Utah EMS Protocol Guidelines: General

Version 1 / November 1, 2013

General Patient Care Guidelines

These guidelines were created to provide direction for each level of certified provider in caring for all types of 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 General 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 own clinical guidelines.
- Contact your receiving hospitals 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 insure 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 dosing over the guideline amounts.

Table of Contents

Key to Symbols used in Guidelines

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 apnea, airway reflex compromise or difficulty in ventilatory effort.
  - Assess medical conditions, burns or traumatic injuries that have the potential to compromise the airway.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan**
  - Provide basic airway maneuvers to all compromised airways, i.e. oxygen, jaw-thrust, and positioning.
  - Identify and treat underlying reversible medical conditions (narcotic overdose, hypoglycemia, etc.).
  - In general, maintain an oxygen saturation 90 - 94% and ETCO2 of 35-45 mmHg
  - Always insure proper care of the C-Spine during Airway treatment per the ***Selective Spinal Immobilization Guideline***.
  - Keep the patient NPO. Stop any tube feedings and do not use feeding 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 the best resource for understanding the equipment they are using.
    - Disconnect the ventilator and assist ventilations with BVM if the patient is apneic, unresponsive, or 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 (i.e. place a gloved finger over the trach to occlude during the delivery of a breath).

ADULT

EMT

- ❑ Provide 100% oxygen to the patient
- ❑ Ventilate with BVM when apneic or exhibiting respiratory distress. Consider a nasal or oral airway.
- ❑ Maintain a ventilatory rate of 10-12 breaths per minute
- ❑ Do not hyperventilate the patient

AEMT

- ❑ Consider an appropriately sized supraglottic airway device if unable to ventilate with BVM
- ❑ **CPAP** – Consider when the patient is awake but needs assistance with oxygenation and ventilation such as in a CHF/Pulmonary Edema patient or COPD patient
- ❑ **CPAP -** Provide CPAP of 5 cm H_2O to begin. May increase to 10 mm H20 if needed.
- ❑ Further increase only with OLMC consultation.

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.
- ❑ 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

AEMT

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

- **BIPAP –** Provide 10 L/min oxygen and IPAP at 15 cm H_2O with EPAP at about 5 cm H_2O

Contact OLMC to discuss further settings and treatment after the initial setup

PARAMEDIC

- **INTUBATION** - Consider orotracheal intubation using an endotracheal tube when indicated
  - Document TWO confirmation methods to verify endotracheal placement of ET tube (e.g. EtCO2, CO2 Detection Device or Esophageal Intubation Detector)
  - Consider sedation after intubation (benzodiazepine)
  - After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.

Nasotracheal Intubation requires prior OLMC.

- **Surgical Airway - Cricothyrotomy**
  - Consider only when all other methods of oxygenation, ventilation and securing the airway have failed
  - Insert a 6.0 cuffed endotracheal tube 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, supraglottic airway device, or orotracheal intubation to ventilate patient

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.

PARAMEDIC

- **INTUBATION** - Consider orotracheal intubation using an endotracheal tube when indicated
  - Document TWO confirmation methods to verify endotracheal placement of ET tube (e.g. EtCO2, CO2 Detection Device or Esophageal Intubation Detector)
  - Consider sedation after intubation (benzodiazepine)
  - After 3 unsuccessful attempts at endotracheal intubation use a supraglottic airway device or BVM with appropriate oral/nasal airway.
  - **No nasotracheal intubation**
- **Surgical Airway - Cricothyrotomy**
  - Consider only when all other methods of oxygenation, ventilation and securing the airway have failed
  - Insert an appropriately sized endotracheal tube and secure
- **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 endotracheal tube, use BVM, supraglottic airway device, or orotracheal intubation to ventilate patient

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 ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan**
  - Assess for trauma.
  - Assess for stroke and score per the ***Stroke and Neuro Deficits Guideline***.
  - Assess for possible overdose, substance abuse or other potential toxin. Evaluate the scene for supportive evidence.
  - Obtain a 12 lead EKG if available.
  - Treat any underlying environmental or toxin exposures with the appropriate guideline.
  - Gather and collect any evidence on scene that may assist in the treatment of the patient.
- ❑ **Key Considerations**
  - Consider non-accidental trauma especially in pediatric and elderly patients.
  - Consider hypoglycemia, especially in pediatric patients.
  - 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, contact Utah Poison Control Center (1-800-222-1222), as well as OLMC, for guidance.
  - AEIOUTIPPS: Possible causes of Altered Mental Status

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

ADULT

EMT

- ❑ Apply 100% oxygen to the patient
- ❑ Consider physical restraints as needed to protect the patient and/or personnel
- ❑ **Naloxone 0.4–2 mg (per dose)** IN (intranasal) for suspected narcotic overdose. May repeat once
- ❑ If blood glucose is less than 60 mg/dl, and the patient is sufficiently alert to swallow and protect airway, give oral glucose, orange juice, or other sugared drink

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
- ❑ If evidence of poor perfusion, give **NS IV bolus**
- ❑ Consider Chemical Restraints as needed to protect the patient and/or personnel per the **Violent Patient/ Chemical Sedation Guideline**
- ❑ **Naloxone 0.4–2 mg (per dose) IV/IM/IO/IN** for suspected narcotic overdose. May repeat once.
- ❑ If blood glucose is less than 60 mg/dl, administer D50 25 grams IV/IO

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Apply 100% oxygen to the patient
- ❑ Consider physical restraints as needed to protect the patient and/or personnel
- ❑ **Naloxone 0.1 mg/kg (max 2mg per dose)** IN (intranasal) for suspected narcotic overdose. May repeat once
- ❑ If blood glucose is less than 60 mg/dl, and the patient is sufficiently alert to swallow and protect airway, give oral glucose, orange juice, or other sugared drink

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
- ❑ If evidence of poor perfusion, give **NS 20 ml/kg IV**
- ❑ Consider Chemical Restraints as needed to protect the patient and/or personnel **Violent Patient/ Chemical Sedation Guideline**
- ❑ **Naloxone 0.1 mg/kg (max 2mg per dose) IV/IM/IO/IN** for suspected narcotic overdose. May repeat once

- 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 - D25 = 25 mL D50 in 25 mL **NS or Sterile Water**

PARAMEDIC

PARAMEDIC

DEATH DETERMINATION AND PRONOUNCEMENT PROCESS

ALL PROVIDERS

- ❑ ***General Crime Scene Management Principles*** as appropriate.
- ❑ **Treatment Plan**
  - CPR should **NOT** be started in a pulseless, apneic patient in the presence of:
    - Obvious death, decomposition, and/or rigor mortis.
    - Obvious fatal wounds without signs of life
    - A verbal order pronouncing the patient dead by a licensed physician in the State of Utah who is present on scene.
    - An order by the OLMC physician.
    - A Do Not Resuscitate (DNR) written order, bracelet, or necklace from any U.S. State.
    - A signed Physician Order for Life-Sustaining Treatment (POLST form) from any U.S. State indicating that the patient does not desire resuscitative efforts.
  - **Termination** of CPR may be done in the following circumstances:
    - A valid DNR or POLST form is discovered after resuscitative efforts were initiated.
    - Resuscitation efforts initiated when criteria to **not** resuscitate were present.
    - A verbal order pronouncing the patient dead by a licensed physician in the State of Utah who is present on scene.
    - Order by the OLMC physician.
- ❑ 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.
EMT	**EMT**
AEMT	**AEMT**
PARAMEDIC	**PARAMEDIC**

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 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 patient and their families. This is especially important when dealing with pediatric patients, patients unable to make decisions for themselves or patients that have legal guardians.
- Demonstration of Family Centered Care is in one's actions and behaviors when caring for patients.
- 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.
    - Family Centered Care is a skill requiring competency and caring. Like any other fine-tuned skill it requires practice.
    - Gather staff and develop language on how to describe the situation so information is consistent.
  - Cultural Competency: Respect, sensitivity, and an understanding of the unique cultural and religious considerations.
    - 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 condition.
    - 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 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. In children there are some special considerations:
      - Infants: General calming measures (Soft voices, gentle pats, pacifiers or rocking), allow parents to stay close and bonded with the child and help them to anticipate the situation if possible.
      - Toddlers: Use toys, teddy bear, blanket, etc. for comfort. Parents or family members are often a great source of comfort and nurturing, allow them to be present.
      - School Age: Attachment objects (e.g. "blankies"), honesty about procedures, imaginary thinking (I made the car crash, I told a lie and that is why mom is hurt) Refrain from conversations about a child's treatment unless you are including them.
      - 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 key. Adolescents as well as adults are afraid of pain. The anticipation of pain can be worse that 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 crewmember to be a liaison to the family in order to facilitate communication and continuity.

ADULT	PEDIATRIC (<15 years of Age) NOTE: Pediatric weight based dosing should not exceed Adult dosing.
EMT	**EMT**
AEMT	**AEMT**
PARAMEDIC	**PARAMEDIC**

IV-IO ACCESS

ALL PROVIDERS

- ❑ 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.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.

ADULT

EMT
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, consider veins in the 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, humeral head, or femur
  - Avoid fractured bones, infection sites, excessive edema or excessive tissue over the site
  - After IO placement, a pressure bag may be required for rapid infusion
  - **NOTE**: in conscious patients **20-50mg of 2% Lidocaine** should be given SLOWLY through the IO before a fluid bolus
- ❑ **IV Fluid Therapy**
  - All IV's are set at KVO/TKO unless giving a bolus of fluid
  - Bolus with NS or LR
  - Refer to the ***Shock and Fluid Therapy Guideline*** for fluid management

PARAMEDIC

PEDIATRIC (<15 years of Age)

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

EMT
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, consider veins in the 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, femur, and proximal humerus
  - Avoid fractured bones, infection sites, excessive edema or excessive tissue over the site
  - After IO placement, a pressure bag may be required for rapid infusion
  - **NOTE:** in conscious patients **0.5ml/kg of 2% Lidocaine** should be given SLOWLY through the IO before a fluid bolus
- ❑ **IV Fluid Therapy**
  - All IV's are set at KVO/TKO unless giving a bolus of fluid
  - Bolus with NS or LR, 20mg/kg then reassess
  - Refer to the ***Shock and Fluid Therapy Guideline*** for further fluid management

PARAMEDIC

NAUSEA / VOMITING

ALL PROVIDERS

- ❑ Focused history and physical exam
  - Blood glucose, temperature and oxygen saturation assessment.
  - Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan**
  - Nothing by mouth (NPO).
  - Place the patient in an upright or lateral recumbent position.
  - Consider a 12 lead EKG if available
    - 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

EMT
AEMT

- ❑ Vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
- ❑ Document Level of Consciousness before and after giving medication
- ❑ **Ondansetron (Zofran) – 4mg to 8mg** IV/IM/PO/SL
- ❑ **Promethazine (Phenergan) - 12.5–25 mg** IV if SBP >100
  - Dilute with 10 mL of NS and administer slowly over 60 seconds with a wide open IV running to dilute it as it is administered
  - **Promethazine (Phenergan) 25 mg** IM if no vascular access

If the patient experiences extreme anxiety, abnormal muscular contractions or an allergic reaction contact OLMC and be prepared to administer Benadryl as a treatment.

PARAMEDIC

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

- ❑ Vascular access and fluid therapy per ***IV-IO Access and Fluid Therapy Guideline***
- ❑ Document Level of Consciousness before and after giving medication.
- ❑ **Ondansetron (Zofran) - 0.1mg/kg** IV/IM/PO/SL to a Maximum of 4mg

Promethazine (Phenergan) – NOT recommended, requires OLMC contact.

- ❑ 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 - D25 = 25 mL D50 in 25 mL **NS or Sterile Water**

PARAMEDIC

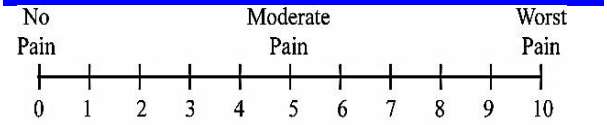
PAIN & ANXIETY MANAGEMENT

ALL PROVIDERS

- ❑ Focused history and physical exam
  - Assess the patient's pain using verbal and non-verbal cues and appropriate pain scale.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ Implement appropriate treatment guideline for the chief complaint.
- ❑ **Treatment Plan**
  - Implement non-pharmaceutical/family centered comfort measures as indicated, refer to the ***Family Centered Care Guideline.***
  - Immobilize any obvious injuries and place patient in a position of comfort.
  - Implement pharmaceutical measures.
    - Monitor patient vital signs every 5 minutes as this guideline is implemented.
    - Have Naloxone available if needed for respiratory suppression.
    - Avoid giving medications if SBP <100mmHg in adults, SBP <70 + (age in years x 2) mmHg for pediatrics, SaO_2 < 90%, or GCS <14
    - Stop pain medication when the patient has relief, pain score <5 for adults (<3 on Wong-Baker Faces scale for children 3-8 years old, less than 2 on FLACC scale for infants), adult SBP <100mmHg, peds SBP <70 + (age in years x 2) mmHg, SaO_2 <90%, or GCS <14.
- ❑ **Key Considerations**
  - An age-appropriate pain scale should be utilized and documented before and after each pain medication dose
  - Use Wong-Baker Faces scale for pain assessment in patients 3-8 years old.
  - A FLACC scale can be used to assess pain in infants. (Total range from 0-10)

ADULT

EMT



PEDIATRIC (<15 years of Age)

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

EMT

Categories	FLACC Scoring for Infants		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or talking to, distractible	Difficult to console or comfort

AEMT

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

Pain Control

- ❑ **Morphine Sulfate 4-10mg q10 minutes** IV/IO/IM titrated to effect – **OR**
- ❑ **Fentanyl 50-100 mcg** q10 minutes IV/IO/IM/IN
- ❑ **Nalbuphine 10 mg** q 10 minutes IV/IO/IM

Anxiety Control

- ❑ 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 or oral - 0.4 mg/kg** to a maximum of 10mg as a one-time dose
- ❑ **Diazepam (Valium)** – May be used as an alternative. Follow the same safety parameters as with Midazolam
  - **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. Follow the same safety parameters as with Midazolam
  - **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

AEMT

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

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 75mcg per dose)** IV/IM/IO. Use **2mcg/kg for (max 100mcg per dose)** IN (Intranasal)
- ❑ For additional doses, contact OLMC

Anxiety Control

- ❑ 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 (max dose of 4mg per dose)**
    - Do NOT exceed adult dosing
  - **Intranasal or oral - 0.4 mg/kg (max dose 10mg per dose)**
  - Contact OLMC for additional doses
- ❑ **Diazepam (Valium)** – May be used as an alternative. Follow the same safety parameters as with Midazolam
  - **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. Follow the same safety parameters as with Midazolam
  - **IV/IO – 0.1mg/kg (max dose of 4mg)**
    - Do NOT exceed adult dosing

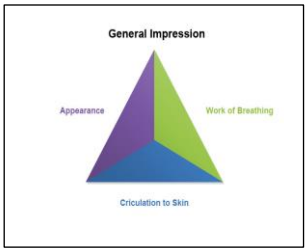
✆ **Contact OLMC for dosages above those provided or use of medication NOT fitting the guideline parameters.**

PARAMEDIC

PEDIATRIC ASSESSMENT

ALL PROVIDERS

- ❑ The pediatric assessment should be modified for the developmental level of each patient.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan** (develop and implement plan based on assessment findings, resources, and training)
  - 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, and cyanosis

  - If the patient looks ill, 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 a 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.

Age of Patient	HR		RR		Systolic BP	Temp	
0 days - < 1 mon	<80	>205	<30	>60	<60	<36	>38
≥ 1mo - < 3 mons	<80	>205	<30	>60	<70	<36	>38
≥ 3 mons - < 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

EMT
AEMT
PARAMEDIC

PEDIATRIC (<15 years of Age)

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

EMT
AEMT
PARAMEDIC

SELECTIVE SPINAL IMMOBILIZATION

ALL PROVIDERS

- ❑ Focused history and physical exam
  - Blood glucose, Oxygen and Temperature assessment.
  - Evaluate the mechanism of injury.
  - Assess exposure to drugs, alcohol or other toxins including environmental toxins.
  - Assess history of arthritis, cancer, or other possible spine/bone diseases.
  - Assess environment, location of patient, and need for extrication.
  - As appropriate, determine if pregnant and place in left lateral decubitus position if >20 weeks gestation.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan**: If spinal immobilization is to be applied:
  - Explain the need for spinal immobilization to the patient.
  - Apply appropriate cervical immobilization.
  - Apply appropriate backboard and security straps.
  - PEDS – use a pediatric specific backboard for those <8 years old OR use a towel or pad to raise the child's body (not their head) to insure appropriate spinal alignment on an adult board. Age <2 should be immobilized in a car seat or age appropriate papoose device.
  - Assess neurological function before, during, and after application of spinal immobilization

Key Considerations

- Spinal immobilization should be considered a treatment or preventive therapy
- Patients who are likely to benefit from immobilization should undergo this treatment
- Patients who are not likely to benefit from immobilization, who have a low likelihood of spinal injury, should not be immobilized
- Ambulatory patients who are alert and cooperative may be safely immobilized on a gurney with cervical collar and straps and will not generally require a spine board
- Long spine board should be reserved for patients with thoracic or lumbar spinal pain or tenderness, or non-ambulatory patients who meet immobilization criteria

ADULT

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- ❑ Spinal Immobilization criteria – Immobilize patient with cervical collar and spine board if there is a traumatic mechanism of injury and ***any*** of the below criteria are met:
  - Age <8 or >65
  - Patient complains of neck or spine pain
  - There is any neck or spinal tenderness
  - There is any abnormal mental status or GCS <15
  - There is any evidence of alcohol or drug intoxication
  - There are other severely painful or distracting injuries present
  - Any patient that the medic feels should be immobilized, based on clinical judgment of patient or situation

✆ **Contact OLMC for further instructions if the patient refuses immobilization despite the provider's assessment for the need for spinal immobilization.**

AEMT

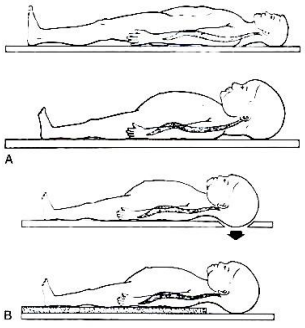
PARAMEDIC

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ Children who are <5 years old should be immobilized until evaluation at the hospital if the mechanism is suspicious
- ❑ Children under 8 years old cannot have their C-spine cleared in the field
- ❑ Children <2 years should be immobilized in a car seat or an approved infant papoose device.



AEMT

PARAMEDIC

SHOCK and FLUID THERAPY

ALL PROVIDERS

- ❑ 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 peds, or RR >20 BPM.
    - Skin signs: cold clammy skin, febrile, or flash or delayed capillary refill.
    - Mental Status: altered, lethargic, or irritable (esp. in infants).
  - Evaluate for the source including infection, bleeding/trauma, neurologic or cardiac.
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
  - Administer oxygen.
  - C-spine immobilization, if indicated per ***Selective Spinal Immobilization Guideline***
  - Ensure patient warmth, resuscitate with warm IV fluids when available.
  - 12 Lead EKG if available.
  - Consider needle decompression for tension pneumothorax if indicated (shock with chest trauma)
  - Address the underlying cause of the shock.
  - Pregnancy >20 weeks gestation – Transport in partial L 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 Symptomatic hypotension is SBP <90 mmHg (MAP <60mmHg) with accompanying weakness, dizziness, chest pain, dyspnea, or altered mental status.

ADULT

EMT

AEMT

- ❑ Vascular access *per* ***IV-IO Access Guideline***
- ❑ Use 2 large bore IV's
- ❑ **TRAUMATIC SHOCK** – Give fluid bolus 500mL at a time, reassess and repeat as needed to:
  - Maintain SBP to 80-90 mmHg **(without** closed head injury)
  - Maintain SBP to 110-120 mmHg **(with** closed head injury)
  - If above BP minimums are met, patient should have saline lock (or TKO IV) begun and should NOT be given IV fluid boluses, unless BP falls below these limits

PEDIATRIC (<15 years of Age)

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

EMT

AEMT

- ❑ Vascular access *per* ***IV-IO Access Guideline***
- ❑ Use 2 large bore IV's
- ❑ **TRAUMATIC SHOCK** – Give fluid bolus of NS 20 mL/kg at a time, reassess and repeat to up to a maximum of 60 mL/kg total. Reassess for reversal of the signs of shock
  - If the patient remains hypotensive after the 60 mL/kg call OLMC
- ❑ **NON-TRAUMATIC SHOCK -** Provide 20 ml/kg boluses up to a maximum of 60mL/kg and reassess for reversal of the signs of shock
  - If the patient remains hypotensive after administering 60 ml/kg NS, call OLMC

- **NON-TRAUMATIC SHOCK -** Provide 500mL boluses up to a maximum of 2-liters and reassess for reversal of the signs of shock
  - If the patient remains hypotensive after 2 liters, call OLMC
- **CARDIOGENIC SHOCK** - In patients with CHF, pulmonary edema, cardiogenic shock or kidney failure (i.e. dialysis patients), provide 500mL fluid boluses up to a maximum of 1 liter and reassess for reversal of the signs of shock.

Call OLMC if shock has not been reversed.

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 symptomatic hypotension. Titrate to symptomatic improvement.

- **CARDIOGENIC SHOCK** - In patients with CHF, pulmonary edema, cardiogenic shock or kidney failure (i.e. dialysis patients), provide 10 mL/kg fluid boluses up to a maximum of 20 ml/kg and reassess for reversal of the signs of shock

Call OLMC if shock has not been reversed.

PARAMEDIC

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

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