MASSACHUSETTS
OFFICE OF EMERGENCY MEDICAL SERVICES
DEPARTMENT OF PUBLIC HEALTH

EMERGENCY MEDICAL SERVICES PRE-HOSPITAL STATEWIDE TREATMENT PROTOCOLS

OFFICIAL VERSION **2018.1**

Complete Version

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MASSACHUSETTS
OFFICE OF EMERGENCY MEDICAL SERVICES
DEPARTMENT OF PUBLIC HEALTH

Commonwealth of Massachusetts Department of Public Health

Bureau of Healthcare Safety and Quality

Office of Emergency Medical Services

Statewide Treatment Protocols – Version 2018.1

Legend	Definition
FR	First Responder (FR)-- Found only in protocols 2.2A, 2.2P, 2.9, and 2.14
E	Emergency Medical Technician (EMT)
A	Advanced Emergency Medical Technician (AEMT)
P	Paramedic
	CAUTION – Red Flag topic
	Medical Control Orders
	Pediatric-specific protocol

Clinical notes boxes show important assessment or treatment considerations.

EMT level protocols are designated by colors (see above), and labels, and EMTs are responsible for providing Routine Care to all patients, and for their level of care, and those above on the protocol page.

These protocols are developed and approved by the Department of Public Health, based on the recommendations of Emergency Medical Care Advisory Board (EMCAB) and its Medical Services Committee (MSC). For the latest corrections or addenda, see the OEMS website at http://www.mass.gov/dph/oems

These are Massachusetts Statewide Treatment Protocols; they are the standard of EMS patient care in Massachusetts.

Questions and comments should be directed to:
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Massachusetts Pre-Hospital Statewide Treatment Protocols 2018.1

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SECTION 1:

GENERAL PATIENT CARE

Statewide Treatment Protocols
Version 2018.1

1.0 Routine Patient Care

NOTE: This protocol applies to <u>all</u> EMS calls.

<u>RESPOND TO SCENE IN A SAFE MANNER:</u>

- Review dispatch information.
- Use lights and sirens and/or pre-emptive devices when responding as appropriate per emergency medical dispatch information and local guidelines.

<u>SCENE ARRIVAL AND SIZE-UP:</u>

- Utilize Body Substance Isolation, as appropriate.
- Scene safety, bystander safety.
- Environmental hazards assessment.
- Number of patients.
- Determine need for additional resources.
- Utilize Mass Casualty Incident (MCI) and/or Incident Command System (ICS) procedures as necessary.
- Determine mechanism of injury/illness.

<u>PATIENT APPROACH:</u>

- The presumption is that patients requesting EMS services should not walk to the stretcher or ambulance, but should be moved using safe and proper lifts and devices. Specifically the condition of patients with cardiac, respiratory, or neurological conditions, and of patients with unstable vital signs, can be worsened by exertion, so patient effort in moving to the stretcher and ambulance should be minimized. Unique circumstances and deviations from these principles must be clearly described in the Patient Care Report (PCR) and the service must have an internal performance improvement (PI) mechanism to review each case.
- <u>DO NOT</u> allow sick or injured patients to walk or otherwise exert themselves. Use safe and proper lifts and carries and appropriate devices to extricate patients to the ambulance stretcher.
- Begin assessment and care at the side of the patient; avoid delay.
- Bring all necessary equipment to the patient in order to function at your level of certification and up to the level of the ambulance service license.
- Request and use available advanced life support (ALS) – paramedic resources in accordance with these protocols, initiate transport as soon as possible, with or without ALS.
- Activate air-medical transport early and if applicable to do so.
- Determine if a valid MOLST order or Comfort Care/DNR Verification form is in place, and act accordingly.

<u>ASSESSMENT AND TREATMENT PRIORITIES</u>

- Determine unresponsiveness, absence of breathing and pulselessness; Initiate high quality CPR with <u>minimal interruptions</u> in chest compressions for patients found to be in cardiac arrest and in the absence of a MOLST/CC/DNR.
- Determine patient's hemodynamic stability, symptoms, level of consciousness, ABCs, vital signs.
- Maintain an open airway and assist ventilations as needed.
- Apply the cardiac monitor and obtain a 12-lead ECG tracing as soon as possible when clinically appropriate and within your scope of practice.
- Administer supplemental oxygen using the appropriate delivery device, if indicated.
- Within your scope of practice, obtain peripheral access via intravenous (IV) or intraosseous (IO) on all patients exhibiting signs and symptoms consistent with shock or who are hemodynamically compromised, or have the potential to become compromised. For pediatric patients, a 20mL/kg fluid bolus if applicable.
- When obtaining IO access in patients able to perceive pain, in adults, administer **<u>Lidocaine</u>** 40mg over two minutes, followed by a 10mL fluid bolus over five seconds. In pediatrics, 1mg/kg to a maximum of 20mg.

Protocol Continues

Protocol Continues

ASSESSMENT AND TREATMENT PRIORITIES (CONTINUED)

- Patients who may be in need of medications for conditions such as but not limited to nausea or pain should also have IV access established if possible to do so.
- In a critical patient with no other vascular access, if trained to do so and with concurrent on-line medical control order, Paramedics may access a Peripherally Inserted Central Catheter (PICC) line (not any other central access) in order to administer medications.
- Consider the use of advanced airway interventions as appropriate and if trained to do so.
- Ventilation rates are to be titrated to goal ETCO2 recommendations.
- Use quantitative, recordable waveform capnography for all patients with advanced airway interventions and consider its use with all respiratory compromised conditions.
- The capnography waveform must be recorded on all intubated patients and clinically significant data attached to the patient care report for the receiving facility. In patients who are not in cardiac arrest, all efforts should be made to avoid end-tidal carbon dioxide levels that have been shown to be detrimental and to ensure quality ventilation and oxygenation. In general this means that capno-ETCO2 values should be kept between 35-40 mm Hg in these patients; specific exceptions should be discussed with online medical control.
- At a minimum, monitor and document vital signs every 15 minutes on stable patients and every 5 minutes for patients with critical conditions.
- Obtain a thorough assessment (O-P-Q-R-S-T) related to the event.
- Obtain a complete medical history (S-A-M-P-L-E).
- Obtain venous blood samples according to the receiving hospital policies.
- Obtain additional field diagnostic testing when clinically indicated, and if available; (not limited to) blood glucose, pulse oximetry, temperature, carbon monoxide, stroke scale.
- Administer medications in accordance with the specific patient condition and scope of practice.
- Contact on-line Medical Control for all procedures outside the provisions of standing orders, which may include repeat doses of medications within the standing orders.
- Follow service or regional policies for all radio or communication failures.
- If indicated, contact the receiving hospital to provide a clear and concise report on the patient's condition, all interventions, findings, and estimated time of arrival to the receiving department.
- Continually reassess all patients, especially after any interventions and/or medication administration.
- If no palpable, distal pulse is present following suspected extremity fracture, position injured extremity in correct anatomic position, and apply gentle traction along the axis of the extremity distal to the injury until the distal pulse is palpable and immobilize in place. Note: This does not apply to dislocations.
- EMS crews should not begin or administer interventions that would require medical assessment if a patient is being brought to an environment where formal medical assessment will not be provided; for example, giving IV narcotics to a patient who is about to be left at home.

Protocol Continues

Protocol Continues

AMBULANCE STRETCHER OPERATIONS

- Operate the ambulance stretcher in accordance with your service training and manufacturer's specifications at all times.
- When moving a patient on the ambulance stretcher, adjust the height of the ambulance stretcher from the "load position" to a safe position for travel.
- All EMTs moving the patient must keep both hands on the ambulance cot when elevated or in motion. Properly secure all patients using the required straps, including the over-the-shoulder harness, hip and leg restraining straps.
- If patient care requires the removal of any of the restraining straps, re-secure them as soon as practical to do so.
- Pediatric patients are to be transported in a properly secured child transport device/seat if spinal injury is not suspected (See 7.4 Pediatric Transport for more).

PATIENT CARE REPORTS AND DATA COLLECTION

- The EMS System regulations require an accurate, concise and properly documented patient care report to be completed at the time of the call or as soon as practicable afterwards for all patient encounters. Pertinent data must be left at the receiving hospital at the time of transport. The regulations also require that patient care reports include the minimum required data elements, as defined by the administrative requirement (A/R 5-403).
- Clinically relevant data must be conveyed to a nurse, physician assistant or physician before leaving the receiving facility.
- The patient care report(s) must include clinically relevant ECG tracings, 12-lead tracings and waveform capnography tracings when obtained.
- Additional data elements may be collected at the request of your Affiliate Hospital Medical Director. This data may pertain to, but is not limited to; trauma, cardiac arrest, stroke and infectious disease processes.

MEDICATION USE AND STORAGE

- The adult medication reference list includes all those medications that are utilized in both the Statewide Treatment Protocols.
- Medications may be administered in divided doses up to the maximum noted in protocol.
- The medication lists are to be considered a reference list only and may contain information and uses not intended for prehospital administration.
- Inclusion of this information does not imply approval of and use of that medication unless specifically stated in the applicable protocol.
- Securely maintain and store all medications and fluids at the appropriate temperatures as designated by manufacturer's recommendations and in accordance with all Drug Control Program regulations.
- Pharmaceutical shortages and supply chain issues have become more frequent. The Department will issue Advisories addressing these shortages and outlining alternative therapies when needed.
- All EMTs and service providers must adhere to all advisories, memos and administrative requirements issued by the Department regardless of the topic.
- Medications administered by nasal atomizer (IN) should be with no more than 1mL of volume per naris. If additional medication must be administered, wait one minute before repeating IN.
- Avoid hyperoxygenation, oxygen administration should be titrated to patient condition, and administered with evidence of hypoxemia, dyspnea, or an SpO2 <94%, especially in the presence of a suspected CVA/TIA or ACS.

Protocol Continues

Protocol Continues

MEDICATION USE AND STORAGE (CONTINUED)

- IV pumps are the preferred method of administering vasoactive medications. **Norepinephrine** must be administered via pump, **Dopamine** may be used until pump available. Those providers with the equipment and training may begin using pumps immediately.

EXCEPTION PRINCIPLE OF THE PROTOCOLS

- The Statewide Treatment Protocols represent the best efforts of the EMS physicians to pre-hospital providers of the Commonwealth and reflect the current state of out-of-hospital *emergency medical care*, and as such should serve as the basis for such treatment.
- On occasion, good medical practice and the needs of patient care may require deviations from these protocols, as no protocol can anticipate every clinical situation. In those circumstances, EMS personnel deviating from the protocols should only take such actions as allowed by their training **and** only in conjunction with their on-line medical control physician.
- Any such deviations must be reviewed by the appropriate local medical director, but for regulatory purposes are considered to be appropriate actions, and therefore within the scope of the protocols, unless determined otherwise on Department review by the State EMS Medical Director.

ADVANCED AIRWAY CONFIRMATION

- Advanced EMT and Paramedic treatment protocols require that EMTs provide advanced airway management when clinically indicated. Specific training and airway adjuncts are necessary and require training in accordance with scope of practice and service specific devices.
- Endotracheal tube insertion and supraglottic airway devices such as the King LT are commonly used in patients that require advanced airway management. Airway devices must be secured, with depth noted as appropriate.
- All EMT-Paramedics must be able to insert NGT / OGT for those unconscious post-intubation patients who need gastric decompression.
- The standard of care requires specific methods of verification to be used including capnography and at least two of the following;- auscultation, colorimetric readings, visualization of the chords, the presence of condensation, and other clinical signs that the advanced airway is positioned correctly.
- All patients with an advanced airway in place must have recordable waveform capnography documented.
- Documentation on the patient care report must include at least three evidence based methods of verification of tube placement (one being capnography) and must include at least three separate times in which verification was completed, including verification of tube placement at the time of arrival at the receiving department and staff.

Protocol Continues

Protocol Continues

TRANSPORT DECISION

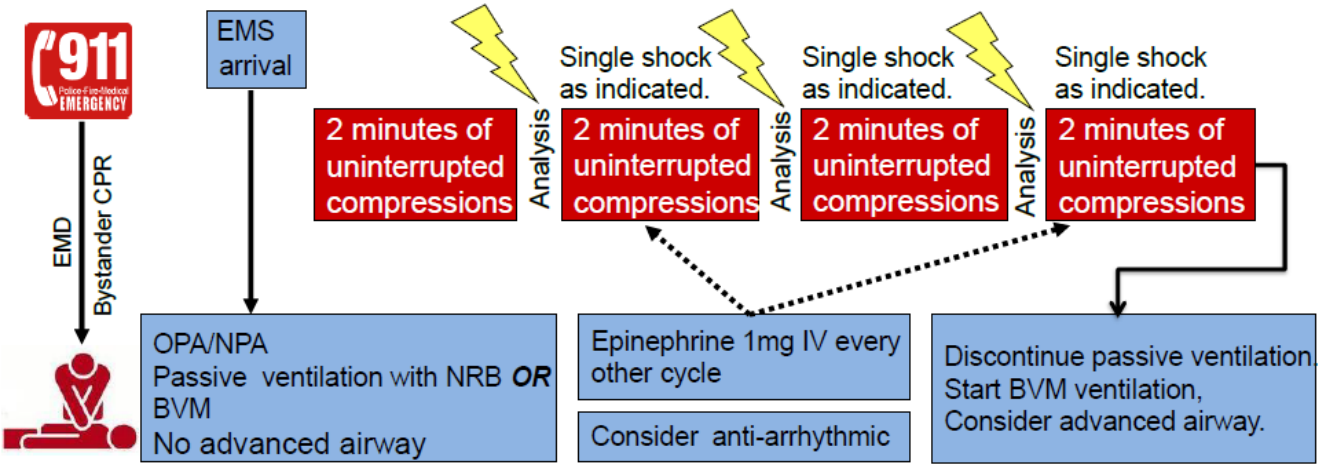
- Transport to the nearest appropriate treatment facility as defined in EMS regulations. In rare circumstances, delayed transport may occur when necessary treatment cannot be performed during transport.
- Request and use available Advanced Life Support (Paramedic) backup or intercept whenever clinically indicated and in accordance with these treatment protocols.
- EMS personnel shall make decisions about the destination hospital in accordance with the EMS System regulations and Department-approved point-of-entry (POE) plans.
- There are currently Department-approved condition-specific POE plans for trauma, stroke and STEMI, as well as a POE for a patient's other condition or need, not covered in the specific POE plans.
- Department-approved regional POE plans for trauma; stroke and STEMI identify specific hospitals to be used. The EMT must be aware of all these POE plans affecting his/her service when choosing the appropriate hospital destination.
- EMS personnel may call medical control if they have a question about POE.
- Notify receiving facility as early as possible.
- Use of lights and sirens should be justified by the need for immediate medical intervention that is beyond the capabilities of the ambulance crew using available supplies and equipment.

CONTINUOUS QUALITY IMPROVEMENT (CQI)

- The Department's Hospital Licensure regulations for medical control service (105 CMR 130.1501-1504) require that hospital physicians providing medical direction must be knowledgeable in the communication system and its usage and must know the Statewide Treatment Protocols for each level of EMT.
- Medical directors for ambulance services must take an active role in reviewing clinical performance and competency of its EMTs at all levels in the delivery of patient care and in overseeing and conducting the ambulance service's CQI process.
- Ambulance services with their medical directors must develop and implement a comprehensive and dynamic quality assurance program in accordance with the ambulance service's affiliation agreement.
- An ambulance service and medical director that uses certain optional diagnostic and treatment modalities must do so in accordance with Section 6: Medical Director Options and its program specific CQI requirements. The affiliate medical director is responsible for overseeing of such programs and ensuring the ambulance service meets the CQI requirements and the Department's data reporting requirements.

High Quality CPR - Adult 1.1

- Perform 2 minutes cycles of uninterrupted chest compressions
- Interrupt chest compressions only after each 2 minute cycle
- Ventilation / Oxygenation options:
  - For arrests of suspected cardiac etiology
    - Passive insufflation – apply high flow oxygen via NRB OR
    - BVM ventilation – 1 breath every 6 seconds/10 breaths per minute without interrupting chest compressions.
  - For arrest of non-cardiac etiology, including respiratory, trauma and suspected overdoses:
    - BVM ventilation – 1 breath every 6 seconds/10 breaths per minute without interrupting chest compressions.



EMT STANDING ORDERS

E

- 1.0 Routine Patient Care -with focus on HQCPR
- Immediate chest compressions at a rate of 100-120 per minute
- Use AED as soon as possible with minimal interruption of chest compressions
- Continue 2 minute cycles of uninterrupted chest compressions followed by AED analysis and shock for 4 cycles (8 minutes)
- Place an oral or nasal airway
- Ventilation / oxygenation options during 4 cycles (8 minutes):
  - Apply high flow oxygen via NRB, OR
  - BVM ventilation 1 breath every 6 seconds/10 breaths per minute during recoil and without interrupting compressions
- After 4 cycles (8 MINUTES):
  - Continue 2 minute cycles of uninterrupted chest compressions
  - If passive insufflation was used, switch to BVM ventilation.

Protocol Continues

1.1 High Quality CPR - Adult

Protocol Continues

ADVANCED EMT STANDING ORDERS

A

- Consider placement of a supraglottic airway device
- Place IV/IO without interrupting chest compressions

PARAMEDIC STANDING ORDERS

P

- If utilizing a BVM, monitor quantitative waveform capnography throughout resuscitation to assess CPR quality and to monitor for signs of return of spontaneous circulation (ROSC)
- Provide manual defibrillation as indicated after each 2 minute cycle
- After 4 cycles (8 minutes):
  - Consider endotracheal intubation or use an alternative airway without interrupting chest compressions

- If authorized and trained by AHMD, Paramedics may use mechanical ventilators in rate control mode with the following settings:
- Rate of 8-12 breaths per minute
- Tidal volume 300-500mL
- Start at FiO_2 1.0 (100%) then titrate to maintain SpO_2 > 94% (90% for COPD patients)
- Relief pressure 45-60 cmH_2O

Paramedics may utilize mechanical ventilator following the initiation of respiratory component at least 8 minutes after start of resuscitation even if ROSC has occurred.

PEARLS:

- It is expected, unless special circumstances are present, initial 8 minutes of resuscitation will be performed on scene.
- Early CPR and defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- **Recognizing the goal of immediate uninterrupted chest compressions, consider delaying application of mechanical CPR devices until after the first four cycles (8 minutes). If applied during the first 4 cycles, the goal is to limit interruptions. Mechanical devices should only be used by services that are practiced and skilled at their application.**
- Switch compressors at least every two minutes to minimize fatigue.
- Perform chest compressions while defibrillator is charging and resume compressions immediately after the shock is delivered.

SECTION 2:

MEDICAL PROTOCOLS

Statewide Treatment Protocols
Version 2018.1

2.1 Adrenal Insufficiency/Adrenal Crisis Adult & Pediatric

Medical Protocol 2.1

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- 1.0 Routine Patient Care
- Identify and treat the underlying condition.
- Consider paramedic intercept.

ADVANCED EMT STANDING ORDERS - ADULT & PEDIATRIC

A

- Obtain vascular access, if appropriate.

PARAMEDIC STANDING ORDER – ADULT & PEDIATRIC

P



Stress Dose:

- Adult: History of adrenal insufficiency; administer **hydrocortisone** 100mg IV/IO/IM or **methylprednisolone** 125mg IV/IO/IM.
- Pediatric: History of adrenal insufficiency; administer **hydrocortisone** 2mg/kg, to a maximum of 100mg IV/IM/IO or **methylprednisolone** 2mg/kg to a maximum dose of 125mg IV/IM/IO.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- In patients who continue demonstrating the following signs and symptoms, consult medical control for repeat stress dose orders:
  - Nausea, vomiting, weakness, dizzy, abdominal pain, muscle pain, dehydration, hypotension, tachycardia, fever, mental status changes.
- Additional Considerations:
  - Aggressive volume replacement therapy.
  - Treat other conditions according to specific protocols.
  - Normalize body temperature.

Adrenal insufficiency results when the body does not produce the essential life-sustaining hormones cortisol and aldosterone, which are vital to maintaining blood pressure, cardiac contractility, water, and salt balance.

Chronic adrenal insufficiency can be caused by a number of conditions:

- Congenital or acquired disorders of the adrenal gland.
- Congenital or acquired disorders of the pituitary gland.
- Regular use of steroids (COPD, asthma, rheumatoid arthritis, and transplant patients).

Acute adrenal insufficiency can result in refractory shock or death in patients on a maintenance dose of hydrocortisone (SoluCortef)/prednisone who experience illness or trauma and are not given a stress dose and, as necessary, supplemental doses of hydrocortisone.

A "stress dose" of hydrocortisone should be given to patients with known chronic adrenal insufficiency who have the following illnesses/injuries:

- Shock (any cause).
- Fever >100.4°F and ill-appearing.
- Multi-system trauma.
- Drowning.
- Environmental hyperthermia or hypothermia.
- Multiple long-bone fractures.
- Vomiting/diarrhea accompanied by dehydration.
- Respiratory distress.
- 2nd or 3rd degree burns >5% BSA
- RSI (Etomidate may precipitate adrenal crisis).
- Hypoglycemia

Allergic Reaction/Anaphylaxis Adult

2.2A

FIRST RESPONDER/EMT STANDING ORDERS

FR/E

- 1.0 Routine Patient Care

MILD Distress

- Monitor for severe distress.

SEVERE Distress

- **Epinephrine** auto-injector 0.3mg or IM in accordance with Protocol 6.6 Check and Inject Epinephrine for BLS Providers.
- 2nd dose may be administered in 5 minutes if necessary
- FRs and EMTs must contact Medical Control if greater than 65 yrs.



ADVANCED EMT STANDING ORDERS

A

- **Albuterol** 2.5mg via nebulizer. Repeat every 5 minutes up to 4 doses.
- If approved, **epinephrine** 1:1,000 0.3mg IM-ONLY.
  - Must be administered in accordance with criteria listed in A1 Adult Medication Reference.

PARAMEDIC STANDING ORDERS

P

- **Hydrocortisone** 100 mg IV/IO/IM, or **methylprednisolone** 125 mg IV/IO/IM.
- Mild Distress:
  - **Diphenhydramine** 25-50 mg IV/IO/IM.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Epinephrine 1:10,000**: 0.1 mg – 0.5 mg IV/IO.
- **Epinephrine Infusion –** 2-10 mcg/min IV/IO (for example: mix 1 mg of 1:1000 Epinephrine in 250 ml Normal Saline). (15 micro drops/minute = 1 mcg / min.).
- **Norepinephrine** infusion: 0.1 mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg.
- **Dopamine infusion**: 2-20 mcg/kg/min IV/IO (Rate determined by physician).



CAUTION: Epinephrine for anaphylaxis must be administered by Auto-Injector or IM if trained and authorized to do so in accordance with Medical Director Option Protocol 6.6 Check and Inject Epinephrine for BLS Providers.

NOTE:
Mild Distress is defined by: itching, urticaria, nausea, and no respiratory distress.
Severe Distress is defined by: stridor, bronchospasm, severe abdominal pain, respiratory distress, tachycardia, shock, edema of lips, tongue or face.

2.2P Allergic Reaction/Anaphylaxis Pediatric

Medical Protocol 2.2P

FIRST RESPONDER/EMT STANDING ORDERS

FR/E



- 1.0 Routine Patient Care
- In anaphylaxis, if patient is over 6 months age and under 25kg, administer **epinephrine** 0.15mg via auto-injector or IM. If body weight is over 25 kg, administer **epinephrine** 0.3mg via auto-injector or IM. When administering IM, EMTs may do so in accordance with Protocol 6.6 Check and Inject Epinephrine for BLS Providers.
- **Contact Medical Control if second dose is required after 5 minutes.**

NOTE: FRs and EMTs must contact Medical Control prior to administration of epinephrine when patient is under 6 months of age.

ADVANCED EMT STANDING ORDERS

A

- In anaphylaxis, if patient is over 6 months age and under 25kg, administer **epinephrine** 0.15mg via auto-injector or IM. If body weight is over 25 kg, administer **epinephrine** 0.3mg via auto-injector or IM.
  - Must be administered in accordance with criteria listed in A1 Adult Medication Reference.
- **Contact Medical Control if second epinephrine dose required after 5 minutes.**

PARAMEDIC STANDING ORDERS

P

- Give **hydrocortisone** 2 mg/kg to max. 100 mg IV/IO/IM, or **methylprednisolone** 2 mg/kg to max. 125 mg IV/IO/IM
- **Diphenhydramine** 1 mg/kg up to max. single dose of 50 mg IV/IO/IM
- **Contact Medical Control if second epinephrine dose required after 5 minutes.**

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Epinephrine infusion** 1:1,000 (1 mg/mL) 0.1-1 mcg/kg/min IV/IO
- For example, mix 1mg of Epinephrine 1:1000 in 250mL of Normal Saline, (15 micro drops/minute = 1 mcg / min.)
- **Albuterol** 0.5% (via nebulizer):
  - If age less than 2 years, 1.25 mg by nebulizer
  - If age 2 years or greater, 2.5-3 mg by nebulizer
- **Epinephrine** 1:10,000; 0.01mg/kg IV/IO to max. single dose 0.3 mg.



CAUTION: Epinephrine for anaphylaxis must be administered by Auto-Injector or IM if trained and authorized to do so in accordance with Medical Director Option Protocol 6.6 Check and Inject Epinephrine for BLS Providers.

Clinical Criteria for Anaphylaxis:

If **one** of these criteria is fulfilled, treat for anaphylaxis

1. Acute onset of skin or mucosal involvement with at least one of the following:
   a. Respiratory compromise
   b. Decreased SBP or evidence of end-organ hypoperfusion
2. Two or more of these occurring rapidly after exposure to a likely antigen:
   a. Skin or mucosal involvement
   b. Respiratory compromise
   c. Decreased SBP or evidence of end-organ hypoperfusion
   d. Persistent GI symptoms
3. Decreased BP after exposure to a known allergen for that patient

Altered Mental/Neurological Status/Diabetic Emergencies/Coma - Adult

2.3A

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- If patient is unconscious or seizing, transport on left side (recovery position).
- Glucose is indicated only for documented hypoglycemia. If authorized and trained to do so, obtain a blood sugar reading.
  - If glucose is known to be **less than 70** mg/dL and the patient is conscious and can speak and swallow, administer oral glucose or other sugar source as tolerated.
  - **Oral glucose.** One dose is one tube.
    - Other sugar sources are acceptable.
  - A second dose may be necessary after 10 minutes if patient remains symptomatic.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- For HYPOglycemic emergency:
  - **Dextrose** 12.5 g IV/IO. Recheck glucose 5 minutes after administration of **dextrose**.
    - May repeat **dextrose** up to 25 g IV/IO if glucose level is <70mg/dL with continued altered mental status.
  - **Glucagon** 1mg IV, IO/IM/IN/SC if unable to establish IV access
    - Recheck glucose 15 minutes after administration of glucagon.
    - May repeat **glucagon** 1mg IV/IO/IM/IN if glucose level is <70mg/dL with continued altered mental status.
- For HYPERglycemic emergency:
  - Administer 500mL fluid bolus, then 250ml/hr.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.



CAUTION: If cerebrovascular accident is suspected, follow 2.18 Stroke Protocol and notify Medical Control.

***Hypoglycemic Emergency**:
- Glucose <70mg/dL with associated altered mental status.
- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults (e.g., myocardial infarction, arrhythmia), or changes in activity (e.g., exercise).
- Sulfonylureas (e.g., glyburide, glipizide) have long half-lives ranging from 12-60 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent symptoms and frequently require hospital admission.

****Hyperglycemic Emergency**:
- Glucose > 300 mg/dL with associated altered mental status.

Dextrose may be administered in any concentration (D10, D25, D50), as long as the correct dose is given.

2.3P Altered Mental/Neurological Status/Diabetic Emergencies/Coma – Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- If patient is unconscious or seizing, transport on left side (recovery position).
- Glucose is indicated only for documented hypoglycemia. If authorized and trained to do so, obtain a blood sugar reading.
  - If glucose is known to be **less than 70** mg/dL and the patient is conscious and can speak and swallow, administer oral glucose or other sugar source as tolerated.
  - **Oral glucose.** One dose is one tube.
    - Other sugar sources are acceptable.
- A second dose may be necessary after 10 minutes if patient remains symptomatic.

ADVANCED EMT STANDING ORDERS

A

- **Treatment for specific etiologies, or coma of unknown etiology:**
  - **Known HYPOglycemia (glucose <70 mg./dL):**
    - **Dextrose** 10% 0.5 gm/kg IV/IO
    - **Glucagon** 0.1 mg/kg IV/IO/IM/IN/SC up to max. of 1 mg.
  - **Known HYPERglycemia**
    - Administer 20mL/kg fluid bolus

PARAMEDIC STANDING ORDERS

P

- For patients with confirmed adrenal insufficiency, see 2.1 Adrenal Insufficiency Adult/Pediatric.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.

E/A/P

1.0 Routine Patient Care, followed by:

1. One EMT should manage the patient while the other handles scene control, but no EMT or First Responder should be left alone with the patient.
2. Avoid areas/patients with potential weapons (e.g., kitchen, workshop), and avoid areas with only a single exit; do not allow patient to block exit.
3. Keep environment calm by reducing stimuli (may need to ask family/friends to leave room, ask patient to turn off music/TV). Transport in a non-emergent mode unless the patient's condition requires lights and sirens.
4. Respect the dignity and privacy of the patient.
5. Make eye contact when speaking to the patient.
6. Speak calmly and in a non-judgmental manner; do not make sudden movements.
7. Maintain non-threatening body language (hands in front of your body, below your chest, palms out and slightly to the sides).
8. Establish expectations for acceptable behavior, if necessary.
9. Ask permission to touch the patient before taking vital signs, and explain what you are doing.
10. Assess the patient to the extent that they allow without increasing agitation, maintain a safe distance from a violent patient.
11. Stop talking with patient if they demonstrate increased agitation; allow time for them to calm down before attempting to discuss options again.
12. Provide reassurance by acknowledging the crisis and validating the patient's feelings and concerns; use positive feedback, not minimization.
13. Determine risk to self and others ("Are you thinking about hurting/killing yourself or others?").
14. Encourage patient to cooperatively accept transport to the hospital for a psychiatric evaluation and treatment.
15. Consider asking friends/relatives on scene to encourage patient to accept transport, if needed; but only if they are not a source of agitation.
16. Ask law enforcement or Online Medical Control to complete a MDMH Section 12 application for uncooperative patients who acknowledge intent to self-harm or harm others, but do not delay transport in the absence of this document.
17. Use restraints in accordance with 2.5 Behavioral Emergencies: Restraint if de-escalation strategy fails and the patient is a danger to him/herself or others.

Acute risk factors for violence include:

- Male gender
- Homicidal or violent intent or plans
- Intoxication or recent substance use
- Actions taken on plans/threats
- Unconcerned with consequences
- No alternatives to violence seen
- Intense fear, anger, or aggressive speech/behavior
- Specified victim (consider proximity, likelihood of provocation)

Protocol Continues

Behavioral Emergencies Adult & Pediatric

Protocol Continued

Haloperidol should be administered by **INTRAMUSCULAR** injection ONLY.

PARAMEDIC STANDING ORDERS

P

- Initiate an IV of Normal Saline at a KVO rate.
- Apply cardiac monitor if clinically feasible, obtain 12 lead ECG-manage dysrhythmias per protocol.
- Position patient to ensure breathing is not impaired.
- If providing medication to patients >70 years of age, limit dose.

ADULT STANDING ORDERS

- **Haloperidol** 5 mg **IM**; and/or
- **Midazolam** 2-6 mg IV/IO/IM/IN
- **Ketamine** 4mg/kg IM only, to a maximum dose of 400mg IM only, as a single dose.
- NOTE: In patients >70 years of age, limit medication to half these doses.



PEDIATRIC STANDING ORDERS

- **Midazolam** 0.1mg/kg IV/IO/IM/IN



Medical Control may order additional doses of above medications

Haloperidol is preferable for psychotic patients; but do not administer to patients with a history of seizures or prolonged QT intervals.

Behavioral Emergencies: Restraint Adult & Pediatric

2.5

OVERVIEW

In accordance with M.G.L. c. 111C, §18, the following guidelines may be followed to restrain a patient only when the patient presents an immediate or serious threat of bodily harm to him/herself or others.

Adults (or emancipated minors as defined in A/R 5-610) who are competent with the functional capacity to understand the nature and effects of their actions and/or decisions have the right to refuse treatment and/or transport. Do not restrain these individuals.

Procedures:

1. Follow 2.4 Behavioral Emergencies.
2. Use the least restrictive method that assures the safety of the patient and others.
3. Use only soft restraints (leather restraints only if made with soft padding inside).
4. Remind law enforcement that for ambulance transport, patients who are handcuffed must have handcuffs in front (not behind) or to the stretcher and that the key must be readily available for removal; if needed.
5. Apply restraints in a way that allows for airway, breathing, and circulation assessment.
6. Never restrain a patient in a prone position or use equipment that forms a "sandwich" around the patient.
7. Have a minimum of four (4) trained personnel coordinate the restraint effort and consider involving parents if patient is a child.
8. Secure the patient so that major sets of muscle groups cannot be used together, restraining the lower extremities to the stretcher first around the ankles and across the thighs with soft restraints and stretcher straps.
9. Restrain the patient's torso and upper extremities with one arm up and one arm down with soft restraints and stretcher straps; do not impair circulation.
10. Consider cervical-spine immobilization to minimize violent head/body movements.
11. Pad under patient's head to prevent self-harm.
12. Secure backboard or scoop stretcher (if used) to ambulance stretcher.
13. Transport OB patients in a semi-reclining or left lateral position.
14. Monitor/record vital signs every 5 minutes, ensuring patient's airway remains clear.
15. Consider placing a non-rebreather mask (use only at 15 lpm) or a face mask (NOT a P100/N95) on the spitting patient's face.
16. Unless necessary for patient treatment, do not remove restraints until care is transferred at the receiving facility or condition has changes to necessitate removal.
17. Notify receiving facility and tell them that patient is restrained.
18. Document restraint use details in the patient care report, including:
    a. reason for restraint use
    b. time of application
    c. type(s) of restraints used, in addition to cot straps
    d. patient position
    e. neurovascular evaluation of extremities
    f. issues encountered during transport
    g. other treatment rendered
    h. police and/or other agency assistance

E/A/P

2.6A Bronchospasm/Respiratory Distress- Adult

Medical Protocol 2.6A

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- IF the patient has not taken the prescribed maximum dose of their own inhaler prior to the arrival of EMS, AND the inhaler is present:
  - Encourage and/or assist patient to self-administer their own prescribed inhaler medication if indicated.
  - If patient is unable to self-administer their prescribed inhaler, administer patient's prescribed inhaler.

NOTE: EMT-B and AEMT administration of an inhaler is CONTRAINDICATED, if:

- the maximum dose has been administered prior to the arrival of the EMT.
- the patient cannot physically use the device properly. (Patient cannot receive inhalation properly.)
- the device has not specifically been prescribed for the patient.

**If properly trained and authorized, use 6.1 BLS Assisted Albuterol.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications, if prescribed to patient or authorized, and if maximum dose has not been administered.

ADVANCED EMT STANDING ORDERS

A

- **Albuterol 2.5-3 mg** via nebulizer. **Ipratropium Bromide 0.5mg** may be combined with the **albuterol** treatment**.** Additional **albuterol** treatments may be administered as necessary with or without **ipratropium bromide.**

Note that a multi-dose inhaler may be used to give albuterol or ipratropium (instead of nebulizer) if infection control is an issue (e.g. influenza-like-illness).

- If approved, **epinephrine** 1:1,000 0.3mg IM-ONLY.
  - Must be administered in accordance with criteria listed in A1 Adult Medication Reference

PARAMEDIC STANDING ORDERS

P

- In a patient with a known diagnosis of asthma or COPD, who *does not have* history or findings concerning for congestive heart failure, consider **hydrocortisone** 100 mg. IV/IO/IM or **methylprednisolone** 125 mg. IV/IO/IM.
- In patients ≤40 years old, **epinephrine** 0.3 mg IM as a one time dose.
- Continuous positive airway pressure (CPAP) assistance, if not contraindicated, and if nebulizer therapy can be continued with the CPAP device.
- For Asthma only, consider **magnesium sulfate** 2-4 gm. IV/IO over 5 minutes**.**

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Epinephrine 1:10,000,** 0.1-0. 5 mg IV/IO very slowly



CAUTION: The use of Epinephrine in patients over the age of 40 or with known cardiac disease and patients who have already taken high dosage of inhalant bronchodilator medications may result in cardiac complications.



CAUTION: Epinephrine for bronchospasm must be administered by Auto-Injector ONLY, except by medical control order or department authorization.

Bronchospasm/Respiratory Distress- Pediatric

2.6P

EMT STANDING ORDERS

- 1.0 Routine Patient Care
- **MILD DISTRESS**: The following may be considered if the patient has not taken the prescribed maximum dose of their own inhaler prior to the arrival of EMS: and the inhaler is present:
  - Encourage and/or assist patient to self-administer their own prescribed inhaler medication if indicated or if not already done.
  - If patient is unable to self-administer their prescribed inhaler, administer patient's prescribed inhaler.
  - Reassess vital signs.



MEDICAL CONTROL MAY ORDER:

- Additional doses of above medications, if prescribed to patient or authorized, and if maximum dose has not been administered.

  NOTE: EMT-B, EMT-I and AEMT administration of an inhaler is CONTRAINDICATED, if:
- the maximum dose has been administered prior to the arrival of the EMT.
- the patient cannot physically use the device properly. (Patient cannot receive inhalation properly.)
- the device has not specifically been prescribed for the patient.

  **If properly trained and authorized, use 6.1 BLS/ILS Assisted Albuterol.
- **SEVERE DISTRESS**:
  - If patient is over 6 months age and under 25kg, administer **epinephrine** 0.15mg via auto-injector or IM**.** If body weight is over 25 kg, administer **epinephrine** 0.3mg via auto-injector or IM. When administering IM, EMTs may do so in accordance with Protocol 6.6 Check and Inject Epinephrine for BLS Providers.
    - **Contact Medical Control if second dose is required after 5 minutes.**

E



- Criteria for epinephrine administration:
  - age greater than or equal to 6 months
  - known history of asthma or reactive airway disease or bronchospasm or bronchodilators prescribed **AND**
  - patient in respiratory arrest or approaching respiratory arrest(requiring BVM)- include
  - diminished or absent breath sounds **AND**
  - oxygen saturation less than 91% despite supplemental oxygen or unmeasurable.

Protocol Continues

2.6P Bronchospasm/Respiratory Distress- Pediatric

Protocol Continued

ADVANCED EMT STANDING ORDERS

A

- If the condition is not improving with administration of supplemental oxygen, consider the following:
  - **Albuterol sulfate** 1.25 mg with **ipratropium bromide**, 250 mcg via nebulizer if less than 2 years of age.
  - **Albuterol sulfate** 2.5-3 mg with **ipratropium bromide**, 500 mcg via nebulizer if age 2 years or greater.
  - A second dose of **albuterol**, with or without **ipratropium bromide**, may be administered as necessary.

Note: a multi-dose inhaler may be used to give albuterol or ipratropium (instead of nebulizer) if infection control is an issue (e.g., influenza-like-illness).

PARAMEDIC STANDING ORDERS

P

- For a child age 2 years old or more who has a known diagnosis of asthma, consider: **hydrocortisone** 2 mg/kg to max. 100 mg IV/IO/IM; or **methylprednisolone** 2 mg/kg to max. 125 mg IV/IO/IM.
- Consider **magnesium sulfate** 25 mg/kg IV/IO over 10 min. (maximum dose 2 grams).

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.



CAUTION: Epinephrine for anaphylaxis must be administered by Auto-Injector or IM if trained and authorized to do so in accordance with Medical Director Option Protocol 6.6 Check and Inject Epinephrine for BLS Providers.

Mild distress in children is evidenced by minor wheezing and good air entry.

Severe distress in children is evidenced by poor air entry, extreme use of accessory muscles, nasal flaring, grunting, cyanosis and/or altered mental status (weak cry, somnolence, poor responsiveness). **REMEMBER:** Severe bronchospasm may present without wheezes, if there is minimal air movement.

Respiratory Distress is defined as inadequate breathing in terms of rate, rhythm, quality and/or depth of breathing. Children who are breathing too fast or slow, or in an abnormal pattern or manner, may not be receiving enough oxygen to support bodily functions and may allow an increase in carbon dioxide to dangerous levels. Cyanosis is usually a late sign and requires immediate treatment.

Hyperthermia (Environmental) Adult & Pediatric

2.7

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Provide rapid cooling as soon as possible.

CAUTION: Do not over-chill patient, observe for shivering. If shivering occurs, discontinue active cooling procedures.

- Remove patient to cool area and place patient in a supine position.
- Loosen or remove all unnecessary clothing, while protecting privacy.
- Apply cool packs to armpits, neck and groin.
- Use evaporation techniques if possible (fans, open windows).
- Keep skin wet by applying water with wet towels or sponges.

- For Heat Cramps and/or Heat Exhaustion: administer water or oral re-hydration-electrolyte solution if patient is alert and has a normal gag reflex and can swallow easily. Elevate legs of supine patient with heat exhaustion.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P



- Consider 500mL fluid bolus for dehydration even if vital signs are normal. **Pediatrics**: 20mL/kg bolus, if indicated.

2.8 Hypothermia (Environmental) Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Avoid Rough Movement and Prevent Further Heat Loss:
  - Insulate from the ground and shield from wind/water
  - Move to a warm environment as soon as practical
  - Remove any wet clothing
  - Cover with warm blankets, particularly the head
- Determine patient's hemodynamic status: Assess pulse and respiratory rates for a period of 60 seconds to determine pulselessness or profound asystole, for which CPR would be required.
- If patient is in cardiopulmonary arrest, (refer to Protocol 3.4A/P Cardiac Arrest - Asystole/Pulseless Electrical Activity and 3.5A/P Cardiac Arrest- Ventricular Fibrillation/Pulseless Ventricular Tachycardia).
  - Initiate CPR and administer oxygen using appropriate oxygen delivery device, as clinically indicated.
  - Use AED according to the ECC guidelines or as otherwise noted in these Protocols and other advisories.
- Whenever possible, use warmed, humidified oxygen (104°F – 107°F, 40°C – 42°C) by non-rebreather mask, during resuscitation procedures for hypothermic patients.

  CAUTION: Do NOT administer anything orally if patient does not have a reasonable level of consciousness and normal gag reflex.
- Manage hypoglycemia and narcotic overdose per protocol.

ADVANCED EMT STANDING ORDERS

A

- Warm IV Fluids should be used.

PARAMEDIC STANDING ORDERS

P

- If pulse and breathing are absent, treat per Cardiac Arrest Protocols.

CAUTION: Do NOT massage extremities in an attempt to actively rewarm the patient.

Nerve Agents Organophosphate Poisoning – Adult & Pediatric

2.9

FIRST RESPONDER/EMT/ADVANCED EMT STANDING ORDERS

FR/E/A

- 1.0 Routine Patient Care
- Assess for SLUDGEM (Salivation, Lacrimation, Urination, Defecation, Gastric upset, Emesis, Muscle twitching/miosis (constricted pupils) and KILLER Bs (Bradycardia, Bronchorrhea, Bronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- Antidotal therapy should be started as soon as symptoms appear.
- All antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

PARAMEDIC STANDING ORDERS

P

- If field conditions permit, initiate cardiac monitoring and consider the administration of IV medications.
- If symptoms persist after the administration of 3 DuoDote kits:
  - **Atropine** 2mg IV/IO; repeat every 5 minutes until secretions clear
  - **Pralidoxime** 1 – 2 gram IV/IO over 30 – 60 minutes
  - **Diazepam** 10mg IM by auto-injector every 10 minutes, as needed.

    Instead of diazepam, may use :
    - **Midazolam** 2 mg IV/IO/IN every 5 minutes; or 6 mg IM every 10 minutes as needed.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Pralidoxime** maintenance infusion: up to 500mg per hour (maximum of 12 grams/day).

Protocol Continues

2.9 Nerve Agents Organophosphate Poisoning – Adult & Pediatric

Severity	Cholinergic AGENT Signs & Symptoms	ADULT TREATMENT STANDING ORDERS
MILD	Runny Nose Cough Pupils may be pinpoint Eye Pain Lacrimation	Decontaminate Administer 100% Oxygen Administer **One** kit IM OR 2mg **atropine** IM **only** & either: 600mg IM **pralidoxime** **OR** 1g IV **pralidoxime**
MODERATE	Runny Nose Cough Sweating, twitching Nausea, abdominal cramping Weakness Localized sweating (seen with dermal exposure) Eye pain, trouble seeing Wheezing, shortness of breath	Decontaminate Administer 100% Oxygen Administer **Two to Three** kits IM OR 4mg **atropine** IM **only &** either: 600-1200mg IM **pralidoxime** **OR** 1gm IV **pralidoxime**
SEVERE	All the above, plus: ○ Vomiting ○ Diarrhea ○ Drooling, copious respiratory secretions ○ Significant weakness ○ Seizures ○ Decreased level of consciousness ○ Apnea	Decontaminate Administer 100% Oxygen Administer **Three** kits IM OR 6mg **atropine** IM **only &** either: 1200-1800mg IM **pralidoxime** **OR** 1gm IV **pralidoxime** **&** **Diazepam** 10mg IM Autoinjector (CANA kit)**,OR** **Midazolam** 6-10mg IV/IO/IM

NOTE: Do not administer an adult dose to a child <50kg.

NOTE: Dermal absorption of nerve agents may lead to delayed symptom onset up to 18 hours after exposure. Initial symptoms/signs may only be local such as localized fasiculations and sweating.

PROCEDURES FOR SELF-CARE AND CARE OF AUTHORIZED PUBLIC EMPLOYEES OR FIRST RESPONDERS

Remove self or **fellow authorized public employee** from area if possible.

1. Assess degree of symptoms: Mild, Moderate or Severe.
2. Administer 1 to 3 auto-injector kits IM (each kit with **atropine** 2mg IM and **pralidoxime chloride** 600mg IM) as guided by degree of symptoms.
3. Seek additional medical support for further monitoring and transport of anyone receiving therapy.
4. Disrobing will significantly enhance the decontamination process. Perform decontamination, and seek assistance in further decontamination measures.

Protocol Continues

PEDIATRIC DOSING FOR NERVE AGENT EXPOSURES

Kg	Age	Atropine	Pralidoxime	Midazolam
		0.02-0.05mg/kg	20-40 mg/kg	0.1mg/kg
1	Preemie	0.1mg	20-40mg	0.05-0.1mg
2	Newborn	0.1mg	40-80mg	0.1-0.2mg
5	3 mos	0.1mg-0.25mg	100-200mg	0.25-0.5mg
10	12 mos	0.2-0.5mg	200-400mg	0.5-1mg
15	2-3 yrs	0.3-0.75mg	300-600mg	2mg
20	4-7 yrs	0.4-1mg	400-800mg	2.5mg
25	6-9 yrs	0.5-1.25mg	500mg-1g	3mg
30	7-11 yrs	0.6-1.5mg	600mg-1g	3.5mg
35	8-13 yrs	0.7-1.75mg	700mg-1g	4mg
40	9-14 yrs	0.8-2mg	800mg-1g	4.5mg
45	10-16 yrs	0.9-2mg	900mg-1g	5mg
50	11-18 yrs	1-2mg	1g	5mg
55	12-18 yrs	1.25-2mg	1g	5mg
60	13-18 yrs	1.5-2mg	1g	5mg
65	14-18 yrs	2mg	1g	5mg
70	16-18 yrs	2mg	1g	5mg

PEDIATRIC ATROPENS

Pediatric Atropine Dosing for Nerve Agent Toxicity Using Pediatric Atropens

Weight	Mild	Moderate	Severe
15-40 lb (7-18kg)	1 x 0.5mg Atropen	1 x 1mg Atropen	3 x 0.5mg Atropen
40-90 lb (18-41kg)	1 x 1mg Atropen	1 x 2mg Atropen	3 x 1mg Atropen
>90 lb (41kg)	1 x 2mg Atropen	2 x 2mg Atropen	3 x 2mg Atropen

Note: Pralidoxime reduced dose pediatric autoinjectors are not available

ADULT AUTOINJECTORS

Pediatric Dosing for SEVERE Nerve Agent Toxicity Using Adult Autoinjectors

(i.e. seizures, hypotension, coma, cardiac arrest)

Use only if Pediatric Atropen or when Atropine/Pralidoxime vials are not available

Approximate Age	Approximate Weight	Number of Auto-injectors (each type)	Atropine Dosing Range (mg/kg)	Pralidoxime dosing range (mg/kg)
3-7 yrs	13-25kg	1	0.08-0.13	24-46
8-14 yrs	25-50kg	2	0.08-0.13	24-46
>14 yrs	>51kg	3	0.11 or less	35 or less

- NOTE: Mark I kits and Duodote are not approved for pediatric use, however, they should be used as initial therapy in circumstances for children with severe life-threatening nerve agent toxicity when IV therapy is not available. This assumes 0.8 inch needle insertion depth.
- NOTE: Potential high dose of atropine and pralidoxime for age/weight. However, these numbers are within the general guidelines recommended for the first 60-90 minutes of therapy after a severe exposure.
- NOTE: Administer injection in large muscle mass. Avoid deltoid. Suggest using thigh.

REFERENCE: Pediatric Preparedness for Disasters and Terrorism: A National Consensus Conference, Executive summary 2003. Markenson D, Redlener I. AHRQ, DHHS, EMSC Program of the Maternal and Child Health Resources Services Administration

2.10 Obstetrical Emergencies

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- Expose as necessary to access for bleeding/discharge, crowning, prolapsed cord, breech, limb presentation.
- Do not digitally examine or insert anything into the vagina.
  - Exceptions: fingers may be inserted to manage baby's airway in breech presentation or to treat prolapsed or nuchal cord.
- Place mother in left-lateral recumbent position except as noted:
  - Prolapsed cord:
    - Knee-chest position or Trendelenburg position
    - If only the cord has prolapsed and the presenting part has yet to go through the cervix, gently elevate the presenting part to remove pressure on the umbilical vessels to permit blood flow through cord.

PARAMEDIC STANDING ORDERS

P

- Eclamptic Seizures
  - **Midazolam** 2 - 6 mg slow IV/IO/IM/IN

MEDICAL CONTROL MAY ORDER



- Administration of additional IV Normal Saline.
- **Magnesium sulfate** 1- 4 gm IV/IO over 10 minutes (i.e., for eclampsia).
- **Calcium chloride** 10% 2 mg-4 mg/kg slow IV/IO over 5 minutes. (Antidote for Magnesium Sulfate).
- Further anticonvulsant therapy.

Special Considerations in Cardiac Arrest (with additional resources)

- If the fundus height is at or above the level of the umbilicus

Manually displace the gravid uterus to the left to enhance venous return.

Newly Born Care 2.11

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- 1.0 Routine Patient Care—dry, warm, position, stimulate.
- For newly born requiring resuscitation, see 2.12 Resuscitation of the Newly Born.
- Reassess airway by positioning and clearing secretions (only if needed):
  - Place the newly born on back or side with head in a neutral or slightly extended position.
  - Routine suctioning is discouraged even in the presence of meconium-stained amniotic fluid. Suction oropharynx then nares only if the patient exhibits respiratory depression and/or obstruction, see 2.12 Resuscitation of the Newly Born.
- Clamp and cut the umbilical cord:
  - After initial assessment and after the cord stops pulsating.
  - Leave a minimum of 6 inches of cord.
- Prevent heat loss by rapidly drying and warming:
  - Remove wet linen, wrap newly born in blankets or silver swaddler (preferred) and cover newly born's head.
- Assess breathing by providing tactile stimulation:
  - Flick soles of feet and/or rub the newly born's back.
  - If newly born is apneic or has gasping respirations, nasal flaring, or grunting, proceed to 2.12 Resuscitation of the Newly Born.
- Assess circulation, heart rate, and skin color:
  - Evaluate heart rate by one of several methods:
    - Auscultate apical beat with a stethoscope.
    - Palpate the pulse by lightly grasping the base of the umbilical cord.
  - If the pulse is <100 bpm and not increasing, proceed to 2.12 Resuscitation of the Newly Born. Assess skin color; examine trunk and face; and mucus membranes.
- Record APGAR score at 1 minute and 5 minutes (see chart).
- See A2 Pediatric Color Coded Appendix for vital signs reference.

APGAR Scale

Feature Evaluated	2 Points	1 Point	0 Points
Activity (Muscle Tone)	Active Movement	Arms and legs flexed (Weak, some movement)	Limp or flaccid
Pulse	Over 100 bpm	Below 100 bpm	Absent
Grimace (Irritability/reflexes)	Cry, sneeze, cough, active movement	Grimace (some flexion of extremities)	No reflexes
Appearance (Skin Color)	Completely pink	Body pink, Extremities blue	Blue, pale
Respiration	Vigorous cry Full breaths	Slow, irregular, or gasping breaths, weak cry	Absent

PEARLS:

- Newly born are prone to hypothermia which may lead to hypoglycemia, hypoxia and lethargy. Aggressive warming techniques should be initiated including drying, swaddling, and warm blankets covering body and head.
- Raise temperature in ambulance patient compartment.

2.12 Resuscitation of the Newly Born

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- Maintain an open airway and suction the mouth, then nose. If meconium (brown stained fluid) is present, suction the hypopharynx only if the infant is not vigorous (Contact ALS immediately if available for possible need of endotracheal intubation).
- Dry the infant, place on a dry blanket, cover the head and keep the infant warm.
- If ventilations are inadequate or chest fails to rise, reposition head and neck, suction and initiate positive pressure ventilation at room air for term newborns or for preterm (less than 38 weeks gestation) newborns at 40-60 breaths per minute, as clinically indicated.
- For heart rate less than 60, institute positive pressure ventilation with 100% oxygen for 1 minute and if heart rate remains at 60 start chest compressions.

PARAMEDIC STANDING ORDERS

P

- If meconium is present, consider early endotracheal intubation and suctioning. (Note: Do not suction or intubate a neonate with a vigorous cry).
- Newly born in distress and requiring emergency care:
  - For heart rate 60-80 and rapidly rising:
    - Continue manual ventilation at room air for term newborns or for preterm (less then 38 weeks gestation) newborns at 40-60 breaths per minute
    - Cardiac Monitor – Manage dysrhythmias per protocol,
  - For heart rate less than 60:
    - Initiate CPR as indicated.
    - Institute positive pressure ventilation with 100% oxygen for 1 minute and if heart rate remains at 60, start chest compressions.
    - Continue manual ventilation with 100% oxygen after CPR is initiated.
    - Advanced airway management if not already done and perform capnography.
    - Cardiac Monitor. Manage dysrhythmias per protocol.
    - If defibrillation is indicated: initial energy level: 2 joules/kg subsequent: 4 joules/kg.
    - If synchronized cardioversion is indicated: 0.5-1 joules/kg.
  - Establish IV or IO access, if indicated. (Note: appropriately trained and authorized EMT-Paramedics may utilize umbilical lines when necessary). Treat for shock with 10cc/kg of Normal Saline over 5-10 minutes.

MEDICAL CONTROL MAY ORDER:



- **Epinephrine** 1:10,000 (0.01-0.03 mg/kg) IV/IO
- **Epinephrine Infusion**: Administer 0.1-1 mcg/kg/min IV/IO
  - For example:mix 1mg of Epinephrine 1:1000 in 250mL of Normal Saline, (15 micro drops/minute = 1 mcg / min.)

NOTE: The newly born should be evaluated for *central* cyanosis. Peripheral cyanosis is common and may not be a reflection of inadequate oxygenation. If central cyanosis is present in a breathing newborn during stabilization, early administration of 100% oxygen is important while the newborn is being assessed for need of additional resuscitative measures.

Pain & Nausea Management Adult & Pediatric

2.13

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care

ADVANCEDEMT STANDING ORDERS: ADULT

A

- **Ondansetron** 4 mg PO (Oral Disintegrating Tablet (ODT) is the preferred route) /IV/IO/IM.

ADVANCEDEMT STANDING ORDERS: PEDIATRIC



- **Ondansetron** for child under or up to 25 kg 2 mg PO by Oral Disintegrating Tablet (ODT).ODT is the preferred route /IV/IM;
  for a child over 25 kg, 4 mg PO by ODT(the preferred route)/IV/IM.

PARAMEDIC STANDING ORDERS: ADULT

P

- **Acetaminophen** 650-1000 mg IV or PO.
- **Ibuprofen** 600 mg PO.
- **Ketorolac** 15 mg IV or 30 mg IM.
- **Fentanyl** 1 mcg/kg slow IV/IO/IM/IN weight based (kg) to a max. of 150mcg (150kg).
- **Morphine Sulfate** 0.1mg/kg IV/IO/IM/SC,(max `10 mg).

PARAMEDIC STANDING ORDERS: PEDIATRIC

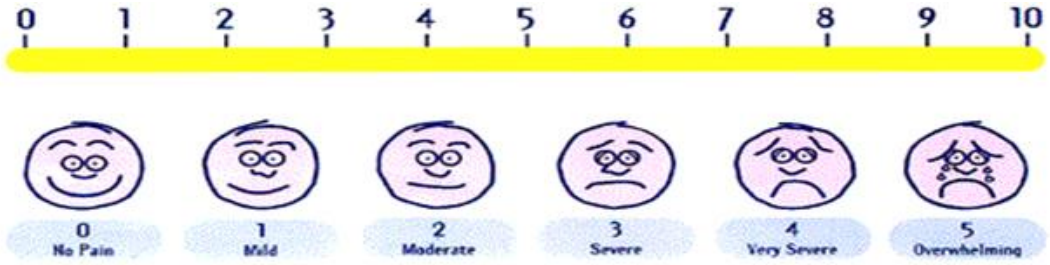


- **Acetaminophen** 15 mg/kg IV or PO to max 1000 mg.
- **Ibuprofen** 10 mg/kg PO to max 600 mg.
- **Ketorolac** 0.5 mg/kg IV or IM to max 15 mg.
- **Fentanyl** 1 mcg/kg. to max. 150 mcg slow IV/IO/IM/IN.
- **Morphine Sulfate** 0.1 mg/kg IV/IO/IM/SC (maximum individual 5 mg).

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications



NOTE: Pain Management can include positioning, ice packs and other non-pharmacological treatments.

NOTE: All pain medications have contraindications-do not administer medications in such circumstances. These contraindications include but are not limited to: Ketorolac and ibuprofen are contraindicated in head injury, chest pain, abdominal pain, or in any patient with potential for bleeding, ulcer, or renal injury; likely to need surgery Acetaminophen is contraindicated in patients with liver failure. Ketorolac and ibuprofen are contraindicated in pregnancy.

2.14 Poisoning/Substance Abuse/ Overdose/Toxicology- Adult & Pediatric

NOTE:Naloxone should only be administered in suspected overdose patients with inadequate respirations and respiratory rate. Treatment should progress toward the restoration of adequate respirations. Patients with inadequate respiratory rates may need to be ventilated until their respiratory rate increases.

FIRST RESPONDER/EMT STANDING ORDERS

FR/E

- 1.0 Routine Patient Care
- **Naloxone** 2 mg-4 mg via Nasal Atomizer (IN) **or** 0.4 mg via auto-injector (IM).
  - If no response after 3-5 minutes, give second dose.
  - First Responders may only administer if trained and authorized.
- If suspected or confirmed hypoglycemia, treat per protocol.

ADVANCED EMT STANDING ORDERS

A

- **Naloxone** 0.4-4 mg IV/IO/IM/IN. May be repeated as indicated.

P

MEDICAL CONTROL MAY ORDER



- **Calcium chloride 10%,** 2-4 mg/kg IV/IO **SLOWLY OVER FIVE (5) MINUTES** (e.g., for calcium blocker toxicity).
- **Sodium bicarbonate** 0.5 – 1 mEq/Kg IV/IO (e.g. TCA or Aspirin overdose).
- **Atropine** 2- 5 mg IV/IO (e.g., organophosphate poisoning management).
- **Albuterol** 2.5-3 mg by nebulizer (e.g., bronchospasm management).
- **Furosemide** 40 mg IV/IO (e.g., pulmonary edema management).
- **Midazolam** 2 – 6 mg IV/IO/IM/IN.
- **Amyl nitrite**: administer vapors of a crushed inhalant or pearl under the patients nose for 15 out of every 30 thirty seconds with intermittent 100% oxygen administration.
- **CYANIDE ANTIDOTE KIT if available by EMS service and/or industrial site:**
  - Two (2) **amyl nitrite** inhalants.
  - **3% sodium nitrite** (stop Amyl nitrite):
    - ADULT: 10 mL slow IV/IO over 2-4 minutes.
    - PEDI: 0.2 mL/kg (up to 10 mL) slow IV/IO over 5 minutes.
  - **Sodium thiosulfate 25%:**
    - ADULT: 50 mL IV/IO.
    - PEDI: 5 mL Sodium Thiosulfate per 1 mL Sodium Nitrate given. **NOTE**: If hypotension develops, STOP all nitrites, treat for shock, and consider administration of **norepinephrine** or **dopamine**.
- **Hydroxocobalamin** 5 g IV/IO over 15 minutes in an adult
  - In a pediatric patient, 70 mg/kg (to maximum 5 g) IV/IO over 15 minutes
- **Glucagon** 1 – 5 mg IV/IO/IM/SC, for beta-blocker or calcium-channel blocker overdose
- If suspected or confirmed nerve agent exposure, treat per protocol.



Poison Control may be reached at: **800-222-1222**

Medical Protocol 2.14

Seizures - Adult 2.15A

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Manage hypoglycemia and narcotic overdose per protocol.
- Consider eclampsia in a woman of childbearing age

CAUTION: Do NOT administer anything orally if the patient does not have a reasonable level of consciousness and normal gag reflex.

ADVANCED EMT STANDING ORDERS

A

- If Diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that the family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3-5 minutes for a total of 3 times.

Note: Do not delay medication administration.

PARAMEDIC STANDING ORDERS

P

- Cardiac Monitor and if feasible 12 lead ECG – Manage dysrhythmias per protocol.
- If patient is in **Status Epilepticus**
  - **Midazolam** 2 - 6 mg slow IV/IO/IM/IN.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Magnesium sulfate 1-4 grams** IV over 10 minutes if suspect eclampsia.



CAUTION: Benzodiazepines may be contraindicated in head injury or hypotension; discuss with medical control.

NOTE:

- Post-partum patients may experience eclamptic seizures up to several weeks after giving birth.
- **Status epilepticus** is defined as any generalized seizures lasting more than 5 minutes. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.

2.15P Seizures - Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Prevent patient from accidental self-harm. DO NOT use a bite block.

CAUTION: Do NOT administer anything orally if the patient does not have a reasonable level of consciousness and normal gag reflex.

ADVANCED EMT STANDING ORDERS

A

- If Diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that the family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3-5 minutes for a total of 3 times.

Note: do not delay medication administration.

PARAMEDIC STANDING ORDERS

P

- If Glucose is less than **70**mg/dL, treat per 2.3P Altered Mental/Neurological Status/Diabetic Emergencies/Coma- Pediatric.
- **Midazolam** 0.05mg/kg IV/IO/IM to a maximum single dose of 4mg.

OR

- **Midazolam** 0.2mg/kg IN to a maximum dose of 10 mg.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.

Shock - Adult 2.16A

Any patient with signs, symptoms, and history suggesting inadequate tissue perfusion should be considered to be in shock. Make every effort to determine and treat the underlying cause. Regardless of etiology, shock patients should be transported immediately to the nearest appropriate facility for definitive care.

BASIC STANDING ORDERS

- 1.0 Routine Patient Care
- Keep the patient supine.
- Prevent heat loss by covering with warm blankets if available and if the patient is not febrile.
- Physiological signs:
  - Altered mental status.
  - Radial pulse cannot be palpated.
  - Systolic blood pressure less than 100 mmHg.

	CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
E	• Assess and treat for pulmonary edema and/or congestive heart failure (CHF), per 3.6 Congestive Heart Failure.	• If patient has history of adrenal insufficiency, manage according to 2.1 Adrenal Insufficiency.	Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial tourniquets preferred), or hemostatic bandage.	
ADVANCED EMT STANDING ORDERS				
A	• No fluid bolus.	• Total volume administered is to be based on hemodynamic stability. • Consider Normal Saline fluid bolus.	• Total volume administered is determined by hemodynamic stability. • Consider Normal Saline fluid bolus.	• Total volume administered is to be based on hemodynamic stability. • Consider Normal Saline fluid bolus.

Protocol Continues

2.16A Shock – Adult

Protocol Continued

PARAMEDIC STANDING ORDERS

- Consider fluid administration.
- If signs and symptoms of hypoperfusion persist or symptoms worsen, regardless of etiology, consider norepinephrine, epinephrine or dopamine administration in the absence of hemorrhagic shock, with medical control approval.

P

MEDICAL CONTROL MAY ORDER



CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
• **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR** • **Epinephrine infusion –** 2-10 mcg/min IV/IO, (for example: mix 1 mg of 1:1000 Epinephrine in 250 ml Normal Saline). (15 micro drops/minute = 1 mcg / min.) **OR** • **Dopamine** 2-20 mcg/kg/min IV/IO	• **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR** • **Epinephrine infusion –** 2-10 mcg/min IV/IO **OR** • **Dopamine** 2-20 mcg/kg/min IV/IO • For patients with confirmed or suspected Adrenal Insufficiency, treat per 2.1 Adrenal Insufficiency	• **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR** • **Epinephrine infusion –** 2-10 mcg/min IV/IO, **OR** • **Dopamine** 2-20 mcg/kg/min IV/IO	• **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR** • **Epinephrine infusion –** 2-10 mcg/min IV/IO, **OR** • **Dopamine** 2-20 mcg/kg/min IV/IO • Needle Decompression, if tension pneumothorax suspected

Etiology of Shock

- **Cardiogenic Shock:** History of cardiac surgery, rhythm disturbances, or post cardiac arrest. Assess for acute MI and pulmonary edema.
  - Signs & Symptoms of cardiogenic shock: chest pain, shortness of breath, crackles, JVD, hypotension, tachycardia, diaphoresis.
- **Distributive Shock:** Anaphylaxis (see 2.2 Allergic Reaction/Anaphylaxis), neurogenic shock, sepsis. Assess for fever and signs of infection.
  - Signs & Symptoms of neurogenic shock: sensory and/or motor loss, hypotension, bradycardia versus normal heart-rate, warm, dry skin.
- **Hypovolemic Shock:** Dehydration, volume loss, or hemorrhagic shock.
  - Signs & Symptoms of hypovolemic shock: tachycardia, tachypnea, hypotension, diaphoresis, cool skin, pallor, flat neck veins.
- **Obstructive Shock:** Consider tension pneumothorax, pulmonary embolism, and cardiac tamponade.
  - Signs and symptoms of tension pneumothorax: asymmetric or absent unilateral breath sounds, respiratory distress or hypoxia, signs of shock including tachycardia and hypotension, JVD, possible tracheal deviation above the sternal notch (late sign).

For patients with uncontrolled hemorrhagic or penetrating torso injuries:

- Restrict IV fluids. Delaying aggressive fluid resuscitation until operative intervention may improve the outcome.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Several mechanisms for worse outcomes associated with IV fluid administration have been suggested, including dislodgement of clot formation, dilution of clotting factors, and acceleration of hemorrhage caused by elevated blood pressure.

Shock - Pediatric 2.16P

Any patient with signs, symptoms, and history suggesting inadequate tissue perfusion should be considered to be in shock. Make every effort to determine and treat the underlying cause. Regardless of etiology, shock patients should be transported immediately to the nearest appropriate facility for definitive care.

BASIC STANDING ORDERS

- 1.0 Routine Patient Care
- Keep the patient supine.
- Prevent heat loss by covering with warm blankets if available and if the patient is not febrile.

	CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
E		If patient has history of adrenal insufficiency, manage according to protocol 2.1 Adrenal Insufficiency. If suspected anaphylaxis, manage according to protocol. If neurogenic shock is suspected: Spinal immobilization.	• Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial tourniquets preferred), or hemostatic bandage.	
ADVANCED EMT STANDING ORDERS				

A		• Obtain vascular access. Therapeutic end-points to fluid resuscitation (in order of importance) are:
		  • Capillary refill,
		  • Normal pulses,
		  • No difference between peripheral and central pulses,
		  • Warm extremities, Normal mental status, and
		  • THEN normal blood pressure.
		• Consider 20 ml/kg Normal Saline fluid bolus.
			• Obtain vascular access. Therapeutic end-points to fluid resuscitation (in order of importance) are:
			  • Capillary refill,
			  • Normal pulses,
			  • No difference between peripheral and central pulses,
			  • Warm extremities, Normal mental status, and
			  • THEN normal blood pressure.
			• Consider 20 ml/kg Normal Saline fluid bolus.
				• Consider 20 ml/kg Normal Saline fluid bolus.

Medical Protocol 2.16P

Protocol Continues

2.16P Shock – Pediatric

Protocol Continued

PARAMEDIC STANDING ORDERS

- Consider fluid administration
- If signs and symptoms of hypoperfusion persist or symptoms worsen, regardless of etiology, consider norepinephrine or dopamine administration via length-based resuscitation tape in the absence of hemorrhagic shock, with medical control approval.

P

CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK

MEDICAL CONTROL MAY ORDER



- **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR**

  Dopamine 2-20 mcg/kg/min IV/IO
- Needle decompression for tension pneumothorax

Etiology of Shock

- **Cardiogenic Shock:** History of cardiac surgery, rhythm disturbances, or post cardiac arrest. Assess for acute MI and pulmonary edema.
  - Signs & Symptoms of cardiogenic shock: chest pain, shortness of breath, crackles, JVD, hypotension, tachycardia, diaphoresis.
- **Distributive Shock:** Anaphylaxis (see 2.2 Allergic Reaction/Anaphylaxis), neurogenic shock, sepsis. Assess for fever and signs of infection.
  - Signs & Symptoms of neurogenic shock: sensory and/or motor loss, hypotension, bradycardia versus normal heart-rate, warm, dry skin.
- **Hypovolemic Shock:** Dehydration, volume loss, or hemorrhagic shock.
  - Signs & Symptoms of hypovolemic shock: tachycardia, tachypnea, hypotension, diaphoresis, cool skin, pallor, flat neck veins.
- **Obstructive Shock:** Consider tension pneumothorax, pulmonary embolism, and cardiac tamponade.
  - Signs and symptoms of tension pneumothorax: asymmetric or absent unilateral breath sounds, respiratory distress or hypoxia, signs of shock including tachycardia and hypotension, JVD, possible tracheal deviation above the sternal notch (late sign).

For patients with uncontrolled hemorrhagic or penetrating torso injuries:

- Restrict IV fluids. Delaying aggressive fluid resuscitation until operative intervention may improve the outcome.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Several mechanisms for worse outcomes associated with IV fluid administration have been suggested, including dislodgement of clot formation, dilution of clotting factors, and acceleration of hemorrhage caused by elevated blood pressure.

Sepsis-Adult 2.17

- IDENTIFICATION OF POSSIBLE SEPTIC SHOCK
- Suspected infection – YES
- Evidence of sepsis criteria-YES (2 or more):
  - Temperature less than 96.8 ° F or greater than 100.4 ° F
  - Heart Rate greater than 90 bpm
  - Respiratory rate greater than 22 bpm
  - Systolic BP less than 90 mmHg OR Mean Arterial Blood Pressure (MAP) less than 65 mm Hg
  - New onset altered mental status OR increasing mental status change with previously altered mental status.
  - Serum Lactate level greater than 4 mmol/l-(if trained and equipment available)
  - $ETCO_2$ less than or equal to 25 mmHg

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Notify hospital of incoming Sepsis Alert prior to arrival if applicable
- Supplemental oxygen to achieve SpO2 of 94%

ADVANCED EMT STANDING ORDERS

A

- Full ALS Assessment and treatment
- Large bore IV access
- IV 0.9% NaCl enroute: administer 500 ml boluses up to 30cc/kg

Warning: assess lung sounds frequently to ensure volume overload does not occur.

PARAMEDIC STANDING ORDER

P

MEDICAL CONTROL MAY ORDER



- **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO by pump, titrate to goal Systolic Blood Pressure of 90mmHg, **OR**
- **Epinephrine infusion** 2-10 mcg/min IV/IO **OR**
- **Dopamine** 2-20 mcg/kg/min IV/IO.
- Additional Fluid boluses.



This protocol is for adult patients 18 years old or older

Medical Protocol 2.17

Stroke



Say "Stroke Alert" in Hospital Entry Note if patient meets the Stroke Criteria, even if symptoms have resolved.

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- 1.0 Routine Patient Care
- Perform FAST-ED Stroke Scale.
- Clearly determine time of onset of the symptoms or the last time seen well.
- If the patient wakes from sleep or is found with symptoms of stroke, the time of onset of first symptoms is defined as the last time the patient was observed to be normal. Notify the emergency department as soon as possible.
- If any one of the signs of the stroke scale is abnormal and onset of symptoms are less than **5 hours**, notify receiving hospital of a "Stroke Alert".
- Elevate the head of the stretcher 30 degrees.
- Do not delay transport for ALS intercept.
- Consider transporting a witness, family member, or caregiver with the patient to verify the time of the onset of stroke symptoms.
- If the onset of signs and symptoms PLUS transport time is <5 hours, consider transport to the most appropriate facility in accordance with local guidelines/agreements.
- Transport to a Department approved Stroke Point-of-Entry (POE) hospital.



Avoid hyperoxygenation; oxygen administration should be titrated to patient condition, and withheld unless evidence of hypoxemia, dyspnea, or an SpO2 <94%, especially in the presence of a suspected CVA/TIA or ACS.

Protocol Continues

Stroke 2.18

This checklist is included as a resource for EMTs and receiving hospitals. If used, please leave a copy with the patient and document all elements on Patient Care Report

Date: Amb #: Pt. Age: ❑ M ❑ F
Patient's Name: DOB:

STROKE ALERT! Criteria:

	YES	NO	Unknown
Time last known well (TLKW) <5 hours?	☐	☐	☐
Any abnormal finding not attributable to head trauma?	☐	☐	☐
Blood Glucose >60?	☐	☐	☐

TIME LAST KNOWN WELL:
: AM/PM

BLOOD GLUCOSE LEVEL:
mg/dL

FAST-ED Stroke Scale

Item	Score
Facial Palsy	
Normal or minor paralysis	0
Partial or complete paralysis	1
Arm weakness	
No drift	0
Drift or some effort against gravity	1
No effort against gravity or no movement	2
Speech changes	
Absent	0
Mild to moderate	1
Severe, global aphasia or mute	2
Eye deviation	
Absent	0
Partial	1
Forced deviation	2
Denial/Neglect	
Absent	0
Extinction to bilateral simultaneous stimulation in only 1 sensory modality	1
Does not recognize own hand or orients only to one side of the body	2

History:

Conditions:
- ❑ Head Trauma/ Seizures
- ❑ Cardiac Arrhythmias
- ❑ Recent/current bleeding, trauma, surgery or invasive procedure
- ❑ Bleeding disorder
- ❑ Pregnancy

Medications:
- ❑ Coumadin/ warfarin
- ❑ Pradaxa/ dabigatran
- ❑ Xaralto/ rivaroxaban
- ❑ Eliquis/apixaban
- ❑ aspirin

Sudden Acute Stroke Symptoms:

- ❑ *Sudden* numbness, weakness or paralysis of face, arm or leg-- especially one side of the body
- ❑ *Sudden* confusion, trouble speaking or understanding speech
- ❑ *Sudden* trouble seeing in one or both eyes
- ❑ *Sudden* trouble walking, loss of balance or coordination; or
- ❑ *Sudden* severe headache with no known cause

Say "Stroke Alert" in Hospital Entry Note if patient meets the Stroke Criteria, even if symptoms have resolved.

Medical Protocol 2.18

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SECTION 3:

CARDIAC PROTOCOLS

Statewide Treatment Protocols
Version 2018.1

3.1 Acute Coronary Syndrome-Adult

Not all patients with complaints of chest pain should be treated with aspirin, nitrates and oxygen. Consider the likelihood of ACS based on the nature of the symptoms, the patient's age, cardiac risk factors, past medical history, etc.

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- **Aspirin** 324-325 mg. Check allergy status. Check contraindications.
- **Nitroglycerin** 1 tab/spray SL every 5 minutes to a maximum 3 doses
  - Must be patient's own NTG
  - Include doses self-administered PTA
  - SBP must be >120mmHg
- **If suspected MI**, determine patient eligibility for fibrinolytic therapy (within this protocol).

ADVANCED EMT STANDING ORDERS

A

- IV must be established before administration of nitroglycerin
- **Nitroglycerin** 0.4mg SL every 3–5 minutes while symptoms persist and if systolic BP remains >120 mmHg.
  - If patient has taken their own Nitroglycerin PTA, and you have determined that the pharmacologic potency of that nitroglycerin was normal (based upon standard side effects of the med, e.g., headache/tingling sensation) without pain relief, contact Medical Control for other treatment options.

PARAMEDIC STANDING ORDERS

P

NOTE: A second IV line may be indicated for high-risk patient.

- Medication interventions based on risk for ACS, clinical presentation and/or diagnostic EKG changes.
- **Fentanyl** 1 mcg/kg slow IV/IO/IM/IN weight based (kg) to a max of 150mcg (150kg)

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.



- Avoid nitroglycerin in ALL patients who have used a phosphodiesterase inhibitor such as: **sildenafil** (Viagra, Revatio), **vardenafil** (Levitra, Staxyn), **tadalafil** (Cialis, Adcirca) within the last **48 HOURS**. These medications are often used for erectile dysfunction and pulmonary hypertension. Also avoid use in patients receiving intravenous epoprostenol (Flolan) which is also used for pulmonary hypertension.
- Administer nitrates with extreme caution, if at all, to patients with inferior-wall STEMI or suspected right ventricular (RV) involvement because these patients require adequate RV preload.

Protocol Continues

Acute Coronary Syndrome - Adult

3.1

Protocol Continued

If patient appears to be having a ST-elevation MI (STEMI), refer to the appropriate STEMI-Point of Entry (POE) plan, and transport accordingly.

Avoid hyperoxygenation, oxygen administration should be titrated to patient condition, and administered with evidence of hypoxemia, dyspnea, or an SpO2 <94%, especially in the presence of a suspected CVA/TIA or ACS.

Additional signs and symptoms of an ACS patient may be;

Sudden onset of diaphoresis (cool, clammy, wet skin often profuse), anxiety, restlessness, abnormal vital signs such as an irregular pulse rate, and nausea / vomiting.

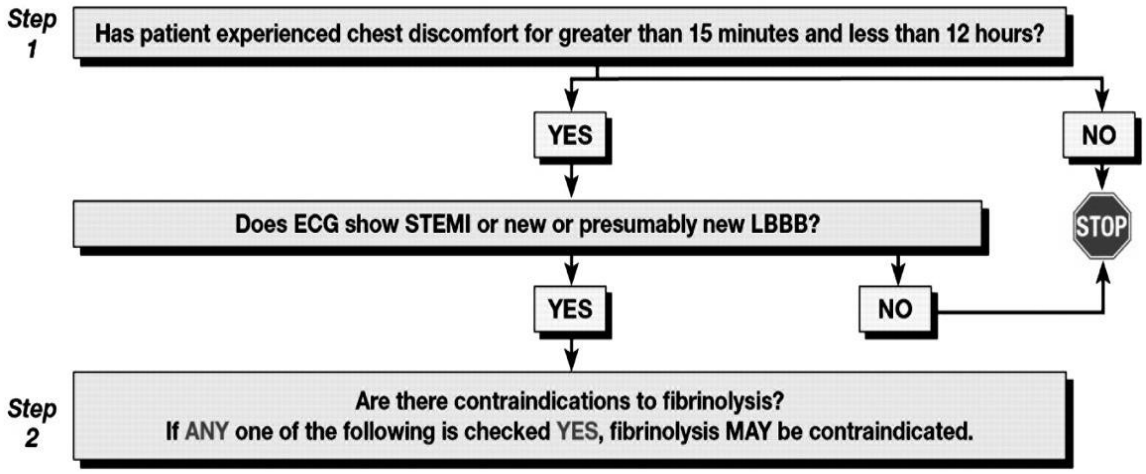
All ACS patients must be carefully monitored until a definitive diagnosis can be made at the hospital and shall have a 12-lead evaluation done by EMT-Paramedics. All patients with ACS-like symptoms of a non-traumatic etiology should be considered to be of cardiac origin until proven otherwise.

Acute Coronary Syndrome (ACS) represents a spectrum of disease. There are at least three conditions identified within the spectrum of ACS: Classic anginal chest pain; atypical chest pain; anginal equivalents; Patients experiencing a myocardial infarction or an ischemic event of unknown etiology may, based on 12-lead interpretation fall into one of three categories, “injury (STEMI)” or “Ischemia” or “Non-Diagnostic.”

Classical Anginal Chest Pain	Atypical Chest Pain	Anginal Equivalents
Central Anterior Pain	Epigastric discomfort	Dyspnea
Chest Pressure, tightness	Musculoskeletal	Syncope
Crushing Pain	Often Unilateral	“Generally Weak”
Pain radiating to arms, neck and back	Nausea/Vomiting	Palpitations

3.1 Acute Coronary Syndrome – Adult Fibrinolytic Checklist

***Note:** This checklist is intended only as a tool for the pre-hospital identification of patients with significant contraindication(s) to the administration of fibrinolytics in the acute ST elevation M.I. (STEMI) setting. It is not intended to be a comprehensive list of all factors to be considered prior to administration of these agents. Significant contraindications may warrant the triage of these patients to facilities capable of percutaneous intervention (PCI). This list can also be used to determine if a possible ischemic stoke victim, is a candidate for ischemic stroke reperfusion.



Systolic BP >180 to 200 mm Hg or diastolic BP >100 to 110 mm Hg	◯ **YES**	◯ NO
Right vs left arm systolic BP difference >15 mm Hg	◯ **YES**	◯ NO
History of structural central nervous system disease	◯ **YES**	◯ NO
Significant closed head/facial trauma within the previous 3 weeks	◯ **YES**	◯ NO
Stroke >3 hours or <3 months	◯ **YES**	◯ NO
Recent (within 2-4 weeks) major trauma, surgery (including laser eye surgery), GI/GU bleed	◯ **YES**	◯ NO
Any history of intracranial hemorrhage	◯ **YES**	◯ NO
Bleeding, clotting problem, or blood thinners	◯ **YES**	◯ NO
Pregnant female	◯ **YES**	◯ NO
Serious systemic disease (eg, advanced cancer, severe liver or kidney disease)	◯ **YES**	◯ NO

Step 3 — **Is patient at high risk?**
If ANY one of the following is checked YES, consider transfer to PCI facility.

Heart rate ≥100/min AND systolic BP <100 mm Hg	◯ **YES**	◯ NO
Pulmonary edema (rales)	◯ **YES**	◯ NO
Signs of shock (cool, clammy)	◯ **YES**	◯ NO
Contraindications to fibrinolytic therapy	◯ **YES†**	◯ NO
Required CPR	◯ **YES**	◯ NO

†Consider transport to primary PCI facility as destination hospital.

Atrial Fibrillation/Flutter 3.2

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- If the rhythm appears to be amenable, e.g. “regular narrow SVT”, may attempt vagal maneuvers: “Valsalva” and/or cough.
- If the patient’s systolic blood pressure is **unstable** (less than **100 mm Hg, with signs of hypoperfusion**):
  - **In Atrial Fibrillation, synchronized cardioversion** at **200 J, 300J,** and **360 J** or the equivalent biphasic values as per manufacturer).
  - **In Atrial Flutter, synchronized cardioversion** beginning at 50J.
- Check rhythm and pulse between each attempted cardioversion.
- If Cardioversion is warranted, consider use of 7.6 Sedation and Analgesia for Electrical Therapies.
- **Diltiazem HCL**
  - Heart rate greater than 150 and patient stable but symptomatic:
    - Initial bolus: **0.25 mg/kg slow IV/IO over two (2) minutes**.
    - If inadequate response after 15 minutes, re-bolus **0.35 mg/kg SLOW IV/IO over two (2) minutes**.

CONTRAINDICATIONS: Wolff-Parkinson-White Syndrome, second or third degree heart block and sick sinus syndrome (except in the presence of a ventricular pace maker), severe hypotension or cardiogenic shock.

- **Heart rate less than 150 and patient stable but symptomatic:**
  - Contact Medical Control.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- **Amiodarone** 150 mg Slow IV/IO over 10 minutes.
- **Metoprolol**:
  - Bolus: 2.5-5 mg SLOW IV/IO over 2 minutes.
  - Repeat dosing in 5 minute intervals for a maximum of 15 mg.



CAUTION: Do not use IV Metoprolol with IV Ca Blockers.

3.3A Bradycardia-Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- If patient is symptomatic (such as altered mental status or ischemia),
  - Transcutaneous Pacing (TCP).
  - **Atropine sulfate** 0.5 mg IV/IO every three (3) to five (5) minutes up to total dose 3 mg may be considered while waiting for pacer set-up.
  - If Transcutaneous Pacing (TCP) is warranted, consider 7.6 Sedation and Analgesia for Electrical Therapy.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR**
- **Dopamine** 2-20 mcg/kg/min IV/IO
- **Epinephrine infusion** 2-10 mcg/min IV/IO
  -For example: mix 1mg of Epinephrine 1:1000 in 250mL of Normal Saline, (15 micro drops/minute = 1 mcg / min.)
- **Glucagon** 1 - 5 mg IV/IO/IM/SC for suspected beta-blocker or calcium-channel blocker toxicity.
- **Calcium chloride** 10% 2 - 4 mg/kg max.1 gram IV/IO slowly over five (5) minutes for suspected calcium channel blocker toxicity.

Bradycardia- Pediatric 3.3P

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- If pulse is less than 60 in a child, AND the patient is severely symptomatic**,** consider starting Cardiopulmonary Resuscitation (CPR).

PARAMEDIC STANDING ORDERS

P

- If patient is severely symptomatic:
  - **Epinephrine** 1:10,000, 0.01 mg/kg IV/IO (max. dose 0.5 mg) **OR**,
  - **Atropine** 0.02 mg/kg IV/IO (min. single dose 0.1 mg, max. single dose 1 mg). If increased vagal tone or AV block suspected.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- Additional fluid boluses (10-20mL/kg)
- Transcutaneous pacing, if available.
- **Epinephrine** 1:10,000 – 0.01-0.03 mg/kg IV/IO (max. single dose of 0.5 mg)\
- **Epinephrine** Infusion 1:1,000, 0.1-1 mcg/kg/min IV/IO
  - For example, mix 1mg of Epinephrine 1:1000 in 250mL of Normal Saline, (15 micro drops/minute = 1 mcg / min.)

3.4A Cardiac Arrest (ADULT): Asystole/ Pulseless Electrical Activity

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Early AED Use.
  - Perform HQCPR until AED device is attached and operable.
  - Use AED according to Emergency Cardiovascular Care (ECC) Guidelines or as otherwise noted in these protocols and other advisories.
  - If No Shock Advised, Resume HQCPR when appropriate.
- If suspected opioid overdose administer Naloxone per protocol.

ADVANCED EMT STANDING ORDERS

A

- Consider underlying causes for Asystole/PEA.
- At all times, minimize interruptions of chest compressions, especially during IV/IO placement.

PARAMEDIC STANDING ORDERS

P

- Verify Asystole in 2 leads, if possible.
- Consider and treat underlying causes for Asystole/PEA:
- If cause is unknown and Asystole/PEA persists:
- **Epinephrine** 1:10,000 1 mg IV/IO every 3-5 minutes; may substitute **Vasopressin** 40 UNITS IV/IO in place of first or second dose of epinephrine 1:10,000.
- For suspected hyperkalemia administer **calcium chloride** 2-4mg/kg slow IV over 5 minutes to maximum 1g.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Sodium bicarbonate** 1 mEq/kg IV/IO
- **Atropine** 1 mg IV/IO, repeated to max dose 3 mg.

REVERSIBLE CAUSES OF CARDIAC ARREST INCLUDE:

- Hypothermia: initiate 2 large bore IVs (warm) Normal Saline
- Hyperkalemia: Contact Medical Control
- Hypoxia: provide high flow oxygen
- Hypovolemia: 250mL fluid bolus.
- Hydrogen Ion/Acidosis: Contact Medical Control
- Toxins/Tablets: see Toxicology protocol
- Thrombus (Coronary/Pulmonary): Contact Medical Control
- Tension Pneumothorax: Perform needle chest decompression.
- Tamponade (Pericardial): Contact Medical Control

Cardiac Arrest (PEDIATRIC): Asystole/ Pulseless Electrical Activity

3.4P

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care—with focus on CPR
- Ventilate with 100% oxygen.
- If unable to ventilate child after repositioning of airway: assume upper airway obstruction and follow Pediatric Upper Airway Obstruction Protocol.
- Early AED Use.
  - Use AED according to the guidelines of the ECC or as otherwise noted in these protocols and other advisories.
  - If No Shock Advised resume CPR if appropriate.
- If suspected opioid overdose administer Naloxone per protocol.

ADVANCED EMT STANDING ORDERS

A

- Consider 20 ml/kg Normal Saline bolus.

PARAMEDIC STANDING ORDERS

P

- Consider treating for reversible causes.
- **Epinephrine**:
  - For **Bradycardia**: 0.01 mg/kg (1:10,000) IV/IO every 3-5 minutes.
  - **For Asystole or PEA:** 0.01 mg/kg (1:10,000) IV/IO every 3-5 minutes.

Epinephrine infusion: initial dose, 0.1 mcg/kg/min IV/IO. Titrate to desired effect to maximum dose of 1 mcg/kg/min.
For example, mix 1mg of Epinephrine 1:1000 in 250mL of Normal Saline, (15 micro drops/minute = 1 mcg / min.)

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Sodium bicarbonate** 1 mEq/kg IV/IO
- **Atropine** 0.02mg/kg IV/IO (minimum single dose 0.1mg, maximum combined doses 1 mg.)
- All other treatment modalities based on suspected etiology for cardiopulmonary arrest.

REVERSIBLE CAUSES OF CARDIAC ARREST INCLUDE:

- Hypothermia: initiate 2 large bore IVs (warm) Normal Saline
- Hyperkalemia: Contact Medical Control
- Hypoxia: provide high flow oxygen
- Hypovolemia: 20mL/kg fluid bolus.
- Hydrogen Ion/Acidosis: Contact Medical Control
- Toxins/Tablets: see Toxicology protocol
- Thrombus (Coronary/Pulmonary): Contact Medical Control
- Tension Pneumothorax: Perform needle chest decompression.
- Tamponade (Pericardial): Contact Medical Control

3.5A Cardiac Arrest (ADULT): Ventricular Fibrillation/Pulseless Ventricular Tachycardia

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Perform HQCPR until defibrillator is attached and operable.
  - Use AED according to the ECC guidelines or as otherwise noted in these protocols and other advisories
  - Resume HQCPR when appropriate.
- If suspected opioid overdose administer Naloxone per protocol.

ADVANCED EMT STANDING ORDERS

A

- Minimize interruptions of chest compressions for IV/IO placement.

PARAMEDIC STANDING ORDERS

P

- Document presenting cardiac rhythm in two separate leads, if possible.
- Defibrillation when available, with minimum interruption in chest compressions (use 360 joules for monophasic and 120 – 200 joules for biphasic defibrillators); then HQCPR for 5 cycles/2 minutes; then rhythm check; Charge defibrillator while performing chest compressions to minimize hands-off-time.
- Consider **epinephrine** (1:10,000) 1mg IV/IO; repeat every 3 – 5 minutes. May substitute **vasopressin** 40 units IV/IO in place of first or second dose of epinephrine 1:10,000.
- Continue HQCPR and defibrillate (each shock at 360J monophasic equivalent) per ECC guidelines if ventricular fibrillation/pulseless ventricular tachycardia is persistent.
- Consider **amiodarone** 300 mg slow IV/IO push.
- **Magnesium sulfate** 1 – 2 grams IV/IO over 5 minutes, in torsades de pointes or suspected hypomagnesemic state or refractory ventricular fibrillation/pulseless ventricular tachycardia.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Sodium bicarbonate** 1 mEq/kg IV/IO.
- **Amiodarone** 150 mg. slow IV/IO if one dose already given or 300 mg slow IV/IO if not already given.
- **Lidocaine** 1.5 mg/kg IV/IO; subsequent dosage: 0.5 to 0.75 mg/kg IV/IO every 3 – 5 minutes to a total dose of 3 mg/kg IV/IO.

NOTE:

- Early HQCPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Switch compressors at least every two minutes to minimize fatigue.
- Perform “hands on defibrillation.”
  - Compress when charging and resume compressions immediately after the shock is delivered.
- Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart. Ventilate at a rate of 1breath every 6 seconds/10 breaths per minute with enough volume to produce adequate chest rise.

Cardiac Arrest (PEDIATRIC): 3.5P
Ventricular Fibrillation/Pulseless Ventricular Tachycardia

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care—with focus on high quality CPR
- Apply AED and use as soon as possible (with minimum interruption of chest compressions). From birth to age 8 years use pediatric AED pads.
- If pediatric AED pads are unavailable, providers may use adult AED pads, provided the pads do not overlap.
- If unable to ventilate child after repositioning of airway, assume upper airway obstruction and follow Pediatric Upper Airway Obstruction Protocol.
- Consider treatable causes.
- If suspected opioid overdose administer Naloxone per protocol.

PARAMEDIC STANDING ORDERS

P

- Defibrillate once at 2-4J/kg.
- **Epinephrine**: 0.01mg/kg IV/IO (1:10,000, 0.1mL/kg); repeat every 3-5 minutes.
- Defibrillate 4-10 J/kg (do not exceed 10J/kg) every 2 minutes.
- **Amiodarone** 5 mg/kg IV/IO
- Defibrillate 4 J/kg 30-60 seconds after each medication.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Sodium bicarbonate** 1 mEq/kg IV/IO.
- All other treatment modalities based upon suspected cause of VF/PVT.

NOTE:
The need for early defibrillation is clear and should have the highest priority. Since these patients will all be in cardiopulmonary arrest, use of adjunctive equipment should not divert attention or effort from Basic Cardiac Life Support (BCLS) resuscitative measures, early defibrillation and Advanced Cardiac Life Support (ACLS). Remember: rapid defibrillation and high quality CPR is the major determinant of survival.

NOTE:
- Early CPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Switch compressors at least every two minutes to minimize fatigue.
- Perform “hands on defibrillation.”
  - Compress when charging and resume compressions immediately after the shock is delivered.
- Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart. Ventilate at an appropriate rate, with enough volume to produce adequate chest rise.

3.6 Congestive Heart Failure (Pulmonary Edema)

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- **Nitroglycerin** 0.4-0.8mg (1/150 gr.) tablet/spray, sublingual
  - SBP must be >120 mm Hg
  - May be repeated every 5 minutes, as dictated by BP.
- **Nitropaste** 1 inch to chest wall if SBP >120 mm Hg.
- Continuous positive airway pressure (CPAP) assistance, if not contraindicated.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- **Furosemide** 20-40mg IV/IO, or 40-80mg IV/IO if patient is already on diuretics.
- **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR**
- **Dopamine** 2-20 mcg/kg/min IV/IO
- In patients who require emergent intubation, and cannot be intubated by conventional means, see 5.2 Difficult Airway Protocol.



Avoid nitroglycerin in ALL patients who have used a phosphodiesterase inhibitor such as: **sildenafil** (Viagra, Revatio), **vardenafil** (Levitra, Staxyn), **tadalafil** (Cialis, Adcirca) which are used for erectile dysfunction and pulmonary hypertension within the last **48 HOURS**. Also avoid use in patients receiving intravenous epoprostenol (Flolan) which is also used for pulmonary hypertension.

Targeted Temperature Management – Adult 3.7

Indications:
- > 16 years or older; If <16, contact **Medical Control**
- ROSC – patient demonstrates no purposeful movement to sternal rub or response to commands 5 minutes into ROSC, and
- Palpable Carotid pulse with a stable cardiac rhythm, and
- Patient does not have existing hypothermia (< 32º C)**,** and
- Patient is intubated or appropriate rescue airway.
- Post-cardiac arrest with return of spontaneous circulation (ROSC)
- Post-cardiac arrest in setting of STEMI

Contraindications:
- Traumatic arrest, or
- Hypothermia exists (< 32° C) by core temperature
- Identified Pregnancy, or
- Respiratory arrest

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care

MEDICAL CONTROL MAY ORDER



- Ice packs or equivalent in armpits, neck, torso and groin areas of patients that meet indications criteria.

ADVANCED EMT STANDING ORDERS

A

- Airway interventions, as appropriate, according to protocol, prior to cooling. **Do not hyperventilate; goal ETCO2 of around 40 mmHg.**
- Ice packs or equivalent in armpits, neck, torso and groin areas of patient.
- Obtain 1-2 points of vascular access.

PARAMEDIC STANDING ORDERS

P

- Cardiac Monitor: (12 lead ECG where appropriate**)** manage dysrhythmias per protocol. **If STEMI present, transport to nearest STEMI Center.**
- Place esophageal thermometer probe to establish patient's baseline body temperature. **(IF AVAILABLE)**
- If patient has significant shivering, you may administer:
  - **Midazolam** 2 - 6 mg IV/IO/IM/IN, OR
  - **Fentanyl** 50 mcg IV/IO/IM/IN every 5 minutes to max. 200 mcg OR
  - **Morphine** 0.1mg/kg IV/IO/IM/SC, (max. dose 10 mg).

CAUTION: Routine prehospital cooling of patients with ROSC with intravenous (IV) rapid infusion is not advised (class III: no benefit; level of evidence A).

NOTE: The end temperature goal is 32-36 degrees C (89.6-96.8 F).

3.8 Post Resuscitative Care/ROSC – Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

PARAMEDIC STANDING ORDERS

- Consider treatable causes such as overdose, cardiogenic shock and STEMI.
- Consider treatable causes such as respiratory arrest.
- Bolus IV fluid at a rate of 20ml/kg.
- Manage dysrhythmias according to specific protocols.
- Perform a 12-lead ECG; If STEMI is present and the patient is stable enough follow the Department – approved STEMI POE plan. Consult with medical control if questions arise.
- Begin induced therapeutic hypothermia (3.7 Induced Therapeutic Hypothermia), but do not delay transport

P

Adult:

- **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO via pump, titrate to goal Systolic Blood Pressure of 90mmHg,

  OR
- **Dopamine** 2-20mcg/kg/min IV/IO.

Pediatric:

- **Norepinephrine** infusion: 0.1 mcg/kg/min IV/IO via pump, titrate to goal Systolic Blood Pressure of 90mmHg.

MEDICAL CONTROL MAY ORDER

- Additional doses of above medications.

Adult:

- **Epinephrine infusion** - Administer 2 mcg to 10 mcg per minute IV or IO.
  - For example, mix 1 mg of 1:1000 Epinephrine in 250 ml Normal Saline, then 15 micro drops/minute = 1 mcg / min
- **Amiodarone** bolus (150mg in 10mL Normal Saline slow over 8-10 minutes), followed by 1 mg/min IV/IO drip.
  - For example: 100mg/100mL - 1mg/minute.
- **Lidocaine** 1-1.5 mg/kg IV/IO followed by drip at 2-4 mg/min.

Pediatric:

- Pediatric patients **epinephrine infusion** - Administer 0.1 to 1 mcg/kg/min IV or IO by pump with titration to goal SBP of 90mm Hg.
  - For example, mix 1 mg of 1:1000 Epinephrine in 250 ml Normal Saline, then 15 micro drops/minute = 1 mcg / min.

REMINDER: This is an extremely unstable period. The patient should be monitored closely and frequently. Recurrent dysrhythmias, hypotension and re-arrest are not uncommon occurrences. Avoid hyperthermia and hyperventilation.

Avoid hyperoxygenation; oxygen administration should be titrated to patient condition, and withheld unless evidence of hypoxemia, dyspnea, or an SpO2 <94%, especially in the presence of a suspected CVA/TIA or ACS.

Avoid hyperoxygenation; oxygen administration should be titrated to patient condition.

Supraventricular Tachycardia-Adult

3.9A

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

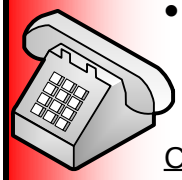
PARAMEDIC STANDING ORDERS

P

- Vagal Maneuvers: Valsalva's and/or cough.
- If Systolic BLOOD PRESSURE is unstable (less than 100mm Hg): Synchronized cardioversion at 50 J, 100 J, 200 J, 300 J and 360 J or the equivalent biphasic values as per manufacturer. Check rhythm and pulse between each attempted cardioversion.
- If cardioversion is warranted, consider 7.6 Sedation and Analgesia for Electrical Therapy.
- **Adenosine** 6 mg rapid IV/IO over 1-3 seconds. If previous dose failed to resolve rhythm disturbance, **adenosine** 12mg rapid IV/IO over 1-3 seconds. Repeat **adenosine** 12 mg rapid IV/IO over 1-3 seconds if previous doses failed to resolve rhythm disturbance.

Note: Follow all Adenosine with a 20 mL Normal Saline bolus and elevate extremity.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- Administration of **diltiazem HCL:**
  - Initial bolus: 0.25 mg/kg IV/IO over two (2) minutes.
  - If inadequate response after 15 minutes, **re-bolus** 0.35 mg/kg IV/IO over two (2) minutes.

CONTRAINDICATIONS: Wolff-Parkinson-White Syndrome, second or third degree heart block and sick sinus syndrome (except in the presence of a ventricular pace maker), severe hypotension or cardiogenic shock.

OR

- **Amiodarone** 150 mg IV/IO slowly over 10 minutes.

3.9P Supraventricular Tachycardia-Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- If tachycardia is related to acute injury or volume loss, see 2.16P Shock.

PARAMEDIC STANDING ORDERS

P

- IV Normal Saline (KVO). If hypovolemic component is suspected, administer **20 mL/kg** IV Bolus of normal saline.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- Synchronized cardioversion **0.5 joules/kg** for symptomatic patients. Subsequent cardioversion may be done at up to 1 joule/kg. If cardioversion is warranted, consider administration of 7.6 Sedation and Analgesia for Electrical Therapy**,** per protocol.
  - See A2 Pediatric Color Coded Medication Reference for dosing.
- **Adenosine** 0.1 mg/kg rapid IV/IO. If no effect, repeat **adenosine** 0.2 mg/kg Rapid IV push. MAXIMUM single dose of Adenosine must not exceed 12 mg.
- Consider Vagal maneuvers (see Reminder below).



Synchronized cardioversion should be considered for only those children whose heart rate is in excess of 220, and who demonstrate one or more of the following signs of hypoperfusion: Decreased level of consciousness, weak and thready pulses, capillary refill time of more than 4 seconds, or no palpable BLOOD PRESSURE.



REMINDER: Vagal maneuvers may precipitate asystole and therefore should be employed with caution in the field and only in a cardiac-monitored child with IV access.

Ventricular Tachycardia with Pulses – Adult & Pediatric 3.10

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- If Systolic BLOOD PRESSURE is unstable (less than 100mm Hg): synchronized cardioversion at 100 J, 200 J, 300 J and 360 J or the equivalent biphasic values as per manufacturer. Check rhythm and pulse between each attempted cardioversion.
  - In Pediatric patients, synchronized cardioversion per Pediatric Color-Coded Appendix.
  - If cardioversion is warranted, see 7.6 Sedation and Analgesia for Electrical Therapy.



- If systolic BLOOD PRESSURE is stable (greater than or equal to 100mm Hg) administer **amiodarone** 150 mg in 10 cc Normal Saline, slow IV/IO over 8-10 minutes.
- In Pediatric patients, **amiodarone** dose per Pediatric Color-Coded Appendix.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications or attempts at cardioversion.
- **Magnesium sulfate** (for Torsades de Pointes or suspected hypomagnesemic state or severe refractory VENTRICULAR TACHYCARDIA) 1 – 2 grams IV/IO over 5 minutes.
  - CONTRAINDICATIONS: Heart Block, renal disease.
- **Amiodarone infusion** 1 mg/min IV/IO.
  - For example: 100mg/100ml – 1mg/minute.
- **Lidocaine** 1 – 1.5 mg/kg IV/IO; subsequent dosage: 0.5 – 0.75 mg/kg IV/IO every 3 – 5 minutes to a total dose of 3 mg/kg. If dysrhythmia is successfully converted after administration of Lidocaine bolus, consider IV infusion of Lidocaine 2 – 4 mg/min.
- **Adenosine** 6 mg or 12 mg IV push; in selected cases ONLY.

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SECTION 4:

TRAUMA PROTOCOLS

Statewide Treatment Protocols
Version 2018.1

4.1 Burns/Inhalation/Electrocution and Lightning Strike Injuries – Adult & Pediatric

EMT STANDING ORDERS

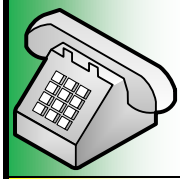
E

- 1.0 Routine Patient Care
- Appropriately manage Thermal vs. Chemical burns.

THERMAL

- Stop burning process with water or saline.
- Remove smoldering, non-adherent clothing and jewelry. DO NOT remove skin or tissue.
- Cover burns with a CLEAN, DRY, STERILE DRESSING.
- Large thermal injuries are susceptible to hypothermia-- attempt to reduce heat loss in burn victims.

CHEMICAL



- Determine offending agent(s) and consider HAZMAT intervention, if indicated.
- Wash with copious amounts of clean water and/or sterile normal saline for 10-15 minutes, unless contraindicated by chemical agent (i.e., sodium, potassium and/or lithium metals). **CAUTION**: Primary water irrigation is contraindicated for Dry Lime/Lye and/or Phenol exposure (may produce further chemical reactions). Dry powders should be brushed off prior to flushing with large amounts of water. It is advised to contact **MEDICAL CONTROL** for further advice.
- If chemical viscous, remove with tongue depressor.

ADVANCED EMT STANDING ORDERS

A

- Begin fluid resuscitation for treatment of the BURN INJURY if greater than 20% BSA including second and third degree injuries (1st degree [sunburn] not included in TBSA estimation),



  - **Adults**: Bolus 1 Liter Normal Saline
  - **Pediatrics**: 20 mL/kg Normal Saline
- Burn <20% age appropriate, maintenance fluids as follows:



  - **Adults**: 500 mL Normal Saline
  - **Pediatrics**: 10mL/kg Normal Saline
- For transport times GREATER THAN 1 HOUR, or further fluid administration, **consult medical control**

MEDICAL CONTROL MAY ORDER



- Additional IV fluid boluses.

PARAMEDIC STANDING ORDERS

P

- After a complete patient assessment consider initiating the pain management protocol.
- In a patient who may have experienced smoke inhalation with suspected cyanide toxicity (e.g. hypotension, altered mental status, seizure or other), if carried, consider **hydroxocobalamin** 5 gm IV/IO over 15 minutes in an adult, and 70 mg/kg (to maximum 5 gm) IV/IO over 15 minutes in a pediatric patient.
- In patients with suspected CO poisoning, initiate high flow oxygen.

Protocol Continues

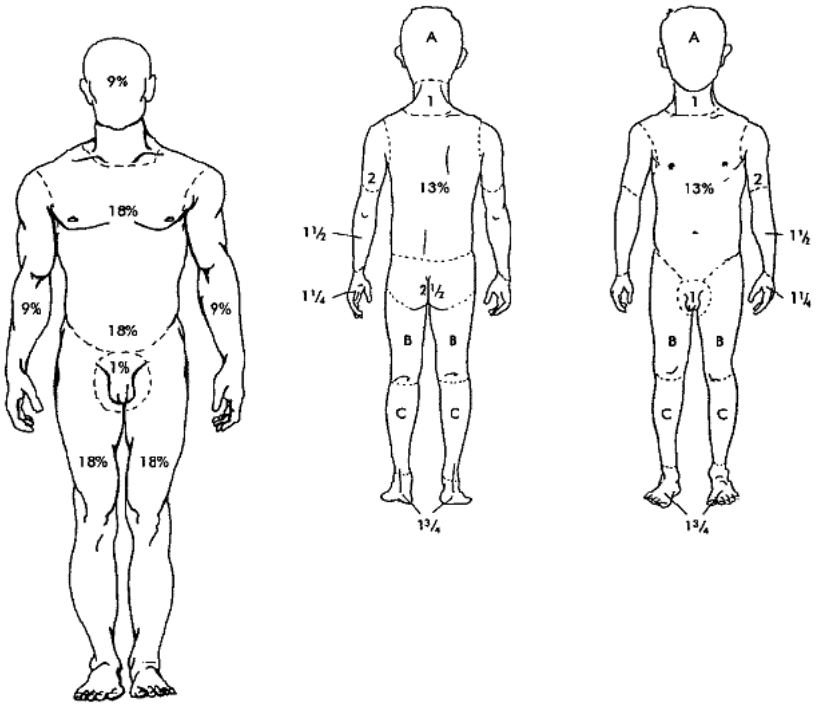
Burns/Inhalation/Electrocution and Lightning Strike Injuries – Adult & Pediatric 4.1

Protocol Continued

The committee on Trauma of the American College of Surgeons (ACS) and the American Burn Association (ABA) have identified certain injuries as those which generally require referral to a burn center.

The following injuries generally require referral to a burn unit:

1. Partial thickness burns greater than 10% total body surface area (TBSA)
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third-degree burns in any age group
4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality. Burns in any patients with concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses a greater immediate risk than the burns, it may be necessary to stabilize the patient in a trauma center before being transferred to a burn unit. Physician judgment is necessary in such situations and should be in concert with **established** triage protocols.



Estimation of Burn Size (Children)					
Area	**Age 0**	**1 yr.**	**5 yr.**	**10 yr.**	**15 yr.**
A - ½ of head	9 ½ %	8 ½ %	6 ½ %	5 ½ %	4 ½ %
B - ½ of one thigh	2 ¾ %	3 ¼ %	4 %	4 ¼ %	4 ½ %
C - ½ of one leg	2 ½ %	2 ½ %	2 ¾ %	3 %	3 ¼ %

4.2 Drowning/Submersion Injuries Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care
- Begin resuscitation efforts while removing the patient from the water
- Consider hypothermia.

Note: Ensure spinal stabilization and immobilization if indicated (e.g. unwitnessed event, unconscious patient, or mechanism of injury).

PARAMEDIC STANDING ORDERS

P

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

Eye Emergencies
Adult & Pediatric

4.3

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- Obtain visual history (e.g., use of corrective lenses, surgeries, use of protective equipment).
- Obtain visual acuity, if possible.
- Assist patient with the removal of contact lens, if applicable.
- Chemical irritants, including pepper spray: flush with copious amounts of water, or 0.9% NaCl.
- Thermal burns to eyelids: patch both eyes with cool saline compress.
- Impaled object: immobilize object and patch both eyes.
- Puncture wound: place rigid eye shield over both eyes. Do not apply pressure.
- Foreign body: patch both eyes.
- If the patient cannot close their eyelids, keep their eye moist with a sterile saline dressing.

PARAMEDIC STANDING ORDERS

P

- Topical anesthetic: **tetracaine** 1-2 eye drops as needed, if available.
- Use of Morgan lens for eye irrigation.

MEDICAL CONTROL MAY ORDER



- Special consideration: Sudden painless loss of vision: If suspect central retinal artery occlusion in patient with acute non-traumatic, painless loss of vision in one eye (most common in elderly patient): apply vigorous pressure using heel of hand (massage) to affected eye for three(3) to five(5) seconds, then release. The patient may perform this procedure. Repeat as necessary. NOTE: Cardiac (EKG) monitor (12 lead ECG) is required for this procedure (i.e., vagal stimulus: asystole). CAUTION: If tetracaine has been administered, do not apply pressure to eye.
- If chemical eye burn suspected in patients who wear contact lenses, contact medical control regarding removing contact lenses.

CHEMICAL IRRITANTS: Eye(s) should be flushed as soon as possible using copious amounts of water for a period of fifteen (15) minutes with a controlled stream of Sterile Normal Saline, Sterile water or tap water.

BLUNT TRAUMA: Both eyes should be patched and protected.

PENETRATING TRAUMA: Puncture wound with no impaled object: Both eyes should be patched and protected.

NOTE: *If object is impaled in the eye, the object must be immobilized and both eyes should be patched and protected. (Objects penetrating the eye globe should only be removed in-hospital.)

THERMAL BURNS: Both eyes should be patched and protected.

SECURING IMPALED OBJECT IN AN EYE

1. Place a roll of gauze bandage or folded gauze pads on either side of the impaled object, along the vertical axis of the head. These rolls or pads are placed so they stabilize the object.
2. Fit an eye shield around the impaled object. The protective shield should not press the impaled object.
3. Secure the dressings and shield in place with self adherent roller bandage or wrapping of gauze. **DO NOT** secure bandage over the top of the shield.
4. Patch and bandage the uninjured eye to reduce eye movements.

4.4 Head Trauma & Injuries Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Ensure cervical spine stabilization and immobilization**
- Elevate head of patient to 20° - 30° unless contraindicated.
- Within your scope of practice, work to avoid hypoxia and hypotension.

ADVANCED EMT STANDING ORDERS

A

- Provide advanced airway management only if patient is not adequately oxygenating (defined as SpO2 maintained at > 95%) or ventilating and not corrected by BVM. Maintain ETCO2 at 35-40 mmHg.
- When obtaining vascular access, avoid fluid overload, only give fluids to maintain SBP >100mmHg.

PARAMEDIC STANDING ORDERS

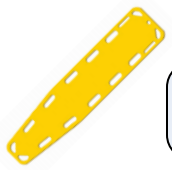
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- In patients who require emergent intubation, and cannot be intubated by conventional means, see 5.2 Difficult Airway.

MEDICAL CONTROL MAY ORDER



- Further fluid boluses.



Note: Medical Director Option for Selective Spinal Assessment if trained and authorized, see 6.4 Selective Spinal Assessment.

Multisystem Trauma Adult & Pediatric

4.5

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Control/stop any identified life threatening hemorrhage (direct pressure, tourniquet, etc.), suspected pelvic fractures with commercial device (preferred) or bed sheet.

ADVANCED EMT STANDING ORDERS

A

- Initiate 1-2 large bore IV(s) Normal Saline (KVO) while **en route** to the hospital.

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- For a patient ≥ 16 years of age, who has SBP< 90 or P>110, or if the provider determines the patient to be at high risk for significant hemorrhage: **tranexamic acid (TXA)** 1 gram IV over 10 minutes. (mix 1 gram of TXA in 100ml of Normal Saline)

- In patients who require emergent intubation who cannot be intubated by conventional means – Consult 5.2 Difficult Airway.

**Note: Service Medical Director Option for use of TXA only if trained and authorized, see 6.5 Tranexamic Acid.

4.6 Musculoskeletal Injuries Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Manually stabilize the injury.
- Control bleeding and treat for shock (see shock protocol).
- Remove obvious debris, irrigate open wounds with saline solution, and cover with a dry sterile dressings.
- Assess CSMs distal to injury before and frequently after immobilization.
  - Splint extremity as required
  - Traction splinting is preferred technique for isolated adult and pediatric closed mid-shaft femur fractures (unless contraindicated by associated injury)
- Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.

ADVANCED EMT STANDING ORDERS

MEDICAL CONTROL MAY ORDER

A



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- After thorough patient assessment, consider use of 2.13 Pain and Nausea Management.

Note: If no palpable, distal pulse is present following suspected extremity fracture, position injured extremity in correct anatomic position, and apply gentle traction along the axis of the extremity distal to the injury until the distal pulse is palpable and immobilize in place. This does not apply to dislocations.

Soft Tissue / Crush Injuries Adult & Pediatric

4.7

EMT/ADVANCED EMT STANDING ORDERS

E/A

- 1.0 Routine Patient Care
- Control/stop any identified life threatening hemorrhage (direct pressure, tourniquet, etc.).
- Place dry sterile dressing on all open wounds and bandage as needed:
  - If wound is grossly contaminated, irrigate with sterile water or Normal Saline.
  - Stabilize all protruding foreign bodies (impaled objects) if noted.
- If severe crushing injury/compartment syndrome is suspected and injury permits:
  - Remove all restrictive dressings.
  - Close monitoring of distal pulse, sensation, and motor function (CSM).
- Splint/immobilize injured areas as indicated.

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- After patient assessment consider using 2.13 Pain and Nausea Management.

Crush injury is associated with severe trauma and most commonly occurs in multiple casualty disasters, such as bombings, earthquakes, building collapse, train accidents and mining accidents. It is the result of compression or pressure on various parts or all of the human body. Crush injuries may result in fatal injury or severe metabolic abnormalities that may result in death. Careful monitoring of these patients is essential.

Compartment syndrome is usually due to a crush injury and is a surgical emergency. It occurs most commonly in the forearm, leg, gluteal region, thigh, and lumbar paraspinous muscles. Compartment syndrome may result in ischemic swelling, muscle infarction, nerve injury and permanent loss of extremity function.

4.8 Spinal Column/Cord Injuries Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Control/stop any identified life-threatening hemorrhage (direct pressure, tourniquets)
- Ensure cervical spine stabilization**.
- Determine presence or absence of significant neurologic signs and symptoms: decreased motor function, decreased sensory function, priapism, and loss of bladder/ bowel control.
- Long backboards are NOT considered standard of care in most cases of potential spinal injury. Instead, use spinal motion restriction with a cervical collar and cot in most cases. Note that there are exceptions, such as a patient with a potential spinal injury who cannot be logrolled while being transported and may be at risk of a compromised airway.
- Spinal Immobilization Procedure
  1. Establish manual c-spine stabilization in the position that the patient is found.
  2. Assess for correct size and properly apply a cervical collar.
  3. Move patient from the position found to the location of the ambulance stretcher utilizing a device such as a scoop stretcher, long spine board, or if necessary, by having the patient stand and pivot to the stretcher. DO NOT permit the patient to struggle to their feet from a supine position.
  4. Position patient on the ambulance stretcher.
  5. Remove scoop or logroll patient off long spine board or other device (if such device was utilized).
  6. A blanket roll or blocks and tape attached to the stretcher may be used to minimize lateral movement of head during transport.
  7. Once on the ambulance stretcher, instruct patient to lie still.
  8. The head of the stretcher may be elevated 20-30 degrees in a position of comfort.
  9. Secure cross stretcher straps and over-the-shoulder belts firmly.
  10. Utilize a SLIDE BOARD, if available, at the destination to move the patient smoothly to the hospital stretcher.
  11. Ensure appropriate documentation of procedure in patient care report

ADVANCED EMT STANDING ORDERS

A

- Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM.

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- NOTE: Bradydysrhythmias are commonly seen in high level spinal injuries.
- Consider 12 lead ECG.

MEDICAL CONTROL MAY ORDER



- For suspected neurogenic shock (without hypovolemia):
  - **Norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR**
  - **Dopamine** 2-20 mcg/kg/min IV/IO



Note: Service Medical Director Option for Selective Spinal Assessment if trained and authorized, see 6.3 Selective Spinal Assessment.

Thoracic Trauma Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Provide appropriate management for identified thoracic injuries:

  OPEN PNEUMOTHORAX:
  • immediately apply an occlusive dressing sealing 3 sides.
  • monitor patient closely for evidence of tension pneumothorax.

  TENSION PNEUMOTHORAX: (Respiratory distress or apnea, Difficult to ventilate with bag, distended neck veins, unilateral decreased or absent breath sounds, tracheal deviation away from the side without breath sounds.)
  • if present following closure of open pneumothorax, release occlusive dressing temporarily.

  FLAIL CHEST: (paradoxical movement of portion of chest wall)
  • position patient with injured side down, unless contraindicated.
  • provide manual stabilization of the flail segment.
  NOTE: **Assisted positive pressure ventilations using a BVM device may be indicated and may also serve as an "internal splinting" of the flail segment due to lung expansion.**

- Control/stop any identified life threatening hemorrhage (direct pressure, tourniquets, etc.).
- Impaled Objects:
  - Secure in place with a bulky dressing.
- Open chest wound:
  - Cover with an occlusive dressing, sealed on 3 sides, or use a commercial device; if the patient's condition deteriorates, remove the dressing momentarily, then reapply.
- Flail segment with paradoxical movement and in respiratory distress:
  - Consider positive-pressure ventilation.
  - Do not splint the chest.

ADVANCED EMT STANDING ORDERS

A

- Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM.

PARAMEDIC STANDING ORDERS

P

- Needle chest decompression if indicated.

4.10 Traumatic Amputations Adult & Pediatric

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Control/stop any identified life-threatening hemorrhage (direct pressure, tourniquets).

ADVANCED EMT / PARAMEDIC STANDING ORDERS

A/P

- Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM.

MEDICAL CONTROL MAY ORDER



- Additional Fluid Boluses.

Traumatic Cardiac Arrest Adult & Pediatric

4.11

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- If direct pressure and other methods cannot stop bleeding, apply an appropriate tourniquet. Document the exact time of tourniquet application and notify receiving hospital staff.
- Provide appropriate management for identified injuries:
  - 4.4 Head Trauma/Injuries
  - 4.9 Thoracic Injuries
- Treat according to appropriate Cardiac Arrest Protocol.

ADVANCED EMT STANDING ORDERS

A

- Provide advanced airway management only if patient is not adequately oxygenating or ventilating and not corrected by BVM.
- Obtain 1-2 points of vascular access (IV, IO) while **en route** to the hospital.

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- For medication facilitated intubation, see 5.2 Difficult Airway Protocol.
- Needle Decompression, if indicated.

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SECTION 5:

AIRWAY PROTOCOLS AND PROCEDURES

Statewide Treatment Protocols
Version 2018.1

5.1A Upper Airway Obstruction- Adult

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- If the obstruction due to a foreign body is **complete** or is partial with **inadequate** air exchange: follow ECC guidelines for foreign body obstruction. Maintain an open airway, remove secretions, vomitus and assist ventilations as needed.
- If **partial obstruction** due to foreign body is suspected and there is **adequate** air exchange: transport to appropriate medical facility. Do not attempt to remove foreign body in the field.

MEDICAL CONTROL MAY ORDER



- Emergent removal of tracheostomy tube, if present, and evidence of obstruction resulting in inadequate air exchange. See 5.3 Tracheostomy Tube Obstruction Management for more information.

ADVANCED EMT STANDING ORDERS

A

- Provide airway management if indicated for **mechanical obstruction**: If unable to remove obstructing foreign body, continue BLS airway management by providing positive pressure ventilations if needed.

PARAMEDIC STANDING ORDERS

P

- Perform direct laryngoscopy if foreign body suspected. If foreign body is visible and easily accessible, attempt removal with Magill Forceps.
- If foreign body is removed, proceed with endotracheal intubation if necessary and perform capnography.
- If unable to clear airway obstruction, unable to intubate as needed or unable to perform positive pressure ventilations, perform a needle cricothyrotomy, if permitted under 6.2 Needle Cricothyrotomy.
- Consult Medical Control for removal of tracheostomy tube.

Upper Airway Obstruction-Pediatric

5.1P

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- See 5.3 Tracheostomy Tube Obstruction Management, if applicable.

ADVANCED EMT STANDING ORDERS

A

- Determine presence of upper airway obstruction (stridor):
  - If the obstruction due to a foreign body is **complete** or partial with **inadequate** air exchange: Follow ECC guidelines for foreign body obstruction. Maintain an open airway, remove secretions, vomitus and assist ventilations as needed.
  - If **partial obstruction** due to a foreign body is suspected and the child has **adequate** air exchange: transport to appropriate medical facility. Do not attempt to remove foreign body in the field.
  - If suspected **croup** (barking cough, no drooling) or epiglottitis (stridor, drooling), maintain an open airway, place child in position of comfort and avoid **upper airway stimulation**.

MEDICAL CONTROL MAY ORDER



- Emergent removal of tracheostomy tube, if present, and evidence of obstruction resulting in inadequate air exchange. See 5.3 Tracheostomy Tube Obstruction Management for more information.

PARAMEDIC STANDING ORDERS

P

- Provide advanced airway management if indicated for mechanical obstruction: perform direct laryngoscopy if foreign body is suspected. If foreign body is visible and readily accessible, attempt removal with Magill forceps. If unable to remove obstructing foreign body, continue BLS airway management by providing positive pressure ventilations.
- If foreign body is removed, proceed with endotracheal intubation if necessary and perform capnography.
- If unable to clear airway obstruction, unable to intubate as needed or unable to perform positive pressure ventilations, perform a needle cricothyrotomy, if permitted under 6.2 Needle Cricothyrotomy.
- **Nebulized racemic epinephrine** 11.25 mg in 2.5ml Normal Saline, for suspected **severe croup,** with stridor at rest and respiratory distress.

5.2 Difficult Airway - Adult

The Difficult Airway protocol is to be used only after conventional attempts at airway management have failed and the patient cannot be ventilated by ordinary means such as with the insertion of an oral or nasal pharyngeal airway and bag-valve mask ventilation or by insertion of a supraglottic airway device. The patient care report must include all attempts at airway management, including failed attempts in order to illustrate the need for the use of this protocol. Midazolam is the recommended drug for facilitating intubation and the use of any other sedation such as Fentanyl can only be done with medical control direction and consult.

In all cases adjustments to technique are to be made based on training and equipment (i.e. mask size/seal, positioning, suction, and use of adjuncts) It is necessary to correct all manageable causes of inadequate ventilation prior to utilizing this protocol. When confronted with an airway that is unstable and conventional intubation is determined to be unlikely (Mallampati IV), EMTs are to use alternative equipment such as supraglottic airway devices, in accordance with your certification and training.

An Unstable Airway situation can be defined as *unable to clear a foreign body airway obstruction, OR airway grading* (Figure 1 & 2) *suggests intubation unlikely, OR unsuccessful intubation after no more than a total of 3 attempts.***

Assessment/Treatment Priorities:

- Routine Patient Care.
- Maintain Grading of the patient's airway (see below for figure 1 and 2)
- Continue Bag-Valve-Mask (BVM) management with supplemental oxygen with oropharyngeal or nasopharyngeal adjuncts, (OPA or NPA) in place.
- Initiate transport as soon as possible.
- Follow AHA & ARC guideline for management of the adult FBAO.

ADVANCED EMT STANDING ORDERS

A

- After completing your assessment as listed above:
  - If BVM failure is the result of a manageable cause.
    - Apply countermeasures if applicable
  - If the patient can be ventilated, but the airway is unstable insert the supraglottic device

PARAMEDIC STANDING ORDERS

P

a. If the airway is unstable and the adult patient can be ventilated.

I. In patients who require emergent intubation

II. Cannot be intubated by conventional means

To facilitate intubation:

a. **Midazolam** 2 mg SLOW IV/IO/IM/IN. Repeat as necessary to total of 6 mg.

b. **If intubation is unsuccessful,** insert the supraglottic device

c. If the airway is unstable and the patient cannot be ventilated, perform a needle cricothyrotomy and provide oxygen via jet ventilation.

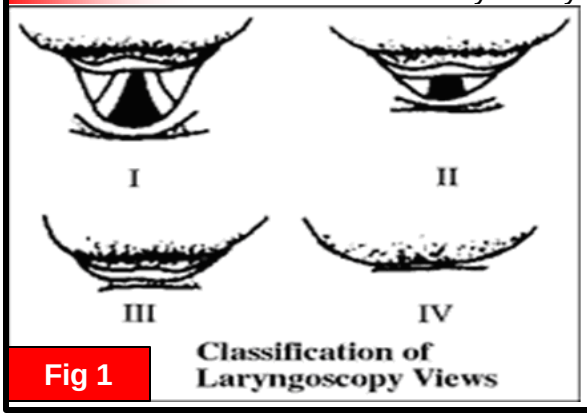


Fig 1 Classification of Laryngoscopy Views

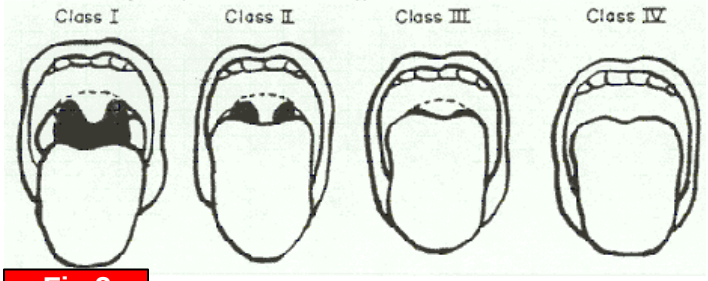


Fig 2

Figure 1 depicts the Cormack & LeHane laryngoscopy classifications. Figure 2 depicts the Mallampati system of airway grading, generally performed with patient sitting in full fowlers position with tongue extended.

Tracheostomy Tube Obstruction Management Adult & Pediatric

5.3

EMT/ADVANCED EMT STANDING ORDERS

E/A

<u>In the patient with an obstructed tracheostomy tube, in whom no effective ventilation/oxygenation is possible, the following are to be considered **Standing Orders**:</u>

- Wipe neck opening with gauze
- Attempt to suction tracheostomy tube
- Remove tracheostomy tube if necessary
- Once airway is open, begin ventilations as necessary/possible
- Clearing of the tube and re-insertion, for those whose tracheostomy tube is noted to be plugged
- In patients able to be oxygenated and ventilated by the above criteria,
- Wipe neck opening with gauze
- Attempt to suction tracheostomy tube
- Remove tracheostomy tube as necessary
- Once airway is open, begin ventilations as possible/necessary

PARAMEDIC STANDING ORDERS

P

- Paramedics may attempt intubation of the patient if no other means of ventilating/oxygenating the patient are possible

MEDICAL CONTROL MAY ORDER



Signs of inadequate oxygenation/ventilation are:

- Falling pulse oximetry
- Change in patient's color
- Change in patient's vital signs
- Inability to deliver oxygenation by all other means

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SECTION 6:

MEDICAL DIRECTOR OPTIONS

Statewide Treatment Protocols
Version 2018.1

6.0 Medical Director Options

The following conditions must be met in order for your service to provide any of the following optional treatments as listed in this section:

1. Your service has a written policy adopting use of the procedure, in accordance with the terms of this Protocol section, and such policy is signed by the service's affiliate hospital medical director.

2. Your service's affiliate hospital medical director must have authorized you as an EMT to utilize the procedures in this section, based on your level of certification.

3. You must be trained to use the procedure, and be approved by the affiliate hospital medical director.

BLS:

a. Albuterol Administration via Nebulizer (Service Option), see advisory of 4/9/10, at OEMS website and 6.1 BLS/ILS Albuterol.
b. Glucometry, see AR 5-520, at OEMS website.
c. Selective Spinal Assessment (Service Option), replacing cervical spinal assessment/precaution procedures of 4.8 Spinal Column/Cord Injuries.
d. Check and Inject Epinephrine by BLS Providers, see 6.6.

ALS:

a. Needle Cricothyrotomy, see 6.2.
b. Selective Spinal Assessment (Service Option), see 6.3, replacing cervical spinal assessment/precaution procedures of 4.8 Spinal Column/Cord Injuries
c. Urban Search and Rescue (USAR) Medical Specialist, see 6.4.
d. Tranexamic Acid, see 6.5.
e. Acetaminophen IV, see 6.7.

BLS Assisted Albuterol Adult & Pediatric

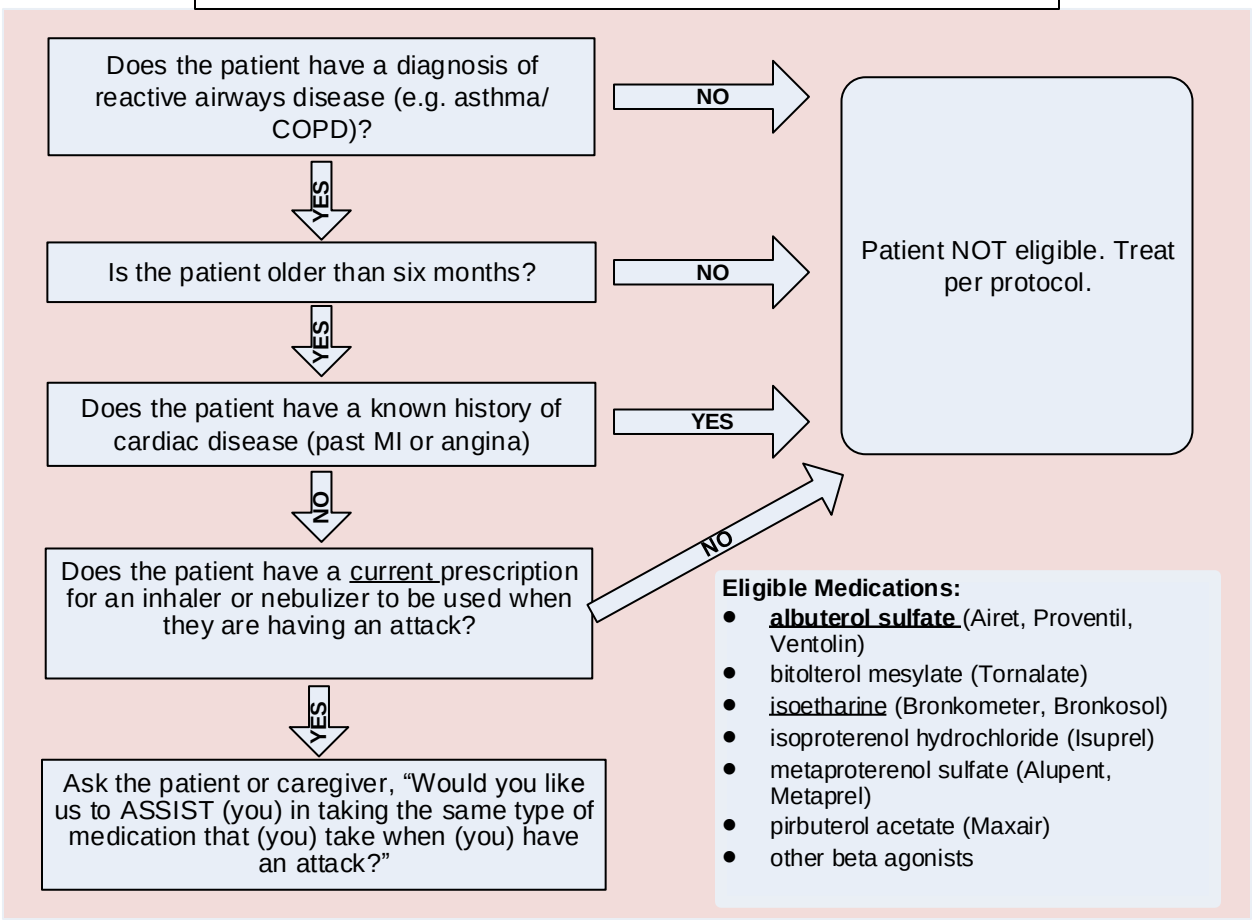
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EMT STANDING ORDERS

E

- If trained and authorized by your medical director, treat bronchospasm in known Asthmatics, and confirmed Reactive Airway Disease (Asthma/COPD), in accordance with the flowchart below, with:
  - For a patient between 6 months and 2 years of age,
    - **Albuterol** 1.25mg in 3ml Normal Saline, via nebulizer, x1 dose
  - For a patient older than 2 years of age,
    - **Albuterol** 2.5-3mg in 3ml Normal Saline, via nebulizer, x1 dose
- ALS intercept must be arranged for and confirmed whenever possible and available.

ASSISTED ALBUTEROL FLOWCHART:



6.2 Needle Cricothyrotomy

ALS: Needle Cricothyrotomy (Approved for Paramedics Only)

The following is a general description of one of several accepted techniques being used throughout the Commonwealth, and may be used as a guideline. Due to differences in medical devices used by individual systems, the procedure may vary slightly. Refer to your local and regional guidelines for the technique and equipment used in your system.
Note: Appropriate body substance isolation precautions are required whenever caring for the trauma patient.
Indications: The indications for performing a needle Cricothyrotomy on a patient will be:

1. The patient is in imminent danger of death.
2. No alternative airway device/maneuver has been successful.
3. The patient cannot be oxygenated or ventilated by any other means

The local EMS Medical Director has appropriately trained and authorized the treating EMT-Paramedics.
Examples of types of patients potentially meeting the above criteria include (but are not limited to):

1. Patients suffering traumatic arrest
2. Patients suffering multiple traumatic injuries
3. Patients suffering an upper airway obstruction

Recognizing the time critical nature of the emergency, Needle Cricothyrotomy will be a Standing Order for patients/systems/paramedics meeting all of the above criteria.

1. Assemble and prepare oxygen tubing by cutting a hole toward one end of the tubing. Connect the other end of the oxygen tubing to an oxygen source, capable of delivering 50 psi or greater at the nipple, and assure free flow of oxygen through the tubing.
2. Place the patient in a sitting position.
3. Assemble a #12 or 14-gauge, 8.5 cm, over-the-needle catheter to a 6- to 12-mL syringe.
4. Clean the neck with an aseptic technique, using antiseptic swabs.
5. Palpate the cricothyroid membrane, anteriorly, between the thyroid cartilage and cricoid cartilage. Stabilize the trachea with the thumb and forefinger of one hand to prevent lateral movement of the trachea during the procedure.

Policy Continues

Policy Continued

6. Puncture the skin midline with the needle attached to a syringe, directly over the cricothyroid membrane (i.e., mid-saggital).
7. Direct the needle at a 45 degree angle caudally, while applying negative pressure to the syringe.
8. Carefully insert the needle through the lower half of the cricothyroid membrane, aspirating as the needle is advanced.
9. Aspiration of air signifies entry into the tracheal lumen,
10. Remove the syringe and withdraw the stylet while gently advancing the catheter downward into position, being careful not to perforate the posterior wall of the trachea,
11. Attach the oxygen tubing over the catheter needle hub (you may use a 4.0 ET tube connector), and secure the catheter to the patient's neck.
12. Intermittent ventilation can be achieved by occluding the open hole cut into the oxygen tubing with your thumb for one second and releasing it for four seconds. After releasing your thumb from the hole in the tubing, passive exhalation occurs. Note: Adequate PaO2, can be maintained for only 30 to 45 minutes.
13. Continue to observe lung inflations and auscultate the chest for adequate ventilation.

Complications of Needle Cricothyrotomy

1. Asphyxia
2. Aspiration
3. Cellulitis
4. Esophageal perforation
5. Exsanguinating hematoma
6. Hematoma
7. Posterior tracheal wall perforation
8. Subcutaneous and/or mediastinal emphysema
9. Thyroid perforation
10. Inadequate ventilations leading to hypoxia and death

6.3 Selective Spinal Assessment

ALS and BLS: **Selective Spinal Assessment**

This procedure, if used, should be in conjunction with Protocol 4.8 Spinal Column/Cord Injuries and/or A3 Interfacility Transfer Protocols.

SELECTIVE SPINAL ASSESSMENT

Spinal cord injury may be the result of direct blunt and/or penetrating trauma, compression forces (axial loading), abnormal motion (hyper-flexion, hyperextension, hyper-rotation, lateral bending and distraction, i.e., hanging). Most spinal injuries result from motor vehicle crashes, falls, firearms, and recreational activities.

Spinal injuries may be classified into sprains, strains, fractures, dislocations and/or actual cord injuries. Spinal cord injuries are classified as complete or incomplete and may be the result of pressure, contusion or laceration of the cord.

Individuals should be assessed and treated for possible spinal injury, and immobilized if necessary, if they have sustained an injury with a concerning mechanism, and either have symptoms of injury and/or have a reason not to adequately perceive or to be able to communicate the symptoms of such injury.

Long backboards are NOT considered standard of care in most cases of potential spinal injury. Instead, use spinal motion restriction with a cervical collar and cot in most cases. Note that there are exceptions, such as a patient with a potential spinal injury who cannot be logrolled while being transported and may be at risk of a compromised airway.

Concerning mechanisms that may result in spinal column injury:

- Fall from over 3 feet, including adult fall from standing, or 5+ stair steps
- MVC at 30+ mph, or rollover or ejection
- Motorcycle, bicycle, other mobile conveyance, or pedestrian-vehicle accident
- Diving or axial load
- Electric shock

Symptoms of spinal column injury may include:

- Posterior neck or back pain or tenderness;
- Paresthesias or loss of sensation in extremities;
- Weakness or paralysis of extremities;

Conditions placing individuals at risk to not perceive or complain of the symptoms of spinal column injuries:

- Altered mental status due to disease, injury, intoxication, or other causes;
- Inability to adequately communicate;
- History of cervical spine injury or abnormality, or conditions causing fragile bones;
- Distracting injury (such as long-bone fracture);
- Age extremes (including >65 years of age);

Individuals sustaining lesser injuries, patients who do not have symptoms of spinal column injury and do not experience a condition that would impair the patient's ability to perceive or communicate symptoms of spinal column injuries **do not require spinal immobilization**

Penetrating injuries to the neck generally do not require spinal immobilization.

Policy Continues

Policy Continued

ASSESSMENT / TREATMENT PRIORITIES

1. Ensure scene safety, appropriate universal precautions, request additional EMS resources (BLS or ALS), perform thorough primary survey, treat any life threatening injuries immediately, appropriate oxygen and IV therapy

MEDICAL CONTROL OPTIONS

a. **ADVANCED EMT AND PARAMEDIC:** Additional Normal Saline 250 mL - 500 mL bolus(es), wide open or titrated to patient's hemodynamic status.

b. **PARAMEDIC:** For suspected neurogenic shock (without hypovolemia): **norepinephrine** infusion: 0.1mcg/kg/min IV/IO, titrate to goal Systolic Blood Pressure of 90mmHg, **OR dopamine** 2-20mcg/kg/min IV/IO.

If patient is assessed as stable and there is a suspicion of possible c-spine injury begin assessment and history to determine if the patient needs to be placed in a collar and undergo spinal motion restriction. Mechanism of Injury should be used as a historical component of the assessment and lead to further spine assessment (i.e. Axial loading (diving), blunt trauma, motor vehicle crash (MVC)*****, fall >3ft, adult fall from standing height.

*MVC applies to crashes of all motorized vehicles: e.g. automobile, motorcycle, snowmobile, etc.)

SPINAL IMMOBILIZATION PROCESS

1. Establish manual c-spine stabilization in the position that the patient is found.
2. Assess for correct size and properly apply a cervical collar.
3. Move patient from the position found to the location of the ambulance stretcher utilizing a device such as a scoop stretcher, long spine board, or if necessary, by having the patient stand and pivot to the stretcher.

   DO NOT permit the patient to struggle to their feet from a supine position.
4. Position patient on the ambulance stretcher.
5. Remove scoop or logroll patient off long spine board or other device (if such device was utilized).
6. A blanket roll or blocks and tape attached to the stretcher may be used to minimize lateral movement of head during transport.
7. Once on the ambulance stretcher, instruct patient to lie still.
8. The head of the stretcher may be elevated 20-30 degrees in a position of comfort.
9. Secure cross stretcher straps and over-the-shoulder belts firmly.
10. Utilize a SLIDE BOARD at the destination to move the patient smoothly to the hospital stretcher.
11. Ensure appropriate documentation of procedure in patient care report.

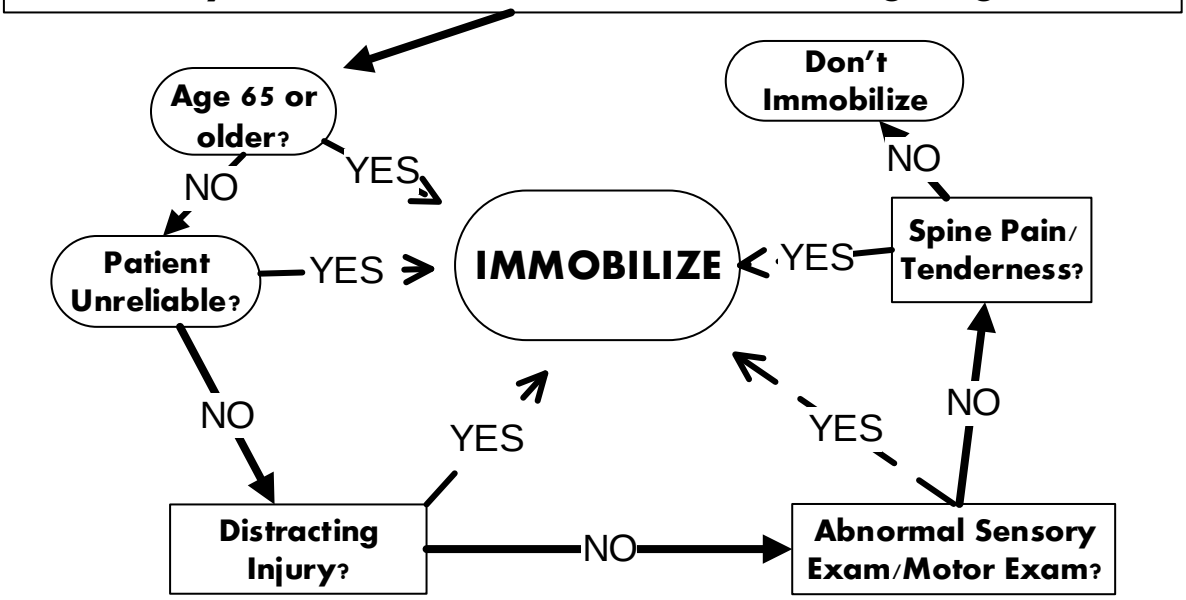
If it is determined through a complete assessment that the patient is 1) Reliable (including ability to communicate adequately) 2) Has no distracting injuries 3) Has no abnormal sensory/motor deficits 4) Has no spine pain/tenderness – DO NOT IMMOBILIZE

Policy Continues

Policy Continued

Selective Spinal Assessment, Continued

Spine Assessment Protocol



Abnormal Sensory/Motor Exam?
If, based on the assessment, the patient has any abnormal neurological findings (including, but not limited to, paresthesias or loss of sensation in extremities, weakness or paralysis of extremities, loss of urethral or sphincter control, etc.) **–Immobilize (See Spine Assessment Protocol)**

Distracting Injury?
Distracting injuries include any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury – pain would include medical as well as traumatic etiologies of pain – **If, based on the assessment, the patient has distracting injuries - Immobilize (See Spinal Assessment Protocol)**

Complaints of Pain or Examination Tenderness?
Complete an assessment of the patient's spine for pain or tenderness. The assessment should include, but is not limited to, palpation of the entire spine (posterior, midline spine, and cervical spine), range of motion (if appropriate). **– If, based on the assessment, the patient is experiencing any pain or tenderness along the spine - Immobilize (See Spinal Assessment Protocol)**

Patient Reliability
Is the patient intoxicated, have an altered mental status, is having an acute stress reaction, at the extremes of age or any other reason that results in an inability to either adequately perceive or communicate symptoms, etc. – **If the patient is unreliable based on the assessment - Immobilize (See Spinal Assessment Protocol)**

CAUTION: This protocol **cannot** be used to rule out need for immobilization in any patient age 65 or older.

Urban Search and Rescue (USAR) Medical Specialist 6.4

INTRODUCTION

The Urban Search and Rescue (USAR) Medical Specialist is a paramedic level or higher medical provider capable of delivering immediate medical response and support to urban search and rescue operations and based on the FEMA National USAR Task Force medical team model. The primary mission of the medical team is to maintain the health and well-being of ALL team members during technical rescue operations. The secondary mission is to provide specialized medical care to injured victims. Overall, the role of the medical team is to act as the *medical conscience* for the team and to always act as an *advocate for the patient*.

Medical Specialists follow the explicit orders of their agency's Affiliate Hospital Medical Director (AHMD) or designee functioning under a *comprehensive* set of local policies and protocols based on nationally-accepted standards. Per regulations, any EMS personnel functioning at the ALS level of care must have a qualified and designated AHMD. These protocols are intended for use only by trained Medical Specialists specifically during USAR operations. Medical Specialists are not directly responsible for any person(s) outside the immediate area of operations, whose care may safely be provided by the local EMS provider.

One of the primary functions of the Medical Specialist is to support the tactical operations by ensuring the health and safety of critical public safety personnel as well as any victims requiring specialty care inside the perimeter of high-risk, large-scale, and extended operations that otherwise cannot be attended to by conventional EMS providers. As such, the Medical Specialist may be asked to provide sick call care for predefined service members as directed by the AHMD in order to ensure they remain healthy and operationally capable; any other person(s) or service members who present with an acute medical issue, should be considered patients under the definition of 105 CMR 170.020. Such care will be provided in accordance with the State Treatment Protocols. These protocols supplement the Commonwealth of Massachusetts DPH/OEMS State Treatment Protocols (STP) and shall be used only by Medical Specialists functioning with an AHMD.

Once a victim is removed from the inner perimeter of operations, a transition of care will be made to the local EMS service for continued patient care and transport. An exception may be made when a Medical Specialist's training is needed to manage a specific illness/injury during transport. In this instance, a Medical Specialist should accompany the transporting EMS crew and patient to the hospital and maintain any care/medications not covered by the STP. If during transport, the Medical Specialist encounters a significant conflict between these protocols and those of the transporting EMS service, they should attempt to contact the Medical Specialist's AHMD and request a dual consult with the AHMD for the transporting EMS service. If the Medical Specialist's AHMD cannot be reached, standard online medical consultation should be initiated.

In most cases, a USAR team physician or AHMD will be on-scene to provide real time medical direction in accordance with these protocols. The following protocols serve as a Medical Director's optional protocol program for use *ONLY* by a trained Medical Specialist providing care in a search and rescue environment. These protocols *SUPPLEMENT* already existing service-specific treatment protocols as well as the STP. Paramedics operating under these protocols *MUST* have completed an approved FEMA (or equivalent) medical team training program, be a designated member of a recognized local, county or state USAR team and have the authority to function in this capacity from their agency's AHMD.

Protocol Continues

6.4 Urban Search and Rescue (USAR) Medical Specialist

Protocol Continued

Once a victim is removed from the inner perimeter of operations, a transition of care will be made to the local EMS agency for continued patient care and transport. An exception may be made when a Medical Specialist's training is needed to manage a specific illness/injury during transport. In this instance, a Medical Specialist should accompany the transporting EMS crew and patient to the hospital and maintain any care/medications not covered by the OEMS STP. If during transport, the Medical Specialist encounters a significant conflict between these protocols and those of the transporting EMS agency, they should attempt to contact the Medical Specialist's AHMD and request a dual consult with the AHMD for the transporting EMS agency. If the Medical Specialist's AHMD cannot be reached, standard online medical consultation should be initiated.

In most cases, a USAR team physician or AHMD will be on-scene to provide real time medical direction in accordance with these protocols. The following protocols serve as a Medical Director's optional protocol program for use *ONLY* by a trained Medical Specialist providing care in a search and rescue environment. These protocols *SUPPLEMENT* already existing service-specific treatment protocols as well as the STP. Paramedics operating under these protocols *MUST* have completed an approved FEMA (or equivalent) medical team training program, be a designated member of a recognized local, county or state USAR team and have the authority to function in this capacity from their agency's AHMD.

STANDING/VERBAL MEDICAL ORDERS

Given the medical complexity of most victims of a USAR scenario, it is the expectation that all patient care activity during USAR operations have real-time medical direction established with a USAR team physician or AHMD as soon as feasibly possible. *Only* agency approved Medical Specialists designated to operate at the paramedic level as a part of a recognized regional USAR team may initiate care utilizing these protocols. Any other on-scene EMT providing care at a special operations incident shall function in accordance with the STP and service-specific protocols.

These protocols are designed to provide supplemental guidance for patient care in the search and rescue environment. Unless otherwise specified, all medication doses have been presented in a weight-based format for use in both adult and pediatric patients. These guidelines represent the best practices drawn from current nationally accepted standards of care and evidence-based practice. Medicine is a constantly evolving practice and as such, guidelines cannot be developed for every possible clinical situation. These guidelines are *NOT* meant to replace good clinical judgment. Medical team members shall not act beyond their usual scope of practice (i.e. USAR or other service-specific protocols) unless trained or specifically approved to perform additional skills.

TRAINING AND QUALITY ASSURANCE/IMPROVEMENT

Given the low frequency, high risk nature of these cases, it is presumed that ALL cases requiring the use of these protocols will undergo QA/QI review by the USAR team physician or AHMD. Any deviations from these protocols will be reviewed by the AHMD and reviewed with the agency's medical team members. It is also the expectation that as part of competency maintenance and participation as a Medical Specialist, a comprehensive training program by the AHMD and sponsoring agency will occur at least annually to include a review of these protocols.

Protocol Continues

Protocol Continued

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1. Confined Space/Collapse Rescue Patient Medical Care
2. Crush Injury/Crush Syndrome Management
3. Hyperkalemia
4. Limb Injury/Compartment Syndrome
5. Procedural Sedation and Analgesia
6. Medical Specialist- Medication List

Protocol Continues

6.4 Urban Search and Rescue (USAR) Medical Specialist

Protocol Continued

Initial Patient Medical Care

1. Perform an assessment of the scene, if not already done during the medical threat assessment:
   a. Determine scene hazards
   b. Survey the work environment for adequate oxygen levels, hazardous CO or gas levels and other hazardous materials around, lockout/tagout all utilities. Ideally, this should be done in conjunction with the incident HAZMAT team manager or Safety Officer.
   c. Assess weather and weather forecast.

2. Develop a medical care plan and prepare the appropriate needed supplies/equipment prior to entry "in the hole." Planning should be performed in conjunction with the Task Force Leader (TFL) or Incident Commander (IC) and other USAR discipline-specific team leaders (i.e. Search, Rescue, HAZMAT, etc.).

3. Perform initial assessment on the total number of victims, locations and priority of care/ extrication.

4. PROTECT THE PATIENT from further injury as well as particulate inhalation – ear and eye protection, dust mask (particulate mask, N95 or P-100 mask, oxygen via NRB mask, etc.), helmet, heat/cold protection. Drop patient packs to the victim(s) if unable to access immediately.

5. Once access is gained to the victim, a Medical Specialist should perform an initial clinical assessment of general condition, vital signs and injuries. Initiate routine patient care as outlined in the Statewide Treatment Protocols.

6. Assess for any unrecognized hemorrhage and control all sources of severe bleeding. Use an approved tourniquet for life-threatening external hemorrhage that is anatomically amenable to tourniquet application or for any traumatic amputation. Apply the tourniquet over the clothing proximal to the bleeding site as high as possible, or if able to fully expose and evaluate the wound, apply directly to the skin 2-3 inches above the wound (DO NOT APPLY OVER THE JOINT). If a tourniquet is not needed, use other techniques to control bleeding.

7. The patient's AIRWAY and BREATHING status should be assessed. If necessary, perform advanced airway management utilizing direct in-line cervical spine immobilization only as needed. Consider use of the Selective Spine Assessment Program (SSAP) if trained and authorized to do so. A supraglottic airway device may be used in place of endotracheal tube if intubation is not possible.

8. Begin cardiac monitoring. Record and interpret a baseline 12-lead EKG as soon as possible.

9. Obtain intravenous (IV) access and begin infusion of Normal Saline (NS).
   a. For signs and symptoms of hypovolemic shock, administer a 20 mL/kg bolus of NS.
   b. In the absence of signs of hypovolemia, administer 2 mL/kg/hour infusion of NS.
   c. If unable to obtain IV access, establish an IO (if indicated) and begin NS infusion.

Protocol Continues

Protocol Continued

Initial Patient Medical Care, Continued

10. Re-assess the victim for any uncontrolled hemorrhage. If any tourniquets were placed earlier, they should be re-assessed for adequate hemorrhage control. Consider use of hemostatic gauze pressure dressing for exsanguinating wounds not amenable to tourniquet use.

11. If a victim is anticipated to need significant blood transfusion (for example: presents with hemorrhagic shock, one or more major amputations, penetrating torso trauma, or evidence of severe bleeding) administer **tranexamic acid (TXA)** 1 gm in 100 cc NS over 10 minutes IV/IO infusion as soon as possible but NOT later than 3 hours after injury. Begin a second infusion of 1 gm **TXA** after intravenous fluid treatment. It should NOT be administered through the same line being used for blood products or as an IV push (may cause hypotension). Consultation with medical direction for use of **TXA** is ***required***.

12. Assess for and treat potential hypoglycemia and dehydration. Consider oral hydration so long as the patient is can follow commands, alert and oriented, and a patent airway and gag reflex is present. This should be done only if a prolonged extrication is anticipated and there are no other means of fluid administration. Limit initial hydration to 16-32 ounces of potable water.

13. Assess and manage the victim for any evidence of entrapment or crush injury. Refer to the Crush Injury / Crush Syndrome management protocol.

14. Monitor patient for hypothermia or hyperthermia. Preferably, a core temperature measurement should be obtained. Provide necessary treatment as per sub-protocols.

15. If available and trained to do so, draw blood sample and analyze blood chemistry using point-of-care testing. Continue analyzing PRN and consult with an AHMD for further direction.

16. For pain management of the non-isolated extremity injury refer to the Sedation and Analgesia protocol.

17. Re-assess the medical care plan with the AHMD and rescue team leader as appropriate.

Protocol Continues

Protocol Continued

Crush Injury/Crush Syndrome Management

1. ***Consider*** the use of an approved tourniquet to prevent reperfusion of a crushed limb prior to removal of compressive forces only if **pre-treatment of the patient cannot be performed.**

2. Initiation of fluid resuscitation with NS should ideally occur **prior** to any extrication or release from compressive forces. Administer fluids at an initial rate of 1 L/hr (10-15 ml/kg/hr) for up to 2 L total. Subsequent fluid administration can be delivered at a rate up to 500 ml/hr (5-7 ml/kg/hr) up to 24 hours.

a. NOTE: Given the risk of hyperkalemia due to crush injury, potassium containing solutions (i.e. Lactated Ringers solution) should be avoided.

3. For victims with prolonged crush (> 1-2 hour) or at high risk of crush syndrome, initiate serum alkalinization **prior** to extrication. **Bicarbonate** therapy should be goal directed based on available clinical data (i.e. urine output, hemodynamic parameters, evidence of hypocalcemia, etc.) and point-of-care testing (urine and serum pH, serum electrolyte levels, etc.). Consider alternating bicarbonate-containing fluids with NS to minimize volume overload. Medical Direction should be consulted for any use of bicarbonate therapy.

a. Add 150 mEq of 8.4% (1 mEq/ml) **sodium bicarbonate** into a 1 L D_5W bag infused at a rate of 250-500 ml/hr. Remember to remove 150 ml of D_5W to accommodate the **sodium bicarbonate**. This mixture provides a near "isotonic" solution capable of alkalinizing the bloodstream.

b. If 1 L D_5W bags are not available, add 50 mEq of **sodium bicarbonate** to 1 L NS bag infused at a rate of 500 ml/hr.

c. Bolus doses of **sodium bicarbonate** at 0.5 – 2 mEq/kg IV/IO in accordance with STP can be administered if an infusion cannot be initiated.

d. For pediatric patients, administer **bicarbonate** infusion at the following rates:

Up to	10 kg:	8 ml/kg/hr
	10-20 kg:	80 ml/hr + 4 ml/kg/hr
	>20 kg:	160 ml/hr + 2 ml/kg/hr

e. Consider placement of a urine bladder catheter to monitor urine output to a diuresis goal of > 200-300 ml/hr (3-4 ml/kg/hr) or a urine pH of > 6.5.

4. Re-assess the patient and coordinate extrication with technical rescue personnel. Be vigilant for sudden hypotension and hyperkalemic changes. Be prepared to control severe hemorrhage as well as the development of compartment syndrome if fluid begins to third space into injured tissue.

5. For patients with point of care values or EKG findings consistent with hyperkalemia refer to the hyperkalemia protocol.

Protocol Continues

Protocol Continued

Hyperkalemia

1. Administer 1000 mg **calcium chloride** 10% (100 mg/ml) IV/IO bolus (20 mg/kg IV/IO for pediatric patient) over 2 minutes. Calcium chloride should ***not*** be routinely given to crush patients unless there is evidence of hyperkalemia (ECG changes, i-STAT confirmed).
NOTE: DO NOT ADMINISTER CaCl and $NaHCO_3$ in the same IV line as a salt may precipitate.

2. Administer **sodium bicarbonate** 0.5 – 2 mEq/kg IV bolus. However, if the patient is already receiving large volumes of sodium bicarbonate as an infusion, contact medical direction for further guidance.

3. Administer **albuterol sulfate** 0.083% up to 10 mg via inline nebulizer.

4. Administer 10 Units of regular **insulin** IV followed by 50 ml of **Dextrose 50%** (25 gm/50 ml) IV for adult hyperkalemic patients with medical direction.

For pediatric patients, administer 0.1 Units/kg of regular **insulin** (up to 10 units) IV bolus followed by **$D_{10}W$** 0.5 g/kg (5 mL/kg) IV bolus (infants) or **$D_{25}W$** 0.5 -1 g/kg (2 – 4 mL/kg) IV bolus (child). Blood glucose monitoring should be repeated in 30 minutes and treated appropriately.

5. Contact medical direction for **furosemide** 0.5-1 mg/kg IV/IO bolus.

Protocol Continues

Protocol Continued

Limb Injury/Compartment Syndrome

1. Control any life-threatening hemorrhage with direct pressure, hemostatic dressing or tourniquet placement, assess distal CSM function and splint any obvious deformities.

2. Consider placing an approved tourniquet (do not tighten) as distal as possible near site of injury if there is potential for severe hemorrhage upon release of an entrapped limb.

3. Depending on the degree of tissue injury, bony involvement, duration of patient rescue and overall environmental conditions, tetanus and antibiotics administration may be indicated. Consult medical control for further direction on specific antibiotic type and dosing.

4. Monitor closely for the development of compartment syndrome, especially in fixed muscle compartments such as the forearm or lower leg. Compartment syndrome is typically the result of muscle tissue swelling within the non-expansive fascial compartments which pressure rises greater than tissue perfusion pressure.

5. Palpate limbs carefully (especially where entrapped or laid upon) for firmness or functional loss. Some signs/symptoms to watch for include:
   a. PAIN out of proportion to physical examination.
   b. PALLOR of skin color
   c. PARESTHESIAS
   d. PARALYSIS
   e. PULSELESSNESS (This is often a late sign. The presence of a distal pulse DOES NOT rule out compartment syndrome)

6. Ensure adequate fluid resuscitation of the patient.

7. If compartment syndrome is recognized, immediately consult with a medical control regarding further treatment. Fasciotomy should NOT be routinely performed in the field due to technical difficulties, inadequate analgesia and high rates of wound infection. Contact medical direction for further guidance.

Protocol Continues

Protocol Continued

Amputation

1. Amputation of a limb should ***ONLY*** be considered if there is an immediate threat to life as a ***LAST RESORT*** for freeing an entrapped victim, trading limb for life. An extreme circumstance is when it has been assessed that an entrapped limb is the ***ONLY*** remaining impediment to extricating an entrapped victim.

2. The decision to performing a field amputation should be made by a USAR team physician or AHMD (preferably on-scene) in coordination with a trauma surgeon whenever possible and in conjunction with the TFL or IC. The procedure should be ***ONLY*** performed by an *appropriately trained physician*.

3. Properly prepare the patient as much as time allows for amputation and immediate extrication – supplemental oxygen, end-tidal CO_2 and cardiac monitoring, adequate IV access, VS monitoring. Ensure all necessary equipment is nearby.

4. Expose the entrapped extremity as distally as possible

5. Place an approved tourniquet as distally as possibly, leaving just enough soft tissue to perform the amputation and should only be tightened prior to amputation under direction of medical control.

6. Administer the appropriate analgesia and sedation.

7. After the procedure has been completed, assess the limb for any re-bleeding (tourniquet tightening, additional tourniquet placement, bone marrow bleeding, etc.), dress the wound appropriately and consider the early administration of prophylactic antibiotics as directed by medical control.

Protocol Continues

Protocol Continued

Sedation and Analgesia

Adequate pain control is an integral component in effecting a successful victim rescue.

Pharmacological agents available to the medical specialist should both be easy to titrate and have minimal impact on cardiorespiratory function.

1. Perform the initial patient care protocol.

2. Ensure that all appropriate monitoring (ECG monitoring, NIBP, pulse oximetry, $ETCO_2$, etc.) have been placed on the patient as feasibly possible given the operational environment.

3. For moderate to severe pain, consider administering a parenteral opiate analgesic such as **fentanyl citrate** 1 mcg/kg (typically 50-100 mcg) IV/IO/IM/IN in a titrated fashion. Consult medical direction for any additional doses. *NOTE*: An opiate reversal agent such as **naloxone** should be readily available.

4. For patients in pain that cannot be adequately controlled with the above agent, it may be necessary to administer a dissociative agent such as **ketamine hydrochloride** at a sub-dissociative dose. The sub-dissociative, analgesic dose of **ketamine** is 10-20 mg IV/IO bolus (0.2 mg/kg for pediatric patients) or 50 mg IM (0.4 mg/kg for pediatric patients) repeated every 20-30 minutes as needed until pain is controlled or the development of nystagmus.

Ketamine offers advantages such as preserved airway reflexes and minimal hypotension. Consultation with medical direction is ***required*** for **ketamine** use.

5. In the event an emergent field procedure is to be performed (i.e. limb amputation, fracture/ dislocation reduction, soft tissue injury repair, etc.), procedural sedation may be appropriate in order to achieve adequate operating conditions for the patient. A USAR team physician or AHMD ***MUST BE*** contacted prior to any sedation for procedures or extrication.

a. All appropriate monitoring equipment must be in place and applied as the situation dictates. Airway equipment and reversal agents should be ready at the bedside.

b. For sedation alone (i.e. anxiolysis during extrication), **midazolam** 0.1 – 0.3 mg/kg (2.5-5 mg) IV/IO/IM bolus can be administered and titrated to effect.

c. For analgesia, administer **fentanyl citrate** 1 mcg/kg (50-100 mcg) IV/IO/IM bolus as needed in conjunction with sedation.

d. Alternatively, single agent use of **ketamine** 1 – 2 mg/kg initial IV/IO bolus (4 mg/kg IM) followed by 0.5 – 1.0 mg/kg doses IV/IO (2 mg/kg IM) as needed to maintain adequate dissociation if there are any contraindications to **midazolam**/**fentanyl** or if it is more appropriate for the situation. If **ketamine** is used, consider a pre-treatment bolus dose of **midazolam** 0.1 – 0.3 mg/kg (2.5-5 mg) IV/IM/IN to reduce the occurrence of emergence reaction if not already administered.

Protocol Continues

Protocol Continued

Medical Specialist- Medication List

This is a list of medications which are *NOT* covered within the MA DPH/OEMS Statewide Treatment Protocols. The use of these medications are governed by the USAR Protocols and applied in the context of a USAR operation by an authorized Medical Specialist in conjunction with medical direction from a designated USAR Team Physician or AHMD. Use of these medications during routine EMS operations *IS NOT* authorized

ANTIBIOTICS

Ceftriaxone

Cefazolin

Levofloxacin

Vancomycin

ANALGESIA

Ketamine

Insulin – Regular

Dextrose 5% in Water (D_5W)

Tranexamic Acid (TXA)

6.5 Tranexamic Acid

Tranexamic Acid (TXA) is of a safe drug that is approved for use in trauma patients suspected of hemorrhage/internal bleeding. Studies have shown that providing TXA earlier is significantly beneficial to patients.

Eligible patients:

- Patients with blunt or penetrating trauma mechanisms suffered in the past 3 hours,
- who appear age 16 or over and
- show signs of significant hemorrhage (SBP < 90 mm Hg, HR > 110 BPM), or if the provider determines the patient to be at high risk for significant hemorrhage.
- Pregnant trauma patients and trauma patients on blood thinners are eligible.

Dose:

- TXA is given 1 gram IV over 10 minutes.

Timing:

- Treat early.

Contraindications/Allergies:

- Greater than 3 hours since the event.
- Less than 16 years of age.
- Known allergy to TXA.

Side effects:

- Hypotension
- Seizures

EMT STANDING ORDERS

E

- 1.0 Routine Patient Care
- Control/stop any identified life threatening hemorrhage (direct pressure, tourniquet, etc.), suspected pelvic fractures with commercial device (preferred) or bed sheet.

ADVANCED EMT STANDING ORDERS

A

- Initiate 1-2 large bore IV(s) Normal Saline (KVO) while **en route** to the hospital.

MEDICAL CONTROL MAY ORDER



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

- For a patient over ≥ 16 years of age, who has SBP< 90 or HR >110 BPM, or if the provider determines the patient to be at high risk for significant hemorrhage: **Tranexamic Acid (TXA)** 1 gram IV over 10 minutes.
  (mix 1 gram of TXA in 100ml of Normal Saline)

Check and Inject Epinephrine by BLS Providers

6.6

Kit criteria:

- **Epinephrine** administration supplies must be maintained in a separate container from all other medications;
- **Epinephrine** 1:1,000 1mg/1mL concentration must be in a glass vial;
- Kit case and medication vial must both be labeled with "NOT FOR IV USE";
- Kit contains 2 sterile 1cc graduated syringes and 21- to 25-gauge needles (3/8-1 inch long) that are permanently attached (i.e. needle cannot be removed from syringe). Needle must be "safety" engineered, easily sheathed or protected following use, and
- Documentation and direction card must be included in kit, noting the **epinephrine** is NOT for IV use, and noting dosing for adult/pediatric patients.

Indications: Patients experiencing Allergic Reaction/Anaphylaxis, Bronchospasm/Respiratory Distress who would benefit from an epinephrine injection. Protocol for use in 2.2A Allergic Reaction/Anaphylaxis - Adult, 2.2P Allergic Reaction/Anaphylaxis - Pediatric and 2.6P Bronchospasm/Respiratory Distress - Pediatric.

EMT STANDING ORDERS

E 



- 1.0 Routine Patient Care
- **ADULT** dose **epinephrine** 1:1,000 0.3mg IM-ONLY
- **PEDIATRIC** dose **epinephrine** 1:1,000 0.15mg IM **(for pediatric patient with a body weight less than 25 kg).**
  If body weight is over 25 kg. use **epinephrine** 1:1,000 0.3mg IM.
- 2nd dose may be administered in 5 minutes if necessary
- Contact Medical Control if the patient is < 6 months or > than 65 years of age.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.

Criteria for participation:

1. Affiliate Hospital Medical Director (AHMD) approval to participate.
2. Check and Inject kits (described above) are available.
3. Initial training and AHMD oversight.
4. EMT participants complete and pass a competency exam.
5. 100% standard tracking of cases with 100% CQI.
6. Quarterly retraining of all EMTs.

6.7 Acetaminophen IV

Purpose: With Affiliate Hospital Medical Director (AHMD) approval, an ambulance service may choose to stock the ALS ambulance(s) with IV acetaminophen, for administration by trained Paramedics as a pain medication option.

Indication: Pain

Contraindications:

1. Acetaminophen is contraindicated in patients with liver failure.

PARAMEDIC STANDING ORDERS: ADULT

P

- 1.0 Routine Patient Care
- **Acetaminophen** 650-1000 mg IV

PARAMEDIC STANDING ORDERS: PEDIATRIC



- **Acetaminophen** 15 mg/kg IV to max 1000 mg.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.

Conditions for participation:

1. Affiliate Hospital Medical Director (AHMD) approval to participate.
2. Initial training and AHMD oversight.
3. 100% standard tracking of cases with 100% CQI.
4. Routine retraining of all Paramedics.

SECTION 7:

MEDICAL POLICIES AND PROCEDURES

Statewide Treatment Protocols
Version 2018.1

7.1 Air Medical Transport

Introduction:

The use of air medical services has become the standard of care for many critically ill or injured patients who require transport to specialized medical facilities such as Trauma Centers.

The purpose of these Guidelines is to establish a clinical framework for prehospital EMS personnel upon which to make decisions regarding when to access air medical support services. The following constitute the philosophical foundation for these Guidelines.

- EMS personnel should consider requesting ground advanced life support (ALS) and air medical support when operational conditions listed below exist and the following patient conditions are present;
- Patients with an uncontrolled or compromised airway should be brought to the nearest appropriate facility unless advanced life support (ALS) service (by ground or air) can intercept in a more timely fashion; and:
- Patients in cardiac arrest subsequent to blunt trauma should be taken to the nearest facility.

These guidelines have been established so that air medical support does not require prior Medical Control approval. However, Medical Control contact should be considered whenever appropriate for patient management issues.

Operational Conditions:

1. When a patient meets patient criteria defined below and scene arrival time to estimated arrival time at the nearest appropriate hospital, including extrication time, exceeds 20 minutes:
2. Patient location, weather or road conditions preclude the use of standard ground ambulance; or
3. Multiple casualties / patients are present which will exceed the capabilities of local hospital and agencies.

Patient Conditions

1. Physiologic Criteria:

a. Unstable Vital Signs

2. Anatomic Injury:

a. Evidence of Spinal Cord injury including paralysis or paresthesia.

b. Severe Blunt Trauma:

- Head injury (Glasgow Coma Scale of twelve [12] or less)
- Severe chest or abdominal injury
- Severe pelvic injury excluding simple hip fractures.

c. Burns:

- Greater than 20% Body Surface Area (BSA) second or third degree burns;
- Evidence of airway or facial burns;
- Circumferential extremity burns; or
- Burns associated with trauma.

d. Penetrating injuries of head, neck, chest, abdomen or groin.

e. Amputation of extremities, excluding digits.

Special Conditions: The following should be considered in deciding whether to request air medical transport, but are **not** automatic or absolute criteria:

1. **Mechanism of Injury**

a. Motor Vehicle Crash:

- Patient ejected from vehicle.
- Death in same passenger compartment.

b. Pedestrian struck by a vehicle and thrown more than 15 feet, or run over by a vehicle.

2. **Significant Medical History**

a. Age greater than 55.

b. Significant coexistent illness (such as anticoagulation).

c. Pregnancy.

Electronic Control Weapons 7.2

In some situations, state and local law enforcement utilize devices known as electronic control weapons (ECW), such as a TASER®, to assist with controlling persons. When used, the device discharges a wire that, at the distal end, contains an arrow-like barbed projectile that penetrates the suspect's skin and embeds itself, allowing the officer to administer an incapacitating electric shock. Current medical literature does not support routine medical evaluation for an individual after an ECW application. **In most circumstances, probes can be removed by law enforcement without further medical intervention.**

E/A/P

EMS should be activated following ECW application in the following circumstances:

- The probe is embedded in the eye, genitals, or bone.
- Seizure is witnessed after ECW application.
- There is excessive bleeding from probe site after probe removal.
- Cardiac arrest, complaints of chest pain, palpitations.
- Respiratory distress.
- Change in mental status after application.
- Pregnancy.

Removal must be done by law enforcement unless lodged in a vulnerable area

CONTRAINDICATIONS TO REMOVAL

- Patients with probe penetration in vulnerable areas of the body as mentioned below should be transported for further evaluation and probe removal.
- Genitalia, female breast, or skin above level of clavicles.
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure.

EMT/ADVANCED EMT / PARAMEDIC STANDING ORDERS

1. 1.0 Routine Patient Care
2. Ensure wires are disconnected from weapon.
3. Secure probe with padded dressing.
4. Transport to Emergency Department.

7.3 Medical Orders for Life Sustaining Treatment (MOLST) and Comfort Care/Do Not Resuscitate (DNR) Order Verification

Introduction

EMS personnel at all levels are required to provide emergency care and transport patients to appropriate health care facilities. EMS personnel are further required to provide treatment to the fullest extent possible, subject to their level of certification and the level of licensure of the ambulance service for which they are working. However, more and more patients, where it is medically appropriate, are opting for limitations on life-sustaining treatments, such as cardiopulmonary resuscitation (CPR), in the event of cardiac arrest. Thus, EMS personnel may encounter a patient who has chosen such options and has either a Massachusetts Medical Orders for Life Sustaining Treatments (MOLST) or the Comfort Care/DNR Order Verification Form or bracelet (CC/DNR). These documents provide for a statewide, standardized form, approved by the Massachusetts Department of Public Health (DPH), Office of Emergency Medical Services (OEMS), that EMS personnel can instantly recognize as an actionable order (MOLST) or verification of such an order (CC/DNR) regarding the use of life sustaining treatments. This protocol governs EMS personnel response to a patient with a MOLST or CC/DNR form.

Implementation Procedures

1. Confirm the identity of the individual with the MOLST or CC/DNR Order Verification Form or bracelet;

2. Check validity:

   a. CC/DNR: To assure that a DNR order is recognized in any out-of-hospital setting, an attending physician, nurse practitioner, or authorized physician assistant, who is licensed in Massachusetts, must provide a patient who has a current DNR order, with a fully executed CC/DNR Order Verification form to verify the existence of a DNR order. To be valid, the CC/DNR Order Verification Form shall contain:

   i. the patient's name, and all other patient identifiers requested on the form;
   ii. date of issuance;
   iii. the signature and telephone number of an attending physician, nurse practitioner, or authorized physician assistant;
   iv. the signature and printed name of the patient, guardian or health care agent signing the form, and:
   v. a date of expiration, **if any,** of the underlying DNR order. If there is a date of expiration, and that date has passed, the CC/DNR is not valid.

   b. MOLST: Alternatively, to assure a patient with a desire to document decisions regarding DNR and/or other life-sustaining treatments (LST, which includes CPR, intubation with ventilation, and non-invasive ventilation, such as continuous positive airway pressure, or CPAP) has those preferences honored, a Massachusetts-licensed attending physician, nurse practitioner or authorized physician assistant can provide a patient with a MOLST form. The MOLST form represents actual medical orders to EMS personnel related to a patient's preferences for resuscitation, ventilation and hospitalization. To be valid, the MOLST form must contain:

   i. patient name and appropriate identifiers as requested on the form,
   ii. box D and E of the MOLST form must be fully completed for page 1 to be considered valid – which is all that is relevant for EMS personnel. A MOLST order that has an expiration date or revocation date that is in the past is not valid.

   c. Revocation: A MOLST order for DNR or CC/DNR form may state it has been revoked. If that is the case, the order or form is not valid.

Policy Continues

Policy Continued

3. Action of EMS if no valid CC/DNR or no valid MOLST that includes a DNR order: In accordance with standard EMS Statewide Treatment Protocols, EMS personnel will resuscitate patients without a valid CC/DNR Order Verification Form or without a MOLST that has documented a DNR order, as well as a patient who has a MOLST form indicating a preference FOR resuscitation. Remember, if there is any doubt about the current validity of a MOLST or CC/DNR Order Verification form, EMS personnel are to resuscitate and provide care in accordance with the Statewide Treatment Protocols.
4. Patient Care for confirmed valid CC/DNR or MOLST with orders for DNR:

   a. If the patient is **in full respiratory or cardiac arrest**, the EMS personnel shall not resuscitate, which means:

      i. do not initiate CPR,
      ii. do not insert an oropharyngeal airway (OPA),
      iii. do not provide ventilatory assistance,
      iv. do not artificially ventilate the patient (e.g. mouth-to-mouth, bag valve mask)
      v. do not administer chest compressions,
      vi. do not initiate advanced airway measures,
      vii. do not administer cardiac resuscitation drugs, and
      viii. do not defibrillate.

   b. If the patient is **not in full respiratory or cardiac arrest**, but the patient's heartbeat or breathing is inadequate, EMS personnel shall not resuscitate but shall provide, within the scope of their training and level of certification, full palliative care and transport, as appropriate, including:

      i. additional interventions a patient has indicated be given on the MOLST form, including intubation with ventilation or non-invasive ventilation such as CPAP.
      ii. emotional support;
      iii. suction airway;
      iv. administer oxygen;
      v. application of cardiac monitor;
      vi. control bleeding;
      vii. splint;
      viii. position for comfort;
      ix. initiate IV line; and,
      x. contact Medical Control, if appropriate for further orders, including necessary medications.

   c. If the patient is not in respiratory or cardiac arrest, and the patient's heart beat and breathing are adequate, but **there is some other emergency illness or injury**, the EMS personnel shall provide full treatment and transport, as appropriate, within the scope of their training and level of certification.
5. Questions about the MOLST or CC/DNR: If EMS personnel have any questions regarding the applicability of the MOLST or CC/DNR form with regard to any specific individual, or a good-faith basis to doubt the continued validity of the MOLST or CC/DNR form, EMS personnel shall verify with the patient if the patient is able to respond. If the patient cannot respond, EMS personnel shall provide full treatment and transport, or contact Medical Control for further orders. In all cases, EMS personnel shall document the circumstances on the trip record.

Policy Continues

Policy Continued

6. Previously-initiated CPR: In the event of respiratory or cardiac arrest and resuscitative efforts are initiated prior to EMS confirmation of the valid DNR order on the MOLST form or a valid CC/DNR Order Verification form, EMS shall discontinue the following measures: a) CPR; b) cardiac medications, and c) advanced airway measures.
7. Documentation: EMS personnel must document the existence and validity of the MOLST order or CC/DNR form on their trip record. For a MOLST form, EMS personnel must specifically document on the trip record all clinical information on the MOLST form regarding the patient's preferences for care. For both MOLST and CC/DNR Order Verification Form, EMS personnel must also document on the trip record all care they provided to the patient, including palliative measures.
8. Revocation on scene: The MOLST order with DNR or CC/DNR may be revoked by the patient at any time, regardless of mental or physical condition, by the destruction or affirmative revocation of the MOLST or CC/DNR Order Verification, or by the patient's direction that the MOLST or CC/DNR Order Verification not be followed by EMS personnel or be destroyed. EMS personnel, upon witnessing or verifying a revocation, shall communicate that revocation in writing to the hospital to ensure its inclusion in the patient's medical record. EMS personnel shall also document the revocation on their trip record.

PATIENT TRANSPORT

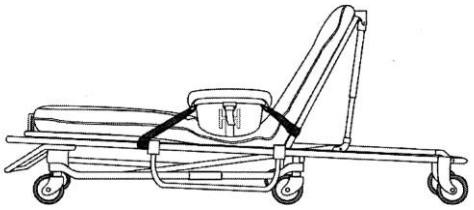
Massachusetts statute requires that all children under the age of 8 traveling in a motor vehicle must be secured in a child passenger restraint (aka car seat), unless they are 57 inches or taller, in which case, they need to be using a seat belt. An ill or injured child must be restrained in a manner that minimizes injury in an ambulance crash. The best location for transporting a pediatric patient is on the ambulance cot. The method of restraint will be determined by various circumstances including the child's medical condition and weight.

1. Convertible car seat with two belt paths (front and back) with four points for belt attachment to the cot is considered best practice for pediatric patients who can tolerate a semi-upright position.
   - Position safety seat on cot facing foot-end with backrest fully elevated.
   - Secure safety seat with 2 pairs of belts at both forward and rear points of seat.
   - Place shoulder straps of the harness through slots just below child's shoulders and fasten snugly to child.
   - Follow manufacturer's guidelines regarding child's weight.

   Note: Non-convertible safety seats cannot be secured safely to cot. If child's personal safety seat is not a convertible seat, it cannot be used on the cot.



2. Car bed with both a front and rear belt path
   - For infants who cannot tolerate a semi-upright position or who must lie flat.
   - Position car bed so infant lies perpendicular to cot, keeping infant's head toward center of patient compartment.
   - Fully raise backrest and anchor car bed to cot with 2 belts, utilizing 4 loop straps supplied with car bed.
   - Secure the car bed at the foot end to ensure that it cannot slide forward and off the end of the stretcher during a sudden stop.
   - Only appropriate for infants from 5 – 20 lbs.



3. Restraint device (marketed to EMS) with 5-point harness
   - Attach securely to cot utilizing upper back strap behind cot and lower straps around cot's frame.
   - 5-point harness must rest snugly against child.
   - Adjust head portion of cot according to manufacturer's recommendation.

Policy Continues



Policy Continued

4. Child belted directly to backboard and/or cot in manner to prevent ramping or sliding in a front or rear end crash
   - Loop narrow belt under each arm and extend over child's shoulder securing belt at shoulder level so no gap exists above shoulder.
   - Use soft, sliding, or breakaway connector to hold shoulder straps together on chest.
   - Anchor 2 belts to non-sliding cot member and route over thighs and hips, not around waist.
   - Secure the foot end of the backboard by using a foot strap or harness looped through the bottom of the device and then tighten to the foot end of the cot to ensure stability in the event of a sudden stop.
5. Isolette restraint device with 3-point harness
   - Rest harness securely on child with no blanket or sheet between harness and child.
   - Attach to isolette tray at four points.
   - Additional soft Velcro straps may be added for lateral security.
   - Blanket or towels may be used to provide stabilization of the head.
   - Infants under 5 lbs should ideally be secured in a transport isolette.

NON-PATIENT TRANSPORT

Best practice is to transport well children in a vehicle other than the ambulance, whenever possible, for safety.

If no other vehicle is available and circumstances dictate that the ambulance must transport a well child, he/she may be transported in the following locations:
- Captain's chair in patient compartment using a size appropriate integrated seat or a convertible safety seat that is secured safely in relationship to the orientation of the captain's chair.
- Passenger seat of the driver's compartment if child is large enough (according to manufacturer's guidelines) to ride forward-facing in a child safety seat or booster seat. Airbag should be turned off. If the air bag can be deactivated, an infant, restrained in a rear-facing infant seat, may be placed in the passenger seat of the driver's compartment.

MOTHER AND NEWBORN TRANSPORT

Transport the newborn in an approved size-appropriate child restraint system that complies with the injury criteria of the Federal Motor Vehicle Safety Standard (FMVSS) No. 213 in the rear-facing EMS provider seat /captain's chair) that prevents both lateral and forward movement, leaving the cot for the mother. Use a convertible seat with a forward-facing belt path). Do NOT use a rear-facing only seat in the rear-facing EMS provider's seat. You may also use an integrated child restraint system certified by the manufacturer to meet the injury criteria of FMVSS No. 213.

USE OF PATIENT'S CHILD PASSENGER SAFETY SEAT AFTER INVOLVEMENT IN MOTOR VEHICLE CRASH

The patient's safety seat may be used to transport the child to the hospital after involvement in a minor crash if ALL of the following apply:
- It is a convertible seat with both front and rear belt paths.
- Visual inspection, including under movable seat padding, does not reveal cracks or deformation.
- Vehicle in which safety seat was installed was capable of being driven from the scene of the crash.
- Vehicle door nearest the child safety seat was undamaged.
- The air bags (if any) did not deploy.

Refusal of Medical Care and Ambulance Transport

7.5

PURPOSE:
Establish guidelines for the management and documentation of situations where patients refuse treatment or transportation.
Under the Commonwealth's EMS System regulations, at 105 CMR170.355 (A) "Responsibility to Dispatch, Treat and Transport," ambulance services and their agents may not refuse any of these responsibilities, absent a documented patient refusal. Ambulance services and their EMS personnel must be extremely cautious about accepting patient refusals.

Refusal of care
There are three components to a valid refusal of care. Absence of any of these components will most likely result in an invalid refusal. The three components are as follows:

1. Competence: In general, a patient who is an adult or a legally emancipated minor * is considered legally competent to refuse care. A parent or legal guardian who is on-scene may refuse care on his or her minor children's behalf.
2. Capacity: In order to refuse medical assistance a patient must have the capacity to understand the nature of his or her medical condition, the risks and benefits associated with the proposed treatment, and the risks associated with refusal of care. A health care agent who is named in a health care proxy document for the patient may refuse care on behalf of the patient only if 1) he or she is on-scene and 2) he or she has his/her health care proxy document in hand to show EMS. If the patient objects to the health care agent's decision, there is no effective refusal. If there is any doubt about the health care agent's authority, EMS is to transport the patient
3. Informed Refusal: A patient must be fully informed about his or her medical condition, the risks and benefits associated with the proposed treatment and the risks associated with refusing care.

Patients who meet criteria in this Protocol shall be allowed to make decisions regarding their medical care, including refusal of evaluation, treatment, or transport. These criteria include:

1. Initiated solely by the patient, not suggested/prompted by the EMTs.
2. Adults (≥ 18 years of age) and legally emancipated minors*
3. Orientation to person, place, time, and situation.
4. No evidence of altered level of consciousness resulting from head trauma, medical illness, intoxication, dementia, psychiatric illness or other causes.
5. No evidence of impaired judgment from alcohol or drug influence.
6. No language communication barriers. Reliable translation available (e.g., on scene interpreter, language line).
7. No evidence or admission of suicidal ideation resulting in any gesture or attempt at self-harm. No verbal or written expression of suicidal ideation regardless of any apparent inability to complete a suicide.

Definitions

Minor: A person under the age of 18, who is not an emancipated minor (see below).
Emancipated Minor: For the purpose of making decisions regarding medical care and treatment, an emancipated minor is a person under the age of 18 who is

1. married, widowed or divorced;
2. the parent of a child;
3. a member of the armed forces;
4. pregnant or believes herself to be pregnant; or
5. living separate and apart from a parent/legal guardian and is managing his or her own financial affairs.

Protocol Continues

7.5 Refusal of Medical Care and Ambulance Transport

Protocol Continued

EMS providers will make every reasonable effort to convince reluctant patients to access medical care at the emergency department via the EMS system before accepting a refusal of medical care and ambulance transport.

Contact on-line medical control for all patients who present a threat to themselves, present with an altered level of consciousness or diminished mental capacity, or have history or examination findings consistent with a high-risk refusal. The physician is to be provided all relevant information and may need to speak directly with the patient by radio or preferably a recorded landline.

Although a minor cannot legally consent to medical treatment, consent is legally implied in an emergency. In assessing whether there is an emergency, particularly with regard to motor vehicle crashes, EMTs must include the mechanism of injury in their analysis.

Procedure

1. Perform an assessment of the patient's medical/traumatic condition, and, to the extent permitted by the patient, a physical exam including vital signs. Your assessment, or the patient's refusal of assessment, must be fully documented in the trip record.
2. Explain to the patient the nature and severity of his/her illness or injury, the treatments being proposed, the risks and consequences of accepting or refusing treatment, and the potential alternatives. Fully document the explanation given to the patient in your trip report.
3. Prepare and explain the refusal of medical care and ambulance transport document.
4. Documentation of refusal of medical care and ambulance transport must be signed by the patient (or, in the case of a minor patient, by the minor patient's parent, legal guardian, or authorized representative) at the time of the refusal. Documentation should include, when possible, a signature by a witness, preferably a competent relative, friend, police officer, or impartial third person.
5. The fact that the patient refused medical care and transport must be documented in the trip record, and the signed refusal of medical care and ambulance transport document must be included as part of the trip record.
6. If on-line medical control was consulted for a refusal of care, obtain and document the physician's name in the patient care report.

Sedation and Analgesia for Electrical Therapy-Adult & Pediatric 7.6

P



PARAMEDIC STANDING ORDERS

- If cardioversion or pacing is warranted, consider administration of any of the following for sedation:
  - **Midazolam**
    - 0.5mg-2 mg Slow IV/IO/IM/IN; OR
  - **Fentanyl**
    - 1 mcg/kg slow IV/IO/IM/IN weight based (kg) to a max of 150mcg (150kg); OR
  - **Morphine**
    - 0.1mg/kg IV/IO/IM/SC,(max. dose 10 mg).

For Pediatric Doses, see A2 Pediatric Color Coded Medication Reference

7.7 Withholding and Cessation of Resuscitation

Purpose: 1) To clarify for EMS services and their EMTs when resuscitative measures may be withheld for patients in cardiac arrest and 2) to define when EMTs can cease resuscitative measures already initiated.

Background and EMS Services' Training/Support Services Obligations:

Emergency Medical Technicians must begin or continue resuscitative measures for all patients in cardiac arrest except as indicated in this Protocol (also issued as Administrative Requirement (A/R) 5-515). If in doubt, begin resuscitative efforts.

All EMS services must provide appropriate training on management of death in the field, including legal, procedural, and psychological aspects; and access to support services.

EMS services and EMS personnel should be aware that the nursing staff of a health care facility, such as a skilled nursing facility, may need a physician order (including a medical control physician's order, if allowed by nursing home policy) to halt resuscitation attempts, even in the case of patients meeting EMS "obvious death" criteria, as set out below. Nursing staff and EMS personnel should come to a cooperative decision on continuation or termination of resuscitation; this process may include obtaining physician input and orders. If the medical professionals at the bedside are unable to reach agreement on attempting or terminating efforts, the presumption should be to continue resuscitative efforts and transport the patient to an emergency department.

I. Exceptions to Initiation of Resuscitation

Other than in overriding circumstances such as a large mass-casualty incident or a hazardous scene, the following are the **only** exceptions to initiating and maintaining resuscitative measures in the field:

1. Current, valid DNR, verified per the Medical Orders for Life Sustaining Treatment (MOLST)/Comfort Care Protocol.
2. Trauma inconsistent with survival
    a. Decapitation: severing of the vital structures of the head from the remainder of the patient's body
    b. Transection of the torso: body is completely cut across below the shoulders and above the hips
    c. Evident complete destruction of brain or heart
    d. Incineration of the body
    e. Cardiac arrest (i.e. pulselessness) documented at first EMS evaluation when such condition is the result of significant blunt or penetrating trauma and the arrest is obviously and unequivocally due to such trauma, EXCEPT in the specific case of arrest due to penetrating chest trauma and short transport time to definitive care (in which circumstance, resuscitate and transport)
3. Body condition clearly indicating biological death.
    a. Complete decomposition or putrefaction: the skin surface (**not** only in isolated areas) is bloated or ruptured, with sloughing of soft tissue, and the odor of decaying flesh.
    b. Dependent lividity and/or rigor: when the patient's body is appropriately examined, there is a clear demarcation of pooled blood within the body, and/or major joints (jaw, shoulders, elbows, hips, or knees) are immovable.
    Procedure for lividity and/or rigor: All of the criteria below must be established and documented in addition to lividity and/or rigor in order to withhold resuscitation:

Policy Continues

Policy Continued

Exemptions to Initiation of Resuscitation, Continued

i. Respirations are absent for at least 30 seconds; **and**
ii. Carotid pulse is absent for at least 30 seconds; **and**
iii. Lung sounds auscultated by stethoscope bilaterally are absent for at least 30 seconds; **and**
iv. Both pupils, if assessable, are non-reactive to light.

II. Cessation of Resuscitation by EMTs

Emergency Medical Technicians must continue resuscitative measures for all patients in cardiac arrest unless contraindicated by one of the exceptions below.

1. EMTs at all levels of certification may cease resuscitative efforts at any time when any "Exception to Initiation of Resuscitation" as defined in I., above, is determined to be present.
2. EMTs certified at the **Paramedic level only** may cease resuscitative efforts in an adult patient 18 years of age or older, regardless of who initiated the resuscitative efforts, without finding "obvious death" criteria **only** by the following procedure, and **only** if the EMS system's Affiliate Hospital Medical Director has approved of use of this procedure, as follows:
   a. There is no evidence of or suspicion of hypothermia; **AND**
   b. Indicated standard Advanced Life Support measures have been successfully undertaken (including for example effective airway support, intravenous access, medications, transcutaneous pacing, and rhythm monitoring); **AND**
   c. The patient is in asystole or pulseless electrical activity (PEA), and REMAINS SO persistently, unresponsive to resuscitative efforts, for at least twenty (20) minutes while resuscitative efforts continue; **AND**
   d. No reversible cause of arrest is evident; **AND**
   e. The patient is not visibly pregnant; **AND**
   f. An on-line medical control physician gives an order to terminate resuscitative efforts.

Special Considerations and Procedures:

1. a. If during transport, EMTs cease resuscitation of a patient in accordance with the requirements above, they shall continue to the closest appropriate hospital for pronouncement of death. This is always a special circumstance that is in the interest of public health and safety, and thus meets the requirements of 105 CMR 170.365.
   b. During transports when resuscitative efforts have appropriately been ceased in accordance with the requirements above, EMTs must cover the person with a sheet, transport without the use of emergency vehicle audible and visual warning devices, and notify the receiving hospital in advance.
2. In all cases where EMTs have withheld or ceased resuscitative efforts in accordance with the requirements above, and left the person in the field, procedures must include notification of appropriate medical or medico-legal authorities, such as police.
3. EMS trip record documentation must reflect the criteria used to determine obvious death or allow cessation of resuscitative efforts.

7.8 Ventricular Assist Devices (VADs)

EMT/ADVANCED EMT/ PARAMEDIC STANDING ORDERS

E/A/P

PURPOSE

To provide an overview of how Left Ventricular Assist Device (LVAD) works and how EMS provider assessment and treatment differs for a patient with an LVAD.

Highlights of Assessing and Treating an LVAD patient

- Recognize that you have a patient with an LVAD
- Determine if your patient has an LVAD problem, or an unrelated illness or injury
- A completely stable patient may have no palpable pulse or measurable blood pressure
- Mental status and skin color must be used to determine patient stability
- CPR should almost never be performed on an LVAD patient
- Patients with an LVAD should almost never be pronounced dead at the scene

Overview of an LVAD

The LVAD, or Left Ventricular Assist Device, is a mechanical device that takes over some or all of the pumping function of the heart's left ventricle. This device is used for patients of any age or gender with advanced heart failure who would not otherwise survive without this device. Heart failure can result from chronic/long-term hypertension and heart disease, congenital heart defects, mechanical damage to the heart, infection, postpartum complications and many other reasons.

Some LVAD patients will have an LVAD while they are waiting for a heart transplant (called Bridge-to-Transplant). Other LVAD patients, who are not eligible for a heart transplant for some reason, will live with the device for the rest of their lives (called Destination Therapy, or Lifetime use)

How the Heart Works versus How LVAD works

The normal pumping function of the heart is achieved by the contraction of the left ventricular muscle, which pushes a bolus of blood forward in the cardiovascular system with each contraction. This contraction is what we feel when checking a pulse, and what we hear when taking a blood pressure. If the heart is not contracting, blood is not moving forward in the system, and we don't feel or hear a pulse. The LVAD, in contrast, flows constantly and therefore creates no "pulse" to feel or hear.

The LVAD is a tube that is about ½ -1 inch in diameter with a pump in the middle. One end of the tube (inflow) is surgically inserted into the left ventricle, and the other end (outflow) is sewn into the aorta, just above where it exits the heart.

The pump on the LVAD spins constantly. The right side of the heart still pushes blood through the lungs and back to the left ventricle, but then the LVAD pump pulls the blood out of the left ventricle and pumps it out to the body, taking over most or all of the failed pumping action of the left ventricle.

The drive unit for the pump, which includes the power source and programming controls, is outside of the body and connects to the LVAD by a cord that exits the body through the abdomen, usually in the right upper quadrant.

NOTE: The important part to us as EMS providers is that *the pump is a constant flow pump*. There is no rhythmic pumping as there is with the ventricle, and therefore there is little to no pulse. This means you can have a perfectly stable and healthy looking person who has no palpable pulse and whom you may or may not be able to take a blood pressure!

Policy Continues

Assessing the LVAD Patient

1. Recognize you have an LVAD patient!
The LVAD patient has a control unit attached to their waist, or in a shoulder bag. The control unit is attached to a power cord exiting from the patients' abdomen. The control unit will be attached to batteries mounted to the belt, in shoulder holsters, or in a shoulder bag. At home, it could be attached to a long cord that connects to a large power unit.

2. DECIDE if you have a patient with an LVAD problem, or a patient with a medical problem who just happens to have an LVAD. Patients with LVADS will have all the same illnesses and injuries as any other patient you see. Their LVAD may have nothing to do with the reason you were called.

E/A/P

3. LOOK:
Alarms on the control unit will most likely indicate an LVAD problem. Follow resource guides with the patient to trouble shoot.
Skin color and mental status are the most reliable indicators of patient stability for the LVAD patient.

4. LISTEN:
Listen over the LVAD pump location to make sure you can hear it running. This will be just to the left of the epigastrium, immediately below the base of the heart. You should hear a low hum with a stethoscope if the pump is running. Don't assume the pump is running just because the control unit looks OK.
The patient and their family are experts on this device. Listen to what they have to say about any problems with the LVAD.

5. FEEL:
Feel the control unit. A hot control unit indicates the pump is working harder than it should and often indicates a pump problem such as a thrombosis (clot) in the pump. The use of pulse and blood pressure to assess stability can be unreliable in an LVAD patient, even if they are very stable.

6. VITALS:
Pulse: generally, you will be unable to feel a pulse.

Blood Pressure: you may or may not be able to obtain one, standard readings are unreliable and may vary from attempt to attempt. If NIBP machine can detect a blood pressure, adjust it to display Mean Arterial Pressure (MAP). This is a more reliable measure of perfusion and the calculation for MAP can overcome variations in standard readings. A MAP of 60-70 is normal.

Pulse-oximetry: readings seem to be fairly accurate and consistent, according to data, despite the manufacturer stating that pulse oximetry often doesn't work.

Quantitative Continuous Waveform Capnography: This should remain accurate, as it relies on respiration, not pulse. Normal (printed) waveform shape with a normal respiratory rate and low CO2 readings (<30) can indicate low perfusion = poor pump function.

Temperature: infection and sepsis are common, check temperatures!

7.9 Process for Changes to the Statewide Treatment Protocols

All changes (any addition, deletion, or any other type of amendment) to the Massachusetts Statewide Pre-Hospital Treatment Protocols require statewide dissemination and often require training of EMTs and Medical Control physicians prior to implementation. Therefore, to ensure a thorough review and orderly implementation, all protocol changes shall be approved and implemented on an ANNUAL basis, with the exception of those arising out of procedures described in Part B below.

Any protocol change must be approved pursuant to the following procedures.

PART A
Procedures for ANNUAL Protocol Changes

1. All requests for protocol changes shall be submitted by at least one Regional Medical Director to the Medical Services subcommittee by October 1 of the preceding year. The request for a protocol change shall include the following:
    a. A detailed description of the proposed change;
    b. A formal written endorsement from the Region(s) of origin for the proposed change;

2. The Medical Services subcommittee shall review and make a recommendation regarding each proposed change to the protocols. Where training is required for implementation of the protocol change, the Medical Services subcommittee shall timely distribute the approved protocol changes to the Training subcommittee for its approval of the training component.

3. All protocol changes approved by the Medical Services Committee, with Training Committee approval of training if appropriate, shall be forwarded to the Executive Committee. The EMCAB Executive subcommittee shall review the proposed protocol changes and make a final recommendation at its meeting.

4. A presentation of the approved changes shall be made at the first meeting of the full EMCAB following the Executive subcommittee recommendation.

5. Recommendations go to DPH/OEMS for review and final action. DPH/OEMS shall timely notify all providers of approved protocol changes and any requirements regarding implementation (i.e. training and implementation date).

Policy Continues

Policy Continued

PART B

Procedures for Protocol Changes Allowable Other Than on an Annual Basis

1. The State EMS Medical Director shall have the discretion to implement immediate protocol changes when such action is deemed by the Department to be necessary for the protection of public health and safety.
    a. The State EMS Medical Director shall base such action on a thorough review of relevant literature, any applicable national and/or state standard(s) and, when feasible, consultation with EMS Regional Councils, the Medical Services subcommittee and/or the EMCAB Executive subcommittee.
    b. When feasible, the State Medical Director shall convene an emergency meeting of the Medical Services subcommittee. The Medical Services subcommittee shall recommend any change to the protocols, and refer its recommendation and all supporting documents relating to the proposed change to the EMCAB Executive subcommittee for action. The EMCAB Executive subcommittee shall review the recommendation and make a final recommendation to DPH/OEMS.
    c. DPH/OEMS shall review such recommendation and take final action. It can also establish reasonable time frames for said implementation, particularly if a change requires training, and shall timely disseminate such a protocol change and any relevant implementation requirements.

2. DPH/OEMS shall always have the discretion to make changes to bring the Protocols into compliance with national standards of care.
    a. This shall be done, when feasible, in consultation with Regional EMS Councils, the Medical Services subcommittee, and/or EMCAB Executive subcommittee.
    b. OEMS shall establish reasonable time frames for said implementation, particularly if a change requires training, and shall timely disseminate such a protocol change and any relevant implementation requirements.

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SECTION 8:

SPECIAL OPERATIONS PRINCIPLES

Statewide Treatment Protocols
Version 2018.1

8.1 Fire and Tactical EMS Rehabilitation

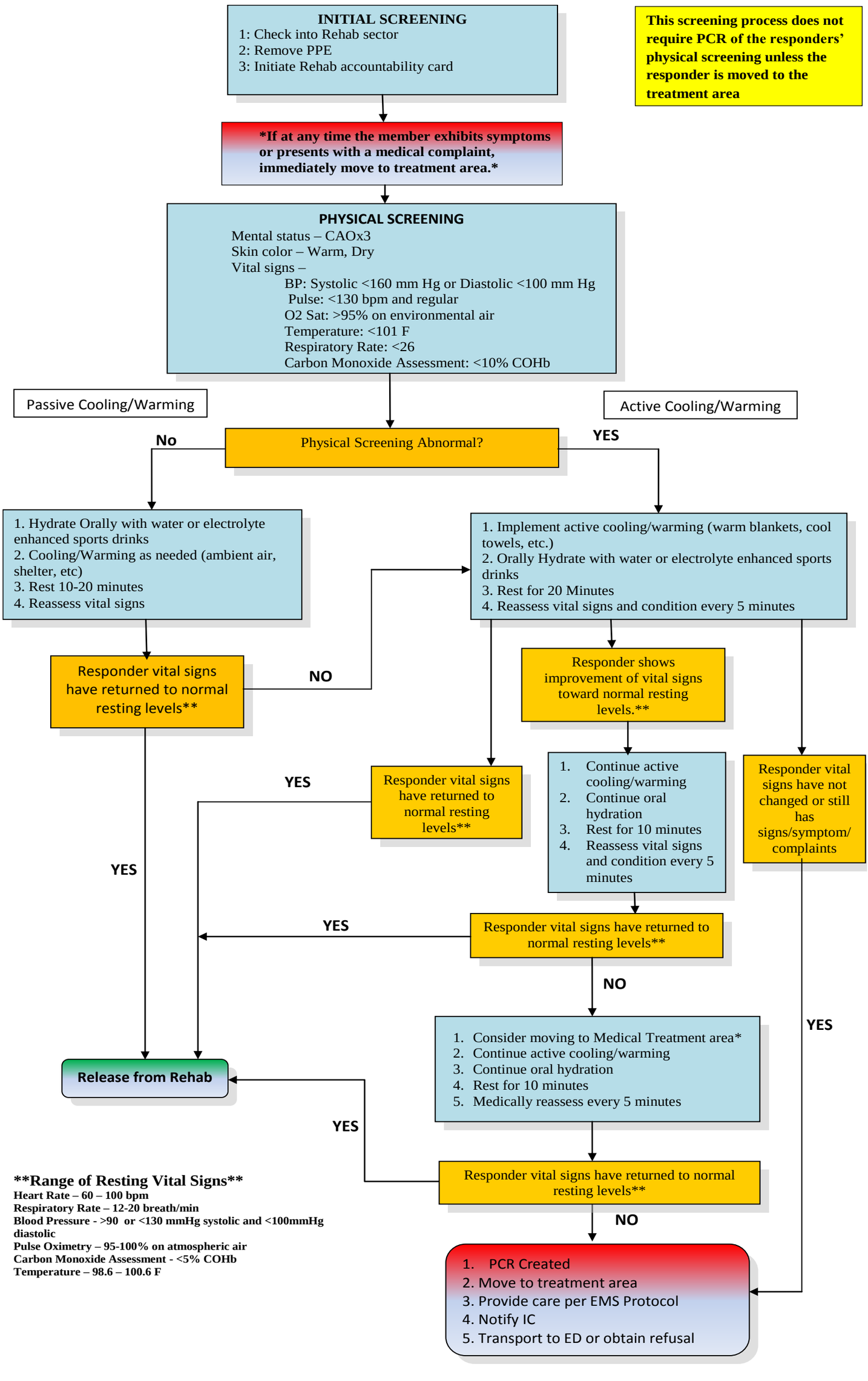
EMS Principles for Rehab at Emergency Incidents

EMS personnel may be designated by the Incident Commander (IC) at the scene of an emergency or training exercise to perform the function as *rehab providers* to assure the safety and well-being of the emergency responders, and the overall integrity of the operation. The need for establishing a Rehab Sector shall be based upon the duration, complexity, intensity of the incident and the climatic conditions, but shall not be the sole criteria for establishing REHAB.

The IC may establish a Rehab Manager as his/her designee. The Rehab Manager shall assure that all resources necessary to operate the Rehab Sector are communicated to the Logistics Officer or IC. The Rehab sector shall provide rest for the emergency responders. Adequate resources for re-hydration, cooling/warming, medical screening, and accountability shall be available. Multiple Rehab locations may be necessary based on the size of the incident. Each Rehab area shall have its own manager and identification, i.e.: Rehab 1, Rehab 2.

The Rehab Manager shall assure that adequate EMS staffing (paramedic level preferred) shall be available for responder screening and medical treatment if necessary. A dedicated ambulance (ALS level preferred) shall be assigned to the Rehab Sector for the duration of the incident. Easy access by EMS vehicles to the Rehab Sector shall be maintained at all times.

All emergency responders directed to the Rehab Sector by the IC shall be screened according to local protocol, and the attached “Rehab Flow Chart”. Any emergency responder who presents at the Rehab Sector with an acute medical condition shall be considered a patient under the definition of 105 CMR 170.020 and shall be treated in accordance with the appropriate Statewide Treatment Protocol. The Rehab Manager shall be responsible for tracking all responders entering and exiting the Rehab area, or who are transported from Rehab to a medical facility.


INITIAL SCREENING
1: Check into Rehab sector
2: Remove PPE
3: Initiate Rehab accountability card
This screening process does not require PCR of the responders' physical screening unless the responder is moved to the treatment area
If at any time the member exhibits symptoms or presents with a medical complaint, immediately move to treatment area.
PHYSICAL SCREENING
Mental status – CAOx3
Skin color – Warm, Dry
Vital signs –
BP: Systolic <160 mm Hg or Diastolic <100 mm Hg
Pulse: <130 bpm and regular
O2 Sat: >95% on environmental air
Temperature: <101 F
Respiratory Rate: <26
Carbon Monoxide Assessment: <10% COHb
Passive Cooling/Warming
Active Cooling/Warming
Physical Screening Abnormal?
No
YES
1. Hydrate Orally with water or electrolyte enhanced sports drinks
2. Cooling/Warming as needed (ambient air, shelter, etc)
3. Rest 10-20 minutes
4. Reassess vital signs
1. Implement active cooling/warming (warm blankets, cool towels, etc.)
2. Orally Hydrate with water or electrolyte enhanced sports drinks
3. Rest for 20 Minutes
4. Reassess vital signs and condition every 5 minutes
Responder vital signs have returned to normal resting levels**
NO
Responder shows improvement of vital signs toward normal resting levels.**
YES
Responder vital signs have returned to normal resting levels**
1. Continue active cooling/warming
2. Continue oral hydration
3. Rest for 10 minutes
4. Reassess vital signs and condition every 5 minutes
Responder vital signs have not changed or still has signs/symptom/ complaints
YES
YES
Responder vital signs have returned to normal resting levels**
NO
YES
1. Consider moving to Medical Treatment area*
2. Continue active cooling/warming
3. Continue oral hydration
4. Rest for 10 minutes
5. Medically reassess every 5 minutes
Release from Rehab
YES
Responder vital signs have returned to normal resting levels**
NO
1. PCR Created
2. Move to treatment area
3. Provide care per EMS Protocol
4. Notify IC
5. Transport to ED or obtain refusal
Range of Resting Vital Signs
Heart Rate – 60 – 100 bpm
Respiratory Rate – 12-20 breath/min
Blood Pressure - >90 or <130 mmHg systolic and <100mmHg diastolic
Pulse Oximetry – 95-100% on atmospheric air
Carbon Monoxide Assessment - <5% COHb
Temperature – 98.6 – 100.6 F

8.2 Multiple Casualty Incidents (MCI Triage)

Each MCI/Disaster scene presents its own unique hazards and difficulties. This plan is a general guide to the management of MCIs. It should be understood that modifications may need to be made by command personnel on scene as such changes are needed. When the Statewide MCI plan is officially in place, nothing in this protocol shall be intended to replace or supersede the statewide plan.

A multiple casualty incident (MCI) is any situation where the number of sick or injured patients exceeds the available local, regional or state EMS system resources to provide adequate care in a timely manner to minimize injury and death. An MCI may be the result of a man made disaster or a natural event. Successful management of an MCI will require preplanning and organization of local, regional and state EMS, fire, law enforcement and emergency management resources. CMED, Hospital resources and specialized care services must also be included in preparing your MCI plan.

MCI management process is defined in the Incident Command System (ICS). In general, the Fire Department or Emergency Medical Service Agency having jurisdictional authority establishes the overall command and designates the incident commander (IC) at an MCI scene. **NOTE:** Other agencies may function as the IC, for example, Law Enforcement agencies at a crime scene or hostage situation. Other agencies may assist the IC. Clear precise inter-agency communication networks must be established for successful MCI management.

MCIs within the Commonwealth assessed by EMS will be classified by levels. Response to an MCI is based on the number of potential victims generated by the incident. The following levels indicate the number of potential MCI casualties, should regional EMS providers require a mutual aid response:

Level 1: 1-10 potential victims
Level 2: 11-30 potential victims
Level 3: 31-50 potential victims
Level 4: 51-200 potential victims
Level 5: Greater than 200 victims
Level 6: Long-Term Operational period(s)

TRIAGE

Triage is a special process of sorting patients by the severity of injury or illness to determine the need of emergency care and transportation. This needs to be a continuous process throughout the management of an MCI. The initial triage process should be performed by the first crew to arrive on scene and needs to be continuously reevaluated since the patient's triage status may change. Presently there are no national standard guidelines established for triage. Massachusetts services in general will be using a form of the SMART TAG system, while New England services in general use START triage and compatible tagging methods.

MCI triage and treatment priorities are generally defined as:

Zero priority (BLACK): Deceased or live patients with obvious fatal and non-resuscitatable injuries

First priority (RED): Severely injured patients requiring immediate care and transport. (e.g., respiratory distress, thoracoabdominal injury, severe head or maxillofacial injuries, shock/severe bleeding, severe burns)

Second priority (YELLOW): Patients with injuries that are determined not to be immediately life threatening. (e.g., abdominal injury without shock, thoracic injury without respiratory compromise, major fractures without shock, head injury/cervical spine injury, and minor burns)

Third priority (GREEN): Patients with minor injuries that do not require immediate stabilization. (e.g., soft tissue injuries, extremity fractures and dislocations, maxillofacial injuries

Protocol Continues

Protocol Continued

Scene Assessment and Triage Priorities

1. Maintain universal blood and body fluid precautions.
2. The initial response team should assess the scene for potential hazards, safety and number of victims to determine the appropriate level of response.
3. Notify agency dispatch to declare an MCI and need for interagency support as defined by incident level. Agency dispatch should coordinate request for additional resources and contact local mutual aid, regional and state level agencies for assistance and notification as needed.
4. Identify and designate the following positions as qualified personnel become available: EMS Command responsible for overall command of all EMS resources and tactics; Triage Officer responsible for overseeing all triage group activities; Treatment Officer responsible for overseeing all treatment group activities; Staging Officer responsible for overseeing staging of all arriving ambulances and other mobile EMS resources; Loading Officer responsible for overseeing loading of all treated patients into ambulances, buses and helicopters and logging patient info, tag numbers and coordinating hospital destinations with CMED.
5. Identify and designate EMS sector areas of MCI including Triage, Treatment, Staging, and Loading.
6. Post incident MCI Plan.

EMT, Advanced EMT and Paramedic MCI Procedure Summary

All EMT level personnel will eventually be involved in the management of an MCI. It is imperative that all EMTs implement the above incident command system (ICS) in all MCI situations. Every EMT must be aware and have a thorough knowledge of their particular role and responsibilities in the rescue effort.

Due to the many complexities of MCI/Disaster situations, it is recommended that all EMTs should participate and receive additional training in MCI/Disaster management.

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APPENDICES

Statewide Treatment Protocols
Version 2018.1

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Acetaminophen **Indications:** • Pain relief **Contraindications:** Liver failure	**Pain Relief** • 650-1000mg IV or po
Adenosine (Adenocard ®) **Indications:** • Specifically for treatment or diagnosis of Supraventricular Tachycardia. • Consider for regular or wide complex tachycardia	**Tachycardia** • 6 mg rapid IV/IO push over 1-3 seconds. ▪ May repeat 12 mg after 1 – 2 minutes X 2, if no conversion.

Albuterol Beta-Agonist
 	
Indications:
• Nebulized treatment for use in respiratory distress with bronchospasm.
	Allergic Reaction/Anaphylaxis
	• 2.5mg via nebulizer.
	  ▪ May repeat 2.5mg.
	
	Asthma/COPD/RAD
	• 2 puffs per dose of MDI.
	  ▪ May repeat every 5 minutes.
	• Albuterol is second line drug, the initial treatment should be 2.5mg albuterol and 0.5mg ipratropium (DuoNeb).
	  ▪ May repeat every 5 minutes.

Amiodarone (Cordarone ®) **Indications/Contraindications:** • Antiarrhythmic used mainly in wide complex tachycardia and ventricular fibrillation. • Avoid in patients with heart block or profound bradycardia. • Contraindicated in patients with iodine hypersensitivity.	**Cardiac Arrest** **V-Fib/Pulseless V-Tach** • 300 mg IV push. ▪ Repeat dose of 150 mg IV/IO push for recurrent episodes. **Post-Arrest** • 150mg in 10mL normal saline slow IV/IO push over 8-10 minutes. • If successful, consider maintenance infusion of 1 mg/minute **Tachycardia** **Wide complex tachycardia** • 150 mg in 50 – 100mL normal saline infused over 10 minutes. • If successful, consider maintenance infusion of 1 mg/minute.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Aspirin **Indications/Contraindications:** • An antiplatelet drug for use in cardiac chest pain. • History of anaphylaxis to aspirin or NSAIDs • Not used in presence of active GI bleeding	**Acute Coronary Syndrome** • 324 mg chewed PO.
Atropine **Indications:** • Anticholinergic drug used in bradycardias and organophosphate poisonings.	**Bradycardia** • 0.5 - 1 mg IV/IO every 3 – 5 minutes up to maximum of 3 mg. **Organophosphate Poisoning and Nerve Agent** • 2-6 mg IM/IV/IO every 5 minutes as needed.
Atropine and Pralidoxime Auto-Injector (DuoDote) Nerve Agent Kit **Indications:** • Antidote for Nerve Agents or Organophosphate Overdose.	**Nerve Agents** • Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer 3 DuoDote and 1 atropine (10 mg) auto-injectors. • Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer 1 DuoDote.
Calcium Chloride 10% solution **Indications:** • For calcium channel blocker overdose.	**Bradycardia** • 2-4mg/kg slow IV over 5 minutes, maximum 1g. • Avoid use if pt is taking digoxin.
Cyanide Antidote Kit Amyl Nitrite, Sodium Nitrite and Sodium Thiosulfate **Indications:** • Antidote for Cyanide Posioning	**Poisoning:** • Amyl Nitrite: (2) Inhalants • Sodium Nitrite: 3%, 10mL slow IV/IO over 2-4 minutes. • Sodium Thiosulfate: 25% 50mL IV/IO bolus

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Cyanokit (Hydroxocobalamin) **Indications:** • Antidote for Cyanide Posioning	**Poisoning:** • 5gm IV/IO over 15 minutes.
Dextrose **Glucose solutions** **Indications:** • Symptomatic hypoglycemia.	**Diabetic Emergencies** • 12.5 g to 25 g IV/IO **Name / Concentration / Volume (25g)** **D50** 0.5g/mL 25g/50mL **D25** 0.25g/mL 25g/100mL **D10** 0.1g/mL 25g/250mL
Diazepam **(Valium ®)** **Benzodiazepine** **Indications:** • Seizure control. • Sedation. • Anti-anxiety (anxiolytic)	**Nerve Agent** • 10 mg IM via auto-injector
Diltiazem **(Cardizem ®)** **Indications/Contraindications:** • Calcium channel blocker used to treat narrow complex SVT. • Contraindicated in patients with heart block, ventricular tachycardia, WPW, and/or acute MI.	**Tachycardia** **Narrow Complex Tachycardia** • 0.25 mg/kg slow IV/IO push. ▪ May repeat dose in 15 minutes at 0.35 mg/kg if necessary.
Diphenhydramine **(Benadryl ®)** **Indications:** • Antihistamine used as an adjunctive treatment in allergic reactions.	**Allergic Reaction/Anaphylaxis** • 25-50 mg IV/IO/IM

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Dopamine **Indications:** • A vasopressor used in shock or hypotensive states. • Used when infusion pump/Norepinrphrine not available	**Bradycardia, Post-Resuscitation and Shock** • Infusion 2-20 mcg/kg/min IV/IO.
Epinephrine 1:1000 (Auto-Injector ONLY) **Indications:** • Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphylaxis	**Allergic Reaction/Anaphylaxis** • 0.3 mg IM ▪ Repeat every 5 minutes to a total of 3 doses. **Asthma/COPD/RAD** • 0.3 mg IM (no repeat). If authorized by service, Advanced EMTs and Paramedics may administer **Epinephrine** 1:1,000 IM if using a kit that meets the following criteria: ▪ Administration supplies maintained in separate container from all other medications; ▪ Medication provided as 1mg/mL in glass vial; ▪ Kit case and medication vial labeled with “NOT FOR IV USE”; ▪ Kit contains 2 sterile 1cc graduated syringes and 21- to 25-gauge needles (3/8 to 1 inch long) that are permanently attached (i.e. needle cannot be removed from syringe). Needle must be “safety” engineered, easily sheathed or protected following use, and ▪ Documentation and direction card included in kit notes medication NOT for IV use, and noting dose for adult/pediatric patients.
Epinephrine 1:1,000 (by infusion only) **Indications:** • Vasopressor Post-Resuscitation, Bradycardia, allergic reaction	**Allergic Reaction** • 2-10 mcg/min IV/IO infusion (maintenance) **Bradycardia** • 2-10 mcg/min IV/IO infusion **Post-Resuscitation** • 2-10 mcg/min IV/IO infusion **Shock-Adult** • 2-10 mcg/min IV/IO infusion-by pump
Epinephrine 1:10,000 **Indications:** • Vasopressor used in cardiac arrest.	**Cardiac Arrest** • 1 mg IV/IO ▪ Repeat every 3 – 5 minutes per AHA guidelines

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Epinephrine (Racemic, for Inhalation) **Indications:** • Croup	**Croup** • 11.25mg in 2.5mL solution
Fentanyl (Sublimaze ®) **Indications:** • Opioid analgesic	**Pain** • 1 mcg/kg up to 150 mcg slow IV/IO/IM/IN **Therapeutic Hypothermia, Shivering** • 50mcg every 5 minutes, maximum 200mcg IV/IO/IM/IN
Furosemide (Lasix ®) **Indications:** • Congestive Heart Failure, Pulmonary Edema, Hypertensive Emergencies, Toxicology	**Congestive Heart Failure, Pulmonary Edema** • 20-40mg IV/IO **Hypertensive Emergencies** • 0.5-1mg/kg IV/IO **Toxicology** • 40mg IV/IO
Glucagon **Indications:** • Hypoglycemia • Beta Blocker or Calcium Channel Blocker Overdose	**Diabetic Emergencies** • 1 mg IV/IO/IM/IN/SC **Beta Blocker/Calcium Channel Blocker Overdose** • 1-5mg IV/IO/IM/IN/SC **Bradycardia** • 1-5 mg IV/IO/IM/IN/SC
Glucose Oral Glucose Solutions **Indications:** • Use in conscious hypoglycemic states.	**Diabetic Emergencies** • Administer 1-2 tubes of commercially prepared glucose gel or equivalent.
Haloperidol (Haldol ®) Phenothiazine Preparation **Indications/Contraindications:** • Medication to assist with sedation of agitated patients.	**Behavioral Emergencies** • 5 mg IM;

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Hydrocortisone (Solu-Cortef ®) **Indications/Contraindications** • Adrenal Insufficiency/Crisis • Other inflammatory processes (COPD/Asthma)	**Adrenal Insufficiency/Crisis** • 100mg IV/IO/IM **Respiratory Distress (COPD/Asthma)** • 100mg IV/IO/IM
Ibuprofen **Indications** • Pain relief **Contraindications** • head injury, chest pain, abdominal pain, or in any patient with potential for bleeding, ulcer, or renal injury; or likely need for surgery.	**Pain relief** • 600mg po
Ipratropium Bromide (Atrovent ®) **Indications/Contraindications:** • Anticholinergic bronchodilator. Blocks the muscarinic receptors of acetylcholine. • Relief of bronchospasm in patients with reversible obstructive airway disease and bronchospasm.	**Asthma/COPD/RAD** • 2-3 puffs per dose of MDI combination of albuterol/ipratropium bromide. ▪ May repeat as necessary every 5 minutes **OR** • 0.5mg ipratropium and 2.5mg albuterol(DouNeb). ▪ May repeat as necessary every 5 minutes. ▪ 0.5mg ipratroprium nebulized ▪ May repeat as necessary every 5 minutes
Ketamine **Indications/Contraindications:** • agitated patient	**Behavioral** • 4mg/kg IM only, to a maximum dose of 400mg IM only, as a single dose.
Ketorolac **Indications:** • Pain relief **Cotraindications:** • head injury, chest pain, abdominal pain, or in any patient with potential for bleeding, ulcer, or renal injury; or likely need for surgery.	**Pain relief** • 15 mg IV or 30 mg IM

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Lidocaine **Indications/Contraindications:** • Antiarrhythmic used for control of ventricular dysrhythmias. • Used prior to intubation of patients with suspected increased intracranial pressure (e.g., TBI, ICH) to reduce increases in intracranial pressure • Anesthetic for nasotracheal intubation and intraosseous procedures.	**Cardiac Arrest** • 1-1.5mg/kg IV/IO. ▪ Repeat dose 0.75 mg/kg up to a maximum dose of 3 mg/kg, followed by; ▪ 2-4 mg/min maintenance infusion. **Ventricular Tachycardia (with pulses)** • 1 – 1.5mg/kg IV/IO. (considered second-line therapy to Amiodarone). ▪ Repeat dose of 0.5-0.75mg/kg every 3-5 minutes up to total dose of 3 mg/kg, followed by; ▪ 2-4 mg/min maintenance infusion. **Post-Resuscitation** • 1-1.5 mg/kg IV/IO, followed by; • 2-4mg/min maintenance infusion **Nasotracheal Intubation** • 2% lidocaine jelly. **Intraosseous** • 40mg 2% lidocaine, **slow** bolus over two minutes, followed by 10mL normal saline flush, then use IO access for medications
Lorazepam (Ativan ®) **Benzodiazepine** **Indications/Contraindications:** • Seizure control. • Sedation. • Anti-anxiety (anxiolytic).	**Behavioral** • 2-4 mg IV/IO/IM **Nerve Agent/ Seizures** • 2-4 mg slow IV/IO/IM
Magnesium Sulfate **Indications/Contraindications:** • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. • A smooth muscle relaxer used in refractory respiratory distress resistant to beta-agonists. • Torsades de Pointes.	**Asthma/RAD** • 2 grams in 100ml NS given IV over 10 minutes. **Seizures** • 4 grams IV over 10 minutes in the presence of seizure in the third trimester of pregnancy or post partum. **Cardiac Arrest/Tachycardia – Torsades de Pointes.** • 1 – 2 grams IV over 5 minutes.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Methylprednisolone (Solu-medrol ®) **Indications/Contraindications:** • Steroid used in respiratory distress to reverse inflammatory and allergic reactions.	**Asthma/COPD/RAD** • 125 mg IV/IO/IM
Metoprolol (Lopressor ®) **Indications/Contraindications:** Rate control for adult patients who are already prescribed a beta blocker NOTE: Do not use IV Beta-blockers with IV Calcium channel blockers	**Tachycardia** • 2.5mg to 5mg slow IV over 2 – 5 minutes. ▪ May repeat every five minutes to a maximum of 15mg
Midazolam (Versed ®) Benzodiazepine **Indications/Contraindications:** • Seizure control. • Sedation. • Anxiolytic.	**Behavioral/Seizures/Induced Therapeutic Hypothermia** • 2 – 6 mg IV/IO/IM/IN **Nerve Agent/Organophosphate Poisoning** • 2 mg IV/IO/IN every 5 minutes; or 6 mg IM every 10 minutes as needed **Sedation and Analgesia for Electrical Therapy** • 0.5 - 2 mg IV/IO/IM/IN **Difficult Airway** • 2 mg slow IV/IO/IM/IN; Repeat of necessary to a total dose of 6 mg
Morphine Sulfate **Indications/Contraindications:** • Opioid analgesic **Avoid use if BP < 100 mmHg.**	**Pain** • 0.1mg/kg every 5 minutes IV/IO/IM/SC, up to 10mg max.

Naloxone (Narcan ®) Opioid Antagonist
Indications/Contraindications:
• Opioid overdose.
	Pain
	• **Antidote:** For hypoventilation from opiate administration by EMS personnel, administer naloxone 0.4mg-4.0 mg IV/IM/IN as needed.
	Poisoning/Substance Abuse/Opioid OD
	• 0.4 – 4 mg IV/IM/IN.
	  ▪ If no response, may be repeated as needed
	  ▪ First Responders and EMTs may administer by auto-injector or nasal atomizer.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Nitroglycerin **Indications/Contraindications:** • Vasodilator used in the treatment of chest pain secondary to acute coronary syndrome and CHF. • Hypertensive emergencies. • Not used in presence of Hypotension or recent use of phosphodiesterase-type-5-inhibitor within last 48 hours.	**Cardiac Conditions/Hypertensive Emergencies** • 0.4mg SL tabs or 1 spray every 3 – 5 minutes while symptoms persist and if systolic BP remains >120 mmHg. • 1 inch paste to chest wall, transdermal.
Norepinephrine (Levophed ®) **Indications/Contraindications:** • Alpha and Beta 1 receptor adrenergic receptor agonist vasopressor • Infusion pump **required**	**Hypotension** • 0.1mcg/kg/min IV/IO titrate to goal SBP of 90mmHg-generally to a maximum dose of 30 mcg/min. ○ 4mg mixed in 250mL of D5 diluent packaged with medication • Maximum dose: generally to a maximum dose
Ondansetron (Zofran ®) Anti-emetic **Indications:** • Used to control Nausea and/or Vomiting.	**Nausea/Vomiting** • 4mg IV/IO/IM/ODT.
Oxygen **Indications:** • Any condition with increased cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion. Goal oxygen saturation ≥94%. • Used for pre-oxygenation whenever possible prior to endotracheal intubation. Goal oxygen saturation 100%.	• 1-6 liters/min via nasal cannula. • 10-15 liters/min via NRB mask. • 15 liters/min via BVM

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
Pralidoxime (2-PAM) **Indications:** • Antidote for Nerve Agents or Organophosphate Overdose. • Administered as part of Mark I kit.	**Nerve Agent/Organophosphate Poisoning** • 600mg via Auto-Injector IM per kit, 1-3 kits.
Sodium Bicarbonate **Indications:** • A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose.	**Poisoning/Substance Abuse/OD/Toxicology** • 0.5-1 mEq/kg IV/IO **Cardiac Arrest/Known Hyperkalemia/Acidosis/TCA Overdose** • 1 mEq/kg IV/IO
Tranexamic Acid (TXA) **Indications:** • Trauma patient at high risk for life threatening bleeding.	**Multisystem Trauma** • 1 Gram IV over 10 minutes
Tetracaine 0.5% **Indications:** • Topical anesthetic for eye injuries	**Eye Injuries** • 1-2 drops to affected eye; repeat every 5 minutes as needed.
Vasopressin **Indications:** • Cardiac Arrest	**Cardiac Arrest; Asystole, Pulseless Electrical Activity, Ventricular Fibrillation, Ventricular Tachycardia (without pulses)** • 40 units IV/IO in place of first or second dose of Epinephrine

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Cyanokit® Dose Chart Estimation

(Y.M) age	Term	1m	2m	4m	6m	8m	10m	1	1.4	1.8	2	2.4	2.8	3
lbs	7	9	11	13	15	18	20	22	24	26	29	31	33	35
Kg	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Dosage(Mg)	**210**	**280**	**350**	**420**	**490**	**560**	**630**	**700**	**770**	**840**	**910**	**980**	**1050**	**1120**
Amount (mL)	8	11	14	17	20	22	25	28	31	34	36	39	42	45
Estimated (gtts/sec)	1gtt 8 sec	1gtt 5 sec	1gtt 5 sec	1 gtt 3 sec	1gtt 3 sec	1gtt 2 sec	1gtt 2 sec	1gtt 2 sec	1gtt 2 sec	1gtt 2 sec	1gtt 2 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec

(Y.M) age	3.4	3.8	4	4.4	5	5.8	6.4	7	7.8	8.4	9	9.8	10	11
lbs	37	40	42	44	48	53	57	62	66	70	75	79	81	88
Kg	17	18	19	20	22	24	26	28	30	32	34	36	37	40
Dosage(Mg)	**1190**	**1260**	**1330**	**1400**	**1540**	**1680**	**1820**	**1960**	**2100**	**2240**	**2380**	**2520**	**2590**	**2800**
Amount (mL)	48	50	53	56	62	67	73	78	84	90	95	101	104	112
Estimated (gtts/sec)	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec	1gtt 1 sec

Colors based on Broselow Pediatric Emergency Tape

Weight based on Luscombe Formula - **weight(kg)=3(age)+7**

Pediatric dosage = **70 mg/kg** Over 15 min

Estimated (gtts / sec) based on **15 gtts/ml** administration set

Adult Dosage
5gm over 15 min
200 gtts/min
(Run at a Fast Steady Rate)

Pediatric Color Coded Appendix

NOTE: if you are using an appropriate weight or size based dosing system for an approved medication, use the dose specified in that system. If not, use the dose given in the applicable protocol.

Weight 3-5 Kg (Avg 4.0 Kg)

Length < 59.5 cm

Gray (0-3 months)

Vital Signs
Heart Rate: 120-150
Respirations: 24-48
BP Systolic: 70 (+/-25)

Equipment
ET Tube: 2.5 - 3.5
Blade Size: 0 - 1

Defibrillation
Defibrillation: 8 J, 15 J
Cardioversion: 2 J, 4 J

Normal Saline 80 ml

Acetaminophen	60 mg
Adenosine:	
1st Dose-	0.4 mg
Repeat Dose-	0.8 mg
Albuterol	2.5 mg
Amiodarone	20 mg
Atropine- Bradycardia	0.08 mg
- Organophosphate Poison	0.2 mg
Calcium Chloride	81mg
Dextrose 10%	20 ml
Diazepam (IV)	1 mg
(Rectal)	2 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.3 ml/hr
5 mcg/kg/min	0.9 ml/hr
10 mcg/kg/min	1.7 ml/hr
20 mcg/kg/min	3.3 ml/hr
Epinephrine 1:10,000	0.04 mg
Epinephrine 1:1000 Nebulized	2.5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	2 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	10 mg
Hydroxocobalamin	280 mg
Ibuprofen	40 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	2 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	4 mg
-Traumatic Brain Injury	6 mg
- Intraosseous	2 mg
Lorazepam	0.4 mg
Magnesium Sulfate	
- RAD	150 mg
- Torsades	200 mg
Methylprednisolone	4 mg
Midazolam	0.2 mg
Morphine Sulfate	0.4 mg
Naloxone	0.4 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	0.4 mg
- ODT	4 mg
Pralidoxime IV	300 mg
- Infusion	80 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	8 mEq
Tetracaine	2 drops

Weight 6-7 Kg (Avg 6.5 Kg)

Length 59.5-66.5 cm

Pink (3-6 Months)

Vital Signs
Heart Rate: 120-125
Respirations: 24-48
BP Systolic: 85 (+/-25)

Equipment
ET Tube: 3.5
Blade Size: 1

Defibrillation
Defibrillation: 10 J, 20 J
Cardioversion: 2 J, 5 J

Normal Saline 130 ml

Acetaminophen	97.5 mg
Adenosine:	
1st Dose-	0.65 mg
Repeat Dose-	1.3 mg
Albuterol	2.5 mg
Amiodarone	30 mg
Atropine- Bradycardia	0.13 mg
- Organophosphate Poison	0.32 mg
Calcium Chloride	130 mg
Dextrose 10%	35 ml
Diazepam (IV)	1 mg
(Rectal)	3 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.5 ml/hr
5 mcg/kg/min	1.3 ml/hr
10 mcg/kg/min	2.5 ml/hr
20 mcg/kg/min	5.0 ml/hr
Epinephrine 1:10,000	0.065 mg
Epinephrine 1:1000 Nebulized	2.5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	3 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	10 mg
Hydroxocobalamin	455 mg
Ibuprofen	65mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	3.25 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	6.5 mg
-Traumatic Brain Injury	9.75 mg
- Intraosseous	3.25 mg
Lorazepam	0.65 mg
Magnesium Sulfate	
- RAD	300 mg
- Torsades	350 mg
Methylprednisolone	6.0 mg
Midazolam	0.3 mg
Morphine Sulfate	0.6 mg
Naloxone	0.6 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	0.6 mg
- ODT	4 mg
Pralidoxime IV	325 mg
- Infusion	130 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	12 mEq
Tetracaine	2 drops

Weight 8-9 Kg (Avg 8.5 Kg)

Length 66.5-74 cm

Red (7-10 Months)

Vital Signs
Heart Rate: 120
Respirations: 24-32
BP Systolic: 92 (+/-25)

Equipment
ET Tube: 3.5 -4.0
Blade Size: 1

Defibrillation
Defibrillation: 20 J, 40 J
Cardioversion: 5 J, 9 J

Normal Saline 170 ml

Acetaminophen	127.5 mg
Adenosine:	
1st Dose-	0.85 mg
Repeat Dose-	1.7 mg
Albuterol	2.5 mg
Amiodarone	40 mg
Atropine- Bradycardia	0.17 mg
- Organophosphate Poison	0.42 mg
Calcium Chloride	172 mg
Dextrose 10%	43 ml
Diazepam (IV)	2 mg
(Rectal)	4 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.7 ml/hr
5 mcg/kg/min	1.6 ml/hr
10 mcg/kg/min	3.2 ml/hr
20 mcg/kg/min	6.5 ml/hr
Epinephrine 1:10,000	0.085 mg
Epinephrine 1:1000 Nebulized	2.5 mg
Epinephrine auto-injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15 mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	4 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	20 mg
Hydroxocobalamin	595 mg
Ibuprofen	85mg
Ipratropium w/ albuterol	500mcg
Ketorolac	4.25 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	8.5 mg
-Traumatic Brain Injury	12.75 mg
- Intraosseous	4.25 mg
Lorazepam	0.85 mg
Magnesium Sulfate	
- RAD	350 mg
- Torsades	400 mg
Methylprednisolone	8.0 mg
Midazolam	0.4 mg
Morphine Sulfate	0.8 mg
Naloxone	0.8 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	0.8 mg
- ODT	4 mg
Pralidoxime IV	420 mg
- Infusion	210 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	20 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

Vital Signs
Heart Rate: 115-120
Respirations: 22-30
BP Systolic: 96 (+/-30)

Equipment
ET Tube: 4.0
Blade Size: 1

Defibrillation
Defibrillation: 20 J, 40 J
Cardioversion: 5 J, 10 J

Normal Saline 210 ml

Acetaminophen	157.5 mg
Adenosine:	
1st Dose-	1.05 mg
Repeat Dose-	2.1 mg
Albuterol	2.5 mg
Amiodarone	50 mg
Atropine- Bradycardia	0.21 mg
- Organophosphate Poison	0.52 mg
Calcium Chloride	210 mg
Dextrose 10%	50 ml
Diazepam (IV)	2 mg
(Rectal)	5 mg
Diphenhydramine	12.5 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.8 ml/hr
5 mcg/kg/min	2.0 ml/hr
10 mcg/kg/min	4.0 ml/hr
20 mcg/kg/min	8.0 ml/hr
Epinephrine 1:10,000	0.105 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	20 mg
Hydroxocobalamin	735 mg
Ibuprofen	105 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	5.25 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	10.5 mg
-Traumatic Brain Injury	15.75 mg
- Intraosseous	5.25 mg
Lorazepam	1 mg
Magnesium Sulfate	
- RAD	400mg
- Torsades	500 mg
Methylprednisolone	10 mg
Midazolam	0.5 mg
Morphine Sulfate	1 mg
Naloxone	1 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron- IV	1 mg
- ODT	4 mg
Pralidoxime IV	540 mg
- Infusion	210 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	20 mEq
Tetracaine	2 drops

Purple (11-18 Months)

Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

Vital Signs
Heart Rate: 110-115
Respirations: 20-28
BP Systolic: 100 (+/-30)

Equipment
ET Tube: 4.5
Blade Size: 2

Defibrillation
Defibrillation: 30 J, 50 J
Cardioversion: 6 J, 15 J

Normal Saline 260 ml

Acetaminophen	195 mg
Adenosine:	
1st Dose-	1.3mg
Repeat Dose-	2.6 mg
Albuterol	2.5 mg
Amiodarone	60 mg
Atropine- Bradycardia	0.26 mg
- Organophosphate Poison	0.65 mg
Calcium Chloride	259 mg
Dextrose 10%	60-80 ml
Diazepam (IV)	3 mg
(Rectal)	6 mg
Diphenhydramine	12-14 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	0.8 ml/hr
5 mcg/kg/min	2.5 ml/hr
10 mcg/kg/min	5.0 ml/hr
20 mcg/kg/min	10 ml/hr
Epinephrine 1:10,000	0.13 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	6.5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	910 mg
Ibuprofen	130 mg
Ipratropium w/ albuterol	0.5 mcg
Ketorolac	6.5 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	13 mg
-Traumatic Brain Injury	19.5mg
- Intraosseous	6.5 mg
Lorazepam	1.2 mg
Magnesium Sulfate	
- RAD	500 mg
- Torsades	650 mg
Methylprednisolone	12 mg
Midazolam	0.6 mg
Morphine Sulfate	1.2 mg
Naloxone	1.2 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron- IV	1.4 mg
- ODT	4 mg
Pralidoxime IV	660 mg
- Infusion	260 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	26 mEq
Tetracaine	2 drops

Yellow (19-35 Months)

Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

Vital Signs
Heart Rate: 100 - 115
Respirations: 20-26
BP Systolic: 100 (+/-20)

Equipment
ET Tube: 5.0
Blade Size: 2

Defibrillation
Defibrillation: 30 J, 70 J
Cardioversion: 8 J, 15 J

Normal Saline 330 ml

Acetaminophen	247.5 mg
Adenosine:	
1st Dose-	1.65 mg
Repeat Dose-	3.3 mg
Albuterol	2.5 mg
Amiodarone	80 mg
Atropine- Bradycardia	0.33 mg
- Organophosphate Poison	0.82 mg
Calcium Chloride	330 mg
Dextrose 10%	80 ml
Diazepam (IV)	3 mg
(Rectal)	8 mg
Diphenhydramine	20 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1.2 ml/hr
5 mcg/kg/min	3 ml/hr
10 mcg/kg/min	6 ml/hr
20 mcg/kg/min	12 ml/hr
Epinephrine 1:10,000	0.165 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	8 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	1155 mg
Ibuprofen	165 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	8.25 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	16.5 mg
-Traumatic Brain Injury	24.75 mg
- Intraosseous	8.25 mg
Lorazepam	1.6 mg
Magnesium Sulfate	
- RAD	650 mg
- Torsades	800 mg
Methylprednisolone	16 mg
Midazolam	0.8 mg
Morphine Sulfate	1.6 mg
Naloxone	1.6 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	1.6 mg
- ODT	4 mg
Pralidoxime IV	810 mg
- Infusion	330 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	32 mEq
Tetracaine	2 drops

White (3-4 yrs)

Pediatric Color Coded Appendix

Weight 19-22 Kg (Avg 20.75 Kg)

Length 110-122 cm

Vital Signs
Heart Rate: 100
Respirations: 20-24
BP Systolic: 100 (+/-15)

Equipment
ET Tube: 5.5
Blade Size: 2

Defibrillation
Defibrillation: 40 J, 85 J
Cardioversion: 10 J, 20 J

Normal Saline 410 ml

Acetaminophen	311.25 mg
Adenosine:	
1st Dose-	2.075 mg
Repeat Dose-	4.15 mg
Albuterol	2.5 mg
Amiodarone	100 mg
Atropine- Bradycardia	0.41 mg
- Organophosphate Poison	1.0 mg
Calcium Chloride	416 mg
Dextrose 10%	100 ml
Diazepam (IV)	4.0 mg
(Rectal)	10 mg
Diphenhydramine	30 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1.6 ml/hr
5 mcg/kg/min	3.9 ml/hr
10 mcg/kg/min	7.8 ml/hr
20 mcg/kg/min	16 ml/hr
Epinephrine 1:10,000	0.2075 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Pedi (IM)	
Epinephrine 1:1000 IM-ONLY	0.15mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	10 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	40 mg
Hydroxocobalamin	1453 mg
Ibuprofen	207.5 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	10.37 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	20.75 mg
-Traumatic Brain Injury	31.125mg
- Intraosseous	10.375 mg
Lorazepam	2.0 mg
Magnesium Sulfate	
- RAD	850 mg
- Torsades	1050 mg
Methylprednisolone	20 mg
Midazolam	1 mg
Morphine Sulfate	2 mg
Naloxone	2 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	2 mg
- ODT	4 mg
Pralidoxime IV	1020 mg
- Infusion	415 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	42 mEq
Tetracaine	2 drops

Blue (5-6 yrs)

Weight 24-28* Kg (Avg 27 Kg)

Length 122-137 cm

Vital Signs
Heart Rate: 90
Respirations: 18-22
BP Systolic: 105 (+/-15)

Equipment
ET Tube: 6.0
Blade Size: 2-3

Defibrillation
Defibrillation: 50 J, 100 J
Cardioversion: 15 J, 30 J

Normal Saline 540 ml

Acetaminophen	405 mg
Adenosine:	
1st Dose-	2.7 mg
Repeat Dose-	5.4 mg
Albuterol	2.5 mg
Amiodarone	130 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.3 mg
Calcium Chloride	540 mg
Dextrose 10%	135 ml
Diazepam (IV)	5.0 mg
(Rectal)	13 mg
Diphenhydramine	40 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	2 ml/hr
5 mcg/kg/min	5 ml/hr
10 mcg/kg/min	10 ml/hr
20 mcg/kg/min	20 ml/hr
Epinephrine 1:10,000	0.27 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Adult (IM) (>25kg)	
Epinephrine 1:1000 IM-ONLY(>25kg)	0.3mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	13.5 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	60 mg
Hydroxocobalamin	1890 mg
Ibuprofen	270 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	13.5 mg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	27 mg
-Traumatic Brain Injury	40.5 mg
- Intraosseous	13.5 mg
Lorazepam	2.8 mg
Magnesium Sulfate	
- RAD	1100 mg
- Torsades	1350 mg
Methylprednisolone	28 mg
Midazolam	1.4 mg
Morphine Sulfate	2.8 mg
Naloxone	2 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron - IV	2.8 mg
- ODT	4 mg
Pralidoxime IV	1350 mg
- Infusion	540 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	54 mEq
Tetracaine	2 drops

Orange (7-9 yrs)

Weight 30-36 Kg (Avg 33 Kg)

Length 137-150 cm

Vital Signs
Heart Rate: 85-90
Respirations: 16-22
BP Systolic: 115 (+/-20)

Equipment
ET Tube: 6.5
Blade Size: 3

Defibrillation
Defibrillation: 60 J, 150 J
Cardioversion: 15 J, 30 J

Normal Saline 720 ml

Acetaminophen	495 mg
Adenosine:	
1st Dose-	3.6 mg
Repeat Dose-	7.2 mg
Albuterol	2.5 mg
Amiodarone	180 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.8 mg
Calcium Chloride	718 mg
Dextrose 10%	180 ml
Diazepam (IV)	7.2 mg
(Rectal)	18 mg
Diphenhydramine	50 mg
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	2.7 ml/hr
5 mcg/kg/min	7 ml/hr
10 mcg/kg/min	14 ml/hr
20 mcg/kg/min	28 ml/hr
Epinephrine 1:10,000	0.36 mg
Epinephrine 1:1000 Nebulized	5 mg
Epinephrine Auto-Injector Adult (IM)	
Epinephrine 1:1000 IM-ONLY	0.3mg
Epinephrine infusion	0.1-1 mcg/kg/min
Fentanyl	18 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	80 mg
Hydroxocobalamin	2310 mg
Ibuprofen	330 mg
Ipratropium w/ albuterol	500 mcg
Ketorolac	
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	36 mg
-Traumatic Brain Injury	54 mg
- Intraosseous	18 mg
Lorazepam	3.6 mg
Magnesium Sulfate	
- RAD	1450 mg
- Torsades	1800 mg
Methylprednisolone	36 mg
Midazolam	1.7 mg
Morphine Sulfate	3.6 mg
Naloxone	2 mg
Norepinephrine	0.1mcg/kg/min
Ondansetron- IV	3.6 mg
- ODT	4 mg
Pralidoxime IV	1800 mg
- Infusion	720 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	72 mEq
Tetracaine	2 drops

Green (10-12 yrs)

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Minimum Standards for Interfacility Transfers:

1.Staffing, Training

Minimum staffing at the Advanced Level requires one Advanced EMT and one EMT-Basic. Minimum staffing at the Paramedic level requires one EMT-Paramedic and one Advanced EMT/ EMT-Basic, in accordance with 105 CMR 170.305(C)(2).

Minimum staffing

EMTs providing patient care that exceed their regular scope of practice under the Protocols during Interfacility Transfers must meet the following requirements as outlined in 105 CMR 170.000 et al:

a. current certification as an EMT in Massachusetts;

b. completion of Department approved supplemental training that is specific to and consistent with levels of certification of involved EMTs and includes
   - expanded roles and responsibilities
   - additional, approved treatment modalities, equipment, devices, and technologies; and
   - ambulance service policies and procedures regarding ALS Interfacility Transfers

c. has maintained current authorization to practice pursuant to the Affiliate Hospital Medical Director's review of clinical competency

It shall be the responsibility of the transferring ambulance service to ensure and to verify appropriate training of its personnel providing ALS Interfacility Transfers. This includes ensuring that all its personnel successfully complete refresher training in providing ALS Interfacility Transfers at least every two years, and whenever new equipment or medication is approved for use on interfacility transfer calls.

2. Affiliation Agreements; Medical Control

An ambulance service must be licensed at an ALS level by the Department to provide ALS care during Interfacility Transfers, and it must maintain an affiliation agreement, in accordance with 105 CMR 170.300, with a hospital licensed by the Department for Medical Control, pursuant to 105 CMR 130.1501-130.1504 of the Hospital Licensure regulations. Such affiliation agreements must designate an Affiliate Hospital Medical Director (105 CMR 170.300(A)(2) and 105 CMR 130.1502(C)), whose medical oversight functions are defined in 105 CMR 130.1503. Standards for Affiliate Hospital Medical Directors are defined in 105 CMR 130.1504.

3. Communications:

All communications with a Medical Control physician must be recorded.

4. Scope of Practice:

Section 170.360(A) of the EMS Regulations states, "No ambulance service or agent thereof shall transport a patient between health care facilities who is receiving medical treatment that is beyond the training and certification capabilities of the EMTs staffing the ambulance unless an additional health care professional with that capability accompanies the patient..." Depending on the individual's condition, there may be situations in which a physician or some other specialist's presence might be necessary; such determination shall be made by the on-line medical control physician in consultation with the physician at the sending hospital. All involved in this decision should consider whether the benefits of the transfer sufficiently outweigh the risks; a patient's greatest benefit may result from being transported by a standard IFT crew to a higher level of hospital care rather than delay for other transport.

Protocol Continues

Protocol Continued

The scope of practice for each EMT level is defined (1) in regulation (105 CMR 170.810, 170.820 and 170.840), (2) through established training programs approved by the Department, and (3) through the Statewide Treatment Protocols consistent with the Interfacility Transfer Guidelines.

The following are patient condition classifications and corresponding requirements for EMT personnel during ambulance transport:

a. Routine, scheduled transport; Patient clearly stable for transport with no requirement for airway management and no device in place that is actively running or requires any maintenance or monitoring. Patient may have a device in place, but device must be locked and clamped, not require any maintenance and not be actively running. Such inactive devices may include, but are not limited to, IVs (if disconnected from fluid and on a saline lock during transport), nasogastric tubes, feeding tubes, PICC lines, bladder irrigation and wound vacs (wound vacs that are self-contained, gravity draining or battery powered can be transported by BLS providers).

   Minimum Staffing: BLS licensed ambulance service; two EMT-Basics

b. Patient clearly stable for transport (as above) who has a "maintenance" IV running without additives; (e.g., cancer patient transported for radiation therapy, with unadulterated crystalloid IV solution running). Advanced EMTs may transport patients with Dextrose-containing IV solutions.

   Minimum Staffing: ALS-Advanced EMT licensed ambulance service; one Advanced EMT attending to patient care and one EMT-Basic driving

c. Patient with an acute or sub acute problem, who is either completely or, at least, to the best of a facility's ability, stabilized; who has the potential to become less stable during transport. Instrumentation or medication running must be consistent with the Interfacility Transfer Guidelines.

   Minimum Staffing: ALS-Paramedic licensed ambulance service; one EMT-Paramedic and one Advanced EMT or EMT-Basic, in accordance with 105 CMR 170.305(C)(2). The EMT with the highest level of certification must attend to patient care.

d. Patient with an acute problem with high potential to become unstable; Critical care patient with any other instrumentation or medication running that is not included in the Interfacility Transfer Guidelines.

   Minimum Staffing: Appropriate additional medical personnel (per 105 CMR 170.360(A)) must accompany the patient during transfer; any level of ambulance service licensure; two EMT-Basics. The ALS Interfacility Transfer Subcommittee recommends that the referring hospital consider Critical Care Transport for such a patient. In the event that CCT is unavailable, medical personnel accompanying the patient must be able to manage all equipment and instrumentation associated with the patient's care and provide advanced resuscitative measures if needed.

e. Critical Care Transports (see 105 CMR 170.000, for regulatory requirements regarding critical care transport).

   Under no circumstances shall EMTs function or be assigned to transfers beyond, or potentially beyond, the scope of their training and level of certification. The scope of practice for all EMTs is limited to the levels of EMT certification and training and by licensure level of the ambulance service by which they are employed.

Protocol Continues

Protocol Continued

If (1) a patient's medical condition necessitates immediate transport to another health care facility and (2) the patient's medical treatment during transport will exceed the level of licensure of the transferring ambulance service and/or level of certification of the transferring ambulance's personnel, and (3) the transferring facility will not provide appropriate additional personnel pursuant to 105 CMR 170.360(A), Critical Care Transport by ground or air should be employed.

The transferring facility may at any time opt to exceed these minimum requirements by transferring patients in BLS ambulances with appropriate medical personnel as defined in 170.360(A) or by Critical Care Ground or Air Transport.

5. Quality Assurance/Quality Improvement

a. Ambulance services providing ALS Interfacility Transfers shall be required to have quality assurance/quality improvement policies specific to ALS Interfacility Transfers in conjunction with both their affiliate hospital medical directors and their ambulance service medical directors, if any, and include at a minimum:

- review of appropriateness of transfers, denials, and conformance with EMTALA regulations;
- review of critical skills (e.g., intubations, cardiac arrest management, IV therapy), and other measures of system function as deemed appropriate by the Department;
- steps for system improvement and individual remediation, available for Department review, of cases found to be deficient in critical interventions

b. Ambulance services shall report to the Department and the Affiliate Hospital Medical Director any violations of 105 CMR 170.000, this Administrative Requirement and/or prevailing treatment protocols as they relate to ALS Interfacility Transfers.

c. EMT skill maintenance and didactic knowledge will be continually assessed and appropriate measures taken to ensure quality of patient care by affiliate hospital medical directors and by ambulance service medical directors, if any.

Patient ALS Transfer Procedure

Once an ALS Interfacility Transfer has been deemed appropriate by the transferring ambulance service (see "Scope of Practice" above), paramedic staff, upon arrival at the transferring facility, will:

- receive a report from the staff of the transferring facility;
- assess the patient; and
- in cases where the patient's care during the transfer exceeds the standing-order scope of practice as defined by the current version of the Statewide Treatment Protocols for an EMT-Paramedic or the patient is unstable or is likely to become unstable as defined previously (see "Scope of Practice" above) will provide a concise, complete and accurate patient report to an On-Line Medical Control physician, according to the EMS service's and the Affiliate Hospital's policies and procedures. When EMTs have a concern regarding the safety of the patient being transferred, the EMT-Paramedic will contact an On-Line Medical Control physician for guidance.

  The report should include, at a minimum, the following information:

  a. Names of transferring and receiving facilities;
  b. Patient's diagnosis;
  c. Reason(s) for transfer;
  d. Brief history of present illness and any intervention(s) which has occurred to date;
  e. Pertinent physical findings;
  f. Vital signs;
  g. Current medications and IV infusions;
  h. Presence of or need for additional medical personnel;

Protocol Continues

Protocol Continued

i. Anticipated problems during transport, if any;
j. Anticipated transport time; and
k. Staffing configuration of the transporting ambulance

NOTE: Complete copies of all pertinent medical records, including X-Rays, CT Scans, consultative notes and ECGs, as available, must accompany the patient to the receiving facility.

When necessary, the Medical Control Physician and paramedic will discuss with the transferring physician the orders for maintenance of existing and/or addition of new therapies according to the needs of the patient, within the scope of existing treatment protocols and EMT scope of practice. The Medical Control Physician will be responsible for all actions/interventions initiated by the EMS personnel during transport unless the referring physician accompanies the patient.

If the transferring physician is unavailable, or the patient is unstable, the Medical Control Physician may recommend to the transferring facility additional therapies prior to the transfer of the patient in the interest of patient safety and quality care.

In some situations, consistent with the intent of EMTALA, the transfer of a patient not stabilized for transport may be preferable to keeping that patient at a facility incapable of providing stabilizing care. If the transferring facility cannot provide appropriate medical care or appropriately trained and experienced personnel to accompany the patient, alternative means of transfer, including Critical Care Transport, must be utilized. The use of a local Emergency Ambulance Service is strongly discouraged in such a situation. All such responses must be reported by the ambulance service to the Department's Division of Health Care Quality and the Affiliate Hospital Medical Director for review. It is primarily the responsibility of the referring physician and Medical Control Physician to determine the appropriate method of transferring an unstable patient.

When a facility sends its own staff with the patient during transfer (additional medical personnel) and the patient's condition deteriorates en route, EMS personnel must contact the Medical Control Physician for appropriate intervention orders and notify the receiving facility of the change in patient status.

Under 105 CMR 170.360(A), ambulance services may not transport a patient between health care facilities who is receiving medical treatment beyond the training and certification capabilities of the EMTs staffing the ambulance, unless an additional health care professional with that capability accompanies the patient. Further, 105 CMR 170.310(B) authorizes hospital staff, such as an RN or RT or MD or DO, to go on the ambulance and render care to the patient during transport. Such sending facility additional health care professional would be responsible for primary patient care of that patient during transport, and would receive any additional orders from the sending physician, since the care of the patient exceeded what the ambulance and its crew could provide.

If the accompanying staff is an RN s/he will maintain patient care responsibility, functioning within his/her scope of practice and under the orders of the transferring physician. The Paramedic and the RN will work collaboratively in the provision of patient care. If the patient's condition deteriorates en route, the Paramedic may assume full responsibility in conjunction with their Medical Control Physician for care that exceeds the RN's scope of practice and/or the transferring physician's medical orders. Prior to transfer with an RN, the referring physician must contact the service's Medical Control Physician and provide staffing rationale.

If the accompanying staff includes a physician from the transferring facility, that physician shall be in charge of patient care. Prior to transfer, the transferring physician accompanying the patient must contact the service's Medical Control Physician and coordinate patient care between the physician-in-charge and the paramedic practicing within the Statewide Treatment Protocols. Clear lines of command and responsibility shall be established prior to transport.

Protocol Continued

Interstate ALS Interfacility Transfers

Interstate transfers are permitted. Paramedics must obtain Medical Control through normal channels, through the Affiliation Agreement for Medical Control of the ambulance service for whom they are working. Appropriate provisions for re-contacting the Medical Control physician en route, if necessary, should be made prior to departure from the transferring facility. If a transfer originates out of state and no contact with Medical Control Physician is possible, the transfer should be made at the BLS level only with appropriate additional personnel provided by the transferring facility.

The purpose of this section is to determine which patients must be transported by critical care transport (CCT). Scenarios and circumstances beyond the scope of practice of the paramedic (including, but not limited to those described below) require CCT. CCT can be furnished by any of the following:

- Licensed critical care service
- An advanced life support (ALS) vehicle with hospital MD and / or RN on board. **(A respiratory therapist is acceptable in place of MD and / or RN for ventilator management only)**
- Any advanced (ALS) or basic life support (BLS) vehicle staffed by a self-contained and properly equipped critical care team.

If CCT is unavailable **AND** sending facility staff is unavailable, **AND** this patient has a condition requiring time-sensitive intervention **AND** it is approved by **MEDICAL CONTROL**, this patient may be transferred by any ALS ambulance, provided that all interventions are within the scope of practice of the transporting paramedic and vehicle.

The **MEDICAL CONTROL** physician and **SENDING PHYSICIAN** should be in direct communication if there are any **concerning** issues prior to patient transport.

Protocol Continues

ALS Interfacility Transfer Protocols
Part B- Determining the need for CCT

Protocol Continued

B1 – PEDIATRIC PATIENTS (8 years of age or younger)

- ❑ ***Any neonate (30 days or younger) requiring transfer for evaluation and/or treatment of an UNSTABILIZED acute condition.***
- ❑ Any pediatric patient with critical illness or injury.

  NOTE: On-line **MEDICAL CONTROL** should be involved in determining whether pediatric patients require critical care.
- ❑ Any pathology associated with the potential for imminent upper airway collapse and / or obstruction (including but not limited to airway burns, toxic inhalation, epiglottitis, retropharyngeal abscess, etc.). If any concerns whether patient falls into this category, contact MEDICAL CONTROL.
- ❑ ***Any pediatric patient requiring <u>acute</u> ventilatory support (NIV, high flow NC, ventilator, etc.) who requires an interfacility transfer.***
- ❑ All conditions that apply to adult medical patients also require CCT for the pediatric patient.

NOTE: On-line MEDICAL CONTROL should be involved in determining whether pediatric patients require critical care.

B2 – ADULT MEDICAL PATIENTS

- ❑ Unless approved by **MEDICAL CONTROL**, patients requiring more than three (3) medication infusions by IV pump, not including maintenance fluids must be transported by CCT.
- ❑ Unless approved by **Medical Control**, any patient receiving more than one vasoactive medication infusion must be transported by CCT.
- ❑ Any patient who is being actively paced (either transvenous or transcutaneous) must be transported by CCT.
- ❑ Patients being transferred due to an issue with a ventricular assist device that may require active monitoring or management.
- ❑ Patients with an intra-aortic balloon pump.
- ❑ Any patients with a pulmonary artery catheter.

  NOTE: Central lines may be transported by ALS IFT
- ❑ Any patient with an intracranial device requiring active monitoring.

  NOTE: Except for chronic use devices, such as ventriculoperitoneal shunts, etc.
- ❑ Any pathology associated with the potential for imminent upper airway collapse and / or obstruction (including but not limited to airway burns, toxic inhalation, epiglottitis, retropharyngeal abscess, etc.). If any concerns whether patient falls into this category, contact **MEDICAL CONTROL**.

  NOTE: If any concerns about whether patient falls into this category, contact **MEDICAL CONTROL.**
- ❑ Any patient being artificially ventilated for ARDS or Acute Lung Injury.

Protocol Continues

ALS Interfacility Transfer Protocols
General Protocols for ALS IFT Care

Part C – General Protocols for ALS Interfacility Transfer Care

- ❑ Vital signs should be obtained and documented every ten (10) minutes, unless otherwise required by protocol.
  - If clinically indicated, patients will have continuous monitoring of electrocardiogram (ECG) and / or pulse oximetry (SpO2).
  - All artificially ventilated patients (and all other patients where it is clinically indicated) will have continuous monitoring of waveform capnography.
- ❑ The recommended route for medication infusions in the ALS IFT setting is the peripheral intravenous (IV) line. Intraosseous (IO) lines may also be used.
  - Medications may also be administered through any central venous catheter
  - Paramedics may administer medication boluses, infusions and fluids through administration sets connected by the sending facility to subcutaneous devices (e.g., Port-a-Cath)
- ❑ Patients who are being transferred ALS between facilities should have peripheral intravenous (IV) access, if possible.
  - Paramedics should attempt to establish IV access if no attempts have been made at the sending facility. Paramedics are authorized to establish IO access if warranted by the patient's condition.
- ❑ All monitoring and therapy will be continued until care is transferred to the receiving medical staff.
- ❑ Paramedics may not accept any medications from the sending facility for the purposes of bolus administration during transport.
- ❑ Any patient who qualifies for spinal immobilization per pre-hospital statewide treatment protocols who has not been cleared by CT scan or appropriate physician assessment must be properly immobilized for transport. If there is identification of a clinical concern of thoracic or lumbosacral spine injury, the patient should be immobilized with a long board and log roll precautions used at all times.
  - If any confusion arises regarding the need for spinal immobilization MEDICAL CONTROL will be contacted and the MEDICAL CONTROL physician and the SENDING PHYSICIAN should be in direct communication.
- ▪ If appropriately trained and authorized, EMTs may follow Protocol 6.4 Selective Spinal Assessment following consultation with the sending physician.
- ❑ Paramedics must be familiar with the treatments and interventions instituted at sending facility.
- ❑ Patient care documentation should include, at a minimum:
  - Patient's diagnosis / reason for transfer
  - Brief history of present illness / injury
  - Brief overview of interventions performed by sending facility
  - Pertinent physical examination findings and recent vital signs
  - Current medications and IV infusions
  - Presence of or need for additional medical personnel
- ❑ For all patients being transferred to an emergency department, who are critically ill, unstable, or have a change in clinical status en route, EMTs should notify receiving emergency department via CMED prior to arrival. If local CMED is unavailable, entry notes should be made by telephone (on a recorded line, if possible).
- ❑ Paramedics will contact on-line MEDICAL CONTROL for:
  - Any intervention(s) that exceed the standing order scope of practice as defined by the current version of the Massachusetts Pre-Hospital Statewide Treatment Protocols for an EMT-Paramedic.
  - Any patient that is unstable or is likely to become unstable.
  - When there is any concern regarding the safety of the patient being transferred.
  - Any significant patient care related questions or issues prior to transfer or en route.
- ❑ The MEDICAL CONTROL physician and SENDING PHYSICIAN should be in direct communication if there are any concerning issues prior to patient transport.
- ❑ On occasion good medical practice and the needs of patient care may require deviations from these protocols, as no protocol can anticipate every clinical situation. In those circumstances, EMS personnel deviating from the protocols shall only take such actions as allowed by their training and only in conjunction with their ON-LINE MEDICAL CONTROL PHYSICIAN.

Protocol Continues

Protocol Continued

- ❑ It is recommended that central access and / or two large bore IV lines are in place prior to transport.

- ❑ Care during transport:
  - Administer high-flow supplemental oxygen
  - Continuous cardiac monitoring
  - Heart rate, blood pressure, neurologic evaluations documented every 5 – 10 minutes
  - Target heart rate = 60 – 80 bpm
  - Target systolic blood pressure = 90 – 100 mm Hg
  - Continually assess mentation.
  - If patient is outside of these parameters, contact **MEDICAL CONTROL**.

- ❑ If not approved by on-line **MEDICAL CONTROL** prior to transport, you must contact **MEDICAL CONTROL** to adjust all medication infusions:
  - Adjust antihypertensive medications initiated at sending facility (until systolic blood pressure is less than 100 mm Hg and/or MAP is less than 60 mm Hg):
  - If l**abetalol** infusion has been initiated by sending facility, **increase by 2 mg / minute every 10 minutes** (to a maximum of 8 mg/minute)
  - If **esmolol** infusion has been initiated by sending facility, **increase by 50 mcg / kg / minute every 4 minutes** (to a maximum of 300 mcg / kg / minute)
  - If **nitroprusside** infusion has been initiated by sending facility, **increase by 0.5 mcg / kg / minute every 5 minutes** (to a maximum of 4 mcg / kg / minute)
  - Discontinue drip and contact medical control for instructions if:
  - Systolic blood pressure < 90 mm Hg, or;
  - Heart rate < 60 bpm
  - If no medication infusion has been initiated to control blood pressure and / or heart rate, **MEDICAL CONTROL** may order the administration of metoprolol 5 mg IV every 5 minutes to a maximum of 15 mg.

ALS Interfacility Transfer Protocols
Part D2- Blood Transfusion Reaction

Symptoms of a Transfusion Reaction during Infusion of Packed RBCs (PRBCs)

Acute Hemolytic Reaction

Fever, hypotension, flushing, wheezing, dark and / or red colored urine, oozing from IV sites, joint pain, back pain, chest tightness

Nonhemolytic Febrile Reaction

Fever, chills, rigors, vomiting, hypotension

Allergic Reaction

Urticaria, hives (usually without fever or hypotension)

Anaphylactic Reaction

Dyspnea, wheezing, anxiety, hypotension, bronchospasm, abdominal cramps, vomiting, diarrhea

Volume Overload

Dyspnea, hypoxia, rales, tachycardia, jugular vein distention

Transfusion-Related Acute Lung Injury ("TRALI")

Dyspnea, hypoxia, rales (usually without fever or signs of pulmonary edema)

- ❑ STOP the infusion if any of the above symptoms are discovered!
- ❑ Start infusion of normal saline
- ❑ Contact **MEDICAL CONTROL**
- ❑ Treat hypotension and anaphylactic reaction with standing orders (established pre-hospital protocols)
- ❑ If minor allergic reaction (urticaria / wheezing) administer Benadryl, 50 mg IV
- ❑ If SpO2 is below 90% or patient experiences wheezing / rales, administer high-flow supplemental oxygen
- ❑ If SpO2 is below 90% and accompanied by rales, administer Lasix, 40 mg IV

ALS Interfacility Transfer Protocols
Part D3 – CVA Post tPA

A3

- Seizures (either generalized motor or nonconvulsive) should be quickly controlled.
  - After assessing airway, breathing, and applying high-flow oxygen:
    - **Midazolam** 2.5-5mg IV/IO/IM/IN
- For an ischemic CVA, if a tPA (tissue plasminogen activator) infusion will be continued during the transport, follow these guidelines:
  - Sending facility staff should withdraw excess tPA from the bottle, so that the bottle will be empty once the full dose has infused.

    Example: 100 mg bottle of tPA contains 100 mL of fluid when reconstituted; if the total dose being administered is 70 mg, then the facility should remove 30 mL of fluid from the bottle before departure.
  - When the pump alarm indicates that the bottle is empty, you should take the following steps to ensure that the drug contained within the administration tubing is administered to the patient:
    - Remove the IV tubing from the tPA bottle and spike a bag of 0.9% NS and restart the infusion; the pump will stop infusing when the preset volume has been administered.
- If systolic blood pressure is found to be greater than 180 mm Hg or diastolic blood pressure is found to be greater than 105 mm Hg consult **MEDICAL CONTROL**, then:
  - Adjust antihypertensive medications initiated at sending facility:
  - If **labetalol** has been initiated by sending facility;
    - ✓ **Increase by 2 mg/minute every 10 minutes** (to a maximum of 8 mg/minute) until systolic blood pressure is less than 180 mm Hg and/or diastolic blood pressure is less than 105 mm Hg
    - ✓ Discontinue drip and contact medical control for instructions if the reduction in MAP is greater than 30% of initial BP or SBP < 140 mm Hg, DBP < 80, or heart rate < 60 bpm
  - If **nicardipine** has been initiated by sending facility;
    - ✓ **Increase by 2.5 mg / hour every 5 minutes** (to a maximum of 15 mg / hour) until systolic blood pressure is less than 180 mm Hg and/or diastolic blood pressure is less than 105 mm Hg
    - ✓ Discontinue drip and contact medical control for instructions if the reduction in MAP is greater than 30% of initial BP or SBP < 140 mm Hg, DBP < 80, or heart rate < 60 bpm
- For any acute worsening of neurologic condition (e.g., acutely worsening neurological deficits, development of severe headache, acute hypertension, vomiting, etc.):
  - If patient is receiving tPA, discontinue the infusion.
  - Contact **MEDICAL CONTROL** for further instructions.
  - Contact receiving hospital emergency department with an update on patient's condition and an estimated time of arrival.

ALS Interfacility Transfer Protocols

Part D4- Post-Arrest Induced Hypothermia (PAIH)

- ❑ If post-arrest induced hypothermia (PAIH) therapy in progress at the time of IFT ALS arrival, it should be continued during the transport.
- ❑ Pre-transport temperature should be documented, and temperature should be monitored with vital signs every five minutes.
- ❑ The temperature target for post-arrest induced hypothermia (PAIH) is 32° C – 34°C (89°F – 93°F).
- ❑ If pre-transport or inter-transport temperature is less than or equal to 34°C:
  - Maintain temperature with cold packs placed in the groin, axillae, and on the chest and sides of neck.
  - Discontinue any cold saline infusion.
- ❑ If pre-transport or inter-transport temperature is greater than 34°C:
  - Continue cooling with cold packs placed in the groin, axillae, and on the chest and sides of neck.
  - Continue or initiate cold saline infusion, initially chilled and maintained at approximately 4°C, at 30 mL / kg over 30 minutes.
- ❑ Core temperature should be monitored if possible for transport times longer than 20 minutes.
- ❑ Patients should be handled gently (due to risk of arrhythmias).
- ❑ ALS IFT crews will not discontinue PAIH unless ordered to do so by **MEDICAL CONTROL**.
- ❑ If patient temperature is less than 31°C, contact **MEDICAL CONTROL** and utilize any external warming devices (blankets, etc.) to actively rewarm patient until the temperature is greater than 31°C.
  - If ordered by **MEDICAL CONTROL** and available, consider infusion of 250 mL IV boluses of warmed normal saline solution, until the temperature is greater than 31°C.
- ❑ If hemodynamically significant dysrhythmias or bradycardia of any type develop, or if the patient develops significant bleeding, PAIH should be stopped, **MEDICAL CONTROL** contacted, and active rewarming pursued.

ALS Interfacility Transfer Protocols
Part D5 – Pregnancy Related

A3

- ❑ Patients who are in labor with concern for imminent delivery must be accompanied by sending facility staff.
- ❑ In high-risk situations, a physician / registered nurse will accompany the patient for transport.
- ❑ If any confusion arises regarding the need for additional OB staff **MEDICAL CONTROL** will be contacted and the **MEDICAL CONTROL** physician and **SENDING PHYSICIAN** should be in direct communication.
- ❑ In addition to the documentation standards listed in the General ALS IFT Care Guidelines, when transporting an obstetrical patient, the following should be documented:
  - The presence of a fetal heart rate before and after transfer
  - Estimated date of confinement, maternal history of any complications
  - Condition of membranes, dilation
  - Gravida / Para
  - Timing and nature of contractions
  - Fetal Position
- ❑ Patients should be transported in a left-lateral position or sitting upright, if possible.
- ❑ Document that the fetal heart rate was evaluated prior to transport and upon arrival.
- ❑ If patient should develop eclamptic seizures:
  - After assessing airway, breathing, and applying high-flow oxygen:
  - **Midazolam** 2.5-5mg IV/IO/IM/IN
  - **MEDICAL CONTROL** can authorize administration of more Midazolam and administration of magnesium sulfate (4 g over 3 minutes) for seizures.

ALS Interfacility Transfer Protocols
Part D6- ST-Segment Elevation MI (STEMI)

- ❑ **Paramedics should be familiar with the care and treatment the patient has received.**
- ❑ **Consider discontinuing or avoiding all medication infusions (except for basic IV fluids) to expedite transfer.**
- ❑ Receiving facility should be contacted to ensure rapid transfer to cardiac cath lab.
- ❑ Patients should receive appropriate supplemental oxygen therapy.
- ❑ All other interventions per state-wide treatment protocol, if not already administered:
    - **Aspirin**, 325 mg PO
- ❑ If patient continues to experience chest discomfort:
    - Nitroglycerine (if systolic blood pressure is greater than 100 mm Hg), 0.4 mg SL tablet or spray; may be repeated in 5 minute intervals for a total of three (3) doses
    - Morphine, 2 – 4 mg slow IV push; ***or,***
    - Fentanyl, 1 mcg / kg slow IV push, to a maximum of 150 mcg.

Part E1- General Guidelines for Medication Administration

- ❑ The transport paramedic must be familiar or become familiar through consultation (i.e., with a drug reference or discussion with hospital staff) on the following attributes of each drug the patient has received prior to and will receive during transport:
    - The type and name of medication being administered.
    - The indication and contraindications for administration of the medication.
    - The correct dose, rate, and mixture of medication.
    - Any titration indications or instructions.
    - Any specific medical control instructions.
    - Any patient-specific information
    - Any adverse effects of the medication being administered.
    - The seven rights of medication administration should always be considered, even when transporting patients between facilities.
        - ✓ Right patient, drug, dose, route, time, outcome, documentation
- ❑ Paramedics may not accept any medications from the sending facility for the purposes of bolus administration during transport.

ALS Interfacility Transfer Protocols

A3 Part E2 Approved Medications and Classes

Any of the following medications or medication classes, not currently part of the EMT Paramedic Statewide Treatment Protocols, may be maintained if initiated at the sending facility, and can only be titrated through specific IFT protocols **and** by on-line **MEDICAL CONTROL**.

- Aminophylline
- Analgesics
- Anticonvulsants
- Antidotes
- Antidysrhythmics
- Antihypertensive agents
- Anti-infectives (e.g., antibiotics, anti-sepsis)
- Benzodiazepines
- Blood products
- Chemotherapeutic agents
- Electrolyte infusions
  - ✓ Potassium, limited to 10 mEq / hour
  - ✓ Magnesium, maintenance infusion limited to 2 g / hour
- Glycoprotein IIb / IIIa inhibitors
- Heparin
- Insulin infusions
- Intravenous steroids
- Mannitol infusions
- Octreotide
- Paralytics
- Parenteral nutrition
- Proton Pump Inhibitors
- Sedatives
- Standard IV infusion fluids (including 10% Dextrose)
- Thrombolytic agents
- Vasodilators (including all forms of Nitroglycerin)
- Vasopressors

Part E3- Medications Requiring the use of an IV Pump

The following medications / types of medications must be administered by IV pump:

- Anticoagulant
- Anticonvulsants
- Antidysrhythmics
- Antihypertensives
- Electrolyte Solutions
- Insulin
- Paralytics
- Sedatives
- Thrombolytics
- TPN
- Vasodilators
- Vasopressors

ALS Interfacility Transfer Protocols

Part E4 Blood and / or Blood-Product Administration

- ❑ Heating devices, automatic and rapid infusers are prohibited for ALS IFT use.
- ❑ Infusion / bloodbank documentation should be transported with the patient.
- ❑ Paramedics will not initiate a blood product infusion.
- ❑ At least one additional IV line should be in place.
- ❑ Paramedic will not administer any medications through an IV line which is being used to infuse blood or a blood product.
- ❑ Ensure the blood and / or blood products are infusing at the prescribed rate.
- ❑ Monitor and record the patient's vital signs every 5 – 10 minutes.
- ❑ **If any signs and symptoms of transfusion reaction, proceed immediately to the TRANSFUSION REACTION PROTOCOL (Part 3.2)**
- ❑ **Blood products should be infusing for at least 20 minutes prior to departure, to reduce the risk of transfusion reaction.**
    - ✓ The only exception to this is for administration of fresh frozen plasma (FFP) for patients suffering life-threatening intracranial bleeding
- ❑ When the transfusion has finished:
    - ✓ Record transfusion end-time and post-infusion vital signs.
    - ✓ Disconnect infusion set tubing from primary line.
    - ✓ Flush primary line with normal saline only.
    - ✓ Place any used supplies into a clean biohazard marked container or bag.
    - ✓ Deliver all empty transfusion bags and tubing to the receiving facility with the patient.

ALS Interfacility Transfer Protocols

Part F1- Mechanical Ventilation

A3

- ❑ All artificially ventilated patients must be transferred on a ventilator.
- ❑ All ventilators must be able to meet the demands of the patient's condition, taking into consideration all settings and features described or stipulated by the sending facility and / or physician.
- ❑ Ventilators may not be full control mode only and must be capable of meeting the patient's ventilatory needs.
- ❑ Unless the transfer is time sensitive in nature (e.g., STEMI, aortic dissection, acute CVA, unstable trauma, etc.), the following requirements apply to ventilator use and / or adjustment:
  - Patients must be observed, by the sending facility, for a minimum of 20 minutes after any adjustment in ventilator settings.
  - Patients should be on the transport ventilator for 20 minutes prior to departure.
- ❑ On-line **MEDICAL CONTROL** is required for any instance when adjustment of the ventilator settings is needed.

ALS Interfacility Transfer Protocols

Part F2 Intravenous Pumps

Paramedics who operate at the ALS IFT level are expected to have a thorough understanding of the functions and operations of the infusion pump they will utilize (whether property of the ambulance service or sending facility).

Paramedics are expected to not only control the basic functions of the pump, but also be able to dynamically troubleshoot pump issues. Prior to transport, paramedics must be proficient at the following:

- ❑ How to turn the pump on and off.
- ❑ How to load and safely eject the administration set into pump.
- ❑ The importance of having spare tubing.
- ❑ How to suspend pump operation.
- ❑ How to adjust the infusion rate, if necessary.
- ❑ How to clear air bubbles from the tubing.
- ❑ How to troubleshoot problems (e.g., occlusion alarms).
- ❑ How the specific service addresses low battery or power issues.

It is strongly recommended that paramedics be trained and practiced on the infusion pump they will be using in the field.

ALS Interfacility Transfer Protocols
Part F3 Pleural Chest Tube Monitoring

A3

- ❑ Obtain and document the indication for placement of the pleural chest tube.
- ❑ Ensure that the chest tube is secured to the patient, and that the drainage system remains in an upright position and below the level of the patient's chest at all times.
- ❑ Regularly evaluate lung sounds and vital signs.
    - Signs and symptoms of a tension pneumothorax include: Dyspnea, tachypnea, decreased / absent lung sounds on affected side, hypotension, tachycardia, jugular venous distention, tracheal deviation (late sign)
- ❑ Tubes and connections should be evaluated following any movement of the patient to ensure leak-proof operation and chest tube patency.
- ❑ Check the following initially and after moving the patient:
    - Ensure the dressing remains dry and occlusive.
    - Ensure there are no kinks or dependent loops (e.g., a loop or turn in the tubing that forces the drainage to move against gravity to reach the collection chamber) in the tubing.
    - Amount of water in the water seal chamber; if the water level appears low ask a staff member if it requires refilling prior to departure.
- ❑ Monitor the following items after routine assessment of patient's vital signs:
    - Drainage (document the appearance and amount of fluid, at the start and at the conclusion of transport)
    - Bubbling in the water seal chamber
    - Gentle rise and fall of the water level, which corresponds with the patient's respirations is called "tidalling" and indicates that the system is functioning properly.
- ❑ Troubleshooting / problems
    - ✓ **Abnormal bubbling in the water seal chamber**
        - Remember, gentle rise and fall of the water level, which corresponds with the patient's respirations is called "tidalling" and indicates that the system is functioning properly.
        - Continuous air bubbling confirms a constant air leak from a tube connection or from the patient's chest (e.g., unresolved pneumothorax).
        - Intermittent bubbling confirms an intermittent air leak from the patient's chest.
    - No air bubbling confirms no air leak from the patient's chest and no air leak from a tube connection.
    - ✓ **If the entire chest tube is removed from the chest:** Cover with a three-sided dressing and contact **MEDICAL CONTROL**.
    - ✓ **If the chest drainage system tips over and spills:** Contact **MEDICAL CONTROL**; you may be instructed to clamp tube.
    - ✓ **If the chest drainage system is crushed or broken open, or the chest drain becomes detached from the chest tube:** Contact **MEDICAL CONTROL** immediately, do not reconnect; you may be instructed to place the end of the chest tube in a bottle of sterile water to create a seal.

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Adult and Pediatric Scope of Practice A4

Airway/Respiratory Management	EMT	AEMT	PARAMEDIC
BVM	X	X	X
Capnography		X	X
Chest Tube Maintenance			Δ
Cleared, Opened, Heimlich	X	X	X
CPAP	❑	❑	X (Adult only)
Endotracheal Intubation			X
Endotracheal Suctioning		X	X
Supraglottic Airways		X	X
Nasogastric/Orogastric Tube			X
Nasopharyngeal Airway	X	X	X
Nasotracheal Intubation			X
Nebulizer Treatment	*	X	X
Needle Decompression			X
Oral Suctioning	X	X	X
Oropharyngeal Airway	X	X	X
Oxygen Administration	X	X	X
Pulse Oximetry	X	X	X
Tracheostomy Maintenance	X	X	X
Ventilator Operation			*/Δ

Legend:

X *Skill allowed under protocol and in MA permitted Scope of Practice.*

*** *Skill allowed under protocol with medical director approval and training.*

Δ *Skills allowed under protocol for IFT use only*

❑ *Skills allowed only under Paramedic-Basic/ALS-assist staffing and training.*

A4 Adult and Pediatric Scope of Practice

Routes of Access/ Medication Administration	EMT	AEMT	PARAMEDIC
Auto Injector	X	X	X
Blood Products			Δ
Endotracheal			
Inhalation	MDI/*	X	X
Intramuscular	*	X	X
Intraosseous		X	X
Intravenous		X	X
Intravenous Pump			Δ/X
Oral	X	X	X
Intranasal	X	X	X
Rectal		Assist (Diastat)	X
Subcutaneous		X	X
Sublingual	Assist	X	X
Central Line Maintenance			Δ
Peripheral Venous Access		X	X
Intraosseous Access		X	X

Legend:

X *Skill allowed under protocol and in MA permitted Scope of Practice.*

***** *Skill allowed under protocol with medical director approval and training.*

Δ *Skills allowed under protocol for IFT use only*

❑ *Skills allowed only under Paramedic-Basic/ALS-assist staffing and training.*

Adult and Pediatric Scope of Practice A4

Cardiac Management	EMT	AEMT	PARAMEDIC
Application of 12 Lead ECG	❑	❑	X
Application of 3 or 4 lead ECG	❑	❑	X
CPR - Cardiopulmonary Resuscitation	X	X	X
Defibrillation - AED	X	X	X
Defibrillation - Manual			X
Induced Therapeutic Hypothermia	*	*	X (Adult Only)
Interpretation of 12 Lead ECG			X
Interpretation of 3 or 4 lead			X
Synchronized Cardioversion			X
Transcutaneous Pacing			X

Advanced EMTs may administer the following medications (in addition to those of an EMT):

- **Albuterol** (MDI/Nebulizer), Adult & Pediatric
- **Dextrose** (IV/IO)
- **Epinephrine** (IM or via auto-injector)
- **Glucagon** (IV/IO/IM/IN/SC)
- **Ipratroprium Bromide** (MDI/Nebulizer)
- **Lidocaine HCL 2%** (following IO Insertion)
- **Naloxone** (IV/IO/IM/IN)
- **Nitroglycerin** (SL)
- **Ondansetron** (PO by ODT/IV/IM)

Legend:

X *Skill allowed under protocol and in MA permitted Scope of Practice.*

***** *Skill allowed under protocol with medical director approval and training.*

Δ *Skills allowed under protocol for IFT use only*

❑ *Skills allowed only under Paramedic-Basic/ALS-assist staffing and training.*

A4 Adult and Pediatric Scope of Practice

Other Skills	EMT	AEMT	PARAMEDIC
Blood Draw		X	X
Blood Glucose Analysis	*	X	X
Blood Lactate Analysis			X
Burn Care	X	X	X
Cervical Spinal Immobilization	X	X	X
Childbirth	X	X	X
Cold Pack	X	X	X
Extrication	X	X	X
Eye Irrigation (Morgan Lens)			X
Hot Pack	X	X	X
Restraints - Pharmacological			X
Restraints - Physical	X	X	X
Selective Spinal Assessment	*	*	*
Spinal Immobilization - Lying (Long board)	X	X	X
Spinal Immobilization - Seated (K.E.D.)	X	X	X
Spinal Immobilization - Standing	X	X	X
Splinting	X	X	X
Splinting - Traction	X	X	X
Wound Care - Occlusive Dressing	X	X	X
Wound Care Pressure Bandage	X	X	X

Legend:

X *Skill allowed under protocol and in MA permitted Scope of Practice.*

******* *Skill allowed under protocol with medical director approval and training.*

∆ *Skills allowed under protocol for IFT use only*

❑ *Skills allowed only under Paramedic-Basic/ALS-assist staffing and training.*

DPH APPROVED STATEWIDE POINT OF ENTRY PLANS

In Massachusetts, point of entry for EMS is governed by the EMS System regulations, and their definition of "appropriate health care facility." An appropriate health care facility is the emergency department of an acute care hospital, or a licensed satellite emergency department, that is closest geographically (interpreted by DPH to be "in time") to the patient's location, OR in compliance with a Department of Public Health-approved point of entry plan. The following are statewide DPH-approved EMS point of entry plans, and are included here at the end of the Protocols as a resource, for your convenience.

Protocol Continues

Massachusetts Department of Public Health-Approved
Statewide Point of Entry Plan for
Appropriate Health Care Facility Destination
Based on Patient's Specific Condition and Need

Effective Date: August 1, 2008; Updated January 18, 2011 and March 24, 2016

Background and Scope:
As a general rule, in the case of an emergency, EMS transports patients to the closest geographic hospital with a licensed emergency department, in accordance with the EMS System regulations, 105 CMR 170.355, and the definition in 170.020 for "appropriate health care facility." The Department interprets this to be the closest hospital by driving time.

Sometimes, a patient's medical condition makes it more appropriate to take the patient to a hospital that is not the closest. Under the definition at 105 CMR 170.020, an "appropriate health care facility" can also be one designated in a Department-approved point-of-entry plan. The Department currently has approved condition-specific point-of-entry plans for trauma, stroke and STEMI patients.

This point-of-entry plan addresses other circumstances when, because of the patient's specific medical needs, the patient would clinically benefit from going to a more distant hospital emergency department. Following the procedures in this point-of-entry plan, an ambulance service and its EMTs may transport an emergency patient not covered by a condition-specific Department-approved point-of-entry plan (i.e., stroke, STEMI or trauma) to a hospital other than the closest, based on the patient's medical condition and need. However, this point-of-entry plan would not require a service and its EMTs to deviate from taking such a patient to the closest hospital emergency department, when not permitted by service policy.

This point-of-entry plan does not affect transport of patients covered by condition-specific Department-approved point of entry plans (i.e., trauma, stroke and STEMI). Such patients are to continue to be transported in accordance with these special point-of-entry plans.

Procedure:

I. Unstable patients: Transport to the closest hospital emergency department, or as required under a condition-specific Department-approved point-of-entry plan. An unstable patient is one whose vital signs have significantly changed (either upwards or downwards) from normal ranges, in the absence of interventions. See EMS textbooks for normal ranges of vital signs. **If there is any question about the stability of the patient, transport to the closest hospital.**

II. Stable patients:

A. Considerations: Based on an appropriate assessment of the patient, including obtaining of the patient's medical history, EMTs may consider transporting a patient to a hospital other than the closest, if the more distant hospital is more appropriate to the patient's specific medical condition and needs, based on the following factors:

1. The more distant hospital better meets the medical needs of the patient because

a. The patient's current physician and medical records are there; the patient has recently been discharged from that hospital; the patient has had previous hospitalizations there; the patient's complex medical history is followed at the hospital; or

b. The patient's specific medical condition needs one of the following specialty services for which the hospital is licensed:
Burn Unit, Obstetrics, Pediatrics

c. The patient's specific medical condition would be most appropriately addressed at a hospital designated by the Department as a MA Sexual Assault Nurse Examiner (SANE) site.

Protocol Continues

Protocol Continued

2. The additional time required to transport the patient to the more distant hospital does not exceed 20 minutes. (Multiple hospitals for which estimated transport time from the patient is less than 10 minutes are considered to be of equal transport distance.)
3. The level of service at which the ambulance is operating and the care capabilities of the EMTs are appropriate to the patient's needs during transport.
4. The available EMS resources in the system at the time of the call would be capable of handling the additional transport time for this unit.

B. Medical Control input:

1. If there is any question about whether, based on the above considerations, the patient should be transported to the more distant hospital, contact medical control.
2. If the additional transport time to the more distant hospital, compared to the closest hospital, is less than 20 minutes, EMTs may transport the patient to the more distant hospital under this point-of-entry plan.
3. If the additional transport time to the more distant hospital may be more than 20 minutes, contact medical control.

C. Documentation and Quality Assurance

1. EMTs must document on their patient care report the clinically based reason for deviating from transport to the closest hospital emergency department. EMTs must also document on the trip record the name of the authorizing physician, if medical control was contacted.
2. The ambulance service will maintain a system for review of all instances in which patients are transported to a hospital more distant than the closest hospital emergency department.

Ambulance calls in which patients are transported to a hospital more distant than the closest hospital are reviewable by the ambulance service's affiliate hospital medical director, or, until July 1, 2016, for BLS services with no affiliate hospital medical director, the regional medical director.

Protocol Continues

Protocol Continued

Statewide Trauma Field Triage Criteria and Point of Entry Plan for Adult and Pediatric Patients

Early notification of the receiving facility, even from the scene, will enhance patient

Preconfigured response initiated/appropriate pre-arrival instructions given based on Local

Perform Primary Survey

1) Does the patient have:

- Uncontrolled airway?
- Cardiopulmonary arrest?

Yes → **IMMEDIATELY LIFE THREATENING** → **Transport immediately to nearest hospital**

N

2) Does the patient have:

Physiologic Criteria:

- Glasgow Coma Scale <14
- Respiratory rate < 10 or > 29 or respiratory rate out of range for age?
- Systolic Blood Pressure < 90 mmHg or < 70-90 in pediatrics

Anatomic Criteria:

- Flail Chest?
- Open or depressed skull fractures?
- Penetrating trauma to head, neck, torso, or extremities proximal to elbow and knee?
- Crushed, degloved or mangled extremity
- Pelvic fractures (excluding simple fractures)
- Paralysis
- 2 or more proximal long bone fractures, or any open proximal long bone fracture?
- Amputations proximal to wrist or ankle

Yes → **CRITICAL TRAUMA** → **Transport to:**

-A Level I, II or III Trauma Center or Pediatric Trauma Center**. These patients should be transported preferentially to the highest level of care within the trauma system in accordance with DPH-approved Regional Point of Entry Plan.

- For prolonged transport times, consider activating the appropriate air ambulance service.

For patients being transported by air ambulance, transport to a level 1 trauma center with helipad facilities.

** MDPH-designated, or ACS-verified if out-of-state

NO

3) Mechanism-of -Injury Criteria:

Falls:

- Adults > 20 feet (one story is equal to 10 feet)
- Children > 10 feet or two or three times the height of the child

- High-Risk auto crashes.
  - Death in same passenger compartment
  - Intrusion > 12 inches occupant site, >18 inches any site
  - Ejection (partial or complete) from vehicle
  - Vehicle telemetry data consistent with high risk of injury
- Auto vs. pedestrian/bicycle thrown/run over or with significant (>20 mph) impact
- Motorcycle crash > 20 mph

Yes → Transport to closest appropriate Trauma Center** which may not be the highest level Trauma Center**

N

4) Assess special patient or systems considerations

Age:

- Older adults (aged > 55 years)
- Children should be triaged to pediatric trauma centers per Regional Point of Entry Protocols

Anticoagulation and bleeding disorders

Burns:

- Without other trauma mechanism to burn facility
- With traumatic mechanism to Trauma Center

Time sensitive extremity injury

End stage renal disease requiring dialysis

Pregnancy > 20 weeks

EMS provider judgment

EMS providers are encouraged to contact medical control for direction of trauma patients as needed.

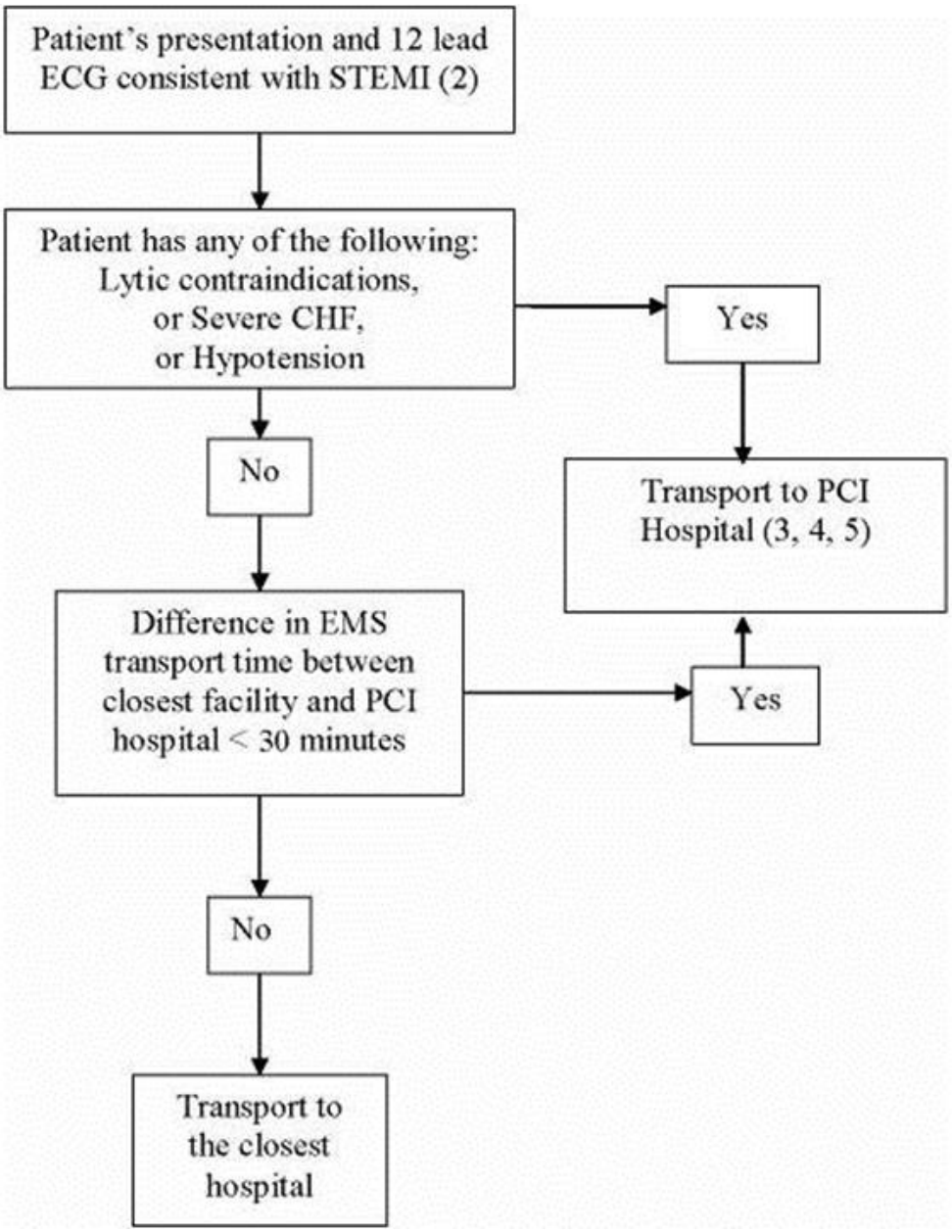
Yes → **Contact medical control and consider transport to a Trauma Center** or specific resource hospital**

NO → **Transport to closest appropriate hospital.**

Protocol Continues

Protocol Continued

Algorithm for Paramedic-Level Transported STEMI Patients



Following conditions apply:

(1) Patients in arrest, with compromised airway, or transported at BLS or ALS-Advanced EMT level will go to the closest appropriate health care facility
(2) Ambiguous cases transported at ALS-Paramedic level will go to closest facility
(3) Contact medical control for any questions regarding point of entry or treatment
(4) PCI facility will be notified
(5) Use patient's medical history and established medical relations if multiple PCI facilities

Protocol Continues

Protocol Continued

Stroke Point of Entry Plan (S-PEP)

EMS operational definition of acute stroke:
Presence of symptoms < 5 hr duration (or since last seen at baseline) according to the Massachusetts Stroke Scale **or** other concerning neurologic signs consistent with stroke. Other neurologic signs include:

- sudden onset dizziness with inability to walk
- double vision and eye movement abnormalities
- weakness affecting the leg

1. Following the Mass EMS Pre-hospital Treatment Protocols for Acute Stroke, establish a diagnosis of possible acute stroke based on Massachusetts Stroke Scale scale (Protocols Appendix Q)
2. Establish time of onset and last time seen at baseline
3. If stroke symptoms present and time from onset of symptoms to hospital arrival will be ≤ 2 hours, transport patient to nearest appropriate DPH-designated Primary Stroke Service (PSS)*****
4. Notify receiving facility as early as possible

*** Determining most appropriate transport:**

1. The goal is to transport patient to PSS within 5 hours of symptom onset. Choose the most appropriate mode of transport (air, ground, etc.) and destination to achieve this.
2. If patient has depressed level of consciousness, compromised airway control, known hypoglycemia, suspected severe hypoglycemia (diaphoretic and a known diabetic), or is hemodynamically unstable, it may be more appropriate to transfer to nearest receiving hospital for acute stabilization.
3. If CT Scan capability is unavailable at the nearest PSS (e.g., “Cautionary Status”), the patient should be transported to the next nearest appropriate PSS as per above guidelines.