hyperthermia
- Psychogenic Non-epileptic Seizures

Treatment Algorithm

- BVM and nasopharyngeal airway during seizure as needed.
- Maintain normothermia.
- Obtain Pulse Oximeter and {Capnography} reading.

EMR

- If glucose less than 60, or there is strong suspicion of hypoglycemia despite glucometer readings, then follow 4008 Hypoglycemia/Hyperglycemia
- Place patient in the recovery position during assessment and transport.

EMT

- Cardiac monitor

A For actively seizing adult patients:
- G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses
- A **Midazolam 10 mg IN** (5 mg in each nostril), *or* **Midazolam 2.5 mg slow IV**, or **Midazolam 5 mg IM**
- A If still seizing, repeat Midazolam doses:
  - A Repeat **Midazolam 5 mg IN** (2.5 mg in each nostril) after 10 minutes.
  - A *Or* repeat **Midazolam 2.5 mg slow IV** after 5 minutes.
  - A *Or* repeat **Midazolam 5 mg IM** after 10 minutes.

P For actively seizing pediatric patients:
- P **Midazolam 0.2 mg/kg IN** (max IN dose 10 mg) *or* **Midazolam 0.1 mg/kg slow IV** (max IV dose 2.5 mg) *or* **Midazolam 0.2 mg/kg IM** (max IM dose 5 mg)
- P If still seizing, repeat Midazolam doses:
  - P Repeat **Midazolam 0.2 mg/kg IN** (max IN dose 5 mg) after 10 minutes
  - P *Or* repeat **Midazolam 0.1 mg/kg slow IV** (max IV dose 2.5 mg) after 5 minutes
  - P *Or* repeat **Midazolam 0.2 mg/kg IM** (max IM dose 5 mg) after 10 minutes

AEMT

- No additional orders at this level.

Paramedic

Consult

- None

Clinical Pearls

- When obtaining history be sure to include the following:
  - Description of seizures, areas of body involved, and duration
  - Other known medical history (e.g., head injury, diabetes, drugs, alcohol, stroke, heart disease, recent fever or illness, possible toxicological agents)

END OF SECTION

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4015.1 General Guidelines

a. Severe sepsis is characterized by poor perfusion, leading to a buildup of serum lactate and resulting metabolic acidosis.
b. To compensate for metabolic acidosis, patients increase their minute ventilation.
c. This increased respiratory rate "blows off" carbon dioxide and lowers $EtCO_2$.
d. $EtCO_2$ levels decline in the setting of both poor perfusion and metabolic acidosis.
e. Poor tissue perfusion decreases the amount of blood flow to the alveoli of the lungs, reducing the amount of carbon dioxide that can be exhaled
f. Sepsis is often associated with a high mortality rate. The key to improve patient outcomes in septic shock is early recognition, fluid resuscitation, O_2 therapy and rapid transport.

4015.2 Clinical Management

Assessment

Pediatric Considerations	Signs & Symptoms	Differential Diagnosis
• None	• Known or suspected infection • $EtCO_2$ less than 32 or greater than 47 with 2 or more of the following criteria: o Respiratory rate greater than or equal to 22 o Altered mental status (GCS less than 13) o Temperature over 100.4 (38 C) or under 96.8 (36 C) o Heart rate greater than 90 o Systolic BP less than 100 *or* Mean Arterial Pressure (MAP) below 65	• Fever • Flu-like symptoms

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
• Administer oxygen • Call for transport immediately.				
• No additional orders at this level. • If possible, obtain blood sample via finger stick and measure blood glucose level				
• Administer a bolus of **1 liter of IV fluid.** • ♦ For additional fluid administration.				
• Consider **Norepinephrine** by adding 4 mg to 250 ml of IV fluids. Infuse starting at **30 drops per minute (max 45 drops)** with 60 drop tubing and titrate to effect. Increase by **5 drops/minute** every 5 minutes.				

Consult

- Consult with MCP to give more than 1 liter of fluids.

Clinical Pearls

- Mean Arterial Pressure (MAP) is considered to be the organ perfusion pressure.
- MAP = (SBP + 2 X DBP) / 3 and is normally 70 – 110 mm/hg.
- Patients may be in septic shock with a normal blood pressure.
- **CAUTION:** Be especially suspicious of sepsis in geriatric patients with altered mental status
- Consider calling the receiving facility ahead to advise ED staff of potentially septic patients.

END OF SECTION

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Greater Miami Valley EMS Council	Medical Protocol	4016
Subject: Shock	Effective: June 1, 2021	Last Modified: Mar. 20, 2024

4016.1 General Guidelines

a. Shock is inadequate tissue perfusion.

b. Be proactive in treatment of shock. Do not wait for symptoms to present.

c. Management of shock should include trying to find and correct the underlying cause (if possible).

4016.2 Clinical Management

Assessment

Pediatric Considerations

- Pediatric patients will compensate longer than adults.
- Apparent signs and symptoms of shock can indicate a critical patient.

Signs & Symptoms

- Restlessness, confusion
- Weakness and dizziness
- Tachycardia
- Tachypnea
- Hypotension
- Decreased mentation
- Pale, cool, clammy skin

Differential Diagnosis

- Hypovolemia
- Cardiogenic
- Septic
- Neurogenic
- Anaphylactic
- Pulmonary emboli
- Tension pneumothorax
- Medications or overdose
- Vasovagal hypotension

Treatment Algorithm

- Call for transport immediately.
- Provide O_2 as appropriate
- Keep patient warm.
- Control external bleeding and treat for hypovolemic shock as indicated.

EMR

- Transport immediately unless ALS intercept is less than 5 minutes.

EMT

- Only give fluids for specific signs and symptoms of shock and not to every trauma patient.
- For persistent shock, establish additional vascular access.

- Non-traumatic shock without Pulmonary Edema: *Patient does not have JVD, edema, or rales.*
  - A **IV fluid 500 ml IV**. Maintain adequate perfusion.
  - P **IV fluid 20 ml/kg IV.**
  - P Titrate to maintain adequate perfusion.
  - A Additional IV fluid 500 ml IV, if needed.
  - P ♦ Additional **IV fluid 20 ml/kg IV**, if needed.

- Non-traumatic shock with Pulmonary Edema: *Patient may have JVD, edema, or rales present.*
  - A Consider **IV fluid 250 ml IV**.

- Exsanguinating Hemorrhage:
  - A **IV fluid** to maintain approximately 100 SBP or a radial pulse. Do not allow blood pressure to get too high.
  - P IV fluid **20 ml/kg IV**. May repeat x 2. Titrate to maintain adequate perfusion.

AEMT

- For non-traumatic shock:
  - Treat arrhythmias as indicated.
  - A If SBP remains less than 100, begin **Norepinephrine** by adding 4 mg to 250 ml of IV fluids. Infuse starting at **30 drops per minute (max 45 drops)** with 60 drop tubing and titrate to effect. Increase by **5 drops/minute** every 5 minutes.

Paramedic

Consult

- ♦ For repeat fluid challenges in non-traumatic shock without pulmonary edema.

Clinical Pearls

- Perform manual BP on all patients presenting with signs and symptoms of shock.

END OF SECTION

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4017.1 General Guidelines

a. If one or more signs of the Cincinnati Prehospital Stroke Scale (CPSS) are abnormal, and less than 24 hours since patient was last seen normal, call a "Stroke Alert", and transport to the closest appropriate Stroke Center.
b. In addition to the CPSS, providers should screen patients for possible large vessel occlusions (LVO) before making transport destination decisions.
c. If greater than 24 hours since last known well, consider transport to a Comprehensive or Thrombectomy Capable facility.
d. When reporting last known well, state actual clock time. Do not say, "20 minutes ago."
e. With such a diverse group of agencies and receiving hospital capabilities covered by this protocol, all agencies should discuss "best practices" for assessment, management, and transport of possible strokes with their Medical Directors. With approval, agencies may deviate from this guideline in the following manners:
    i. Agencies may use alternative stroke screening scales (RACE, MEND, LAPSS, etc.) for evaluation of possible CVAs. All screening tools should include the routine assessments found in the CPSS and methods to screen for large vessel occlusions.
    ii. Agencies may make transport destination decisions based on their proximity to stroke management facilities and the capabilities of those hospitals.
    iii. All modifications to this protocol should be made in the form of a supplemental guideline specifically approved and signed off by the medical director.

4017.2 Clinical Management

Assessment		
Pediatric Considerations • None	**Signs & Symptoms** • Facial drooping • Arm drift or weakness • Slurred or difficult speech • Aphasia (expressive or receptive) • Pupillary changes (in hemorrhagic strokes) • Gaze deviation/abnormal eye movement (indicative of large vessel occlusions)	**Differential Diagnosis** • Seizure • Subdural hematoma • Brain tumor • Syncope • Toxic or metabolic disorders (e.g., hypoglycemia) • Migraine headaches

Treatment Algorithm

- Perform a Cincinnati Pre-hospital Stroke Scale {or alternative approved by Medical Direction} assessment.
- A patient in respiratory distress with pale, moist skin and altered mental status should get oxygen via NRB mask.
- Be prepared to assist ventilations with OPA/NPA and Bag-valve-mask.
- If signs of cerebral herniation are present, ventilate at the following rates:
    - **A** Approximately 20 times per minute.
    - **P** Ventilate at a rate of ten faster than normal respiratory rate if the signs of cerebral herniation are present.
    - {If numeric $EtCO_2$ readings are available, ventilate at a rate to maintain readings at approximately 30 mmHg (30 torr)}
    - Never ventilate at less than 8 per minute.
- A patient with indications of stroke with a SpO_2 less than 94%, should be given oxygen via NC and titrated to 94%.
- A patient with indications of stroke with a SpO_2 greater than 94%, should not get any oxygen.

EMR

	EMT	AEMT	Paramedic
• The presence of a single abnormal finding in the CPSS {or alternative screening approved by Medical Direction} should dictate a stroke alert and transport to the closest stroke center (unless contraindicated by greater than 24-hour onset, presence of LVO indicators or thrombolytic considerations). • Perform a Large Vessel Occlusion (LVO) screening looking for: o Difficulty in balance or gait o Eye deviation – eyes may only move to one side, or be forced to one side o Visual disturbances – field of view cut, double vision, new onset blindness o Aphasia – expressive (inability to speak or paraphasic errors) or receptive (not understanding or following commands) o Denial/Neglect – can a patient feel you touch both of their arms and do they recognize their own hand? • Consider the following contradictions to thrombolytics: o Neurosurgery, head trauma or stroke in the last 3 months o Major surgery or serious non-head trauma in the previous 14 days o History of gastrointestinal or urinary tract hemorrhage within 21 days o Current (within the last 48 hours) use of anticoagulants. Examples include: ▪ Warfarin (Coumadin, Jantoven) ▪ Apixiban (Eliquis) ▪ Abigatran (Pradaxa) ▪ Edoxaban (Savaysa) ▪ Rivaroxaban (Xarelto) ▪ Lovenox injections • Patients with onset greater than 24 hours, clinical findings indicative of LVO or with contraindications to thrombolytics consider transport to a Comprehensive Stroke Center or Thrombectomy Capable Facility. o Patients with signs or symptoms that strongly indication a possible hemorrhagic stroke should not be transported to a Thrombectomy Capable Facility • Transport the patient with the bed flat, if able to tolerate. If showing signs of increased ICP, do not lay patient flat. • If glucose is less than 60, or there is strong suspicion of hypoglycemia despite glucometer readings, then follow 4008 Diabetic Emergencies - Hypoglycemia protocol			
• No additional orders at this level			
• No additional orders at this level			

Consult

- Contact MCP for Stroke Alerts or for advice regarding transport destination, if not clear.

Clinical Pearls

- Cincinnati Prehospital Stroke Scale: (normal or abnormal)
  - Facial Droop *(patient shows teeth or smiles)*.
  - Arm Drift *(patient closes eyes and holds both arms straight out for about 10 seconds)*.
  - Abnormal Speech *(have patient say "You can't teach an old dog new tricks." or any other phrase).*
- Possible indicators of a large vessel occlusion (LVO):
  - The presence of abnormal findings in all three categories of the Cincinnati Prehospital Stroke Test increase the possibility of LVO
  - Visual neglect, gaze deviation, or abnormal eye movement are key clinical findings
  - New onset loss of balance or coordination may indicate a possible LVO stroke
- Arrange for transport a historian with patient both to provide patient history and for permission to treat.

4017.3 Stroke Centers

a. **Telemedicine Stroke Center:** Also known as drip and ship, has thrombolytic capabilities and immediate access to a Neurologist via telemedicine.

b. **Primary Stroke Center:** Facility with capability to administer thrombolytics and has an ICU.

c. **Comprehensive Stroke Centers or Thrombectomy Capable:** Facilities with 24/7 endovascular capabilities.

i. Miami Valley Hospital (Comprehensive)

ii. Kettering (Comprehensive)

iii. Mercy Health – Springfield (Thrombectomy Capable)

END OF SECTION

5000 Series

Pediatric Protocol

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5001.1 General Guidelines

a. An Apparent Life-Threatening Event involves any infant under 1 year of age that is witnessed with a frightening event by an observer and involves some combination of the following:
   i. Apnea
   ii. Choking or gagging
   iii. Color change (cyanosis, pallor)
   iv. Change in muscle tone (limpness, sometimes rigidity)
b. Also referred to as a BRUE (Brief Resolved Unexplained Event)
c. Children who experience an ALTE event often have a normal exam on assessment.
d. A cause cannot be determined in 50% of ALTE cases.

5001.2 Important Information to Gather:

a. Document the symptoms of the event given by the observer:
   i. Was the child apneic, cyanotic or limp during event?
   ii. Infant's color, respirations and muscle tone
   iii. Was seizure-like activity noted?
   iv. Was any resuscitation attempted or did event resolve spontaneously?
   v. How long did the event last?
b. Obtain past pertinent medical history:
   i. Recent trauma, infection (e.g., fever, cough)
   ii. History of gastroesophageal reflux (GERD)
   iii. History of congenital heart disease
   iv. History of seizures
   v. Medication history
   vi. Birth defects

5001.3 Clinical Management

a. Support airway, breathing, circulation.
b. Keep warm.
c. Head-to-Toe exam for trauma, bruising, or skin lesions.
d. Check anterior fontanel: is it bulging, flat or sunken?
e. Pupillary exam.
f. Respiratory exam for rate, pattern, work of breathing and lung sounds.
g. Cardiovascular exam symmetry of brachial and femoral pulses.
h. Neuro exam for level of consciousness.
i. Observe for repetition of reported occurrences.
j. The patient should be transported to the hospital for further assessment.

5001.4 Management and Transport of Febrile Pediatric Patients

a. Transport all infants less than 2 months of age with a history or reported temperature of greater than 38.0 C (100.4 F) or less than 35.6 C (96.0 F).

END OF SECTION

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5002.1 General Guidelines

a. Maintain airway. Place in the sniffing position (1" towel under shoulders).
b. If drying and suctioning has not provided enough tactile stimulation, flick the infant's feet or rub the infant's back.
c. Suction only infants in distress, until airway is clear of all secretions. Bulb suctioning is preferred.
d. If meconium staining is present:
    i. Newborn is vigorous, with strong respirations, good muscle tone, and heart rate greater than 100 BPM; monitor the patient and maintain a patent airway.
    ii. Newborn is depressed, has poor respiratory effort, decreased muscle tone, or heart rate less than 100 BPM; clear the airway by suctioning before taking other resuscitative steps.
e. Avoid direct application of cool oxygen to infant's facial area as may cause respiratory depression due to a strong mammalian dive reflex present immediately after birth.
f. If stimulation does not improve the infant's breathing, then BVM assist may be necessary.

5002.2 Viable Fetus

a. If the fetus is greater than 23 weeks gestation, follow normal resuscitative procedures.
b. A fetus is viable if:
    i. Eyelids not fused
    ii. If measurable or known, must be greater 500 grams

5002.3 Clinical Management

Assessment		
Pediatric Considerations • Nothing additional	**Signs & Symptoms** • Respiratory distress • Central cyanosis • Altered level of consciousness • Bradycardia	**Differential Diagnosis** • Peripheral cyanosis (normal) • Infection • Maternal medication effect • Hypothermia, hypoglycemia, hypovolemia

Treatment Algorithm

	EMR	EMT	AEMT	Paramedic
P After delivery of the infant; P Assess the airway and breathing. P Warm, dry and stimulate P Position head lower than body. P Ventilate with BVM at 40-60/minute to increase HR (if less than 100) or for apnea or persistent central cyanosis. P If heart rate is less than 60 bpm begin CPR. P Compress at 120/min. P Compression to Ventilation ratio of 3:1	✓			
P Obtain APGAR scores at 1, 5 and 10 minutes post-delivery.		✓		
P If hypovolemic, **IV fluid 10 ml/kg** over 5-10 minutes. P Consider **Naloxone 0.1 mg/kg, IV, IO** or **IM** every 3 minutes until respirations improve P NEWBORN: **Dextrose 10% (D10) 2 ml/kg** if blood glucose less than 40.			✓	
P If heart rate remains less than 60 bpm after CPR: P **Epinephrine 1:10,000, 0.01 mg/kg IV** P If no response, repeat **Epinephrine 1:10,000, 0.01 mg/kg IV**, every 3-5 minutes.				✓

Consult

- Contact MCP for instructions and guidance when attempting to determine the viability of a fetus.

Clinical Pearls

- Use length-based resuscitation tape on all neonatal resuscitations.
- Mechanical suction may be used on infants only if the suction pressure does not exceed 100 mmHg or 136 cmH_2O.

END OF SECTION

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5003.1 General Guidelines

a. The Pediatric Assessment Triangle establishes a level of severity, assists in determining urgency for life support measures, and identifies key physiological problems using observational & listening skills.
b. This assessment tool can be utilized by providers of all certification levels.

5003.2 Appearance

a. Appearance reflects adequacy of: oxygenation ventilation, brain perfusion, CNS function.
    i. The mnemonic used for pediatric assessment of appearance is: TICLS.
        1. **T**one- Moves spontaneously, sits or stands (age appropriate)
        2. **I**nteraction- Alert, interacts with environment
        3. **C**onsolability- Stops crying with comfort measures (holding, warmth, distraction)
        4. **L**ook/gaze – Makes eye contact with clinician, tracks objects
        5. **S**peech/cry – Uses age appropriate speech or crying

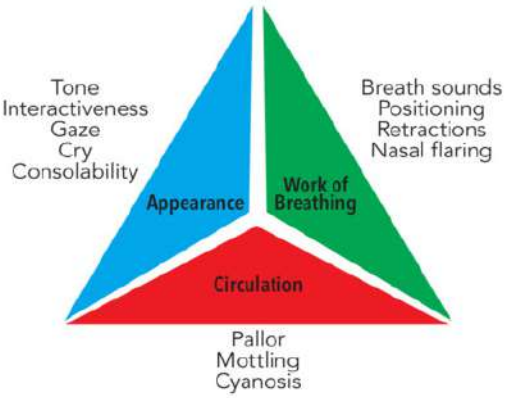
5003.3 Work of Breathing

a. WOB is a more accurate indicator of oxygenation and ventilation than respiratory rate or breath sounds.
b. Assess for effort in breathing, accessory muscle use, and depth of breathing.
c. Capillary refill is an accurate predictor of pediatric oxygenation.
d. Under work of breathing, the patient should fall into one of four categories:
    i. Normal Breathing
    ii. Respiratory difficulty
    iii. Respiratory failure
    iv. Respiratory arrest

5003.4 Circulation

a. Circulation reflects adequacy of cardiac output and perfusion of vital organs (core perfusion).
b. Cyanosis reflects decreased oxygen levels in arterial blood, vasoconstriction and respiratory failure.
c. Mottling of the skin indicates hypoxemia, vasoconstriction and respiratory failure.

5003.5 The Pediatric Assessment Triangle



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5004.1 General Guidelines

a. Safe Harbor is for the voluntary separation of newborn infant.
b. It is designed to allow desperate parents to separate from their babies to hospitals, EMS, or law enforcement agencies, confidentially.

5004.2 Clinical Management

a. Stipulations of separation:
    i. Infant can be no older than be 30 days old.
    ii. Infant can have no signs of abuse or neglect

b. History which should be obtained:
    i. Date and time of birth
    ii. Any pertinent family medical history
    iii. Information regarding prenatal care
    iv. Information concerning the birth.

c. Information should be obtained in a manner, which will not lead to the revealing of the identity of the parents.

d. Information collected should be based on patient (infant) care needs and assure confidentiality.

e. Transport the infant to the hospital.

END OF SECTION

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6000 Series

Special Operations Protocol

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6001.1 General Guidelines

a. This section will provide the responders with direction toward the management and mitigation of Hazardous Material events.

b. The initial goal of any hazardous materials release is to isolate and identify.

6001.2 Initial Actions

a. Personnel safety:
   i. Consider potential for secondary devices
   ii. Don appropriate PPE
   iii. Stage personnel & equipment

b. Call for additional resources. (Haz Mat Teams, Decon crews, Law Enforcement, etc.)

c. Field decontamination:
   i. Remove **all** contaminated clothing
   ii. Thoroughly wash the patient with {Dawn} dishwashing detergents
   iii. Pay special attention to skin folds and other areas where simple irrigation may not remove it
   iv. If a patient has been contaminated with any fuel, irrigate well

d. Contact Medical Control and the hospital immediately to allow time for their set-up of decontamination equipment.
   i. Provide the following information:
      1. Estimated number of confirmed or potential adult and pediatric patients
      2. Signs and symptoms exhibited by the patients
      3. Name and identification information of the contaminant if known, or as much information as possible
      4. Form of the contaminant (liquid, gas, etc.) if known
      5. Routes of exposure of the patients (percutaneous, inhalation, ingestion, etc.) if known
      6. Additional anticipated decontamination needs if necessary.
   ii. Obtain permission from hospital upon arrival before entering with a potentially contaminated patient or crew.

e. ♦ In the event of an MCI involving cyanide or nerve agents, request an "Antidote free" order, allowing you to treat all of the patients on the scene with the appropriate antidote, rather than calling for patient orders individually.

f. Do **not** transport a patient until gross decontamination is completed.

g. Decontaminate EMS vehicles prior to leaving hospital.

END OF SECTION

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6002.1 Antidote Options

a. {EMS Departments are authorized to stockpile **Atropine**, **2-PAM**, auto-injectors, and antidote delivery supplies at their own expense}

b. Dayton MMRS Caches

i. Dayton MMRS stores additional supplies of cyanide antidotes in each county in Ohio Homeland Security Region 3.
ii. To obtain Dayton MMRS antidotes: call 937-333-USAR (8727).
iii. The closest department with an antidote cache will respond as a mutual aid request.

c. CHEMPACK Resources:

i. Store of antidotes to treat about 500 victims of a nerve agent or organophosphate incident
ii. EMS CHEMPACK contents:
1. **Atropine**—blocks effects of excess acetylcholine
a. **0.5 mg AtroPen** auto-injectors (for patients less than 20 kgs)
b. **1.0 mg AtroPen** auto-injectors (for patients 20-40 kgs)
c. Multi-dose vials
2. **Pralidoxime Chloride (2-PAM)**—reduces levels of acetylcholine
a. **600 mg** auto-injectors
b. Multi-dose vials
3. **Diazepam (Valium)**—treats seizures.
a. **Convulsive Antidote, Nerve Agent (CANA)** (10mg **Diazepam** auto-injector)
4. Both EMS and Hospital CHEMPACKs contain the same three drugs.

iii. Hospital CHEMPACK contents

1. More multi-dose vials for more precise dosing of children and long-term patients.
2. Hospitals have the option to keep the materials for use at their hospital.
3. If a hospital opens its CHEMPACK, it must notify OSP Central Dispatch.

iv. CHEMPACK Limitations

1. Only useful against nerve agents or organophosphate
2. Only to be utilized when other resources are inadequate for number of victims.
3. CHEMPACKs opened contrary to guidelines will not be replaced by CDC

v. CHEMPACK procurement:

1. ♦ Obtain MCP approval
2. ♦ Contact OSP Central Dispatch 866-599-LERP (5377) and request a CHEMPACK
3. You must indicate that the scenario meets both of the following criteria:
    a. The agent has been identified, or patients are exhibiting signs and symptoms of organophosphate/nerve agent exposure.
    AND
    b. The need for antidotes is greater than the available resources.
4. OSP Central Dispatch will:
    a. Notify closest CHEMPACK hospital
    b. Dispatch Troopers to deliver the CHEMPACK to the MCI's staging area.
    c. Troopers will expect EMS to sign a form indicating receipt.

6003.1 Identification or Recognition of a Hazardous Drug Situation

a. Hazardous drug situations include:
   i. Patients who have just had IV chemotherapy at the clinic or hospital
      1. Body fluids could have traces of hazardous drugs for up to 48 hours.
   ii. Patients taking oral chemotherapy drugs.
   iii. Patients who have continuous IV chemotherapy at home.

b. Potential routes of exposure include:
   i. Absorption through skin or mucous membranes
   ii. Accidental injection by needle stick or contaminated sharps
   iii. Inhalation of drug aerosols, dust, or droplets
   iv. Ingestion through contaminated food, tobacco products, beverage, etc.

c. Don PPE listed below whenever there is a risk of hazardous drug being released into the environment.
   i. When handling leakage from tubing, syringe, and connection sites.
   ii. When disposing of hazardous drugs or items contaminated by hazardous drugs.
   iii. When handling the body fluids of a patient who received hazardous drugs in the past 48 hours.
   iv. When cleaning hazardous drug spills

6003.2 Guidelines for Personal Protective Equipment:

a. Gloves: two sets of nitrile gloves are recommended. Change gloves every 30 minutes.
b. Disposable, non-permeable gowns
c. NIOSH-approved respirator masks
d. Eye and face protection: wear a face shield whenever there is a possibility of splashing.

6003.3 Procedures:

a. Wipe up liquids with an absorbent pad or spill-control pillow.
b. If necessary, consult with the appropriate Haz-Mat team.
c. Dispose hazardous drugs or contaminated materials per MSDS or Haz Mat Team direction.
d. Report and document spills as required.
e. <u>For accidental skin exposure</u>: Remove contaminated garments, place in leak-proof plastic bag, and immediately wash contaminated skin with soap and water. Rinse thoroughly.
f. <u>For accidental eye exposure</u>: immediately flush eye with saline solution or water for at least 30 minutes or until patient transport is completed.

6003.4 Identification or Clarification

a. For more information about a hazardous drug or handling procedures, contact:
   i. The homecare agency that is supplying the infusion.
   ii. The physician who ordered the infusion.
   iii. A hospital pharmacy, if necessary (there should be a label on the IV bag with the drug's name, concentration, and dosage.

END OF SECTION

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6004.1 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- Breathing difficulty
- Abdominal pain
- Chest pain
- Burns (with blisters)
- Stridor (if inhaled)

Differential Diagnosis
- Chemical burns

Treatment Algorithm

- Ensure the safety of all responders.
- Begin decontamination and irrigate the chemical burn with water as quickly as possible.
- Flush affected eyes and skin with copious amounts of water or **IV Fluids** for a minimum of 30 minutes.
  - Continue flush until patient transport is completed.
- If ingested, do not induce vomiting. Dilute with water or milk.
- Monitor for cardiac arrest.

EMR

- {Perform a 12-lead EKG and transmit it to the hospital}

EMT

- Intubate if apneic.
- Consider 1014 Pain Management Protocol

AEMT

- When feasible, use {**Magnesium Sulfate solution (Epsom salt)**} as an additional irrigating solution for affected skin.
  - Magnesium Sulfate is not for eyes or mucous membranes.
  - Getting water on the burn is more urgent than the use of Epsom salt.
  - Do not delay irrigation or decontamination.
  - If available, use {**Epsom salt solution**} on the skin for at least 30 minutes.
- If ingested, in addition to water or milk, give {3-4 ounces of **magnesium-containing antacid** (i.e., Maalox or Mylanta)}.
- Intubate if unconscious or at first sign of pulmonary edema or respiratory distress.
- Perform a 12-lead EKG and monitor for prolonged QT interval.
- Apply {**magnesium-containing antacid** (Maalox or Mylanta)} topically to burned areas.
  - Omit if topical agents have already been applied prior to arrival.
- ♦ If patient with HF exposure experiences tetany or cardiac arrest, administer **Calcium Chloride 10% 1 g** (10 ml)**, IV**.
  - **Calcium Chloride 10%** should be considered a first line drug in cardiac arrest associated with Hydrofluoric Acid.
  - Only ABCs, defibrillation, intubation and **Epinephrine** should precede its administration.
- ♦ If patient was exposed to high concentration HF (greater than 40%), discuss prophylactic **Calcium Chloride 10% 400 mg** (4 ml), **slow IV** with MCP.

Paramedic

Consult

- The paramedic should contact MCP for administration of **Calcium Chloride 10%**

Clinical Pearls

- Death due to Hydrofluoric Acid has been reported from burns involving less than 3% body surface area.

END OF SECTION

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Greater Miami Valley EMS Council	Special Operations Protocol	6005
Subject: Organophosphate or Nerve Agent Exposure	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

6005.1 Clinical Management

Assessment

Pediatric Considerations
- None

Signs & Symptoms
- **S**alivation
- **L**acrimation
- **U**rination
- **D**efecation
- **G**astrointestinal Issues
- **E**mesis
- **M**iosis
- **M**uscle Twitching

Differential Diagnosis
- None with a recent history of exposure to nerve agents

Treatment Algorithm

EMR
- Administer oxygen
- ♦ Administer **Atropine** by **DouDote** every 5 minutes, as available until the lungs are clear to auscultation.
  - ♦ DouDotes can be given to adult and pediatric over 40 kgs patients.
- Treat seizures with **Diazepam Auto-injector** (CANA).

EMT
- No additional orders at this level.

AEMT
- ♦ Treat seizures with **Midazolam** or **Diazepam Auto-injector (CANA)**.

G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses

Paramedic
- ♦ Administer **Atropine** every 5 minutes (up to a total of three doses), as available until lungs are clear to auscultation.
  - **Atropine** may be given **IV, IM, IO** or by **AtroPen** auto-injector for children, or by **DuoDote**.

A ♦ Adults and children greater than 40 kgs, give **DuoDote**, or **Atropine 2 mg, IV, IM.**

P ♦ Children 20 – 40 kg, give **1.0 mg Atropine**, or the **1.0 mg Atropen** auto-injector.

P ♦ Children less than 20 kg, give **0.5 mg Atropine**, or the **0.5 mg Atropen** auto-injector.

A ♦ Follow Atropine with **2-PAM (Pralidoxime) 600 mg IM**. If DuoDote was used, no second auto-injector is needed.

P ♦ Infants and young children should recieve **Pralidoxime, 25-50 mg/kg IV** or **IM**, if available.

- Treat seizures with **Midazolam** or **Diazepam Auto-injector (CANA).**

Consult
- Contact MCP for administration of medications listed above.

Clinical Pearls
- Treat any case of known or suspected Organophosphate or Carbamate (e.g., insecticides such as Parathion or Malathion); or nerve agent (e.g., Tabun, Sarin, Soman, VX) exposure.
- Mild to moderate cases should be treated with one or two doses of **Duodote**.
  - Severe cases will generally require repeating every 5 minutes up to 3 doses.
  - Organophosphate poisonings may require more Atropine (3 DuoDotes).
  - Atropine in these circumstances is not for bradycardia, which may or may not be present.
- Procedures for DuoDotes, pediatric AtroPens, and Diazepam auto-injectors are the same as administering an Epi-Pen.
- Primary endpoints for treatment are diminished airway secretions (lungs are clear to auscultation), hypoxia improves, airway resistance decreases, and dyspnea improves

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6006.1 General Guidelines:

a. These guidelines are for the management of specific materials.

b. Unless otherwise noted, these orders apply to all certification levels.

6006.2 Specific Materials

a. Biological materials

i. ♦ {For the possibility of a bioterrorist attack, agencies may store their own supply of Ciprofloxacin (Cipro) or Doxycycline.}

ii. They can also provide prophylaxis against Anthrax, Cholera, and some protection against Plague.

b. Pepper Spray

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

END OF SECTION

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7000 Series

Administrative

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7001.1 Drug Bag Exchange Committee Make-up

a. Co-Chairpersons:
   i. One Hospital EMS coordinator
   ii. One Hospital pharmacy representative from each participating county
b. Members:
   i. EMS Coordinator from each participating hospital
   ii. Pharmacy representative from each participating hospital
   iii. Any interested GMVEMSC (Greater Miami Valley EMS Council) member
c. Meetings
   i. Two scheduled meetings per year
   ii. Unscheduled as needed to discuss problem areas

7001.2 General Operating Guidelines

a. In order to participate in the GMVEMSC Drug Bag program, an agency must have the capability to communicate with Medical Control at participating hospitals.
b. There are two types of drug bags: ALS/BLS and BLS (fanny pack style).
c. All drug bags, both ALS/BLS and BLS, are the property of the GMVEMSC
d. GMVEMSC drug bags are only for use by EMS providers located or stationed within GMVEMSC's region.
e. Agencies may not use GMVEMSC drug bags for runs originating from stations outside of or responding to an address outside of GMVEMSC's region (except in case of mutual aid responses to those areas).
f. Except in extreme circumstances, a GMVEMSC drug bag should not be used on multiple runs.
g. There is an initiation fee for each new bag that EMS agencies add to the program.
h. There is an annual maintenance fee for each ALS/BLS bag and BLS bag.
i. For replacement of lost or stolen drug bags, see 7005 Lost or Stolen Drug Bag Policy.
j. To maintain the integrity of the drug bag contents, pharmacy departments' seal each compartment of stocked drug bags with a blue plastic device. The seal should only be broken for administration of prehospital emergency medical treatment by approved EMS personnel. After prehospital emergency medical treatment use, the drug bag should be cleaned and re-sealed with the red plastic device contained inside each drug bag compartment.
k. The following actions may be taken for any department found to be in non-compliance with the Drug Bag Exchange Program Operating Guideline regarding opening and resealing the drug bag:
   i. Notification of the Fire Chief, EMS Administrator, or Private Ambulance Administrator.
   ii. The governing agency, e.g., city council, trustees, EMFTS for private ambulance service, will be notified that action is being initiated for the Fire, EMS and Private ambulance service.
   iii. Removal of all drug bags from all locations of said Fire, EMS and Private ambulance service.
   iv. Written notification to the following that the said service is in violation of the operating policy of the Drug Bag Exchange Program:
      1. Medical Director
      2. Regional Physician Advisory Board
      3. Ohio State Pharmacy Board
      4. Ohio Division of EMS
      5. All hospitals participating in the drug bag exchange program

l. GMVEMS Council maintains an information database for all EMS personnel authorized to participate in the Drug Bag Exchange Program.
m. Rosters with certification expiration dates for EMS providers are available via an online database for review and updates.

7001.3 Participation Requirements

a. Active membership in the GMVEMS Council.
b. Each agency in GMVEMSC must understand that Council typically communicates with departments and agencies via email, and that some of those messages concern changes to Standing Orders, pharmaceuticals in our Drug Bags, or other critical issues. Council maintains two lists of emails:
    i. The GMVEMSC Listserve
    ii. A distribution list of Agency Contacts
c. As such, to participate in the Drug Bag Program, each agency must provide a minimum of one functioning email contact for each of those lists (may be the same person or different). Council desires to communicate as freely and effectively as possible, and agencies may provide as many as they like for each list, but must have at least one person who can reliably receive messages. Since in rare cases, these messages may be urgent, we encourage use of the "three-deep" rule: provide Council with three (or more) emails for each list.
d. Additional Requirements For Drug Bag Program
    i. The protocol testing compliance letter (7008) must be signed by the Chief within two weeks after completion of the CBT cycle, then faxed to Council.
    ii. The copy of the license needs to go to Council by March 31 of each calendar year that the agencies' drug license is renewed. This is required, as the Pharmacy at each hospital needs the license on file in order to exchange drug bags with your department.
    iii. Complete drug bag updates when scheduled. This is essential. The Pharmacy Board has made it very clear that updates must be completed on time.
    iv. Signed agreement to abide by the GMVEMS Council Operating Guidelines for the Drug Bag Exchange Program (see 7007 Drug Bag Exchange Program Agency Agreement Letter)
e. ***No department which participates in the Drug Bag Exchange Program shall possess a DEA License.***
f. Area hospital participation according to Council guidelines. (See 7006 Hospital Participation Policy).
g. Document medical advisor approval for the use of the GMVEMS Council Operating Protocols with a signed, notarized letter, which is attached to the drug license renewal application form with a copy submitted to Council. Notarized letter is not required for renewal unless medications are added or there is a change in Medical Director from previous year.
h. Agreement to complete the GMVEMSC annual skills and annual written test between 1 March and 31 May unless otherwise scheduled by Council (see Non-Compliance Procedures).
i. **Maintain all drugs at all times in a clean, temperature-controlled environment per Rule 4729-33-03 of the OH State Pharmacy Board Administrative Code.**
j. The rules can be seen at: https://codes.ohio.gov/ohio-administrative-code/rule-4729:3-3-03
k. The ideal temperature span is 59-86 degrees Fahrenheit.
l. In order to utilize an ALS/BLS or BLS drug bag in the pre-hospital emergency setting, the following equipment must be available, unless otherwise noted:

i. BLS Provider:
   1. Oxygen
   2. Pulse Oximetry
   3. Extraglottic Airways
   4. CPAP administration and management
   5. Oral Glucose
   6. Glucometry
   7. Ice Packs
   8. Suction (manual is acceptable)
   9. AED (if approved by Medical Advisor)

ii. ALS Provider:
   1. Oxygen
   2. $EtCO_2$ detection, monitoring and waveform for intubated patients
   3. 12-Lead acquisition, transmission and interpretation
   4. Mucosal Atomizer Device (MAD)
   5. IO and device
   6. BAAM
   7. Digital intubation
   8. IV pressure infuser
   9. Suction (manual is acceptable)
   10. Monitor or defibrillator or AED & intubation equipment

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

7001.4 General Non-Compliance Procedures

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

7001.5 Levels of Participation

a. <u>Paramedic Level</u>
   i. Each drug bag consists of a navy, standard issue drug bag.

ii. Each standard issue bag is labeled with a metal tag reflecting the assigned bag number.
iii. A Paramedic can access any of the compartments within the bag to obtain medications.

b. AEMT Level
   i. A side compartment will be labeled "Intermediate"
   ii. The AEMT can access compartments to obtain medications per their protocol.
   iii. They cannot access the Center inside Compartment

c. EMT Level
   i. The RED BLS Pouch on an ALS/BLS bag will carry the following medications ONLY:
      1. Nitrostat
      2. Baby Aspirin
   ii. The BLS fanny-pack style bag will carry:
      1. Albuterol
      2. Atrovent
      3. Baby Aspirin
      4. Nitrostat
   iii. The EMT can only access following to treat their patient per protocol:
      1. The Airway Pouch
      2. The BLS Pouch
      3. The Naloxone Pouch

END OF SECTION

7002.1 Guideline

a. Some hospitals also require the use of the GMVEMSC approved Controlled Drug Usage Form in addition to documentation on the run sheet.
b. This GMVEMSC approved form must be filled out for any controlled drug use, even if there is no wastage.
c. This information shall be on both the original EMS department form and the hospital copy for reference if needed.
d. Every crew transporting a patient will provide a completed run sheet to the hospital within 3 hours.

7002.2 Procedure

a. Fentanyl, Ketamine, Morphine, Versed and Valium are all controlled drugs.
    i. If a controlled medication is only partially administered, the paramedic or AEMT must account for the all of the unused portion.
b. To insure the medications are properly accounted for, all paramedics and AEMTs will document:
    i. The drug name
    ii. The amount used
    iii. The amount wasted (if all the medication was administered, then list “none”)
    iv. The signature of a second witness if there is wastage.
        1. The second witness can be a member of the EMS crew.
        2. Many hospital employees are no longer permitted to witness or sign for drug wastage.

END OF SECTION

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7003.1 Exchange Process Guidelines

a. Each department is assigned to a "home" hospital.
b. The assigned hospital is the central resource for initial fulfillment of medications for the drug bags and wholesale exchanges, replacement, or additions as required by revisions to the protocols.
c. Drug bags can be exchanged at any participating hospital or within the same department.
d. ALS/BLS bags may be exchanged one-for-one with another ALS/BLS bag.
e. BLS bags may be exchanged one-for-one with another BLS bag.
f. It is not permissible to exchange drug bags between two different Fire/EMS Agencies.
g. The primary care provider is responsible for the inventory of the drug bag prior to sealing it.
h. If two departments have accessed a drug bag, they should jointly seal the drug bag.
i. Each hospital designates a specific location for the exchange of drug bags.
j. EMS personnel are **required** to complete the Sign In and Out log when exchanging a drug bag.
k. Each agency is responsible to track drug bag exchanges within their own organization (i.e. documentation, internal log, tracking software, etc.)
l. Once sealed, any provider can exchange the drug bag.
m. Unless the patient was removed to a non-participating drug bag exchange hospital or the patient was a non-removal, the drug bag must be exchanged at the time of patient delivery to the hospital.
n. In the exceptions listed above, the drug bag will be exchanged at a participating hospital within 8 hours.
o. Drug Bag Exchange after field termination will be at the facility from where the order was given, unless that hospital is not part of the Drug Bag Exchange Program.

7003.2 Drug Bag Blue Seals

a. Blue seals:
    i. Blue seals are used by the pharmacy that inventories and restocks the ALS/BLS drug bags.
    ii. 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.
    iii. The inner compartment of the ALS bag and Intermediate will be sealed with a blue seal and will have the expiration date noted.
    iv. The blue seal will be looped through the proximal portion of the zipper tab (not the outermost portion of the zipper tab).
    v. EMS should verify the blue seal is intact and has an expiration date before accepting the bag.
    vi. When a provider opens a drug bag compartment, they should keep the blue seal in their possession until they have verified the contents are accounted for.
    vii. Once they have verified the contents, they should place the blue seal in the compartment, unless there is a discrepancy and then seal the compartment with RED tag.
    viii. EMS MUST PLACE THE BLUE SEAL IN THE COMPARTMENT!

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

END OF SECTION

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7004.1 General Guidelines

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

7004.2 Discrepancies Involving Controlled Drugs or Potential Tampering:

a. When an issue arises concerning any of the following, a collaborative effort between the EMS organization or provider and the Hospital EMS Coordinator or Pharmacist shall be made in an attempt to resolve the issue:
    i. A controlled drug (Fentanyl, Ketamine, Valium, Versed, or Morphine)
    ii. A stolen, missing or lost bag
    iii. Any medication that appears to have been altered or tampered with.
b. If the issue cannot be resolved, the following steps shall be taken:
    i. If the discrepancy was discovered by the EMS organization/provider, the person designated by the organization/provider shall comply with the requirements of OAC 4729-9-15 and GMVEMSC requirements as indicated below.
    ii. If the discrepancy was discovered by the hospital, the person designated by the hospital shall comply with the requirements of OAC 4729-9-15 and GMVEMSC requirements as indicated below.
c. Required reporting for unresolved issues involving Controlled Drug or potential/suspected tampering or lost or stolen drug bags pursuant to Federal and State Laws and GMVEMSC Protocol include:
    i. If you have knowledge of or suspect a discrepancy is due to a theft, contact your State of Ohio Board of Pharmacy agent immediately. Advise them you want to report a theft or drug discrepancy. They will connect you with the appropriate person. (OAC 4729-9-15)
    ii. Notify the Drug Bag Exchange Committee Chairs immediately.
    iii. File a report with the appropriate law enforcement authorities (ORC 2921.22).
    iv. Notify the Drug Enforcement Agency within 24 hours of discovery using DEA Form 106
    v. DEA Form 106: https://www.deadiversion.usdoj.gov/webforms/app106Login.jsp.
    vi. A 30-day extension may be requested in writing from the DEA. (CFR 1301.76(b)).
    vii. Submit a completed GMVEMSC Drug Bag Discrepancy Report located at Addendum #E, with appropriate supporting documentation, to the GMVEMSC.

d. "Dangerous drug" means any of the following:
    i. Any drug to which either of the following applies:
        1. Under the "Federal Food, Drug, and Cosmetic Act," 52 Stat. 1040 (1938), 21 U.S.C.A. 301, as amended, the drug is required to bear a label containing the legend "Caution: Federal law prohibits dispensing without prescription" or "Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian" or any similar restrictive statement, or the drug may be dispensed only upon a prescription;
        2. Under Chapter 3715 or 3719 of the Revised Code, the drug may be dispensed only upon a prescription.
    ii. Any drug that contains a schedule V controlled substance and that is exempt from Chapter 3719. of the Revised Code or to which that chapter does not apply;
    iii. Any drug intended for administration by injection into the human body other than through a natural orifice of the human body;
    iv. Any drug that is a biological product, as defined in section 3715.01 of the Revised Code.

7004.3 Discrepancies Not involving Controlled Drugs or Potential Tampering:

a. Examples may include:
    i. Non-controlled drugs that were not in the bag
    ii. Wrong number of medications or doses
    iii. Wrong drug concentration
    iv. Expired medications found
    v. No expiration date on tag
    vi. Medications improperly labeled
    vii. Empty vials or packages left in bag. DO NOT PUT ANY USED VIALS BACK IN DRUG BAG
    viii. Unsealed medications
    ix. Wrong medication administered
    x. Unsealed pouch discovered
    xi. Bag logged out with red seal (used bag)
b. If discovered by EMS, the EMS Officer will initiate the Discrepancy form. They shall provide a copy of the form and the Blue Seal to the Hospital EMS Coordinator and shall fax a copy of the report to the GMVEMSC.
c. If the Hospital discovers the discrepancy, the EMS Coordinator will initiate the Discrepancy Form and submit to GMVEMSC. If the EMS Coordinator is able to determine which EMS agency/hospital is responsible for the discrepancy, the agency or hospital will be notified and will receive a copy of the Discrepancy Form and the Blue Seal if applicable.

7004.4 Follow Up Procedures

a. The GMVEMSC will:
    i. Maintain a record of all discrepancies that occur.
    ii. Follow up with the agencies involved as needed.
    iii. Advise the Drug Bag Chairperson of any and all discrepancies and action taken.

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

END OF SECTION

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Greater Miami Valley EMS Council	Administrative	7005
Subject: Drug Bag Exchange Program: Lost or Stolen Drug Bag Policy	Effective: June 1, 2021	Last Modified: Mar. 1, 2022

7005.1 Purpose

a. To provide a uniform mechanism for the investigation and reporting of lost or stolen drug bags.

7005.2 Notification

a. Upon discovery of a missing GMVEMSC drug bag, agencies will notify or cause to be notified the GMVEMSC Drug Bag Committee Chair(s).

b. A responsible party at the agency will initiate the Drug Bag Discrepancy Form and follow instructions for reporting lost or stolen drug bags. Completed paperwork and reports will be submitted to GMVEMSC.

c. The agency representative or the GMVEMSC Drug Bag Committee Chair (s) will notify the State of Ohio Board of Pharmacy (SOBP) at 614-466-4143
   i. The Drug Bag Chair(s) may elect to notify the SOBP for the agency or advise the agency to contact them individually.
   ii. Either way contact with the SOBP must be coordinated and accomplished

7005.3 Investigation

a. The EMS agency shall develop and implement an internal search mechanism for lost drug bags.

b. The internal search mechanism should include:
   i. Determine if drug bag was left at the scene.
   ii. Determine if drug bag was not exchanged on last run.
   iii. Determine if drug bag is in the wrong vehicle.

c. The GMVEMSC will seek the assistance of the GMVEMSC Drug Bag Chair(s) to check with all hospitals to determine if the bag might be in inventory or be alerted if it shows up at one of the hospitals.

d. The GMVEMSC will contact the hospital EMS Coordinator with whom the EMS Department is assigned to work out a drug bag replacement.

   i. Drug bag replacement will only occur after all paperwork is submitted
   ii. The GMVEMSC will assess a fee for replacement bag to be paid for by the receiving agency.

END OF SECTION

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7006.1 Purpose

a. To assure uniformity of hospital pharmacy participation in the Drug Bag Exchange Program.

7006.2 The Hospital Shall:

a. Purchase (at cost), fill, and maintain a supply of drug bags sufficient to meeting the needs of an average day, plus a few extra to meet peak demands for drug bag replacement.

b. Accept responsibility for filling new drug bags for departments or vehicles as assigned by GMVEMS Council, at hospital expense.

c. Assign one licensed pharmacist and an EMS coordinator to attend and participate in the Standing Orders and Drug Bag Exchange Program Committees.

d. Agree to pay annual dues and any fees assessed by GMVEMS Council that are approved by the Drug Bag Exchange Program Committee and the GMVEMS Council that pertain to the Drug Bag Exchange Program.

7006.3 The Greater Miami Valley EMS Council shall:

a. Maintain a current State Drug Licenses for all participants in the Drug Bag Exchange Program.

b. Furnish hospital pharmacy with a current listing of all departmental personnel authorized to access the GMVEMSC drug bags and copy of the protocol.

c. Assign departments to hospitals in both a geographic and otherwise equitable fashion.

END OF SECTION

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7007.1 Purpose

a. To establish the procedures required to provide new agency members with an ALS or BLS drug bag from the GMVESMC Drug Bag Exchange Program.

7007.2 Procedure:

a. Those agencies who have applied for membership and require a GMVEMSC Drug Bag to license their units may request a GMVEMSC Drug Bag be available 24 hours prior to the Ohio Medical Transportation Board (OMTB) inspection date.

b. In order to receive a drug bag, the EMS agency shall:

   i. Have applied for a GMVEMSC membership.
      1. Have been given a provisional membership by the GMVEMSC Executive Committee if the inspection is before regularly scheduled Council meeting.

   ii. Provide a copy of their State Pharmacy License.

   iii. Check off all agency personnel on Standing Orders and data entered in the GMVEMSC data base.

   iv. Have the Medical Director submit a notarized letter to the State Pharmacy Board with License application stating they approve their department to use the GMVEMSC protocols.
      1. Medical Directors have the right to limit their personnel from using certain medications or procedures within the scope of the GMVEMSC protocols.
      2. Medical Directors may elect to change or add medications or procedures to the protocol.
      3. The Medical Director must include those protocols in addendum to the GMVEMSC, be responsible for the training and documentation of training in of their protocol as well as purchasing and maintaining those drugs that are not included in the standard inventory of the GMVEMSC ALS or BLS drug bag.

c. The agency has 72 hours to show proof of a temporary permit from the date of inspection to the GMVEMS Council office.

d. If they cannot demonstrate an OMTB permit in that time the drug bag must be returned to either the hospital to which the agency is assigned or the hospital that provided the drug bag.

7007.3 Agreement Letter

a. In order to participate in the GMVEMS Council Drug Bag Exchange program, the agency will provide the agreement letter that follows to the Greater Miami Valley EMS Council.

b. A similar example of the agencies' choosing may also be used.

Greater Miami Valley EMS Council
Drug Bag Exchange Program
Agency Agreement Letter

Please type or print legibly

DEPARTMENT/SERVICE:_____

CONTACT PERSON:_____

TELEPHONE: _____

FAX: _____

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

SIGNATURE:_____
Fire Chief, EMS Administrator, or Private Ambulance Administrator

DATE:_____

Return to:
GMVEMSC
124 E. Third St.
Dayton OH 45402

END OF SECTION

Protocol Testing Compliance

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

members of _____ (Agency/ Department Name)

have completed the _____ (Year) GMVEMSC Protocol Testing as of_____(Date

of Completion) with the exception of the following personnel:

(List anyone who has not completed testing)

_____

Chief's Signature

END OF SECTION

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7009.1 General Guideline

a. If at any time an EMS provider encounters a discrepancy in the GMVEMS Council Drug Bag they are using, they will notify their agencies' EMS Officer (or their supervisor if an EMS Officer does not exist).

b. If the EMS provider is at a hospital that participates in the GMVEMS Council Drug Bag Exchange Program, they will log the bag in using the normal procedure at that hospital.

c. If the discrepancy was discovered after opening the bag, retain the blue seal and the hospital sticker that was attached to the drug bag in question. The tags (or photo copies of the tags) should be attached to the **GMVEMSC Drug Bag Discrepancy Report.**

d. They will advise the pharmacist or EMS Coordinator of the discrepancy and that they will be initiating the **GMVEMSC Drug Bag Discrepancy Report** provided on the opposite page.

e. Examples of the **GMVEMSC Drug Bag Discrepancy Report** should be available at all hospitals. They will often be found in the EMS rooms.

f. The **GMVEMSC Drug Bag Discrepancy Report** will be completed in triplicate with a copy going to the GMVEMS Council, the receiving pharmacy and the EMS agency reporting.

g. The pharmacist may request a copy of the **GMVEMSC Drug Bag Discrepancy Report**.

END OF SECTION

GMVEMSC Drug Bag Discrepancy Report

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

Date of report:_____ Bag Number:_____ Date Discrepancy discovered:_____

Discovered by:_____ Hospital/EMS Dept making discovery:_____

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

Tracking:
Date bag was logged out:_____ from (hospital)_____ To (EMS agency)_____

Date Bag turned in: _____ to (hospital)_____

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

_____
_____
_____

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

_____
_____
_____

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

_____
_____
_____

Who will be responsible for any required reporting:_____

Reporting requirements:
Was a police report filed? _____ Date:_____ By whom? _____
Was a DEA report filed? _____ Date:_____ By whom?_____
Was the Stat Pharmacy Board notified? _____Date:_____ By whom?_____

Required documents submitted to GMVEMSC By:_____ Date:_____

For Drug Bag committee use:

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

GMVEMSC – White Pharmacy - Yellow EMS Department - Blue

7010.1 OAC 4729-9-15

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

(1) The state board of pharmacy, by telephone immediately upon discovery of the theft or significant loss;

(2) If a controlled substance, the drug enforcement administration (DEA) pursuant to section 1301.76(b), Code of Federal Regulations;

(3) Law enforcement authorities pursuant to section 2921.22 of the Revised Code.

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

(1) An exemption may be obtained upon sufficient cause if the federal form cannot be filed within thirty days.

(2) A request for a waiver of the thirty-day limit must be requested in writing.

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

(1) Uncompleted prescription blank(s) used for writing a prescription, written prescription order(s) not yet dispensed, and original prescription order(s) that have been dispensed, shall notify the state board of pharmacy and law enforcement authorities.

(2) Official written order form(s) as defined in division (Q) of section 3719.01 of the Revised Code shall notify the state board of pharmacy and law enforcement authorities, and the drug enforcement administration (DEA) pursuant to section 1305.12(b), Code of Federal Regulations.

END OF SECTION

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7011.1 History

a. The member hospitals of Greater Dayton Hospital Association (GDAHA) have supported Emergency Medical Services agencies in the region for decades.
b. In 1998, GDAHA received permission (Advisory Opinion No. 98.7) from the Department of Health & Human Services to continue to exchange drugs (GMVEMSC Drug Bag Exchange Program) and supplies with EMS agencies and avoid violating the anti-kickback (safe harbor) statute of the Social Security Act.
c. The hospitals named in the advisory are in the eight (8) county West Central Region: Champaign, Clark, Darke, Greene, Miami, Montgomery, Preble and Shelby.
d. In December 2001, the Centers for Medicare and Medicaid Services issued an Ambulance Final Rule on Ambulance Restocking Safe Harbor.
    i. Elements of the Safe Harbor include:
        1. Billing and claim submission
        2. Documentation
        3. Not tied to referrals
        4. Compliance with other laws

7011.2 EMS Supply Exchange Program:

a. EMS agencies and personnel should understand the benefits of the EMS Supply exchange program, as offered by GDAHA members participating in this program.
b. Hospitals are not required to participate in this restocking program.
c. EMS agencies and personnel must adhere to the agreement, particularly the areas highlighted below:
    i. For all transports to member hospitals, the EMS agencies will provide the receiving hospital with copies of the written records **describing each of the medical supplies and/or medications utilized by or for the patient during the transport**. In most cases, this should be done immediately after patient transfer.
    ii. Participating hospitals will restock EMS agency ambulances, at no charge to the EMS agency, with the medical supplies and/or medications which were **utilized by or for the patient during the transport to the receiving hospital.**
d. **Hospitals will not restock items used on patients delivered to another hospital.**
    i. Restocking an ambulance at a participating hospital for items used on a patient delivered to a hospital not participating in the agreement will jeopardize this program.
    ii. It is the responsibility of the EMS agencies to restock items used on patients delivered to a hospital that is not a participant in the Agreement.
e. **Participating hospitals <u>will</u> restock drug bags.**
f. Hospitals will not provide medical supplies to a new ambulance, or an old ambulance being returned to service.
    i. These ambulances must be stocked for the first time by the EMS agency.

END OF SECTION

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Greater Dayton Area Hospital Association, Greater Miami Valley Emergency Medical Services Council, and Greater Montgomery County Fire Chiefs' Association Policy Statement for Temporary Diversion of Emergency Patients

7012.1 EMS and Dispatch Procedures

a. When situations exist that prevent the timely treatment of additional emergency cases or certain types of emergency patients, the designated hospital or satellite emergency department (ED) Official will report that they are on "Diversion of Emergency Patients," formerly referred to as rerouting.
b. For patients impacted by the type of diversion specified, EMS should utilize hospitals in normal status. Transport to a hospital in diversion status may jeopardize patient care more than the delay in treatment caused by longer transport times except for patients that are in extreme life/limb threatening circumstances.
c. When a patient and /or the patient's physician requests EMS to transport to a hospital which is on diversion, EMS have the responsibility to advise the patient and/or the physician that "due to diversion patient care may be jeopardized."

7012.2 Monitoring Emergency Department Status:

a. Anyone with a Juvare EmResources account can set up preferences to receive an alert when the hospital status changes.
    i. Dispatch centers should set up Juvare EMResources preferences to receive an alert when the hospital status changes.
    ii. Dispatch centers are encouraged to continuously monitor Juvare EMResources.
    iii. Dispatch center**s** must notify EMS of hospital status changes.

7012.3 Diversion Categories:

a. Hospitals communicate the following status information via Juvare EMResources:
    i. **CLOSED:**
        1. The hospital or satellite ED has activated its disaster plan because of an internal emergency or other situation rendering the hospital or satellite ED unable to accept **any emergency patient. EMS will not transport any patient to a CLOSED Facility**
    ii. **DIVERSION OF CERTAIN TYPES OF PATIENTS:**
        1. Limited Divert/Operations:
            a. Limited operations/ability to handle some types of traffic/special situation (examples include CT scanner downtime, no ICU beds available, specialty care limitations). Write the specific issue in the comment section.
        2. Divert/At Capacity:
            a. Facility is at capacity and/or on diversion; ED is paused to inbound EMS traffic and the facility is not in a designated load balancing plan.

7012.4 Hospital and Satellite ED Procedures:

a. The hospital or satellite ED will:
   i. Update the Juvare EMResources page with ED status and activity between 6 and 9 am daily and anytime the status or activity changes.
   ii. Notify EMS Coordinators and appropriate dispatch centers. Hospitals and satellite EDs located in the southern Miami Valley region may also need to contact northern Cincinnati area hospitals or dispatch centers.

b. Status Management - Changes/Updates
   i. It is the responsibility of the **diverting** hospital or satellite ED to review and update their diversion status **hourly**, making changes as needed.
   ii. When the status changes, including return to normal operations, notify EMS Coordinators and appropriate dispatch centers and update Juvare EMResources using the same notification protocols used to initiate the diversion procedure.

7012.5 Participating Hospitals (Additional hospitals added upon approval)

Atrium Medical Center (Middletown)
1 Medical Center Dr, Middletown, OH 45005

Austin Boulevard Emergency Center
300 Austin West Blvd., Miamisburg, OH 45342

Dayton Children's Hospital
1 Children's Plaza, Dayton, OH 45404

Dayton Children's Hospital – South Campus
South Campus 3333 W. Tech Blvd, Miamisburg, OH 45342

Dayton-Springfield Emergency Center
1840 Springfield Road, Fairborn, OH 45324

Joint Township District Memorial Hospital
200 St. Clair Ave, St. Marys, OH 45885

Kettering Health Dayton
405 W Grand Ave, Dayton, OH 45405

Kettering Health Network Franklin Emergency Center
100 Kettering Way, Franklin, OH 45005

Kettering Health Greene Memorial
1141 N Monroe Dr, Xenia, OH 45385

Kettering Health Hamilton
630 Eaton Ave, Hamilton, OH 45013

Kettering Health Network Huber Emergency Center
8701 Troy Pike, Huber Heights, OH 45424

Kettering Health Main Campus
3535 Southern Blvd, Kettering, OH 45429

Kettering Health Miamisburg
4000 Miamisburg Centerville Rd, Miamisburg, OH 45342

Kettering Health Middletown Emergency Center
6147 W. State Route 122 Middletown, OH, 45005

Kettering Health Preble Emergency Center
450-B Washington-Jackson Rd, Eaton, OH 45320

Kettering Health Springfield
2300 N. Limestone St., Springfield OH 45503

Kettering Health Troy
600 W. Main St., Troy, OH 45373

Kettering Health Washington Township
1997 Miamisburg Centerville Rd, Dayton, OH 45459

Mercy Health – Springfield
100 Medical Center Drive, Springfield, OH 45504

Mercy Health Urbana Hospital
904 Scioto St, Urbana, OH 43078

Miami Valley Hospital
1 Wyoming St, Dayton, OH 45409

Miami Valley Hospital – Beavercreek Emergency Center
2400 Lakeview Dr., Beavercreek, OH 45431

Miami Valley Hospital - Jamestown Emergency Center
4940 Cottonville Rd, Jamestown, OH 45335

Miami Valley Hospital North
9000 N Main St, Dayton, OH 45415

Miami Valley Hospital South
2400 Miami Valley Dr, Centerville, OH 45459

Soin Medical Center
3535 Pentagon Blvd, Beavercreek, OH 45431

Upper Valley Medical Center
3130 N Co Rd 25A, Troy, OH 45373

Dayton VA Medical Center
4100 West 3rd Street, Dayton, OH 45428

Wayne Healthcare
835 Sweitzer St, Greenville, OH 45331

Wilson Memorial Hospital
915 West Michigan Street, Sidney, OH 45365

WPAFB 88th Medical Center
4881 Sugar Maple Dr, Wright-Patterson AFB, OH 45433

END OF SECTION

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Subject: Hospital Capabilities Chart | Effective: June 1, 2021 | Last Modified: Jan. 5, 2024

HOSPITAL	Trauma Center	Burn Center	Interventional Cardiac Cath	Stroke Telemedicine	Stroke Primary	Stroke Comprehensive	L & D
Atrium Medical Center (Middletown)	A 3		Cardiac	Y	Y		Y
Austin Blvd. Emergency Center				Y			
Bethesda Arrow Springs				Y			
Bethesda Butler Hospital				Y			
Christ Hospital Liberty				Y			Y
Dayton Children's Hospital	P 1	Y					
Dayton Children's - South Campus							
Dayton-Springfield Emergency Center				Y			
Joint Township District Memorial Hosp.				Y			
Kettering Health Dayton	A 3		Cardiac	Y	Y		
Kettering Health Franklin				Y			
Kettering Health Greene Memorial				Y			
Kettering Health Hamilton			Cardiac	Y	Y		Y
Kettering Health Huber				Y			
Kettering Health Main Campus	A 2		Cardiac	Y	Y	Y	Y
Kettering Health Miamisburg				Y	Y		
Kettering Health Middletown				Y			
Kettering Health Preble				Y			
Kettering Health Springfield				Y			
Kettering Health Troy				Y			
Kettering Health Washington Twp.				Y	Y		Y
McCullough-Hyde Hospital				Y			Y
Mercy Health - Springfield			Cardiac	Y	Y		Y
Mercy Health - Urbana Hospital				Y			
Miami Valley Hospital	A 1	Y	Cardiac	Y	Y	Y	Y
Miami Valley – Beavercreek EC				Y			
Miami Valley - Jamestown EC				Y			
Miami Valley Hospital North				Y			
Miami Valley Hospital South	A 3		Cardiac	Y	Y		
Reid Health	A 3		Cardiac	Y	Y		Y
Soin Medical Center	A 3		Cardiac	Y	Y		Y
Upper Valley Medical Center	A3		Cardiac	Y	Y		
Dayton VA Medical Center							
Wayne Health Care				Y			Y
West Chester Hospital	A 3		Cardiac	Y	Y		Y
Wilson Memorial Hospital			Cardiac	Y			Y
WPAFB 88th Medical Center							Y

Notes: Comprehensive stroke centers have the capability of endovascular intervention 24/7. Primary stroke centers have CT and tPA capabilities and focus on evaluating patients for intravenous tPA. Telemedicine with tPA ready offers immediate access to a Neurologist.

END OF SECTION

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Hospitals in **bold type** ask to be called for every patient.

HOSPITAL	PHONE	FAX
Atrium Medical Center, Middletown	513-424-3924	513-420-5133
Austin Boulevard Emergency Center	937-865-9663	937-641-2608
Bethesda Arrow Springs	**513-282-7222**	513-867-2581
Bethesda Butler Hospital	**513-893-8222**	513-893-8321
Christ Hospital Liberty	**513-648-7874**	513-648-7962
Cincinnati Children's Stat Line	**513-636-8008**	513-636-4050
Dayton Children's Hospital	937-641-4444	937-641-5301
Dayton Children's Hospital South	937-641-5642	937-641-4880
Dayton-Springfield Emergency Center	**937-523-8792**	937-523-8788
Joint Township District Memorial Hospital	419-394-7333	419-394-1902
Kettering Health Dayton	937-723-3419	937-723-4609
Kettering Health Franklin Emergency Center	937-458-4728	937-458-4737
Kettering Health Greene Memorial	937-372-2297	937-352-3501
Kettering Health Hamilton	513-867-2144	513-867-2581
Kettering Health Huber	937-558-3301	937-558-3349
Kettering Health Main Campus	937-395-8080	937-395-8347
Kettering Health Miamisburg	937-384-8766	937-384-8729
Kettering Health Middletown	513-261-3415	513-261-3419
Kettering Health Preble	937-456-8328	937-456-8377
Kettering Health Springfield	937-504-8306	937-504-8309
Kettering Health Troy	937-980-7015	937-980-7019
Kettering Health Washington Township **Maternity**	937-435-1832 **937-401-6850**	937-401-6447 937-401-6861
McCullough-Hyde Hospital	**513-524-5353**	513-523-0144
Mercy Health - Springfield	937-523-1902	937-523-1950
Mercy Health Urbana Hospital	937-484-6160	937-484-6183
Miami Valley Hospital **Maternity**	937-208-2440 **937-208-3677**	937-641-2608 937-208-2651
Miami Valley – Beavercreek Emergency Center	937-429-0708	937-641-2608
Miami Valley – Jamestown Emergency Center	937-374-5274	937-641-2608
Miami Valley North Hospital	937-540-1067	937-641-2608
Miami Valley South Hospital **Maternity**	937-438-2662 **937-974-8700**	937-641-2608
Regional Hospital Notification System	937-333-8727	
Reid Memorial Hospital	**765-983-3161**	765-983-3038
Soin Medical Center	937-702-4525	937-702-4509
Upper Valley Medical Center	937-440-9444	937-440-4346
Dayton VA Medical Center	**937-262-2172**	937-267-5364
Wayne Health Care	**937-547-5777**	937-569-6087
West Chester Hospital **Maternity**	**513-298-7777** **513-298-7777**	513-298-8978
Wilson Memorial Hospital	937-498-5300	
WPAFB Medical Center	**937-257-3295**	937-656-1673

Hospitals in **bold type** ask to be called for every patient.

END OF SECTION

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7015.1 General Guideline

a. The purpose of this policy is to provide public safety personnel (including fire, EMS, and law enforcement) and hospitals with a set of standard guidelines and expectations for defining, responding to, and following up on an infection control exposure incident involving an emergency response provider.

b. This guideline is a cooperative effort between the Greater Miami Valley EMS Council (GMVEMSC) and the Greater Dayton Area Hospital Association (GDAHA).

7015.2 Bloodborne Exposure

a. Definition Of A Bloodborne Exposure

i. An exposure incident that may place a public safety worker at risk for Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), or Human Immunodeficiency Virus (HIV) infections or other blood borne pathogens that includes:

1. A percutaneous injury (e.g., a needle stick or cut), or
2. Contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious.

ii. What is NOT an exposure?

1. A percutaneous injury with a clean or sterile needle or instrument.
2. Intact skin splashed with potentially infectious blood, body fluid, or tissue.

b. Post Exposure Procedure

i. An exposed public safety worker should take the following immediate "first aid" action steps:

1. Immediately irrigate the involved area.
2. Flush eyes with copious amounts of IV fluids, if indicated.
3. Wash skin vigorously with soap and water.
4. If soap and water is not available, rinse area with another available solution such as IV fluids or a water-based liquid.
5. Waterless hand cleaners are not recommended for post-exposure gross decontamination, but can be used when other options are not available.

ii. The Employee shall report the exposure incident to the receiving hospital and to their immediate supervisor.

iii. Exposed employees are required to register as a patient at the same hospital as the source.

iv. Once at the receiving hospital, the exposed employee should locate and complete the "Request for Information by Emergency Care Workers (RIECW)" form (see Appendix A).

v. When completed, the form should be submitted to the nurse handling the exposed employee's care in the Emergency Department (ED).

vi. The EMS Coordinator for the receiving hospital can serve as a liaison between the organization and the hospital.

vii. The department's infection control officer (ICO) or designated supervisor should, upon receiving notification that there has been an exposure incident, notify the receiving hospital's EMS Coordinator.

viii. *For the purpose of this policy the "department's Infection Control Officer (ICO), designated supervisor, or designee" refers to the person responsible for reporting and coordinating an exposed employee's incident within that Public Safety entity.*

ix. Follow-up care/exam(s) will be provided to each employee involved when indicated. All follow-up care/exam(s) will be coordinated through your employer.

c. Testing The Source Patient

i. A blood sample is required to determine whether a patient has HIV, HBV or HCV. Blood/Body Fluid (B/BF) testing of a source patient includes the following (MMWR, June 29, 2001):
   1. HIV antibody
   2. HBV surface antigen (HBsAg)
   3. HCV antibody

ii. If the source patient is transported to a hospital:
   1. The ED obtains patient consent and the blood specimen for testing.
   2. In the event that the patient refuses to or cannot give consent (e.g., due to an altered level of conscious) a hospital's "infection control committee… or other body of a health care facility performing a similar function" has the authority to obtain the HIV screening when there has been a significant exposure (Ohio Revised Code §3701.242).

iii. If the source patient refuses transport to a hospital:
   1. If the patient refuses to give consent for blood sampling and refuses transport, the public safety worker must follow up with their ICO or designee.
   2. At this point it is a legal matter to obtain the source patient's blood for testing (Ohio Revised Code §3701.247).
   3. Following a significant exposure in which the source patient refuses to provide a blood sample and refuses transport, the employee should seek immediate medical evaluation and counseling for their selves (MMWR, Sept. 30, 2013).
   4. In cases where the patient refuses transport, or in exposure incidents where the source patient is unknown, an exposed employee should follow the steps outlined in **7018.2e - Patients Not Transported to a Hospital**.
   5. EDs or hospitals will not run source patient blood samples if the source patient is not a patient at their hospital.

d. Source Patient (Transported To Hospital) Results

i. Hospital-run HIV test results should be available within an hour (may be longer for "stand alone" or smaller EDs); HBV and HCV results may not be available for several days.

ii. The exposed employee is expected to remain a patient in the ED until they have received the results of the rapid HIV test and any additional counseling from the attending physician.

iii. The employee is expected to communicate his/her follow-up needs to your department's ICO or designated supervisor.

iv. Written notification of positive test results shall be provided directly to the affected employee by the hospitals designated infection control point of contact within three (3) days after oral notification (Ohio Revised Code §3701.248).

v. Confidentiality of the source patient and public safety worker information shall be maintained
vi. Only information pertaining to source patient results will be released to the organization's ICO or designee and/or an employee who is still present in the ED as described above.
vii. The department ICO or designee and the public safety worker shall not disclose any medical information publicly about the source patient.

e. Patients Not Transported To A Hospital By EMS
   i. Employees should notify their immediate supervisor, and their immediate supervisor should notify the organization's ICO or designee. Federal regulations dictate that, "following report of an exposure, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up" (OSHA 29 CFR, 1910.1030(f) (3)).
   ii. Exposed employee should be directed to any ED for treatment.
   iii. Employee shall locate, complete, and sign the Request for Information by Emergency Care Workers (RIECW) Form (Appendix A), which should be available, completed, and submitted to the nurse handling care in the ED.
   iv. If the public safety worker is aware that the patient went to an ED by other means, the employee's supervisor may call the ED charge nurse of the patient's destination and notify them of the exposure, with a request to obtain baseline testing of the source patient.
   v. The written Request for Notification of Test Results shall be faxed to the ED charge nurse as soon as possible by the employee or the department's ICO.

f. Prophylaxis For Blood/Body Fluid Exposed Public Safety Worker
   i. Post-exposure prophylaxis (PEP) treatment may be offered to the public safety worker by the ED or workplace health provider in accordance with current clinical guidelines and local PEP protocols. Additionally, the employee may wish to consult their personal physician.
      1. The decision to take PEP includes a risk-based assessment based on known or unknown source patient and type of exposure.
      2. Employees receiving PEP treatment should be followed up within 72 hours of starting treatment.
      3. The PEP treatment decision should consider laboratory results when available.
   ii. HIV prophylaxis:
      1. Decisions about chemoprophylaxis can be modified if additional information becomes available.
      2. Public safety workers must register as ED patients to receive HIV prophylaxis from the hospital.
      3. HIV PEP should be started as soon as possible.
      4. Consideration should be given by the ED for expert consultation and guidance on HIV PEP (e.g., infectious disease physician, MMWR, 2011) or the National Clinicians' Post Exposure Prophylaxis Hotline @ #888-448-4911).
      5. Counseling should be made available through the agency's employee assistance program (EAP) or by contractual agreements.

iii. Hepatitis Prophylaxis
   1. Hepatitis Prophylaxis is dependent on the public safety worker's vaccine status.
   2. A small percentage of immunized individual's protection from the vaccine declines over time, which may require Hepatitis B Immunoglobulin (HBIG) and additional doses of the Hepatitis B vaccine to protect against both the current exposure and future exposures.
   3. The results of the HBV Surface Antibody test will demonstrate the employee's immunity to HBV, but are not typically given in the ED as the results of the HBV Surface Antibody test are usually not available immediately.
   4. Employees must follow up with his/her organization's workplace health provider for related prophylaxis as soon as possible.
   5. There is no prophylaxis for HCV at this time. In cases of positive source HCV results, the employee should follow up with their workplace health provider for evaluation and care.

g. Public Safety Worker Baseline Testing
   i. Baseline testing of the exposed public safety worker is the employee's choice.
   ii. Agencies should maintain signed statements of employees who decline baseline testing/evaluation at the time of an exposure.
   iii. Baseline testing is the term given to the set of initial laboratory tests that should be drawn on an exposed employee.
   iv. This data may be used to compare future assessments in determining if an infectious disease was contracted.
   v. Baseline testing is not emergent; however, evaluation for PEP as discussed above should be considered urgent and care sought immediately.
   vi. In cases where PEP was determined not an appropriate emergency treatment, the public safety worker should seek follow up care as instructed.
   vii. This follow up should be by the organization's workplace health provider. This follow up should optimally occur the next day and no later than seven days post exposure (MMWR, 2001).
   viii. In cases where the source patient testing is negative but the public safety worker still wants further testing, the employee is encouraged to follow up with their private physician or your department's workplace health provider.
   ix. Public safety worker baseline testing includes at minimum:
      1. HIV antibody
      2. Hepatitis B surface antibody
      3. Hepatitis C virus antibody
   x. A positive Hepatitis and/or HIV test of the source patient should trigger viral load testing of the source patient.

7015.3 Respiratory Exposure

a. Definition Of A Respiratory Exposure
   i. Respiratory exposure is defined as contamination with an infectious agent through the respiratory tract.
   ii. This occurs via one of two routes (*CDC, Rationale for Isolation Precautions in Hospitals, 1996*):

iii. Via airborne infectious agents with small-particle residue [5 µm or smaller] of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time (example is tuberculosis, rubella, and varicella virus).
iv. Via droplet infectious agents which are propelled a short distance (less than three feet) through the air by coughing or sneezing: these droplets are acted upon rapidly by gravity (examples are meningitis, pertussis and influenza).
v. Respiratory exposures may not be immediately known by the public safety worker, especially if the patient is not overtly symptomatic.

b. Immediate actions of the airborne-exposed public safety worker
   i. Don PPE as soon as possible at the scene or during transport if the patient is known to have a respiratory infection or is coughing or spraying secretions.
   ii. If secretions are splashed or coughed into the eyes or other mucous membranes, flush with copious amounts of IV fluids as soon as possible.
   iii. The public safety worker who suspects or is notified of respiratory exposure:
      1. Notify the department ICO that an exposure occurred
      2. Notify the ED charge nurse of the exposure upon delivery of the patient
      3. Complete the *Request for Notification of Test*.
      4. In these cases being checked in as an ED patient may or may not be necessary.
   iv. Upon receipt of the source patient's diagnosis, follow-up care and prophylaxis may be necessary for those exposed.
      1. At this point exposed employees may have to return to the receiving hospital and be checked in as a patient to receive care.
      2. In other situations follow-up care and prophylaxis may come from your department's workplace health provider.

c. Prophylaxis For The Airborne-Exposed Public Safety Worker
   i. If an exposed employee needs prophylaxis, prophylaxis should be coordinated thru the receiving (or notifying) hospital or when immediately available at the department's workplace health provider's clinic.

d. Testing The Source Patient
   i. Source testing for respiratory exposures is done by the hospital based on patient symptoms.

e. Source Patient Results
   i. The hospital ICO or designee will notify the department ICO or designee of the infectious agent as soon as possible after symptoms of clinical presentation, or within 48 hours of a positive infectious agent determination.
   ii. Your organization's ICO, possibly after consulting with your department physician, will assess the potential exposure of the employee based on the interaction history with the source patient and the agent involved.
   iii. Confidentiality of source patient and the employee's information shall be maintained.

iv. Only information pertaining to source patient results will be released to the department's ICO.

7015.4 Blood or Body Fluid & Airborne Exposures By Coroner's Cases

a. Exposure during resuscitation
   i. In cases where there is a public safety worker exposure during resuscitation efforts, it is recommended that crews transport the patient to the hospital where source testing can be performed, rather than follow field termination procedures.
   ii. However, in some incidents, exposure of a public safety worker may occur from a deceased victim who must remain at a scene for a period of time pending a coroner's investigation.

b. Immediate actions of the exposed provider:
   i. Decontaminate self as described in previous sections.
   ii. Notify the department ICO or designee that the exposure occurred.
   iii. At the direction of the department ICO or designee, seek treatment at an ED or at your organization's workplace health provider.
   iv. Consider prophylaxis based on the index of suspicion.

c. Actions of the ICO or designee:
   i. The Coroner or Coroner's Investigator shall be notified as soon as possible by the department's ICO or designee that an exposure has occurred.
   ii. A *Request for Information by Emergency Care Workers* form (Appendix A) shall be forward to the Coroner's Office as soon as possible after notification.

d. Testing the source patient:
   i. The Coroner shall make every effort to test a source patient by the next business day of being notified of the exposure.
   ii. In some cases, the Coroner may elect to send a specimen to an outside lab for testing. The public safety worker shall not wait for testing results from the Coroner to seek medical evaluation.

e. Source patients test results:
   i. The Coroner or Deputy Coroner shall notify the department ICO or designee of source patient test results as soon as possible.
   ii. Oral notification of source HIV status (positive or negative) shall be provided to the department ICO or designee within two days of test results, and written notification of positive test results shall be provided within three days after oral notification (ORC §3701.248).

Appendix A

REQUEST NO. 10349

REQUEST FOR INFORMATION
BY EMERGENCY CARE WORKERS

PLEASE PRINT - Use Blue or Black Ink - PRESS HARD

This form is for use by emergency care workers to request information on the presence of a contagious or infectious disease (if known) of a person, alive or dead, who has been treated, handled, or transported for medical care by an emergency care worker.

Before you can be provided with this information, you must believe that you have suffered significant exposure through contact with the person about whom you are requesting the information. A significant exposure means:

(1) A percutaneous (break in skin or needle stick) or mucous membrane exposure (eyes, nose, mouth) to the blood, semen, vaginal secretions, or spinal, synovial (joint, bone, tendon), pleural (lung), peritoneal (abdomen), pericardial (heart), or amniotic fluid of another person; or

(2) Exposure to a contagious or infectious disease.

You may expect to receive a reply to this request within 2 days after contagious or infectious disease testing results are known. This may be longer than 2 days after you submit your request. A written notification will follow. Your supervisor will also be informed.

Deposit top (white) copy in designated area or with charge nurse. Submit yellow copy to your agency or employer. Retain pink copy.

The requestor should follow his/her agency's or employer's exposure control plan for post-exposure follow up.

PLEASE PRINT CLEARLY

1. Your Name: _____

2. Your Home Address: _____
   City/State/Zip: _____

3. Your telephone number: Home: _____ Work: _____ Pager: _____

4. Have you completed more than two (2) injections in Hepatitis B series. Yes _____ No _____

5. Employer or volunteer agency for whom you were administering health care when exposure occurred:
   Employer or Agency: _____
   Address: _____
   City/State/Zip: _____ Phone: _____

6. Name of your supervisor at above listed place of employment or volunteer agency: _____
   _____

7. Regarding the exposure, what was
   Name of Source Patient: _____
   Date: _____ Time: _____
   Place: _____
   Manner of exposure:
   _____ Dirty Needle Stick
   _____ Splash - Eye, Nose, Mouth
   _____ Broken Skin Exposure
   _____ Unprotected Mouth to Mouth
   Other: **Describe the Incident (be specific)** _____
   _____

This is to attest that the above statements are true and correct to the best of my knowledge and belief.

Your Signature: _____ Date: _____

ACKNOWLEDGEMENT

Name of Health Care Facility/Coroner: _____
Name of Person Receiving Request: _____
Signature of Person Receiving Request: _____
Received: Date _____ Time _____

White: Hospital/Coroner Yellow: Agency/Employer Pink: Requestor's Copy

Appendix B

RESPONSE TO EMERGENCY CARE WORKER REQUEST FOR MEDICAL INFORMATION

REQUEST NO. _____

THIS INFORMATION HAS BEEN DISCLOSED TO YOU FROM CONFIDENTIAL RECORDS PROTECTED FROM DISCLOSURE BY STATE LAW. YOU SHALL MAKE NO FURTHER DISCLOSURE OF THIS INFORMATION WITHOUT THE SPECIFIC, WRITTEN, AND INFORMED RELEASE OF THE INDIVIDUAL TO WHOM IT PERTAINS, OR AS OTHERWISE PERMITTED BY STATE LAW. A GENERAL AUTHORIZATION FOR THE RELEASE OF MEDICAL OR OTHER INFORMATION IS NOT SUFFICIENT FOR THE PURPOSE OF THE RELEASE OF HIV TEST RESULTS OR DIAGNOSES, DISCLOSED ON THIS FORM.

1. Date of oral report: _____ Person giving report: _____
   Report given to worker ☐ Supervisor ☐ Supervisor's name _____
   Written report will be given to worker and supervisor within 3 working days following oral notification of final results.

2. Date of written report: _____ Person sending report: _____
   Report sent to worker ☐ supervisor ☐ Supervisor's name _____

3. Your request for information has been received.
   a. _____ The request has been rejected because: _____
   _____
   Presence of a contagious or infections disease at this time is unknown due to:
   b. _____ No tests were performed.
   c. _____ The source person in question has refused HIV testing.
   d. _____ Source patient discharged home.
   e. _____ No blood available
   f. _____ Source patient discharged to health care facility/coroner's office/funeral home.
   Address of facility/coroner's office/funeral home (if known):
   _____
   g. The following tests were performed on source patient with **negative results**: _____
   _____
   h. Testing on source person in question was **positive for**: _____
   _____

Comments: _____
_____
_____
_____

4. Written and oral report included:
   - ☐ Name of disease
   - ☐ Signs & symptoms of disease
   - ☐ Date of Exposure
   - ☐ Incubation period of disease
   - ☐ Mode of transmission
   - ☐ (Medical) precautions necessary to prevent transmission
   - ☐ Recommended prophylaxis (if any)
   - ☐ Suggested treatment
   - ☐ Appropriate Counseling

5. Sources of materials provided regarding disease: _____
   _____

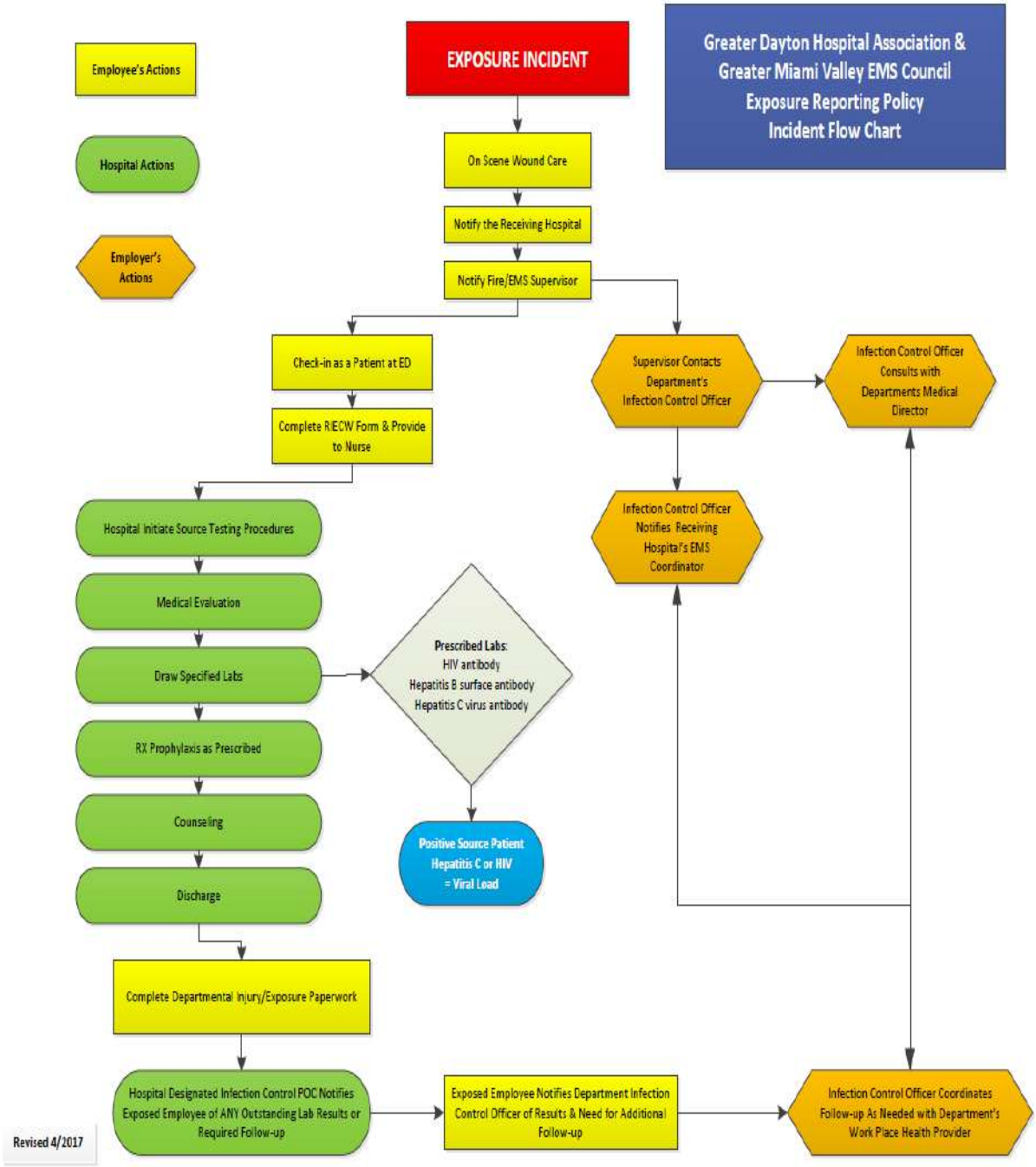
6. It is expected that the emergency care worker will consult a physician in cases of true disease exposure. It is understood by provider of report and recipients that decisions related to prophylaxis, treatment, and counseling will be at the discretion of that physician.

THIS RESPONSE PROVIDES ALL INFORMATION AVAILABLE AS OF THE DATE OF THIS WRITTEN RESPONSE. ANY ADDITIONAL REQUEST WILL NEED TO BE SUBMITTED FOR ANY FUTURE INFORMATION REGARDING THIS PATIENT.

White: Requestor's Copy Yellow: Agency/Employer Pink: Hospital Infection Control Committee/Coroner

4-2014

Exposure Incident Flowchart



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8000 Series

EMS Drug Formulary

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Greater Miami Valley EMS Council	EMS Drug Formulary	8001
Subject: Adenosine (Adenocard)	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• 6 mg (1 in drug bag) and 12 mg (2 in drug bag) prefilled syringes
Indications	• Stable Paroxysmal Supraventricular Tachycardia (PSVT)
Adult Dosing	A **6 mg rapid IV** as quickly as possible A If not successful, may repeat **12 mg rapid IV**. A If not successful, may repeat **12 mg rapid IV**. A All doses of Adenosine are followed by **20 ml bolus of IV fluid**. A Go directly to **12 mg** if patient with history of PSVT advises it takes 12 mg. May repeat once.
Pediatric Dosing	P **0.1 mg/kg rapid IV** followed by **10 ml** rapid saline flush. Max single dose 6 mg. P If unsuccessful, **0.2 mg/kg rapid IV** followed by **10 ml** rapid saline flush. P Max single dose 12 mg. May repeat x one.
Therapeutic Action	• Decreases electrical conduction through the AV node without causing negative inotropic effects • Acts directly on SA node to decrease chronotropic activity
Contraindications	• Second or third degree AV block or sick sinus syndrome • Hypersensitivity to Adenosine
Precautions And Side Effects	• Lightheadedness, • Paresthesia • Headache • Diaphoresis • Palpitations • Chest pain • Hypotension • Shortness of breath, • Transient periods of sinus bradycardia, sinus pause, or asystole • Ventricular ectopy • Nausea • Metallic taste. • May produce bronchoconstriction in patients with asthma and in patients with bronchopulmonary disease
Medical Control	• **Adult patient:** No • **Pediatric Patient:** No
Protocols	• Cardiac Protocol 2011 – Tachycardia

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Greater Miami Valley EMS Council	EMS Drug Formulary	8002
Subject: Albuterol (Proventil)	Effective: June 1, 2021	Last Modified: Oct. 29, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• 2.5 mg in 3 ml plastic ampule (4 in drug bag)

Indications	• For the EMT, AEMT and Paramedic:
	  ○ Exacerbation of Asthma, Emphysema, or COPD
	  ○ Bronchospasm in Asthma, COPD
	  ○ Allergic reaction with wheezing
	• For the Paramedic only:
	  ○ Hyperkalemia in the presence of Crush Syndrome Trauma

Adult Dosing	**A** **2.5 mg (3 ml), nebulized** with **O_2** at **8-10 LPM**. **A** Combine **Ipratropium** with first dose of **Albuterol**. **A** May repeat **Albuterol** up to 2 times for a total of 3 doses **A** Give all 4 doses for hyperkalemia **A** In Crush syndrome: administer **10 mg nebulized**
Pediatric Dosing	**P** **2.5 mg (3 ml), nebulized** with **O_2** at **8-10 LPM.** **P** Combine **Ipratropium** with first dose of **Albuterol.** **P** May repeat **Albuterol** up to 2 times for a total of 3 doses **P** In Crush syndrome: administer **10 mg nebulized**
Therapeutic Action	• Bronchodilator
Contraindications	• Prior hypersensitive reaction to Albuterol • Cardiac dysrhythmias associated with tachycardia.

Precautions And Side Effects	• Once initiated, the patient should be removed by EMS.
	• Side Effects
	  ○ Restlessness
	  ○ Apprehension
	  ○ Dizziness
	  ○ Palpitations
	  ○ Tachycardia
	  ○ Dysrhythmias
	  ○ May precipitate angina pectoris

Medical Control	• **Adults:** For the EMT: Yes
	  For the AEMT or Paramedic: No
	• **Pediatrics:** For the EMT: Yes
	  For the AEMT or Paramedic: No

Protocols	• General Protocol 1008 – Advanced Airway Management • Trauma Protocol 3007 – Crush Syndrome Trauma (Paramedic only) • Medical Protocol 4002 – Allergic Reaction/Anaphylaxis • Medical Protocol 4003 – Asthma/Emphysema/COPD

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Greater Miami Valley EMS Council	EMS Drug Formulary	8003
Subject: Amiodarone (Cordarone)	Effective: June 1, 2021	Last Modified: Jan. 6, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• 150 mg in 3 ml vial, 50 mg/ml • 3 vials in drug bag
Indications	• Ventricular Fibrillation or Pulseless Ventricular Tachycardia • Stable Wide-Complex Tachycardia
Adult Dosing	• Ventricular Fibrillation or Pulseless Ventricular Tachycardia A **300 mg IV** or **IO**. A May repeat with half the initial dose (**150 mg IV** or **IO**) no sooner than 10 minutes after first dose. • If patient converts with ROSC from a ventricular arrhythmia and no anti-arrhythmic has been given: A **150 mg in 250 ml NS, IV** wide open over 10 minutes using 60 gtt/ml tubing & 18 g angiocath • Stable Wide-Complex Tachycardia: A **150 mg in 250 ml NS, IV** wide open over 10 minutes using 60 gtt/ml tubing & 18 g angiocath
Pediatric Dosing	• Ventricular Fibrillation or Pulseless Ventricular Tachycardia P **5 mg/kg IV** or **IO** (max first dose 300 mg). P May repeat **5 mg/kg IV** or **IO** no sooner than 10 minutes after first dose. ▪ Max repeat dose is 150 mg • Not indicated for stable wide complex tachycardia
Therapeutic Action	• Antidysrhythmic agent with multiple mechanisms of action
Contraindications	• Pulmonary congestion • Cardiogenic shock • Hypotension (SBP less than 100) • Sensitivity to Amiodarone
Precautions And Side Effects	• Continuous EKG monitoring is required. • Side Effects ○ Hypotension ○ Headache ○ Dizziness ○ Bradycardia ○ AV conduction abnormalities ○ Flushed skin ○ Abnormal salivation
Medical Control	• **Adult patient:** No • **Pediatric Patient:** No
Protocols	• Cardiac Protocol 2005 – Cardiac Arrest: Ventricular Fib or Pulseless V-Tach • Cardiac Protocol 2011 – Tachycardia
END OF SECTION	

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Greater Miami Valley EMS Council	EMS Drug Formulary	8004
Subject: Aspirin (Abbreviated as ASA)	Effective: June 1, 2021	Last Modified: Jan. 6, 2022

EMR	EMT	AEMT	Paramedic

Packaging	• 81mg tablets in a blister pack (4 tablets total)
Indications	• Given as soon as possible to the patient with AMI.
Adult Dosing	• **324 mg chewed** (Four 81 mg tablets)
Pediatric Dosing	• Not applicable to pediatric patients
Therapeutic Action	• Anti-platelet
Contraindications	• Hypersensitivity to salicylates • Active ulcer disease • Bleeding disorders • Third trimester pregnancy

Precautions And Side Effects	• Suspected cardiac chest pain patient must be greater than 25 y/o
	• Patient must chew the tablets
	• Side Effects
	  ○ Stomach irritation
	  ○ Heartburn or indigestion
	  ○ Nausea or vomiting
	  ○ Allergic reactions

Medical Control	• **Adult patient:** For AEMT and Paramedic: No, unless patient is 25 y/o or younger with AMI symptoms. For EMTs: Yes • **Pediatric Patient:** Not applicable
Protocol	• Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Medical Protocol 4011 – Obstetrical Emergencies

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Greater Miami Valley EMS Council	EMS Drug Formulary	8005

Subject: Atropine	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• 1mg in 10 ml prefilled syringe; (3 in drug bag)
	• In Haz Mat/WMD Security Bag:
	  ○ Duodote: 2 mg auto-injector *(along with 2-Pam 600 mg autoinjector)*
	• In WMD Drug Caches and Chempacks:
	  ○ 2 mg, 1mg and 0.5 mg AtroPen auto-injectors;
	  ○ Multidose vial 8 mg in 20 ml, 0.4 mg/ml

Indications	• Symptomatic bradycardia • Organophosphate or Nerve Agent poisoning (regardless of cardiac rate)

Adult Dosing	A Bradycardia: **1 mg IV** up to 3 mg
	A Organophosphate or Nerve Gas poisoning:
	  A ♦ For EMR, EMT, AEMT or Paramedic: **2 mg Duodote auto-injector**. Paramedic only: **2 mg IV, IO** or **IM**
	  A No max dose, given every 5 min or until lungs are clear to auscultation.

Pediatric Dosing	P Bradycardia: **0.02 mg/kg IV** or **IO** every 5 min.
	  P Minimum single dose of 0.1 mg, max single dose 0.5 mg
	  P Maximum *total* dose 1 mg
	P Organophosphate or Nerve Gas poisoning:
	  P For EMR, EMT, AEMT or Paramedic:
	  P ♦ Less than 20 kgs: **0.5 mg AtroPen auto-injector**
	  P ♦ 20 - 40 kgs: **1.0 mg AtroPen auto-injector**
	  P ♦ Greater than 40 kgs: **2.0 mg AtroPen auto-injector**
	  P Paramedic only: ♦ May give atropine doses listed **IV** or **IM**
	  P No max dose, given every 5 minutes or until lungs are clear to auscultation.

Therapeutic Action	• Anticholinergic
Contraindications	• None for severe organophosphate exposure. • Tachycardia • Hypersensitivity to atropine • Obstructive disease of GI tract • Obstructive neuropathy • Unstable cardiovascular status in acute hemorrhage with myocardial ischemia • Narrow angle glaucoma • Thyrotoxicosis

Precautions And Side Effects	• EMR, EMT and AEMT can only administer the Duodote auto-injector to Organophosphate or Nerve Agent patients
	• Pupillary dilation rendering the pupils nonreactive. Pupil response may not be useful in monitoring CNS status.
	• Side Effects
	  ○ Dysrhythmias, tachycardia, palpitations
	  ○ Paradoxical bradycardia when pushed too slowly or when used at doses less than 0.5 mg
	  ○ Headache or dizziness
	  ○ Anticholinergic effects (dryness, photophobia, blurred vision, urinary retention, constipation)
	  ○ Nausea and vomiting
	  ○ Flushed, hot, dry skin
	  ○ Allergic reactions.

Medical Control	• **Adult patient:** Bradycardia —No, Organophosphate Nerve Agent Poisoning—Yes • **Pediatric Patient:** Bradycardia—No, Organophosphate Nerve Agent Poisoning—Yes
Protocol	• Cardiac Protocol 2010 – Bradycardia • Special Operations Protocol 6002 – Antidote Resources • Special Operations Protocol 6005 – Organophosphate or Nerve agent Exposure

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Greater Miami Valley EMS Council	EMS Drug Formulary	8006

Subject: Calcium Chloride 10%	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• 1 gram in 10 ml vial, 100 mg/ml (1 in drug bag)

Indications	• Renal dialysis patient in cardiac arrest or with ♦ bradycardia
	• Calcium Channel Blocker OD
	• ♦ Hydrofluoric Acid exposure with tetany or cardiac arrest.
	  ○ Tetany may present as: overactive neurological reflexes, spasms of the hands and feet, cramps, and laryngospasm.
	  ○ May be given prophylactically, after exposure to high concentration (> 40%) Hydrofluoric Acid
	• ♦ Adults with Crush Syndrome presenting with abnormal ECG or hemodynamic instability

Adult Dosing	**A** **1 gm (10 ml) IV** for:
	  ○ Cardiac arrest in renal dialysis patients
	  ○ ♦Calcium Channel Blocker OD
	  ○ ♦ Hydrofluoric Acid exposure with tetany or cardiac arrest
	A ♦ For prophylaxis in high concentration Hydrofluoric Acid exposure: **400 mg (4 ml) IV**
	A ♦ Renal dialysis patient with bradycardia: **1 gm (10 ml) IV**
	A ♦ Crush syndrome: **1 gm (10 ml) IV**

Pediatric Dosing	**P** **20 mg/kg IV** (max dose 500 mg) for:
	  • Cardiac arrest in renal dialysis patients
	  • ♦ Calcium Channel Blocker OD
	P ♦ Call in advance to treat crush syndrome or hydrofluoric acid exposures in pediatric patients

Therapeutic Action	• Antagonizes cardiac toxicity in hyperkalemia associated with dialysis patients. • Reverses symptoms of Calcium Channel Blocker
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Do not administer with Sodium Bicarbonate because if mixed, a precipitate develops.
	• Flush tubing between drugs.
	• Side Effects:
	  ○ Bradycardia (may cause asystole)
	  ○ Hypotension
	  ○ Metallic taste
	  ○ Severe local necrosis and sloughing following IV infiltration
	  ○ May produce vasospasm in coronary and cerebral arteries
	  ○ Hypertension and bradycardia may occur with rapid administration.

Medical Control	• **Adults:**
	  ○ Cardiac Arrest—No
	  ○ Renal dialysis patient in bradycardia- Yes
	  ○ Calcium Channel Blocker OD—Yes
	  ○ Hydrofluoric Acid Exposure—Yes
	  ○ Crush syndrome—Yes
	• **Pediatrics**
	  ○ Arrest—No
	  ○ Calcium Channel Blocker OD— Yes
	  ○ Hydrofluoric Acid Exposure—Yes
	  ○ Crush syndrome- Yes

Protocol	• Cardiac Protocol 2004 – Cardiac Arrest - Renal Failure/Dialysis • Cardiac Protocol 2010 – Bradycardia • Trauma Protocol 3007 – Crush Syndrome Trauma • Medical Protocol 4012 – Overdose or Poisoning • Special Operations Protocol 6004 – Hydrofluoric Acid Exposure

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Subject: Calcium Gluconate | Effective: June 1, 2021 | Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• 1 gram in 10 ml vial, 100 mg/ml. Only in the drug bag in the event of Calcium Chloride 10% shortage

Indications	• Renal dialysis patient in cardiac arrest or with ♦ bradycardia
	• Calcium Channel Blocker OD
	• ♦ Hydrofluoric Acid exposure with tetany or cardiac arrest.
	  ○ Tetany may present as: overactive neurological reflexes, spasms of the hands and feet, cramps, and laryngospasm.
	  ○ May be given prophylactically, after exposure to high concentration (> 40%) Hydrofluoric Acid
	• ♦ Adults with Crush Syndrome presenting with abnormal ECG or hemodynamic instability

Adult Dosing	**A** **1 gm (10 ml) IV** for:
	  ○ Cardiac arrest in renal dialysis patients
	  ○ ♦Calcium Channel Blocker OD
	  ○ ♦ Hydrofluoric Acid exposure with tetany or cardiac arrest
	A ♦ For prophylaxis in high concentration Hydrofluoric Acid exposure: **400 mg (4 ml) IV**
	A ♦ Renal dialysis patient with bradycardia: **1 gm (10 ml) IV**
	A ♦ Crush syndrome: **1 gm (10 ml) IV**

Pediatric Dosing	**P** **20 mg/kg IV** (max dose 500 mg) for:
	  • Cardiac arrest in renal dialysis patients
	  • ♦ Calcium Channel Blocker OD
	P ♦ Call in advance to treat crush syndrome or hydrofluoric acid exposures in pediatric patients

Therapeutic Action	• Antagonizes cardiac toxicity in hyperkalemia associated with dialysis patients. • Reverses symptoms of Calcium Channel Blocker
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Do not administer with Sodium Bicarbonate because if mixed, a precipitate develops.
	• Flush tubing between drugs.
	• Side Effects:
	  ○ Bradycardia (may cause asystole)
	  ○ Hypotension
	  ○ Metallic taste
	  ○ Severe local necrosis and sloughing following IV infiltration
	  ○ May produce vasospasm in coronary and cerebral arteries
	  ○ Hypertension and bradycardia may occur with rapid administration.

Medical Control	• **Adults:**
	  ○ Cardiac Arrest—No
	  ○ Renal dialysis patient in bradycardia- Yes
	  ○ Calcium Channel Blocker OD—Yes
	  ○ Hydrofluoric Acid Exposure—Yes
	  ○ Crush syndrome—Yes
	• **Pediatrics**
	  ○ Arrest—No
	  ○ Calcium Channel Blocker OD—Yes
	  ○ Hydrofluoric Acid Exposure—Yes
	  ○ Crush syndrome- Yes

Protocol	• Cardiac Protocol 2004 – Cardiovascular Emergencies: Renal Failure/Dialysis • Cardiac Protocol 2010 – Bradycardia • Trauma Protocol 3007 – Crush Syndrome Trauma • Medical Protocol 4012 – Overdose or Poisoning • Special Operations Protocol 6004 – Hydrofluoric Acid Exposure
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Greater Miami Valley EMS Council	EMS Drug Formulary	8008
Subject: Ciprofloxacin (Cipro)	Effective: June 1, 2021	Last Modified: Feb. 20, 2024

EMR	EMT	AEMT	**Paramedic**

Packaging	• Tablets
Indications	• As prophylaxis against Anthrax, Cholera or Plague
Adult Dosing	A ♦ **500 mg tablet** by mouth, twice a day
Pediatric Dosing	P ♦ Dosage will be specified at time of incident.
Therapeutic Action	• Antibiotic
Contraindications	• Allergy to quinolones • Tendon pain or inflammation • Pediatrics • Pregnancy
Precautions And Side Effects	• Side Effects ○ Atrial flutter ○ Hypotension ○ Premature Ventricular Contractions ○ QT prolongation ○ Torsade De Pointes, ○ Tendon pain/inflammation
Medical Control	• **Adult:** Yes • **Pediatric:** Yes
Protocol	• Special Operations Protocol 6006 – Other Hazardous Materials

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Greater Miami Valley EMS Council	EMS Drug Formulary	8009
Subject: Dextrose 10% (D10)	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• 500 ml of D10W, contains 50 g Dextrose • 1 bag of solution in drug bag
Indications	• Diabetic with mental status changes • Evidence of hypoglycemia in cardiac arrest • Generalized hypothermia with or without arrest • Altered level of consciousness of unknown cause • Seizures with BGL of less than 60 mg/dl • No blood sugar monitor is available or suspicion of hypoglycemia despite glucometer readings.
Adult Dosing	A **250 ml IV** at **wide open rate** A May repeat in 10 minutes if patient fails to respond or BGL remains less than 60 mg/dl. A Maximum dose is 500 ml.
Pediatric Dosing	P Pediatric patients: P **5 ml/kg** P Maximum dose is 250 ml P Newborn patients: P **2 ml/kg** if BGL is less than 40 mg/dl
Therapeutic Action	• Principal form of carbohydrate utilized by the body
Contraindications	• Known or suspected CVA in the absence of hypoglycemia
Precautions And Side Effects	• May precipitate severe neurologic symptoms in thiamine deficient patients • Side Effects: ○ Warmth ○ Pain ○ Hyperglycemia ○ Burning from medication infusion ○ Thrombophlebitis
Medical Control	• **Adults:** No • **Pediatrics:** No
Protocol	• Medical Protocol 4008 – Diabetic Emergencies - Hypoglycemia • Pediatric Considerations 5002 – Newborn Care and Resuscitation

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Greater Miami Valley EMS Council	EMS Drug Formulary	8010
Subject: Diazepam (Valium) (JITSO) & CANA Pen	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• Vial for AEMT and Paramedic only
	  ○ 10 mg in 2 ml vial (5 mg/1ml)
	  ○ One vial present in the drug bag in the event of Midazolam shortage
	• WMD Drug Cache & CHEMPACK resource for all certification levels
	  ○ Convulsive Antidote, Nerve Agent (CANA) 10 mg auto-injector

Indications	• Vial for AEMT and Paramedic only
	  ○ Seizures
	  A Chest pain associated with stimulant overdose (adults only)
	• CANA Auto-injector for all certifications
	  ○ Seizures associated with Organophosphate or Nerve Agent event

Adult Dosing	A Vial for AEMT and Paramedic only
	  A Seizures: **5 mg slow IV**; may repeat dose once.
	  A Cocaine or crack use: **5 mg slow IV**, may repeat dose once.
	A CANA Auto-injector for all certifications
	  A **10 mg IM** by auto-injector

Pediatric Dosing	• Vial for AEMT and Paramedic
	  P Seizures:
	  P **0.2 mg/kg slow IV** over 2 min. (maximum dose 5 mg IV)
	  or
	  P **0.5 mg/kg rectally**, (maximum dose 10 mg rectally)
	  P May repeat **0.2 mg/kg slow IV** over 2 min (maximum 5 mg)
	• CANA Auto-injector for all certifications
	  P **10 mg IM** by auto-injector

Therapeutic Action	• Treats alcohol withdrawal and grand mal seizure activity • Used to treat anxiety and stress.
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Side Effects:
	  ○ Hypotension
	  ○ Reflex tachycardia (rare)
	  ○ Respiratory depression
	  ○ Ataxia
	  ○ Psychomotor impairment
	  ○ Confusion
	  ○ Nausea
	  ○ May cause local venous irritation

Medical Control	• Vial for AEMT and Paramedic only
	  ○ **Adults:** No
	  ○ **Pediatrics:** No
	• CANA Auto-injector for all certifications
	  ○ **Adults:** Yes
	  ○ **Pediatrics:** Yes

Protocol	• Trauma Protocol 3008 – Cyanide Poisoning • Medical Protocol 4012 – Overdose/Poisoning • Special Operations Protocol 6002 – Antidote Resources • Special Operations Protocol 6005 – Organophosphate or Nerve Agent Exposure
END OF SECTION	

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Greater Miami Valley EMS Council	EMS Drug Formulary	8011
Subject: Diphenhydramine (Benadryl)	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• 50 mg in 1ml vial
Indications	• Allergic reaction or Anaphylaxis • In anaphylaxis, for the patient who goes into cardiac arrest if not previously given • Extrapyramidal reaction
Adult Dosing	A **50 mg IM** or **slow IV**
Pediatric Dosing	P **1 mg/kg** (max dose 50 mg) **IM** or **slow IV**
Therapeutic Action	• Prevents the physiologic actions of histamine by blocking histamine receptors
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Use cautiously in patients with CNS depression or lower respiratory diseases such as asthma.
	• Side Effects:
	  ○ Dose related drowsiness
	  ○ Sedation
	  ○ Disturbed coordination
	  ○ Hypotension
	  ○ Palpitations, tachycardia or bradycardia
	  ○ Thickening of bronchial secretions
	  ○ Dry mouth and throat

Medical Control	• **Adults:** No, for the Paramedic. Yes, for the AEMT when treating Extrapyramidal Reactions • **Pediatrics:** No, for the Paramedic. Yes, for the AEMT when treating Extrapyramidal Reactions
Protocol	• Medical Protocol 4002 – Allergic Reactions/Anaphylaxis • Medical Protocol 4010 – Extrapyramidal (Dystonic) Reactions

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Greater Miami Valley EMS Council	EMS Drug Formulary	8012
Subject: Dopamine (JITSO)	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• Premixed 250 ml bag (400 mg/250 ml) • Concentration: 1600 mcg/ml • Only present in the drug bag in the event of Norepinephrine shortage
Indications	• Shock with or without Pulmonary Edema
Adult Dosing	A IV drip rate, **5 to 20 mcg/kg/min** of 400 mg/250 ml; increase by increments of **5 mcg/kg/min**.
Pediatric Dosing	P IV drip rate, **5 to 20 mcg/kg/min** of 400 mg/250 ml; start at **5 mcg/kg/**min. P Titrate to maintain adequate perfusion
Therapeutic Action	• Acts on alpha, beta and dopaminergic receptors in dose dependent fashion • Increases cardiac output in higher doses
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Correct hypovolemia prior to using Dopamine.
	• Infuse through large stable vein to avoid possibility of extravasation injury.
	• Side Effects:
	  ○ Dose related tachydysrhythmias
	  ○ Hypertension
	  ○ Increased myocardial oxygen demand (ischemia)

Medical Control	• **Adults:** No • **Pediatrics:** No

Protocol	• As a replacement for Norepinephrine:
	  ○ Cardiac Protocol 2009 – Cardiac Alert Program
	  ○ Medical Protocol 4015 – Sepsis
	  ○ Medical Protocol 4016 – Shock

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Greater Miami Valley EMS Council	EMS Drug Formulary	8013
Subject: Doxycycline	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	**Paramedic**

Packaging	• Tablets
Indications	• As prophylaxis against Anthrax, Cholera or Plague
Adult Dosing	A ♦ **100 mg tablet** by mouth, twice a day
Pediatric Dosing	P ♦ Dosage will be specified at time of incident.
Therapeutic Action	• Antibiotic
Contraindications	• Pregnancy • Allergies to Tetracycline antibiotics
Precautions And Side Effects	• Side Effects ○ May make birth control pills less effective ○ Use with caution in patients with liver disease, kidney disease and asthma ○ Can cause headache, blurred vision and flu-like symptoms
Medical Control	• **Adult:** Yes • **Pediatric:** Yes
Protocol	• Special Operations Protocol 6006 – Other Hazardous Materials

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Greater Miami Valley EMS Council	EMS Drug Formulary	8014
Subject: Duodote	Effective: June 1, 2021	Last Modified: Oct. 10, 2021

EMR	EMT	AEMT	Paramedic

Packaging	• Auto-injector Atropine 2 mg and Pralidoxime Chloride (2-Pam) 600 mg • In WMD Drug Caches and CHEMPACKS
Indications	• Organophosphate or Nerve Agent poisoning
Adult Dosing	A ♦ Single auto-injector containing **Atropine 2 mg** and **2-Pam 600 mg**
Pediatric Dosing	P ♦ Single auto-injector containing **Atropine 2 mg** and **2-Pam 600 mg**
Therapeutic Action	• Anticholinergic as a result of WMD MCI; also reactivates cholinesterase.
Contraindications	• None in the emergency setting

Precautions And Side Effects	• Use with caution in myasthenia gravis, renal impairment, pregnancy, lactation or children.
	• Atropine causes pupillary dilation rendering the pupils nonreactive. Pupil response may not be useful in monitoring CNS status.
	• Side Effects:
	  ○ Tachycardia
	  ○ Paradoxical bradycardia when pushed too slowly or when used at doses less than 0.5 mg
	  ○ Palpitations or dysrhythmias
	  ○ Headache
	  ○ Dizziness
	  ○ Anticholinergic effects (dry mouth, nose, skin, photophobia. blurred vision, urinary retention, constipation)
	  ○ Nausea & vomiting
	  ○ Flushed, hot, dry skin
	  ○ Allergic reactions

Medical Control	• **Adults:** Yes • **Pediatrics:** Yes
Protocol	• Special Operations Protocol 6005 – Organophosphate or Nerve Agent Exposure

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Greater Miami Valley EMS Council	EMS Drug Formulary	8015
Subject: Epinephrine	Effective: June 1, 2021	Last Modified: Jan. 21, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• EpiPen auto-injector: 0.3 mg (one in drug bag) • EpiPen Jr. auto-injector: 0.15 mg (one in drug bag) • 1:10,000 – 1 mg/10ml prefilled syringes (six in drug bag) • 1:1,000 – 1mg/ml ampule (two in drug bag)
Indications	• For the EMR, EMT, AEMT and Paramedic: o Anaphylaxis or allergic reaction • For the AEMT and Paramedic: o Asthma in severe distress o The EMR and the EMT cannot treat Asthma with Epinephrine • For the Paramedic o Ventricular Fibrillation, Pulseless Ventricular Tachycardia, Asystole, and PEA
Adult Dosing	A Asthma (AEMT and Paramedic) or Anaphylaxis (EMR, EMT, AEMT and Paramedic) A If equal to or greater than 30 kg, give both **Adult EpiPen 0.3 mg** and **EpiPen Jr 0.15 mg** A May repeat after 10 minutes A Asthma (AEMT or Paramedic) or anaphylaxis ({EMT}, AEMT and Paramedic) A **Epinephrine (1:1,000) 0.5 mg IM** A May repeat in 10 minutes A Asthma or anaphylaxis (AEMT and Paramedic) A If hypotensive after fluid bolus: 0.1 mg, 1:10,000, slow IV, every 3 minutes, up to 0.5 mg. A Ventricular Fibrillation, Pulseless Ventricular Tachycardia, Asystole, and PEA (Paramedic) A **1 mg (1:10,000) IV**, repeat every 3-5 minutes
Pediatric Dosing	P Asthma (AEMT and Paramedic) or Anaphylaxis (EMR, EMT, AEMT and Paramedic) P If less than 15 kg, **EpiPen Jr 0.15 mg** P If equal to or greater than 15 kg and less than 30 kg, **Adult EpiPen 0.3 mg** P If greater than 30 kg, give both **Adult EpiPen 0.3 mg** and **EpiPen Jr 0.15 mg** P May repeat after 10 minutes P Asthma (AEMT and Paramedic) or Anaphylaxis ({EMT}, AEMT and Paramedic) P If less than 15 kg, **Epi (1:1,000) 0.01 mg/kg IM** (max 0.15 mg). P If 15 kg or greater and less than 30 kg, **Epi (1:1,000) 0.01 mg/kg IM** (max 0.3 mg) P May repeat **Epi (1:1,000) 0.01 mg/kg IM** (max dose should equal initial dose) after 10 min. P Ventricular Fibrillation, Pulseless Ventricular Tachycardia, Asystole, and PEA (Paramedic) P **0.01 mg/kg (1:10,000) IV**; repeat every 3-5 minutes (max single dose 1 mg)
Therapeutic Action	• Directly stimulates alpha and beta adrenergic receptors in dose-related fashion • Causes bronchodilation, vasoconstriction, and increased cardiac output.
Contraindications	• None in the emergency setting
Precautions And Side Effects	• Headache • Nausea • Restlessness • Weakness • Dysrhythmias, including ventricular tachycardia and ventricular fibrillation • Hypertension • Tachycardia • May increase myocardial oxygen demand or precipitation of angina pectoris • Syncope has occurred following epinephrine administration to asthmatic children.

Medical Control	• **Adults:** Initial dose administration at all levels and follow-up dosing for AEMT and Paramedics – No In allergies/anaphylaxis, repeat doses by EMR/EMTs - Yes • **Pediatrics:** Initial dose administration at all levels and follow-up dosing for AEMT and Paramedics – No In allergies/anaphylaxis, repeat doses by EMR/EMTs - Yes
Protocol	• Cardiac Protocol 2003 – Cardiac Arrest: Asystole or PEA • Cardiac Protocol 2005 – Cardiac Arrest: V-Fib or Pulseless V-Tach • Cardiac Protocol 2010 – Bradycardia • Medical Protocol 4002 – Allergic Reactions/Anaphylaxis • Medical Protocol 4003 – Asthma/Emphysema/COPD • Pediatric Considerations 5002 – Newborn Care and Resuscitation • Special Operations Protocol 6004 – Hydrofluoric Acid Exposure
END OF SECTION	

Subject: Etomidate	Effective: June 1, 2021	Last Modified: Dec. 13, 2022

EMR	EMT	AEMT	**Paramedic**

Packaging	• 40 mg in 20 ml vial (2 mg/ml)
Indications	• To provide sedation prior to Sedate to Intubate procedure
Adult Dosing	**A** **0.3 mg/kg IV** **A** May repeat within 2 minutes if patient resistant to intubation. **A** Average dose is 15 mg - 25 mg **G** For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses
Pediatric Dosing	**P** Not applicable
Therapeutic Action	• Short-acting, potent sedative • Hypnotic
Contraindications	• Hypersensitivity • Not to be administered to pediatric patients

Precautions And Side Effects	• Must be authorized for use by the agencies' Medical Director
	• Side Effects:
	  ○ Bradycardia
	  ○ Respiratory depression or tachypnea
	  ○ Sinus tachycardia
	  ○ Hypotension
	  ○ Nausea and vomiting

Medical Control	• **Adults:** No • **Pediatrics:** Not applicable
Protocol	• General Protocol 1010 – {Sedate to Intubate and Rapid Sequence Intubation}

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Greater Miami Valley EMS Council	EMS Drug Formulary	8017
Subject: Fentanyl (Sublimaze)	Effective: June 1, 2021	Last Modified: Dec. 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 100 mcg/2 mL (50 mcg/ml) vial • One in drug bag
Indications	• Suspected Cardiac Chest Pain • Pain associated with traumatic events • Extremity Fractures • Dislocations or Sprains • Frostbite • Abdominal Pain • Hydrofluoric Acid (Hf) exposure
Adult Dosing	A **50-100 mcg slow IV**, provided SBP is greater than 100. A May repeat **50-100 mcg slow IV**, after 5 minutes provided SBP greater than 100. A If no IV, **Fentanyl 50-100 mcg IN, SQ** or **IM** A May repeat **Fentanyl 50-100 mcg IN, SQ** or **IM** after 10 minutes G Patient greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult dose
Pediatric Dosing	P Fentanyl is not to be administered to anyone less than 2 years of age. P If unable to obtain a blood pressure, look for evidence adequate perfusion prior to administration. ♦ Contact MCP prior to treatment of abdominal pain P First choice treatment for pain: P **1 mcg/kg IN**, max dose 100 mcg., provided age appropriate SBP or adequate perfusion P Repeat **1 mcg/kg IN** after 10 minutes, if an additional drug bag is available. P Second choice treatment for pain: P **1 mcg/kg, slow IV**, max dose 100 mcg, P Repeat **1 mcg/kg, slow IV** after 5 minutes, max dose 100 mcg P Maintain age appropriate blood pressure P If unable to obtain IV: IM for pediatric patients is a last resort P **1 mcg/kg SQ** or **IM**, max dose 100 mcg P Repeat **1 mcg/kg SQ** or **IM**, max dose 100 mcg, no sooner than 10 minutes after first dose.
Therapeutic Action	• Provides analgesia • Reduces cardiac preload by increasing venous capacitance and decreasing afterload
Contraindications	• Hypersensitivity
Precautions And Side Effects	• Chest wall rigidity ("wooden chest syndrome") may occur: o Prevents adequate chest wall excursion and ventilation. o Typically occurs with high doses (6-7 mcg/kg) or with rapid administration. o Reversible with naloxone. • Provide continuous cardiac monitoring, $EtCO_2$ and pulse oximetry with sedated patients. • Geriatric & debilitated patients require lower doses & are more prone to side effects. • Apnea • CNS depression • Bradycardia which may be transient. o Ensure adequate ventilation and oxygenation first. o Atropine only if bradycardia is symptomatic and hemodynamically significant. o For the Paramedic, follow bradycardia protocol.
Medical Control	• **Adults:** No • **Pediatrics:** Yes, for abdominal pain
Protocol	• General Protocol 1014 – Pain Management • Cardiac Protocol 2006 – AICD Activations • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program
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Subject: Hydroxocobalamin (Cyanokit)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 1 vial, containing 5 g lyophilized Hydroxocobalamin dark red crystalline powder for injection. • After reconstitution with 200 ml fluid, the vial contains Hydroxocobalamin for injection, 25 mg/mL. • Available in caches located in each county in Homeland Security Region 3.
Indications	• Known or strongly suspected cyanide intoxication • Smoke inhalation with suspected cyanide component. • Victim exposed to fire or smoke who presents with altered mental status, seizures, shock, or difficulty breathing.
Adult Dosing	A ♦ **5 gram vial via slow IV infusion** over 15 minutes (Can be given **IO** as a last resort) A ♦ May repeat **5 grams IV via slow IV infusion** over 15 minutes to 2 hours depending on clinical response A Follow package directions. A Reconstitute: Place the vial in an upright position. A Add **200 mL of NS** or **LR** to the vial using the transfer spike. Fill to the line. A Mix: The vial should be repeatedly inverted or rocked, not shaken, for at least 1 min. before infusion. A Infuse Vial: Use vented intravenous tubing, hang and infuse over 15 minutes.
Pediatric Dosing	P ♦ **70 mg/kg slow IV** over 15 minutes; max dose of 5 grams (Can be given **IO** as a last resort) P ♦ May repeat a dose of **35 mg/kg IV**; max dose 2.5 g, depending on severity of poisoning and clinical response.
Therapeutic Action	• Binds to cyanide molecules and is eliminated as waste
Contraindications	• None in the emergency setting
Precautions And Side Effects	• Must not be used in conjunction with other Cyanide antidotes • May cause hypertension
Medical Control	• **Adults:** ○ In cardiac arrest—No ○ In patients not in arrest—Yes • **Pediatrics:** ○ In cardiac arrest—No ○ In patients not in arrest—Yes
Protocol	• Trauma Protocol 3008 – Cyanide Poisoning & Antidotes

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Greater Miami Valley EMS Council	EMS Drug Formulary	8019
Subject: Ipratropium (Atrovent)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 0.5 mg in 2.5 ml plastic ampule • 1 in drug bag
Indications	• Bronchospasm in Asthma, COPD, Emphysema • Allergic reaction/Anaphylaxis with wheezing
Adult Dosing	A **0.5 mg (2.5 ml), nebulized** with **O_2** at **8-10 LPM** A Combined with first dose of Albuterol
Pediatric Dosing	P **0.5 mg (2.5 ml), nebulized** with **O_2** at **8-10 LPM** P Combined with first dose of Albuterol
Therapeutic Action	• Causes bronchodilation by anticholinergic effect
Contraindications	• None in the emergency setting
Precautions And Side Effects	• Once initiated, the patient should be removed by EMS. • Use with caution in patients with narrow-angle glaucoma and lactating mothers.
Medical Control	• **Adults:** For the EMT: Yes For the AEMT or Paramedic: No • **Pediatrics:** For the EMT: Yes For the AEMT or Paramedic: No
Protocols	• Medical Protocol 1008 – Advanced Airway Management • Medical Protocol 4003 – Asthma/Emphysema/COPD • Medical Protocol 4002 – Allergic Reactions/Anaphylaxis

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Greater Miami Valley EMS Council	EMS Drug Formulary	8020

Subject: Ketamine (Ketalar)	Effective: June 1, 2021	Last Modified: Feb. 11, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• 500 mg/10 mL vial (50 mg/ml) • One in drug bag
Indications	• For the AEMT and Paramedic o Chemical restraint for combative patient, including excited delirium o Pain control (should be considered a second line medication for the management of pain) • For the Paramedic o {Sedate-to-Intubate} or {RSI} o Conscious adult patient requiring pacing or cardioversion (preferred method)
Adult Dosing	**A** For pain: **A** **25 mg IV,** may repeat **25 mg IV** after 5 minutes. **A** If unable to obtain IV: **A** **25 mg IN** or **50 mg IM**, may repeat **25 mg IN** or **50 mg IM** after 10 minutes. **A** For combative patients: **A** **250 mg IM** anterolateral thigh. or **A** **100 mg slow IV** **A** If no change in 10 minutes for IM or 5 minutes for IV, repeat: **A** **250 mg IM** anterolateral thigh or **A** **100 mg slow IV** **A** For the Paramedic performing {Sedate to Intubate} or {Rapid Sequence Intubation}: **A** **100 mg slow IV,** may repeat **100 mg IV** after 5 minutes **o** Do not reduce geriatric dosing to half dose when attempting to achieve complete sedation **A** For the Paramedic preparing the conscious adult patient for pacing or cardioversion **o** **25 mg IV** **o** Do not reduce geriatric dosing to half dose when sedating for pacing and cardioversion **G** For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses (Exceptions: {RSI or sedate-to-intubate}, pacing or cardioversion)
Pediatric Dosing	**P** Not to be administered for pain to any patient less than 16 y/o **P** Emergency sedation for combative patient, including excited delirium: **P** Limited to use in patients age 8 or greater. **P** **1 mg/kg** slow IV (max dose 100 mg). or **P** **5 mg/kg IM** (maximum dose is two doses of no more than 250 mg or 500 mg total) **P** ♦ Call MCP for repeat doses
Therapeutic Action	• Ketamine is a Schedule III Phencyclidine (PCP) derivative that is rapid acting and produces a "dissociative" anesthesia in which the patient's consciousness is detached from their nervous system. • Due to its "dissociative" properties, Ketamine is a potent analgesic. • May be given as an adjunct to narcotic pain medication, particularly in patients at risk for hypotension or respiratory depression.
Contraindications	• Suspected cardiac chest pain • Hypertensive crisis • When significant elevations in BP might prove harmful: o Acute Myocardial Infarction o Angina Pectoris o Aortic dissection

Precautions And Side Effects	• Emergence reaction may occur, when patient is awakening (hallucinations, delirium, confusion, etc.) • Provide continuous cardiac monitoring, $EtCO_2$ and pulse oximetry with sedated patients. • Management should include use of a nasopharyngeal airway, proper positioning and persistent suctioning to maintain a clear airway. • Geriatric & debilitated patients require lower doses & are more prone to side effects. • Catecholamine release (hypertension, tachycardia) • Hypersalivation (the ketamine drool) • Nausea, vomiting, particularly prevalent in pediatrics. • Minimal cardiac depression occasionally reported with high doses administered rapidly IV. • May transiently increase heart rate and blood pressure by central sympathetic stimulation. • May require administration of midazolam prior to wearing off.
Medical Control	• **Adults:** No • **Pediatrics:** o No o For repeat sedation doses - yes
Protocol	• General Protocol 1008 – Advanced Airway Management • General Protocol 1010 – {Sedate to Intubate and Rapid Sequence Intubation} • General Protocol 1014 – Pain Management • Cardiac Protocol 2010 – Bradycardia • Cardiac Protocol 2011 – Tachycardia • Trauma Protocol 3007 – Crush Syndrome Trauma • Medical Protocol 4007 – Combative Patients/Emergency Sedation

END OF SECTION

Subject: Lactated Ringers	Effective: June 1, 2021	Last Modified: Jan. 29, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• Usually a 1000 ml flexible, non-latex plastic bag • Generally with a pH of 6.5. • Not in drug bags or caches
Indications	• Solution for fluid and electrolyte replenishment • Hypovolemia • Hyperglycemia • Flushing of wounds • Shock • Pulmonary edema with systolic BP over 100 mmHg • Sepsis
Adult Dosing	A Non traumatic shock without pulmonary edema: A **500 ml IV** A May repeat **500 ml IV** up to two times if needed A Non traumatic shock with pulmonary edema: **250 ml IV** A Sepsis: A **1 L IV** A ♦ Additional IV fluid if indicated A Penetrating trauma to chest or abdomen: enough fluid to obtain a radial pulse A If BGL reads over 400 mg/dL or "High" on glucometer, administer **500 ml** fluid IV – **wide open.** A Crush syndrome: A Initial treatment: **1 L IV** then **500 ml/hour IV** A If hypotensive and the patient has been trapped more than 1 hour, then additional **1 L IV** A Heat exposure: A **500 ml IV**, may repeat one time A ♦ Additional IV fluid, if indicated
Pediatric Dosing	P **20 ml/kg IV bolus** P ♦ In shock, call for orders to administer additional fluid
Therapeutic Action	• Used for hydration and management of hypotension
Contraindications	• None in the emergency setting
Precautions And Side Effects	• None
Medical Control	• **Adults:** Yes, for additional fluid administrations in some circumstances • **Pediatrics:** Yes, for additional fluid administrations in some circumstances
Protocol	• General Protocol 1005 – General Patient Management • Cardiac Protocol 2005 – Cardiac Arrest; V-Fib or Pulseless V-Tach • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program • Trauma Protocol 3001 – General Trauma Management • Trauma Protocol 3004 – Trauma Arrest • Trauma Protocol 3007 – Crush Syndrome Trauma • Trauma Protocol 3014 – Heat Exposure • Medical Protocol 4002 – Allergic Reaction/Anaphylaxis • Medical Protocol 4008 – Diabetic Emergencies – Hypoglycemia/Hyperglycemia • Medical Protocol 4015 - Sepsis • Medical Protocol 4016 – Shock
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Greater Miami Valley EMS Council	EMS Drug Formulary	8022
Subject: Lidocaine 2%	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 100 mg in 5 ml syringe (20 mg/ml) • Two in drug bag

Indications	• For AEMT and Paramedic:
	  ○ For pain caused by pressure of intraosseous fluid administration
	• For Paramedic:
	  ○ Intubation on conscious patient
	  ○ JITSO – Cardiac arrest: V-Fib/Pulseless V-Tach and Tachycardia, in the absence of Amiodarone

Adult Dosing	A Pain associated with IO infusion (AEMT, Paramedic):
	  A **1.5 mg/kg IO** (maximum dose 100 mg)
	A Intubation on conscious patient (Paramedic):
	  A **100 mg (5 ml) nebulized** with **8-10 LPM O_2**
	  or
	  A **100 mg (5 ml) IN** with 50 mg (2.5 ml) in each nostril
	A JITSO for Cardiac Arrest: V-Fib or Pulseless V-Tach (Paramedic):
	  A **150 mg (7.5 ml) IV** or **IO**
	  A Repeat dose of **75 mg (3.75 ml) IV** or **IO**
	A JITSO for Tachycardia (Paramedic)
	  A **150 mg (7.5 ml) IV** or **IO**

Pediatric Dosing	P Pain associated with IO infusion (AEMT, Paramedic):
	  P **0.5 mg/kg IO** (maximum dose 100 mg)
	P Intubation on conscious patient (Paramedic):
	  P **1.5 mg/kg** nebulized with **8-10 LPM O_2** or **IN** (maximum dose 100 mg)
	P JITSO for Cardiac Arrest: V-Fib or Pulseless V-Tach (Paramedic):
	  P **1 mg/kg IV** or **IO** (maximum dose 100 mg)
	  P Repeat dose of **1 mg/kg IV** or **IO** (maximum dose 75 mg)

Therapeutic Action	• Decreases automaticity
Contraindications	• Hypersensitivity • Second degree or third degree heart block, in absence of an artificial pacemaker

Precautions And Side Effects	• Use extreme caution in patients with hepatic disease, heart failure, marked hypoxia, severe respiratory depression, hypovolemia or shock, incomplete heart block or bradycardia and atrial fib.
	• Side Effects:
	  ○ Altered level of consciousness, confusion or lightheadedness
	  ○ Cardiovascular collapse and/or hypotension
	  ○ Bradycardia
	  ○ Blurred vision
	  ○ irritability
	  ○ Muscle twitching and seizures with high doses

Medical Control	• **Adults:** No • **Pediatrics: No**
Protocol	• General Protocol 1008 – Advanced Airway Management • General Protocol 1012 – Intraosseous Infusion • Cardiac Protocol 2003 – Cardiac Arrest: Asystole or PEA • Cardiac Protocol 2005 – Cardiac Arrest: V-Fib or Pulseless V-Tach • Cardiac Protocol 2011 – Tachycardia • Medical Protocol 4002 – Allergic Reactions/Anaphylaxis • Medical Protocol 4003 – Asthma/Emphysema/COPD
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Greater Miami Valley EMS Council	EMS Drug Formulary	8023
Subject: Lidocaine 2% Gel	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 2% gel in a tube • Not carried in drug bag
Indications	• Lubrication of airway adjunct on conscious patient
Adult Dosing	**A** Apply to airway adjunct.
Pediatric Dosing	**P** Apply to airway adjunct.
Therapeutic Action	• Suppresses stimulation of the upper airway activity such as, swallowing, gagging or coughing that can cause cardiovascular stimulation and elevation in intracranial pressure
Contraindications	• None
Precautions And Side Effects	• None
Medical Control	• **Adults:** No • **Pediatrics:** No
Guidelines	• General Protocol 1008 – Advanced Airway Management

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Subject:	Effective:	Last Modified:
Magnesium-Containing Antacid	June 1, 2021	July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• Varies by manufacturer or vendor • Not carried in drug bag • Examples include Maalox and Mylanta
Indications	• Ingestion of Hydrofluoric Acid • Hydrofluoric Acid on skin
Adult Dosing	**A** For Ingestion: **A** Following dilution with water or milk, have patient drink 3-4 oz. Maalox or Mylanta. **A** For exposure: **A** Following irrigation, apply topically to burned area unless industry has already applied topical agents.
Pediatric Dosing	**P** Apply to airway adjunct.
Therapeutic Action	• Neutralize acid and increases the pH
Contraindications	• None in the emergency setting.
Precautions And Side Effects	• Use with caution in: ○ Neonates ○ Geriatric patients ○ Patients with renal impairment • Side Effects: ○ Hypercalcemia ○ Hypermagnesemia ○ Hypotension ○ Nausea & vomiting
Medical Control	• **Adults:** No • **Pediatrics:** No
Protocol	• Special Operations Protocol 6004 – Hydrofluoric Acid Exposure

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Greater Miami Valley EMS Council	EMS Drug Formulary	8025
Subject: Methylprednisolone (Solu-medrol)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 125 mg in 2 ml • One in drug bag
Indications	• Severe allergic reactions • Anaphylaxis • Asthma • COPD • Emphysema • Intended to augment standard therapy for anaphylaxis, allergic reaction, and to address airway edema and inflammation in asthma.
Adult Dosing	A **Solu-Medrol 125 mg IV** A Given to patients in the Allergic reaction or Anaphylaxis protocol only after all other applicable first-line medications have been delivered.
Pediatric Dosing	P **Solu-Medrol 2 mg/kg IV**, max dose 125 mg P Given to patients in the Allergic reaction or Anaphylaxis protocol only after all other applicable first-line medications have been delivered.
Therapeutic Action	• Potent anti-inflammatory steroid • Accelerates detoxification of cyanide
Contraindications	• None in emergency setting

Precautions And Side Effects	• Intended for cases that are of a more urgent nature.
	• No significant change in patient condition in the field should be expected after administration.
	• Do not to initiate an IV only to administer this medication.
	• Side Effects:
	  ○ Cardiac arrhythmias
	  ○ Syncope

Medical Control	• **Adults:** No • **Pediatrics:** No
Guidelines	• Medical Protocol 4002 – Allergic Reactions/Anaphylaxis • Medical Protocol 4003 – Asthma/Emphysema/COPD

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Greater Miami Valley EMS Council	EMS Drug Formulary	8026
Subject: Midazolam (Versed)	Effective: June 1, 2021	Last Modified: Dec. 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 10 mg in 2 ml vial, (5 mg/ml) • Two in drug bag

Indications	• For the AEMT and Paramedic
	  ○ Seizures
	  ○ As chemical restraint for combative patient
	  ○ Chest pain associated with stimulant overdose (adults only)
	• Paramedic
	  ○ Conscious patient requiring cardioversion
	  ○ Conscious patient requiring pacing
	  ○ {Sedate-to-Intubate} or {RSI} in normotensive patients
	  ○ After intubation, if patient is resisting and SBP is normal for age.

Adult Dosing	A If seizures, or chemical restraint for combative patients, or chest pain in stimulant overdose (AEMT, Paramedic):
	  A **10 mg IN** (5 mg in each nostril) or **2.5 mg slow IV** or **5 mg IM**
	  A Repeat **5 mg IN** (after 10 min.) or **2.5 mg slow IV** (after 5 min.) or **5 mg IM** (after 10 min.)
	A If conscious patients requiring cardioversion/pacing or patient resisting ETT (Paramedic)
	  A **2.5 mg slow IV**
	A In {Sedate-to-intubate} or {RSI}, **5 mg slow IV** (in patients who are normotensive), may repeat up to **5 mg IV** (Paramedic)
	G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses {Except in the case of sedation for RSI or sedate-to-intubate}

Pediatric Dosing	P If seizures, or chemical restraint for combative patients (AEMT, Paramedic):
	  P **0.2 mg/kg IN** (maximum dose 10 mg) or
	  P **0.1 mg/kg slow IV** (maximum dose 2.5 mg) or
	  P **0.2 mg/kg IM** (maximum dose 5 mg)
	  P In seizures, repeat same doses (maximum IN 5mg, maximum IV 2.5 mg, maximum IM 5 mg)
	  P ♦ In chemical restraint, call MCP for repeat doses
	P If conscious patients requiring cardioversion/pacing or patient resisting ETT (Paramedic)
	  P **0.1 mg/kg slow IV** (maximum dose 2.5 mg)

Therapeutic Action	• Provides sedation
Contraindications	• Respiratory distress
Precautions And Side Effects	• Use with caution with lactating mothers. • Geriatric & debilitated patients require lower doses & are more prone to side effects. • Can cause respiratory depression • Monitor respirations and ventilate if necessary. • The Paramedic should intubate as indicated, the AEMT should intubate if apneic. • Provide continuous cardiac monitoring, $EtCO_2$ and pulse oximetry with sedated patients.

Medical Control	• **Adults:** No
	• **Pediatrics:**
	  ○ No
	  ○ Yes, for repeat doses in Combative Patient/Emergency Sedation Protocol

Protocol	• General Protocol 1008 – Advanced Airway Management • General Protocol 1010 – {Sedate to Intubate and Rapid Sequence Intubation} • Cardiac Protocol 2006 – AICD Activations • Cardiac Protocol 2010 – Bradycardia • Cardiac Protocol 2011 – Tachycardia • Medical Protocol 4007 – Combative Patients/Emergency Sedation • Medical Protocol 4012 – Overdose/Poisoning • Medical Protocol 4014 – Seizures • Special Operations Protocol 6005 – Organophosphate or Nerve Agent Exposure
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Greater Miami Valley EMS Council	EMS Drug Formulary	8027
Subject: Morphine (JITSO)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 5 mg in 1ml vial • Two in drug bag in the absence of fentanyl
Indications	• Pain relief in suspected cardiac chest pain, trauma emergencies, extremity fractures, dislocations, sprains, frostbite, abdominal pain, Hydrofluoric Acid (HF) exposure
Adult Dosing	A Up to **5 mg slow IV** based on patient's weight, provided SBP greater than 100. A May repeat up to **5 mg slow IV** A If unable to establish IV, **Morphine 5 mg IM** G For patients greater than 69 y/o, reduce dosing for sedatives and analgesics to one half (½) of the adult doses
Pediatric Dosing	P Pain relief in pediatric patients greater 2 years old P **0.1 mg/kg slow IV** (maximum dose 5 mg) provided appropriate SBP. P ♦ May repeat **0.1 mg/kg**, (maximum dose 5 mg) P If unable to establish IV, **0.1 mg/kg IM** (maximum dose 5 mg)
Therapeutic Action	• Provides analgesia, reduces cardiac preload by increasing venous capacitance and decreasing afterload
Contraindications	• Hypersensitivity to narcotics • Hypotension • Head injury, increased intracranial pressure • Severe respiratory depression • Patients who have taken MAO inhibitors within 14 days
Precautions And Side Effects	• Use with caution in the elderly, those with asthma, and in those susceptible to CNS depression. • Provide continuous cardiac monitoring, $EtCO_2$ and pulse oximetry with sedated patients. • Geriatric & debilitated patients require lower doses & are more prone to side effects. • Hypotension • Tachycardia, or bradycardia ○ May worsen bradycardia or heart block in inferior MI (vagotonic effect) • Palpitations • Syncope • Euphoria • Facial flushing • Respiratory depression • Bronchospasm • Dry mouth • Allergic reaction

Medical Control	• **Adults:** No
	• **Pediatrics:**
	  ○ No
	  ○ Yes, for repeat doses

Guidelines	• General Protocol 1014 – Pain Management • Cardiac Protocol 2006 – AICD Activations • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program
END OF SECTION	

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Greater Miami Valley EMS Council	EMS Drug Formulary	8028
Subject: Naloxone (Narcan)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 2 mg in 2 ml vial (1 mg/ml) • Six in drug bag
Indications	• High index of suspicion of narcotic overdose • Respiratory depression • Suspicion of drug abuse in cardiac arrest
Adult Dosing	A (EMR or EMT) **Up to 4 mg IN** (half dose per nostril) A (AEMT or Paramedic) A **Up to 4 mg IN** (half dose per nostril) or **2 mg IV** A If no IV, **up to 4 mg IM** A Titrate dosing to adequate respirations, repeat as needed
Pediatric Dosing	P (EMR or EMT) P If 20 kg or less, then **0.1 mg/kg IN** (maximum dose 2 mg) (half dose per nostril) P If greater than 20 kg, then **2 mg IN,** may repeat as needed P (AEMT or Paramedic) P For neonates, consider **0.1 mg/kg IV**, every 3 minutes until respirations improve) P If 20 kg or less, then **0.1 mg/kg IN** (half dose per nostril)**, IV or IM** (maximum dose 2 mg) P If greater than 20 kg, then **2 mg IN** (half dose per nostril) P If using IN route and respirations don't improve after 2 mins., establish and administer via IV P Titrate dosing to adequate respirations, repeat as needed.
Therapeutic Action	• A competitive narcotic antagonist
Contraindications	• Hypersensitivity
Precautions And Side Effects	• Any intranasal administration should be given at a half dose in each nostril • Onset of action is two minutes, if no response two minutes after dosing, then give additional doses • For the Paramedic: if the patient has a pulse, Naloxone should be given before intubation. • After administration, patient transport by EMS is encouraged, even if patient becomes responsive. • Use with caution in narcotic-dependent patients who may experience withdrawal syndrome (including neonates of narcotic-dependent mothers). • Caution should be exercised when administering to narcotic addicts (may precipitate withdrawal symptoms) • Side Effects: ○ Tachycardia ○ Hypertension ○ Dysrhythmias ○ Diaphoresis ○ Blurred vision ○ Nausea and vomiting ○ May not reverse hypotension
Medical Control	• **Adult:** No • **Pediatric:** No
Guidelines	• General Protocol 1005 – General Patient Management • General Protocol 1012 – Intraosseous Infusion • Medical Protocol 4012 – Overdose/Poisoning • Pediatric Considerations 5002 – Newborn Care and Resuscitation

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Greater Miami Valley EMS Council	EMS Drug Formulary	8029
Subject: Nitroglycerin (Nitrostat)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• Dark brown glass bottle, 0.4 mg SL tablets • One bottle in drug bag

Indications	• For the EMT, AEMT and Paramedic:
	  ○ Cardiac related chest pain
	• For the AEMT and Paramedic:
	  ○ Pulmonary edema with systolic BP over 100 mmHg
	  ○ Stimulant overdose with chest pain

Adult Dosing	A **0.4 mg SL** every 5 min for continued chest pain up to a total of 3 tablets
Pediatric Dosing	P Not applicable
Therapeutic Action	• Vasodilator which decreased preload and to a lesser extent, afterload
Contraindications	• Hypersensitivity • Hypotension • Use of sexual enhancement drugs (Viagra, Cialis, Levitra) in last 24 hours • Taking Revatio (a pulmonary hypertension medication) • Head injury

Precautions And Side Effects	• Use only on patients who are greater than 25 years old or have been prescribed **Nitroglycerin**
	• Side Effects:
	  ○ Transient headache
	  ○ Reflex tachycardia
	  ○ Hypotension
	  ○ Diaphoresis
	  ○ Postural syncope
	  ○ Nausea & vomiting

Medical Control	• **Adult:**
	  ○ For the EMT: Yes
	  ○ For the AEMT and Paramedic: No
	• **Pediatric:** Not applicable

Protocol	• Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Medical Protocol 4012 – Overdose/Poisoning • Medical Protocol 4013 – Respiratory Distress/Pulmonary Edema

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Greater Miami Valley EMS Council	EMS Drug Formulary	8030
Subject: Norepinephrine (Levophed)	Effective: June 1, 2021	Last Modified: Feb. 20, 2024

EMR	EMT	AEMT	**Paramedic**

Packaging	• 4 mg in 4ml (1mg/ml) vial for dilution in 250 ml of IV fluids • One in drug bag
Indications	• For blood pressure control in acute hypotensive states in the non-trauma patient.
Adult Dosing	A Add **4 mg to 250 ml of IV fluids**. A Infuse starting at **30 drops per minute** (max 45 drops) with 60 drop tubing and titrate to effect. A Increase by **5 drops** every 5 minutes.
Pediatric Dosing	P ♦ Contact MCP for dosing and administration guidance.
Therapeutic Action	• Peripheral vasoconstrictor. • Positive inotrope (increases cardiac contractility) and chronotrope (increases heart rate).
Contraindications	• Should not be given to patients who are hypotensive from acute hemorrhage. • Do not use the solution if its color is pinkish or darker than slightly yellow or if it contains particles.
Precautions And Side Effects	• Protect the vial from light • This drug must be diluted before administration. • Administer in free-flowing IV and watch for infiltration. • Avoid hypertension. • If extravasation occurs, stop the infusion immediately as necrosis may occur. • Leave the catheter in place so that a reversal agent can be given through the infiltrated catheter.
Medical Control	• **Adult:** No • **Pediatric:** Yes
Protocol	• Cardiac Protocol 2009 – Cardiac Alert Program • Medical Protocol 4015 – Sepsis • Medical Protocol 4016 – Shock

gtts/min		mcg/min
30	=	8
35	=	9.35
40	=	10.7
45	=	12

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Greater Miami Valley EMS Council	EMS Drug Formulary	8031
Subject: Normal Saline (Sodium Chloride Solution)	Effective: June 1, 2021	Last Modified: Mar. 20, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• Usually a 1000 ml flexible, non-latex plastic bag • Generally with a pH of 6.5. • Not in drug bags or caches
Indications	• Solution for fluid and electrolyte replenishment • Hypovolemia • Hyperglycemia • Flushing of wounds • Shock • Pulmonary edema with systolic BP over 100 mmHg • Sepsis
Adult Dosing	A Non traumatic shock without pulmonary edema: A **500 ml IV** A May repeat **500 ml IV** up to two times if needed A Non traumatic shock with pulmonary edema: **250 ml IV** A Sepsis: A **1 L IV** A ♦ Additional IV fluid if indicated A Penetrating trauma to chest or abdomen: maintain 100 SBP or a radial pulse A If BGL reads over 400 mg/dL or "High" on glucometer, administer **500 ml** fluid IV – **wide open.** A Crush syndrome: A Initial treatment: **1 L IV** then **500 ml/hour IV** A If hypotensive and the patient has been trapped more than 1 hour, then additional **1 L IV** A Heat exposure: A **500 ml IV**, may repeat one time A ♦ Additional IV fluid, if indicated
Pediatric Dosing	P **20 ml/kg IV bolus** P ♦ In shock, call for orders to administer additional fluid
Therapeutic Action	• Used for hydration and management of hypotension
Contraindications	• None in the emergency setting
Precautions And Side Effects	• None
Medical Control	• **Adults:** Yes, for additional fluid administrations in some circumstances • **Pediatrics:** Yes, for additional fluid administrations in some circumstances
Protocol	• General Protocol 1005 – General Patient Management • Cardiac Protocol 2005 – Cardiac Arrest; V-Fib or Pulseless V-Tach • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program • Trauma Protocol 3001 – General Trauma Management • Trauma Protocol 3004 – Trauma Arrest • Trauma Protocol 3007 – Crush Syndrome Trauma • Trauma Protocol 3014 – Heat Exposure • Medical Protocol 4002 – Allergic Reaction/Anaphylaxis • Medical Protocol 4008 – Diabetic Emergencies – Hypoglycemia/Hyperglycemia • Medical Protocol 4015 - Sepsis • Medical Protocol 4016 – Shock
END OF SECTION	

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Subject: Normosol-R	Effective: June 1, 2021	Last Modified: Mar. 20, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• Usually a 1000 ml flexible, non-latex plastic bag • Generally with a pH of 6.5. • Not in drug bags or caches
Indications	• Solution for fluid and electrolyte replenishment • Hypovolemia • Hyperglycemia • Flushing of wounds • Shock • Pulmonary edema with systolic BP over 100 mmHg • Sepsis
Adult Dosing	A Non traumatic shock without pulmonary edema: A **500 ml IV** A May repeat **500 ml IV** up to two times if needed A Non traumatic shock with pulmonary edema: **250 ml IV** A Sepsis: A **1 L IV** A ♦ Additional IV fluid if indicated A Penetrating trauma to chest or abdomen: maintain 100 SBP or a radial pulse A If BGL reads over 400 mg/dL or "High" on glucometer, administer **500 ml** fluid IV – **wide open.** A Crush syndrome: A Initial treatment: **1 L IV** then **500 ml/hour IV** A If hypotensive and the patient has been trapped more than 1 hour, then additional **1 L IV** A Heat exposure: A **500 ml IV**, may repeat one time A ♦ Additional IV fluid, if indicated
Pediatric Dosing	P **20 ml/kg IV bolus** P ♦ In shock, call for orders to administer additional fluid
Therapeutic Action	• Used for hydration and management of hypotension
Contraindications	• None in the emergency setting
Precautions And Side Effects	• None
Medical Control	• **Adults:** Yes, for additional fluid administrations in some circumstances • **Pediatrics:** Yes, for additional fluid administrations in some circumstances
Protocol	• General Protocol 1005 – General Patient Management • Cardiac Protocol 2005 – Cardiac Arrest; V-Fib or Pulseless V-Tach • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program • Trauma Protocol 3001 – General Trauma Management • Trauma Protocol 3004 – Trauma Arrest • Trauma Protocol 3007 – Crush Syndrome Trauma • Trauma Protocol 3014 – Heat Exposure • Medical Protocol 4002 – Allergic Reaction/Anaphylaxis • Medical Protocol 4008 – Diabetic Emergencies – Hypoglycemia/Hyperglycemia • Medical Protocol 4015 - Sepsis • Medical Protocol 4016 – Shock
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Greater Miami Valley EMS Council	EMS Drug Formulary	8033
Subject: Ondansetron (Zofran)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 4 mg in 2 ml vial, (2 mg/ml) • 1 vial in drug bag • 4 mg tablet • 1 tablet in drug bag
Indications	• For nausea or active vomiting
Adult Dosing	A For the AEMT and Paramedic: A **4 mg tablet PO** A For the Paramedic: A **4 mg slow IV**, preferred route for active vomiting as patient may need hydration. A If no IV, may use **4 mg tablet PO** A Consider administering **4 mg (2 ml)** of the IV form by spraying it into the patient's mouth.
Pediatric Dosing	P For the AEMT and the Paramedic: P **4 mg tablet PO** if patient is 12 y/o or older and weight is 40 kg or more. P Transport time should be considered prior to administration. P For the Paramedic P **0.1 mg/kg IV** (max 4 mg) if the patient is 12 y/o or older and the weight is 40 kg or more
Therapeutic Action	• Stimulation of 5-HT 3 receptors causes transmission of sensory signals to the vomiting center via vagal afferent fibers to induce vomiting. • By binding to 5-HT 3 receptors, Ondansetron blocks vomiting mediated by serotonin release.
Contraindications	• Known hypersensitivity to Ondansetron
Precautions And Side Effects	• During pregnancy it should only be used where clearly needed. • Side effects: ○ Constipation or diarrhea ○ Fever ○ Headache. ○ Sudden blindness of 2-3 minutes duration. (the speed of delivery may contribute to the blindness)
Medical Control	• **Adults:** No • **Pediatrics:** No
Protocol	• Medical Protocol 4001 – Abdominal Pain

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Greater Miami Valley EMS Council	EMS Drug Formulary	8034
Subject: Oral Glucose	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• Tube; concentration varies, check label • Not carried in drug bag
Indications	• Hypoglycemia • Generalized hypothermia without arrest • Altered level of consciousness of unknown cause • Seizures with BGL of less than 60 mg/dl, no BGL monitor; or suspicion of hypoglycemia despite BGL reading • For the AEMT and Paramedic, no IV access
Adult Dosing	**A** **1 tube** A May be repeated in 10 minutes if BGL remains less than 60 mg/dl
Pediatric Dosing	**P** **1 tube** P May be repeated in 10 minutes if BGL remains less than 60 mg/dl
Therapeutic Action	• Raise blood glucose concentration
Contraindications	• Inability to control the airway
Precautions And Side Effects	• Use caution when giving to unresponsive patients. • Hyperglycemia
Medical Control	• **Adults:** No • **Pediatrics:** No
Protocol	• Medical Protocol 4008 – Diabetic Emergencies - Hypoglycemia

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Greater Miami Valley EMS Council	EMS Drug Formulary	8035
Subject: Plasmalyte-A	Effective: June 1, 2021	Last Modified: Mar. 29, 2024

EMR	EMT	AEMT	Paramedic

Packaging	• Usually a 1000 ml flexible, non-latex plastic bag • Generally with a pH of 6.5. • Not in drug bags or caches
Indications	• Solution for fluid and electrolyte replenishment • Hypovolemia • Hyperglycemia • Flushing of wounds • Shock • Pulmonary edema with systolic BP over 100 mmHg • Sepsis
Adult Dosing	A Non traumatic shock without pulmonary edema: A **500 ml IV** A May repeat **500 ml IV** up to two times if needed A Non traumatic shock with pulmonary edema: **250 ml IV** A Sepsis: A **1 L IV** A ♦ Additional IV fluid if indicated A Penetrating trauma to chest or abdomen: maintain 100 SBP or a radial pulse A If BGL reads over 400 mg/dL or "High" on glucometer, administer **500 ml** fluid IV – **wide open.** A Crush syndrome: A Initial treatment: **1 L IV** then **500 ml/hour IV** A If hypotensive and the patient has been trapped more than 1 hour, then additional **1 L IV** A Heat exposure: A **500 ml IV**, may repeat one time A ♦ Additional IV fluid, if indicated
Pediatric Dosing	P **20 ml/kg IV bolus** P ♦ In shock, call for orders to administer additional fluid
Therapeutic Action	• Used for hydration and management of hypotension
Contraindications	• None in the emergency setting
Precautions And Side Effects	• None
Medical Control	• **Adults:** Yes, for additional fluid administrations in some circumstances • **Pediatrics:** Yes, for additional fluid administrations in some circumstances
Protocol	• General Protocol 1005 – General Patient Management • Cardiac Protocol 2005 – Cardiac Arrest; V-Fib or Pulseless V-Tach • Cardiac Protocol 2008 – Suspected Cardiac Chest Pain • Cardiac Protocol 2009 – Cardiac Alert Program • Trauma Protocol 3001 – General Trauma Management • Trauma Protocol 3004 – Trauma Arrest • Trauma Protocol 3007 – Crush Syndrome Trauma • Trauma Protocol 3014 – Heat Exposure • Medical Protocol 4002 – Allergic Reaction/Anaphylaxis • Medical Protocol 4008 – Diabetic Emergencies – Hypoglycemia/Hyperglycemia • Medical Protocol 4015 - Sepsis • Medical Protocol 4016 – Shock

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Greater Miami Valley EMS Council	EMS Drug Formulary	8036
Subject: Pralidoxime (2-PAM)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	Paramedic

Packaging	• 600 mg auto-injector
Indications	• To be used following Atropine in organophosphate, or nerve agent poisoning. • Both for treatment of civilian patients at the scene, as well as for protection of public safety personnel who walk into scene & become unexpectedly contaminated.
Adult Dosing	A ♦ **600 mg IM auto-injector**
Pediatric Dosing	P ♦ Patients greater than 20 kg: **600 mg IM auto-injector**
Therapeutic Action	• Reactivates cholinesterase after poisoning with anticholinesterase agents, (Organophosphate or Nerve Gas) • Reverses muscle paralysis after organophosphate poisoning
Contraindications	• Hypersensitivity
Precautions And Side Effects	• Use with caution in myasthenia gravis, renal impairment, pregnancy, children. • Can spread to child through breast feeding
Medical Control	• **Adults:** Yes • **Pediatrics:** Yes
Protocol	• Special Operations Protocol 6002 – Antidote Resources • Special Operations Protocol 6005 – Organophosphate or Nerve Agent Exposure

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Greater Miami Valley EMS Council	EMS Drug Formulary	8037
Subject: Sodium Bicarbonate	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 50 mEq in 50 ml syringe (1 mEq/ml) • Two in drug bag
Indications	• Not for routine arrests. Studies indicate no proven efficacy. • Renal dialysis patient in asystole or PEA cardiac arrest • Excited delirium patients that go into cardiac arrest • Known tricyclic overdose • Crush Syndrome
Adult Dosing	**A** Cardiac Arrest: **A** In renal dialysis patient: **100 mEq IV** **A** ♦ Consider for the excited delirium patient who goes into arrest: **100 mEq IV** **A** Tricyclic antidepressant OD: **A** ♦ **100 mEq IV** **A** ♦ May repeat dose of **50 mEq IV** for persistent or prolonged QRS **A** Crush syndrome: **A** **100 mEq IV**
Pediatric Dosing	**P** Cardiac Arrest: **P** In renal dialysis patient: **1 mEq/kg IV** **P** Tricyclic antidepressant OD: **P** ♦ **1 mEq/kg IV** **P** ♦ May repeat dose of 0.5 **mEq/kg IV** for persistent or prolonged QRS **P** Crush syndrome: **P** **1 mEq/kg IV**
Therapeutic Action	• Buffers metabolic acidosis
Contraindications	• None in the emergency setting
Precautions And Side Effects	• Metabolic alkalosis • Hypoxia • Rise in intracellular PCO_2 and increased tissue acidosis • Electrolyte imbalance (hypernatremia) • Seizures • Tissue sloughing at injection site
Medical Control	• **Adults:** ○ **Renal dialysis Arrest –** No ○ **Tricyclic OD –** Yes ○ **Excited Delirium Arrest -** Yes • **Pediatrics:** ○ **Arrest –** No ○ **Tricyclic OD –** Yes ○ **Crush Syndrome** - No
Protocol	• Cardiac Protocol 2004 – Cardiac Arrest - Renal Failure/Dialysis • Cardiac Protocol 2010 – Bradycardia • Trauma Protocol 3007 – Crush Syndrome Trauma • Medical Protocol 4007 – Combative Patients/Emergency Sedation • Medical Protocol 4012 – Overdose/Poisoning

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Greater Miami Valley EMS Council	EMS Drug Formulary	8038
Subject: Sodium Nitrite (JITSO)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 300 mg in 10 ml vial (30 mg/ml) • Available in caches located in each county in Homeland Security Region 3.
Indications	• Patients with known or suspected cyanide poisoning
Adult Dosing	A ♦ **300 mg (10 ml)** 3% solution **slow IV**
Pediatric Dosing	P Not applicable
Therapeutic Action	• Oxidizes hemoglobin which then combines with cyanide to form an inactive compound
Contraindications	• Nitrite/nitrate allergy
Precautions And Side Effects	• Methemoglobinemia if given in excessive amounts
Medical Control	• **Adults:** Yes • **Pediatrics:** Not applicable
Guidelines	• Trauma Protocol 3008 – Cyanide Poisoning & Antidotes

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Subject: Sodium Thiosulfate	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 12.5 gm in 50 ml vial (250 mg/ml) • Available in caches located in each county in Homeland Security Region 3.
Indications	• Conscious patient with known or suspected cyanide poisoning • Smoke inhalation with suspected cyanide component • Cardiac arrest from known or suspected cyanide poisoning or smoke inhalation
Adult Dosing	A ♦ **12.5 gm (50 ml)** 25% solution **slow IV**
Pediatric Dosing	P ♦ Greater than 25 kg: **12.5 gm (50 ml)** 25% solution **slow IV** P ♦ Less than 25 kg: **412.5 mg/kg (1.65 ml/kg)** of 25% solution (max dose 12.5 g (50 ml))
Therapeutic Action	• Accelerates detoxification of cyanide
Contraindications	• None
Precautions And Side Effects	• Possible hypotension

Medical Control	• **Adults:**
	  ○ In cardiac arrest—No
	  ○ In patients not in arrest—Yes
	• **Pediatrics:**
	  ○ In cardiac arrest—No
	  ○ In patients not in arrest—Yes

Protocol	• Trauma Protocol 3008 – Cyanide Poisoning & Antidotes

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Subject: Tetracaine	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 0.5%/ml eye drop bottle (10 ml) • One in drug bag
Indications	• Prior to eye irrigation in cases of chemical injury to the eye and in other situations with significant eye pain without possibility of penetrating trauma to eye.
Adult Dosing	A **2 drops** in each affected eye
Pediatric Dosing	P **2 drops** in each affected eye
Therapeutic Action	• Provides rapid, brief, superficial anesthesia by inhibiting conduction of nerve impulses from sensory nerves
Contraindications	• Hypersensitivity to Tetracaine • Open injury to eye
Precautions And Side Effects	• May cause burning or stinging sensation or irritation • Can cause epithelial damage and systemic toxicity • Incompatible with mercury or silver salts often found in ophthalmic products
Medical Control	• **Adults:** No • **Pediatrics:** No
Protocol	• Trauma Protocol 3011 – Eye Injuries

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Subject: Vasopressin (JITSO)	Effective: June 1, 2021	Last Modified: July 23, 2023

EMR	EMT	AEMT	**Paramedic**

Packaging	• 20 units in 1 ml vial, 20 units/ml • Usually 2 vials (20 ml) present • Not routinely present in the drug bag
Indications	• Adult patients in cardiac arrest
Adult Dosing	A **40 units IV** A Once IV is established, Vasopressin is permitted after either first or second dose of Epinephrine.
Pediatric Dosing	P Not applicable
Therapeutic Action	• Potent peripheral vasoconstrictor. • May be used as an alternative pressor to Epinephrine in the treatment of adult shock-refractory VF and PEA
Contraindications	• None in the adult cardiac arrest
Precautions And Side Effects	• May produce cardiac ischemia and angina
Medical Control	• **Adults:** No • **Pediatrics:** Not applicable
Protocol	• Cardiac Protocol 2005 – Cardiac Arrest: V-Fib or Pulseless V-Tach

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Appendix A

2024 Protocol Changes

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Appendix A.1 General Guidelines

a. All the important changes made to the 2024 GMVEMSC protocol are identified in this section.
b. Any changes made since the Aug. 21, 2023 release are included.
c. Grammatical changes, formatting or clerical corrections are not mentioned.
d. The different tabs are:
    i. General Protocol Changes – includes any changes that effect the protocol as a whole or all of the different disciplines
    ii. EMR – changes affecting the patient care from an EMR
    iii. EMT – changes affecting the patient care from an EMT, including from EMR tabs
    iv. AEMT – changes affecting the patient care from an EMT, including from EMR & EMT tabs
    v. Paramedic - changes affecting the patient care from a Paramedic, including from all other tabs
    vi. Drug Formulary – changes made to the 8000 series drug listings, affecting all levels
e. It is recommended that each discipline review the changes to all the other levels as well as their own as some changes could affect their practice.

Appendix A.2 2024 GMVEMSC Protocol Changes

General Protocol Changes		
Tab	**Section**	**Change/Edit/Addition**
TOC	Trauma	Re-ordered Spinal Motion Restriction from Tab 3018 to Tab 3017
TOC	Trauma	Re-ordered Trauma Triage Guidelines from Tab 3019 to Tab 3018
TOC	Trauma	Re-ordered SALT Triage Systems from Tab 3017 to 3019
1001	1001.1	Minor adjustments to introductory statements
1003	1003.3.a.ii	Defined cardiac arrest as traumatic cardiac arrest
1005	1005.4 Pearls	Recommended patients discharged in the last 24 hours return to same facility or network
1005	1005.4 Pearls	Recommended post-op patients with surgical complications return to facility or network that did the procedure
1008	1008.1 Pearls	Removed references to specific airway devices, leaving it to Medical Directors to approve agency devices
1009	1009.2 Pearls	Removed redundant statement about continuous capnography already mentioned in 1009.3.b
2002	2002.2 Pearls	Moved "Hydrogen Ion" in the Hs & Ts from the AEMT level to the Paramedic level
4008	Whole Tab	Changed Tab title to "Diabetic Emergencies Hypoglycemia/Hyperglycemia"
4008	4008.1.b	Added, Hyperglycemia is defined as a blood glucose level at or above 250 mg/dL."
4015	4015.2 Pearls	Added consideration to call ahead with potentially septic patients to give the ED a "heads up"
4017	Whole Tab	Re-worked the entire Stroke Tab General Guidelines
4017	4017.1	Added language referencing alternative stroke screening scales
4017	4017.3	Removed references to "tPa" as some facilities are using different thrombolytics
4017	4017.3	Added Mercy Health – Springfield as a Thrombectomy Capable Center
7012	7012.5	Removed Kettering Health Piqua from the list of participating hospitals
7013	List	Removed trauma designation from Kettering Health Hamilton
7013	List	Removed Kettering Health Piqua from the list
7013	List	Removed Labor & Delivery from Upper Valley Medical Center capabilities
7014	List	Removed Kettering Health Piqua from the list
Various	Various	Changed/standardized intervals for most IV medications to every 5 minutes (exceptions where noted)
Various	Various	Changed/standardized intervals for most IM, SQ and IN medications to every 10 min. (exceptions where noted)

Emergency Medical Responder		
Tab	**Section**	**Change/Edit/Addition**
3002	3002.1 EMR	Added "Oxygenate the patient with 100% O_2
4002	4002.2 EMR	Changed interval for repeat Epinephrine from 5 minutes to 10 minutes

Emergency Medical Technician		
Tab	**Section**	**Change/Edit/Addition**
1008	1008.1 EMT	Moved recommendation to secure advanced airway after confirmation from AEMT to EMT sections
3002	3002.1 EMR	Added "Oxygenate the patient with 100% O_2
4002	4002.2 EMR	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
4002	4002.2 EMT	Added an option for EMTs to use a syringe to draw and administer IM Epinephrine, with Med. Director approval
4005	4005.2 Pearls	Added statement to encourage transport to the closest L&D facility when dealing with complicated deliveries
4015	4015.2 EMT	Added recommendation to do a blood glucose screening
4017	4017.2 EMT	Added Large Vessel Occlusion Screening

Advanced Emergency Medical Technician		
Tab	**Section**	**Change/Edit/Addition**
1004	1004.4.e	Added disclaimer that no cardiac monitor is required when administering pain medications in a DNR patient
1008	1008.1 EMT	Moved recommendation to secure advanced airway after confirmation from AEMT to EMT sections
1014	Pedi Consideration	Added bullet point to identify adequate perfusion in patients where a blood pressure is unobtainable
1014	1014.2 AEMT	Changed repeat IV Fentanyl interval from 15 minutes to 5 minutes for adult and pediatric patients
1014	1014.2 AEMT	Changed repeat IN, SQ, or IM Fentanyl interval from 15 minute to 10 minutes for adult and pediatric patients
1014	1014.2 AEMT	Added "evidence of adequate perfusion" in indications for pediatric fentanyl administration
1014	1014.2 AEMT	Moved pediatric BP/perfusion qualifier to first IN administration, added emphasis that IV dose is second choice
1014	1014.2 AEMT	Changed repeat IV Ketamine interval from 15 minutes to 5 minutes for adult patients
1014	1014.2 AEMT	Changed repeat IN/IM Ketamine interval from 15 minutes to 10 minutes for adult patients
2005	2005.2	Added section addressing and explaining {Vector Change Defibrillation}
2005	2005.3 AEMT	Added {Vector Change Defibrillation} in refractory V-Fib/PVT
3002	3002.1 EMR	Added "Oxygenate the patient with 100% O_2
3007	3007.1 AEMT	Changed repeat IM Ketamine interval from 2 minutes to 10 minutes for adult patients
4002	4002.2 AEMT	Changed repeat IM Epinephrine interval from 5 minutes to 10 minutes
4003	4003.2 AEMT	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
4005	4005.2 Pearls	Added statement to encourage transport to the closest L&D facility when dealing with complicated deliveries
4007	4007.3 AEMT	Changed intervals for repeat meds to 10 min. for IM and IN administrations and 5 min. for IV administration
4008	4008.2 AEMT	Added, "If BGL reads over 400 mg/dL or "High" on glucometer, administer 500 ml fluid IV – wide open."
4008	4008.2 AEMT	Added, "Do not administer fluid to a hyperglycemic pediatric patient, unless otherwise indicated. "
4014	4014.1 AEMT	Changed IN Midazolam interval from 5 minutes to 10 minutes for adult and pediatric patients
4015	4015.2 EMT	Added recommendation to do a blood glucose screening

Paramedic		
Tab	**Section**	**Change/Edit/Addition**
1004	1004.4.e	Added disclaimer that no cardiac monitor is required when administering pain medications in a DNR patient
1008	1008.1 EMT	Moved recommendation to secure advanced airway after confirmation from AEMT to EMT sections
1008	1008.1 Paramedic	Edit nasal intubation to identify the skill as an alternative to oral procedures
1010	1010.2 Paramedic	Added a reminder that half dosing Ketamine or Midazolam for patients over 69 y/o does not apply in RSI/STI
1014	Pedi Consideration	Added bullet point to identify adequate perfusion in patients where a blood pressure is unobtainable
1014	1014.2 AEMT	Changed repeat IV Fentanyl interval from 15 minutes to 5 minutes for adult and pediatric patients
1014	1014.2 AEMT	Changed repeat IN, SQ, or IM Fentanyl interval from 15 minute to 10 minutes for adult and pediatric patients
1014	1014.2 AEMT	Added "evidence of adequate perfusion" in indications for pediatric fentanyl administration
1014	1014.2 AEMT	Moved pediatric BP/perfusion qualifier to first IN administration, added emphasis that IV dose is second choice
1014	1014.2 AEMT	Changed repeat IV Ketamine interval from 15 minutes to 5 minutes for adult patients
1014	1014.2 AEMT	Changed repeat IN/IM Ketamine interval from 15 minutes to 10 minutes for adult patients
2005	2005.2	Added section addressing and explaining Vector Change and Double Sequential Defibrillation
2005	2005.3 AEMT	Added {Vector Change Defibrillation} in refractory V-Fib/PVT
2005	2005.3 Paramedic	Added {Double Sequential Defibrillation} in refractory V-Fib/PVT after one round of antiarrhythmics
2010	2010.2 Paramedic	Added Ketamine 25 mg IV as the preferred method for sedation/analgesia prior to pacing
2010	2010.2 Paramedic	Added a reminder that the half dosing for patients greater than 69 y/o doesn't apply for sedation

2011	2011.2 Paramedic	Added Ketamine 25 mg IV as the preferred method for sedation/analgesia prior to cardioversion
2011	2011.2 Paramedic	Added a reminder that the half dosing for patients greater than 69 y/o doesn't apply for sedation
3002	3002.1 EMR	Added "Oxygenate the patient with 100% O_2
3008	3008.4 & 3008.5	Removed small chart from pediatric section and added a new, revised pediatric dosing chart in 3008.5
4002	4002.2 EMR, AEMT	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
4003	4003.2 AEMT	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
4005	4005.2 Pearls	Added statement to encourage transport to the closest L&D facility when dealing with complicated deliveries
4007	4007.3 AEMT	Changed intervals for repeat meds to 10 min. for IM and IN administrations and 5 min. for IV administration
4008	4008.2 AEMT	Added, "If BGL reads over 400 mg/dL or "High" on glucometer, administer 500 ml fluid IV – wide open."
4008	4008.2 AEMT	Added, "Do not administer fluid to a hyperglycemic pediatric patient, unless otherwise indicated. "
4014	4014.1 AEMT	Changed interval for IN Midazolam from 5 minutes to 10 minutes for adult and pediatric patients
4015	4015.2 EMT	Added recommendation to do a blood glucose screening
4015	4015.2	Removed call for order from administering Norepinephrine to hypotensive patients

Drug Formulary		
Tab	**Section**	**Change/Edit/Addition**
8015	Adult Dosing	Clarified that only AEMT and Paramedic may treat Asthma with Epinephrine
8015	Adult Dosing	Added option for EMT to administer IM Epinephrine with approval from their Medical Director
8015	Adult Dosing	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
8015	Pediatric Dosing	Clarified that only AEMT and Paramedic may treat Asthma with Epinephrine
8015	Pediatric Dosing	Added option for EMT to administer IM Epinephrine with approval from their Medical Director
8015	Pediatric Dosing	Changed interval for repeat Epinephrine (Epi-pen or {IM}) from 5 minutes to 10 minutes
8017	Adult/Pedi Dosing	Changed repeat IV Fentanyl interval from 15 minutes to 5 minutes for adult and pediatric patients
8017	Adult/Pedi Dosing	Changed repeat IN, SQ, or IM Fentanyl interval from 15 minute to 10 minutes for adult and pediatric patients
8017	Pediatric Dosing	Moved pediatric BP/perfusion qualifier to first IN administration
8017	Pediatric Dosing	Added the bullet that if a pediatric B/P is not possible, then look for signs of adequate perfusion prior to dosing
8020	Indications	Added sedation prior to pacing or cardioversion in adults (preferred method)
8020	Adult Dosing	Changed repeat IV Ketamine interval from 15 minutes to 5 minutes for adult patients
8020	Adult Dosing	For Paramedics, added adult dosing of 25 mg IV for sedation prior to pacing and cardioversion
8020	Adult Dosing	Changed repeat IN/IM Ketamine interval from 15 minutes to 10 minutes for adult patients
8020	Adult Dosing	Added reminders of exceptions where the paramedic should administer a full dose to geriatric patients
8021	Adult Dosing	Added dosing for administering fluid to hypoglycemic patients
8021	Protocol	Added links to more tabs that recommend IV fluid administration
8026	Adult/Pedi Dosing	For seizures, changed IN Midazolam interval from 5 minutes to 10 minutes for adult and pediatric patients
8026	Adult Dosing	Added reminder that in STI/RSI scenarios, the paramedic should administer a full dose to geriatric patients
8030	Medical Control	Removed call for order in septic patients
8031	Adult Dosing	Added dosing for administering fluid to hypoglycemic patients
8031	Protocol	Added links to more tabs that recommend IV fluid administration
8032	Adult Dosing	Added dosing for administering fluid to hypoglycemic patients
8032	Protocol	Added links to more tabs that recommend IV fluid administration
8035	Adult Dosing	Added dosing for administering fluid to hypoglycemic patients
8035	Protocol	Added links to more tabs that recommend IV fluid administration

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