



State of New Hampshire

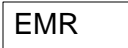







Patient Care Protocols



New Hampshire Department of Safety

Division of Fire Standards and Training and Emergency Medical Services

Patient Care Protocols – 2015 – Version 1.1

Legend	Definition
	Emergency Medical Responder (EMR)
	Emergency Medical Technician (EMT)
	Advanced Emergency Medical Technician (AEMT)
	Paramedic
	Extended Care Protocol
	CAUTION – Red Flag topic
	Telephone Medical Control
	Pediatric

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This document is the Patient Care Protocols for New Hampshire Prehospital Medical Providers – 2015.

These protocols are a “living document” developed and drafted by the Protocol Committee of the New Hampshire Emergency Medical Services Medical Control Board. At the option of the Bureau of EMS and the Medical Control Board, they can be edited and updated at any time. However, they are formally reviewed, edited, and released every two years.

These 2015 NH EMS Patient Care Protocols were reviewed, edited, and unanimously approved of by the NH EMS Medical Control Board.

These are New Hampshire State Patient Care Protocols; they have been written and approved of by the NH EMS Medical Control Board to establish the standard of EMS patient care. Any deviation from these protocols must be approved in writing by the NH EMS Medical Control Board and the NH Bureau of EMS.

Please Note: For visual clarity, trademark and registered symbols have not been included with drug, product, or equipment names.

Questions and comments should be directed to:

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DISCLAIMER: Although the authors of this document have made great efforts to ensure that all the information is accurate, there may be errors. The authors cannot be held responsible for any such errors. For the latest corrections to these protocols, see the New Hampshire EMS website at: https://apps.nh.gov/blogs/irc/?page_id=262.



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2015 NH Patient Care Protocol Updates and Corrections

September 2015:

- Various formatting errors and typos
- Pediatric Color Coded Appendix Gray: corrected pralidoxime IV from 300 mg to 200mg
- Pediatric Color Coded Appendix Red: corrected epinephrine dose from 0.85mg to 0.085 mg
- Pediatric Color Coded Appendix Purple: corrected diazepam dose from 0.2.1mg to 2.1mg
- Pediatric Color Coded Appendix Purple: corrected fentanyl dose from 52.5mcg to 10.5mcg
- Pediatric Color Coded Appendix Yellow: corrected odansetron from 1.4 mg to 1.3 mg.

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Dedication: Two Lions of the Protocols

Tom D'Aprix, MD

Thanks, Tom, for a great decade, first as Protocols Committee Chair and then as Chairman of the Medical Control Board. As Tom's predecessor at the MCB, I know what tough duty it can be, struggling to align all our disparate constituencies: not really herding cats – much more like trying to herd eagles. But Tom proved to be a master, a fearless diplomat always making the effort to blend seemingly incompatible interests. Tom particularly impressed me with way he worked the philosophical dilemma at the heart of the Medical Control Board: it exists to make progress – but not all change is progress, new is not always better than old – yet staying put is the one thing that guarantees there can be no progress. . . . Tom's training as an engineer must have helped; after all, engineers are not just wizards of the unfathomable – in Tom's case a wizard savvy enough to build his own data center – but quintessentially problem solvers. Tom is also an inventor (with both electronic and gunsmithing devices to his credit!). That probably helped too, since an inventor is someone who seeks a novel solution to a problem that as yet has no fully satisfactory answer – just like practically every problem in the vast and evolving field of EMS today.



Jim Martin, MD

Jim joined the Medical Control Board with the new millennium, served tirelessly for a decade and a half, and taught us all a clearer way of speaking the language of protocol. Jim loved to polish our grammar until it shined, but his greater mission was always to build a clear and open path from words to action. Jim took hold of meaning like a rock climber grasps a handhold – powerfully, yet with precision. As an EMS medical director and teacher, Jim is known for his hands-on style. In the deliberations of the MCB he was so often the one who spoke up for the provider on the street. Over the years, I have noticed that in meetings people tend to lean in just a bit and listen a little more carefully when Jim starts to speak. In part this may just be because we all know that he is perennially elected one of New Hampshire's best emergency physicians, and that he is boss of his Emergency Department – and sometimes of the whole St Joseph medical staff. But there's a more important reason: it's that Jim thinks carefully before he speaks, rides no bandwagons, and feels a deep respect for EMS and EMS providers.



- Doug McVicar

Preface

Welcome to the 2015 edition of the NH EMS Protocols. Change has become the norm in EMS as prehospital research is now abundant and the profession has become more evidenced-based. Some of us remember when MAST pants were routine in trauma care, now we are witnessing use of the backboard for spinal immobilization become part of history as well. Using the best available data, we continue to improve and refine each edition of the protocols to drive great patient care in the Granite State.

New Hampshire is continuing to work collaboratively with the New England states to explore the concept of standardizing our EMS protocols. In addition to providing a potential for workload reduction in protocol development, this project may help standardize practice across state lines. States could potentially share resources more efficiently including training, quality improvement and evaluate patient outcome data. In this edition, you will see several new protocols that attempt to address some of the “gaps” with our neighboring states’ protocols.

Another exciting addition to our protocols is our participation in the Pediatric Evidence-Based Guidelines Assessment of EMS System Utilization in States (PEGASUS) project. For this grant-funded project, the New England states are working in collaboration with Baylor College of Medicine / Texas Children’s Hospital to implement evidenced-based pediatric guidelines. The goal is to implement pediatric guidelines for the management of spinal injuries, airway management, shock, and anaphylaxis.

You will also notice that as of the protocol release (July 2015) we have not updated our cardiac arrest protocols. NH EMS is planning on hosting a “Cardiac Arrest Summit” with the goal of improving system-wide cardiac arrest care. In addition to a new cardiac arrest protocol, we will be implementing a “Team-Focused CPR” guideline with education to assist services in developing ways to standardize their approach to cardiac arrest patients.

While our protocols continue to evolve, we have also kept many concepts from the past – some bear repeating: All licensed providers functioning within the New Hampshire EMS system are required to be familiar with the contents of this document pertinent to their level of training.

- It is understood that emergency medical care begins when a patient accesses the system. Telecommunications Specialists at the Bureau of Emergency Communications are integral to delivering effective care by notifying, in a timely manner, the appropriate local dispatcher, as well as by initial instructions offered via Emergency Medical Dispatch (EMD) algorithms. Information will be offered via the Medical Priority Dispatch System including dispatch determinant descriptors (i.e., Omega, Alpha, Bravo, Charlie, Delta, Echo) to local dispatchers. With local medical director approval, each EMS agency may choose what resources and type of response (i.e., lights and siren versus flow of traffic) for each dispatch determinant.

Preface Continues 

Preface

Preface Continued

- Law Enforcement Providers will function under the EMT standing orders up to their level of training.
- Emergency Medical Responders will function under the EMT standing orders up to the training outlined by the National Highway Traffic Safety Administration's Emergency Medical Responder Education Standards.
- It is assumed that the Paramedic standing orders include those of the EMT and AEMT, likewise AEMT standing orders include all of those orders listed under EMT. The sequence of orders in these protocols is not necessarily the order in which they might be executed.
- Standing orders listed in this document are not orders that must be carried out. They are orders that may be carried out at the discretion of the EMS provider without the need for on-line medical control. EMS providers at any level of training are encouraged to contact on-line medical control in cases where they feel that additional treatment is warranted beyond standing orders, cases where there is uncertainty regarding treatment (e.g., age or size appropriateness for a pediatric patient procedure), or in cases involving medico-legal or jurisdictional issues.
- Emergency Medical Responders and EMT's are encouraged to consider timely ALS involvement.
- When transferring care from one provider to another, the transfer must be to a provider of equal or higher level unless the patient's condition and reasonably anticipated complications can be effectively managed by a lower level provider's scope of practice. For example, a paramedic who is a member of a non-transporting agency may transfer care of a patient with an uncomplicated ankle injury to an EMT for transport
- While medical control may have some variation from facility to facility, on-line medical control should not direct providers to practice outside their usual scope of practice, and likewise, providers should not ask to perform procedures or administer medications outside their scope of practice as defined within these protocols.
- Multiple medications are sometimes listed to provide options for treatment. While the first medication listed is considered the "preferred agent", the list is intended to provide latitude to medical directors and medical resource hospitals to choose which medications an EMS agency under its direction may carry. It will also help us deal with ongoing medication shortages. There is no intent that all listed medications should be carried.

Preface Continues

Preface

Preface Continued

We continue to transition to new levels of licensure with new national scope of practice models. This is most relevant for the transition from EMT-I to AEMT. Please note that having completed protocol rollout education does not change your level of licensure and therefore does not modify your scope of practice. If you are transitioning, you must complete the process of upgrading your license through the NREMT before you can modify your practice.

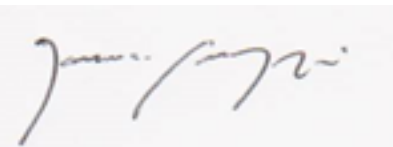
AEMT protocols are for providers licensed as AEMT's or EMT-I's. EMT-I's must be cautioned, however that some procedures or medications within the AEMT level are not authorized for their level of licensure. This particularly applies to pediatric patients. These are noted in the appendix under "Scope of Practice."

We will be using the New Hampshire EMS and Fire Distance Learning Environment (NHOODLE) for the protocol rollout again this year. Providers can complete this at a time and place that's convenient for them. The rollout module must be completed prior to utilizing the new protocols.

I would like to thank the members of the Protocol Subcommittee, The Medical Control Board and Bureau of EMS staff for their amazing dedication and countless hours spent developing and revising these protocols.

Finally, I would like to thank our EMS providers across the state. Your work is physically strenuous, stressful, and involves human suffering and at times life-or-death crises. You provide care with pride, skill and compassion, at home, work, indoors and out, in all types of weather, 24 hours a day, 365 days a year. Please remember, what you do matters!

Sincerely:



Jim Suozzi, DO, NRP, FACEP
Medical Director
NH Bureau EMS

Emergency Medical Dispatch:

In most cases Emergency Medical Care begins when 911 is called. Telecommunications Specialists that are certified in Emergency Medical Dispatch (EMD) with the New Hampshire Bureau of Emergency Communications serve as the “First, First Responders” and are an integral part of the EMS system. They are the first-activated professional link in the chain of survival for cardiac arrest care and provide vital interim care pending EMS arrival. New Hampshire currently uses the Medical Priority Dispatch System (MPDS). Some of the Telecommunication Specialists’ functions include:

- Timely notification to local dispatch centers.
- Systematized caller interrogation and pre-arrival instructions using scripted protocols.
- Triage emergency medical calls by level of medical acuity and provide dispatch centers with standardized dispatch determinants (i.e., Omega, Alpha, Bravo, Charlie, Delta, Echo).
- With local medical director approval, each EMS agency may choose what resources and type of response (i.e., lights and siren versus flow of traffic) for each dispatch determinant.

Respond to Scene in a Safe Manner:

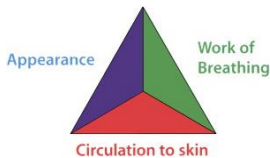
- Review dispatch information.
- Use lights and sirens and/or pre-emptive devices when responding as appropriate per emergency medical dispatch information and local guidelines.
- Use Incident Management/Command System (IM/CS) for all responses and scene management.

Scene Arrival and Size-up: Universal precautions, scene safety, environmental hazards assessment, number of patients, need for additional resources, and bystander safety. Initiate Mass Casualty Incident procedures as necessary.

Patient Approach:



- Determine mechanism of injury / nature of illness.
- If patient is in cardiac arrest refer to the [Cardiac Arrest Protocol](#).
- Determine if pediatric protocols apply. “Pediatric Patient” is defined as a child who fits on a length-based resuscitation tape up to 36kg (79 lbs) or 145cm (57 in).
- Establish responsiveness.
- General Impression.



	Appearance	Work of Breathing	Circulation to Skin
Adult	Awake, speaking, eye opening, agitated, limp, unresponsive	Labored, noisy, fast, slow, equal chest rise	Pink, flushed, pale, ashen, cyanosis
Pediatric	Muscle tone, interactivity, consolability, gaze/look, speech/cry	Airway sounds, body position, head bobbing, chest wall retractions, nasal flaring	Pallor, mottling, cyanosis

- Determine if DNR/Comfort Care protocol applies ([DNR Policy](#)).

Airway and Breathing:

- Airway
 - Assess the patient for a patent airway.
 - Open the airway using a head-tilt/chin-lift, or a jaw thrust if suspicious of cervical spine injury.
 - Suction the airway as needed.
 - Treat foreign body obstruction in accordance with current guidelines.
 - Consider an oropharyngeal or nasopharyngeal airway.
 - Consider advanced airway interventions as appropriate and as trained and credentialed to perform.
- Assess breathing: rate, effort, tidal volume, and breath sounds.
 - If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask.
 - If breathing is adequate, but patient’s oxygen saturation is $\leq 94\%$ ($\leq 90\%$ for COPD patient) or short of breath, administer oxygen.
 - Both skin signs and pulse oximetry are important in assessing potential hypoxia.
 - Consider quantitative waveform capnography (aka: EtCO₂) and/or CO-oximetry, if available.
 - Assess lung sounds and chest.



 Protocol Continues

Circulation Assessment

- Assess patient's pulse, noting rate, rhythm, and quality.
- Control active bleeding using direct pressure, pressure bandages, tourniquets, or hemostatic bandages.
 - Hemostatic bandages must be of a non-exothermic type that can be washed off with 0.9% NaCl (normal saline).
 - Assess patient's skin color, capillary refill, temperature, and moisture.
- Provide IV access and fluid resuscitation as appropriate for the patient's condition.
 - For adult patients, administer fluids to maintain systolic blood pressure per the [Shock Protocols 2.20A, 2.21, 4.4](#).
 - For pediatric patients, administer fluids based on physiological signs and therapeutic end-points per the [Shock Protocol 2.20P, 2.21, 4.4](#).
 - For adult patients with suspected dehydration without shock administer IV fluids as indicated in increments of 250 mL 0.9% NaCl.
 - Consider obtaining a blood sample, per receiving hospital's preference.



NOTE: An IV for the purposes of these protocols is a saline lock or line with 0.9% NaCl (normal saline), unless otherwise specified in an individual protocol.

Routes of medication administration when written as "IV" can also include "IO".

Disability Assessment:

- Assess level of consciousness appropriate for age; use Glasgow Coma Scale for trauma.
- Spinal motion restriction by collaring patient, placing flat on cot and securing, if indicated by [Spinal Injury Protocol 4.5](#).
- In general, pediatric patients should not be transported in a passenger safety seat if a cervical/spinal injury is suspected. (See [Pediatric Transport 8.12](#)).

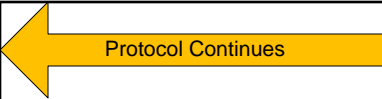
Transport Decision

- The destination hospital and mode of transport are determined by the prehospital provider with the highest medical level providing patient care; it should not be determined by fire, police or bystanders.
- Refer to the [Trauma Triage and Transport Decision 8.17](#) and [Air Medical Transport 8.1](#) policies as necessary.
- Notify receiving facility as early as possible.
- 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. Use of lights and sirens should be documented on the patient care report. Exceptions can be made under extraordinary circumstances.
- Non emergent medical transports from home or a medical facility with self or caretaker managed devices is an EMT-B level skill. The caretaker must travel with the patient if it is not a self managed device.

Secondary/Focused Assessment and Treatment

- Obtain chief complaint, history of present illness, and prior medical history.
- Complete a physical assessment as appropriate for the patient's presentation.
- Refer to appropriate protocol(s) for further treatment options.
- Determine level of pain.
- Consider field diagnostic tests including: cardiac monitoring, blood glucose, temperature, stroke assessment, pulse oximetry, quantitative waveform capnography, etc.
- Dress and bandage lacerations and abrasions.
- Cover evisceration with an occlusive dressing and cover to prevent heat loss.
- Stabilize impaled objects. Do not remove an impaled object unless it interferes with CPR or your ability to maintain the patient's airway.
- Monitor vital signs approximately every 15 minutes (more frequently if the patient is unstable).

 Protocol Continues



Ventilation Rates		
Patient	Basic Airway	Supraglottic/ETT*
Adult	12 – 20 breaths per minute	8 – 10 breaths per minute
Child	12 – 20 breaths per minute	8 – 10 breaths per minute
Infant	20 – 30 breaths per minute	8 – 10 breaths per minute



* Ventilation rates should be titrated to goal EtCO₂, if available, or patient conditions (e.g. severe asthma, aspirin overdose, traumatic brain injury)



Note: In children, pulse oximetry may identify clinically significant hypoxia that may be missed through evaluation of skin signs alone.

Percent O ₂ Saturation	Ranges	General Patient Care
94% – 100 %	Normal	Usually indicate adequate oxygenation; validate with clinical assessment (see below)
90% – 93%	Mild hypoxia	Consider O ₂ to maintain saturation ≥ 94%. Caution in COPD patients
Less than 90%	Moderate to severe hypoxia	Give oxygen to maintain saturation ≥ 94%, as needed

Notes:

- If pulse oximeter's heart rate is not the same as ECG monitor's heart rate, oxygen saturation reading may not be reliable.
- If patient is profoundly anemic or dehydrated, oxygen saturation may be 100%, but patient may be hypoxemic.
- False pulse oximetry readings may occur in the following: hypothermia, hypoperfusion, carbon monoxide poisoning, hemoglobin abnormality (sickle cell anemia), vasoconstriction, and nail polish.


EtCO ₂ Reading	Ranges	General Patient Care
35 mmHg – 45 mmHg	Normal	Usually indicate adequate ventilation; validate with clinical assessment (see below)
Greater than 45 mmHg	Hypercarbia	Consider increasing ventilatory rate, assess adjuncts for occlusions
Less than 35 mmHg	Hypocarbica	Consider slowing ventilatory rate



Pediatric Respiratory Distress	Pediatric Respiratory Failure
<ul style="list-style-type: none"> • Able to maintain adequate oxygenation by using extra effort to move air. • Signs include increased respiratory rate, sniffing position, nasal flaring, abnormal breath sounds, head bobbing, intercostal retractions, mild tachycardia. 	<ul style="list-style-type: none"> • Hallmarks of respiratory failure are respiratory rate less than 20 breaths per minute for children <6 years old; less than 12 breaths per minute for children <16 years old; and >60 breaths per minutes for any child; cyanosis, marked tachycardia or bradycardia, poor peripheral perfusion, decreased muscle tone, and depressed mental status.
Respiratory distress in children and infants must be promptly recognized and aggressively treated as patient may rapidly decompensate.	



When a child tires and is unable to maintain adequate oxygenation, respiratory failure occurs and may lead to cardiac arrest.

Glasgow Coma Scale						
Motor Response	Score	Verbal Response	Verbal - Infants 	Score	Eye Response	Score
Obeys commands/spontaneous	6	Oriented and alert	Babbles	5	Open	4
Localizes pain	5	Disoriented	Irritable	4	To voice	3
Withdraws to pain	4	Inappropriate words	Cries to pain	3	To Pain	2
Decorticate flexion	3	Moans, unintelligible	Moans	2	No response	1
Decerebrate extension	2	No response	No response	1		
No response	1					

“Exception Principle” of the Protocols

- The Statewide Patient Care Protocols represent the best efforts of the EMS physicians and pre-hospital providers of New Hampshire to reflect the current state of out-of-hospital *emergency medical care*, and as such should serve as the basis for such treatment.
- For situations covered by existing protocols, providers are expected to operate under those protocols. **This exception protocol may not be used to circumvent protocols or directives of the Medical Control Board (e.g. Medication Assisted Intubation).** We recognize, though, that on rare occasion good medical practice and the needs of patient care may require actions not otherwise authorized by these protocols, as no protocol can anticipate every clinical situation. In those circumstances, under this Exception Principle, EMS personnel are authorized to take actions not otherwise explicitly authorized under these protocols provided that:
 1. Such action is within their current EMS certification, licensure level, and scope of practice, AND
 2. They have obtained the approval of online medical control.
- This exception is intended only to be used when unanticipated clinical situations arise. This Exception Principle is not intended to cover advancements in medical science or emerging changes or improvements to existing protocols. These advancements should be evaluated based on the best available evidence under our existing process for protocol review. For example, providers who believe that intra-cardiac arrest cooling has beneficial effects may not implement that action under the Exception Principle. They should instead submit their desire to see the existing protocol modified in the next protocol cycle to the protocol subcommittee of the Medical Control Board.
- Where a patient has a medical condition that cannot be appropriately treated under the existing protocols, and has provided the provider with a written treatment plan prepared by the patient’s physician and approved by the provider’s medical control physician, the provider may perform the treatments prescribed in the treatment plan provided they are within their level and scope of practice. This specific instance would not require online medical control.
- Actions taken under this policy are considered to be appropriate and within the scope of the protocols. The EMS provider shall provide a written notification pertaining to the action taken describing the events including the patient’s condition and treatment given, and referencing the EMS Incident Report. **This report must be filed with the Medical Resource Hospital’s EMS Medical Director, Hospital EMS Coordinator, and Bureau of EMS within 48 hours of the event.** Use of this protocol must be documented under “Protocols Used” in the Patient Care Report.

When NH EMS providers treat patients in remote or difficult environments and ambulance transport to hospital care is significantly delayed, it may be necessary to provide extended patient care. Extended care applies to any low resource setting where access to definitive care is delayed or impossible. This may be due to a remote location or infrastructure destruction.

Extended care patients may require repeat administration of medications beyond what is specified in regular protocols or assistance with administration of the patient's prescribed medication. Patients may also require some treatments and procedures that clearly exceed the scope of NH EMS providers licensed at the EMT, Advanced and Paramedic levels.

In an extended care environment, EMS providers will follow the following guidelines:

1. Every effort should be made to contact medical control for guidance.
2. If medical control is unavailable, it is reasonable to administer repeat medication dosing at the same intervals as prescribed in protocol or as prescribed for patient's own medications. Caution must be used due to cumulative effects that may result in over-sedation, hypotension, respiratory depression, etc.
3. If changes to regular protocol are necessary for medication use in extended care situations, these changes appear in the specific protocol under a separate Extended Care Section denoted by an **X**.
4. Any other treatment or procedure outside the provider's normal scope of practice requires additional levels of training and certification from nationally recognized courses as deemed appropriate per the NH Bureau of EMS. (An example of a procedure that would require additional training and certification would be the reduction of dislocations).

Special circumstances to consider in an extended care environment:

- Protecting patient from the environment while awaiting extrication and/or transport. This may require an improvised shelter and insulation to protect the patient and providers from rain, snow and wind.
- Requesting additional resources/personnel early if an extended care call is suspected. Resources to consider but are not limited to:
 - NH Fish and Game
 - Rescue organizations
 - Technical Climbers
 - Snowmobile, ATV or boat
 - Helicopters
 - Tracking dogs
 - Swift water technicians
- Oral fluids to maintain a patient's hydration and high energy foods to maintain caloric requirements, if the patient is conscious and able to swallow.
- Limited resources due to difficulty accessing patient and/or transporting equipment to the patient's location. These resources may include:
 - Oxygen
 - Suction
 - Cardiac Monitor/AED
 - Pulse Oximetry
 - Capnography
 - Glucose Meter
 - BP Cuff and Stethoscope
 - Intravenous access
 - Medications
 - Communication with online medical control

2.0A Abdominal Pain (Non Traumatic) Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider acquiring and transmitting a 12-Lead EKG for upper abdominal or epigastric pain, see [12-Lead Acquisition Protocol 6.0](#).
- Vaginal bleeding or suspected pregnancy see, [Obstetrical/Gynecological Emergencies Protocol 2.16](#).

ADVANCED EMT STANDING ORDERS

A

- If patient is hypotensive, consider fluid per [Shock – Non-traumatic Protocol 2.21](#).

PARAMEDIC STANDING ORDERS

P

- See [Pain Management Protocol 2.17A](#).
- See [Nausea/Vomiting Protocol 2.12](#).
- Assess and monitor cardiac rhythm.

Abdominal Physical Assessment

- Gently palpate for tenderness, rebound tenderness, distention, rigidity, guarding and/or masses.
- Palpate flank for CVA (costovertebral angle) tenderness.
- An acute abdomen is rigid with guarding, distention, and diffuse tenderness and may indicate a surgical emergency.
- Common causes of acute abdominal pain may be appendicitis, cholecystitis, bowel perforation, diverticulitis, abdominal aortic aneurysm, ectopic pregnancy, pelvic inflammatory disease or pancreatitis.

PEARLS:

- It is important to remember that abdominal pain can be caused by a number of different disease processes. Pain may originate from the esophagus, stomach, intestinal tract, liver, pancreas, spleen, kidneys, male or female reproductive organs or bladder. Referred pain from the chest may involve the heart, lungs and pleura.
- Patients with abdominal pain and signs and symptoms of shock may have severe electrolyte abnormalities. This may result in cardiac arrhythmias which can be life threatening.
- Abdominal pain in women of child bearing age (12-50 years old) should be treated as an ectopic pregnancy until proven otherwise.
- Myocardial infarction can present with abdominal pain especially in the diabetic and elderly.
- DKA may present with abdominal pain, nausea and vomiting. Check blood sugar.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50 years old.

Adrenal Insufficiency

Adult & Pediatric

2.1

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

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

ADVANCED EMT STANDING ORDERS - ADULT & PEDIATRIC

A

- Assist the patient/caregiver in giving the patient his or her own medications, as prescribed.

PARAMEDIC STANDING ORDER – ADULT & PEDIATRIC

P

Stress Dose:

- Adult: History of adrenal insufficiency; administer hydrocortisone 100mg IV/IM.
- Pediatric: History of adrenal insufficiency; administer hydrocortisone 2mg/kg, to a maximum of 100mg IV/IM.

PARAMEDIC EXTENDED CARE ORDERS- ADULT & PEDIATRIC

X

- After the stress dose continue to administer hydrocortisone every 6 hours:
 - Adult: 100mg IV/IM every 6 hours.
 - Pediatric: 2mg/kg IV/IM every 6 hours to a maximum single dose of 100mg.
- In patients with the following signs and symptoms consider the need for repeat stress dosing:
 - Nausea, vomiting, weakness, dizziness, abdominal pain, muscle pain, dehydration, hypotension, tachycardia, fever, mental status changes.
- Additional Considerations:
 - Aggressive volume replacement therapy.
 - Vasopressors may be needed to treat refractory hypotension, see [Shock – Non-Traumatic Protocol 2.21](#).
 - Treat for hypoglycemia, see [Hypoglycemia Protocol 2.10A or 2.10P](#).
 - Normalize body temperature.

PEARLS:

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
- Long-term 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.

PEARLS:

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)

2.2A

Anaphylaxis/Allergic Reaction

Adult

EMT STANDING ORDERS

E



- Routine Patient Care.
- For anaphylaxis, administer adult epinephrine autoinjector (EpiPen) 0.3mg IM in the lateral thigh.
- For patient who has a history of anaphylactic reaction and prescribed EpiPen, consider immediate administration of an EpiPen.
- For additional dosing, contact **Medical Control**.
- For nausea or vomiting see [Nausea/Vomiting Protocol 2.12](#).
- Do not delay transport.

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis:
 - Administer adult epinephrine autoinjector (preferred) **OR**
 - Epinephrine (**1:1,000**) 0.3mg (0.3ml) IM. May repeat epinephrine 0.3mg IM, every 5 minutes (3 doses total).
 - Consider the administration of albuterol 2.5mg via nebulizer. Repeat albuterol 2.5mg, every 5 minutes (4 doses total) via nebulizer.
- For signs of shock consider fluid per [Shock – Non-Traumatic Protocol 2.21](#).

PARAMEDIC STANDING ORDERS

P

- Continue epinephrine (**1:1,000**) 0.3mg (0.3ml) IM every 5 minutes until signs/symptoms resolve.
- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
 - Diphenhydramine 25 – 50mg IM/IV or by mouth.
- For anaphylaxis refractory, after 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm), consider:
 - Epinephrine infusion 2-10 micrograms/minute until symptoms resolve (Place 1mg epinephrine in 1000 mL 0.9% NaCl for 1 microgram/mL).

EMT/ADVANCED EMT EXTENDED CARE ORDERS

X

- Diphenhydramine 25 – 50mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 300mg in 24 hours.

PARAMEDIC EXTENDED CARE ORDERS

- Dexamethasone 10mg IV or by mouth **OR**
- Methylprednisolone 125 mg IV **OR**
- Prednisone 60mg by mouth.



CAUTION: Epinephrine is available in different routes and concentrations. Providers are advised to re-check the dosing and concentration prior to administration.



In anaphylaxis, epinephrine should not be delayed by taking the time to administer second-line medications such as diphenhydramine.

PEARLS:

Allergic reactions are commonly a responses to an allergen involving the skin.
 Anaphylaxis: known/likely allergen exposure AND hypotension or respiratory compromise.
 Signs of anaphylaxis also include:

- Angioedema: facial/lip/tongue swelling, throat tightening, voice change.
- Breathing: shortness of breath, wheeze, stridor, cyanosis.
- Poor perfusion: altered mental status, syncope, delayed capillary refill, hypotension.
- Rash: Hives, itching, extremity swelling.
- Gastrointestinal: vomiting, abdominal pain.

Anaphylaxis/Allergic Reaction Pediatric

2.2P

Medical Protocol 2.2P

EMT STANDING ORDERS

E



- Routine Patient Care.
- For anaphylaxis administer:
 - Pediatric epinephrine autoinjector (EpiPen Jr) 0.15mg IM in lateral thigh for < 25kg.
 - Adult epinephrine autoinjector (EpiPen) 0.3mg IM in lateral thigh if >25kg.
- For patient who has a history of anaphylactic reaction and prescribed EpiPen, consider immediate administration of an EpiPen.
- For additional dosing, contact **Medical Control**.
- For nausea or vomiting see [Nausea/Vomiting Protocol 2.12](#)
- Do not delay transport.

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis: epinephrine autoinjector, (preferred) **OR**
- Epinephrine (**1:1,000**) 0.01mg/kg (0.01ml/kg) IM, lateral thigh preferred. (Maximum single dose 0.3mg.). Repeat epinephrine 0.01mg/kg IM every 5 minutes until signs and symptoms resolve.
- Consider administration of albuterol 2.5mg via nebulizer. Repeat albuterol 2.5mg, every 5 minutes (4 doses total) via nebulizer.
- For signs of shock consider fluid per [Shock – Non-Traumatic Protocol 2.21](#).

PARAMEDIC STANDING ORDERS

P

- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
 - Diphenhydramine 1.25mg/kg by mouth **OR**
 - Diphenhydramine 1mg/kg IV/IM (maximum dose 50mg).
- For anaphylaxis refractory, after 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm) consider:
 - Epinephrine Infusion 0.1 - 2 micrograms/kg/minute (maximum 10 micrograms/min) via pump until symptoms resolve. (Place 1mg epinephrine in 1000 mL 0.9% NaCl for 1 microgram/mL).

EMT/ADVANCED EMT EXTENDED CARE ORDERS

X

- Diphenhydramine:
 - Ages 6 to 11 years: 12.5 – 25mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 150mg in 24 hours.
 - Ages 2 to 5 years: 6.25mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 37.5mg in 24 hours.

PARAMEDIC EXTENDED CARE ORDERS

- Dexamethasone 0.6mg/kg PO/IM/IV (PO preferred) maximum 10mg **OR**
- Methylprednisolone 1mg/kg IV (maximum dose 125mg).



CAUTION: Epinephrine is available in different routes and concentrations. Providers are advised to re-check the dosing and concentration prior to administration.



In anaphylaxis, epinephrine should not be delayed by taking the time to administer second-line medications such as diphenhydramine.

PEARLS:

Allergic reactions are commonly a responses to an allergen involving the skin. Anaphylaxis: known/likely allergen exposure AND hypotension or respiratory compromise. Signs of anaphylaxis also include:

- Angioedema: facial/lip/tongue swelling, throat tightening, voice change.
- Breathing: shortness of breath, wheeze, stridor, cyanosis.
- Poor perfusion: altered mental status, syncope, delayed capillary refill, hypotension.
- Rash: Hives, itching, extremity swelling.
- Gastrointestinal: vomiting, abdominal pain,

2.3 Apparent Life-Threatening Event (ALTE)

EMT/ADVANCED/PARAMEDIC STANDING ORDERS

E/
A/
P



- Obtain history of present illness.
 - Who observed the event?
 - Determine the severity, nature, and duration of the episode.
 - Was the patient awake or sleeping at the time of the episode?
 - Include details of the resuscitation, if applicable.
- Obtain a past history of prior similar event; chronic disease (including seizures), current or recent infection, gastroesophageal reflux, recent trauma, medications, new or different mixture of formula.
 - Was child born pre-term or near-term?
- Perform a comprehensive physical exam including neurological assessment.
- Keep the child warm and transport to hospital.
- **Contact Medical Control for assistance if the parent/guardian refuses medical care and/or transport.**

PEARLS:

- An ALTE involves a frightening episode in a child less than 2 years old and involves some combination of apnea, color change to cyanosis, limpness, or choking.
- Non-accidental trauma should always be considered in an infant who presents with ALTE.
- Note: Although children who experience ALTE may have a normal physical exam upon assessment by prehospital personnel, they should be transported to the emergency department for further assessment and treatment as they often have a serious underlying condition. Assume history provided by the family/witness is accurate.

EMT STANDING ORDERS

E



- Routine Patient Care.
- Attempt to keep oxygen saturation $\geq 94\%$ (90% in COPD); increase the oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure.
- Assist the patient with his/her metered dose inhaler (MDI): 4-6 puffs.
 - May repeat every 5 minutes, as needed.
 - MDI containing either albuterol, levalbuterol, or a combination of albuterol/ ipratropium bromide.

ADVANCED EMT STANDING ORDERS

A

- Consider DuoNeb unit dose **OR** albuterol 2.5mg and ipratropium bromide 0.5mg via nebulizer.
 - Consider additional DuoNeb, may repeat every 5 minutes (3 doses total).
- Consider albuterol 2.5mg via nebulizer every 5 minutes, as needed
- For patients who do not respond to treatments, or for impending respiratory failure, consider:
 - CPAP up to a maximum of 10cm H₂O pressure support.

PARAMEDIC STANDING ORDERS

P

Consider:

- Levalbuterol 1.25mg via nebulizer, repeat every 20 minutes (4 doses total).

Consider:

- Dexamethasone 10mg IV or by mouth **OR**
- Methylprednisolone 125 mg IV.

For patients who do not respond to treatments, or for impending respiratory failure, consider:

- Epinephrine (**1:1,000**) 0.3mg (0.3ml) IM, lateral thigh preferred.
- Magnesium sulfate 2 grams in 100ml NS given IV over 10 minutes.

PEARLS:

- Chronic obstructive pulmonary disease (COPD) refers to a group of lung diseases that block airflow and make breathing difficult. Emphysema and chronic bronchitis are the two most common conditions that make up COPD.
- Reactive Airway Disease (RAD) refers to a group of conditions that include reversible airway narrowing due to external stimulation.
- Beware of patients with a “silent chest” as this may indicate severe bronchospasm and impending respiratory failure

2.4P Asthma, Bronchiolitis, Croup

Medical Protocol 2.4P

E

ASTHMA, BRONCHIOLITIS, CROUP - EMT STANDING ORDERS

- Routine Patient Care.
- Attempt to keep oxygen saturation $\geq 94\%$; increase oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure.
- Assist the patient with his/her metered dose inhaler (MDI): 4-6 puffs.
 - May repeat every 5 minutes, as needed.
 - MDI containing either albuterol, levalbuterol, or a combination of albuterol/ipratropium bromide.
- For patients ≤ 2 who present with increased work of breathing and rhinorrhea, provide nasal suctioning with saline drops and bulb syringe.

ASTHMA - ADVANCED EMT STANDING ORDERS

A

- Consider Unit dose DuoNeb **OR** albuterol 2.5mg and ipratropium bromide 0.5mg via nebulizer.
 - Consider additional DuoNeb, may repeat every 5 minutes (3 doses total).
- Consider albuterol 2.5 mg via nebulizer every 5 minutes, as needed.
- For patients who do not respond to treatments, or for impending respiratory failure, consider: Consider CPAP, [See CPAP 5.2 Procedure](#).

Wheezing ≥ 2 years or history of asthma

YES

NO

Wheezing < 2 years old

YES

NO

History of stridor or barking cough

YES

ASTHMA - PARAMEDIC STANDING ORDERS

P

Consider:

- Dexamethasone 0.6mg/kg PO/IM/IV (PO preferred), maximum 10 mg **OR**
 - Methylprednisolone 2 mg/kg IV/IM, maximum 125 mg.
- For patients who do not respond to treatment or for impending respiratory failure consider:
- Magnesium sulfate 40 mg/kg in 100ml 0.9% NaCl IV over 20 minutes.
 - Epinephrine (1:1000) 0.01 mg/kg (0.01mL/kg) IM. (maximum dose less than 25kg is 0.15mg or greater than 25kg is 0.3mg)

BRONCHIOLITIS - PARAMEDIC STANDING ORDERS

P

For patients who do not respond to suctioning or for impending respiratory failure consider:

- Nebulized epinephrine (1:1000) 3mg (3mL) in 3mL normal saline .

CROUP - PARAMEDIC STANDING ORDERS

P

Consider:

- Dexamethasone 0.6mg/kg by mouth or IM/IV (by mouth preferred) maximum 10mg.

Croup with stridor at rest:

- Nebulized epinephrine (1:1000) 3mg (3mL) in 3mL normal saline.



Child with a "silent chest" may have severe bronchospasm with impending respiratory failure.

PEARLS:

- For suspected epiglottitis, transport the patient in an upright position and limit your assessment and interventions
- Bronchiolitis
 - Incidence peaks in 2-6 month old infants.
 - Frequent history of low-grade fever, runny nose, and sneezing.
 - Signs and symptoms include: tachypnea, rhinorrhea, wheezes and / or crackles.
- Croup
 - Incidence peaks in children over age 6 months.
 - Signs and symptoms include: hoarseness, barking cough, inspiratory stridor, signs of respiratory distress.
 - Avoid procedures that will distress child with severe croup and stridor at rest.

Behavioral Emergencies Adult & Pediatric

2.5

EMT/ADVANCED STANDING ORDERS- ADULT & PEDIATRIC

E/A

- Routine Patient Care.
 - Approach patient using the SAFER Model.
 - Observe and record the patient's behavior.
 - Consider associated domestic violence or child abuse, see [Response to Domestic Violence Policy 8.15](#).
 - Determine if patient is under the care of mental health professionals and record contact information.
 - Assess for risk to self and others. Ask patient directly if they are thinking about hurting self or others.
 - A patient who is a danger to self or others may not refuse care. If patient refuses care, contact police if unable to convince patient to be transported. (Refer to [Police Custody Policy 8.13](#), [Refusal of Care Policy 8.14](#), and/or [Restraints Procedure 6.3](#)).
 - If the patient does not appear to be an immediate threat to self or others and refuses transport:
 - Encourage patient to seek mental health evaluation.
 - Provide the mental health center emergency services number 1-800-273-TALK (8255).
 - Avoid leaving the patient alone, if possible. Assist in contacting responsible family/friend.
- For patient with suspected Excited/Agitated Delirium:
- Treat hyperthermia, see [Hyperthermia Protocol 2.9](#).
 - Monitor cardiac activity and oxygen levels.

PARAMEDIC STANDING ORDERS - ADULT

P

See [Restraints Procedure 6.3](#)

SAFER Model

- S** Stabilize the situation by lowering stimuli, including voice.
- A** Assess and acknowledge crisis by validating patient's feelings and not minimizing them.
- F** Facilitate identification and activation of resources (clergy, family, friends, or police).
- E** Encourage patient to use resources and take actions in his/her best interest.
- R** Recovery/referral - leave patient in the care of a responsible person, professional or transport to appropriate medical facility. Do not leave the patient alone when EMS clears the scene.

PEARLS:

Consider all possible medical / trauma causes for behavior and treat appropriately:

- Hypoglycemia
- Head Injury, stroke, seizure (post-ictal)
- Poisoning, substance abuse, drug, alcohol

EMR/EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient Care.
- Determine if signs of imminent delivery are present.
- Expose as necessary to assess 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 Trendelenberg position.
 - Support infant head or body to permit blood flow through cord.
- If presenting part is not baby's head, cord is prolapsed or unable to unwrap nuchal cord, contact **Medical Control** and immediately transport to nearest appropriate hospital per local OB Diversion Protocol.



E/A

Delivery:

- Slow, controlled delivery of head; apply gentle perineal pressure.
- If umbilical cord is wrapped around child's neck, gently unwrap prior to delivery.
- Following delivery, follow [Newborn Care Protocol 2.14](#)
- After cord stops pulsating, double clamp cord 10-12 inches from abdomen and cut between clamps.
- Allow spontaneous delivery of placenta; do not apply traction to umbilical cord.
- Do not delay transport for delivery of placenta. Massage uterus in transit to encourage placenta delivery.
- If placenta delivers, package for hospital staff.

Post Partum Care:

- Assess for hemorrhage. See [Shock - Non-traumatic Protocol 2.21](#)
- Massage abdominal wall overlying uterine fundus until firm.

PARAMEDIC STANDING ORDERS

P

- Active seizures—see [Seizures Protocol 2.19A](#).
- After placental delivery, administer:
 - Oxytocin 10 Units IM. Note: In multiple pregnancy, do not give until all placentas are delivered.

PEARLS:

OB Assessment:

- Length of pregnancy
- Number of pregnancies
- Number of viable births
- Last menstrual period
- Due date
- Prenatal care
- Number of expected babies
- Drug use

Notify **Medical Control** if:

- Prepartum hemorrhage
- Postpartum hemorrhage
- Breech presentation
- Limb presentation
- Nuchal cord
- Prolapsed cord



Signs of imminent delivery:

- Urge to move bowels
- Urge to push
- Crowning

Fever (101.5°F/38.5°C) – Adult 2.7A

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/
A/
P

- Routine Patient Care.
- Obtain temperature.
- Passive cooling; remove excessive clothing.
- For temperature >101.5°F (38.5°C):
 - If no acetaminophen was taken in last 4 hours:
 - Consider administering acetaminophen 500 – 1,000mg oral or rectal. (Rectal administration Paramedic only)
 - If acetaminophen was taken within last 4 hours and temperature is still >101.5°F (38.5°C):
 - Consider administering ibuprofen 400 – 800mg oral or rectal. (Rectal administration Paramedic only)
 - If ibuprofen was taken within the last 6 hours:
 - Consider acetaminophen 500 – 1,000mg oral or rectal. (Rectal administration Paramedic only)

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

X

- May repeat acetaminophen dose 650 mg oral or rectal every 4 hours or 1,000 mg every 6 hr. Maximum of 3,000 mg in 24 hours.
- May repeat ibuprofen dose 400-600 mg oral or rectal every 6 hours or 800 mg every 8 hours. Maximum of 2,400 mg in 24 hours.



Avoid Ibuprofen in patients with NSAID allergy, aspirin-sensitive asthma, renal insufficiency, pregnancy, or known peptic ulcer disease.

History

The following symptoms, when associated with a fever, suggest a more serious illness:

- Persistent vomiting
- Difficulty breathing
- Chest pain
- Extreme listlessness or irritability
- Abdominal pain
- Pain when urinating
- Severe headache
- Unusual sensitivity to bright light
- Severe swelling of the throat
- Stiff neck and pain when the head is bent forward
- Unusual skin rash
- Confusion

If patient refuses transport, encourage patient to maintain appropriate fluid intake and to seek medical care if signs of serious illness occur.

PEARLS:

- Avoid inducing shivering.
- The primary goal of treating fever is increasing comfort rather than normalization of body temperature. Fever is a physiologic mechanism that helps fight infection. There is no evidence that fever worsens illness or causes long-term neurologic complications.
- Infrared temporal thermometers are more accurate than tympanic thermometers.

2.7P Fever (>101.5°F/38.5°C) Pediatric

EMT/ADVANCED-EMT/PARAMEDIC STANDING ORDERS

E/
A/
P

- Routine Patient Care.
- Obtain temperature—rectal temperature preferred in infants < 3 months.
- Passive cooling; remove excessive clothing/bundling.
- For temperatures >101.5°F (38.5°C):
 - If acetaminophen was taken more than 4 hours ago:
 - Consider administering acetaminophen per [Pediatric Color Coded Appendix A3](#) oral (Rectal administration is Paramedic only).
 - If acetaminophen was taken within the last 4 hours:
 - Consider ibuprofen per [Pediatric Color Coded Appendix A3](#) oral (contraindicated in infants under 6 months of age).

EMT/ADVANCED-EMT/PARAMEDIC EXTENDED CARE ORDERS

X

- May repeat acetaminophen dose every 4 hours (not to exceed 6 doses in 24 hours).
- May repeat ibuprofen dose every 6 hours (not to exceed 4 doses in 24 hours).



Avoid Ibuprofen in patients with NSAID allergy, aspirin-sensitive asthma, or renal insufficiency

History:

The following symptoms, when associated with a fever, suggest a more serious illness:

- Persistent vomiting
- Difficulty breathing
- Chest pain
- Extreme listlessness or irritability
- Abdominal pain
- Pain when urinating
- Severe headache
- Unusual sensitivity to bright light
- Severe swelling of the throat
- Stiff neck and pain when the head is bent forward
- Unusual skin rash
- Confusion

For patients who refuse transport, urge caregivers to observe for signs of serious illness, encourage appropriate fluid intake, and safely store antipyretics.

PEARLS:

- Avoid inducing shivering.
- The primary goal of treating fever is increased comfort rather than normalization of body temperature. Fever is a physiologic mechanism that helps fight infection. There is no evidence that fever worsens illness or causes long-term neurologic complications.
- Children should never take aspirin.
- Infrared temporal thermometers are more accurate than tympanic thermometers.

Hyperglycemia – Adult & Pediatric 2.8

Hyperglycemia is defined as blood glucose greater than or equal to 250 mg/dL with associated signs and symptoms.

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.
- Obtain glucose reading.
- For nausea/vomiting see [Nausea Protocol 2.12](#).

ADVANCED EMT/PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- ADULT: Administer 500ml bolus of 0.9% NaCl, then 250ml/hr.
- PEDIATRIC: Administer 10 mL/kg bolus of 0.9%NaCl.
 - May repeat fluid bolus two times for a total of 3 fluid boluses, not to exceed adult volume.

EMT/ADVANCED EMT/PARAMEDIC EXTENDED CARE ORDERS

X

- Oral fluids: if the patient is not vomiting, provide oral hydration with water.
 - Patient must be alert enough to swallow and protect airway.

PEARLS:

- Diabetic Ketoacidosis is a life threatening emergency defined as uncontrolled hyperglycemia with the signs and symptoms of ketoacidosis.
- Signs and symptoms of Diabetic Ketoacidosis include uncontrolled blood glucose greater than or equal to 250 mg/dL, weakness, altered mental status, abdominal pain, nausea, and vomiting, polyuria (excessive urination), polydipsia (excessive thirst), a fruity odor on the breath (from ketones), and tachypnea.
- Common causes of Diabetic Ketoacidosis include infection, acute coronary syndrome, and medication non-compliance.
- Hyperglycemic Hyperosmolar Nonketotic Syndrome (HHNS) is characterized by blood glucose levels greater than 600 mg/dL and profound dehydration without significant ketoacidosis. Most patients present with severe dehydration and focal or global neurologic deficits e.g. coma, altered mental status.
- Hyperglycemia may be detrimental to patients at risk for cerebral ischemia such as victims of stroke, cardiac arrest, and head trauma.

2.9 Hyperthermia – Adult & Pediatric

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.
- Move victim to a cool area and shield from the sun or any external heat source.
- Remove as much clothing as is practical and loosen any restrictive garments.
- If alert and oriented, give small sips of cool liquids.
- Monitor and record vital signs and level of consciousness.
- Obtain temperature – rectal temperature preferred as appropriate.
- If temperature is 40°C (>104°F) or if altered mental status is present, begin active cooling by:
 - Continually misting the exposed skin with tepid water while fanning the patient (most effective).
 - Truncal ice packs and wet towels/sheets may be used, but are less effective than evaporation.
 - Discontinue active cooling when the patient reaches 38.5°C (101.5°F), or if shivering occurs and cannot be managed by paramedics (see below).

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

A

- ADULT: Consider 500ml 0.9% NaCl IV fluid bolus for dehydration even if vital signs are normal.
- PEDIATRIC: Consider 10 – 20ml/kg 0.9% NaCl IV fluid bolus for dehydration even if vital signs are normal.

PARAMEDIC STANDING ORDERS- ADULT

P

- If uncontrolled shivering occurs during cooling:
 - Midazolam 2.5mg IV/IN, may repeat once in 5 minutes or; 5mg IM may repeat once in 10 minutes **OR**
 - Lorazepam 1mg IV, may repeat once in 5 minutes or; 2mg IM, may repeat once in 10 minutes **OR**
 - Diazepam 2mg IV, may repeat once in 5 minutes

PARAMEDIC STANDING ORDERS- PEDIATRIC



- If uncontrolled shivering occurs during cooling:
 - Midazolam 0.1mg/kg IV/IM or 0.2mg/kg IN (single maximum dose 1mg); Note: a 5mg/ml concentration is recommended for IN administration), **OR**
 - Lorazepam 0.1mg/kg IV/IM (single maximum dose 1mg), **OR**
 - Diazepam 0.2mg/kg IV or 0.5mg/kg rectal (single maximum dose 2mg IV or 4mg rectal)

PEARLS:

- Exertional hyperthermic patients may be significantly dehydrated, and may require repeat fluid boluses.
- Immersion cooling is the most effective method to lower core body temperature if proper resources are available.

Hyperthermia:

Elevated temperature may be due to environmental exposure, pharmacologic agents, or excited/agitated delirium (see [Behavioral Emergencies 2.5](#)). Mortality and morbidity are directly related to the length of time the victim is subject to the heat stress.

EMT STANDING ORDERS**E**

- Routine Patient Care.
- Obtain glucose reading.
- Oral glucose: administer commercially prepared glucose gel or equivalent.
 - Hypoglycemic patients must be alert enough to swallow and protect airway.
- For patients with an insulin pump who are hypoglycemic with associated altered mental status (GCS<15):
 - Stop the pump or remove catheter at insertion site if patient cannot ingest oral glucose or ALS is not available.
 - Leave the pump connected and running if able to ingest oral glucose or receive ALS interventions.

ADVANCED EMT/PARAMEDIC STANDING ORDERS**A/P**

- Administer dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 70mg/dL or to a maximum of 25 grams (250mL). IV pump not required. If unable to establish IV access, administer glucagon 1mg IM or Glucapen 1mg IM.
 - Recheck glucose 15 minutes after administration of glucagon.
 - May repeat glucagon 1mg IM if glucose level is <70mg/dl with continued altered mental status.



Intraosseous (IO) administration of dextrose should be reserved for hypoglycemic patients with severe altered mental status or active seizures and IV access cannot be obtained.

PEARLS:

- Hypoglycemic emergency is defined as glucose <70mg/dl with associated altered mental status, GCS <15.
- There are no statistically significant differences in the median recovery time to a GCS score of 15 following administration of D10% versus D50%. D10% may benefit patients by decreasing the likelihood of post-treatment hyperglycemia and reducing the likelihood of extravasation injury.
- 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.
- Oral glucose equivalents include 3-4 glucose tablets, 4 oz. fruit juice (e.g. orange juice), non-diet soda, 1 tablespoon of pure NH maple syrup, sugar, or honey.
- Encourage patients who refuse transport after improvement of GCS and are back to baseline to consume complex carbohydrates (15 grams) and protein (12 – 15 grams) such as peanut butter toast, mixed nuts, milk or cheese to stabilize blood sugar.
- Hypoglycemia may be detrimental to patients at risk for cerebral ischemia, such as victims of stroke, cardiac arrest, and head trauma.

2.10P Hypoglycemia – Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Obtain glucose reading.
- Oral glucose: administer commercially prepared glucose gel or equivalent.
 - Hypoglycemic patients must be alert enough to swallow and protect airway.
- For patients with an insulin pump who are hypoglycemic with associated altered mental status (GCS<15):
 - Stop the pump or disconnect catheter at insertion site if patient cannot ingest oral glucose or ALS is not available.
 - Leave the pump connected and running if able to ingest oral glucose or receive ALS interventions.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Administer dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 60mg/dL or per [Pediatric Color Coded Appendix 3](#). IV pump not required.
- If unable to obtain IV access:
- Patients < 20 kg, give glucagon 0.5 mg IM or Glucapen Jr 0.5 mg IM.
 - Patients > 20 kg, give glucagon 1 mg IM or Glucapen 1.0 mg IM.



Intraosseous (IO) administration of dextrose should be reserved for hypoglycemic patients with severe altered mental status or active seizures and IV access cannot be obtained.

PEARLS:

- Hypoglycemic emergency in pediatrics is defined as glucose <60mg/dl with associated altered mental status, GCS <15.
- There are no statistically significant differences in the median recovery time to a GCS score of 15 following administration of D10% versus D50%. D10% may benefit patients by decreasing the likelihood of post-treatment hyperglycemia and reducing the likelihood of extravasation injury.
- 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.
- Oral glucose equivalents include 3-4 glucose tablets, 4 oz. fruit juice (e.g. orange juice), non-diet soda, 1 tablespoon of pure NH maple syrup, sugar, or honey.
- Encourage patients who refuse transport after improvement in GCS and are back to baseline to consume complex carbohydrates (15 grams) and protein (12 – 15 grams) such as peanut butter toast, mixed nuts, milk or cheese to stabilize blood sugar.
- Hypoglycemia may be detrimental to patients at risk for cerebral ischemia, such as victims of stroke, cardiac arrest, and head trauma.

Hypothermia – Adult & Pediatric 2.11

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Avoid rough movement and excess activity.
- Prevent further heat loss:
 - Insulate from the ground and shield from wind/water.
 - Move to a warm environment.
 - Gently remove any wet clothing and dry patient.
 - Cover with warm blankets including the head and neck.
- If unresponsive, obtain esophageal or rectal temperature, if feasible.
- Obtain blood glucose.
- Maintain horizontal position.
- Apply truncal warm packs.
- Consider covering the patient's mouth and nose with a surgical mask to prevent respiratory heat loss.
- A minimum of 45 – 60 second assessment of respirations and pulse is necessary to confirm respiratory arrest or cardiac arrest.
- If pulse and breathing are present, continue rewarming techniques.
- If pulse and breathing are absent, start CPR see [Cardiac Arrest Protocols 3.2](#).

ADVANCED EMT - ADULT ONLY

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- Warm IV 0.9% NaCl 38°C - 42°C (101.4°F – 107.6°F) should be used.
- If pulse and breathing are absent and esophageal or rectal temperature is <32°C (89.6°F):
 - Continue CPR.
 - Give IV medications based on dysrhythmia (consider increasing the dosing time to allow drugs to circulate).
 - Defibrillation as indicated.

STAGE: I Core Temp Treatment:	Conscious, shivering 35 to 32°C Warm environment and clothing, warm sweet drinks, and active movement (if possible).
STAGE: II Core Temp Treatment:	Impaired consciousness, not shivering <32 to 28°C Cardiac monitoring, minimal and cautious movements to avoid arrhythmias, horizontal position and immobilization, full-body insulation, active external and minimally invasive rewarming techniques (warm environment; chemical, electrical, or forced- air heating packs or blankets; warm parenteral fluids).
STAGE: III Core Temp Treatment:	Unconscious, not shivering, vital signs present <28 to 24°C HT II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management.
STAGE: IV Core Temp Treatment:	No vital signs <24°C HT II and III management plus CPR and up to three doses of epinephrine (at an intravenous or intraosseous dose of 1 mg) and defibrillation, with further dosing guided by clinical response; rewarming with ECMO or CPB (if available) or CPR with active external and alternative internal rewarming.

PEARLS:

- Patients with severe frost bite injury may benefit from urgent treatment with IV TPA at a burn center.
- Most digital thermometers will not read below 35°C (95°F).
- Hypothermic patients are often significantly dehydrated, and may require repeat fluid boluses.
- Transportation with continuing CPR may be justified if hypothermia is present or suspected.
- Patients with Stage III or IV hypothermia may benefit from treatment at a facility capable of ExtraCorporeal Membrane Oxygenation (ECMO) or CardioPulmonary Bypass (CPB).

2.12 Nausea/Vomiting - Adult & Pediatric

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.

ADVANCED EMT STANDING ORDERS- ADULT

A

- Consider 500ml IV fluid bolus for dehydration even if vital signs are normal.
 - May repeat 250ml IV bolus if transport exceeds 15 minutes and patient's condition has not improved.
- Ondansetron 4mg by mouth (PO).

PARAMEDIC STANDING ORDERS- ADULT

P

- Ondansetron 4mg IV/PO **OR**
- Prochlorperazine 5 – 10mg IV, or 5mg IM, **OR**
- Metoclopramide 5mg IV **OR**
 - May repeat any of the above medications once after 10 minutes if nausea/vomiting persists.
- Granisetron 0.1 – 1mg IV over 5 minutes (one-time dose) **OR**
- Dolasetron 12.5mg IV (one-time dose).

Antidote: For dystonic reactions caused by EMS administration of prochlorperazine or metoclopramide:

- Administer diphenhydramine 25 – 50mg IV/IM.

PARAMEDIC STANDING ORDERS- PEDIATRIC



- Consider 10 – 20ml/kg IV fluid bolus for dehydration even if vital signs are normal.
- Ondansetron 0.1mg/kg IV (maximum single dose 4mg), **OR**
- Ondansetron PO 4mg **OR**
- Granisetron 10 micrograms/kg IV over 5 minutes (one-time dose).

ADVANCED EMT/PARAMEDIC EXTENDED CARE ORDERS

X

- For motion sickness: administer diphenhydramine:
 - Adult: 25 mg by mouth
 - Ages 2 – 5 years: 6.25 mg by mouth
 - Ages 6 – 11 years: 12.5 - 25 mg by mouth
- May repeat IM prochlorperazine or metoclopramide every 4 - 6 hours as needed. (Paramedic only).

PEARLS:

- To reduce incidence of dystonic reactions, administer prochlorperazine and metoclopramide slowly over 1-2 minutes.
- Use prochlorperazine with caution in women of child bearing ages.

Nerve Agents

Organophosphate Poisoning - Adult 2.13A

EMERGENCY MEDICAL RESPONDER/EMT/ADVANCED EMT STANDING ORDERS

E/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.

Tag Color	Signs & Symptoms of SLUDGEM	Autoinjector Dose and Monitoring Interval	Maintenance Dose
RED	Apnea Convulsions Unconsciousness Flaccid paralysis	3 DuoDotes AND 1 diazapam (10mg) auto-injector	1 DuoDote every hour for 3 hours
YELLOW	Dyspnea Twitching Nausea, vomiting Sweating, anxiety Confusion Constricted pupils, Restlessness, weakness	1 DuoDote AND Monitor every 10 minutes	
GREEN	Asymptomatic None	Monitor every 10 – 15 minutes for evidence of exposure.	

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; repeat every 5 minutes until secretions clear.
 - Pralidoxime 1 – 2 gram IV over 30 – 60 minutes.
 - Diazepam 5mg IV every 5 minutes; or 10mg IM or diazepam auto-injector (10mg) every 10 minutes, as needed.

Instead of diazepam, may use either:

 - Lorazepam 1mg IV; may repeat once in 5 minutes, or 2mg IM, may repeat once in 10 minutes, **OR**
 - Midazolam 2.5mg IV/IN every 5 minutes; or 5mg IM every 10 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:



- Pralidoxime maintenance infusion: up to 500mg per hour (maximum of 12 grams in 24 hours).

2.13P

Nerve Agents Organophosphate Poisoning – Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/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.

Tag Color	Signs & Symptoms of SLUDGEM	Autoinjector Dose and Monitoring Interval		Maintenance Dose
RED (Pediatric)	Yes	Age < 1 year	1 Peds Atropine Auto-Injector (0.5mg) * Monitor every 3 minutes	1 Atropine Auto-Injector (0.5mg) every 3 – 5 minutes, as needed.
	Yes	Age > 1 year	1 Adult DuoDote Monitor every 3 minutes	
GREEN (Pediatric)	No	None Monitor every 10 minutes for evidence of exposure.		

*DuoDote may be used for pediatric patients < 1 year old in a life-threatening situation with exposure symptoms when no pediatric doses of atropine or pralidoxime chloride are available.

PARAMEDIC STANDING ORDERS

P

- In the unlikely event that field conditions permit, follow weight-based dosing and treatment guidelines:
 - Initiate cardiac monitoring.
 - Establish IV access.
 - Atropine 0.05 – 0.1mg/kg IV or IM (minimum dose of 0.1mg, maximum single dose 5mg); repeat every 2 – 5 minutes as needed.
 - Pralidoxime 25 – 50mg/kg/doses IV (maximum dose 1 gram) or IM (maximum dose of 2 grams), may repeat within 30 – 60 minutes as needed, then again every hour for 1 – 2 doses as needed.
 - Diazepam 0.3mg/kg IV (0.5mg/kg per rectum) (maximum dose 10mg), repeat every 5 – 10 minutes as needed.

Instead of diazepam, may use either:

- Lorazepam 0.1mg/kg IV/IM (maximum dose 4mg), repeat every 5 – 10 minutes as needed, **OR**
- Midazolam 0.2mg/kg IM/IN/IV, repeat every 5 – 10 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:



- Pralidoxime maintenance infusion: 10 – 20mg/kg/hr.

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/
A/
P

- For newborns requiring resuscitation, see [Newborn Resuscitation Protocol 2.15](#).
- Routine Patient Care—dry, warm, position, stimulate.
- Assess 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 [Newborn Resuscitation Protocol 2.15](#)
- 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/space blanket (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 [Newborn Resuscitation Protocol 2.15](#).
- Asses 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 [Newborn Resuscitation Protocol 2.15](#).
 - Assess skin color: examine trunk, face and mucus membranes.
 - Assess temperature
- Record APGAR score at 1 minute and 5 minutes (see chart).
- See [Pediatric Color Coded Appendix A3](#) for vital signs.
- When possible, transport newborn in child safety seat.

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/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care—initial steps identified in [Newborn Care Protocol 2.14](#).
- For premature infants, consider additional warming techniques, including wrapping the baby in food or medical-grade plastic wrap, silver swaddler/space blanket (preferred).
- If the mouth or nose is obstructed or heavy secretions are present, suction oropharynx then nares using a bulb syringe or mechanical suction using the lowest pressure that effectively removes the secretions, not to exceed 100 mm Hg.
- If ventilations are inadequate, or if the chest fails to rise, or the heart rate is less than 100, initiate positive pressure (bag-valve-mask) ventilations at 40 – 60 breaths per minute.
 - Note: resuscitation should be initiated with room air.
 - Inflation pressures should be individualized to achieve an increase in heart rate or movement of the chest with each breath. Be aware that bag-valve-mask pop-off valves may deliver inconsistent results.
- After 30 seconds of ventilations, assess heart rate:
 - Auscultate apical beat with a stethoscope or palpate the pulse by lightly grasping the base of the umbilical cord.
- For heart rate <100, reassess ventilatory technique and continue ventilations.
- For heart rate <60 after attempts to correct ventilations:
 - Initiate CPR at a 3:1 ratio (for a range of 90 compression/minute and 30 ventilations/minute). Minimize interruptions. Reassess every 60 seconds; if not improving, continue CPR with 100% oxygen until recovery of a normal heart rate, then resume room air.
 - When newborn is stabilized see [Newborn Care Protocol 2.14](#).

PARAMEDIC STANDING ORDERS

P

- If meconium is present and the newborn is not vigorous (poor muscle tone, weak respiratory effort, or heart rate <100 bpm), perform direct endotracheal suctioning via meconium aspirator.
- If bag valve mask ventilation is inadequate or chest compressions are indicated, consider intubating the baby using a 3.0mm or 4.0mm endotracheal tube. (For an infant born before 28 weeks gestation, a 2.5mm endotracheal tube should be used.)
 - Heart rate and EtCO₂ are the best indicators of whether the tube is properly placed in the trachea.
- Establish IV/IO. Obtain blood sample if possible.
 - If hypovolemia is suspected, administer 10ml/kg bolus over 5 – 10 minutes.
 - If the heart rate fails to improve with chest compressions, administer epinephrine (1:10,000) 0.01 – 0.03mg/kg IV (0.1 – 0.3ml/kg).
 - IV is preferred route for epinephrine—if there is a delay in establishing access, may administer via ETT 0.05 to 0.1 mg/kg (1:10,000).
 - If glucose level is <60mg/dl:
 - Administer dextrose per [Pediatric Color Coded Appendix A3](#).

PEARLS:

- ALS NOTES: Flush all meds with 0.5 to 1.0ml 0.9% NaCl and follow all ETT meds with positive-pressure ventilation.

Obstetrical/Gynecological Emergencies

2.16

Medical Protocol 2.16

EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient Care.
- Obtain history.
 - Abdominal pain with associated symptoms (syncope, lightheadedness, nausea, vomiting, fever).
 - Vaginal bleeding (onset, duration, quantity, syncope, lightheadedness).
- If the patient is hypotensive, consider fluids per [Shock – Non-traumatic Protocol 2.21](#). (AEMT/Paramedics only)

E/
A/
P

For obstetrical patients:

- 1st or 2nd trimester or unknown pregnancy status: place patient in position of comfort.
- 3rd trimester pregnancy (>28 weeks, if gestational age is known) place patient left lateral recumbent position.
- Visually inspect for crowning/presenting parts, see [Childbirth Protocol 2.6](#). Do not put fingers or hand inside vagina during assessment.
- If gestational age known to be < 20 weeks, transport to closest hospital.
- For imminent delivery (patient has strong urge to push) or medically unstable mother, transport to closest hospital.
- If gestational age is > 20 weeks, contact **Medical Control** and follow local OB Diversion Protocol, if available.
- Consider ALS intercept.



PEARL:

The amount of bleeding is difficult to estimate. Menstrual pad holds between 5-15 mL depending on type of pad. Maternity pad holds 100 mL when completely saturated. Chux pad holds 500mL. Estimate the amount of bleeding by number of saturated pads in last 6 hours.

Pre-Eclampsia / Eclampsia

Pre-eclampsia/Eclampsia is most commonly seen in the last 10 weeks of gestation, during labor, or up to 48 hours post-partum. It also may occur up to several weeks post-partum.

EMT/ADVANCED EMT STANDING ORDERS

E

- Routine Patient Care.
- Ensure quiet environment / dim lights / limited use of siren.
- If pregnant, place patient in left lateral recumbent position.

ADVANCED EMT STANDING ORDERS

A

- Establish vascular access.

PARAMEDIC STANDING ORDERS

P

For patients in the third trimester of pregnancy or post-partum who are seizing or who are post-ictal:

- Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion see [Seizure Protocol 2.19A](#).
- Contact Medical Control and follow local OB Diversion Protocol.



PEARLS: Moderate / Severe symptoms of pre-eclampsia include:

- BP \geq 160/100
- Severe headache
- Visual disturbances
- Confusion
- RUQ Abd pain
- Epigastric pain
- Nausea
- Shortness of breath

2.17A Pain Management – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Have the patient rate his/her pain from 0 to 10, or use another appropriate pain scale. If there is a language barrier, use self report scale, see [Pain – Pediatric Protocol 2.17P](#).

ADVANCED EMT STANDING ORDERS

A

- Nitronox: The patient must be able to self-administer this medication.
- Nitronox is contraindicated in patients with abdominal pain, pneumothorax, head-injured, or diving-emergency patients.
 - Note: Nitronox may only be used if patient has not received an opiate.

PARAMEDIC STANDING ORDERS

P

Unless the patient has altered mental status, consider **one** of the following for pain control:

- Ketorolac 15 – 30mg IV or 30 – 60mg IM (no repeat).
 - Consider as first line in renal colic.
- **One** of the following opiates:
 - Fentanyl 25 – 100 micrograms IV, every 2 – 5 minutes to a total of 300 micrograms titrated to pain relief; 50 – 100 micrograms IM/IN, every 5 minutes to a total of 300 micrograms titrated to pain relief, **OR**
 - Hydromorphone 0.5 - 1mg IV, every 10 minutes to a total of 4 mg titrated to pain relief, **OR**
 - Morphine 2 – 5mg IV/IM every 10 minutes to a total of 20mg titrated to pain relief and if systolic BP is >100 mmHg.
 - **Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone 0.4 mg IV/IM or 2mg IN. If no response, may repeat initial dose every 5 minutes to a total of 10mg.
- For nausea: see [Nausea/Vomiting 2.12 Protocol](#).
- **Contact Medical Control for guidance in patients with:**
 - Altered mental status or
 - Additional doses of a medication, or
 - Benzodiazepines administration in conjunction with narcotic administration for patients with musculoskeletal spasms.



- Avoid Ketorolac in patients with NSAID allergy, aspirin-sensitive asthma, renal insufficiency, pregnancy, or known peptic ulcer disease.
- Medications should be administered cautiously in frail, debilitated, or patients over 65 years of age; lower doses should be considered.
- Use caution for altered mental status, hypoventilation, hypotension, or allergy.
- A scavenger and ventilation fan should be used while administering Nitronox.

PEARLS:

- Place the patient in a position of comfort, if possible.
- Give reassurance, psychological support, and distraction.
- Avoid coaching the patient; simply ask them to rate his/her pain on a scale from 0 – 10, where 0 is no pain at all and 10 is the worst pain they have ever experienced.
- Reassess the patient's pain level and vital signs every 5 minutes.
- Narcotics are not recommended for first line treatment of headache and should be reserved for severe headaches only.

Pain Management - Pediatric 2.17P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Rate the patient's pain:
 - Children greater than 8 years of age:
 - Ask the patient to rate pain on a scale from 0 – 10, where 0 is no pain and 10 is the worst pain ever experienced by the patient.
 - Children 3 – 8 years of age:
 - Use the Wong-Bakers FACES Scale (see [Pain Management - Pediatric Protocol 2.17P Page 2](#)).
 - Children less than 3 years of age or non-verbal:
 - Use the r-FLACC Pain Scale, see [Pain Management - Pediatric Protocol 2.17P Page 2](#).
- Consider sucrose for infants for minor procedural pain or when used with other pharmacologic agents.
 - Full term infants up to 60 days of age:
 - Slowly administer 1.5 to 2 ml of a 24% solution directly onto infant's anterior tongue over a period of 2 minutes, repeat once.
 - Provide a pacifier for non-nutritive sucking and wait two minutes for onset.
 - Pain control effects should persist for up to 8 minutes.
 - Preterm infants:
 - Follow same administration procedure using 0.1 –1.0 ml.
 - Dose may be repeated once for full term and preterm infants.

ADVANCED EMT STANDING ORDERS

A

- Nitronox: Patient must be able to self-administer this medication. Nitronox is contraindicated in patients with abdominal pain, pneumothorax, head injury, or diving-emergency patients.
Note: Nitronox may only be used if the patient has not received an opiate.

PARAMEDIC STANDING ORDERS

P

- Unless the patient has altered mental status consider **one** of the following for pain control:
- Fentanyl 1.0 micrograms/kg IV/IM/IN (maximum dose 100 micrograms) may repeat 0.5 micrograms/kg (Maximum dose 50 micrograms) every 5 minutes. May be repeated to a total of 3 doses, **OR**
 - Morphine 0.1mg/kg IV (maximum dose 5mg) may repeat 0.05mg/kg (maximum dose 2.5mg) every 5 minutes May be repeated to a total of 3 doses.
 - **Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone per [Pediatric Color Coded Appendix 3](#).
 - Contact **Medical Control** for guidance regarding:
 - Altered mental status or
 - Requests to provide additional doses of a medication.



- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.
- Narcotics should be administered with caution for patients with altered mental status, hypoventilation, hypotension and / or history of allergies to similar class of medications.
- A scavenger and ventilation fan should be used while administering Nitronox.

PEARLS:

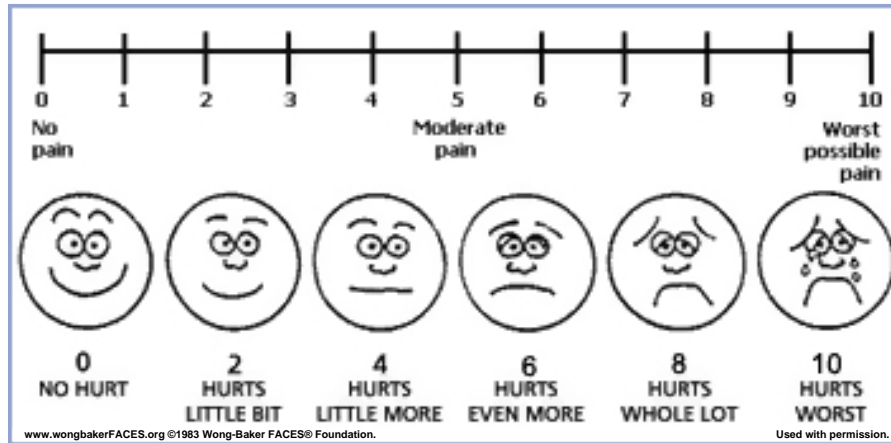
- Avoid coaching the patient; simply ask him/her to rate his/her pain on a scale from 0 – 10, where 0 is no pain at all and 10 is the worst pain the patient has ever experienced. Place the patient in a position of comfort, if possible.
- Give reassurance, psychological support, and distraction.
- Reassess the patient's pain level and vital signs every 5 minutes.

Policy Continues 

2.17P

Pain Management - Pediatric

← Policy Continued



Wong-Baker FACES Scale For patients 3 – 8 years of age

The faces correspond to numeric values from 0 – 10. The scale can be documented with the numeric value or the textual pain description

Medical Protocol 2.14P

r-FLACC Pain Scale For patients less than 3 years of age or non-verbal patients			
Categories	0	Scoring	
		1	2
F Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested appears sad or worried	Frequent to constant frown, clenched jaw, quivering chin distress-looking face: expression of fright or panic
L Legs	Normal position or relaxed	Uneasy, restless, tense occasional tremors	Kicking, or legs drawn up marked increase in spasticity, constant tremors or jerking
A Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense mildly agitated (eg. head back and forth, aggression); shallow, splinting respirations intermittent sighs	Arched, rigid, or jerking severe agitation, head banging, shivering (not rigors); breath-holding, gasping or sharp intake of breath; severe splinting
C Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint occasional verbal outburst or grunt	Crying steadily, screams or sobs, frequent complaints repeated outbursts, constant grunting
C Consolability	Content, relaxed	Reassured by occasional touching, hugging, or being talked to, distractable	Difficult to console or comfort pushing away caregiver, resisting care or comfort measures

Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between zero and ten.

Patients who are awake: Observe for at least 1-2 minutes. Observe legs and body uncovered. Reposition patient or observe activity, assess body for tenseness and tone. Initiate consoling interventions if needed

Patients who are asleep: Observe for at least 2 minutes or longer. Observe body and legs uncovered. If possible reposition the patient. Touch the body and assess for tenseness and tone.

The revised-FLACC can be used for all non-verbal children. The additional descriptors (in bold) are descriptors validated in children with cognitive impairment. The nurse can review with parents the descriptors within each category. Ask them if there are additional behaviors that are better indicators of pain in their child. Add these behaviors to the tool in the appropriate category.

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EMR & EMT STANDING ORDERS

E



- Routine Patient Care.
 - Prior to calling Poison Control attempt to identify substance, quantity, time/route of exposure and patient information (weight, medications, history, intentional, accidental).
 - Contact Poison Control at (800) 222-1222 as soon as practical.
 - Ingested Poison:
 - Consider activated charcoal 25 – 50 grams by mouth if advised by Poison Control or **Medical Control**.
 - For suspected opiate overdose with severe respiratory depression consider:
 - Naloxone 1mg (1mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2mg.
 - If no response repeat in 3 - 5 minutes.
 - For additional doses call **Medical Control**.
- NOTE:** Must complete First Responder Narcan Rollout before using naloxone, see: <http://nhoodle.nh.gov/ola/>
- For suspected isolated cyanide poisoning, see [Smoke Inhalation Protocol 2.22A](#).
 - For decontamination/hazardous materials exposure, see [Hazardous Materials 9.0](#).
 - For hypoglycemia, see [Hypoglycemia Emergencies Protocol 2.10A](#).
 - For seizures, see [Seizure Protocol 2.19A](#).

ADVANCED EMT STANDING ORDERS

A

- For suspected opiate overdose with severe respiratory depression consider:
- Naloxone 0.4 – 2.0 mg IV/IM or 2mg IN.
 - If no response, may repeat every 3 - 5 minutes to a total of 10mg.

PARAMEDIC STANDING ORDERS

P

Suggested Treatments

- Beta Blocker and Calcium Channel Blocker refer to [Bradycardia Protocol 3.1A](#) .
- Dystonic Reaction:
 - Diphenhydramine 25 – 50mg IV/IM
- Organophosphates, see [Nerve Agent/Organophosphate Protocol 2.13A](#).
- Suspected Sympathomimetic/Stimulant:
 - Midazolam 2.5mg IV/IN, may repeat once in 5 minutes; or 5mg IM, may repeat once in 20 minutes, **OR**
 - Lorazepam 1mg IV, may repeat once in 5 minutes; or 2mg IM may repeat once in 20 minutes, **OR**
 - Diazepam 2mg IV, may repeat once in 5 minutes; or 5mg IM, may repeat once in 20 minutes,
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS > 100 milliseconds):
 - Sodium bicarbonate 2mEq/kg IV.



This protocol is designed to provide general guidelines for treatment. Specific treatments or antidotes may be appropriate as directed by on-line medical control or in consultation with Poison Control.

PEARLS:

- If possible, bring container/bottles and/or contents.
- Pulse oximetry may NOT be accurate for toxic inhalational patients.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See [Quantitative Waveform Capnography Procedure 6.2](#).

Protocol Continues

 Protocol Continued**Signs & Symptoms**, which may or may not be present:

- **Acetaminophen:** initially no sign/symptoms or nausea/vomiting. If not detected and treated, may cause irreversible liver failure.
- **Akathisia:** May consist of feelings of anxiety, agitation, and jitteriness, as well as inability to sit still / pacing. This may be induced by antipsychotics, such as haloperidol, or anti-emetics such as prochlorperazine or metoclopramide.
- **Anticholinergic:** tachycardia, fever, dilated pupils, mental status changes. Blind as a bat (blurred vision). Dry as a bone (dry mouth). Red as a beet (flushing). Mad as a hatter (confusion). Hot as a hare (hyperthermia).
- **Aspirin:** abdominal pain, vomiting, tachypnea, fever and/or altered mental status. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later.
- **Cardiac Medications:** dysrhythmias, altered mental status, hypotension, hypoglycemia.
- **Depressants:** bradycardia, hypotension, decreased temperature, decreased respirations, non-specific pupils.
- **Dystonic Reaction:** Neurological movement disorder, in which sustained muscle contractions cause twisting and repetitive movements or abnormal postures. This may be induced by antipsychotics, such as haloperidol, or anti-emetics such as prochlorperazine or metoclopramide.
- **Opiate:** Respiratory depression or arrest, pinpoint pupils, decreased mental states. Prolonged overdoses may result in compartment syndrome and/or hypothermia.
- **Organophosphates:** bradycardia, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- **Solvents:** nausea, coughing, vomiting, mental status change and arrhythmias. Patient with significant solvent exposure, must be handled gently to reduce the incident of arrhythmia and/or subsequent cardiac arrest.
- **Sympathomimetic/Stimulants:** tachycardia, hypertension, seizures, agitation, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), salbutamol.
- **Tricyclic:** seizures, dysrhythmias, hypotension, decreased mental status or coma.

EMT/AEMT STANDING ORDERS

E

- Routine Patient Care.
- Prior to calling Poison Control attempt to identify substance, quantity, time/route of exposure and patient information (weight, medications, history, intentional, accidental).
- Contact Poison Control at (800) 222-1222 as soon as practical.
- Ingested Poison:
 - Consider activated charcoal per length-based resuscitation tape if advised by Poison Control or **Medical Control**.
- For suspected isolated cyanide poisoning, see [Smoke Inhalation Protocol 2.22P](#).
- For decontamination/hazardous materials exposure: refer to [Hazardous Materials 9.0](#).
- For hypoglycemia, see [Hypoglycemia Emergencies 2.10P](#).
- For seizures, see [Seizures Protocol 2.19P](#).



ADVANCED EMT STANDING ORDERS

A

- For suspected opiate overdose with severe respiratory depression consider: Naloxone refer to [Pediatric Color Coded Appendix 3](#), repeat every 5 minutes as needed.
- If no response, may repeat initial dose every 5 minutes to a total of 10mg.

PARAMEDIC STANDING ORDERS

P

Suggested Treatments

- Beta Blocker and Calcium Channel Blocker, see [Bradycardia Protocol 3.1P](#).
- Dystonic Reaction:
 - Diphenhydramine 1mg/kg IV/IM up to 50 mg
- Organophosphates, see [Nerve Agent/Organophosphate Protocol 2.13P](#).
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS > 100 milliseconds):
 - Sodium bicarbonate 2mEq/kg IV.



This protocol is designed to provide general guidelines for treatment. Specific treatments or antidotes may be appropriate as directed by on-line medical control or in consultation with Poison Control.

PEARLS:

- If possible, bring container/bottles, and/or contents.
- Pulse oximetry may NOT be accurate for toxic inhalational patients.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See [Quantitative Waveform Capnography Procedure 6.2](#).

Protocol Continues 

 Protocol Continued**Signs & Symptoms**, which may or may not be present:

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- **Cardiac Medications:** dysrhythmias, altered mental status, hypotension, hypoglycemia.
- **Depressants:** bradycardia, hypotension, decreased temperature, decreased respirations, non-specific pupils.
- **Dystonic Reaction:** Neurological movement disorder, in which sustained muscle contractions cause twisting and repetitive movements or abnormal postures. This may be induced by antipsychotics, such as haloperidol, or anti-emetics such as prochlorperazine or metoclopramide.
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- **Solvents:** nausea, coughing, vomiting, mental status change and arrhythmias. Patient with significant solvent exposure, must be handled gently to reduce the incident of arrhythmia and/or subsequent cardiac arrest.
- **Sympathomimetic/Stimulants:** tachycardia, hypertension, seizures, agitation, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), salbutamol.
- **Tricyclic:** seizures, dysrhythmias, hypotension, decreased mental status or coma.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If the blood glucose reading is <70mg/dl, see [Hypoglycemia Protocol 2.10A](#).
- 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 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

While seizure activity is present, consider:

- *Midazolam 10 mg IM (preferred route) every 10 minutes or 5 – 10 mg IV/IN every 5 minutes, **OR**
- Lorazepam 2 – 4 mg IV every 5 minutes to a total of 8mg, **OR**
- Diazepam 5 – 10mg IV (then 2.5mg every 5 minutes to total of 20mg).

For patients in the third trimester of pregnancy or post-partum who are seizing or who are post-ictal:

- Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion.



*For IN administration of midazolam use a 5mg/mL concentration.



Do NOT routinely place an IV/IO for the actively seizing patient (unless needed for other reasons).

PEARLS:

- Do not attempt to restrain the patient; protect them patient from injury.
- History preceding a seizure is very important. Find out what precipitated the seizure (e.g., medication non-compliance, active infection, trauma, hypoglycemia, poisoning).
- **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.
- IM/IN is the preferred route for midazolam where an IV has not been previously established.
- IM midazolam should be administered to the lateral thigh.
- Diazepam and lorazepam are not well absorbed IM and should be given IV.
- There is an increase risk of apnea with >2 doses of benzodiazepines.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If the blood glucose reading is <60mg/dl, see [Hypoglycemia Protocol 2.10P](#).
- Obtain the patient's temperature for suspected febrile seizure (rectal route preferred, as appropriate). Treat fever per [Pediatric Color Coded Appendix A3](#).
- 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 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

- While seizure activity is present, consider:
 - *Midazolam 5mg/mL concentration (IM or IN preferred):
 - 0.2mg/kg IM/IN (single maximum dose 8mg) repeat every 5 minutes; or
 - 0.1mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes, **OR**
 - Lorazepam 0.1mg/kg IV (single maximum dose 4mg) repeat every 5 minutes, **OR**
 - Diazepam 0.1mg/kg IV (single maximum dose 10mg IV) repeat every 5 minutes.



*For IN administration of midazolam use a 5mg/mL concentration.



Do NOT routinely place an IV/IO for the actively seizing patient (unless needed for other reasons).

PEARLS:

- Do not attempt to restrain the patient; protect them patient from injury.
- History preceding a seizure is very important. Find out what precipitated the seizure (e.g., medication non-compliance, active infection, trauma, hypoglycemia, poisoning).
- **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.
- IM/IN is the preferred route for midazolam where an IV has not been previously established.
- IM midazolam should be administered to the lateral thigh.
- Diazepam and lorazepam are not well absorbed IM and should be given IV.
- There is an increase risk of apnea with >2 doses of benzodiazepines.

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK

- Suspected infection – YES
- Evidence of sepsis criteria – YES (2 or more):
 - Temperature < 96.8 °F or > 100.4 °F
 - Heart rate > 90 bpm
 - Respiratory rate > 20 bpm
 - Systolic blood pressure < 90 mmHg OR Mean Arterial Pressure (MAP) < 65mmHg.
 - New onset altered mental status OR increasing mental status change with previously altered mental status
 - Serum lactate level > 4 mmol/L

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- Administer oxygen at a rate to keep oxygen saturation $\geq 94\%$.
- Do not delay transport.
- If positive sepsis screen, notify receiving facility of a “Sepsis Alert”.

ADVANCED EMT STANDING ORDERS - ADULT

A

- Initiate up to two (2) large-bore IVs. Do not delay transport to start IV.
- Rapidly administer 0.9% NaCl to maintain systolic blood pressure > 90mmHg OR MAP > 65mmHg in 500ml boluses every 20 minutes. Total volume should not exceed 4,000ml.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.

PARAMEDIC STANDING ORDERS - ADULT

P

- Obtain serum lactate level (if available and trained)
- If there is no response after 2,000 ml IV fluid infused, continue up to 4,000 mL IV fluid and consider:
 - Norepinephrine infusion 1 – 30 microgram/minute (preferred) (Dilute 4mg in 1000 mL 0.9% normal saline for 4 microgram/mL) via pump, **OR**
 - Epinephrine infusion 2 – 10 micrograms/minute (Dilute epinephrine 1mg in 1000 mL 0.9% normal saline for 1 microgram/mL) via pump.

PEARLS:

- Sepsis is a systemic inflammatory response due to infection, often resulting in significant morbidity and mortality.
- Severe septic shock has a 50% mortality rate and must be treated aggressively.
- Early goal directed therapy consisting of IV fluid administration and early antibiotics reduces mortality in septic patients.

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK:

- Suspected Infection – YES
- Temperature > 100.4° F or < 96.8
- Heart rate greater than normal limit for age (heart rate may not be elevated in septic hypothermic patients) **AND** at least one of the following indications of altered organ function:
 - Altered mental status
 - Capillary refill time <1 second (flash) or > 3 seconds
 - Mottled cool extremities
 - Finger stick lactate level >4 mmol/L

Note: Consider early consultation with medical control for suspected pediatric septic shock patients.

EMT STANDING ORDERS - PEDIATRIC

E

- Routine Patient Care.
- Monitor and maintain airway and breathing as these may change precipitously.
- Administer oxygen and continue regardless of oxygen saturation levels.
- Obtain blood glucose reading.
- Do not delay transport.

ADVANCED EMT STANDING ORDERS - PEDIATRIC

A

IV fluids should be titrated to attain normal capillary refill, peripheral pulses, and level of consciousness.

- Administer fluid bolus of 20mL/kg of 0.9% saline by syringe push method; reassess patient immediately after completion of bolus and repeat 2 times (max 60mL/kg, if inadequate response to boluses).

Note: Reassess patient between each bolus for improving clinical signs and signs of fluid overload (rales, increased work of breathing, or increased oxygen requirements).

PARAMEDIC STANDING ORDERS - PEDIATRIC



P

- Obtain finger stick lactate level (if available and trained).
- If there is no response after 3 fluid boluses, contact **Medical Control** to consider:
 - Additional fluids,
 - Norepinephrine (preferred) 0.05 – 0.1 mcg/kg/min, titrated to effect to a maximum dose 2 mcg/kg/min, via pump **OR**
 - Epinephrine 0.1 – 1.0 mcg/kg/min, via pump, titrated to effect.

PEARLS:

- Sepsis is a systemic inflammatory response due to infection. Frequent causes of septic shock include urinary, respiratory, or gastrointestinal infections and complications from catheters and feeding tubes. Patients who are immuno-compromised are also susceptible to sepsis.
- Septic shock has a high mortality and is one of the leading causes of pediatric deaths.
- Aggressive IV fluid therapy and early antibiotics significantly reduces death.

Non-Traumatic Shock Adult & Pediatric

2.21

Medical Protocol 2.21


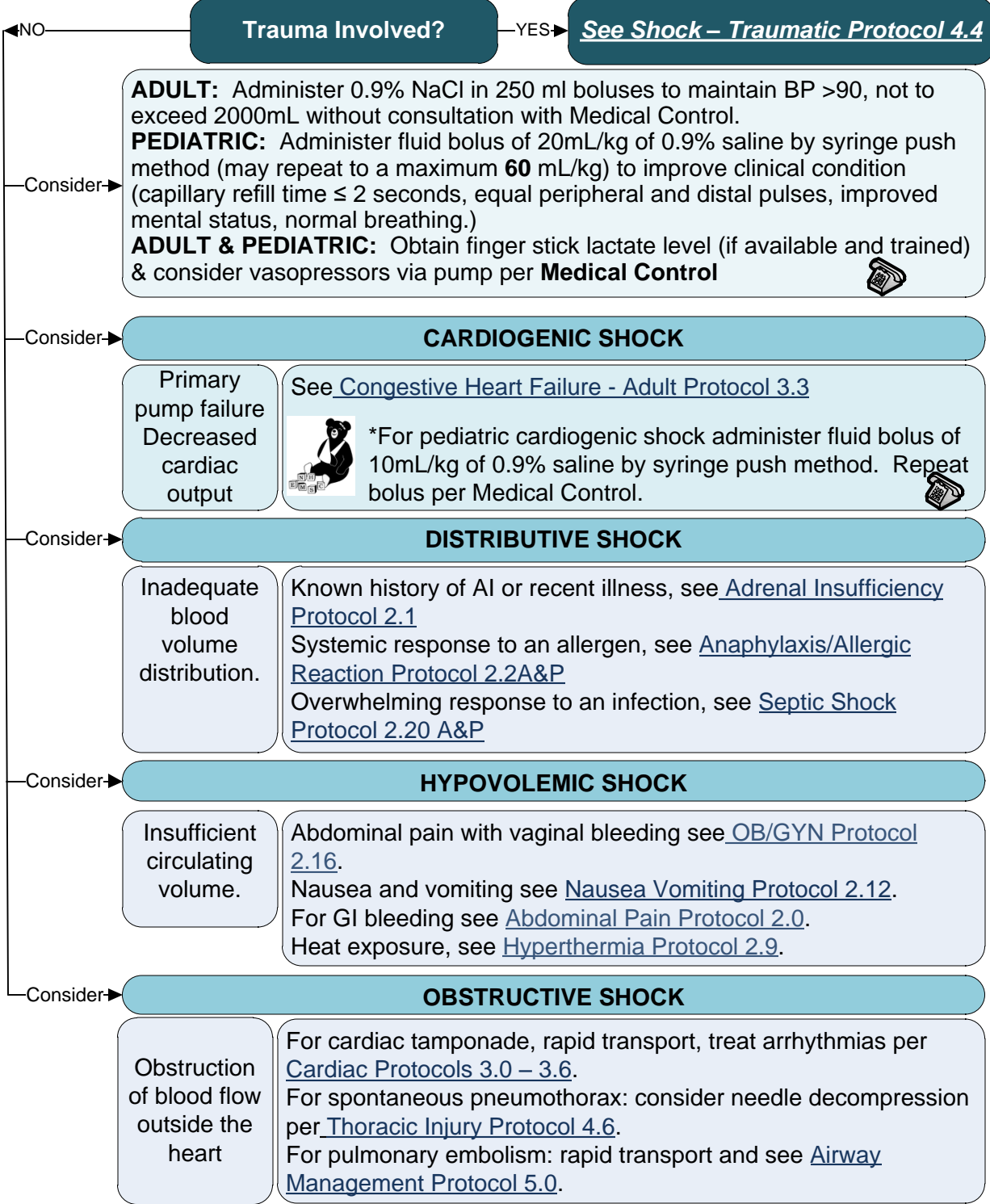
Recognize Compensated Shock-Adult

- Anxiety
- Tachycardia
- Tachypnea
- Diaphoresis

SHOCK
Inadequate tissue perfusion that impairs cellular metabolism

Recognize Compensated Shock - Pediatric:

- Delayed capillary refill
- Decreased or bounding peripheral pulses
- Palpable central pulse, decreased distal pulse
- Cool extremities
- Altered mental status
- Mild tachypnea

2.22A Smoke Inhalation – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Oxygen 100% via non-rebreather mask or BVM.
- Decontamination concurrent with initial resuscitation.
- If a carbon monoxide (CO) oximeter (e.g., Rad-57) is available, obtain carbon monoxide levels.
- If a measuring device is available, obtain atmospheric levels of carbon monoxide (CO) and cyanide (CN).

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

For a history of smoke exposure with an altered level of consciousness and/or hemodynamic or respiratory compromise, administer, if available:

- Hydroxocobalamin via use of Cyanokit:
 - Reconstitute: Place the vial of hydroxocobalamin in an upright position; add 0.9% NaCl to the vial (200 mL for 5 grams vial using the transfer spike. Fill to the line.
 - Rock vial for at least 60 seconds (do not shake).
 - Using vented intravenous tubing, infuse as directed.
 - Depending on clinical response, a second dose may be required.



- Oxygen saturation may be inaccurate in patients exposed to carbon monoxide or cyanide.
- CO oximeter devices may yield inaccurate low/normal results for patients with CO poisoning. All patients with probable or suspected CO poisoning should be transported to the nearest appropriate hospital, based on their presenting signs and symptoms.
- Do not administer other drugs concurrently in same IV as hydroxocobalamin.

Symptoms: headache, confusion, dyspnea, chest tightness, nausea.

Signs: soot in the nose or mouth, change in level of consciousness, seizure, dilated pupils, coughing, tachypnea and hypertension (early), bradypnea and hypotension (late), shock, vomiting.

PEARLS:

- Smoke is a dangerous mixture of toxic gases and suspended chemicals consequential to combustion. While it may be impossible to predict exactly what components of combustion are inhaled, cyanide (CN) and carbon monoxide (CO) are common elements found in smoke and should be suspected in all smoke inhalation victims.

Smoke Inhalation – Pediatric 2.22P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Oxygen 100% via non-rebreather mask or BVM.
- Decontamination concurrent with initial resuscitation.
- If a carbon monoxide (CO) oximeter (e.g., Rad-57) is available, obtain carbon monoxide levels.
- If a measuring device is available, obtain atmospheric levels of carbon monoxide (CO) and cyanide (CN).

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

For a history of smoke exposure with an altered level of consciousness and/or hemodynamic or respiratory compromise, administer, if available:

- Hydroxocobalamin via use of Cyanokit:
 - Reconstitute: Place the vial of hydroxocobalamin in an upright position; add 0.9% NaCl to the vial (200 mL for 5 grams vial using the transfer spike. Fill to the line.
 - Rock vial for at least 60 seconds (do not shake).
 - Using vented intravenous tubing, infuse per [Pediatric Color Coded Appendix 3](#) over 7.5 minutes for 100 mL vial set or 15 minutes for 200 mL vial set.
 - Depending on clinical response, a second dose may be required.



- Oxygen saturation may be inaccurate in patients exposed to carbon monoxide or cyanide.
- CO oximeter devices may yield inaccurate low/normal results for patients with CO poisoning. All patients with probable or suspected CO poisoning should be transported to the nearest appropriate hospital, based on their presenting signs and symptoms.
- Do not administer other drugs concurrently in same IV as hydroxocobalamin.

Symptoms: headache, confusion, dyspnea, chest tightness, nausea.

Signs: soot in the nose or mouth, change in level of consciousness, seizure, dilated pupils, coughing, tachypnea and hypertension (early), bradypnea and hypotension (late), shock, vomiting.

PEARLS:

- Smoke is a dangerous mixture of toxic gases and suspended chemicals consequential to combustion. While it may be impossible to predict exactly what components of combustion are inhaled, cyanide (CN) and carbon monoxide (CO) are common elements found in smoke and should be suspected in all smoke inhalation victims.

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- Routine Patient Care.
- Perform Cincinnati Pre-hospital 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.
- If any 1 of the signs of the stroke scale is abnormal notify the emergency department of a “Stroke Alert” as soon as possible, per local stroke plan, and ensure to provide the last time seen well and onset of symptoms.
- Obtain glucose reading via glucometer.
- Elevate the head of the stretcher 30 degrees.
- Do not delay for ALS intercept.
- On scene goal should be ≤ 15 minutes.
- Consider air medical transport per local stroke plan.
- Acquire 12-lead ECG, if available.
- Consider transporting a witness, family member, or caregiver with the patient to verify the time of the onset of stroke symptoms.

Prehospital Stroke Scale

Facial Droop: *Have the patient smile and show teeth.*

Normal: Both sides of the face move equally well..

Abnormal: One side of the face does not move as well as the other.

Arm Drift: *Have the patient close their eyes and hold arms extended.*

Normal: Both arms move the same, or both arms don't move at all.

Abnormal: One arm doesn't move, or one arm drifts down compared to the other.

Speech: *Ask the patient to repeat a phrase such as, “You can't teach an old dog new tricks”.*

Normal: Patient says the correct words without slurring.

Abnormal: Patient slurs words, says the wrong word, or is unable to speak.

If 1 or more of the above 3 signs are abnormal, then your patient has an abnormal stroke scale finding. An abnormal stroke scale finding has a high probability of having a stroke.

PEARLS:

The “D's of Stroke Care” “Improve Door to Needle Time”

- Detection: Rapid recognition of stroke symptoms.
- Dispatch: Early activation and dispatch of emergency medical services (EMS) system by calling 911.
- Delivery: Rapid EMS identification, management, and transport.
- Door: Appropriate triage to stroke center.
- Data: Rapid triage, evaluation, and management within the emergency department (ED).
- Decision: Stroke expertise and therapy selection.
- Drug: Fibrinolytic therapy, intra-arterial strategies.
- Disposition: Rapid admission to stroke unit, critical-care unit.

This page left blank to insert your local Stroke agreement plan.

2.24

Syncope Adult & Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Maintain oxygen saturation $\geq 94\%$.
- Attempt to determine the cause of syncope.
- Perform cardiac monitoring; obtain 12-Lead EKG. If acute coronary syndrome is suspected, refer to [Acute Coronary Syndrome Protocol 3.0](#).
- Obtain blood glucose analysis; refer to [Hyperglycemia 2.8 A&P](#) or [Hypoglycemia 2.10 A&P Protocols](#), if indicated.
- Assess for signs/symptoms of trauma if related or from fall associated with syncope; refer to [Spinal Injury Protocol 4.5](#) if indicated.
- Prevent and treat for shock; see [Shock- Non-traumatic 2.21](#) or [Shock - Traumatic Protocol 4.4](#).
- Consider ALS intercept.

ADVANCED EMT STANDING ORDERS

A

- Consider fluids per [Shock – Non-traumatic Protocol 2.21](#).

PARAMEDIC STANDING ORDERS

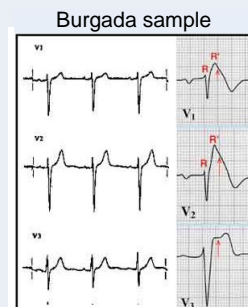
P

- Observe for and treat dysrhythmias as indicated.

PEARLS:

- Syncope is defined as a loss of consciousness accompanied by a loss of postural tone with spontaneous recovery.
- Consider all syncope to be of cardiac origin until proven otherwise.
- While often thought as benign, syncope can be the sign of more serious medical emergency.
- Syncope that occurs during exercise often indicates an ominous cardiac cause. Patients should be evaluated at the ED. Syncope that occurs following exercise is almost always vasovagal and benign.
- Prolonged QTc (generally $>500\text{ms}$) and Brugada Syndrome (incomplete RBBB pattern in V1/V2 with ST segment elevation) should be considered in all patients.

- There is no evidence that supports acquiring orthostatic vital signs.
- Syncope can be indicative of many medical emergencies including:
 - Myocardial infarction
 - Pulmonary embolism
 - Cardiac arrhythmias,
 - Vaso-vagal reflexes
 - Diabetic emergencies
 - Poisoning/drug effects
 - Dehydration
 - Hypovolemia
 - Seizures
 - Ectopic pregnancy



Acute Coronary Syndrome - Adult 3.0

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

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- Obtain 12-lead ECG with baseline vitals within 10 minutes if available and practical; and transmit per local guidelines.
 - If 12-lead ECG indicates a STEMI transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements. Notify receiving facility of a "STEMI Alert".
- Administer oxygen only to patients with dyspnea, hypoxia (O_2 sat $<94\%$), or signs of heart failure at a rate to keep O_2 saturation $\geq 94\%$.
- Administer aspirin 324mg by mouth (chewable).
- Facilitate administration of the patient's own nitroglycerin every 3 – 5 minutes while symptoms persist and systolic BP remains >100 mmHg, to a total of 3 doses.
- If STEMI is identified, complete the fibrinolytic questionnaire at the end of this protocol.

ADVANCED EMT STANDING ORDERS - ADULT

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.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider IV nitroglycerin at 10 micrograms/minute if symptoms persist after 3rd SL nitroglycerin (it is recommended two (2) IV lines or a Twin Cath[®] in place and the IV nitroglycerin must be on an infusion pump).
- Increase IV nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic BP remains >100 mmHg.
- If IV nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally.
- Consider fentanyl 25 – 100 micrograms slow IV push every five minutes up to 300 micrograms and systolic BP remains >100 mmHg **OR**
- Consider morphine 2 – 5 mg IV/IM every 5 minutes to a maximum of 15mg titrated to pain and systolic BP remains >100 mmHg.
- Treat dysrhythmias as needed; refer to the appropriate protocol.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER



- If STEMI and no affirmative finding from fibrinolytic questionnaire, consider
- Heparin 5000 u IV bolus.

Protocol Continues

3.0 Acute Coronary Syndrome - Adult

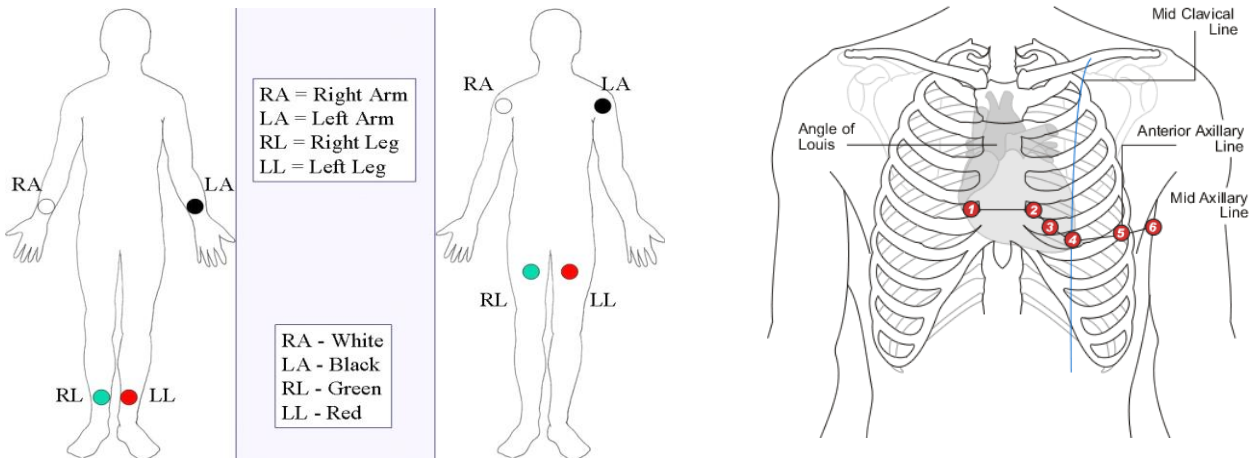
Protocol Continued



- Avoid nitroglycerin in any patient who has used a phosphodiesterase inhibitor such as: sildenafil (Viagra, Revatio), vardenafil (Levitra, Staxyn), tadalafil (Cialis, Adcirca) which are 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.

Fibrinolytic Questionnaire:

- Any trauma, surgery, or head injury within the last month?
- Any current or recent active bleeding within the last month?
- Any lumbar punctures, spinal anesthesia, or stroke within last month?
- Any known bleeding disorder?
- Do you have a clinical suspicion of aortic dissection?
- Is the systolic BP >180 at baseline or after treatment with NTG?



PEARLS:

- Transmission of 12-lead ECG is critical to the activation of a STEMI system. Transmit any 12-lead ECG that states "Acute MI", "Meets ST Elevation MI Criteria" or anything similar, or where the interpretation is unclear.
- Early administration of Aspirin has been shown to decrease mortality in Acute Coronary Syndrome.
- Administer Aspirin to every patient with suspected acute coronary syndrome unless they have:
 - History of anaphylaxis to aspirin, NSAIDs, or
 - Evidence of active gastrointestinal bleeding
- Patients with acute coronary syndrome (especially women and the elderly) may present with signs and symptoms other than chest pain including shortness of breath, weakness, syncope and nausea.

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3.1A

Bradycardia – Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Consider the underlying causes of bradycardia (e.g., acute coronary syndrome, hyperkalemia, hypoxia, hypothermia).
- 12 Lead ECG if available.

PARAMEDIC STANDING ORDERS

P



If symptomatic and hemodynamically unstable:

- Consider atropine 0.5mg IV every 3 – 5 minutes to a total of 3mg.
- If atropine is ineffective:
 - Consider transcutaneous pacing.
 - Administer procedural sedation prior to or during transcutaneous pacing, if feasible:
 - Midazolam 2.5mg IV/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes, **OR**
 - Lorazepam 1 mg IV, may repeat once in 5 minutes; or 2mg IM, may repeat once in 10 minutes, **OR**
 - Diazepam 2mg IV; may repeat once in 5 minutes.
- Epinephrine infusion (Dilute epinephrine 1mg in 1000 mL 0.9% normal saline for 1 microgram/mL) 2 -10 micrograms/minute via pump, **OR**
- Norepinephrine (4mg in 1000 mL 0.9% normal saline for 4 microgram/mL) 1 - 30 micrograms/minute via pump, **OR**
- Dopamine infusion 2 – 10 micrograms/kg/minute, **OR**
- **Contact Medical Control** for expert consultation.

Other Causes:

- For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 5mg IV over 3 – 5 minutes.
- For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:
 - Calcium gluconate 2 grams IV over 5 minutes, with continuous cardiac monitoring **OR**
 - Calcium chloride (10% solution) 1 gram IV over 5 minutes, with continuous cardiac monitoring.



For calcium chloride administration, ensure IV patency and do not exceed 1 mL per minute.

PEARLS:

- Hyperkalemia should be suspected in dialysis or renal failure patients with ECG changes such as tall peaked T waves, loss of P waves, QRS widening and bradycardia.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Consider the underlying causes of bradycardia (e.g., hypoxia, hypoglycemia, hypovolemia, and hypothermia).
- Begin/continue CPR if heart rate is <60 bpm with hypoperfusion despite adequate ventilation and oxygenation.
- 12-lead ECG if available.

PARAMEDIC STANDING ORDERS

P

- Epinephrine 1:10,000 0.01mg/kg IV (0.1ml/kg of 1:10,000) every 3 – 5 minutes.
- Consider atropine 0.02mg/kg IV for increase vagal tone or AV blocks, may repeat once (minimum single dose: 0.1mg; maximum single dose 0.5 mg.)
- Consider transcutaneous pacing.
- Administer procedural sedation prior to/during pacing, if feasible:
 - Midazolam 0.05mg/kg IV/IN, **OR**
 - Diazepam 0.05mg/kg IV.

Other Causes:

- For hypoglycemia see [Hyperglycemia 2.8A&P](#) or [Hypoglycemia 2.10A&P Protocols](#).
- For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 0.025 – 0.05mg/kg.
- For symptomatic calcium channel blocker overdose consider:
 - Calcium gluconate (10% solution) 100mg/kg IV with a maximum 2 gm/dose over 5 minutes; may repeat in 10 minutes, **OR**
 - Calcium chloride (10% solution) 20mg/kg IV (0.2 ml/kg) with a maximum 1 gm/dose over 5 minute; not to exceed 1 ml per minute. May repeat if clinical indication persists.



For calcium chloride administration, ensure IV patency and do not exceed 1 mL per minute.

PEARLS:

- Combine age specific heart rates with signs of respiratory failure and shock while assessing. If child is asymptomatic, consider no treatment.

3.2A

Cardiac Arrest – Adult

EMT STANDING ORDERS - ADULT

E

- Routine patient Care—with focus on CPR
- Immediate chest compressions.
- Apply AED and use as soon as possible (with minimum interruption of chest compressions).
- If ventilation is adequate with BVM, routine placement of advanced airway can be delayed and should not interrupt chest compressions.
- Monitor quantitative waveform capnography throughout resuscitation, if available, to assess and monitor airway placement CPR quality, and to monitor for signs of Return of Spontaneous Circulation.
- Consider treatable causes: hypoxia, overdose/poisoning, hypothermia, hypoglycemia, and hypovolemia—treat as per specific protocol.
- If Return of Spontaneous Circulation occurs see [Post Resuscitative Care Protocol 3.5](#).
- Consider termination of efforts or not attempting resuscitation (see [DNR, POLST & Advanced Directives Policy 8.8](#) and/or [Resuscitation Initiation & Termination 8.16](#)).

ADVANCED EMT STANDING ORDERS - ADULT

A

- Minimize interruptions of chest compressions for IV/IO placement.
- Document presenting cardiac rhythm in two separate leads, if possible.

For ventricular fibrillation (VF)/pulseless Ventricular tachycardia (VT):

- 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; then:
- Consider epinephrine (1:10,000) 1mg IV; repeat every 3 – 5 minutes.

For asystole or pulseless electrical activity (PEA):

- Continue CPR for 2 minutes.
- Consider: epinephrine (1:10,000) 1mg IV; repeat every 3 – 5 minutes.
- Continue CPR for 2 minutes between interventions; stop only for rhythm check or Return of Spontaneous Circulation.

PARAMEDIC STANDING ORDERS - ADULT

P

- Follow ACLS guidelines as trained and credentialed.
- If ventilation is adequate with BVM, routine placement of advanced airway can be deferred.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions. In this setting, supraglottic airways and ETTs can be considered equivalent.
- Consider tension pneumothorax and treat with needle decompression.
- For suspected metabolic acidosis, suspected or known hyperkalemia (dialysis patient), known tricyclic antidepressant overdose, or suspected excited/agitated delirium consider sodium bicarbonate 2mEq/kg IV.

PEARLS:

- 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.

EMT/ADVANCED EMT STANDING ORDERS**E/A**

- Routine patient Care—with focus on CPR.
- Immediate chest compressions.
- 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.
- Monitor quantitative waveform capnography, if available, throughout resuscitation to assess and monitor airway placement CPR quality, and to monitor for signs of Return of Spontaneous Circulation.
- Consider termination of efforts or not attempting resuscitation, see [DNR, POLST & Advanced Directives Policy 8.8](#) and/or [Resuscitation Initiation & Termination 8.16](#).
- Consider treatable causes: hypoxia, overdose/poisoning, hypoglycemia, hypothermia, and hypovolemia (treat as per specific protocol).

PARAMEDIC STANDING ORDERS**P**

- If Return of Spontaneous Circulation occurs see [Post Resuscitative Care Protocol 3.5](#).
- If ventilation is adequate with BVM, routine placement of advanced airway can be deferred.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions. In this setting, supraglottic airways and ETTs can be considered equivalent.
- For suspected metabolic acidosis, suspected or known hyperkalemia (dialysis patient), or known tricyclic antidepressant overdose, consider sodium bicarbonate 2mEq/kg IV.

For Ventricular Fibrillation (VF)/Pulseless Ventricular Tachycardia (VT):

- Defibrillate at 2J/kg; perform CPR for 2 minutes and recheck rhythm; if still a shockable rhythm, defibrillate at 4J/kg; perform CPR for 2 minutes; reassess every 2 minutes and continue to defibrillate at 4J/kg.
- If no response after first defibrillation, administer epinephrine (1:10,000) 0.01mg/kg (0.1ml/kg) IV **OR** 0.1mg/kg (1:1,000; 0.1ml/kg) via ETT.
 - Repeat every 3 – 5 minutes.
- If no response after second defibrillation, consider:
 - Amiodarone 5mg/kg (maximum 300mg) IV, **OR**
 - Lidocaine 1mg/kg (maximum 100mg).
 - For Torsades de Pointes: Magnesium sulfate 25 – 50mg/kg (maximum 2 grams) IV over 1 – 2 minutes .

For Asystole or Pulseless Electrical Activity (PEA):

- Administer Epinephrine (1:10,000) 0.01mg/kg (0.1ml/kg) IV **OR** 0.1mg/kg (1:1,000; 0.1ml/kg) via ETT; repeat every 3 – 5 minutes.
- Give 2 minutes of CPR, then check rhythm:
 - If asystole or PEA, continue epinephrine and 2 minutes of CPR until:
 - Pulse obtained, **OR**
 - Shockable rhythm obtained, **OR**
 - Decision made to discontinue further efforts.

Congestive Heart Failure (Pulmonary Edema)

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- Place the patient in a semi-sitting or full sitting position.
- Facilitate administration of the patient's own nitroglycerin every 5 minutes while symptoms persist and systolic BP is >140 mmHg.
- 12-lead ECG, if available.

ADVANCED EMT STANDING ORDERS - ADULT

A

- For patient's with known history of congestive heart failure, consider nitroglycerin 0.4mg SL every 5 minutes while symptoms persist and if the systolic BP is >140 mmHg.
- Consider Continuous Positive Airway Pressure (CPAP) with maximum 10cm H₂O pressure support.
- Establish IV access.

PARAMEDIC STANDING ORDERS - ADULT

P

While symptoms persist and systolic BP remains >140 mmHg, consider:

- IV nitroglycerin 20 micrograms/minute, increase by 10 - 20 micrograms/minute every 3 – 5 minutes (it is recommended two (2) IV lines or a Twin Cath[®] in place and the IV nitroglycerin must be on an infusion pump.) (Generally, accepted maximum dose: 400 micrograms/minute.), **OR**
- Nitroglycerin paste 1" – 2" transdermally.



- Avoid nitroglycerin in any patient who has used a phosphodiesterase inhibitor such as: sildenafil (Viagra, Revatio), vardenafil (Levitra, Staxyn), tadalafil (Cialis, Adcirca) which are 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.

PEARLS:

- If patient has taken nitroglycerin without relief, consider loss of potency due to age.
- If Nitropaste is used, do not continue to use Nitroglycerin SL.
- Allow the patient to be in their position of comfort to maximize their breathing effort.

Induced Therapeutic Hypothermia - Adult

3.4

INDICATIONS

- Return of spontaneous circulation after cardiac arrest not related to trauma or hemorrhage.
- Age greater than 18 without identified pregnancy or obviously gravid uterus.
- Initial temperature > 34° C (93.2° F).
- Advanced airway in place.
- Remains comatose (no purposeful response to verbal stimuli).
- Quantitative wave form capnography > 20 mmHg.
- Patient **MUST** be transported to a receiving facility capable of continuing induced therapeutic hypothermia.

PARAMEDIC STANDING ORDERS - ADULT

P

- Apply ice packs to axilla & groin.
- Midazolam 2.5mg IV/IN may repeat once in 5 minutes or; 5mg IM, may repeat once in 10 minutes, **OR**
- Lorazepam 1 – 2mg IV. May repeat every 15 minutes as needed for shivering or sedation (maximum: 10mg).
- Cold normal saline (approximately 4° C (40°F) bolus 30mL/kg to max of 2000 mL.
- Monitor quantitative wave form capnography with target of 35 to 40 mmHg.
- Maintain systolic blood pressure of >90 mmHg.

For Post-Resuscitation Hypotension:

- Consider: (An infusion pump is required for the use of these vasopressors)
 - Dopamine infusion 5 – 20 microgram/kg/min, **OR**
 - Norepinephrine infusion 1 – 30 microgram/min **OR**
 - Phenylephrine 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min, **OR**
 - Epinephrine infusion 2 – 10 microgram/minute titrated to effect
- Consider nasogastric or orogastric tube for the intubated patient.

MEDICAL CONTROL ORDERS (Only to be used by paramedics who are trained and credentialed to perform RSI by the NH Bureau of EMS. Either 2 RSI paramedics or 1 RSI paramedic and 1 RSI assistant must be present.)

- Non-depolarizing paralytic (rocuronium 1 mg/kg IV or vecuronium (0.1mg/kg IV) for shivering uncontrolled by midazolam.



PEARLS:

- If loss of spontaneous circulation occurs, go to appropriate protocol.
- Monitor quantitative wave form capnography (target 35-40mmHg).
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- Maintain oxygen saturation at ≥ 94%.
- When exposing patient for purpose of cooling undergarments may remain in place. Be mindful of your environment and take steps to preserve the patient's modesty.
- Do not delay transport for the purpose of cooling.
- Perform 12 Lead ECG. Recognition and treatment a STEMI are critical in the post-cardiac arrest patient. Consider transport to a STEMI receiving facility capable of continuing induced therapeutic hypothermia.

EMT/ADVANCED EMT STANDING ORDERS - ADULT

E/A

- If feasible, acquire and transmit a 12-lead EKG.
- Initial ventilation rate of 10 - 12 BPM, then titrate to quantitative waveform capnography of 35 to 40 mm Hg, if available.
- Maintain oxygen saturation at $\geq 94\%$.

PARAMEDIC STANDING ORDERS - ADULT

P

- With return of spontaneous circulation after non-traumatic cardiac arrest and patient is obtunded with no purposeful movements to verbal stimuli consider: [Induced Therapeutic Hypothermia 3.4](#).

- Maintain systolic blood pressure of >90 mmHg.

For Post-resuscitation hypotension:

- Administer 0.9% NaCl in 250 – 500ml boluses. Total volume should not exceed 2,000ml.
- Consider: (An infusion pump is required for the use of these pressor agents)
 - Dopamine infusion 5 – 20 microgram/kg/min, **OR**
 - Norepinephrine infusion 1 – 30 microgram/min, **OR**
 - Phenylephrine 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min, **OR**
 - Epinephrine infusion 2 – 10 microgram/minute titrated to effect.
- Consider nasogastric or orogastric tube for the intubated patient.

PARAMEDIC STANDING ORDERS - PEDIATRIC



Post-Resuscitative Care

- If the patient is unresponsive, consider transport to a facility capable of inducing therapeutic hypothermia.

For Post-Resuscitation Hypotension:

- IV 0.9% NaCl 20ml/kg (may repeat x1), **AND/OR**
 - Consider: (An infusion pump is required for the use of these vasopressors) Dopamine infusion 5 – 20 micrograms/kg/min, **OR**
 - Norepinephrine infusion 0.1 – 2 micrograms/kg/min titrated to effect, **OR**
 - Epinephrine 0.1 – 1 micrograms/kg/min titrated to effect.

PEARLS:

- Recognition and treatment of a STEMI are critical in the post-cardiac arrest patient. Consider transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements. Notify receiving facility of a “STEMI Alert”.
- Avoid hyperventilation as it increases intrathoracic pressures, potentially worsening hemodynamic instability.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Care.
- 12-lead ECG if available.

PARAMEDIC STANDING ORDERS

P

- Follow ACLS guidelines as trained and credentialed.

If symptomatic and hemodynamically unstable:

- Synchronized cardioversion:
 - Use the following initial energy doses, then escalate to the next higher energy level if no conversion. Biphasic devices: follow manufacturer's recommendations for dosing.
 - For narrow regular rhythm: 50 – 100J biphasic or 200J monophasic.
 - For narrow irregular rhythm: 120 – 200J biphasic or 200J monophasic.
 - For wide regular rhythm: 100J biphasic or monophasic.
 - For wide irregular/polymorphic VT: 120 – 200J biphasic or 360 monophasic, using unsynchronized defibrillation doses if unable to sync:
- Administer procedural sedation prior to or during cardioversion, if feasible:
 - Midazolam 2.5mg IV/IN, may repeat once in 5 minutes or; 5mg IM may repeat once in 10 minutes, **OR**
 - Lorazepam 1mg IV, may repeat once in 5 minutes or; 2mg IM, may repeat once in 10 minutes, **OR**
 - Diazepam 2mg IV, may repeat once in 5 minutes.
- For regular, narrow complex: consider adenosine 6mg rapid IV.
- May repeat at dose of 12mg every 1 – 2 minutes x2 if no conversion.
- May repeat successful dose if rhythm recurs after conversion.

If symptomatic, but hemodynamically stable:

For narrow complex tachycardia (with a heart rate persistently >150bpm):

- Attempt vagal maneuvers, for regular rhythms.
 - If vagal maneuvers fail and the rhythm is regular:
 - Adenosine 6mg rapid IV.
 - May repeat at dose of 12mg every 1 – 2 minutes x2 if no conversion.
 - May repeat successful dose if rhythm recurs after conversion.
 - Diltiazem 0.25mg/kg IV (maximum dose 20 mg) over 2 minutes.
 - May repeat dose in 15 minutes at 0.35mg/kg (maximum dose 20 mg), if necessary.
 - Consider maintenance infusion at 5 – 15mg/hour, **OR**
 - Metoprolol 5mg IV over 2 – 5 minutes.
 - May repeat every five minutes to a maximum of 15mg as needed to achieve a ventricular rate of 90 – 100.



- Diltiazem is contraindicated in patients with a history of or suspected Wolff-Parkinson-White (WPW) syndrome.
- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.



Protocol Continued**PARAMEDIC STANDING ORDERS - ADULT****For wide complex tachycardia:**

- Only for regular rhythm with monomorphic QRS:
 - Consider: adenosine 6mg rapid IV.
 - May repeat at dose of 12mg after 1 – 2 minutes if no conversion.
 - May repeat successful dose if rhythm recurs after conversion.
 - Consider:
 - Amiodarone 150mg IV mixed with 50 – 100ml of 0.9% NaCl or D5W over 10 minutes.
 - May repeat once in 10 minutes.
 - If successful, consider a maintenance infusion of 1mg/minute.
 - Lidocaine (considered second-line therapy) 1 – 1.5mg/kg IV.
 - May repeat once in 5 minutes to maximum of 3mg/kg.
 - If successful, consider a maintenance infusion of 1 – 4mg/minute.

For polymorphic Ventricular Tachycardia/Torsades de Pointes:

- Consider magnesium sulfate 1 – 2 grams IV over 5 minutes.

P

Cardiac Protocol 3.6A

PEARLS:

- Consider and treat potential underlying causes, e.g., hypoxemia, dehydration, fever.
- Wide complex tachycardia should be considered Ventricular Tachycardia until proven otherwise
- Signs and symptoms of hemodynamic instability:
 - Hypotension
 - Acutely altered mental status
 - Signs of shock
 - Signs of acute heart failure
 - Ischemic chest pain
- Adenosine should be administered rapidly through a proximal (e.g., antecubital) vein site followed by a rapid saline flush.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Care.
- 12-lead ECG if available.

PARAMEDIC STANDING ORDERS

If symptomatic and hemodynamically unstable:

For narrow complex/probable SVT:

- Adenosine 0.1mg/kg IV not to exceed 6mg (first dose).
 - Repeat once at 0.2mg/kg not to exceed 12mg (subsequent dose).
- If adenosine is ineffective or for wide complex, perform synchronized cardioversion:
 - 0.5 – 1J/kg; if unsuccessful, increase to 2J/kg.
- Administer procedural sedation prior to or during cardioversion, if feasible:
 - Midazolam 0.05mg/kg IV, IN **OR**
 - Diazepam 0.05mg/kg IV.

P

If symptomatic but hemodynamically stable:

- **For narrow complex, probable supraventricular tachycardia, or regular wide complex tachycardia (monomorphic QRS ONLY):**
 - Adenosine 0.1mg/kg IV not to exceed 6mg (first dose).
 - May repeat once at 0.2mg/kg IV not to exceed 12mg (subsequent dose).
- **For wide complex:**
 - Contact online **Medical Control** for consideration of amiodarone 5mg/kg IV (maximum: 300mg) over 20-60 minutes.



PEARLS:

- Consider and treat potential underlying causes, e.g., hypoxemia, dehydration, fever.
- Signs and symptoms of hemodynamic instability:
 - Hypotension
 - Acutely altered mental status
 - Signs of shock
- Probable Sinus Tachycardia:
 - Compatible history consistent with known cause
 - P waves are present and normal
 - Variable R-R and constant P-R interval
 - Infants: rate usually <220/min
 - Children: rate usually <180/min
- Probable Supraventricular Tachycardia:
 - Compatible history (vague, nonspecific); history of abrupt onset / rate changes
 - P waves absent / abnormal
 - Heart-rate is NOT variable
 - Infants: rate usually >220/min
 - Children: rate usually >180/min
 - Adenosine should be administered rapidly through a proximal (e.g., antecubital) vein site followed by a rapid saline flush

EMT STANDING ORDERS**E**

- Routine Patient Care.
- Stop the burning process. Brush off dry chemicals.
- Remove jewelry.
- Decontaminate the patient as appropriate.
- Assess the patient's airway for evidence of smoke inhalation or burns: soot around mouth or nostrils, singed hair, carbonaceous sputum, see [Smoke Inhalation Protocol 2.22A](#).
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines.
- Do not include 1st degree burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, apply room-temperature water or room-temperature wet towels to the burned area for a maximum of 15 minutes. Prolonged cooling may result in hypothermia.
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments, creams, or gels to the burn area.

ADVANCED EMT STANDING ORDER**A**

- Transport time less than 1 hour:
 - Administer 0.9% NaCl at 500 mL/Hour.
- Transport time greater than 1 hour:
 - Administer 0.9% NaCl at $1 - 2 \text{ mL/kg} \times \% \text{ burn} / 8 = \text{hourly rate} \times \text{first 8 hours}$.

PARAMEDIC STANDING ORDER**P**

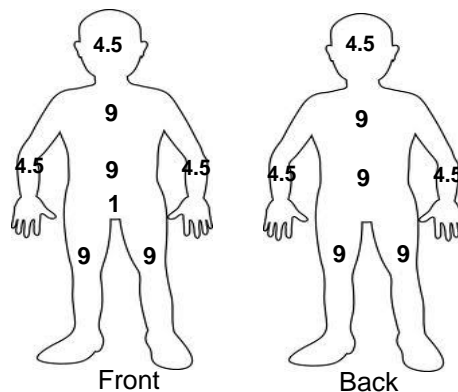
- If the patient has respiratory difficulty, burns about the mouth or neck, or is producing carbonaceous sputum, consider advanced airway management, see [Airway Management Protocol 5.1A](#).
- Refer to [Pain Management Protocol 2.17A](#).



Expert burn center opinion recommends no or limited prehospital IVF, based on concerns for fluid overload and development of compartment syndrome. In cases where burn patients are in shock, IVF administration should be based on use of the [Shock – Traumatic Protocol 4.4](#).

Rule of Nines

Head & Neck:	9%
Left arm:	9%
Right arm:	9%
Chest:	9%
Abdomen:	9%
Upper back:	9%
Lower back:	9%
Front left leg:	9%
Front right leg:	9%
Back left leg:	9%
Back right leg:	9%
Genital region:	1%

**PEARLS**

- Patients with severe frostbite injury may benefit from urgent treatment with IV TPA at a burn center.
- Patients who sustain an electrical burn should be placed on a cardiac monitor.
- Consider spinal motion restriction for electrical burns that result in hand to hand flow.
- Patients with extensive electrical burns often require higher volumes of IVF administration compared with thermal burns.

EMT STANDING ORDERS

E

- Routine Patient Care.
- Stop the burning process.
- Remove jewelry.
- Decontaminate the patient as appropriate.
- Assess the patient's airway for evidence of smoke inhalation or burns: soot around mouth or nostrils, singed hair, carbonaceous sputum, see [Smoke Inhalation Protocol 2.22P](#).
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines. Remember to use the Pediatric Rule of Nines.
- Do not include 1st degree burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, apply room-temperature water or room-temperature wet towels to the burned area for a maximum of 15 minutes. Prolonged cooling may result in hypothermia.
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments, creams, or gels to the burn area.

ADVANCED EMT STANDING ORDERS

A

- Transport time less than 1 hour:
 - 5 – 15 years of age: Administer 0.9% NaCl at 250 mL/hr.
 - 2 – 5 years of age: Administer 0.9% NaCl at 125 mL/hr.
 - Less than 2 years of age: Administer 0.9% NaCl at 100 mL/hr.
- Transport time greater than 1 hour
 - Administer 0.9% NaCl at $2 \text{ mL/kg} \times \% \text{ burn} / 8 = \text{hourly rate} \times \text{first 8 hours}$.

PARAMEDIC STANDING ORDERS

P

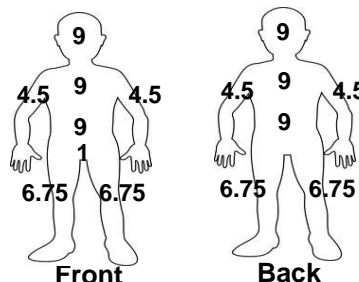
- If the patient has respiratory difficulty, burns about the mouth or neck, or is producing carbonaceous sputum, consider advanced airway management, see [Airway Management Protocol 5.1P](#).
- Refer to [Pain Management Protocol 2.17P](#).



Expert burn center opinion recommends no or limited prehospital IVF, based on concerns for fluid overload and development of compartment syndrome. In cases where burn patients are in shock, IV fluid administration should be based on use of the [Shock - Traumatic Protocol 4.4](#).

Rule of Nines

Head & Neck:	18%
Left arm:	9%
Right arm:	9%
Chest:	9%
Abdomen:	9%
Upper back:	9%
Lower back:	9%
Left leg:	13.5%
Right leg:	13.5%
Genital region:	1%



PEARLS

- Patients with severe frostbite injury may benefit from urgent treatment with IV TPA at a burn center.
- Patients who sustain an electrical burn should be placed on a cardiac monitor.
- Consider spinal motion restriction for electrical burns that result in hand to hand flow.
- Patients with extensive electrical burns often require higher volumes of IVF administration compared with thermal burns.

4.1

Drowning/Submersion Injuries Adult & Pediatric

SUBMERSION: When a patient goes under the water immediately, has a hypoxic cardiac arrest and then cools down. Prognosis considered dismal.

IMMERSION: Patients are in the water with head above water and they continue to breathe while they cool down before they eventually arrest. Prognosis can be good with patients surviving after prolonged CPR.

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider spinal motion restriction for suspected spinal injury, see [Spinal Injury Protocol 4.5](#).
- If unresponsive, obtain esophageal or rectal temperature.
- Consider NOT initiating resuscitation efforts with:
 - A clear history of prolonged submersion prior to cooling and/or cardiac arrest prior to submersion, **OR**
 - If esophageal or rectal temperature greater than 32°C (89.6° F) with asystole documented in 2 leads.
- Obtain specific history.
- Consider hypothermia. (Refer to table below)
- Remove wet clothes and warm the patient.
- Conscious patients with submersion injuries should be transported to the hospital.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Consider CPAP to supplement the patient's own respiratory effort.

STAGE: I Core Temp Treatment:	Conscious, shivering 35 to 32°C Warm environment and clothing, warm sweet drinks, and active movement (if possible)
STAGE: II Core Temp Treatment:	Impaired consciousness, not shivering <32 to 28°C Cardiac monitoring, minimal and cautious movements to avoid arrhythmias, horizontal position and immobilization, full-body insulation, active external and minimally invasive rewarming techniques (warm environment; chemical, electrical, or forced- air heating packs or blankets; warm parenteral fluids)
STAGE: III Core Temp Treatment:	Unconscious, not shivering, vital signs present <28 to 24°C Stage II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management
STAGE: IV Core Temp Treatment:	No vital signs <24°C Stage II and III management plus CPR and up to three doses of epinephrine (at an intravenous or intraosseous dose of 1 mg) and defibrillation, with further dosing guided by clinical response; rewarming with ECMO or CPB (if available) or CPR with active external and alternative internal rewarming

PEARLS

- Patients with Stage III or IV hypothermia may benefit from treatment at a facility capable of ExtraCorporeal Membrane Oxygenation (ECMO) or CardioPulmonary Bypass (CPB). Provide a list of these facilities.

Eye & Dental Injuries

Adult & Pediatric

4.2

EYE – EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine 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.

EYE - PARAMEDIC STANDING ORDERS

P

- Proparacaine or tetracaine apply:
 - 2 drops to affected eye; repeat every 5 minutes as needed.
- Consider use of Morgan lens for irrigation.
- Refer to [Pain Management Protocol 2.17A](#).
- Refer to the [Nausea/Vomiting Protocol 2.12](#).

DENTAL AVULSION – EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- Routine Patient Care.
- Dental avulsions should be placed in an obviously labeled container with saline-soaked dressing, milk, or cell-culture medium (example: Save-a-tooth®).

EMT/ADVANCED EMT/PARAMEDIC EXTENDED CARE ORDERS

X

- If definitive treatment is expected to be greater than 4 hours, an attempt to reinsert the avulsed tooth in its socket should be made, after rinsing tooth in water or normal saline. If multiple teeth require reinsertion, use the shape and size of dentition on the opposing side to guide you in proper placement.

PEARLS:

Handle the tooth carefully. Avoid touching the root of the tooth (the part of the tooth that was embedded in the gum) because it can be damaged easily.

Musculoskeletal Injuries

Adult & Pediatric

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Manually stabilize the injury.
- Control bleeding with pressure and/or tourniquet, see [Tourniquet Procedure 6.5](#). Consider hemostatic dressing for severe hemorrhage.
- Remove obvious debris, irrigate open wounds with saline solution, and cover with moist sterile dressing.
- 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.
 - For pain relief apply ice and elevate.
- In a patient with a high risk mechanism of injury, [Spinal Injury Protocol 4.5](#).
- Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.

ADVANCED EMT AND PARAMEDIC STANDING ORDERS - ADULT

A/P

- Assess pain level and consider pain control measures, see [Pain Management Protocol 2.17](#).
- Administer 0.9% NaCl in 250mL boluses to maintain systolic blood pressure greater than 90 mmHg. Total volume not to exceed 2000mL without medical control consultation.

ADVANCED EMT AND PARAMEDIC STANDING ORDERS - PEDIATRIC

- Administer 0.9% NaCl in 20 mL/kg boluses to improve clinical condition (capillary refill rate, extremity pulses and warmth, mentation, and blood pressure.). Total volume not to exceed 40mL/kg without medical control consultation.

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

X

- For impaled objects of the extremities, consider removal of the object unless removal will cause significant damage and/or uncontrolled hemorrhage.
- For dislocated patella, shoulder, or digits from indirect force:
 - Attempt to reduce if evacuation will be prolonged, dangerous, or painful. (Nationally recognized training required to perform these procedures)
- For open/compound fractures consider:
 - Ceftriaxone 1 grams IV/IM, if available. (Advanced EMT/Paramedic only)
- For musculoskeletal pain consider:
 - Adult: Ibuprofen 400 – 600mg or acetaminophen 325 – 650mg by mouth; repeat every 6 hours as needed, not to exceed 3000 mg in 24 hours.
 - Pediatric: Ibuprofen or acetaminophen per [Pediatric Color Coded Appendix 3](#).



For dislocations due to direct impact, such as falls, the injury is more likely to be complicated by a fracture. Reducing these involves more risk. Splinting in place and urgent evacuation is ideal.

PEARLS:

- Use ample padding when splinting possible fractures, dislocations, sprains, and strains. Elevate injured extremities, if possible. Consider the application of a cold pack for 30 minutes.
- Musculoskeletal injuries can occur from blunt and penetrating trauma. Fractures of the humerus, pelvis and femur, as well as fractures or dislocations involving circulatory or neurological deficits, take priority over other musculoskeletal injuries.
- Hip dislocations, pelvic, knee, and elbow fracture / dislocations have a high incidence of vascular compromise.

4.4

Shock - Traumatic Adult & Pediatric

Recognize Compensated Shock - Adult:

- Anxiety
- Tachycardia
- Tachypnea
- Diaphoresis

SHOCK

Inadequate tissue perfusion that impairs cellular metabolism

Recognize Compensated Shock - Pediatric:

- Delayed capillary refill
- Decreased or bounding peripheral pulses
- Palpable peripheral pulse, decreased distal pulse
- Cool extremities
- Altered mental status
- Mild tachypnea



Hemorrhagic shock: Locations of blood loss include the chest, abdomen, pelvis, and multiple long bone fractures. Signs include pale, cool, clammy skin, tachycardia, and or hypotension.

Neurogenic shock: May occur after an injury to the spinal cord disrupts sympathetic outflow resulting in unopposed vagal tone. Signs include warm, dry skin, bradycardia, and/or hypotension.

EMT & EMR STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.
- Follow appropriate traumatic emergency protocols 4.0 – 4.7.
- Keep patient supine.
- Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial preferred) see [Tourniquet Procedure 6.5](#), or hemostatic bandage.
- Keep warm and prevent heat loss.
- Assess blood glucose.
- Do not delay transport; consider hospital destination per [Trauma Triage and Transport Decision Protocol 8.17](#).

ADVANCED EMT STANDING ORDERS - ADULT

A

- Administer 0.9% NaCl to maintain systolic blood pressure >90 mmHg in 250 - 500 mL boluses. Total volume should not exceed 2000 mL without consultation with Medical Control. Do not delay transport of IV access.

ADVANCED EMT STANDING ORDERS - PEDIATRIC



- Administer fluid bolus 20mL/kg of 0.9% NaCl by syringe method (may repeat to a maximum 60 mL/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider obtaining a finger stick lactate level (if available and trained)
- If tension pneumothorax is suspected, consider needle thoracostomy. See [Thoracic Injury Protocol 4.6](#).
- If cardiac tamponade is suspected, rapid transport and treat arrhythmias per [Cardiac Protocols 3.0 – 3.6](#).



- Record time that tourniquet is applied.
- Hemostatic bandages must be non-exothermic type that washes off with 0.9% NaCl.

PEARLS:

For patients with uncontrolled hemorrhagic or penetrating torso injuries:

- Restrict IV fluids:
 1. Delaying aggressive fluid resuscitation until operative intervention may improve outcome.
 2. Several poor 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.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Do not overlook the possibility of associated domestic violence and child abuse.

The New Hampshire Medical Control Board has approved the following protocol. It supersedes Advanced Spinal Assessment Protocol 6.1. It represents a significant change in practice for EMS providers. It reflects our intention to ensure that EMS standards in New Hampshire remain consistent with the best emergency medicine standards. As with all protocol changes, services should promptly provide training for providers in the use of this protocol. Resources are available online at: <http://nhoodle.nh.gov/ola/course/index.php?categoryid=13>

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

PURPOSE: This protocol provides guidance regarding the assessment and care of patients who have a possible spinal injury.

Patients who have experienced a mechanism of spinal injury (esp. high risk mechanisms. See Red Flag Box.) require spinal motion restriction (as described further on) and protection of the injury site if they exhibit:

- Midline spinal pain or tenderness with palpation.
- Abnormal (i.e. not baseline) neurological function or motor strength in any extremity.
- Numbness or tingling (paresthesia).
- Sensation is not intact and symmetrical (or baseline for patient).
- Cervical flexion, extension and rotation elicits midline spinal pain.

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Or if they cannot competently participate in the assessment due to one of the following:

- Altered mental status (e.g., dementia, preexisting brain injury, developmental delay, psychosis).
- Alcohol or drug intoxication.
- Unable to participate in assessment (e.g. distracted by significant injuries to self or others.).
- Insurmountable communication barriers (e.g., deafness, or hard of hearing, language).

Patients without any of the above findings should generally be transported without the use of a cervical collar or other means to restrict spinal motion. Utilize spinal motion restriction only where, in the professional judgment of the provider, the patient is at high risk for spinal injury as described above or with clear clinical indications of injury (e.g. midline spinal pain or deformity of the spine).



Long backboards do not have a role for patients being transported between facilities. If the sending facility has the patient on a long backboard or is asking EMS to use a long backboard for transport, EMS providers should discuss not using a long backboard with the sending facility physician before transporting a patient. If a long backboard is used, it should be padded to minimize patient discomfort.

PEARLS:

- Secondary injury to the spine often arises from increased pressure (e.g. swelling, edema, hemorrhage) or from hypoperfusion or hypoxia (e.g. vascular injury). While the optimal treatment for secondary injury has not been established, providers should protect the injury site. Protecting the injury site from pressure may be as important as reducing spinal movement.
- In some circumstances, extrication of a patient using traditional spinal immobilization techniques may result in greater spinal movement or may dangerously delay extrication.
- Patients with penetrating trauma **DO NOT** require spinal motion restriction. All patients who have suffered possible spinal trauma should be handled gently and spinal motion should be minimized.
- Even with neurologic deficits caused by transection of the spinal cord, additional movement will not worsen an already catastrophic injury. Emphasis should be on airway and breathing management, treatment of shock, and rapid transport to a Level 1 or 2 trauma center.
- Caution should be exercised in older patients (e.g. 65 years or older) and in very young patients (e.g. less than 3 years of age), as spinal assessment may be less sensitive in discerning spinal fractures in these populations.

Protocol Continues

Protocol Continued

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

- Routine Patient Care.
- Maintain manual in-line stabilization during assessment.
- Minimize spinal movement during assessment and extrication.
- Self-extrication by patient is allowable if patient is capable.
- A long backboard, scoop stretcher, vacuum mattress, or other appropriate full length extrication device may be used for extrication if needed. Do not use short board or KED device.
- Apply adequate padding to prevent tissue ischemia, minimize discomfort and maintain spinal neutrality after removing helmet or pads

If patient requires spinal motion restriction:

- Apply a rigid cervical collar.
- Allow ambulatory patients to sit on stretcher and then lie flat. "Standing Take-Down" is eliminated.
- Position backboarded patient on stretcher then remove backboard by using log roll or lift-and-slide technique.
- Situations or treatment priorities may require patient to remain on rigid vacuum mattress or backboard including the combative patient, elevated intracranial pressure (see [Traumatic Brain Injury 4.7](#)) or rapid transport of unstable patient.
- With patient lying flat, secure patient firmly with all stretcher straps and leave collar in place. Instruct patient to avoid moving head or neck as much as possible.
- Elevate stretcher back only if necessary for patient compliance, respiratory function, or other significant treatment priority.
- If patient poorly tolerates collar (e.g., due to anxiety, shortness of breath, torticollis), replace with towel roll and/or padding.
- Patients with nausea or vomiting may be placed in a lateral recumbent position. Maintain neutral head position with manual stabilization, padding/pillows, and/or patient's arm.

Pediatric Patients Requiring a Child Safety Seat

If child requires spinal motion restriction, transport in a child safety seat (See [Pediatric Transportation Policy 8.12](#)).

- Apply cervical collar. Use rolled towels/padding if infant/child will not tolerate collar.
- Patient may remain in own safety seat after motor vehicle crash if it has a self-contained harness with a high back and two belt paths and is undamaged. If all criteria are not met, use ambulance's safety seat.
- If required treatment (e.g., airway management) cannot be performed in a safety seat, secure patient directly to stretcher using padding and pediatric-sized restraints.

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Procedure 4.5

RED FLAG: Mechanisms that indicate a high risk for spinal injury include:

- Motor vehicle crash >60 mph, rollover, ejection (low-speed, rear-end can usually be excluded).
- Falls >3 feet/5 stairs (patient standing with feet 3' above floor).
- Axial load to head/neck (e.g., diving accident, heavy object falling onto head, contact sports).
- Significant injury or mechanism of injury above the clavicle.
- Injuries involving motorized recreational vehicles.
- Bicycle struck/collision.



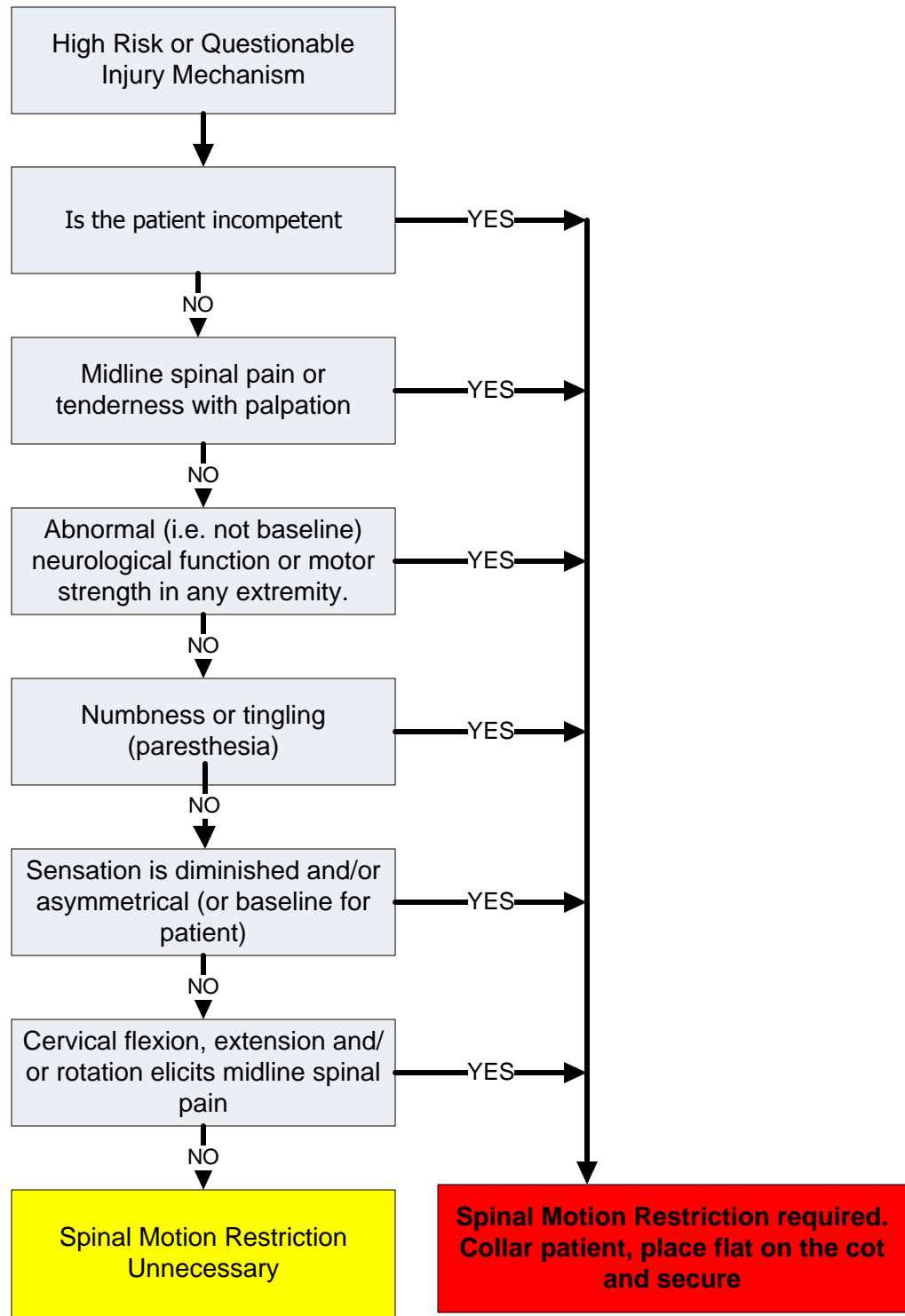
Protocol Continues

4.5

Spinal Trauma

← Protocol Continued

Procedure 4.5



Thoracic Injuries Adult & Pediatric

4.6

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If in shock, see [Shock Traumatic Protocol 4.4](#).
- 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.
- Consider Air Medical Transport.

PARAMEDIC STANDING ORDERS

P

- Consider pain management, see [Pain Management Protocols 2.17A&P](#).
- In presence of tension pneumothorax*, perform needle decompression using \geq 3.25 inch angiocath. Repeat decompression may be necessary with returned signs of tension pneumothorax.

*Signs and symptoms of Tension Pneumothorax:

- Asymmetric or absent unilateral breath sounds
- Increasing respiratory distress or hypoxia
- Increasing signs of shock including tachycardia and hypotension
- JVD
- Possible tracheal deviation above the sternal notch (late sign)

Traumatic Brain Injury (TBI)

Adult & Pediatric

EMT STANDING ORDERS - ADULT

E

- Routine Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO₂ >90%.
- If quantitative waveform capnography is available:
 - Ventilate to maintain a quantitative waveform capnography of 35 – 40mmHg.
 - Do not hyperventilate unless clear signs of cerebral herniation are present.
 - If signs of cerebral herniation are present, maintain quantitative waveform capnography of 30 – 35 mmHg. If quantitative waveform capnography is not available, ventilate at the following rates:
 - Adult: 20 breaths per minute.
 - Child: 25 breaths per minute.
 - Infant: 30 breaths per minute.
 - Discontinue hyperventilation when signs/symptoms improve.
- Assess and document pupillary response and Glasgow Coma Scale every 5 minutes.
- Check blood glucose; if hypoglycemic, see [Hypoglycemia Protocol 2.8A&P](#).
- For moderate to severe TBI, utilize long backboard for spinal motion restriction and elevate patient's head to help control intracranial pressure (ICP).

ADVANCED EMT STANDING ORDERS - ADULT

A

- Maintain systolic BP >90mmHg.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider intubation if GCS is <8.
 - If intubation is required, consider administration of lidocaine 1.5mg/kg IV prior to intubation.
- Consider sedation for patients that are combative and may cause further harm to self and others.
 - Midazolam 2.5mg IV/IN may repeat once in 5 minutes or; 5mg IM may repeat once in 10 minutes, **OR**
 - Lorazepam 1mg IV, may repeat once in 5 minutes or; 2mg IM may repeat once in 10 minutes, **OR**
 - Diazepam 2mg IV; may repeat once in 5 minutes.

Protocol Continues 

Traumatic Brain Injury Adult & Pediatric

4.7

Protocol Continued

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20ml/kg; may repeat x2 (maximum total 60ml/kg) to maintain systolic BP:
 - 1 – 16 years: a minimum of 90mmHg.
 - <1 year: 65 – 90mmHg.
- If intubation is required, consider administration of lidocaine 1.5mg/kg IV prior to intubation.
- Administer fluid in a pediatric patient with normal systolic blood pressure and who has other signs of decreased perfusion including tachycardia, loss of peripheral pulses, and delayed capillary filling time of >2 seconds.
- Consider sedation for patients that are combative and may cause further harm to self and others.
 - Midazolam 0.05mg/kg IV/IM or 0.1mg/kg IN (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
 - Lorazepam 0.05mg/kg IV/IM (maximum dose 1 mg); may repeat once in 5 minutes, **OR**
 - Diazepam 0.1mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.



SIGNS OF HERNIATION (2 or More)

- Extensor posturing, lack of motor response to noxious stimuli.
- Asymmetric, dilated, or non-reactive pupils.
- Decrease in the GCS >2 points from a patient's best score, in a patient with an initial GCS <9.

PEARLS:

- Prevention of hypoxia and hypotension are imperative to prevent secondary brain injury.
- Intubation should be approached with extreme caution as it has been associated with worse outcomes when performed in the out-of-hospital environment for patients with traumatic brain injury.

5.0

Airway Management

The goal of good airway management is good gas exchange.

ASSESSMENT

Each patient presents unique problems that cannot be fully outlined in any algorithm. As such, the provider must rely on thorough assessment techniques and consider each of the following:

Airway Patency: Assess for airway obstruction or risk of impending obstruction due to facial injuries, mass, foreign body, swelling, etc. Assess for presence/absence of gag reflex.

Ventilatory Status: Assess for adequate respiratory effort and impending fatigue/failure/apnea. Assess for accessory muscle use, tripod positioning, the ability of the patient to speak in full sentences. If available, assess quantitative waveform capnography.

Oxygenation: Any oxygen saturation <90% represents relatively severe hypoxia and should be considered an important warning sign. In addition to oxygen saturation, assess for cyanosis.

Airway Anatomy: Before attempting airway maneuvers or endotracheal intubation, especially with the use of RSI, assess patient anatomy to predict the probability of success and the need for backup device or technique.

- First, assess for difficulty of mask seal. Patients with facial hair, facial fractures, obesity, no teeth, pregnancy, extremes of age, and pathologically stiff lungs (COPD, acute respiratory distress syndrome, etc.) may require special mask techniques or alternatives.
- Next assess for difficulty of intubation. Patients with a short neck, the inability to open their mouth at least three finger widths (or other oral issues such as a large tongue or high arched palate), less than three finger-widths of thyromental distance (or a receding jaw), reduced atlanto-occipital movement (such as in suspected c-spine injury), obesity or evidence of obstruction (such as drooling or stridor) may be difficult to intubate.

DEVISE A PLAN

1. Each patient will present unique challenges to airway management. Therefore, before any intervention is attempted, the provider should contemplate a plan of action that addresses the needs of the patient, anticipates complications, and management plan.
2. Airway management is a continuum of interventions, not an “all or none” treatment. Frequently patients may only need airway positioning or a nasal or oral airway to achieve adequate ventilation and oxygenation. Others will require more invasive procedures. The provider should choose the least invasive method that can be employed to achieve adequate ventilation and oxygenation.
3. Continually reassess the efficacy of the plan and change the plan of action as the patient’s needs dictate.
4. In children, a graded approach to airway management is recommended. Basic airway maneuvers and basic adjuncts followed by bag-valve-mask ventilation are usually effective.

BASIC SKILLS

Mastery of basic airway skills is paramount to the successful management of a patient with respiratory compromise. Ensure a patent airway with the use of:

- Chin-lift/jaw-thrust
- Nasal airway (can be used in combination with oral airways, use with caution if suspected facial fractures)
- Oral airway (can be used in combination with nasal airways)
- Suction
- Removal of foreign body

Provide ventilation with a bag-valve-mask (BVM), consider using BVM with PEEP valve at 3 cmH₂O. Proper use of the BVM includes appropriate mask selection and head positioning so sternal notch and ear are at the same level, to ensure a good seal. If possible, utilization of the BVM is best accomplished with two people: one person uses both hands to seal the mask and position the airway, while the other person provides ventilation, until chest rise. If the patient has some respiratory effort; synchronize ventilations with the patient’s own inhalation effort.

Procedure Continues 



ADVANCED AIRWAY SKILLS

Only after basic procedures are deemed inappropriate or have proven to be inadequate should more advanced methods be used. Use the least invasive method Non-rebreather Face Mask (NRFM) → Bag-Valve-Mask (BVM) → Supraglottic Airway (SGA) → Endotracheal Intubation (ETT) → Cricothyrotomy (Cric). Procedures documenting the use of each device/technique listed below are found elsewhere in this manual.

CPAP: Continuous positive airway pressure (CPAP) has been shown to be effective in eliminating the need for intubation and in decreasing mortality in properly-selected patients with acute respiratory distress.

Supraglottic Airways (SGA): Utilization of supraglottic airways is an acceptable alternative to endotracheal intubation as both a primary device or a back-up device when previous attempt(s) at ETT placement have failed. Each device has its own set of advantages/disadvantages and requires a unique insertion technique. Providers should have access to, and intimate knowledge of, at least one supraglottic airway. Examples include:

- King LT
- Combitube/EasyTube (to be removed in 2017 protocols)
- LMA

ETT: The endotracheal tube was once considered the optimal method or “gold standard” for airway management. It is now clear, however, that the incidence of complications is unacceptably high when intubation is performed by inexperienced providers or monitoring of tube placement is inadequate. The optimal method for managing an airway will, therefore, vary based on provider experience, emergency medical services (EMS) or healthcare system characteristics, and the patient’s condition. Use capnography continuously for placement and CO₂ monitoring. Use video laryngoscopy, if available and trained.

Bougie: All providers who attempt ETT placement should become intimately familiar with the use of a Bougie. It is the device used most often by anesthesiologists and emergency physicians for helping guide placement when a difficult airway is encountered.

Cricothyrotomy: This procedure is indicated only when all other measures fail or you are presented with a situation in which intubation is contraindicated or in which you cannot intubate or otherwise ventilate the patient. Examples include:

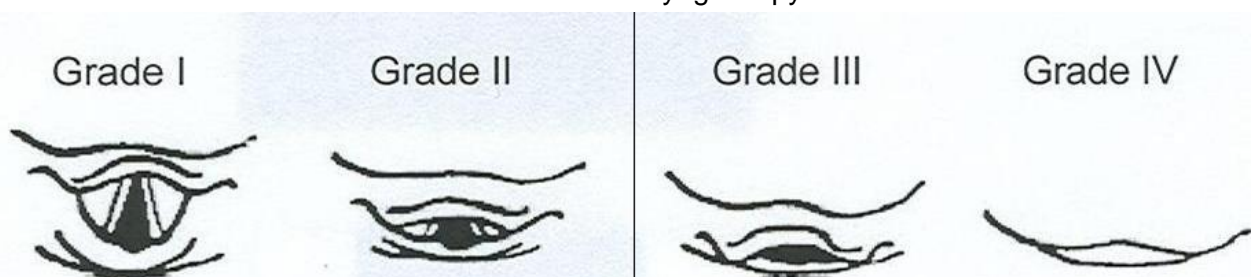
- Massive facial trauma
- Upper airway obstruction due to edema, mass or foreign body

DOCUMENTATION

All efforts toward airway management should be clearly documented and, at the minimum, should include the following:

- Pre/post intervention vital signs including oxygen saturation as well as capnography (if available).
- Procedures performed/attempted, including number of failed attempts and who performed each attempt/procedure.
- Size of device(s) placed, depth of placement (if applicable).
- Placement confirmation: methods should include auscultation, condensation in the ETT, symmetrical chest wall rise, as well as quantitative waveform capnography, if available.

Classifications for Laryngoscopy Views



5.1A Airway Management - Adult

EMT STANDING ORDERS

E

- Routine patient care.
- Establish airway patency.
 - Open the airway.
 - Suction as needed.
 - Clear foreign body obstructions.
- Administer oxygen for oxygen saturation < 94% or shortness of breath.
- Consider inserting an oropharyngeal and/or nasopharyngeal airway adjunct.
- If patient has a tracheostomy tube, follow the procedure for [Tracheostomy Care Procedure 5.9](#).
- Assist ventilations with a bag-valve-mask device and supplemental oxygen as needed.
- For adult Cardiac Arrest: consider insertion of a supraglottic airway; see procedures for [Supraglottic Airways 5.8](#).

ADVANCED EMT STANDING ORDERS

A

- For adults in severe respiratory distress (Asthma/COPD/Pulmonary Edema/Near Drowning) consider use of CPAP. See [CPAP Procedure 5.3](#).

PARAMEDIC STANDING ORDERS

P

- Use least invasive method for respiratory failure. NRFM → BVM → SGA → ETT → Cric.
- For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation, see [Nasotracheal Intubation Procedure 5.5](#)).
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider supraglottic airway device or intubation. See [Supraglottic Airways 5.8](#) or [Orotracheal Intubation 5.9](#)).
- For adults with immediate, severe airway compromise where respiratory arrest is imminent and other methods of airway management are ineffective: consider Rapid Sequence Intubation see, [Rapid Sequence Intubation Prerequisite Procedure 7.3](#)).
 - **Note: this procedure is only to be used by paramedics who are trained and credentialed to perform RSI by the NH Bureau of EMS.**
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate:
 - Consider [Cricothyrotomy – Percutaneous Procedure 5.2](#) OR
 - Consider [*Surgical Cricothyrotomy – Bougie Assisted Prerequisite Procedure 7.4](#).

***Note: this is a prerequisite procedure only to be used by paramedics who are trained and credentialed to perform bougie assisted surgical cricothyrotomy by the NH Bureau of EMS.**

Airway Management – Pediatric 5.1P

EMT STANDING ORDERS

E

- Routine patient care.
- Establish airway patency.
 - Open Airway.
 - Consider patient positioning by placing padding under shoulders to ensure sternal notch and ear are at the same level
 - Suction as needed.
 - Clear foreign body obstructions.
- If patient has a tracheostomy tube see [Tracheostomy Care 5.9](#).
- Consider additional help.
- For respiratory distress:
 - Administer high concentration oxygen (preferably humidified) via mask positioned on face or if child resists, held near face.
 - Administer oxygen for oxygen saturation < 94% or shortness of breath; observe for fatigue, decreased mentation, and respiratory failure.
 - For children with chronic lung disease or congenital heart disease, maintain or increase home oxygen level to patient's target saturations.

Note: Pulse oximetry is difficult to obtain in children. Do not rely exclusively on pulse oximetry. If child continues to exhibit signs of respiratory distress despite high oxygen saturation levels, continue oxygen administration.
- For respiratory failure or for distress that does not improve with oxygen administration:
 - Assist ventilations at rate appropriate for child's age. Reference [Pediatric Color Coded Appendix A3](#).
 - If unable to maintain an open airway through positioning, consider placing an oropharyngeal and/or nasopharyngeal airway.
- Determine if child's respiratory distress/failure is caused by a preexisting condition
 - For Allergic Reaction/Anaphylaxis, refer to the [Allergic Reaction/Anaphylaxis Protocol 2.2P](#).
 - For Asthma/Reactive Airway Disease/Croup, refer to the [Asthma/Bronchiolitis/Croup Protocol 2.4P](#).
- For Pediatric Cardiac Arrest: consider insertion of a supraglottic airway; see procedures for [Supraglottic Airways 5.8](#).

ADVANCED EMT STANDING ORDERS

A

- For pediatrics in severe respiratory distress due to asthma consider use of CPAP. See [CPAP Procedure 5.3](#).

PARAMEDIC STANDING ORDERS

P

- Use least invasive method for respiratory failure. NRFM → BVM → SGA → ETT → Cric. Proceed to advanced airway only if airway can not be maintained with positioning or ventilated via BVM.
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate, see [Cricothyrotomy Percutaneous Procedure 5.2](#).

Pediatric Respiratory Distress	Pediatric Respiratory Failure
<ul style="list-style-type: none"> • Child is able to maintain adequate oxygenation by using extra effort to move air. • Signs include increased respiratory rate, sniffing position, nasal flaring, abnormal breath sounds, head bobbing, intercostal retractions, mild tachycardia. 	<ul style="list-style-type: none"> • Hallmarks of respiratory failure are respiratory rate less than 20 breaths per minute for children <6 years old; less than 12 breaths per minute for children <16 years old; and >60 breaths per minutes for any child; cyanosis, marked tachycardia or bradycardia, poor peripheral perfusion, decreased muscle tone, and depressed mental status.

Respiratory distress in children and infants must be promptly recognized and aggressively treated as patient may rapidly decompensate.

5.2 Cricothyrotomy - Percutaneous

This procedure cannot be performed until the provider has received training from their EMS unit on the commercial device selected and is deemed competent. The device and training must be approved by the EMS unit's Medical Director. **Written notification will be provided to the Medical Resource Hospital's EMS Medical Director, Hospital EMS Coordinator, and Bureau of EMS within 48 hours of an event.** Use of this procedure documented under "Procedures Used" in the Patient Care Report constitutes notification of the Bureau of EMS.

PARAMEDIC STANDING ORDERS

This protocol is intended for the use of commercially prepared rapid cricothyrotomy devices. Devices requiring use of a guide wire may not be used. Approved devices have a plastic cannula preloaded onto a metal introducer (e.g., Rusch QuickTrach).



- Devices may be utilized on patients of any age for which they are designed and appropriate sizes are available.
- If anatomical landmarks cannot be identified the procedure should not be performed.

INDICATIONS:

Inability to adequately oxygenate and ventilate using less invasive methods including BVM, supraglottic airways and endotracheal intubation.

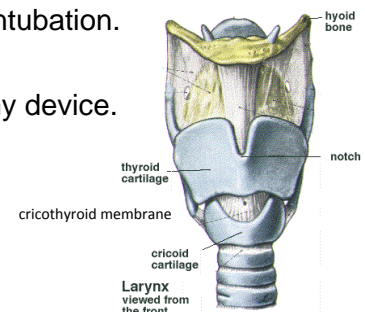
EQUIPMENT:

- Commercially prepared percutaneous cricothyrotomy device.
- Chlorhexadine wipes.
- Bag-valve-mask.
- Quantitative Waveform ETCO₂.

PROCEDURE:

(May vary slightly with different devices)

1. Position the patient supine and extend the neck as needed to improve anatomic view.
2. Prepare neck with Chlorhexidine.
3. Using non-dominant hand, stabilize larynx and locate the following landmarks: thyroid cartilage (Adam's apple) and cricoid cartilage (solid ring below the thyroid cartilage). The cricothyroid membrane lies between these cartilages.
4. Insert needle bevel through soft tissue and cricothyroid membrane at 90-degree angle while aspirating with syringe.
5. As soon as air is freely aspirated stop advancing the needle as this indicates entry into the trachea.
6. Direct the needle tip inferiorly by modifying angle to 60-degrees from the patient's head. Advance the assembly until the stopper is in contact with the skin. (Note: If air is not freely aspirated and the stopper has contacted the skin the stopper may need to be removed in order to reach the trachea. Be aware that if the stopper is removed there is increased risk of perforating the posterior aspect of the trachea.)
7. Remove the stopper while holding assembly firmly in place.
8. Hold the needle firmly in place and advance only the plastic cannula off the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
9. Secure cannula in place with neck strap.
10. Inflate cuff if one is present.
11. Apply BVM with waveform ETCO₂ and ventilate the patient.
12. Confirm placement by assessing for bilateral lung sounds and presence of quantitative and qualitative ETCO₂.
13. Frequently reassess placement and continuously monitor ETCO₂.



Continuous Positive Airway Pressure (CPAP) 5.3

ADVANCED EMT STANDING ORDERS

INDICATIONS

- Spontaneously breathing patient in severe respiratory distress due to Asthma/COPD, Congestive Heart Failure / Pulmonary Edema, Pneumonia or Drowning.

CONTRAINDICATIONS

- Cardiac/Respiratory arrest.
- Unable to follow commands.
- Unable to maintain their own airway.
- Agitated or combative behavior.
- Vomiting and/or active upper GI bleed.
- Respiratory distress secondary to trauma.
- Suspicion of pneumothorax.
- Pediatric patient who is too small for the masks size available.

PROCEDURE

A

1. **Ensure adequate oxygen supply for CPAP device.**
2. Explain procedure to patient. Be prepared to coach patient for claustrophobia or anxiety.
3. Place patient in upright position. Apply pulse oximetry, capnography nasal capture device and ECG as available and trained.
4. Choose appropriate sized device mask for patient, assemble the CPAP device, attach to oxygen supply and insure oxygen is flowing (follow manufacturers directions for preparation for your particular device).
5. Place mask over face and secure with straps until minimal air leak.
6. Adjust Positive End Expiratory Pressure (PEEP) to 5-10 cmH₂O to effect for patient condition.
7. Recheck mask for leaks and adjust straps as needed to minimize air leaks.
8. Reassure anxious patient.
9. Monitor pulse oximetry, quantitative waveform capnography and ECG as available and trained.
10. If patient stabilizes, maintain CPAP for duration of transport and notify receiving hospital to prepare for a CPAP patient.
11. If patient begins to deteriorate, discontinue CPAP and assist respirations by BVM
12. Document CPAP procedure, including time and provider. Document serial pulse oximetry and capnography readings to demonstrate effects.

PARAMEDIC STANDING ORDERS

P

- Consider supraglottic airway, intubation
- Consider Rapid Sequence Intubation (if trained and credentialed)
- Consider administering anxiolytic:
 - Midazolam 2.5mg IV/IN may repeat once in 5 minutes or; 5mg IM may repeat once in 10 minutes **OR**
 - Lorazepam 0.5 – 1mg IV may repeat once in 5 minutes or; 1 – 2mg IM may repeat once in 10 minutes **OR**
 - Diazepam 5mg IV (then 2.5mg every 5 minutes to total of 20mg)



Administer benzodiazepines with caution in patients with signs of hypercarbia.

Gum Elastic Bougie/Flexguide – Adult

PARAMEDIC STANDING ORDERS – ADULT

INDICATIONS

- Unable to fully visualize vocal cords during an intubation attempt.
- To facilitate routine placement of endotracheal tube.

LIMITATIONS

- Adult Bougies should not be used on less than 6.0 ETT.

PROCEDURE

1. Lubricate Bougie with water-based lubricant.
2. Using a laryngoscope (Macintosh or Miller blade) and standard intubation techniques, attempt to visualize the vocal cords.
3. If the vocal cords are partially visualized, pass the Bougie through the cords while attempting to feel the signs of tracheal placement (see below). The Bougie is advanced until the black line on the Bougie reaches the lip line.
4. If the vocal cords are not visualized, pass the Bougie behind the epiglottis, guiding the tip of the Bougie anteriorly towards the trachea, and assess for signs of tracheal placement (see below).
5. With the laryngoscope still in place, have an assistant load the ETT over the Bougie and slide it to the level of the lip line.
6. Advance the ETT over the Bougie, rotating the ETT about 1/4 turn counterclockwise so that the bevel is oriented vertically as the ETT passes through the vocal cords. This maneuver allows the bevel to gently spread the arytenoids with a minimum of force, thus avoiding injury. If resistance is felt, withdraw the ETT, rotating it in a slightly more counterclockwise direction, and advance the tube again. Advance the tube to a lip-line of 24 cm in an adult male, and 22 cm in an adult female.
7. Holding the ETT firmly in place, have an assistant remove the Bougie.
8. Remove the laryngoscope.
9. Inflate the cuff with 5 – 10 ml of air.
10. Follow the procedures outlined in Procedure: [Orotracheal Intubation 5.6](#) to confirm placement, secure the ETT, monitor and document placement of the ETT.

SIGNS OF TRACHEAL PLACEMENT

- The Bougie is felt to stop or get “caught up” as the airway narrows and is unable to be advanced further. This is the most reliable sign of proper Bougie placement. If the Bougie enters the esophagus, it will continue to advance without resistance.
- It may be possible to feel the tactile sensation of “clicking” as the Bougie tip is advanced downward over the rigid cartilaginous tracheal rings.
- The Bougie can be felt to rotate as it enters a mainstem bronchus. Usually it is a clockwise rotation as the Bougie enters the right mainstem bronchus, but occasionally it will rotate counterclockwise if the Bougie enters the left mainstem bronchus.
- If the patient is not paralyzed, he/she may cough.

P

PEARLS:

- BVM ventilation can be performed, as needed (e.g. hypoxia), with a Bougie in place prior to insertion of the endotracheal tube.

PARAMEDIC STANDING ORDERS - ADULT

INDICATIONS

- Impending respiratory failure, with intact gag reflex or jaw is clenched and unable to be opened. Only after basic procedures are deemed inappropriate or have proven to be inadequate should more advanced methods be used. Use a graded approach for treatment by using least invasive method first. NRFM → BVM → SGA → ETT → Cric.

CONTRAINDICATION

- Apnea.
- Nasal obstruction.
- Suspected basilar skull fracture.
- Patient fits on a pediatric length-based resuscitation tape (e.g., Broselow Tape).

PROCEDURE

1. Pre-medicate nasal mucosa with 2% lidocaine jelly and nasal decongestant spray, if available.
2. Pre-oxygenate the patient.
3. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
4. Lubricate the ETT with water-based lubricant.
5. Remove the nasal airway and gently insert the ETT with continuous quantitative waveform capnography monitoring, keeping the bevel toward the septum (a gentle rotation movement may be necessary at the turbinates).
6. Continue to advance the ETT while listening for maximum air movement and watching for capnography wave form.
7. At the point of maximum air movement, indicating proximity to the level of the glottis, gently and evenly advance the tube through the glottic opening on inspiration.
 - If resistance is encountered, the tube may have become lodged into the pyriform sinus and you may note tenting of the skin on either side of the thyroid cartilage. If this happens, slightly withdraw the ETT and rotate it toward the midline and attempt to advance tube again with the next inspiration.
8. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. This is normal. Do not remove the ETT. Be prepared to control the cervical spine and the patient, and be alert for vomiting.
9. Placement depth from the nares to the tip of the tube should be approximately 28cm in males and 26 cm in females.
10. Inflate cuff with 5 – 10ml of air.
11. Confirm appropriate placement by quantitative waveform capnography, symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bagging, and condensation in the ETT.
12. Secure the ETT, consider applying a cervical-collar and securing patient to a long backboard (even for the medical patient) to protect the placement of the ETT.

P

Protocol Continues 

Protocol Continued**PARAMEDIC STANDING ORDERS**

13. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.
14. Document each attempt as a separate procedure so it can be time stamped in the ePCR. **An attempt is defined as placement of the tube into the patient's nare.** For each attempt, document the time, provider, placement success, pre-oxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's lip), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO₂ readings.

If continued intubation attempts are unsuccessful (maximum of 3 attempts) consider Cricothyrotomy. See [Cricothyrotomy Procedures 5.2 OR 7.4](#).

POST INTUBATION CARE - ADULT

Sedation:

- Midazolam 2 – 5 mg IV, every 5 – 10 minutes as needed, **OR**
- Lorazepam 1 – 2mg IV every 15 minutes as needed (maximum: 10mg) **AND**
- Fentanyl 50 – 100 micrograms IV.

P

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

INDICATIONS

- Apnea/respiratory failure, impending respiratory failure, impaired or absent gag reflex. Only after basic procedures are deemed inappropriate or have proven to be inadequate should more advanced methods be used. Use a graded approach for treatment by using least invasive method first. NRFM → BVM → SGA → ETT → Cric.

CONTRAINDICATION

- Epiglottitis.
- Facial or neck injuries that prohibit visualization of airway anatomy (relative).

PROCEDURE

1. Prepare all equipment and have suction ready.
2. Pre-oxygenate the patient.
3. Open the patient's airway. While holding the laryngoscope in the left hand, insert the blade into the right side of the patient's mouth, sweeping the tongue to the left. Use video laryngoscopy, if available and trained.
4. Use the blade to lift the tongue and the epiglottis, either directly with the straight (Miller) blade, or indirectly with the curved (Macintosh) blade.
5. Once the glottic opening is visualized, insert the tube through the vocal cords and continue to visualize while passing the cuff through the cords.
6. Remove the laryngoscope and then the stylet from the ETT.
7. Inflate the cuff with 5 – 10ml of air.
8. Confirm appropriate proper placement by quantitative waveform capnography, symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask and condensation in the ETT.
9. Secure the ETT, consider applying a cervical-collar and securing patient to a long backboard (even for the medical patient) to protect the placement of the ETT.
10. Reassess tube placement frequently, especially after movement of the patient.
11. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.
12. Document each attempt as a separate procedure so it can be time stamped in the ePCR. **An attempt is defined as placement of the blade into the patient's mouth.** For each attempt, document the time, provider, placement success, pre-oxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's lip), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO₂ readings.

P

Protocol Continues

5.6

Orotracheal Intubation



PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

If intubation attempt is unsuccessful, ETT placement cannot be verified or ETT becomes dislodged:

- Monitor oxygen saturation and end-tidal CO₂ **AND**
- Ventilate the patient with 100% oxygen via a BVM until ready to attempt intubation again.

If continued intubation attempts are unsuccessful (maximum of 3 attempts) consider Cricothyrotomy. See [Cricothyrotomy Procedure 5.2 OR 7.4](#).

POST INTUBATION CARE – ADULT

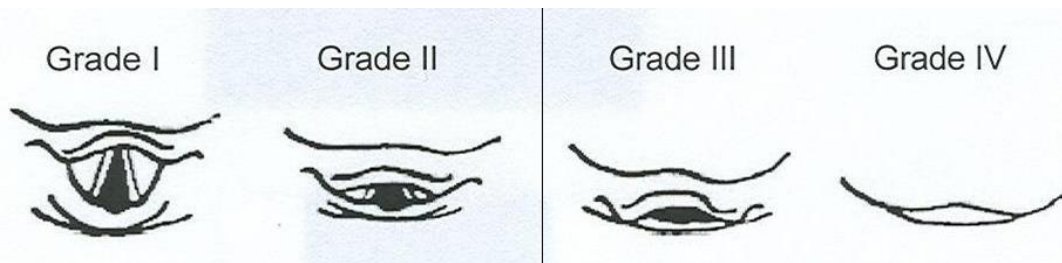
Sedation:

- Midazolam 2 – 5 mg IV, every 5 – 10 minutes as needed, **OR**
- Lorazepam 1 – 2mg IV every 15 minutes as needed (maximum: 10mg). **AND**
- Fentanyl 50 – 100 micrograms slow IV push.

POST INTUBATION CARE – PEDIATRIC

Sedation:

- Fentanyl 2-3 micrograms/kg IV.



Classifications for Laryngoscopy Views

Suctioning of Inserted Airway 5.7

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

INDICATIONS

- Obstruction of the airway (secondary to secretions, blood, and/or any other substance) in a patient currently being assisted by an inserted airway such as an endotracheal tube, or King LTD. For tracheostomy tube see [Tracheostomy Care 5.9](#).

CONTRAINDICATIONS

- None.

PROCEDURE

1. Ensure the suction device is operable.
2. Pre-oxygenate the patient.
3. While maintaining aseptic technique, attach the suction catheter to the suction unit.
4. If applicable, remove ventilation device from the airway.
5. Insert the sterile end of the suction catheter into the tube without suction. Insert until resistance is met; pull back approximately 1 – 2cm.
6. Once the desired depth is met, apply suction by occluding the port of the suction catheter and slowly remove the catheter from the tube using a twisting motion.
7. Suctioning duration should not exceed 10 seconds, using lowest pressure that effectively removes secretions.
8. Saline flush may be used to help loosen secretions and facilitate suctioning.
9. Re-attach the ventilation device to the patient.

E/
A/
P

Supraglottic Airway Adult & Pediatric

This protocol applies to commercially available supraglottic airway devices. It replaces other protocols which were written for specific devices. These airways must be used as directed by the manufacturer's guidelines. They may be used in all age groups for which the devices are designed. Providers must be trained on and competent with the airway device they will be using.

The airway devices approved by the NH Bureau of EMS and Medical Control Board are:

- Single Lumen Device (e.g., King, iGel, LMA Supreme).
- Double Lumen Device (e.g., Combitube, to be removed in 2017 protocols).

EMT/ADVANCED EMT STANDING ORDERS

INDICATIONS:

- Cardiac Arrest.

RELATIVE CONTRAINDICATIONS:

- Intact gag reflex.
- Active vomiting.
- Severe maxillofacial or oral trauma.
- Latex allergy (Combitube).
- For devices inserted into the esophagus:
 - The patient has known esophageal disease.
 - The patient has ingested a caustic substance.
 - The patient has burns involving the airway.

PROCEDURE:

- Insertion procedure should follow manufacturer guidelines as each device is unique.
- Confirm appropriate placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bag valve mask ventilation, and quantitative waveform capnography, if available.
- Secure the device.
- Document the time, provider, provider level and success for the procedure. Complete all applicable airway confirmation fields including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO₂ readings.
- Reassess placement frequently, especially after patient movement.

INDICATIONS:

- Inability to adequately ventilate a patient with a bag-valve-mask or longer EMS transports requiring a more definitive airway.
- Back up device for failed endotracheal intubation attempt.

POST TUBE PLACEMENT CARE – ADULT

- If a supraglottic airway device has an orogastric tube port, consider placement of an orogastric tube to decompress the stomach after the airway is secured.

Sedation may be used if required once a supraglottic airway is in place:

- Midazolam 2 – 5 mg IV, every 5 – 10 minutes, as needed, **OR**
- Lorazepam 1- 2 mg IV, may every 15 minutes as needed (maximum: 10mg) **AND**
- Fentanyl 50 – 100 mcg, slow IV push.

POST TUBE PLACEMENT CARE – PEDIATRIC

Sedation:

- Fentanyl 2-3 micrograms/kg IV.

E/A

P

EMT/ADVANCED EMT STANDING ORDER – ADULT & PEDIATRIC

INDICATIONS

- An adult or pediatric patient with an established tracheostomy in respiratory distress or failure.

PROCEDURE

- Consult with the patient's caregivers for assistance.
- Assess tracheostomy tube: Look for possible causes of distress which may be easily correctable, such as a detached oxygen source.
- If the patient's breathing is adequate but exhibits continued signs of respiratory distress, administer high-flow oxygen via non-rebreather mask or blow-by, as tolerated, over the tracheostomy.
- If patient's breathing is inadequate, assist ventilations using bag-valve-mask device with high-flow oxygen.
- If on a ventilator, remove the patient from the ventilator prior to using bag valve mask device as there may be a problem with the ventilator or oxygen source.
- Suction if unable to ventilate via tracheostomy or if respiratory distress continues.
- Use no more than 100 mmHg suction pressure.
- If the tracheostomy tube has a cannula, remove it prior to suctioning.
- Determine proper suction catheter length by measuring the obturator.
- If the obturator is unavailable, insert the suction catheter approximately 2 – 3 inches into the tracheostomy tube. **Do not use force!**
- 2 – 3ml saline flush may be used to help loosen secretions.
- If the patient remains in severe distress, continue ventilation attempts using bag valve mask with high-flow oxygen via the tracheostomy. Consider underlying reasons for respiratory distress and refer to the appropriate protocol for intervention.

E/A

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

INDICATIONS

- An adult or pediatric patient with an established tracheostomy, in respiratory distress or failure where EMT and Advanced EMT tracheostomy interventions have been unsuccessful.
- Dislodged tracheostomy tube.

CONTRAINDICATIONS

- None.

PROCEDURE:

- If the patient continues in severe respiratory distress, remove tracheostomy tube and attempt bag valve mask ventilation.
- If another tube is available from caregivers, insert into stoma and resume ventilation (a standard endotracheal tube may be used or the used tracheostomy tube, after being cleaned).
- If unable to replace tube with another tracheostomy tube or endotracheal tube, assist ventilations with bag valve mask and high-flow oxygen.

P

5.10

Ventilator

P

PARAMEDIC – ADULT & PEDIATRIC

PURPOSE

- To define the methodology and practice for using a mechanical ventilator.
- To optimize oxygenation and ventilation of endotracheally intubated patients as well as patients with supraglottic airways.

INDICATIONS

- Adult patients with advanced airways placed by EMS prehospital. The use of ventilators in the PIFT environment is not addressed by this protocol.
- Adult and pediatric patients on their own ventilator:
 - If the ventilator is operational, transport patient with their ventilator and caregiver on previously prescribed ventilator settings.
 - If the ventilator is inoperable, assist caregiver with troubleshooting using the SCOPE mnemonic (see below). Use bag valve mask device and transition to EMS ventilator as necessary, if available.

CONTRAINDICATIONS

- Pediatric patients with advanced airway placed by EMS.

SPECIAL CONSIDERATIONS

- All patients receiving mechanical ventilation will have an appropriate size BVM with mask, an appropriately sized OPA, and a 10cc luer lock syringe readily accessible.

SETTINGS

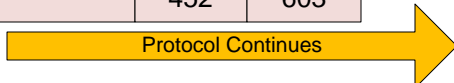
The following initial settings are recommended:

Mode: Assist Control (AC) – Volume.

Tidal Volume: 6-8 mL/kg of Ideal Body Mass (see charts below):

MALE		
Height in Ft/In	6 mL/kg	8 mL/kg
5.0	314	418
5.1	320	426
5.2	328	437
5.3	341	455
5.4	355	474
5.5	369	492
5.6	383	510
5.7	397	529
5.8	410	547
5.9	424	566
5.10	438	584
5.11	452	602
6.0	466	621
6.1	479	639

FEMALE		
Height in Ft/In	6 mL/kg	8 mL/kg
5.0	286	382
5.1	293	390
5.2	300	400
5.3	314	406
5.4	328	438
5.5	342	456
5.6	356	474
5.7	370	493
5.8	383	511
5.9	397	530
5.10	411	548
5.11	425	566
6.0	439	585
6.1	452	603





PARAMEDIC – ADULT & PEDIATRIC

Rate: Initially 8 - 12, titrate to appropriate EtCO₂ based on patient's condition (e.g. severe asthma, aspirin overdose, traumatic brain injury).

FiO₂: Start at 100% FiO₂, then titrate to maintain SpO₂>94% (90% for COPD patients).

PEEP: 2 to 5 cmH₂O.

ALARM SETTINGS

- High pressure alarm: 30 cmH₂O.
- Low pressure alarm, if available: 4 cmH₂O.



Further adjustments in ventilator settings may be done in conjunction with on or offline **Medical Control**.

P

SCOPE

- S: Suction
- C: Connections
- O: Obstructions
- P: Pneumothorax
- E: Equipment/Tube Dislodgement

6.0

12-Lead ECG Acquisition

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDER

Obtain 12 lead ECG with baseline vitals within 10 minutes if available and practical and transmit per local guidelines.

INDICATIONS

- Congestive Heart Failure/Pulmonary Edema.
- Dysrhythmias.
- Suspected Acute Coronary Syndrome.
- Syncope.
- Shortness of breath.
- Stroke/CVA.

PROCEDURE

1. Prepare ECG Monitor and connect cable with electrodes.
2. Properly position the patient (supine or semi-reclined).
3. Enter patient information (e.g., name, age, gender) into monitor.
4. Prep chest as necessary, (e.g., hair removal, skin prep pads).
5. Apply chest and extremity leads using recommended landmarks:
 - RA – Right arm or shoulder.
 - LA – Left arm or shoulder.
 - RL – Right leg or hip.
 - LL – Left leg or hip.
 - V1 – 4TH intercostal space at the right sternal border.
 - V2 – 4TH intercostal space at the left sternal border.
 - V3 – Directly between V2 and V4.
 - V4 – 5th intercostal space midclavicular line.
 - V5 – Level with V4 at left anterior axillary line.
 - V6 – Level with V5 at left midaxillary line.
6. Instruct patient to remain still.
7. Acquire the 12 lead ECG.
8. If 12 lead ECG indicates a STEMI (e. g., ECG identifies ***Acute MI Suspected*** and/or Paramedic interpretation) transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements. Notify receiving facility of a "STEMI Alert".
9. For patients with continued symptoms consistent with acute coronary syndrome, perform repeat ECGs during transport to evaluate for evolving STEMI.
10. Copies of 12 lead ECG labeled with the patient's name and date of birth should be left with the receiving hospital.
11. Document the procedure and time of the ECG acquisition in appropriate section of the Patient Care Record.

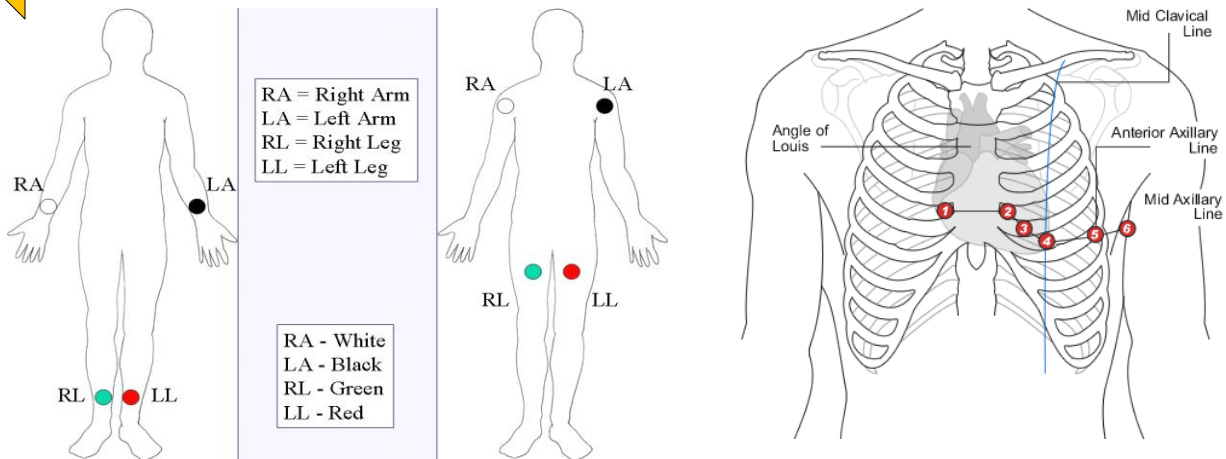
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Procedure 6.0

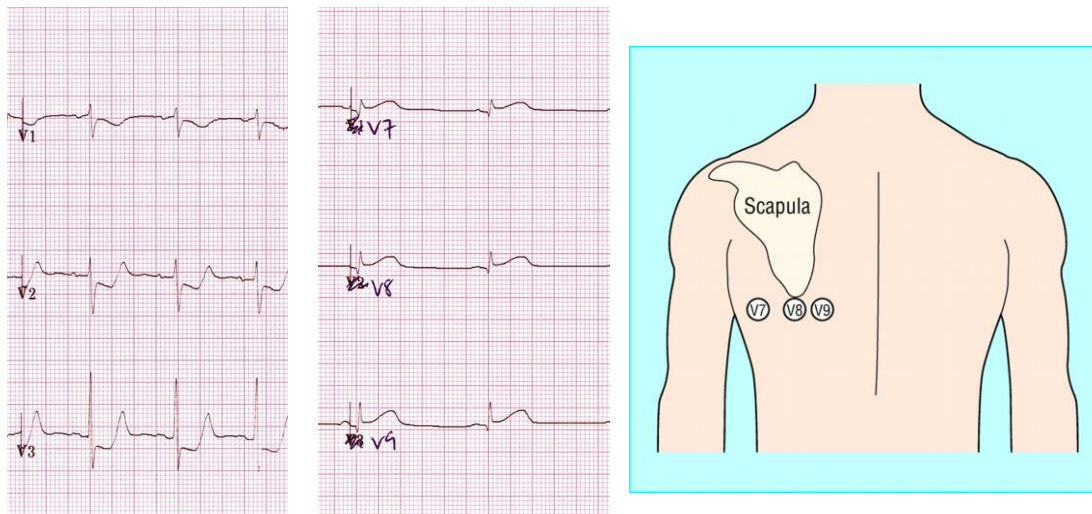
Protocol Continues 

6.0 12-Lead ECG Acquisition

Protocol Continued



Consider posterior leads for suspected isolated posterior STEMI



PEARLS:

- Ensure the patient's age is entered for proper interpretation.
- When transmitting either include the patient's name or notify the receiving facility of the patient's identity.
- Be alert for causes of artifact: dry or sweaty skin, dried out electrodes, patient movement, cable movement, vehicle movement, electromagnetic interference, static electricity
- According to manufacturers, dried out electrodes are a major source of artifact; keep in original sealed foil pouches; plastic bags are not sufficient; use all the same kind of electrodes; press firmly around the edge of the electrode, not the center.
- Sweaty patients should be dried thoroughly. Consider tincture of benzoin. Dry skin is especially problematic. Clean the site (e.g., alcohol prep pad) and gently abrade skin using a towel or 4x4 gauze. Consider ECG skin prep pad, fine sandpaper, or 3M green scrubby.
- Check for subtle movement: toe tapping, shivering, muscle tension (e.g., hand grasping rail or head raised to "watch")

6.1

Intraosseous Access

ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

Provider Level Approved

- Advanced EMT, commercial intraosseous introduction device (e.g., EZ-IO) (EMT-Intermediates must have transitioned to the Advanced EMT licensure to perform pediatric IO insertion and/or administer lidocaine 2%).
- Paramedic.

Definition

Intraosseous insertion establishes access in a patient where venous access cannot be rapidly obtained. The bone marrow space serves as a “noncollapsible vein” and provides access to the general circulation for the administration of fluids and resuscitation drugs. This protocol applies to all appropriate IO insertion sites.

Indication

- Drug or fluid resuscitation of a patient in need of immediate life-saving intervention and unable to rapidly obtain peripheral IV access.
- May be used as a primary vascular device in cardiac arrest.

Contraindications

- Placement in or distal to a fractured bone.
- Placement near prosthetic limb, joint or orthopedic procedure.
- Placement at a burn or infected site.

Complications

- Infusion rate may not be adequate for resuscitation of ongoing hemorrhage or severe shock, extravasation of fluid, fat embolism, and osteomyelitis (rare).

Equipment:

- 15 – 19 gauge bone marrow needle or FDA-approved commercial intraosseous infusion device.
- Povidone-iodine or chlorhexidine solution and gloves.
- Primed IV tubing, IV stopcock, solution.
- 10ml syringe with 0.9% NaCl.
- Pressure pump/bag or 60ml syringe for volume infusion or slow push.
- 1 vial of 2% lidocaine (preservative free) .
- 5mL syringe.

A/P

Procedure 6.1



EMT-Intermediates MUST have transitioned to the Advanced EMT licensure to perform pediatric IO insertion.

Procedure Continues

← Procedure Continued

Procedure:

When using an FDA-approved commercial IO device, follow manufacturer's instructions.

1. Place the patient in a supine position.
2. Identify the bony landmarks as appropriate for device.
3. Prep the site.
4. Needle is appropriately placed if the following are present:
 - Aspiration with syringe yields blood with marrow particulate matter.
 - Infusion of saline does not result in infiltration at the site.
 - Needle stands without support.
5. Attach IV tubing, with or without stopcock.
6. Prior to IO syringe bolus (flush) or continuous infusion in alert patients:
 - Ensure that the patient has no allergies or sensitivity to lidocaine.
 - SLOWLY administer lidocaine 2% (preservative free) through the IO device catheter into the medullary space.
 - Allow 2 – 5 minutes for anesthetic effects, if feasible:
 - Adult: 1 – 2.5ml (20 – 50mg) 2% lidocaine.
 - Pediatric: 0.5mg/kg 2% lidocaine.
7. Flush with 10ml of 0.9% NaCl rapid bolus prior to use:
 - Recommend use of a stop cock inline with syringe for bolus infusions.
 - Use a pressure bag for continuous 0.9% NaCl infusions.
 - Infuse emergent pressors using an IV pump.
8. Stabilize needle:
 - Consider utilizing a commercially available stabilization device as recommended by the manufacturer, **OR**
 - Stabilize needle on both sides with sterile gauze and secure with tape (avoid tension on needle).

A/P

Procedure 6.1



EMT-Intermediates must have transitioned to the Advanced EMT licensure to administer lidocaine 2%.

6.2 Quantitative Waveform Capnography

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

Indications:

- Confirmation of and ongoing monitoring of ETT and supraglottic airway device placement and ventilation status in both adult and pediatric patients, see [Airway Management – Adult 5.1A/Pediatric 5.1P](#), [Nasotracheal 5.5](#), [Orotracheal Intubation 5.6 Protocols](#), [Supraglottic Airways 5.8](#).
- To confirm and document ETT and supraglottic airway device placement, after every move, and at transfer of care.
- ETCO₂ should be used when respiratory distress is significant and or patient does not respond to initial beta-agonist treatment, see [Asthma, COPD, RAD 2.4A OR Asthma, Bronchiolitis, Croup 2.4P](#).
- Routine monitoring of ventilation status in patients with altered mental status or patients with a history of asthma, CHF, diabetes, circulatory shock, pulmonary embolus and or acidosis.
- Monitoring of CPR quality and for signs of return of spontaneous circulation (ROSC) in cardiac arrest patients. High quality chest compressions are achieved when the ETCO₂ is at least 10-20 mmHg. If ETCO₂ abruptly increases it is reasonable to consider that this as an indicator of ROSC.
- To assist with termination of resuscitation efforts when ETCO₂ is <20 mmHg despite adjusting the quality of chest compressions. Low CO₂ production after 20 minutes of effective CPR is a predictor of mortality. See [Resuscitation Initiation & Termination Policy 8.16](#).
- Monitoring patients following administration of narcotic pain medications or sedatives for evidence of hypoventilation and/ or apnea.
- For head injuries see, [Traumatic Brain Injury Protocol 4.7](#).

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Procedure:

1. Attach the sensor to endotracheal tube, supraglottic airway, BVM or apply cannula with ETCO₂ mouth scoop or bi-cannula.
2. Observe numeric capnometry CO₂ level, (normal ETCO₂ range 35-45 mmHg) and real-time capnography waveforms.
3. Numeric capnometry as well as capnography morphology should be documented for patients undergoing airway management, cardiac arrest, altered mental status and respiratory distress.

Notes:

- High levels of CO₂ (>45 mmHg) may indicate hypoventilation/CO₂ retention, considering adjusting rate and depth of ventilation.
- Low levels of CO₂ (< 35 mmHg) may indicate hyperventilation, low perfusion, pulmonary embolus and/or sepsis, consider adjusting rate and depth of ventilation.
- Colorimetric CO₂ detectors are not an alternative to quantitative waveform capnography. ETT and supraglottic airway device placement should always be confirmed using quantitative waveform capnography.



Any abrupt loss of ETCO₂ detection or waveform may indicate a catastrophic failure of the airway, apnea, and/or cardiac arrest warranting assessment of the airway, breathing, circulation, and/ or airway device.

EMT/ ADVANCED EMT STANDING ORDERS

INDICATIONS

Any patient who may harm himself, herself, or others may be restrained to prevent injury to the patient or crew. Restraining must be performed in a humane manner and used only as a last resort.

PROCEDURE

2. Request law enforcement assistance, as necessary.
3. When appropriate, attempt less restrictive means of managing the patient, including verbal de-escalation.
4. Ensure that there are sufficient personnel available to physically restrain the patient safely.
5. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices may be placed on top of the patient. Never hog-tie a patient. In order to gain control, the patient may need to be in a prone position, but must be moved to supine or lateral position as soon as possible.
6. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac, pulse oximetry, and quantitative waveform capnography monitoring, if available.
7. The extremities that are restrained should have a circulation check at least every 15 minutes. The first of these checks should occur as soon as possible after restraints are placed.
8. Documentation in the EMS Incident Report should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
9. If a patient is restrained by law enforcement personnel with handcuffs or other devices that EMS personnel cannot remove, a law enforcement officer should accompany the patient to the hospital in the transporting ambulance. If this is not feasible, the officer **MUST** follow directly behind the transporting ambulance to the receiving hospital.

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PARAMEDIC STANDING ORDERS

P

- Paramedic Standing Orders continued next page.

PEARLS:

- Causes of combativeness may be due to comorbid medical conditions or due to hypoxia, hypoglycemia, drug and/or alcohol intoxication, drug overdose, brain trauma.
- Struggling against restraints may lead to hyperkalemia, rhabdomyolysis, and/or cardiac arrest.
- Verbal de-escalation is the safest method and should be delivered in an honest, straightforward, friendly tone avoiding direct eye contact and encroachment of personal space.

Protocol Continues 


 Protocol Continued
PARAMEDIC STANDING ORDERS - ADULT**P**

Once physically restrained:

- Midazolam 5mg IM, may repeat once in 20 minutes; or 2.5mg IV/IN, may repeat once in 5 minutes; **OR**
- Lorazepam 2mg IM, may repeat once in 20 minutes; or 1mg IV, may repeat once in 5 minutes; **OR**
- Diazepam 2mg IV (preferred route), may repeat once in 5 minutes; or 5mg IM, may repeat once in 20 minutes **AND/OR**
- Haloperidol 5 - 10mg IM, may repeat once in 10 minutes (max total dose 10 mg).

For patient with suspected Excited/Agitated Delirium or extreme agitation:

- Midazolam 5mg IV/IM/IN; may repeat once in 10 minutes.
 - If agitation continues after the second dose of midazolam, then consider:
 - Haloperidol 10mg IM; may repeat once in 10 minutes.

**NOTE:** Contact **Medical Control** for additional doses.

- If cardiac arrest occurs, consider fluid bolus and sodium bicarbonate early, see [Cardiac Arrest 3.2A](#).

For acute dystonic reaction to haloperidol:

- Diphenhydramine 25 – 50mg IV/IM.

Procedure 6.3



- Excited/Agitated Delirium is characterized by extreme restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death.
- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.
- Administer haloperidol with caution to patients who are already on psychotropic medications which may precipitate serotonin syndrome or malignant hyperthermia.
- Placing a patient in prone position creates a severe risk of airway and ventilation compromise and death.

Tasers (Conductive Electrical Weapon)

6.4

State and local law enforcement may use a conductive energy weapon called a Taser. This device is a non-lethal tool. 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 a 5-second incapacitating electric shock. Current medical literature does not support routine medical evaluation for an individual after Taser application. **In most circumstances probes can be removed by law enforcement without further medical intervention.**

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

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

- The probe is embedded in the eye, genitals, or bone.
- Seizure is witnessed after Taser 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.

INDICATIONS FOR REMOVAL

- Patient with uncomplicated conducted electrical weapon (Taser) probes embedded subcutaneously in non-vulnerable areas of skin.

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.

PROCEDURE

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominant hand.
4. Remove probe by pulling straight out in a single quick motion.
5. Removed probes should be handled and disposed of like contaminated sharps in a designated sharps container, unless requested as evidence by police.
6. Cleanse wound and apply dressing.
7. If last tetanus immunization was greater than 5 years, advise the patient that they may need one.
8. Obtain a refusal of care for patients refusing transport.

6.5

Tourniquet Application

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

A tourniquet is a commercial device used to control a life threatening hemorrhage on an injured extremity to prevent exsanguination.

INDICATIONS:

Life threatening extremity hemorrhage that cannot be controlled by other means.
 Serious or life threatening extremity hemorrhage in the face of operational considerations that prevent the use of less aggressive hemorrhage control techniques.

PROCEDURE:

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1. If hemorrhage is not severe, attempt to control the hemorrhage with direct pressure, bandaging and elevation.
2. With a commercial tourniquet:
 - Place tourniquet proximal to wound on the affected extremity.
 - Tighten per manufacturer instructions until hemorrhage stops and distal pulses are extinguished.
 - If initial tourniquet fails to stop bleeding, ensure proper deployment of first tourniquet, and consider placement of a second tourniquet just proximal to first.
 - Document time of tourniquet application and communicate this clearly with receiving facility.
 - Do not cover tourniquet.
 - Dress wounds per standard wound care and consider use of hemostatic bandage.
 - Reassess for rebleeding frequently, especially after any patient movement.
 - Proper tourniquet placement often causes significant pain. Consider pain management, see [Pain Protocol 2.17](#).
 - Do not remove or loosen tourniquet once hemostasis achieved.

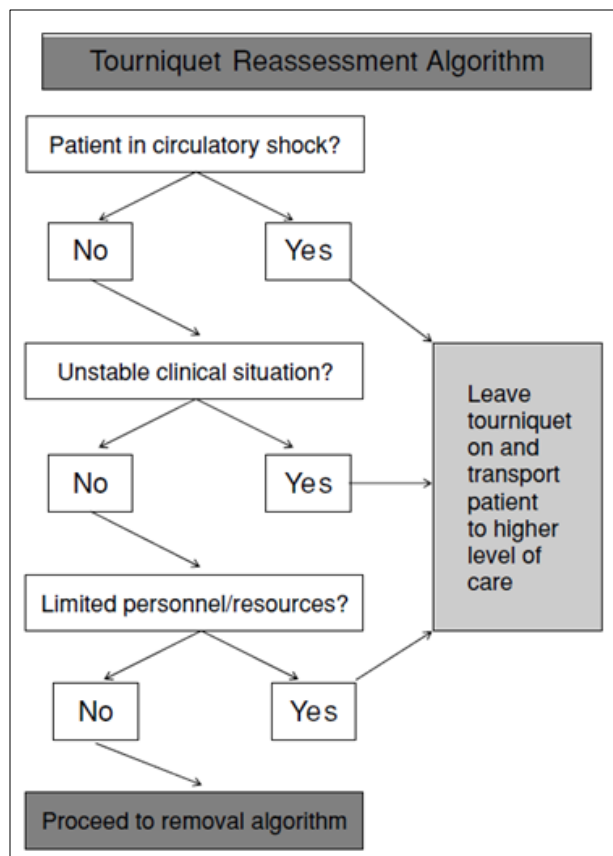
Procedure 6.5



In the absence of a commercial tourniquet (preferred), an improvised device e.g., cravat with windlass, blood pressure cuff could be used. The device must be a minimum of 2 inches wide, otherwise it can cut through the skin.

PEARLS:

- Do not apply tourniquets over clothing or joints. If wound is just distal to joint, the tourniquet should be placed just proximal to joint.
- Delay in placement of a tourniquet for life threatening hemorrhage significantly increases mortality. Do not wait for hemodynamic compromise to apply a tourniquet.
- Transport patients directly to a Level 1 or Level 2 trauma center if feasible and provide earliest possible notification / trauma alert.
- Damage to the limb from tourniquet application is unlikely if removed in several hours.



Vascular Access via Central Catheters

6.6

PARAMEDIC – ADULT & PEDIATRIC

PROVIDER LEVEL:

- Paramedic who has taken the NH Bureau of EMS and Medical Control Board approved training module.

INDICATIONS

- In the presence of a life threatening condition, with clear indications for immediate use of medication or fluid bolus (Not for prophylactic IV access.)

CONTRAINDICATIONS

- Suspected infection at skin site.

PROCEDURE

Determine the type of catheter present: PICC, Broviac, Hickman, Groshong, Mediport, etc.

Procedure for peripherally inserted Central Catheter (Cook, Neo-PICC, etc.) and Tunneled Catheter (Broviac, Hickman, Groshong, etc.)

1. Utilize good hand-hygiene with either alcohol gel based cleanser or soap and water.
2. Utilize respiratory precautions if indication of respiratory infection in provider or patient:
 - Mask the provider and/or the patient.
3. Prepare equipment:
 - 2-3 10ml prefilled syringes of 0.9% NaCl.
 - Sterile gloves (if available).
4. If more than one lumen is available (PICCs, Hickmans and Broviacs can have one, two, or three lumens), select the largest lumen available.
5. Vigorously cleanse the cap of the lumen with chlorhexidine or 70% alcohol prep pad.
 - Allow to dry.
6. Unclamp the selected catheter lumen and using a prefilled 10ml syringe.
 - Vigorously flush the catheter using a pulsating technique and maintaining pressure at the end of the flush to prevent reflux of fluid or blood.
 - If catheter does not flush easily (note that a PICC line will generally flush more slowly and with greater resistance than a typical intravenous catheter), re-clamp the selected lumen and attempt to use another lumen (if present).
 - If unable to flush any of the lumens, the catheter is unable to be used.
7. Attach IV administration set and observe for free flow of IV fluid.
 - Utilizing an IV pump, set the flow rate based on the patient condition and in accordance to NH Protocols.



- Do not exceed recommended flow rates.
- Avoid taking a blood pressure reading in the same arm as the PICC.

CATHETER	SIZE	MAX FLOW RATE
PICC	Less than 2.0 fr	125 mL/hr
PICC	Greater than 2.0 fr	250 mL/hr
Groshong PICC	3 fr	240 mL/hr
Groshong PICC NXT	4 fr	540 mL/hr
Groshong PICC NXT	5 fr	200 mL/hr
Hickman/Broviac		
Hickman/Broviac – Power Port	8 – 9.5 fr	3000 mL/hr

PEARLS:

- There are many peripherally inserted, tunneled and/or implanted ports options. Providers should do their best to discern what option the patient has. Patient may be carrying a reference/wallet card about their device.
- PICC lines will not tolerate rapid infusions or infusions under pressure.

Procedure Continues

Procedure 6.6

P



← Procedure Continued

P



Procedure for implanted catheter (Port-a-Cath, P.A.S. port, Medi-port)

1. Utilize good hand-hygiene with either alcohol gel based cleanser or soap and water.
2. Utilize respiratory precautions if indication of respiratory infection in provider or patient.
 - Mask the provider and/or the patient.
3. Prepare all necessary equipment:
 - Non-coring, right angle needle specific for implanted vascular access ports
 - 2-3 10ml prefilled syringes of 0.9% NaCl.
 - Sterile infusion port cap.
 - Sterile gloves (if available).
 - Sterile occlusive dressing large enough to completely cover the insertion site
4. Identify the access site; usually located in the chest.
5. Vigorously cleanse the access site with chlorhexidine or 70% alcohol prep pad.
 - Allow to dry.
6. Attach the infusion port cap to the end of the non-coring, right angle needle tubing.
7. Prime the non-coring needle with tubing with saline using one of the prefilled 10ml syringes.
 - Leave the syringe attached to the tubing.
8. Palpate the port to determine the size and center of the device.
 - If not utilizing sterile gloves, re-clean the skin and apply new gloves.
9. Secure the access point port firmly between two fingers and firmly insert the non-coring needle into the port, entering at a direct 90° angle.
10. Aspirate 3 – 5ml of blood with the syringe.
 - If unable to aspirate blood, re-clamp the catheter and do not attempt further use.
 - Dispose of aspirated blood in bio hazard container.
 - Asking the patient to cough may facilitate access of the port.
11. Flush the catheter with 3 – 5ml 0.9% NaCl using a prefilled 10ml syringe.
 - If catheter does not flush easily, do not attempt further use.
12. Attach IV administration set and observe for free flow of IV fluid.
 - Utilizing an IV pump, set the flow rate based on the patient condition and in accordance with NH Protocols.
13. Cover the needle and insertion site with the sterile occlusive dressing.



- Only non-coring, right angle needles specific for implanted ports are to be used for vascular access devices that are implanted in the patient. These are generally not carried by EMS units but may be provided by the patient.
- Priming the tubing of the non-coring needle is essential to prevent air embolism.

PEARLS:

- Many of the newer implanted ports are double lumen ports. Providers should ask the patient or family if they have a double lumen port or palpate carefully to discern this.
- Newer non-coring, right angle insertion needles have a hard plastic top which later serves as a safety device, housing the needle when the port is de-accessed.

Prerequisite Required

This procedure is only to be used by Paramedics or AEMTs who are trained and credentialed to perform immunization by the NH Bureau of EMS and the NH Medical Control Board.

INDICATIONS:

Pre-hospital providers may be called upon to provide certain immunizations as necessary to assist state health officials in the event of a public health crisis, or under the written order of a physician.

Non-Patient Specific Orders:

A non-patient specific order authorizes Paramedic or AEMT to administer specified immunizations for a specified period of time to an entire group of persons such as school children, employees, patients of a nursing home, etc.

- Some examples of non-patient specific orders are:
 - Administer influenza vaccine 0.5ml IM to all incoming freshmen students at X College who are eligible per protocol.
 - Administer influenza vaccine 0.5ml IM to all employees of X organization who request it and who are eligible by protocol.
 - Administer influenza vaccine 0.5ml IM to all X town residents who request it and who are eligible by protocol.
 - Administer hepatitis B series to all employees of X organization eligible per protocol.

Immunizations

Many of the immunizations listed in the Centers for Disease Control and Prevention (CDC) guidelines fall under this protocol. The list of authorized immunizations differs for adults and children. For the purposes of immunizations, adults are persons who are 18 years of age or older; children are persons under 18 years of age.

Immunizations for adults:

- Diphtheria
- Hepatitis A
- Hepatitis B
- Inactivated polio
- Influenza
- Measles
- Meningococcus
- Mumps
- Pneumococcus
- Rubella
- Smallpox vaccine
- Tetanus
- Varicella

Immunizations for children:

- Acellular pertussis
- Diphtheria
- Haemophilus influenza Type b (hiB)
- Hepatitis A
- Hepatitis B
- Inactivated polio

Protocol Continues 

 Protocol Continued

- Influenza
- Measles
- Meningococcus
- Mumps
- Pneumococcal Conjugate
- Rubella
- Tetanus
- Varicella

Note: The Medical Control Board may add immunizations in accordance with the recommendations of the Centers for Disease Control and Prevention and the New Hampshire Department of Health and Human Services.

Administration of Immunizations

The non-patient specific standing order and protocol must be authorized by a physician.

Epidemics

Any Paramedic or AEMT may administer immunizations that are authorized by a non-patient specific standing order and protocol as part of an immunization program when the immunization program is instituted as a result of an epidemic declared by public health officials.

Protocol requirements

- Ensure that the potential immunization recipient is assessed for contraindications to immunizations.
- Inform each potential immunization recipient of the potential side effects and adverse reactions, orally and in writing, prior to immunization, and inform each potential immunization recipient, in writing, of the appropriate course of action in the event of an untoward or adverse event. Vaccine Information Statements (VIS), developed by the Centers for Disease Control and prevention (CDC), United States Department of Health and Human Services are recommended for this use. <http://www.cdc.gov/vaccines/pubs/vis/>
- Before the immunization is administered, obtain consent for the immunization from the potential recipient.
- In cases of minors and persons incapable of personally consenting to immunization consent may be gained by informing the legally responsible person of the potential side effects and adverse reactions in writing and obtaining a written consent prior to administering the immunization.
- Provide to each legally responsible immunization recipient a signed certificate of immunization noting the recipient's name, date of immunization, address, administering Paramedic or AEMT, immunizing agent, manufacturer and lot number.
- Have available on-site medications to treat anaphylaxis including, but not limited to, epinephrine and necessary needles and syringes.

Protocol Continues 

Protocol Continued

- Report all adverse immunization outcomes to the Vaccine Adverse Event Reporting System (VAERS) using the appropriate form from the Centers for Disease Control and Prevention, United States Department of Health and Human Services. <https://vaers.hhs.gov/esub/index>
- Coordinate with program site managers to ensure that the record of all persons immunized includes: the non-patient specific standing order and protocol utilized, recipient's name, date, address of immunization site, immunization, manufacturer and lot number of administered vaccine(s), and recommendations for future immunizations.
- For the administration of the influenza vaccine to adults only it is acceptable to maintain a log of the names, addresses, and phone numbers of all adult patients immunized with the influenza vaccine under non-patient specific orders, in a dated file.
- Coordinate with program site managers to ensure that a record is kept of all potential recipients, noting those who declined immunization.

Introduction

The purpose of this section is to reconcile the unique aspects of interfacility transfers with current NH EMS law, licensure, and acute care protocols. It is intended to provide flexibility, when possible, for individual agencies, institutions, and communities to meet their unique needs.

Interfacility transfer

An interfacility transfer is defined as any EMS ambulance transport from one healthcare facility to another. Examples include hospital-to-hospital, hospital-to-rehabilitation, and hospital-to-long-term care. (Guide for interfacility patient Transfer, NHTSA, April 2006.)

Transferring Institution

Responsibility for patient transfer lies with the transferring physician/provider and must take into account the risks versus the benefits to the patient. Providing appropriate equipment, medications, and qualified staffing during transport is paramount to patient safety. These parameters should be based on the requirements of the patient at the time of transfer, and in reasonable anticipation of foreseeable complications, deterioration, and medical needs that might arise during transport.

Initiation of a transfer should be a carefully coordinated effort by the transferring and receiving physicians/providers, the transferring and receiving facilities, and the transferring unit and personnel. Time or advanced notification may be needed for the transferring EMS unit to reconfigure in order to meet the needs outlined here. The following provides guidelines for the selection of appropriate NH EMS personnel to provide interfacility transport of patients consistent with their current scope of licensure, protocols, and training. Staffing, Medical Control, documentation, medications, transfer protocols, and procedures are addressed.

Training Levels

Standard paramedic curriculum does not specifically address the care of the critically ill patient during an extended transport. NH requires specific training for paramedics to provide extended transport of critically ill or injured patients.

New Hampshire has multiple levels of interfacility transfer capabilities including: Paramedic Interfacility Transport (PIFT) and Critical Care Teams (CCT) as defined in the PIFT Administrative Manual. All paramedics who will be staffing an interfacility transfer must be credentialed at a minimum of PIFT level training. The PIFT level of training is intended to address the majority of interfacility transfer situations. However, some patients will have a level of acuity and/or complexity that requires a CCT level transport—either air or ground. The CCT level of credentialing requires greater training, medical oversight, and service support, and is intended for the more limited number of acute and complex interfacility transfers that occur; therefore, a limited number of paramedics will be credentialed to function at the CCT level. If that level of resource is not readily available it is an acceptable practice to supplement the PIFT crew with hospital staff that is qualified to provide the level of care the patient requires.

Interfacility transfers that are appropriate for EMT or AEMT level of care do not require additional levels of credentialing beyond training requirements defined in the NH EMS protocols and by Saf-C 5900.

Policy Continues 

Policy Continued

NH EMS protocols enable PIFT paramedics to continue medications that are not within their routine scope of practice during an interfacility transport, including continuous infusions, repeat boluses, or blood products, providing that, prior to transporting the patient:

- Medication is started prior to leaving the transferring facility.
- The paramedic proactively obtains working knowledge and education of any such medications or products by reviewing current medication monographs (hardcopy or electronic), consulting with sending clinicians, medical directors, or clinical pharmacists, reviewing established practice policies (such as for blood products), or other standard clinical research means.

EMS providers must refuse to transport patients that have a level of acuity and/or medication regimen that they are not comfortable with, and work with the sending facility to acquire optimal staffing (such as sending nursing staff or requesting a CCT transport).

Minimum Staffing

The transferring physician/provider is responsible for determining the level of EMS provider and resources that are appropriate to meet the patient's current and anticipated condition and needs. The following are examples only and do not comprise a comprehensive list.

Stable patient with no risk for deterioration

1 EMT provider and second licensed provider (minimum) driver.

- No IV infusions.
- Oxygen for stable patients permitted.
- Previously inserted Foley catheter, suprapubic tube, established feeding tube (NG, PEG, J-tube not connected to infusion or suction).
- Saline lock permitted.

Stable patients with low risk of deterioration

1 AEMT provider and second licensed provider driver.

- Any crystalloid infusion.
- IV infusion pump for non-pharmacologic agents.
- Patient-controlled analgesic (PCA) pump.
- Medications within the AEMT scope of practice.

Stable patients with medium risk of deterioration

PIFT credential required. This protocol is only to be used by paramedics and EMS units who have been trained and credentialed to perform PIFT-level transfers by the NH Bureau of EMS and the EMS Medical Control Board.

1 PIFT paramedic provider and second licensed provider (as driver or second provider).

- Transcutaneous pacing.
- BiPap
- Stable long-term ventilated patient to or from a medical facility, long term care facility, and/or home, provided the patient is stable and the transport is not of an acute nature.
- Intubated/mechanically ventilated patients on assist control or SIMV with non-complex settings. All intubated patients must have second provider in patient compartment. All intubated patients must be on a mechanical ventilator.
- Medical monitoring devices, procedures, and medication administration consistent with scope of practice and/or PIFT training.

Policy Continues

7.1

Interfacility Transfers

Policy Continued

- Advanced airway management.
- Chest tube.
- Infusion of previously initiated blood products.
- Maintenance of previously initiated medications.
- Epidural catheter if secured, capped, and labeled.

Unstable or stable patients with high risk of deterioration

CCT required. Option 1 of this policy is only to be used by paramedics and EMS units who have been trained and credentialed to perform CCT-level transfers by the NH Bureau of EMS and the EMS Medical Control Board.

Option 1: CCT air or ground ambulance, **OR**

Option 2: 1 PIFT paramedic provider, 1 EMT driver and, at a minimum, 1 additional, (sending) **hospital-based**, qualified advanced health care provider (e.g., a critical care or emergency registered nurse, physician assistant, nurse practitioner, physician, CCT paramedic). The 2 advanced care providers must be in the patient compartment.

- Multiple vasoactive medication drips.
- Uncorrected shock.
- Invasive monitoring.
- Balloon pump.
- Transvenous pacing.
- Intubated/ventilated patients with advanced or complex vent settings (such as pressure control, peep >10 mmHg, etc.). **Non CCT crews** must also have 1 respiratory care practitioner in the patient compartment. This is in addition to the PIFT paramedic provider and the hospital-based advanced health care provider.
- Procedures consistent with provider licensure, scope of practice, and training.

The MCB strongly encourages the use of paramedics specially trained for the type of patient/condition being transported but recognizes that a CCT crew may not always be available.

As a measure of last resort, in cases where CCT providers are unavailable **AND** delay in transfer would have a significant negative impact on patient outcome, other transport arrangements may be initiated provided that:

1. The sending facility makes an exhaustive effort to send additional personnel.
2. The NH Bureau of EMS and Unit EMS Medical Director are notified within 48 hours and appropriate TEMSIS and IFT documentation is completed by the EMS Unit and the sending physician/institution.
3. All interventions are within the scope of practice of the transporting paramedic and vehicle.
4. EMS providers must refuse to transport patients that have a level of acuity and/or medication regimen that they are not comfortable with, and work with the sending facility to acquire optimal staffing.

Definitions

- **Unstable Patient:** A patient who cannot be stabilized at the transporting facility, who is deteriorating or likely to deteriorate. (From "Guide for Interfacility Patient Transfer," NHTSA.)
- **Stable Patient:** Hemodynamically stable patient with a secure airway and who is **NOT** in acute distress.

Policy Continues

← Policy Continued

Medical Control Responsibilities

According to EMTALA, patient care during transport until arrival at the receiving facility is the responsibility of the transferring physician/provider unless other arrangements are made.

Sometimes, as in certain air medical transport services or ground critical care units, the transport unit is functioning as an extension of a tertiary care center. It operates under that facility's protocols, medical directorship, and on-line medical control.

In the prehospital environment the EMS system operates under protocols. In the interfacility transfer environment written transfer orders that are within the scope of the provider's protocols and licensure are also required to be authored by the transferring physician/provider. The combination of protocols and transfer orders provide off-line medical control.

Transfer orders must be specific, appropriate to the patient being transferred, and reasonably anticipate potential complications en route. Transfer orders may reference the use of NH EMS protocols where they are applicable. If patients develop new signs and/or symptoms during transport, beyond their initial transfer diagnosis, providers may treat the new signs and/or symptoms according to protocols. Where transfer orders and NH EMS protocols are in conflict, transfer orders take precedence.

The transferring physician/provider should be immediately available to review transport orders and provide medical control communication via radio telephone during the transport. If the physician/provider is unavailable they must make other arrangements for review of the transfer orders with the transport crew.

PIFT and CCT Prerequisites and Oversight

It is the responsibility of the NH Bureau of EMS to monitor the quality of care delivered under this system and to set the standards for credentialing providers and units. PIFT and CCT transports shall only be conducted by those providers who have completed and maintain the approved training and who are credentialed by a unit that is approved by the NH Bureau of EMS.

The field of critical care interfacility transport is fluid and there are often questions related to scope of practice. There is a subcommittee established by the NH EMS Medical Control Board (MCB) to consider questions and make interim rulings on those questions until such a time as the MCB has the opportunity to consider and modify or adopt such rulings. These responses will be posted on the NHBEMS website.

7.2 Mobile Integrated Healthcare

Introduction

This prerequisite protocol enables an EMS Unit, a hospital and/or a Medicare-certified home health agency to form a collaboration for the purpose of providing community healthcare. A community that is experiencing a gap in healthcare coverage, as evidenced by a community needs assessment, may elect to utilize the capabilities of the EMS system in cooperation with a medical resource hospital and other healthcare professionals.

EMS Providers have traditionally functioned as a mobile healthcare unit and are a logical means of providing healthcare to the community as an extension of the primary care network, provided that a formal process has been followed, as outlined in this protocol. Only those EMS Units that have applied for, and have been approved by the NH BEMS under this prerequisite protocol, and only EMS providers who have met the requirements of this protocol may practice under these guidelines.

Definition of Mobile Integrated Healthcare

Mobile Integrated Healthcare (MIH) is the provision of healthcare using patient centered, mobile resources in the out-of-hospital environment.

In NH the MIH concept is envisioned to be an organized system of services, based on local need, which are provided by EMT's, AEMT's and Paramedics integrated into the local health care system, working with and in support of physicians, mid-level practitioners, home care agencies and other community health team colleagues, and overseen by emergency and primary care physicians. The purpose of the initiative is to address the unmet needs of individuals who are experiencing intermittent healthcare issues. It is not intended to address long-term medical or nursing case management.

General Project Description

Describe the community/communities to be served, the Unit's base location(s) to be employed, the unmet community health need being addressed, the current community health team members being partnered with, and the methodology for addressing the need (including any enhancements of the EMS response system that will result).

Community Needs Analysis

The EMS Unit, hospital, and any other partners must provide a needs assessment, using the NH Needs Assessment Tool, that demonstrates the gap in healthcare coverage that the MIH program intends to fill.

Patient Interaction Plan

Describe the nature of anticipated patient care and diagnostic interactions. Specify how the patient community will be educated to have realistic expectations of the MIH provider and these interactions.

Staffing Plan

Define who will be providing the MIH services and how will these services fit within the normal EMS staffing of the Unit. Specify what type of schedule will these services be made available and how this staffing arrangement will be funded.



Policy Continued

Training Plan

Describe what training will be provided to enable the providers to deliver the services described above. List the objectives and outcomes of the training plan. Document who is responsible for training oversight and coordination and their qualifications.

There must be a continuing education and credentialing process in place, with documentation of each EMS Provider's participation in it. Such a process shall be approved by the EMS Unit's Medical Director(s).

Quality Management Program and Data Collection

The EMS Unit shall conduct a quality management (QM) program specifically for the community healthcare program. The QM program will incorporate all the components of an EMS QM program as specified in Administrative Rule Saf-C 5923.

Describe what data demonstrates the need for this project, if any. Describe the data to be collected to demonstrate the impact of this project on the population served. Describe the data reporting plan and how the NH Bureau of EMS will be included in it.

Documentation

The EMS Provider may at any time, using their own discretion, decide to activate the 911 system for emergency treatment and transport to appropriate care.

Electronic patient care reports of all community healthcare patient encounters must be submitted to the requesting medical practice according to policies developed in coordination between the EMS Unit, MRH, collaborating home health agency and medical practice. Copies of these records shall be maintained by the EMS Unit, and be available for review by the NHBEMS.

The EMS Unit will participate in electronic data collection as required by the NHBEMS.

Medical Direction

Must establish a collaborative working relationship between the EMS Physician Medical Director or designee, who will be responsible for operations and continuous quality improvement, and a primary care provider providing medical direction for MIH services.

7.3 Rapid Sequence Intubation (RSI)

PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY

This procedure is only to be used by paramedics who are trained and credentialed to perform RSI by the NH Bureau of EMS. 1 RSI paramedic **AND** 1 RSI assistant or non-RSI paramedic must be present.

INDICATION:

- Immediate, severe airway compromise in the adult patient in the context of trauma, drug overdose, status seizures etc., where respiratory arrest is imminent and other methods of airway management are ineffective.

PROCEDURE: THE SEVEN P'S

PREPARATION "SOAPME": T minus 5 minutes.

- Suction set up.
- Oxygen: 100% non-rebreather mask, with bag-valve mask ready.
- Airway : ETT (check cuff), Stylet, BVM.
- Pharmacology: IV/Medications drawn .
- Monitor: Cardiac / O₂ saturation/ ETCO₂ .
- Equipment: Laryngoscope / Blades / Suction / Bougie / Back-up devices.

PREOXYGENATION: T minus 5 minutes .

- When possible, use a non-rebreather mask for at least 3 minutes to effect nitrogen washout and establish an adequate oxygen reserve. In emergent cases, administer 8 vital capacity bag-valve-mask breaths with 100% oxygen.
- Apply nasal cannula with oxygen regulator turned up to its fullest capacity, (nasal cannula should remain in place until endotracheal tube is secured).

PREMEDICATION: T minus 3-5 minutes.

- Consider lidocaine. (1.5mg/kg) for patients with suspected increased intracranial pressure (ICP) (e.g., traumatic brain injury, seizures, suspected intracranial hemorrhage).
- Consider atropine 0.5mg IV for bradycardia.

PARALYZE AND SEDATE: T minus 45 seconds.

- Etomidate 0.3mg/kg IV; maximum 40mg. **OR**
- Ketamine 2 mg/kg IV.
- If Etomidate or Ketamine is not available:
 - Midazolam 0.2 mg/kg IV; 0.1mg/kg IV for patients in shock.
- Succinylcholine 1.5mg/kg IV immediately after sedation (maximum 200mg).
- For patients with contraindications to succinylcholine:
 - Rocuronium 1mg/kg IV **OR**
 - Vecuronium 0.1mg/kg IV.

PASS THE TUBE: T minus 0 seconds.

- Observe for fasciculations approximately 90 seconds after succinylcholine to indicate imminent paralysis.
- After paralysis is achieved, follow the procedure outlined in Procedure: [Orotracheal Intubation 5.6](#) to place the ETT.

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Prerequisite Protocol 7.3



SUCCINYLCHOLINE CONTRAINDICATIONS:

- Extensive recent burns or crush injuries > 24 hours old.
- Known or suspected hyperkalemia.
- History of malignant hyperthermia.

Protocol Continues

7.3 Rapid Sequence Intubation (RSI)



PARAMEDIC - PREREQUISITES REQUIRED - Continued

PROOF OF PLACEMENT

- Assess for proper placement by following the procedure outlined in Procedure: [Orotracheal Intubation 5.6](#).

POST INTUBATION CARE

Sedation:

- Midazolam 2 – 5 mg IV, every 5 – 10 minutes as needed **OR**
- Lorazepam 1 – 2mg IV, every 15 minutes as needed for sedation (maximum: 10mg) **AND**
- Fentanyl 50 – 100 micrograms IV.

Paralysis (via on-line **Medical Control** only):

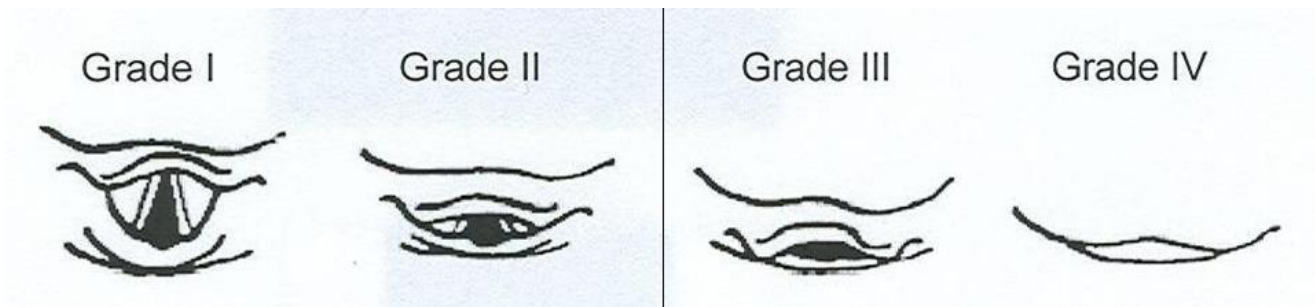
- Vecuronium 0.1mg/kg IV **OR**
- Rocuronium 1mg/kg IV.

DOCUMENTATION

- Each attempt at passing an ETT should be documented as a separate procedure of "Rapid Sequence Intubation". The procedure should include the provider and time for each separate attempt. **DO NOT** also document a second procedure of "oro-tracheal intubation" as this will constitute double documentation of the intubation process. In this case, the procedure of RSI counts as the passing of the ETT itself.
- All medications administered should be documented, including the time and provider who administered them.
- Follow all other required documentation outlined in Procedure: [Orotracheal Intubation 5.6](#).



If failed airway and unable to ventilate consider [Cricothyrotomy Protocols 5.2 OR 7.4](#).



Classifications for Laryngoscopy Views

Surgical Cricothyrotomy

Bougie Assisted — ADULT

Written notification will be provided to the Medical Resource Hospital's EMS Medical Director, Hospital EMS Coordinator, and Bureau of EMS within 48 hours of an event. Use of this procedure documented under "Procedures Used" in the Patient Care Report constitutes notification of the Bureau of EMS.

PARAMEDIC - PREREQUISITE REQUIRED— ADULT

INDICATIONS:

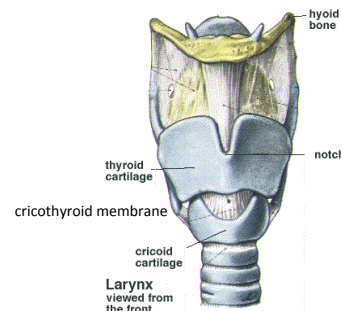
Inability to adequately oxygenate and ventilate using less invasive methods

CONTRAINDICATIONS:

- Ability to oxygenate and ventilate using less invasive measures
- Age less than 12 years old

EQUIPMENT:

- Chlorhexidine
- #10 blade scalpel
- Bougie
- 6.0 mm endotracheal tube
- 10ml Syringe
- BVM
- Quantitative ETCO₂



P

PROCEDURE:

1. Position the patient supine and extend the neck as needed to improve anatomic view.
2. Prep neck with Chlorhexidine
3. Using your non-dominant hand, stabilize the larynx and locate the following landmarks: thyroid cartilage (Adam's apple) and cricoid cartilage. The cricothyroid membrane lies between these cartilages.
4. Make an approximately a 3cm vertical incision 0.5cm deep through the skin and fascia, over the cricothyroid membrane. With finger, dissect the tissue and locate the cricothyroid membrane.
5. Make approximately a 1.5cm horizontal incision through the cricothyroid membrane.
6. With your finger, bluntly dilate the opening through the cricothyroid membrane.
7. Insert the bougie curved-tip first through the incision and angled towards the patient's feet.
8. Advance the bougie into the trachea feeling for "clicks" of tracheal rings and until "hangup" when it cannot be advanced any further. This confirms tracheal position.
9. Advance a 6.0 mm endotracheal tube (ensure all air aspirated out of cuff) over the bougie and into the trachea.
10. Remove bougie while stabilizing ETT ensuring it does not become dislodged
11. Inflate the cuff with 5 – 10ml of air.
12. Confirm appropriate proper placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask, condensation in the ETT, and quantitative waveform capnography.
13. Secure the ETT.
14. Reassess tube placement frequently, especially after movement of the patient.
15. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.

Purpose

To provide a process for identification, assessment, management, and reporting of patients who are suspected of having been abused, neglected, and/or exploited. This includes physical, sexual or emotional abuse, neglectful acts or omissions by self or others, and/or the illegal use of an incapacitated adult's person or property for profit or advantage.

Scene Safety

Maintain a heightened awareness of scene safety. Family members or caregivers may exhibit anger; family member or caregiver may be the perpetrator.

Procedure for Assessment

- Provide emotional support and comfort.
- Treat and document assessment findings using appropriate medical treatment protocols without causing undue emotional trauma.
- Limit physical contact with patient to that which is required to perform assessment and treatment.
- Interview patient in a calm, respectful, and private manner, while observing for:
 - Mental status.
 - Inappropriate fears or atypical reaction to situation.
 - Avoidance behaviors.
 - Inappropriate interaction with caregiver, parent, or spouse.
- Do not interrogate, accuse, or otherwise address specifics of abuse or neglect to patient, caregiver, parent, or spouse.
- Obtain pertinent history relating to presenting injuries or illness.
- Document verbatim any patient statements of instances of rough handling, sexual abuse, alcohol/drug abuse, verbal or emotional abuse, isolation or confinement, misuse of property, threats, and gross neglect such as restriction of fluids, food, medications, or hygienic care.
- Note any potential indicator of an abusive or neglectful circumstance or environment:
 - Unsolicited history provided by the patient.
 - Delay in seeking care for injury or illness.
 - Injury inconsistent with history provided, the patient's developmental abilities, or mobility potential.
 - Conflicting reports regarding injury from the patient, caregiver, parent, or spouse.
 - Patient unable, or unwilling, to describe mechanism of injury.
 - Injuries in unusual locations, (e.g., genital area).
 - Multiple fractures, bruises or other injuries in various stages of healing.
 - Scald burns with demarcated immersion lines without splash marks.
 - Scald burns involving anterior or posterior half of extremity.
 - Scald burns involving buttocks or genitalia.
 - Burns or injuries consistent with cigarette burns, rope burns, or other identifiable patterned markings.
 - Patient confined to restricted space or position.
 - Pregnancy or presence of sexually transmitted disease in child or vulnerable adult.
 - Problems with living conditions and environment.

Special Considerations

- Contact law enforcement.
- According to NH laws, any and all cases of suspected abuse, neglect, or exploitation of children or adults must be reported. This applies even in cases when the patient is not transported.
- If a parent/guardian refuses treatment of a minor child or an incapacitated adult whom you feel needs medical attention, contact law enforcement immediately.
- Written documentation is vital because the "story" often changes as investigation proceeds.

Policy Continues 

8.0

Abuse and Neglect

Child, Elder, Incapacitated Adults, or Other Vulnerable Individuals

Policy Continued

Reporting Procedures

Child Abuse*

Report suspected child abuse immediately

- Call Child Abuse Report Line, 800-894-5533 or (603) 271-6556 between the work hours of 8:00 am to 4:30 pm, Monday through Friday.
 - Call local police department during non-work hours and holidays and follow up with a telephone call to the Child Abuse Report Line during work hours.
 - Informing hospital personnel or involving law enforcement does not fulfill legal reporting responsibilities in accordance with state law.
 - Do not send reports of suspected child abuse by email.

* Responsibility for reporting child abuse and protection from liability for such reporting is established by the NH Child Protection Act, Chapter 169-C.

Abuse to Elders and Incapacitated Adults**

- Report suspected adult abuse immediately
- Call the Bureau of Elderly & Adult Services at 800-949-0470 between the work hours of 8:00 am to 4:30 pm, Monday through Friday, for adults in any of the following situations when suspected incident occurred:
 - Independent living situation (own home or apartment, home or apartment of friends or relatives, boarding home, or no fixed address).
 - Homes or programs affiliated with the Bureau of Behavioral Health or the Bureau of Developmental Services.
 - Hospital or rehabilitation center.

Call the Office of the Long-Term Care Ombudsman at 800-422-5640 or 603-271-4375 between the work hours of 8:00 am to 4:30 pm, Monday through Friday, for adult residents of nursing or assisted living facilities.

Call the local police department during non-work hours and holidays and follow up with a telephone call to the Bureau of Elderly & Adult Services or Office of Long-Term Care Ombudsman during work hours.

**Responsibility and protection from liability for reporting an incapacitated adult or an adult who has been subjected to abuse, neglect, self-neglect or exploitation, or is living in hazardous conditions is established by the NH Elderly and Adult Services Act Chapter 161-F:42 & F:46.

EMS personnel may request Air Medical Transport (AMT) when operational conditions exist and/or the indicated clinical conditions are present.

The use of AMT is determined by the prehospital provider with the highest medical level providing patient care. It should not be determined by police or bystanders.

AMT does not require approval of on-line Medical Control. However, if in doubt of the appropriateness of a patient for AMT, please contact Medical Control as soon as possible.

Operational Conditions

- When a patient meets the defined clinical criteria listed below and the ground transport time to the closest hospital capable of providing definitive care (e.g., Level I or 2 trauma hospital, PCI center, stroke center) exceeds the ETA of air medical transport, **OR**
- Patient location, weather, or road conditions preclude the use of ambulance, **OR**
- Multiple patients are present that will exceed the capabilities of local hospital and agencies.

Clinical Conditions

- Severe respiratory compromise with respiratory arrest or abnormal respiratory rate.
- Circulatory insufficiency: sustained systolic blood pressure <90mmHg in both children and adults or other signs of shock.
- Neurologic compromise: total GCS \leq 13, or motor component <5. If the patient's neurologic status improves above these limits, consider canceling the helicopter and transporting to the local hospital.
- Trauma: All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee; chest wall instability or deformity (e.g., flail chest); two or more proximal long-bone fractures; crushed, degloved, mangled, or pulseless extremity; amputation proximal to wrist or ankle; pelvic fracture; open or depressed skull fracture; paralysis.
- Major burns with greater than 20% BSA and/or inhalation injury with risk of airway compromise.
- Electrocution injuries with loss of consciousness, arrhythmia, or any respiratory abnormality.
- STEMI: If 12-lead ECG indicates a STEMI (e.g., machine reads *****Acute MI Suspected***** and/or Paramedic interpretation), per your local STEMI plan.
- Stroke: 1 or more abnormal signs of the stroke scale; per local stroke plans.
- Critically ill children, including those with chronic and/or special healthcare needs.

Additional Notes

- Patients with an uncontrolled airway or uncontrollable hemorrhage should be brought to the nearest hospital unless advanced life support (ALS) service (by ground or air) can intercept in a more timely fashion.
- AMT is **NOT** indicated for patients in cardiac arrest. Should the patient go into cardiac arrest after AMT request the AMT crew may be utilized for resuscitation and stabilization.



AMT is **NOT** indicated for a contaminated patient until **AFTER** decontamination.

AMT may be indicated in a wide range of conditions other than those listed above. In cases where the patient's status is uncertain, **consult with Medical Control** and proceed as directed.

- Transfers from ground-ambulance to air-ambulance shall occur at the closest appropriate landing site, including a hospital heliport, an airport, or an unimproved landing site deemed safe per pilot discretion. In cases where a hospital heliport is used strictly as the ground-to-air ambulance transfer point, no transfer of care to the hospital is implied or should be assumed by hospital personnel, unless specifically requested by the EMS providers.

8.2 Bariatric Triage, Care & Transport

Purpose: This policy provides guidance for providers concerning the triage, extrication, care and transport for bariatric patients. The New Hampshire EMS system strives to provide all patients, including bariatric patients, with timely and effective care that preserves the comfort, safety and dignity of the patients and ensures the safety of providers. At times, even a single patient can exceed the capacity of the immediately available resources. Like a multi-system trauma patient, a bariatric patient requires:

- Appropriate EMS resources to respond
- Appropriate protocols and equipment for the provision of care
- Specialized equipment for transfer to the ambulance and transport
- Careful selection of the appropriate destination hospital
- Pre-alerting of the ED to ensure adequate resources to manage the patient

On scene times may be significantly extended for bariatric patients.

Equipment

- Deployment of equipment and procedures shall be done under local or regional operating guidelines.

Definitions

A bariatric patient is a patient:

- Weight exceeds 400 pounds OR
- **Weight, girth, body contours and/or co-morbidities** challenge the ability of a two person EMS crew to effectively manage.

Dispatch

Bariatric Ambulance: Based on dispatch information or previous planning, consider requesting a bariatric transport ambulance to respond to the scene. The arrival onscene of a bariatric ambulance may require between 30 and 90 minutes, and should be requested as soon as it becomes clear that bariatric capabilities may be required. The State of New Hampshire has 10 bariatric equipment caches (1 per county) While standard ambulance stretchers can potentially handle some patients up to 750 pounds or more, the use of a specialized bariatric stretcher increases the ability to provide effective care, is more comfortable for the patient and enhances provider safety.

Additional Manpower: Consider requesting additional responders. In general, bariatric patients should be moved with a minimum of personnel. Larger bariatric patients may require additional personnel to participate in moving the patient. For significant extrications, consider designating a Safety Officer to oversee the safety of the operation in conjunction with Incident Command. It may be necessary to remove doors, walls or windows to carry out a safe extrication. The priorities are similar to extrication from a vehicle, although fixed property repair costs might be higher.

Paramedic: Consider requesting a paramedic. Even BLS bariatric patients present unique treatment challenges which may benefit from a higher level of care.

Medical Care

Medical care must take into account the unique challenges presented by the bariatric patient as well as the likelihood of extended on-scene times. Providers should use appropriately sized equipment to the extent it is available or can be readily obtained. For example, an appropriately sized blood pressure cuff will need to be used and intramuscular injection will be given with a longer needle.

If there are significant barriers to removing the patient from the structure in a timely manner (long narrow stairs, patient in the attic, etc.), there may be situations where EMS will provide extended care to the patient at the scene. In such cases, consult Medical Control and consider use of the extended care protocols.

Policy Continues 

Bariatric Triage, Care & Transport 8.2

Policy Continued

Transfer to Ambulance

Specialized equipment will be needed to transfer the patient safely from the scene to the ambulance stretcher for transport. If a bariatric equipment cache is utilized, both the bariatric ambulance and cache equipment needs to be dispatched.

Many services utilize large transfer flats for moving bariatric patients. Be sure before you use any patient transfer device that you understand the procedure for using it safely and that you know the weight limits of the device.

Hospital Destination

Ensure that you select a destination hospital that has the capabilities to care for your patient. Bariatric patients may require specialized hospital stretchers, CT scanners, catheterization laboratory equipment, operating room equipment, etc. It may be appropriate to bypass a local hospital to take the patient to a facility with the capabilities to properly care for the patient. This may even be appropriate in the case of life threatening emergencies if the closer emergency department does not have needed equipment.

Pre-notification serves both to ensure that the hospital is capable of caring for the patient and allows hospital staff time for adequate preparation. Communication with the hospital shall be in a professional manner. Respect for the patient's privacy and feelings will match the respect for all EMS patients.

Transport to the Hospital

A bariatric stretcher should be used to transport the patient to the hospital and equipment cache transfer devices may be utilized to facilitate transfer of the patient to the hospital stretcher. Be alert to ensure that the stretcher is adequately secured in the patient compartment. Transfer flats or other specialized transfer equipment may be left in place to facilitate transfer of the patient to the hospital stretcher.

Policy 8.2

PEARLS

- It may be difficult to establish IV and IO access. Consider intramuscular or intranasal as alternatives for some medications. For IM, ensure that the needle used is sufficiently long.
- Weight-based calculations may yield inappropriately large doses in obese patients. Consult with medical control when in doubt.
- Bariatric patients often have decreased functional residual capacity, and are at risk of rapid desaturation. Extremely obese individuals require more oxygen than non-obese individuals due to their diminished lung capacity. Pulse oximetry may not be reliable due to poor circulation. Even patients without respiratory distress may not tolerate the supine position.
- Bariatric patients may present with severe airway challenges. Carefully plan your approach to the airway, and be prepared with backup airway plans.
- If the patient has had recent bariatric surgery, possible complications may include anemia, dehydration, leakage, ulcers, localized infection, sepsis, etc.

8.3 Bloodborne/Airborne Pathogens

Blood Borne Pathogens

Emergency medical services personnel should assume that all bodily fluids and tissues are potentially infectious with bloodborne pathogens and must protect themselves accordingly by use of appropriate Body Substance Isolation (BSI) and approved procedures.

Transmission of bloodborne pathogens has been shown to occur when infected blood or Other Potentially Infectious Materials (“OPIM”) enter another individual’s body through skin, mucous membrane, or parenteral contact.

Screen symptomatic patients for out of country travel within the past 21 days, or close contact with another symptomatic individual who has recently traveled out of the country. Provide early notification to receiving hospital.

Body Substance Isolation (BSI) procedures

- BSI procedures include using protective barriers (such as gloves, masks, goggles, etc.), thorough hand washing, and proper use and disposal of needles and other sharp instruments.
- Centers for Disease Control and Prevention Guidelines for hand hygiene include:
 - When hands are visibly dirty, contaminated, or soiled, wash with non-antimicrobial or antimicrobial soap and water.
 - If hands are not visibly soiled, use an alcohol-based handrub for routinely decontaminating hands.
- Personnel with any open wounds should refrain from all direct patient care and from handling patient-care equipment, unless they can ensure complete isolation of these lesions and protection against seepage.
- Personnel who are potentially at risk of coming into contact with blood or OPIM are encouraged to obtain appropriate vaccines to decrease the likelihood of transmission.

Exposure - Procedures and Considerations

- Personnel who have had a blood borne pathogen exposure should immediately flush the exposed area or wash with an approved solution. At a minimum, use warm water and soap.
- The exposed area should then be covered with a sterile dressing.
- As soon as possible, or after transfer of patient care, the EMS provider should thoroughly cleanse the exposed site and obtain a medical evaluation by the medical advisor as dictated by their department’s Exposure Control Plan and/or Workers Compensation policy.

Airborne Pathogens

- Emergency medical services personnel should assume that all patients who present with respiratory distress, cough, fever, or rash are potentially infectious with airborne pathogens and must protect themselves accordingly by use of appropriate Airborne Personal Protective Equipment (APPE), Body Substance Isolation (BSI), and approved procedures.
- Screen symptomatic patients for out of country travel within the past 21 days, or close contact with another symptomatic individual who has recently traveled out of the country. Provide early notification to receiving hospital.

Policy Continues 

Bloodborne/Airborne Pathogens 8.3

Policy Continued

Airborne Personal Protective Equipment (APPE)

- The preferred APPE for EMS personnel is an N95 mask, to be worn whenever a patient is suspected of having any communicable respiratory disease.
- The N95 mask should be of the proper size for each individual provider, having been previously determined through an annual fit-test procedure.
- A surgical mask should also be placed on suspect patients, if tolerated. If oxygen therapy is indicated, a surgical mask should be placed over an oxygen mask to block pathogen release. This will require close monitoring of the patient's respiratory status and effort.

Pre-hospital - Procedures and Considerations

- Early notification to the receiving hospital should be made such that the receiving hospital may enact its respective airborne pathogen procedures.
- Limit the number of personnel in contact with suspected patients to reduce the potential of exposure to others.
- Limit procedures that may result in the spread of the suspected pathogen, (e.g., nebulizer treatments), if feasible.
- Utilize additional HEPA filtration on equipment, (e.g., BVM or suction).
- Exchange of fresh air into the patient compartment is recommended during transport of a patient with a suspected airborne pathogen.
- EMS providers who believe they have been exposed to an airborne pathogen may proceed as above in getting timely medical care. The Patient Care Report enables hospital infection control staff to contact at-risk EMS personnel, should that patient be found to have a potential airborne pathogen such as tuberculosis, neisseria meningitis, SARS, etc.

Decontamination and Follow-up

- In addition to accepted procedures for cleaning and disinfecting surfaces and equipment with approved solutions and for the proper disposal of contaminated items, the use of fresh air ventilation should be incorporated (e.g., open all doors and windows to allow fresh air after arrival at the hospital).
- All personnel in contact with the patient should wash their hands thoroughly with warm water and an approved hand-cleansing solution. When soap and water are not immediately available, a hand sanitizer containing 60% isopropyl alcohol is recommended as an interim step until thorough hand washing is possible.
- Contaminated clothing should not be brought home by the employee for laundering, but laundered in a department provided washer or by other uniform cleaning arrangements.
- Ambulances equipped with airborne pathogen filtration systems should be cleaned and maintained in accordance with the manufacturer's guidelines.
- As soon as possible following all suspected blood borne or airborne exposures, the EMS provider should complete all appropriate documentation as identified in their department's specific policies, including Worker Compensation Notice of Accidental Injury or Occupational Disease 8aWCA form and the Emergency Response/Public Safety Worker Incident Report Form.

EMS providers transporting status I, II, or III patients (see [Status Determination 8.11](#)) should advise the receiving hospital, in a timely manner, of patients en route to that Emergency Department (except in Mass Casualty Incidents (MCI) during which routine communications cease).

An EMS provider may establish contact with a Medical Control physician via VHF radio on one of the assigned medical frequencies, via telephone direct to each Department's recorded EMS line, or via telephone patch through the Resource Coordination Center. If a Medical Control physician is needed for consultation, request this before giving patient information. It is recommended that all medical communications be recorded.

VHF Medical Frequencies

- Initiate call to the appropriate hospital and identify:
 - Destination hospital.
 - Ambulance unit calling.
 - Status of the patient.

Telephone

- To contact the destination hospital via telephone, use of a direct-recorded line to the Emergency Department is recommended.
- Request Medical Control, if needed, give the name of the patient, his or her age, status, and complaint.

Upon establishing voice communication with the destination hospital/medical control physician (if needed), present the following information in a concise and clear manner:

- Emergency response unit and level of care: Paramedic/AEMT/Basic, with ETA.
- Patient's age, sex, and status level.
- Patient's chief complaint.
- Patient's present medical condition.
- Patient's vital signs, including level of consciousness.
- Patient's physical signs of illness or injury.
- Patient's electrocardiogram rhythm, if indicated.
- Patient's relevant medical history.
- Prehospital diagnostic tests performed/results and treatment rendered/results.

Give a list of medications and allergies only if requested by the destination hospital, or if it is anticipated that a medication order would be given by Medical Control.

In case of a communications failure with Medical Control due to equipment (cell phone, landline, radio, IHERN) malfunction or incident location, the following will apply:

- EMS personnel may, within the limits of their license, perform necessary ALS procedures that under normal circumstances would require a direct physician order.
- These procedures shall be the minimum necessary to prevent the loss of life or the critical deterioration of a patient's condition.
- All procedures performed under this order, and the conditions that created the communications failure, need to be thoroughly documented.
- Attempts must be made to establish contact with Medical Control as soon as possible.
- The EMS provider shall provide a written notification pertaining to the communications failure describing the events, including the patient's condition and treatment given, and referencing the EMS Incident Report. This report must be filed with the Medical Resource Hospital's EMS Medical Director and/or Hospital EMS Coordinator within 48 hours of the event.

8.6 Consent for Treatment of a Minor

A “minor” is a person who has not yet reached his/her eighteenth birthday.

Note that the legal definition of a “minor” for purposes of consent is unrelated to the medical definitions of “pediatric patient,” “child,” and “children,” as used in these protocols.

Under RSA 153-a:18, EMS personnel may treat minors under the doctrine of implied consent when the minor’s parent or other authorized representative is unavailable to provide expressed consent. With the exception of life-threatening emergencies, personnel should attempt to contact the minor’s parent or legal guardian to obtain informed consent to treat and transport the child. When a parent or legal guardian is unavailable, another authorized representative (e.g., a school or camp official), who has been expressly authorized by the minor’s parent, may consent to health care treatment.

A parent or legal guardian may refuse care for a minor:

- When a parent or legal guardian is not reasonably available, another adult family member (e.g., grandparent), or other authorized representative having custody of the minor, may refuse care.
- EMS personnel may accept a telephonic refusal of care, provided that they have explained the consequences of refusing care; telephonic refusal of care should be carefully documented.

Except for the special circumstances listed below, a minor may not refuse care. When a minor attempts to refuse care and/or transport to the hospital, EMS personnel should enlist the assistance of the police, including requesting that the police place the minor in protective custody. Minors should be restrained only as a last resort.

Special Circumstances

- A minor parent who has not yet reached his/her eighteenth birthday may consent to or refuse care on behalf of his or her minor children, provided that the minor parent has the capacity to understand the nature of the treatment and the possible consequences of consenting to or refusing care.
- Any patient 14 years of age or older does not need parental consent for treatment of sexually transmitted diseases ([RSA 141-C:18](#)).
- Any patient 12 years of age or older may voluntarily submit to a healthcare facility for drug dependency or any problem related to drugs (see [RSA 318-B:12-a](#)).
- An emancipated minor may consent to, or refuse health care. A minor patient bears the burden of establishing, by legal documentation or otherwise, that he/she is emancipated. New Hampshire recognizes emancipation decrees issued by other states.
- An adolescent patient under the age of 18 must give his/her consent for a sexual assault forensic exam ("Sexual Assault: An Acute Care Protocol for Medical/Forensic Evaluation", Office of the NH Attorney General, Sixth Edition, 2011). Adolescents with no life threatening injuries may be hesitant to seek medical attention after a sexual assault. Other reasons for transport to hospital include prophylactic treatment for sexually transmitted disease or pregnancy and drug/alcohol screening which is crucial for possible prosecution. If unable to convince patient to seek emergency care at a hospital, contact **Medical Control** and request assistance from a hospital-based advocate or from the local crisis center.



Crime Scene Preservation of Evidence

8.7

If you have been dispatched to a possible crime scene, including motor vehicle incidents, or if you believe a crime has been committed, immediately contact law enforcement.

Protect yourself and other EMS personnel. You will not be held liable for failing to act if a scene is not safe to enter. Once a crime scene is deemed safe by law enforcement, initiate patient contact and medical care if necessary.

- Have all EMS providers use the same path of entry and exit, if feasible.
- Do not walk through fluids.
- Do not touch or move anything at a crime scene unless it is necessary to do so for patient care (notify law enforcement prior to moving so if possible).
- Observe and document original location of items moved by crew.
- When removing patient clothing, leave it intact as much as possible.
 - Do not cut through clothing holes made by gunshot or stabbing.
- If you remove any items from the scene, such as impaled objects or medication bottles, document your actions and advise a law enforcement official.
- Do not sacrifice patient care to preserve evidence.
- Consider requesting a law enforcement officer to accompany the patient in the ambulance to the hospital.
- Document statements made by the patient or bystanders on the EMS patient care report.
 - Comments made by a patient or bystanders should be denoted in quotation marks.
- Inform staff at the receiving hospital that this is a “crime scene” patient.
- If the patient is obviously dead consistent with Special Resuscitation Situations & Exceptions Policy, notify law enforcement of decision not to initiate resuscitation/patient care.
- At motor vehicle incidents, preserve the scene by not driving over debris, not moving debris and parking away from tire marks, if feasible.

Recognized DNR Options in New Hampshire

1. The following are the only recognized DNR options in New Hampshire:
“P-DNR” (portable DNR) order: statewide recognized document of any color and/or a “DNR” (Portable DNR) wallet card signed by a physician or APRN.
2. Medical orders form documenting the patient’s name and signed by a physician or APRN and that clearly documents the DNR order.
3. DNR bracelet or necklace worn by a patient, inscribed with the patient’s name, date of birth (in numerical form), and “NH DNR” or “NH Do not resuscitate.”

Note: Under state law, a DNR bracelet or necklace may only be issued to patients who have a valid DNR order.

Note: Neither a Living will or a Durable Power of Attorney for Healthcare (DPOAH) form is as effective as a valid DNR order. A patient’s healthcare agent under a DPOAH may not direct EMS providers to withhold resuscitation in the absence of a valid DNR Order.



When a written DNR order is not available and a DPOAH is present and requests that resuscitation be withheld, contact online **Medical Control** for guidance.

For patients present or residing in a healthcare facility, the following is also acceptable

A DNR order written by a physician or APRN at a nursing home, hospital, or other healthcare facility issued in accordance with the healthcare facility’s policies and procedures.

For Patients Being Transferred

All forms of DNR identified above remain valid during a transfer from one healthcare facility to another.

DNR Orders from Other States

EMS providers should honor any DNR order that is substantially similar to the NH statutory form. Medical orders from other states must be signed by a physician or APRN that clearly documents a DNR order.

Revocation of a DNR Order

The following are the only recognized methods for revoking a DNR order:

Patients residing at home

- A patient residing at home may revoke a DNR order by destroying the DNR order and removing a DNR bracelet or necklace.
- If the patient lacks the capacity to make health care decisions, the patient’s healthcare agent (under a DPOAH—see below) may revoke the DNR order by destroying the DNR order and removing any DNR bracelet or necklace.

Patients residing in a healthcare facility

- A patient in a healthcare facility may revoke his or her previous consent to a DNR order by making a written, oral, or other act of communication to the attending physician or APRN or other professional staff of the healthcare facility.
- For a patient who lacks the capacity to make health care decisions, the patient’s healthcare agent (under a DPOAH—see below) may revoke a DNR order by notifying the attending physician or APRN in writing or, if a witness over the age of 18 is present, orally.

Policy Continues

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Procedures not to be Performed

If there is a valid DNR order and the patient is in cardiac or respiratory arrest, or cardiac or respiratory arrest is imminent, EMS providers should withhold the following procedures:

- Do not perform chest compressions or actively assist ventilations via BVM.
- Do not intubate or place advanced airway devices.
- Do not defibrillate.
- Do not administer resuscitation drugs to treat cardiac arrest or the rhythms identified below:
 - Ventricular fibrillation.
 - Pulseless ventricular tachycardia.
 - Pulseless electrical activity.
 - Asystole.

Procedures that may be performed

If the patient is not in imminent cardiac or respiratory arrest, and has a valid DNR order appropriate medical treatment for all injuries, pain, difficult or insufficient breathing, hemorrhage, and/or other medical conditions must be provided.

EMS providers **MAY** perform any other measures, including comfort measures, for these patients, within their scope of practice per the usual treatment guidelines, including but not limited to:

- Oxygen therapy via nasal cannula, non-rebreather mask, and/or CPAP.
- Medications for treatment of pain, respiratory distress, dysrhythmias (except for those identified above).
- Intravenous fluid therapy for medication access.
- Mouth or airway suctioning.

NH statutory DNR Form

Do not resuscitate Order.

As attending physician or APRN of [patient's name here] and as a licensed physician or advanced practice registered nurse, I order that this person **SHALL NOT BE Resuscitated** in the event of cardiac or respiratory arrest.

This order has been discussed with [patient's name here] (or, if applicable, with his/her agent,) [name of DPOAH], who has given consent as evidenced by his/her signature below.

Attending physician or APRN name: _____

Attending physician or APRN signature: _____

Address: _____

Patient signature: _____

Address: _____

Agent signature (if applicable): _____

Address: _____

Policy Continues



Policy Continued

Durable Power of Attorney for Healthcare

Under a Durable power of attorney for healthcare, a patient may designate another person—a healthcare agent—to make health care decisions for the themselves.

- Before a healthcare agent may make decisions on behalf of the patient, the patient's attending physician or APRN must certify in writing that the patient lacks capacity (this certification is filed within the patient's medical record).
- A patient who, in the clinical judgment of the EMS provider, retains the capacity to make health care decisions, shall direct his or her health care, even where a healthcare agent has been appointed. That is, EMS providers shall follow the wishes of the patient rather than the healthcare agent unless the patient lacks the capacity to make health care decisions.
- The healthcare agent must make an informed decision. It is generally advisable for EMS providers to perform at least a preliminary assessment and inform the healthcare agent of the options for caring for the patient.



Note: in the absence of a valid DNR order, a healthcare agent does not have the authority to direct prehospital providers to withhold resuscitation in the event of a cardiac arrest. When a written DNR order is not available and a DPOAH is present and requests that resuscitation be withheld, contact online **Medical Control** for guidance.

Living Will

A living will is intended to address patients who have been admitted to a healthcare facility. Living wills will rarely, if ever, have application in the prehospital environment.

POLST (Provider Orders for Life-Sustaining Treatment)**Section A**

When patients are in cardiac arrest and have indicated they do not want resuscitation in Section A but do not have a valid DNR, contact **Medical Control** for guidance.

Section B

When confronted with a seriously ill patient who is not in cardiac arrest and a POLST form (yellow form), see [POLST Appendix A5](#) is available, utilize as follows:

- Full Treatment box is checked: Use all appropriate measures to stabilize/resuscitate patient.
- Limited Interventions box is checked: The maximum airway interventions are non-rebreather mask, CPAP, and suctioning. All appropriate IV medications may be utilized. No electrical therapies are to be provided.
- Comfort-focused Care box is checked: The maximum airway interventions are non-rebreather mask, suctioning and treatment of airway obstruction, as needed. Medications to relieve pain or discomfort.

PEARLS:

- You must have a valid DNR order or DNR jewelry. Neither a Durable Power of Attorney or a Living Will may be treated as a DNR order.
- Neither a spouse nor a healthcare agent / durable power of attorney may direct you not to perform resuscitation unless the patient has a valid DNR order.
- Your decision to withhold resuscitation is protected under the New Hampshire DNR law as long as it is based on the good faith belief that you have been presented with a valid DNR order or DNR jewelry.

Left Ventricular Assist Device (LVAD)

8.9

Policy 8.9

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

PURPOSE

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

Highlights of Assessing and Treating and LVAD Patient

- Recognize that you have a patient with a LVAD.
- Consult family/caregiver and telephone LVAD coordinator for guidance.
- Determine if your patient has a 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 a LVAD patient.
- Patients with a LVAD should almost never be pronounced dead at the scene.

Overview of a 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 a 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 LVADs Work

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!

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Left Ventricular Assist Device (LVAD)

Protocol Continued

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

Assessing the LVAD Patient

1. Recognize you have a 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 a LVAD problem, or a patient with a medical problem who just happens to have a 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 a 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 a LVAD patient, even if they are very stable.

6. Vitals:

- Pulse: Generally, you will be unable to feel a pulse.
- Blood Pressure: Not Reliable: you may or may not be able to obtain one, standard readings often varying widely from attempt to attempt, and correlation to systemic pressures is unreliable, even with consistent readings in the "normal" range.
- 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!

Protocol Continues

Left Ventricular Assist Device (LVAD)

8.9

Protocol Continued

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

7. LVAD patients can remain stable and experience a range of ECG rhythms that could be dangerous or fatal in another patient.

8. Remember blood sugar and stroke assessment, particularly for an altered mental status.

Treating the LVAD Patient

Generally, treatments for a LVAD patient will follow the current NH EMS Protocols. However, there are a few special considerations to keep in mind:

1. Don't let the LVAD distract you from treating the patient!
2. The best medical resource available to you for LVAD related problems is the patient's VAD coordinator. The patient will have a contact sheet for the VAD coordinator with them at all times. Contact the VAD coordinator as soon as possible.
3. Pump has stopped: Battery problems are a common cause for a pump to stop (battery dead, not seated properly, or both taken out at once). This is unlikely to be immediately fatal unless a patient is in VF/VT when the pump stops. The patient is more likely to return to their baseline unstable CHF symptoms. Treat the symptoms and contact the VAD coordinator before restarting a pump that has been stopped longer than 1 – 2 minutes.
4. Sepsis and stroke are leading causes of death for LVAD patients. Keep this in mind when assessing and treating a patient with an altered mental status.
5. Treating ECG changes:
 - Use of ACLS medications, defibrillation and pacing is unchanged for LVAD patients. Follow standard AHA and protocol guidelines as appropriate.
 - An implanted defibrillator and/or a pacemaker may already be in place.
 - The continuous flow of the LVAD means potentially unstable or fatal ECG rhythms, may have minimal to no short-term effect on the cardiac output and stability. Treat ECG changes according to protocol.
6. Trauma: LVAD patients are always on anticoagulant medications. Keep this in mind when treating traumatic injuries. Even minor appearing chest or abdominal trauma, such as a seatbelt mark, could be hiding a very serious injury.
7. CPR: CPR should NOT be performed if there is ANY evidence the pump is still functioning. The decision whether to perform CPR should be made based upon best clinical judgment of the provider in consultation with the patient's family and the VAD coordinators (or medical control if VAD coordinator unavailable). In any event, CPR should be initiated only where:
 - a. You have confirmed the pump has stopped (by listening for pumps sounds) **AND** all trouble shooting efforts to restart it (connect wires, batteries, new control unit, etc.) have failed, **AND**
 - b. The patient is unconscious, unresponsive, and has no detectable signs of life (no pulse, no blood pressure, no pulse ox readings, or waveform capnography reading, **AND**
 - c. The patient does not have a valid DNR in place.

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EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

8. Patients should not be pronounced dead if LVAD continues to function, unless they have obvious factors of death such as decapitation, rigor mortis or dependent lividity.

Transport of the LVAD Patient

1. Patients without a LVAD problem should be transported to the closest appropriate hospital for their condition.

2. Patients with a LVAD should be transported to their VAD resource hospital, if possible. The local VAD resource centers are Catholic Medical Center in Manchester and Tufts Medical Center and Brigham and Women's Hospital in Boston. Check with your patient to see which hospital is their resource center.

When in doubt, transport to the closest hospital to access more transport resources and support.

3. Always bring the patient's resource bag with you. It should have spare batteries, possibly a spare control unit, contact sheets for the VAD coordinator and directions for equipment and system alarms.

4. Always bring spare batteries for the LVAD with the patient, even if it is not a LVAD problem (see # 3. above). Fresh batteries generally last 3-10 hours, depending on the battery style.

5. If you have a long transport or expect that the patient may be away from home for more than 4-5 hours, then try and bring the patient's power base unit.

- This is the big unit that can plug into the wall and power the patients control unit. It is often also the battery recharger.
- In some cases, you can ask the family to bring it to the hospital for you, but there may be times when you might need to bring this in the ambulance and plug it into the inverter and use it as the power source.

6. Use your patient and their family as a resource. They are experts about this device and can help you help them.

Recommended Unit Resource: Print EMS Guide for Mechanical Circulatory Support and place in all ambulances (20 pages). This guide has excellent information and trouble shooting guidance for the 5 LVAD devices that patients could have out in the public. Access the resource guide at: <http://www.mylvad.com/sites/mylvadrp/files/Field%20Guides%20Master%20Document.pdf>.

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On-Scene Medical Personnel

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- The medical care provided at the scene is the responsibility of the highest level of EMS provider who has responded by usual dispatch systems to that scene. Passersby who stop to help, even though possibly more highly trained than the system providers, may **NOT** assume responsibility (except as outlined below) but may be allowed to help in care at the discretion of the lead EMS provider assuming they have proof of licensure.
- When an EMS provider, under Medical Control (on- or off-line), arrives at the scene of an emergency, the provider acts as the agent of Medical Control, (i.e., the on-line physician is ultimately responsible).
- Any health care provider (MD, PA, RN, nurse midwife, EMS provider, etc.) who is not an active member of the responding EMS unit or the unit's medical director, and who is either at the scene at the time of the EMS unit's arrival or arrives after an EMS unit has initiated care, and who desires to assume primary patient care, should be put in touch with the on-line **Medical Control** physician and:
 - Continue to provide care during transport of the patient; or
 - Transfer patient care to another provider at the same licensing level for transport of the patient to a medical hospital/facility;
 - Document all advanced care procedures performed while rendering care, which shall include an emergency care provider's current license number assigned by the division; and
 - Submit all documentation to the unit in charge of the incident.
- Where a higher level provider offers to assist, but that assistance is declined by the lead responding agency, the higher level provider shall not have any responsibility or liability for the patient's care.

See Saf-C 5922.01 (c)



8.11 Patient Status Determinants

Determination of the patient's status should be based on the highest level of acuity during patient care.

Status I Critical (Patients with symptoms of a life-threatening illness or injury with a high probability of mortality (death) if immediate intervention is not begun to prevent further airway, respiratory, hemodynamic, and/or neurologic instability).

For Example:

- Cardiac arrest.
- Respiratory arrest.
- Patient unresponsive with abnormal vital signs.
- Severe and/or deteriorating respiratory condition.
- Pediatric non-responsive respiratory distress
- Decompensating Shock or Sepsis.
- Major trauma
- Uncontrolled bleeding.
- Status epilepticus.

Status II Emergent (Patients with symptoms of an illness or injury that may progress in severity or result in complications with a high probability for morbidity (increased illness or disability) if treatment is not begun quickly.

For Example:

- Moderate injury without shock or respiratory compromise.
- Major fractures without shock.
- Moderate dyspnea.
- Acute MI (STEMI Alerts/activation of cath lab if applicable).
- Stroke (Stroke Alerts/activation of stroke team if available).

Status III Lower Acuity (Patients with symptoms of an illness or injury that have a low probability of progression to more serious disease or development of complication.

For Example:

- Patient alert, vital signs within normal limits, and with simple uncomplicated injuries or medical complaints.
- Soft tissue injuries including minor burns.
- Extremity fractures and dislocations.
- Maxillofacial injuries without airway compromise.
- Asthma attack that has responded to bronchodilators.
- Status: post seizure.
- Psychological emergencies.

Status IV Non-Acute (EMS evaluation with no interventions provided)

For Example:

- Scheduled medical transport, e.g. dialysis or return home
- Public assists
- Medical alarm with false activation
- Good intent calls

Notes of Clarification

- Should a patient deteriorate in status while en route to a hospital, the unit may divert to the nearest hospital after consultation with **Medical Control** and notification of both the hospital of original destination and the new destination hospital.




PATIENT TRANSPORT

NH RSA 265:107-a requires all children up to 57 inches to be properly restrained in a safety seat or harness when riding in a vehicle. Any child who fits on a length-based resuscitation tape is 57 inches or less in height. 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.

CONVENTIONAL CAR SEATS

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 elevated to meet back of child safety seat.
- 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. Stretcher harness device with 5 point harness

Restraint device (marketed to EMS) with 5-point harness (examples: Ferno Pedi-Mate, SafeGuard Transport, ACR)

- 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. Secure belt at child's shoulder level so no gaps exists above shoulders.
- 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.

Follow manufacturer's guidelines regarding weight.



Policy Continues 

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3. 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 the 4 attachment sites supplied with car bed.
 - Only appropriate for infants from 5 – 20 lbs.



4. Properly secure isolette and infant according to manufacture's guidelines.
 - Blankets or towels may be used for additional stabilization

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 sea
- 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.

Purpose

The purpose of this policy is to give EMS guidance for patients who are in police custody, restrained, and/or protective custody is required.

Protective Custody

Protective custody is a civil status in which an incapacitated person is detained by a peace officer for the purposes of:

- (a) Assuring the safety of the individual or the public or both; and
- (b) Assisting the individual to return to a functional condition.

- Patients with evidence of suicidal ideation who refuse care may be placed into protective custody under [RSA 135C:28 III](#).
- Patients who present with an altered level of consciousness, diminished mental capacity, or evidence of impaired judgment from alcohol or drug use may be placed into protective custody under [RSA 172:B3](#).
- If law enforcement refuses to place a patient into protective custody at the request of EMS, on-line medical control must be contacted and a law enforcement supervisor should be requested for further guidance.

Police Custody

- Police custody for this policy, shall mean a person under arrest.
- Patients who EMS believe require medical care should be transported to a medical facility. If police and EMS disagree about whether a patient in police custody requires transport to a medical facility for further assessment or treatment, on-line medical control must be contacted and a law enforcement supervisor should be requested for guidance.

EMS Initiated Restraints

For any patient potentially requiring restraints by EMS, see the [Restraints Procedure 6.3](#).

Police Restraint Devices

Patients transported by EMS who have been restrained by law enforcement devices (e.g., handcuffs) should be accompanied, in the patient compartment, by a law enforcement officer who is capable of removing the device. If this is not feasible, the officer MUST follow directly behind the transporting ambulance to the receiving hospital.

Tasers® (Conductive Electrical Weapon)

Patients who have been subdued by a Taser device, see [Tasers Procedure 6.4](#).

Pepper Spray

Patients who have been subdued by pepper spray, see [Eye and Dental Protocol 4.2](#).

Excited Delirium

Excited/Agitated Delirium is characterized by extreme restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death, see [Restraint Procedure 6.3](#).

PURPOSE:

Establish guidelines for the management and documentation of situations where patients refuse treatment or transportation.

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 or available by phone, 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.
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 to allow self-determination shall be allowed to make decisions regarding their medical care, including refusal of evaluation, treatment, or transport. These criteria include:

1. Adults (≥ 18 years of age or a legally emancipated minor).
2. Orientation to person, place, time, and situation.
3. No evidence of altered level of consciousness resulting from head trauma, medical illness, intoxication, dementia, psychiatric illness or other causes.
4. No evidence of impaired judgment from alcohol or drug influence.
5. No language communication barriers. Reliable translation available (e.g., on scene interpreter, language line).
6. 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.

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 Care.

Consider 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 should be provided with all relevant information and may need to speak directly with the patient by radio or preferably a recorded landline. The physician should determine if protective custody is to be pursued in consultation with the Law Enforcement.

Protocol Continues 

Protocol Continued

If the patient is intoxicated and in need of medical treatment or protective custody, and refuses care, police can take custody of the individual under [NH RSA 172:B3](#).

Examples of high-risk refusals include but are not limited to:

1. Treated / resolved hypoglycemia.
2. Patient with obvious head trauma and taking anticoagulant medications.
3. Intoxicated patients.
4. Abnormal vital signs.
5. Treated / resolved narcotic overdose.
6. High risk mechanism of injuries, see [Spinal Injury Protocol 4.5](#).
7. Patient / witness reports suicidal ideations.
8. Possible Apparent Life Threatening Event, see [ALTE Protocol 2.3](#).

Procedure

1. Clearly offer the patient both treatment and transportation to the hospital and document the offer in your Patient Care Report.
2. Perform an assessment of the patient's mental capacity and, to the extent permitted by the patient, a physical exam including vital signs. Your assessment, or the patient's refusal of care, must be fully documented in your Patient Care Report
3. 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 patient care report.
4. A parent or legal guardian may refuse care for a minor or:
 - When a parent or legal guardian is not reasonably available, another adult family member (e.g., grandparent), or other authorized representative having custody of the minor, may refuse care.
 - EMS personnel may accept a telephonic refusal of care, provided that they have explained the consequences of refusing care; telephonic refusal of care should be carefully documented.
5. Prepare and explain the Refusal of Care form to the patient (or, in the case of a minor patient, the patient's parent, legal guardian, or authorized representative).
6. The Refusal of Care form should 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. The form should also be dated and, where possible, signed by a witness, preferably a competent relative, friend, police officer, or impartial third person.
7. If on-line medical control was consulted for a refusal of care, obtain and document the physician's name in the patient care report.
8. All patients in police custody retain the right to request transport. This should be coordinated with law enforcement.
9. If child or adult abuse and/or neglect is suspected and a refusal of care situation exists, the EMT must contact police immediately, see [Abuse and Neglect Protocol 8.0](#).

8.15 Response to Domestic Violence

Domestic violence is the willful intimidation, assault, battery, sexual assault, and/or other abusive behavior perpetrated by an intimate partner against another. It affects individuals in every community, regardless of age, gender, economic status, race, religion, nationality, or educational background. The consequences of domestic violence can cross generations and last a lifetime.

When domestic violence is suspected, the EMS provider should further assess the patient and take appropriate action in accordance with New Hampshire state law.

PURPOSE

To ensure that individuals affected by domestic violence are identified and provided with comprehensive medical and psychosocial interventions.

Indicators of Domestic Violence

The following are potential indicators of domestic violence. If the patient presents with one or more of these indicators, further assessment is warranted:

- The patient admits to past or present physical or emotional abuse, as a victim or witness.
- The patient denies physical abuse, but presents with unexplained bruises, whiplash injuries consistent with shaking, areas of erythema consistent with slap injuries, grab-marks on arms or neck, lacerations, burns, scars, fractures, or multiple injuries in various stages of healing, fractured mandible, or perforated tympanic membranes.
- The patient presents with injury sites suggestive of battering. Common injury sites include areas hidden by clothing or hair (e.g., face, head, chest, breasts, abdomen, and genitals).
- The extent or type of injury is inconsistent with the explanation offered by the patient.
- Pregnancy, which increases a woman's risk of domestic violence.
- The patient presents evidence of sexual assault or forced sexual actions by a partner.
- The partner (or suspected abuser) insists on staying close to the patient and may try to answer all questions directed to the patient.
- The patient is afraid of returning home or indicates concerns for safety of self, children, and/or pets.
- A substantial delay exists between the time of the injury and presentation for treatment.
- The patient describes the alleged "accident" in a hesitant, embarrassed, or evasive manner, or avoids eye contact.
- The patient has "psychosomatic" complaints such as panic attacks, anxiety, choking sensation, or depression.
- The patient has complaints of chronic pain (back or pelvic pain) with no substantiating physical evidence.
- The patient or partner has a history of psychiatric illness, alcohol, and/or drug abuse.
- The patient has a history of suicide attempts or suicidal ideation.
- Medical history reveals many "accidents" or remarks indicating that previous injuries were of suspicious origin.
- The patient has a history of self-induced abortions or multiple therapeutic abortions.
- The patient has a pattern of avoiding continuity in health care.

Response to Domestic Violence 8.15

Policy Continued

Responsibility of EMS Provider

Domestic violence calls are among the most potentially dangerous to responding personnel.

- If EMS providers respond to a known domestic violence call and arrive prior to police, the providers should stage until police arrive and secure the scene.
- If EMS providers respond to an unknown call and suspect domestic violence on arrival, the providers should consider withdrawing, notifying police, and proceeding as above.
- Don't hesitate to return to the vehicle at any time to make decisions or notify police and/or Medical Control.

When Cleared to Proceed

- Clearly and simply identify yourself and your role. Use non-threatening body language and approach.
- Use a team approach. Designate one provider to observe for safety and one or more to work on the patient or discreetly assess children for injuries.
- Know where your partner is.
- Be aware of the surroundings:
 - The number and location of exits.
 - The number and location of people in the residence.
 - Potential weapons and hiding places.
 - Position rescuers with access to exit(s).
- Secure pets.
- Limit the number of people present (e.g., responders, neighbors, family).
- Let occupants lead down hallways or into stairwells or rooms. (Keep them in front.)
- Avoid treating a patient in a bedroom (only one exit, intimate setting, possible hidden weapons) or kitchen (many possible weapons).
- Use hard chairs rather than upholstered furniture as weapons are easily hidden among cushions.
- Attempt to separate the patient from the suspected batterer for treatment and/or questioning. If possible, move the patient to the ambulance to assess and treat, even if non-transport.
- If removing personal items from the patient for assessment purposes, place them in paper bags, if possible, to preserve evidence.
- Treat injuries according to appropriate protocol.
- Provide psychological support and offer the patient choices when possible to allow the patient to regain a sense of control.

Documentation and Reporting Responsibilities

Per NH RSA 631:6, a person must report to the police:

- Any gunshot wound or other serious bodily injuries caused by a criminal act.
- Any other injury he/she believes was caused by a criminal act, with the following exception:
 - If the patient is 18 years old or older and
 - If the injury was caused by sexual assault or domestic violence and
 - If it is **not** a gunshot wound or other serious bodily injury, the patient can refuse to have the information released to the police.



Policy Continues

Policy 8.15

8.15 Response to Domestic Violence

Policy Continued

Children on scene

- Domestic violence is family violence and children and pets are often injured even when they are not the primary target of the abuse. Children should be carefully assessed for physical injury whenever adults are injured in a domestic violence incident, and/or if the scene suggests a mechanism of injury such as broken glass or furniture.
- If physically uninjured, children should be sheltered from further harm on scene, e.g., witnessing patient care, view of the crime scene, police interaction with the suspected abuser.
- Witnessing violence qualifies as child abuse and neglect and therefore mandates a report (see Child Abuse Reporting for more information.) A child who has witnessed violence will need care for potential emotional/psychological injuries, even if s/he has not suffered physical injury. The child should be put in the care of Law Enforcement until Child Protective Services (CPS) can be contacted and arrangements can be made for the child's safety. The procedure for contacting CPS can vary by regional office/police department. Discuss this scenario with local law enforcement in advance of an incident.
- An EMS provider may assist law enforcement with caring for the uninjured child/children until appropriate arrangements have been made by law enforcement.

Referrals

The NH Coalition Against Domestic and Sexual Violence (NHCADSV) is a network of 14 agencies across the State that supports survivors of domestic and sexual violence. Each agency offers the following free, confidential services:

- **24-Hour Domestic Violence Crisis Line: 1-866-644-3574.**
- **24-Hour Sexual Assault Crisis Line: 1-800-277-5570.**
- Emergency shelter and transportation.
- Legal advocacy.
- Hospital and court accompaniment.
- Information about public assistance.

WHEN NOT TO START

Resuscitation efforts should be withheld under the following circumstances:

- **VALID DO NOT RESUSCITATE ORDER:** Refer to [DNR, POLST & Advanced Directives Protocol 8.8](#).
- **SCENE SAFETY:** The physical environment is not safe for providers.
- **DEAD ON ARRIVAL (DOA):** A person is presumed dead on arrival when all five “Signs of Death” are present **AND** at least one associated “Factor of Death” is present.

Signs of Death (All five signs of death must be present)

- Unresponsiveness.
- Apnea.
- Absence of palpable pulses at carotid, radial, and femoral sites.
- Unresponsive pupils.
- Absence of heart sounds.

Factors of Death (At least one associated factor of death must be present)

- Damage or destruction of the body incompatible with life, such as:
 - ✓ Decapitation.
 - ✓ Decomposition.
 - ✓ Deforming brain injury.
 - ✓ Incineration or extensive full thickness burns.
- Lividity/Rigor mortis of any degree.
- Major blunt or penetrating trauma.



Patients with ventricular assist devices (VAD) should almost never be pronounced dead at the scene, see [LVAD Policy 8.9](#).

SUDDEN UNEXPLAINED INFANT DEATH SYNDROME (SUIDS).

- An infant <12 months who is apneic, asystolic (no heartbeat or umbilical cord pulse), and exhibiting lividity and/or rigor mortis should be presumed dead.
- For unexpected, unexplained infant death, record carbon monoxide level in room where infant was found unresponsive, if possible.

NEONATE:

- A neonate who is apneic, asystolic, and exhibits either neonatal **maceration** (softening or degeneration of the tissues after death in utero) or **anencephaly** (absence of a major portion of the brain, skull, and scalp) may be presumed dead.
- Contact **Medical Control** hospital if gestational age is less than 20 weeks and neonate shows signs of obvious **immaturity** (translucent and gelatinous skin, lack of fingernails, fused eyelids).



NOTE: Infant and/or neonatal resuscitation and transport may be initiated in cases where the family does not accept the idea of nonintervention.

Policy Continues 

8.16 Resuscitation Initiation and Termination

Policy Continued

WHEN TO STOP

Termination of resuscitation **MAY BE** considered if return of spontaneous circulation does not return before transport is initiated.

Resuscitation may be stopped under the following circumstances:

- The physical environment becomes unsafe for providers.
- The exhaustion of EMS providers.
- The automatic external defibrillator has advised “no shock” on 5 sequential analyses and ALS/hospital care is not available within 15 minutes (hypothermia is an exception).
- There is no return of spontaneous circulation after 15 minutes of either BLS alone or combined BLS and ALS in the absence of hypothermia, unless the patient exhibits recurrent ventricular fibrillation or ventricular tachycardia and has quantitative waveform capnography (if available) >20 mmHg.
- Extrication is prolonged (>15 minutes) with no resuscitation possible during extrication (hypothermia is an exception).
- If directed to do so by Medical Control.
- There is no return of spontaneous circulation after 30 minutes of either BLS alone or combined BLS and ALS in the hypothermic patient and extrication is going to be prolonged.
- If resuscitation is terminated during transport, continue to the receiving hospital without lights and sirens and notify receiving facility.

- Prolonging resuscitation efforts, beyond 15 minutes, without a return of spontaneous circulation is usually futile, unless cardiac arrest is compounded by hypothermia or immersion in cold water.
- EMS providers are not required to transport every victim of cardiac arrest to a hospital. Unless special circumstances are present, it is expected that most resuscitations will be performed on-scene until the return of spontaneous circulation or a decision to cease resuscitation efforts is made based on the criteria listed under “when to stop” (above). Transportation with continuing CPR may be justified if hypothermia is present or suspected. Current AHA guidelines state: “cessation of efforts in the out-of-hospital setting...should be standard practice.”

Policy Continues

Policy Continued

DETERMINING DEATH IN THE FIELD

When efforts to resuscitate are not initiated or are terminated under the above provisions, EMS providers shall:

- Document time of death.
- Notify law enforcement.
- Consider possibility of a crime scene and restrict access.
- Any decision to move the body must be made in collaboration with law enforcement and the medical examiner.
- Leave any resuscitation adjuncts such as advanced airway devices, IV/IO access devices, electrode pads, etc., in place.
- Inform family on scene of patient's death and offer to contact family, friends, clergy, or other support systems.

The above requirements apply to situations in which law enforcement or the medical examiner may take jurisdiction. Law enforcement and the medical examiner are not required to take jurisdiction of hospice or other patients who are known to have been terminally ill from natural causes or congenital anomaly, and death was imminent and expected. Where law enforcement is not involved, EMS providers may provide appropriate assistance to families or other caregivers.

Mass Casualty Incident (MCI): [See MCI Protocol 9.1.](#)

Documentation

- Complete a Patient Care Record (PCR) in all cases. If available, include ECG rhythm strips with the patient care report.
- Document special orders including DNR, on-line Medical Control, etc.
- MCI conditions may require a triage tag in addition to an abbreviated PCR.
- Record any special circumstances or events that might impact patient care or forensic issues.

8.17 Trauma Triage and Transport Decision

Measure Vital Signs and Level of Consciousness

Glasgow Coma Scale ≤13
 Systolic Blood Pressure <90 mmHg or signs of shock
 Respiratory Rate <10 or >29 breaths per minute or need for ventilatory support (<20 in infants aged <1 year)

- YES →
- If feasible, transport directly to a Level 1 or 2 Trauma Center by ground or air and notify receiving hospital of a "Trauma Alert".
 - If above is not feasible, notify closest appropriate hospital of a "Trauma Alert", as soon as possible.
 - For a child <15 years of age, direct transport to a Level 1 or 2 Pediatric Trauma Center is desired.

NO

Assess Anatomy of Injury

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g. flail chest)
- Two or more proximal long-bone fractures
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

- YES →
- Transport to the closest appropriate facility.
 - Provide early patient notification
 - Consider "Trauma Alert".

NO

Assess Mechanism of Injury and Evidence of High-Energy impact

- Falls
 - Adult: >20 feet (1 story is equal to 10 feet)
 - Pediatric: >10 feet or 2 to 3 times the height of the child.
- High-risk auto crash
 - Intrusion, including roof: >12 inches occupant side; >18 inches any side
 - Ejection (partial or complete) from automobile
 - Death in same passenger compartment
- Auto vs. pedestrian/bicyclist: thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

- YES →
- Transport to the closest appropriate facility.
 - Provide early patient notification
 - Consider "Trauma Alert".

NO

Assess Special Patient or System Considerations

- Older Adults
 - Risk of injury/death increases after age 55 years
 - SBP <110 may represent shock after age 65
 - Low impact mechanisms (e.g. ground level falls) may result in severe injury
- Pediatric
 - Should be triaged preferentially to pediatric capable trauma centers
- Anticoagulants and bleeding disorders
 - Patients with head injury are at high risk for rapid deterioration
- Burns
 - Without other trauma mechanism: triage to burn facility
 - With trauma mechanism: triage to trauma center
- Pregnancy >20 weeks
- EMS Provider judgment

- YES →
- Transport to the closest appropriate facility.
 - Provide early patient notification including presence of high risk factors.

NO

Transport to closest hospital

The threshold for entering children into the trauma system may be lower than the same criteria for adults. In addition prehospital providers must be aware that an assigned adult trauma hospital may have a different level of trauma care assignment for pediatric trauma. The use of air medical transport to take a patient directly to a Level I pediatric trauma hospital may be warranted

Reference: CDC 2011 Guidelines for Field Triage of Injured Patients and NH Trauma Plan

Hazardous Material Exposure 9.0

Purpose

The goal of the hazardous materials exposure protocol is to prepare the EMS provider for the potential risks that may be encountered and to provide guidelines to mitigate the effects of a hazardous exposure incident. The EMS provider may reference additional protocols for the management of specific hazardous materials exposure in dealing with known chemicals.

Successful management of a hazardous materials exposure depends on effective coordination between EMS, local hazardous materials teams, fire and police departments, the Poison Control Center, and appropriate state and federal agencies.

Identification

- Identification of the exposed material should be made at the earliest convenient time possible.
- Proper chemical name and spelling will be necessary for identification of procedures for Poison Control (1-800-222-1222) and receiving hospitals.
- Utilization of shipping papers, waybills, and Safety Data Sheets (SDS) may assist in identifying chemical hazards, safety precautions, personal protective equipment, and treatments.

Note: Many household chemicals may not require activation of a hazardous materials team. Utilize manufacturer's recommendation for decontamination and treatment, or contact Poison Control for treatment and decontamination procedures.

Personal Safety

- Personal protection is the highest priority when responding to an incident where hazardous material exposure is suspected. DO NOT ENTER THE HOT ZONE. Only HazMat Teams should enter the hot zone.
- If there is a major hazardous materials release:
 - Request specific staging information and be alert for clusters of injured patients.
 - Maintain safe location upwind and uphill of the site (at least 300 ft.).
 - Observe strict adherence to hot, warm, and cold-zone areas for personal safety, decontamination, and treatment.
 - Activate the HazMat Response/Incident Command System.
 - Incident Command to notify NH Bureau of Emergency Management (603-271-2231) to request additional resources including law enforcement and pharmaceutical supply.

Hospital Notification

- Receiving hospitals should be notified as soon as it is determined you have contaminated patient(s) to ensure the facility is capable and prepared to receive a potentially contaminated patient. Communication with the hospital should include such information as covered under the documentation and treatment section.

Patient Decontamination

Only properly trained and protected personnel should conduct patient decontamination. The decontamination system is established by the appropriately trained fire department/HazMat Team. EMS personnel will work cooperatively with them during the decontamination process.

Patient decontamination is necessary to minimize injury due to exposure, as well as to mitigate risk of secondary exposure.

Protocol Continues 

9.0 Hazardous Materials Exposure

Protocol Continued

Mass/Gross Decontamination

- Mass Decontamination (Large-scale Multiple/Mass Casualty) involves the effective dilution of a chemical or hazardous substance utilizing large quantities of water. This process should be supervised by the appropriately trained local fire department or HazMat Team.
- This process is necessary due to the involvement of an overwhelming number of patients, the severity of symptoms, and where technical or fine decontamination cannot be utilized due to time and personnel.

Technical Decontamination

- Technical Decontamination involves a multi-step process, supervised by the appropriately trained fire department or HazMat Team.
- This decontamination process is dependent on the type of chemical hazard present, and may require different methods such as:
 - Dilution.
 - Absorption.
 - Neutralization.
 - Chemical degradation.
 - Solidification.

Each method of decontamination has specific uses. Ascertain from the HazMat Team which method was used, if there are any hazards associated with the decontamination process, and if further definitive decontamination is required at the hospital.

Definitive/Fine Decontamination

- Usually completed at the hospital, it involves additional washing and rinsing to further dilute and finally remove any contaminants. Definitive decontamination should be performed in an authorized decontamination facility and with appropriately trained personnel.

Decontamination of Special Populations

- Children and their families, the elderly/frail, and patients with medical appliances will require more EMS personnel and time for general assistance and may also require simultaneous basic life support assistance during decontamination. An individual patient requiring special needs decontamination may take 10 – 15 minutes to complete.

Although the principles of decontamination are the same, certain precautions may need to be taken, depending on the patient.

- These patients may have the inability to give history or describe symptoms and physical complaints.
- Typical stress response of children is to be highly anxious and inconsolable, making assessment difficult.
- Small children are more difficult to handle while wearing personal protection equipment (PPE).
- Attempt to keep children with their families, as the decontamination process is likely to be frightening and children may resist.

Protocol Continues

Hazardous Materials Exposure 9.0

Protocol Continued

- Keep patients with existing medical conditions together with their caregivers, if feasible.
- Children and elderly, and possibly special needs patients, are inherently unable to maintain body temperature and quickly become hypothermic. Utilize water warmed to 100°F, if available, keep warm after drying procedure.

Use low-pressure water and soft washcloths and protect the airway and eyes throughout the decontamination process.

Treatment during Decontamination

- If medication is required, limit administration route to intramuscular or medi-inhaler.
- Intravenous therapy and advanced airway interventions should be delayed until after gross decontamination.
- Specific individual treatment should be referenced from Poison Control or MSDS sheets.

Document Exposure and Treatment Information

- Name of chemical(s).
- Amount, time, and route of exposure.
- Decontamination information.
- Treatment/antidotes administered.

Transport

- EMS personnel transporting potentially contaminated patients (e.g., patients who have received gross decontamination) must have appropriate PPE.
- Lining of the interior of the ambulance and further use of PPE may be necessary, dependent upon the level of completed decontamination.
- If an ambulance has transported a contaminated patient, it can only be used to transport similarly contaminated patients until proper decontamination of the vehicle is complete.
- Contaminated patients will not be transported by helicopter.

9.1 Mass/Multiple Casualty Triage

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.

Purpose

- The goal of the Mass/Multiple Casualty Triage protocol is to prepare for a unified, coordinated, and immediate EMS mutual aid response by prehospital and hospital agencies to effectively expedite the emergency management of the victims of any type of MCI.
- Successful management of any MCI depends upon the effective cooperation, organization, and planning among health care professionals, hospital administrators and out-of-hospital EMS agencies, state and local government representatives, and individuals and/or organizations associated with disaster-related support agencies.
- Adoption of a system that meets the Model Uniform Core Criteria (MUCC) as developed by the CDC.

EMS Provider Role

- All providers must have thorough knowledge of both the Incident Command System (ICS) and the triage system.
- With in the scope of the MCI, the EMS provider may perform procedures within their scope of practice.

Scene Assessment and Triage Priorities

1. The initial response team should assess the scene for potential hazards, safety and number of victims to determine the appropriate level of response.
2. 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.
3. 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 information, tag numbers and coordinating hospital destinations
4. Identify and designate EMS sector areas of MCI including Triage, Treatment, Staging and Loading.
5. Post incident MCI Plan.

Triage Process

Utilize a triage system such as "SALT" (Sort, Assess, Lifesaving Interventions, Treatment/Transport) to prioritize patients. SALT is part of the CDC - sponsored project based upon best evidence and designed to develop a national standard for mass casualty triage.

- Assess each patient as quickly as possible.
- Conduct rapid assessment.
- Assign patients to broad categories based on need for treatment (Still, Wave, Walk)
- Remember: Triage is not treatment! Stopping to provide care to one patient will only delay care for others. Standard triage care is only to correct airway and severe bleeding problems.

Protocol Continues 

Mass/Multiple Casualty Triage 9.1

Protocol Continued

SALT Triage Categories:

- Immediate: **RED** Immediately life-threatening problems, high potential for survival (eg., tension pneumothorax, exposure to nerve agent resulting in severe shortness of breath or seizures). Likely to survive given available resources. If no to any of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Delayed: **YELLOW** Serious (not minor) injuries requiring care but management can be delayed without increasing morbidity or mortality (e.g., long bone fractures, 40% BSA). If yes to all of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Minimal: **GREEN** Injuries require minor care or no care (e.g., abrasions, minor lacerations, nerve agent exposure with mild runny nose). If yes to all of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Expectant: **GREY** Unlikely to survive given available resources. Does not mean Dead. Method of preserving resources: should receive comfort care or resuscitation when resources are available. Serious injuries: very poor survivability even with maximal care in hospital or prehospital setting (e.g., 90% body surface area burn, multiple trauma with exposed brain matter). If no to any of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Dead: **BLACK** Patient is not breathing after opening airway. (In children, if after giving 2 rescue breaths, if appropriate.) Deceased or casualties whose injuries are so severe that their chance of survival does not justify expenditure of limited resources. Tag patients to prevent re-triage. Do not move bodies unless they are hindering efforts to rescue live patients, or they are in danger of being further damaged, for example, burned by fire, building collapse, etc.

Tagging System

- Use water-repellent triage tags with waterproof markers and attach to the patient.
- Indicate patient's triage priority, degree of decontamination performed, treatment and medications received.

Triage in Hazardous Material Incidents

Decontamination

The need for decontamination is the "first triage decision." since decontamination can be a lengthy process, the "second decision" is which patient(s) are the first to be decontaminated. The "third decision" is based on need for treatment during the decontamination process, since only simple procedures such as antidote administration can be accomplished while wearing PPE.

Identification and Treatment

- Signs and symptoms of exposure will usually dictate the treatment required, however, at the earliest possible time, identification of the specific chemical should be made.
- Reference additional hazardous materials protocols as necessary.
- Request additional resources. Initial antidote and medical supplies may be limited to priority patients.
- Respiratory compromise is a leading factor of fatalities due to hazardous material exposure.
- Symptoms of chemical exposure may be delayed and occur suddenly. Constant reevaluation of respiratory status is necessary.

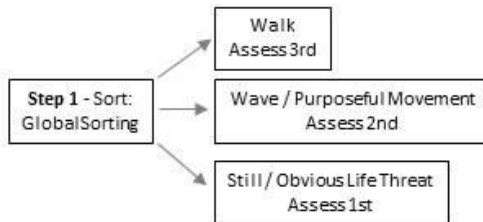
Protocol Continues

9.1 Mass/Multiple Casualty Triage

Protocol Continued

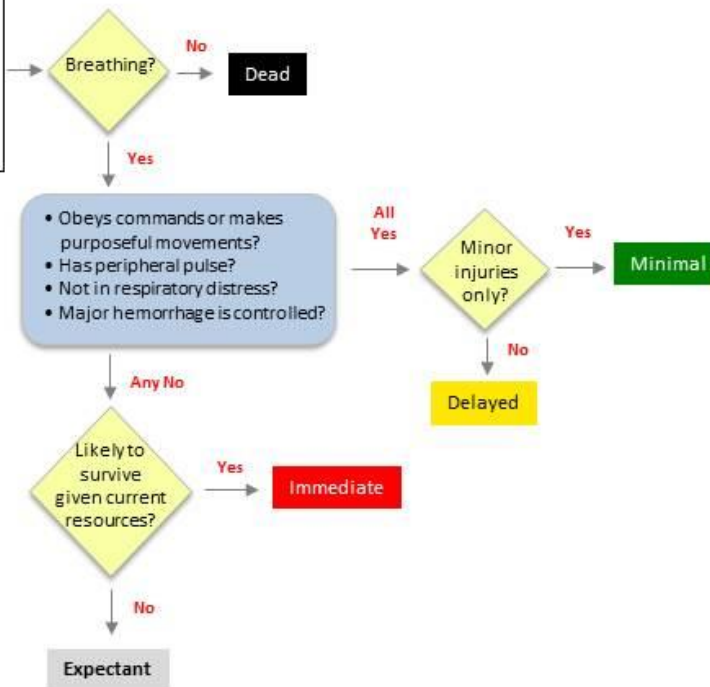
SALT Mass Casualty Triage Algorithm
(Sort, Assess, Lifesaving Interventions, Treatment/Transport)

SALT Mass Casualty Triage



Step 2 – Assess:
Individual Assessment

- Lifesaving Interventions:
- Control major hemorrhage
 - Open airway
if child, consider 2 rescue breaths
 - Chest decompression
 - Auto injector antidotes



Radiation Injuries Adult & Pediatric

9.2

Exposure to radioactive source or radioactive material/debris

EMT/ADVANCED EMT STANDING ORDERS

E

- Remove the patient from scene and decontaminate by appropriately trained personnel.
- Triage tools for mass casualty incident
 - If vomiting starts:
 - Within 1 hour of exposure, survival is unlikely and patient should be tagged “Expectant.”
 - Less than 4 hours after exposure, patient needs immediate decontamination and evaluation and should be tagged “immediate.”
 - 4 hours after exposure, reevaluation can be delayed 24 – 72 hours if no other injury is present and patient should be tagged “Delayed”.
- Routine Patient Care.
- Treat traumatic injuries and underlying medical conditions.
- Patients with residual contamination risk from wounds, shrapnel, or internal contamination should be wrapped in water repellent dressings to reduce cross contamination.
- Consider Air Medical Transport after proven definitive decontamination of patient.

ADVANCED EMT STANDING ORDERS

A

- Consider anti-emetic, see [Nausea/Vomiting Protocol 2.12](#).

PARAMEDIC STANDING ORDERS

P

- Consider pain management, see [Pain Management Protocol 2.17](#).

Radiation Injuries 9.2

PEARLS:

- In general, trauma patients who have been exposed to or contaminated by radiation should be triaged and treated on the basis of the severity of their conventional injuries
- A patient who is contaminated with radioactive material (e.g. flecks of radioactive material embedded in their clothing and skin) generally poses a minimal exposure risk to medical personnel.

2015 NH Approved EMS Medications

Level	Generic	Trade name	Notes
EMT	Acetaminophen	Tylenol	Pedi and Adult
EMT	Activated Charcoal		Pedi and Adult
EMT	Albuterol	Proventil	MDI Assist only
EMT	Aspirin		Adult
EMT	Atropine (autoinjector)	AtroPen, AtroPen Jr.	Pedi and Adult
EMT	Atropine & Pralidoxime (autoinjector)	DuoDote or Nerve Agent Antidote Kit	Pedi and Adult
EMT	Diazepam - rectal gel & nerve agent autoinjectors	Diastat	Pedi and Adult - patient assist only
EMT	Epinephrine (autoinjector)	Epi-Pen, Epi-Pen Jr.	Pedi and Adult
EMT	Dextrose	Oral Glucose	Pedi and Adult
EMT	Ibuprofen	Motrin or Advil	Pedi and Adult
EMT	Ipratropium Bromide (mixed with Albuterol)	Atrovent (mixed with Albuterol) OR DuoNeb	MDI Assist only
EMT	Levalbuterol	Xopenex	MDI Assist only
EMT	Naloxone	Narcan	Adult
EMT	Nitroglycerin	Tridil, Nitrobid, Nitrostat	Adult - patient
	Sucrose		Newborns
EMT	Pralidoxime (autoinjector)	2-Pam, Protopam Chloride	Pedi and Adult
AEMT	Albuterol	Proventil	Pedi and Adult
AEMT	Dextrose	D10	Pedi and Adult
AEMT	Epinephrine		Pedi and Adult
AEMT	Glucagon		Adult & Pedi
AEMT	Hydrocortisone	SoluCortef	Pedi and Adult - patient assist only
AEMT	Hydroxocobalamin	Cyanokit®	Pedi and Adult
AEMT	Ipratropium Bromide (mixed with Albuterol)	Atrovent (mixed with Albuterol) OR DuoNeb	Pedi and Adult
AEMT	Lidocaine		Adult - IO anesthetic only
AEMT	Naloxone	Narcan	Pedi and Adult
AEMT	Nitroglycerin	Tridil, Nitrobid, Nitrostat	Adult
AEMT	Nitrous Oxide premixed with oxygen	Nitronox®	Pedi and Adult
AEMT	Ondansetron	Zofran	Adult



EMT- Intermediates may only give their approved medications to adult patients; once the EMT-Intermediate has transitioned to AEMT they may also give these medications to pediatric patients.

2015 NH Approved EMS Medications

Level	Generic	Trade name	Notes
Paramedic	Adenosine	Adenocard	Pedi and Adult
Paramedic	Amiodarone	Cordarone	Pedi and Adult
Paramedic	Atropine		Pedi and Adult
Paramedic	Calcium Chloride		Pedi and Adult
Paramedic	Calcium Gluconate		Pedi and Adult
Paramedic	Dexamethasone	Decadron	Pediatric
Paramedic	Diazepam	Valium	Pedi and Adult
Paramedic	Diltiazem	Cardizem, Dilacor, Tiazac	Adult
Paramedic	Diphenhydramine	Benadryl	Pedi and Adult
Paramedic	Dolasetron	Anzemet	Adult
Paramedic	Dopamine		Pedi and Adult
Paramedic	Epinephrine		Pedi Nebulized
Paramedic	Etomidate (RSI only)	Amidate	Adult
Paramedic	Fentanyl	Sublimaze	Pedi and Adult
Paramedic	Granisetron	Kytril	Pedi and Adult
Paramedic	Haloperidol	Haldol	Adult
Paramedic	Heparin		Adult
Paramedic	Hydrocortisone	SoluCortef	Pedi and Adult
Paramedic	Hydromorphone	Dilaudid	Adult
Paramedic	Ketamine (RSI only)		Adult
Paramedic	Ketorolac	Toradol	Adult
Paramedic	Levalbuterol	Xopenex	Pedi and Adult
Paramedic	Lidocaine		Pedi and Adult
Paramedic	Lorazepam	Ativan	Pedi and Adult
Paramedic	Magnesium Sulfate		Pedi and Adult
Paramedic	Methylprednisolone	Solumedrol	Adult & Pedi
Paramedic	Metoclopramide	Reglan	Adult
Paramedic	Metoprolol	Lopressor	Adult
Paramedic	Midazolam	Versed	Pedi and Adult
Paramedic	Morphine		Pedi and Adult
Paramedic	Norepinephrine	Levophed	Pedi and Adult
Paramedic	Ondansetron	Zofran	Pedi and Adult
Paramedic	Oxytocin	Pitocin	Adult
Paramedic	Phenylephrine	Neo-Synephrine	Adult
Paramedic	Pralidoxime	2-Pam, Protopam Chloride	Pedi and Adult
Paramedic	Prednisone		Adult
Paramedic	Prochlorperazine	Compazine	Adult
Paramedic	Proparacaine	Alcaine	Pedi and Adult
Paramedic	Rocuronium (RSI only)	Zemuron	Adult
Paramedic	Sodium Bicarbonate		Pedi and Adult
Paramedic	Succinylcholine (RSI Only)	Anectine	Adult
Paramedic	Tetracaine		Pedi and Adult
Paramedic	Vasopressin		Adult
Paramedic	Vecuronium (RSI Only)	Norcuron	Adult

Appendix 1

NH Adult Medication Reference

This document is to serve as a reference for the 2015 NH Patient Care Protocols.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
<p><u>Acetaminophen</u> (Tylenol)</p> <p>Indications/Contraindications:</p> <ul style="list-style-type: none"> Indicated for fever control. Avoid in patients NSAID allergy, aspirin-sensitive asthma, or renal insufficiency 	<p>Fever</p> <ul style="list-style-type: none"> 500 - 1000 mg. <p>Fever - Extended Care</p> <ul style="list-style-type: none"> 650 mg every 4 hours OR 1000 mg every 6 hours, not to exceed 3,000 mg/24 hours. <p>Musculoskeletal Injuries – Extended Care</p> <ul style="list-style-type: none"> 325-650 mg by mouth every 6 hours as needed, not to exceed 3000 mg/24hours. <p>Suggested Formulations:</p> <ul style="list-style-type: none"> Oral 325mg tablets, 500mg tablets, 160mg/5ml Rectal 325mg supp, 650mg supp, 80mg supp
<p><u>Activated Charcoal</u></p> <p>Indications:</p> <ul style="list-style-type: none"> Poisoning/Overdose. 	<p>Poisoning/Substance Abuse/OD</p> <ul style="list-style-type: none"> 25 – 50 grams PO if advised by Poison Control or Medical Control. <p>Suggested Formulations:</p> <ul style="list-style-type: none"> Ez-Char 25g (requires reconstitution) Kerr-Insta Char 25g/120ml Actidose 25g/120ml
<p><u>Adenosine</u> (Adenocard)</p> <p>Indications/Contraindications:</p> <ul style="list-style-type: none"> Specifically for treatment or diagnosis of Supraventricular Tachycardia. Consider for regular or wide complex tachycardia 	<p>Tachycardia</p> <ul style="list-style-type: none"> 6 mg rapid IV push. <ul style="list-style-type: none"> May repeat 12 mg every 1 – 2 minutes X 2, if no conversion. <p>Suggested Formulations:</p> <p>Intravenous</p> <ul style="list-style-type: none"> Adenosine pre-filled syringe 12mg/4ml Adenosine pre-filled syringe 6mg/2ml Adenocard 12mg/4ml Adenocard 6mg/2ml
<p><u>Albuterol</u> Beta-Agonist</p> <p>Indications/Contraindications:</p> <ul style="list-style-type: none"> Nebulized treatment for use in respiratory distress with bronchospasm. 	<p>Allergic Reaction/Anaphylaxis</p> <ul style="list-style-type: none"> 2.5mg via nebulizer. May repeat 2.5mg via nebulizer, repeat every 5 minutes (4 doses total). <p>Asthma/COPD/RAD</p> <ul style="list-style-type: none"> 4-6 puffs per dose of MDI . May repeat every 5 minutes, as needed. Albuterol is second line drug, the initial treatment should be 2.5mg albuterol and 0.5mg ipratropium (DuoNeb). May repeat every 5 minutes (4 doses total). Following 4 DuoNeb treatments, 2.5mg albuterol via nebulizer every 5 minutes, as needed. <p>Suggested Formulations:</p> <p>Albuterol</p> <ul style="list-style-type: none"> Albuterol 0.083% [2.5 mg/3 mL] nebule <p>Albuterol/Ipratropium (Duoneb)</p> <ul style="list-style-type: none"> Ipratropium bromide 0.5 mg and albuterol (base) 2.5 mg per 3 mL nebule

NH Adult Medication Reference

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
<p><u>Amiodarone</u> (Cordarone)</p> <p><u>Indications/Contraindications:</u></p> <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. 	<p>Cardiac Arrest V-Fib/Pulseless V-Tach</p> <ul style="list-style-type: none"> • 300 mg IV push. • Repeat dose of 150 mg IV push for recurrent episodes. <p>Tachycardia Wide complex tachycardia</p> <ul style="list-style-type: none"> • 150 mg in 50 – 100mL normal saline or D5W over 10 min. • May repeat once in 10 minutes. • If successful, consider maintenance infusion of 1 mg/minute. <p>Suggested Formulations: Amiodarone HCL</p> <ul style="list-style-type: none"> • 150 mg/3 mL (3 mL); • 450mg/9ml (9ml)
<p><u>Aspirin</u></p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • An antiplatelet drug for use in cardiac chest pain. • History of anaphylaxis to aspirin or NSAIDs • Active GI bleeding 	<p>Acute Coronary Syndrome</p> <ul style="list-style-type: none"> • 324 mg by mouth (chewable). <p>Suggested Formulations: Oral</p> <ul style="list-style-type: none"> • 81mg chewable tablets • 81mg tablet
<p><u>Atropine</u></p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Anticholinergic drug used in bradycardias and organophosphate poisonings. 	<p>Bradycardia</p> <ul style="list-style-type: none"> • 0.5 mg IV every 3 – 5 minutes up to maximum of 3 mg. <p>Organophosphate Poisoning and Nerve Agent</p> <ul style="list-style-type: none"> • 2 mg IM or IV every 5 minutes until secretions clear. <p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> • Consider 0.5mg IV for bradycardia <p>Suggested Formulations: Solution, Injection, as sulfate [preservative free]:</p> <ul style="list-style-type: none"> • 0.4 mg/mL (1 mL) • 0.8 mg/mL (0.5 mL) • 1 mg/mL (1 mL) <p>Device, Intramuscular, as sulfate:</p> <ul style="list-style-type: none"> • AtroPen: 0.25 mg/0.3 mL (0.3 mL) [pyrogen free] <p>AtroPen: 0.5 mg/0.7 mL (0.7 mL); 1 mg/0.7 mL (0.7 mL); 2 mg/0.7 mL (0.7 mL) [pyrogen free; contains phenol]</p>

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Medication	Adult Protocol/Dosing
<p><u>Atropine and Pralidoxime Auto-Injector (DuoDote) Nerve Agent Kit</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Antidote for Nerve Agents or Organophosphate Overdose. 	<p>Nerve Agents</p> <ul style="list-style-type: none"> Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer <u>3 DuoDote and 1 diazepam (10 mg) auto-injectors.</u> Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer <u>1 DuoDote.</u> Maintenance Dose: <u>1 DuoDote every 3 hours.</u>
<p><u>Calcium Chloride 10% solution</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Indicated for hyperkalemia or calcium channel blocker overdose. Avoid if patient takes digoxin. 	<p>Bradycardia For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:</p> <ul style="list-style-type: none"> 1 gm IV / IO over 5 minutes, ensure IV patency and do not exceed 1 mL per minute. <p>Suggested Formulations: Solution, Intravenous: Generic: 10% (10 mL)</p>
<p><u>Calcium Gluconate</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Indicated for hyperkalemia or calcium channel blocker overdose. 	<p>Bradycardia For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:</p> <ul style="list-style-type: none"> 2 gm IV / IO over 5 minutes, with constant cardiac monitoring
<p><u>Dexamethasone</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Asthma/Croup 	<p>Asthma – Adult</p> <ul style="list-style-type: none"> 10mg IV <p>Asthma/Croup – Pediatric</p> <ul style="list-style-type: none"> 0.6mg/kg PO/IM/IV
<p><u>Dextrose</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Sympomatic hypoglycemia. Use in medication infusion medium. 	<p>Diabetic Emergencies</p> <ul style="list-style-type: none"> Administer dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 70mg/dL or to a maximum of 25 grams (250mL). IV pump not required. <p>Suggested Formulations: Solution, Intravenous:</p> <ul style="list-style-type: none"> 10% (250 mL, 500 mL, 1000 mL); 20% (500 mL); 50% (50 mL);

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Medication	Adult Protocol/Dosing
<p><u>Diazepam</u> (Valium) Benzodiazepine</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Seizure control. • Sedation. • Anxiolytic. 	<p>Bradycardia</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes. <p>CPAP Consider administering anxiolytic:</p> <ul style="list-style-type: none"> • 5 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg) <p>Hyperthermia</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes. <p>Nerve Agent</p> <ul style="list-style-type: none"> • 5 mg IV every 5 minutes; or 10 mg IM OR • Diazepam auto-injector (10mg). <ul style="list-style-type: none"> • Repeat 10 minutes as needed <p>Poisoning/Substance Abuse/OD</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes, OR • 5 mg IM, may repeat once in 20 minutes <p>Seizure</p> <ul style="list-style-type: none"> • 5 – 10 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg). <p>Restraints</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes, OR • 5 mg IM, may repeat once in 10 minutes <p>Tachycardia</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes. <p>Traumatic Brain Injury</p> <ul style="list-style-type: none"> • 2 mg IV, may repeat once in 5 minutes. <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> • Generic: 5 mg/mL (2 mL, 10 mL)
<p><u>Diltiazem</u> (Cardizem)</p> <p><u>Indications/Contraindications:</u></p> <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. 	<p>Tachycardia Narrow Complex Tachycardia</p> <ul style="list-style-type: none"> • 0.25 mg/kg IV (maximum dose 20 mg). <ul style="list-style-type: none"> ▪ May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 20 mg) if necessary. ▪ Consider maintenance infusion 5 – 15 mg/hour. <p>Suggested Formulations:</p> <ul style="list-style-type: none"> • Solution, Intravenous, as hydrochloride: 25 mg/5 mL (5 mL, 25 mL); 50 mg/10 mL (10 mL); 125 mg/25 mL (25 mL)

NH Adult Medication Reference

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Medication	Adult Protocol/Dosing
<p><u>Diphenhydramine</u> (Benadryl) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Antihistamine used as an adjunctive treatment in allergic reactions. • Antidote for dystonic reaction. 	<p>Allergic Reaction/Anaphylaxis</p> <ul style="list-style-type: none"> • 25-50 mg IM/IV or by mouth <p>Extended Care:</p> <ul style="list-style-type: none"> • 25-50 mg IM/IV or by mouth. May repeat every 4-6 hours as needed; maximum dose of 300mg in 24 hours. <p>Behavioral</p> <ul style="list-style-type: none"> • 25-50 mg IV Or 50 IM. <p>Nausea/Vomiting</p> <ul style="list-style-type: none"> • 25 – 50 mg IV/IM. <p>Extended Care:</p> <ul style="list-style-type: none"> • For motion sickness: administer diphenhydramine: <ul style="list-style-type: none"> • Adult: 25 mg PO/chewed • Ages 2 – 5 years: 6.25 mg PO • Ages 6 – 11 years: 12.5 - 25 mg PO <p>Poisoning/Substance Abuse/OD</p> <ul style="list-style-type: none"> • 25 – 50 mg IV/IM. <p>Restraints</p> <ul style="list-style-type: none"> • 25 – 50 mg IV/IM. <p>Suggested Formulations: Oral</p> <ul style="list-style-type: none"> • 25mg Capsule <p>Solution, Injection, as hydrochloride [preservative free]: 50 mg/mL (1 mL)</p>
<p><u>Dolasetron</u> (Anzemet) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Anti-Emetic used to control nausea and/or vomiting. 	<p>Nausea/Vomiting</p> <ul style="list-style-type: none"> • 12.5mg IV (one-time dose). <p>Suggested Formulations: Solution, Intravenous, as mesylate:</p> <ul style="list-style-type: none"> • Anzemet: 20 mg/mL (0.625 mL)

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
<p><u>Dopamine</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • A vasopressor used in shock or hypotensive states. • Infusion pump required. 	<p>Bradycardia</p> <ul style="list-style-type: none"> • Infusion 2 – 10 micrograms/kg/minute. <p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> • Infusion 5 – 20 microgram/kg/minute. <p>Post Resuscitation</p> <ul style="list-style-type: none"> • Infusion 5 – 20 microgram/kg/minute. <p>Suggested Formulations: Solution, Intravenous, as hydrochloride:</p> <ul style="list-style-type: none"> • Generic: 0.8 mg/mL (250 mL, 500 mL); 1.6 mg/mL (250 mL, 500 mL); 3.2 mg/mL (250 mL); 40 mg/mL (5 mL, 10 mL); 80 mg/mL (5 mL); 160 mg/mL (5 mL)
<p><u>Epinephrine 1:1,000</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphylaxis • Vasopressor in cardiac arrest. 	<p>Allergic Reaction/Anaphylaxis</p> <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. <p>Asthma/COPD/RAD</p> <ul style="list-style-type: none"> • 0.3 mg IM (no repeat). <p>Septic Shock Infusion 2 – 10 micrograms/minute (Dilute epinephrine 1mg in 1000 mL 0.9% NaCl for 1 microgram/mL)</p>
<p><u>Epinephrine 1:10,000</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Vasopressor used in cardiac arrest. 	<p>Cardiac Arrest</p> <ul style="list-style-type: none"> • 1 mg IV. <ul style="list-style-type: none"> ▪ Repeat every 3 – 5 minutes. <p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> • Infusion 2 -10 micrograms/minute titrated to effect <p>Suggested Formulations: Device, Injection:</p> <ul style="list-style-type: none"> • EpiPen 2-Pak: 0.3 mg/0.3 mL (2 ea) [latex free; contains sodium metabisulfite] • EpiPen Jr 2-Pak: 0.15 mg/0.3 mL (2 ea) [contains sodium metabisulfite] • Auvi-Q: 0.15 mg/0.15 mL (2 ea); 0.3 mg/0.3 mL (2 ea) [contains sodium bisulfite] <p>Nebulization Solution, Inhalation [preservative free]:</p> <ul style="list-style-type: none"> • S2: 2.25% (1 ea) [sulfite free; contains edetate disodium] <p>Solution, Injection:</p> <ul style="list-style-type: none"> • Generic: 0.1 mg/mL (10 mL); 1 mg/mL (1 mL) <p>Solution, Intravenous [preservative free]: Generic: 1 mg/mL (1 mL)</p>

NH Adult Medication Reference

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Medication	Adult Protocol/Dosing
<p><u>Etomidate</u> (Amidate) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Sedative used in Rapid Sequence Intubation. 	<p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> 0.3 mg/kg IV / IO (maximum 40 mg). <p>Suggested Formulations: Solution, Intravenous:</p> <ul style="list-style-type: none"> Amidate: 2 mg/mL (10 mL, 20 mL) [contains propylene glycol] Generic: 2 mg/mL (10 mL, 20 mL)
<p><u>Fentanyl</u> (Sublimaze) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Narcotic analgesic Avoid use if BP < 100 mmHg. 	<p>Acute Coronary Syndrome</p> <ul style="list-style-type: none"> 25 – 100 mcg slow IV push. <ul style="list-style-type: none"> Repeat every 5 minutes up to 300 mcg. <p>Pain</p> <ul style="list-style-type: none"> 25 – 100 mcg slow IV push OR 50 – 100 mcg IM/IN. <ul style="list-style-type: none"> Repeat every 5 minutes to a total 300 mcg IV/IM. <p>Post Intubation</p> <ul style="list-style-type: none"> 50 – 100 mcg, slow IV push. <p>Suggested Formulations:</p> <ul style="list-style-type: none"> Injection, solution, as citrate [strength expressed as base, preservative free]: 0.05 mg/mL (2 ml)
<p><u>Glucagon</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Converts glycogen to glucose in the liver to increase blood sugar Use in patients with no IV access Indicated for beta blocker or calcium channel blocker overdose 	<p>Hypoglycemia</p> <ul style="list-style-type: none"> 1 mg IM. <ul style="list-style-type: none"> Recheck glucose 15 minutes after administration of glucagon. May repeat glucagon 1mg IM if glucose level is <70mg/dl with continued altered mental status. <p>Bradycardia</p> <ul style="list-style-type: none"> 5 mg IV over 3 – 5 minutes. <p>Suggested Formulations: Kit, Injection:</p> <ul style="list-style-type: none"> Glucagon Emergency: 1 mg <p>Solution Reconstituted, Injection, as hydrochloride:</p> <ul style="list-style-type: none"> GlucaGen: 1 mg (1 ea) GlucaGen HypoKit: 1 mg (1 ea)
<p><u>Glucose Oral</u> <u>Glucose Solutions</u> <u>Indications/Contraindications:</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 tube of commercially prepared glucose gel or equivalent. <p>Suggested Formulations: Gel, Oral:</p> <ul style="list-style-type: none"> Glucose 15: 40% (37.5 g) Glucose 15: 40% (37.5 g) [lemon flavor] Glucose 45: 40% (112.5 g) [lemon flavor] Insta-Glucose: 77.4% (31 g) <p>Liquid, Oral: Glutol: 55 % (180 mL) [lemon flavor]</p>

NH Adult Medication Reference

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Medication	Adult Protocol/Dosing
<p>Granisetron (Kytril)</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Anti-Emetic used to control nausea and/or vomiting. 	<p>Nausea/Vomiting</p> <ul style="list-style-type: none"> • 01. - 1mg IV over 5 minutes (one-time dose). <p>Suggested Formulations: Solution, Intravenous:</p> <ul style="list-style-type: none"> • Generic: 0.1 mg/mL (1 mL); 1 mg/mL (1 mL); 4 mg/4 mL (4 mL)
<p>Haloperidol (Haldol)</p> <p>Phenothiazine Preparation</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Medication to assist with sedation of agitated patients. • Chemical restraint. 	<p>Restraints</p> <ul style="list-style-type: none"> • 5 – 10 mg IM; may repeat once in 5 minutes, (max total dose 10 mg). • For Excited Delirium: <ul style="list-style-type: none"> ▪ Haloperidol 10 mg IM; may repeat once in 10 minutes. <p>NOTE: Contact Medical Control if more than 20 mg of haloperidol is needed.</p> <p>Suggested Formulations: Solution, Injection, as lactate [strength expressed as base]:</p> <ul style="list-style-type: none"> • Haldol: 5 mg/mL (1 mL) • Generic: 5 mg/mL (1 mL, 10 mL)
<p>Heparin</p> <p><u>Indications/Contraindications</u></p> <ul style="list-style-type: none"> • STEMI and no affirmative finding from fibrinolytic questionnaire. • Contraindication - history of Heparin Induced Thrombocytopenia 	<p>Acute Coronary Syndrome</p> <ul style="list-style-type: none"> • Heparin 5000 u IV bolus. <p>Suggested Formulations: Solution, Injection, as sodium:</p> <ul style="list-style-type: none"> • Generic: 1000 units (500 mL); 2000 units (1000 mL); 12,500 units (250 mL); 25,000 units (250 mL, 500 mL); 1000 units/mL (1 mL, 10 mL, 30 mL); 2500 units/mL (10 mL); 5000 units/mL (1 mL, 10 mL); 10,000 units/mL (1 mL, 4 mL, 5 mL); 20,000 units/mL (1 mL) <p>Solution, Intravenous, as sodium: Hep Flush-10: 10 units/mL (10 mL)</p>
<p>Hydrocortisone (Solu-Cortef)</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Adrenal Insufficiency 	<p>Adrenal Insufficiency</p> <ul style="list-style-type: none"> • 100mg IV/IM. <p>Suggested Formulations: Solution Reconstituted, Injection, as sodium succinate [strength expressed as base]:</p> <ul style="list-style-type: none"> • A-Hydrocort: 100 mg (1 ea) • Solu-CORTEF: 100 mg (1 ea)
<p>Hydromorphone</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Pain control 	<p>Pain – Adult</p> <ul style="list-style-type: none"> • 0.5-1mg IV, every 10 minutes to a total 4mg titrated to pain relief.
<p>Hydroxocobalamin (Cyanokit)</p> <p><u>Indications/Contraindications:</u> Smoke Inhalation</p>	<p>Smoke Inhalation</p> <ul style="list-style-type: none"> • Via use of Cyanokit.

NH Adult Medication Reference

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
<p><u>Ibuprofen</u> (Motrin) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • A non-steroidal anti-inflammatory drug (NSAID) fever control. • Avoid in women who are pregnant or could be pregnant. • Use with caution in patients with dehydration, cardiovascular disease, or preexisting renal disease. 	<p>Fever</p> <ul style="list-style-type: none"> • 400 – 800 mg oral or rectal • If ibuprofen has been taken within the last 6 hours: Consider acetaminophen 500 – 1,000mg oral. <p>Fever – Extended Care</p> <ul style="list-style-type: none"> • May repeat ibuprofen dose 400-600 mg every 6 hours or 800 mg every 8 hours. Maximum of 2,400 mg/24 hours. <p>Musculoskeletal</p> <ul style="list-style-type: none"> • 400 – 600 mg by mouth; repeat every 6 hours as needed. <p>Suggested Formulations: Capsule, Oral:</p> <ul style="list-style-type: none"> • Generic: 200 mg • Advil: 200 mg
<p><u>Ipratropium Bromide</u> (Atrovent) <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"> • 0.5mg ipratropium and 2.5mg albuterol(DouNeb). <ul style="list-style-type: none"> ▪ May repeat every 5 minutes (3 doses total). <p>Suggested Formulations: Solution, Inhalation, as bromide:</p> <ul style="list-style-type: none"> • Generic: 0.02% (2.5 mL) <p>Aerosol Solution, Inhalation, as bromide:</p> <ul style="list-style-type: none"> • Atrovent HFA: 17 mcg/actuation (12.9 g) [contains alcohol, usp]
<p><u>Ketamine</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Sedative used in Rapid Sequence Intubation. 	<p>Rapid Sequence Intubation 2 mg/kg IV</p> <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> • Ketalar: 10 mg/mL (20 mL); 50 mg/mL (10 mL); 100 mg/mL (5 mL) • Generic: 10 mg/mL (20 mL); 50 mg/mL (10 mL); 100 mg/mL (5 mL, 10 mL)

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Medication	Adult Protocol/Dosing
<p><u>Ketorolac</u> <u>(Toradol)</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • A nonsteroidal anti-inflammatory drug used for pain control. • Consider as first line in renal colic. • Avoid Ketorolac in patients with NSAID allergy, aspirin-sensitive asthma, renal insufficiency, pregnancy, or known peptic ulcer disease. • Avoid NSAIDS in women who are pregnant or could be pregnant. • Avoid in patients currently taking anticoagulants such as coumadin. 	<p>Pain Management</p> <ul style="list-style-type: none"> • 15 - 30 mg IV or 30 - 60 mg IM (no repeat) <p>Suggested Formulations: Solution, Injection,</p> <ul style="list-style-type: none"> • Generic: 15 mg/mL (1 mL); 30 mg/mL (1 mL); 60 mg/2 mL (2 mL)
<p><u>Levalbuterol</u> <u>(Xopenex)</u></p>	<p>Asthma/COPD/RAD</p> <ul style="list-style-type: none"> • 1.25mg via nebulizer, repeat every 20 minutes (4 doses total). <p>Suggested Formulations: Nebulization Solution, Inhalation, as hydrochloride [strength expressed as base]:</p> <ul style="list-style-type: none"> • Xopenex: 0.63 mg/3 mL (3 mL); 1.25 mg/3 mL (3 mL) • Generic: 0.63 mg/3 mL (3 mL) <p>**Special Note all product should be protected from light and should be stored in foil line container supplied**</p>
<p><u>Lidocaine</u> <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. 	<p>Cardiac Arrest</p> <ul style="list-style-type: none"> • 1 – 1.5mg/kg IV. <ul style="list-style-type: none"> ▪ Repeat dose 0.75 mg/kg up to a maximum dose of 3 mg/kg. <p>Tachycardia</p> <ul style="list-style-type: none"> • 1 – 1.5mg/kg IV. (considered second-line therapy to Amiodarone). <ul style="list-style-type: none"> ▪ May repeat once in 5 minutes to maximum of 3mg/kg. ▪ If successful, consider a maintenance infusion of 1 – 4mg/minute. <p>Traumatic Brain Injury</p> <ul style="list-style-type: none"> • 1.5 mg/kg prior to intubation. <p>Nasotracheal Intubation</p> <ul style="list-style-type: none"> • 2% lidocaine jelly. <p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> • 1.5 mg/kg. <p>Intraosseous</p> <ul style="list-style-type: none"> • 1 – 2.5ml (20 – 50mg) 2% lidocaine.

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Medication	Adult Protocol/Dosing
<p><u>Lorazepam</u> <u>(Ativan)</u> Benzodiazepine <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Seizure control. Sedation. Anxiolytic. 	<p>Bradycardia</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IM, may repeat once in 10 minutes. <p>CPAP</p> <ul style="list-style-type: none"> 0.5 – 1mg IV may repeat once in 5 minutes or; 1 – 2mg IM may repeat once in 10 minutes <p>Hyperthermia</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IM, may repeat once in 10 minutes. <p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> 1 – 2 mg IV. May repeat every 15 minutes as needed for shivering or sedation (maximum: 10mg). <p>Nerve Agent</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IM, may repeat once in 10 minutes. <p>Poisoning/Substance Abuse/OD</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IM, may repeat once in 10 minutes. <p>Post Intubation/SGA Care</p> <ul style="list-style-type: none"> 1-2mg IV every 15 minutes as needed (maximum 10mg) <p>Restraints</p> <ul style="list-style-type: none"> 2mg IM, may repeat once in 20 minutes; or 1mg IV, may repeat once in 5 minutes <p>Seizure</p> <ul style="list-style-type: none"> 2 – 4 mg IV every 5 minutes to a total of 8mg <p>Tachycardia</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IM, may repeat once in 10 minutes. <p>Traumatic Brain Injury</p> <ul style="list-style-type: none"> 1 mg IV, may repeat once in 5 minutes OR 2 mg IN, may repeat once in 10 minutes. <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> Generic: 2 mg/mL (1 mL, 10 mL); 4 mg/mL (1 mL, 10 mL) <p>**Special Note Product should be refrigerated unless specified otherwise**</p>

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Medication	Adult Protocol/Dosing
<p><u>Magnesium Sulfate</u> <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/COPD/RAD</p> <ul style="list-style-type: none"> 2 grams in 100ml NS given IV over 10 minutes. <p>OB/GYN</p> <ul style="list-style-type: none"> Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion <p>Seizure</p> <ul style="list-style-type: none"> Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion <p>.Cardiac Arrest/Tachycardia – Torsades de Pointes.</p> <ul style="list-style-type: none"> 1 – 2 grams IV over 5 minutes. <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> Generic: 40 mg/mL (50 mL, 100 mL, 500 mL, 1000 mL); 80 mg/mL (50 mL); 50% (2 mL, 10 mL, 20 mL, 50 mL) <p>Solution, Intravenous:</p> <ul style="list-style-type: none"> Generic: 10 mg/mL (100 mL); 20 mg/mL (500 mL) <p>**Special Note 1 g of magnesium sulfate = elemental magnesium 98.6 mg = magnesium 8.12 mEq = magnesium 4.06 mmol**</p>
<p><u>Methylprednisolone (Solu-medrol)</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Steroid used in respiratory distress to reverse inflammatory and allergic reactions. 	<p>Allergice Reaction Extended Care</p> <ul style="list-style-type: none"> 125 mg IV. <p>Asthma/COPD/RAD</p> <ul style="list-style-type: none"> 125 mg IV. <p>Suggested Formulations: Solution Reconstituted, Injection, as sodium succinate:</p> <ul style="list-style-type: none"> Solu-MEDROL: 40 mg (1 ea); 125 mg (1 ea); 500 mg (1 ea); 1000 mg (1 ea)
<p><u>Metoclopramide (Reglan)</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Anti-Emetic used to control Nausea and/or Vomiting. 	<p>Nausea/Vomiting</p> <ul style="list-style-type: none"> 5mg IV. May repeat once after 10 minutes if nausea/vomiting persists Extended care, may repeat every 4 – 6 hours as needed. <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> Generic: 5 mg/mL (2 mL)

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Medication	Adult Protocol/Dosing
<u>Metoprolol</u> (Lopressor)	Tachycardia <ul style="list-style-type: none">• 5mg IV over 2 – 5 minutes.<ul style="list-style-type: none">▪ May repeat every five minutes to a maximum of 15mg as needed to achieve a ventricular rate of 90 – 100. <p>Suggested Formulations: Solution, Intravenous, as tartrate:</p> <ul style="list-style-type: none">• Generic: 1 mg/mL (5 mL); 5 mg/5 mL (5 mL)• Lopressor: 1 mg/mL (5 mL)

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Medication	Adult Protocol/Dosing
<p><u>Midazolam</u> (Versed) Benzodiazepine</p> <p><u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Seizure control. • Sedation. • Anxiolytic. 	<p>Bradycardia</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>CPAP</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Hyperthermia</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Nerve Agent</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Poisoning/Substance Abuse/OD</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 20 minutes. <p>Post ETT Care</p> <ul style="list-style-type: none"> • 2– 5 mg IV, every 5 – 10 minutes as needed. <p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> • 0.2 mg/kg IV; 0.1mg/kg IV for patients in shock. <p>Seizure</p> <ul style="list-style-type: none"> • Midazolam 10 mg IM (preferred route) every 10 minutes or 5 – 10 mg IV/IN every 5 minutes <p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Restraints</p> <ul style="list-style-type: none"> • 5mg IM, may repeat once in 20 minutes; or 2.5mg IV/IN, may repeat once in 5 minutes <p>Excited/Agitated Delirium</p> <ul style="list-style-type: none"> • 5mg IV/IM/IN; may repeat once in 10 minutes <p>Tachycardia</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Traumatic Brain Injury</p> <ul style="list-style-type: none"> • 2.5 mg IV/IN may repeat once in 5 minutes OR • 5 mg IM may repeat once in 10 minutes. <p>Suggested Formulations: Solution, Injection</p> <ul style="list-style-type: none"> • Generic: 2 mg/2 mL (2 mL); 5 mg/5 mL (5 mL); 5 mg/mL (1 mL); 10 mg/2 mL (2 mL)

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Medication	Adult Protocol/Dosing
<p><u>Morphine Sulfate</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Narcotic analgesic Avoid use if BP < 100 mmHg. 	<p>Pain</p> <ul style="list-style-type: none"> 2 – 5mg IV/IM every 10 minutes to a total of 20 mg titrated to pain relief and if systolic BP is >100 mmHg. <p>Acute Coronary Syndrome</p> <ul style="list-style-type: none"> 2 – 5 mg IV/IM every 5 minutes to a maximum of 15mg titrated to pain and systolic BP remains >100 mmHg. <p>Suggested Formulations: Solution, Injection, as sulfate:</p> <ul style="list-style-type: none"> Generic: 2 mg/mL (1 mL); 10 mg/mL (1 mL)
<p><u>Naloxone</u> (Narcan) Narcotic Antagonist <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Narcotic overdose. 	<p>Pain</p> <p>Antidote: For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone 0.4 mg IV/IM or 2mg IN. If no response, may repeat initial dose every 5 minutes to a total of 10mg.</p> <p>Poisoning/Substance Abuse/OD Narcotic OD</p> <ul style="list-style-type: none"> 1mg (1mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2mg. <ul style="list-style-type: none"> If no response repeat in 3 - 5 minutes. 0.4 – 2.0 mg IV/IM or 2mg IN. <p>Suggested Formulations: Solution, Injection, as hydrochloride</p> <ul style="list-style-type: none"> Generic: 1 mg/mL (2 mL) <p>Solution Auto-injector, Injection, as hydrochloride:</p> <ul style="list-style-type: none"> Evzio: 0.4 mg/0.4 mL (0.4 mL)

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Medication

Adult Protocol/Dosing

<p><u>Nitroglycerin</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Vasodilator used in the treatment of chest pain secondary to acute coronary syndrome and CHF • Infusion pump required for infusion. 	<p>Acute Coronary Syndrome</p> <ul style="list-style-type: none"> • Facilitate administration of the patient's own nitroglycerin every 3 – 5 minutes while symptoms persist and systolic BP remains >100 mmHg, to a total of 3 doses • 0.4mg SL every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg. • 10 micrograms/minute if symptoms persist after 3rd SL nitroglycerin (must be on a pump). <ul style="list-style-type: none"> ▪ Increase IV nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic remains >100 mmHg. • If IV nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally. <p>Congestive Heart Failure</p> <ul style="list-style-type: none"> • Consider nitroglycerin 0.4mg SL every 5 minutes while symptoms persist and if the systolic BP is >140 mmHg. • If not improving with above measures and systolic BP remains >140 mmHg, consider: IV nitroglycerin 5 microgram/minute, increase by 5 micrograms/minute every 3 – 5 minutes to 20 micrograms/minute. (The IV nitroglycerin must be on an infusion pump). <ul style="list-style-type: none"> ▪ If not response at 20 micrograms/minute, may increase by 10 – 20 micrograms/minutes every 3 – 5 minute. (Generally, accepted maximum dose: 400 micrograms/minute.) OR • Nitroglycerin paste 1" – 2" transdermally.
<p><u>Nitrous Oxide</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • "non-narcotic analgesic gas • Contraindicated in abdominal pain, pneumothorax, head injury, or diving emergency patients. 	<p>Pain</p> <ul style="list-style-type: none"> • Patient self administers gas for pain control as needed

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<p><u>Norepinephrine</u> (Levophed) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Alpha and Beta 1 receptor adrenergic receptor agonist vasopressor • Infusion pump required. 	<p>Bradycardia</p> <ul style="list-style-type: none"> • Infusion 1 – 30 microgram/minute (Dilute 4mg in 1000mL in NaCl for 4 micrograms/mL) via pump <p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> • Infusion 1 – 30 microgram/min. (Dilute 4mg in 1000mL in NaCl for 4 micrograms/mL) via pump <p>Post Resuscitation Care</p> <ul style="list-style-type: none"> • Infusion 1 – 30 microgram/min. (Dilute 4mg in 1000mL in NaCl for 4 micrograms/mL) via pump <p>Septic Shock</p> <ul style="list-style-type: none"> • Infusion 1 – 30 microgram/minute (Dilute 4mg in 1000mL in NaCl for 4 micrograms/mL) via pump <p>Suggested Formulations: Solution, Intravenous [strength expressed as base]:</p> <ul style="list-style-type: none"> • Levophed: 1 mg/mL (4 mL) [contains sodium metabisulfite] • Generic: 1 mg/mL (4 mL)
<p><u>Ondansetron</u> (Zofran) Anti-emetic <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Anti-Emetic used to control Nausea and/or Vomiting. 	<p>Nausea/Vomiting</p> <ul style="list-style-type: none"> • 4mg by mouth or IV <p>Tablet Dispersible, Oral:</p> <ul style="list-style-type: none"> • Zofran ODT: 4 mg, • Generic: 4 mg, <p>Solution, Injection [preservative free]:</p> <ul style="list-style-type: none"> • Generic: 4 mg/2 mL (2 mL)
<p><u>Oxygen</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> • Indicated in any condition with increased cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion. Goal oxygen saturation $\geq 94\%$. • Indicated for pre-oxygenation whenever possible prior to endotracheal intubation. Goal oxygen saturation 100%. 	<ul style="list-style-type: none"> • 1-4 liters/min via nasal cannula. • 6-15 liters/min via NRB mask. • 15 liters via BVM / ETT / supraglottic airway.
<p><u>Oxytocin</u> (Pitocin) <u>Indications/Contraindications:</u> Routine administration after placental delivery</p>	<p>Obstetrical</p> <ul style="list-style-type: none"> • Oxytocin 10 units IM.

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<p><u>Phenylephrine</u> (Neo-Synephrine) Pump Required.</p>	<p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min. <p>Post Resuscitative Care</p> <ul style="list-style-type: none"> 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min.
<p><u>Pralidoxime</u> (2-PAM) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Antidote for Nerve Agents or Organophosphate Overdose. Administered with Atropine. 	<p>Nerve Agent</p> <ul style="list-style-type: none"> 1 – 2 gram over 30 – 60 minutes. Medical Control: Maintenance infusion: up to 500mg per hour (maximum of 12 grams/day).
<p><u>Prochlorperazine</u> (Compazine) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Anti-Emetic used to control Nausea and/or Vomiting. 	<p>Nausea/Vomiting</p> <ul style="list-style-type: none"> 5 – 10mg IV, or 5mg IM. <p>Suggested Formulations: Solution, Injection, as edisylate [strength expressed as base]:</p> <ul style="list-style-type: none"> Generic: 5 mg/mL (2 mL, 10 mL)
<p><u>Proparacaine</u> (Alcaine) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Topical anesthetic 	<p>Eye & Dental</p> <ul style="list-style-type: none"> 2 drops to affected eye; repeat every 5 minutes as needed. <p>Suggested Formulations: Solution, Ophthalmic, as hydrochloride:</p> <ul style="list-style-type: none"> Alcaine: 0.5% (15 mL) Parcaine: 0.5% (15 mL) Generic: 0.5% (15 mL)
<p><u>Rocuronium</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Non-depolarizing paralytic agent used as a component of rapid sequence intubation, when succinylcholine is contraindicated and for post intubation paralysis. Onset of action is longer than succinylcholine, up to 3 minutes, patient will NOT defasciculate. 	<p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> 1 mg/kg IV. <p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> 1mg/kg IV. <p>Suggested Formulations: Solution, Intravenous, as bromide:</p> <ul style="list-style-type: none"> Zemuron: 50 mg/5 mL (5 mL); 100 mg/10 mL (10 mL) Generic: 50 mg/5 mL (5 mL); 100 mg/10 mL (10 mL)
<p><u>Sodium Bicarbonate</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose. 	<p>Poisoning/Substance Abuse/OD Tricyclic with symptomatic dysrhythmias, (eg. tachycardia and wide QRS):</p> <ul style="list-style-type: none"> 2meq/kg IV. <p>Cardiac Arrest</p> <ul style="list-style-type: none"> 2 meq/kg IV.

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
<p><u>Succinylcholine</u> Paralytic Agent <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Paralytic Agent used as a component of rapid sequence intubation. Avoid in patients with burns >24 hours old, chronic neuromuscular disease (e.g., muscular dystrophy), ESRD, or other situation in which hyperkalemia is likely. 	<p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> 1.5mg/kg IV immediately after sedation (maximum 150mg). <p>Suggested Formulations: Solution, Injection, as chloride:</p> <ul style="list-style-type: none"> Generic: 20 mg/mL (10 mL) [contains methylparaben] Quelicin: 20 mg/mL (10 mL)
<p><u>Sucrose</u> <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Pain control for minor procedures 	<p>Pain – Pediatric Full term infants up to 60 days of age:</p> <ul style="list-style-type: none"> Slowly administer 1.5 to 2 ml of a 24% solution directly onto infant's anterior tongue over a period of 2 minutes, repeat once. Provide a pacifier for non-nutritive sucking and wait two minutes for onset. Pain control effects should persist for up to 8 minutes. <p>Preterm infants:</p> <ul style="list-style-type: none"> Follow same administration procedure using 0.1 –1.0 ml. <p>Dose may be repeated once for full term and preterm infants.</p>
<p><u>Tetracaine</u> <u>Indications/Contraindications:</u> Topical anesthetic</p>	<p>Eye & Dental</p> <ul style="list-style-type: none"> 2 drops to affected eye; repeat every 5 minutes as needed. <p>Suggested Formulations:</p> <ul style="list-style-type: none"> Generic: 0.5% (1 mL, 2 mL, 15 mL)
<p><u>Vasopressin</u> (Pitressin) <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Used in place of and/or in addition to epinephrine in the setting of cardiac arrest. 	<p>Cardiac Arrest</p> <ul style="list-style-type: none"> 40 units IV / IO, may replace first or second dose of epinephrine. <p>Suggested Formulations: Solution, Injection:</p> <ul style="list-style-type: none"> Generic: 20 units/mL (1 mL)
<p><u>Vecuronium</u> Paralytic Agent <u>Indications/Contraindications:</u></p> <ul style="list-style-type: none"> Long-acting non-depolarizing paralytic agent. Avoid in patients with chronic neuromuscular disease (e.g., muscular dystrophy). 	<p>Induced Therapeutic Hypothermia</p> <ul style="list-style-type: none"> 0.1 mg/kg IV. <p>Rapid Sequence Intubation</p> <ul style="list-style-type: none"> 0.1 mg/kg IV. <p>Suggested Formulations: Solution Reconstituted, Intravenous, as bromide:</p> <ul style="list-style-type: none"> Generic: 10 mg (1 ea); 20 mg (1 ea)

Pediatric Color Coded Appendix

Weight 3-5 Kg (Avg 4.0 Kg)			
Length < 59.5 cm	Vital Signs Heart Rate: 120-150 Respirations: 24-48 BP Systolic: 70 (+/-25)	Albuterol 2.5 mg Amiodarone 20 mg Atropine- Bradycardia 0.08 mg - Organophosphate Poison 0.2 mg Calcium Chloride 80 mg Calcium Gluconate 400mg Dexamethasone 2 mg Dextrose 10% Titrate to baseline Diazepam (IV) 0.8 mg (Rectal) 2.0 mg Diphenhydramine HOLD Epinephrine 1:10,000 0.04 mg Epinephrine 1:1000 Nebulized 3 mg Epinephrine 1:1000 IM 0.04 mg Fentanyl 4 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 8 mg Hydroxocobalamin 280 mg Ibuprofen HOLD	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 160 mg - Torsades 200 mg Methylprednisolone 1mg/kg 4 mg 2mg/kg 8 mg Midazolam (0.1mg/kg) 0.4 mg Morphine Sulfate 0.4 mg Naloxone 0.4 mg Ondansetro - IV 0.4 mg - ODT 4 mg Pralidoxime IV 200 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 40-80 ml		
	Acetaminophen 60 mg Adenosine: 1 st Dose- 0.4 mg Repeat Dose- 0.8 mg Activated Charcoal 4.2grams		

Gray (0-3 months)

Weight 6-7 Kg (Avg 6.5 Kg)			
Length 59.5-66.5 cm	Vital Signs Heart Rate: 120-125 Respirations: 24-48 BP Systolic: 85 (+/-25)	Albuterol 2.5 mg Amiodarone 32.5 mg Atropine- Bradycardia 0.13 mg - Organophosphate Poison 0.325 mg Calcium Chloride 130 mg Calcium Gluconate 650mg Dexamethasone 4 mg Dextrose 10% Titrate to baseline Diazepam (IV) 1.3 mg (Rectal) 3.25 mg Diphenhydramine HOLD Epinephrine 1:10,000 0.065 mg Epinephrine 1:1000 Nebulized 3 mg Epinephrine 1:1000 IM 0.065 mg Fentanyl 6.5 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 13 mg Hydroxocobalamin 455 mg Ibuprofen HOLD	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 260mg - Torsades 325 mg Methylprednisolone 1mg/kg 6.5 mg 2mg/kg 13 mg Midazolam (0.1mg/kg) 0.65 mg Morphine Sulfate 0.65 mg Naloxone 0.4 - 0.65 mg Ondansetro - IV 0.65mg - ODT 4 mg Pralidoxime IV 325 mg - Infusion 130 mg/hr Proparacaine 2 drops Sodium Bicarbonate 13 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 65-130 ml		
	Acetaminophen 97.5 mg Adenosine: 1 st Dose- 0.65 mg Repeat Dose- 1.3 mg Activated Charcoal 6.3 grams		

Pink (3-6 Months)

Weight 8-9 Kg (Avg 8.5 Kg)			
Length 66.5-74 cm	Vital Signs Heart Rate: 120 Respirations: 24-32 BP Systolic: 92 (+/-25)	Albuterol 2.5 mg Amiodarone 42.5 mg Atropine- Bradycardia 0.17 mg - Organophosphate Poison 0.425 mg Calcium Chloride 170 mg Calcium Gluconate 850mg Dexamethasone 5 mg Dextrose 10% Titrate to baseline Diazepam (IV) 1.7 mg (Rectal) 4.25 mg Diphenhydramine HOLD Epinephrine 1:10,000 0.085 mg Epinephrine 1:1000 Nebulized 3 mg Epinephrine 1:1000 IM 0.085 mg Fentanyl 8.5 mcg Glucagon 0.5 mg Glucose Oral 1 tube Hydrocortisone 17 mg Hydroxocobalamin 595 mg Ibuprofen 85 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 340 mg - Torsades 425 mg Methylprednisolone 1mg/kg 8.5 mg 2mg/kg 17 mg Midazolam (0.1mg/kg) 0.85 mg Morphine Sulfate 0.85 mg Naloxone 0.4 - 0.85 mg Ondansetro - IV 0.85 mg - ODT 4 mg Pralidoxime IV 425 mg - Infusion 210 mg/hr Proparacaine 2 drops Sodium Bicarbonate 21 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 85-170 ml		
	Acetaminophen 127.5 mg Adenosine: 1 st Dose- 0.85 mg Repeat Dose- 1.7 mg Activated Charcoal 8.3grams		

Red (7-10 Months)

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 105-210 ml	
Acetaminophen 160 mg	
Adenosine:	
1 st Dose-	1.05 mg
Repeat Dose-	2.1 mg
Activated Charcoal 10.4 grams	

Albuterol	2.5 mg
Amiodarone	52. mg
Atropine- Bradycardia	0.21 mg
- Organophosphate Poison	0.525 mg
Calcium Chloride	210 mg
Calcium Gluconate	1050mg
Dexamethasone	6 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	2.1 mg
(Rectal)	5.25 mg
Diphenhydramine	13.125 mg
Epinephrine 1:10,000	0.105 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.105 mg
Fentanyl	10.5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	21 mg
Hydroxocobalamin	735 mg
Ibuprofen	105 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	1.05 mg
Magnesium Sulfate	
- RAD	420 mg
- Torsades	525 mg
Methylprednisolone	
1mg/kg	10.5 mg
2mg/kg	21 mg
Midazolam (0.1mg/kg)	1.05 mg
Morphine Sulfate	1.05 mg
Naloxone	1.05 mg
Ondansetron - IV	1.05 mg
- ODT	4 mg
Pralidoxime IV	525 mg
- Infusion	210 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	21 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 130-260 ml	
Acetaminophen 195 mg	
Adenosine:	
1 st Dose-	1.3mg
Repeat Dose-	2.6 mg
Activated Charcoal 12.5 grams	

Albuterol	2.5 mg
Amiodarone	65 mg
Atropine- Bradycardia	0.26 mg
- Organophosphate Poison	0.65 mg
Calcium Chloride	260 mg
Calcium Gluconate	1300mg
Dexamethasone	8 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	2.6 mg
(Rectal)	6.5 mg
Diphenhydramine	16.25
Epinephrine 1:10,000	0.13 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.13 mg
Fentanyl	13 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	26 mg
Hydroxocobalamin	910 mg
Ibuprofen	130 mg

Ipratropium w/ albuterol	500 mcg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	13 mg
- Traumatic Brain Injury	19.5mg
- Intraosseous	6.5 mg
Lorazepam	1.3 mg
Magnesium Sulfate	
- RAD	520 mg
- Torsades	650 mg
Methylprednisolone	
1mg/kg	13 mg
2mg/kg	26 mg
Midazolam (0.1mg/kg)	1.3 mg
Morphine Sulfate	1.3 mg
Naloxone	0.4 - 1.3 mg
Ondansetron - IV	1.3 mg
- ODT	4 mg
Pralidoxime IV	650 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 165-330 ml	
Acetaminophen 247.5 mg	
Adenosine:	
1 st Dose-	1.65 mg
Repeat Dose-	3.3 mg
Activated Charcoal 16.7 grams	

Albuterol	2.5 mg
Amiodarone	82.5 mg
Atropine- Bradycardia	0.33 mg
- Organophosphate Poison	0.825 mg
Calcium Chloride	330 mg
Calcium Gluconate	1650mg
Dexamethasone	10 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	3.3 mg
(Rectal)	8.5 mg
Diphenhydramine	20.625
Epinephrine 1:10,000	0.165 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.165 mg
Fentanyl	16.5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	33 mg
Hydroxocobalamin	1155 mg
Ibuprofen	165 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	1.65 mg
Magnesium Sulfate	
- RAD	660 mg
- Torsades	825 mg
Methylprednisolone	
1mg/kg	16.5 mg
2mg/kg	33 mg
Midazolam (0.1mg/kg)	1.65 mg
Morphine Sulfate	1.65 mg
Naloxone	0.4 - 1.65 mg
Ondansetron - IV	1.65 mg
- ODT	4 mg
Pralidoxime IV	825 mg
- Infusion	330 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	33 mEq
Tetracaine	2 drops

White (3-4 yrs)

Pediatric Color Coded Appendix

Weight 19-22 Kg (Avg 20.75 Kg)

Length 110-122 cm

Vital Signs	
Heart Rate:	100
Respirations:	20-24
BP Systolic:	100 (+/-15)
Equipment	
ET Tube:	5.5
Blade Size:	2
Defibrillation	
Defibrillation:	40 J, 85 J
Cardioversion:	10 J, 20 J
Normal Saline 205-410 ml	
Acetaminophen	311.25 mg
Adenosine:	
1 st Dose-	2.075 mg
Repeat Dose-	4.15 mg
Activated Charcoal	20.8 grams

Albuterol	2.5 mg
Amiodarone	103.75 mg
Atropine- Bradycardia	0.415 mg
- Organophosphate Poison	1.0375 mg
Calcium Chloride	415 mg
Calcium Gluconate	2grams
Dexamethasone	10 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	4.15 mg
(Rectal)	10.375 mg
Diphenhydramine	25.93mg
Epinephrine 1:10,000	0.2075 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.2075 mg
Fentanyl	20.75 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	41.5 mg
Hydroxocobalamin	1452.5 mg
Ibuprofen	207.5 mg

Ipratropium w/ albuterol	500 mcg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	20.75 mg
- Traumatic Brain Injury	31.125mg
- Intraosseous	10.375 mg
Lorazepam	2.075 mg
Magnesium Sulfate	
- RAD	830 mg
- Torsades	1037.5 mg
Methylprednisolone	
1mg/kg	20.75 mg
2mg/kg	41.5 mg
Midazolam (0.1mg/kg)	2.075 mg
Morphine Sulfate	2.075 mg
Naloxone	0.4 - 2 mg
Ondansetro - IV	2.075 mg
- ODT	4 mg
Pralidoxime IV	1037.5 mg
- Infusion	415 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	41.5 mEq
Tetracaine	2 drops

Blue (5-6 yrs)

Weight 24-30 Kg (Avg 27 Kg)

Length 122-137 cm

Vital Signs	
Heart Rate:	90
Respirations:	18-22
BP Systolic:	105 (+/-15)
Equipment	
ET Tube:	6.0
Blade Size:	2-3
Defibrillation	
Defibrillation:	50 J, 100 J
Cardioversion:	15 J, 30 J
Normal Saline 250-500 ml	
Acetaminophen	405 mg
Adenosine:	
1 st Dose-	2.7 mg
Repeat Dose-	5.4 mg
Activated Charcoal	27 grams

Albuterol	2.5 mg
Amiodarone	135 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.35 mg
Calcium Chloride	540 mg
Calcium Gluconate	2grams
Dexamethasone	10 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	5.4 mg
(Rectal)	13.5 mg
Diphenhydramine	33.75 mg
Epinephrine 1:10,000	0.27 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.27 mg
Fentanyl	27 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	54 mg
Hydroxocobalamin	1890 mg
Ibuprofen	270 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	2.7 mg
Magnesium Sulfate	
- RAD	1080 mg
- Torsades	1350 mg
Methylprednisolone	
1mg/kg	27 mg
2mg/kg	54 mg
Midazolam (0.1mg/kg)	2.7 mg
Morphine Sulfate	2.7 mg
Naloxone	0.4 - 2 mg
Ondansetro - IV	2.7 mg
- ODT	4 mg
Pralidoxime IV	1350 mg
- Infusion	540 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	54 mEq
Tetracaine	2 drops

Orange (7-9 yrs)

Weight 32-40 Kg (Avg 36 Kg)

Length 137-150 cm

Vital Signs	
Heart Rate:	85-90
Respirations:	16-22
BP Systolic:	115 (+/-20)
Equipment	
ET Tube:	6.5
Blade Size:	3
Defibrillation	
Defibrillation:	60 J, 150 J
Cardioversion:	15 J, 30 J
Normal Saline 250-500 ml	
Acetaminophen	540 mg
Adenosine:	
1 st Dose-	3.6 mg
Repeat Dose-	7.2 mg
Activated Charcoal	33.3

Albuterol	2.5 mg
Amiodarone	180 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.8 mg
Calcium Chloride	720 mg
Calcium Gluconate	2grams
Dexamethasone	10 mg
Dextrose 10%	Titrate to baseline
Diazepam (IV)	7.2 mg
(Rectal)	18 mg
Diphenhydramine	45 mg
Epinephrine 1:10,000	0.36 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.36 mg
Fentanyl	36 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	72 mg
Hydroxocobalamin	2520 mg
Ibuprofen	360 mg

Ipratropium w/ albuterol	500 mcg
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	36 mg
- Traumatic Brain Injury	54 mg
- Intraosseous	18 mg
Lorazepam	3.6 mg
Magnesium Sulfate	
- RAD	1440 mg
- Torsades	1800 mg
Methylprednisolone	
1mg/kg	36 mg
2mg/kg	72 mg
Midazolam (0.1mg/kg)	3.6 mg
Morphine Sulfate	3.6 mg
Naloxone	0.4 - 2 mg
Ondansetro - IV	3.6 mg
- ODT	4 mg
Pralidoxime IV	1800 mg
- Infusion	720 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	72 mEq
Tetracaine	2 drops

Green (10-12 yrs)

NH Pediatric Drip Rate Reference

Pediatric Dopamine 200mg in 250mL = 800 mcg/mL

5-20mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.01	0.6	0.02	1	0.02	1	0.03	2	0.03	2	0.04	2	0.05	3	0.07	4	0.09	5
5	0.03	1.5	0.04	2	0.05	3	0.07	4	0.08	5	0.10	6	0.13	8	0.17	10	0.23	14
10	0.05	3.0	0.08	5	0.11	6	0.13	8	0.16	10	0.21	12	0.26	16	0.34	20	0.45	27
15	0.08	4.5	0.12	7	0.16	10	0.20	12	0.24	15	0.31	19	0.39	23	0.51	30	0.68	41
20	0.10	6.0	0.16	10	0.21	13	0.26	16	0.33	20	0.41	25	0.52	31	0.68	41	0.90	54

Pediatric Dopamine 200mg in 500mL = 400mcg/mL

2-10mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.02	1.2	0.03	2	0.04	3	0.05	3	0.07	4	0.08	5	0.10	6	0.14	8	0.18	11
5	0.05	3.0	0.08	5	0.11	6	0.13	8	0.16	10	0.21	12	0.26	16	0.34	20	0.45	27
10	0.10	6.0	0.16	10	0.21	13	0.26	16	0.33	20	0.41	25	0.52	31	0.68	41	0.90	54
15	0.15	9.0	0.24	15	0.32	19	0.39	24	0.49	29	0.62	37	0.78	47	1.01	61	1.35	81
20	0.20	12.0	0.33	20	0.43	26	0.53	32	0.65	39	0.83	50	1.04	62	1.35	81	1.80	108

Pediatric Dopamine 400mg in 250mL = 1600mcg/mL

2-10mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.01	0.3	0.01	0.5	0.01	1	0.01	1	0.02	1	0.02	1	0.03	2	0.03	2	0.05	3
5	0.01	0.8	0.02	1	0.03	2	0.03	2	0.04	2	0.05	3	0.06	4	0.08	5	0.11	7
10	0.03	1.5	0.04	2	0.05	3	0.07	4	0.08	5	0.10	6	0.13	8	0.17	10	0.23	14
15	0.04	2.3	0.06	4	0.08	5	0.10	6	0.12	7	0.15	9	0.19	12	0.25	15	0.34	20
20	0.05	3.0	0.08	5	0.11	6	0.13	8	0.16	10	0.21	12	0.26	16	0.34	20	0.45	27

Pediatric Dopamine 400mg in 500mL = 800mcg/mL

2-10mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.01	0.6	0.02	1	0.02	1	0.03	2	0.03	2	0.04	2	0.05	3	0.07	4	0.09	5
5	0.03	1.5	0.04	2	0.05	3	0.07	4	0.08	5	0.10	6	0.13	8	0.17	10	0.23	14
10	0.05	3.0	0.08	5	0.11	6	0.13	8	0.16	10	0.21	12	0.26	16	0.34	20	0.45	27
15	0.08	4.5	0.12	7	0.16	10	0.20	12	0.24	15	0.31	19	0.39	23	0.51	30	0.68	41
20	0.10	6.0	0.16	10	0.21	13	0.26	16	0.33	20	0.41	25	0.52	31	0.68	41	0.90	54

NH Pediatric Drip Rate Reference

Pediatric Epinephrine: 1mg in 1000 = 1mcg/mL

0.1-1mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
0.1	0.40	24	0.65	39	0.85	51	1.05	63	1.30	78	1.65	99	2.08	125	2.70	162	3.60	216
0.2	0.80	48	1.30	78	1.70	102	2.10	126	2.60	156	3.30	198	4.15	249	5.40	324	7.20	432
0.3	1.20	72	1.95	117	2.55	153	3.15	189	3.90	234	4.95	297	6.23	374	8.10	486	10.80	648
0.4	1.60	96	2.60	156	3.40	204	4.20	252	5.20	312	6.60	396	8.30	498	10.80	648	14.40	864
0.5	2.00	120	3.25	195	4.25	255	5.25	315	6.50	390	8.25	495	10.38	623	13.50	810	18.00	1080
0.6	2.40	144	3.90	234	5.10	306	6.30	378	7.80	468	9.90	594	12.45	747	16.20	972	21.60	1296
0.7	2.80	168	4.55	273	5.95	357	7.35	441	9.10	546	11.55	693	14.53	872	18.90	1134	25.20	1512
0.8	3.20	192	5.20	312	6.80	408	8.40	504	10.40	624	13.20	792	16.60	996	21.60	1296	28.80	1728
0.9	3.60	216	5.85	351	7.65	459	9.45	567	11.70	702	14.85	891	18.68	1121	24.30	1458	32.40	1944
1	4.00	240	6.50	390	8.50	510	10.50	630	13.00	780	16.50	990	20.75	1245	27.00	1620	36.00	2160

Pediatric Norepinephrine 4mg in 1000mL = 4mcg/mL

0.1-2mcg/kg/min

Dose	4kg		6.5kg		8.5kg		10.5kg		13kg		16.5kg		20.75kg		27kg		36kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
0.1	0.10	6	0.16	10	0.21	13	0.26	16	0.33	20	0.41	25	0.52	31	0.68	41	0.90	54
0.2	0.20	12	0.33	20	0.43	26	0.53	32	0.65	39	0.83	50	1.04	62	1.35	81	1.80	108
0.3	0.30	18	0.49	29	0.64	38	0.79	47	0.98	59	1.24	74	1.56	93	2.03	122	2.70	162
0.4	0.40	24	0.65	39	0.85	51	1.05	63	1.30	78	1.65	99	2.08	125	2.70	162	3.60	216
0.5	0.50	30	0.81	49	1.06	64	1.31	79	1.63	98	2.06	124	2.59	156	3.38	203	4.50	270
0.6	0.60	36	0.98	59	1.28	77	1.58	95	1.95	117	2.48	149	3.11	187	4.05	243	5.40	324
0.7	0.70	42	1.14	68	1.49	89	1.84	110	2.28	137	2.89	173	3.63	218	4.73	284	6.30	378
0.8	0.80	48	1.30	78	1.70	102	2.10	126	2.60	156	3.30	198	4.15	249	5.40	324	7.20	432
0.9	0.90	54	1.46	88	1.91	115	2.36	142	2.93	176	3.71	223	4.67	280	6.08	365	8.10	486
1.0	1.00	60	1.63	98	2.13	128	2.63	158	3.25	195	4.13	248	5.19	311	6.75	405	9.00	540
1.5	1.50	90	2.44	146	3.19	191	3.94	236	4.88	293	6.19	371	7.78	467	10.13	608	13.50	810
2.0	2.00	120	3.25	195	4.25	255	5.25	315	6.50	390	8.25	495	10.38	623	13.50	810	18.00	1,080

NH Adult Drip Rate Reference

Adult Dopamine 200mg in 250mL = 800 mcg/mL

5-20mcg/kg.min

Dose	50kg		60kg		70kg		80kg		90kg		100 kg		110kg		120kg		130kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.13	7.5	0.15	9	0.18	11	0.20	12	0.23	14	0.25	15	5.28	17	0.30	18	0.33	20
5	0.31	18.8	0.38	23	0.44	26	0.50	30	0.56	34	0.63	38	13.19	41	0.75	45	0.81	49
10	0.63	37.5	0.75	45	0.88	53	1.00	60	1.13	68	1.25	75	26.38	83	1.50	90	1.63	98
15	0.94	56.3	1.13	68	1.31	79	1.50	90	1.69	101	1.88	113	39.56	124	2.25	135	2.44	146
20	1.25	75.0	1.50	90	1.75	105	2.00	120	2.25	135	2.50	150	52.75	165	3.00	180	3.25	195

Adult Dopamine 200mg in 500mL = 400mcg/mL

2-10mcg/kg/min

Dose	50kg		60kg		70kg		80kg		90kg		100 kg		110kg		120kg		130kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.03	15.0	0.30	18	0.35	21	0.40	24	0.45	27	0.50	30	0.55	33	0.60	36	0.65	39
5	0.06	37.5	0.75	45	0.88	53	1.00	60	1.13	68	1.25	75	1.38	83	1.50	90	1.63	98
10	0.13	75.0	1.50	90	1.75	105	2.00	120	2.25	135	2.50	150	2.75	165	3.00	180	3.25	195
15	0.19	112.5	2.25	135	2.63	158	3.00	180	3.38	203	3.75	225	4.13	248	4.50	270	4.88	293
20	0.25	150.0	3.00	180	3.50	210	4.00	240	4.50	270	5.00	300	5.50	330	6.00	360	6.50	390

Adult Dopamine 400mg in 250mL = 1600mcg/mL

2-10mcg/kg/min

Dose	50kg		60kg		70kg		80kg		90kg		100 kg		110kg		120kg		130kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.06	4	0.08	4.5	0.09	5	0.10	6	0.11	7	0.13	8	0.14	8	0.15	9	0.16	10
5	0.16	9	0.19	11.3	0.22	13	0.25	15	0.28	17	0.31	19	0.34	21	0.38	23	0.41	24
10	0.31	19	0.38	22.5	0.44	26	0.50	30	0.56	34	0.63	38	0.69	41	0.75	45	0.81	49
15	0.47	28	0.56	33.8	0.66	39	0.75	45	0.84	51	0.94	56	1.03	62	1.13	68	1.22	73
20	0.63	38	0.75	45.0	0.88	53	1.00	60	1.13	68	1.25	75	1.38	83	1.50	90	1.63	98

Adult Dopamine 400mg in 500mL = 800mcg/mL

2-10mcg/kg/min

Dose	50kg		60kg		70kg		80kg		90kg		100 kg		110kg		120kg		130kg	
	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr	mL/min	mL/hr
2	0.13	7.5	0.15	9	0.18	11	0.20	12	0.23	14	0.25	15	5.28	17	0.30	18	0.33	20
5	0.31	18.8	0.38	23	0.44	26	0.50	30	0.56	34	0.63	38	13.19	41	0.75	45	0.81	49
10	0.63	37.5	0.75	45	0.88	53	1.00	60	1.13	68	1.25	75	26.38	83	1.50	90	1.63	98
15	0.94	56.3	1.13	68	1.31	79	1.50	90	1.69	101	1.88	113	39.56	124	2.25	135	2.44	146
20	1.25	75.0	1.50	90	1.75	105	2.00	120	2.25	135	2.50	150	52.75	165	3.00	180	3.25	195

NH Adult Drip Rate Reference

Adult Epinephrine 1mg in 1000 mL = 1mcg/mL
2-10mcg/min

Dose		
	mL/min	mL/hr
2	2	120
3	3	180
4	4	240
5	5	300
6	6	360
7	7	420
8	8	480
9	9	540
10	10	600

Adult Norepinephrine 4mg in 1000mL = 4mcg/mL
1-30 mcg/min

Dose		
	mL/min	mL/hr
1	0.25	15
5	1.25	75
10	2.50	150
15	3.75	225
20	5.00	300
25	6.25	375
30	7.50	450

Adult Epinephrine 1mg in 500 mL = 2 mcg/mL
2-10mcg/min

Dose		
	mL/min	mL/hr
2	1	60
3	1.5	90
4	2	120
5	2.5	150
6	3	180
7	3.5	210
8	4	240
9	4.5	270
10	5	300

Adult Norepinephrine 4mg in 500 mL = 8mcg/mL
1-30mcg/min

Dose		
	mL/min	mL/hr
1	0.13	7.5
5	0.63	37.5
10	1.25	75
15	1.88	112.5
20	2.50	150
25	3.13	187.5
30	3.75	225

Adult Epinephrine 1mg in 250mL = 4mcg/mL
2-10mcg/min

Dose		
	mL/min	mL/hr
2	0.5	30
3	0.75	45
4	1	60
5	1.25	75
6	1.5	90
7	1.75	105
8	2	120
9	2.25	135
10	2.5	150

Adult Nitroglycerin 50mg in 250 = 200mcg/mL
5-400mcg/min

Dose		
	mL/min	mL/hr
5	0.025	1.5
10	0.05	3
15	0.075	4.5
20	0.1	6
50	0.25	15
100	0.5	30
200	1	60
300	1.5	90
400	2	120

Adult Nitroglycerin 100mg in 250 = 400mcg/mL
5-400mcg/min

Dose		
	mL/min	mL/hr
5	0.013	0.75
10	0.025	1.5
15	0.038	2.25
20	0.05	3
50	0.125	7.5
100	0.25	15
200	0.5	30
300	0.75	45
400	1	60

ADULT Scope of Practice

Airway Management	EMR	EMT	AEMT	PARAMEDIC
BVM	X	X	X	X
Chest Tube Maintenance				X
Cleared, Opened, Heimlich	X	X	X	X
CPAP			*	X
Cricothyrotomy – Percutaneous				X
Cricothyrotomy – Surgical (Bougie Assisted)				Prerequisite
Endotracheal Intubation				X
Endotracheal Suctioning			X	X
Nasogastric Tube				X
Nasopharyngeal Airway		X	X	X
Nasotracheal Intubation				X
Nebulizer Treatment			X	X
Needle Decompression				X
Oral Suctioning	X	X	X	X
Oropharyngeal Airway	X	X	X	X
Oxygen Administration	X	X	X	X
Pulse Oximetry		X	X	X
Rapid Sequence Intubation				Prerequisite
Supraglottic Airways		*	X	X
Tracheostomy Maintenance		X	X	X
Ventilator Operation				X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

▲ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

ADULT Scope of Practice

Medication Administration Route	EMR	EMT	AEMT	PARAMEDIC
Auto Injector	Provider Protection	X	X	X
Blood Products				X
Endotracheal				X
Inhalation		MDI	X	X
Intramuscular			X	X
Intraosseous			*	X
Intravenous			X	X
Intravenous Pump				X
Oral		X	X	X
Intranasal	*	*	X	X
Rectal				X
Subcutaneous			X	X
Sublingual		Assist	X	X
Vascular Access	EMR	EMT	AEMT	PARAMEDIC
Blood Draw			*	X
Blood Glucose Analysis		*	X	X
Central Line Maintenance				X
External Jugular				X
Peripheral Venous Access			X	X
Intraosseous - Adult			Δ or * Commercial Devices	X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

Δ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

ADULT Scope of Practice

Cardiac Management	EMR	EMT	AEMT	PARAMEDIC
Application of 12 Lead ECG		*	*	X
Application of 3 or 4 lead ECG		*	*	X
CPR - Cardiopulmonary Resuscitation	X	X	X	X
Defibrillation - AED	X	X	X	X
Defibrillation - Manual			*	X
Induced Therapeutic Hypothermia				X
Interpretation of 12 Lead ECG				X
Interpretation of 3 or 4 lead			Vfib/Vtach Asystole, PEA*	X
Synchronized Cardioversion				X
Transcutaneous Pacing				X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

Δ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

PEDIATRIC Scope of Practice

Airway Management	EMR	EMT	AEMT	PARAMEDIC
BVM	X	X	X	X
Cleared, Opened, Heimlich	X	X	X	X
CPAP			Δ	X
Endotracheal Intubation				X
Endotracheal Suctioning			X	X
Nasogastric Tube				X
Nasopharyngeal Airway		X	X	X
Nebulizer Treatment			Δ	X
Needle Decompression				X
Oral Suctioning	X	X	X	X
Oropharyngeal Airway	X	X	X	X
Oxygen Administration	X	X	X	X
Pulse Oximetry		X	X	X
Supraglottic Airways		*	Δ or *	X
Tracheostomy Maintenance		X	X	X
Ventilator Operation				X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

Δ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

PEDIATRIC Scope of Practice

Medication Administration Route	EMR	EMT	AEMT	PARAMEDIC
Auto Injector		X	X	X
Endotracheal				X
Inhalation		MDI	Δ	X
Intramuscular			Δ	X
Intraosseous			Δ	X
Intravenous			Δ	X
Intravenous Pump			Interfacility transfers	X
Oral		X	X	X
Rectal		Assist Diastat	Assist Diastat	X
Subcutaneous			Δ	X
Vascular Access	EMR	EMT	AEMT	PARAMEDIC
Blood Draw				X
Blood Glucose Analysis		*	Δ or *	X
Central Line Access				X
Intraosseous			Δ	X
Peripheral Venous Access			Δ	X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

Δ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

PEDIATRIC Scope of Practice

Cardiac Management	EMR	EMT	AEMT	PARAMEDIC
Application of 12 Lead ECG		*	*	X
Application of 3 or 4 Lead ECG		*	*	X
CPR - Cardiopulmonary Resuscitation	X	X	X	X
Defibrillation - AED	X	X	X	X
Defibrillation - Manual				X
Interpretation of 12 Lead ECG				X
Interpretation of 3 or 4 lead				X
Synchronized Cardioversion				X
Transcutaneous Pacing				X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

Δ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

ADULT & PEDIATRIC Scope of Practice

OTHER SKILLS	EMR	EMT	AEMT	PARAMEDIC
Advanced Spinal Assessment		*	*	*
Burn Care	X	X	X	X
Cervical Spinal Immobilization	Manual Stabilization	X	X	X
Childbirth	X	X	X	X
Cold Pack	X	X	X	X
Extrication		X	X	X
Eye Irrigation (Morgan Lens)				X
Hot Pack	X	X	X	X
Immunization			X	Prerequisite
Restraints - Pharmacological				X
Restraints - Physical		X	X	X
Spinal Motion Restriction	Manual Stabilization	X	X	X
Splinting	Manual Stabilization	X	X	X
Splinting - Traction	Manual Stabilization	X	X	X
Stroke Scale		X	X	X
Temperature		X	X	X
Wound Care - Occlusive Dressing	X	X	X	X
Wound Care Pressure Bandage	X	X	X	X

X Skill allowed under protocol and taught in the National Education Standards.

***** Skill allowed under protocol after completion of a scope of practice module.

▲ Skills allowed under protocol for licensed AEMTs; NOT allowed for EMT-Intermediates.

Revised 09/10/15

Appendix 6

HIPAA PERMITS DISCLOSURE TO HEALTHCARE PROFESSIONALS AS NECESSARY FOR TREATMENT

Provider Orders for Life-Sustaining Treatment (POLST) This is a Physician/APRN Order Sheet. <u>First</u> follow these orders, <u>then</u> contact physician or APRN. These medical orders are based on the patient's current medical condition and preferences. Any section not completed does not invalidate the form and implies full treatment for that section.		Last Name of Patient	
		First Name/Middle Initial for Patient	
		Date of Birth (mm/dd/yyyy) _____, _____, _____	Last 4 SSN <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Section A Check One	Cardiopulmonary Resuscitation (CPR): Patient has no pulse <u>or</u> is not breathing. <input type="checkbox"/> Attempt CPR <input type="checkbox"/> Do Not Attempt Resuscitation/DNR (The PINK Portable-DNR must accompany the POLST for DNR to be in effect in all NH settings.) Follow orders in B , C and D when not in cardiopulmonary arrest.		
Section B Check One	Medical Interventions: Patient has pulse and/<u>or</u> is breathing. <input type="checkbox"/> Full Treatment – Includes care described below, Use intubation, advanced airway interventions, mechanical ventilation, and cardioversion as indicated. <i>Transfer to hospital if indicated. Includes intensive care.</i> <input type="checkbox"/> Limited Interventions – Includes care described below. Use medical treatment, IV fluids and cardiac monitor as indicated. Do not use intubation, advanced airway interventions, or mechanical ventilation. May consider less invasive airway support (e.g. CPAP, BiPAP). <i>Transfer to hospital level of care to meet need, if indicated. Avoid intensive care.</i> <input type="checkbox"/> Comfort-focused Care – Use medication by any route, positioning, wound care and other measures to relieve pain and discomfort. Use oxygen, suction and manual treatment of airway obstruction as needed. <i>Patient prefers no transfer to hospital for life-sustaining treatment. Transfer to more acute level if comfort needs cannot be met in current location.</i>		
Other Instructions: _____			
Section C Check Only One in Each Column	Medically Administered Fluids and Nutrition. Oral fluids and nutrition must be offered if medically feasible and consistent with patient's goals of care. <input type="checkbox"/> IV fluids long-term <input type="checkbox"/> IV fluids for a defined trial period (provide other measures to assure comfort) <input type="checkbox"/> No IV Fluids (provide other measures to assure comfort)		
	<input type="checkbox"/> Feeding tube long-term <input type="checkbox"/> Feeding tube for a defined trial period <input type="checkbox"/> No feeding tube		
Section D Check One	<input type="checkbox"/> Antibiotics if indicated clinically or by testing. <input type="checkbox"/> No antibiotics		
	<input type="checkbox"/> Antibiotics only if likely to contribute to comfort		
Section E Check All That Apply	Discussed with: <input type="checkbox"/> Patient <input type="checkbox"/> DPOAH representative <input type="checkbox"/> Court-appointed guardian <input type="checkbox"/> Parent(s) of minor <input type="checkbox"/> Other: _____ (specify)		
	The basis for these orders is: <input type="checkbox"/> Patient's preference <input type="checkbox"/> Activated Durable Power of Attorney for Healthcare (DPOAH) <input type="checkbox"/> Activated Living Will <input type="checkbox"/> Parent of Minor <input type="checkbox"/> Guardianship <input type="checkbox"/> Other: _____ (specify)		
	Documentation of discussion is located in medical chart at:		Date of Discussion:
Mandatory Signature of Patient or Activated DPOAH, Guardian or Parent of Minor, and Physician/APRN			
Name (Print)	Signature (Mandatory)	Date	Relationship (write "self" if patient)
Physician/APRN Name: (Print)	Physician/APRN Phone Number:	Physician/APRN State License Number:	
Physician/APRN Signature: (Mandatory)		Date:	

HIPAA PERMITS DISCLOSURE TO HEALTH PROFESSIONALS INVOLVED IN THE PATIENT'S CARE

Information for Patient Named on this form – Patient's Name (print):

This voluntary form records your preferences for life-sustaining treatment in your **current** state of health. It can be reviewed and updated by you and your health care professional at any time if your preferences change. If you are unable to make your own health care decisions, the orders should reflect your preferences as best understood by your DPOAH, Guardian or by your written Advance Care Plan.

(Optional) Contact Information for DPOAH, Guardian or Parent of Minor

Name:	Relationship:	Phone Number:	Address:

(Optional) Health Care Professional Preparing Form

Name:	Preparer Title:	Phone Number:
		Date Prepared:

Directions for Health Care Professionals

Completing POLST

- Encourage completion of an Advance Directive.
- Should reflect current preferences of patient with serious illness or frailty whose death within the next year would not surprise you.
- Verbal/phone orders are acceptable with follow-up signature by physician/APRN in accordance with facility policy.
- Use original form if patient is transferred/discharged.

Reviewing POLST

This POLST should be reviewed periodically and if:

- The patient is transferred from one care setting or care level to another, or
- There is a substantial change in the patient's health status, or
- The patient's treatment preferences change.

Voiding POLST

- A patient with capacity, or the activated DPOAH or Court appointed Guardian of a patient without capacity, can void the form and request alternative treatment.
- Draw line through sections A through E and write "VOID" in large letters if POLST is replaced or becomes invalid.
- If included in an electronic medical record, follow voiding procedures of facility.

Review of this POLST Form

Review Date	Reviewer	Location of Review	Signature

Review Outcome: No Change Form Voided New form completed

Review Date	Reviewer	Location of Review	Signature

Review Outcome: No Change Form Voided New form completed

Review Date	Reviewer	Location of Review	Signature

Review Outcome: No Change Form Voided New form completed

ORIGINAL TO ACCOMPANY PATIENT IF TRANSFERRED / DISCHARGED



