

Utah EMS Protocol Guidelines: General



UTAH DEPARTMENT OF
HEALTH

January 1, 2017

General Patient Care Guidelines

These guidelines were created to provide direction to each level of certified provider in caring for all types of 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 General 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 or 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.
- OLMC physician must approve usage of dosages in excess of the guideline.

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

AIRWAY AND TRACHEOSTOMY MANAGEMENT

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess ABC's for evidence of current apnea, airway reflex compromise or difficulty in ventilatory effort.
 - Assess medical conditions, burns or traumatic injuries that may have or will compromise the airway.
- ❑ Continuous cardiac, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ Obtain a 12 Lead EKG when available.
- ❑ **Treatment Plan**
 - Provide basic airway maneuvers to all compromised airways, i.e. jaw-thrust, airway adjuncts, and oxygen.
 - Identify and treat underlying reversible medical conditions (narcotic overdose, hypoglycemia, etc.).
 - Provide supplemental oxygen and assisted ventilation for the patient to maintain an oxygen saturation 90-94% and ETCO₂ of 35-45.
 - Always ensure proper care of the C-spine during airway treatment per the **Selective Spinal Immobilization Guideline**.
 - Keep NPO. Stop any GI Feedings and do not use GI tube during resuscitation.
 - Infants and young children are primary nose breathers. Suction oral and nasal passages as needed to keep clear.
 - Tracheostomy/Home Ventilator
 - Primary caretakers and families are your best resource for understanding the equipment they are using.
 - Disconnect the ventilator and assist ventilations with BVM if the patient is apneic, unresponsive, or if has severe respiratory distress or depression.
 - If unable to ventilate, suction the tracheostomy, then reattempt ventilatory efforts.
 - If still unable to ventilate, attempt traditional BVM (place a gloved finger over the trach to occlude during the instillation of breath).

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Provide 100% oxygen to the patient
- ❑ Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway when NOT contraindicated (facial fractures, intact gag response, etc)
- ❑ Maintain a ventilatory rate of 10-12 breaths per minute
- ❑ Do not hyperventilate the patient

EMT

- ❑ Provide 100% oxygen to the patient
- ❑ Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway. BVM is the preferred method of ventilation below the age of 10 years old.
- ❑ Recommended pediatric ventilatory rates:
- ❑ Infant (0-12 month): 25 breaths per minute
 - 1-3 yrs: 20 breaths per minute
 - 4-6 yrs: 15 breaths per minute
 - >6 years: 12 (Same as adult)
- ❑ Do not hyperventilate the patient

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- ❑ Consider an appropriately sized supraglottic airway device (SGD) if unable to ventilate with BVM
- ❑ **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
 - If unable to adequately ventilate return to BVM and consider insertion of supraglottic airway and bag ventilation.

① Contact OLMC to discuss further settings and treatment above the initial setup

- ❑ Consider an appropriately-sized supraglottic airway device if unable to ventilate with BVM
- ❑ **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 and consider insertion of a supraglottic airway.

PARAMEDIC

- ❑ **Endotracheal Intubation** - Consider orotracheal intubation using an endotracheal tube (ETT) when indicated
 - Document TWO confirmation methods to verify endotracheal placement. (e.g. ETCO2, CO2 detection device, or esophageal intubation detector)
 - Secure the ETT for transport
 - Consider NG/OG tube placement or opening active G-tubes for all intubated patients
 - Consider sedation after intubation
 - After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.
- ❑ **Surgical Airway - Cricothyrotomy**
 - Consider only when all other methods of oxygenation, ventilation and securing the airway have failed.
 - Gather all equipment before beginning the procedure
 - Once the procedure is done insert a 5.0 or 6.0 cuffed ETT, inflate cuff, and secure
- ❑ **Tracheostomy Assistance**
 - Provide supplemental oxygen
 - Suction the patient appropriately
 - Replace Tracheostomy tube if needed
 - IF unable to ventilate, pass an appropriately sized ETT through the stoma 1-2 inches
 - IF unable to pass a tracheostomy tube or endotracheal tube use BVM, orotracheal intubation or Supraglottic device to ventilate the patient.
- ① Contact OLMC for further instructions
- ❑ **Ventilator Management**
 - Work with the family to troubleshoot the machine
 - Address tracheostomy as above
 - If you need to disconnect for transport provide adequate BVM ventilations similar to home

PARAMEDIC

- ❑ **Endotracheal Intubation** - Consider orotracheal intubation using an endotracheal tube (ETT) when indicated
 - BVM ventilations are the preferred method of ventilation in children, even for long transports. However, if oxygenation or ventilation is inadequate with BVM, a trial of a supraglottic airway is indicated. In the rare instance that a supraglottic airway is ineffective, then proceed to ETT
 - For longer transports, be aware of gastric distension during BVM, which may limit ventilation. An NG/OG tube can be placed to decompress the stomach
 - Pediatric ETT's are sized according to age and are in mm:
 - Preemie: 2.5
 - 0-3 months: 3.0
 - 3-7 months: 3.5
 - 7-15 months: 4.0
 - 15-24 months: 4.5
 - 2-15 years: Formula is $(age+16) \div 4$
 - Document TWO confirmation methods to verify endotracheal placement. (e.g. ETCO2, CO2 detection device, or esophageal intubation detector)
 - Secure the ETT for transport
 - Consider NG/OG tube placement or opening active G-tubes for all intubated patients
 - Consider sedation after intubation
 - After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.
- ❑ **Surgical Airway – Cricothyrotomy**
 - Open Surgical Cricothyrotomy is contraindicated in ages < 12 years old.
 - Needle Cricothyrotomy can be used below 12 years of age.
 - Consider only when all other methods of

respiratory rate settings

- ① Contact OLMC for further instructions as needed.

oxygenation, ventilation and securing the airway have failed.

- Gather all equipment before beginning the procedure
- Once the procedure is done insert an appropriately sized cuffed ETT and secure.
- Contact OLMC for further instructions as needed.

❑ **Tracheostomy Assistance**

- Provide supplement oxygen
- Suction the patient appropriately
- Replace tracheostomy tube, if needed
- IF unable to ventilate, pass an appropriately sized ETT through the stoma 1-2 inches
- IF unable to pass a tracheostomy tube or ETT use BVM, orotracheal intubation or SGD
- Contact OLMC for further instructions

❑ **Ventilator Management**

- Work with the family to troubleshoot the machine
- Address tracheostomy as above
- If you need to disconnect for transport provide adequate BVM ventilations similar to home respiratory rate settings
- Contact OLMC for further instructions as needed.

ALTERED MENTAL STATUS

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, oxygen saturation and temperature assessment
- ❑ Continuous cardiac, ETCO₂, and pulse oximetry monitoring, when available.
- ❑ Obtain a 12 Lead EKG when available
- ❑ **Treatment Plan**
 - Assess for trauma.
 - Assess for stroke and score per the **Suspected Stroke Guideline**.
 - Assessment for possible overdose, substance abuse or other potential toxin. Evaluate the scene for supportive evidence.
 - Gather and collect any evidence on scene that may assist in the treatment of the patient (medication bottles, pills, notes, etc.)
- ❑ **Key Considerations**
 - Consider non-accidental trauma, especially in pediatric and elderly patients
 - Consider hypoglycemia in pediatric patient
 - 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.
 - If poisoning suspected, you may contact Utah Poison Center at 1-800-222-1222 for guidance.

A - Alcohol	T – Trauma/Temp
E - Electrolytes	I – Infection
I – Insulin	P – Psychogenic
O - Opiates	P – Poison
U - Uremia	S – Shock/Seizure

AEIOUTIPPS: Possible causes of Altered Mental Status

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Apply 100% oxygen to the patient
- ❑ Apply warming or cooling techniques as indicated
- ❑ Consider physical restraints as needed to protect the patient and/or rescue personnel
- ❑ **Naloxone 0.4–2 mg** (per dose) IM/IN (intranasal) for suspected narcotic overdose. May repeat once

EMT

- ❑ Apply 100% oxygen to the patient
- ❑ Apply warming or cooling techniques as indicated
- ❑ Consider physical restraints as needed to protect the patient and/or rescue personnel
- ❑ **Naloxone 0.1 mg/kg** (max 2mg per dose) IM/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**
- ❑ Consider chemical restraints per the **Violent Patient/Chemical Restraint Guideline**, as needed, to protect the patient and/or rescue personnel

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV/IO Access and Fluid Therapy Guideline**
- ❑ If evidence of poor perfusion, give NS 20mL/kg IV
- ❑ Consider chemical restraints per the **Violent Patient/Chemical Restraint Guideline**, as needed, to protect the patient and/or rescue personnel
- ❑ If blood glucose is less than 60mg/dl
 - Give **D10W 2ml/kg (200mg/kg)** for neonates <30days
 - Give **D10W 5ml/kg (500mg/kg)** for all other children

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DEATH DETERMINATION AND TERMINATION OF RESUSCITATION

ALL PROVIDERS

- ❑ **General Crime Scene Management Principles** as appropriate.
- ❑ **Treatment Plan**
 - **EMS may not initiate resuscitation** when:
 - Bodily injury or condition incompatible with life such as:
 - Obvious death, decomposition, and/or rigor mortis
 - Obvious fatal wounds without signs of life
 - Dependent lividity
 - Adult apneic/pulseless patient in asystole who:
 - Had an unwitnessed arrest AND an estimated time interval of greater than 15 minutes from collapse to the initiation of CPR
 - Could not have resuscitation started within 15 minutes of arrest due to scene difficulties such as extrication, location, or unsafe environment
 - Is a patient in a multi-victim incident where insufficient resources preclude initiating resuscitative measures
 - Is a drowning victim with a reasonably determined submersion time of greater than one (1) hour prior to exam
 - Is an arrest resulting from blunt or penetrating trauma in whom all signs of life are absent, including pupillary reflexes, spontaneous movement, response to pain, spontaneous respirations, or organized electrical activity on the cardiac monitor
 - Written or verbal orders that request no resuscitation:
 - A verbal order by a licensed physician in the State of Utah who is present on scene pronouncing the patient dead
 - A verbal order by the OLMC physician
 - A Do Not Resuscitate (DNR) written order, bracelet, or necklace from any U.S. state.
 - A signed Physician/Provider Order for Life-Sustaining Treatment (POLST) form from any U.S. state indicating that the patient does not desire resuscitative efforts
 - Immediate family member request honoring the patient's wishes to NOT start CPR, AND has had a known chronic or terminal illness, WITH the full agreement of all relatives AND EMS personnel on scene AND with concurrence of OLMC. If EMS is uncomfortable with the request, then resuscitative efforts should be started
 - OLMC should be consulted for any difficult or questionable case
 - **Termination of CPR** may be done in the following circumstances **with the concurrence of the OLMC**:
 - A valid DNR or POLST form is discovered after resuscitative efforts were initiated
 - Resuscitative efforts were initiated when criteria to not resuscitate were present (as above)
 - A verbal order pronouncing the patient dead by a licensed physician in the State of Utah who arrives on scene
 - Order by the OLMC physician
 - Adult cardiac arrest - resuscitation attempts may be terminated if the patient is in asystole after 20 minutes of ACLS on scene if ALL of the following criteria are met:
 - Arrest was not witnessed by EMS personnel
 - No shockable rhythm was identified at any time during the resuscitation
 - No ROSC occurred at any time during the resuscitation

① **Must contact OLMC for approval prior to termination of resuscitation efforts**

- **Special Considerations for Resuscitation**
 - All traumatic and non-traumatic pediatric arrests should be transported to the hospital with resuscitative efforts carried out en-route, unless it is an obvious death on scene
 - Arrests not due to cardiac cause or trauma. The following situations require hospital transport and/or or prolonged resuscitation attempts
 - Hypothermia
 - Active Internal Bleeding

- Drug/toxin overdose
 - Drowning
 - Electrocution or Lightning Strike
- Dangerous, violent or otherwise unsafe or difficult scene situation. EMS personnel safety and patient respect are of the upmost importance. Assessing the scene to insure a safe and secure environment to continue resuscitation is important. If any concerns about scene safety or personnel security, the patient should be promptly loaded and transported to the hospital.
 - Pregnant mother >25 weeks pregnant. Initiate early hospital transport for possible advanced care and possible delivery of the baby
- **Following** determination of obvious death or termination of resuscitative efforts:
- Call dispatch to reduce any responding transport(s) to non-emergent.
 - Document time of death and circumstances according to system and agency guidelines.
 - Turn the body over to the appropriate law enforcement agency.
 - Evaluate for, document, and report any indication of non-accidental trauma per the ***Non-Accidental Trauma/Abuse Guideline***.
 - Contact the closest patient receiving facility and make them aware of the actions taken, declare a time of death and explain the disposition of the patient

ADULT

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

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KEY POINTS/CONSIDERATIONS

There will always be patients and circumstances that deserve special consideration (pediatric drowning or pregnant patients for instance). OLMC should be consulted if there are ever any questions. Always be sensitive to the patient's desires, family concerns, and on-scene environment to insure an understanding by all who observe your actions that everything that could and should have been done to resuscitate the patient was done.

FAMILY CENTERED CARE

ALL PROVIDERS

- ❑ Family Centered Care is a mutually collaborative health care effort between family, patient and provider and has proven to be the gold standard in dealing with the pediatric patient and their families.
- ❑ Demonstration of Family Centered Care is by one's actions and behaviors when caring for patients.
- ❑ **Treatment Plan**
 - Family centered care is demonstrated in practice, not just policy development.
 - Collaboration with Families: Empower the patient and the family by involving them in the care as well as the decision-making process.
 - Cultural Competency: Respect, sensitivity, and an understanding of the unique cultural and religious differences.
 - Be aware of any language barriers.
 - If at all possible, engage an interpreter that is able to understand some of the emotional issues as well as medical terminology associated with the patient.
 - An understanding of the hierarchy of the family is key to a positive outcome.
 - Developmental Competency: Use appropriate language for the age.
 - When in pain or hurt children often regress to childhood issues or more infantile responses. They may still need attachment items late in life.
 - Describe what you will be doing.
 - Use eye contact and touch when appropriate.
 - Be respectful at all times.
 - ① Infants: General calming measures (Soft voices, gentle pats, pacifiers or rocking), allowing parents to stay close and bonded with the child and help them to anticipate the situation if possible.
 - ① Toddlers: Use toys, teddy bear, blanket, etc. for comfort. Parents or family members are often a great source of comfort and nurturing, so allow them to be present.
 - ① School Age: Attachment objects, honesty about procedures, and imaginary/magical (e.g. "I made the car crash," "I told a lie, and this is why mom is hurt") perspective of young children. Include the child in conversations about his/her treatment when possible.
 - ① Adolescents: Physician and provider honesty is key as well as paying attention to pain. Help them to participate in their own care and take their views seriously. Focus on giving them some sense of control. Pain management is important. Adolescents as well as adults are afraid of pain. The anticipation of pain can be worse than the pain itself. Some transitional objects/toys/stuffed animals can also be useful. Respect their privacy and modesty as much as possible. Allow them to discuss what is happening both with and without caregivers around.
- ❑ **Key Considerations**
 - Family Centered Care = compassion
 - Include family members in resuscitation and care decision making as they desire and are capable. If possible, designate a crew member to be a liaison to the family in order to facilitate communication and continuity.

ADULT

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PEDIATRIC (<15 years of Age)

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

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PARAMEDIC

IV / IO ACCESS

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Vital sign assessment, blood glucose, oxygen and temperature assessment.
 - Consider IV/IO placement for fluid therapy or medications as needed.

ADULT

PEDIATRIC (<15 years of Age)

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

AEMT

AEMT

- ❑ **IV – Peripheral**
 - Preferred site is usually the hand or forearm except in resuscitation when antecubital is preferred
 - Place the largest gauge catheter possible
 - If unsuccessful in the arm, then try feet or legs
- ❑ **IO - Interosseous**
 - If during the resuscitation of a critical patient you are unable to obtain an IV after 2 attempts or 90 seconds, then an IO is indicated
 - Place the IO in the tibia or humeral head
 - Avoid fractured bones, infection sites, excessive edema or excessive tissue over the site
 - Consider a pressure bag for fluid therapy if an IO is placed
 - **NOTE:** in conscious patients **20-50mg of 2% Lidocaine** should be given SLOWLY through the IO before a fluid bolus, lessen the initial pain of infusion
- ❑ **IV Fluid Therapy**
 - All IV's are set at KVO/TKO unless giving a bolus of fluid
 - Bolus with NS or LR only
 - Refer to the ***Shock and Fluid Therapy Guideline for fluid management***

- ❑ **IV – Peripheral**
 - Preferred site is usually the hand or forearm except in resuscitation when antecubital is preferred
 - Place the largest gauge catheter possible
 - If unsuccessful in the arm, then try feet or legs
- ❑ **IO - Interosseous**
 - If during the resuscitation of a critical patient you are unable to obtain an IV after 2 attempts or 90 seconds, then an IO is indicated
 - Insert the appropriate sized needle for age and weight
 - The approved sites in children are the tibia and proximal humerus
 - Avoid fractured bones, infection sites, excessive edema or excessive tissue over the site
 - Consider a pressure bag or syringe boluses for fluid therapy if an IO is placed
 - **NOTE:** in conscious patients **0.5mg/kg of 2% Lidocaine** should be given SLOWLY through the IO before a fluid bolus, to lessen the initial pain of infusion
- ❑ **IV Fluid Therapy**
 - All IV's are set at KVO/TKO unless giving a bolus of fluid
 - Bolus with NS or LR, 20mL/kg then reassess
 - Refer to the ***Shock and Fluid Therapy Guideline for further fluid management***

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NAUSEA / VOMITING

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment
- ❑ Continuous cardiac, ETCO₂, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan**
 - Nothing by mouth (NPO)
 - Place the patient in an upright or lateral recumbent position
 - Obtain a 12 lead EKG, if available, for:
 - Greater than 40 years old
 - Associated with chest or abdominal pain
 - 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

AEMT

- ❑ Vascular access and fluid therapy per ***IV/IO Access and Fluid Therapy Guidelines***
- ❑ Document level of consciousness before and after giving medication
- ❑ **Ondansetron (Zofran) – 4mg IV/IM/PO**
- ❑ **Promethazine (Phenergan) - 12.5–25 mg** IV titrated to effect if SBP >100 or peripheral pulse present
 - Dilute with 5–10 mL of NS and administer over 30 seconds
 - **Promethazine (Phenergan) 25 mg** IM if no vascular access
- ① **IF the patient experiences extreme anxiety, abnormal muscular contractions, or an allergic reaction contact OLMC and be prepared to administer Benadryl as a treatment.**

- ❑ Vascular access and fluid therapy ***per IV/IO Access and Fluid Therapy Guidelines***
- ❑ Document level of consciousness before and after giving medication.
- ❑ **Ondansetron (Zofran) - 0.1mg/kg IV/IM/PO** to a maximum of 4mg
- ① **Promethazine (Phenergan) – NOT recommended, requires OLMC contact.**
- ① If blood glucose is less than 60mg/dl
 - Give **D10W 2ml/kg (200mg/kg)** for neonates <30days
 - Give **D10W 5ml/kg (500mg/kg)** for all other children

PARAMEDIC

PARAMEDIC

AEMT

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

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

Dosages should be reduced by half for patients with evidence of drug or alcohol intoxication

Pain Control

- ❑ **Morphine Sulfate 4** q10 minutes IV/IO/IM titrated to effect
- OR
- ❑ **Fentanyl 25-50 mcg** q10 minutes IV/IO/IM/IN

Anxiety Control**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
- 📞 Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.

PARAMEDIC**AEMT**

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

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

Dosages should be reduced by half for patients with evidence of drug or alcohol intoxication

Pain Control

- ❑ **Morphine Sulfate 0.1 mg/kg** (max of 4mg per dose) IV/IM/IO titrated to effect
- OR
- ❑ **Fentanyl 1 mcg/kg** (max 50 mcg per dose) IV/IM/IO. Use 2 mcg/kg for IN (intranasal) (max 100mcg per dose). May repeat x 1 if needed after 10-15 min

📞 For additional doses, contact OLMC

Anxiety Control**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

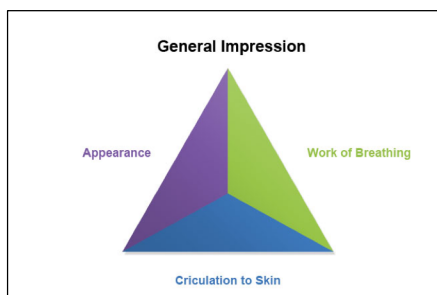
- **IV/IO – 0.05 mg/kg** (max 2 mg), may repeat once in 10 minutes, if needed. Total max dose: 4 mg
- **Intramuscular (IM) – 0.05 mg/kg** (max 4 mg) once
- 📞 Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.

PARAMEDIC

PEDIATRIC ASSESSMENT

ALL PROVIDERS / EMT

- ❑ The pediatric assessment should be modified for the developmental level of each patient
- ❑ Continuous cardiac, ETCO₂, and pulse oximetry monitoring, when available
- ❑ **Treatment Plan** (develop and implement plan based on assessment)
 - Use the Pediatric Assessment Triangle (defined by the AAP) to form a general impression of the child.



- Appearance: Evaluate tone, interactiveness, consolability, gaze, and speech or cry
- Breathing: Evaluate abnormal airway sounds, abnormal positioning, retractions, and nasal flaring.
- Circulation/Skin Color: Evaluate for pallor, mottling, delayed capillary refill and cyanosis

- If the patient looks ill and has poor perfusion, start CPR when the heart rate is less than:
 - 80bpm for infants (up to 1 year of age)
 - 60bpm for children (1 year to 8 years)
- Look on scene for the CHIRP red bag. It contains current medical information on the child with special healthcare needs.
- Perform the pediatric assessment with guidance from the **Family Centered Care Guideline**.
- Pay careful attention to the wide variety of normal vital signs. Do not assume that the pediatric patient is fine when they have vitals meeting the normal adult parameters.

Normal Pediatric Vital Signs

Age of Patient	HR		RR		Systolic BP	Temp	
0 days - < 1 mo	<80	>205	<30	>60	<60	<36	>38
> 1mo - < 3 mos	<80	>205	<30	>60	<70	<36	>38
> 3 mos - < 1 yr	<75	>190	<30	>60	<70	<36	>38.5
> 1 yr - < 2 yrs	<75	>190	<24	>40	<70+ (age x 2)	<36	>38.5
> 2 yrs - < 4 yrs	<60	>140	<24	>40	<70+ (age x 2)	<36	>38.5
> 4 yrs - < 6 yrs	<60	>140	<22	>34	<70+ (age x 2)	<36	>38.5
> 6 yrs - < 10 yrs	<60	>140	<18	>30	<70+ (age x 2)	<36	>38.5
> 10 yrs - < 13 yrs	<60	>100	<18	>30	<90	<36	>38.5
> 13 yrs - < 18 yrs	<60	>100	<12	>16	<90	<36	>38.5

- ❑ **Key Considerations**
 - Obtaining a full set of vital signs, **including blood pressures**, should be a priority.
 - Parents are often the best resource for a baseline understanding of their child, especially in the case of the child with special healthcare needs.

ADULT

PEDIATRIC (<15 years of Age)

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

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SHOCK and FLUID THERAPY

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
 - Blood glucose, oxygen saturation and temperature assessment
 - Consider shock in patients with one or more the following:
 - Vital signs: HR >100, SBP of <90mmHg for adults, SBP <70 + (age in years x 2) mmHg for children, or RR >20 BPM
 - Skin signs: cold clammy skin, febrile, or delayed capillary refill
 - Mental status: altered, lethargic, or irritable (esp. in infants).
- ❑ Evaluate for the source including distributive (e.g. infection, anaphylaxis), hypovolemic (e.g. hemorrhagic, vomiting/diarrhea, heat exposure), neurologic (i.e. spinal injury), or cardiogenic
- ❑ **Sepsis Alert** – Contact the hospital and institute a Sepsis Alert if:
 1. Suspected or documented Infection
 2. Two or more of the following criteria are met:
 - a. Temp >100.4 °F (38°C) or <96.8°F (36°C)
 - b. RR >20 BPM
 - c. Heart Rate >90 bpm
 3. Signs of hypoperfusion – SBP <90mmHg or MAP <65mmHg
 4. ETCO2 <25mmHg
- ❑ Continuous cardiac, ETCO2, and pulse oximetry monitoring, when available
- ❑ Obtain a 12 Lead EKG when available
- ❑ **Treatment Plan**
 - Address the underlying cause of the shock, if possible
 - Administer 10-15 lpm of oxygen to keep oxygen saturations between 90-94%.
 - Ensure patient warmth, resuscitate with warm IV fluids, when available
 - Pregnancy >20 weeks gestation - Transport in partial left lateral decubitus position. Place wedge-shaped cushion or multiple pillows under patient's right hip and shoulders to elevate R side 45 degrees
 - 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

AEMT

- ❑ Vascular access per **IV/IO Access Guideline**
 - Insert 2 large bore IVs

- ❑ **Traumatic Shock – Permissive Hypotension**
 - If SBP >80-90:
 - No IV fluid bolus
 - Place saline locks on IVs or run at TKO rate
 - If SBP <80-90:
 - Give fluid bolus 500mL at a time, reassess and repeat as needed to:
 - Maintain SBP to 80-90 mmHg **WITHOUT** a CLOSED HEAD INJURY.
 - Maintain SBP to 110-120 mmHg **WITH** a CLOSED HEAD INJURY.
 - Once minimum blood pressures have been achieved the patient should have a saline lock and no further fluid boluses should be administered until the BP falls below the limits.

- ❑ **Non-Traumatic Shock** – Give IV NS bolus 500 ml at a time, reassess and repeat up to a maximum of 2 liters as required for reversal of signs of shock
 - ① Call OLMC if the patient remains hypotensive after 2 liters has been administered

- ❑ **Cardiogenic Shock** - In patients with CHF, pulmonary edema, and cardiogenic shock, IV fluids should be withheld, to avoid worsening shock
 - Apply high flow oxygen
 - Rapidly transport to hospital

- ❑ **Kidney Failure (i.e. dialysis patients)** - Give 500mL fluid boluses up to a maximum of 1 liter and reassess for reversal of the signs of shock

- ❑ Vascular access and fluid per **IV/IO Access Guideline**
 - Insert 2 large bore IVs

- ❑ **Traumatic Shock** – Give fluid bolus of NS 20 mL/kg at a time, reassess and repeat up to a maximum of 60 mL/kg total. Reassess for reversal of the signs of shock
 - ① If the patient remains hypotensive after 60mL/kg of NS call OLMC

- ❑ **Non- Traumatic Shock** - Provide 20mL/kg boluses up to a maximum of 60mL/kg and reassess for reversal of the signs of shock
 - ① If the patient remains hypotensive after 60mL/kg of NS call OLMC

- ❑ **Cardiogenic Shock** - In patients with CHF, pulmonary edema and cardiogenic shock, IV fluids should be withheld, to avoid worsening shock
 - Apply high-flow oxygen
 - Rapidly transport to the hospital

- ❑ **Kidney Failure (i.e. dialysis patients)** - Give 10 mL/kg fluid boluses up to a maximum of 20mL/kg and reassess for reversal of the signs of shock
- ❑ Call OLMC if the patient remains hypotensive after 20 ml/kg has been administered

PARAMEDIC

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

OR

① **Norepinephrine** initial dose: **0.5 – 1 mcg/kg/min** IV/IO for hypoperfusion. Titrate to maintain a SBP > 100 mmHg. For patients in refractory shock: 8-30 mcg/minute

PARAMEDIC

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

OR

① **Norepinephrine** initial dose: **0.05 - 0.1 mcg/kg/min**, titrate to max of 2 mcg/kg/min to maintain SBP >70 + (age in years x 2) mmHg