State of New Hampshire Patient Care Protocols

Version 8.1

Approved by the NH Medical Control Board

New Hampshire Department of Safety

Division of Fire Standards and Training and Emergency Medical Services

Patient Care Protocols – Version 8.1

Legend	Definition
EMR	Emergency Medical Responder (EMR)
E	Emergency Medical Technician (EMT)
A	Advanced Emergency Medical Technician (AEMT)
P	Paramedic
X	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 – Version 8.1.

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 NH EMS Patient Care Protocols, Version 8.1 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, under authority granted by RSA 153-A;2.

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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33 Hazen Drive
Concord, NH 03305
603-223-4200

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 theses protocols, see the New Hampshire EMS website at: https://www.nh.gov/safety/divisions/fstems/ems/advlifesup/patientcare.html.

NH Patient Care Protocols 8.1
Updates and Corrections

March 2022:

Critical Care Transport:
New prerequisite protocol

Leave – Behind Naloxone
New prerequisite protocol

Anaphylaxis/Allergic Reaction – Pediatric
Changed epinephrine infusion dose

Benzodiazepines Doses
Benzodiazepines doses have been modified and standardized throughout the protocols

Immunization:
Changed who can add immunization in accordance with the recommendations of the Centers for Disease Control and Prevention and the New Hampshire Department of Health and Human Services

Scope of Practice:
Added intravenous pump to AEMT in the Adult section

NH Approved EMS Medication (by Provider Level):
Corrected Lidocaine under the AEMT section to include Pediatric for IO

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Section 4 – Traumatic Emergencies

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Section 9 – Hazmat & MCI

Appendices

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Susanna "Susie" W. Ayers
April 26, 1960 – January 25, 2020

The New Hampshire Emergency Medical Services (EMS) Patient Care Protocols Version 8 is dedicated to Susanna (Susie) Ayers, whom passed away suddenly from complications of cancer in January of 2020.
Susie served for seven years on the NH EMS Coordinating Board, as a representative of the American Red Cross. In her role on the Coordinating Board, she was a strong proponent of EMS and the important role it plays in people's lives. Susie served decades with the American Red Cross (ARC) teaching CPR and first aid classes as well as advocating strongly for the life-saving mission of the ARC. People who knew Susie well recall two key aspects of the passion she brought both to EMS and to the ARC.

- Mission driven. If she saw a need, she would be an advocate. Not just for herself or a specific organization, but for truly addressing the perceived need. As one person who knew her well noted "If we had twelve Susie's out there, we could have accomplished almost anything!"
- Kindness and compassion for others. She always took time to work through a situation to a favorable solution with her sweet disposition and overall fondness for every person.

Mrs. Ayers was dedicated to fostering the relationships between the ARC and the EMS community as well as sought opportunities to advocate for the missions of both. Susie increased efforts to expand educational opportunities that benefited the EMS community while promoting the ARC. She also was passionate and became a conduit for communicating the needs of EMS. For example, as the opioid epidemic grew and became a focus of EMS, she reinforced the need for the ARC to offer and promote its opioid training program here in Northern New England.

Susie's dedication and passion extended far beyond her professional life. She is survived by her loving husband of four decades, Mr. Kenneth Ayers. Upon getting married on December 14, 1979 in Washington, DC; Susie became a "dependent wife" (a term she hated) as she followed her husband on multiple assignments domestically and abroad in his twenty-four year career in the United States Air Force. Over the course of multiple deployments, Susie earned two Bachelor degrees (Anthropology and English) all while she continued to volunteer and work in multiple capacities in health services. After her husband's retirement, she went on to earn a third Bachelor's degree in the Sciences and Mathematics from Keene State and continued to teach health and safety courses for the ARC.

Mrs. Ayers soon became known to the Rindge Fire department as the manikin lady because of all the CPR training manikins stored in the garage. Putting into practice what she taught in the classroom Susie volunteered as a member of Roger's Rangers, providing medical support for the Cheshire Fair Grounds until 2018. Susie served as station chief on several occasions and during the last two years of the organization's existence was on the Board of Directors. Susie also developed and delivered the Keene Dartmouth-Hitchcock Clinic/Hospital, "Keeping Baby Safe" program.

Preface

Welcome to the NH EMS Patient Care Protocols Version 8. Using the best available data, we continue to improve and enhance each version of the protocols to drive exceptional patient care in the Granite State.

New Hampshire is continuing to work collaboratively with other New England states to explore the concept of standardizing our EMS protocols based on evidence-supported best practices. In this protocol edition we have once again partnered with Vermont and Maine to create an updated "Northern New England Stroke Protocol," this time incorporating the FAST-ED scoring tool.

Historically, we have released our protocols on a two-year cycle and referenced them by the year of the release. Last cycle, we changed the referencing of the protocols to "versions"; this edition of the protocols will be Version 8, as it is the 8th time we have released a statewide protocol set. If there is a protocol change mid-cycle of a complete review of the protocol set, we will reference the update as Version 8.01, etc. When the complete set has been reviewed again we will then update the reference to Version 9.

We have added several protocols to this edition:

- Opioid Overdose was removed from the general Poisoning/Substance Abuse/Overdose protocol and is now a stand-alone protocol
- Traumatic Cardiac Arrest which focuses on early airway interventions and addressing possible causes rapidly and aggressively
- Crush Injuries defines compression syndrome, compartment syndrome and crush syndrome and discusses recommended evaluation and treatment
- Hemorrhage Control is an updated version of what was previously our "Tourniquet" protocol
- Sedation for Invasive Airway Devices serves as a mechanism to provide ongoing analgesia and sedation after placement of devices including an oral or nasal endotracheal tube, a supraglottic device or a surgical airway

You will also find several other fairly significant changes throughout version 8 including, but not limited to, the addition of push dose pressors for shock, bradycardia, post-resuscitative care and advanced sepsis care; the addition of lactated ringers as a IV fluid option; benzodiazepines to treat anxiety; the removal of transcutaneous nitroglycerin for ACS; CPAP at the EMT level amongst others.

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.

- Emergency Medical Responders will function under the EMT standing orders up to the training outlined by the United States Department of Transportation (DOT) Emergency Medical Responder curriculum.

Preface Continues

Preface

Preface Continued

- It is assumed that the Paramedic standing orders include those of the EMT and AEMT, likewise AEMT standing orders include all 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. On the other hand, a patient who is treated on the scene by a paramedic for active seizures shall only have care transferred to another paramedic.

- 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.

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 their convenience, but 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 ongoing dedication and tireless efforts towards the development and revising of these protocols to enable the best possible care of our residents.
Finally, and most importantly, I would like to thank each of our EMS providers across the state. The work that you do is both physically and emotionally demanding, but each day you strive to provide excellent care with pride, skill & compassion. The dedication that you continuously display is admirable and commendable. Please remember, what you do matters!

Sincerely,

Joey Scollan, DO, FACEP, FAAP Medical Director
NH Bureau EMS

Emergency Medical Dispatch

Emergency Medical Care begins when 911 or a dispatch center 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

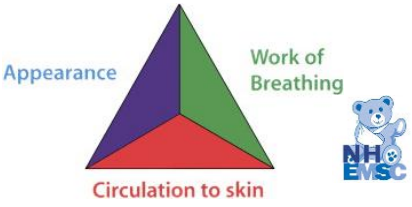
- Review dispatch information.
- Use lights and sirens and/or pre-emptive devices when responding as appropriate per emergency medical dispatch information and local guidelines.
- Use Incident Management/Command System (IM/CS) for all responses and scene management.

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.
- Determine if pediatric protocols apply. "Pediatric Patient" is defined as a child who fits on a length-based resuscitation tape up to 36 kg (79 lbs) or 145 cm (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, interactiveness, 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 ineffective, ventilate with 100% oxygen using Bag-Valve-Mask.
  - If breathing is effective, but patient's oxygen saturation remains ≤ 94% (≤ 90% for COPD patient) or short of breath, administer oxygen.
    - Both skin signs and pulse oximetry are important in assessing potential hypoxia.
  - For patients with an SpO_2 of 100%, consider titrating oxygen lower while maintaining SpO_2 ≥ 94% - 98%.
  - Consider capnography ($EtCO_2$) and/or CO-oximetry, if available.
  - Assess lung sounds and chest.

Protocol Continues

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 powders or granules are not approved.
- Assess patient's skin color, capillary refill, temperature, and moisture.
- Assess blood pressure.
- 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 2.19A, 2.20, 4.6.
  - For pediatric patients, administer fluids based on physiological signs and therapeutic end-points per the Shock Protocol 2.19P, 2.20, 4.6.
  - For adult patients with suspected dehydration without shock administer IV fluids as indicated in increments of 250 mL 0.9% NaCl or Lactated Ringers.
  - 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) or Lactated ringers, 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 4.7.
- If a child requires spinal motion restriction, transport in a child safety seat (See Spinal Trauma 4.7 and Pediatric Transportation 8.13).

Transport

- 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 8.18 and Air Medical Transport 8.0 policies as necessary.
- Notify receiving facility as early as possible.
- The majority of patients do not medically require transport with lights and sirens. 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, (e.g. STEMI, acute stroke, multi-system trauma). Use of lights and sirens should be documented in the patient care report.
- Non emergent medical transports from home or a medical facility with self or caretaker managed devices is an EMT level skill. The caretaker must travel with the patient if it is not a self managed device. See Continuity of Care Policy 8.6.

For more information on hospital services click on this LINK

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.
- Determine level of pain.
- Consider field diagnostic tests including: cardiac monitoring, blood glucose, temperature, stroke assessment, pulse oximetry, 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

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 $EtCO_2$, 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 O2 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 - 98%. Caution in COPD patients
Less than 90%	Moderate to severe hypoxia	Give oxygen to maintain saturation ≥ 94 - 98%, 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	Hypocarbia	Consider slowing ventilatory rate

Pediatric Respiratory Distress	Pediatric Respiratory Failure
• 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.	• 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					

1.1 Exception Protocol

"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.

Extended Care Guidelines 1.2

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, (e.g., extreme weather conditions or extended mass casualty with active shooter incidents).

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 ECG for upper abdominal or epigastric pain, see 12-Lead Acquisition Protocol 6.0.
- Vaginal bleeding or suspected pregnancy see, Obstetrical Emergencies Protocol 2.14.

ADVANCED EMT STANDING ORDERS

A

- If patient is hypotensive, consider fluid per Shock – Non-traumatic Protocol 2.20.

PARAMEDIC STANDING ORDERS

P

- See Pain Management Protocol 2.16A.
- See Nausea/Vomiting Protocol 2.11.

PEARLS:

- Common causes of acute abdominal pain may be appendicitis, cholecystitis, bowel perforation, diverticulitis, abdominal aortic aneurysm, ectopic pregnancy, pelvic inflammatory disease and pancreatitis.
- 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, gall bladder, pancreas, spleen, kidneys, male or female reproductive organs or urinary bladder. Referred pain from the chest may involve the heart, lungs and pleura.
- Lower abdominal pain in women of child bearing age should be treated as an ectopic pregnancy until proven otherwise.
- Myocardial infarction can present with upper abdominal pain especially in the diabetic and elderly.
- DKA may present with abdominal pain, nausea and vomiting.
- The diagnosis of abdominal aneurysm should be considered 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 100 mg IV/IM.
- Pediatric: History of adrenal insufficiency; administer hydrocortisone 2 mg/kg, to a maximum of 100 mg IV/IM.

PARAMEDIC EXTENDED CARE ORDERS- ADULT & PEDIATRIC

X

- After the initial hydrocortisone (100 mg IV/IM), give hydrocortisone 50 mg IV bolus administered every 6 hours until stabilization of vital signs and capacity to eat and take medication orally.
  - Pediatric: 2 mg/kg IV/IM every 6 hours to a maximum single dose of 100 mg.
- 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 2.20.
  - Treat for hypoglycemia, see Hypoglycemia Protocol 2.9A or 2.9P.
  - Normalize body temperature.

PEARLS:
Adrenal insufficiency results when the body does not produce the essential life-sustaining hormones cortisol and aldosterone. These 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 and/or 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

2.2A Anaphylaxis/Allergic Reaction Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis, administer: (anterolateral thigh preferred administration site)
  - Adult epinephrine autoinjector 0.3 mg IM, **OR**
  - Epinephrine 1mg/1mL: Administer 0.3 mg (0.3 mL) IM*.
  - If signs and symptoms do not resolve may repeat in 5 minutes.
    - For additional dosing, contact **Medical Control**.

***EMTs must have completed the Ready, Check & Inject training, found at: https://ola.nhfa-ems.com/enrol/index.php?id=16*

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis:
  - Repeat epinephrine every 5 minutes until signs and symptoms resolve
  - For respiratory symptoms / wheezing consider albuterol 2.5mg via nebulizer. Repeat albuterol 2.5 mg, every 5 minutes (4 doses total) via nebulizer.
  - For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.20.

PARAMEDIC STANDING ORDERS

P

- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
  - Diphenhydramine 25 – 50 mg IM/IV/PO.
- For anaphylaxis refractory to 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm), consider:
  - Epinephrine infusion 2 - 10 micrograms/minute until symptoms resolve, pump required, see Drip Rate Reference Appendix 5

EMT/ADVANCED EMT EXTENDED CARE ORDERS

X

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

PARAMEDIC EXTENDED CARE ORDERS

- Dexamethasone 10 mg IV or by mouth **OR**
- Methylprednisolone 125 mg IV **OR**
- Prednisone 60 mg 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, do not delay epinephrine administer for second-line medications such as diphenhydramine.

PEARLS:
Anaphylaxis: Potential allergen exposure AND any two of the following:

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

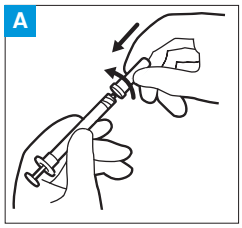
READY, CHECK, INJECT

Protocol for Administering Epinephrine for Acute Anaphylaxis

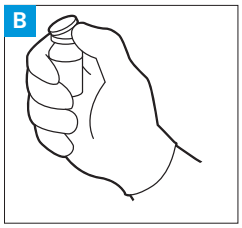
1. READY

* Adult Dose: 0.3 mL
** Pediatric Dose (<55lbs/<25kg): 0.15 mL

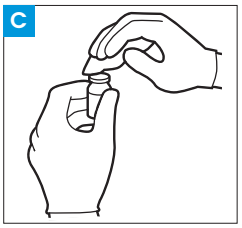
- **Wear gloves**
- **Use 1mL syringe with 1" needle**
- **Use only 1mg/1mL epinephrine**



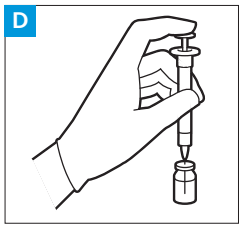
Attach needle to syringe.



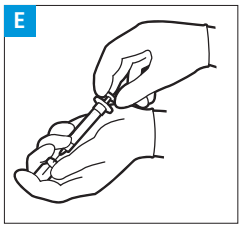
Remove cap from epinephrine vial.



Wipe top of vial with alcohol prep pad.



Remove cap from needle and then carefully insert needle into top of epinephrine vial.

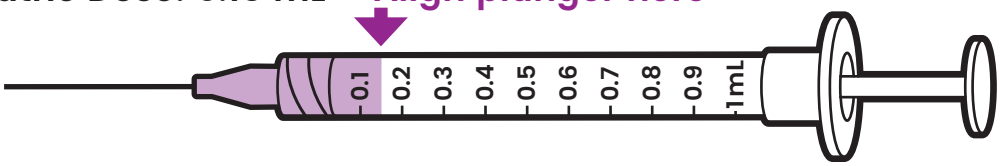


Withdraw correct amount of medication by pulling back on syringe plunger. Refer to numbers on side of syringe.

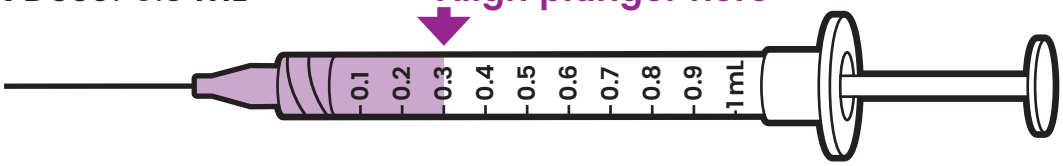
2. CHECK

Check volume of medication in syringe by comparing to diagram below. (Diagram to scale)
Use Cross Check, with another person if possible, to confirm the proper dose. **(SEE REVERSE)**

Pediatric Dose: 0.15 mL Align plunger here

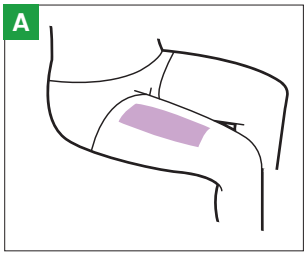


Adult Dose: 0.3 mL Align plunger here

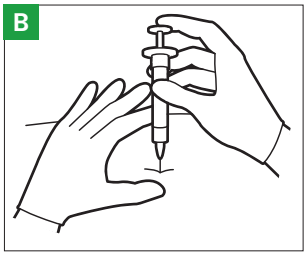


3. INJECT

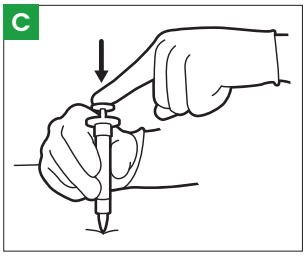
* Inject medication intramuscularly only.



Identify patient's mid-thigh. Expose skin if possible.



Flatten skin of mid-thigh with thumb and forefinger. Insert needle quickly at a 90° angle to mid-thigh.

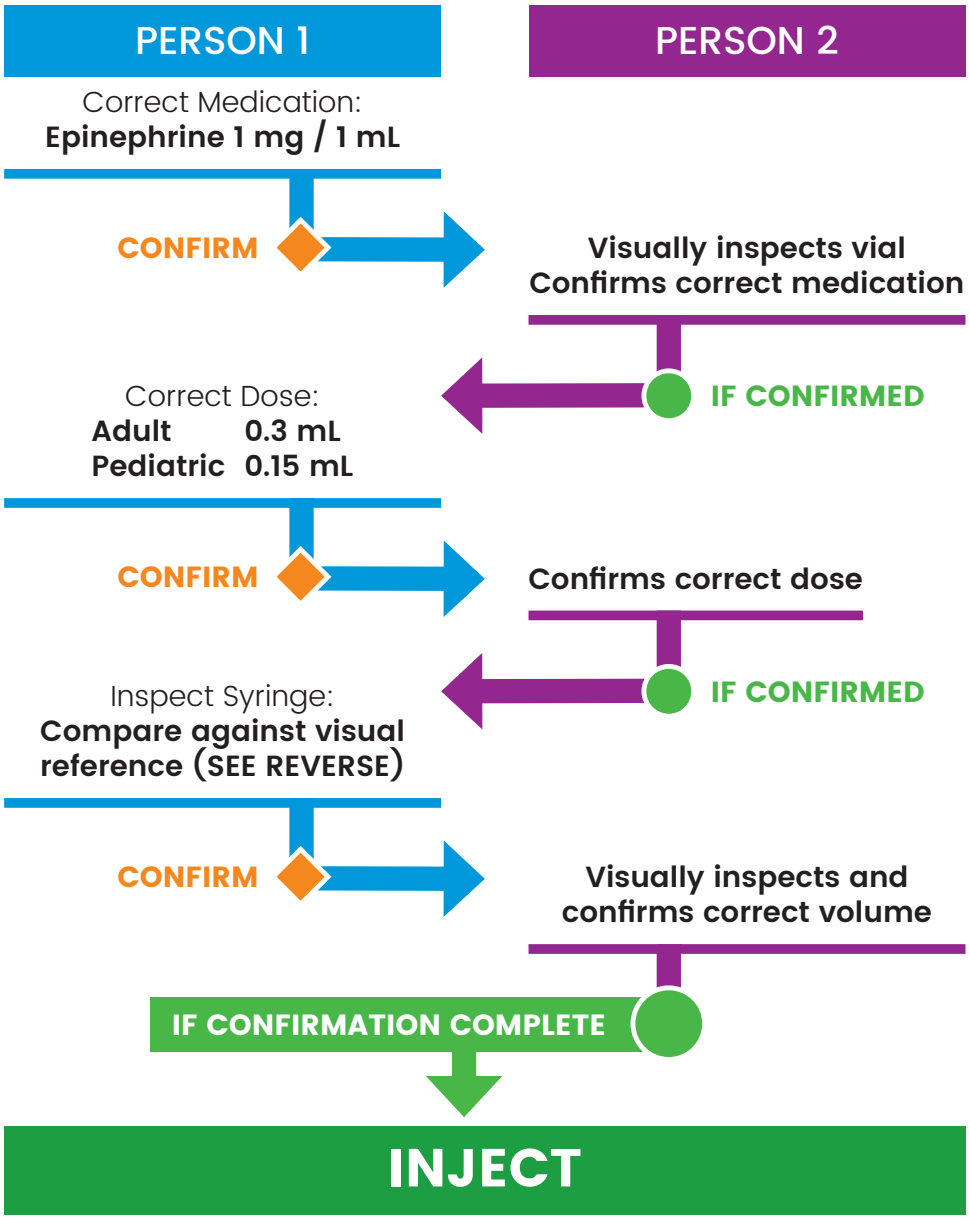


Depress plunger slowly to inject entire dose of medication.

Remove syringe and dispose in proper sharps container.

READY, CHECK, INJECT
CROSS CHECK

- This protocol is designed to be performed by two people.
- **If a second person is not available, pause at each step, think and confirm before moving to next step.**
- All steps should be confirmed prior to administering the injection.



NHFA & EMS
NEW HAMPSHIRE
DEPARTMENT OF SAFETY

Anaphylaxis/Allergic Reaction Pediatric

2.2P

EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis administer: (anterolateral thigh preferred administration site)
  - Pediatric epinephrine autoinjector (EpiPen Jr) 0.15 mg IM for < 25 kg,
  - Adult epinephrine autoinjector (EpiPen) 0.3 mg IM if > 25 kg **OR**
  - If < 25 kg, epinephrine (1 mg/mL) 0.15 mg (0.15 mL) IM*,
  - If > 25 kg, epinephrine (1 mg/mL) 0.3 mg (0.3 mL)IM*.
  - If signs and symptoms do not resolve may repeat in 5 minutes.
    - For additional dosing, contact **Medical Control**

**EMTs must have completed the Ready, Check & Inject training, found at: https://ola.nhfa-ems.com/enrol/index.php?id=16*

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis:
  - Repeat epinephrine every 5 minutes until signs and symptoms resolve.
  - For respiratory symptoms / wheezing consider albuterol 2.5 mg via nebulizer. Repeat albuterol 2.5 mg, every 5 minutes (4 doses total) via nebulizer.
  - For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.20.

PARAMEDIC STANDING ORDERS

P

- After epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
  - Diphenhydramine 1.25 mg/kg PO **OR**
  - Diphenhydramine 1 mg/kg IV/IM (maximum dose 50 mg).
- For anaphylaxis refractory to 3 or more doses of IM epinephrine, (e.g., persistent hemodynamic compromise, bronchospasm) consider:
  - Epinephrine Infusion 0.1 - 1 micrograms/kg/minute (maximum 10 micrograms/min) via pump until symptoms resolve, see Pediatric Drip Rate Appendix 4

EMT/ADVANCED EMT EXTENDED CARE ORDERS

X

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

PARAMEDIC EXTENDED CARE ORDERS

- Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred) maximum 10 mg **OR**
- Methylprednisolone 1 -2 mg/kg IV (maximum dose 125 mg).

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

In anaphylaxis, do not delay epinephrine administer for second-line medications such as diphenhydramine.

PEARLS:
Anaphylaxis: Potential allergen exposure AND any two of the following:

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

2.3A Asthma, COPD, RAD – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Attempt to keep oxygen saturation between 94 - 98% (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
  - For patients in severe respiratory distress consider use of CPAP. See CPAP Procedure 5.4.

ADVANCED EMT STANDING ORDERS

A

- Consider DuoNeb unit dose **OR** albuterol 2.5 mg and ipratropium bromide 0.5 mg 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

PARAMEDIC STANDING ORDERS

P

Consider:

- Methylprednisolone 125 mg IV/IM **OR**
- Dexamethasone 10 mg PO/IM/IV

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

- BiPAP, (See BiPAP Procedure 5.3)
- Magnesium sulfate 2 grams in 100 ml NS given IV over 10 minutes.
- Epinephrine (1 mg/mL) 0.3 mg (0.3 mL) IM should only be administered for impending respiratory failure as adjunctive therapy when there are no clinical signs of improvement

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

Pediatric Respiratory Distress
Asthma, Bronchiolitis, Croup

2.3P

ASTHMA, BRONCHIOLITIS, CROUP - EMT STANDING ORDERS

E

- Routine Patient Care.
- Attempt to keep oxygen saturation between 94% - 98%
- 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; no more than 2 attempts.
- For pediatrics in severe respiratory distress due to asthma consider use of CPAP. See CPAP Procedure 5.4.

Consider differential diagnosis:

- Asthma
- Pneumonia (CPAP for respiratory failure)
- Bronchiolitis
- Anaphylaxis (Anaphylaxis Protocol 2.)
- Croup
- Sepsis (Sepsis Protocol)
- Foreign body airway obstruction

Wheezing ≥ 2 years or history of asthma — YES ▶

ASTHMA - ADVANCED EMT STANDING ORDERS

A

- Consider Unit dose DuoNeb **OR** albuterol 2.5 mg and ipratropium bromide 0.5 mg 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.

ASTHMA - PARAMEDIC STANDING ORDERS

P

Consider:

- Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred), maximum 10 mg **OR**
- Methylprednisolone 1 - 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:
  - If < 25 kg, epinephrine (1 mg/mL) 0.15 mg IM, lateral thigh preferred.
  - If > 25 kg, epinephrine (1 mg/mL) 0.3 mg IM, lateral thigh preferred

NO ▼

Wheezing < 2 years old — YES ▶

BRONCHIOLITIS - PARAMEDIC STANDING ORDERS

P

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

- Nebulized epinephrine (1 mg/mL) 3 mg (3 mL) in 3 mL 0.9% NaCl.

NO ▼

History of stridor or barky cough — YES ▶

CROUP - PARAMEDIC STANDING ORDERS

P

Consider:

- Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred) maximum 10 mg.

Croup with stridor at rest:

- Nebulized epinephrine (1 mg/mL) 3 mg (3 mL) in 3 mL 0.9% NaCl, repeat in 20 minute as needed **OR**
- Nebulized racemic epinephrine (2.25% solution) 0.5 mL in 2.5 mL 0.9% NaCl, may repeat in 20 minutes as needed

- Respiratory distress in children must be promptly recognized and treated. Respiratory arrest is the most common cause of cardiac arrest in children.
- Child with a “silent chest” may have severe bronchospasm with impending respiratory failure.
- In patients with suspected croup or stridor, provide necessary interventions while attempting to minimize noxious stimuli that may induce agitation.

Protocol Continues

2.3P Pediatric Respiratory Distress

Asthma, Bronchiolitis, Croup

Protocol Continued

PEARLS

- The IV formulation of dexamethasone may be given by mouth.
- 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.
- 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.

Pneumonia

- Signs and symptoms include: tachypnea, fever, intercostal retractions, cough, hypoxia and chest pain.

Tachypnea in children is defined as:

- < 2 months: 60 bpm
- 2-12 months: 50 bpm
- 1-5 years: 40 bpm
- >5 years: 20 bpm

2.4 Behavioral Emergencies Adult & Pediatric

Maintain Scene Safety
- Request law enforcement support, consider staging away until law enforcement has cleared scene.
- Maintain situational awareness, focus on crew safety.
- Observe and record the patient's behavior and living conditions.

Consider Causes & Determine Capacity
- Consider causes (e.g., hypoxia, hypoglycemia, alcohol or drug intoxication, excited delirium, stroke and brain trauma)
- Ask patient directly if they have considered harming self or others.

Refusal & Police Assistance
- Consider requesting law enforcement upon dispatch
- If patient lacks capacity or is determined to be a danger to self or others, they **MAY NOT** refuse care.
  - Contact law enforcement if unable to convince patient to be transported. (Refer to Police Custody Policy 8.14, Refusal of Care Policy 8.15)

EMT/ ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

E/A

Anxiety Management *(Anxious, apprehensive, but not aggressive)*
- Approach patient with the SAFER method.
- Provide calm emotional support and medical care as required.
- Minimize external stimuli (e.g., loud noises, lights).
- Encourage patient to be evaluated by a mental health professional.
- For significant anxiety that cannot be managed with BLS interventions, consider paramedic intercept for pharmacological intervention.

Resistant or Aggressive Management *(Resisting necessary treatment/interventions)*
- Attempt verbal de-escalation.
- Consider paramedic intercept for pharmacological intervention, see Restraints Protocol.

Violent and/or Excited Delirium Management *(Immediate danger to self/others)*
- Attempt verbal de-escalation.
- Consider physical restraints as a last resort if the patient is in immediate danger to self or others see Restraints Protocol.

Request Paramedic intercept, if available, for pharmacological intervention, see Restraints Protocol.

PARAMEDIC MEDICAL CONTROL ORDERS - ADULT

P

Anxiety Management *(Anxious, apprehensive, but not aggressive)*

Goal is safe and compliant, contact **Medical Control** to consider:
- Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
- *Midazolam 5 mg IM/IN, may repeat once in 5 minutes, **OR**
- Lorazepam 1 mg IV, may repeat once in 5 minutes, **OR**
- Diazepam 5 mg IV, may repeat once in 5 minutes.

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

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.

Restraints 6.5

The Restraints Procedure was placed after Behavorial Emergencies for ease of finding. It is also listed under procedures.

EMT/ ADVANCED EMT STANDING ORDERS

E/A

INDICATIONS

Patients who are a potential harm to themselves or others, or interfere with their own care and lack the ability to refuse care under the Refusal of Care Protocol may be restrained to prevent injury to the patient or crew and facilitate necessary medical care. Restraining must be performed in a humane manner and used only as a last resort.

PROCEDURE

1. Request law enforcement assistance, as necessary.
2. When appropriate, attempt less restrictive means of managing the patient, including verbal de-escalation.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. 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.
5. 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.
6. The extremities that are restrained should have a circulation check at least every 15 minutes. The first of these checks should occur as soon possible after restraints are placed.
7. Documentation should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
8. 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.

PARAMEDIC STANDING ORDERS - ADULT

P

Resistant or Aggressive Management *(Resisting necessary treatment/interventions)*

Goal is alert and calm, consider:

- Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
- *Midazolam 5 mg IM/IN, may repeat once in 5 minutes (*for IN use 5 mg/mL concentration), **OR**
- Lorazepam 1 mg IV, may repeat once in 5 minutes, **OR**
- Diazepam 5 mg IV, may repeat once in 5 minutes.

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.

Continued patient struggling against restraints may lead to hyperkalemia, rhabdomyolysis, and/or cardiac arrest. Chemical restraint may be necessary to prevent continued forceful struggling by the patient.

PEARLS:

- There is an increased risk of apnea with >2 doses of benzodiazepines.
- Causes of combativeness may be due to comorbid medical conditions or due to hypoxia, hypoglycemia, drug and/or alcohol intoxication, drug overdose, brain trauma.
- 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

Restraints 6.5

PARAMEDIC STANDING ORDERS - ADULT

P

For patients with suspected **Excited/Agitated Delirium** (*Immediate danger to self/others)* **OR** extreme agitation **OR** ineffective control with benzodiazepines. Goal is safe and compliant:

- **Ketamine: 4 mg/kg IM rounded to nearest 50 mg, maximum dose 500 mg, repeat 100 mg IM in 5 – 10 minutes. **OR**
- Benzodiazepines:
  - Midazolam 5 mg IV, repeat every 5 minutes as needed **OR**
  - *Midazolam 10 mg IM/IN, repeat every 5 minutes as needed **OR**
  - Lorazepam 2 - 4 mg IV, repeat every 5 minutes as needed **OR**
  - Diazepam 10 mg IV, repeat every 5 minutes as needed
- Consider in addition to benzodiazepines:
  - ***Haloperidol 10 mg IM; may repeat once in 10 minutes.

Contact **Medical Control** for additional doses.

After chemical restraint, re-evaluate whether the patient continues to meet criteria for physical restraint and remove if they are no longer necessary to ensure the safety of the patient, providers or both, taking into account transport times, the depth of sedation and the need to transfer the patient at destination.

- If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate, see Cardiac Arrest Protocol 3.2A.

For acute dystonic reaction to haloperidol:

- Diphenhydramine 25 – 50 mg IV/IM.

PARAMEDIC STANDING ORDERS - PEDIATRIC

Resistant or Aggressive Management *(Resisting necessary treatment/interventions)*
Contact **Medical Control,** to discuss treatment options

Violent and/or Excited Delirium Management*(Immediate danger to self/others)*Target Goal is safe and compliant.
Contact **Medical Control** and consider:

- **Ketamine 4 mg/kg IM rounded to nearest 25 mg, maximum dose 250 mg, repeat x 1 in 5-10 minutes **OR**
- Benzodiazepines:
  - *Midazolam 0.2 mg/kg IM/IN (single maximum dose 10 mg) repeat every 5 minutes as needed, **OR**
  - Midazolam 0.1 mg/kg IV (single maximum dose 5 mg) repeat every 5 minutes as needed, **OR**
  - Lorazepam 0.1 mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes as needed, **OR**
  - Diazepam 0.2 mg/kg IV (single maximum dose 10 mg IV) repeat every 5 minutes as needed.
- If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate, see Cardiac Arrest Protocol

*For IN administration of midazolam use a 5 mg/mL concentration.
**For ketamine use 100 mg/mL concentration
***Administer haloperidol with caution to patients who are already on psychotropic medication which may precipitate serotonin syndrome or malignant hyperthermia.

- 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.

2.5 Brief Resolved Unexplained Event (BRUE)

Brief Resolved Unexplained Event (BRUE) – formerly known as ALTE

An event occurring in an infant < 1 year old when the observer reports a sudden, brief and now resolved episode of 1 or more of the following:

- Cyanosis or pallor
- Absent, decreased or irregular breathing
- Marked change in tone (hyper or hypotonia)
- Altered level of responsiveness.

EMT/ADVANCED/PARAMEDIC STANDING ORDERS

E/A/P

- Routine Patient Care.
- Perform blood glucose analysis and manage per Hypo/Hyperglycemia Protocols 2.7 & 2.9P.
- Obtain history of event with particular attention to:
  - Activity at onset and history of the event
  - State during the event (cyanosis, apnea, coughing, gagging, vomiting)
  - End of the event (duration, gradual or abrupt cessation, treatment provided)
  - Infant's condition after the event (normal, not normal)
  - Recent history (illness, injuries, exposure to others with illness, use of OTC medications, recent immunizations, new or different formula).
  - Past medical history (gestational age, pre-/perinatal history, GERD, seizures, previous BRUE).
  - Family history (sudden unexplained deaths, prolonged QT, arrhythmias).
  - Medications present in the residence
  - Sleeping position
  - Co-sleeping with parent in the same bed.
- Transport patient to the hospital.

Although children who experience BRUE 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.

PEARLS

- BRUE is not a disease, but a constellation of symptoms. Potential etiologies include central apnea (immature respiratory center), obstructive apnea (structural), gastroesophageal reflux (laryngospasm, choking, gagging), respiratory (pertussis, RSV), cardiac (congenital heart disease, arrhythmia), seizures.
- Always consider non-accidental trauma in any infant who presents with BRUE, see Victims of Violence Protocol 8.20.

EMR/EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient care.
- Obtain obstetrical (OB) history.
- Expose patient and determine if signs of imminent delivery are present.
  - Do not digitally examine or insert anything into the vagina.
  - If obstetrical complication is present, consider contacting **Medical Control** and transport to nearest appropriate hospital per local OB Diversion Protocol. (See Obstetrical Emergencies Protocol 2.14)

- If delivery is not imminent place mother in left-lateral recumbent position and transport to a hospital with OB capability.
- If delivery is imminent, assist in newborn's delivery.
  - With palm of hand, apply gentle perineal pressure for a slow, controlled delivery.
  - As the baby's head begins to emerge support the head as it turns. Do not pull on head.
  - If membranes are intact after head emerges, tear membrane with fingers to permit escape of fluid.
  - If umbilical cord is wrapped around newborn's neck, slip the cord over head prior to delivery. If after multiple attempts you are unable to slip cord off the neck, clamp and cut the cord between the clamps.
  - Guide the baby's head downward to allow delivery of the upper shoulder.
  - Then guide the baby's head upward to allow delivery of the lower shoulders.
  - Delivery of trunk and legs occurs quickly; be prepared to support infant as it emerges.

E/A

- For newborns requiring resuscitation, see Newborn Resuscitation Protocol 2.13.
- Prevent heat loss by rapidly drying and warming:
  - Remove wet linen
  - For stable newborn and mother, place newborn skin-to-skin on the mother's chest or abdomen.
    - Cover newborn's head, wrap newborn and mother in blankets, silver swaddler/space blanket or commercially available infant warming device. **Do not** use hot packs.
- 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 2.13.
- 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 2.13.
- 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 2.13.
  - Assess skin color: examine trunk, face and mucous membranes.
  - Assess temperature
  - Record APGAR score at 1 minute and 5 minutes (see chart).
- See Pediatric Color Coded Appendix A3 for vital signs.

Protocol Continues

Protocol Continues

EMR/EMT/ADVANCED EMT STANDING ORDERS

E/A

- Clamp and cut the umbilical cord:
  - After initial assessment and after the cord stops pulsating.
  - Leave a minimum of 6 inches of cord.
- Allow spontaneous delivery of placenta:
  - Do not pull on umbilical cord.
  - Do not delay transport for delivery of the placenta.
  - Massage abdominal wall overlying uterine fundus.
  - If placenta delivers, package for hospital staff.
- Monitor maternal blood loss and perfusion. (See Obstetrical Emergencies Protocol 2.14). Note that normal pregnancy is accompanied by higher heart rate and lower blood pressure.
- For transport:
  - Ensure newborn remains warm
  - Turn heat to maximum in ambulance compartment
  - Consider commercial warming device (do not put heat packs directly on skin)
  - When possible, transport newborn in child safety seat.

PARAMEDIC STANDING ORDERS

P

- Active seizures—see Seizures Protocol 2.18A.
- After delivery:
  - Administer oxytocin 10 Units IM to the mother.
    Note: In multiple pregnancy, do not give until all placentas are delivered.

APGAR Scale

Feature	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/	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:

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

Consider **Medical Control** for:
- Prepartum hemorrhage
- Postpartum hemorrhage
- Breech presentation
- Limb presentation
- Nuchal cord
- Prolapsed cord

Signs of imminent delivery:
- Urge to move bowels
- Urge to push
- Crowning
- Contractions less than 2 minutes apart

- 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.

Hyperglycemia – Adult & Pediatric 2.7

Hyperglycemia is defined as blood glucose greater than or equal to 250 mg/dL. Patient with associated signs and symptoms such as altered mental status, increased respiratory rate, or dehydration may require treatment.

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.
- Obtain glucose reading.

ADVANCED EMT/PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- ADULT: Administer 1000 ml IV bolus of IV fluid,
  - May repeat 500 mL fluid bolus, as needed.
- PEDIATRIC: Administer 10 - 20 mL/kg IV bolus of IV fluid.
  - May repeat fluid bolus two times for a total of 3 fluid boluses, not to exceed 30 mL/kg.

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 (DKA) is a life threatening emergency defined as uncontrolled hyperglycemia with the signs and symptoms of ketoacidosis.
- Signs and symptoms of DKA include uncontrolled blood glucose greater than or equal to 250 mg/dL, weakness, altered mental status, abdominal pain, nausea, vomiting, polyuria (excessive urination), polydipsia (excessive thirst), a fruity odor on the breath (from ketones), and tachypnea (Kussmaul respirations).
- Common causes of DKA 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.

2.8 Hyperthermia – Adult & Pediatric

Indications: Elevated temperature due to environmental exposure, over exertion, pharmacological agents or excited/agitated delirium.
Contraindications: Fever associated with likely infectious illness.

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

PARAMEDIC STANDING ORDERS- ADULT

P

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

PARAMEDIC STANDING ORDERS- PEDIATRIC

- If uncontrolled shivering occurs during cooling:
  - Midazolam 0.05 mg/kg IV (single maximum dose 2.5 mg), may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg IM/IN (single maximum dose 5 mg) may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV (maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

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

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.

Hypoglycemia – Adult 2.9A

Hypoglycemic emergency is defined as glucose <60 mg/dl with associated altered mental status.

EMT STANDING ORDERS

E

- Routine Patient Care.
- Obtain glucose reading.
- Administer 15 – 30 gram commercially prepared glucose gel or equivalent.
  - Hypoglycemic patients must be alert enough to swallow and protect airway.
- If intranasal glucagon has been prescribed by the patient's physician, assist the patient or care giver with the administration in accordance with the physician's instructions.
- For patients with an insulin pump who are hypoglycemic with associated altered mental status:
  - 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 60 mg/dL. IV pump not required.
- If unable to establish IV access, administer glucagon 1 mg IM
  - Recheck glucose 15 minutes after administration of glucagon.
  - May repeat glucagon 1 mg IM if glucose level is < 60 mg/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:

- 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 New Hampshire 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.

2.9P Hypoglycemia – Pediatric

Hypoglycemic emergency is defined as glucose <60 mg/dl with associated altered mental status.

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.
- If intranasal glucagon has been prescribed by the patient's physician, assist the patient or care giver with the administration in accordance with the physician's instructions.
- For patients with an insulin pump who are hypoglycemic with associated altered mental status):
  - 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% 5 mL/kg IV via premixed infusion bag (preferred) or prefilled syringe per Pediatric Color Coded Appendix 3, may repeat every 5 minutes until mental status returns to baseline and glucose level is greater than 60 mg/dL. IV pump not required.

If unable to obtain IV access:

- Patients < 20 kg (44 lbs), give glucagon 0.5 mg IM.
- Patients > 20 kg (44 lbs), give glucagon 1 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:

- 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 New Hampshire 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 2.10

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care
- Handle gently. 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.
  - Consider use of heat reflective emergency blanket.
  - Apply truncal warm packs.
  - Patients with moderate to severe hypothermia require active external rewarming with chemical, electrical, or forced hot-air heating packs or blankets.
- Classify hypothermia clinically on the basis of vital signs, level of consciousness and intensity of shivering.
- Core Temperature, if available, provides additional treatment information (see chart)
- Obtain blood glucose.
- Support shivering with calorie replacement if alert and able to swallow.
- Mildly hypothermic patients should not be allowed to stand or walk for 20 minutes, while being kept as warm as possible with calorie replacement and shelter.
- A minimum of 60 second assessment of respirations and pulse is necessary to confirm respiratory arrest or cardiac arrest.
- If pulse and breathing are absent, start CPR **unless contraindications exist**
  - Contraindications to CPR in the hypothermic patient include:
    - Obvious signs of irreversible death
    - Chest wall not compressible as whole body is frozen solid
    - A valid DNR order
    - Avalanche burial > 35 minutes **AND** airway packed with snow
    - Rescuers exhausted or in danger.

*Rigor mortis or fixed and dilated pupils are NOT a contraindication for CPR in hypothermia

- Hypothermic patients without contraindications to CPR should have continuous CPR and should not be considered for Termination of Resuscitation until the core temperature is above 32°C (90°F) without ROSC.
  - Prolonged CPR is not indicated in patients who are thought to have experienced cardiac arrest prior to cooling (temperature is thought to have been above 32°C (90°F) at the time of cardiac arrest)
  - Causes of cardiac arrest before cooling include major trauma, witnessed normothermic arrest and avalanche burial > 35 minutes **AND** snow or ice packed airway
- Patients whose torsos are cool to the touch are likely to have cardiac instability [systolic blood pressure < 90 mmHg or ventricular arrhythmias, core temperature < 28°C (82°F)]
- When feasible, patients in cardiac arrest with continuing CPR should be transported directly to a center capable of providing cardiopulmonary bypass (CPB) or extracorporeal membrane oxygenation (ECMO).
- CPR may be delayed or performed intermittently if necessary to accomplish evacuation to an ECMO or CPB center.

Policy Continues

2.10 Hypothermia – Adult & Pediatric

Protocol Continues

ADVANCED EMT - ADULT ONLY
PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- Warm IV 0.9% NaCl should be used.
- If pulse and breathing are absent and esophageal or rectal temperature core temperature is < 32° C (89.6° F):
  - Continue CPR.
  - Give IV medications based on dysrhythmia (consider limiting and/or increasing the dosing time).
  - Defibrillation as indicated.

STAGE: I Core Temp Treatment:	Conscious, shivering 35 to 32°C (95 to 89.6°F) 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 (<89.6 to 82.4°F) 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 (<82.4 to 75.2°F) 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 (<75.2°F) 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.

Nausea/Vomiting - Adult & Pediatric 2.11

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.
- For nausea allow patient to inhale vapor from isopropyl alcohol wipe 3 times every 15 minutes as tolerated.

ADVANCED EMT STANDING ORDERS- ADULT

A

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

PARAMEDIC STANDING ORDERS- ADULT

P

- Prochlorperazine 5 – 10 mg IV, or 5 mg IM, **OR**
- Metoclopramide 5 mg IV **OR**
  - May repeat any of the above medications once after 10 minutes if nausea/vomiting persists.

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

- Administer diphenhydramine 25 – 50 mg IV/IM.

PARAMEDIC STANDING ORDERS- PEDIATRIC

- Consider 10 – 20ml/kg IV fluid bolus for dehydration even if vital signs are normal.
- Ondansetron 2 mg ODT for patients 8-15 kg, 4 mg ODT patients ≥ 16 kg **OR**
- Ondansetron 0.1 mg/kg IV (maximum single dose 4 mg) **OR**

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.

2.12A Nerve Agents Organophosphate Poisoning - Adult

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.
- Antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

- If multiple patients consider activation of local CHEMPACK, per regional plan.

Tag Color	Signs & Symptoms of SLUDGEM	Autoinjector Dose and Monitoring Interval	Maintenance Dose
RED	Apnea Convulsions Unconsciousness Flaccid paralysis	3 Atropine/pralidoxime auto-injectors **AND** 1 diazepam (10 mg) auto-injector	1 Atropine/ pralidoxime auto-injector every hour for 3 hours
YELLOW	Dyspnea Twitching Nausea, vomiting Sweating, anxiety Confusion, headache Constricted pupils, eye pain, visual impairment Restlessness, weakness	1 Atropine/pralidoxime auto-injector **AND** Monitor every 10 minutes for changes in signs and symptoms	
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 atroprine/pralidoxime auto-injectors or if atroprine/pralidoxime auto-injectors are not available:
  - Atropine 2 mg IV; repeat every 5 minutes until secretions clear.
  - Pralidoxime:
    - 1 – 2 grams in 50 - 250 mL of 0.9% NaCl, over 15 – 30 minutes (pump not required), may repeat within 1 hour if muscle weakness and fasciculations are not relieved. Additional doses may be needed every 3 – 8 hours, if signs or symptoms recur.
  - Diazepam 10 mg IV every 5 minutes; or diazepam auto-injector (10 mg) every 10 minutes, as needed.

    Instead of diazepam, may use either:
    - Lorazepam 2 - 4 mg IV; repeat every 5 minutes as needed, **OR**
    - Midazolam 5 mg IV every 5 minutes as needed, **OR**
    - *Midazolam 10 mg IM/IN every 5 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:

Praxlidoxime maintenance infusion:

- Pralidoxime: Initial dose 1 – 2 gram followed by a continuous infusion at 500 mg/hr.

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

Nerve Agents Organophosphate Poisoning – Pediatric

2.12P

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.
- Antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

- If multiple patients consider activation of local CHEMPACK, per regional plan.

Tag Color	Signs & Symptoms of SLUDGEM	Autoinjector Dose and Monitoring Interval		Maintenance Dose
RED (Pediatric)	Apnea Convulsions Unconsciousness Flaccid paralysis Dyspnea Twitching Nausea, vomiting Sweating, anxiety Confusion Constricted pupils, Restlessness, weakness	Age < 1 year	1 Peds Atropine Auto-Injector (0.5mg) * Monitor every 3 minutes for changes in signs and symptoms	1 Atropine Auto-Injector (0.5mg) every 3 – 5 minutes, as needed.
		Age > 1 year	1 Atroprine/pralidoxime auto-injector Monitor every 3 minutes for changes in signs and symptoms	
GREEN (Pediatric)	Asymptomatic None	None Monitor every 10 minutes for evidence of exposure.		

* Atroprine/pralidoxime auto-injectors 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

- If field conditions permit, initate cardiac monitoring and consider the administration of IV medications.
- If symptoms persist after the administration of 3 atroprine/pralidoxime auto-injectors or if atroprine/pralidoxime auto-injector are not available:
  - Atropine 0.05 – 0.1 mg/kg IV (preferred) or IM (minimum dose of 0.1 mg, maximum single dose 5 mg); repeat every 2 – 5 minutes as needed.
  - Pralidoxime:
    - Infuse 20 – 50 mg/kg (maximum 2 grams) in 50 - 250 mL of 0.9% NaCl, over 30 minutes (pump not required) may repeat in 1 hour if muscle weakness and fasciculations are not relieved. Additional doses may be needed every 10 – 12 hours, if signs and symptoms recur.
  - Diazepam 0.2 mg/kg IV (maximum single dose 10 mg), repeat every 5 minutes as needed.

    Instead of diazepam, may use either:
    - Lorazepam 0.1 mg/kg IV (single maximum dose of 4 mg), repeat every 5 minutes as needed, **OR**
    - Midazolam 0.1 mg/kg IV, (single maximum dose 5 mg),repeat every 5 minutes as needed, **OR**
    - *Midazolam 0.2 mg IM/IN (single maximum dose 10 mg), repeat every 5 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:

Pralidoxime maintenance infusion:

- Initial does of 20 – 50 mg/kg, to a maximum dose of 1gm, followed by continuous infusion at 10 – 20 mg/kg/hr.

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

Medical Protocol 2.12A

2.13 Newborn Resuscitation

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care—initial steps identified in Childbirth & Newborn Care Protocol 2.6.
- Continue warming techniques during resuscitation efforts.
- 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 mmHg.
- 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 using room air.
  - Inflation pressures should be individualized to achieve chest rise 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 rate 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 Childbirth & Newborn Care Protocol 2.6.

PARAMEDIC STANDING ORDERS

P

- If there is airway or ventilatory compromise due to meconium or other airway obstruction consider endotracheal suctioning using meconium aspirator and/or endotracheal intubation.
- If bag valve mask ventilation is inadequate or chest compressions are indicated, consider intubation using a 3.0 mm or 4.0 mm endotracheal tube. (For an infant born before 28 weeks gestation, a 2.5mm endotracheal tube should be used.)
  - Heart rate and $EtCO_2$ 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 10 ml/kg bolus over 5 – 10 minutes.
  - If the heart rate fails to improve with chest compressions, administer epinephrine (0.1 mg/mL concentration) 0.01 – 0.03 mg/kg IV (0.1 – 0.3 ml/kg).
  - IV is preferred route for epinephrine (0.1 mg/mL concentration) — if there is a delay in establishing access, may administer via ETT 0.05 to 0.1 mg/kg .
  - If glucose level is <60 mg/dl:
    - Administer dextrose per Pediatric Color Coded Appendix A3.

PEARLS:

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

Obstetrical Emergencies 2.14

Recognition:
- 3rd trimester bleeding: vaginal bleeding occurring ≥ 28 weeks of gestation.
- Preterm labor: onset of labor/contractions prior to the 37th week of gestation
- Malpresentation: presentation of the fetal buttocks or limbs.
- Prolapsed umbilical cord: umbilical cord precedes the fetus.
- Shoulder dystocia: failure of the fetal shoulder to deliver shortly after delivery of the head.
- Postpartum hemorrhage: Active bleeding after uterine message and oxytocin administration.
- Pre-eclampsia/Eclampsia: BP> 160/100, severe headache, visual disturbances, edema, RUQ pain, seizures

EMR & EMT STANDING ORDERS

- Routine Patient Care
- Do not delay transport for patients with obstetrical emergencies, provide early notification to the receiving facility.
- If gestational age is known to be < 20 weeks, transport to closest hospital.
- If gestational age is known to be > 20 weeks or fundus is palpable at or above the umbilicus, contact **Medical Control** and follow local OB diversion protocol, if available.

E

For third trimester bleeding

- Suspect placenta previa (placenta is implanted in the lower uterine segment)
- Suspect placental abruption (placenta is separated from the uterine wall before delivery); because hemorrhage may occur into the pelvic cavity, shock can develop despite relatively little vaginal bleeding.
- Do not perform digital examination
- Place patient in the left lateral position
- Monitor hemodynamic stability (see Shock Protocol 2.20)

For breech birth (presentation of buttock):

- Do not pull on newborn. Support newborn and allow delivery to proceed normally.
- If the legs have delivered, gently elevate the trunk and legs to aid delivery of the head.
- If the head is not delivered within 30 seconds of the legs, place two fingers into the vagina to locate the infant's mouth. Press the vaginal wall away from the infant's mouth to maintain the fetal airway.

For limb presentation:

- Place mother in knee-chest or Trendelenburg position.
- Do not attempt delivery; transport emergently as surgery is likely.

For prolapsed cord:

- Discourage pushing by the mother
- Place mother in knee-chest or Trendelenburg position.
- Place a gloved hand into the mother's vagina and decompress the umbilical cord by elevating the presenting fetal part off of the cord.
- Wrap cord in warm, sterile saline soaked dressing.

For shoulder dystocia:

- Suspect if newborn's head delivers normally and then retracts back into perineum because shoulders are trapped.
- Discourage pushing by the mother
- Support the baby's head, do not pull on it.
- Suction the nasopharynx and oropharynx, as needed
- Position mother with buttocks dropped off end of stretcher and thighs flexed upward. Apply firm pressure with an open hand immediately above pubic symphysis (McRobert's maneuver).
- If the above method is unsuccessful, consider rolling the patient to the all fours position.

Policy Continues

Obstetrical Emergencies

Policy Continued

EMR & EMT STANDING ORDERS

E

For postpartum hemorrhage:

- Vigorously massage fundus until uterus is firm.
- If possible initiate breast feeding newborn.

For cardiac arrest in the pregnant patient (regardless of etiology)

- For patient ≥ 20 week gestation or if the fundus is palpable at or above the level of the umbilicus, apply left lateral uterine displacement (LUD) with the patient in the supine position to decrease aortocaval compression. LUD should be maintained during CPR. If ROSC is achieved, the patient should be placed in the left lateral position. Transport to nearest emergency department.
- See Cardiac Arrest Protocol 3.2A

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- For preterm labor:
  - 20 mL/kg IV fluid may repeat once

PARAMEDIC STANDING ORDERS

P

- After delivery:
  - Oxytocin 10 Units IM.
  - Note: In multiple pregnancy, do not give until all placentas are delivered.
- Ongoing bleeding after uterine massage and oxytocin administration, consider Tranexamic Acid (TXA):
  - Mix 1 gram of TXA in 50 - 100 ml of 0.9% NaCl; infuse over approximately 10 minutes IV or IO

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 500 mL. Estimate the amount of bleeding by number of saturated pads in last 6 hours. Consider transporting the soiled linen to the hospital to help estimate blood loss.

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 IV 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 2.18A.
- Contact **Medical Control** and follow local OB Diversion Protocol.

Opioid Overdose – Adult 2.15A

- The primary intervention for opioid induced respiratory depression is basic airway maneuvers and bag-valve-mask ventilation
- Signs and symptoms can include respiratory depression, apnea, altered mental status and/or pinpoint pupils.
- Determine and document if bystander naloxone was given.
- Intranasal naloxone may take up to 10 minutes to have effect. Repeat dosing should only be considered after an adequate amount of time has passed for medication effects to be seen.
- If you suspect a poisoning or overdose by any other substance than an opioid see the Poisoning and Overdose Protocol 2.17

EMR & EMT STANDING ORDERS

E

- Initial treatment is BLS airway management.
- Routine Patient Care
- Naloxone should be administered to those with objective signs of hypoventilation from opioid intoxication, as follows:
  - Naloxone 1 mg (1 mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2 mg **OR**
  - Naloxone 4 mg (0.5 mL) commercially prepared nasal spray
  - Repeat every 5 - 10 minutes (maximum 10 mg) until respiratory depression resolves and not necessarily until return of consciousness.
  - Monitor the patient for recurrent respiratory depression and decreased mental status

NOTE: Must complete First Responder Narcan Rollout before using naloxone, see: https://ola.nhfa-ems.com/enrol/index.php?id=42

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Naloxone 0.4 – 2.0 mg IV, repeat every 3 - 5 minutes (maximum 10 mg) until respiratory depression resolves and not necessarily until return of consciousness.
- Naloxone 0.4 – 2.0 mg IM, repeat every 5 - 10 minutes (maximum 10 mg) until respiratory depression resolves and not necessarily until return of consciousness.

- Patient may become agitated or violent following naloxone administration due to opioid withdrawal/hypoxia.
- Patient may have used more than one type of substance use and reversal of the opiate may unmask the effects of other substances which could lead to violence or other signs and symptoms.

New Hampshire Statewide Addiction Crisis Line 211

PEARLS:

- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Capnography Procedure 6.1.
- The clinical opioid reversal effect of naloxone is limited and may end within an hour whereas some opioids may have extended release and therefore may have longer durations, (e.g., methadone).
- Contraindications to naloxone: normal respiratory effort and/or no indication of opiate use or access.

2.15P Opioid Overdose – Pediatric

Indication: Patients with access to opioids and/or suspected opioid use or abuse.
Contraindication: Mildly altered mental status with normal respiratory effort and/or no indication of opiate use or access.
Signs and symptoms can include respiratory depression, apnea, altered mental status and/or pinpoint pupils.
If you suspect a poisoning or overdose by any other substance than an opioid see the Poisoning and Overdose Protocol.

EMT/AEMT STANDING ORDERS

E

- Primary treatment should be BLS airway management skills.
- Routine Patient Care
- For suspected opioid overdose with severe respiratory depression consider:
  - **Infant & Toddle**r: Naloxone* 0.5 mg (0.5 mL) per nostril for a total of 1mg.
  - **Small Child** and larger: Naloxone 1 mg (1 mL) per nostril for a total of 2 mg.
  - Monitor the patient for recurrent respiratory depression and decreased mental status
  - For additional doses call **Medical Control**.

NOTE: Must complete First Responder Narcan Rollout before using naloxone, see: https://ola.nhfa-ems.com/enrol/index.php?id=42

* The administration of the initial dose or subsequent doses should be incrementally titrated until respiratory depression is reversed and not necessarily return of consciousness.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Naloxone 0.1 mg/kg IN/IV refer to Pediatric Color Coded Appendix 3, Repeat naloxone* dosing as above, every 5 minutes to a total of 10 mg
- Naloxone 0.1 mg/kg IM refer to Pediatric Color Coded Appendix 3, Repeat naloxone* dosing as above, every 5 – 10 minutes to a total of 10 mg

- Patient may become agitated or violent following naloxone administration due to opioid withdrawal/hypoxia.
- Patient may have used more than one type of substance use and reversal of the opiate may unmask the effects of other substances which could lead to violence or other signs and symptoms.

New Hampshire Statewide Addiction Crisis Line 211

PEARLS:
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Capnography Procedure 6.1.
- The clinical opioid reversal effect of naloxone is limited and may end within an hour whereas some opioids may have extended release and therefore may have longer durations (e.g., methadone).

Pain Management – Adult 2.16A

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 2.16P.
- If not contraindicated, consider :
  - Acetaminophen 325 – 1000 mg PO, no repeat **OR**
  - Ibuprofen 400 mg PO, no repeat
- For moderate to severe pain consider paramedic intercept

Contraindication of acetaminophen:
- Hypersensitive to acetaminophen or any component of the formulation; severe hepatic impairment or severe active liver disease. Do not use with other drug products containing acetaminophen.

Contraindication of ibuprofen:
- Hypersensitive to ibuprofen; cerebrovasular bleeding or other bleeding disorders; active gastric bleeding.

AEMT STANDING ORDERS

A

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

PARAMEDIC STANDING ORDERS

P

For mild or moderate pain consider:
- Ketorolac 15 mg IV/IM (no repeat)
  - Consider as first line in renal colic.

For severe pain or pain refractory to above, consider 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 – 1 mg IV, every 10 minutes to a total of 4 mg titrated to pain relief and if systolic BP is >100 mmHg,
  - 1 – 2 mg IM every 20 minutes to a total of 4 mg titrated to pain relief and if systolic BP is greater than 100**, OR**
- Morphine:
  - 2 – 10 mg IV/IM every 10 minutes to a total of 20 mg 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 as directed in the Opioid Overdose Protocol 2.15A.

AND/OR
- Ketamine:
  - 10 – 20 mg IV diluted in 50 – 100 mL 0.9% NaCl or D5W over 10 minutes (no IV pump needed) may repeat every 5 minutes to a total of 40 mg, as tolerated, **OR**
  - 25 – 50 mg IM may repeat every 30 minutes, as tolerated
    - To minimize chance of dysphoric reaction consider starting at lower doses and increasing if needed for analgesia.

Antidote: For dysphoria (emergence reaction) caused by ketamine administer midazolam 2.5 mg IV or *5 mg IM/IN (*5 mg/mL concentration), may repeat once in 5 minutes.

Protocol Continues

2.16A Pain Management – Adult

Protocol Continued

PARAMEDIC STANDING ORDERS

P

For nausea: see Nausea/Vomiting 2.11 Protocol.

Contact Medical Control for guidance in patients with:

- Altered mental status **OR**
- Additional doses of a medication, **OR**
- Benzodiazepine administration in conjunction with narcotic administration for patients with musculoskeletal spasms.

- Avoid acetaminophen in patients who have taken medications containing acetaminophen within the past 4 hours.
- Avoid acetaminophen in patients with hepatic disease. Use with caution in patients with history of alcohol abuse.
- 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, or hypotension.
- A ventilation fan should be used while administering nitrous oxide

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

Ketamine is contraindicated in patients unable to tolerate hyperdynamic states such as those with known or suspected aortic dissection, myocardial infarction, and aortic aneurysm.

PEARLS:

- Ketamine should be considered in patients with severe pain, hemodynamic compromise, pain refractory to opiates, patients on chronic opiate treatment (e.g., Methadone, Buprenophine), and patients with history of substance use disorder.
- Ketamine may cause appearance of intoxication at higher doses. Dysphoria (emergence reaction) may occur as the medication effects wear off.
- Place the patient in a position of comfort, if possible.
- 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.

EMT STANDING ORDERS

- Routine Patient Care.
- Place the patient in position of comfort
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- If not contraindicated, consider :
  - Acetaminophen 15 mg/kg PO, no repeat **OR**
  - Ibuprofen 10 mg/kg PO, no repeat

For adminsitration of ibuprofen use 100mg/5mL concentration.

Weight (lbs)	Weight (kg)	Acetaminophen		Ibuprofen	
		mg	mL	mg	mL
		160	5	100	5
		Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)
7.0 - 11.0	3.0 - 5.0	60	1.9	HOLD	HOLD
13 - 15	6.0 - 7.0	97.5	3.0	HOLD	HOLD
18 - 20	8.0 - 9.0	120	3.8	HOLD	HOLD
22 - 24	10.0 - 11.0	160	5.0	100	5.0
26 - 31	12.0 - 14.0	195	6.1	130	6.5
33 - 40	15 - 18	247.5	7.7	130	6.5
42 - 48	19 - 22	311.25	9.7	205	10.25
53 - 62	24 - 28	405	12.7	270	13.5
66 - 79	30 - 36	540	16.9	360	18

E

Contraindication of acetaminophen:
- Hypersensitive to acetaminophen or any component of the formulation; severe hepatic impairment or severe active liver disease. Do not use with other drug products containing acetaminophen.

Contraindication of ibuprofen:
- Hypersensitive to ibuprofen; cerebrovasular bleeding or other bleeding disorders; active gastric bleeding.

- For moderate to severe pain consider paramedic intercept
- Rate the patient's pain:
  - Children greater than 8 years of age:
    - Ask the patient to rate pain on a scale from 0 – 10
  - Children 3 – 8 years of age:
    - Use the Wong-Bakers FACES Scale see Pain Management - Pediatric Protocol 2.16P Page 2.
  - Children less than 3 years of age or non-verbal:
    - Use the r-FLACC Pain Scale, see Pain Management - Pediatric Protocol 2.16P Page 3.

AEMT STANDING ORDERS

A

- Nitrous oxide: Patient must be able to self-administer this medication. Nitronox is contraindicated in patients with abdominal pain, blunt chest trauma, head injury, or diving-emergency patients.

  Note: Nitrous oxide may only be used if the patient has not received an opiate or ketamine.

- Avoid acetaminophen in patients who have taken medications containing acetaminophen within the past 4 hours.
- Use caution for altered mental status, hypoventilation, hypotension, or allergy.
- A ventilation fan should be used while administering nitrous oxide.

Protocol Continues

2.16P Pain Management - Pediatric

Protocol Continued

PARAMEDIC STANDING ORDERS

P

For severe pain or pain 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**
- Hydromorphone 0.01 – 0.02 mg/kg (maximum dose 1 mg) IV every 10 minutes to a total of 4 mg titrated to pain relief and if systolic BP is greater than 100.
- Morphine 0.1 mg/kg IV (maximum dose 5 mg) may repeat 0.05 mg/kg (maximum dose 2.5 mg) 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 as directed in the Opioid Overdose Protocol 2.15P.

AND/OR

- Ketamine for patient > 3 months:
  - 0.5 – 1 mg/kg (maximum dose 50 mg) IN **OR**
  - 0.1 – 0.25 mg/kg (maximum dose 20 mg) IV diluted in 50 mL 0.9% NaCl or D5W over 10 minutes (no IV pump needed)
    - To minimize chance of dysphoric reaction consider starting at lower doses and increasing if needed for analgesia.

Antidote: For dysphoria (emergence reaction) caused by ketamine administer midazolam 0.05 mg/kg IV (single maximum dose of 2.5 mg) or *0.1 mg/kg IM/IN (single maximum dose 5 mg), may repeat once in 5 minutes.

- For nausea: See Nausea/Vomiting 2.11 Protocol
- Contact **Medical Contro**l for guidance regarding:
  - Altered mental status or
  - Requests to provide additional doses of a medication.

- Ketamine is contraindicated in patients unable to tolerate hyperdynamic states such as those with known or suspected aortic dissection, myocardial infarction, and aortic aneurysm.
- Avoid ketorolac in patients with NSAID allergy, aspirin-sensitive asthma, renal insufficiency, pregnancy, or known peptic ulcer disease.

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

Protocol Continues

Protocol Continued

PEARLS:

- Ketamine should be considered in patients with severe pain, hemodynamic compromise, pain refractory to opiates, patients on chronic opiate treatment.
- Ketamine dosing is based on Pediatric Color Coded Appendix
- Ketamine may cause appearance of intoxication at higher doses. Dysphoria may occur as the medication effects wear off.
- 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.
- Give reassurance, psychological support, and distraction.
- Reassess the patient's pain level and vital signs every 5 minutes.

Faces Legs Activity Cry Consolability Revised Scale (FLACC-R)

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested, **sad, appears worried**	Frequent to constant quivering chin, clenched jaw, **distressed looking face, expression of fright/panic**
Legs	Normal position or relaxed, **usual tone & motion to limbs**	Uneasy, restless, tense, **occasional tremors**	Kicking, or legs drawn up, **marked increase in spasticity, constant tremors, jerking**
Activity	Lying quietly, normal position, moves easily, **regular, rhythmic respirations**	Squirming, shifting back and forth, tense, **tense/guarded movements, mildly agitated, shallow/splinting respirations, intermittent sighs**	Arched, rigid or jerking, **severe agitation, head banging, shivering, breath holding, gasping, severe splinting**
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint, **occasional verbal outbursts, constant grunting**	Crying steadily, screams or sobs, frequent complaints, **repeated outbursts, constant grunting**
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort, **pushing caregiver away, 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.

2.17A Poisoning/Overdose – Adult

POISON Help 1-800-222-1222

EMR & EMT STANDING ORDERS

E/A

- 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 recommended by Poison Control or **Medical Control**.
- For suspected opiate overdose with severe respiratory depression, see Opioid Overdose Protocol 2.15A.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol 2.21A.
- For decontamination/hazardous materials exposure, see Hazardous Materials 9.0.
- For hypoglycemia, see Hypoglycemia Emergencies Protocol 2.9A.
- For seizures, see Seizure Protocol 2.18A.

PARAMEDIC STANDING ORDERS

P

Suggested Treatments

- Beta Blocker and Calcium Channel Blocker refer to Bradycardia Protocol 3.1A .
- Dystonic Reaction:
  - Diphenhydramine 25 – 50 mg IV/IM.
- Organophosphates, see Nerve Agent/Organophosphate Protocol 2.12A.
- Suspected Sympathomimetic/Stimulant:
  - Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
  - *Midazolam 5 mg IM/IN, may repeat once in 5 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes, **OR**
  - Diazepam 5 mg IV, may repeat once in 5 minutes.
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS > 100 milliseconds):
  - Sodium bicarbonate 1 - 2 mEq/kg IV.

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

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 Capnography Procedure 6.1.

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. See Opioid Overdose Protocol 2.15A.
- **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.

2.17P Poisoning/Overdose – Pediatric

Medical Protocol 2.17P

EMT/AEMT STANDING ORDERS

E/A

- 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.
- For suspected opioid overdose with severe respiratory depression, see Opioid Overdose Protocol 2.15P.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol 2.21P.
- For decontamination/hazardous materials exposure: refer to Hazardous Materials 9.0.
- For hypoglycemia, see Hypoglycemia Emergencies 2.9P.
- For seizures, see Seizures Protocol 2.18P.

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 2.12P.
- Suspected Sympathomimetic/Stimulant:
  - Midazolam 0.05 mg/kg IV (single maximum dose 2.5 mg, may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg/kg mg IM/IN (single maximum dose 5 mg), may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg mg IV (single maximum dose 1 mg), may repeat once in 5 minutes, **OR**
- Diazepam 0.1 mg/kg IV (single maximum dose 5 mg), may repeat once in 5 minutes.
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS > 100 milliseconds):
  - Sodium bicarbonate 1 - 2 mEq/kg IV.

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

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 Capnography Procedure 6.1.

Protocol Continues

Protocol Continued

Signs & Symptoms, which may or may not be present:

- **Acetaminophen**: initially no signs/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. See Opioid Overdose Protocol 2.15P **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.

Seizures – Adult 2.18A

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If the blood glucose reading is <60 mg/dL, see Hypoglycemia Protocol 2.9A.
- If midazolam intranasal or diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or care giver with the administration in accordance with the 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.
  - Swipe the VNS magnet over the stimulator, located in the left chest area, for one second, counting one-one thousand while it's swiped over the chest.
  - Note: do not delay medication administration.

PARAMEDIC STANDING ORDERS

P

While seizure activity is present, consider:

- Midazolam 5 mg IV, repeat every 5 minutes as needed, **OR**
- *Midazolam 10 mg IM/IN, repeat every 5 minutes as needed, **OR**
- Lorazepam 2 - 4 mg IV, repeat every 5 minutes as needed, **OR**
- Diazepam 10 mg IV, repeat every 5 minutes as needed.

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 5 mg/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 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 increased risk of apnea with >2 doses of benzodiazepines.

Seizures – Pediatric 2.18P

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If the blood glucose reading is <60 mg/dL, see Hypoglycemia Protocol 2.9P.
- If midazolam intranasal or diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or care giver with the administration in accordance with the 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.
  - Swipe the VNS magnet over the stimulator, located in the left chest area, for one second, counting one-one thousand while it's swiped over the chest.
  - Note: do not delay medication administration.

PARAMEDIC STANDING ORDERS

P

While seizure activity is present, consider:

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

***For IN administration of midazolam use a 5 mg/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 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 increased risk of apnea with >2 doses of benzodiazepines.

2.19A Sepsis – Adult

IDENTIFICATION OF POSSIBLE SEPSIS
- Suspected infection – YES
- Evidence of sepsis criteria – YES (2 or more):
  - Temperature < 96.8 °F or > 101°F
  - Heart rate > 90 bpm
  - Respiratory rate > 20 bpm
  - Mean Arterial Pressure (MAP) <65mmHg (systolic blood pressure < 90 mmHg)
  - New onset altered mental status OR increasing mental status change with previously altered mental status
  - Serum lactate level >2 mmol/L
  - $ETCO_2$ < 25 mmHg

EMT STANDING ORDERS - ADULT

E
- Routine Patient Care.
- Do not delay transport.
- If positive sepsis screen, notify receiving facility of a “Sepsis Alert”.

ADVANCED EMT STANDING ORDERS - ADULT

A
- Rapidly administer IV fluid, 30 mL/kg bolus to maintain MAP > 65 mmHg (systolic blood pressure >90 mmHg).
- 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
- Refer to Advanced Sepsis Protocol, if prerequisites have been met.
- Obtain serum lactate level (if available and trained)
- If there is no adequate hemodynamic response after initial bolus consider:
  - Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10-20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical), **AND/OR**
  - Epinephrine 2 -10 micrograms/minute via pump, **OR**
  - Norepinephrine 1 - 30 micrograms/minute via pump
  - Continue maintenance fluid concurrently with pressor administration, titrate to MAP ≥ 65 mmHg (systolic blood pressure > 90 mmHg).

PEARLS:
- **Sepsis** is life-threatening organ dysfunction due to a dysregulated host response to infection
- **Septic shock** is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality.
- **Sepsis Alert -** Notifies receiving facility that patient may require resuscitation and/or more resource intensive management, may assist with predicting pts who will have poor outcomes without appropriate and timely treatment.
- Provide receiving facility with written documentation that includes time of initial bolus, time of completion of bolus, total volume infused and rate.

Sepsis – Pediatric 2.19P

IDENTIFICATION OF POSSIBLE SEPSIS:

- Suspected Infection – YES
- Temperature > 101° F or < 96.8
- Heart rate or respiratory 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 >2mmol/L
  - $ETCO_2$ < 25 mmHg

Note: Consider early consultation with **Medical Control** for suspected pediatric septic shock patients.

Upper limit of Pediatric HR & RR		
Age	Heart Rate	Resp Rate
0 day - < 1 mon	> 205	> 60
≥ 1 month - < 3 mon≥	> 205	> 60
≥ 3mon - < 1 year	> 190	> 60
≥ 1 year - < 2 year	> 190	> 40
≥ 2 year - < 4 years	> 140	> 40
≥ 4 years - < 6 years	>140	>34
≥ 6 years - < 10 years	> 140	> 30
≥ 10 years - < 13 years	> 100	> 30
≥ 13 years	> 100	>16

*ACP "An Emergency Department Septic Shock Protocol and Care Guideline for Children Initiated at Triage"

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 10 - 20 mL/kg of IV fluid by syringe push method; reassess patient immediately after completion of bolus and repeat 2 times (max 60 mL/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 Contro**l 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, see appendix 4 **OR**
  - Epinephrine 0.1 – 1.0 mcg/kg/min, via pump, titrated to effect see appendix 4.

PEARLS:

- **Sepsis** is life-threatening organ dysfunction due to a dysregulated host response to infection
- **Septic shock** is a subset of sepsis in which underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality.
- **Sepsis Alert -** Notifies receiving facility that patient may require resuscitation and/or more resource intensive management, may assist with predicting pts who will have poor outcomes without appropriate and timely treatment.
- Provide receiving facility with written documentation that includes time of initial bolus, time of completion of bolus, total volume infused and rate.
- Septic shock has a high mortality and is one of the leading causes of pediatric deaths.

2.20 Non-Traumatic Shock 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 central pulse, decreased distal pulse
- Cool extremities
- Altered mental status
- Mild tachypnea

Trauma Involved?

NO

YES → *See Shock – Traumatic Protocol 4.6*

EMT STANDING ORDERS - ADULT & PEDIATRIC:

E
- Obtain finger stick lactate level (if available and trained)
  - $ETCO_2$ < 25 mmHg OR lactate > 2 mmol/L may indicate poor perfusion/shock

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

Consider

A
- **ADULT:** Administer IV fluid in 250 mL boluses to return the patient to a coherent mental status or palpable radial pulse, not to exceed 2000 mL without consultation with **Medical Control**.
- **PEDIATRIC:** Administer fluid bolus of 10 - 20 mL/kg of IV fluid by syringe push 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 & PEDIATRIC

P

ADULT: If there is no adequate hemodynamic response after 2,000 ml IV fluid infused consider:
- Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10-20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical), **AND/OR**
- Norepinephrine infusion 1 – 30 microgram/minute (preferred) via pump, **OR**
- Epinephrine infusion 2 – 10 micrograms/minute, via pump

PEDIATRIC: If there is no adequate hemodynamic response after 60 mL/kg fluid infused contact **Medical Control**

Consider → **CARDIOGENIC SHOCK**

Primary pump failure Decreased cardiac output
- Norepinephrine infusion 1 – 30 microgram/minute (preferred) via pump, **OR**
- Epinephrine infusion 2 – 10 micrograms/minute, via pump

*For pediatric cardiogenic shock administer fluid bolus of 10mL/kg of 0.9% saline by syringe push method. Repeat bolus per **Medical Control**.

Consider → **DISTRIBUTIVE SHOCK**

Inadequate blood volume distribution.

Known history of adrenal insufficiency or recent illness, see Adrenal Insufficiency Protocol 2.1
Systemic response to an allergen, see Anaphylaxis/Allergic Reaction Protocol 2.2A&P
Overwhelming response to an infection, see Sepsis Protocol 2.19 A&P

Consider → **HYPOVOLEMIC SHOCK**

Insufficient circulating volume.

Abdominal pain with vaginal bleeding see Obstetric Protocol 2.14.
Nausea and vomiting see Nausea Vomiting Protocol 2.11.
For GI bleeding see Abdominal Pain Protocol 2.0.
Heat exposure, see Hyperthermia Protocol 2.8.

Consider → **OBSTRUCTIVE SHOCK**

Obstruction of blood flow outside the heart

For cardiac tamponade, rapid transport, treat arrhythmias per Cardiac Protocols 3.0 – 3.6.
For spontaneous pneumothorax: consider needle decompression per Thoracic Injury Protocol 4.8.
For pulmonary embolism: rapid transport

Medical Protocol 2.20

Smoke Inhalation/Carbon Monoxide Poisoning – Adult 2.21A

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:
  - 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.

Percent CO in Blood	Typical Symptoms
<10	None
10-20	Slight headache
21-30	Headache, slight increase in respirations, drowsiness
31-40	Headache, impaired judgment, shortness of breath, increasing drowsiness, blurring of vision
41-50	Pounding headache, confusion, marked shortness of breath, marked drowsiness, increasing blurred vision
>51	Unconsciousness, eventual death if victim is not removed from source of CO

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 combination of many dangerous toxins produced by incomplete combustion. Patients exposed to smoke should be considered for carbon monoxide (CO) and hydrogen cyanide (HCN) poisoning.

2.21P Smoke Inhalation/Carbon Monoxide Poisoning – Pediatric

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:
  - 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.

Percent CO in Blood	Typical Symptoms
<10	None
10-20	Slight headache
21-30	Headache, slight increase in respirations, drowsiness
31-40	Headache, impaired judgment, shortness of breath, increasing drowsiness, blurring of vision
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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 combination of many dangerous toxins produced by incomplete combustion. Patients exposed to smoke should be considered for carbon monoxide (CO) and hydrogen cyanide (HCN) poisoning.

SUSPECT STROKE: with any of the following new or sudden symptoms and/or complaints:

- Unilateral motor weakness or paralysis to face, limb or side of body, including facial droop
- Unilateral numbness
- Dizziness/vertigo
- Acute visual disturbance, loss of vision in one eye or one side of vision
- Difficulty with balance or uncoordinated movements of a limb, gait disturbance
- Difficulty with speech understanding or production (slurred or inappropriate use of words)
- Severe headache for no obvious reason
- Altered mental state

EMT STANDING ORDERS

E

- Routine Patient Care.
- Complete the Prehospital Stroke Screening Tool
  - If Prehospital Stroke screen is positive, complete stroke severity score (e.g., FAST-ED) to determine probability of a large vessel occlusion (LVO)
- Establish Stroke Alert Criteria and notify receiving hospital of "Stroke Alert" with findings from the screening tools, thrombolytic checklist and time last known well (TLKW).
- For symptomatic:
  - Administer oxygen to maintain SPO_2 between 94% - 98%
  - Elevate head of stretcher to 30 ° (unless patient requires spinal motion restriction);
  - Minimize on-scene time; do not delay for ALS intercept;
  - Acquire and transmit 12-lead ECG, if available;
  - Correct glucose if < 60 mg/dL. See Hypoglycemia Protocol 2.8A or 2.8P.
  - Rapid transport to the most appropriate facility based on the destination guidance utilizing your local stroke plan.

AEMT & PARAMEDIC STANDING ORDERS

A/P

- Establish IV (18 gauge catheter & right AC preferred site) and administer 250 mL IV fluid.

Prehospital Stroke Screening Tool

Stroke screen is positive if any abnormal finding in facial droop, arm drift or speech.

Time Last Known Well:	*(If patient awoke with symptoms, time last known to be at baseline)*
Witness:	Best contact number for witness: ( ) -

Prehospital Stroke Scale Examination	Please check: Normal	Abnormal
Facial Droop: *Have the patient smile and show teeth.*		
Normal: Both sides of the face move equally well..	Normal	Abnormal
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 for 10 seconds.*		
Normal: Both arms move the same, or both arms don't move at all.	Normal	Abnormal
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.	Normal	Abnormal
Abnormal: Patient slurs words, says the wrong word, or is unable to speak.		
Blood Glucose:		

Protocol Continues

Northern New England Unified Guideline
Stroke – Adult

Protocol Continued

If stroke screening scale is positive calculate stroke severity score using FAST-ED

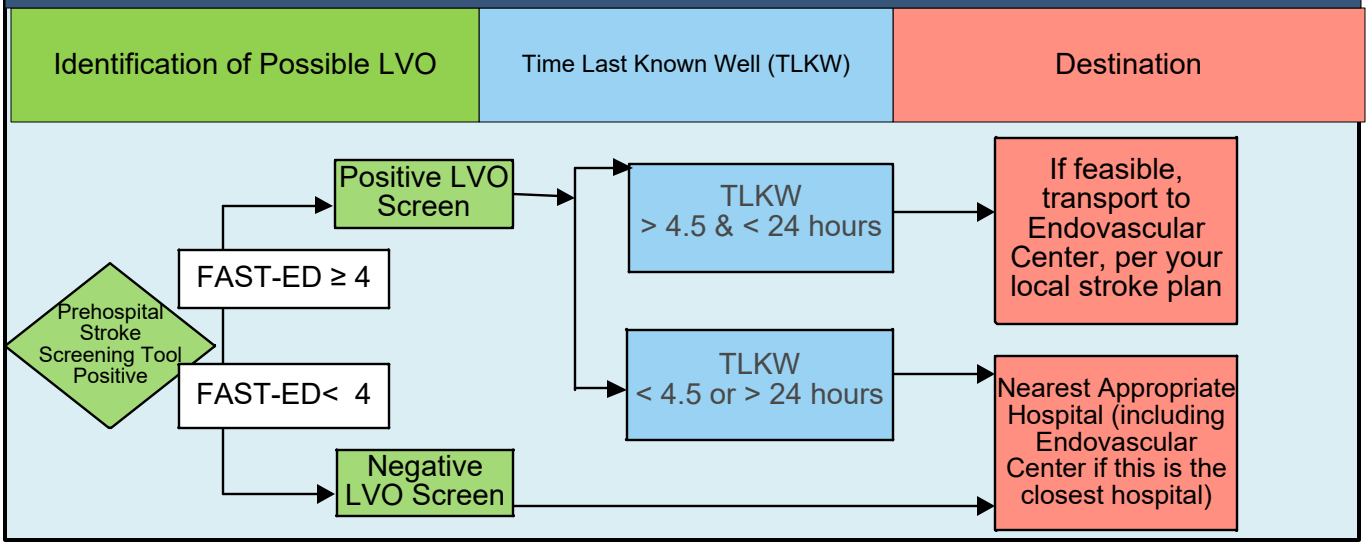
Stroke Severity Score (FAST-ED)		
A FAST-ED greater than or equal to 4 is considered high probability for an LVO		
Assessment	**Points**	**Score**
Facial Palsy (ask the patient to smile)		
No facial droop or only minor paralysis on one side of the face	0	
Partial or complete paralysis of one side of the face	1	
Arm Weakness (arms out with palms up for 10 secs)		
No drift, or both arms slowly move down equally	0	
Arm drift or some effort to lift the affected arm against gravity	1	
No effort against gravity or no movement in one or both arms	2	
Speech Change (ask the patient to name 3 common items; ask them to show you 2 fingers)		
Able to name at least 2 of 3 objects and follow command	0	
Names none, or only 1 of the 3 items correctly	1	
Unable to "show two fingers" to command	1	
Time - when was patient last known well?		
Eye Deviation		
Able to look to both sides without difficulty	0	
Able to move eyes horizontally in both directions but with clear difficulty	1	
Gaze is fixed to one side and does not move	2	
Denial/Neglect (only do if there is arm weakness AND commands followed)		
Recognizes weakness in their weak arm and recognizes their weak arm	0	
Unable to recognize weakness when asked "Are you weak anywhere"	1	
Does not recognize own arm when asked "Whose arm is this?"	1	
Total		

Establish Stroke Alert Criteria

Yes	No	**Stroke Alert Criteria – Please check Yes or No:**
☐	☐	Blood glucose is or has been corrected to greater than 60 mg/dL?
☐	☐	Deficit unlikely due to head trauma or other identifiable causes?
☐	☐	Positive Prehospital Stroke Screen: - and time last known well is less than 4.5 hours **OR** - FAST-ED score is greater than or equal to 4 AND time last known well is less than 24 hours

Stroke Alert Criteria – If yes to all criteria determine appropriate destination, contact receiving hospital and report a STROKE ALERT with time last known well, FAST-ED score & thrombolytic checklist results

Destination Guidance for Possible LVO Stroke Patients



Work with your regional endovascular center when developing your local stroke plan.

Thrombolytic Checklist for patients eligible for thrombolytics (t-PA), try to complete the following:

YES	NO	Has the patient had any of the following:
☐	☐	1. Severe head trauma or intracranial or spinal surgery within the past 3 months?
☐	☐	2. Major non-cranial surgery or trauma within 14 days with uncontrolled bleeding (e.g.; internal organs)?
☐	☐	3. Spontaneous (non-traumatic) intracranial hemorrhage at any time in the past?
☐	☐	4. Is the patient taking any anticoagulants, including oral or injectable medications? If yes, clarify when last dose was taken (see PEARLS below)

PEARLS for Anticoagulants:

- Patients may recognize anticoagulants as "blood thinners". Ask about anticoagulants including warfarin (Coumadin or Jantoven), Heparin (IV/IM - including Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), apixaban (Eliquis), betrixaban (Bevyxxa) or edoxaban (Savaysa) and immediately communicate to hospital staff.
- **Please note**, medication manufacturers are producing new anticoagulants frequently.

PEARLS:

- **Stroke requires time sensitive interventions. Time = Brain**
- Every minutes of acute stroke = about 2 million neurons lost.
- Transport witness, family or caregiver or obtain witness best phone number for hospital staff to verify time of symptom onset or Time Last Known Well (TLKW).
- TLKW is the last time patient known to be at their neurological baseline. If patient awakes with symptoms, TLKW is time patient was last known to be at their neurological baseline – Ask if patient got up during the night and was at baseline!
- Consider **stroke mimics** including: migraine, hypoglycemia, seizures, intoxication, sepsis cerebral infectious process, toxic ingestion, neuropathies (Bell's palsy), neoplasms, hypertensive encephalopathy.

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Syncope Adult & Pediatric 2.23

EMT STANDING ORDERS

E

- Routine Patient Care.
- Maintain oxygen saturation 94 - 98%.
- Attempt to determine the cause of syncope.
- Perform cardiac monitoring; obtain 12-Lead EKG, if available. If acute coronary syndrome is suspected, refer to Acute Coronary Syndrome Protocol 3.0.
- Obtain blood glucose analysis; refer to Hyperglycemia 2.7 A&P or Hypoglycemia 2.9 A&P Protocols, if indicated.
- Assess for trauma either as the cause of the syncope or as a consequence of the syncopal event assess for trauma; refer to Spinal Injury Protocol 4.7 if indicated.
- Prevent and treat for shock; see Shock- Non-traumatic 2.20 or Shock - Traumatic Protocol 4.6.
- Consider ALS intercept.

ADVANCED EMT STANDING ORDERS

A

- Consider fluids per Shock – Non-traumatic Protocol 2.20.

PARAMEDIC STANDING ORDERS

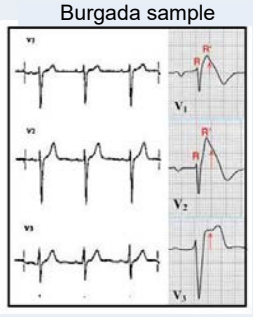
P

- 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 >500ms) and Brugada Syndrome (incomplete RBBB pattern in V1/ V2 with ST segment elevation) should be considered in all patients.

Burgada sample



- 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

3.0 Acute Coronary Syndrome - Adult

Not all patients with complaint of chest pain should 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. See Protocol 6.0 12-Lead EKG Acquisition
  - 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 ≥ 94 - 98%.
- Administer aspirin 324 mg by mouth (chewable), unless patient self administered 324 mg within the last 30 minutes.
- 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.

ADVANCED EMT STANDING ORDERS - ADULT

A

- Establish IV (if feasible, avoid right wrist)
- IV must be established before administration of nitroglycerin.
- Nitroglycerin 0.4 mg 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 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.
- 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 15 mg titrated to pain and systolic BP remains >100 mmHg.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER

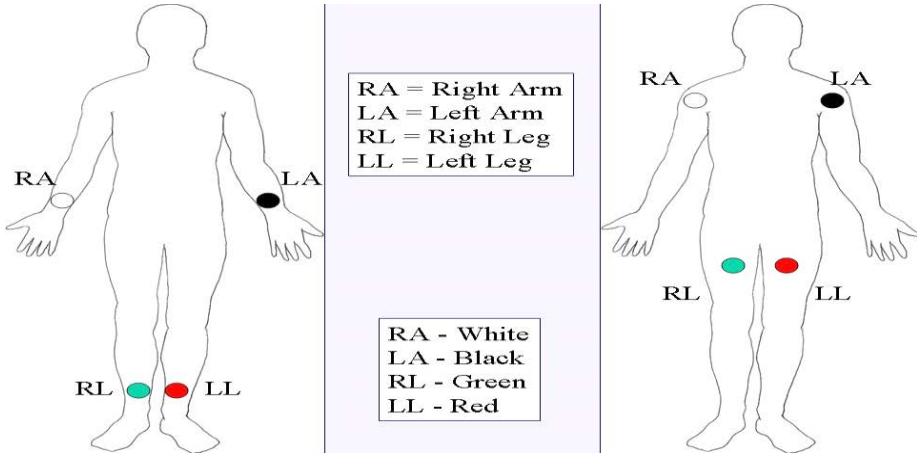
If STEMI without uncontrolled bleeding or known thrombocytopenia consider:

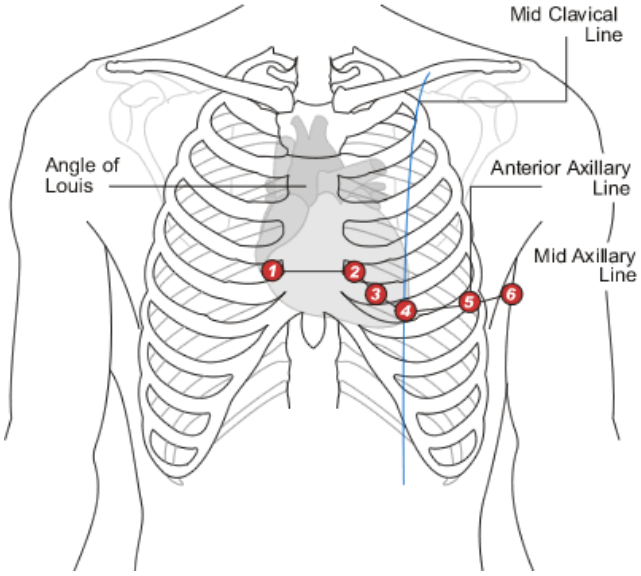
- Heparin 60 unit/kg to a maximum of 4000 unit IV bolus.

- 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 used for pulmonary hypertension.
- Administer nitrates with extreme caution, if at all, to patients with inferior-wall STEMI or suspected right ventricular (RV) involvement because these patients require adequate RV preload.

Protocol Continues

Protocol Continued





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.

Protocol Continues

Protocol Continued

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

Bradycardia – Adult 3.1A

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

For symptomatic bradycardia:
If hemodynamically unstable:

- Consider atropine 0.5 mg IV every 3 – 5 minutes to a maximum of 3 mg.
- Consider transcutaneous pacing.
- Administer procedural sedation prior to or during transcutaneous pacing, if feasible:
  - Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
  - *Midazloam 5 mg IM/IN, may repeat once in 5 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minute, **OR**
  - Diazepam 5 mg IV, may repeat once in 5 minutes.
- Consider vasopressor:
  - Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10-20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical), **AND/OR**
  - Epinephrine 2 -10 micrograms/minute via pump, **OR**
  - Norepinephrine 1 - 30 micrograms/minute via pump
- **Contact Medical Control** for expert consultation.

Other Causes:

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

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

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.
- When pushed too quickly, glucagon can cause nausea and vomiting.

3.1P Bradycardia – Pediatric

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

For symptomatic bradycardia:
If hemodynamically unstable:

- Epinephrine (0.1mg/mL) 0.01 mg/kg IV (0.1 ml/kg of 0.1mg/mL) every 3 – 5 minutes.
- Consider atropine 0.02 mg/kg IV for increased vagal tone or AV blocks, may repeat once (minimum single dose: 0.1 mg; single max dose 0.5 mg.).
- Consider transcutaneous pacing.
- Administer procedural sedation prior to/during pacing, if feasible:
  - Midazolam 0.05 mg/kg IV (single maximum dose 2.5 mg), may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg/kg IM/IN (single maximum dose 5 mg), may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV (maximum dose 1 mg), may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

Other Causes:

- For hypoglycemia see Hypoglycemia 2.9P Protocols.
- For symptomatic beta blocker overdose: or calcium channel blocker overdose, consider glucagon: 0.025 – 0.05 mg/kg
  - 1 mg IV (20-40 kg), every 5 minutes as necessary,
  - 0.5 mg IV (less than 20 kg), every 5 minutes as necessary
- For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker/beta blocker overdose consider:
  - Calcium gluconate (10% solution) 100 mg/kg IV (maximum dose 2 gm) with a maximum 2 gm/dose over 10 minutes; may repeat in 10 minutes if clinical indication persists **OR**
  - Calcium chloride (10% solution) 20 mg/kg IV (maximum dose 1 gm) over 10 minutes, repeat 10 minutes; if effective consider IV infusion 20 mg/kg/hour

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

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

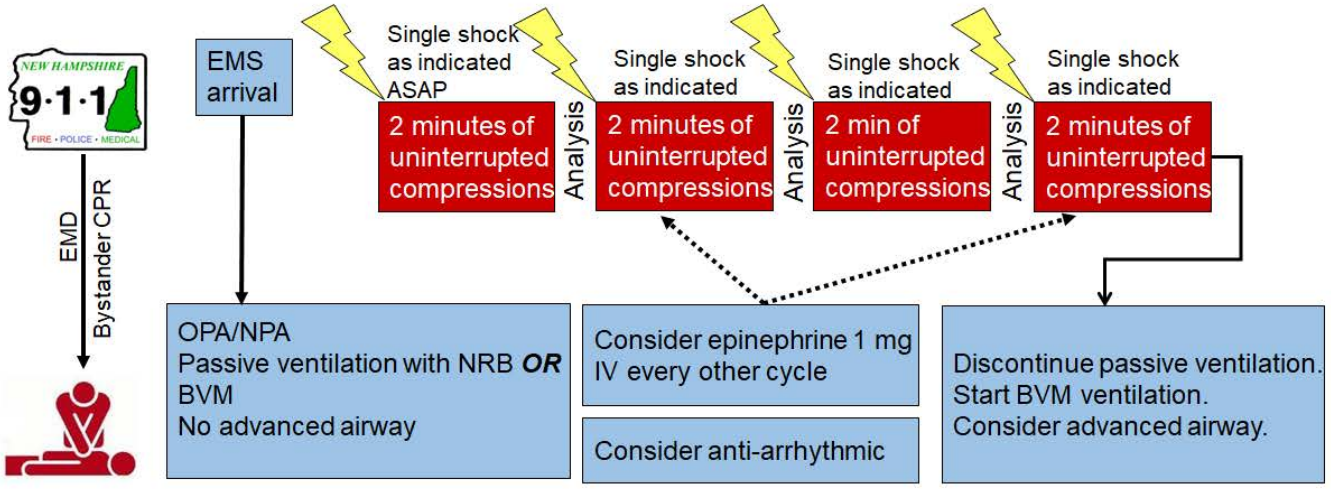
PEARLS:

- Combine age specific heart rates with signs of respiratory failure and shock while assessing. If child is asymptomatic, consider no treatment.
- When pushed too quickly, glucagon can cause nausea and vomiting.

Cardiac Protocol 3.1P

Cardiac Arrest – Adult 3.2A

- Perform 2 minute cycles of uninterrupted chest compressions.
- Interrupt chest compressions only for rhythm/pulse check and defibrillation.
- Ventilation / Oxygenation options:
  - Apply high flow oxygen via non-rebreather mask (NRB) for passive ventilation **OR**
  - BVM ventilation 1 breath every 10 chest compressions without interrupting compressions.
    - For arrests of non-cardiac etiology, including respiratory and trauma, use BVM ventilation.



EMT STANDING ORDERS - ADULT

E

- Routine Patient Care—with focus on high performance CPR
- Immediate chest compressions.
- Use AED as soon as possible, with minimal interruption of chest compressions.
- Continue 2 minute cycles of uninterrupted chest compressions followed by AED analysis and shock for 4 cycles (8 minutes).
- Place an oral or nasal airway.
- Ventilation / oxygenation options during 4 cycles (8 minutes):
  - Apply high flow oxygen via NRB, **OR**
  - BVM ventilation 1 breath every 10 chest compressions without interrupting compressions Consider advanced airway **only** if airway patency cannot be maintained using basic maneuvers and adjuncts.
- If using a BVM, monitor capnography, if available, throughout resuscitation to assess high performance CPR quality and to monitor for signs of Return of Spontaneous Circulation (ROSC).
- After 4 cycles (8 minutes):
  - Continue 2 minute cycles of uninterrupted chest compressions.
  - If passive insufflation was used, switch to BVM ventilation.
  - Consider placement of a supraglottic airway without interrupting chest compressions.
- Consider treatable causes: hypoxia, overdose/poisoning, hypothermia, hypoglycemia, and hypovolemia—treat as per specific protocol.
- If ROSC occurs see Post Resuscitative Care Protocol 3.4.
- Consider termination of efforts or not attempting resuscitation (see DNR, POLST & Advanced Directives Protocol 8.8 and/or Resuscitation Initiation & Termination Protocol 8.16

Policy Continues

3.2A Cardiac Arrest – Adult

Policy Continued

ADVANCED EMT STANDING ORDERS - ADULT

A

- Place IV/IO without interrupting chest compressions.
- After the first 2 minute cycle, consider epinephrine (0.1 mg/mL concentration) 1 mg IV; repeat every other cycle.

PARAMEDIC STANDING ORDERS - ADULT

P

- Defibrillate as indicated at the device's maximum energy
- After 4 cycles (8 minutes):
  - Consider endotracheal intubation without interrupting chest compressions.
- Administer anti-dysrhythmic, per ACLS algorithms.

For refractory ventricular fibrillation consider:

- Changing pad placement from anterior-apex to anterior-posterior
- If second manual defibrillator is available consider Double Sequential Defibrillation Procedure 6.2.
- Consider resuscitation for up to 60 minutes from the time of dispatch, including transport for potential reversible causes if no ROSC after initial efforts.

Narrow complex PEA is often due to a mechanical cause including hemorrhage / hypovolemia, tension pneumothorax, massive MI and pulmonary embolism. Consider causes and treat appropriately including:

- IV boluses for suspected hypovolemia
- Needle decompression for suspected tension pneumothorax
- Consider resuscitation for up to 60 minutes from the time of dispatch, including transport for potential reversible causes if no ROSC after initial efforts.

Wide complex PEA is often due to a metabolic cause including hyperkalemia and sodium-channel blocker toxicity. For wide complex PEA consider:

- Calcium gluconate 2 grams IV, OR calcium chloride (10%) 1 gram IV **AND**
- Sodium bicarbonate 1 - 2 mEq/kg IV

For suspected pre-existing metabolic acidosis or suspected excited/ agitated delirium consider:

- Sodium bicarbonate 1 - 2 mEq/kg IV

EMS agency should use a "pit crew" approach to ensure the most effective and efficient cardiac arrest care, see Team Focused CPR 3.6.

Except as indicated in this protocol, follow applicable AHA ACLS and BLS guidelines.

PEARLS:

- It is expected, unless special circumstances are present, resuscitation will be performed on scene until ROSC or termination of efforts. See Resuscitation Initiation and Termination 8.16
- Early high performance CPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compressions, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Recognizing the goal of immediate uninterrupted chest compressions, consider delaying application of mechanical CPR devices until after the first four cycles (8 minutes). If applied during the first 4 cycles, the goal is to limit interruptions. Mechanical devices should only be used by services that are practiced and skilled at their application.
- Switch compressors at least every two minutes to minimize fatigue.
- Perform chest compressions while defibrillator is charging and resume compressions immediately after the shock is delivered.
- Depending on your local hospital resources, some refractory ventricular fibrillation patients may benefit from emergent cardiac catheterization. For this small patient population, transportation (ideally with a mechanical CPR device) may be indicated. Transporting these patients directly to the cath lab should be done in collaboration with on-line medical control and interventional cardiology

Cardiac Arrest – Pediatric 3.2P

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 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 3.4.
- 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 1 - 2 mEq/kg IV.

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

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

For Asystole or Pulseless Electrical Activity (PEA):

- Epinephrine (0.1 mg/mL concentration) 0.01 mg/kg (0.1 ml/kg) IV **OR**
- Epinephrine (1 mg/mL concentration) 0.1 mg/kg (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.

3.3 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.
- Consider Continuous Positive Airway Pressure (CPAP) with maximum 15 cmH_2O pressure support. See CPAP Procedure 5.4
- 12-lead ECG, if available.

ADVANCED EMT STANDING ORDERS - ADULT

A

- Establish IV access.
- For patient's with known history of congestive heart failure, consider:
  - For systolic BP of 140 - 160 mmHg: nitroglycerin 0.4 mg SL.
  - For systolic BP of 160 - 200 mmHg: nitroglycerin 0.8 mg SL (2 tabs/sprays).
  - For systolic BP > 200 mmHg: nitroglycerin 1.2 mg SL (3 tabs/sprays).
  - The above doses may be repeated every 5 minutes until symptomatic improvement or systolic BP of 140 mmHg.
- Assess blood pressure every 3 – 5 minutes during nitroglycerin administration.

PARAMEDIC STANDING ORDERS - ADULT

P

Titrate until symptomatic improvement or systolic BP of 140 mmHg.
Consider nitroglycerine infusion:

- For systolic BP of 140 - 160 mmHg: IV nitroglycerin start at 50 micrograms/minute.
- For systolic BP of 160 - 200 mmHg: IV nitroglycerin start at 100 micrograms/minute.
- For systolic BP > 200 mmHg: IV nitroglycerin start at 200 micrograms/minute.

Note: Two (2) IV lines are recommended when giving IV nitroglycerin infusions; IV nitroglycerin infusions must be administered using an infusion pump.

- 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 their own nitroglycerin without relief, consider loss of potency due to age.
- Allow the patient to be in their position of comfort to maximize their breathing effort.

Post Resuscitative Care Adult & Pediatric

3.4

EMT/ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- If feasible, acquire and transmit a 12-lead EKG.
- Initial ventilation rate of 10 - 12 BPM for adults and 12 – 20 bpm for pediatric, then titrate to capnography of 35 to 40 mm Hg, if available.
- Titrate oxygen levels to between 94 – 98 % SaO2

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

A

- For post resuscitation hypotension:
- **Adult:** Maintain systolic blood pressure of >90 mmHg OR MAP ≥ 65 mmHg.
  - Administer IV fluid in 250 mL boluses not to exceed 2000 mL.
- **Pediatric:** 1 – 10 years of age: Maintain systolic blood pressure 70 mmHg + (2 x age)
  - Administer fluid bolus of 10 - 20 mL/kg of 0.9% NaCl by syringe push method (may repeat to a maximum **60** mL/kg)

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider vasopressor:
  - Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10 - 20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical), **AND/OR**
  - Norepinephrine infusion 1 – 30 micrograms/min, via pump **OR**
  - Epinephrine infusion 2 – 10 micrograms/minute, via pump, titrated to effect.
- Consider nasogastric or orogastric tube for the intubated patient.

PARAMEDIC STANDING ORDERS - PEDIATRIC

For Post-Resuscitation Hypotension:

- Consider: (An infusion pump is required for the use of these vasopressors)
  - Norepinephrine infusion 0.1 – 2 micrograms/kg/min (maximum dose 30 micrograms/min) titrated to effect, **OR**
  - Epinephrine 0.1 – 1 micrograms/kg/min (maximum dose 10 micrograms/min) titrated to effect.

- For patients with return of spontaneous circulation after cardiac arrest not related to trauma or hemorrhage who are comatose without purposeful movement, consider transporting to a receiving facility capable of starting induced therapeutic hypothermia.
- If patient meets STEMI criteria transport per your STEMI guidelines/agreements. Notify receiving facility of a “STEMI Alert”.

PEARLS:

- Avoid hyperventilation as it increases intrathoracic pressures, potentially worsening hemodynamic instability.

3.5A Tachycardia – Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

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

PARAMEDIC STANDING ORDERS

P

For symptomatic tachyarrhythmias (other than sinus tachycardia):

If 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 2.5 mg IV, may repeat once in 5 minutes, **OR**
  - *Midazolam 5 mg IM/IN may repeat once in 5 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes **OR**
  - Diazepam 5 mg IV, may repeat once in 5 minutes.

If hemodynamically stable:

For narrow complex tachycardia consider:

- For regular rhythms greater than 150 bpm, perform vagal maneuvers.
  - Adenosine 6 mg rapid IVP, may repeat at dose of 12 mg in 1 – 2 minutes if no conversion.
  - May repeat successful dose if rhythm recurs after conversion.
- Diltiazem 0.25 mg/kg IV (maximum dose 20 mg) over 2 minutes.
  - May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 20 mg), if necessary.
  - Consider maintenance infusion at 5 – 15 mg/hour, **OR**
- Metoprolol 5 mg IV over 2 – 5 minutes.
  - May repeat every five minutes to a maximum of 15 mg as needed to achieve a ventricular rate of 90 – 100.

- Diltiazem, metoprolol, amiodarone, and adenosine are contraindicated in patients with atrial fibrillation and 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.

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

Protocol Continues

3.5A Tachycardia – Adult

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

P

For wide complex tachycardia:

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

For polymorphic Ventricular Tachycardia/Torsades de Pointes:

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

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 though a proximal (e.g., antecubital) vein site followed by a rapid saline flush.

3.5P Tachycardia – Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

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

PARAMEDIC STANDING ORDERS

P

If hemodynamically unstable:

For narrow complex/probable SVT:

- Synchronized cardioversion:
  - 0.5 – 1 J/kg, if unsuccessful, increase to 2 J/kg
- Administer procedural sedation prior to/during cardioversion, if feasible:
  - Midazolam 0.05 mg/kg IV (single maximum dose 2.5 mg), may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg/kg IM/IN (single maximum dose 5 mg), may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV (single maximum dose 1 mg) may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (single maximum dose 5 mg); may repeat once in 5 minutes
- Adenosine 0.1 mg/kg IV (maximum dose 6 mg).
  - Repeat once at 0.2 mg/kg (maximum dose 12 mg).
- If adenosine is ineffective or for wide complex, perform synchronized cardioversion:
  - 0.5 – 1 J/kg; if unsuccessful, increase to 2 J/kg.

If hemodynamically stable:

For narrow complex, probable supraventricular tachycardia, or regular wide complex tachycardia (monomorphic QRS ONLY):

- Consider vagal maneuvers.
- Adenosine 0.1 mg/kg IV (maximum dose 6 mg).
  - May repeat once at 0.2 mg/kg IV (maximum dose 12 mg).

For wide complex:

- Contact online **Medical Control** for consideration of amiodarone 5 mg/kg IV (maximum: 300 mg) over 20-60 minutes.

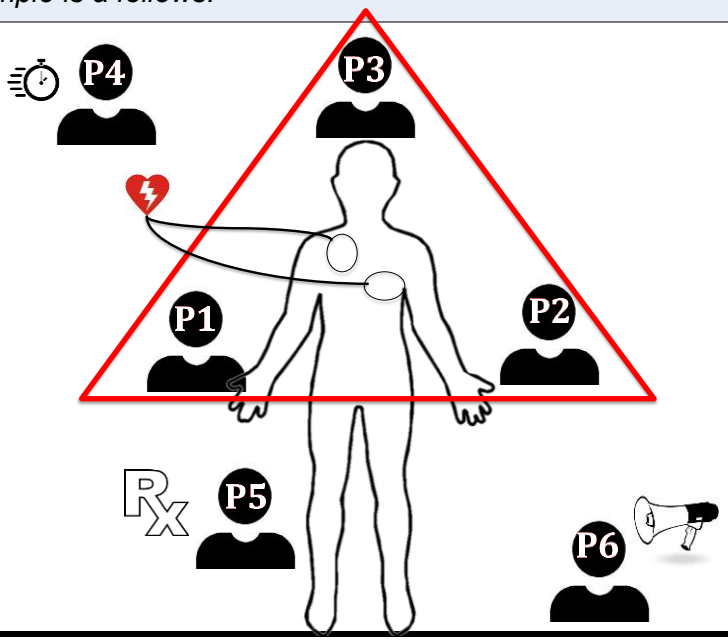
***For IN administration of midazolam use a 5 mg/mL concentration.**

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 though a proximal (e.g., antecubital) vein site followed by a rapid saline flush

Team Focused CPR – Adult

EMS agency should use a "pit crew" approach when using this protocol to ensure the most effective and efficient cardiac arrest care. Training should include teamwork simulations integrating BLS, and ALS crew members who regularly work together. EMS systems should practice teamwork using "pit crew" techniques with predefined roles and crew resource management principles. *One Example is a follows:*



POSITION #1-**Compressor 1** (right side of patient):
- Initiates 1 minute of chest compressions at rate of 100-120 / min
- Assists Position 3 with ventilations in off cycle

POSITION #2-**Compressor 2** (left side of patient):
- Sets up defibrillator
- Alternates 1 minute of chest compressions with Position 1
- Assists Position 3 with ventilations in off cycle

POSITION #3-**Airway** (At patient's head):
- Opens airway and inserts OPA
- Assembles NRB or BVM
- If using BVM, provide 2 handed mask seal
- Inserts advanced airway after 8 minutes/4 cycles.

POSITION #4-**Team Leader** (Outside CPR triangle):
- Coaches the metrics
- Calls for compressor change every one minute
- Calls for rhythm analysis every 2 minutes, immediate shock if indicated
- Monitor CPR quality and use of metronome at 100-120 bpm
- Assumes duties of Position 5/6 if limited to four rescuers throughout resuscitation.

POSITION #5-**Vascular/Meds** (Outside CPR triangle):
- Initiates IV/IO access
- Administers medications per protocol

POSITION #6-**Code Commander** (Outside CPR triangle):
- Ideally highest level provider
- Communicates/interfaces with CPR Team Leader
- Coordinates patient treatment decisions
- Communicates with family/loved ones
- Completes Cardiac Arrest Check List

Policy Continues

Team Focused CPR – Adult

Policy Continued

- If feasible and the scene is safe, immediately upon arrival, one member of the crew should rapidly enter the scene without equipment (other than gloves) to begin chest compressions.
- Clear some space to optimize your working environment. Move furniture or get the patient in a position that will allow a rescuer space to kneel on both sides of them, and where there is sufficient room at the head. Effectiveness of chest compressions decrease during patient movement. Therefore resuscitate the patient as close to the scene as operationally feasible.
- Position 1 and 2 are ideally set up on opposite sides of patient's chest and perform continuous chest compressions, alternating after minute to avoid fatigue.
- REMEMBER: Effective chest compressions are one of the most important therapies for the pulseless patient. Effective is defined as:
  - A rate of at least 100 and less than 120 compressions/minute - Use of metronome or CPR feedback device is essential. (e.g., built into monitor or smart phone app)
  - A depth of 2 - 2.4 inches
  - Allow for complete chest recoil (avoid leaning on chest)
  - Do not interrupt compressions to obtain IV access or perform airway management.
  - Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart. Ventilate 1 breath every 10 compressions without interrupting chest compressions.
- Chest compressions should only be interrupted during rhythm check (AED analysis or manual) and defibrillation shocks. Continue compressions when AED/ defibrillator is charging, if device allows.
- During interruptions compressor's hands should hover over chest.
- Perform pulse check simultaneously with rhythm check.
- With the goal of immediate uninterrupted chest compressions, if a mechanical device is used, it should not lead to delay or interruption in chest compressions; consider delayed applications.
- Pre-charge manual defibrillators prior to rhythm check to ensure rapid defibrillation if a shockable rhythm is present. If no shock is indicated, disarm the device (dump the charge)
- Utilize $ETCO_2$ to assess CPR quality and monitor for signs of ROSC.
- Use of a CPR checklist to ensure that all best practices are followed during CPR.

Example Cardiac Arrest Check List

- ❑ Code commander and pit crew roles identified
- ❑ Chest compression interruptions minimized
- ❑ Compressors rotated at minimum every 2 minutes
- ❑ Metronome set between 100 and 120 beats per minute
- ❑ AED/defibrillator applied
- ❑ OPA/NPA placed
- ❑ O_2 flowing and attached to NRB/BVM
- ❑ $ETCO_2$ waveform present
- ❑ IV/IO access established
- ❑ Possible causes considered
- ❑ Gastric insufflation limited and gastric decompression considered
- ❑ Family present and ongoing communication provided

Consider possible causes

Hypovolemia	Tablets/toxins
Hypoxia	Tamponade
Hydrogen Ions (acidosis)	Tension pneumothorax
Hypothermia	Thrombosis (MI)
Hyper/hypokalemia	Thrombosis (PE)
Hypoglycemia	Trauma

Burns/Electrocution/Lightning Adult & Pediatric 4.0

EMT STANDING ORDERS

- Routine Patient Care.
- Assess for evidence of smoke inhalation or burns; soot around mouth or nostrils, singed hair, carbonaceous sputum.
- If the patient has respiratory difficulty, altered level of consciousness and /or hemodynamic compromise, see Airway Management Protocols 5.1 and Smoke Inhalation/Carbon Monoxide Poisoning Protocols 2.21.

E

Thermal

- Stop burning process with water or normal saline
- Remove non-adherent clothing and jewelry. Do not remove skin or tissue.
- To protect from infection, cover burns with clean dry sterile dressing or sheets.
- Keep patient warm and prevent hypothermia due to large thermal injuries.

Chemical

- Identify agent(s) and consider HAZMAT intervention, if indicated. See Hazardous Material Exposure Protocol 9.0
- Consider contacting Poison Control at 800-222-1222.
- Decontaminate the patient as appropriate.
  - Brush off dry powders if present, before washing.
  - Scrape viscous material off with rigid device, e.g., tongue depressor
  - Flush with copious amounts of clean water or sterile saline for 10 – 15 minutes, unless contraindicated by type of chemical agent (e.g., sodium, potassium or dry lime and/or phenols).

Electrical/Lightning

- Ensure your own safety; disconnect power source, if feasible.
- Place patient on a cardiac monitor.
- Consider spinal motion restriction for burns due to electric flow across the body.

Assess Extent of Burn

- Determine extent of the burn using Rules of Nine (see next page).
- Determine depth of injury.
- Do not include 1st degree burns in burn surface area (BSA) percentage.

Pain Control

- If a partial thickness burn, 2nd degree is < 10% body surface area:
- Apply room-temperature water or room-temperature wet towels to burned area of a maximum of 15 minutes. Prolonged cooling may result in hypothermia.

ADVANCED EMT STANDING ORDER - ADULT

A

- Transport time less than 1 hour:
  - Administer warm IV fluids* at 500 mL/Hour.
- Transport time greater than 1 hour:
  - Administer warm fluids* at 1 – 2 mL/kg x % burn/8 = hourly rate x first 8 hours.

ADVANCED EMT STANDING ORDERS - PEDIATRIC

- Transport time less than 1 hour:
  - BSA > 20%: 20 mL/kg warm IV fluids*, over 10 – 30 minutes.(Does not need to be on a pump)
  - BSA < 20%: 10 mL/kg warm IV fluids*, over 10 – 30 minutes.
- Consult **Medical Control**:
  - Transport time greater than 1 hour and/or
  - Patient has signs of shock

* An IO device can be inserted through burned skin as long as the underlying bone has not been compromised.

Protocol Continues

4.0 Burns/Electrocution/Lightning Adult & Pediatric

Protocol Continues

PARAMEDIC STANDING ORDERS

P

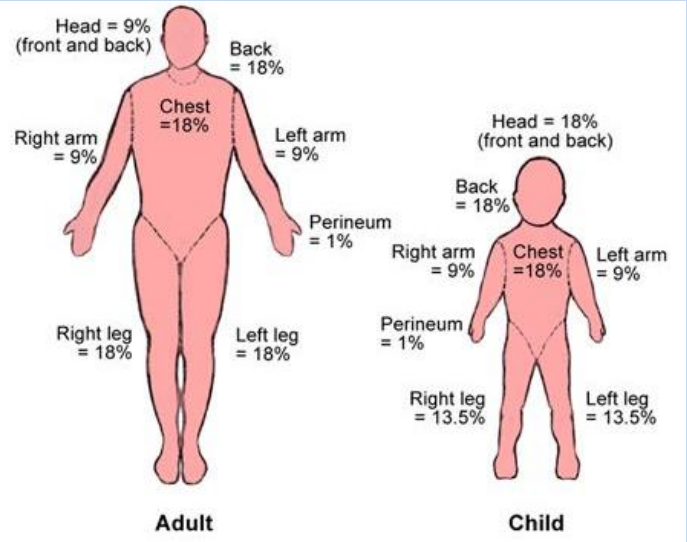
- Refer to Pain Management Protocol 2.16.

Air Medical Transport Considerations:

- 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.

Rule of Nines

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



PEARLS:

- Electrocution/Lightning burns can occur anywhere along the path a current travels through the body. Evident surface burns may only comprise a small portion of the overall burn injury, and an injury's full extent may not be immediately apparent.
- Chemical burns: If 0.9% NaCl or sterile water is not readily available, do not delay, use tap water for flushing the affected area. Flush the area as soon as possible with the cleanest readily available water using copious amounts of water.

Crush Injuries – Adult 4.1A

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care
- For signs/symptoms of shock, see Shock Traumatic Protocol 4.6
- Identify and treat any severe hemorrhage
- Perform cardiac monitoring and obtain multiple 12 - lead ECGs, if available.
- Evaluate for additional trauma, potentially masked by other painful injuries.
- Extrication and transport to a Trauma Center is preferred.
- Do not delay transport, consider hospital destination per Trauma Triage and Transport Decision Protocol 8.18.
- Consider early ALS and/or Air Medical Transport

ADVANCED EMT STANDING ORDERS - ADULT

A

- Initiate IV fluid 500 - 1000 mL bolus, followed by 500 mL/hr infusion (warm preferred), prior to extrication, if possible.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider pain management, see Pain Management Protocol 2.16
- For significant crush injuries or prolonged entrapment, consider:
  - Sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) IV/IO bolus over 5 minutes.
- Consider the following post extrication:
  - Monitor for dysrhythmias or signs of hyperkalemia before and after extrication.
  - If ECG suggestive of hyperkalemia, consider administering the following:
    - Calcium gluconate 2 grams IV/IO over 10 minutes, may repeat in 10 minutes **OR**
    - Calcium chloride 1 gram IV/IO over 10 minutes, may repeat in 10 minutes
    - Albuterol continuous 10 - 20 mg nebulized

EMT, AEMT PARAMEDIC EXTENDED CARE ORDERS

X

- Secondary to initial bolus, consider sodium bicarbonate infusion (Paramedic only):
  - 150 mEq in 1000 mL D5W at a rate of 250 mL/hr or 4 mL/min.
- In the event that adequate fluid resuscitation is not available, consider applying a tourniquet on the affected limb and do not release until adequate IV fluids and/or medications are available.
- If extrication is prolonged > 1 hour, contact online medical control for additional considerations prior to extricating the patient.

PEARLS

- ***Compression syndrome****:* An indirect muscle injury due to a simple, slow compression of a group of muscles leading to ischemic damage and release of toxic substances into the circulatory system. (For example, a patient who fell and has been on the floor for 2 days)
- ***Compartment syndrome:*** A localized rapid rise of tension within a muscle compartment, which inevitably leads to metabolic disturbances akin to rhabdomyolysis.
- ***Crush syndrome***: Involves a series of metabolic changes produced due to an injury of the skeletal muscles of such a severity as to cause a disruption of cellular integrity and release of its contents into the circulation.
- If possible 0.9% NaCl should be administered prior to extrication
- Causes of mortality in untreated crush syndrome:
  - Immediate: severe head injury, traumatic asphyxia, torso injury with intrathoracic or intra-abdominal organ injury
  - Early: hyperkalemia, hypovolemia/shock,
  - Late: renal failure, coagulopathy, hemorrhage and sepsis
- Suspect hyperkalemia if T waves become peaked, QRS prolonger >0.12 seconds, absent P waves, or prolonged QTc. Hyperkalemia may be delayed up to 24 hours after extrication.
- A patient with a crush injury may initially present with very few signs and symptoms, therefore, maintain a high index of suspicion for any patient with a compressive mechanism of injury.

4.1P Crush Injuries – Pediatric

EMT STANDING ORDERS - PEDIATRIC

E

- Routine Patient Care
- For signs/symptoms of shock, see Shock Traumatic Protocol 4.6
- Identify and treat any severe hemorrhage
- Perform cardiac monitoring and obtain multiple 12-lead ECGs, if available.
- Evaluate for additional trauma, potentially masked by other painful injuries.
- Extrication and transport to a Trauma Center is preferred.
- Do not delay transport, consider hospital destination per Trauma Triage and Transport Decision Protocol 8.18.
- Consider early ALS and/or Air Medical Transport

ADVANCED EMT STANDING ORDERS - PEDIATRIC

A

- Initiate 10-20 mL/kg IV fluid bolus, followed by 10 mL/kg/hr infusion (warm preferred), prior to extrication, if possible.

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Consider pain management, see Pain Management Protocol 2.16
- For significant crush injuries or prolonged entrapment, consider:
  - Sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) IV/IO bolus over 5 minutes.
- Consider the following post extrication:
  - Monitor for dysrhythmias or signs of hyperkalemia before and after extrication.
  - If ECG suggestive of hyperkalemia, consider administering the following:
    - Calcium gluconate 100 mg/kg IV/IO with a maximum of 2 gm/dose, over 5 minutes; may repeat in 10 minutes **OR**
    - Calcium chloride 20 mg/kg IV/IO with a maximum of 1 gm/dose over, 5 minutes; may repeat in 10 minutes
    - Albuterol per chart:

Weight	Albuterol
< 25 kg	2.5 mg
25 - 50 kg	5 mg
> 50 kg	10 mg

EMT, AEMT & PARAMEDIC EXTENDED CARE ORDERS

X

- In the event that adequate fluid resuscitation is not available, consider applying a tourniquet on the affected limb and do not release until adequate IV fluids and/or medications are available.
- If extrication is prolonged > 1 hour, contact online medical control for additional considerations prior to extricating the patient.

PEARLS

- ***Compression syndrome:*** An indirect muscle injury due to a simple, slow compression of a group of muscles leading to ischemic damage and thus causing crush substances to enter the blood. (For example, a patient who fell and has been on the floor for 2 days)
- ***Compartment syndrome****:* A localized rapid rise of tension within a muscle compartment, which inevitably leads to metabolic disturbances akin to rhabdomyolysis.
- ***Crush syndrome***: Also termed rhabdomyolysis, involves a series of metabolic changes produced due to an injury of the skeletal muscles of such a severity as to cause a disruption of cellular integrity and release of its contents into the circulation.
- Causes of mortality in untreated crush syndrome:
  - Immediate: severe head injury, traumatic asphyxia, torso injury with intrathoracic or intra-abdominal organ injury
  - Early: hyperkalemia, hypovolemia/shock,
  - Late: renal failure, coagulopathy, hemorrhage and sepsis
- Suspect hyperkalemia if T waves become peaked, QRS prolonger >0.12 seconds, absent P waves, or prolonged QTc. Hyperkalemia may be delayed up to 24 hours after extrication.
- A patient with a crush injury may initially present with very few signs and symptoms, therefore, maintain a high index of suspicion for any patient with a compressive mechanism of injury.

Drowning/Submersion Injuries Adult & Pediatric

4.2

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/AEMT STANDING ORDERS

E/A

- Routine Patient Care.
- Victims with only respiratory arrest usually respond after a few artificial breaths are given.
  - Give a few breaths and check for a pulse.
    - Anticipate vomiting.
- For patients in cardiac arrest, provide immediate CPR.
  - Utilize the sequence ABC, not CAB, i.e. start with airway and breathing before compressions.
- Routine use of spinal motion restriction in the absence of circumstances that suggest a spinal injury is not recommended.
- Assess temperature, if unresponsive, obtain esophageal or rectal temperature.
- Due to extremely poor prognosis, providers may consider withholding or terminating resuscitation efforts when:
  - A clear history of prolonged submersion (without prior prolonged immersion), greater than 20 minutes (children may survive despite extended submersion) **OR**
  - Esophageal or rectal temperature is greater than 32°C (89.6° F) with asystole documented in 2 leads **OR**
  - Meets Termination of Resuscitation Criteria, see Resuscitation Initiation and Termination Protocol 8.16.
- Consider hypothermia, see Hypothermia Protocol 2.10.
  - Do not delay urgent procedures such as airway management and IV access. Although hypothermic patients may exhibit cardiac irritability, do not delay necessary interventions.
- Conscious patients who survive any form of drowning are at risk of deterioration and should be transported to the hospital.
- Consider CPAP to supplement the patient's own respiratory effort.

PARAMEDIC STANDING ORDERS

P

- For unconscious patients in distress, consider early intubation.

Protocol Continues

4.2 Drowning/Submersion Injuries Adult & Pediatric

Protocol Continues

HYPOTHERMIA CHART	
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). Consider air medical transport.
- In hypothermic patients, low levels of ETCO2 may not be a useful predictor of outcome, due to reduced metabolism.
- Oral and tympanic thermometers do not yield an accurate core temperature for severely hypothermic patients.
- Cold water offers enhanced survival only where the patient becomes cold prior to cardiac arrest.
- There is no need to clear the airway of aspirated water; only a modest amount of water is aspirated by most drowning victims, and aspirated water is rapidly absorbed into the central circulation.
- Unnecessary cervical spine immobilization can impede adequate opening of the airway and delay delivery of rescue breaths.

Eye & Dental Injuries Adult & Pediatric

4.3

EYE – EMT STANDING ORDERS

E

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

EYE - ADVANCED EMT STANDING ORDER

A

- An anti-emetic is strongly recommended for penetrating or blunt eye trauma, consider Nausea Protocol 2.11.

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 2.16.

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 hanks solution

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 considered, 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.
- Significant eye injury may be present despite normal vision and minimal symptoms.
- Any chemical or thermal burn to the face/eyes should raise suspicion of respiratory insult.
- Vomiting in connection with blunt or penetrating eye trauma significantly increases intraocular pressure and should be avoided.

4.4 Hemorrhage Control

INDICATIONS:
- Serious or life threatening extremity hemorrhage in the face of operational considerations that prevent the use of less aggressive hemorrhage control techniques.

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

E

- Routine Patient Care
- **Apply direct pressure**, using manual control and/or pressure bandage.
- **Apply limb tourniquet**, if direct pressure is ineffective or impractical and for any traumatic amputation.
  - Apply directly to the skin 2-3 inches above the bleeding site. If bleeding is not controlled with the first tourniquet, apply a second tourniquet side-by-side with the first.
  - Document time of tourniquet application and communicate this clearly with receiving facility.
- **Pack wounds** of groin, neck or axillary injuries not amenable to limb tourniquet.
  - Utilize hemostatic dressing or, if not available, gauze dressing.
- **Junctional tourniquet**
  - If the bleeding site is amenable to use of a junctional tourniquet, immediately apply device following manufacture's guidelines, if available.

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

A

- Administer fluids per Shock – Traumatic Protocol 4.6
- Assess pain level and consider pain control measures, see Pain Management Protocol 2.16

PARAMEDIC STANDING ORDERS – ADULT

P

- Administer tranexamic acid (TXA):
  - Mix 1 gram of TXA in 50 - 100 ml of 0.9% NaCl; infuse over approximately 10 minutes IV or IO.
  - Notify receiving facility of TXA administration prior to arriving.

TXA Indications
- Evidence of significant trauma **AND**
- Evidence or concern for severe external and/or internal hemorrhage **AND**
- Presence of one or more markers of hemodynamic instability.
  - Sustained systolic blood pressure < 90 mmHg.
  - Sustained heart rate > 110 after pain adequately treated **AND**
- Injury occurred within past 3 hours

TXA Contraindications
- < 15 years of age
- Previous allergic reaction to TXA
- Isolated head injury
- Patients who have received or will receive prothrombin complex concentrate (PCCs), factor VIIa, or factor IX complex concentrates.
- Women who are known or suspected to be pregnant with a fetus of viable gestational age (> 24 weeks).

Protocol Continues

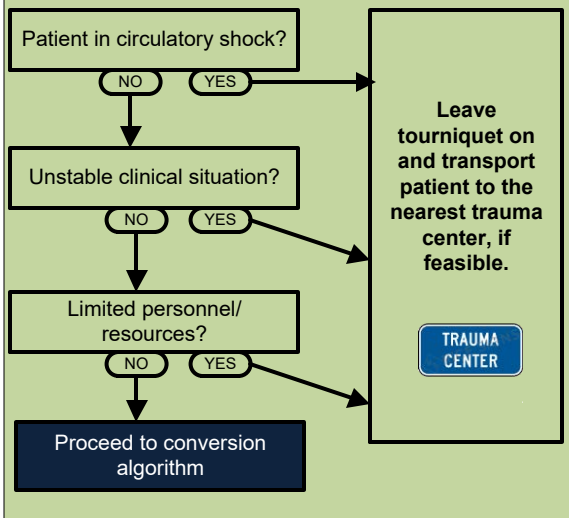
Protocol Continued

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

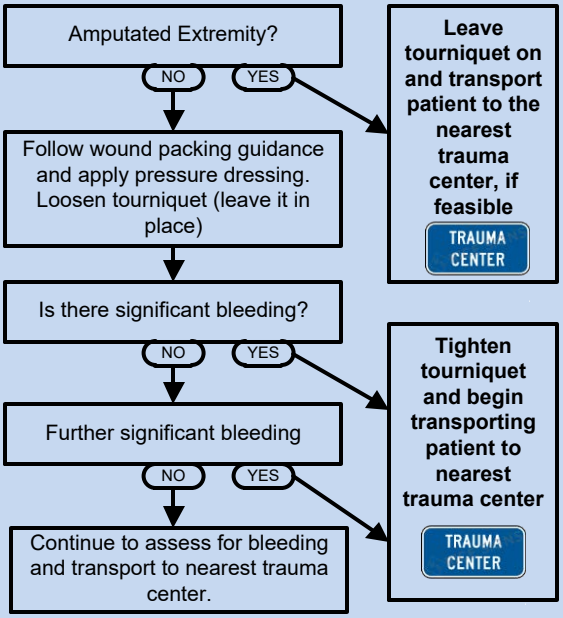
X

- Consult **Medical Control,** if feasible.
- If tourniquet has been in place for greater than 6 hours, do not remove.
- If less then 6 hours consider Tourniquet Reassessment and Tourniquet Conversion Algorithms

Tourniquet Reassessment Algorithm



Tourniquet Conversion Algorithm



Amputations: Rinse severed part briefly and gently with sterile saline to remove debris then wrap severed part in sterile saline gauze, moisten with sterile saline (do not soak) and place in water-tight container. Place container on ice (do not use dry ice). Do not put part directly on ice. If necessary, use ice packs to provide some level of cooling.

In the event of diminished scene safety (indirect threat, warm zone etc.), limb tourniquets should be placed as high on the limb as possible and over clothing.

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:

- Tourniquets applied prior to EMS arrival should be evaluated for effectiveness and appropriateness. If tourniquet can be safely removed, remove the tourniquet and apply pressure dressing.
- Do not apply tourniquet over joints.
- Reassess for re-bleeding frequently, especially after any patient movement.
- Delay in placement of a tourniquet for life threatening hemorrhage significantly increases mortality. Do not wait for hemodynamic compromise to apply a tourniquet.
- If feasible, transport patients directly to a Level 1 or Level 2 trauma center and provide earliest possible notification / trauma alert.
- Damage to the limb from tourniquet application is unlikely if removed in several hours.

4.5 Musculoskeletal Injuries Adult & Pediatric

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Manually stabilize the injury.
- Control bleeding, see Hemorrhage Control Protocol 4.4.
- 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.
  - Consider traction splinting for isolated adult and pediatric mid-shaft femur fractures, do not delay transport unnecessarily.
  - For pain relief apply ice and elevate.
- In a patient with a high risk mechanism of injury see Spinal Injury Protocol 4.7.
- Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.

ADVANCED EMT AND PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

- Assess pain level and consider pain control measures, see Pain Management Protocol 2.16.
- Administer fluids per Shock – Traumatic Protocol 4.6.

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 – 600 mg or acetaminophen 325 – 650 mg 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.
- Lacerations should be evaluated for repair within 6 - 12 hours.
- Blood loss may be concealed or not apparent with extremity injuries.

4.6 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 Trauma Protocols 4.0 – 4.10.
- Keep patient supine.
- Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial preferred) see Hemorrhage Control Protocol 4.4, 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 8.18.

ADVANCED EMT STANDING ORDERS - ADULT

A
- Administer IV fluid in the form of small boluses (e.g., 250 mL) to return the patient to a coherent mental status or palpable radial pulse.
  - In the setting of traumatic brain injury, however, fluids should be titrated to maintain systolic blood pressure greater than 110 mm Hg.
  - Total volume should not exceed 2000 mL without consultation with Medical Control. Do not delay transport for IV access.

ADVANCED EMT STANDING ORDERS - PEDIATRIC

- Administer IV fluid bolus 20mL/kg 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 tranexamic acid see, Hemorrhage Control Protocol 4.4.
- Consider obtaining a finger stick lactate level (if available and trained)
- If tension pneumothorax is suspected, consider needle thoracostomy. See Thoracic Injury Protocol 4.8.
- If cardiac tamponade is suspected, rapid transport and treat arrhythmias per Cardiac Protocols 3.0 – 3.6.

PEARLS:
For adult patients with uncontrolled external hemorrhagic or penetrating torso injuries:
- Titrate IV fluids to clinical end points:
  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.

4.7 Spinal Trauma

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/or rotation elicits midline spinal pain.

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 barrier).

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 Continues

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.
  - If collar does not fit properly or patient poorly tolerates collar (e.g., due to anxiety, shortness of breath, torticollis), apply soft collar, towel roll and/or padding.
- Allow ambulatory patients to sit on stretcher and then lie flat. Position backboarded patient on stretcher then remove backboard.
- 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 4.9 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.
- 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.

E/A/P

Pediatric Patients Requiring a Child Safety Seat

If child requires spinal motion restriction, transport in a child safety seat/device see Pediatric Transportation Policy 8.13.

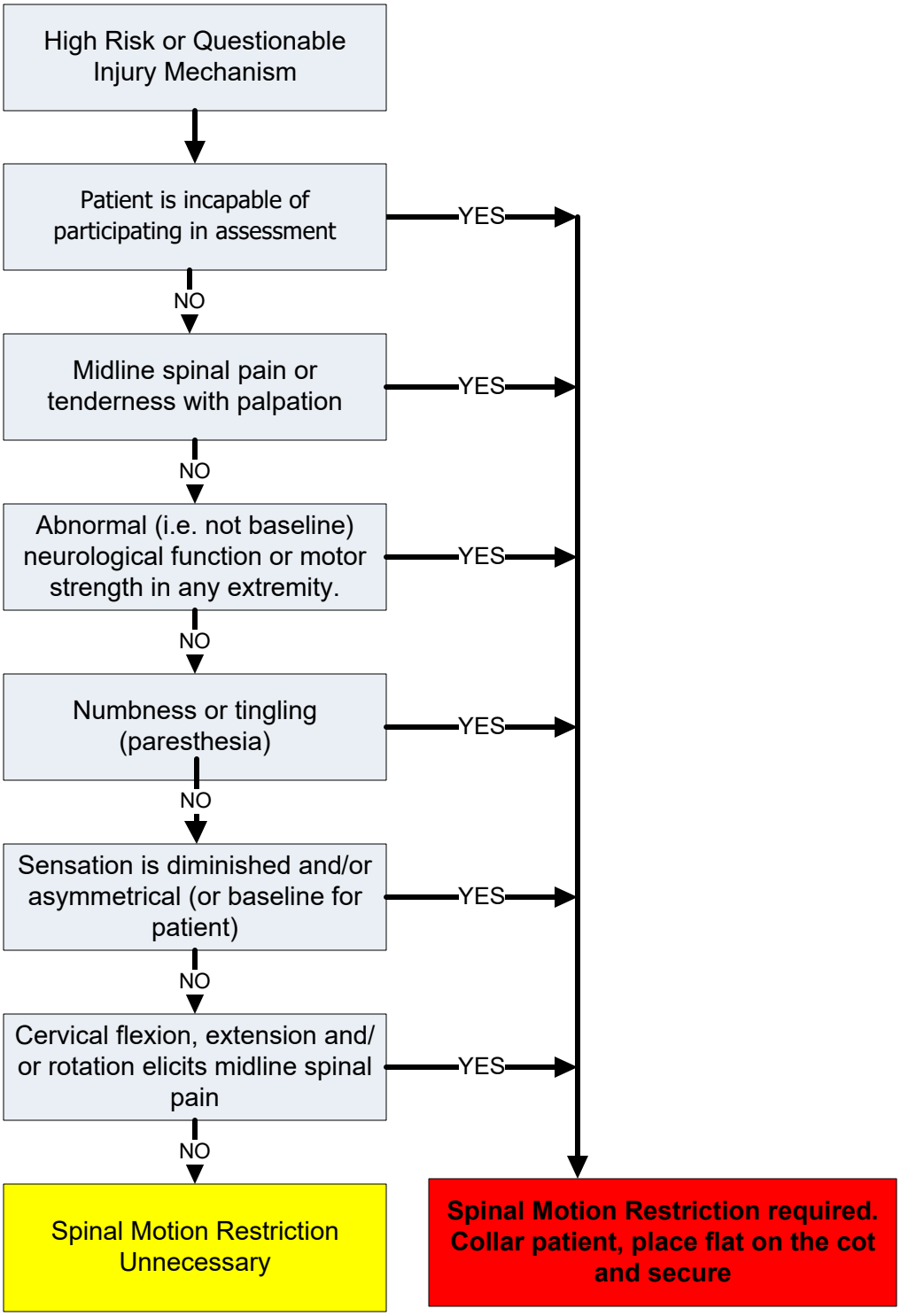
- Apply cervical collar. Use rolled towels/padding if infant/child will not tolerate collar.
- Patient may remain in own safety seat after motor vehicle crash if it meets the 5 criteria listed in Pediatric Transportation Policy 8.13
- If required treatment (e.g., airway management) cannot be performed in a safety seat, secure patient directly to stretcher using padding and pediatric-sized restraints.

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

Protocol Continues



Thoracic Injuries Adult & Pediatric

4.8

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If in shock, see Shock Traumatic Protocol 4.6.
- Impaled Objects:
  - Secure in place with a bulky dressing.
- Open chest wound:
  - Cover with an occlusive dressing 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 - ADULT

P

- Consider pain management, see Pain Management Protocols 2.16.
- In presence of tension pneumothorax*, perform needle decompression using 10 – 16 gauge ≥ 3.00 inch angiocath or any other commercially available device intended for needle decompression. Repeat decompression may be necessary with returned signs of tension pneumothorax.

PARAMEDIC STANDING ORDERS - PEDIATRIC

- Consider pain management, see Pain Management Protocols 2.16.
- In presence of tension pneumothorax*, perform needle decompression using 14 – 16 gauge ≥ 2.00 inch angiocath or any other commercially available device intended for pediatric needle decompression. 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)

PEARLS:

Needle decompression sites, as trained:

- 2nd intercostal mid clavicular.
- 4th to 5th intercostal anterior axillary.

4.9 Traumatic Brain Injury (TBI) Adult & Pediatric

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO_2 >90%.
- If capnography is available:
  - Ventilate to maintain a capnography of 35 – 40mmHg.
  - Do not hyperventilate unless clear signs of cerebral herniation are present.
  - If signs of cerebral herniation are present, maintain capnography of 30 – 35 mmHg. If 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 2.9.
- 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

- Administer 0.9% NaCl (in the form of small boluses, i.e., 250 mL) to maintain systolic blood pressure greater than 110 mm Hg.
  - Total volume should not exceed 2000 mL without consultation with Medical Control. Do not delay transport for IV access.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider intubation if GCS is <8.
- Consider sedation for patients that are combative and may cause further harm to self and others:
  - Midazolam 2.5 mg IV may repeat once in 5 minutes, **OR**
  - *Midazolam 5 mg IM/IN may repeat once in 5 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes, **OR**
  - Diazepam 5 mg IV; may repeat once in 5 minutes.

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

Protocol Continues

Protocol Continues

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20 mL/kg; may repeat x2 (maximum total 60 ml/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
- 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 0.05 mg/kg IV (single maximum dose 2.5 mg) may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg/kg IM/IN (single maximum dose 5 mg) may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV (single maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

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

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:

- If intubation or other advanced airway management is requred, use extreme caution to avoid hypoxia. Intubation has been assocated with worsened outcomes for TBI patients in the prehospital setting.

4.9 Traumatic Brain Injury (TBI) Adult & Pediatric

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO_2 >90%.
- If capnography is available:
  - Ventilate to maintain a capnography of 35 – 40mmHg.
  - Do not hyperventilate unless clear signs of cerebral herniation are present.
  - If signs of cerebral herniation are present, maintain capnography of 30 – 35 mmHg. If 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 2.9.
- 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

- Administer 0.9% NaCl (in the form of small boluses, i.e., 250 mL) to maintain systolic blood pressure greater than 110 mm Hg.
  - Total volume should not exceed 2000 mL without consultation with Medical Control. Do not delay transport for IV access.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider intubation if GCS is <8.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - *Midazolam 2.5 mg 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; 2 mg IM may repeat once in 10 minutes, **OR**
  - Diazepam 2 mg IV; may repeat once in 5 minutes.

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

Protocol Continues

Protocol Continues

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20 mL/kg; may repeat x2 (maximum total 60 ml/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
- 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 0.05 mg/kg IV/IM or 0.1 mg/kg IN (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV/IM (maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

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

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:

- If intubation or other advanced airway management is requred, use extreme caution to avoid hypoxia. Intubation has been assocated with worsened outcomes for TBI patients in the prehospital setting.

4.10 Traumatic Cardiac Arrest Adult & Pediatric

Traumatic cardiac arrest requires specific interventions that vary from medical cardiac arrest. Priorities are different and standard treatments may not be helpful or may be harmful. One primary difference is that, in trauma, there is a focus on early airway intervention. The goal is to address possible causes rapidly and aggressively try to regain spontaneous circulation. If the underlying cause of arrest is not reversed, the likelihood of survival is minimal. Additionally, if downtime has been prolonged, survival is not likely. If the arrest is recent or witnessed, probability of survival is higher with meaningful interventions.

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care with focus on continuous manual chest compressions and AED use
  - Ventilate with BVM, 1 breath every 10 compressions, ensure quality of ventilation with capnography, if available
- Provide early airway intervention using oral and/or nasal airways and suction
- Aggressively attempt to control internal and external hemorrhage.
  - See Shock Traumatic Protocol 4.6 and Hemorrhage Control Protocol 4.4
  - Apply pelvic binder
  - Align long bone fractures, splint
- Attempt to maintain spinal motion restriction by minimizing head movement. Do not apply a cervical collar before ROSC.
- Place a supraglottic airway device, see Supraglottic Airway 5.10
- If ROSC occurs, see Post Resuscitative Care Protocol 3.4 and transport to a Level I or Level II trauma center, if feasible.
- Consider not initiating resuscitation or early termination of efforts if there are obvious signs of death, injuries that are not compatible with life, or if there has been a prolonged downtime. See Resuscitation & Termination Protocol 8.16

ADVANCED EMT STANDING ORDERS - ADULT

A

- Place IV/IO without interrupting chest compressions
- Administer 500 mL – 1000 mL of IV fluid, repeat as needed.
- Epinephrine is **NOT** recommended in traumatic cardiac arrest

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 & PEDIATRIC

P

- Consider early placement of an endotracheal tube without interrupting chest compression. See Airway Management 5.0, Orotracheal Intubation 5.8, Cricothyrotomy-Percutaneous 5.5, or Surgical Cricothyrotomy 7.6
  - Consider leaving supraglottic airway in place, if effective. Monitor placement with capnography.
- Perform bilateral needle chest decompression. See Thoracic Injuries 4.8
- If ROSC consider Tranexamic Acid see Hemorrhage Control Protocol 4.4
- Epinephrine and antidysrhythmics are not recommended in traumatic cardiac arrest

PEARLS

- If arrest is caused by traumatic brain injury, survival is unlikely and early termination of efforts should be considered.
- Impact brain apnea is a phenomenon that occurs after head trauma causing lack of spontaneous respirations. It may or may not be associated with severe underlying brain injury. This can lead to death if ventilation is not rapidly restored.
- Always remember that a medical cardiac arrest can lead to trauma. For example, a cardiac arrest while driving causing a crash.

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 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-occiptal 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 and anticipates complications.
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). Using a PEEP valve set at 5 - 15 cmH_2O is recommended. 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

Procedure Continued

ADVANCED AIRWAY SKILLS

The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used. Procedures documenting the use of each device/technique listed below are found elsewhere in this manual.

CPAP/BiPAP: Continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) have 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.

ETT: The endotracheal tube is considered the optimal method of securing the airway in patients with significant respiratory distress and/or airway compromise. However, 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 CO_2 monitoring. Use video laryngoscopy, if available and trained.

ETT Introducer – "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. Bougie must be available for all intubations performed.

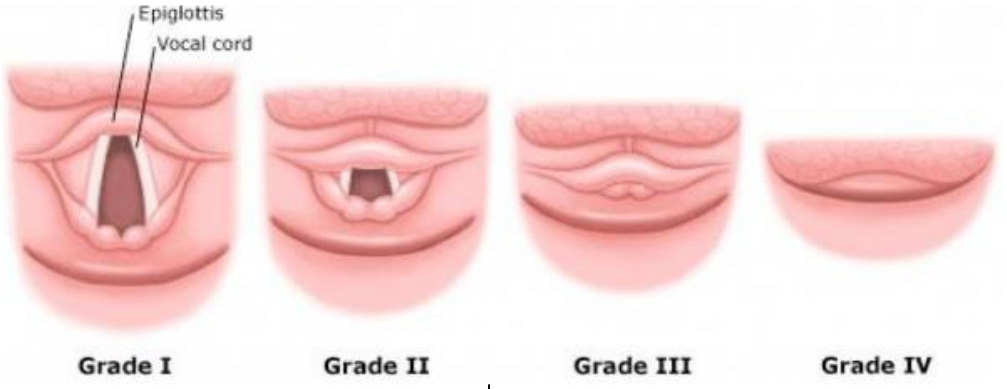
Cricothyrotomy: This procedure is indicated only when all other measures fail or you are presented with a situation in which intubation is contraindicated or in which you cannot intubate or otherwise ventilate the patient. Examples include:

- 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 capnography.



Airway Management – Adult 5.1A

EMT/AEMT STANDING ORDERS

E/A

- Routine patient care.
- Establish airway patency.
  - Open the airway.
  - Suction as needed.
  - Clear foreign body obstructions.
- Titrate oxygen saturation to 94% - 98%.
- Consider inserting an oropharyngeal and/or nasopharyngeal airway adjunct.
- If patient has a tracheostomy tube, follow the procedure for Tracheostomy Care Procedure 5.11.
- 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 5.10.
- For adults in severe respiratory distress (Asthma/COPD/Pulmonary Edema/ Near Drowning) consider use of CPAP. See CPAP Procedure 5.4.

PARAMEDIC STANDING ORDERS

P

- The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used.
- Consider BiPAP Procedure 5.3.
- For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation, see Nasotracheal Intubation Procedure 5.7.
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider supraglottic airway device or intubation. See Supraglottic Airways 5.10 or Orotracheal Intubation 5.8.
- 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 7.5.
  - **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 orogastric tube to decompress the stomach.
- If you cannot establish an airway or ventilate:
  - Consider Cricothyrotomy – Percutaneous Procedure 5.5 **OR**
  - Consider ***Surgical Cricothyrotomy – Bougie Assisted Prerequisite Procedure 7.6.
    ***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.**

5.1P Airway Management – Pediatric

Airway Protocol Procedure 5.1P

EMT/AEMT STANDING ORDERS

E/A

- 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 5.11.
- Consider additional help.
- For respiratory distress:
  - Administer high concentration oxygen (preferably humidified) via mask positioned on face or if child resists, held near face.
  - Titrate oxygen saturation to 94% - 98%; 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 2.3P.
- For Pediatric Cardiac Arrest: consider insertion of a supraglottic airway; see procedures for Supraglottic Airways 5.10
- For pediatrics in severe respiratory distress due to asthma consider use of CPAP. See CPAP Procedure 5.4.

PARAMEDIC STANDING ORDERS

P

- The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used.
- If feasible, place an orogastric tube to decompress the stomach.
- If you cannot establish an airway or ventilate, see Cricothyrotomy Percutaneous Procedure 5.5.

Pediatric Respiratory Distress	Pediatric Respiratory Failure
• 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.	• 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.

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

Analgesia and Sedation for Invasive Airway Device

5.2

After placement of an advanced airway device patients may require analgesia and sedation. This includes an oral or nasal endotracheal tube, a supraglottic device, or a surgical airway.

PARAMEDIC STANDING ORDERS – ADULT

Option 1:

- Ketamine 1 mg/kg IV bolus every 5 - 15 minutes as needed, with a target RASS -2 to -4.
  - Infusion: 1 mg/kg IV bolus followed by 1 - 5 mg/kg/hour via IV pump titrated to effect.

Option 2:

- Fentanyl 50 - 100 mcg IV every 5 - 10 minutes as needed.

AND

- Midazolam 5 mg IV, repeat every 5 minutes as needed.
  - Infusion: 2.5 - 5 mg IV bolus followed by 5 - 30 mg/hour via IV pump titrated to effect.

  OR
- Lorazepam 2 - 4 mg every 5 minutes as needed.

PARAMEDIC STANDING ORDERS – PEDIATRIC

Option 1:

- Ketamine 1 mg/kg IV every 5 - 15 minutes, as needed.

Option 2:

- Fentanyl 2 - 3 mcg/kg IV every 5 - 10 minutes as needed.

AND

- Midazolam 0.1 mg/kg IV (single maximum dose 5 mg) every 5 minutes as needed,

  OR
- Lorazepam 0.1 mg/kg IV (single maximum dose 4 mg) every 5 minutes as needed.

Richmond Agitation Sedation Scale (RASS)

Target RASS	RASS Description
+ 4	Combative, violent, danger to staff
+ 3	Pulls or removes tube(s) or catheters; aggressive
+ 2	Frequent nonpurposeful movement, fights ventilator
+ 1	Anxious, apprehensive , but not aggressive
0	Alert and calm
- 1	awakens to voice (eye opening/contact) >10 sec
- 2	light sedation, briefly awakens to voice (eye opening/contact) <10 sec
- 3	moderate sedation, movement or eye opening. No eye contact
- 4	deep sedation, no response to voice, but movement or eye opening to physical stimulation
- 5	Unarousable, no response to voice or physical stimulation

PEARLS

- Analgesia and sedation should be considered in all patients with advanced airways in place, but especially any time a patient shows signs of distress due to their airway device or there is difficulty providing appropriate ventilation due to the patient's respiratory effort.
- Addressing pain first by administering fentanyl has been shown to decrease the amount of benzodiazepine needed and increases patient comfort.
- Ketamine has analgesic properties and therefore does not require fentanyl to be co-administered.
- Ketamine IV boluses should be pushed slowly, over at least 30-60 seconds.
- Sedation can be guided by the RASS scale shown above.
- Patients usually require more sedation in the prehospital environment than in-hospital due to increased external stimuli.
- Lower doses should be considered in the setting of hemodynamic compromise.

5.3 Bilevel Positive Airway Pressure (BiPAP) - ADULT

PARAMEDIC STANDING ORDERS

INDICATIONS

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

ABSOLUTE CONTRAINDICATIONS (Do not use)

- Cardiac/Respiratory arrest.
- Agonal respirations.
- Unable to maintain their own airway.
- Vomiting and/or active upper GI bleed.
- Respiratory distress secondary to trauma.
- Suspicion of pneumothorax.
- Not having a ventilator that is capable of delivering NPPV.

RELATIVE CONTRAINDICATIONS (Use cautiously).

- Unable to follow commands.
- Agitated or combative behavior.

PROCEDURE

P

1. Ensure adequate oxygen supply for the BiPAP device.
2. Explain the procedure to the patient. Be prepared to coach the patient for claustrophobia or anxiety.
3. Place the patient in an upright position.
4. Monitor the patients SpO_2, Capnography, ECG and blood pressure.
5. Choose the appropriate sized mask for the patient.
6. Set the ventilator to the patient appropriate setting.
7. IPAP: Set pressure to 10 cm H2O and titrate to work of breathing not to exceed 20 cmH_2O (See chart below).
8. EPAP: Set to 5cmH2O and titrate of SpO2 of 94% - 98%; not to exceed 14 cmH_2O.
9. Pressure support to be no less than 5 cmH_2O (Difference between IPAP/EPAP).
10. Set back-up ventilatory rate of no less than 8 BPM.
11. Set FiO_2 to appropriate level to maintain an SpO_2 of 94 – 99%.
12. Recheck the mask for leaks and adjust as needed.
13. If the patient deteriorates and meets one or more of the contraindications above then discontinue the use BiPAP.

Consider Supraglottic Airway 5.10, Intubation 5.7/5.8
Consider Rapid Sequence Intubation 7.5 (if trained and credentialed)
Consider administering anxiolytic:

- Midazolam 2.5 mg IV may repeat once in 5 minutes, **OR**
- *Midazolam 5 mg IM/IN may repeat once in 5 minutes, **OR**
- Lorazepam 1 mg IV may repeat once in 5 minutes, **OR**
- Diazepam 5 mg IV, mahy repeat once in 5 minutes.

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

Keep in mind BiPAP uses large volumes of oxygen.

MALE	Height in Ft/In	5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.1	5.11	6	6.1
	6 mL/kg	314	320	328	341	355	369	383	397	410	424	438	452	466	479
	8 mL/kg	418	426	437	455	474	492	510	529	547	566	584	602	621	639

FEMALE	Height in Ft/In	5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.1	5.11	6	6.1
	6 mL/kg	286	293	300	314	328	342	356	370	383	397	411	425	439	452
	8 mL/kg	382	390	400	406	438	456	474	493	511	530	548	566	585	603

Administer benzodiazepines with caution in elderly patients or those with signs of hypercarbia or respiratory fatigue.

Continuous Positive Airway Pressure (CPAP) 5.4

EMT/AEMT STANDING ORDERS

INDICATIONS

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

ABSOLUTE CONTRAINDICATIONS (Do not use)

- Cardiac/Respiratory arrest.
- Agonal respirations.
- Unable to maintain their own airway.
- Vomiting and/or active upper GI bleed.
- Respiratory distress secondary to trauma.
- Suspicion of pneumothorax.
- Pediatric patient who is too small for the mask sizes available.

RELATIVE CONTRAINDICATIONS (Use cautiously)

- Unable to follow commands.
- Agitated or combative behavior.

PROCEDURE

E/A

1. **Ensure adequate oxygen supply for CPAP device.**
2. Managing patient anxiety is extremely important. Reduce patient anxiety by coaching and minimize external stimuli as much as possible.
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 manufacturer's 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 - 15 cmH_2O to effect for patient condition.
7. If device allows, titrate oxygen level to oxygen saturation of 94 – 98%.
8. Recheck mask for leaks and adjust straps as needed to minimize air leaks.
9. Reassure anxious patient.
10. Monitor pulse oximetry, capnography and ECG as available and trained.
11. If patient stabilizes, maintain CPAP for duration of transport and notify receiving hospital to prepare for a CPAP patient.
12. If patient begins to deteriorate, discontinue CPAP and assist respirations by BVM with PEEP valve.
13. Document CPAP procedure, including time and provider. Document serial pulse oximetry and capnography readings to demonstrate effects.

If a commercial device is not available you may consider using a BVM with PEEP valve:

1. Apply nasal cannula at 15 lpm.
2. Attach PEEP valve to BVM at desired PEEP level (5 – 15 cmH2O).
3. Attach oxygen to BVM at least 15 lpm and ensure flow.
4. Maintain continuous mask seal on patient to deliver CPAP.

Keep in mind CPAP uses large volumes of oxygen.

Protocol Continues

Continuous Positive Airway Pressure (CPAP) 5.4

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider Supraglottic Airway 5.10 or Intubation 5.7/5.8.
- Consider Rapid Sequence Intubation 7.5 (if trained and credentialed).
- Consider administering anxiolytic:
  - Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
  - *Midazolam 5 mg IM/IN, may repeat once in 5 minutes, **OR**
  - Lorazepam mg IV, may repeat once in 5 minutes, **OR**
  - Diazepam 5 mg IV, may repeat once in 5 minutes.

PARAMEDIC STANDING ORDERS - PEDIATRIC

- Consider Supraglottic Airway 5.10 or Intubation 5.7/5.8.
- Consider Rapid Sequence Intubation 7.5 (if trained and credentialed).
- Consider administering anxiolytic:
  - Midazolam 0.05 mg/kg IV (single max dose 2.5 mg), may repeat once in 5 minutes, **OR**
  - *Midazolam 0.1 mg/kg IM/IN (single max dose 5 mg), may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV (single max dose 1 mg), may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg (single max dose 5 mg), may repeat once in 5 minutes.

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

Administer benzodiazepines with caution in elderly patients or those with signs of hypercarbia or respiratory fatigue.

5.5 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.

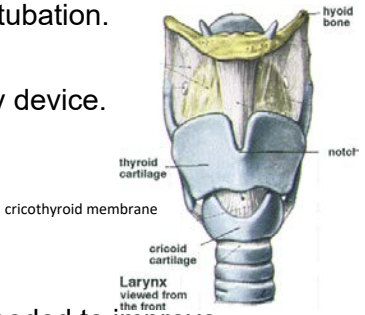
PARAMEDIC STANDING ORDERS

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 $ETCO_2$.

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 $ETCO_2$ and ventilate the patient.
12. Confirm placement by assessing for bilateral lung sounds and presence of quantitative and qualitative $ETCO_2$.
13. Frequently reassess placement and continuously monitor $ETCO_2$.

Endotracheal Tube Introducer "Bougie" – Adult

5.6

PARAMEDIC STANDING ORDERS – ADULT

P

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. Endotracheal tube may be preloaded on bougie if provider is familiar with technique being used. Always lubricate cuff of endotracheal tube with water-based lubricant.
2. Using techniques described in the Orotracheal Intubation Protocol 5.8 attempt to visualize the vocal cords. Always use all techniques necessary to optimize laryngeal view before trying to pass the bougie.
3. If the vocal cords are partially visualized, pass the bougie through the cords while attempting to feel signs of tracheal placement (see below). Gently advance bougie until holdup is felt. If the bougie does not stop advancing the bougie is likely in the esophagus.
4. If the vocal cords are not visualized, pass the bougie behind the epiglottis, guiding the tip of the bougie anteriorly toward the trachea and assess for signs of tracheal placement (see below). Do not attempt to pass the bougie if the epiglottis is not visualized. Gently advance bougie until holdup is felt. If the bougie does not stop advancing the bougie is likely in the esophagus.
5. With laryngoscope still in place, advance preloaded tube off bougie or have assistant load the tube onto the bougie and advance it to 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 or until cuff is seen passing through cords.
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 5.8 to confirm placement, secure the ETT, monitor and document placement of the ETT.

SIGNS OF TRACHEAL PLACEMENT

- The Bougie is felt to "hold 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 may 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.

5.7 Nasotracheal Intubation

PARAMEDIC STANDING ORDERS - ADULT

P

INDICATIONS

- Impending respiratory failure with intact gag reflex or if jaw is clenched and unable to be opened.
- Inadequate ventilation/oxygenation with basic airway procedures.
  - The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used.

CONTRAINDICATIONS

- 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 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 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.

Protocol Continues

Protocol Continued

PARAMEDIC STANDING ORDERS

13. Ongoing monitoring of ETT placement and ventilation status using 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 nare), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO_2 readings.

If continued intubation attempts are unsuccessful (maximum of 2 attempts) consider Cricothyrotomy. See Cricothyrotomy Procedures 5.5 OR 7.5.

POST TUBE PLACEMENT CARE – ADULT

- See Procedure: Analgesia and Sedation for Invasive Airway Device 5.2

P

5.8 Orotracheal Intubation

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

INDICATIONS

- Apnea/respiratory failure, impending respiratory failure, impaired or absent gag reflex.
- Inadequate ventilation/oxygenation with basic airway procedures.
  - The appropriate method of airway management should be determined based on patient condition. If basic procedures are deemed inappropriate or have proven to be inadequate then more advanced methods should be used.

CONTRAINDICATION

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

PROCEDURE

Direct Laryngoscopy or Direct Video Laryngoscopy:

1. Place patient in ear to sternal notch position and elevate head to 30° if possible. Ensure all preparation and planning steps are complete.
2. Insertion: Open the mouth fully and insert the tip of the blade into the mouth to the right and sweeping the tongue to midline. The laryngoscope should be gripped lightly as no significant force is needed until later steps. It is helpful, especially if there are substantial secretions, to lead with the suction catheter and suction as the laryngoscope is advanced.
3. Epiglottoscopy: SLOWLY advance the blade down the tongue at the midline until the epiglottis is seen. Be sure to control the tongue leaving space to the right for tube delivery. Keep the tip of the blade along the tongue and avoid allowing the laryngoscope to fall posterior.
4. Valleculoscopy: Gradually advance the blade until it is seated in the vallecula. The blade must engage the hypoepiglottic ligament in order to adequately lift the epiglottis. The ligament lies directly within the vallecula. If using a Miller blade pass tip of blade under the epiglottis to control it directly.
5. Laryngoscopy: Once the tip of Mac blade is seated in the vallecula or tip of Miller blade has passed the epiglottis lifting force should be applied forward and upward without rotating the handle backward. The epiglottis will lift or be displaced and the larynx will be exposed
6. If using bougie: Once an optimal view is obtained pass the bougie through the cords. Tracheal rings may be felt if the coude tip remains pointing upright. Advance the bougie slowly until it lodges in the proximal bronchi. Be careful not to advance with too much force as tracheobronchial trauma may occur. If the bougie does not stop advancing this is suggestive of esophageal placement. Advance the lubricated endotracheal tube over the bougie without removing the laryngoscope. If the tube cannot be advanced through the cords rotate it 60° counterclockwise. Visualize the tube passing through the cords if possible and stop advancing once the cuff is past the cords. Remove the laryngoscope, hold tube firmly, and remove the bougie.
7. If using stylette: Ensure stylette is bent in “straight-to-cuff” fashion with 30° bend angle and tube cuff is lubricated. Once an optimal view is obtained pass the tube to the right and below the line-of-sight to the cords. The tube must be visualized passing through the cords. Advance tube until the cuff is seen passing through the cords. If resistance is felt rotate the tube clockwise. Once the tube is in place hold it firmly and remove the stylette.
8. Inflate ETT cuff with 5 - 10 mL of air and adjust inflation pressure if necessary. The pilot balloon should feel inflated but be easily compressible and not too hard.
9. Confirm tube placement via continued waveform capnography, presence of bilateral lung sounds, and absence of epigastric sounds.

Protocol Continues

P

Protocol Continues

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

10. Secure ETT and continue to monitor waveform capnography. Frequently reassess tube placement.

Indirect Video Laryngoscopy

(Devices such as Glidescope and King Vision that cannot be used for direct laryngoscopy)

1. Place patient in ear to sternal notch position and elevate head to 30° if possible. Ensure all preparation and planning steps are complete.
2. Insertion: Open mouth fully and insert blade at the midline. It is helpful, especially if there are substantial secretions, to lead with the suction catheter and suction as the laryngoscope is advanced.
3. Epiglottoscopy: Gradually advance the blade by rotating handle backward and allowing the tip of the blade to follow the tongue until the epiglottis is seen.
4. Valleculoscopy: Advance the tip of the blade until it is seated in the vallecula. DO NOT go to too deep. The tip of the blade may need to be slightly above the vallecula in order to facilitate tube passage. If you can see the cricoid ring through the cords you are too deep.
5. Laryngoscopy: Lift the jaw straight up with the blade exposing the larynx fully.
6. Tube passage for non-channeled devices: A lubricated ET tube loaded on a rigid or standard stylette should be used. The stylette should have a gradual curve at the end to almost a 90° angle. Pass the tube into the mouth from the right side. The tip should enter view from the bottom of the screen and toward the larynx. When the tube has just begun entering the cords the stylette should be popped up out of the tube slightly using your right thumb or with the help of an assistant. This will allow the tip of the tube to fall between the cords at the correct angle. Pass the tube until the cuff is past the cords.
   Note: It is not recommended to use a bougie with a non-channeled IVL laryngoscope as they are not easily maneuvered around the steep angle that is present.
7. Tube passage for channeled devices: Line up view on camera with the cords. Advance lubricated ETT down channel and visualize it passing through the cords. It may be helpful to preload a bougie in the tube and advance it through the cords first.
8. Inflate ETT cuff with 5 - 10 mL of air and adjust inflation pressure if necessary. The pilot balloon should feel inflated but easily compressible and not too hard.
9. Confirm tube placement via continued waveform capnography, presence of bilateral lung sounds, and absence of epigastric sounds.
10. Secure ET tube and continue to monitor waveform capnography. Frequently reassess tube placement.

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

Monitor oxygen saturation and end-tidal CO_2 **AND**

Ventilate the patient with 100% oxygen via a BVM until ready to attempt intubation again.

Consider insertion of supraglottic airway if additional intubation attempts are unlikely to be successful.

Techniques to improve laryngeal view:

- Head Elevation: Elevate the head by lifting with the laryngoscope or having an assistant lift the head from underneath.
- External Laryngeal Manipulation (ELM): The person intubating uses their right hand to manipulate the larynx to a position that is suitable. An assistant then holds the larynx in that position. Note: BURP and cricoid pressure are no longer recommended.
- Jaw Thrust: An assistant performs a jaw thrust to assist with tissue displacement.

Protocol Continues

5.8 Orotracheal Intubation

Protocol Continues

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

POST TUBE PLACEMENT CARE – ADULT & PEDIATRIC

- See Procedure: Analgesia and Sedation for Invasive Airway Device 5.2

P

Documentation
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, preoxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's teeth), and confirmation of tube placement including chest rise, bilateral equal breath sounds, absence of epigastric sounds and capnography readings.

Intubation Checklist (Non-RSI)

New Hampshire Bureau of EMS

Patient Preparation

- ☐ **Preoxygenate** NC 15 lpm + NRB/CPAP/BVM
- ☐ **Positioning** Ear to sternal notch, ramp, remove collar
- ☐ **Monitoring** SpO_2, ECG, BP, $ETCO_2$

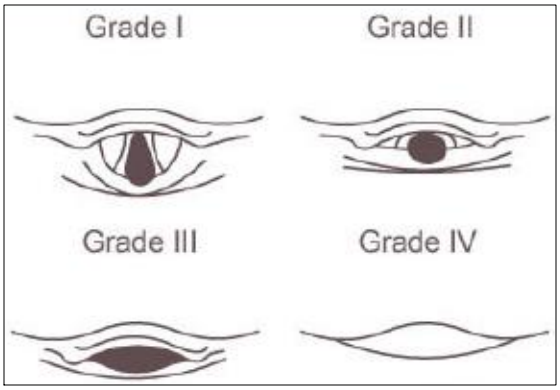
Verbalize Airway Plan

Setup

- ☐ Laryngoscope(s)
- ☐ ETT(s) & syringe
- ☐ Bougie
- ☐ Stylette
- ☐ Suction(s)
- ☐ BVM w/PEEP
- ☐ $ETCO_2$
- ☐ Supraglottic
- ☐ Surgical

Post-Intubation

- ☐ **Confirm Placement** -Waveform ETCO2 -Lung sounds -Epigastric sounds
- ☐ **Secure ETT**
- ☐ **Fentanyl**
- ☐ **Sedation**
- ☐ **OB/NG Tube**
- ☐ **Sit Patient Up** -if not contraindicated
- ☐ **Reassess**



PEARL:
- An intubation attempt is defined as a blade being introduced into the mouth.

Suctioning of Inserted Airway 5.9

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

E/A/P

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 supraglottic airway. For tracheostomy tube see Tracheostomy Care 5.11.

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 – 2 cm.
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 15 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.

5.10 Supraglottic Airway Adult & Pediatric

This protocol applies to commercially available supraglottic airway 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.
Note: Double Lumen Device (e.g., Combitube) are not longer approved.

EMT/ADVANCED EMT STANDING ORDERS

E/A

INDICATIONS:

- Cardiac Arrest.

RELATIVE CONTRAINDICATIONS:

- Severe maxillofacial or oral trauma.
- 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 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 CO_2 readings.
- Reassess placement frequently, especially after patient movement.

PARAMEDIC STANDING ORDERS

P

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 & PEDIATRIC

- See Procedure: Analgesia and Sedationf for Invasive Airway Device 5.2

Tracheostomy Care 5.11

EMT/ADVANCED EMT STANDING ORDER – ADULT & PEDIATRIC

E/A

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 – 3 ml 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.

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

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).
  - Bougie may be used to assist with placement of endotracheal tube into stoma.
- If unable to replace tube with another tracheostomy tube or endotracheal tube, assist ventilations with bag valve mask and high-flow oxygen.

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 prehospitally. 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.

P

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

Protocol Continues

Protocol Continues

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).

FiO_2: Start at 100% FiO_2, then titrate to maintain SpO_2 >94% (90% for COPD patients).

PEEP: 2 to 5 cmH_2O.

ALARM SETTINGS

- High pressure alarm: 30 cmH_20.
- Low pressure alarm, if available: 4 cmH_20.

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. Transmit per local guidelines.

INDICATIONS

- Congestive Heart Failure/Pulmonary Edema.
- Dysrhythmias and/or Palpitations
- Suspected Acute Coronary Syndrome.
- Syncope.
- Shortness of breath.
- Stroke/CVA.
- Cardiac Arrest with Return of Spontaneous Circulation (ROSC).
- Upper Abdominal Pain
- Dizziness/ lightheadedness

PROCEDURE

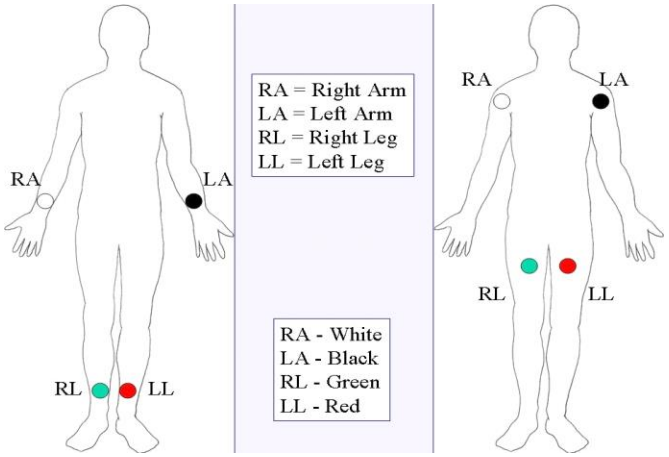
E/A/P

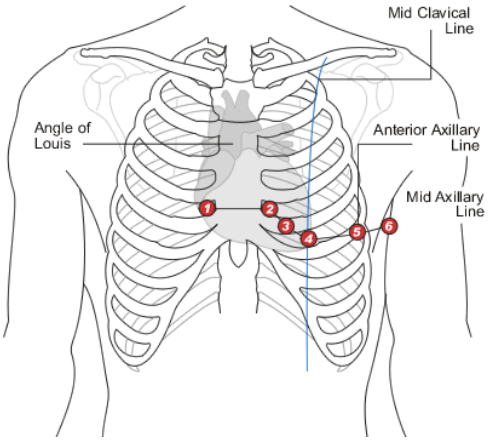
1. Prepare ECG Monitor and connect cable with electrodes.
2. Properly position the patient (supine or semi-reclined).
3. Enter patient information (e.g., age, gender, name) into monitor, when able.
4. Prep chest as necessary, (e.g., hair removal, skin prep pads).
5. Apply chest and extremity leads using 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” and patient information as requested.
9. For patients with continued symptoms consistent with acute coronary syndrome, perform repeat ECGs, as indicated, during transport to evaluate for evolving STEMI. Leave 12 lead attached.
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. Include the ECG printout/image in the PCR, if possible.

Protocol Continues

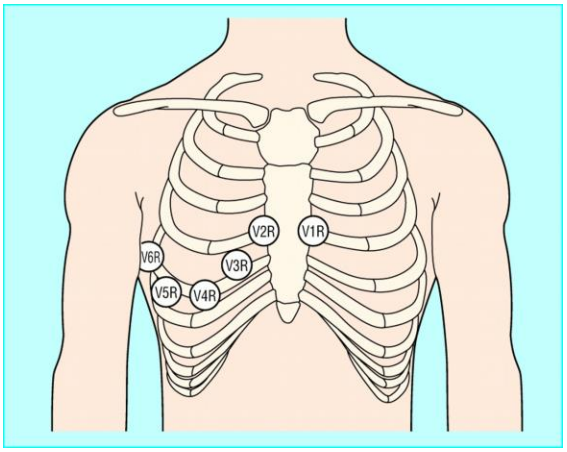
6.0 12-Lead ECG Acquisition

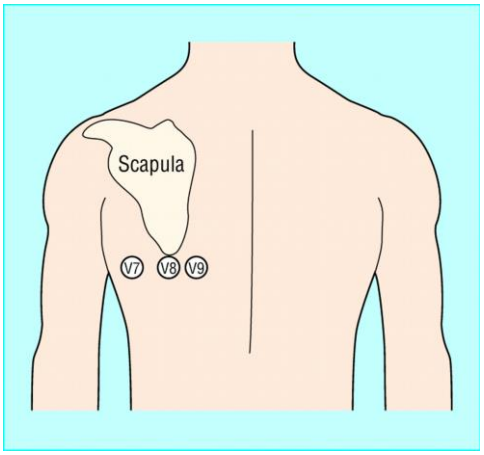
Protocol Continues





- For isolated ST depression in leads VI – V3 consider posterior ECG
- For suspect inferior MI consider right sided ECG.
  - Label these ECG printouts as applicable.





PEARLS:

- Enter the patient's age 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
- 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.
- Check for subtle movement: toe tapping, shivering, muscle tension (e.g., hand grasping rail or head raised to "watch")

6.1 Capnography

Procedure 6.1

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

Indications:

- Routine monitoring of ventilation status and indirectly circulatory and metabolic status in adults and children with:
  - Respiratory distress (e.g., CHF, COPD, Asthma, Pulmonary embolus)
  - Altered mental status
  - Traumatic brain injury
  - Diabetic ketoacidosis
  - Circulatory shock
  - Sepsis
  - Cyanide and/or carbon monoxide poisoning
  - Administration of sedative medication
- Advanced Airway Devices:
  - Confirm and document placement of advanced airway devices, see Airway Management 5.0 and 5.1 A&P
  - To confirm continued placement of advanced airway devices after every patient move and at transfer of care.
- Monitoring of CPR quality and for signs of return of spontaneous circulation (ROSC).
  - High quality chest compressions are achieved when the $ETCO_2$ is at least 20 mmHg. If $ETCO_2$ abruptly increases it is reasonable to consider that this as an indicator of ROSC.
- To assist with termination of resuscitation efforts when $ETCO_2$ is <20 mmHg despite adjusting the quality of chest compressions.
  - Low CO_2 production after 20 minutes of effective CPR is a predictor of mortality. See Resuscitation Initiation & Termination Policy 8.16.

E/A/P

Procedure:

1. Attach the sensor to endotracheal tube, supraglottic airway, BVM or apply cannula with $ETCO_2$ mouth scoop or bi-cannula.
2. Assess ETCO2 numeric levels and waveform:
   - Normal $ETCO_2$ range 35-45 mmHg
   - Elevated $ETCO_2$ may indicate hypoventilation/CO_2 retention.
   - Low $ETCO_2$ may indicate hyperventilation, low perfusion, pulmonary embolus, sepsis.
3. With abnormal $ETCO_2$ levels consider adjusting rate and depth of ventilations.

Any abrupt loss of $ETCO_2$ detection or loss of continuous waveform may indicate a catastrophic failure of the airway, apnea, drug overdose, deep sedation and/or cardiac arrest warranting assessment of the airway, breathing, circulation, and/ or airway device.

PEARLS

- Colorimetric CO_2 detectors are not an approved alternative to quantitative waveform capnography. Airway device placement confirmation and device monitoring should always be confirmed using quantitative waveform capnography.
- Numeric capnometry and capnography waveform morphology should be documented in the ePCR.

Double Sequential Defibrillation – Adult

6.2

PARAMEDIC STANDING ORDERS – ADULT

INDICATION: Refractory Ventricular Fibrillation / Tachycardia after 5 unsuccessful shocks and a second manual defibrillator is available.

- **Recurrent ventricular fibrillation/tachycardia** is defined as SUCCESSFULLY CONVERTED by standard defibrillation techniques but subsequently returns. It should NOT be treated by double sequential external defibrillation. It is managed by treatment of correctable causes and use of anti-arrhythmic medications in addition to standard defibrillation
- **Refractory ventricular fibrillation/tachycardia** is defined as NOT CONVERTED by standard defibrillation. It is initially managed by treating correctable causes and with antiarrhythmic medications. If these methods fail to produce a response, double sequential external defibrillation may be beneficial.

PROCEDURE:

1. Prior to attempting Double Sequential Defibrillation, at least one shock should be given using a different vector. Change pad placement from anterior-apex to anterior-posterior.
2. Ensure quality CPR and minimally interrupted chest compressions during pad application and procedure.
3. Apply a new set of external defibrillation pads adjacent to, but not touching the pad set currently in use.
4. Assure that controls for the second manual defibrillator are accessible to the team leader
5. Verify that both cardiac manual defibrillators are attached to the patient, that all pads are well adhered, and simultaneously charge both manual defibrillators.
6. When both monitors are charged to maximum energy settings and all persons are clear, push both shock buttons as synchronously as possible.
7. May repeat procedure every 2 minutes as indicated if refractory ventricular fibrillation/tachycardia persists

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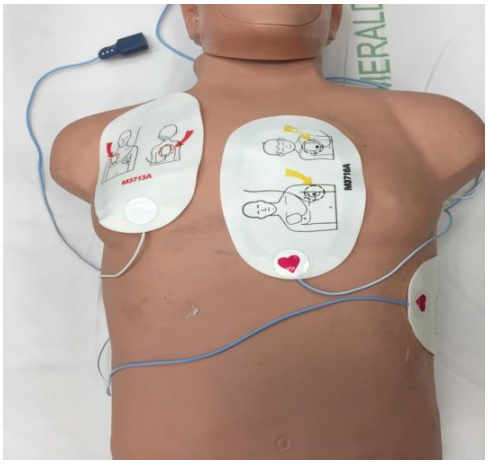

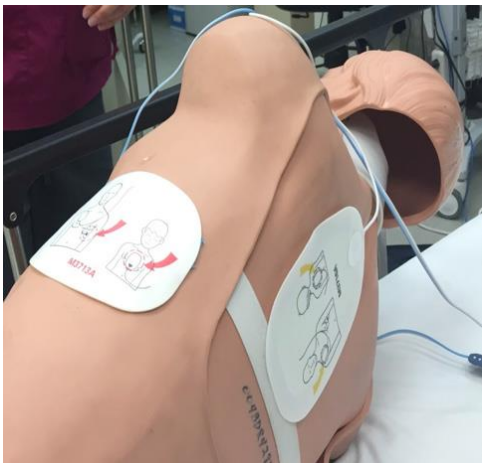

Photo Courtesy of Emergency Medicine Reviews and Prespectives

PEARLS

- Continue compressions when defibrillators are charging.
- During interruptions compressor's hands should hover over chest.
- Pre-charge manual defibrillators prior to rhythm check to ensure rapid defibrillation if a shockable rhythm is present. If no shock is indicated, disarm the device (dump the charge)
- Depending on your local hospital resources, some refractory ventricular fibrillation patients may benefit from emergent cardiac catheterization. For this small patient population, transportation (ideally with a mechanical CPR device) may be indicated. Transporting these patients directly to the cath lab should be done in collaboration with on-line medical control and interventional cardiology.

6.3 Gastric Tube Insertion

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

Procedure 6.3

INDICATIONS

- Intubated patients (Orogastric preferred)

CONTRAINDICATIONS

- If suspected basilar skull fracture, do not use nasogastric tube.
- Severe facial trauma with distortion of airway anatomy

EQUIPMENT

- Salem sump gastric tube of appropriate size; for pediatric size refer to the length based tape.
- 60 mL syringe with Toomey tip (catheter tip); use 5-10 mL syringe for pediatric
- Lubricant
- Stethoscope
- Method of securing

OROGASTRIC TUBE PROCEDURE

1. Size a Salem sump gastric tube by measuring from the epigastrium, around the ear, and to the mouth.
2. Lubricate the distal portion of the tube with water based lubricant.
3. If possible, flex the head forward to better align the esophagus for tube placement.
4. Insert the tube into the mouth and advance until the measured depth is reached. If the tube coils or does not advance, pull it back, reposition, and try again. A maximum of three attempts are allowed.
5. Once the tube is in place confirm placement by instilling air into the tube using 60 mL syringe and auscultating the epigastrium for gastric sounds.
6. Secure the tube with tape or other device as necessary.
7. Perform low intermittent suctioning.

NASOGASTRIC TUBE PROCEDURE

1. Size a Salem sump gastric tube by measuring from the epigastrium, around the ear, and to the nose. The largest and least occluded nares should be utilized.
2. Lubricate the distal portion of the tube with water based lubricant.
3. If possible, flex the head forward to better align the esophagus for tube placement.
4. Insert the tube into the nares and advance until the measured depth is reached. If the tube coils or does not advance, pull it back, reposition, and try again. A maximum of three attempts are allowed.
5. Once the tube is in place confirm placement by instilling air into the tube using 60 mL syringe and auscultating the epigastrium for gastric sounds.
6. Secure the tube with tape or other device as necessary.
7. Perform low intermittent suctioning.

ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

Provider Level Approved
- Advanced EMT, commercial intraosseous introduction device (e.g., EZ-IO).
- 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.

A/P

Contraindications
- Placement in or distal to a fractured bone.
- Placement near prosthetic limb, joint or orthopedic procedure.
- Placement at an infected site.
- Inability to find landmarks.

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.
- 10 ml syringe with 0.9% NaCl.
- Pressure pump/bag or 60 ml syringe for volume infusion or slow push.
- 1 vial of 2% lidocaine (preservative free) .
- 5 mL syringe.

Procedure Continues

6.4 Intraosseous Access

Protocol Continues

A/P

Approved sites:

- Per FDA-approved manufacturer's recommendation.

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. For alert patients prior to IO syringe bolus (flush) or continuous infusion:
   - Ensure that the patient has no allergies or sensitivity to lidocaine.
   - If using an extension tubing without stopcock, prime with lidocaine 2% (preservative free).
   - 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 – 2.5 ml (20 – 50 mg) 2% lidocaine.
     - Pediatric: 0.5 mg/kg 2% lidocaine.
7. Flush with 10 ml 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).

Restraints 6.5

The Restraints Procedure was placed after Behavorial Emergencies for ease of finding. It is also listed under procedures.

EMT/ ADVANCED EMT STANDING ORDERS

E/A

INDICATIONS

Patients who are a potential harm to themselves or others, or interfere with their own care and lack the ability to refuse care under the Refusal of Care Protocol may be restrained to prevent injury to the patient or crew and facilitate necessary medical care. Restraining must be performed in a humane manner and used only as a last resort.

PROCEDURE

1. Request law enforcement assistance, as necessary.
2. When appropriate, attempt less restrictive means of managing the patient, including verbal de-escalation.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. 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.
5. 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.
6. The extremities that are restrained should have a circulation check at least every 15 minutes. The first of these checks should occur as soon possible after restraints are placed.
7. Documentation should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
8. 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.

PARAMEDIC STANDING ORDERS - ADULT

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Resistant or Aggressive Management *(Resisting necessary treatment/interventions)*

Goal is alert and calm, consider:

- Midazolam 2.5 mg IV, may repeat once in 5 minutes, **OR**
- *Midazolam 5 mg IM/IN, may repeat once in 10 minutes (*for IN use 5 mg/mL concentration), **OR**
- Lorazepam 1 mg IV, may repeat once in 5 minutes, **OR**
- Diazepam 5 mg IV, may repeat once in 5 minutes.

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.

Continued patient struggling against restraints may lead to hyperkalemia, rhabdomyolysis, and/or cardiac arrest. Chemical restraint may be necessary to prevent continued forceful struggling by the patient.

PEARLS:

- There is an increased risk of apnea with >2 doses of benzodiazepines.
- Causes of combativeness may be due to comorbid medical conditions or due to hypoxia, hypoglycemia, drug and/or alcohol intoxication, drug overdose, brain trauma.
- 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

Restraints

PARAMEDIC STANDING ORDERS - ADULT

For patients with suspected **Excited/Agitated Delirium** (*Immediate danger to self/others)* **OR** extreme agitation **OR** ineffective control with benzodiazepines. Goal is safe and compliant:

P

- **Ketamine: 4 mg/kg IM rounded to nearest 50 mg, maximum dose 500 mg, repeat 100 mg IM in 5 – 10 minutes. **OR**
- Benzodiazepines:
  - Midazolam 5 mg IV, repeat every 5 minutes as needed **OR**
  - *Midazolam 10 mg IM/IN, repeat every 5 minutes as needed **OR**
  - Lorazepam 2 - 4 mg IV, repeat every 5 minutes as needed **OR**
  - Diazepam 10 mg IV, repeat every 5 minutes as needed
- Consider in addition to benzodiazepines:
  - ***Haloperidol 10 mg IM; may repeat once in 10 minutes.

Contact **Medical Control** for additional doses.

After chemical restraint, re-evaluate whether the patient continues to meet criteria for physical restraint and remove if they are no longer necessary to ensure the safety of the patient, providers or both, taking into account transport times, the depth of sedation and the need to transfer the patient at destination.

- If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate, see Cardiac Arrest Protocol 3.2A.

For acute dystonic reaction to haloperidol:

- Diphenhydramine 25 – 50 mg IV/IM.

PARAMEDIC STANDING ORDERS - PEDIATRIC

Resistant or Aggressive Management *(Resisting necessary treatment/interventions)*
Contact **Medical Control,** to discuss treatment options.

Violent and/or Excited Delirium Management*(Immediate danger to self/others)*Target Goal is safe and compliant.
Contact **Medical Control** and consider:

- **Ketamine 4 mg/kg IM rounded to nearest 25 mg, maximum dose 250 mg, repeat x 1 in 5-10 minutes **OR**
- Benzodiazepines:
  - *Midazolam 0.2 mg/kg IM/IN (single maximum dose 10 mg) repeat every 5 minutes as needed, **OR**
  - Midazolam 0.1 mg/kg IV (single maximum dose 5 mg) repeat every 5 minutes as needed, **OR**
  - Lorazepam 0.1 mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes as needed, **OR**
  - Diazepam 0.2 mg/kg IV (single maximum dose 10 mg IV) repeat every 5 minutes as needed.
- If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate, see Cardiac Arrest Protocol

*For IN administration of midazolam use a 5 mg/mL concentration.
**For ketamine use 100 mg/mL concentration
***Administer haloperidol with caution to patients who are already on psychotropic medication which may precipitate serotonin syndrome or malignant hyperthermia.

- 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) 6.6

State and local law enforcement may use a conductive energy weapon called a Taser. 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.

E/A/P

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.

6.7 Vascular Access via Central Catheters

PARAMEDIC – ADULT & PEDIATRIC

PROVIDER LEVEL:
- Medical Director approved program and/or the NH Bureau of EMS and Medical Control Board approved learning objectives.

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.)

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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 10 ml 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 10 ml 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 primed 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 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 10 mL 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 attached tubing with saline using one of the prefilled 10 ml 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 – 5 ml 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 – 5 ml 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.

7.0 Sepsis - Advanced Care

PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY

Prerequisite Protocol 7.0

P

This procedure is only to be used by paramedics who are trained and credentialed to perform sepsis advanced care by the NH Bureau of EMS.

Systemic Inflammatory Response Syndrome (SIRS)
- ❑ Temperature < 96.8 °F or > 101°F
- ❑ Heart rate > 90 bpm
- ❑ Respiratory rate > 20 bpm

ACUTE ORGAN DYSFUNCTION:
- ❑ Altered mental status
- ❑ Mean Arterial Pressure (MAP) < 65 mmHg
- ❑ Lactate > 2 mmol/L
- ❑ Low UO or AKI
- ❑ Coagulopathy (INR > 1.5)

SEPSIS

2 or more SIRS criteria **AND** one or more of the following:
- ❑ Infection known or suspected

SEVERE SEPSIS
- ❑ Meets SEPSIS criteria **AND**
- ❑ 1 of the acute organ dysfunction **AND**
- ❑ Lactate > 2 mmol/L

SEPTIC SHOCK
- ❑ Meets SEPSIS criteria with either a lactic acid > 4 mmol/L **OR**
- ❑ Persistent hypotension after 30 mL/kg fluid bolus **OR**
- ❑ Vasopressors needed to maintain MAP > 65 mmHg.

INDICATION:

- Patient MUST meet Severe Sepsis or Septic Shock criteria.

CONTRAINDICATIONS:

- Known allergies to available antibiotics

PROCEDURE:

1. Draw labs:
   - Rainbow top draw (blue, purple, yellow and green)
   - Blood cultures X 2

2. Run POC lab testing and attach results
   - Lactate acid _____
   - PT/INR (optional) _____

3. Administer appropriate antibiotics per your Medical Resource Agreement. If the patient meets Severe Sepsis or Septic Shock definitions.

4. For Septic Shock administer 0.9% NaCl for hypotension 30 mL/kg at a minimum rate of 125 mL/hr within the first 3 hours. If refractory to fluid challenge:
   - Norepinephrine infusion 1 – 30 microgram/minute (preferred) via pump, **OR**
   - Epinephrine infusion 2 – 10 micrograms/minute via pump.
   - Where vasopressor infusion is not immediately practical, epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10 - 20 mcg boluses (1 – 2 mL) every 3 minutes (where feasible, switch to infusion as soon as practical).

7.1 Critical Care

Introduction
The purpose of this prerequisite protocol is to recognize the unique aspects of critical care resources and to facilitate their abilities within current protocol. Through this protocol providers, affiliated with licensed rotary wing units and their affiliated ground assets, will be granted an expanded scope of practice. This expanded scope of practice can only be used within protocols/ standards approved by the State of New Hampshire EMS Medical Director and must be in line with current NH EMS law and licensure requirements. It is intended to provide flexibility, when possible, for individual agencies, providers, and communities to meet their unique needs.

Definition of Critical Care
Critical care is defined as the direct delivery of medical care for a critically ill or critically injured patient. Critical illness acutely impairs one or more vital organ systems such that there is a high probability of imminent or life threatening deterioration in the patient's condition. Critical care requires high complexity medical decision-making to assess, manipulate and support vital organ system function in order to treat single or multiple vital organ system failure. **For the purpose of this protocol, critical care is only authorized to be utilized by licensed air medical units and their associated ground resources.**

Unit Protocols/Standards
Submission of unit protocols/standards, for approval by the State of New Hampshire EMS Medical Director is required to operate within the expanded scope of practice. These unit protocols/standards must not exceed the established expansion of scope of practice outlined in this protocol. The most currently approved unit protocols/standards must be utilized for patient care activities. Any deviations may be subject to Compliance review as specified in Administrative Rule Saf-C 5922.

Medical Direction and Quality Management Program
Must establish a collaborative working relationship between the local EMS Physician Medical Director or designee, who will be responsible for operations and continuous quality improvement, and a practicing critical care physician providing medical direction for critical care services. The EMS Unit shall conduct a quality management (QM) program specifically for the critical care program. The QM program will incorporate all the components of an EMS QM program as specified in Administrative Rule Saf-C 5921.

Data Collection Plan
The EMS Unit will participate in electronic data collection as required by the NHBEMS and as specified in Administrative Rule Saf-C 5902.08.

Equipment and Staffing Plan
All equipment will be made available to affiliated providers to appropriately deliver care at the critical care level and what is outlined in the expanded scope of practice as well as in the approved protocols/standards. At minimum this equipment shall follow levels specified in Administrative Rule Saf-C 5906. Define who will be providing the critical care services. Provide a roster of licensed EMS providers as well as all other medical providers associated with the unit and involved in patient care activities in the State of New Hampshire.

Protocol Continues

Protocol Continues

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).

Expanded Scope of Practice
Expansion of the applicable EMS providers' scopes of practice include EMS skills in addition to those skills included in these EMS providers' general scopes of practice. Skills identified may be performed by these EMS providers only if the provider has successfully completed training (cognitive, affective and psychomotor) on the specified skill, which includes training to perform the skill on adults, children and infants, as appropriate. In addition to the skills, techniques and management procedures identified, latitude is extended to EMS providers with pharmacology to include expanded authorization in medication to be delivered as well as the dosing variations of medications. The following list outlines the expanded scope of practice for critical care units and affiliated EMS providers,

Airway/Respiratory
- Fiberoptic laryngoscopy
- DSI/Awake Intubation
- Rapid Sequence Induction (RSI)
- Complex ventilator settings
- High flow nasal cannula (using blenders, etc.)
- Inhaled pulmonary vasodilators
- Needle/finger/tube thoroscotomy

Cardiovascular
- Management of Ventricular Assist Device (VAD) to include, but not limited to percutaneous or central LVAD, RVAD, and BiVAD
- Management of Extracorporeal Membrane Oxygenation (ECMO)
- Management of Intra-Aortic Balloon Pump (IABP)
- Indwelling port access (e.g. Port-a-Cath)
- Transvenous and Epicardial wire pacemaker capabilities
- Pericardiocentesis
- Invasive monitoring devices to include, but not limited to Arterial Pressures, Central Venous Pressures (CVP), Pulmonary Artery Pressures (e.g. Swan Ganz), Abdominal Pressures, Intracranial Pressures (ICP)
- Blood/fluid warming devices
- Blood Product Administration (e.g. Packed Red Blood Cells (PRBCs), Platelets, Fresh Frozen Plasma (FFP))
- Operation of Single and Multi-Channel Infusion Pumps to include, but not limited to Intravascular, Intraosseous, Intrathecal, Intra-arterial
- Cardiovascular Doppler/Ultrasound monitoring
- Arterial Cannulation (Radial and/or Femoral)
- Central Venous Cannulation (Femoral, Subclavian, and/or Internal Jugular)

Protocol Continues

Protocol Continues

Gastrointestinal/Urinary
- Gastric tube placement and management
- Urinary catheter placement and management

OB/Gyn, Neonatal, Pediatric
- Fetal Heart/Uterine Monitoring
- Umbilical Vein/Artery Cannulation
- Inhaled Nitric Oxide
- Surfactant administration

Specialty (Misc.)
- Esophageal compression tubes (e.g. Blakemore tube, Minnesota tube)
- Radiographic Interpretation
- Perform and interpret ultrasound imaging, including utilization for placement of medical devices
- Ability to transport/manage any indwelling medical device
- Invasive/Noninvasive Temperature Monitoring
- Escharotomy
- Prone transport
- Wound closure; including, but not limited to, suturing, stapling, skin adhesives (e.g. Dermabond)
- Continuous temperature management
- Management of Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA)

Pharmacology
- Medications approved by the EMS Medical Director with appropriate training and quality management.

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 or public safety incident, 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 0.5 ml IM to all incoming freshmen students at X College who are eligible per protocol.
  - Administer influenza vaccine 0.5 ml IM to all employees of X organization who request it and who are eligible by protocol.
  - Administer influenza vaccine 0.5 ml 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:
- Acellular pertussis
- 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 Continues

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

Note: NH EMS Medical Director 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.

Public Health or Public Safety Incident
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 a public health or public safety incident 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 Continues

- 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.

7.3 Interfacility Transfers

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).

- Nothing in this protocol shall preclude EMS personnel from providing any medication or therapy that is already within their scope of practice unless it is explicitly forbidden by the transferring facility provider's written orders for transport.
- If at any time during transport a patient develops new signs/symptoms or has a change in status, EMS personnel shall refer to the appropriate NH EMS Protocol.
- If there is a conflict between NH EMS Protocols and the transferring facility provider's written orders for transport, the transferring facility provider's written orders shall prevail.

Transferring Facility Responsibilities

- Certify benefits of transfer outweigh all expected risks.
- Ensure that patient has an accepting provider and bed assignment at destination facility.
- Transferring provider must ensure ongoing care will be sufficient and appropriate, and provide resources as necessary.
- Transferring provider point of contact who will be immediately available to serve as medical control for transporting agency during transfer.
- Provide complete set of patient care orders for the transporting agency.
- In any case where the number of patients requiring transport exceeds the number of available EMS resources, the transferring institution shall decide the order in which patients are transported.

Transporting Agency Responsibilities

- Assign personnel and resources that are most appropriate (consider training/experience, environmental factors, equipment needs)
- Decline transports when proper resources cannot or will not be provided and/or their level of training/experience is not compatible with patients acuity
- Consult medical control as necessary during transport
- Seek education or information about therapies or medications outside of normal formulary as necessary

Shared Responsibilities

- Assign the appropriate transport agency level for patient transport including sending hospital staff, if necessary (see following pages)
- Receive and relay a complete patient care report
- Ensure every effort has been made to mitigate risk, including environmental factors.

Protocol Continues

Protocol Continues

Transport Agency Levels

- EMT
- AEMT
- Paramedic Interfacility Transport (PIFT)*
- Critical Care Teams (CCT)*

At a minimum, 2 licensed EMS providers in the vehicle, of which 1 may be the driver.

*Only to be used by paramedics and EMS units who have been trained and credentialed by the NH Bureau of EMS and the NH EMS Medical Control Board.

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.

CAPABILITIES

EMT

E

- Care and treatment of stable patients.
- Therapies within the EMT scope of practice LINK
- Medications within EMT scope of practice LINK
- Non-invasive monitoring (BP, HR, RR, Spo2, EtCo2, temperature).
- Previously inserted Foley catheter, suprapubic tube, established feeding tube (NG, PEG, J-tube not connected to infusion or suction).
- Saline lock permitted.
- Chest tube capped and without need for suction during transport.
- Maintenance of stable, long term ventilated patients with any mode of ventilation so long as the patient is familiar and capable of operating the equipment OR patient is accompanied by a care provider who is capable of the same

Advanced EMT

A

- Care and treatment of stable patients.
- Therapies within the AEMT scope of practice LINK
- Medications within AEMT scope of practice, with or without pump LINK
- Any crystalloid infusion
- Patient-controlled analgesic (PCA) pump.
- Cardiac monitoring with non-cardiac diagnoses (4 lead ECG as vital sign, non-interpretive) with no anticipated need for ACLS intervention.
- CPAP

Protocol Continues

7.3 Interfacility Transfers

Protocol Continues

PIFT Paramedic
PIFT credential required. This level is only to be used by paramedics and EMS units who have been trained and credentialed to perform PIFT-level transfers.

P

- Care and treatment of potentially unstable patients
- Therapies within the Paramedic scope of practice LINK
- Medications within Paramedic scope of practice LINK
- Continuation of any infusion started prior to departure, including blood products
- Repeat administration of any medications given prior to departure
- Maximum 1 vasopressor infusion
- Cardiac monitoring of 4 lead ECG with anticipated need for ACLS intervention
- Chest tube management
- Invasive monitoring equipment which has been capped or locked for transport.
- Epidural catheter if secured, capped, and labeled.

The following require a SECOND provider in the patient compartment:

- Transcutaneous pacing
- Intubated non-complex vent setting
- Deep suctioning
- RSI/DSI (Agency & providers must be credentialed)

Critical Care Transport, including but not limited to:

- Care and treatment of unstable patients
- Greater than one vasopressor infusions
- Initiation of additional blood products.
- Managing uncorrected shock.
- Continuation of invasive monitoring.
- Continuation of balloon pump/impella pump
- Transvenous pacing.
- Rapid sequence or delayed sequence induction.
- Intubated/ventilated patients with complex vent settings

It is preferred that critical-care transport be conducted by designated CCT teams. Exercising any of the following alternative crew configurations does not expand the scope of practice of the assigned crew.

This level is only to be provided by air or ground agencies credentialed to perform CCT by the NH Bureau of EMS and the EMS Medical Control Board unless utilizing one of the following alternative crew configurations:

Alternative 1: PIFT paramedic and 1 additional transferring facility care provider from the following list:

- CFRN/CTRN/CCRN/CEN (with appropriate adjunctive certifications e.g., ACLS, NRP etc.)
- FP-C/CCP-C
- Physician Assistant
- Nurse Practitioner
- Physician

Alternative 2: 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, crew configurations not listed above may be utilized provided that:

- The sending facility makes an exhaustive effort to send appropriate personnel.
- An occurrence report is sent via email NH Bureau of EMS Captain of Clinical Systems and Unit EMS Medical Director within 48 hours.
- All interventions are within the scope of practice assembled crew.
- Nothing shall preclude the transferring facility or transporting agency from sending additional providers not listed above if they feel it is appropriate for continuing patient care.
- Properly document in PCR staffing configuration.

Protocol Continues

Protocol Continues

Definitions

- **Unstable Patient:** A critically ill or injured patient who cannot be stabilized at the transporting facility, who is deteriorating or likely to deteriorate during transport. (From "Guide for Interfacility Patient Transfer," NHTSA.)
- **Potentially Unstable:** A critically ill or injured patient who is currently stable (as defined below) but whose disease process will likely lead to instability or an acute change in condition enroute.
- **Stable Patient:** Hemodynamically stable patient with a secure airway and who is **NOT** in acute distress or likely to deteriorate during transport
- **Resources:** Could refer to personnel, equipment, medications or therapies.
- **Sufficient & Appropriate:** Transferring facilities are responsible for the coordination of ongoing care during transfer until the patient arrives at the destination facility. Patient must continue receiving care that is commensurate with their condition and potential for deterioration throughout transfer within the limits of the system. This may mean providing additional transferring facility or transporting agency personnel, up to and including physicians if necessary .
- **Non-complex vent settings**: Volume or pressure modes of ventilation provided that:
  - No inverse I:E ratios
  - No PEEP > 20 cmH20
  - No pediatric patients < 5 years of age
  - No High frequency oscillation
  - No Mode of ventilation without apnea backup
  - **Complex vent settings:** Any mode of ventilation outside the above parameters.

Protocol Continues

Interfacility Transfers 7.3

Protocol Continues

Transport Levels			
EMT Stable	**AEMT** Stable	**PIFT** Potentially Unstable	**CCT** Unstable
❑ EMT therapies ❑ EMT medications ❑ Vital signs ❑ $EtCO_2$ ❑ Temperature monitoring ❑ Foley catheter ❑ Suprapubic catheter ❑ Feeding tube with no need to access or adjust ❑ Saline lock ❑ Capped chest tube ❑ Maintenance of stable, long term ventilated patients with any mode of ventilation so long as the patient is familiar and capable of operating the equipment OR patient is accompanied by a care provider who is capable of the same	❑ AEMT therapies ❑ AEMT Medications ❑ Any crystalloid infusion ❑ Patient-controlled analgesic (PCA) pump that is locked ❑ Cardiac monitoring with non-cardiac diagnoses (4 lead ECG as vital sign, non-interpretive) with no anticipated need for ACLS intervention. ❑ CPAP	❑ Paramedic therapies ❑ Paramedic medications ❑ Any infusion started prior to departure ❑ Repeat administration of any medications given prior to departure ❑ Max 1 vasopressor ❑ Continuation of blood or blood products ❑ Cardiac monitoring of 4 lead ECG with anticipated need for ACLS intervention ❑ Serial 12 leads ❑ Chest tube management ❑ Invasive monitoring equipment which has been capped or locked for transport. ❑ Epidural catheter if secured, capped, and labeled. **The following require a SECOND provider in the patient compartment:** ❑ Transcutaneous pacing cardioversion ❑ Intubated/sedated patients ❑ Deep suctioning ❑ RSI/DSI* ❑ Non-complex vent settings	Including but not limited to: ❑ Multiple vasoactive medications/pressors ❑ Initiation of additional blood products ❑ Managing uncorrected shock. ❑ Continuation of invasive monitoring. ❑ Continuation of balloon pump/impella pump ❑ Transvenous pacing. ❑ Intubated/ventilated patients with complex vent settings Crew Options: • CCT (Air/Ground) • PIFT & hospital staff: ○ 1 CFRN/CTRN **or** ○ 1 CCRN/CEN **or** ○ 1 FPC-C/CCP-C **or** ○ 1 NP/PA **or** ○ 1 Physician • Last Resort ○ Any other appropriate crew

7.4 Leave – Behind Naloxone

This prerequisite protocol is only to be used by EMS Units and providers who are authorized by the NH Bureau of EMS.

EMR/EMT/AEMT/Paramedic Standing Orders

E/A/P

Indications:

EMS units may choose to stock their ambulances with Naloxone administration kits to be left at the scene where a suspected overdose patient was treated.

- Routine Patient Care
- Consider leaving behind a naloxone administration kit, and instructions, with a patient or household member in the following circumstances:
  - When treating and transporting a patient who is suspected of an overdose
  - When treating a patient who is suspected of an overdose, but transport is refused

PEARLS:

- Leave-behind naloxone administration kits must be separate from the medication used for patient care.
- Naloxone administration kits should not be left at the scene where a patient has a known allergy to Naloxone or kit constituents.

Mobile Integrated Healthcare 7.5

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 Continues

Protocol Continues

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.

Rapid Sequence Intubation (RSI) 7.6

PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY

This procedure is only to be used by paramedics who are trained and credentialed to perform RSI. This protocol provides a brief outline of the scope of the RSI paramedic but is not comprehensive of the entire RSI procedure. For full RSI guidelines refer to the New Hampshire Prehospital RSI Manual. The guidelines in this manual are part of the RSI protocol and are incorporated in this protocol by reference.

Each RSI procedure must be performed in a controlled fashion and must involve careful planning and preparation. RSI requires at least one RSI credentialed paramedic and one credentialed RSI assistant or non-RSI paramedic. Intubation must be performed by the most appropriate provider as determined by the RSI paramedic leading the call. After intubation, the RSI paramedic must remain with the patient at all times unless there are extenuating circumstances (mass casualty, etc.) and ensure that adequate staff remain.

RSI may only be performed on adults (i.e., patients who are taller than a length based resuscitation tape).

Medications

The correct medication regimen should be chosen on a case-by-case basis by the RSI paramedic and care team. Weight-based dosages are listed below. Dosages for all medications are based on actual body weight. Use of a dosing chart with precalculated dosage ranges such as the one reproduced below is recommended; dosing charts reduce cognitive load and risk of error.

Premedication (if indicated)

- Fentanyl 2 mcg/kg IV at least three minutes prior to induction

Induction

- Ketamine 2 mg/kg IV or 4 mg/kg IM (max 500 mg) (only if performing Delayed Sequence Intubation)
  - For elderly, shock, or risk of hypotension: 1 mg/kg IV or 2 mg/kg IM

OR

- Etomidate 0.3 mg/kg IV, maximum single dose 30 mg
  - For elderly, shock, or risk of hypotension: 0.15 mg/kg IV

Paralysis

- Rocuronium 1 mg/kg IV

OR

- Succinylcholine 1.5 mg/kg IV, maximum 150

Sample Dosing Chart:
IMPORTANT: Chart must be recalculated for the medication concentrations used by your service.

Weight (lbs)	Weight (kg)	Ketamine 2 mg/kg		Etomidate 0.3 mg/kg		Fentanyl 2 mcg/kg		Rocuronium 1 mg/kg		Succinylcholine 1.5 mg/kg	
		mg	mL	mg	mL	mcg	mL	mg	mL	mg	mL
		100	1	2	1	100	1	10	1	20	1
		Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)	Dose (mcg)	Volume (mL)	Dose (mg)	Volume (mL)	Dose (mg)	Volume (mL)
110 - 120	50 - 55	110	1.1	17	8.5	110	1.1	55	5.5	80	4.0
120 - 145	56 - 66	130	1.3	20	10.0	130	1.3	66	6.6	100	5.0
145 - 175	67 - 80	160	1.6	24	12.0	160	1.6	80	8.0	120	6.0
176 - 220	81 - 100	180	1.8	26	13.0	180	1.8	90	9.0	130	6.5
221 - 250	101 - 114	200	2.0	30	15.0	200	2.0	100	10.0	150	7.5
>250	>115	220	2.2	34	17.0	220	2.2	110	11.0	170	8.5

SUCCINYLCHOLINE CONTRAINDICATIONS:

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

Protocol Continues

7.6 Rapid Sequence Intubation (RSI)

Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

P

Post-Intubation Analgesia and Sedation

- Target RASS of -3 to -5

Option 1:

- Ketamine 1 mg/kg IV bolus (max 100 mg) followed by infusion via pump 2 – 5 mg/kg/hr. Initial bolus after intubation not needed if ketamine was used for induction.
  - If infusion not used: 1 mg/kg IV (max 100 mg) every 5 - 15 minutes as needed

Option 2:

- Fentanyl 50 - 100 mcg IV every 5-10 minutes as needed

AND

- Midazolam 2 - 5 mg IV bolus followed by infusion via pump 5 - 30 mg/hour
  - If infusion not used or if additional sedation is required: 2-5 mg IV every 5-10 minutes as needed **OR**
- Lorazepam 1 - 2 mg every 15 minutes as needed (maximum total 10 mg)

Hypotension

Hypotension is common during intubation; anticipate hypotension and prepare fluid and vasopressors in advance. Consider shock index HR/SBP (> 0.8 high risk for hypotension)

- Norepinephrine 1 – 30 mcg/min
- Epinephrine 2 – 10 mcg/min

Push Dose Epinephrine

May be administered to patients who develop hemodynamic compromise during the peri-intubation period prior to infusion.

1. Take a 10 mL normal saline flush and waste 1 mL (left with 9 mL)
2. Draw up 1 mL of epinephrine 0.1 mg/mL concentration from the cardiac arrest preloaded syringe into the flush and mix vigorously (now have 10 mcg/mL)
3. Administer 10 - 20 mcg (1.0 mL – 2.0 mL) IV/IO every 2 - 5 minutes as needed and reassess hemodynamics frequently
4. Evaluate blood pressure 1 - 2 minutes after dosing and frequently thereafter
5. Initiate vasopressor infusion as soon as practical

Skills

Delayed Sequence Intubation (DSI): May be used to facilitate preoxygenation and preparation for intubation in patients who cannot tolerate it otherwise.

Bougie Assisted Surgical Cricothyrotomy: This is the preferred surgical airway option to be used by the RSI paramedic. See Surgical Cricothyrotomy Bougie Assisted 7.6.
If failed airway and unable to ventilate consider Cricothyrotomy Protocols 5.5 OR 7.6.

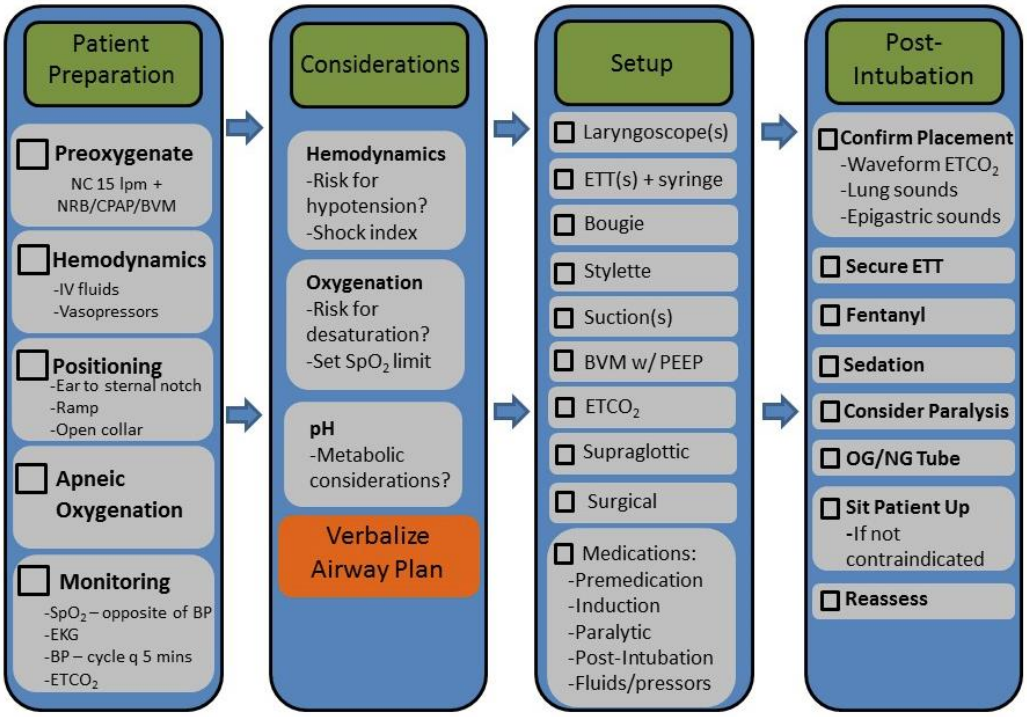
DOCUMENTATION

- 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 "orotracheal 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 5.8.

If failed airway and unable to ventilate consider Cricothyrotomy Protocols 5.5 OR 7.5.

Rapid Sequence Intubation Checklist

New Hampshire Bureau of EMS



Airway Procedure Algorithm

1st Laryngoscopy
-Optimze attempt

2nd Laryngoscopy
-With new strategy

Supraglottic airway

Surgical airway

Optimal Laryngoscopy

- Preoxygenation/ApOx
- Ear to sternal notch/ramp
- Adequate sedation/paralysis
- Direct video laryngoscope (DVL)
- Insertion -> Epiglottoscopy ->
- Valleculoscopy -> Laryngoscopy
- Bougie
- External laryngeal manipulation
- Head elevation
- Jaw thrust
- Mac as a Miller

Premedication
(when indicated)
Fentanyl
2 mcg/kg

Induction
Ketamine
2 mg/kg IV
4 mg/kg IM (DSI)

Etomidate
03.mg/kg, max 30 mg

Paralysis
Rocuronium
1.0 mg/kg

Succinylcholine
1.5 mg/kg, max 150 mg

Post-Intubation
Ketamine Option 1
1 mg/kg IV (max 100 mg) followed by infustion 2 – 5 mg/kg/hr **OR**
1 mg/kg IV q 5 – 15 mins

Fentanyl Option 2
50 – 100 mcg q 5 – 10 mins
AND
Midazolam
Infusion: 2-5 mg IV followed by infusion 5-30 mg/hr **OR**
Lorazepam
1-2 mg q 15 mins

Vasopressors
Levophed
Infusion: 1 – 30 mcg/min
Epinephrine
Infusion: 2-10 mcg/min
Push dose:

- 1 mg of 0.1 mg/mL in 9 mL saline and mix viorously
- Administer 5-20 mcg (0.5 -2.0 mL) as needed

Shock Index = HR/SBP
(>0.8 high risk for hypotension)

Ideal Body Weight (kg)

Height	Male	Female
5'	50	49
5'1"	52	51
5'2"	55	52
5'3"	57	54
5'4"	59	56
5'5"	62	58
5'6"	64	59
5'7"	66	61
5'8"	68	63
5'9"	71	64
5'10"	73	66
5'11"	75	68
6'	78	69
6'1"	80	71
6'2"	82	73
6'3"	85	75
6'4"	87	76

Delayed Sequence
1. Ketamine
2. Preoxygenate
3. Paralytic
4. Intubation

7.7 Surgical Cricothyrotomy Bougie Assisted — ADULT

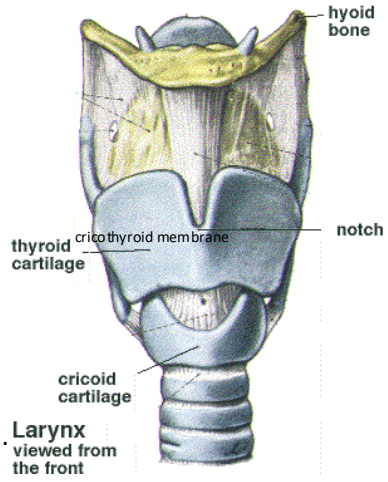
Written notification will be provided to the Medical Resource Hospital's EMS Medical Director, Hospital EMS Coordinator, and Bureau of EMS within 48 hours of an event. Use of this procedure documented under "Procedures Used" in the Patient Care Report constitutes notification of the Bureau of EMS.

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
- 10 ml Syringe
- BVM
- Quantitative $ETCO_2$



PROCEDURE:
1. Position the patient supine and extend the neck as needed to improve anatomic view.
2. Prep neck with Chlorhexidine
3. The provider performing the procedure should be on the side of the patient corresponding to their dominant hand (i.e., right handed provider to the right of the patient).
4. While resting dominant hand on patient's sternum, make an approximately 3 cm vertical incision, 0.5 cm deep, through the skin and fascia. Incision should start just above the thyroid cartilage and extend below the cricoid ring. With finger, dissect tissue and locate the cricothyroid membrane.
5. Make approximately a 1.5 cm 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 "hold up" 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 – 10 ml 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.

P

Prerequisite Procedure 7.7

Air Medical Transport 8.0

EMS personnel may request Air Medical Transport (AMT) when operational and/or clinical conditions are present that would benefit from decrease in time to definitive care and/or advanced clinical capabilities offered by the AMT team.

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 or MAP of < 65 mmHg in adults, age appropriate hypotension in children or other signs of shock.
- Neurologic compromise: Patient cannot follow commands (GCS motor component ≤ 5) or total GCS ≤ 13. 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 acute decompensation of 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.

8.1 Baby Safe Haven

NH RSA 132-A and RSA PART He 6492 provides a mechanism for parents to surrender infants up to 7 days old at locations and facilities that are capable of temporarily safeguarding the infant. These locations and facilities include licensed hospitals and "Safe Havens" defined as houses of worship and emergency 911 responders including fire departments, police departments, ambulances, and rescue units. (A station that is not staffed is not an acceptable drop off location according to the law.) First Responders may also receive the infant at an agreed transfer location other than their stationhouse.

Procedure:

- Upon receiving physical custody of the infant, examine the child and provide any treatment necessary according to the appropriate clinical protocol(s).
- Complete a Patient Care Record and include the following:
  - Date and time infant was surrendered.
  - Infant's gender and date of birth (if known).
  - Name of physician/midwife present at delivery (if known).
  - Any information willingly provided by the parent(s) such as their names, addresses, medical information and other family information.
  - Examination findings and treatment provided.
- Transport infant to the local hospital.

Reporting Requirements:

Both the Department for Children, Youth, and Families (DCYF) and local police must be notified within 24 hours:

- Call DCYF at 1-800-894-5533, available 24 hours/day; if out-of-state: 603-271-6562.

  NOTE: Regardless of other agency's involvement, EMS is mandated to notify DCYF.

Post Surrender Requests:

If the parent or other person contacts EMS after the infant is surrendered and wants the infant returned, instruct the person to contact DCYF immediately. The request will be referred to the family division of the circuit court.

EMS may bill the NH Department of Health and Human Services for all necessary medical or other costs incurred while assuming care of the infant within 90 days of the infant's surrender.

Bariatric Triage, Care & Transport 8.2

Purpose: This policy provides guidance for providers concerning the triage, extrication, care and transport for bariatric patients. 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.
For additional County Cache information and assistance in EMS bariatric planning, contact the NH Bureau of EMS at 603-223-4228.

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

8.2 Bariatric Triage, Care & Transport

Protocol Continues

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.

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.

EMS providers transporting status I, II, or III patients (see Status Determination 8.12) 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.

8.4 Communications Failure

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.

Consent for Treatment of a Minor 8.5

The word “minor” is a legal term for a person who has not yet reached his/her eighteenth birthday and is under the control of parent(s) or legal guardian. Emancipated minors may make their own determinations regarding medical care and include those minors who are married or members of the armed forces. 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.

Implied Consent
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. (RSA 153-A:18)

Obtaining 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.

Refusal of Care
A parent, or legal guardian or other authorized representative may refuse care for a minor and should understand the minor’s medical condition and potential consequences of refusing care. Carefully document all refusals.

- When a parent or legal guardian is unavailable, another authorized representative (e.g., daycare/school/camp official), who has been expressly authorized by the minor’s parent, may consent to health care treatment. Another adult family member (e.g., grandparent) having custody of the minor may also give consent, see Refusal of Care Protocol 8.15.
- 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.

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.

A minor may consent without parental permission for the following care:
- 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).
- Treatment for sexually transmitted diseases at age 14 and older (RSA 141-C:18).
- Treatment for drug and alcohol abuse at age 12 and older (RSA 318-B:12-a).

8.6 Continuity of Care

- EMS providers responding to a 911 emergency may encounter patients with pre-existing medical devices (e.g., ventilator) or pre-established medication infusions (e.g., antibiotics) that are outside of NH EMS Protocols and beyond the EMS provider's scope of practice. The medical emergency may be unrelated to the pre-existing medical care (e.g,. chest pain in a patient receiving an infusion) or may relate to the pre-existing care (e.g., problems with a ventilator supporting a patient's breathing).
- Pre-existing medical care may include ventilators, CPAP, BiPAP, ventricular assist devices (VADs), continuous or intermittent IV medication infusions (analgesics, antibiotics, chemotherapeutic agents, vasopressors, cardiac drugs), and nontraditional out-of-hospital drug infusion routes (subcutaneous infusaports, central venous access lines, direct subcutaneous infusions, self-contained implanted pumps). The type of pre-existing care potentially encountered by EMS providers is extensive.
- The device or medication administration may be supported or maintained by the patient or the patient's caregiver.

EMT/ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

- Routine Patient Care
- Consider early consultation with on-line medical control
- If the device or infusion is functioning properly and is maintained by an alert/oriented patient (or caregiver), transport the patient with the device or infusion in place and operating normally.
- If the device or infusion is not functioning properly or may be the cause of the medical emergency, the provider should utilize all appropriate and available resources:
  - The patient/family/caregivers
  - Specialty resources available via telephone (e.g., LVAD Coordinator, hospice nurse or physician), computer, smartphone or telemedicine device or application.
  - Product literature for the device or infusion (paper or digital)
- EMTs should not continue the administration of a newly initiated, i.e., not pre-existing medication that is outside their scope of practice.
  - Consider requesting that any healthcare providers or other trained personnel on scene who are involved in the patient's pre-existing care (e.g., nurse or physician) accompany the patient and the ambulance during transport to support the device or infusion.
  - Request paramedic intercept for any medication outside the EMT or AEMT formulary.

E/A

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

- Any treatment initiated recently or acutely by other healthcare providers (e.g., urgent care) may be continued. Collaboration between sending providers, EMS, and medical control may be necessary.

EMS providers are not required to continue treatments which they believe are harmful to the patient or caregivers, (e.g. chemotherapy agents). If an EMS provider is not comfortable with a pre-existing treatment they should seek additional resources or discontinue treatment.

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).
- Avoid moving or touching firearms; notify law enforcement to secure. If necessary to move a firearm for safety or resuscitation, document location and position.
- 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.
- Document locations of needle punctures by EMS.
- Inform staff at the receiving hospital that this is a “crime scene” patient.
- If the patient is obviously dead consistent with Resuscitation Initiation and Termination 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

The following are the only recognized DNR options in New Hampshire:
1. "P-DNR" (portable DNR) order: statewide recognized document of any color and/or a "DNR" (Portable DNR) wallet card signed by a physician or Advanced Practiced Registered Nurse (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."
4. "POLST" constitutes a DNR if it states *'This will constitute a DNR Order, and no separate DNR Order will be required*.'
Note: Under state law, a DNR bracelet or necklace may only be issued to patients who have a valid DNR order.

Neither a Living will nor a Durable Power of Attorney for Healthcare (DPOAH) form is a valid DNR order. Neither a patient's spouse nor a healthcare agent under a DPOAH may direct EMS providers to withhold resuscitation in the absence of a valid DNR Order.

When a written DNR order is not available but the patient has a DPOAH and the patient's healthcare agent 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 the 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. (see NH form below) Medical orders from other states must be signed by a physician or APRN that clearly documents the 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

Policy Continued

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 observe the following guidelines:

- Do not perform chest compressions.
- Do not 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, all appropriate medical treatment for all injuries, pain, difficult or insufficient breathing, hemorrhage, and/or other medical conditions should be provided despite the presence of a DNR order. Competent patients (and healthcare agents) retain the right to refuse any treatments indicated.

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 and/or delivery.
- 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 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 rarely, if ever, have application in the prehospital environment.

POLST (Provider Orders for Life-Sustaining Treatment)

Section A

The POLST constitutes a DNR if it states *'This will constitute a DNR Order, and no separate DNR Order will be required*.' Otherwise, if the patient has indicated they do not want resuscitation but does not have a separate valid DNR order, contact Medical Control for guidance

Section B

When confronted with a seriously ill patient who has a POLST form (yellow form),and is not in cardiac arrest: see POLST Appendix A5

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

Note: Section C refers to IV therapy for hydration and nutrition. Advanced EMTs and Paramedics may start an IV for the purpose of medication administration outlined in Section B.

PEARLS:

- 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.

Hospice 8.9

This protocol is specific to those patients enrolled in Hospice.
Treatment should be based on consultation with their Hospice team.

Introduction

The treatment goals of hospice patients differ significantly from those of other patients. Maintaining patient dignity and quality of life, rather than treating medical conditions, is the objective. If a specific cause of discomfort is identified (e.g., bronchospasm), traditional EMS treatment may be appropriate depending on the invasiveness of the therapy and the patient's preferences. Hospice patients generally wish to remain at home and transport to the hospital should be the exception.

If the patient is unable to make medical decisions and the hospice team cannot be contacted, determine the patient's wishes and contact **Medical Control.**

EMS providers should avoid the following interventions:

- Sirens, lights or aggressive interventions with family or caregivers.
- IV therapy (except where other forms of medication administration are not possible).
- Cardiac resuscitation: CPR, resuscitation medications, BVM ventilations.
- Cardiac pacing, cardioversion, and defibrillation.
- Hospice patients should not be transported to the hospital except where transport is specifically requested by the patient or his healthcare agent or surrogate, and preferably only after consultation with the hospice team and exhaustion of other treatment pathways that do not require transport to the hospital.
- Many hospice patients will have a hospice comfort kit that contains medications that patient's caregivers are instructed to use to treat commonly encountered medical issues.

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Contact the hospice team (preferred) or Medical Control to coordinate care and determine administration of hospice kit medications.
- Consider paramedic response for medication administration.
- Breakthrough Pain: Suggest administration of breakthrough pain medication by patients / families. For pain of sudden onset, seek to determine and ameliorate or treat the underlying cause (e.g., pathological fracture).
- Anxiety: Consider potential causes for patient's anxiety, such as increased pain and shortness of breath.
- Dyspnea: Administer oxygen via nasal cannula to relieve shortness of breath and achieve a respiration rate of < 20. Use a fan to blow air directly at the patient's face.
- Constipation: Suggest administration of constipation medication by patient/family.
- Nausea/Vomiting: Suggest administration of nausea medication by patient/family.
- Terminal Secretions: Reassure family that noisy breathing is generally not distressing to the patient. Suggest administration of medication by patients/families.
- Terminal Dehydration: Moisten lips with petroleum jelly; use artificial saliva/mouth sponges and ice chips.
- Confusion/Delirium: Speak slowly and calmly to the person. Remind the patient of where they are, and who you are. Avoid contradicting the patient's statements. Ensure a patient's hearing aid and glasses are available. Limit activity/noise in the room.

Protocol Continues

Protocol Continues

PARAMEDIC STANDING ORDERS

P

Consider following the written orders for medications in hospice kit.
As an adjunct to the hospice kit medication consider:

Breakthrough Pain:

- See Pain Protocol 2.16 (All IV formulated opiates may be given PO for hospice patients.)

Anxiety:

- Midazolam: 2.5 mg IN, repeat every 10 - 15 minutes as needed to a maximum of 6mg
- Lorazepam: 0.25 - 2 mg PO or SL.

Dyspnea:

- Morphine or other opiate, dosing per Pain Protocol 2.16, maintaining respiratory rate above 8 bpm.
- Bronchospasm: See Asthma/COPD 2.3, subject to patient's goals.
- Heart Failure: See Congestive Heart Failure Protocol 3.3, subject to patient's goals.

Nausea / Vomiting:

- See Nausea/Vomiting Protocol 2.11

PEARLS

- Breakthrough Pain assessment and management is important in patients with advanced disease as they may have a high burden of pain, be opiate tolerant, and already be receiving high doses of opioids.
- Anxiety ranges from mild to severe, is common in patients nearing death, and should be treated promptly.
- Terminal Secretions are noisy, gurgling respirations caused by secretions accumulating in the lungs or oropharynx.
- Terminal Dyspnea is exhibited by patients that are expected to die within hours to days. Individuals experiencing dyspnea often experience heightened anxiety.
- Constipation is a frequent cause of nausea and vomiting. Opioid-related constipation is dose-related, and patients do not develop tolerance to this side effect. Surgical treatment is often not appropriate.
- Nausea / Vomiting can be extremely debilitating symptoms at the end of life. Effective control of nausea can be achieved in most patients.
- Fever and Infection treatment should be guided by an understanding of where the patient is in the dying trajectory and goals of care. Overwhelming sepsis may be a sign of active death not to be reversed.
- Delirium is common at end of life and is often caused by a combination of medications, dehydration, infections or hypoxia. It is distressing to families. It often heralds the end of life and may require active sedation.

Blood Borne Pathogens

Assume that all bodily fluids and tissues are potentially infectious and personnel must protect themselves ~~accordingly~~ by use of appropriate Body Substance Isolation (BSI) and approved procedures.

Transmission of 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 month or close contact with another symptomatic individual who has recently traveled out of the country. If possible, determine where patient or contacts have recently traveled. 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 soap and water.
  - If hands are not visibly soiled, use an alcohol-based hand sanitizer 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 disease and transmission.

Body Substance Exposure - Procedures and Considerations

- Personnel with blood borne pathogen exposure should immediately flush exposed area or wash with an approved solution. At a minimum, use warm water and soap.
- If skin integrity is broken, cover area with a sterile dressing.

Policy Continues

Policy Continued

Airborne Pathogens

Assume that all patients who present with respiratory distress, cough, fever, or rash are potentially infectious with airborne pathogens and personnel must protect themselves 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 month, or close contact with another symptomatic individual who has recently traveled out of the country. If possible, determine where patient or contacts have recently traveled. Provide early notification to receiving hospital.

Airborne Personal Protective Equipment (APPE)

- Preferred APPE for EMS personnel is an N95 mask, to be worn whenever patient is suspected of having any communicable respiratory disease.
- N95 mask should be properly sized 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 the oxygen mask to block pathogen release. Close monitoring of the patient's respiratory status and effort will be required.

Airborne Procedures and Considerations

- Provide early notification to receiving hospital so hospital may enact its respective airborne pathogen procedures.
- Limit number of personnel in contact with suspected patients to reduce potential exposure to others.
- Limit procedures that may result in the spread of suspected pathogen, (e.g., nebulizer treatments), if feasible.
- Utilize additional HEPA filtration on equipment, (e.g., BVM or suction), if available.
- Exchange of fresh air into the patient compartment is recommended during transport.

Policy Continues

Policy Continued

Enteric Pathogens

- Emergency medical services personnel should assume that patients who present with gastrointestinal illnesses accompanied by nausea, vomiting and/or diarrhea are potentially infectious with enteric pathogens and must protect themselves by use of appropriate contact and droplet precautions and approved procedures.
- Screen symptomatic patients for recent antibiotic use or contact with others who have had Closteria Difficile or Noro Virus. Provide early notification to receiving hospital.

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).
- In the case of suspected enteric pathogen contamination, personnel should clean all areas of patient contact with cleaners that are effective against E. coli, Noro Virus or C. Difficile. This should be clearly stated on the cleaner label, as most products do NOT effectively kill the pathogen. See The Centers for Disease Control and Preventions (Guideline for Disinfection and Sterilization in Health Care Facilities) If the patient was actively vomiting during transport to the hospital, surfaces in close proximity to the patient should also be cleaned.
- All personnel in contact with the patient should wash their hands thoroughly with warm water and soap. 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 any suspected exposures, EMS provider should complete all appropriate documentation as identified in service department's specific policies, including Worker Compensation Notice of Accidental Injury or Occupational Disease 8aWCA form.

8.11 On-Scene Medical Personnel

- 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** 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)

Patient acuity is based on national standards and should be determined and documented for both Initial Patient Acuity (before EMS care) and Final Patient Acuity (after EMS evaluation and care) Patient Acuity may change during the EMS event based on the patient's illness or injury and EMS interventions. Patient Acuity is not a justification for the use of lights and sirens but an indicator of the urgency for medical interventions for the patient.

Critical - Status I

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. Any patient meeting criteria for a clinical system alert/ activation that is severe and/or unstable should be considered a critical patient.
Examples of Critical – Status I patients:

- Patient unresponsive with abnormal/unstable vital signs (e.g., ↑↓ BP, HR, RR, O2 Sat or Temp)
- Severe or deteriorating respiratory condition, airway obstruction or ability to ventilate
- Pediatric non-responsive respiratory distress
- Decompensating Shock or Sepsis
- Major multi-system trauma, TBI or burns
- Uncontrollable bleeding or hemorrhage
- Status epilepticus
- Labor and delivery complications
- Uncontrolled Excited/Agitated delirium with elevated temperature
- Acute STEMI with abnormal/unstable vital signs, irritable cardiac rhythm or acute clinical presentation
- Acute Stroke with significant deficits, altered mental status or other acute clinical presentation
- Cardiac and/or Respiratory arrest

Emergent – Status II

Patients with symptoms of an illness or injury with a high probability for morbidity (increased illness or injury) that may become more severe or result in complications if treatment is not begun quickly. Examples of Emergent – Status II patients:

- Moderate injury without shock or respiratory compromise e.g,. single-system trauma, stable vital signs
- Moderate dyspnea
- STEMI with stable vital signs and cardiac rhythm and responsive to intervention
- Stroke
- Combative or uncontrollable psychological emergencies
- Significant infections requiring isolation or compensated sepsis

Policy Continues

Protocol Continues

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

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

Non-Acute – Status IV
EMS evaluation with no interventions provided
Examples of Non-Acute – Status IV patients:

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

Notes of Clarification

- Patients should always be transported to the most appropriate available facility based on their Patient status.
- Patient status / acuity are based on definitions and conditions published in the National EMS Core Content and the 2016 Model of Clinical Practice of Emergency Medicine. EMS providers should reference these documents for a more comprehensive list of conditions under each level of patient status/acuity.
- Determining and documenting initial and final patient status provides a picture of how acutely ill or injured a patient was when contacted and the effectiveness of EMS protocols for care or patient decline despite quality care at the end of EMS interaction.

PATIENT TRANSPORT

NH RSA 265:107-a requires all children be properly restrained when riding in a vehicle. Any child who fits on a length-based resuscitation tape must be properly restrained in a safety seat or harness.
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 secured directly to the ambulance cot. It is not acceptable, under any circumstance, to transport a pediatric patient in the arms of an adult.
It is recommended that agencies develop standard operating procedure/policy for pediatric transport that reflects their ambulance configurations and specific pediatric transport equipment/ devices.

TYPES OF RESTRAINTS:

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

Policy Continued

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. Isolette/Incubator must be secured to ambulance according to manufacturer's guidelines.
- Secure infant using manufacturer's restraint. (Five point harness restraint is preferred.)
- Blankets or towels may be used for additional stabilization

MOTHER AND NEWBORN TRANSPORT
- It is not acceptable, under any circumstance to transport a pediatric patient in the arms of an adult.
- Secure and transport mother on the cot.
  - If mother and newborn are both stable and a commercial device is available to fasten newborn to mom (examples: Aegis, Kangoofix) follow manufacturer's guidelines.
  - If mother and/or newborn are not stable or commercial device is not available, best practice is to request two ambulances; transporting each in their own ambulance.
  - If a second ambulance is not available, transport stable newborn secured to the rear-facing provider seat /captain's chair using a size-appropriate child restraint system, infant should be facing the rear of the ambulance. Either a convertible safety seat with a forward-facing belt path or an integrated child restraint system certified by the manufacturer to meet FMVSS No. 213 may be used to secure infant.
  - Do **NOT** use a rear-facing only safety seat in the rear-facing provider seat / captain's chair as this is dangerous and may lead to significant injuries.
  - Special attention should be paid to the high risk of hypothermia in newborns

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:
- 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.
- Captain's chair in patient compartment using a size appropriate integrated seat or a convertible safety seat.

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

The patient's safety seat may be used to transport child to 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.

Police Custody 8.14

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 and 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 6.5.

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 6.6.

Pepper Spray
Patients who have been subdued by pepper spray, see Eye and Dental Protocol 4.3.

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 Restraints Procedure 6.5.

8.15 Refusal of Care

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 on-line medical control provider 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.

Policy Continues

Policy 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 and 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 4.7.
7. Patient / witness reports suicidal ideations.
8. Possible Brief Resolved Unexplained Event see BRUE Protocol 2.5.

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, severity or uncertainty 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 provider'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 provider must contact police immediately, see Victims of Violence 8.20.

8.16 Resuscitation Initiation and Termination

WHEN NOT TO START

Resuscitation efforts should be withheld or discontinued 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 incompatible with life.

Patients with ventricular assist devices (VAD) should almost never be pronounced dead at the scene, see VAD Policy 8.19.

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** if gestational age is less than 20 weeks and neonate shows signs of obvious **immaturity** (e.g., 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

Policy Continued

Resuscitation may be stopped under the following circumstances:

EMT/ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

E/A

- The physical environment becomes unsafe for providers.
- The exhaustion of EMS providers.
- The automatic external defibrillator has advised "no shock" for 20 minutes and Paramedic/hospital care is not available within 20 minutes (hypothermia is an exception) and the $ETCO_2$ is less than 20 mmHg (if available).
- Extrication is prolonged (>15 minutes) with no resuscitation possible during extrication (hypothermia is an exception).
- If directed to do so by **Medical Control**

PARAMEDIC STANDING ORDER – ADULT & PEDIATRIC

P

- Asystole and slow wide complex PEA
  - If there is no return of spontaneous circulation after 20 minutes in the absence of hypothermia and the $ETCO_2$ is less than 20 mmHg·
- Narrow complex PEA with a rate above 40 or refractory and recurrent ventricular fibrillation / ventricular tachycardia
  - Consider early expert consultation with **Medical Control**
  - Consider resuscitation for up to 60 minutes from the time of dispatch, including transport for potential reversible causes if no ROSC after initial efforts.
  - Resuscitation efforts may be ceased before 60 minutes based on factors including but not limited to $ETCO_2$ less than 20 mmHg, age, co-morbidities, distance from, and resources available at the closest hospital.

- 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."

PEARLS:

- For patients that do not achieve return of spontaneous circulation on scene, termination of resuscitation should be considered before the patient is loaded into the ambulance for transport.

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.

Strangulation 8.17

Strangulation is defined as asphyxiation caused by closure of blood vessels and or air passageways of the neck due to external pressure. External pressure can be manual via a body part such as hands, arms, knees, etc., or can be by an object such as a belt, rope, etc.

Patients are at risk of delayed death due to internal swelling, anoxia, hematoma or structural damage that cannot be identified externally. Patients should be encouraged to seek medical care; if transported, communicate reported strangulation attempt to hospital staff.

Although often described as 'choking' by patients, it should be distinguished as strangulation when being documented by providers (as opposed to choking, i.e., foreign body obstruction). Include all information and observations regarding attempted strangulation in documentation provided to receiving hospital.

Assessment:

How was the patient strangled:

- Left, right, or both hands; forearm; knee or foot; ligature or smothered; other, describe

Was patient shaken, beaten or held against wall, ground:

- Quantify grip strength and level of pain using 1-10 scale; duration in min/sec.
- Prior incidents of strangulation, domestic violence, or threats?

Signs and symptoms:

- Petechiae on face, eyes/eyelids, nose, ears, head
- Deformity of or bleeding from nose, ears; bruising, swelling of mouth/lips
- Redness, scratches, abrasions, bruising under chin, on neck, shoulders, chest
- Ligature marks, swelling, fingernail impressions (offensive or defensive) on neck
- Missing hair, fracture, or swelling/bruising on head, signs of concussion
- Difficulty breathing or speaking; coughing, hoarse or raspy voice; drooling, difficulty or pain swallowing
- Vision disturbances or changes (spots, light flashes, tunnel vision, etc.)
- Hearing disturbances or changes (buzzing or ringing in the ears, etc.)
- Headache
- Subcutaneous emphysema
- Incontinence

Behavioral signs:

- Agitation, amnesia, hallucinations, dizziness, fainting, or combativeness due to hypoxia

Documentation and Reporting Responsibilities

Strangulation is a felony-level crime*. Per NH RSA 631:6, it must be reported to the police unless the patient age 18 or older refuses to have the information released.

Strangulation is also an indicator of increasing lethality in a violent relationship. Every effort should be made to connect patient with support 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.
- Hospital and court accompaniment; legal advocacy
- Information about public assistance.

* PEARLS:
- Patient's spouse/partner, caregiver or parent may be the perpetrator; their presence may hinder patient's disclosure of information.
- Providers' reactions can impact patient recovery and strengthen or hinder prosecution of the perpetrator. Non-judgmental and compassionate care and thorough documentation and preservation of evidence are essential.

Trauma Triage and Transport Decision 8.18

Policy 8.18

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 I or II Trauma Center by ground or air.
- If above is not feasible and air transport is unavailable, transport to nearest Trauma Center (preferred) or acute care hospital with emergency department and consider requesting ALS intercept.
- For a child <15 years of age, direct transport to a Level 1 or 2 Pediatric Trauma Center is desired.
- Contact destination hospital and activate the trauma system in accordance with local guidelines.

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 ▶ (same destination as above)

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 site; >18 inches any site
  - 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 Trauma Center (preferred) or acute care hospital.
- Contact destination hospital and activate the trauma system in accordance with local guidelines.

NO ▼

Assess Special Patient or System Considerations

- Older Adults
  - Risk of injury/death increases after age 55 years
  - SBP <110 mmHg 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 (See Burn Protocol)
  - Without other trauma mechanism: triage to burn facility
  - With trauma mechanism: triage to trauma center
- Pregnancy >20 weeks (See Obstetric Protocol)
- EMS Provider judgment

YES ▶

- Consider transport to nearest Trauma Center

NO ▼

Transport to closest appropriate acute care hospital

Divert to the nearest acute care hospital if a patient with major trauma is in cardiac arrest, peri-arrest or immediately needs a life-saving intervention that cannot be delivered by available prehospital resources.

For more information on Trauma Center assignments and hospital services click on this LINK

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

Implantable Ventricular Assist Devices (VAD) 8.19

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

Patient Care Goals

- Rapid identification of, and interventions for, cardiovascular compromise in patients with VADs
- Rapid identification of, and interventions for VAD-related malfunctions or complications

Indications

- Patients with an implanted ventricular assist device (VAD) and symptoms of cardiovascular compromise or cardiac arrest.
- Patients with VADs experiencing a medical or injury-related event not involving the cardiovascular system or VAD malfunction

Assessment:

- Assess for possible pump malfunction
  - Assess for alarms
  - Auscultate for pump sound “hum”
  - Signs of hypoperfusion including pallor, diaphoresis, altered mental status
- Utilize available resources to troubleshoot potential VAD malfunctions and to determine appropriate corrective actions to restore normal VAD function:
  - Contact the patient’s VAD-trained companion, if available,
  - Contact the patient’s VAD coordinator (phone number may be on device)
  - Check all the connections to system controller
  - Change VAD batteries one at a time and/or system controller if indicated

E/A/P

Treatment and Interventions:

- Routine Patient Care
- Cardiac monitoring and acquire 12-lead EKG
- For VAD-related complications or cardiovascular problems, expedite transport to the medical facility where VAD was placed if clinical condition and time allows.
- If patient has a functioning VAD and is experiencing a non-cardiovascular-related problem, transport to a facility that is appropriate for the patient’s main presenting problem without manipulating the device.
- Signs of poor perfusion, (e.g., MAP < 50 mmHg and/or $ETCO_2$ <20) follow ACLS algorithm
- CPR should only ~~may~~ be initiated if:
  - You have confirmed the pump has stopped AND troubleshooting efforts to restart it have failed, AND
  - The patient is unresponsive and has no detectable signs of life
- See Cardiac Arrest Protocol 3.2.

Protocol Continues

8.19 Implantable Ventricular Assist Device (VAD)

Protocol Continued

PEARLS

- The most common cause for VAD alarms are low batteries or battery failures
- You do not need to disconnect the controller or batteries in order to defibrillate or cardiovert or acquire a 12-lead EKG
- Flow through many VAD devices is not pulsatile (except older models) and patients may not have a palpable pulse or accurate pulse oximetry
- Ventricular fibrillation, ventricular tachycardia, or asystole/PEA may be the patient's "normal" underlying rhythm. Evaluate clinical condition and provide care in consultation with VAD coordinator
- The patient's travel bag must accompany him/her at all times with back-up controller and spare batteries and accessory equipment
- If feasible, bring the patient's power module, cable and display module with patient to the hospital
- Although automatic non-invasive blood pressure cuffs are often ineffective in measuring systolic and diastolic pressure, if they do obtain a measurement, the MAP is usually accurate
- Other VAD complications:
  - Infection
  - Stroke / TIA
  - Bleeding
  - Arrhythmias
  - Cardiac Tamponade
  - CHF
  - Aortic Insufficiency

Scene Safety
Maintain heightened awareness: family members, caregivers or bystanders may exhibit anger or may be the perpetrator. If you are threatened or suspect potential violence, consider withdrawing and notifying police.

Assessment
General
- Assess patient privately in a safe place, if feasible. Abbreviated assessment may be indicated based on patient's mental state.
- Discreetly ask patient about past or present physical and emotional abuse, as a victim or witness.
- Note psychological/behavioral characteristics of abuse including: excessive crying, passivity or aggression; compliant or fearful behavior for safety of self, children, and/or pets; panic attacks, anxiety, depression, and/or suicidal ideation; substance abuse; vague or ambiguous chronic pain complaints; or age inappropriate behavior (e.g., children who act in a sexually inappropriate way).
- Assess for signs and symptoms of abuse:
  - Unexplained injuries or inconsistency with explanation: bruises; whiplash injuries; erythema due to slaps, grab-marks on arms or neck; burns, especially on genitals or buttocks, or with specific borders or shapes, (i.e., dip lines); lacerations, scars, or fractures including mandible; and multiple injuries in various stages of healing.
  - Children presenting with Brief Resolved Unexplained Event (BRUE), See BRUE Protocol 2.5
  - Strangulation /Choking, see Strangulation Policy 8.17.
  - Injury sites hidden by clothing or hair.
  - Injury during pregnancy
- Contact hospital by telephone, when feasible, to protect privacy of patient and family.

Sexual Assault
- Provide compassionate, non-judgmental support.
- Patient may prefer an EMS provider of the same gender as the patient, if available.
- Limit physical contact with patient to that which is required to perform assessment and treatment.
- Do not attempt to get a detailed description of event. Leave this to the police.
- Limit questions to: What happened? When did it occur? Did patient bathe or clean up after attack?
- Consider drug facilitated sexual abuse/assault: document torn, stained or bloody underclothing, unexplained injuries.

- Communicate with receiving hospital early so that sexual assault nurse examiner (SANE) and advocate personnel may be available upon patient arrival.

Additional Considerations: Sexual Assault
- Limit questions to the identification of injuries and pertinent medical information
- Do not inspect genitals unless uncontrolled hemorrhage, trauma or severe pain present.
- Discourage patient from eating, drinking, smoking, bathing, or urinating until after hospital evaluation. Urine may contain evidence of drug facilitated sexual assault. If patient needs to use restroom prior to transport, advise patient to not "wipe".
- Suggest transport to hospital for prophylactic treatment for sexually transmitted disease or pregnancy, drug/alcohol screening and evidence preservation.
- If adult patient refuses care or transport, document any care provided thoroughly and handle any evidence as you would if transporting. Leave patient's belongings with patient. Provide patient with contact information for sexual assault crisis line 1-800-277-5570.

Policy Continues

Policy Continued

Human Trafficking

- Human trafficking is defined as using force, fraud or coercion to control another person for the purpose of engaging in commercial sex acts or soliciting labor. Signs may include, but are not limited to: patient with branding/tattoos and environmental clues such as padlocks and/or doorknobs removed on interior doors, and intact window that are boarded up. If you suspect your patient is a victim of human trafficking, contact local law enforcements
- Signs may include:
  - Scars, mutilations, or infections due to improper medical care
  - Urinary difficulties, pelvic pain, pregnancy, or rectal trauma caused from working in the sex industry
  - Chronic back, hearing, cardiovascular, or respiratory problems as a result of forced manual labor in unsafe conditions
  - Malnourishment and/or serious dental problems
  - Disorientation, confusion, phobias, or panic attacks caused by daily mental abuse, torture, and culture shock
  - Environmental clues such as padlocks and/or doorknobs removed on interior doors, intact windows that are boarded up.
- Any minor exploited for commercial sex is a victim of human trafficking and mandates reporting to DCYF and police. Mandated reporting also applies to any incapacitated or vulnerable adult, gun shot or stabbing wound. Competent adults victims should be offered assistance of police **and/or** crisis service but may decline.

Suspected Abuse or Neglect of a Disabled Person, Elder or Child

- Assess for neglect including hazardous living conditions, inappropriate clothing for weather, inadequate hygiene, absence of caregiver(s), or physical signs of malnutrition or over/under medication
- Assess all children carefully for physical injury whenever another household member is injured/abused 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 or police interaction with the suspected abuser, or view of the crime scene). EMS may assist law enforcement with caring for the uninjured child until appropriate arrangements have be made by law enforcement.
- Consider non-accidental trauma in any infant presenting with any traumatic injury or BRUE, see BRUE Protocol 2.5
- If a parent/guardian refuses treatment of a minor child or incapacitated adult whom you feel needs medical attention, contact law enforcement immediately.

Policy Continues

Policy Continued

Documentation and Evidence Preservation

- Document verbatim everything the patient or caregiver says that may be relevant. Do not paraphrase. Capture inconsistencies.
- If necessary to remove patient's clothing, do not damage evidence (rips, stains) if possible. Cut along seam lines.

Preserve all evidence, see Crime Scene/Preservation of Evidence Policy 8.7

Reporting Procedures/Requirements

- Suspected abuse, neglect, or exploitation of children or adults must be reported immediately, whether or not the patient is transported. Informing hospital personnel or involving law enforcement does not fulfill legal reporting requirements.

REPORTING REQUIREMENTS: According to New Hampshire State law, most domestic violence injuries are not required to be reported to the police. If the patient is 18 years of age or older and has received a gunshot wound or other serious bodily injury, the injuries must be reported to the police. As defined in RSA 625:11 "Serious bodily injury" means any harm to the body which causes or could cause severe, permanent, or protracted loss of or impairment to the health or of the function of any part of the body.

Child Abuse

Both the Department for Children, Youth, and Families (DCYF) and local police must be notified within 24 hours:

- Call DCYF at 1-800-894-5533, available 24 hours/day; if out-of-state: 603-271-6562.
- NOTE: Regardless of other agency's involvement, EMS is mandated to notify DCYF.
- Do not send reports of suspected child abuse by email.

NOTE: If an uninjured child witnesses violence, this qualifies as child abuse and neglect and mandates a report.

Abuse of Elders and Incapacitated Adults

- Call Bureau of Elderly & Adult Services at 800-949-0470 or 603-271-7014 and leave a message. For adults residing in:
  - Independent living situation (own home/apartment, home/apartment of friends or relatives, boarding home, or no fixed address).
  - Homes or programs affiliated with Bureau of Behavioral Health or Bureau of Developmental Services.
  - Hospital or rehabilitation center.
- Call Office of Long-Term Care Ombudsman at 800–442–5640 or 603–271–4375 between 8:00 am to 4:30 pm, Monday through Friday, for adult residents of nursing or assisted living facilities.

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

Referral Information for Domestic Violence and Sexual Assault

The NH Coalition Against Domestic and Sexual Violence (NHCADSV) supports survivors of domestic and sexual violence and offers free, confidential services (emergency shelter and transportation, legal advocacy, hospital and court accompaniment, information about public assistance). Provide patient with referral information.
24-Hour Domestic Violence Crisis Line: 1-866-644-3574.
24-Hour Sexual Assault Crisis Line: 1-800-277-5570.

9.0 Hazardous Material Exposure

Hazardous Material: A hazardous material is any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

Hazardous Material Exposure: Any patient with an illness, injury, or complaint which has been caused by or is suspected of being caused by a hazardous material.

When to use this protocol: During any response to a hazardous material exposure where the public, responders, environment, or valuable property are at risk of continued harm or exposure AND the hazard has not been previously mitigated or contained.

- SAFETY: Your safety is priority #1. DO NOT PROCEED beyond staging or cold zone unless directed by HAZMAT team and Incident Command.
- LOCAL PROTOCOL: Follow your dispatch area's HAZMAT response notification and response plan! This protocol is not a substitute for a comprehensive notification, response, decontamination, treatment and transport plan

RESPONSE

- Activate ICS and HAZMAT response plan
- Request specific staging instructions
- Position ambulance uphill and upwind >300ft
- Be alert for patients self extricating from scene
- Declare MCI see MCI Protocol

Resources:
NH Fire Marshall: 603-223-4289
NH Bureau of Emergency Mgmt: 603-271-2231
NH National Guard 12th CST: 603-227-1555

HAZARDOUS MATERIAL IDENTIFICATION

- Name and proper spelling of material if known
- SDS sheet, bill of lading, waybill, other documentation
- Emergency Response Guide ID# (4 digits)
- DOT classification on placard
- Bystanders, technicians or employees at location
- Physical description of material (color, odor, etc.)

Resources:
North American Emergency Response Guide (NAERG)
Poison Control: 1-800-222-1222
Chemtrec: 1-800-424-9300
Military Shipments: 1-800-851-8061
Wireless Information System for Emergency Responders (WISER)

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

HOSPITAL NOTIFICATION

- Estimate number of patients if possible
- Estimate triage/acuity level of patients
- Determine time frame for transportation
- Determine capacity of receiving hospitals

Resources
Triage Tags with "contaminated" identifier
See Mass Casualty and Triage Protocol

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, include level of hazardous materials suit, if known.

Protocol Continues

Protocol Continued

TREATMENT DURING DECONTAMINATION

- Limit medication administration route to IM/IN or nebulizer
- Intravenous therapy and advanced airway interventions should be delayed until after gross decontamination. ·
- Specific individual treatment should be referenced from Poison Control or SDS sheets.
- Encourage the use of warmed water 100^{o} to prevent hypothermia

RECORD EXPOSURE AND TREAMENT 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) should wear personal protective equipment as recommended by Incident Command.
- 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 should 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.
- Within the scope of the MCI, the EMS provider may perform procedures within their scope of practice.

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.

SALT Triage Categories

RED	Immediate: Immediately life-threatening problems, high potential for survival
YELLOW	Delayed: Serious (not minor) injuries requiring care but management can be delayed without increasing morbidity or mortality
GREEN	Minimal: Injuries require minor care or no care
GREY	Expectant: Unlikely to survive given available resources.
BLACK	Dead: Patient is not breathing after opening airway. (In children, if after giving 2 rescue breaths, if appropriate.)

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.

Protocol Continues

Protocol Continued

Triage in Hazardous Material Incidents

Decontamination

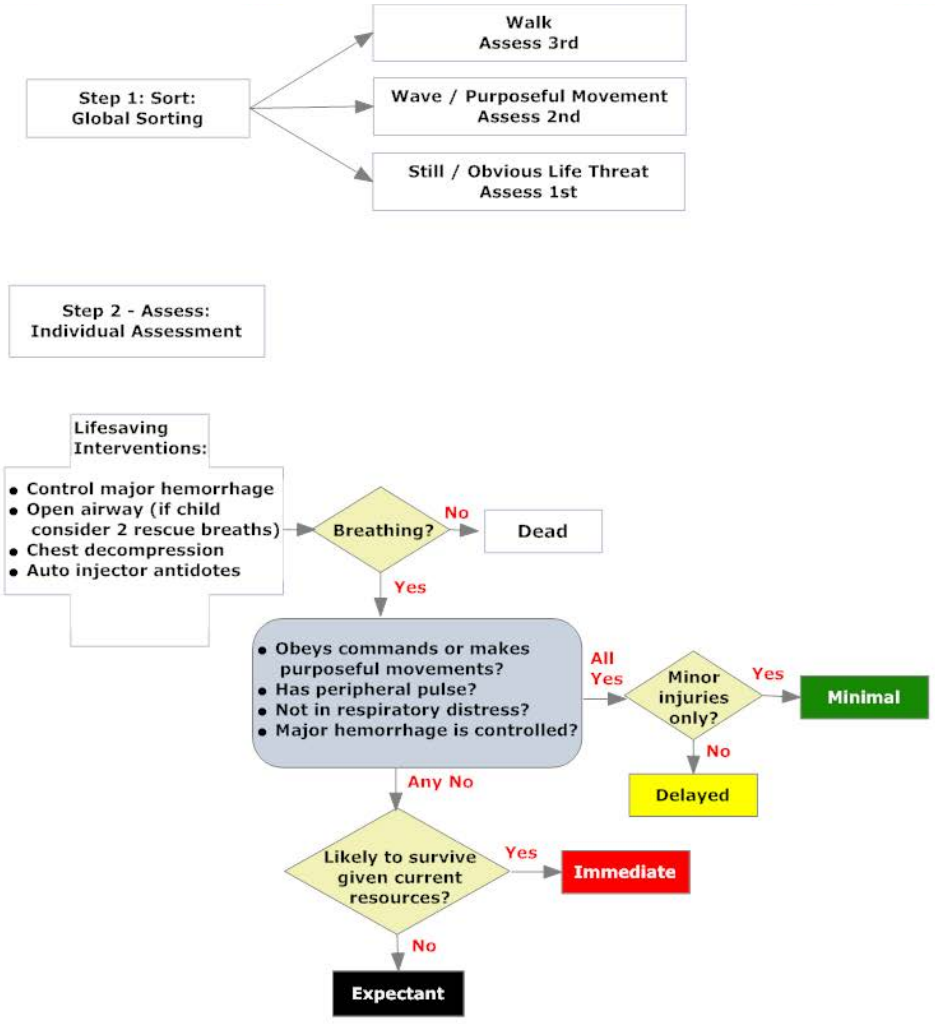
The need for decontamination is the "first triage decision." Since decontamination can be a lengthy process, the "second decision" is which patient(s) are the first to be decontaminated. The "third decision" is based on need for treatment during the decontamination process, since only simple procedures 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.

SALT Mass Casualty Triage Algorithm

(Sort, Assess, Lifesaving Interventions, Treatment/Transport)



9.2 Radiation Injuries Adult & Pediatric

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 2.11.

PARAMEDIC STANDING ORDERS

P

- Consider pain management, see Pain Management Protocol 2.16.

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.

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 or IM	Pedi and Adult
EMT	Dextrose	Oral Glucose	Pedi and Adult
EMT	Glucagon	Intranasal	Assist Only
EMT	Ibuprofen	Motrin or Advil	Pedi and Adult
EMT	Ipratropium Bromide (mixed with Albuterol)	Atrovent (mixed with Albuterol) OR DuoNeb	MDI Assist only
EMT	Naloxone	Narcan	Pedi and Adult
EMT	Nitroglycerin	Tridil, Nitrobid, Nitrostat	Adult - patient assist
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		Pedi and Adult
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		Pedi and 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

Appendix 1

NH Approved EMS Medications

Level	Generic	Trade name	Notes
Paramedic	Adenosine	Adenocard	Pedi and Adult
Paramedic	Amiodarone	Cordarone	Pedi and Adult
Paramedic	Antiobiotics (Advanced Sepsis only)		Adult Prerequisite
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	Epinephrine		Pedi Nebulized
Paramedic	Epinephrine-reacemic		Pedi Nebulized
Paramedic	Etomidate (RSI only)	Amidate	Adult
Paramedic	Fentanyl	Sublimaze	Pedi and Adult
Paramedic	Haloperidol	Haldol	Adult
Paramedic	Heparin		Adult
Paramedic	Hydrocortisone	SoluCortef	Pedi and Adult
Paramedic	Hydromorphone	Dilaudid	Adult
Paramedic	Ketamine		Pedi & Adult
Paramedic	Ketorolac	Toradol	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	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	Tranexamic Acid (TXA)		Adult
Paramedic	Vecuronium (RSI Only)	Norcuron	Adult

Appendix 1

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Acetaminophen (Tylenol) **Indications/Contraindications:** • Indicated for fever control. • Avoid in patients NSAID allergy, aspirin-sensitive asthma, or renal insufficiency	**Pain** • 325 – 1000 mg PO, no repeat **Musculoskeletal Injuries – Extended Care** • 325-650 mg by mouth every 6 hours as needed, not to exceed 3000 mg/24hours. Suggested Formulations: • Oral 325 mg tablets, 500 mg tablets, 160 mg/5ml • Rectal 325 mg supp, 650 mg supp, 80 mg supp
Activated Charcoal **Indications:** • Poisoning/Overdose.	**Poisoning/Substance Abuse/OD** • 25 – 50 grams PO if advised by Poison Control or Medical Control. Suggested Formulations: • Ez-Char 25 g (requires reconstitution) • Kerr-Insta Char 25 g/120ml • Actidose 25 g/120ml
Adenosine (Adenocard) **Indications/Contraindications:** • Specifically for treatment or diagnosis of Supraventricular Tachycardia. • Consider for regular or wide complex tachycardia	**Tachycardia** • 6 mg rapid IV push. ▪ May repeat 12 mg every 1 – 2 minutes X 1, if no conversion. Suggested Formulations: Intravenous • Adenosine pre-filled syringe 12 mg/4ml • Adenosine pre-filled syringe 6 mg/2ml • Adenocard 12 mg/4ml • Adenocard 6 mg/2ml
Albuterol Beta-Agonist **Indications/Contraindications:** • Nebulized treatment for use in respiratory distress with bronchospasm.	**Allergic Reaction/Anaphylaxis** • 2.5 mg via nebulizer. • May repeat 2.5mg via nebulizer, repeat every 5 minutes (4 doses total). **Asthma/COPD/RAD** • 4 - 6 puffs per dose of MDI . • May repeat every 5 minutes, as needed. • Albuterol is second line drug, the initial treatment should be 2.5 mg albuterol and 0.5 mg ipratropium (DuoNeb). • May repeat every 5 minutes (3 doses total). • Following 3 DuoNeb treatments, 2.5 mg albuterol via nebulizer every 5 minutes, as needed. **Crush Injuries** • Continuous 10 – 20 mg nebulized Suggested Formulations: Albuterol • Albuterol 0.083% [2.5 mg/3 mL] nebule Albuterol/Ipratropium (Duoneb) • Ipratropium bromide 0.5 mg and albuterol (base) 2.5 mg per 3 mL nebule

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Amiodarone (Cordarone) **Indications/Contraindications:** • Antiarrhythmic used mainly in wide complex tachycardia and ventricular fibrillation. • Avoid in patients with heart block or profound bradycardia. • Contraindicated in patients with iodine hypersensitivity.	**Cardiac Arrest** **V-Fib/Pulseless V-Tach** • 300 mg IV push. • Repeat dose of 150 mg IV push for recurrent episodes. **Tachycardia - Wide complex tachycardia** • 150 mg in 50 – 100 mL normal saline or D5W over 10 min. • May repeat once in 10 minutes. • If successful, consider maintenance infusion of 1 mg/minute. Suggested Formulations: Amiodarone HCL • 150 mg/3 mL (3 mL); • 450 mg/9ml (9ml)
Antibiotics	**Severe Sepsis Prerequisite Protocol** • Per Medical Resource Hospital Agreement
Aspirin **Indications/Contraindications:** • An antiplatelet drug for use in cardiac chest pain. • History of anaphylaxis to aspirin or NSAIDs • Active GI bleeding	**Acute Coronary Syndrome** • 324 mg by mouth (chewable). Suggested Formulations: Oral • 81 mg chewable tablets
Atropine **Indications/Contraindications:** • Anticholinergic drug used in bradycardias and organophosphate poisonings.	**Bradycardia** • 0.5 mg IV every 3 – 5 minutes up to maximum of 3 mg. **Organophosphate Poisoning and Nerve Agent** • 2 mg IM or IV every 5 minutes until secretions clear. Suggested Formulations: Solution, Injection, as sulfate [preservative free]: • 0.4 mg/mL (1 mL) • 0.8 mg/mL (0.5 mL) • 1 mg/mL (1 mL) Device, Intramuscular, as sulfate: • AtroPen: 0.25 mg/0.3 mL (0.3 mL) [pyrogen free] 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]

NH Adult Medication Reference

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Medication	Adult Protocol/Dosing
Atropine and Pralidoxime Auto-Injector Nerve Agent Kit **Indications/Contraindications:** • Antidote for Nerve Agents or Organophosphate Overdose.	**Nerve Agents** • Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer 3 atropine/pralidoxime auto-injectors and 1 diazepam (10 mg) auto-injectors. • Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer 1 atropine/pralidoxime auto-injectors. • Maintenance Dose: 1 atropine/pralidoxime auto-injectors every 3 hours.
Calcium Chloride 10% solution **Indications/Contraindications:** • Indicated for hyperkalemia or calcium channel blocker overdose. • Caution in patient takes digoxin.	**Bradycardia** For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider: • 1 gram IV / IO over 10 minutes, with continuous cardiac monitoring. May repeat in 10 minutes if clinical indications persists. **Cardiac Arrest - Wide Complex PEA** • 1 gram IV **Crush Injuries** • 1 gram IV/IO over 10 minutes, may repeat in 10 minutes Suggested Formulations: Solution, Intravenous: Generic: 10% (10 mL
Calcium Gluconate **Indications/Contraindications:** • Indicated for hyperkalemia or calcium channel blocker overdose.	**Bradycardia** For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider: • 2 grams IV / IO over 10 minutes, with constant cardiac monitoring, may repeat in 10 minutes if clinical indication persists **Cardiac Arrest - Wide Complex PEA** • 2 grams IV **Crush Injuries** • 2 grams IV/IO over 10 minutes, may repeat in 10 minutes
Dexamethasone **Indications/Contraindications:** • COPD/Asthma	**Asthma – Adult** • 10 mg PO/IM/IV
Dextrose **Indications/Contraindications:** • Symptomatic hypoglycemia. • Use in medication infusion medium.	**Hypoglycemia** • 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. IV pump not required. Suggested Formulations: Solution, Intravenous: • 10% (250 mL, 500 mL, 1000 mL);

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing

Diazepam (Valium)
Benzodiazepine
Indications/Contraindications:
• Seizure control.
• Sedation.
• Anxiolytic.
	Behavioral Emergencies
	• 2.5 mg IV, may repeat every 10 minutes to a total of 10 mg.
	Bradycardia
	• 5 mg IV, may repeat 2.5 mg once in 5 minutes.
	BiPAP
	Consider administering anxiolytic:
	• 5 mg IV (then 2.5 mg every 5 minutes to total of 20 mg)
	CPAP
	Consider administering anxiolytic:
	• 5 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg)
	Hyperthermia
	• 2 mg IV, may repeat once in 5 minutes.
	Nerve Agent
	• 5 mg IV every 5 minutes; or 10 mg IM **OR**
	• Diazepam auto-injector (10mg).
	  • Repeat 10 minutes as needed
	Poisoning/Substance Abuse/OD
	• 2 mg IV, may repeat once in 5 minutes, **OR**
	• 5 mg IM, may repeat once in 20 minutes
	Seizure
	• 5 – 10 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg).
	Restraints – Resistant or Aggressive Management (goal alert and calm)
	• 5 mg IV/IM (IV preferred route), may repeat once in 10 minutes
	Restraints – Excited/Agitated Delirium (goal is safe and compliant)
	• 10 mg IV (IV preferred route), may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes
	Tachycardia
	• 5 mg IV, may repeat 2.5 mg once in 5 minutes.
	Traumatic Brain Injury
	• 2 mg IV, may repeat once in 5 minutes.
	
	Suggested Formulations:
	Solution, Injection:
	  • Generic: 5 mg/mL (2 mL, 10 mL)

Diltiazem (Cardizem)
Indications/Contraindications:
• Calcium channel blocker used to treat narrow complex SVT.
• Contraindicated in patients with heart block, ventricular tachycardia, WPW, and/or acute MI.
	Tachycardia - Narrow Complex Tachycardia
	• 0.25 mg/kg IV (maximum dose 20 mg) over 2 minutes.
	  ▪ May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 20 mg) if necessary.
	  ▪ Consider maintenance infusion 5 – 15 mg/hour.
	
	Suggested Formulations:
	  • Solution, Intravenous, as hydrochloride: 25 mg/5 mL (5 mL, 25 mL); 50 mg/10 mL (10 mL); 125 mg/25 mL (25 mL)

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Medication	Adult Protocol/Dosing

Diphenhydramine (Benadryl)
Indications/Contraindications:
• Antihistamine used as an adjunctive treatment in allergic reactions.
• Antidote for dystonic reaction.
	Allergic Reaction/Anaphylaxis
	• 25 - 50 mg IM/IV or by mouth
	Extended Care:
	• 25 - 50 mg IM/IV or by mouth. May repeat every 4-6 hours as needed; maximum dose of 300mg in 24 hours.
	Nausea/Vomiting
	• 25 – 50 mg IV/IM.
	Extended Care:
	• 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
	Poisoning/Substance Abuse/OD
	• 25 – 50 mg IV/IM.
	Restraints
	• 25 – 50 mg IV/IM.
	
	Suggested Formulations:
	Oral
	• 25 mg Capsule
	Solution, Injection, as hydrochloride [preservative free]:
	50 mg/mL (1 mL)

Epinephrine 1 mg/mL **Indications/Contraindications:** • Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphylaxis • Vasopressor in cardiac arrest. • Hemodynamic instability	**Allergic Reaction/Anaphylaxis** • Adult epinephrine autoinjector 0.3 mg IM (0.3 mL) IM OR • Epinephrine 1mg/1mL: Administer 0.3 mg (0.3 mL) IM • If signs and symptoms do not resolve may repeat in 5 minutes Anaphylaxis refractory to 3 or more doses of IM epinephrine, (e.g. persistent hemodynamic compromise, bronchospasm) consider: • Infusion 2 – 10 micrograms/minute until symptoms resolve, pump require, see Drip Rate Reference Appendix 5 **Asthma/COPD/RAD** • 0.3 mg IM, lateral thigh preferred Suggested Formulations: Device, Injection: • 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] Nebulization Solution, Inhalation [preservative free]: • S2: 2.25% (1 ea) [sulfite free; contains edetate disodium] Solution, Intravenous [preservative free]: • Generic: 1 mg/mL (1 mL)

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing

Epinephrine 0.1 mg/mL
Indications/Contraindications:
• Vasopressor used in cardiac arrest.
	Cardiac Arrest
	• 1 mg IV.
	  ▪ Repeat every 3 – 5 minutes.
	
	Bradycardia, Non – Traumatic Shock, Post Resuscitative Care, Rapid Sequence Intubation & Sepsis/Advanced Sepsis:
	• Infusion 2 -10 micrograms/minute via pump
	• Epinephrine by push dose (dilute boluses) prepare 10 mcg/mL by adding 1 mL 0.1 mg/mL Epinephrine to 9 mL normal saline, then administer 10 - 20 mcg boluses (1 – 2 mL) every 2 minutes (where feasible, switch to infusion as soon as practical)
	
	Suggested Formulations:
	Solution, Injection:
	  • Generic: 0.1 mg/mL (10 mL); 1 mg/mL (1 mL)

Etomidate (Amidate)
Indications/Contraindications:
• Sedative used in Rapid Sequence Intubation.
	Rapid Sequence Intubation
	• 0.3 mg/kg IBW IV, maximum single dose 30 mg
	  ○ For elderly, shock, or risk of hypotension: 0.15 mg/kg IV
	Suggested Formulations:
	Solution, Intravenous:
	  • Amidate: 2 mg/mL (10 mL, 20 mL) [contains propylene glycol]
	  • Generic: 2 mg/mL (10 mL, 20 mL)

Fentanyl (Sublimaze) **Indications/Contraindications:** • Narcotic analgesic • Avoid use if BP < 100 mmHg.	**Acute Coronary Syndrome** • 25 – 100 micrograms slow IV push, every 2 minutes to a total of 300 micrograms and systolic BP remains > 100 mmHg **Pain** • 25 – 100 micrograms slow IV push, 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 **Analgesia and Sedation for Invasive Airway Device** • 50 – 100 micrograms, slow IV push every 5 – 10 minutes as needed **RSI** Premedication (if indicated) • 2 micrograms/kg IBW IV at least three minutes prior to induction Suggested Formulations: • Injection, solution, as citrate [strength expressed as base, preservative free]: 0.05 mg/mL (2 ml)

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Glucagon **Indications/Contraindications:** • 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	**Hypoglycemia** • 1 mg IM. ▪ Recheck glucose 15 minutes after administration of glucagon. ▪ May repeat glucagon 1mg IM if glucose level is < 60mg/dl with continued altered mental status. **Bradycardia** • 5 mg IV over 3 – 5 minutes. Suggested Formulations: Kit, Injection: • Glucagon Emergency: 1 mg Solution Reconstituted, Injection, as hydrochloride: • GlucaGen: 1 mg (1 ea) GlucaGen HypoKit: 1 mg (1 ea)
Glucose Oral Glucose Solutions **Indications/Contraindications:** • Use in conscious hypoglycemic states.	**Diabetic Emergencies** • Administer 15 – 30 mg commercially prepared glucose gel or equivalent. Suggested Formulations: Gel, Oral: • Glutose 15: 40% (37.5 g) • Glutose 15: 40% (37.5 g) [lemon flavor] • Glutose 45: 40% (112.5 g) [lemon flavor] • Insta-Glucose: 77.4% (31 g) Liquid, Oral: Glutol: 55 % (180 mL) [lemon flavor]
Haloperidol (Haldol) Phenothiazine Preparation **Indications/Contraindications:** • Medication to assist with sedation of agitated patients. • Chemical restraint.	**Restraints** For patients with suspected Excited/Agitated Delirium, extreme agitation or ineffective control with benzodiazepines: Consider in addition to benzodiazepines: • Haloperidol 10 mg IM, may repeat once in 10 minutes. Suggested Formulations: Solution, Injection, as lactate [strength expressed as base]: • Haldol: 5 mg/mL (1 mL) Generic: 5 mg/mL (1 mL, 10 mL)
Heparin **Indications/Contraindications** • STEMI and no affirmative finding from fibrinolytic questionnaire. • Contraindication - history of Heparin Induced Thrombocytopenia	**Acute Coronary Syndrome** • 60 unit/kg to a maximum of 4000 unit IV bolus. Suggested Formulations: Solution, Injection, as sodium: • 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) Solution, Intravenous, as sodium: Hep Flush-10: 10 units/mL (10 mL)

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Hydrocortisone (Solu-Cortef) **Indications/Contraindications:** • Adrenal Insufficiency	**Adrenal Insufficiency** • 100 mg IV/IM. **Adrenal Insufficiency - Extended Care** • After the initial hydrocortisone (100 mg IV/IM), give hydrocortisone 50 mg IV bolus administered every 6 hours until stabilization of vital signs and capacity to eat and take medication orally. Suggested Formulations: Solution Reconstituted, Injection, as sodium succinate [strength expressed as base]: • A-Hydrocort: 100 mg (1 ea) • Solu-CORTEF: 100 mg (1 ea)
Hydromorphone **Indications/Contraindications:** • Pain control	**Pain – Adult** • 0.5 - 1mg IV, every 10 minutes to a total 4mg titrated to pain relief and if systolic BP is > 100 mmHg.
Hydroxocobalamin (Cyanokit) **Indications/Contraindications:** Smoke Inhalation	**Smoke Inhalation** • Via use of Cyanokit.
Ibuprofen (Motrin) **Indications/Contraindications:** • 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.	**Musculoskeletal – Extended Care** • 400 – 600 mg by mouth; repeat every 6 hours as needed. **Pain** • 400 mg PO, no repeat Suggested Formulations: Capsule, Oral: • Generic: 200 mg • Advil: 200 mg
Ipratropium Bromide (Atrovent) Indications/Contraindications: • Anticholinergic bronchodilator. Blocks the muscarinic receptors of acetylcholine. • Relief of bronchospasm in patients with reversible obstructive airway disease and bronchospasm.	**Asthma/COPD/RAD** • 0.5 mg ipratropium and 2.5 mg albuterol (DouNeb). ○ May repeat every 5 minutes (3 doses total). Suggested Formulations: Solution, Inhalation, as bromide: • Generic: 0.02% (2.5 mL) Aerosol Solution, Inhalation, as bromide: • Atrovent HFA: 17 mcg/actuation (12.9 g) [contains alcohol, usp]

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Ketamine **Indications/Contraindications:** • Short acting dissociative anesthetic	**Pain** • 10 – 20 mg IV diluted in 50 – 100 mL 0.9% NaCl over 10 minutes (no IVpump needed), may repeat every 5 minutes to a total of 40 mg, as tolerated, OR • 25 – 50 mg IM may repeat every 30 minutes, as tolerated▪ To minimize chance of dysphoric reaction consider starting at lower doses and increasing if needed for analgesia. **Analgesia and Sedation for Invasive Airway Device** • 1 mg/kg IV every 5 – 15 minutes as needed, with a target RASS -2 to -4. • Infusion: 1 mg/kg IV bolus followed by 1 – 5 mg/kg/hour via IV pump titrated to effect. **Rapid Sequence Intubation** • 2 mg/kg IV or 4 mg/kg IM (max 500 mg) (only if performing Delayed Sequence Intubation) ○ For elderly, shock or risk of hypotension: 1 mg/kg IV or 2 mg/kg IM **Restraints – Excited/Agitated Delirium:** • 4 mg/kg IM rounded to nearest 50 mg, maximum dose 500 mg, repeat 100 mg IM in 5 – 10 minutes Suggested Formulations: Solution, Injection: • 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)
Ketorolac (Toradol) **Indications/Contraindications:** • 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.	**Pain Management** • 15 mg IV/IM (no repeat) Suggested Formulations: Solution, Injection, • Generic: 15 mg/mL (1 mL); 30 mg/mL (1 mL); 60 mg/2 mL (2 mL)

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Medication	Adult Protocol/Dosing

Lidocaine
Indications/Contraindications:
• Antiarrhythmic used for control of ventricular dysrhythmias.
• Anesthetic for nasotracheal intubation and intraosseous infusion.
	Cardiac Arrest
	• 1 – 1.5 mg/kg IV.
	  ○ Repeat dose 0.75 mg/kg up to a maximum dose of 3 mg/kg.
	Tachycardia
	• 1 – 1.5 mg/kg IV. (considered second-line therapy to Amiodarone).
	  ○ May repeat once in 5 minutes to maximum of 3mg/kg.
	  ○ If successful, consider a maintenance infusion of 1 – 4mg/minute.
	Nasotracheal Intubation
	• 2% lidocaine jelly.
	Intraosseous
	• 1 – 2.5 ml (20 – 50 mg) 2% lidocaine.

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Medication	Adult Protocol/Dosing
Lorazepam (Ativan) **Benzodiazepine** **Indications/Contraindications:** • Seizure control. • Sedation. • Anxiolytic.	**Analgesia and Sedation for Invasive Airway Device** • 1 – 2 mg IV every 15 minutes as needed (maximum 10 mg) **Behavioral Emergencies** • 0.5 mg IV, may repeat every 10 minutes to a total of 2 mg **Bradycardia** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **BiPAP** • 0.5 – 1 mg IV may repeat once in 5 minutes or; 1 – 2 mg IM may repeat once in 10 minutes **CPAP** • 0.5 – 1 mg IV may repeat once in 5 minutes or; 1 – 2 mg IM may repeat once in 10 minutes **Hospice – Anxiety:** • 0.25 – 2 mg PO or SL **Hyperthermia** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Nerve Agent** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Poisoning/Substance Abuse/OD** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Restraints** • 2 mg IM, may repeat once in 10 minutes; or 1 mg IV, may repeat once in 5 minutes **Seizure** • 2 – 4 mg IV every 5 minutes to a total of 8mg **Tachycardia** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Traumatic Brain Injury** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IN, may repeat once in 10 minutes. Suggested Formulations: Solution, Injection: • Generic: 2 mg/mL (1 mL, 10 mL); 4 mg/mL (1 mL, 10 mL) **Special Note Product should be refrigerated unless specified otherwise**

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Medication	Adult Protocol/Dosing
Magnesium Sulfate **Indications/Contraindications:** • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. • A smooth muscle relaxer used in refractory respiratory distress resistant to beta-agonists. • Torsades de Pointes.	**Asthma/COPD/RAD** • 2 grams in 100 ml NS given IV over 10 minutes. **Obstetrical Emergencies** • Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion **Seizure** • Magnesium sulfate, 4 grams IV (mix in 100 mL 0.9% NaCl) bolus over 10 minutes, then consider 1 gram/hr continuous infusion **.Cardiac Arrest/Tachycardia – Torsades de Pointes.** • 1 – 2 grams IV over 5 minutes. Suggested Formulations: Solution, Injection: • 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) Solution, Intravenous: • Generic: 10 mg/mL (100 mL); 20 mg/mL (500 mL **Special Note 1 g of magnesium sulfate = elemental magnesium 98.6 mg = magnesium 8.12 mEq = magnesium 4.06 mmol**
Methylprednisolone (Solu-medrol) **Indications/Contraindications:** • Steroid used in respiratory distress to reverse inflammatory and allergic reactions.	**Allergic Reaction** Extended Care • 125 mg IV. **Asthma/COPD/RAD** • 125 mg IV. Suggested Formulations: Solution Reconstituted, Injection, as sodium succinate: • Solu-MEDROL: 40 mg (1 ea); 125 mg (1 ea); 500 mg (1 ea); 1000 mg (1 ea)
Metoclopramide (Reglan) **Indications/Contraindications:** • Anti-Emetic used to control Nausea and/or Vomiting.	**Nausea/Vomiting** • 5mg IV. • May repeat once after 10 minutes if nausea/vomiting persists • Extended care, may repeat every 4 – 6 hours as needed. Suggested Formulations: Solution, Injection: Generic: 5 mg/mL (2 mL)

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Medication	Adult Protocol/Dosing
Metoprolol (Lopressor)	**Tachycardia** • 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. Suggested Formulations: Solution, Intravenous, as tartrate: • 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

Midazolam (Versed) Benzodiazepine
Indications/Contraindications:
• Seizure control
• Sedation
• Anxiolytic
• Antidote for ketamine
	Analgesia and Sedation for Invasive Airway Device
	• 1 – 5 mg IV every 5 – 10 minutes, as needed (in conjunction with fentanyl)
	  ○ Infusion 2.5 – 5 mg IV bolus followed by 5 – 30 mg/hour via IV pump titrated to effect
	Behavioral Emergencies
	• 2.5 mg IV/IM/IN, may repeat once in 10 minutes to a total of 5 mg
	Bradycardia
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	BiPAP
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	CPAP
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	Hospice – Anxiety:
	• 2.5 mg IN, repeat every 10 – 15 minutes as needed to a maximum of 6 mg
	Hyperthermia
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	Nerve Agent
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	Pain – Antidote for ketamine
	• 1 – 2 mg IV/IM every 5 minutes as needed
	Poisoning/Substance Abuse/OD
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 20 minutes.
	Rapid Sequence Intubation
	• 2 – 5 mg IV bolus followed by infusion via pump 5 – 30 mg/hour
	  ○ If infusion not used or if additional sedation is required: 2 -5 mg IV every 5 – 10 minutes as needed
	Seizure
	• Midazolam 10 mg IM (preferred route) every 10 minutes or 5 – 10 mg IV/IN every 5 minutes
	Restraints – Resistant or Aggressive Management (goal is alert & calm)
	2 – 5 mg IV/IM/IN, may repeat once in 10 minutes
	Restraints - Excited/Agitated Delirium (goal is safe and compliant)
	• 10 mg IV/IM/IN; (IM preferred route) may repeat once in 10 minutes
	Tachycardia
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	Traumatic Brain Injury
	• 2.5 mg IV/IN may repeat once in 5 minutes **OR**
	• 5 mg IM may repeat once in 10 minutes.
	
	Suggested Formulations:
	Solution, Injection
	• 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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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Morphine Sulfate **Indications/Contraindications:** • Narcotic analgesic • Avoid use if BP < 100 mmHg.	**Acute Coronary Syndrome** • 2 – 5 mg IV/IM every 5 minutes to a maximum of 15 mg titrated to pain and systolic BP remains >100 mmHg. **Hospice** • Per Pain Protocol **Pain** • 2 – 10mg IV/IM every 10 minutes to a total of 20 mg titrated to pain relief and if systolic BP is >100 mmHg. Suggested Formulations: Solution, Injection, as sulfate: • Generic: 2 mg/mL (1 mL); 10 mg/mL (1 mL)
Naloxone (Narcan) Narcotic Antagonist **Indications/Contraindications:** • Narcotic overdose.	**Pain** **Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone as directed in the Opioid Overdose Protocol **Opioid Overdose** • 1mg (1mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2mg OR • 4 mg (0.5 mL) commercially prepared nasal spray • Repeat every 5 – 10 minutes (maximum) 10 mg) until respiratory depression resolves and not necessarily until return of consciousness • 0.4 – 2.0 mg IV, repeat every 3 – 5 minutes (maximum 10 mg) until respiratory depression resolves and not necessarily until return of consciousness • 0.4 – 2.0 IM, repeat every 5 – 10 minutes (maximum 10 mg) until respiratory depression resolves and not necessarily until return of consciousness Suggested Formulations: Solution, Injection, as hydrochloride • Generic: 1 mg/mL (2 mL) Solution Auto-injector, Injection, as hydrochloride: • Evzio: 0.4 mg/0.4 mL (0.4 mL)

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Nitroglycerin Indications/Contraindications: • Vasodilator used in the treatment of CHF and chest pain secondary to acute coronary syndrome • Infusion pump required for infusion.	**Acute Coronary Syndrome** • 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 • 0.4 mg 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). ▪ Increase IV nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic remains >100 mmHg. **Congestive Heart Failure** For patients with known history of congestive heart failure, consider: • For systolic BP of 140 - 160 mmHg: nitroglycerin 0.4 mg SL. • For systolic BP of 160 - 200 mmHg: nitroglycerin 0.8 mg SL (2 tabs/sprays). • For systolic BP > 200 mmHg: nitroglycerin 1.2 mg SL (3 tabs/sprays). • The above doses may be repeated every 5 minutes until symptomatic improvement or systolic BP of 140 mmHg. • Assess blood pressure every 3 – 5 minutes during nitroglycerin administration Titrate until symptomatic improvement or systolic BP of 140 mmHg. • For systolic BP of 140 - 160 mmHg: IV nitroglycerin start at 50 micrograms/minute. • For systolic BP of 160 - 200 mmHg: IV nitroglycerin start at 100 micrograms/minute. • For systolic BP > 200 mmHg: nitroglycerin start at 200 micrograms/minute. Note: It is recommended two (2) IV lines in place and the IV nitroglycerin must be on an infusion pump. Generally, accepted maximum dose: 400 micrograms/minute
Nitrous Oxide **Indications/Contraindications:** • "non-narcotic analgesic gas • Contraindicated in abdominal pain, pneumothorax, head injury, or diving emergency patients.	**Pain** • Patient self administers gas for pain control as needed

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Norepinephrine (Levophed) **Indications/Contraindications:** • Alpha and Beta 1 receptor adronergic receptor agonist vasopressor • Infusion pump required.	**Bradycardia** • Infusion 1 – 30 microgram/minute via pump **Non – Traumatic Shock** If there is not adequate hemodynamic response after 2,000 mL IV fluid infused, consider: • Infusion 1 - 30 micrograms/minute via pump Cardiogenic Shock • Infusion 1 – 30 micrograms/minute via pump **Post Resuscitation Care** • Infusion 1 – 30 microgram/min via pump **Sepsis & Advanced Sepsis** • Infusion 1 – 30 microgram/minute via pump Suggested Formulations: Solution, Intravenous [strength expressed as base]: • Levophed: 1 mg/mL (4 mL) [contains sodium metabisulfite] • Generic: 1 mg/mL (4 mL)
Ondansetron (Zofran) Anti-emetic **Indications/Contraindications:** • Anti-Emetic used to control Nausea and/or Vomiting.	**Nausea/Vomiting** • 4 mg by mouth or IV/PO/IM Tablet Dispersible, Oral: • Zofran ODT: 4 mg, • Generic: 4 mg, Solution, Injection [preservative free]: • Generic: 4 mg/2 mL (2 mL)
Oxygen **Indications/Contraindications:** • 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 94 - 98%. • Indicated for pre-oxygenation whenever possible prior to endotracheal intubation. Goal oxygen saturation 100%.	• 1-4 liters/min via nasal cannula. • 6-15 liters/min via NRB mask. • 15 liters via BVM / ETT / supraglottic airway.
Oxytocin (Pitocin) **Indications/Contraindications:** Routine administration after placental delivery	**Obstetrical & Childbirth** • Oxytocin 10 units IM.

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Pralidoxime (2-PAM) **Indications/Contraindications:** • Antidote for Nerve Agents or Organophosphate Overdose. • Administered with Atropine.	**Nerve Agent** • 1 – 2 grams in 50 – 250 mL of 0.9% NaCl, over 15 – 30 minutes (pump not required), may repeat within 1 hour if muscle weakness and fasciculations are not relieved. Additional doses may be needed every 3 – 8 hours, if signs of poisoning recur. • **Medical Control:** Maintenance infusion: up to 500mg per hour (maximum of 12 grams/day).
Prochlorperazine (Compazine) **Indications/Contraindications:** • Anti-Emetic used to control Nausea and/or Vomiting.	**Nausea/Vomiting** • 5 – 10 mg IV, or 5mg IM. Nausea/Vomiting Extended Care • Repeat IM every 4 – 6 hours, as needed Suggested Formulations: Solution, Injection, as edisylate [strength expressed as base]: • Generic: 5 mg/mL (2 mL, 10 mL)
Proparacaine (Alcaine) **Indications/Contraindications:** • Topical anesthetic	**Eye & Dental** • 2 drops to affected eye; repeat every 5 minutes as needed. Suggested Formulations: Solution, Ophthalmic, as hydrochloride: • Alcaine: 0.5% (15 mL) • Parcaine: 0.5% (15 mL) • Generic: 0.5% (15 mL)
Rocuronium **Indications/Contraindications:** • Non-depolarizing paralytic agent used as a component of rapid sequence intubation, when succinylcholine is contraindicated and for post intubation paralysis..	**Rapid Sequence Intubation** • 1mg/kg IBW IV. Suggested Formulations: Solution, Intravenous, as bromide: • 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)

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Sodium Bicarbonate **Indications/Contraindications:** • A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose.	**Cardiac Arrest** 2 mEq/kg IV **Crush Injuries** 1 mEq/kg (maximum dose of 50 mEq) IV/IO bolus over 5 minutes Extended Care Secondary to initial bolus, consider sodium bicarbonate infusion: 150 mEq in1000 mL 0.9 % NaCl or D5W at a rate of 250 mL/hr or 4 mL/min **Restraints** • If cardiac arrest occurs with suspected excited delirium, consider early administration of: fluid bolus, sodium bicarbonate, calcium chloride/gluconate, see Cardiac Arrest Protocol 3.2A. **Poisoning/Substance Abuse/OD** **Tricyclic with symptomatic dysrhythmias, (eg. tachycardia and wide QRS):** • 2 mEq/kg IV.
Succinylcholine Paralytic Agent **Indications/Contraindications:** • 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.	**Rapid Sequence Intubation** • 1.5mg/kg IV, maximum 150mg Suggested Formulations: Solution, Injection, as chloride: • Generic: 20 mg/mL (10 mL) [contains methylparaben] • Quelicin: 20 mg/mL (10 mL)
Tetracaine **Indications/Contraindications:** Topical anesthetic	**Eye & Dental** • 2 drops to affected eye; repeat every 5 minutes as needed. Suggested Formulations: • Generic: 0.5% (1 mL, 2 mL, 15 mL)

NH Adult Medication Reference

This document is to serve as a reference for the NH Patient Care Protocols, Version 8.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Tranexamic Acid (TXA) Indications/Contraindications: Evidence of significant trauma Evidence of severe bleeding The presence of hemodynamic instability **AND** The injury occurred within the past 3 hours in patients greater than 15 years old without a known allergy to TXA, without an isolated head injury, who has not or will not be receiving factors and is not pregnant with a viable fetus.	**Hemorrhage Control** • Mix 1 gram TXA in 50 - 100mL 0.9% NaCl or LR. Infuse over approximately 10 minutes IV or IO. Notify receiving facility of TXA administration prior to arrival. **Obstetrical Emergencies** • Mix 1 gram TXA in 50 - 100mL 0.9% NaCl or LR. Infuse over approximately 10 minutes IV or IO. Notify receiving facility of TXA administration prior to arrival. **Shock – Trauma** • Consider tranexamic acid see, Hemorrhage Control Protocol 4.4

NH Adult Drip Rate Reference

Epinephrine	
Preparation: **1 mg in 250 mL** NaCl 0.9% Concentration: 4 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion (mL/hr)
2 mcg/min	30 mL/hr
3 mcg/min	45 mL/hr
4 mcg/min	60 mL/hr
5 mcg/min	75 mL/hr
6 mcg/min	90 mL/hr
7 mcg/min	105 mL/hr
8 mcg/min	120 mL/hr
9 mcg/min	135 mL/hr
10 mcg/min	150 mL/hr

Epinephrine	
Preparation: **1 mg in 500 mL** NaCl 0.9% Concentration: 2 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion (mL/hr)
2 mcg/min	60 mL/hr
3 mcg/min	90 mL/hr
4 mcg/min	120 mL/hr
5 mcg/min	150 mL/hr
6 mcg/min	180 mL/hr
7 mcg/min	210 mL/hr
8 mcg/min	240 mL/hr
9 mcg/min	270 mL/hr
10 mcg/min	300 mL/hr

Epinephrine	
Preparation: **1 mg in 1000 mL** NaCl 0.9% Concentration: 1 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion (mL/hr)
2 mcg/min	120 mL/hr
3 mcg/min	180 mL/hr
4 mcg/min	240 mL/hr
5 mcg/min	300 mL/hr
6 mcg/min	360 mL/hr
7 mcg/min	420 mL/hr
8 mcg/min	480 mL/hr
9 mcg/min	540 mL/hr
10 mcg/min	600 mL/hr

Norepinephrine (Levophed)	
Preparation: **4 mg in 500 mL** NaCl 0.9% Concentration: 8 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion(mL/hr)
2 mcg/min	15
4 mcg/min	30
6 mcg/min	45
8 mcg/min	60
10 mcg/min	75
12 mcg/min	90
14 mcg/min	105
16 mcg/min	120
18 mcg/min	135
20 mcg/min	150
22 mcg/min	165
24 mcg/min	180
26 mcg/min	195
28 mcg/min	210
30 mcg/min	225

Norepinephrine (Levophed)	
Preparation: **4 mg in 1000 mL** NaCl 0.9% Concentration: 4 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion(mL/hr)
2 mcg/min	30
4 mcg/min	60
6 mcg/min	90
8 mcg/min	120
10 mcg/min	150
12 mcg/min	180
14 mcg/min	210
16 mcg/min	240
18 mcg/min	270
20 mcg/min	300
22 mcg/min	330
24 mcg/min	360
26 mcg/min	390
28 mcg/min	420
30 mcg/min	450

NH Adult Drip Rate Reference

Nitroglycerin	
Preparation: **50 mg in 250 mL** Concentration: 200 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion (mL/hr)
10 mcg/min	3 mL/hr
20 mcg/min	6 mL/hr
30 mcg/min	9 mL/hr
40 mcg/min	12 mL/hr
50 mcg/min	15 mL/hr
60 mcg/min	18 mL/hr
70 mcg/min	21 mL/hr
80 mcg/min	24 mL/hr
90 mcg/min	27 mL/hr
100 mcg/min	30 mL/hr
120 mcg/min	36 mL/hr
140 mcg/min	42 mL/hr
160 mcg/min	48 mL/hr
180 mcg/min	54 mL/hr
200 mcg/min	60 mL/hr
250 mcg/min	75 mL/hr
300 mcg/min	90 mL/hr
350 mcg/min	105 mL/hr
400 mcg/min	120 mL/hr

ACS – start at 10; increase by 10 q 5 min
CHF – 140-160 50mcg/min, 160-200 100 mcg/min, >200 – 200 mcg/min

Nitroglycerin	
Preparation: **100 mg in 250 mL** Concentration: 400 mcg/mL	
Dose wanted (mcg/min)	Rate for Infusion (mL/hr)
10 mcg/min	1.5 mL/hr
20 mcg/min	3 mL/hr
30 mcg/min	4.5 mL/hr
40 mcg/min	6 mL/hr
50 mcg/min	7.5 mL/hr
60 mcg/min	9 mL/hr
70 mcg/min	10.5 mL/hr
80 mcg/min	12 mL/hr
90 mcg/min	13.5 mL/hr
100 mcg/min	15 mL/hr
120 mcg/min	18 mL/hr
140 mcg/min	21 mL/hr
160 mcg/min	24 mL/hr
180 mcg/min	27 mL/hr
200 mcg/min	30 mL/hr
250 mcg/min	37.5 mL/hr
300 mcg/min	45 mL/hr
350 mcg/min	52.5 mL/hr
400 mcg/min	60 mL/hr

ACS – start at 10; increase by 10 q 5 min
CHF – 140-160 50mcg/min, 160-200 100 mcg/min, >200 200 mcg/min

NH Adult Drip Rate Reference

Cardizem (Diltiazem)	
Preparation: **25 mg in 100 mL** NaCl 0.9% Concentration: 0.25 mg/mL	
Dose wanted (mg/hr)	Rate for Infusion (mL/hr)
5 mg/hr	20 mL/hr
10 mg/hr	40 mL/hr
15 mg/hr	60 mL/hr

Lidocaine	
Preparation: **2 grams in 500 mL** Concentration: 4 mg/mL	
1 mg/min	15 mL/hr
2 mg/min	30 mL/hr
3 mg/min	45 mL/hr
4 mg/min	60 mL/hr

Midazolam	
Preparation: **5 mg in 250 mL** Concentration: 0.02 mg/mL	
2 mg/hr	100 mL/hr
3 mg/hr	150 mL/hr
4 mg/hr	200 mL/hr
5 mg/hr	250 mL/hr

Pediatric Color Coded Appendix

Weight 3-5 Kg (Avg 4.0 Kg)

Length < 59.5 cm

Gray (0-3 months)

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

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

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

Normal Saline 40-80 ml

Acetaminophen	60 mg
Adenosine:	
1st Dose-	0.4 mg
Repeat Dose-	0.8 mg
Activated Charcoal	4.2grams

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%	20 mL
Diazepam (IV)	0.5 mg
(Rectal)	2.0 mg
Diphenhydramine	HOLD
Epinephrine 1:10,000	0.04 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	HOLD
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	10 mg
Hydromorphone	0.04 mg
Hydroxocobalamin	280 mg (11.2 mL)
Ibuprofen	HOLD

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	4 mg
- Intraosseous	2 mg
Lorazepam	0.4 mg
Magnesium Sulfate	
- Asthma	150 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 – IN	1 mg
Ondansetron - IV	0.4 mg
- ODT	2 mg
Pralidoxime IV	60 mg
Proparacaine	2 drops
Sodium Bicarbonate	8 mEq
Tetracaine	2 drops

Weight 6-7 Kg (Avg 6.5 Kg)

Length 59.5-66.5 cm

Pink (3-6 Months)

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

Equipment
ET Tube: 3.5
Blade Size: 1

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

Normal Saline 65-130 ml

Acetaminophen	97.5 mg
Adenosine:	
1st Dose-	0.65 mg
Repeat Dose-	1.3 mg
Activated Charcoal	6.3 grams

Albuterol	2.5 mg
Amiodarone	30 mg
Atropine- Bradycardia	0.12 mg
- Organophosphate Poison	0.320 mg
Calcium Chloride	120 mg
Calcium Gluconate	600mg
Dexamethasone	4 mg
Dextrose 10%	35 mL
Diazepam (IV)	0.5 mg
(Rectal)	3 mg
Diphenhydramine	HOLD
Epinephrine 1:10,000	0.06 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	HOLD
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	15 mg
Hydromorphone	0.065 mg
Hydroxocobalamin	450 mg (18 mL)
Ibuprofen	HOLD

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	6 mg
- Intraosseous	3 mg
Lorazepam	0.65 mg
Magnesium Sulfate	
- Asthma	250mg
- Torsades	300 mg
Methylprednisolone	
1mg/kg	8 mg
2mg/kg	12 mg
Midazolam (0.1mg/kg)	0.6 mg
Morphine Sulfate	0.6 mg
Naloxone – IN	1 mg
Ondansetron - IV	0.6mg
- ODT	2 mg
Pralidoxime IV	100 mg
Proparacaine	2 drops
Sodium Bicarbonate	13 mEq
Tetracaine	2 drops

Weight 8-9 Kg (Avg 8.5 Kg)

Length 66.5-74 cm

Red (7-10 Months)

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

Equipment
ET Tube: 3.5 -4.0
Blade Size: 1

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

Normal Saline 85-170 ml

Acetaminophen	120 mg
Adenosine:	
1st Dose-	0.85 mg
Repeat Dose-	1.7 mg
Activated Charcoal	8.3grams

Albuterol	2.5 mg
Amiodarone	40 mg
Atropine- Bradycardia	0.18 mg
- Organophosphate Poison	0.420 mg
Calcium Chloride	180 mg
Calcium Gluconate	800mg
Dexamethasone	5 mg
Dextrose 10%	45 mL
Diazepam (IV)	1 mg
(Rectal)	4 mg
Diphenhydramine	HOLD
Epinephrine 1:10,000	0.08 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	10 mcg
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	18 mg
Hydromorphone	0.085 mg
Hydroxocobalamin	595 mg (23.8 mL)
Ibuprofen	HOLD

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	8 mg
- Intraosseous	4 mg
Lorazepam	0.8 mg
Magnesium Sulfate	
- Asthma	350 mg
- Torsades	400 mg
Methylprednisolone	
1mg/kg	8 mg
2mg/kg	16 mg
Midazolam (0.1mg/kg)	0.8 mg
Morphine Sulfate	0.8 mg
Naloxone – IN	1 mg
Ondansetron - IV	0.8 mg
- ODT	2 mg
Pralidoxime IV	128 mg
Proparacaine	2 drops
Sodium Bicarbonate	21 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm | **Purple (11-18 Months)**

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:	
1st Dose-	1.05 mg
Repeat Dose-	2.1 mg
Activated Charcoal	10.4 grams

Albuterol	2.5 mg
Amiodarone	50 mg
Atropine- Bradycardia	0.2 mg
- Organophosphate Poison	0.5 mg
Calcium Chloride	200 mg
Calcium Gluconate	1000 mg
Dexamethasone	6 mg
Dextrose 10%	55 mL
Diazepam (IV)	1 mg
(Rectal)	5 mg
Diphenhydramine	10 mg
Epinephrine 1:10,000	0.1 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	10 mcg
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	20 mg
Hydromorphone	0.1 mg
Hydroxocobalamin	740 mg (29.5 mL)
Ibuprofen	100 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	12 mg
- Intraosseous	6 mg
Lorazepam	1 mg
Magnesium Sulfate	
- Asthma	400 mg
- Torsades	550 mg
Methylprednisolone	
1mg/kg	12 mg
2mg/kg	20 mg
Midazolam (0.1mg/kg)	1 mg
Morphine Sulfate	1 mg
Naloxone - IN	1 mg
Ondansetron - IV	1 mg
- ODT	2 mg
Pralidoxime IV	160 mg
Proparacaine	2 drops
Sodium Bicarbonate	21 mEq
Tetracaine	2 drops

Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm | **Yellow (19-35 Months)**

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:	
1st 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	1300 mg
Dexamethasone	8 mg
Dextrose 10%	65 mL
Diazepam (IV)	1.5 mg
(Rectal)	6 mg
Diphenhydramine	20 mg
Epinephrine 1:10,000	0.12 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	15 mcg
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	25 mg
Hydromorphone	0.13 mg
Hydroxocobalamin	900 mg (36 mL)
Ibuprofen	130 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	12 mg
- Intraosseous	6 mg
Lorazepam	1.4 mg
Magnesium Sulfate	
- Asthma	550 mg
- Torsades	650 mg
Methylprednisolone	
1mg/kg	12 mg
2mg/kg	28 mg
Midazolam (0.1mg/kg)	1.3 mg
Morphine Sulfate	1.2 mg
Naloxone – IN	1 mg
Ondansetron - IV	1.4 mg
- ODT	2 mg
Pralidoxime IV	200 mg
Proparacaine	2 drops
Sodium Bicarbonate	26 mEq
Tetracaine	2 drops

Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm | **White (3-4 yrs)**

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:	
1st Dose-	1.65 mg
Repeat Dose-	3.3 mg
Activated Charcoal	16.7 grams

Albuterol	2.5 mg
Amiodarone	80 mg
Atropine- Bradycardia	0.3 mg
- Organophosphate Poison	0.8 mg
Calcium Chloride	320 mg
Calcium Gluconate	1600mg
Dexamethasone	10 mg
Dextrose 10%	85 mL
Diazepam (IV)	2 mg
(Rectal)	8 mg
Diphenhydramine	20 mg
Epinephrine 1:10,000	0.16 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	16 mcg
Glucagon	0.5 mg
Glucose Oral	15 gm tube
Hydrocortisone	30 mg
Hydromorphone	0.165 mg
Hydroxocobalamin	1150 mg (46 mL)
Ibuprofen	130 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	16 mg
- Intraosseous	8 mg
Lorazepam	1.6 mg
Magnesium Sulfate	
-Asthma	650 mg
- Torsades	850 mg
Methylprednisolone	
1mg/kg	16 mg
2mg/kg	32 mg
Midazolam (0.1mg/kg)	1.6 mg
Morphine Sulfate	1.6 mg
Naloxone – IN	1 mg
Ondansetron - IV	1.6 mg
- ODT	4 mg
Pralidoxime IV	250 mg
Proparacaine	2 drops
Sodium Bicarbonate	33 mEq
Tetracaine	2 drops

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:	
1st Dose-	2.075 mg
Repeat Dose-	4.15 mg
Activated Charcoal	20.8 grams

Albuterol	2.5 mg
Amiodarone	105 mg
Atropine- Bradycardia	0.4 mg
- Organophosphate Poison	1 mg
Calcium Chloride	400 mg
Calcium Gluconate	2 grams
Dexamethasone	10 mg
Dextrose 10%	105 mL
Diazepam (IV)	2 mg
(Rectal)	10 mg
Diphenhydramine	30 mg
Epinephrine 1:10,000	0.2 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.15 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	20 mcg
Glucagon	0.2 mg
Glucose Oral	15 gm tube
Hydrocortisone	40 mg
Hydroxocobalamin	1450 mg (58 mL)
Ibuprofen	205 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	20 mg
- Intraosseous	10 mg
Lorazepam	2 mg
Magnesium Sulfate	
- Asthma	850 mg
- Torsades	1050 mg
Methylprednisolone	
1mg/kg	20 mg
2mg/kg	40 mg
Midazolam (0.1mg/kg)	2 mg
Morphine Sulfate	2 mg
Naloxone – IN	2 mg
Ondansetron - IV	2 mg
- ODT	4 mg
Pralidoxime IV	320 mg
Proparacaine	2 drops
Sodium Bicarbonate	41mEq
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:	
1st Dose-	2.7 mg
Repeat Dose-	5.4 mg
Activated Charcoal	27 grams

Albuterol	2.5 mg
Amiodarone	140 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.2 mg
Calcium Chloride	540 mg
Calcium Gluconate	2 grams
Dexamethasone	10 mg
Dextrose 10%	135 mL
Diazepam (IV)	3 mg
(Rectal)	13 mg
Diphenhydramine	40 mg
Epinephrine 1:10,000	0.22 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.3 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	25 mcg
Glucagon	0.27 mg
Glucose Oral	15 gm tube
Hydrocortisone	50 mg
Hydromorphone	1 mg
Hydroxocobalamin	1890 mg (75.6 mL)
Ibuprofen	270 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	28 mg
- Intraosseous	14 mg
Lorazepam	2.8 mg
Magnesium Sulfate	
- Asthma	1100 mg
- Torsades	1350 mg
Methylprednisolone	
1mg/kg	28 mg
2mg/kg	56 mg
Midazolam (0.1mg/kg)	2.7 mg
Morphine Sulfate	2.8 mg
Naloxone – IN	2 mg
Ondansetron - IV	2.8 mg
- ODT	4 mg
Pralidoxime IV	400 mg
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:	
1st 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	2 grams
Dexamethasone	10 mg
Dextrose 10%	180 mL
Diazepam (IV)	3.5 mg
(Rectal)	18 mg
Diphenhydramine	50 mg
Epinephrine 1:10,000	0.36 mg
Epinephrine 1:1000 Nebulized	3 mg
Epinephrine 1:1000 IM	0.3 mg
Epinephrine (Racemic 2.25%)	0.5 mL
Fentanyl	40 mcg
Glucagon	1 mg
Glucose Oral	15 gm tube
Hydrocortisone	70 mg
Hydromorphone	0.36 mg
Hydroxocobalamin	2520 mg (100.8 mL)
Ibuprofen	360 mg

Ipratropium w/ albuterol	500 mcg
Lidocaine:	
- Cardiac Arrest	36 mg
- Intraosseous	18 mg
Lorazepam	3.6 mg
Magnesium Sulfate	
- Asthma	1450 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 – IN	2 mg
Ondansetron - IV	3.6 mg
- ODT	4 mg
Pralidoxime IV	540 mg
Proparacaine	2 drops
Sodium Bicarbonate	72 mEq
Tetracaine	2 drops

Green (10-12 yrs)

Pediatric Epinephrine: 1 mg in 100 mL = 10 mcg/mL
Protocol dosing: 0.1-1 mcg/kg/min

DOSE	4kg	6.5kg	8.5kg	10.5kg	13kg	16.5kg	20.75kg	27kg	36kg
	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr
0.1	2.4	3.9	5.1	6.3	7.8	9.9	12.5	16.2	21.6
0.2	4.8	7.8	10.2	12.6	15.6	19.8	24.9	32.4	43.2
0.3	7.2	11.7	15.3	18.9	23.4	29.7	37.4	48.6	64.8
0.4	9.6	15.6	20.4	25.2	31.2	39.6	49.8	64.8	86.4
0.5	12.0	19.5	25.5	31.5	39.0	49.5	62.3	81.0	108.0
0.6	14.4	23.4	30.6	37.8	46.8	59.4	74.7	97.2	129.6
0.7	16.8	27.3	35.7	44.1	54.6	69.3	87.2	113.4	151.2
0.8	19.2	31.2	40.8	50.4	62.4	79.2	99.6	129.6	172.8
0.9	21.6	35.1	45.9	56.7	70.2	89.1	112.1	145.8	194.4
1.0	24.0	39.0	51.0	63.0	78.0	99.0	124.5	162.0	216.0

Pediatric Norepinephrine (LEVOPHED): 4 mg in 100 mL = 40 mcg/mL
Protocol dosing: 0.1-2 mcg/kg/min

DOSE	4kg	6.5kg	8.5kg	10.5kg	13kg	16.5kg	20.75kg	27kg	36kg
	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr	mL/hr
0.1	0.6	1.0	1.3	1.6	1.9	2.5	3.1	4.0	5.4
0.2	1.2	2.0	2.6	3.1	3.9	4.9	6.2	8.1	10.8
0.3	1.8	2.9	3.8	4.7	5.9	7.4	9.3	12.1	16.2
0.4	2.4	3.9	5.1	6.3	7.8	9.9	12.4	16.2	21.6
0.5	3.0	4.9	6.4	7.9	9.8	12.4	15.6	20.2	27.0
0.6	3.6	5.9	7.6	9.5	11.7	14.9	18.7	24.3	32.4
0.7	4.2	6.8	8.9	11.0	13.6	17.3	21.8	28.4	37.8
0.8	4.8	7.8	10.2	12.6	15.6	19.8	24.9	32.4	43.2
0.9	5.4	8.8	11.5	14.2	17.5	22.3	28.0	36.5	48.6
1.0	6.0	9.8	12.7	15.8	19.5	24.8	31.1	40.5	54.0
1.1	6.6	10.7	14.0	17.3	21.4	27.2	34.2	44.5	59.4
1.2	7.2	11.7	15.3	18.9	23.4	29.7	37.3	48.6	64.8
1.3	7.8	12.7	16.6	20.5	25.3	32.2	40.5	52.7	70.2
1.4	8.4	13.6	17.8	22.0	27.3	34.6	43.6	56.7	75.0
1.5	9.0	14.6	19.1	23.6	29.2	37.1	46.7	60.8	81.0
1.6	9.6	15.6	20.4	25.2	31.2	39.6	49.8	64.8	86.4
1.7	10.2	16.6	21.7	26.8	33.2	42.1	52.9	68.9	91.8
1.8	10.8	17.6	22.9	28.4	35.1	44.5	56.0	72.9	97.2
1.9	11.4	18.5	24.2	29.9	37.0	47.0	59.1	77.0	102.6
2.0	12.0	19.5	25.5	31.5	39.0	49.5	62.2	81.0	108.0

Pediatric Vital Signs

Normal Heart Rates by age			
Age	**Awake Rate**	**Mean**	**Sleeping Rate**
Newborn to 3 months	85-205	140	80-160
3 months to 2 years	100-190	130	75-160
2 years to 10 years	60-140	80	60-90
>10 years	60-100	75	50-90

Normal Respiratory Rates by age	
Age	**Breaths per Minute**
Infant (<1 year)	30-60
Toddler (1-3 years)	24-40
Preschooler (4-5 years)	22-34
School-age child (6-12 years)	18-30
Adolescent > 12	12-16

Normal Blood Pressures by age				
Age	**Systolic Blood Pressure (mmHg)**		**Diastolic Blood Pressure (mmHg)**	
	Female	**Male**	**Female**	**Male**
Neonate (1 day)	60-76	60-74	31-45	30-44
Neonate (4 days)	67-83	68-84	37-53	35-53
Infant (1 month)	73-91	74-94	36-56	37-55
Infant (3 months)	78-100	81-103	44-64	45-65
Infant (6 months)	82-102	87-105	46-66	48-68
Child (2 years)	88-105	88-106	45-63	42-61
Child (7 years)	96-113	97-115	57-75	57-76
Adolescent (15 years)	110-127	113-131	65-83	64-83

Threshold by age of Systolic Blood Pressure Indicating Hypotension	
Age	**Systolic Blood Pressure**
Term neonates (0-28)	Less than 60 mmHg
Infant (1-12 months)	Less than 70 mmHg
Children 1-10 years	Less than 70 + (age in years x 2) mmHg
Children > 10	Less than 90 mmHg

Equipment	GRAY 3-5 Kg	PINK 6-7	RED 8-9 Kg	PURPLE 10-11 Kg	YELLOW 12-14 Kg	WHITE 15-18 Kg	BLUE 19-23 Kg	ORANGE 24-29 Kg	GREEN 30-36 Kg
BVM	Anesthesia Bag/Infant	Infant	Infant	Pedi	Pedi	Pedi	Pedi	Pedi	Adult
NRB	Infant	Infant	Infant	Pedi	Pedi	Pedi	Pedi	Pedi	Adult
Oral airway	40-50	50	50	60	60	60	70	80	80
NPA	14	14 - 15	14 - 15	18	20	22	24	26	26
Laryng blade (size)	1 Straight	1 Straight	1 Straight	1-1.5 Straight	2 Straight or curved	2 Straight	2 Straight or curved	2 Straight or curved	3 Straight or curved
ET tube (mm)	3-3.5 Uncuff	3.5 Uncuff 3 Cuff	3.5 Uncuff 3 Cuff	4.0 Uncuff 3.5 Cuff	4.5 Uncuff 4.0 Cuff	5.0 Uncuff 4.5 Cuff	5.5 Uncuff 5.0 Cuff	6.0 Cuffed	6.5 Cuffed
ETT insertion Length (cm)	3k: 9-9.5 4k: 9.5 - 10 5K: 10 - 10.5	10.5 - 11	10.5 - 11	11 - 12	12.5 - 13.5	14 - 15	15.5 - 16.5	17 - 18	18.5 - 19.5
Suction Catheter	8	8	8	8	10	10	10	10	10-12
BP cuff	Neo # 2- 4	Infant/ Pedi	Infant/ Pedi	Pedi	Pedi	Pedi	Pedi	Pedi	Small Adult
IV catheter	24G (14mm)	22 - 24	22 - 24	20 - 24	18 - 22	18 - 22	18 - 20	18 - 20	16 - 20
NG tube (F)	5-8	5 - 8	5 - 8	8 - 10	10	10	12 - 14	14 - 18	16 - 18
Urinary Catheter	5	8	8	8 - 10	10	10 - 12	10 -12	12	12
Chest Tube	10-12	10-12	10-12	16-20	20-24	20-24	24-28	28-32	32-38

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
BiPAP				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.*

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			**Interfacility Transfers**	**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			**X 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.*

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
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.***

PEDIATRIC Scope of Practice

Airway Management	EMR	EMT	AEMT	PARAMEDIC
BVM	X	X	X	X
Cleared, Opened, Heimlich	X	X	X	X
CPAP		*	*	X
Endotracheal Intubation				X
Endotracheal Suctioning			X	X
Nasogastric Tube				X
Nasopharyngeal Airway		X	X	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
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.*

PEDIATRIC Scope of Practice

Medication Administration Route	EMR	EMT	AEMT	PARAMEDIC
Auto Injector		X	X	X
Endotracheal				X
Inhalation		MDI	X	X
Intramuscular			X	X
Intraosseous			X	X
Intravenous			X	X
Intravenous Pump			Interfacility transfers	X
Oral		X	X	X
Rectal		Assist Diastat	Assist Diastat	X
Subcutaneous			X	X
Vascular Access	**EMR**	**EMT**	**AEMT**	**PARAMEDIC**
Blood Draw				X
Blood Glucose Analysis		*	X	X
Central Line Access				X
Intraosseous			X	X
Peripheral Venous Access			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.***

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.***

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.***

NEW HAMPSHIRE

HIPAA PERMITS DISCLOSURE TO HEALTH PROFESSIONALS INVOLVED IN THE PATIENT'S CARE

Provider Orders for Life-Sustaining Treatment (POLST)

This is a Physician/APRN Order Sheet. First follow these orders, then 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.

Patient Last Name	
Patient First Name/Middle Initial	
Date of Birth (mm/dd/yyyy) _____,_____, _____	Gender _____

Section A *Check One*

Cardiopulmonary Resuscitation (CPR): Patient has no pulse and/or is not breathing.

☐ **YES, Attempt CPR**

☐ **NO, Do Not Attempt Resuscitation/DNR** Follow orders in B, C and D when not in cardiopulmonary arrest.

This will constitute a DNR order, and no separate DNR Order will be required.

Section B *Check One*

Interventions:

☐ **Full Treatment** – Includes treatment described below, use intubation, advanced airway interventions, mechanical ventilation, and cardioversion as indicated. Transfer to hospital if indicated. Includes intensive care. **Treatment Plan: Full treatment including life support measures in the intensive care unit.**

☐ **Selective Interventions** – Includes treatments described below. Use medical treatment, IV fluids and cardiac monitor as indicated. Do not use intubation, advanced airway interventions, or mechanical ventilation. Transfer to hospital level of treatment to meet need, if indicated. Avoid intensive care. **Treatment Plan: Provide basic medical treatments.**

☐ **Comfort-focused Care** – Use medication by any route, positioning, wound care, oxygen, and other measures to relieve pain and discomfort. Patient prefers no transfer to hospital for life-sustaining treatment. Transfer only if comfort needs cannot be met in current location. **Treatment Plan: Maximize comfort through symptom management.**

Other Orders (e.g. time limited treatment, hospice evaluation, etc.):

_____

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.

☐ IV fluids long-term for hydration and nutrition	☐ Feeding tube long-term
☐ IV fluids for a defined trial period	☐ Feeding tube for a defined trial period
☐ No IV Fluids for hydration and nutrition	☐ No feeding tube

Section D *Check One*

☐ Antibiotics if life prolonging ☐ No antibiotics ☐ Antibiotics only if likely to contribute to comfort

Section E *Check All That Apply*

The basis for these orders is:

☐ Patient	☐ Parent(s) of minor
☐ DPOAH agent	☐ Surrogate
☐ Court-appointed guardian	☐ Other (specify):_____

This order has been discussed with the patient named above (or agent, guardian, or parent named below), who has given consent as evidenced by signature below.

Documentation of discussion is located in medical chart at:	**Date of Discussion:**

Mandatory Signature of Patient or Activated DPOAH, Guardian, Surrogate or Parent of Minor, and Physician/ARPN

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:** (Mandatory)	

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 in a Health Care facility.**
- **At any time a patient at home or agent or guardian may revoke this POLST by destroying it.**

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.
FAX OR PHOTOCOPY SHALL BE REGARDED AS VALID IF CONSISTENT WITH FACILITY OR AGENCY POLICY.

Foundation *for* Healthy Communities