

Davis County Emergency Medical Services System

Emergency Medical Services Working Guidelines



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SCENE RELEASE OF PATIENTS

The following procedure is established to prevent unnecessary harm or mortality to patients who, by their own or the emergency team's decision, are not transported. It is also initiated to obtain an informed release when services are refused. Following are listed the circumstances in which the patient may be left at the scene.

1. The patient is a legal adult and refuses transport. The patient must also be of sound mind and capable of making appropriate decisions.
 - a. Retarded or mentally deficient patients are not included in the above provision.
 - b. Patients who are intoxicated and conscious are considered incapable of making their own decisions.
 - c. Seizure victims with a clear history of seizures may, if in an improving postictal state and in control of their airway, be left with responsible relatives, if requested, provided that all parties agree that it would be in the best interest of the patient. A district approved release form should be signed. All febrile seizures and first seizure victims should be encouraged to accept treatment and transport.
 - d. The patient or responsible person must understand the risks of non-transport and alternate care options.
2. The patient is a child or individual not of legal age having mother, father, or legal guardian at the scene who refuses care or transportation of the minor.
 - a. Brothers, sisters, or grandparents, unless appointed legal guardians, cannot deny treatment for the minor.
3. If, in the judgment of the emergency department, the paramedics, EMT's, and the patient, there is no need for emergency ambulance transportation, the information should be properly recorded on the agency's medical care form filled out. Upon completion, the patient may be released. In this case, the "Release from Medical Responsibility" form is not appropriate, since the patient is not refusing care. The patient may then, at his own discretion via private vehicle, seek medical care of his own choosing.
4. If, in the judgment of the emergency department physician, the victim does not require emergency ambulance transportation and treatment information is recorded on the agency's "Refusal of Medical Care" form, the patient may refuse transportation by the ambulance personnel, after being informed of the risks and possible adverse outcomes of his decision. In this case, the "Release from Medical Responsibility" form should be signed. The patient may then, at his own discretion via private vehicle, seek medical care of his own choosing.

5. Only one release form is required from any single patient. When multiple agencies respond on a patient who subsequently refuses care, one form will be signed, and the other agency personnel will record that it was signed on their individual refusal of medical care form.
6. The release form requires a signature from all patients eighteen years, or older, indicating patients wish to refuse care. In these cases of a minor, a legal parent or guardian must sign the release before the patient is released.
7. The following patients will always be transported:
 - a. unconscious adults,
 - b. unconscious minors or those with critical injuries or conditions, if no parent/guardian can be contacted.
 - c. unconscious adult or critically injured patients incapable of making an informed decision.

RESUSCITATE / DO NOT RESUSCITATE PROTOCOL

1. EMS personnel shall comply with DNR instructions providing the following criteria are met:
 - a. Do Not Resuscitate (DNR) identification and/or documentation are present with the patient. This may be in the form of a document and/or bracelet worn by the patient.
 - b. The document and/or bracelet is current and belongs to the patient in question.
 - c. No alternative treatment is being requested by the patient, family members, or persons who hold legal power of attorney of the patient.

 2. Any variances to the above shall require the following actions:
 - a. Identify variable(s): Examples
 - Family members request resuscitation regardless of presence of DNR.
 - Conflict between family members on resuscitation efforts to be performed.
 - Uncertain of obvious death findings.
 - EMS providers are not sure what to do.
 - b. Initiate immediate resuscitation efforts **as if indicated**.
 - c. Contact on-line medical control ASAP and advise of situation encountered and request medical direction.
 - d. Continue or discontinue resuscitation efforts as directed by on-line medical control.

 3. EMS providers shall make a reasonable effort to authenticate the documentation and the identification of the patient. This process should not delay immediate resuscitation efforts if indicated.

An attempt should be made to communicate with family members (if present) the need for resuscitation efforts being performed or being discontinued.

 4. EMS providers shall recognize and be familiar with the following:
 - a. Advance directive documentation / currently state law. See Attached
 - b. State approved "Life with Dignity" documentation. See Attached
 - c. Utah EMS DNR Rule R426-100. See Attached
-

DEATH PROTOCOL

The purpose of this protocol is designed to establish guidelines to aid ALS providers in the determination of death of a patient in the pre-hospital setting. In those occasions when BLS or ILS provider arrived on scene prior to ALS, they are to immediately contact ALS en-route or the nearest medical control hospital for directives.

1. Patients encountered by ALS personnel in Davis County that appear to have expired will not be resuscitated or transported to a hospital if any of the following obvious signs of death are present:
 - a. Body decomposition
 - b. Decapitation
 - c. Transection of thorax
 - d. Incineration
 - e. Massive blunt, open or penetrating trauma to the head, neck or chest with obvious organ destruction.
 - f. Any injury to the body that is obviously incompatible with life.
 - g. A valid Do-Not-Resuscitate (DNR) order is on scene.
2. OR, if **ALL** four (4) presumptive signs of death are present **AND** at least one (1) conclusive sign of death are identified>

The four (4) presumptive signs of death that MUST be present are:

1. Unconscious/Unresponsive
2. Apnea
3. Pulselessness
4. Fixed and dilated pupils
5. Asystole in 2 Leads

The Conclusive signs of death include:

1. Dependent lividity of any degree
2. Rigor mortis
3. Persistent asystole in 2 leads after ALS resuscitation

3. If there is any question regarding patient viability, to include potential hypothermia, resuscitation, resuscitation will be initiated.
4. Once it has been determined that the patient has expired and resuscitation will not be attempted, care should be taken in securing the scene. Request local law enforcement and secure the scene.

Treat all scenes as a potential crime scene. If the body is in an isolated area from public view, Do Not cover the body. If the body cannot be isolated from public view, only cover the body with a clean sheet from an EMS vehicle.

5. Do not leave the body unattended. It is the responsibility of the highest ranking emergency medical provider to maintain the security of the scene until the arrival of law enforcement or a representative of the state medical examiner's office, or the county or city attorney's office.

PSYCHIATRIC PATIENTS

The purpose of this suggested policy is to establish procedures that law enforcement officers, ambulance workers, mental health workers, and hospital personnel can follow in the initial investigation, transportation, and handling of mentally ill persons in Davis County. For the purposes of this protocol, the definition of a mentally ill person will be one who is dangerous to himself or others.

1. LAW ENFORCEMENT RESPONSE. When a law enforcement officer comes in contact with a mentally ill person in Davis County, he should consider the following.

a. Have any criminal laws been violated?

1) Adult

If the subject has violated a criminal law, and is also suspected of being mentally ill the officer should transport the person to Davis County Jail. While at the jail, the person will be evaluated by a Davis County Mental Health therapist.

The arresting officer should contact mental health as soon as possible to expedite the evaluation process at the jail. If possible, the arresting officer should cause the activation of the emergency mental health call by telephoning either 773-7060 or 298-3446 prior to arrival at the jail. If an adult offender is evaluated and recommended for involuntary admission to a mental health facility, the sheriff's office will provide transportation.

2) Juvenile

If the person is a juvenile, under age 18, and has committed a felony offense, they should be transported to a Juvenile Detention Center. If the juvenile has committed any other criminal offense and they are suspected of being mentally ill, the juvenile should be transported to either the police station, hospital, or mental health facility for an evaluation by mental health.

In the case of juvenile offenders who are evaluated and involuntarily admitted to a mental health facility, the agency having jurisdiction will provide transportation of the juvenile to the mental health facility. Juveniles who are violent and out-of-control will be transported in the same manner that is outlined in the remainder of this policy.

b. If no criminal laws have been violated, and probable cause exists that the person is mentally ill, the officer should contact Davis County Mental Health for an evaluation of the person for possible involuntary admission to a hospital or mental health facility (see UCA62a-12-232).

2. MENTAL HEALTH AND AMBULANCE RESPONSE TO MENTALLY ILL PERSONS

Davis County Mental Health, in cooperation with North Davis Medical Center and Lakeview Hospital, has established two sites to facilitate more expedient evaluations of mentally ill persons for possible involuntary admission to a hospital or mental health facility.

Davis County Mental Health will provide an expedient evaluation of persons when the law enforcement officer deems there is probable cause to believe the person is mentally ill and requires involuntary commitment at a hospital or mental health facility.

- a. All law enforcement agencies in Kaysville and north should transport their mentally ill persons for evaluation to Davis North Medical Center, telephone 773-7060.
- b. All law enforcement agencies in Farmington and south should transport their mentally ill persons for evaluation to Lakeview Hospital in Bountiful, telephone 298-3446.
- c. Call Out of Mental Health Workers. A law enforcement officer having probable cause to believe the person is mentally ill should request that a mental health worker respond to one of the evaluation sites mentioned above. This can be accomplished by telephone.
- d. Law Enforcement Officers Responsibilities. Law enforcement officers who come in contact with persons who are possibly mentally ill and, in the opinion of the officer require an evaluation by Davis County Mental Health, will stay with the person until the mental health worker releases the officer or the subject person is involuntarily admitted to a hospital or mental health facility. The law enforcement officer will fill out DMH Form 34-2, "Emergency Application for Involuntary Commitment Without Certification." The law enforcement officer will transport or follow the ambulance to the facility where an evaluation will be conducted by Davis County Mental Health Personnel. In the case of ambulance transport of mental subjects, the law enforcement officer will provide a copy of the DMH 34-2 form to the ambulance personnel for their records.
- e. Transportation of Mentally Ill Persons. Mentally ill persons can be transported in police vehicles at the discretion of the law enforcement officer who has jurisdiction.
 - 1) Ambulance response. Ambulance personnel may transport non-violent mental subjects at the request of family members, public safety organizations, hospitals, or mental health workers. The ambulance personnel will request jurisdictional police assistance if the person becomes violent or makes threats of violence. At all times, the individual being transported is expected to pay for services.
 - 2) Violent, out-of-control mentally ill persons. A police officer may request an ambulance to assist with transportation of a violent, out-

of-control mental subject. It will be the responsibility of the requesting police agency to provide protection and assistance to the ambulance personnel and their equipment while the mental subject is being transported by the ambulance to the hospital or mental health facility.

- 3) Violent, out-of-control mentally ill persons who require restraints. If, in the opinion of the police officer who has determined that the patient is mentally ill, violent, and needs involuntary admission according to UCA 62a-12-232(2) and that this person is violent to the extent that he may be harmful to himself, police officers, or EMS personnel in attendance, it will be deemed appropriate to restrain the mentally ill, violent patient as follows.
 - i) Mechanical restraints. Mechanical restraints should be attempted as a first means to control a violent patient. These may include handcuffs, soft leather restraints, and other EMS splinting devices. If the patient is able to be adequately controlled with these mechanical restraints, no further restraints will be used.
 - ii) Chemical restraints. In instances where mentally ill, violent patients are unable to be adequately constrained using the above mechanical restraints, it may be appropriate to use chemical restraints. If, in the judgment of the police officer and EMS personnel, the patient may be of further harm to himself or exposes EMS personnel and police officers to risk, i.e. through blunt trauma by kicking or hitting, through biting, or through exposing EMS personnel and police officers to bodily fluids that could possibly cause disease transmission, it will be appropriate for the paramedics in Davis County to respond to the scene for the purpose of administering a sedative drug to chemically restrain the patient. Prior to administering, paramedics will follow their usual evaluation process in communication with their base hospital physician for authority to give the medication. Once chemical sedation has been given to the patient, the paramedics will be required to place and maintain an intravenous line and accompany the patient to the hospital.
- f. Law Enforcement Protection Requested at the Hospitals. It has been requested that the police officer who has jurisdiction over a mental subject that is being evaluated for involuntary admission to a hospital or mental health facility stand by and provide public safety duties until the mental health worker or the emergency room doctor releases the officer. Every effort will be made by mental health workers and hospital staff to expedite the admitting process so that the jurisdictional police officer may return to his respective service area and duties.

- g. Condition/Fitness/Health/Welfare Status Checks. Law enforcement officers will continue to provide condition/fitness/health/welfare status checks in appropriate jurisdictions, as needed, following a Davis County Mental Health status evaluation.
- h. Other Transportation Requests by Mental Health. Transportation of patients from Davis Mental Health facilities to Lakeview Hospital or visa versa, other than emergency situations, will be provided by the Davis County Sheriff's Office. Mentally ill subjects that have been involuntarily ordered into custody by a court will be handled by the Davis County Sheriff's Office, including transportation of the mental subject. The sheriff's office may request the assistance of the police agency having jurisdiction where the court order will be served.

3. TRANSPORTATION AFTER EVALUATION

If, in the opinion of a mental health worker, the mentally ill person does not meet the standards for involuntary commitment to a mental health facility and the person needs to be transported back to his/her home, the following will occur.

- a. A family member or friend will be requested to transport the person back home.
- b. A taxi may be called in the north end of the county (P.M. Cab, 774-9887).
- c. The mental health worker may transport the person if the person does not fit the standards for involuntary commitment.
- d. The originating law enforcement agency may be requested to provide the transportation of the person back to their home.

GENERAL GUIDELINES

- A. Remember: Courtesy to the patient, the patient's family and other emergency care personnel is of utmost importance.
- B. A BEMS approved EMS incident report form must be completed on all patients and a copy left with the patient at the hospital. Specific pre-hospital care information must also be recorded on all patient contacts as part of the System data collection program.
- C. The specific conditions listed for treatment in this document, although frequently stated as medical diagnoses, are operational diagnoses to guide the paramedic in initiating appropriate treatment. This document is to be used as consultative material in striving for optimal patient care. It is recognized that specific procedures or treatments may be modified depending on the circumstances of a particular case. Also, a medical control physician, when consulted, will either concur or further evaluate the paramedic's clinical findings and suggest an alternate diagnosis and treatment.
- D. In all circumstances, physicians have latitude in the care they give and may deviate from these Medical Protocols if it is felt such deviation is in the best interest of the patient. Nothing in these protocols shall be interpreted as to limit the range of treatment modalities available to medical control physicians to utilize, other than the modalities and the medications used must be consistent with the paramedic's training.
- E. All patient interaction and communications between responders, agencies, and hospitals is considered protected health information and shall be guarded as outlined in the Health Insurance Portability and Accountability Act of 1996 (HIPPA).

PART I: CARDIAC PATIENT CARE GUIDELINES

These guidelines were created to provide direction for each level of certified provider in caring for cardiac 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 doses for infants and children.
- 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 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 ensure that the provider has properly characterized the situation.
- The OLMC physician has the final word on treatment once contact is made.
- The OLMC physician must approve usage of dosages in excess of the guidelines.

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.

BRADYCARDIA (Symptomatic)

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess for signs of poor perfusion, hypotension, altered mental status, signs of shock, chest pain, or acute heart failure.
 - Obtain a blood glucose level.
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - Only treat bradycardia if the patient is symptomatic (hypotension, altered mental status, chest pain, etc.)
 - If patient is less than 1 year old, follow the ***Newborn Resuscitation Guideline***.
 - Attempt to identify and treat the underlying causes of bradycardia:
 - **H's** - Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hyper/Hypokalemia, Hypothermia, Hypoglycemia
 - **T's** – Toxins (Overdose), Tamponade (Cardiac), Tension Pneumothorax, Thrombosis (ACS or Pulmonary), Trauma
 - Maintain airway; assist with breathing as necessary, provide oxygen
 - Pediatric patient (<8 year old)
 - Aggressive oxygenation with high flow oxygen and assisted ventilations with a BVM as indicated.
 - Begin chest compressions if persistent heart rate <60/min and signs of poor perfusion following aggressive oxygenation and ventilation
 - Ensure patient warmth.
- ❑ **Key Considerations**
 - In pregnant patients of >20 weeks gestation: Place wedge-shaped cushion or multiple pillows under patient's right hip in order to transport in left lateral decubitus position.
 - Current nationally established certification programs (ACLS, PALS, NRP etc.) may be used in lieu of these resuscitation guidelines. Any such variances in care should be documented in the patient care record.
 - 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.

EMT
AEMT

EMT
AEMT

- ❑ Supportive care of airway, vascular access and fluid therapy *per IV-IO Access and Fluid Therapy guidelines*
- ❑ **Atropine 0.5 mg IV/IO**
Repeat as needed every 3 minutes until pulse or BP improved
Maximum total dose of 3mg

- ❑ Supportive care of airway, vascular access and fluid therapy *per IV-IO Access and Fluid Therapy guidelines*
- ❑ **Atropine 0.02 mg/kg IV/IO**
 - Minimum single dose of 0.1 mg
 - Maximum single dose of 0.5mg
 - Repeat Atropine every 3-5 minutes until pulse or BP improved or until Max 1mg for child and 2mg for adolescents.

PARAMEDIC

SYMPTOMATIC BRADYCARDIA

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

Consider Sedation for TCP:

- ❑ 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
 - **IV/IO - 2-4mg** every 5 minutes to the desired effect or max dose of 10mg
 - **Intranasal or oral- 0.2 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.**

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

📞 **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)

PARAMEDIC

IF BRADYCARDIA IS SEVERE with SIGNS OF POOR PERFUSION

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

Consider Sedation for TCP:

- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. Contact OLMC before changing to a different medication.
- ❑ **Midazolam (Versed)**
 - Dosage is cut in half if the patient has received narcotics or alcohol
 - **IV/IO - 0.1 mg/kg, max dose of 4mg**
 - Do NOT exceed adult dosing
 - **Intranasal or oral- 0.2 mg/kg, max 10mg as a one-time dose**
- ❑ **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.**

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

📞 **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

CARDIAC CHEST PAIN (ACUTE CORONARY SYNDROME)

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess for signs or symptoms suggestive of ischemia or infarction.
 - Ask patient to describe the pain utilizing the O-P-Q-R-S-T mnemonic.
 - Onset of the event, Provocation or Palliation, Quality of the pain, Region and Radiation, Severity, Time (history)
 - Determine whether the patient (male or female) has taken erectile dysfunction medications such as Viagra, Levitra or Cialis within the last 24 hours.
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available.
- ❑ **Treatment Plan** - All chest pain patients should receive oxygen therapy. Maintain O₂ saturations 90 – 94%.
- ❑ **Key Considerations**
 - Treatment protocols from current nationally established cardiac care certification programs (ACLS, PALS, etc.) may be used in lieu of these resuscitation guidelines.
 - In pregnant patients of >20 weeks gestation: Place wedge-shaped cushion or multiple pillows under patient's right hip in order to transport in left lateral decubitus position
 - Assess blood glucose level.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

EMT

- ❑ **324 mg aspirin**, preferably chewed, if patient is >18 years old and no reported allergies to aspirin
 - Administer even if patient takes a daily aspirin dose
- ❑ Assist patient with prescribed nitroglycerin: 1 pill SL every 5 minutes, up to 3 doses, as long as symptoms persist and SBP >100 mmHg
 - Do not administer nitroglycerin if patient (male or female) has taken erectile dysfunction medications within 24 hours

AEMT

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
 - ❑ IV access prior to nitrates is preferred, if possible
 - ❑ Obtain 12 Lead EKG (If available)
 - ❑ All EKG's suggestive of acute MI should be immediately transmitted to a STEMI/PCI Receiving Center, if available, or to nearest ED
 - ❑ If the patient has a STEMI, then transport to the closest available STEMI/PCI receiving center, if available.
 - ❑ If STEMI/PCI receiving center not available, transport to closest available emergency department
 - ❑ Confirm destination choice with online medical control, if needed
- ❑ Chest pain with cardiac origin is a rare in children, consider other causes;
 - Asthma
 - Foreign body
 - Infection
 - Trauma

- ❑ **Normal saline 250–1000 mL IV bolus** if patient is hypotensive, use caution with a history or evidence of congestive heart failure
- ❑ **Nitroglycerin 0.4 mg (every 5 minutes) (max of 3 doses)** SL as long as symptoms persist and SBP >100 mmHg
 - **Administer with caution in patients with known inferior ST-Elevation MI**
- ❑ **If hypotension occurs following nitroglycerin administration, administer 500 mL bolus of NS and withhold further nitroglycerine**
- ❑ Pain medications per *Pain and Anxiety Management Guideline*

PARAMEDIC

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

CONGESTIVE HEART FAILURE/PULMONARY EDEMA

ALL PROVIDERS

- Focused history and physical exam
 - Assess blood glucose level.
- Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- Treatment Plan** - Maintain airway; assist with breathing as necessary, provide oxygen
- Key Considerations**
 - Do not use nitroglycerin if the patient has taken erectile dysfunction medications in the last 24 hours.
 - In pregnant patients of >20 weeks gestation: Place wedge-shaped cushion or multiple pillows under patient's right hip in order to transport in left lateral decubitus position
 - Treatment protocols from current nationally established cardiac care certification programs (ACLS, PALS, etc.) may be used in lieu of these resuscitation guidelines.
 - 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.

EMT

- Assist patient with prescribed nitroglycerin SL every 5 minutes, up to 3 doses, as long as symptoms persist and SBP >100 mmHg
 - Do not administer nitroglycerin if the patient (male or female) has taken erectile dysfunction medications within the last 24 hours

EMT

- Contact On-Line Medical Consultation

AEMT

- Advanced airway, vascular access and fluid per *IV-IO Access and Fluid Therapy guidelines*
 - IV access prior to nitrates is preferred if possible
 - Limit fluid bolus to 250–500 mL NS
- Nitroglycerin 0.4 mg (every 5 minutes) (max of 3 doses)** SL if symptoms persist and SBP >100 mmHg. Maximize Nitroglycerin before considering Morphine
- CPAP** –
 - Explain the procedure to the patient
 - Apply the mask and begin the CPAP
 - **CPAP** - Provide CPAP of 5 cm H₂O to begin. May increase to 10 mm H₂O if needed. **Further increase only with OLMC consultation.**

AEMT

- Advanced airway, vascular access and fluid per *IV-IO Access and Fluid Therapy guidelines*
- Contact On-Line Medical Consultation
- 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

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

PARAMEDIC

- ① **Furosemide** – Give 40 mg IV to the patient if they do not take it by prescription and if SBP >100 mmHg
OR
 - Give IV two (2) times patient's prescribed oral dose up to maximum of 120 mg if SBP >100 mmHg
- ① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (*Goal is to maintain a mean arterial pressure (MAP) >70 mmHg*)
- ① Contact OLMC to discuss further settings and treatment above the initial setup

PARAMEDIC

- ① Contact On-Line Medical Consultation
- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

EKG INSTRUCTIONS

ALL PROVIDERS

- Focused history and physical exam
 - Assess for signs or symptoms suggestive of cardiac ischemia or infarction.
 - Determine the need for a 12 Lead EKG.
- Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available

ADULT

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

EMT
AEMT

EMT
AEMT

- 12 Lead EKG (If available) on the following patients:
 - Pain in chest or upper abdomen
 - Cardiac dysrhythmia
 - Syncope or near syncope
 - Acute general weakness
 - Acute dyspnea
 - Post arrest if spontaneous circulation returns
 - Concern for ACS presentation
- Acquire and transmit EKG
- All EKG's suggestive of acute MI should be immediately transmitted to a STEMI/PCI Receiving Center, if available, or to nearest ED
- If the patient has a STEMI, then transport to the closest available STEMI/PCI receiving center, if available.
- If STEMI/PCI receiving center not available, transport to closest available emergency department

- 12 Lead EKG (If available) on the following patients:
 - Pain in chest or upper abdomen
 - Cardiac dysrhythmia
 - Syncope or near syncope
 - Acute general weakness
 - Acute dyspnea
 - Post arrest if spontaneous circulation returns
 - Concern for ACS presentation

Confirm with OLMC if there are any questions

PARAMEDIC

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

LEFT VENTRICULAR ASSIST DEVICE (LVAD)

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess for evidence that resuscitation should not be attempted per the *Death Determination Guideline*.
 - Evaluate for Medical Alert Bracelet with instructions. Follow instructions as able.
 - The LVAD consists of an implanted, continuous flow pump attached to the left ventricle, an external control device, and power supply secured by a harness
 - Every patient should have a backup equipment bag for his or her LVAD.
 - Patients and families are usually well educated on the power supply of their LVAD and the use of the emergency hand pump. Utilize them and follow their directions on scene.
 - Rhythm analysis, blood pressure, and oxygen saturation assessment.
 - Patients with non-pulsatile assist devices will not have a palpable pulse. Assess for signs of adequate perfusion using skin signs and blood pressure.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Check to see if the patient is responsive.
 - Check if the LVAD is functioning by listening for a HUM.
 - Check the patient's rhythm.
 - Check for alarm lights and sounds – Continuous tone is URGENT.
 - Check cable connections.
 - Check power source.
 - Change controller if needed.
 - NO chest compressions unless you are unable to restart the pump.
 - Follow ACLS guidelines as needed.
- ❑ **Key Considerations**
 - Determine Type of Device – Heart Mate II, Jarvik 2000, or Heartware
 - Transport to the specialty center that implanted the device is preferable, if stable and transport times are reasonable.
 - Patients or their families should have a phone number to their LVAD coordinator. This person should be used as online medical consultation (OLMC). If the number is not available, contact the LVAD Coordinator at the University Medical Center (801-581-2121) for assistance.
 - Patients with implanted LVADs have a low intrinsic cardiac function/reserve that is, without mechanical assistance, incompatible with long-term survival.

ADULT

EMT

- ❑ BLS airway support as needed
- ❑ **EVEN WHEN ACLS RESUSCITATION IS UNDERTAKEN, DO NOT PERFORM CPR IN THESE PATIENTS UNLESS A HAND PUMP FOR THE DEVICE DOES NOT EXIST. RUPTURE OF THE VENTRICULAR WALL MAY OCCUR.** If the device has a hand pump, this may be undertaken at a rate of 60-90 beats per minute

AEMT

- ❑ Supportive care of airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*
LVADs are preload dependent and a fluid bolus may improve perfusion

PARAMEDIC

- ❑ ACLS medications as indicated

NEWBORN RESUSCITATION

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Glucose assessment via heel stick - Oral glucose is **not** indicated in the newborn
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - If the newborn is apneic, slow to respond, has slow or gasping respirations, or persistent central cyanosis
 - Suction (bulb syringe) mouth, then nose.
 - Warm and stimulate
 - Evaluate respirations, heart rate, and activity
 - If apneic, cyanotic, lethargic, HR<100
 - Perform manual airway maneuvers and provide BVM at rate of 30-40bpm with 100% oxygen
 - Assist ventilations with supplemental oxygen for at least 30 seconds
 - If no improvement or HR is <60 bpm, begin chest compressions
 - Compression/ventilation ratio of 3:1 and a rate of 120 events per minute
- ❑ **Key Considerations**
 - Treatment protocols from current national neonatal resuscitation certification programs (e.g. NALS, NRP) may be used in lieu of these guidelines

EMT

AEMT

- ❑ Advanced airway placement may be indicated when:
 - BVM has been ineffective
 - Chest compressions are performed
- ❑ IV or IO NS at a keep open (approx. 10ml/hr.) rate to avoid volume overload
 - Only when required for fluid resuscitation or parenteral medication
 - IO access is only indicated when life-threatening conditions are present
- ❑ **Epinephrine**
 - **0.01-0.03 mg/kg = 0.1-0.3 ml/kg (1:10,000)** IV or IO
 - Repeat every 3-5 minutes until spontaneous heart rate remains > 60 bpm
- ❑ **Naloxone (Narcan) 0.1mg/kg** repeated every 2-3 min as needed for babies of suspected narcotic addicted mothers

EVIDENCE OF HYPOPERFUSION OR HYPOVOLEMIA

- ❑ NS (IV or IO) @ 10 mL/kg syringe bolus over 5-10 min
 - ① Additional boluses require physician approval

PARAMEDIC

- ❑ Endotracheal intubation may be indicated when:
 - BVM has been ineffective
 - Meconium aspiration with depressed respirations, decreased muscle tone, or heart rate <100 bpm
 - Chest compressions are performed
 - Insert a gastric tube in all intubated patients
- ❑ **Dextrose 10%** per *Glucose Emergencies - Hypoglycemia/Hyperglycemia Guidelines*

OPTIONAL ORDERS BY MEDICAL CONSULTATION ONLY

- ① **Sodium bicarbonate 1-2 mEq/kg** IV or IO

**POST CARDIAC ARREST MANAGEMENT / THERAPEUTIC HYPOTHERMIA
RETURN OF SPONTANEOUS CIRCULATION (ROSC)**

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose assessment
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Preferential transport to a STEMI/PCI receiving center, if available.
 - Consider initiation of **Therapeutic Hypothermia**

Inclusion Criteria:

 - Cardiac arrest with ROSC
 - >14 years of age
 - GCS <9 (comatose)
 - Supraglottic Airway/Endotracheal Intubation with confirmed placement of airway

Contraindications:

 - DNR order
 - Coma unrelated to cardiac arrest (e.g. Intoxication, sepsis, trauma, CVA, status epilepticus)
 - Uncontrolled bleeding or known coagulopathy
 - Pregnancy
 - Recent major surgery
 - Patient is awake and alert
 - Unable to establish an advanced airway

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*
- ❑ **Therapeutic Cooling Procedure** for eligible patients:
 - Establish bilateral large bore IV/IO access
 - If available, monitor and insure ETCO₂ at >20mmHg. The target is 35-40mmHg. Do not hyperventilate
 - Obtain a 12-lead ECG, if able, and transmit to OLMC
 - Rapidly infuse cold (4 degree Celsius) NS at 30ml/kg bolus not to exceed 2 liters
 - Narcotics may be required for control of shivering. Follow the *Pain and Anxiety Management Guideline*.
 - Remove outer clothing while maintaining modesty
 - Apply ice packs to the patient's groin and axilla
 - Closely monitor the patient, keeping the temperature as close to 36C° as possible. (96.8 F°)
 - Discontinue cooling if patient awakens, develops an unstable arrhythmia, sustained SBP<80 or severe bleeding

EMT
AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy guidelines*
- ❑ **Monitor closely for hypotensive shock.** Consult with OLMC for direction if blood pressure is less than pediatric lowest acceptable systolic blood pressures
 - 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.
- ❑ **Discuss Therapeutic Cooling with OLMC, it is often contraindicated in patients less than 15 years old**

① **Without previous antiarrhythmic therapy during arrest consider**

- **Lidocaine 0.5-1.5 mg/kg IV push**, (if not given Lidocaine during the arrest), followed by continuous infusion per Chart in Appendix of 2-4 mg/min

PARAMEDIC

- ❑ **Vecuronium** (optional) – Patient **MUST** be intubated to use.
 - **0.1mg/kg to a max of 10mg IV**.
 - This should be reserved for individuals with shivering, may be used in lieu of narcotics
- ❑ **With previous lidocaine or amiodarone therapy during cardiac arrest resuscitation consider:**
 - **Lidocaine**, begin continuous infusion **2-4 mg/min**
 - **Amiodarone**, begin infusion at **1mg/min**

① **Maintain SBP >80 mmHg**, utilizing pressors, if necessary

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

And/or

① **Dopamine 2-20 mcg/kg/min IV/IO infusion** for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (*Goal is to maintain a mean arterial pressure (MAP) >70 mmHg*)

PARAMEDIC

PULSELESS ARREST – NON-SHOCKABLE RHYTHM

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess for evidence that resuscitation should not be attempted per the *Death Determination Guideline*.
 - Assess for presence or absence of a pulse.
 - Determine rhythm – asystole, pulseless electrical activity, etc.
 - Assess blood glucose level.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Begin CPR
 - Consider Underlying Causes and Treat
 - **H's** - Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hyper-/hypokalemia, Hypothermia, Hypoglycemia
 - **T's** – Toxins (Overdose), Tamponade (Cardiac), Tension Pneumothorax, Thrombosis (ACS or Pulmonary), Trauma
- ❑ **Key Considerations**
 - Pregnancy >20 weeks gestation - Place wedge-shaped cushion or multiple pillows under patient's right hip (L lateral decubitus position)
 - Treatment protocols from current nationally established cardiac care certification programs (e.g. ACLS, PALS) may be used in lieu of these resuscitation guidelines.
 - 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.

EMT
AEMT

- ❑ Begin CPR and apply AED
- ❑ Advanced airway, vascular access and fluid therapy per the *IV/IO Access and Fluid Therapy Guidelines*
- ❑ **Epinephrine**
 - **1 mg (1:10,000) IV/IO push**
 - Consider 3-5 mg if arrest is from beta blocker overdose or anaphylaxis
 - Repeat every 3-5 minutes as long as patient remains pulseless
- ❑ Begin IV NS Bolus

📞 **Contact OLMC before terminating efforts in the field**

PARAMEDIC
📞 Establish OLMC for further orders or therapies

EMT
AEMT

- ❑ Begin CPR and apply AED
- ❑ Advanced airway, vascular access and fluid therapy per the *IV/IO Access and Fluid Therapy Guidelines*
- ❑ **Epinephrine**
 - **0.01 mg/kg = 0.1 ml/kg (1:10,000) IV/IO push**
 - Repeat every 3-5 minutes as long as patient remains pulseless
 - May repeat initial dose
- ❑ Begin 20ml/kg bolus of NS, reassess and repeat if needed to a max of 60cc/kg

📞 **Contact OLMC before terminating efforts in the field**

PARAMEDIC
📞 Establish OLMC for further orders or therapies

PULSELESS ARREST: SHOCKABLE (VENTRICULAR FIBRILLATION or PULSELESS VENTRICULAR TACHYCARDIA)

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess for presence or absence of a pulse.
 - Determine probable rhythm – ventricular fibrillation or pulseless ventricular tachycardia
 - Assess blood glucose level.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ **Treatment Plan**
 - Begin CPR
 - Assume cardiac origins for all adult arrests unless evidence to the contrary. Consider underlying causes and treat when possible.
 - **H's** - Hypovolemia, Hypoxia, Hydrogen ion (Acidosis), Hyper/hypokalemia, Hypothermia, Hypoglycemia
 - **T's** – Toxins (Overdose), Tamponade (Cardiac), Tension Pneumothorax, Thrombosis (ACS or Pulmonary), Trauma
- ❑ **Key Considerations**
 - Assess for evidence that resuscitation should not be attempted.
 - Pregnancy >20 weeks gestation - Place wedge-shaped cushion or multiple pillows under patient's right hip (L lateral decubitus position)
 - Transport these patients to the nearest emergency department without delay while attempting to provide continuous compressions and defibrillation, as there is a potential to perform emergency cesarean section.
 - Treatment protocols from current nationally established cardiac care certification programs (e.g. ACLS, PALS) may be used in lieu of these resuscitation guidelines.
 - AED is only to be used > 1 year of age. Use a pediatric system, if available, for ages 1 to 8 years old.
 - 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

- ❑ If arrest is **witnessed**
 - Defibrillate immediately if AED or manual defibrillator is available.
- ❑ If **un-witnessed** or defibrillator is not immediately available.
 - Begin high quality CPR (100 compressions per minute with minimal interruptions, 2 minute cycles)
 - When AED arrives, attach to patient and defibrillate if a shock is advised
- ❑ Resume CPR immediately after each shock and continue for 2 minutes or until asked to hold by the AED
- ❑ Check pulse and assess rhythm / shock if advised after each 2 minutes cycle of compressions
- ❑ Place an NP or OP airway(s) and a non-rebreather mask with high-flow oxygen during the first 2-3 cycles of CPR/defibrillation. After 2-3 cycles apply asynchronous BVM breaths at a rate of 1 breath every 6-8 seconds

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ If arrest is **witnessed**
 - Defibrillate immediately if AED or manual defibrillator is available. **2 J/kg** for the first attempt
- ❑ If **un-witnessed** or defibrillator is not immediately available.
 - Begin high quality CPR
 - When AED arrives, attach to patient and defibrillate if a shock is advised
- ❑ Resume CPR immediately after each shock and continue for 2 minutes (5 cycles) or until asked to hold by the AED
- ❑ Check pulse and assess rhythm / shock if advised after each 2 minutes cycle of compressions
- ❑ Place an NP or OP airway(s) and apply asynchronous BVM breaths at a rate of 1 breath every 4-6 seconds

AEMT

- Vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guidelines*
- Airway management as above with use of a supraglottic airway device instead of BVM, if available
- Defibrillation: 360J** for a monophasic defibrillator or **200J** for a biphasic
- Resume CPR (2 minute cycle) immediately following shock delivery, then perform rhythm analysis

PERSISTENT OR RECURRENT VF/VT PRESENT

- Epinephrine**
 - **1 mg (1:10,000) IV push**
 - Repeat every 3-5 minutes

ANTIARRHYTHMICS

- May use any **ONE** antiarrhythmic available, either amiodarone or lidocaine
- Amiodarone**
 - **300mg IV/IO** for refractory VF/pulseless Vtach
 - Second dose is 150mg IV/IO
- Lidocaine**
 - **1-1.5 mg/kg IV/IO push** or one time dose of 1.5 mg/kg
 - May repeat every 3-5 min up to 3 mg/kg

PARAMEDIC

- Consider endotracheal intubation
- Vasopressin**
 - Give 40 units IV/IO in place of the 1st or 2nd dose of epinephrine.
 - May be more effective than epinephrine in cases of beta blocker overdose
- Magnesium** - Give 1-2gm IV over 2 minutes for Torsades de Pointes

AEMT

- Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guidelines*
- Defibrillation: 2 J/kg** for the first shock with either a monophasic or biphasic defibrillator. Second shock at **4J/Kg** and subsequent shocks at $\geq 4J/Kg$ to a maximum of 10J/Kg or the adult dose
- Resume CPR (2 minute cycle) immediately following shock delivery, then perform rhythm analysis

PERSISTENT OR RECURRENT VF/VT PRESENT

- Epinephrine**
 - **0.01 mg/kg = 0.1 ml/kg (1:10,000) IV or IO push**
 - Repeat every 3-5 minutes
 - May repeat initial dose

ANTIARRHYTHMICS

- May use any **ONE** antiarrhythmic available, either amiodarone or lidocaine
- Amiodarone**
 - **5mg/kg IV/IO**
 - May repeat up to 2 times for refractory VF/pulseless VT
 - Do not exceed 300mg for VFib/Pulseless Vtach
- Lidocaine**
 - **1 mg/kg IV/IO**
 - May repeat every 3-5 minutes up to 3 mg/kg

PARAMEDIC

- Consider Endotracheal Intubation
- Vasopressin** - Not Recommended.
- Magnesium** - Give 25-50mg/kg IV/IO for Torsades de Pointes. Maximum 2grams

TACHYCARDIA (With a Pulse)

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Assess blood glucose level
 - Determine probable rhythm – sinus tachycardia, supraventricular tachycardia, ventricular tachycardia, etc.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available
- ❑ Perform a 12 EKG if possible.
- ❑ **Treatment Plan**
 - Identify and treat the underlying cause (e.g. hypotension, pain, medication, heart failure, etc.)
- ❑ **Key Considerations**
 - Pregnancy >20 weeks gestation - Place wedge-shaped cushion or multiple pillows under patient's right hip (L lateral decubitus position)
 - Treatment protocols from current nationally established cardiac care certification programs (e.g. ACLS, PALS, etc.) may be used in lieu of these resuscitation guidelines.
 - 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.

EMT

EMT

AEMT

AEMT

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

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

SUPRAVENTRICULAR TACHYCARDIA

- ❑ In stable patients, obtain a 12 Lead EKG, if possible, to establish a baseline
- ❑ In stable patients, may perform maneuvers to increase vagal tone (Valsalva, ice pack to face, Trendelenburg position, etc.)

SUPRAVENTRICULAR TACHYCARDIA

- ❑ In stable patients obtain a 12 Lead EKG, if possible, to establish a baseline
 - Infants: SVT rate usually greater than 220 bpm with no variation
 - Children: SVT rate usually greater than 180 bpm with no variation
- ❑ In stable patients, may perform maneuvers to increase vagal tone (Valsalva, ice pack to face, Trendelenburg position, etc.)

PARAMEDIC

- ❑ **Adenosine**
 - May be given for narrow complex tachycardia if regular and monomorphic
 - 6mg IV/IO initially
 - If no conversion, repeat with 12mg IV/IO
 - May repeat ever 3 minutes to max 3 doses

Stable Wide Complex (QRS > 120 msec) Tachycardia

① **If stable, consult with OLMC prior to medication administration**

Antiarrhythmic medications:

- ❑ May use any **ONE** antiarrhythmic available
- ❑ **Amiodarone**
 - Give 150mg IV/IO over 10 minutes
 - Second dose is 150mg IV/IO over 10 minutes if needed
- ❑ **Lidocaine**
 - 1-1.5 mg/kg IV
 - May repeat every 3-5 min up to 3 mg/kg
- ❑ **Procainamide**
 - Give 15mg/kg to max 1000mg IV/IO over 60 minutes.
 - Stop infusion for:
 - Conversion of rhythm
 - Complete the infusion
 - Drop of SBP<100 mmHg
 - QRS width increases by >50%
 - Severe Bradycardia or AV block

Unstable Tachycardia – Synchronized Cardioversion

If no response to previous interventions and the patient has “Serious Signs or Symptoms” such as:

- Acute Cardiac Chest Pain
 - Active Congestive Heart Failure/Pulmonary Edema
 - Altered Mental Status
 - SBP < 90 mm Hg
 - Signs of Shock:
 - Cool, clammy, or pale skin
 - Weak or thready pulse
- ❑ **Synchronized Cardioversion**
 - Indicated immediately in the unstable patient
 - **Initial energy doses:**
 - Narrow Regular: **50-100J** (mono- or bi-phasic)
 - Narrow Irregular: **120-200J** biphasic and **200J** monophasic

PARAMEDIC

- ❑ **Adenosine**
 - May be given for narrow or wide complex tachycardia if regular and monomorphic.
 - **0.1mg/kg IV/IO to max 6mg**
 - If no conversion, repeat with 0.2mg/kg IV/IO to max. 12mg
 - May repeat every 3 minutes up to max 3 doses

Stable Wide Complex (QRS > 120 msec) Tachycardia

① **If stable, consult with OLMC prior to medication administration**

Antiarrhythmic medications:

- ❑ May use any **ONE** antiarrhythmic available
- ❑ **Amiodarone**
 - Give 5mg/kg IV/IO over 20-60 minutes
 - May repeat up to 2 times for refractory VF/pulseless VT
 - Do not exceed 300mg for VFib/Pulseless Vtach
- ❑ **Lidocaine**
 - 1 mg/kg IV/IO
 - May repeat every 3-5 minutes up to 3 mg/kg
- ❑ **Procainamide**
 - Give 15mg/kg to max 1000mg IV/IO over 30-60 minutes.
 - Stop infusion for:
 - Conversion of rhythm
 - Complete the infusion
 - Drop of SBP<70 + 2x age
 - QRS width increases by >50%
 - Severe Bradycardia or AV block

Unstable Tachycardia – Synchronized Cardioversion

If no response to previous interventions and the patient has “Serious Signs or Symptoms” such as:

- Active Congestive Heart Failure/Pulmonary Edema
 - Altered Mental Status
 - 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.
 - Signs of Shock:
 - Cool, clammy, or pale skin
 - Weak or thready pulse
- ❑ **Synchronized Cardioversion**
 - Indicated immediately in the unstable patient
 - Initial energy dose is **0.5-1 J/kg**
 - If no response double energy dose to **2 J/kg**

- Wide Regular: **100J** (mono- or bi-phasic)
- Wide Irregular: defibrillate without synchronization
- If no response, may increase energy dose to maximum: 360 J (monophasic) or 200 J (biphasic)

Sedation prior to Cardioversion

- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. Contact OLMC before changing to a different medication.
- ❑ **Midazolam**
 - 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 - 0.2 mg/kg** to a maximum of 10mg as a one-time dose
- ❑ **Diazepam** – 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
- ❑ **Lorazepam** – 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

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

Sedation prior to Cardioversion

- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. Contact OLMC before changing to a different medication.
- ❑ **Midazolam**
 - 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.**
 - Do NOT exceed adult dosing.
 - **Intranasal or oral- 0.2 mg/kg** to a maximum of 10mg as a one-time dose.
- ❑ **Diazepam** – 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** – 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.

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

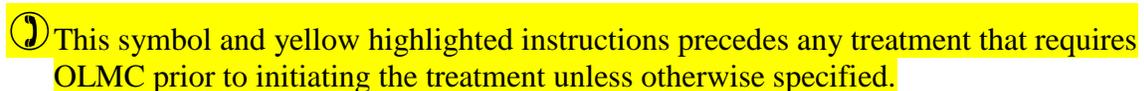
PART II. GENERAL PATIENT CARE GUIDELINES

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.

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

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.
- ❑ 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.
- ❑ 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** – 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 H₂O to begin. May increase to 10 mm H₂O if needed. **Further increase only with OLMC consultation**
 - **BIPAP** – Provide 10 L/min oxygen and IPAP at 15 cm H₂O with EPAP at about 5 cm H₂O

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.

① **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

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.

① 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

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 respiratory rate settings

① Contact OLMC for further instructions as needed.

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

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 respiratory rate settings

① 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

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 0.4–2 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

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 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

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

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

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.



KEY POINTS/CONSIDERATIONS

- ① 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 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 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.



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

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
 - 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

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

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

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

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

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

- ❑ 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**

❶ 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

PARAMEDIC

No Additional Paramedic Level Interventions

No Additional Paramedic Level Interventions

PAIN & ANXIETY MANAGEMENT

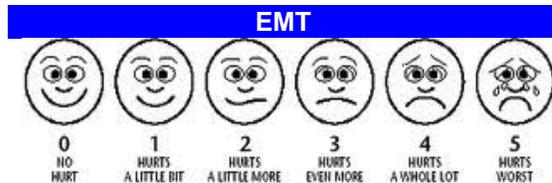
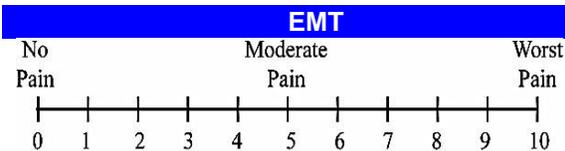
ALL PROVIDERS

- ❑ 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, SaO₂ < 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, SaO₂ <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

PEDIATRIC (<15 years of Age)

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



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	SQUIRMING, SHIFTING BACK AND FORTH, TENSE	ARCHED, RIGID, OR JERKING

	EASILY		
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 - 0.2 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.

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

PARAMEDIC

No Additional Paramedic Level Interventions

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

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

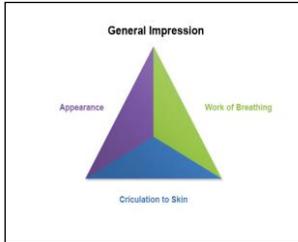
PARAMEDIC

No Additional Paramedic Level Interventions

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

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

EMT
AEMT
PARAMEDIC

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

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ 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

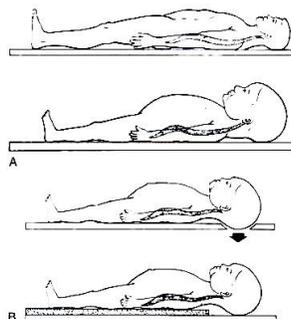
📞 **Contact OLMC for further instructions if the patient refuses immobilization despite the provider's assessment for the need for spinal immobilization.**

AEMT

PARAMEDIC

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 10-15 lpm of 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

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

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

- ❑ 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.

- ❑ **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) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.
And/or
- 📞 **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. *(Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)*

📞 Call OLMC if shock has not been reversed.

PARAMEDIC

- 📞 **Epinephrine (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**
- 📞 **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

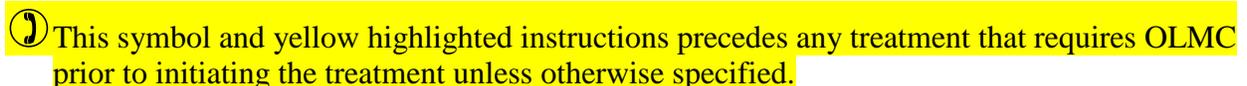
PART III. MEDICAL PATIENT CARE GUIDELINES

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 own 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 authorized any dosages of medications exceeding those in the guidelines.

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.

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.
 - If the patient is stable and is >50 years old, has a history of CAD, or if the patient is tachycardic obtain a 12 lead EKG prior to administering epinephrine.
 - 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.
 - Give IM epinephrine as soon as the diagnosis of anaphylaxis has been established.
 - 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

- Give or assist patient with **Epipen (0.3 mg)** IM for respiratory distress and/or shock from anaphylaxis
- Assist patient with own Albuterol inhaler according to the prescription on the inhaler
- O₂ as needed to maintain SaO₂ above 90%.

EMT

- Give or assist patient with **Epipen Jr. (0.15 mg)** IM for respiratory distress and/or shock from anaphylaxis. If >25kg then give Adult dose
- Assist patient with own Albuterol inhaler according to the prescription on the inhaler
- O₂ as needed to maintain SaO₂ above 90%.

AEMT

- Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*
- Epinephrine (1:1000) 0.3 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) 50 mg** IV/IO/IM for moderate to severe allergic reaction
- If significant WHEEZING is present:
 - **Albuterol 2.5 mg every 10 minutes** via nebulization for bronchospasm/ wheezing until symptoms subside
- If STRIDOR is present:
 - **Epinephrine (1:1000) 2mL** mixed with 3mL of NS via nebulize

AEMT

- 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 significant 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

PARAMEDIC

CHILDREN WITH SPECIAL HEALTHCARE NEEDS

ALL PROVIDERS

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

DROWNING OR SUBMERSION

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, core body temperature and oxygen saturation assessment.
 - Assess the scene for other environmental issues or possible toxins.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Safely remove patient from the water.
 - Place patient supine
 - Remove wet clothing
 - Ensure patient warmth
 - Spinal motion restriction per *Spinal Immobilization and Clearance Guideline*. Particular care to cervical spine immobilization should be given to patients with the possibility of a diving injury or drowning in shallow water.
 - Scuba divers “Dive Computer” or Dive Log Book should be transported with the patient.
- ❑ **Key Considerations**
 - Airway maintenance is the primary consideration.
 - There can be co-existing conditions depending on the type of submersion injury including trauma, hypothermia, and intoxication.
 - Hypotension is associated with a worse outcome, monitor closely and treat / prevent per the *Shock and Fluid Therapy Guideline* as needed.
 - Submersion in cold water will often cause severe hypothermia, notify receiving hospital so that appropriate resources and warming equipment can be mobilized.
 - CPR and other resuscitative efforts should be continued until arrival at the hospital as drowning patients may sometimes recover after prolonged resuscitative efforts.

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
 - Reassess patient after each dose to determine need for additional dosing

AEMT

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

PARAMEDIC

- ① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. *(Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)*

PARAMEDIC

- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

FEVER MANAGEMENT

ALL PROVIDERS

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

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ **Acetaminophen (Tylenol) 1000 mg** by mouth
- ❑ **Ibuprofen (Motrin) 800 mg** by mouth

EMT

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

AEMT

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

AEMT

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

PARAMEDIC

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

GLUCOSE EMERGENCIES HYPOGLYCEMIA/HYPERGLYCEMIA

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose assessment (heel stick is preferred in newborns or infants).
 - Hypoglycemia is defined as blood glucose level <50 mg/dl for adults, <60 mg/dl for children, and <40 mg/dl for the term neonate (<30days of age) with any degree of altered mentation.
- ❑ **Treatment Plan**
 - 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.
 - OLMC has been contacted and agrees to the release.
 - Children should be transported to the ED regardless of improvement in the field.
- ❑ **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**

HYPERGLYCEMIA

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

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**

- ☐ **Glucagon 0.1 mg/kg (max dose of 1 mg)** IM if no IV/IO access

HYPERGLYCEMIA

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

PARAMEDIC

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

IMMUNOCOMPROMISED PATIENTS

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Blood glucose, temperature and oxygen saturation assessment.
 - Assess and document reasons the patient may be immunocompromised, such as congenital syndromes, chemotherapy, transplant surgery, autoimmune disorder, or steroid usage.
- ❑ Continuous ECG, ETCO₂, and pulse oximetry monitoring when available.
- ❑ **Treatment Plan**
 - Assess and treat compromised airway, respiratory distress, altered mental status.
 - Assess for overwhelming sepsis with shock and treat per the *Shock and Fluid Therapy Guideline*.
 - If severely febrile (temperature 100.4°F or 38.0°C), may give acetaminophen orally and document temperature. If temperature below this level, do not treat fever.
- ❑ **Key Considerations**
 - Family members are often the best resource for patient care information.
 - Due to patient's inability to fight infection, patient may become very ill in a short period of time. These patients may present in overwhelming shock or sepsis, or respiratory distress.
 - Protect patients from infectious exposure during transport.
 - All EMS providers should use universal precautions (strict hand washing, gloves) and masks should be worn by providers with any possible infectious condition (URI, etc.)
 - These patients are at risk for low platelets and anemia, bleeding is a risk.
 - No rectal medications for treatment.
 - Avoid Ibuprofen with these patients.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- ❑ For fever above 104°F or 40.0°C:
 - **Acetaminophen (Tylenol) 1000 mg** by mouth.

EMT

- ❑ For fever above 104°F or 40.0°C :
 - **Acetaminophen (Tylenol) 15mg/kg by mouth or rectum** – Recognize that Acetaminophen comes in various concentrations:
 - Children's Liquid: 160mg/5mL
 - Chewable Tablets: 80mg or 160mg
 - Junior Strength caplets: 160mg
 - Rectal Suppositories: 80mg, 120mg and 325mg and may be cut to an estimated dose

AEMT

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

AEMT

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

PARAMEDIC

No Additional Paramedic Level Interventions

PARAMEDIC

No Additional Paramedic Level Interventions

OBSTETRICAL EMERGENCIES

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Do not perform pelvic exam
- ❑ 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	<div style="text-align: right; margin-right: 5px;">↓</div> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="background-color: #D9E1F2;">Severely depressed</td> <td style="background-color: #D9E1F2;">0-3</td> </tr> <tr> <td style="background-color: #D9E1F2;">Moderately depressed</td> <td style="background-color: #D9E1F2;">4-6</td> </tr> <tr> <td style="background-color: #D9E1F2;">Excellent condition</td> <td style="background-color: #D9E1F2;">7-10</td> </tr> </table>	Severely depressed	0-3	Moderately depressed	4-6	Excellent condition	7-10
Severely depressed	0-3									
Moderately depressed	4-6									
Excellent condition	7-10									
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							

- Special Situations – **TRANSPORT TO THE CLOSEST HOSPITAL**
- **Excessive hemorrhage** following delivery or delayed placenta delivery.
 - Begin fundal massage (unless multiple birth is anticipated).
 - Paramedics should begin 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 raise presenting portion of newborn off the cord.

- If possible, place mother in Trendelenburg position. Otherwise, use knee-chest position.
- Keep cord moistened with sterile saline.
- Continue to keep pressure off cord throughout transport.
- Consider albuterol nebulized treatment and/or IV magnesium sulfate to suppress uterine contractions (contact OLMC)
- **Breech presentation (coming buttocks first)**
 - Position mother with her buttocks at edge of bed, legs flexed.
 - Support baby's body as it delivers.
 - As the head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum. Immediately suction mouth, then nose.
 - If head does not deliver, but newborn is attempting to breath, place gloved hand into the vagina, palm toward newborn's face, forming a "V" with the index and middle finger on either side of the nose. Push the vaginal wall from the face. Maintain position throughout transport.
 - 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 on-line medical consultation 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 AEMT

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

PARAMEDIC

- ❑ **Oxytocin (Pitocin)**
 - **Intramuscular. Give 10 units IM.**
 - ① **IV/IO Infusion may be started if bleeding continues by adding 40 units to 1000mL NS and titrating the infusion to decrease bleeding and patient comfort.**
- ❑ 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.

EMT AEMT

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

PARAMEDIC

- ❑ Refer to the *Newborn Resuscitation Guideline*

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**
 - Do not give charcoal prior to OLMC or Poison Control consultation and agreement
 - Consider a 12 lead EKG.
 - Patient's 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

- ❑ **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
- ① **Epinephrine (1:1000) 2–10 mcg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg
And/or
- ① **Dopamine 2-20 mcg/kg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)

PARAMEDIC

- ① **Sodium bicarbonate:** Contact OLMC
- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg
And/or
- ① **Dopamine 2-20 mcg/kg/min** IV/IO infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

OPTIONAL ORDERS BY OLMC ONLY

- ① **Administer Charcoal by orders of OLMC or 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

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
 - For choking infants apply a sequence of 5 back blows and 5 chest thrusts until the item is dislodged.
 - For choking adults and children, use the abdominal thrust maneuver.
 - Maintain airway, administer 10-15 lpm of oxygen via NRB.
- Key Considerations**
 - Recall that infants and small children are primarily nose breathers, provide oral and nasal suctioning for copious secretions.
 - Keep patient NPO for any respiratory distress and if children have a RR >60.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

- Assist with administration of prescribed metered dose inhaler or nebulizer medication per dosing instructions. If specific MDI dosing instructions are not available, give second dose after 20 minutes, if needed
- For patients with inadequate ventilations, in severe respiratory distress, assist ventilations with BVM and oropharyngeal or nasopharyngeal airway

EMT

- Assist with administration of prescribed metered dose inhaler or nebulizer medication per dosing instructions. If specific MDI dosing instructions are not available, give second dose after 20 minutes, if needed
- Allow the patient to achieve and remain in a position of comfort (the parents arms if desired) and keep them as calm as possible.
- For patients with inadequate ventilations, in severe respiratory distress, assist ventilations with BVM and oropharyngeal or nasopharyngeal airway

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 significant WHEEZING give:
 - **Albuterol 2.5 mg every 10 minutes** via nebulization until symptoms subside.

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 significant WHEEZING give:
 - **Albuterol 2.5 mg every 10 minutes** via nebulization until symptoms subside. Start with **1.25 mg if patient is <1 yr in age**.

- ❑ 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 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 cm H₂O to begin. May increase to 10 mm H₂O if needed. **Further increase only with OLMC consultation.**
 - Contact OLMC to discuss further settings and treatment above the initial setup

- ❑ 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

⌚ **Lidocaine 2% 40-60 mg (2–3 mL) added to Albuterol** for adult patients with “*cough variant asthma*” with severe coughing which inhibits respiratory function (with or without audible wheezes)

PARAMEDIC

PARAMEDIC

Consider supraglottic airway, endotracheal intubation, or cricothyrotomy in patients in severe distress 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.
 - Spinal motion restriction per **Spinal Immobilization and Clearance Guideline**
 - Ensure patients experiencing febrile seizures are not excessively dressed or bundled.
 - Any child <12 months old with 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. **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- 0.2 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

AEMT

- ❑ Advanced airway, vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guidelines**
- ❑ Choose **ONE** benzodiazepine for treatment and maximize dosing. **Contact OLMC before changing to a different medication**
- ❑ **Midazolam (Versed)**
 - **Intranasal or oral- 0.2 mg/kg, max dose of 10mg** as a one-time dose
 - 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**
 - Do NOT exceed adult dosing
- ❑ **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

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

PARAMEDIC

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

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

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
 - Preferentially transport to a Primary Stroke Center or Stroke Receiving Facility, if available. Consider air medical transport to facilitate rapid 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. Some risk factors include; sickle cell disease, congenital and acquired heart disease, head and neck infections, systemic conditions, (e.g. inflammatory bowel disease and autoimmune disorders), head trauma or dehydration.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT

EMT

- 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

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 - **Speech**
 - Normal: Patient uses correct words with no slurring
 - Abnormal: Slurred, inappropriate words or mute

AEMT

AEMT

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

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

PARAMEDIC

PARAMEDIC

No Additional Paramedic Level Interventions

No Additional Paramedic Level Interventions

TEMPERATURE 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, ET/CO₂, 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.
 - If patient is alert and not nauseated, oral rehydration with water or balanced electrolyte solution.
 - Severe muscle cramps may be relieved by gentle stretching of the muscles.
 - Temperature elevation **WITH** altered mental status (**Heat Stroke**)
 - Aggressive cooling to unclothed patient utilizing fine mist water spray and fans in conjunction with ice packs to 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 active external rewarming (no heat, forced hot air, warm packs, etc.)
 - Limit defibrillation attempts to 3 and NO external pacing
 - Rapid but gentle transport (rough movement may precipitate arrhythmias)
 - **Moderate** 86-93°F (30-34°C)
 - Use warm packs to head and neck, axillae, and groin
 - **Mild** >93°F (34°C)
 - Warm with blankets, warm environment, etc.
 - Frost Bite precautions – Do not rub or use dry external heat. Re-warm with 40°C water if possible.
- ❑ **Key Considerations**
 - 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
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)

EMT
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.
 - Collect environmental CO levels if equipment is available.
 - Treat external burns and possible airway burns per *Burns Guideline*
- ❑ Focused history and physical exam
 - Estimation of exposure time.
 - Pulse oximetry readings are inaccurate in the face of CO poisoning
- ❑ Continuous ECG, ETCO₂, and pulse oximetry 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
AEMT

EMT
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 (see indications above)

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

- ① **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

PARAMEDIC

- ① Early notification to receiving ED of potential CO poisoning
- ① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)

- ① Early notification to receiving ED of potential CO poisoning
- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

TOXIC EXPOSURE - CYANIDE

ALL PROVIDERS

- ❑ 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 carbon monoxide poisoning in patients exposed to closed space fire and smoke.
 - For industrial exposures, request the Material Safety Data Sheet (MSDS) 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

EMT AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*
- ❑ **Hydroxocobalamin 5 gm IV/IO** over 15 minutes (approximately 15 mL/min)

- ❑ Advanced airway, vascular access and fluid therapy per *IV/IO Access and Fluid Therapy Guidelines*
- ① **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

PARAMEDIC

- ① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. (Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)

- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg. **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

TOXIC EXPOSURE - HYDROFLUORIC ACID

ALL PROVIDERS

- ❑ 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 Material Safety Data Sheet (MSDS) 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

No Additional Paramedic Level Interventions

EMT
AEMT

- ❑ Advanced airway, vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guidelines*
- ① **Calcium Gluconate Gel for application: Contact OLMC or Poison Control Center for instructions**

PARAMEDIC

No Additional Paramedic Level Interventions

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.
- ❑ 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.
 - 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 (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

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

📞 Contact OLMC or Poison Control Center for instructions

📞 Monitor patients carefully for worsening symptoms and consult OLMC or Poison Control Center regarding further treatment

PARAMEDIC

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

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. Contact OLMC before changing to a different medication.

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. Contact OLMC before changing to a different medication

Midazolam

- 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 - 0.2 mg/kg** to a maximum of 10mg as a one-time dose.

Diazepam – 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 – 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.

① **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

① Haloperidol (Haldol) Contact OLMC for repeat dosing.

Midazolam

- 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**
 - Do NOT exceed adult dosing
- **Intranasal or oral - 0.2 mg/kg to a maximum of 10mg** as a one-time dose

Diazepam – 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 – 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

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

PARAMEDIC

① 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.

PART IV. TRAUMA PATIENT CARE GUIDELINES

These guidelines were created to provide direction for each level of certified provider in caring for trauma 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.

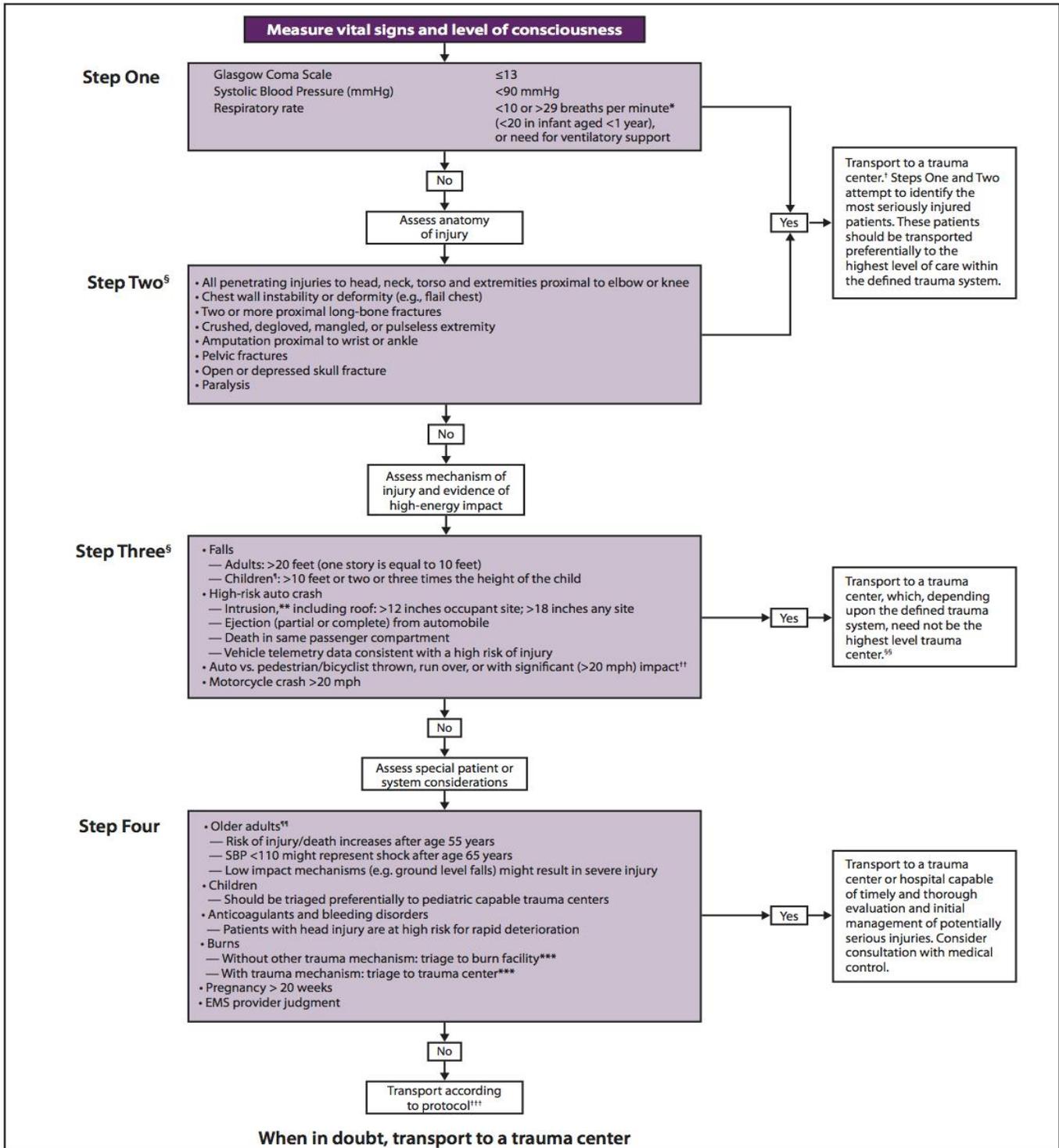
General Approach to Medical Patient Care Guidelines

- Assess your patient prior to initiating a guideline.
- Early notification allows the receiving physician to activate the receiving hospital's trauma alert system.
- Providers should describe vitals signs including GCS, injuries, mechanism of injury and any complicating factors that will affect treatment (step 4 Utah Trauma Field Triage Guidelines) so that the hospital may activate the appropriate level of trauma response.
- Consider stopping at a lower level trauma center if you have a prolonged transport and the patient has a compromised airway that you cannot secure.
- Pediatric reference tape-based dosing is preferred over calculated doses 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. These are the blood pressures to use for Pediatrics (<15 years old) under step one of the Utah Trauma Field Triage Guidelines.
- 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 your receiving hospitals and OLMC as soon as clinically possible for each patient.
- OLMC with a physician may change your treatment plan.
- Any variations to a guideline by the OLMC 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 approve usage of dosages in excess of the guidelines.

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.

Utah Trauma Field Triage Guidelines



Reference: MMWR, January 13, 2012, Vol. 61 No. 1.

4/25/2012

AMPUTATIONS

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - ❑ Maintain airway, administer 10-15 lpm of oxygen.
 - ❑ Unless this is an isolated injury, consider spinal motion restriction per the *Selective Spinal Immobilization Guidance*.
 - ❑ Apply direct pressure to control hemorrhage. Also consider tourniquets and hemostatic agents, if needed.
 - Amputated Body Parts and/or Tissue
 - If amputation is incomplete, cover stump with sterile dressing saturated in NS, splint affected digit or limb in baseline physiologic position.
 - All retrievable tissue should be transported (do not delay transport by spending an excessive amount of time looking for an amputated part).
 - Rinse part(s) with NS.
 - Wrap tissue in sterile gauze moistened with NS.
 - Place tissue into plastic bag or container.
 - Place bag/container into separate container filled with ice.
 - Do not allow tissue to come into direct contact with ice, do not freeze, and do not submerge in water.
 - Tooth Avulsion that are out over 30 minutes, partial or cannot be re-implanted on scene.
 - Handle tooth by chewing surface only (avoid touching the root).
 - Rinse with water. Do not scrub, dry, or wrap tooth in tissue or cloth.
 - Place tooth in container of (**in order of preference**)
 - Patient's Saliva
 - Milk
 - Normal Saline
 - Water
 - Re-Implantation of permanent teeth on scene within the first 30 minutes of injury (Primary or baby teeth should not be re-implanted).
 - Do not try to re-implant if more than 2 teeth are involved.
 - The tooth must be cleanly avulsed with the entire root present.
 - Only re-implant if it is one of the front 6 upper or lower teeth.
 - Patient must be conscious and cooperative.
 - Gently insert tooth back into the appropriate location without forcing it. Do not worry about positioning well.
 - Monitor closely for signs of shock, especially in amputations above the wrist or ankle.
 - Treat for pain and anxiety per the *Pain and Anxiety Management Guideline*.
- ❑ **Key Considerations**
 - Time to re-implantation for most limbs is critical.
 - Generally toe re-implantation from lawnmower accidents is not done.

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 Guideline*

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

PARAMEDIC

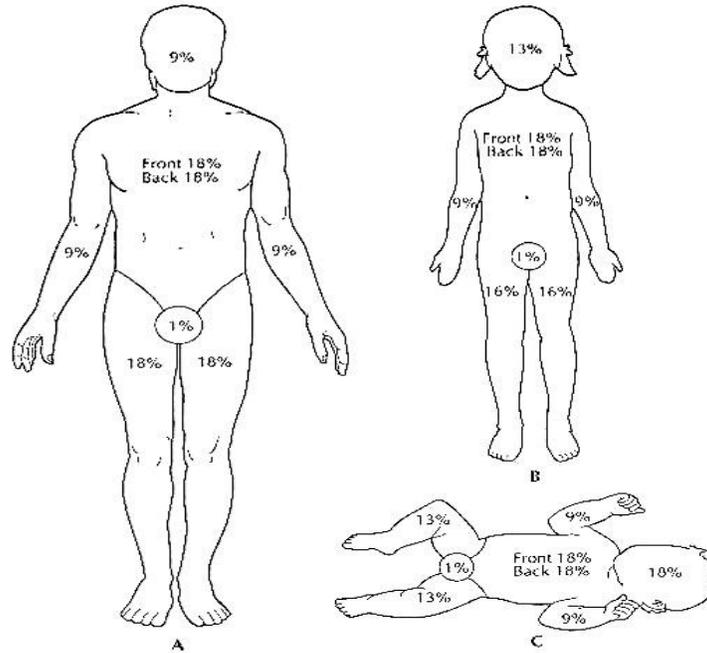
PARAMEDIC

BURNS – ELECTRICAL/THERMAL

ALL PROVIDERS

- ❑ Scene and patient management
 - ❑ Thermal Burns
 - Stop the burning process.
 - Do not pull material out of the wound but cut clothing around it.
 - ❑ Electrical Burns
 - Safely evacuate patient from electrical source.
 - Do not touch the patient until you are sure that the electrical source is disconnected.
 - When multiple patients are struck simultaneously by lightning or a high voltage source, those in respiratory and/or cardiac arrest should be given the highest priority of care, even those who appear dead on initial evaluation.
- ❑ Focused history and physical exam
 - ❑ Identify potential entry and exit wounds for electrical burns – both sites will generally be a full thickness burn site.
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available.
 - ❑ Avoid placing monitor attachments over burned skin if possible.
 - ❑ 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.
- ❑ 12 lead ECG where appropriate and if possible, avoid placing electrodes over burned skin.
- ❑ **Treatment Plan**
 - ❑ Monitor for developing airway compromise.
 - ❑ Initiate early oxygen therapy with high flow O₂, this is critical despite level of respiratory distress.
 - ❑ In the unconscious patient, implement spinal motion restriction per the **Selective Spinal Immobilization Guidance**.
 - ❑ With electrical burns anticipate heart rhythm irregularities (both ventricular and atrial).
 - ❑ Assess for circulatory compromise from circumferential extremity burns or ventilator compromise from circumferential chest burns.
 - ❑ Remove items that may constrict swelling tissue.
 - ❑ Estimate size and depth of burn using the percentage chart (below).
 - ❑ Dressings
 - Partial or Full Thickness (2nd or 3rd degree) <10% BSA - Wet sterile dressings.
 - Partial or Full Thickness (2nd or 3rd degree) >10% BSA - Dry sterile dressings.
 - ❑ Closely monitor patient's temperature and prevent hypothermia.
 - ❑ Treat for pain and anxiety per the **Pain and Anxiety Management Guideline**.
 - ❑ Consider AMTS (Air Medical Transport from the Scene) to a designated burn center for the following:
 - Inhalation injuries
 - Partial or Full Thickness (2nd or 3rd degree) burns (>20% BSA in adults or >15% in pediatrics).
 - Major trauma with burns
 - Circumferential burns
 - Burns covering significant portions of the face, hands, or perineum
- ❑ **Key Considerations**
 - Electrical Burns are frequently more serious than they appear.
 - Identifying the source as AC or DC voltage with the amperage will be helpful in the treatment.
 - Burn patients are TRAUMA patients. Care for traumatic injuries should precede care for the burn.
 - Potential CO and/or Cyanide exposure (closed space smoke exposure) should receive 100% oxygen by NRB.
 - Patients are prone to hypothermia due to heat loss from the burns.
 - Consider Child Abuse as a cause. Circumferential scald burn to hands, feet, buttocks, and genitalia are common burns seen in child abuse (especially in children <5 years old)
 - Definitions:
 - Superficial (1st Degree) Burns – red, painful, without blisters.
 - Partial Thickness (2nd Degree) Burns – red, painful/hypersensitive, swollen, with either intact or ruptured blisters.

- Full Thickness (3rd Degree) Burns – dark, leathery, painless, waxy, and does not blanch.



ADULT

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

- ❑ Advanced airway, vascular access per **IV-IO Access and Fluid Therapy Guideline**
 - ❑ If possible, avoid placing IV through burned skin
- ❑ Partial or Full Thickness (2nd or 3rd degree) >10% BSA – Fluid therapy following Parkland Burn Formula
 - ❑ NS 4 ml per kg body weight per % burn during the first 24 hours
 - To calculate: multiply 4ml X kg X % burn = total fluid requirement
 - Give half of this amount during the first 8 hours from the time of injury

PARAMEDIC

- ❑ High voltage electrical injury or direct lightning strike with significant tissue destruction
 - ❑ **Sodium Bicarbonate 1 mEq/kg (maximum of 100 mEq)** in 1000 mL NS wide open

EMT
AEMT

- ❑ Advanced airway, vascular access per **IV-IO Access and Fluid Therapy Guideline**
 - ❑ If possible, avoid placing IV through burned skin
- ❑ Partial or Full Thickness (2nd or 3rd degree) >10% BSA – Fluid therapy following Parkland Burn Formula
 - ❑ NS 4 ml per kg body weight per % burn during the first 24 hours
 - To calculate: multiply 4ml X kg X % burn = total fluid requirement
 - Give half of this amount during the first 8 hours from the time of injury

PARAMEDIC

- ❑ High voltage electrical injury or direct lightning strike with significant tissue destruction
 - ❑ **If diagnosed with rhabdomyolysis prior to transport from the hospital, increase fluid replacement to keep urine output >2ml/kg/hr.**
 - ❑ **Sodium bicarbonate per medical control**

CHEST TRAUMA

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - Maintain airway, administer 10-15 lpm of oxygen.
 - Consider spinal motion restrictions per the **Selective Spinal Immobilization Guideline**.
 - Apply direct pressure to any obvious external hemorrhage.
 - Cover open chest wounds with occlusive dressing.
 - Perform a needle decompression on the affected side for patient with chest injury and signs of shock.
 - Immobilize any obvious injuries and penetrating object, do not remove penetrating objects.
 - Maintain warmth to minimize heat loss.
 - Monitor for shock and hypovolemia. Assess mental status prior to and every 15 minutes during transport (GCS/AVPU).
 - Treat for pain and anxiety per the **Pain and Anxiety Management Guideline**.
- ❑ **Key Considerations**
 - Consider chest trauma as a cause in PEA arrest.
 - 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.

EMT

EMT

AEMT

AEMT

- ❑ Vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guideline**
- ❑ Suspected Tension Pneumothorax
 - ❑ Immediate needle decompression of affected side
- ❑ Traumatic Arrest
 - ❑ Consider bilateral needle decompression based on mechanism of injury

- ❑ Vascular access and fluid therapy per **IV-IO Access and Fluid Therapy Guideline**
- ❑ Suspected Tension Pneumothorax
 - ❑ Immediate needle decompression of affected side
- ❑ Traumatic Arrest
 - ❑ Consider bilateral needle decompression based on mechanism of injury

PARAMEDIC

PARAMEDIC

CRUSH INJURIES

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ 12 Lead ECG where available, before and after extrication
- ❑ **Treatment Plan**
 - Crush Syndromes should be considered for the following:
 - Entrapped/compressed patients under a load for more than 30 minutes
 - Patients with little or no movement for more than 4 hours (e.g. older patient falls, overdoses)
 - Maintain airway, administer 10-15 lpm of oxygen via NRB.
 - Consider spinal motion restriction per the *Selective Spinal Immobilization Guidance*.
 - Anticipate possible cardiac arrest upon extrication.
 - Patients often quickly develop elevated levels of potassium. Watch for the following ECG changes as signs of Hyperkalemia: peaked T waves, prolonged PR intervals, ST segment depression, QRS widening, heart blocks, and ventricular arrhythmias.
 - Immediately prior to the extrication, provide the adult patient with both Sodium Bicarbonate and Calcium Chloride. Use of these medications for the pediatric patient should be directed by medical control.
 - Treat for pain and anxiety per the *Pain and Anxiety Management Guideline*.
- ❑ **Key Considerations**
 - Victims will often develop hypo or hyperthermia with prolonged environmental exposure.
 - ❑ 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 = 90.

ADULT

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

EMT
AEMT

- ❑ Vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*
 - ❑ **NS 0.9%** only; 1 liter bolus, then reassess
 - ❑ When possible, **initiate IV prior** to patient being freed from object or removed from floor after a prolonged immobile period of time
- ❑ Constant crush injuries greater than 30 min duration
 - **Sodium Bicarbonate 1 mEq/kg (Maximum of 100 mEq)** IV push prior to beginning infusion and up to 2 additional times if patient develops cardiac arrhythmias or a prolonged QRS > 100ms

-AND-

 - **Sodium Bicarbonate drip: 1 mEq/kg (maximum of 100 mEq)** in 1000 mL NS wide open.

- ❑ Vascular access and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*
 - ❑ **NS 0.9%** only; 20ml/kg then reassess
 - ❑ When possible, **initiate IV prior** to patient being freed from object or removed from floor after a prolonged immobile period of time
- ❑ Constant crush injuries greater than 30 min duration
 - **If diagnosed with rhabdomyolysis prior to transport, increase fluid replacement to keep urine output >2ml/kg/hr.**
 - **Sodium Bicarbonate per medical control**

PARAMEDIC

PARAMEDIC

HEAD INJURY (TRAUMATIC BRAIN INJURY)

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - ❑ Maintain airway. Administer oxygen 10-15 lpm via NRB.
 - ❑ Consider spinal motion restrictions per the *Selective Spinal Immobilization Guideline*.
 - Consider elevating head of spinal board or stretcher 30 degrees.

Mild Hyperventilation Guide

Age	Normal Target RR	10% increase in RR
0 days - <2 mon	30	33
2 mon - <12 mon	25	28
12 mon - 3 yrs	20	22
4 yrs - <6 yrs	15	17
6 yrs - Adult	12	14

- ❑ Monitor the level of consciousness during the transport.
- ❑ Document a GCS for the patient.
- ❑ If GCS ≤ 8 consider an advanced airway.
- ❑ Do not hyperventilate excessively. If patient has an obvious unilateral pupillary dilation, increase respiratory rate by 10% above normal target respiratory rate (RR) until the patient improves. Hyperventilation below a ETCO₂ of 30mmHg is discouraged.
- ❑ Open skull fractures should be covered with non-pressure dry sterile dressings.

❑ Key Considerations

- ❑ TBI may be painful; however, pain medications can cloud serial neurological assessments. Routine pain medications should not be administered to a patient with altered mental status after TBI.
- ❑ Patients with TBI may be confused or combative. Consider restraints if needed to protect everyone.
- ❑ Loss of memory, prolonged confusion or altered mental status associated with trauma may indicate a significant head injury.
- ❑ 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.

EMT

- ❑ Administer supplemental oxygen for any saturation <90% or if unable to obtain a reliable pulse oximeter reading

AEMT

- ❑ Advanced airway, vascular access, and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*
- ❑ Ventilate to maintain EtCO₂ between 35-40 mmHg when capnography is available
- ❑ Check blood pressure every 5-10 minutes.
- ❑ Follow the Traumatic Brain Injury pressure management under the **Shock and Fluid Therapy** guideline.

PARAMEDIC

Persistent hypotension unresponsive to fluids

- ① **Epinephrine (1:1000) 2-10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. *(Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)*

EMT

- ❑ Administer supplemental oxygen for any saturation <90% or if unable to obtain a reliable pulse oximeter reading

AEMT

- ❑ Advanced airway, vascular access, and fluid therapy per *IV-IO Access and Fluid Therapy Guideline*
- ❑ Ventilate to maintain EtCO₂ between 35-40mmHg when capnography is available
- ❑ Check blood pressure every 5-10 minutes.
- ❑ Initiate NS 20ml/kg for hypotension OR if unable to obtain blood pressure
- ❑ If hypotensive patient shows no improvement with initial treatment, may repeat NS 20ml/kg up to a total of 60 ml/kg

PARAMEDIC

Persistent hypotension unresponsive to fluids

- ① **Epinephrine (1:1000) 0.1-2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg. **And/or**
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

HEMORRHAGE CONTROL AND SOFT TISSUE INJURIES

ALL PROVIDERS

- ❑ Focused history and physical exam
- ❑ **Treatment Plan**
 - ❑ Maintain airway, administer oxygen 10-15 lpm via NRB
 - ❑ Assess for deformity, swelling, tenderness, crepitus, open or closed fractures, hemorrhaging, lacerations, ecchymosis, instability, decreased function or pulses, loss of sensation of distal extremities.
 - ❑ Bleeding from the nose (epistaxis) should be controlled by first having the patient sit and lean forward (unless there is a need for spinal motion restriction). Apply direct pressure by pinching the fleshy portion of the nostrils.
 - ❑ Cover lacerations or puncture wounds on the neck near the great vessels or trachea with an occlusive dressing.
 - ❑ Cover abdominal eviscerations with a moist sterile dressing.
 - Do not attempt to replace organs.
 - ❑ Cover extruded eye or deflated globe with a moist sterile dressing and protective covering.
 - Do not apply pressure or attempt to replace in socket.
 - Cover both eyes.
 - ❑ In large, partially attached avulsions, the tissue should be returned to its' baseline position and stabilized whenever possible.
 - ❑ Elevate the limb such that the wound is above the heart.
 - ❑ Impaled objects should be stabilized in place and covered with dry sterile dressings. The exceptions would be:
 - Objects through the cheek where there is the possibility of airway compromise.
 - Objects that would interfere with chest compressions.
 - Treatment for pain and anxiety per the *Pain and Anxiety Management Guideline*.
- ❑ **Key Considerations**
 - Sharp objects may need to be removed if their presence is causing ongoing injury, compromise, or inhibiting CPR.
 - Tourniquets should be used to control hemorrhage not controlled with direct pressure.

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 Guideline*

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

PARAMEDIC

PARAMEDIC

NON-ACCIDENTAL TRAUMA/ABUSE

ALL PROVIDERS

- ❑ Scene and patient management
 - Contact Law Enforcement if someone on scene is a threat to themselves or others.
 - Separate any possible assailants, including parents, from the patient.
 - Remove patient from the stressful environment and remove any possible weapons.
 - Non-accidental trauma includes any act of commission or omission that results in harm to a person's physical, developmental, or emotional state.
- ❑ Focused history and physical exam
 - Blood glucose, Temperature and Oxygen Saturation assessment.
 - Always consider the possibility of abuse when evaluating any medical condition or trauma.
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - Suspect: Look for suspicious circumstances or actions from patient or caregiver
 - Listen to and document circumstances of the event.
 - Evaluate the environment in which you find the patient.
 - Protect: Be the patient advocate
 - Make all efforts to remove patient from the situation.
 - Respect: Communicate appropriately with family
 - Avoid confrontation with caregivers.
 - Confrontation may lead to caregiver's refusal to allow you to care for the patient.
 - Be nonjudgmental and avoid accusations.
 - Consider law enforcement assistance.
 - Collect: Provide good documentation of incident.
 - Document using direct quotation when possible.
 - Document objectively without speculation.
 - Report: You have the responsibility to report suspected abuse and neglect to the ED **and also** to law enforcement or the Division of Family Services.
- ❑ **Key Considerations**
 - ❑ Non-accidental trauma can occur in patients of any age and in all ethnic and socio-economic groups.
 - ❑ Risk factors include children under age of 5, the elderly, drug or alcohol abuse, and a history of domestic violence.
 - ❑ In children under the age of two the most common form of child abuse is **Abusive Head Injury (AHI)**. Mortality of AHI is 25%. For those that live, there is significant morbidity, usually associated with traumatic brain injury.
 - ❑ Do not directly engage a hostile patient, parent, assailant or perpetrator. If situation becomes unsafe for EMS personnel, call for police assistance.
 - ❑ If anxious or agitated, attempt non-pharmacological options to calm a patient. Consider pain and anxiety management per the *Pain and Anxiety Management Guideline*.

SKELETAL INJURIES

ALL PROVIDERS

- ❑ Scene and patient management
- ❑ Focused history and physical exam
- ❑ Continuous ECG, ETCO2, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - Treat for pain and anxiety per the *Pain and Anxiety Management Guideline*.
 - ❑ Uncomplicated fractures/dislocations with adequate circulation
 - Splinted in a position of function/comfort.
 - ❑ Fractures/dislocations with circulation deficits or severely angulated
 - Treat with one attempt at placing the extremity in a position of function/comfort.
 - If unsuccessful, splint in position found and expedite transport.
 - Fractures and joint dislocations without palpable distal pulses are true orthopedic emergencies.
 - ❑ Potential pelvic fractures
 - Treatment of choice is application of the pelvic binder. If unavailable, a cloth sheet or blanket can be wrapped tightly around the pelvis to stabilize it.
 - ❑ Isolated proximal femur (hip) fractures (especially in the elderly)
 - Best managed with anatomical splinting utilizing a scoop stretcher. Traction splints are not appropriate for any proximal femur fractures.
 - ❑ Femoral shaft fractures
 - Immobilized utilizing a traction splint unless one of the situations listed below is present:
 - Injuries just proximal to or involving the knee joint
 - Injury to the pelvis
 - Partial amputation
 - Lower leg or ankle injuries
 - If use would delay transport of a patient with a life-threatening condition

ADULT

PEDIATRIC (<15 years of Age)

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

EMT
AEMT

EMT
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*

PARAMEDIC

PARAMEDIC

SNAKE BITES

ALL PROVIDERS

- ❑ Focused history and physical exam
 - Identify and document the type of snake, appearance, location, and distinguishing marks.
 - Obtain an accurate time of injury.
 - Clarify any first aid provided by friends or family prior to arrival.
 - Coral Snakes in North America – “Red on Yellow = Poison Fellow, Red on Black = Safe with attack”.
 - Signs of envenomation include paresthesias, metallic taste, chills, nausea, vomiting, headache, dysphagia, cramps, hypotension, fever, local edema, blebs, and discoloration.
- ❑ Continuous ECG, ETCO₂, and Pulse Oximetry monitoring when available
- ❑ **Treatment Plan**
 - ❑ Ensure scene safety by moving the patient to a safe distance, away from the snake.
 - ❑ Splint limb and place below the level of the heart.
 - ❑ Keep patient calm and movement to a minimum. You may need to treat for pain and/or anxiety to help achieve this goal per *Pain and Anxiety Management Guideline*.
 - ❑ Remove items that may constrict swelling tissue.
- ❑ **Key considerations**
 - Do not start the IV in the affected limb.
 - Do not apply ice to the limb.
 - Do not try to capture the snake.
 - Do not bring a live snake to the ED.
 - If you transport the snake make sure you do it safely. Remember that snakes can reflexively envenomate up to 1 hour after death.
 - Pictures of the snake can be helpful.
 - Any bite can be dangerous and should be evaluated in the ED.
 - Watch for signs of shock and allergic reaction.

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 Guideline*

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

PARAMEDIC

PARAMEDIC

Persistent hypotension unresponsive to fluids

Persistent hypotension unresponsive to fluids

- ① **Epinephrine (1:1000) 2–10 mcg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >100 mmHg. *(Goal is to maintain a mean arterial pressure (MAP) >70 mmHg)*

- ① **Epinephrine (1:1000) 0.1–2 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg.
And/or
- ① **Dopamine 2-20 mcg/kg/min IV/IO** infusion for hypoperfusion. Titrate to maintain a SBP >70 + (age in years x 2) mmHg

