

Utah EMS Protocol Guidelines: Medical



January 1, 2017

Medical Patient Care Guidelines

These guidelines were created to provide direction for each level of certified provider in caring for medical patients. All of these directions, dosages and provisions are subject to change with a later notice or revision of the guidelines. The OLMC physician will always be the final word on treatment in the field. If there are ever any discrepancies between the guidelines and the OLMC physician these should be documented and brought to the attention of the physician at the receiving hospital. If the explanation is not sufficient, the provider should bring the issue to their medical director or the BEMSP for review.

General Approach to Medical Patient Care Guidelines

- Assess your patient prior to initiating a guideline.
- More than one guideline may apply.
- If conflicts arise between treatment guidelines, contact OLMC for clarification.
- Providers may provide treatment up to the level of their certification only.
- Air Medical Transport Service personnel function under their own clinical guidelines.
- Contact the receiving hospital and OLMC as soon as clinically possible for each patient
- OLMC physician may change your treatment plan.
- Any variations to a guideline by the OLMC physician should be clarified to ensure that the provider has properly characterized the situation.
- The OLMC physician has the final word on treatment once contact is made.
- The OLMC physician must approve usage of dosages in excess of the guidelines.

General Pediatric Considerations

- Pediatric reference based tape dosing is preferred over calculated dosages for infants and children.
- Pediatric lowest acceptable systolic blood pressures are: birth to 1 month = 60mmHg, 1 month to 1 year = 70mmHg, 1 year to 10 years is = 70mmHg + (age x 2) and over 10 years = 90mmHg.

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- ① This symbol and yellow highlighted instructions precedes any treatment that requires OLMC prior to initiating the treatment unless otherwise specified.

ALLERGIC REACTION / ANAPHYLAXIS

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Eliminate the source of exposure, if possible. May require moving the patient to another location
 - Maintain airway.
 - Apply cold pack to bite or sting site as necessary.
 - Monitor closely for hypotension.
- ❑ **Key Considerations**
 - If the patient has any respiratory distress and is conscious, treat and transport them in a position of comfort, including leaving a child in parent's lap.
 - Determine if anaphylaxis is present:
 - **Non-anaphylactic Allergic Reaction:** Symptoms involving only **one** organ system (i.e. itching, rash, or localized angioedema that does not involve the airway or is not associated with vomiting)
 - **Anaphylaxis:** More severe and is characterized by an acute onset involving:
 - **Hypotension** after exposure to a likely allergen OR
 - **Two or more** of the following occurring rapidly after exposure to a likely allergen:
 - Skin and/or mucosal involvement (urticaria, itching, face/lips/tongue swelling)
 - Respiratory compromise (dyspnea, wheezing, stridor, hypoxemia)
 - Persistent gastrointestinal symptoms, particularly in infants/young children (vomiting, abdominal pain)
 - **Do not delay administering epinephrine.** Give IM epinephrine as soon as the diagnosis of anaphylaxis has been established.

ADULT
(>25 kg / 55lbs)

PEDIATRIC
(< 25 kg / 55 lbs)

EMT

- Give or assist patient with **epinephrine autoinjector (0.3 cc)** IM for anaphylaxis
- **OR** administer **epinephrine (1:1000) 0.3 cc** IM, as per AEMT guideline below
- Assist patient with using own albuterol inhaler for wheezing
- O₂ as needed to maintain SaO₂ above 90%.

EMT

- Give or assist patient with **epinephrine autoinjector ("Jr." 0.15 cc)** IM for severe respiratory distress and/or shock from anaphylaxis.
 - If >25kg then use adult autoinjector (0.3 cc) IM
- **OR** administer **epinephrine (1:1000) 0.15 cc** IM, as per AEMT guideline below.
 - If > 25 kg, then give 0.3 cc IM
- Assist patient with own albuterol inhaler if wheezing is present
- O₂ as needed to maintain SaO₂ above 90%.

AEMT

AEMT

- ❑ **Epinephrine (1:1000) 0.3 cc IM**
 - May repeat every 10 minutes until symptoms improved
- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ **Diphenhydramine 50 mg IV/IO/IM** for allergic reaction with urticaria/itching
- ❑ If **WHEEZING** is present:
 - **Albuterol 2.5 mg** nebulized every 10 minutes until symptoms improve
- ❑ If **STRIDOR** is present:
 - **Epinephrine (1:1000) 2mL** mixed with 3 mL of NS nebulized every 10 minutes until symptoms improve

PARAMEDIC

- **Epinephrine (1:10,000) 1mg IV/IO** may be used for severe or persistent hypotension, despite multiple doses of IM epinephrine

May repeat every 5 min if shock persists

- ⌚ **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.

- ❑ **Epinephrine (1:1000) 0.15 cc IM**
 - May repeat every 10 minutes until symptoms improved
 - If >25 kg, then use **0.3 cc IM**
- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ **Diphenhydramine 1 mg/kg to max of 50 mg IV/IO/IM** for allergic reaction with urticaria/itching
- ❑ If **WHEEZING** is present:
 - **Albuterol 2.5 mg** nebulized every 10 minutes until symptoms improve
 - Start with **1.25 mg** if patient is <1 yr in age.
- ❑ If **STRIDOR** is present:
 - ❑ **Epinephrine (1:1000) 2mL** mixed with 3 mL of NS nebulized every 10 minutes until symptoms improve

PARAMEDIC

- **Epinephrine (1:10,000) 0.01 mg/kg or 0.1ml/kg IV/IO** for severe or persistent hypotension, despite multiple doses of IM epinephrine

May repeat every 5 min if shock persists

- ⌚ **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.

BETA BLOCKER TOXICITY

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Attempt to quantify type and amount of beta blocker ingested, whether accidental or intentional, and identify any potential co-ingestants.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ Perform and transmit 12 lead EKG
- ❑ **Treatment Plan**
 - Patients suspected of intentional overdose do not have the right to refuse care and law enforcement may be needed to ensure appropriate treatment is received.
 - Do NOT treat unless the patient is symptomatic. Consult OLMC if unsure.
 - Identify specific medication taken: long-acting vs. immediate acting, dose, quantity, and time of ingestion.
 - Perform blood glucose assessment on all patients. Pediatric patients, particularly, may develop hypoglycemia.
- ❑ **Key Considerations**
 - Beta-blocker toxicity can result in severe bradycardia, hypotension, respiratory distress, and shock.
 - Pediatric lowest acceptable systolic blood pressures are birth to 1 month = 60mmHg, 1 month to 1 year = 70mmHg, 1 year to 10 years is = 70mmHg + (age x 2) and over 10 years = 90mmHg.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Supportive care of airway, vascular access, and fluid therapy per ***IV/IO Access and Fluid Therapy Guideline***
- ❑ **Atropine:** For bradycardia with hypotension
 - **1 mg IV**, repeat every 5 minutes as needed, to a max total dose of 3 mg
- ❑ **Epinephrine:** For bradycardia/hypotension unresponsive to atropine
 - **0.1 mg (1 cc of 1:10,000)** IV/IO push
 - Repeat every 3-5 minutes as needed to maintain SBP

PARAMEDIC

- ❑ A patient with beta blocker overdose may require higher than usual doses of vasopressor medications for ACLS treatment

SYMPTOMATIC BRADYCARDIA

- ❑ **Transcutaneous pacing (TCP)** at an initial rate of 80 beats per minute if the patient does not respond to medications

Consider Sedation for TCP:

AEMT

- ❑ Supportive care of airway, vascular access, and fluid therapy per ***IV/IO Access and Fluid Therapy Guideline***
- ❑ **Atropine:** For bradycardia with hypotension
 - **0.02 mg/kg IV**, repeat every 5 minutes as needed, to a max total dose of 1 mg
- ❑ **Epinephrine:** For bradycardia/hypotension unresponsive to atropine
 - **0.01 mg/kg** (0.1 mL/kg of 1:10,000) IV/IO
- ❑ **Refer to OLMC for additional doses**

PARAMEDIC

- ❑ A patient with beta blocker overdose may require higher than usual doses of vasopressor medications for PALS treatment

IF BRADYCARDIA IS SEVERE with SIGNS OF POOR PERFUSION

- ❑ **Transcutaneous pacing (TCP)** at an initial rate of 100 beats per minute if the patient does not respond to medications

Consider Sedation for TCP:

- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. Contact OLMC before changing to a different medication.
- ❑ **Midazolam (Versed)**
 - Dosage is cut in half if the patient has received narcotics or alcohol
 - Consider the size of the patient for dosing
 - **IV/IO - 2-4mg** every 5 minutes to the desired effect or max dose of 10mg
 - **Intranasal (IN)** - Give **0.4 mg/kg** to a maximum of 10mg as a one-time dose
- ❑ **Diazepam**
 - **IV/IO – 5-10mg** every 5 min to the desired effect or max dose of 30mg
- ❑ **Lorazepam**
 - **IV/IO – 1-2mg** every 5 min. to the desired effect or max dose of 4mg
- 🕒 **Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters**
- 🕒 **Contact OLMC for consideration of glucagon administration**
- 🕒 **Epinephrine (1:1000) 2–10 mcg/min IV/IO infusion for persistent bradycardia with hypotension unresponsive to atropine. Titrate to maintain a SBP >100 mmHg**

- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. Contact OLMC before changing to a different medication
- ❑ **Midazolam (Versed)**
 - Dosage is cut in half if the patient has received narcotics or alcohol
 - Consider the size of the patient for dosing
 - **IV/IO - 0.1 mg/kg to max dose of 4mg.**
Do NOT exceed adult dosing
 - **Intranasal (IN)** - Give **0.4 mg/kg** to a maximum of 10mg as a one-time dose
- ❑ **Diazepam**
 - **IV/IO - 0.1 mg/kg** to max dose of 10mg
Do NOT exceed adult dosing
- ❑ **Lorazepam**
 - **IV/IO – 0.1mg/kg** to 4mg.
Do NOT exceed adult dosing.
- 🕒 **Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters**
- 🕒 **Contact OLMC for consideration of glucagon administration**
- 🕒 **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO infusion for persistent bradycardia with hypotension unresponsive to atropine. Titrate to maintain a SBP >70 + (age in years x 2) mmHg**

CHILDREN WITH SPECIAL HEALTHCARE NEEDS

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Blood glucose, core body temperature and oxygen saturation assessment.
 - Look for an EMSC Red Pack with a health information vial or a Life with Dignity (POLST) Order for instructions on care.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Treat with consideration for the family per the **Family Centered Care Guideline**.
 - Do not become overwhelmed by equipment used by the patient. Focus on ABC's and ask parents and caregivers for guidance with equipment.
 - Common equipment issues for children with special healthcare needs:
 - Feeding Tube
 - Most common EMS complaints; tube has come out, is blocked, is leaking, or skin site has unusual drainage or bleeding.
 - If draining or bleeding, apply sterile dressing and use pressure.
 - If tube is malfunctioning or displaced, assess for dehydration and treat per **Shock and Fluid Therapy Guideline**. Do not try to replace or remove the tube.
 - Keep patient NPO and nothing per feeding tube.
 - If a percutaneous (through the skin) G-tube has come out, place an 8Fr suction catheter in the stoma 2-3 inches to prevent full site closure.
 - Tracheostomy and Ventilator/BiPAP
 - For tracheostomy care refer to the **Airway and Tracheostomy Management Guideline**
 - Assess ventilations
 - If the ventilator is working properly and patient needs transport for non-respiratory medical evaluation; keep on ventilator/BiPAP for transport.
 - If ventilator is not working or child is in respiratory distress for any reason; remove from ventilator and assist ventilations with BVM and 100% oxygen.
 - Oral, nasal, and tracheostomy suctioning to remove copious secretions as needed.
 - External Central IV Line (Broviac/PICC etc.)
 - Do NOT use the central line for administration of anything.
 - Most common EMS complaint; tube has come out, is broken, leaking, blocked or skin site has unusual drainage or bleeding.
 - This is a direct line to the central venous system, if the tube is leaking or broken, clamp line above the damaged point, cover the opening with a sterile gauze and transport.
 - If the tube has come out completely or the site is draining or bleeding, cover with a sterile gauze and apply pressure.
- ❑ **Key Considerations**
 - Family members are many times the best resource for patient care, particularly with equipment management.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

AEMT

PARAMEDIC

PARAMEDIC

DROWNING OR SUBMERSION

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, core body temperature and oxygen saturation assessment.
 - Assess the scene for other environmental issues or possible toxins.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Safely remove patient from the water
 - Place patient supine
 - Remove wet clothing and wrap in blankets
 - Ensure patient warmth
 - If concern for spinal injury: spinal motion restriction per **Selective Spinal Immobilization Guideline**.
 - Scuba divers “Dive Computer” or Dive Log Book should be transported with the patient.
- ❑ **Key Considerations**
 - Airway maintenance is the primary consideration.
 - Unlike the “CAB” strategy used in standard cardiac arrest, patients suffering cardiac arrest from drowning require an “ABC” approach with emphasis prompt airway management and supplemental ventilations.
 - There can be co-existing conditions depending on the type of submersion injury including trauma, hypothermia, and intoxication.
 - Hypotension is associated with a worse outcome, monitor closely and treat per the **Shock and Fluid Therapy Guideline**, as needed.
 - Initiation of in-water ventilations may increase survival; in-water chest compressions are futile.
 - Submersion in cold water will often cause severe hypothermia, notify receiving hospital so that appropriate resources can be mobilized.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ If breathing spontaneously apply oxygen at 15 LPM via non-rebreather mask to maintain oxygen saturations >95%
- ❑ Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway
- ❑ Initiate 5 rescue breaths followed by 30 chest compressions, then use a 30:2 compression:ventilation ratio

EMT

- ❑ If breathing spontaneously apply oxygen at 15 LPM via non-rebreather mask to maintain oxygen saturations >95%
- ❑ Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway
- ❑ Initiate 5 rescue breaths followed by 30 chest compressions, then use a 15:2 compression:ventilation ratio

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guideline**
 - Albuterol 2.5 every 10 minutes via nebulization for bronchospasm/wheezing until symptoms subside
 - Reassess patient after each dose to determine need for additional dosing

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guideline**
 - Albuterol 2.5 every 10 minutes via nebulization for bronchospasm/wheezing until symptoms subside. Start with 1.25 mg if age <1yr
 - Reassess patient after each dose to determine need for additional dosing

PARAMEDIC

- ❑ Consider CPAP in awake patients with respiratory distress

PARAMEDIC

- ❑ Consider CPAP in awake patients with respiratory distress

① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg

① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

FEVER MANAGEMENT

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Assess temperature.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - If temperature is >100.4°F (>38.0°C) and the patient does not have any contraindications, consider antipyretic medications.
 - Contraindications include abdominal pain, allergy to medications, vomiting, active bleeding or concern from parents.
 - Avoid acetaminophen in patients with liver problems.
 - Ibuprofen is contraindicated in children <6 months old.
 - Ibuprofen is contraindicated in the immune-compromised patient (on chemotherapy, with autoimmune disorders, etc.)
 - For temperatures greater than 103°F or 39.5°C
 - Begin passive cooling techniques including removing excess clothing.
 - For temperatures greater than 106°F or 41°C
 - Refer to the **Temperature and Environmental Emergencies Guideline**.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ **Acetaminophen 1000 mg** by mouth
- ❑ **Ibuprofen 800 mg** by mouth

EMT

- ❑ **Acetaminophen 15mg/kg** by mouth or rectum – Recognize that acetaminophen comes in various concentrations:
 - Children's Liquid: 160mg/5mL
 - Chewable Tablets: 80mg or 160mg
 - Junior Strength caplets: 160mg
 - Rectal Suppositories: 80mg, 120mg and 325mg and may be cut to an estimated dose
- ❑ **Ibuprofen 10mg/kg** by mouth – Ibuprofen comes in various concentrations and is **contraindicated in children under 6 months old**
 - Children's Liquid: 100mg/5mL
 - Chewable Tablets: 50mg or 100mg
 - Junior Strength Caplets: 100mg

AEMT

- ❑ **Advanced Airway, IV/IO Access, and Fluid Therapy Guidelines** as needed

AEMT

- ❑ **Advanced Airway, IV/IO Access, and Fluid Therapy Guidelines** as needed

PARAMEDIC

PARAMEDIC

GLUCOSE EMERGENCIES

HYPOGLYCEMIA / HYPERGLYCEMIA

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose assessment (heel stick is preferred in newborns or infants).
 - Hypoglycemia is defined as blood glucose level <50 mg/dl for adults, <60 mg/dl for children, and <40 mg/dl for the term neonate (<30days of age) with any degree of altered mentation.
- ❑ **Treatment Plan**
 - Insulin pump in place: Hypoglycemic patient with altered mentation -
 - Care is directed at treating hypoglycemia first, then stopping administration of insulin.
 - Turn off insulin pump, if able.
 - If no one familiar with the device is available to assist, disconnect pump from patient by either:
 - Using quick-release where the tubing enters the dressing on patient's skin.
 - OR-
 - Completely remove the dressing, thereby removing the subcutaneous needle and catheter from under patient's skin.
 - When mental status returns to normal, patient should be strongly encouraged to eat.
 - Criteria for scene release of hypoglycemic patient:
 - Patient does not want to be transported.
 - Return to apparent normal mental capacity following treatment.
 - Insulin only. The patient does not have access to oral medications for diabetes.
 - No suicidal ideations or recent suicide attempt.
 - There is at least one responsible party that can assist them in their recovery and is comfortable in their care.
 - OLMC has been contacted and agrees to the release.
 - Children should be transported for evaluation regardless of improvement in the field.
- ❑ **Key Considerations**
 - Do NOT attempt to give oral glucose to those who are unconscious, cannot swallow or whose gag reflex is diminished.
 - Transport any patient who is at risk for prolonged hypoglycemia such as long acting insulin or oral hypoglycemic overdose.
 - If the patient is hypoglycemic and has a seizure, recheck blood glucose every 15 minutes to check for recurrent low blood sugar that may need treatment.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ **Dextrose Oral glucose 15 grams** if patient is able to protect airway
 - Repeat in 15 minutes as needed

EMT

- ❑ **Dextrose Oral glucose 7.5 grams** if patient is able to protect airway
 - Repeat in 15 minutes as needed

AEMT

- ❑ Vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- HYPOGLYCEMIA**
- ❑ **Dextrose 50% 25 grams** IV/IO. May repeat as necessary
- ❑ **OR Dextrose 10%:** Infuse **125 ml**, then recheck blood sugar. If still low, may repeat
- ❑ **Glucagon 1 mg** IM if no IV/IO access

HYPERGLYCEMIA

- ❑ **Normal Saline 1000 mL** IV/IO over 30–60 minutes (BS >300 mg/dL)

AEMT

- Vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- HYPOGLYCEMIA**
- ❑ Infants up to 1 year
 - **Dextrose 10% 5 mL/kg** IV/IO: may repeat as necessary
- ❑ Children greater than 1 year
 - **Dextrose 25% 2 mL/kg** IV/IO: repeat as necessary (D25 = 25 mL D50 mixed with 25 mL

- Sterile Water)
- **OR Dextrose 10% 5 mL/kg IV/IO:** repeat as necessary
 - ☐ **Glucagon 0.1 mg/kg (max dose of 1 mg)** IM if no IV/IO access

HYPERGLYCEMIA

- ☐ **Normal Saline 20 mL/kg IV/IO** over 30–60 minutes for hyperglycemic patient (BS >300 mg/dL)

PARAMEDIC

PARAMEDIC

IMMUNOCOMPROMISED PATIENTS

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment.
 - Assess for reasons why they may have a weak immune system such as congenital syndromes, chemotherapy, transplant surgery, autoimmune disorder, or steroid usage.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Assess and treat airway compromised, respiratory distress, altered mental status, etc
 - Assess for overwhelming sepsis or shock and treat per the Shock and Fluid Therapy Guideline.
 - If febrile (temperature >100.4°F or 38.0°C) and has no signs of altered mental status, give acetaminophen orally.
- ❑ **Key Considerations**
 - Family members are often the best resource for patient care information.
 - Due to patient's inability to fight infection, patient may become very ill in a short period of time. These patients may present in overwhelming shock or sepsis, or respiratory distress.
 - Protect patients from infectious exposure during transport.
 - All EMS providers should use universal precautions (strict hand washing, gloves) and masks should be worn by ill providers.
 - These patients are at risk for low platelets and anemia, bleeding is a risk.
 - No rectal medications for treatment.
 - Avoid Ibuprofen with these patients.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ For Fever:
 - **Acetaminophen (Tylenol) 1000 mg** by mouth.

EMT

- ❑ For Fever:
 - **Acetaminophen (Tylenol) 15mg/kg** by mouth or rectum – Recognize that Acetaminophen comes in various concentrations:
 - Children's Liquid: 160mg/5mL
 - Chewable Tablets: 80mg or 160mg
 - Junior Strength caplets: 160mg

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*

PARAMEDIC

PARAMEDIC

OBSTETRICAL EMERGENCIES

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Do not perform pelvic exam
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring when available.
- ❑ Administer high flow oxygen to mother
- ❑ **Treatment Plan**
 - **Imminent Deliveries:** normal delivery procedures
 - Attempt to prevent explosive delivery.
 - As delivery occurs, do not suction nose and mouth. Wipe nose and mouth to clear excess secretions
 - Instruct the mother to stop pushing.
 - Keep newborn at level of vagina until cord is cut.
 - Place one clamp 2 inches away from baby, place second clamp 2 inches farther, cut cord between the clamps.
 - Keep newborn warm and dry with vigorous stimulation.
 - Allow infant to nurse.
 - In multiple births, do not allow babies to nurse until all have been delivered.
 - APGAR score at 1 minute and again at 5 minutes
 - **Special Situations – TRANSPORT TO THE CLOSEST HOSPITAL**
 - **Excessive hemorrhage** following delivery or delayed placenta delivery.
 - Unless multiple birth is anticipated, begin fundal massage.
 - Paramedics should begin Oxytocin (Pitocin) –see below.
 - **Nuchal cord:** cord is wrapped around the infant's neck
 - Attempt to slip cord over the head.
 - If cord is too tight to remove, immediately clamp in two places and cut between clamps.
 - **Prolapsed cord or limb presentation:** cord or limb out of the vagina before the baby – DO NOT ATTEMPT DELIVERY
 - Maintaining a pulsatile cord as the objective, insert two fingers of gloved hand into vagina to raise presenting portion of newborn off the cord.
 - If possible, place mother in Trendelenburg position. Otherwise, use knee-chest position.
 - Keep cord moistened with sterile saline.
 - Continue to keep pressure off cord throughout transport.
 - **Breech presentation** (coming buttocks first)
 - Position mother with her buttocks at edge of bed, legs flexed.
 - Support baby's body as it delivers.
 - As the head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum. Immediately suction mouth, then nose.
 - If head does not deliver, but newborn is attempting to breath, place gloved hand into the vagina, palm toward newborn's face, forming a "V" with the index and middle finger on either side of the nose. Push the vaginal wall from the face. Maintain position throughout transport.
 - **Shoulder Dystocia:** head is out but shoulder will not pass
 - Position mother with buttocks off the edge of the bed and thighs flexed upward as much as possible.
 - Apply firm, open hand pressure above the symphysis pubis.
 - If delivery does not occur, maintain airway patency as best as possible, immediately transport.
 - **Stillborn/Abortion**
 - All products of conception should be carefully collected and transported with the mother to the hospital. Anything other than transport should be coordinated with on-line medical consultation and/or law enforcement.
- ❑ **Key Considerations**
 - Attempt to attain a sanitary environment

- Transport in left lateral decubitus position

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ Treat seizures as per *Seizure Guideline*

AEMT

- ❑ Vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ Treat seizures as per *Seizure Guideline*

PARAMEDIC

- ❑ **Oxytocin (Pitocin)** Intramuscular.
 - Give **10 units IM**.
- ① **IV/IO Infusion may be started if bleeding continues by adding 40 units to 1000mL NS and titrating the infusion to decrease bleeding and patient comfort.**
- ① In the event of uterine inversion, make one attempt to put the uterus back into place. Using the palm of the hand, push the fundus of the inverted uterus toward the vagina. If unsuccessful, cover uterus with moistened sterile gauze.

PARAMEDIC

- ❑ Refer to the *Newborn Resuscitation Guideline*

OPTIONAL ORDERS BY OLMC ONLY

- ① **High-risk preterm labor when delivery is imminent:** (1) Rapidly infuse 1 liter of NS, (2) Albuterol 2.5 mg via nebulization, (3) Magnesium Sulfate 1gram IV and titrate per OLMC.

OVERDOSE

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess blood glucose, temperature, and oxygen saturation.
 - Assess the time and circumstances of the ingestion.
 - Assess scene for additional information on toxins, poisons, medications or other possible concerns.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Consider a 12 lead EKG.
 - Patients who have attempted suicide by overdose CANNOT be released and MAY be taken in against their will. Police may need to assist in ensuring the transport.
- ❑ **Key Considerations**
 - Transport any pill bottles, open containers, or potential chemicals that may have been ingested.
 - Transport suicide notes or other pre-ingestion communications.
 - In cases of pure heroin overdose, patients should be offered ED transport, but they may refuse and be left at scene after naloxone administration.
 - All oral opioid overdoses must be transported, as re-sedation will occur after naloxone administration.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ **Naloxone 0.4–2 mg** (per dose) IN (intranasal) / IM (intramuscular) for suspected narcotic overdose. May repeat as necessary to maintain respirations

EMT

- ❑ **Naloxone 0.1 mg/kg (per dose)** IN (intranasal) / IM (intramuscular) for suspected narcotic overdose. May repeat as needed to maintain respirations

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ **Naloxone 0.4–2 mg** (per dose) IV/IM/IO/IN (intranasal) for suspected narcotic overdose. May repeat as needed to maintain respirations

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guideline*
- ❑ **Naloxone 0.1 mg/kg (max 2mg per dose)** IV/IM/IO/IN (intranasal) for suspected narcotic overdose. May repeat as needed to maintain respirations

PARAMEDIC

- ① **Sodium bicarbonate 1 mEq/kg** slow IV/IO push for tricyclic antidepressant overdose with sustained HR >120 bpm, QRS >0.10, hypotension unresponsive to fluids, or ventricular dysrhythmias
- ① Epinephrine (1:1000) 2–10 mcg/min IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg

PARAMEDIC

- ① Sodium bicarbonate for tricyclic antidepressant overdose: Contact OLMC
- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

RESPIRATORY DISTRESS

ALL PROVIDERS

- ❑ Focused history and physical exam:
 - Determine the need to treat under the **Allergic Reaction/Anaphylaxis Guideline**
 - Determine the need to treat under the **Congestive Heart Failure Guideline**
 - Assess blood glucose, temperature and oxygen saturation
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available
- ❑ Consider a 12 lead EKG
- ❑ **Treatment Plan**
 - Remove any obvious obstructions to the airway
 - For choking infants apply a sequence of 5 back blows and 5 chest thrusts until the item is dislodged
 - For choking adults and children, use the abdominal thrust (“Heimlich) maneuver.
 - Maintain airway, administer 10-15 lpm of oxygen via NRB
- ❑ **Key Considerations**
 - Recall that infants and small children are primarily nose breathers, consider oral and nasal suctioning for copious secretions
 - Keep patient NPO for any respiratory distress and if children have a RR >60

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ Assist with administration of prescribed metered dose inhaler or nebulizer medication per dosing instructions. If MDI dosing instructions are not available, give second dose at 20 minutes if needed

EMT

- ❑ Assist with administration of prescribed metered dose inhaler or nebulizer medication per dosing instructions. If MDI dosing instructions are not available, give second dose at 20 minutes if needed
- ❑ Allow the patient to achieve and remain in a position of comfort (the parents arms if desired) and keep them as calm as possible.

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ❑ For **ANAPHYLAXIS**:
 - See **Anaphylaxis/Allergic Reaction Guideline**
- ❑ For **WHEEZING**:
 - **Albuterol 2.5 mg/3cc NS** nebulized
 - Repeat nebs as needed
 - Patient respiratory status must be reassessed after each dose to determine need for additional treatment
- ❑ For **STRIDOR**:
 - **Epinephrine (1:1000) 2 ml (2mg)** mixed with 3mL of normal saline nebulized

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ❑ For **ANAPHYLAXIS**:
 - See **Anaphylaxis/Allergic Reaction Guideline**
- ❑ For **WHEEZING**:
 - **Albuterol 2.5 mg/3 cc NS** nebulized
 - For infants < 1yr: **albuterol 2.5 mg/3cc NS** nebulized if wheezing persists after nasal suctioning
- ❑ For **STRIDOR** (croup):
 - **Epinephrine (1:1000) 2mL (2mg)** added to 3mL of Normal Saline via nebulizer
- ⌚ Patient respiratory status must be reassessed after each dose to determine need for additional treatment. Call OLMC for additional doses.

PARAMEDIC

PARAMEDIC

- ❑ **Magnesium sulfate 2gm** IV over 15-30 minutes for severe wheezing unresponsive to albuterol
- ❑ **CPAP/BiPAP** – Consider when the patient is awake but needs assistance with oxygenation and ventilation such as in a CHF/Pulmonary Edema patient or COPD patient.
 - Explain the procedure to the patient
 - Initially apply the mask and begin the CPAP or BiPAP according to training instructions.
 - CPAP - Provide 10 L/min oxygen and PAP of 5 cm H₂O to begin.
 - BiPAP – Provide 10 L/min oxygen and IPAP at 15 cm H₂O with EPAP at about 5 cm H₂O
- ① Contact OLMC to discuss further settings and treatment above the initial setup
- ① **Lidocaine 2% 40-60 mg** (2–3 mL) added to Albuterol for adult patients with “cough variant asthma” with severe coughing inhibits respiratory function (with or without audible wheezes)
- ❑ **Magnesium sulfate 40 mg/kg** IV over 15-30 minutes for severe wheezing unresponsive to albuterol
- ❑ **BIPAP/CPAP** – ONLY use when the patient is on the machine at home. Maintain home settings and bring machine with the patient. If unable to adequately ventilate return to BVM or advance to intubation

SEIZURES

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment
 - Determine possibility of third trimester pregnancy, if appropriate
 - Assess scene for possible toxin, overdose or trauma
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan**
 - Do not restrain, but do provide protection from injury during the tonic-clonic phase
 - Spinal motion restriction per **Selective Spinal Immobilization Guideline**
 - Ensure patients experiencing febrile seizures are not excessively dressed or bundled
 - Any child <12 months old with seizure activity should be encouraged to be transported
- ❑ **Key Considerations:**
 - Intranasal (IN) and intramuscular (IM) routes are preferred for first line administration of benzodiazepines
 - Intravenous (IV) administration of benzodiazepines is appropriate once an IV is in place
 - Rectal administration is not recommended

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ Maintain open airway with patient in the recovery position
- ❑ Assist patient's family or caretaker with any home medication treatments

EMT

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- ❑ Assist patient's family or caretaker with any home medication treatments

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ❑ **Benzodiazepines:**
Dosage is cut in half if the patient has received narcotics or alcohol
- **Midazolam**
 - **IN/IM/IV/IO – 5 mg**, may repeat once in 5 minutes, if needed. Total max dose: 10mg
- **Diazepam**
 - **IV/IO – 5 mg**, may repeat every 5 minutes, if needed. Total max dose: 20mg
 - **Intramuscular (IM) – 10 mg**, may repeat once in 10 minutes, if needed. Total max dose: 20 mg (IM not preferred unless no other options)

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ❑ **Benzodiazepines:**
Dosage is cut in half if the patient has received narcotics or alcohol
- **Midazolam**
 - **Intranasal (IN): 0.3 mg/kg** (max 5 mg), may repeat once in 5 minutes, if needed. Total max dose: 10 mg
 - **Intramuscular (IM): 0.15 mg/kg** (max 5 mg): may repeat once in 10 minutes, if needed. Total max dose: 10 mg
 - **IV/IO - 0.1 mg/kg** (max 5 mg), may repeat once in 5 minutes, if needed. Total max dose: 10 mg
- **Diazepam**
 - **IV/IO - 0.1 mg/kg** (max 5 mg), may repeat every 5 minutes, if needed. Total max dose: 10 mg
 - **Intramuscular (IM): 0.2 mg/kg** (max 10 mg), may repeat every 10 minutes, if needed. Total max dose: 20 mg (IM not preferred unless no other options)

- **Lorazepam**
 - **IV/IO/IM – 1-2mg, may repeat** every 5 minutes, if needed. Total max dose: 4mg

□ Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters

PARAMEDIC

- Pregnant females with eclampsia/seizures
 - **Magnesium sulfate - 4 gm IM** or 4 IV/IO gm over 15 to 30 min

- **Lorazepam**
 - **IV/IO/IM – 0.1mg/kg** (max 2 mg), may repeat every 5 minutes, if needed. Total max dose: 4 mg.

□ Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters

PARAMEDIC

- **Magnesium Sulfate –** For pediatric patients who are pregnant and having a seizure contact OLMC

SUSPECTED STROKE

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment
 - Keep NPO
- ❑ Cardiac monitor, blood pressure, ETCO₂, and pulse oximetry, when available.
- ❑ 12 Lead EKG if available
- ❑ **Treatment Plan**
 - Rapidly transport
 - Transport to a Stroke Receiving Facility if they will arrive at the facility in less than 120 minutes from the confirmed onset of the stroke like symptoms.
 - Transport to a Primary Stroke Center if they would arrive at a stroke-receiving center later than 120 minutes from the confirmed onset of the stroke like symptoms
 - If you do not have a Stroke Receiving Facility or Primary Stroke Center, transport to local hospital or consider air medical transport
 - If you are unable to confirm the onset time of the stroke-like symptoms, or they started more than 12 hours prior to transport, then transport to the closest appropriate facility or to the facility of the patient's choice
 - Alert the appropriate emergency department that you are transporting a suspected stroke patient as soon as you have made a destination decision
- ❑ **Pediatric Considerations**
 - Children can have strokes as well as adults. Some risk factors include; sickle cell disease, congenital or acquired heart disease. Children with head and neck infections, systemic conditions, such as inflammatory bowel disease and autoimmune disorders. Also at risk are children with head trauma or dehydration.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ Evaluate and Document Cincinnati Stroke Scale criterion during assessment (if any of these 3 findings is abnormal, the probably of stroke is 72%)
 - **Facial Droop**
 - Normal: Both sides of face move equally
 - Abnormal: One side of face does not move at all
 - **Arm Drift**
 - Normal: Both arms move equally or not at all
 - Abnormal: One arm drifts compared to the other
 - **Speech**
 - Normal: Patient uses correct words with no slurring
 - Abnormal: Slurred or inappropriate words or mute

EMT

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AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guidelines*

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guidelines*

PARAMEDIC

PARAMEDIC

TEMPERATURE AND ENVIRONMENTAL EMERGENCIES

ALL PROVIDERS / EMT

- ❑ Scene and patient management
 - Remove patient from hot or cold environment, when possible
 - Focused history and physical exam
 - Body temperature and blood glucose assessment.
 - Assess level of consciousness; apply the **Altered Mental Status Guideline** if applicable.
 - Assess for underlying causes; medications, toxins, CNS lesions or other medical conditions.
- ❑ Cardiac monitor, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - **Heat Related**
 - Temperature elevation **WITHOUT** altered mental status (Heat Exhaustion)
 - Slow cooling with ice packs, wet towels, and/or fans to areas in the vicinity of carotid, femoral, brachial arteries.
 - If patient is alert and not nauseated, oral rehydration with water or balanced electrolyte solution.
 - Severe muscle cramps may be relieved by gentle stretching of the muscles.
 - Temperature elevation **WITH** altered mental status (Heat Stroke)
 - Aggressive cooling to unclothed patient utilizing fine mist water spray and fans in conjunction with ice packs to groin and axilla while maintaining modesty. NOT Recommended for children and infants.
 - Aggressive cooling should be stopped if shivering begins.
 - Monitor closely for dysrhythmia, recognize and treat with the appropriate **Cardiac Patient Care Guideline**
 - Cool IV fluids should be administered (AEMT and PM only)
 - Benzodiazepines may be used for shivering (AEMT and PM only)
 - **Cold Related**
 - Protect patient from further heat loss (application of blankets, removal of wet clothing, warm environment, etc.).
 - Suspicion of cardiac arrest in cold environment, assess for 30-45 seconds to confirm pulselessness.
 - Confirm body temperature and treat accordingly
 - **Severe: <86°F (30°C)**
 - Use active external rewarming (heated oxygen, warm packs to neck, armpits, groin, etc.)
 - Administer warm IV fluids, if available
 - Cardiac arrest: Chest compressions and ventilations. Limit defibrillation attempts to 3 and no external pacing. Likelihood of successful defibrillation improves as patient is warmed.
 - Handle the patient gently during transport because rough movement may precipitate arrhythmias.
 - **Moderate: 86-93°F (30-34°C)**
 - Use warm packs to neck, armpits, and groin
 - **Mild: >93°F (34°C)**
 - Warm with blankets, warm environment, etc.
 - Frostbite precautions – Do not rub or use dry external heat. Re-warm with 40°C water if possible.
- ❑ **Key Considerations**
 - Avoid refreezing of cold extremities. If refreezing cannot definitely be avoided during transport, do not start the thawing process.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

AEMT

- Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*

Heat Emergencies

- Cool fluid therapy: 500 – 1000 cc NS bolus
- Benzodiazepines for shivering:
 - Midazolam 2 mg IV, may repeat once, if needed
 - Diazepam 10 mg IV, may repeat once, if needed
 - Lorazepam 2 mg IV, may repeat once, if needed

Cold Emergencies

- Warm fluid therapy: 500 – 1000 cc NS bolus

PARAMEDIC

- **Cold emergencies**

- Withhold anti-arrhythmic meds until temperature >86°F (30°C)

- Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*

Heat Emergencies

- Cool fluid therapy: 20 ml/kg IV bolus
- Benzodiazepines for shivering:
 - Midazolam 0.3 mg/kg IN/IV/IM (max 2 mg), may repeat once, if needed
 - Diazepam 0.1 mg/kg IV/IM (max 10 mg), may repeat once, if needed
 - Lorazepam 0.1 mg/kg IV/IM (max 2 mg), may repeat once, if needed

Cold Emergencies

- Warm fluid therapy: 20 cc/kg NS bolus

PARAMEDIC

- **Cold emergencies**

- Withhold anti-arrhythmic meds until temperature >86°F (30°C)

TOXIC EXPOSURE - CARBON MONOXIDE

ALL PROVIDERS / EMT

- ❑ Scene and patient management
 - Safely and rapidly remove patient from source of exposure.
 - Collect environmental CO levels if equipment is available.
- ❑ Focused history and physical exam
 - Estimation of exposure time.
 - Pulse oximetry readings are unreliable in carbon monoxide exposures
- ❑ Cardiac monitor and ETCO₂, when available
- ❑ **Treatment Plan**
 - Administer 100% high-flow oxygen via non-rebreather mask.
 - Any exposure to carbon monoxide related to a closed space fire (such as a house fire) often also results in cyanide exposure and should be treated with hydroxycobalamin.
- ❑ Key Considerations
 - Patients with symptoms of headache, nausea, tachycardia, neurologic changes, or a CO monitor reading >10% should be transported.
 - Pregnant patients: the fetus is very sensitive to even low levels of CO. All pregnant patients exposed to CO should be transported, regardless of the symptoms or the CO level.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Advanced airway management, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*
- ❑ **Closed Space Fires: Consider hydroxocobalamin (CYANOKIT®) 5 g** (contained in a single vial), administered by IV/IO infusion over 15 minutes (approximately 15 mL/min)

PARAMEDIC

- ❑ **Epinephrine (1:1000) 2–10 mcg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.

AEMT

- ❑ Advanced airway management, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*
- ❶ **Closed Space Fires: hydroxocobalamin (CYANOKIT®) 70mg/kg** over 15 minutes IV/IO (approximately 15ml/min) not to exceed a max dose of 5 grams under direction of OLMC or Poison Control

PARAMEDIC

- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.

TOXIC EXPOSURE - CYANIDE

ALL PROVIDERS / EMT

- ❑ Scene Management
 - If properly trained and equipped, safely and rapidly remove patient from the source of exposure.
 - Request HazMat response as appropriate.
 - Industries in which to consider cyanide exposure:
 - Electroplating and Metallurgy
 - Organic chemicals production
 - Photographic developing
 - Manufacture of plastics
 - Fumigation of ships
 - Some mining processes especially gold/copper
 - Patients and EMS providers may be exposed to cyanide in the following ways;
 - Breathing air, drinking water, touching soil, or eating foods that contain cyanide.
 - Breathing smoke during closed-space fires.
 - Breathing air near a hazardous waste site containing cyanide.
 - Eating foods naturally containing cyanide compounds, such as tapioca, lima beans, apricot seeds and almonds. However, the portions eaten in the United States contain relatively low amounts of cyanide.
- ❑ Focused history and physical exam
 - Be alert for exposure related signs and symptoms;
 - Acute dyspnea/tachypnea without cyanosis
 - Nausea/vomiting
 - Seizures
 - Hyper or hypotension
 - Total body erythema (redness)
 - Cardiac monitor, CO₂, and Pulse Oximetry monitoring when available
- ❑ Treatment Plan
 - Administer high flow oxygen immediately and continuously
 - Pulse oximetry readings may not be accurate because of cyanide interaction
 - Cardiac monitor and ETCO₂, when available

ADULT

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ❑ **Hydroxocobalamin (CYANOKIT®) for adults is 5 g** (contained in a single vial), administered by IV/IO infusion over 15 minutes (approximately 15 mL/min)

PARAMEDIC

- ① **Epinephrine (1:1000) 2–10 mcg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**
- ① **Hydroxocobalamin (CYANOKIT®)** can be used in children. Administer **70mg/kg** over 15 minutes IV/IO (approximately 15ml/min) not to exceed a max dose of 5 grams **under direction of OLMC or Poison Control**

PARAMEDIC

- ① Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.

TOXIC EXPOSURE - HYDROFLUORIC ACID

ALL PROVIDERS / EMT

- ❑ Scene Management
 - Industrial Exposures in which to consider hydrofluoric acid
 - Aluminum processing
 - Chemical plants
 - Construction – waste products
 - Creation of chlorofluorohydrocarbons for refrigerants, aerosols, foams, plastics, and specialty solvents
 - Dry Cleaning Spotting Solutions
 - Electroplating
 - Foundry cast sand removal
 - Glass etching or cleaning
 - Meat packing industry
 - Petroleum refineries for high octane gasoline
 - Semiconductor silicon etching or cleaning
 - Stainless steel “pickling”
 - Stone etching or polishing
 - Uranium processing
- ❑ Focused history and physical exam
- ❑ Cardiac monitor, CO2, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan**
 - **Skin Exposure**
 - Immediate irrigation. Clothing, jewelry etc., is removed as irrigation is taking place.
 - Soak burned skin in magnesium hydroxide antacid preparations (milk of magnesia, Mylanta, Maalox).
 - **Eye Exposure**
 - Continuous rinsing for a minimum of 15 minutes or until a calcium ocular solution is available.
 - **Oral ingestion** – conscious/alert patient only – OT recommended for the pediatric patient.
 - If patient is able to swallow, administer any calcium or magnesium based antacid (milk of magnesia, Mylanta, Maalox). In the absence of these products, have patient drink approximately 8-16 oz. of water. Consult OLMC for questions.

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*

PARAMEDIC

- ❑ **Calcium Gluconate Gel** for application – Mix 25mL of 10% Calcium Gluconate in 75mL of a sterile water-soluble lubricant. Apply topically or if hand exposure possibly in a glove

PARAMEDIC

- ① **Contact OLMC or Poison Control for instructions**

TOXIC EXPOSURE - ORGANOPHOSPHATES / NERVE AGENTS

ALL PROVIDERS

Cx

- ❑ Scene management
 - If properly trained and equipped, safely and rapidly remove patient from the source of exposure.
 - Request HazMat response as appropriate
 - Be aware of exposure Level
 - Mild – miosis (constricted pupils) only or no symptoms
 - Moderate – Other “S.L.U.D.G.E.M.” symptoms
 - Severe – Unconscious, in respiratory distress, seizing, flaccid or apneic
- ❑ Focused history and physical exam.
 - Assess for “S.L.U.D.G.E.M.” presentation (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal cramping, Emesis and Miosis).
- ❑ Cardiac monitor, CO2, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan**
 - Irrigate immediately
 - Remove clothing, jewelry etc. as irrigation is taking place
- ❑ **Key Considerations**
 - Always protect yourself from exposure before entering a treatment zone.
 - Nerve agents, organophosphates and carbamates are the general categories of these toxic substances.
 - These agents may be used in fertilizers or as pesticides, herbicides, fungicides, fire retardants, or biowarfare agents.

ADULT

PEDIATRIC (<15 years of Age)

NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

EMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ❑ **Atropine/Pralidoxime kits** (Mark I, Duodote, etc.)
 - Mild Exposure with no symptoms may require no treatment
 - Moderate Exposure with evidence of SLUDGEM give 1-2 Kits
 - Severe Exposure with respiratory distress and SLUDGEM give 3 Kits

- ❑ Advanced airway, vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ① **Contact OLMC or Poison Control for instructions**

AEMT

AEMT

PARAMEDIC

PARAMEDIC

- ❑ **Atropine sulfate 2 mg** rapid IV (preferred) or IM repeated every 15 minutes until you have:
 - Control of bronchorrhea (excessive watery sputum)
 - Control of bronchoconstriction, (as reflected by level of oxygenation and ease of ventilation)
 - Reversed dangerous bradyarrhythmias or AV-blocks

- ① **Contact OLMC or Poison Control for instructions**

VIOLENT PATIENT / CHEMICAL SEDATION / TASER BARB REMOVAL

ALL PROVIDERS

- ❑ **Scene management**
 - Contact Law Enforcement if the patient is determined to be a threat to EMS providers, themselves, or others or if assistance with patient control is otherwise needed.
 - Remove patient from the stressful environment and remove any possible weapons from scene.
 - Before touching any patient that has been Taser'd, ensure law enforcement has disconnected the wires from the hand-held unit.
- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment.
 - Always assess for a possible medical condition, exposure or trauma including possible abuse.
 - Note medications/substances on scene that may contribute to the agitation, or may be for treatment of a relevant medical condition
- ❑ Cardiac monitor, ETCO2, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan**
 - **Taser'd patient:** Removal of Taser probes
 - EMS providers may remove probes that are not embedded in the face, neck, groin, breast, or spinal area.
 - To remove probes:
 - Place one hand on the patient in the area where the probe is embedded and stabilize the skin surrounding the puncture site. Place other hand firmly around the probe.
 - In one fluid motion, pull the probe straight out from the puncture site and repeat procedure with second probe.
 - The following patients should be transported to an Emergency Department for evaluation:
 - Patient with probes embedded in the face, neck, groin, breast, or spinal area
 - Patient with significant cardiac history
 - Patient having ingested stimulants (including methamphetamines, phencyclidine/PCP, cocaine, spice, bath salts, designer drugs, etc).
 - Patients exhibiting bizarre behavior or those with abnormal vital signs
- ❑ **Key Considerations**
 - Chemical sedation should be considered for patients that cannot be calmed by non-pharmacologic methods and who are a danger to EMS providers, themselves, or others.
 - Selection of chemical restraint medications should be based upon the patient's clinical condition, current medications, and allergies. Consult OLMC when necessary to assist in the selection of medications in difficult cases.
 - Generally speaking, it is preferable to choose ONE drug for management of agitation and maximize dosing of that medication prior to adding another medication.
 - Consider a reduction in the initial dosage of chemical restraint medications if the patient has taken narcotics or alcohol (e.g. begin with 50% of the recommended initial dose to assess response).

The order in which medications below are listed is not intended to indicate hierarchy, order, or preference of administration

ADULT

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

EMT

- ❑ Attempt to calm or gently restrain the patient with verbal reassurance. Engage the assistance of any family or significant others in the process.

AEMT

EMT

- ❑ Attempt to calm or gently restrain the patient with verbal reassurance. Engage the assistance of any family or significant other's in the process.

AEMT

- ❑ Vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**

Midazolam

- **IV/IO – 5 mg**, may repeat once in 10 minutes, if needed. Total max dose: 10mg
- **Intranasal (IN) – 5 mg**, may repeat once in 10 minutes to a max dose of 10mg
- **Intramuscular (IM) – 10 mg** once

Diazepam

- **IV/IO – 5 mg** every 10 min to the desired effect or max dosage of 20 mg
- **Intramuscular (IM) – 10 mg** once (IM not preferred, unless no other options)

Lorazepam

- **IV/IO – 2 mg** every 5 min. to the desired effect or max dose of 4 mg
- **Intramuscular (IM) – 4 mg** once

- ① Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.

PARAMEDIC

Ketamine

- **Intramuscular (IM) – 4 mg/kg** once (max 300 mg)
- **IV/IO – 1 mg/kg** every 10 min to the desired effect (max dose 200 mg)

Haloperidol

- **Intramuscular (IM) - 5-10mg** once
- **IV/IO – 2-5 mg** every 10 min to the desired effect (max dose 10 mg)

- ① Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.

- ❑ Vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guidelines**

Midazolam

- **IV/IO - 0.1 mg/kg** (max 5 mg), may repeat once in 10 minutes, if needed. Total max dose: 10 mg
- **Intranasal (IN) - 0.3 mg/kg (max 5 mg)**, may repeat once in 10 minutes, if needed. Total max dose: 10 mg
- **Intramuscular (IM) – 0.15 mg/kg** (max 5 mg) once

Diazepam

- **IV/IO - 0.1 mg/kg** (max 5 mg), may repeat once in 10 minutes, if needed. Total max dose: 10 mg
- **Intramuscular (IM) – 0.2 mg/kg** (max 10 mg) once (IM not preferred unless no other options)

Lorazepam

- **IV/IO – 0.05 mg/kg** (max 2 mg), may repeat once in 10 minutes, if needed. Total max dose: 4 mg
- **Intramuscular (IM) – 0.05 mg/kg** (max 4 mg) once

- ① Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.

PARAMEDIC

- ① Contact OLMC for consultation prior to giving ketamine or haloperidol to children

Ketamine

- **Intramuscular (IM) – 3 mg/kg** once (max 300 mg)
- **IV/IO – 1 mg/kg** once (max dose 200 mg)

Haloperidol

- <6 years old – NOT recommended
- 6-12 years old: **0.15 mg/kg IM (max 3 mg)** once
- 12 years and older: **5-10mg IM** once