

Utah EMS Protocol Guidelines: Medical



Version 1 / November 1, 2013

Medical Patient Care Guidelines

These guidelines were created to provide direction for each level of certified provider in caring for medical patients. The Online Medical Consulting/Consultation (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 or the agency Medical Director for review.

General Approach to Medical Patient Care Guidelines

- Assess your patient prior to initiating a guideline.
- Pediatric reference tape-based dosing is preferred over calculated dosages for infants and children.
- More than one guideline may apply.
- When 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 clinical guidelines.
- OLMC with a physician may change your treatment plan.
- Any variations to a guideline by the OLMC or physician should be clarified to insure 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 authorize any dosages of medications exceeding those in the guidelines.

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Key to Symbols used in Guidelines

- 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

- ❑ Focused history and physical exam.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ **Treatment Plan**
 - Safely and rapidly eliminate the source of exposure, as able.
 - Maintain airway.
 - Apply cold pack to bite or sting site.
 - Monitor closely for hypotension.
- ❑ **Key Considerations**
 - If the patient has any respiratory distress and is conscious, allow them to achieve a position of comfort, including leaving a child in their parent's lap.
 - Establish IV access as soon as possible.
 - Epinephrine has a relatively short effect for allergic reactions. These patients should be transported to a medical facility for observation.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

EMT

- ❑ Give or assist patient with **Epipen (0.3 mg)** IM for allergic symptoms
 - ❑ Assist patient with own Albuterol inhaler according to the prescription on the inhaler
 - ❑ Assist patient with own Diphenhydramine according to the instructions on the container.
 - ❑ O₂ as needed to maintain SaO₂ above 90%.
- ❑ Give or assist patient with **Epipen Jr. (0.15 mg)** IM for allergic symptoms. If >25kg then give Adult dose
 - ❑ Assist patient with own Albuterol inhaler according to the prescription on the inhaler
 - ❑ Assist patient with own Diphenhydramine according to the instructions on the container.
 - ❑ O₂ as needed to maintain SaO₂ above 90%.

AEMT

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
 - ❑ **Epinephrine (1:1000) 0.3-0.5 mg** IM for patient with more than mild symptoms
 - If symptoms persist, may repeat every 10 minutes to max total of 1.2 mg
 - ❑ **Diphenhydramine (Benadryl) 25-50 mg** IV/IO/IM for moderate to severe allergic reaction
- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
 - ❑ **Epinephrine (1:1000) 0.01 mg/kg to max 0.3mg** per dose IM for patient with more than mild symptoms
 - If symptoms persist, may repeat every 5-10 minutes to max total of 1.2 mg
 - ❑ **Diphenhydramine (Benadryl) 1 mg/kg to max of 50mg/single dose** IV/IO/IM for moderate to severe allergic reaction

- ❑ If WHEEZING is present:
 - **Albuterol 2.5 mg every 10 minutes** via nebulization until symptoms subside
- ❑ If STRIDOR is present:
 - **Epinephrine (1:1000) 2mL** mixed with 3mL of NS via nebulize

PARAMEDIC

- ❑ **Epinephrine (1:10,000) 1mg IV/IO** for symptomatic hypotension
May repeat every 5 min if shock persists
- ❑ **Epinephrine (1:1000) 2–10 mcg/min IV/IO** symptomatic hypotension. Titrate to symptomatic improvement.

And/or
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

- ❑ If WHEEZING is present:
 - **Albuterol 2.5 mg every 10 minutes** via nebulization until symptoms subside. Start with **1.25 mg if patient is <1 yr in age.**
- ❑ If STRIDOR is present:
 - **Epinephrine (1:1000) 2mL** mixed with 3mL of NS via nebulizer

PARAMEDIC

- ❑ **Epinephrine (1:10,000) 0.01 mg/kg or 0.1ml/kg IV/IO** for symptomatic hypotension.
May repeat every 5 min if shock persists
- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** symptomatic hypotension. Titrate to symptomatic improvement.

And/or
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

DROWNING OR SUBMERSION

ALL PROVIDERS

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Begin CPR if patient pulseless and apneic
- ❑ 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 nasopharyngeal or oropharyngeal airway.

EMT

- ❑ Begin CPR if patient pulseless and apneic
- ❑ 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 nasopharyngeal or oropharyngeal airway.

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

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**

PARAMEDIC

- ❑ **Epinephrine (1:1000) 2–10 mcg/min** IV/IO symptomatic hypotension. Titrate to symptomatic improvement.

And/or

- ❑ **Dopamine 2-20 mcg/kg/min** IV/IO infusion for symptomatic hypotension. Titrate to symptomatic improvement.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min** IV/IO symptomatic hypotension. Titrate to symptomatic improvement.

And/or

- ❑ **Dopamine 2-20 mcg/kg/min** IV/IO infusion for symptomatic hypotension. Titrate to symptomatic improvement.

FEVER MANAGEMENT

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Assess temperature.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - If temperature is >100.4°F or >38.0°C consider antipyretic medications.
 - 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 (Tylenol) 650mg - 1000 mg** by mouth
- ❑ **Ibuprofen (Motrin) 400 mg - 800 mg** by mouth

EMT

- ❑ **Acetaminophen (Tylenol) 10 - 15mg/kg by mouth or rectum**
 - No rectal medications or temperatures in immunocompromised patients
- ❑ **Ibuprofen (Motrin) 10mg/kg by mouth** – Ibuprofen comes in various concentrations and is **contraindicated in children under 6 months old**

AEMT

AEMT

PARAMEDIC

PARAMEDIC

GLUCOSE EMERGENCIES HYPOGLYCEMIA

ALL PROVIDERS

❑ Treatment Plan

- Hypoglycemic patient with altered mentation **and** insulin pump in place
 - 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:
 - Return to normal mental status following treatment.
 - Patient is able to take oral glucose, food and liquids
 - Patient does not want to be transported.
 - No oral diabetic medications have been taken.
 - No suicidal ideations or attempt at self-harm involved.
 - There is at least one responsible person that can assist the patient and is comfortable with monitoring the patient.

❑ Key Considerations

- Do NOT attempt to give oral glucose to those who cannot swallow and protect their airway
- Transport any patient who is at risk for prolonged or recurrent hypoglycemia, such as long-acting insulin or oral hypoglycemic overdose.
- For severe hypoglycemia (<40 mg/dl) or hypoglycemic 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 swallow and protect airway
 - Repeat in 15 minutes as needed

EMT

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

AEMT

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

AEMT

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

HYPOGLYCEMIA

- ❑ **Dextrose 50% 25 grams** IV/IO titrate to effect for hypoglycemia. May repeat as necessary
- ❑ **Glucagon 1 mg** IM if no IV/IO access

HYPOGLYCEMIA

- ❑ If blood glucose is less than 60 mg/dl
 - Give **D10W 2 ml/kg (200mg/kg)** for neonates <30days
 - Infants up to 1 year **Dextrose 10% (D10NS) 5 mL/kg** IV/IO - D10 = 10 mL D50 in 40 mL of **NS**
 - Children greater than 1 year **Dextrose 25% (D25W) 2 mL/kg** IV/IO
 - **Glucagon 0.1 mg/kg (max dose of 1 mg)** IM if no IV/IO access

HYPERGLYCEMIA

- ❑ **Normal Saline 1000 mL** IV/IO during transport (BS >300 mg/dL)

HYPERGLYCEMIA

- ❑ **Normal Saline 20 mL/kg** IV/IO during transport for hyperglycemic patient (BS >300 mg/dL)

PARAMEDIC

PARAMEDIC

GLUCOSE EMERGENCIES HYPERGLYCEMIA

ALL PROVIDERS

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

EMT

AEMT

AEMT

- Vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*

- Vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*

HYPERGLYCEMIA

- Normal Saline 1000 mL** IV/IO during transport (BS >300 mg/dL)

HYPERGLYCEMIA

- Normal Saline 20 mL/kg** IV/IO during transport for hyperglycemic patient (BS >300 mg/dL)

PARAMEDIC

PARAMEDIC

OBSTETRICAL EMERGENCIES

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Visualize for imminent delivery or crowning, if necessary.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Imminent Deliveries, normal delivery procedures
 - Attempt to prevent explosive delivery.
 - As delivery occurs, suction newborn's mouth, then nose.
 - If membrane is still intact as head delivers.
 - Instruct the mother to stop pushing.
 - Gently tear open membrane and immediately suction mouth, then nose.
 - Keep newborn at level of vagina until cord is cut.
 - Place one clamp 6 inches away from baby, place second clamp 9 inches away from baby, 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.
 - Document APGAR score at 1 minute and again at 5 minutes

APGAR SCORING SYSTEM

	0 Points	1 Point	2 Points	Points totaled
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	↓ ↓ ↓ ↓ ↓
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of Extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, Extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed	0-3
Moderately depressed	4-6
Excellent condition	7-10

- Special Situations – **TRANSPORT TO THE CLOSEST HOSPITAL**
 - **Excessive hemorrhage** following delivery or delayed placenta delivery.
 - Begin fundal massage (unless multiple births are anticipated).
 - Paramedics should consider oxytocin (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**
 - In order to maintain a pulsatile cord, insert two fingers of gloved hand into vagina to take pressure 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.

- Consider albuterol nebulized treatment and/or IV magnesium sulfate to suppress uterine contractions (contact OLMC)
 - **Breech presentation**
 - 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 away from the newborn's face. Maintain position throughout transport.
 - Consider albuterol nebulized treatment and/or IV magnesium sulfate to suppress uterine contractions (contact OLMC)
 - **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.
 - Consider albuterol nebulized treatment and/or IV magnesium sulfate to suppress uterine contractions (contact OLMC)
 - **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 OLMC and/or law enforcement.
- **Key Considerations**
 - Attempt to maintain 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.

EMT	EMT
AEMT	AEMT
<ul style="list-style-type: none"> □ Vascular access and fluid therapy per <i>IV/IO Access and Fluid Therapy Guideline</i> □ Treat seizures as per <i>Seizure Guideline</i> 	<ul style="list-style-type: none"> □ Vascular access and fluid therapy per <i>IV/IO Access and Fluid Therapy Guideline</i> □ Treat seizures as per <i>Seizure Guideline</i>
PARAMEDIC	PARAMEDIC
<ul style="list-style-type: none"> □ Consider Oxytocin (Pitocin) <ul style="list-style-type: none"> • 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. □ 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. 	

OPTIONAL ORDERS BY OLMC ONLY

- ① **High-risk preterm labor when delivery is imminent, to suppress uterine contractions:** (1) Rapidly infuse 1 liter of NS (AEMT/PM) (2) Albuterol 2.5 mg via nebulization (AEMT/PM) (3) Magnesium Sulfate 1gram IV and titrate per OLMC (PM only)

OVERDOSE

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess blood glucose, temperature, and oxygen saturation.
 - Assess the time and circumstances of the ingestion. Document evidence of suicide attempt or deliberate attempt at self-harm.
 - Assess scene for additional information on toxins, poisons, medications or other possible concerns.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Consider charcoal if advised by Poison Control
 - 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.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Apply oxygen to maintain oxygen saturation >90%
- ❑ **Naloxone 0.4–2 mg** Intranasal (IN) for suspected narcotic overdose. May repeat once

EMT

- ❑ Apply oxygen to maintain oxygen saturation >90%
- ❑ **Naloxone 0.1 mg/kg** intranasal (IN) (intranasal) for suspected narcotic overdose. May repeat once

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 for suspected narcotic overdose. May repeat once

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 for suspected narcotic overdose. May repeat once

PARAMEDIC

- ❑ **Epinephrine (1:1000) 2–10 mcg/min** IV/IO symptomatic hypotension. Titrate to symptomatic improvement.
And/or
- ❑ **Dopamine 2-20 mcg/kg/min** IV/IO infusion for symptomatic hypotension. Titrate to symptomatic improvement.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min** IV/IO symptomatic hypotension. Titrate to symptomatic improvement.
And/or
- ❑ **Dopamine 2-20 mcg/kg/min** IV/IO infusion for symptomatic hypotension. Titrate to symptomatic improvement.

OPTIONAL ORDERS BY OLMC ONLY

① **Administer Charcoal by orders of Poison Control Only:** Do not give for liquid ingestion or hydrocarbon ingestions

Adults: Charcoal 25 grams by mouth if the patient is alert, awake and gag reflex is intact

Pediatrics: Charcoal 1g/kg up to 25 grams by mouth if the patient is alert, awake and gag reflex is intact

① **Adults & Pediatrics: Sodium bicarbonate 1 mEq/kg** slow IV/IO push for tricyclic antidepressant overdose with sustained HR >120 bpm, QRS >0.10 secs, hypotension unresponsive to fluids, or ventricular dysrhythmias

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/Pulmonary Edema Guideline**.
 - Assess blood glucose, temperature and oxygen saturation.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ Consider a 12 lead EKG.
- ❑ **Treatment Plan**
 - Evaluate for and remove any obvious airway obstruction
 - Maintain airway, administer 10-15 lpm of oxygen via NRB.

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.
- ❑ For patients with inadequate ventilations, in severe respiratory distress, assist ventilations with BVM

EMT

- ❑ Assist with administration of prescribed metered dose inhaler or nebulizer medication per dosing instructions.
- ❑ Allow the patient to achieve and remain in a position of comfort (the parents arms if desired) and keep them as calm as possible.
- ❑ For patients with inadequate ventilations, in severe respiratory distress, assist ventilations with BVM

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ For **ANAPHYLAXIS**: see **Allergic Reaction / Anaphylaxis Guideline**
 - **Epinephrine 0.3mg IM** for severe respiratory distress or shock
 - If symptoms persist, may repeat every 5 minutes to max total of 1.2 mg
- ❑ For **WHEEZING** give:
 - **Albuterol 2.5 mg** via nebulization until symptoms subside.
 - **Ipratropium (Atrovent) 0.5 mg** one time via nebulization, may be given with first dose of albuterol

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ For **ANAPHYLAXIS**: see **Allergic Reaction / Anaphylaxis Guideline**
 - **Epinephrine (1:1000) 0.01 mg/kg to max 0.3mg** per dose **IM** for severe respiratory distress or shock
 - If symptoms persist, may repeat every 5 minutes to max total of 1.2 mg
- ❑ For **WHEEZING** give:
 - **Albuterol 2.5 mg** via nebulization until symptoms subside. Start with **1.25 mg** if patient is **<1 yr in age**.
 - **Ipratropium (Atrovent) 0.25-0.5 mg** one time via nebulization, may be given with first dose of albuterol

- ❑ For **STRIDOR** give:
 - **Epinephrine (1:1000) 2mL** mixed with 3mL of NS via nebulizer
 - Patient respiratory status must be reassessed after each dose to determine need for additional treatment. **Call OLMC for additional doses.**
 - Consider supraglottic airway in comatose patients in severe distress who are not responding to the above treatment measures

- ❑ **CPAP** – Consider when the patient is awake but needs assistance with oxygenation and ventilation such as in a CHF/Pulmonary Edema patient or Asthma/COPD patient.
 - Explain the procedure to the patient
 - Initially apply the mask and begin the CPAP according to training instructions.
 - **CPAP** - Provide CPAP of 5 - 10cm H₂O. **Further increase only with OLMC consultation.**

- ❑ For **STRIDOR** give:
 - **Epinephrine (1:1000) 2mL** mixed with 3mL of NS via nebulizer
 - Patient respiratory status must be reassessed after each dose to determine need for additional treatment. **Call OLMC for additional doses.**
- ❑ **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

PARAMEDIC

PARAMEDIC

- ❑ Consider supraglottic airway or endotracheal intubation in patients with respiratory failure per the Airway and Tracheostomy Management Guideline.
- ❑ Consider cricothyrotomy in patients with possible airway obstruction who are not responding to above treatment measures per the Airway and Tracheostomy Management Guideline.

SEIZURES

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment.
 - Question patient / bystanders regarding possibility of pregnancy.
 - Assess scene for possible toxin, overdose or trauma.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Do not restrain, but provide protection during the tonic-clonic phase.
 - Ensure patients experiencing febrile seizures are not excessively dressed or bundled.
 - Any child <12 months old with new seizure activity should be transported to the ED for further evaluation.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Treat for hypoglycemia, if present, per **Hypoglycemia/Hyperglycemia Guideline**
- ❑ Apply oxygen to maintain oxygen saturation >90%
- ❑ Assist patient's family or caretaker with any home medication treatments
- ❑ If patient has a vagal nerve stimulator in place, assist patient's family or caretaker with use of the magnet every 3 minutes, 3 attempts maximum

EMT

- ❑ Treat for hypoglycemia, if present, per **Hypoglycemia/Hyperglycemia Guideline**
- ❑ Apply oxygen to maintain oxygen saturation >90%
- ❑ Assist patient's family or caretaker with any home medication treatments
- ❑ If patient has a vagal nerve stimulator in place, assist patient's family or caretaker with use of the magnet every 3 minutes, 3 attempts maximum

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing.
- ❑ **Midazolam (Versed)**
 - **IV/IO - 2-4mg** every 5 minutes to the desired effect or max dose of 10mg
 - **Intranasal or oral- 0.4 mg/kg** to a maximum of 10mg as a one-time dose
- ❑ **Diazepam (Valium)** – May be used as an alternative.
 - **IV/IO – 5-10mg** every 5 min to the desired effect or max dose of 30mg
 - **Rectally** – Same dosage
- ❑ **Lorazepam (Ativan)** – May be used as an alternative.
 - **IV/IO – 1-2mg** every 5 min. to the desired effect or max dose of 4mg

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing.
- ❑ **Midazolam (Versed)**
 - **Intranasal or oral- 0.4 mg/kg, max dose of 10mg** as a one-time dose
 - **IV/IO - 0.1 mg/kg, max dose of 4mg**
 - Do NOT exceed adult dosing
- ❑ **Diazepam (Valium)** – May be used as an alternative.
 - **IV/IO - 0.1 mg/kg, max dose of 10mg**
 - Do NOT exceed adult dosing
 - **Rectally – 0.3 mg/kg PR**
- ❑ **Lorazepam (Ativan)** – May be used as an alternative.
 - **IV/IO – 0.1mg/kg, max dose of 4mg.**
Do NOT exceed adult dosing

PARAMEDIC

- ① **For females with 3rd trimester pregnancy and seizures: magnesium sulfate - 4 grams IM or 4 grams over 15 to 30 min IV/IO.**

PARAMEDIC

- ① **Magnesium sulfate** – For pediatric patients who are pregnant and having a seizure contact OLMC

STROKE or NEURO DEFICITS

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment.
 - Keep NPO.
- ❑ **Document symptom onset time or time last seen normal.**
- ❑ Continuous ECG, blood pressure, ETCO₂, and pulse oximetry monitoring when available.
- ❑ 12 Lead EKG, if available.
- ❑ **Treatment Plan**
 - Rapidly transport
 - Alert the receiving emergency department that you are transporting a suspected stroke patient as soon as you have made a destination decision.
- ❑ **Key Considerations**
 - Children can have strokes as well as adults.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Call facility and notify of Code Stroke and onset time.
- ❑ Apply oxygen to maintain oxygen saturation 90 - 95%
- ❑ Evaluate and Document **Cincinnati Stroke Scale** during assessment. The scale is positive (a stroke is likely) if ANY of following are abnormal:
 - **Facial Droop**
 - Normal: Both sides of face move equally
 - Abnormal: One side of face does not move as well as the other (or not at all)
 - **Arm Drift**
 - Normal: Both arms move equally or not at all
 - Abnormal: One arm does not move, or drifts down compared to the other
 - **Speech**
 - Normal: Patient uses correct words with no slurring
 - Abnormal: Slurred or inappropriate words or mute

EMT

- ❑ Call facility and notify of Code Stroke and onset time.
- ❑ Apply oxygen to maintain oxygen saturation 90 - 95%
- ❑ Evaluate and Document **Cincinnati Stroke Scale** during assessment. The scale is positive (a stroke is likely) if ANY of the following are abnormal:
 - **Facial Droop**
 - Normal: Both sides of face move equally
 - Abnormal: One side of face does not move as well as the other or not at all
 - **Arm Drift**
 - Normal: Both arms move equally or not at all
 - Abnormal: One arm does not move, or drifts down compared to the other
 - **Speech**
 - Normal: Patient uses correct words with no slurring
 - Abnormal: Slurred, inappropriate words or mute

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

HYPOTHERMIA AND ENVIRONMENTAL EMERGENCIES

ALL PROVIDERS

- 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.
- Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- **Treatment Plan**
- Heat Related (Hyperthermia)
- Temperature elevation **WITHOUT** altered mental status (**Heat Exhaustion**)
- Slow cooling with ice packs, wet towels, and/or fans to areas in the vicinity of head and neck, axillae, and groin.
- 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 head and neck area, 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**
- Cold Related (Hypothermia)
- Protect patient from further heat loss (application of blankets, warm environment, etc.).
- Suspicion of cardiac arrest in cold environment: utilize 30-45 seconds to confirm pulselessness.
- Confirm body temperature and treat accordingly.
- **Severe** <86°F (30°C)
 - No warm packs to skin.
 - Limit defibrillation attempts to 3 and NO external pacing (continue rewarming)
 - Monitor for arrhythmias (VF can be precipitated by movement)
- **Moderate** 86-93°F (30-34°C)
 - Use warm packs to head and neck, axillae, and groin
- **Mild** >93°F (34°C)
- Frost Bite precautions – Do not rub or use dry external heat. Re-warm with 40°C water if possible.
 - Avoid refreezing. It is better not to rewarm frostbite if refreezing is a possibility.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Temperature elevation **WITHOUT** altered mental status (**Heat Exhaustion**)
- ❑ Slow cooling with ice packs, wet towels, and/or fans to areas in the vicinity of head and neck, axillae, and groin.
- ❑ 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 head and neck area, groin and axilla while maintaining modesty. **NOT recommended for children and infants.**
- ❑ Aggressive cooling should be stopped if

EMT

- shivering begins.
- ❑ Monitor closely for dysrhythmia, recognize and treat with the appropriate **Cardiac Patient Care Guideline**

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guidelines***
- ❑ Warm or cool IV fluids, if available, should be begun for moderate to severe hypothermia or hyperthermia, respectively.

PARAMEDIC

- ❑ Cold emergencies
 - Withhold anti-arrhythmic meds until temperature >86°F (30°C)
 - Temp >86, follow ACLS protocols

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guidelines***
- ❑ Warm or cool IV fluids, if available, should be begun for moderate to severe hypothermia or hyperthermia, respectively.

PARAMEDIC

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

TOXIC EXPOSURE- CARBON MONOXIDE / CLOSED SPACE FIRE AND SMOKE EXPOSURE

ALL PROVIDERS

- ❑ Scene and patient management
 - Safely and rapidly remove patient from source of exposure.
 - Treat external burns and possible airway burns per **Burns Guideline**
- ❑ Focused history and physical exam
 - Pulse oximetry readings are inaccurate in the face of CO poisoning
- ❑ Continuous ECG monitoring when available.
- ❑ Utilize transcutaneous CO monitoring, if available
- ❑ **Treatment Plan**
 - Administer high flow oxygen by 100% non-rebreather mask immediately and continuously.
 - Patients exposed to closed space fires are at risk for both carbon monoxide and cyanide poisoning. Consider treatment with **hydroxycobalamin** for severe symptoms (mental status changes, hypotension, dysrhythmias).
- ❑ **Key Consideration**
 - Pregnant patients who have been exposed should be transported.
 - Provide early notification to receiving ED of possible CO and/or cyanide poisoning.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ High flow oxygen by 100% non-rebreather mask immediately and continuously

AEMT

- ❑ Advanced airway management, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ **Hydroxocobalamin 5 g IV/IO over 15 minutes** for severe symptoms (mental status changes, hypotension, dysrhythmias) and with elevated CO level confirmed by ABG or CO monitoring. Requires consultation with OLMC or Poison Control Center prior to use.

EMT

- ❑ High flow oxygen by 100% non-rebreather mask immediately and continuously

AEMT

- ❑ Advanced airway management, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ **Hydroxocobalamin 70mg/kg IV/IO over 15 minutes**, not to exceed a max dose of 5 grams. Requires order from OLMC or consultation with Poison Control Center prior to use.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 2–10 mcg/min IV/IO** symptomatic hypotension. Titrate to symptomatic improvement.
And/or
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** IV/IO symptomatic hypotension. Titrate to symptomatic improvement.
And/or
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

TOXIC EXPOSURE - CYANIDE

ALL PROVIDERS

- ❑ Scene Management
 - 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
 - Mining processes, including 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.
 - Smoking cigarettes and breathing smoke-filled air during fires are major sources of cyanide exposure.
 - 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)
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Administer high flow oxygen immediately and continuously.
 - Normal pulse oximetry readings may be found in the face of severe cyanide poisoning.
 - Consider cyanide poisoning in patients exposed to closed space fire and smoke.
 - For industrial exposures, request the Safety Data Sheet (SDS) for the chemical involved and bring this to the ED.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ❑ **Hydroxocobalamin 5 g IV/IO over 15 minutes** for severe symptoms (mental status changes, hypotension, dysrhythmias) and with elevated CO level confirmed by ABG or CO monitoring. Requires consultation with OLMC or Poison Control Center prior to use.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 2–10 mcg/min IV/IO** symptomatic hypotension. Titrate to symptomatic improvement. **And/or**
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

EMT
AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ❑ **Hydroxocobalamin 70mg/kg IV/IO over 15 minutes**, not to exceed a max dose of 5 grams. Requires order from OLMC or consultation with Poison Control Center prior to use.

PARAMEDIC

- ❑ **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** IV/IO symptomatic hypotension. Titrate to symptomatic improvement. **And/or**
- ❑ **Dopamine 2-20 mcg/kg/min IV/IO** infusion for symptomatic hypotension. Titrate to symptomatic improvement.

TOXIC EXPOSURE - HYDROFLUORIC ACID

ALL PROVIDERS

- ❑ Scene Management
 - Industrial exposures in which to consider hydrofluoric acid exposure:
 - 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
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ For industrial exposures, request the Safety Data Sheet (SDS) for the chemical involved and bring this to the ED.
- ❑ **Treatment Plan**
 - Skin Exposure
 - Immediate irrigation. Clothing, jewelry etc. must be removed for irrigation.
 - Soak burned skin in magnesium hydroxide antacid preparations (e.g. Milk of Magnesia, Mylanta, Maalox).
 - Eye Exposure
 - Continuous rinsing for a minimum of 15 minutes.
 - Ingestion – Conscious/Alert Patient Only (OG tube recommended for the pediatric patient).
 - If patient is able to swallow, administer large amounts of any calcium or magnesium based antacid (e.g. Milk of Magnesia, Mylanta, Maalox). In the absence of these products, have patient drink approximately 8-16 oz. of water.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

AEMT

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

PARAMEDIC

EMT

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guidelines***
- ❑ **Calcium Gluconate Gel for application:** Contact OLMC or Poison Control Center for instructions

PARAMEDIC

TOXIC EXPOSURE – ORGANOPHOSPHATES / NERVE AGENTS

ALL PROVIDERS

- ❑ Scene management
 - Ensure scene safety and that there is no risk of toxic exposure to rescuers/providers
 - When safe to do so, remove patient from the source of exposure.
 - Request HazMat response and initiate CHEMPACK delivery through dispatch.
- ❑ Focused history and physical exam.
 - Assess for “S.L.U.D.G.E.M.” presentation (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal cramping, Emesis and Miosis).
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Decontaminate immediately
 - Remove clothing, jewelry etc. as irrigation is taking place
 - Assess 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
- ❑ **Key Considerations**
 - Always protect yourself from exposure before entering a treatment zone. Masks with specific filters needed for protection from off gassing.
 - Organophosphates and carbamates are the two general categories of these toxic substances.
 - These substances may be used in fertilizers or as pesticides, herbicides, fungicides, fire retardants, or chemical nerve agents.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

EMT
AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ❑ **Atropine / Pralidoxime kits (CHEMPACK, Mark I, Duodote, etc.) may be used instead of the individual drugs**
 - **Mild** Exposure: Patient with no symptoms may require no treatment. If miosis is present, administer 1 kit
 - **Moderate** Exposure: with evidence of SLUDGEM, administer 2 kits
 - **Severe** Exposure: with respiratory distress, decreased mental status, seizures, administer 3 kits
- ❑ Monitor patients carefully for worsening symptoms and consult OLMC or Poison Control Center regarding further treatment

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

PARAMEDIC

- ❑ **Atropine sulfate 2 mg rapid IV/IO** (preferred) or IM repeated every 15 minutes until symptoms improving as follows:
 - 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

PARAMEDIC

VIOLENT PATIENT / CHEMICAL SEDATION

ALL PROVIDERS

- ❑ Scene management
 - Contact Law Enforcement if the patient is determined to be a threat to themselves or others or if assistance with patient control is needed.
 - Remove patient from the stressful environment and remove any possible weapons.
 - Before touching any patient that has been Tasered, 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/assault.
- ❑ Continuous ECG, ETCO2, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Tasered patient
 - Removal of Taser probes
 - EMS providers may remove probes, unless they are 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 drugs, especially stimulants, such as phencyclidine/PCP, cocaine, "spice", "bath salts", "designer drugs", etc.
 - Patients exhibiting bizarre behavior or who have persistently abnormal vital signs
 - Pepper Spray exposure
 - Irrigate eyes copiously with normal saline or water, medial to lateral, with copious amounts of water
- ❑ **Key Considerations**
 - ❑ Chemical sedation should be considered for patients that cannot be calmed by another method available and they are a danger to themselves or others

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

AEMT

- ❑ Vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guidelines***
- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing.

EMT

- ❑ Attempt to calm or gently restrain the patient

AEMT

- ❑ Vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guidelines***
- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing.

Midazolam

- **IV/IO - 2-4mg** every 5 minutes to the desired effect or max dose of 10mg
- **Intranasal or oral - 0.4 mg/kg** to a maximum of 10mg as a one-time dose.

Diazepam – May be used as an alternative.

- **IV/IO – 5-10mg** every 5 min to the desired effect or max dose of 30mg.
- **Rectally** – Same dosage.

Lorazepam – May be used as an alternative.

- **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.**

PARAMEDIC

Haloperidol 5-10mg IM or 2-5 mg IV/IO

📞 **Haloperidol (Haldol) Contact OLMC for repeat dosing.**

Midazolam

- **IV/IO - 0.1 mg/kg, max dose of 4mg**
 - Do NOT exceed adult dosing
- **Intranasal or oral - 0.4 mg/kg to a maximum of 10mg** as a one-time dose

Diazepam – May be used as an alternative.

- **IV/IO - 0.1 mg/kg, max dose of 10mg**
 - Do NOT exceed adult dosing
- **Rectally – 0.3 mg/kg PR**

Lorazepam – May be used as an alternative.

- **IV/IO – 0.1mg/kg, max dose of 4mg**
 - Do NOT exceed adult dosing

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

PARAMEDIC

📞 **Contact OLMC or Poison Control Center for instructions prior to using haloperidol**

Haloperidol

- 6-12 years old: **1-3 mg/dose IM**
- 12 years and older: **5-10mg IM or 2-5 mg IV/IO**
- <6 years old – NOT recommended.