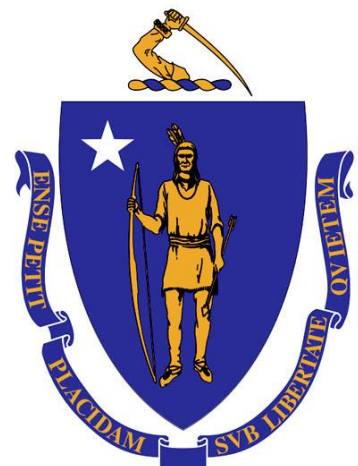


**EMERGENCY MEDICAL SERVICES
PRE-HOSPITAL
STATEWIDE TREATMENT
PROTOCOLS**

OFFICIAL VERSION 12.03

Complete Version

September 6, 2014



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 12.03

Legend	Definition
	First Responder (FR)-- Found only in protocols 2.2A, 2.2P, 2.9, and 2.14
	Emergency Medical Technician (EMT)
	Emergency Medical Technician-Intermediate (EMT-I)
	Advanced Emergency Medical Technician (AEMT)
	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:
Massachusetts Department of Public Health
Office of Emergency Medical Services
99 Chauncy St. 11th Floor
Boston, MA
02111

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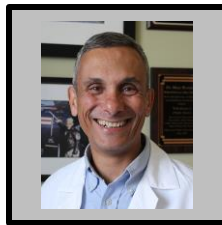


Dr. Jonathan Burstein
EMS Medical Director

Regional EMS Medical Directors



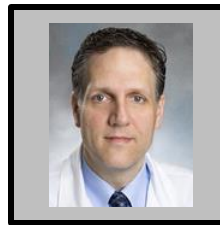
Dr. Raymond Conway
Region I



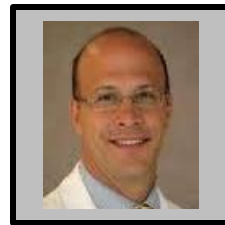
Dr. Marc Restuccia
Region II



Dr. Alexander Walker
Region III



Dr. Charles Pozner
Region IV



Dr. Andrew Old
Region V

The Department of Public Health would like to acknowledge the dedication and efforts of the many individuals that participated in this effort. This effort was performed under the leadership of our State and Regional EMS Medical Directors in their continued and tireless pursuit of clinical improvements within our state EMS system. Emergency medical services, as part of the larger healthcare system, are continually undergoing significant changes which will require a coordinated effort to adequately respond to.

The work to improve these statewide treatment protocols, along with the quality improvements to this document and our state EMS system is continuous and requires the efforts of many to accomplish. This document, and the work invested into it, is in support of the EMS providers working each day and night to provide exceptional care to our approximate 1.1 million patients annually.

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Michael Pulit
Patricia Reilly
Daniel Saxe
Dr. Gert Walter

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Jamie Pianka
Director OEMS

Dr. Jonathan Burstein
State EMS Medical Director

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SECTION 1:

GENERAL PATIENT CARE

NOTE: This protocol applies to all EMS calls.

RESPOND TO SCENE IN A SAFE MANNER:

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

SCENE ARRIVAL AND SIZE-UP:

- 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.

PATIENT APPROACH:

- 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 PCR and the service must have an internal performance improvement (PI) mechanism to review each case.
- **DO NOT** 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 – paramedic resources in accordance with these protocols.
- 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.

ASSESSMENT AND TREATMENT PRIORITIES

- Determine unresponsiveness, absence of breathing and pulselessness; Initiate high quality CPR with minimal interruptions 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.
- When obtaining IO access in patients able to perceive pain, in adults, administer **Lidocaine** 40mg over two minutes, followed by a 10mL fluid bolus over five seconds. In pediatrics, 1mg/kg to a maximum of 20mg.
- 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.

Protocol Continues

Protocol Continues

ASSESSMENT AND TREATMENT PRIORITIES (CONTINUED)

- 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 trip record 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-ET-CO₂ 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).
- Initiate intravenous therapy by venous cannulation and/or intraosseous access and fluid resuscitation if applicable, according to hemodynamic stability. For pediatric patients, a 20mL/kg fluid bolus if applicable.
- 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.

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 at all times. 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).

Protocol Continues

Protocol Continues

TRIP RECORDS AND DATA COLLECTION

- The EMS System regulations require an accurate, concise and properly documented trip record 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 trip records 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 trip record(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 nasal atomizer (IN) should be with no more than 1mL of volume per nares. If additional medication must be administered, wait one minute before repeating IN.
- 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.

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.

Protocol Continues

ADVANCED AIRWAY CONFIRMATION

- EMT-Intermediate, 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-Intermediates and 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 in place.
- Documentation on the trip record 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.

TRANSPORT DECISION

- 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.

SECTION 2:

MEDICAL

PROTOCOLS

2.1 Adrenal Insufficiency/Adrenal Crisis

Adult & Pediatric

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

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

EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS - ADULT & PEDIATRIC

I/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/EMT-INTERMEDIATE STANDING ORDERS

FR
E/I

- Routine Patient Care

MILD Distress

- Monitor for severe distress

SEVERE Distress

- **Epinephrine** auto-injector 0.3mg
- 2nd auto-injector 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.

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** – 1-10 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.)
- **Dopamine infusion**: 2-20 mcg/kg/min IV/IO (Rate determined by physician)

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.



CAUTION: Epinephrine for anaphylaxis must be administered by Auto-Injector ONLY, except by medical control order.

Medical Protocol 2.2A

2.2P

Allergic Reaction/Anaphylaxis Pediatric

FIRST RESPONDER/EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS



- Routine Patient Care
- For anaphylaxis and patient is over 6 months, administer **Epinephrine Auto-Injector** 0.15mg (for pediatric patient with a body weight less than 25 kg). If body weight is over 25 kg. use **Adult dose Epinephrine Auto-Injector** 0.3mg. A second injection in 5 minutes may be necessary.
- **Contact Medical Control if second epinephrine auto-injection required after 5 minutes**

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

PARAMEDIC STANDING ORDERS



- 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

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 ONLY, except by medical control order.

Clinical Criteria for Anaphylaxis:

If **one** of these criteria are 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

2.3A Altered Mental/Neurological Status/Diabetic Emergencies - Adult

EMT/EMT-INTERMEDIATE STANDING ORDERS

E/I

- Routine Patient Care
- If patient is unconscious or seizing, transport on left side (recovery position).
- If authorized and trained to do so, obtain a blood sugar reading.
 - If glucose is **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.
 - Patient must be able to speak and swallow
 - Other sugar sources are acceptable.
- A second dose may be necessary after 10 minutes if patient remains symptomatic.

ADVANCED EMT STANDING ORDERS

A

- For HYPOglycemic emergency:
 - **Dextrose** up to 25 grams IV/IO. Recheck glucose 5 minutes after administration of **Dextrose**.
 - May repeat **Dextrose** up to 25 grams 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.

PARAMEDIC STANDING ORDERS

P

- **Thiamine** 100 mg IV/IO/IM

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications

*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



CAUTION: If cerebrovascular accident is suspected, follow stroke protocols and notify Medical Control

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

Altered Mental/Neurological Status/ Diabetic Emergencies - Adult

2.3A

Name	Concentration	Volume (25 g)
D 50	0.5 g / m L	25 g / 50 m L
D 25	0.25 g / m L	25 g / 100 m L
D 10	0.1 g / m L	25 g / 250 m L

Medical Protocol 2.3A

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

EMT/EMT-INTERMEDIATE STANDING ORDERS

E/I

- Routine Patient Care
- If patient is unconscious or seizing, transport on left side (recovery position).
- If authorized and trained to do so, obtain a blood sugar reading.
 - If glucose is **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**
 - Patient must be able to speak and swallow
 - 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 Protocol

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- Treat other conditions according to specific protocols.

Behavioral Emergencies

Adult & Pediatric

E/I/A/P

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.
Stop talking with patient if they demonstrate increased agitation; allow time for them to calm down before attempting to discuss options again
11. Provide reassurance by acknowledging the crisis and validating the patient's feelings and concerns; use positive feedback, not minimization
12. Determine risk to self and others ("Are you thinking about hurting/killing yourself or others?")
13. Encourage patient to cooperatively accept transport to the hospital for a psychiatric evaluation and treatment.
14. Consider asking friends/relatives on scene to encourage patient to accept transport, if needed; but only if they are not a source of agitation.
15. 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.
16. 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

2.4

Protocol Continued

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 IV/IO/IM; and/or
- **Lorazepam** 2mg IV/IO/IM; or
- **Midazolam** 2.5-5mg IV/IO/IM/IN
- 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 and head injured patients; but do not administer to patients with a history of seizures or prolonged QT intervals.

Lorazepam is preferable for patients experiencing alcohol withdrawal or the toxic effects from sympathomimetic drugs, e.g. cocaine (or pcp)

Diazepam should NOT be administered to patients experiencing behavioral emergencies.

Medical Protocol 2.4

Behavioral Emergencies: Restraint Adult & Pediatric

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: All Provider levels

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 15lpm) 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

2.6A

Bronchospasm/Respiratory Distress- Adult

EMT/EMT-INTERMEDIATE STANDING ORDERS

E/I

- 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, 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**

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).

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** 0.15 mg-0.3 mg IM **BY AUTOINJECTOR ONLY** 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 1:1,000 for bronchospasm must administered by Auto-Injector **ONLY**, except by medical control order.

Bronchospasm/Respiratory Distress- Pediatric

EMT/EMT-INTERMEDIATE STANDING ORDERS

- 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.



E/
I

MEDICAL CONTROL MAY ORDER:

- Repeat of a second dose if required, and if prescribed 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

ADVANCED EMT STANDING ORDERS

- 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 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).

A

PARAMEDIC STANDING ORDERS

- 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.
- For severe distress: If patient is over 5 years old, administer pediatric dose **Epinephrine Auto-Injector** (for pediatric patient with a body weight less than 25 kg). If body weight is over 25 kg use Adult Auto-Injector. A second injection in 5 minutes may be necessary.
- Consider **Magnesium Sulfate** 25 mg/kg IV/IO over 10 min. (maximum dose 2 grams)

P

Protocol Continues

Bronchospasm/Respiratory Distress- Pediatric

2.6P



Protocol Continued

P

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- Treat other conditions according to specific protocols.

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.

Medical Protocol 2.6P



CAUTION: Epinephrine for bronchospasm must administered by Auto-Injector ONLY, except by Medical Control order.

Hyperthermia (Environmental) Adult & Pediatric

EMT STANDING ORDERS

E

- 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.

EMT-INTERMEDIATE/ADVANCED EMT/PARAMEDIC STANDING ORDERS

I/A/P

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



Hypothermia (Environmental) Adult & Pediatric

2.8

Medical Protocol 2.8

EMT STANDING ORDERS

E

- 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 3.1A/P, 3.7A/P):
 - 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.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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

Medical Protocol 2.9

FIRST RESPONDER/EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

FR/
E/
I/
A

- 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** 5mg IV/IO every 5 minutes; or 10mg IM or auto-injector (10mg) every 10 minutes, as needed.
- Instead of diazepam, may use either:**
- **Lorazepam** 1mg IV/IO may repeat once in 5, or 2mg IM, may repeat once in 10 minutes, **OR**
 - **Midazolam** 2.5mg IV/IO/IN every 5 minutes; or 5mg 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).

2.9

Nerve Agents Organophosphate Poisoning – Adult & Pediatric

Medical Protocol 2.9

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 1mg 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: <ul style="list-style-type: none"> ○ 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 Diazepam 10mg IV/IO/IM,OR Lorazepam 2-4mg IV/IO/IM,OR Midazolam 5-10mg 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 fasciculations 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.

Nerve Agents Organophosphate Poisoning – Adult & Pediatric

2.9

PEDIATRIC DOSING FOR NERVE AGENT EXPOSURES

Kg	Age	Atropine	Pralidoxime	Midazolam	Diazepam	Lorazepam
		0.02-0.05mg/kg	20-40 mg/kg	0.1mg/kg	0.25mg/kg	0.05-0.2mg/kg
1	Preemie	0.1mg	20-40mg	0.05-0.1mg	0.25mg/kg	0.05-0.2mg/kg
2	Newborn	0.1mg	40-80mg	0.1-0.2mg	0.5mg	0.1-0.4mg
5	3 mos	0.1mg-0.25mg	100-200mg	0.25-0.5mg	1.25mg	0.25-1mg
10	12 mos	0.2-0.5mg	200-400mg	0.5-1mg	2.5mg	0.5-2mg
15	2-3 yrs	0.3-0.75mg	300-600mg	2mg	3.75mg	0.75-3mg
20	4-7 yrs	0.4-1mg	400-800mg	2.5mg	5mg	1-4mg
25	6-9 yrs	0.5-1.25mg	500mg-1g	3mg	6.25mg	1.25-4mg
30	7-11 yrs	0.6-1.5mg	600mg-1g	3.5mg	7.5mg	1.5-4mg
35	8-13 yrs	0.7-1.75mg	700mg-1g	4mg	8.75mg	1.75-4mg
40	9-14 yrs	0.8-2mg	800mg-1g	4.5mg	10mg	2-4mg
45	10-16 yrs	0.9-2mg	900mg-1g	5mg	10mg	2.25-4mg
50	11-18 yrs	1-2mg	1g	5mg	10mg	2.5-4mg
55	12-18 yrs	1.25-2mg	1g	5mg	10mg	2.75-4mg
60	13-18 yrs	1.5-2mg	1g	5mg	10mg	3-4mg
65	14-18 yrs	2mg	1g	5mg	10mg	3.25-4mg
70	16-18 yrs	2mg	1g	5mg	10mg	3.5-4mg

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

EMT / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/
I/A

- 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 elevated the presenting part to remove pressure on the umbilical vessels to permit blood flow through cord.

PARAMEDIC STANDING ORDERS

P

- Eclamptic Seizures
 - **Lorazepam** 2-4mg slow IV/IO/IM, OR
 - **Diazepam** 5-10 mg slow IV/IO/IN, OR
 - **Midazolam** 2.5-5 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.

EMT/EMT-INTERMEDIATE/ADVANCED EMT/PARAMEDIC STANDING ORDERS

- Routine Patient Care—dry, warm, position, stimulate.
- For newborns requiring resuscitation, see [2.12 Newborn Resuscitation](#).
- Reassess airway by positioning and clearing secretions (only if needed):
 - Place the newborn 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 Newborn Resuscitation](#).
- 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 newborn in blankets or silver swaddler (preferred) and cover newborn's head.
 - Consider placing newborn skin-to-skin on the mother's chest or abdomen.
- Assess breathing by providing tactile stimulation:
 - Flick soles of feet and/or rub the newborn's back.
 - If newborn is apneic or has gasping respirations, nasal flaring, or grunting, proceed to [2.12 Newborn Resuscitation](#).
- 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 Newborn Resuscitation](#).
 - 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:

- Newborn infants 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.

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/
I/
A

- 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).
- Newborn 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 than 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 newborn 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 neonate is being assessed for need of additional resuscitative measures.

Pain & Nausea Management Adult & Pediatric

EMT / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/
I/
A

- Routine Patient Care

PARAMEDIC STANDING ORDERS: ADULT

P

- **Morphine Sulfate** 2mg IV/IO/IM/SC, every 5 minutes up to 10mg max. OR **Fentanyl** 1 mcg/kg slow IV/IO/IM/IN weight based (kg) to a max of 150mcg (150kg)
- **Ondansetron** 4 mg. IV/IO/IM or po-Ondansetron disintegrating tablet (ODT)

PARAMEDIC STANDING ORDERS: PEDIATRIC

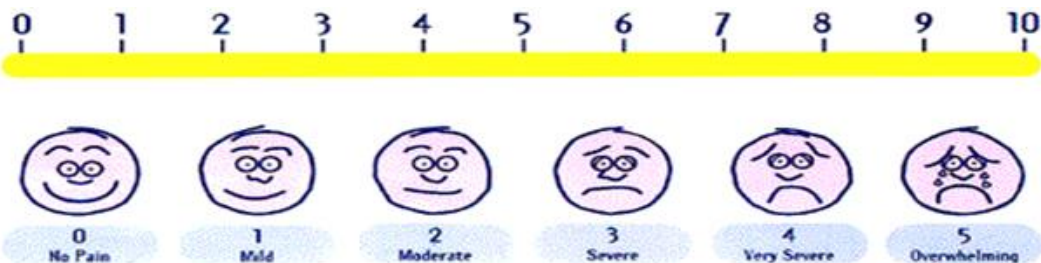


- **Morphine Sulfate** 0.1 mg/kg IV/IO/IM/SC (maximum individual dose 5 mg); OR **Fentanyl** 1 mcg/kg. to max. 150 mcg. slow IV/IO/IM/IN.
- **Ondansetron**, for child under or up to 25 kg. 2 mg. IV/IM or ODT; for a child over 25 kg., 4 mg. IV/IM or ODT

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications



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

FIRST RESPONDER/EMT/EMT-INTERMEDIATE STANDING ORDERS

FR
E
I

- Routine Patient Care.
- **Naloxone** 2mg via Nasal Atomized (IN).
 - 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** 0.4-2mg IV/IO/IM/IN. May be repeated as indicated.

PARAMEDIC STANDING ORDERS

P

- **Thiamine** 100mg IV/IO/IM

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).
- **Diazepam** 5 mg-10 mg slow IV/IO/IM/PR; OR **Lorazepam** 2mg-4mg slow IV/IO/IM (for seizures); OR **Midazolam** 2.5-5mg 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 Nitrite given. **NOTE:** If hypotension develops, STOP all nitrites, treat for shock, and consider administration of **Dopamine**.
- **Hydroxocobalamin** 5 gm. IV/IO for cyanide toxicity.
- **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**

EMT / EMT-INTERMEDIATE STANDING ORDERS

E/
I

- 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**, administer ONE of the following:
 - **Midazolam** 2.5- 5 mg slow IV/IO/IM/IN.
 - **Lorazepam** 2– 4 mg slow IV/IO/IM.
 - **Diazepam** 5–10 mg slow IV/IO/IM/PR.

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.

EMT/EMT-INTERMEDIATE STANDING ORDERS

E/
I

- 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 **70mg/dL**, treat per 2.3P Altered Mental/Neurological Status/Diabetic Emergencies/Coma- Pediatric.
- **Midazolam** 0.05mg/kg IV/IO/IM/IN to a maximum single dose of 4mg.
OR
- **Lorazepam** 0.05-0.1mg/kg IV/IO/IM Slowly (dilute 1:1 in Normal Saline), max. single dose of 2mg.
OR
- **Diazepam** 0.25mg/kg IV/IO/IM to a maximum single dose of 5-10mg or a RECTAL DOSE of 0.5mg/kg unless contraindicated.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications.
- Treat other conditions according to specific protocols.

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

- 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.

E

CARDIOGENIC SHOCK

- Assess and treat for pulmonary edema and/or congestive heart failure (CHF), per 3.6 Congestive Heart Failure.

DISTRIBUTIVE SHOCK

- If patient has history of adrenal insufficiency, manage according to 2.1 Adrenal Insufficiency.

HYPOVOLEMIC SHOCK

Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial tourniquets preferred), or hemostatic bandage.

OBSTRUCTIVE SHOCK

EMT-INTERMEDIATE/ADVANCED EMT - STANDING ORDERS

- No fluid bolus.
- Total volume administered is to be based on hemodynamic stability.
- Total volume administered is determined by hemodynamic stability.
- Total volume administered is to be based on hemodynamic stability.

I/

A

Protocol Continues

 Protocol Continued
PARAMEDIC - STANDING ORDERS**P**

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

CARDIOGENIC SHOCK**DISTRIBUTIVE SHOCK****HYPOVOLEMIC SHOCK****OBSTRUCTIVE SHOCK****MEDICAL CONTROL MAY ORDER**

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

- For patients with confirmed or suspected Adrenal Insufficiency, treat per 2.1 Adrenal Insufficiency

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

- Needle Decompression, if tension pneumothorax suspected
- **Dopamine** 2-20mcg/kg/min IV/IO

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.

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

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

E

CARDIOGENIC SHOCK

DISTRIBUTIVE SHOCK

HYPOVOLEMIC SHOCK

OBSTRUCTIVE SHOCK

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,

EMT-INTERMEDIATE/ADVANCED EMT - STANDING ORDERS

I/
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.

- 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.

Protocol Continues


 Protocol Continued
PARAMEDIC - STANDING ORDERS

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

CARDIOGENIC SHOCK**DISTRIBUTIVE SHOCK****HYPOVOLEMIC SHOCK****OBSTRUCTIVE SHOCK**

P

MEDICAL CONTROL MAY ORDER

- Dopamine 2-20mcg/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.



Say “Stroke Alert” in Hospital Entry Note if patient meets the Stroke Criteria

EMT / EMT-INTERMEDIATE / ADVANCED EMT / PARAMEDIC STANDING ORDERS

E/
I/
A/
P.

- Routine Patient Care.
- Perform Massachusetts Stroke Scale, or equivalent nationally recognized 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 <4.5 hours, consider transport to the most appropriate facility in accordance with local guidelines/agreements.

1. One or more abnormal findings of MASSACHUSETTS STROKE SCALE

FACIAL DROOP (*Patient shows teeth or smiles*)

- Normal: Both sides of face move equally
- Abnormal: One side of face does not move as well as the other

ARM DRIFT (*Patient closes eyes and extend both arms straight out for 10 seconds.*)

- Normal: There is no drift at all or both arms drift the same
- Abnormal: One arm drifts/moves down compared to the other arm or one arm noticeably weaker than the other.

SPEECH (*Score first attempt: Patient repeats, e.g. “The sky is blue in Boston.”*)

- Normal: The Patient says the correct words with no slurring of words on first attempt.
- Abnormal: The patient slurs words, says the wrong words or is unable to speak on first attempt

OR

2. One or more Sudden Acute Stroke Symptoms, including:

- *Sudden* numbness, weakness or paralysis of face, arm or leg – especially on 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

SECTION 3:

CARDIAC PROTOCOLS

Acute Coronary Syndrome- Adult

3.1

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/EMT-INTERMEDIATE STANDING ORDERS

E/I

- Routine Patient Care
- **Aspirin** 162-325 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 >100mmHg
- **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 >100 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), **ildenafil** (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

3.1

Acute Coronary Syndrome - Adult

Protocol Continued

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."

<u>Classical Anginal Chest Pain</u>	<u>Atypical Chest Pain</u>	<u>Anginal Equivalents</u>
Central Anterior Pain	Epigastric discomfort	Dyspnea
Chest Pressure, tightness	Musculoskeletal	Syncope
Crushing, radiates to arms, neck, back.	Often unilateral	"Generally Weak"
	Nausea/Vomiting	Palpitations



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

Acute Coronary Syndrome – Adult Fibrinolytic Checklist

3.1

***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 stroke victim, is a candidate for ischemic stroke reperfusion.

Step 1

Has patient experienced chest discomfort for greater than 15 minutes and less than 12 hours?

YES

NO

Does ECG show STEMI or new or presumably new LBBB?

YES

NO

Step 2

Are there contraindications to fibrinolysis?
If ANY one of the following is checked YES, fibrinolysis MAY be contraindicated.

Systolic BP >180 to 200 mm Hg or diastolic BP >100 to 110 mm Hg	<input type="radio"/> YES	<input type="radio"/> NO
Right vs left arm systolic BP difference >15 mm Hg	<input type="radio"/> YES	<input type="radio"/> NO
History of structural central nervous system disease	<input type="radio"/> YES	<input type="radio"/> NO
Significant closed head/facial trauma within the previous 3 weeks	<input type="radio"/> YES	<input type="radio"/> NO
Stroke >3 hours or <3 months	<input type="radio"/> YES	<input type="radio"/> NO
Recent (within 2-4 weeks) major trauma, surgery (including laser eye surgery), GI/GU bleed	<input type="radio"/> YES	<input type="radio"/> NO
Any history of intracranial hemorrhage	<input type="radio"/> YES	<input type="radio"/> NO
Bleeding, clotting problem, or blood thinners	<input type="radio"/> YES	<input type="radio"/> NO
Pregnant female	<input type="radio"/> YES	<input type="radio"/> NO
Serious systemic disease (eg, advanced cancer, severe liver or kidney disease)	<input type="radio"/> YES	<input type="radio"/> 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	<input type="radio"/> YES	<input type="radio"/> NO
Pulmonary edema (rales)	<input type="radio"/> YES	<input type="radio"/> NO
Signs of shock (cool, clammy)	<input type="radio"/> YES	<input type="radio"/> NO
Contraindications to fibrinolytic therapy	<input type="radio"/> YES†	<input type="radio"/> NO
Required CPR	<input type="radio"/> YES	<input type="radio"/> NO

†Consider transport to primary PCI facility as destination hospital.

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/I/A

- 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 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.

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/I/A

- 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 for Electrical Therapy.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- **Dopamine** 2-20 mcg/kg/min IV/IO
- **Epinephrine Infusion** 1-10 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.
- Treat other conditions according to specific protocols.

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/
I/A

- 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.)
- Treat other conditions according to specific protocols.

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

EMT STANDING ORDERS

E

- Routine Patient Care
- EARLY DEFIBRILLATION.
 - Perform CPR 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.
 - Resume CPR when appropriate.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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.

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.
- Treat for other conditions according to specific protocols.

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 / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/
I/
A

- 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 DEFIBRILLATION**
 - a. Use AED according to the guidelines of the ECC or as otherwise noted in these protocols and other advisories

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.

Treat for other conditions according to specific protocols.

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 (ADULT): 3.5A

Ventricular Fibrillation/ Pulseless Ventricular Tachycardia

EMT / EMT-INTERMEDIATE STANDING ORDERS

E/I

- Routine Patient Care
- Perform CPR until defibrillator is attached and operable.
 - Use AED according to the ECC guidelines or as otherwise noted in these protocols and other advisories
 - Resume CPR when appropriate.

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 CPR 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 CPR and defibrillate (each shock at 360J monophasic equivalent) per ECC guidelines if ventricular fibrillation/ventricular tachycardia is persistent.
- Consider **Amiodarone** 300 mg slow IV/IO push.

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- **Sodium Bicarbonate** 1 mEq/kg IV/IO.
- **Magnesium Sulfate** 1 – 2 grams IV/IO over 5 minutes, in torsades de pointes or suspected hypomagnesemic state or refractory ventricular fibrillation/ventricular tachycardia.
- **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.
- Treat other conditions according to specific protocols.

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 a rate of 8 – 10 breaths per minutes, with enough volume to produce adequate chest rise.

Ventricular Fibrillation/ Pulseless Ventricular Tachycardia

EMT / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/I/A

- 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

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 VT/FT.
- Treat other conditions according to specific protocols.

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.

Congestive Heart Failure (Pulmonary Edema)

3.6

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/
I/A

- Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- IV must be established before administration of nitroglycerin
- **Nitroglycerin** 0.4-0.8mg (1/150 gr.) tablet/spray, sublingual
 - SBP must be >100 mm Hg
 - May be repeated every 5 minutes, as dictated by BP.
- **Nitropaste** 1 inch to chest wall if SBP >140 mm Hg.
- Continuous positive airway pressure (CPAP) assistance, if not contraindicated, and if nebulizer therapy can be continued with the CPAP device.

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.
- **Dopamine 2 mcg/kg to 20 mcg/kg per minute.**
- In patients who require emergent intubation, and cannot be intubated by conventional means, see [5.1 Difficult Airway Protocol](#)
- Treat other conditions according to specific protocols.

Cardiac Protocol 3.6



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.

Induced Therapeutic Hypothermia – 3.7

Adult

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 (< 34° 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 (< 34° C) by core temperature
- Identified Pregnancy, or
- Respiratory arrest

EMT STANDING ORDERS

E

- Routine Patient Care

MEDICAL CONTROL MAY ORDER



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

EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

I/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, and infuse chilled normal saline (2 – 4° C) wide open @ 500ml increments to a max of 2000ml or 30 ml/kg to a max of 2L monitoring for CHF. Target cooling body to temperatures 32-34° C. (If refrigerated saline available)

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 (34° C or greater). **(IF AVAILABLE)**
- If patient has significant shivering, you may administer:
 - **Lorazepam** 2 – 4 mg IV/IO/IM, OR
 - **Midazolam** 2.5-5 mg IV/IO/IM/IN, OR
 - **Diazepam** 5-10 mg IV/IO/IM/PR, OR
 - **Morphine** 2 mg IV/IO/IM/IN every 5 minutes up to 10 mg max, OR
 - **Fentanyl** 50 mcg IV/IO/IM/IN every 5 minutes to max. 200 mcg

Post Resuscitative Care/ROSC – Adult

3.8

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/
I/A

- Routine Patient Care

PARAMEDIC STANDING ORDERS

P

- Consider treatable causes such as overdose, cardiogenic shock and STEMI.
- 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.
- If the need for resuscitation was the result of Ventricular Fibrillation or Ventricular Tachycardia and no anti-arrhythmic treatment was given, administer **Amiodarone** 150 mg in 10 cc Normal Saline, slow IV/IO over 8-10 minutes then **Amiodarone** 1 mg/min IV drip.
 - For example: 100mg/100ml - 1mg/minute
- Begin induced therapeutic hypothermia (3.7 Induced Therapeutic Hypothermia), but do not delay transport
- **Dopamine** 2-20 mcg/kg/min IV/IO

MEDICAL CONTROL MAY ORDER



- Additional doses of above medications
- **Epinephrine Infusion** - Administer 1 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 as ordered 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.
- Treat other conditions according to specific protocols.



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.

Cardiac Protocol 3.8

Supraventricular Tachycardia- Adult

3.9A

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

- Routine Patient Care

E/
I/A

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 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.
- Treat other conditions according to specific protocols.

Cardiac Protocol 3.9A

Supraventricular Tachycardia- Pediatric

3.9P

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/
I/A

- 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 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).
- Treat other conditions according to specific protocols



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.

Cardiac Protocol 3.9P

Ventricular Tachycardia with Pulses ^{3.10}

Adult & Pediatric

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E
I
A

- 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 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.
- Treat other conditions according to specific protocols.

SECTION 4:

TRAUMA

PROTOCOLS

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

EMT STANDING ORDERS

- 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

EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

- 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), utilize the parkland formula for fluid resuscitation.
 - Burn <20% age appropriate maintenance fluids as follows:
 - 4ml/kg/hr for the first 10kg
 - 2ml/kg/hr for the 2nd 10kg
 - 1ml/kg/hr for the remainder
 - For pediatric patients <10kg, 4cc/kg
 - For transport times GREATER THAN 1 HOUR consult medical control



MEDICAL CONTROL MAY ORDER



- Additional IV fluid boluses

PARAMEDIC STANDING ORDERS

- 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

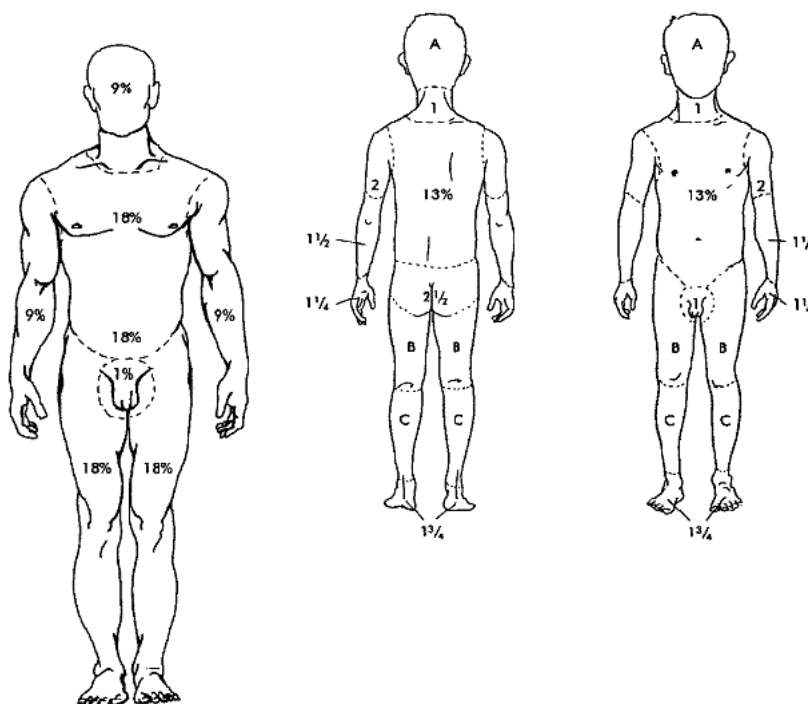
Burns/Inhalation/Electrocution and 4.1 Lightning Strike Injuries – Adult & Pediatric

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 – 1/3 of head	9 %	8 %	6 1/2 %	5 1/2 %	4 1/2 %
B – 1/3 of one thigh	2 %	3 %	4 %	4 1/4 %	4 %
C – 1/3 of one leg	2 %	2 %	2 1/2 %	3 %	3 1/4 %

Drowning/Submersion Injuries Adult & Pediatric

4.2

Trauma Protocols 4.2

EMT / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/
I/A

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

Note: Ensure spinal stabilization and immobilization if indicated (i.e., 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 / EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

E/I/A

- 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 protective device over both eyes (e.g., eye shield). 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

MEDICAL CONTROL MAY ORDER



- Topical anesthetic: **Tetracaine** 1-2 eye drops as needed.
- Use of Morgan lens for eye irrigation.
- 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: systoleou). **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 a paper or styrofoam cup or other protective cup/cone etc. over the impaled object. The protective cup should not touch the impaled object and it must rest upon the rolls of gauze or gauze pads.
3. Secure the dressings and cup in place with self adherent roller bandage or wrapping of gauze. **DO NOT** secure bandage over the top of the cup.
4. Patch and bandage the uninjured eye to reduce eye movements.

Head Trauma & Injuries

Adult & Pediatric

4.4

Trauma Protocols 4.4

EMT STANDING ORDERS

E

- 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.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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

P

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

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

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

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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

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

Musculoskeletal Injuries

Adult & Pediatric

4.6

Trauma Protocols 4.6

EMT STANDING ORDERS

E

- 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 mid-shaft femur fractures (unless contraindicated by associated injury).
- Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

MEDICAL CONTROL MAY ORDER

I/A



- Additional fluid boluses.

PARAMEDIC STANDING ORDERS

P

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

Soft Tissue / Crush Injuries

Adult & Pediatric

4.7

EMT/EMT-INTERMEDIATE/ADVANCED EMT STANDING ORDERS

E/I/A

- 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 paraspinal muscles. Compartment syndrome may result in ischemic swelling, muscle infarction, nerve injury and permanent loss of extremity function.

Spinal Column/Cord Injuries

Adult & Pediatric

4.8

Trauma Protocols 4.8

EMT STANDING ORDERS

E

- 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.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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



- Additional Normal Saline 250 mL – 500 mL bolus(es), wide open or titrated to patient's hemodynamic status.
- For suspected neurogenic shock (without hypovolemia):
 - **Dopamine 2 mcg/kg to 20 mcg/kg per minute.**

****Note:** Service Medical Director Option for Selective Spinal Assessment if trained and authorized, see [6.4 Selective Spinal Assessment](#).

EMT STANDING ORDERS

E

- 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.

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/
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 (2nd intercostal space, midclavicular line with at least 3.25inch, 14g angiocath)

Traumatic Amputations

Adult & Pediatric

4.10

EMT STANDING ORDERS

E

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

EMT-INTERMEDIATE / ADVANCED EMT / PARAMEDIC STANDING ORDERS

I/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

Trauma Protocols 4.10

Traumatic Cardiac Arrest Adult & Pediatric

4.11

Trauma Protocols 4.11

EMT STANDING ORDERS

E

- 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](#)

EMT-INTERMEDIATE / ADVANCED EMT STANDING ORDERS

I/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

SECTION 5:

AIRWAY

PROTOCOLS AND

PROCEDURES

Upper Airway Obstruction- Adult

5.1A

EMT STANDING ORDERS

E

- 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 advanced 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.

EMT-INTERMEDIATE STANDING ORDERS

I

- Perform direct laryngoscopy if foreign body suspected. If foreign body is visible and easily accessible, attempt removal with Magill Forceps.

PARAMEDIC STANDING ORDERS

P

- 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 6.3 Needle Cricothyrotomy.
- Consult Medical Control for removal of tracheostomy tube

Upper Airway Obstruction- Pediatric

5.1P

EMT STANDING ORDERS

E

- 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 5.2 Tracheostomy Tube Obstruction Management for more information.

EMT-INTERMEDIATE STANDING ORDERS

I

- 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.

PARAMEDIC STANDING ORDERS

P

- **Nebulized Racemic Epinephrine** 11.25 mg in 2.5ml normal saline, for suspected **severe croup**, with stridor at rest and respiratory distress.

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 trip record documentation 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 is defined as *unsuccessful intubation after a total of 3 attempts, unable to clear a foreign body airway obstruction, airway grading (Figure 1 & 2) suggests intubation unlikely*.**

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.

EMT-INTERMEDIATE STANDING ORDERS

- After completing your assessment as listed above:
 - Provide Rescue Airway Management.
 - 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

- 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** 2.5 mg SLOW IV/IO/IM/IN. Repeat as necessary to total of 5 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.

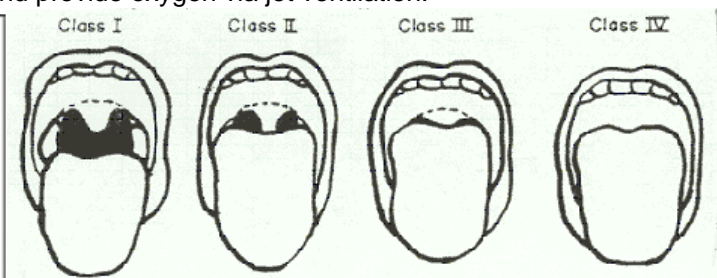
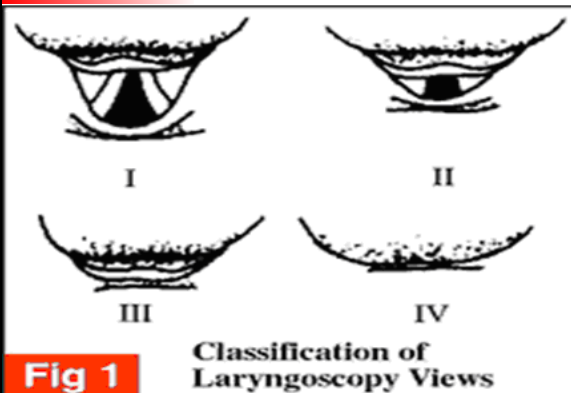


Figure 1 depicts the Cormack & LeHane laryngoscopy classifications. Figure 2 depicts the Mallampati system of airway grading, generally performed with patient sitting in full fowlers position with tongue extended.

5.3

Tracheostomy Tube Obstruction Management Adult & Pediatric

EMT/EMT-INTERMEDIATE/ADVANCED EMT/PARAMEDIC STANDING ORDERS

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

- Wipe neck opening with gauze
- Attempt to suction tracheostomy tube
- Remove tracheostomy tube if necessary
- Once airway is open, begin ventilations as necessary/possible
- EMT-Intermediates and Paramedics may attempt intubation of the patient if no other means of ventilating/oxygenating the patient are possible

MEDICAL CONTROL MAY ORDER



- 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
- Attempt to intubate the patient

E
/I
/A
/P

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

SECTION 6:

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 Appendix I, based on your level of certification.
3. You must be trained to use the procedure, in accordance with the minimum standard training component as outlined by DPH/OEMS, and as 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 4.9 Spinal Column/Cord Injuries
- d. Cardiocerebral Resuscitation/High-performance CPR, see 6.2

ALS:

- a. Needle Cricothyrotomy, see 6.3.
- b. Selective Spinal Assessment (Service Option), replacing cervical spinal assessment/precaution procedures of 4.9 Spinal Column/Cord Injuries
- c. Cardiocerebral Resuscitation/High-performance CPR, see 6.2.

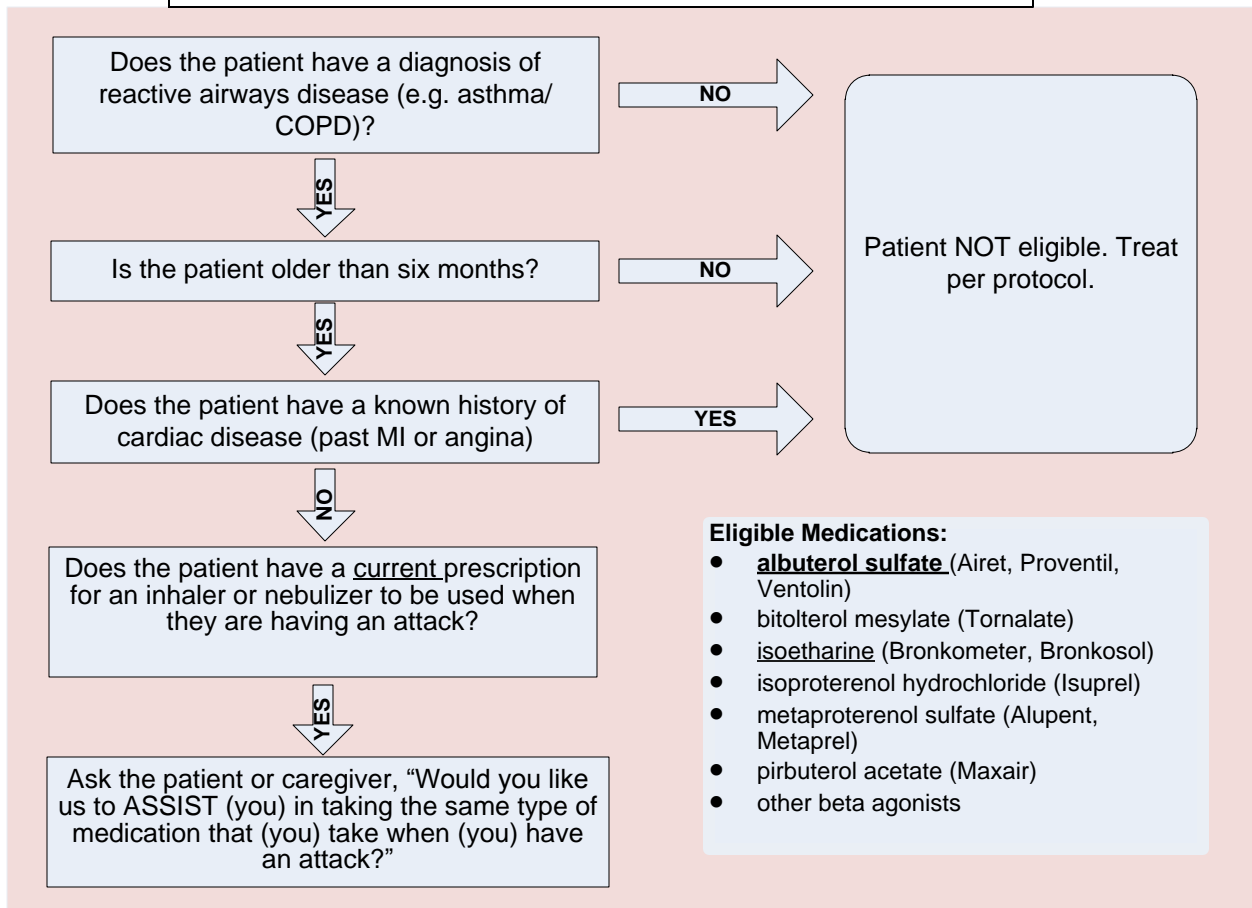
BLS/ILS Assisted Albuterol Adult & Pediatric

EMT/EMT-INTERMEDIATE STANDING ORDERS

E/I

- 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 Cardio-Cerebral Resuscitation

Cardio-Cerebral Resuscitation (High Performance CPR): (Medical Director Option)

ALS and BLS Procedure:

Purpose: To improve the overall survival rate of sudden out-of-hospital cardiac arrest patients.

Indication: Patient in Cardiac Arrest who have reached their 18th birthday

Contraindications:

1. Patients meeting criteria for cessation of resuscitation.
2. Patients that have not reached their 18th birthday.

Procedure for CCR/HPCPR:

The first provider at the patient's side with assess and initiate compressions.

1. Effective Compressions - Manual chest compressions should be initiated immediately upon identification of cardiac arrest, as long as the scene is safe. When compressions are done manually, compressors should ideally be rotated **every 2 minutes** in order to maintain high-quality compressions. Ideally, one compressor is on each side of the patient's chest; one person compressing the chest and the other person ready to start. Chest compressions will be performed at a depth of at least two inches allowing for complete recoil of the chest after each compression. Compressions should be accomplished with equal time given for the down and up motion, and achieve a rate of 100-120/min. Use of a metronome to ensure accuracy in rate is advised.

2. Continuous Compressions - Chest compressions will be performed at a rate of 100 to 120 per minute and will NOT be interrupted during the two minute cycle for any reason. Other treatments IV or IO access attempts will be done while compressions are ongoing. After completion of a two minute cycle, a phase to assess pulses and/or defibrillate will be limited to < 10 seconds.

3. Defibrillation – placement of the defibrillator pads will not interrupt chest compressions

Automatic External Defibrillation

The AED will be powered on as soon as the cardiac arrest is confirmed. Do not interrupt chest compressions to remove clothing or place defibrillation pads. If the AED charges after analyzing, chest compressions will be performed while the device charges, then the patient will be "cleared" and defibrillated. Compressors will hover over the patient with hands ready during defibrillation so compressions can start immediately after a shock. Another two minute cycle of compressions will be immediately performed. Pulse checks will not occur after a shock, but only after the AED prompts "no shock advised". If no pulse is palpated, or if unsure, immediately perform another two minutes of CPR.

Cardiac Monitor/Defibrillator

When a manual defibrillator is in use, it will be charged to the appropriate energy level as the end of the compression cycle nears (approximately 1 minute and 45 seconds into a 2-minute cycle). At the end of the 2 minute cycle, the patient will be cleared, the rhythm will then be interpreted rapidly and the patient will either be defibrillated or the defibrillator energy charge will be cancelled. This sequence must be performed within 10 seconds. During this sequence, the compressors will hover over the patient with hands ready. If a shock is delivered, the compressor will immediately resume CPR. Rhythm interpretation will not occur after a shock, but only after the 2 minute cycle of CPR is performed. If a shock is not indicated, check for a pulse. If patient remains pulseless, immediately resume CPR

Policy Continues

CCR/HPCPR, Continued

1. Ventilations

Ventilations will not be performed until four cycles of chest compressions have been performed [8 minutes of hands only CPR]. Upon the arrival of EMS the first medic will initiate chest compressions as noted above, the second medic will place an oral airway and will provide 100 % oxygen via a face mask. At the end of four cycles [8 minutes] ventilations will commence. One ventilation will be given every 10th compression during recoil (upstroke). Once an advanced airway is in place, ventilations will be asynchronous with compressions (1 ventilation every 6 to 8 seconds). High performance, continuous compressions remain the priority. Ensure ventilations are adequate with BVM attached to 100% oxygen. Providers will not interrupt compressions to obtain an advanced airway.

Once the 8 minutes of CCR are completed-if an advanced airway has been established continue chest compressions and provide 1 ventilation every 6-8 seconds.

If an advanced airway has not been established continue resuscitation using High Performance CPR with continuous compressions at a rate of 30 compressions to 2 ventilations (30:2).

2. Advanced Life Support

ALS providers will address defibrillation, IV/IO access, medication administration, and advanced airway placement, as indicated with in these protocols, however the placement of an advanced airway will no longer be attempted in the first 8 minutes after the arrival of EMS If an advanced airway is placed after the first 8 minutes , it will not interrupt chest compressions.

Nasal capnography may be utilized to optimize CPR performance and evaluation of ROSC with use of bag valve mask ventilation.

3. Return of Spontaneous Circulation (ROSC)

Implement the hypothermic resuscitation protocol as indicated and transport. Following stabilization, post-ROSC, obtain a 12 lead ECG.

All services using this procedure must have a written policy indicating that they are doing so, approved by their affiliate hospital medical director.

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.

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

6. Puncture the skin midline with the needle attached to a syringe, directly over the cricothyroid membrane (i.e., mid-sagittal).
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 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

ALS and BLS: Selective Spinal Assessment

This procedure, if used, should be in conjunction with Protocol **4.8 Spinal Column/Cord Injuries**.

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. Not 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);


 Policy Continues

SELECTIVE SPINAL IMMOBILIZATION, CONTINUED

Individuals sustaining lesser injuries, and who have neither the symptoms of spinal column injury and do not experience a condition that would preclude perceiving or communicating the symptoms of spinal column injuries do not require spinal immobilization to treat injuries.

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

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, EMT-INTERMEDIATE 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) **Dopamine** 2 to 20 mcg/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. Provide manual in-line immobilization.
2. Apply appropriately sized cervical collar.
3. Immobilize the patient's torso to the selected immobilization device such that the torso cannot move forward, backward, up, down, left or right.
4. Evaluate torso straps and adjust as needed.
5. Place padding in all space voids. These include: behind head and/or neck and small of back, if needed for adult patients and under the thorax and/or neck for pediatric patients (age 7 yrs. or under) to maintain in-line spinal immobilization.
6. Immobilize the patient's head.
7. Once patient is immobilized, secure patient's arms and legs to the board or immobilization device.
8. Reevaluate patient
9. Seated patients may be immobilized using a short spine board or commercial equivalent before being moved onto a long spine board.

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

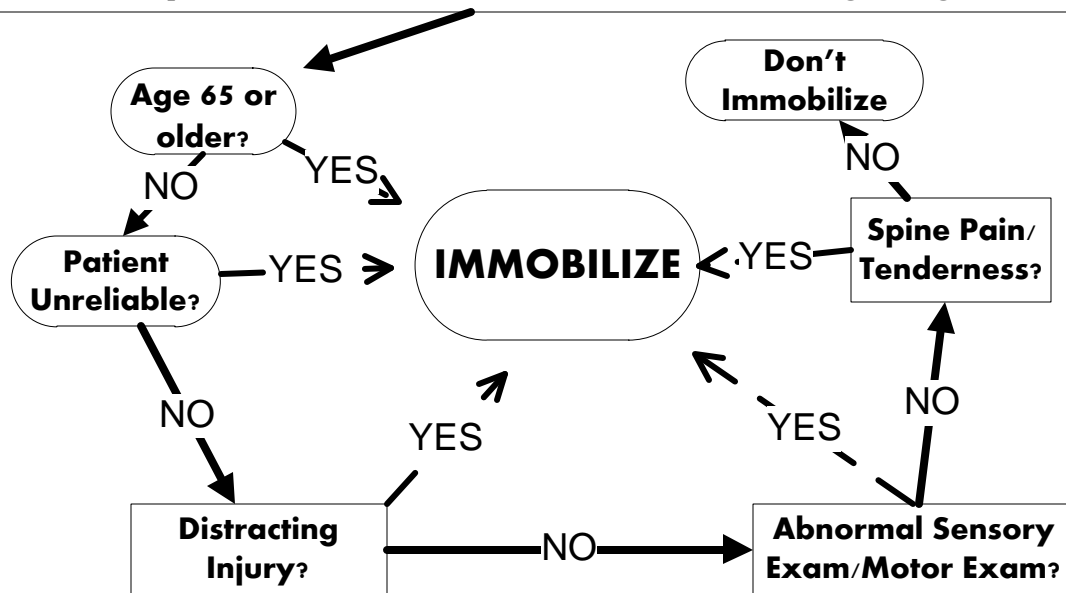
6.4 Selective Spinal Assessment

Policy Continued

Selective Spinal Assessment, Continued

Spine Assessment Protocol

Mechanism of Injury: Axial Load, Blunt Trauma, MVC* or bicycle, fall >3ft, adult fall from standing height



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.

SECTION 7:

MEDICAL POLICIES AND PROCEDURES

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.

7.2 Electronic Control Weapons

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.**

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 / EMT-INTERMEDIATE / ADVANCED EMT / PARAMEDIC STANDING ORDERS

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

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 (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;
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: a. 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.

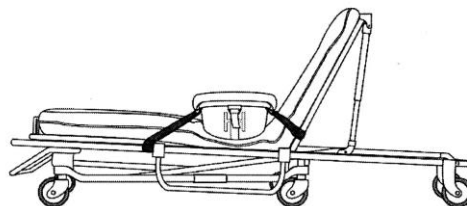
- Position safety seat on cot facing foot-end with backrest fully elevated.
- Secure safety seat with 2 pairs of belts at both forward and rear points of seat.
- Place shoulder straps of the harness through slots just below child's shoulders and fasten snugly to child.
- Follow manufacturer's guidelines 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 (example: Cosco Dream Ride SE)

- 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 (examples: Ferno Pedi-Mate, SafeGuard Transport)

- 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.
- Pedi-mate fits children weighing 10 – 40 lbs. SafeGuard Transport fits children weighing 22 – 100 lbs.



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 (example: International Biomed papoose)

- 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.

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

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

Refusal of Medical Care and Ambulance Transport

7.5

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 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:
 - **Diazepam:**
 - If patient <70kg, 2.5mg Slow IV/IO/IM/PR
 - If patient >70kg, 5mg Slow IV/IO/IM/PR; OR
 - **Midazolam**
 - 0.5mg-2.5mg Slow IV/IO/IM/IN; OR
 - **Lorazepam**
 - 2-4mg slow IV/IO/IM; OR
 - **Morphine**
 - 2mg-10mg IV/IO/IM/SC; OR
 - **Fentanyl**
 - 1mcg/kg slow IV/IO/IM/IN weight based (kg) to a max of 150mcg (150kg)

For Pediatric Doses, see [A2 Pediatric Color Coded Medication Reference](#)

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

7.7 Withholding and Cessation of Resuscitation

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.

EMT/EMT-INTERMEDIATE/ADVANCED EMT/ PARAMEDIC STANDING ORDERS

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!

Protocol Continues

7.8 Ventricular Assist Devices (VADs)

Assessing the LVAD Patient

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.

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 TEMSIS 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!

Process for Changes to the Statewide Treatment Protocols 7.9

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).
6. Protocol changes to be implemented by the department shall be issued no later than February 1 of each year, with implementation no later than March 15 by EMS services unless the department specifies a longer window of issue or implementation.

Protocol Continues

7.9 Process for Changes to the Statewide Treatment Protocols

Policy Continued

PART B

Procedures for Protocol Changes Allowable Other Than on an Annual Basis

1. The State 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 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.

SECTION 8:

SPECIAL

OPERATIONS

PRINCIPLES

Fire and Tactical EMS Rehabilitation8.1

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

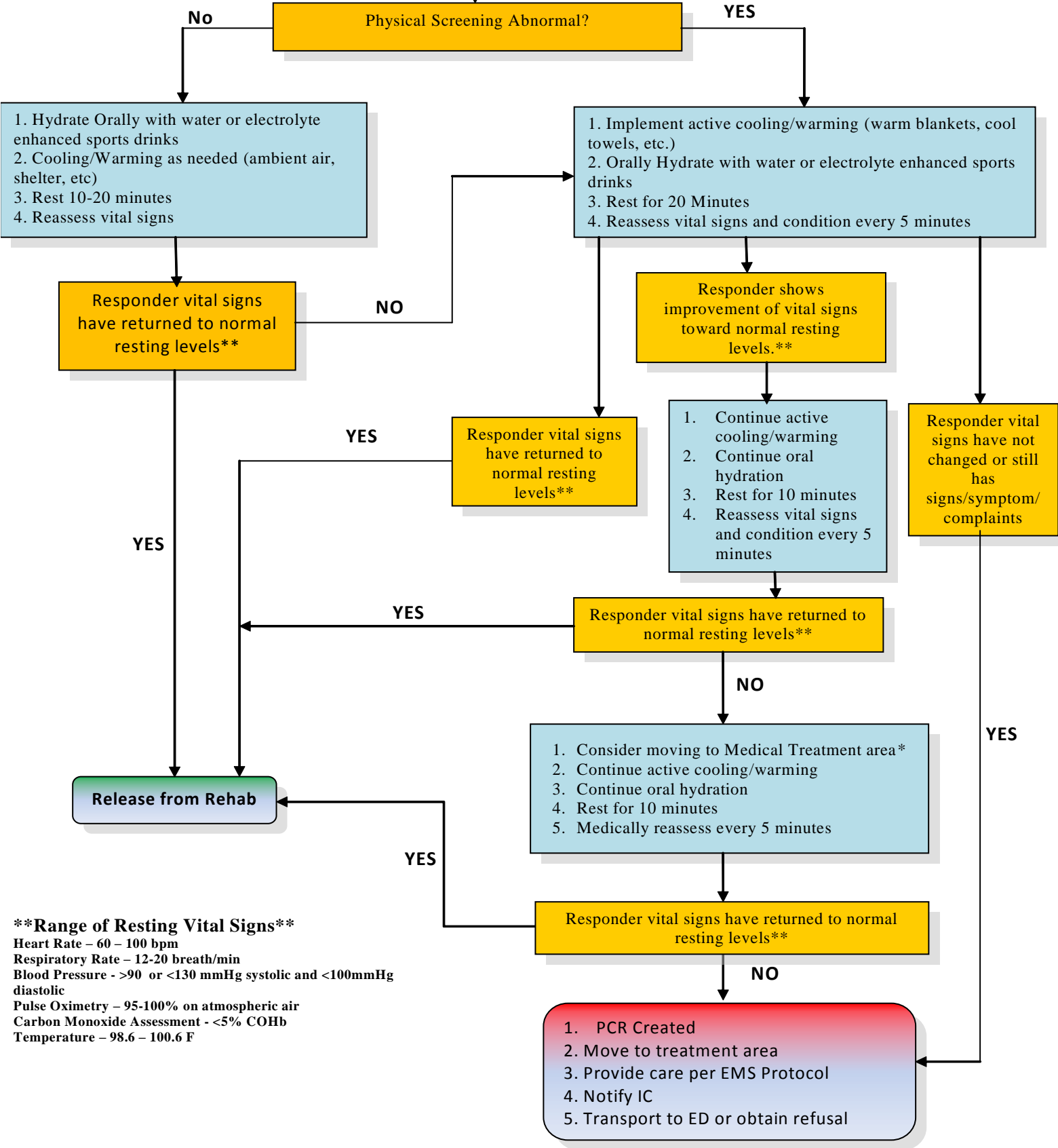
If at any time the member exhibits symptoms or presents with a medical complaint, immediately move to treatment area.

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



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, EMT-Intermediate, 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.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
<u>Adenosine</u> (Adenocard) <u>Indications:</u> <ul style="list-style-type: none"> Specifically for treatment or diagnosis of Supraventricular Tachycardia. Consider for regular or wide complex tachycardia 	Tachycardia <ul style="list-style-type: none"> 6 mg rapid IV/IO push over 1-3 seconds. <ul style="list-style-type: none"> May repeat 12 mg after 1 – 2 minutes X 2, if no conversion.
<u>Albuterol</u> Beta-Agonist <u>Indications:</u> <ul style="list-style-type: none"> Nebulized treatment for use in respiratory distress with bronchospasm. 	Allergic Reaction/Anaphylaxis <ul style="list-style-type: none"> 2.5mg via nebulizer. <ul style="list-style-type: none"> May repeat 2.5mg. Asthma/COPD/RAD <ul style="list-style-type: none"> 2 puffs per dose of MDI. <ul style="list-style-type: none"> May repeat every 5 minutes. Albuterol is second line drug, the initial treatment should be 2.5mg albuterol and 0.5mg ipratropium (DuoNeb). <ul style="list-style-type: none"> May repeat every 5 minutes.
<u>Amiodarone</u> (Cordarone) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 300 mg IV push. <ul style="list-style-type: none"> Repeat dose of 150 mg IV/IO push for recurrent episodes. Post-Arrest <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 150 mg in 50 – 100mL normal saline infused over 10 minutes. If successful, consider maintenance infusion of 1 mg/minute.
<u>Aspirin</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 324 mg chewed PO.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
<u>Atropine</u> Indications: <ul style="list-style-type: none"> Anticholinergic drug used in bradycardias and organophosphate poisonings. 	Bradycardia <ul style="list-style-type: none"> 0.5 - 1 mg IV/IO every 3 – 5 minutes up to maximum of 3 mg. Organophosphate Poisoning and Nerve Agent <ul style="list-style-type: none"> 2-6 mg IM/IV/IO every 5 minutes as needed.
<u>Atropine and Pralidoxime Auto-Injector (DuoDote) Nerve Agent Kit</u> Indications: <ul style="list-style-type: none"> Antidote for Nerve Agents or Organophosphate Overdose. 	Nerve Agents <ul style="list-style-type: none"> Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer <u>3 DuoDote and 1 atropine (10 mg) auto-injectors.</u> Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer <u>1 DuoDote.</u>
<u>Calcium Chloride 10% solution</u> Indications: <ul style="list-style-type: none"> For calcium channel blocker overdose. 	Bradycardia <ul style="list-style-type: none"> 2-4mg/kg slow IV over 5 minutes, maximum 1g. Avoid use if pt is taking digoxin.
<u>Cyanide Antidote Kit</u> <u>Amyl Nitrate, Sodium Nitrite and Sodium Thiosulfate</u> Indications: <ul style="list-style-type: none"> Antidote for Cyanide Poisoning 	Poisoning: <ul style="list-style-type: none"> Amyl Nitrate: (2) Inhalants Sodium Nitrite: 3%, 10mL slow IV/IO over 2-4 minutes. Sodium Thiosulfate: 25% 50mL IV/IO bolus
<u>Cyanokit (Hydroxocobalamin)</u> Indications: <ul style="list-style-type: none"> Antidote for Cyanide Poisoning 	Poisoning: <ul style="list-style-type: none"> 5gm IV/IO over 15 minutes.
<u>Dextrose Glucose solutions</u> Indications: <ul style="list-style-type: none"> Symptomatic hypoglycemia. 	Diabetic Emergencies <ul style="list-style-type: none"> 25g IV/IO

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
<u>Diazepam</u> (Valium) Benzodiazepine <u>Indications:</u> <ul style="list-style-type: none"> Seizure control. Sedation. Anti-anxiety (anxiolytic) 	Sedation for Electrical Therapy <ul style="list-style-type: none"> 2.5-5 mg IV/IO/IM/IN/PR Nerve Agent <ul style="list-style-type: none"> 10 mg IV/IN/IO/IM/PR OR 10 mg IM via auto-injector Seizure/Poisoning/Substance Abuse/OD <ul style="list-style-type: none"> 5-10 mg IV/IO/IM/PR Induced Therapeutic Hypothermia <ul style="list-style-type: none"> 5-10 mg IV/IO/IM/PR (for shivering)
<u>Diltiazem</u> (Cardizem) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 0.25 mg/kg slow IV/IO push. <ul style="list-style-type: none"> May repeat dose in 15 minutes at 0.35 mg/kg if necessary.
<u>Diphenhydramine</u> (Benadryl) <u>Indications:</u> <ul style="list-style-type: none"> Antihistamine used as an adjunctive treatment in allergic reactions. 	Allergic Reaction/Anaphylaxis <ul style="list-style-type: none"> 25-50 mg IV/IO/IM
<u>Dopamine</u> <u>Indications:</u> <ul style="list-style-type: none"> A vasopressor used in shock or hypotensive states. 	Bradycardia, Post-Resuscitation and Shock <ul style="list-style-type: none"> Infusion 2-20 mcg/kg/min IV/IO.
<u>Epinephrine 1:1000</u> (Auto-Injector ONLY) <u>Indications:</u> <ul style="list-style-type: none"> Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphylaxis 	Allergic Reaction/Anaphylaxis <ul style="list-style-type: none"> 0.3 mg IM <ul style="list-style-type: none"> Repeat every 5 minutes to a total of 3 doses. Asthma/COPD/RAD <ul style="list-style-type: none"> 0.3 mg IM (no repeat).

Adult Medication Reference

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Medication	Adult Dosing
<u>Epinephrine 1:1000</u> <u>(by infusion only)</u> Indications: <ul style="list-style-type: none"> Vasopressor Post-Resuscitation, Bradycardia, allergic reaction 	Post-Resuscitation <ul style="list-style-type: none"> 2-10 mcg/min IV/IO infusion Bradycardia <ul style="list-style-type: none"> 2-10 mcg/min IV/IO infusion Allergic Reaction <ul style="list-style-type: none"> 1-10 mcg/min IV/IO infusion (maintenance)
<u>Epinephrine 1:10,000</u> Indications: <ul style="list-style-type: none"> Vasopressor used in cardiac arrest. 	Cardiac Arrest <ul style="list-style-type: none"> 1 mg IV/IO <ul style="list-style-type: none"> Repeat every 3 – 5 minutes per AHA guidelines
<u>Epinephrine</u> <u>(Racemic, for Inhalation)</u> Indications: <ul style="list-style-type: none"> Croup 	Croup <ul style="list-style-type: none"> 11.25mg in 2.5mL solution
<u>Fentanyl</u> <u>(Sublimaze)</u> Indications: <ul style="list-style-type: none"> Opioid analgesic 	Pain <ul style="list-style-type: none"> 1 mcg/kg up to 150 mcg slow IV/IO/IM/IN Therapeutic Hypothermia, Shivering <ul style="list-style-type: none"> 50mcg every 5 minutes, maximum 200mcg IV/IO/IM/IN
<u>Furosemide (Lasix)</u> Indications: <ul style="list-style-type: none"> Congestive Heart Failure, Pulmonary Edema, Hypertensive Emergencies, Toxicology 	Congestive Heart Failure, Pulmonary Edema <ul style="list-style-type: none"> 20-40mg IV/IO Hypertensive Emergencies <ul style="list-style-type: none"> 0.5-1mg/kg IV/IO Toxicology <ul style="list-style-type: none"> 40mg IV/IO
<u>Glucagon</u> Indications: <ul style="list-style-type: none"> Hypoglycemia Beta Blocker or Calcium Channel Blocker Overdose 	Diabetic Emergencies <ul style="list-style-type: none"> 1 mg IV/IO/IM/IN/SC Beta Blocker/Calcium Channel Blocker Overdose <ul style="list-style-type: none"> 1-5mg IV/IO/IM/IN/SC Bradycardia <ul style="list-style-type: none"> 1-5 mg IV/IO/IM/IN/SC

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication

Adult Dosing

<p><u>Glucose Oral</u> Glucose Solutions</p> <p><u>Indications:</u></p> <ul style="list-style-type: none"> • Use in conscious hypoglycemic states. 	<p>Diabetic Emergencies</p> <ul style="list-style-type: none"> • Administer 1-2 tubes of commercially prepared glucose gel or equivalent.
<p><u>Haloperidol</u> (Haldol) Phenothiazine Preparation</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Medication to assist with sedation of agitated patients. 	<p>Behavioral Emergencies</p> <ul style="list-style-type: none"> • 5 mg IV/IO/IM;
<p><u>Hydrocortisone</u> (Solu-Cortef)</p> <p><u>Indications/Contraindications</u></p> <ul style="list-style-type: none"> • Adrenal Insufficiency/Crisis • Other inflammatory processes (COPD/Asthma) 	<p>Adrenal Insufficiency/Crisis</p> <ul style="list-style-type: none"> • 100mg IV/IO/IM <p>Respiratory Distress (COPD/Asthma)</p> <ul style="list-style-type: none"> • 100mg IV/IO/IM
<p><u>Ipratropium Bromide</u> (Atrovent)</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Anticholinergic bronchodilator. Blocks the muscarinic receptors of acetylcholine. • Relief of bronchospasm in patients with reversible obstructive airway disease and bronchospasm. 	<p>Asthma/COPD/RAD</p> <ul style="list-style-type: none"> • 2-3 puffs per dose of MDI combination of albuterol/ipratropium bromide. <ul style="list-style-type: none"> ▪ May repeat as necessary every 5 minutes OR • 0.5mg ipratropium and 2.5mg albuterol(DouNeb). <ul style="list-style-type: none"> ▪ May repeat as necessary every 5 minutes. ▪ 0.5mg ipratropium nebulized ▪ May repeat as necessary every 5 minutes

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication

Adult Dosing

<p><u>Lidocaine</u></p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • 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. 	<p>Cardiac Arrest</p> <ul style="list-style-type: none"> • 1-1.5mg/kg IV/IO. <ul style="list-style-type: none"> ▪ Repeat dose 0.75 mg/kg up to a maximum dose of 3 mg/kg, followed by; ▪ 2-4 mg/min maintenance infusion. <p>Ventricular Tachycardia (with pulses)</p> <ul style="list-style-type: none"> • 1 – 1.5mg/kg IV/IO. (considered second-line therapy to Amiodarone). <ul style="list-style-type: none"> ▪ 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. <p>Post-Resuscitation</p> <ul style="list-style-type: none"> • 1-1.5 mg/kg IV/IO, followed by; <ul style="list-style-type: none"> • 2-4mg/min maintenance infusion <p>Nasotracheal Intubation</p> <ul style="list-style-type: none"> • 2% lidocaine jelly. <p>Intraosseous</p> <ul style="list-style-type: none"> • 0.5 mg/kg, max of 40mg 2% lidocaine, IO slow bolus, followed by 10mL normal saline flush, then use IO access for medications
<p><u>Lorazepam</u> <u>(Ativan)</u> Benzodiazepine</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Seizure control. • Sedation. • Anti-anxiety (anxiolytic). 	<p>Behavioral</p> <ul style="list-style-type: none"> • 2-4 mg IV/IO/IM <p>Nerve Agent/ Seizures</p> <ul style="list-style-type: none"> • 2-4 mg slow IV/IO/IM
<p><u>Magnesium Sulfate</u></p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. • A smooth muscle relaxor used in refractory respiratory distress resistant to beta-agonists. • Torsades de Pointes. 	<p>Asthma/RAD</p> <ul style="list-style-type: none"> • 2 grams in 100ml NS given IV over 10 minutes. <p>Seizures</p> <ul style="list-style-type: none"> • 4 grams IV over 10 minutes in the presence of seizure in the third trimester of pregnancy or post partum. <p>Cardiac Arrest/Tachycardia – Torsades de Pointes.</p> <ul style="list-style-type: none"> • 1 – 2 grams IV over 5 minutes.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
<u>Methylprednisolone</u> (Solu-medrol) <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Steroid used in respiratory distress to reverse inflammatory and allergic reactions. 	Asthma/COPD/RAD <ul style="list-style-type: none"> 125 mg IV/IO/IM
<u>Metoprolol</u> (Lopressor) <u>Indications/Contraindications:</u> 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 <ul style="list-style-type: none"> 2.5mg to 5mg slow IV over 2 – 5 minutes. <ul style="list-style-type: none"> May repeat every five minutes to a maximum of 15mg
<u>Midazolam</u> (Versed) Benzodiazepine <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Seizure control. Sedation. Anxiolytic. 	Behavioral/Seizures/Induced Therapeutic Hypothermia <ul style="list-style-type: none"> 2.5-5mg IV/IO/IM/IN Nerve Agent/Organophosphate Poisoning <ul style="list-style-type: none"> 2.5mg IV/IO/IN every 5 minutes; or 5mg IM every 10 minutes as needed Sedation for Electrical Therapy <ul style="list-style-type: none"> 0.5 - 2.5 mg IV/IO/IM/IN Difficult Airway <ul style="list-style-type: none"> 2.5mg slow IV/IO/IM/IN; Repeat if necessary to a total dose of 5.0mg
<u>Morphine Sulfate</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Opioid analgesic Avoid use if BP < 100 mmHg. 	Pain <ul style="list-style-type: none"> 2 mg every 5 minutes IV/IO/IM/SC, up to 10mg max.
<u>Naloxone</u> (Narcan) Opioid Antagonist <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> Opioid overdose. 	Pain <ul style="list-style-type: none"> Antidote: For hypoventilation from opiate administration by EMS personnel, administer naloxone 0.4mg-2.0mg SQ/IV/IM/IN as needed. Poisoning/Substance Abuse/OD Opioid OD <ul style="list-style-type: none"> 0.4 – 2mg IV/IM/SQ/IN/ETT. <ul style="list-style-type: none"> If no response, may be repeated as needed

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication	Adult Dosing
<u>Nitroglycerin</u> <u>Indications/Contraindications:</u> <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 0.4mg SL tabs or 1 spray every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg. 1 inch paste to chest wall, transdermal
<u>Ondansetron</u> (Zofran) Anti-emetic <u>Indications:</u> <ul style="list-style-type: none"> Used to control Nausea and/or Vomiting. 	Nausea/Vomiting <ul style="list-style-type: none"> 4mg IV/IO/IM/ODT.
<u>Oxygen</u> <u>Indications:</u> <ul style="list-style-type: none"> 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%. 	<ul style="list-style-type: none"> 1-6 liters/min via nasal cannula. 10-15 liters/min via NRB mask. 15 liters/min via BVM
<u>Pralidoxime</u> (2-PAM) <u>Indications:</u> <ul style="list-style-type: none"> Antidote for Nerve Agents or Organophosphate Overdose. Administered as part of Mark I kit. 	Nerve Agent/Organophosphate Poisoning <ul style="list-style-type: none"> 600mg via Auto-Injector IM per kit, 1-3 kits.

Adult Medication Reference

See Pediatric Color Coded Reference Appendix for pediatric dosages

Medication

Adult Dosing

<u>Sodium Bicarbonate</u> <u>Indications:</u> <ul style="list-style-type: none"> A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose. 	Poisoning/Substance Abuse/OD/Toxicology <ul style="list-style-type: none"> 0.5-1 mEq/kg IV/IO Cardiac Arrest/Known Hyperkalemia/Acidosis/TCA Overdose <ul style="list-style-type: none"> 1 mEq/kg IV/IO
<u>Tetracaine 0.5%</u> <u>Indications:</u> <ul style="list-style-type: none"> Topical anesthetic for eye injuries 	Eye Injuries <ul style="list-style-type: none"> 1-2 drops to affected eye; repeat every 5 minutes as needed.
<u>Thiamine</u> <u>Indications:</u> <ul style="list-style-type: none"> Altered Mental Status, Failure to Thrive, Syncope of unknown etiology, Alcoholism 	<ul style="list-style-type: none"> 100mg IV/IO/IM
<u>Vasopressin</u> <u>Indications:</u> <ul style="list-style-type: none"> Cardiac Arrest 	Cardiac Arrest; Asystole, Pulseless Electrical Activity, Ventricular Fibrillation, Ventricular Tachycardia (without pulses) <ul style="list-style-type: none"> 40 units IV/IO in place of first or second dose of Epinephrine

Pediatric Color Coded Appendix

Length < 59.5 cm	Weight 3-5 Kg (Avg 4.0 Kg)			Gray (0-3 months)
	Vital Signs Heart Rate: 120-150 Respirations: 24-48 BP Systolic: 70 (+/-25)	Amiodarone 20 mg Atropine- Bradycardia 0.08 mg - Organophosphate Poison 0.2 mg Calcium Chloride 81mg Dextrose 10% 20 ml Diazepam (IV) 1.0 mg (Rectal) 2.0 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) MC Fentanyl 2 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 10 mg Hydroxocobalamin 300 mg	Ipratropium w/ albuterol 500 mcg 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 0.4 mg Morphine Sulfate 0.4 mg Naloxone 0.4 mg Norepinephrine 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	
	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			
	Adenosine: 1 st Dose- 0.4 mg Repeat Dose- 0.8 mg Albuterol 2.5 mg			

Length 59.5-66.5 cm	Weight 6-7 Kg (Avg 6.5 Kg)			Pink (3-6 Months)
	Vital Signs Heart Rate: 120-125 Respirations: 24-48 BP Systolic: 85 (+/-25)	Amiodarone 30 mg Atropine- Bradycardia 0.13 mg - Organophosphate Poison 0.32 mg Calcium Chloride 130 mg Dextrose 10% 35 ml Diazepam (IV) 1.0 mg (Rectal) 3.0 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) MC Fentanyl 3 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 10 mg Hydroxocobalamin 400 mg	Ipratropium w/ albuterol 500 mcg 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 0.6 mg Morphine Sulfate 0.6 mg Naloxone 0.6 mg Norepinephrine 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	
	Equipment ET Tube: 3.5 Blade Size: 1			
	Defibrillation Defibrillation: 10 J, 20 J Cardioversion: 2 J, 5 J			
	Normal Saline 130 ml			
	Adenosine: 1 st Dose- 0.65 mg Repeat Dose- 1.3 mg Albuterol 2.5 mg			

Length 66.5-74 cm	Weight 8-9 Kg (Avg 8.5 Kg)			Red (7-10 Months)
	Vital Signs Heart Rate: 120 Respirations: 24-32 BP Systolic: 92 (+/-25)	Amiodarone 40 mg Atropine- Bradycardia 0.17 mg - Organophosphate Poison 0.42 mg Calcium Chloride 172 mg Dextrose 10% 43 ml Diazepam (IV) 2.0 mg (Rectal) 4.0 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 0.85 mg Epinephrine 1:1000 Nebulized 2.5 mg Epinephrine 1:1000 IM 0.85 mg Fentanyl 4 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 20 mg Hydroxocobalamin 600 mg	Ipratropium w/ albuterol 500 mcg 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 0.8 mg Morphine Sulfate 0.8 mg Naloxone 0.8 mg Norepinephrine 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	
	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			
	Adenosine: 1 st Dose- 0.85 mg Repeat Dose- 1.7 mg Albuterol 2.5 mg			

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	
Adenosine:	
1 st 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)	0.15 mg
Fentanyl	5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	20 mg
Hydroxocobalamin	700 mg

Ipratropium w/ albuterol	500 mcg
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	1 mg
Morphine Sulfate	1 mg
Naloxone	1 mg
Norepinephrine	
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	
Adenosine:	
1 st 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	10 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)	0.15 mg
Fentanyl	6.5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	900 mg

Ipratropium w/ albuterol	0.5 mcg
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	1.2 mg
Morphine Sulfate	1.2 mg
Naloxone	1.2 mg
Norepinephrine	
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	
Adenosine:	
1 st 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
Dopamine (800 mg in 500 cc)	
2 mcg/kg/min	1.2 ml/hr
5 mcg/kg/min	3.0 ml/hr
10 mcg/kg/min	6.0 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)	0.15 mg
Fentanyl	8 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	1200 mg

Ipratropium w/ albuterol	500 mcg
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	1.6 mg
Morphine Sulfate	1.6 mg
Naloxone	1.6 mg
Norepinephrine	
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	Amiodarone	100 mg	Ipratropium w/ albuterol	500 mcg
Heart Rate: 100	Atropine- Bradycardia	0.41 mg	Levalbuterol	0.63 mg
Respirations: 20-24	- Organophosphate Poison	1.0 mg	Lidocaine:	
BP Systolic: 100 (+/-15)	Calcium Chloride	416 mg	- Cardiac Arrest	20.75 mg
	Dextrose 10%	100 ml	-Traumatic Brain Injury	31.125mg
	Diazepam (IV)	4.0 mg	- Intraosseous	10.375 mg
	(Rectal)	10 mg	Lorazepam	2.0 mg
Equipment	Diphenhydramine	30	Magnesium Sulfate	
ET Tube: 5.5	Dopamine (800 mg in 500 cc)		- RAD	850 mg
Blade Size: 2	2 mcg/kg/min	1.6 ml/hr	- Torsades	1050 mg
	5 mcg/kg/min	3.9 ml/hr	Methylprednisolone	20 mg
Defibrillation	10 mcg/kg/min	7.8 ml/hr	Midazolam	2.0mg
Defibrillation: 40 J, 85 J	20 mcg/kg/min	16 ml/hr	Morphine Sulfate	2.0 mg
Cardioversion: 10 J, 20 J	Epinephrine 1:10,000	0.2075 mg	Naloxone	2 mg
	Epinephrine 1:1000 Nebulized	5 mg	Norepinephrine	
	Epinephrine Auto-Injector Pedi (IM)	0.15 mg	Ondansetron - IV	2.0 mg
	Fentanyl	10 mcg	- ODT	4 mg
	Glucagon	1 mg	Pralidoxime IV	1020 mg
	Glucose Oral	1 tube	- Infusion	415 mg/hr
	Hydrocortisone	40 mg	Proparacaine	2 drops
	Hydroxocobalamin	1500 mg	Sodium Bicarbonate	42 mEq
			Tetracaine	2 drops
Normal Saline 410 ml				
Adenosine:				
1 st Dose-	2.075 mg			
Repeat Dose-	4.15 mg			
Albuterol	2.5 mg			

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)	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) 0.3 mg Fentanyl 13.5 mcg Glucagon 1 mg Glucose Oral 1 tube Hydrocortisone 60 mg Hydroxocobalamin 1900 mg	Ipratropium w/ albuterol 500 mcg 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 2.8 mg Morphine Sulfate 2.8 mg Naloxone 2 mg Norepinephrine Ondansetro - 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
Equipment ET Tube: 6.0 Blade Size: 2-3		
Defibrillation Defibrillation: 50 J, 100 J Cardioversion: 15 J, 30 J		
Normal Saline 540 ml		
Adenosine: 1 st Dose- 2.7 mg Repeat Dose- 5.4 mg Albuterol 2.5 mg		

Orange (7-9 yrs)

Weight 30-36 Kg (Avg 33 Kg)

Length 137-150 cm

Vital Signs		Amiodarone	180 mg	Ipratropium w/ albuterol	500 mcg
Heart Rate: 85-90		Atropine- Bradycardia	0.5 mg	Levalbuterol	0.63 mg
Respirations: 16-22		- Organophosphate Poison	1.8 mg	Lidocaine:	
BP Systolic: 115 (+/-20)		Calcium Chloride	718 mg	- Cardiac Arrest	36 mg
		Dextrose 10%	180 ml	-Traumatic Brain Injury	54 mg
		Diazepam (IV)	7.2 mg	- Intraosseous	18 mg
		(Rectal)	18 mg	Lorazepam	3.6 mg
Equipment		Diphenhydramine	50 mg	Magnesium Sulfate	
ET Tube: 6.5		Dopamine (800 mg in 500 cc)		- RAD	1450 mg
Blade Size: 3		2 mcg/kg/min	2.7 ml/hr	- Torsades	1800 mg
		5 mcg/kg/min	7.0 ml/hr	Methylprednisolone	36 mg
Defibrillation		10 mcg/kg/min	14.0 ml/hr	Midazolam	3.6 mg
Defibrillation: 60 J, 150 J		20 mcg/kg/min	28.0 ml/hr	Morphine Sulfate	3.6 mg
Cardioversion: 15 J, 30 J		Epinephrine 1:10,000	0.36 mg	Naloxone	2 mg
		Epinephrine 1:1000 Nebulized	5 mg	Norepinephrine	
		Epinephrine Auto-Injector Adult (IM)	0.3 mg	Ondansetro - IV	3.6 mg
Normal Saline	720 ml	Fentanyl	18 mcg	- ODT	4 mg
Adenosine:		Glucagon	1 mg	Pralidoxime IV	1800 mg
1 st Dose-	3.6 mg	Glucose Oral	1 tube	- Infusion	720 mg/hr
Repeat Dose-	7.2 mg	Hydrocortisone	80 mg	Proparacaine	2 drops
Albuterol	2.5 mg	Hydroxocobalamin	2500 mg	Sodium Bicarbonate	72 mEq
				Tetracaine	2 drops

Green (10-12 yrs)

A3 IFT Guidelines and Protocols

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Interfacility Transfer Guidelines and Protocols **A3**

Minimum Standards for Interfacility Transfers:

1. Staffing, Training

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

EMTs providing patient care 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

Guidelines for approved ALS Interfacility Transfer training programs have been issued separately by the Department. 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.

Policy Continues

A3 IFT Guidelines and Protocols

Policy 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, nasogastric tubes, feeding tubes, PICC lines and bladder irrigation.
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).
Minimum Staffing: ALS-Intermediate licensed ambulance service; one EMT-Intermediate 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 EMT-Intermediate 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.

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

Policy Continues

Policy Continued

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;

Policy Continues

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Policy 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.

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.

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.

ALS Interfacility Transfer Protocols

Part B- Determining the need for CCT

A3

Protocol Continued

Appendices A3, Part B

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.

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

- ☐ Any neonate patient (30 days of age or younger) requiring transfer to a higher level of care.
- ☐ 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**.

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

- ☐ Any intubated pediatric patient requiring an interfacility transfer.
- ☐ All conditions that apply to adult medical patients also require CCT for the pediatric patient.

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.
- ☐ 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.

Policy Continues

A4 ALS Interfacility Transfer Protocols

Part 2- General Protocols for ALS IFT Care

Part 2 – 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. NOTE: All ALS services – Intermediate and Paramedic -- must be equipped with capnography by January 1, 2013.
- ☐ 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 fully 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.
- ☐ 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**.

Policy Continues

ALS Interfacility Transfer Protocols

Part 3.1 – Aortic Dissection

A4

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 **Labetalol** 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 Part 3.1

ALS Interfacility Transfer Protocols

Part 3.2- 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 3.3 – CVA Post tPA

A4

ALS Interfacility Part 3.3

- ☐ Seizures (either generalized motor or nonconvulsive) should be quickly controlled.
 - After assessing airway, breathing, and applying high-flow oxygen:
 - **Lorazepam**, 2-4 mg IV/IO/IM every 2 minutes up to 0.1 mg / kg, **or**
 - **Diazepam**, 5– 0 mg IV/IO/IM/PR, **or**
 - **Midazolam** 2.5-5mg IV/IO/IM/IN
 - **MEDICAL CONTROL** can authorize administration of Midazolam for seizure activity
- ☐ 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.

A4 ALS Interfacility Transfer Protocols

Part 3.4- 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 3.5 – Pregnancy Related

A4

ALS Interfacility Part 3.3

- ☐ 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:
 - Lorazepam, 2-4 mg IV/IO/IM every 2 minutes up to 0.1 mg/kg, **or**
 - Diazepam, 5 – 10 mg IV/IO/IM/PR, **or**
 - Midazolam 2.5-5mg IV/IO/IM/IN
 - **MEDICAL CONTROL** can authorize administration of Midazolam and administration of magnesium sulfate (4 g over 3 minutes) for seizures.
- ☐ **MEDICAL CONTROL** can authorize administration of Midazolam and administration of magnesium sulfate (1 - 4 g over 3 minutes) for seizure activity.

ALS Interfacility Transfer Protocols

Part 3.6- 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 (minimum of 4 L/min via nasal cannula)
- ☐ 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 4.1- 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

Part 4.2 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 4.3- 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

A4 Part 4.4 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.

Part 5.1- Mechanical Ventilation

- ☐ 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.

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.

- ☐ 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.