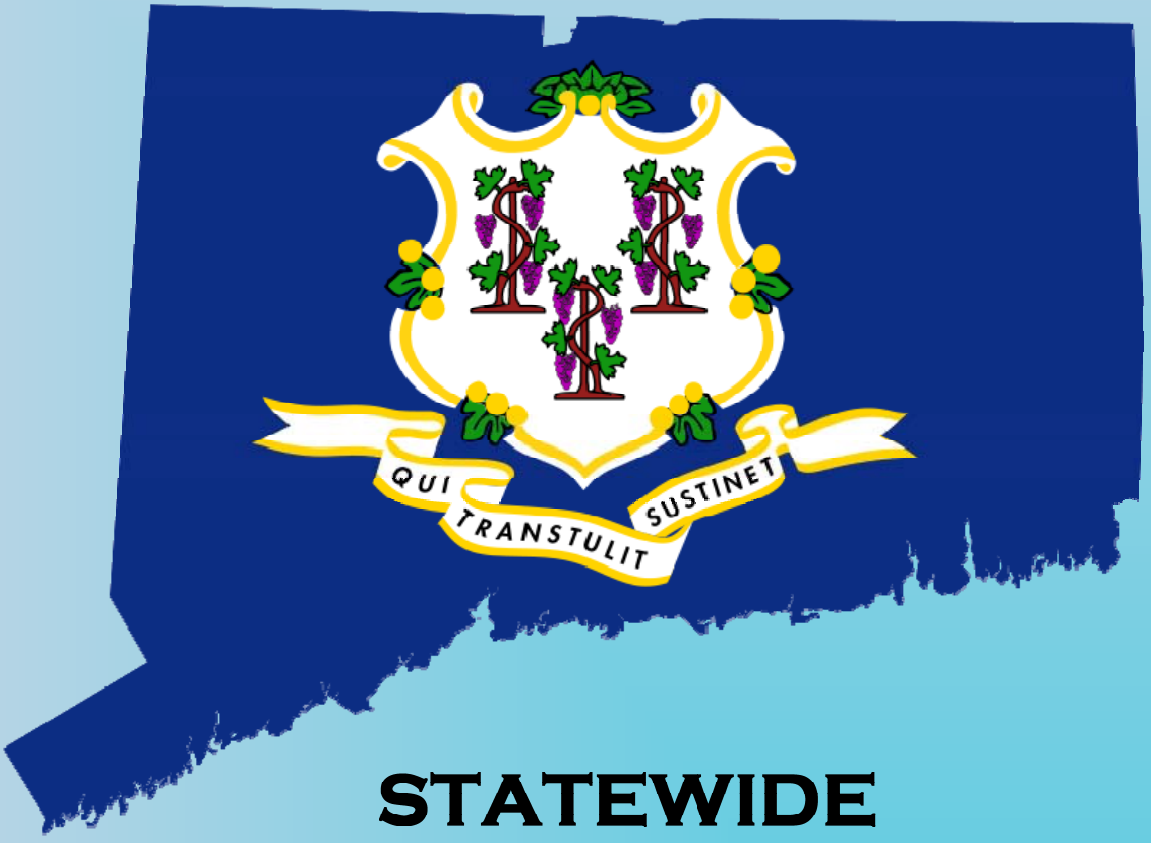
CONNECTICUT



STATEWIDE EMERGENCY MEDICAL SERVICES PROTOCOLS

v2025.1

Connecticut Department of Public Health
Office of Emergency Medical Services

Legend	Definition
EMR	Emergency Medical Responder (EMR)
EMT	Emergency Medical Technician (EMT)
AEMT	Advanced Emergency Medical Technician (AEMT)
P	Paramedic
	CAUTION – Red Flag topic
	Telephone Medical Control
	Pediatric
	PEARLS
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	Table Of Contents (hyperlinks back to table of contents)

This document is the Statewide Emergency Medical Services Protocols for Connecticut Pre-hospital Medical Providers version **2025.1.**

These protocols are a “living document” developed and drafted by the Statewide EMS Protocols Sub-Committee of the Connecticut EMS Medical Advisory Committee in conjunction with and in cooperation with the five Connecticut Regional EMS Councils and their Medical Advisory Committees. At the option of the Office of EMS and the Medical Advisory Committee, they can be edited and updated at any time. However, they are formally reviewed, edited, and released every two years.

These protocols have been approved unanimously by the CT EMS Medical Advisory Committee in an effort to establish the standard of EMS patient care in the State of Connecticut. Any deviation from these protocols must be approved in writing by the CT EMS Medical Advisory Committee and the CT Office of EMS.

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

Questions and comments should be directed to:
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DISCLAIMER: Although the authors of this document have made great efforts to ensure that all the information is accurate, there may be errors. The authors cannot be held responsible for any such errors. For the latest corrections to theses protocols, visit the Statewide EMS Protocols page on the Connecticut OEMS website at: http://www.portal.ct.gov/DPH/Emergency-Medical-Services/EMS/Statewide-EMS-Protocols

Connecticut Statewide Protocols v2025.1 – Table of Contents

Connecticut Statewide Protocols v2025.1 – Table of Contents

SECTION 3 – Cardiac

Page

Connecticut Statewide Protocols v2025.1 – Table of Contents

SECTION 4 – Traumatic

SECTION 5 – Airway

Connecticut Statewide Protocols v2025.1 – Table of Contents

SECTION 6 – Other Procedures

SECTION 7 – Hazmat & MCI

Connecticut Statewide Protocols v2025.1 – Table of Contents

SECTION 8 – Interfacility Transfers

Page

APPENDICES

Page

Dedication & Acknowledgement

Dedication

The Connecticut Statewide Emergency Medical Services (EMS) Protocols is dedicated to Connecticut's EMS providers and their patients. This document reflects our desire to bring best available evidence and medical consensus together to produce protocols that will enhance prehospital care in our state. With its completion is an expectation that this set of protocols will be the first component of a dynamic process that will continue to drive the delivery of quality prehospital care.

Many individuals have blazed the trail for this work to become a reality. Although there are too many to mention individually, it is worth emphasizing the common commitment shared to empower a continually improving system where those citizens who need emergency medical assistance have the best care possible.

Acknowledgement

This unprecedented work could not have been possible without the participation of many dedicated individuals and groups. Great thanks goes out to the hardworking members of the Connecticut EMS Advisory Board, The Connecticut EMS Medical Advisory Committee, The EMS Education and Training Committee, the members of the various Regional EMS committees and the Connecticut Department of Public Health Office of EMS (OEMS). Appreciation goes to all of the New England EMS Offices but especially to the State of New Hampshire Bureau of Emergency Medical Services. This document is an adaptation of New Hampshire's Protocols and many in the Bureau have generously given time, materials and support in its development.

Lastly, it is critical to point out the ongoing work of the Protocol Sub-Committee of the Connecticut EMS Medical Advisory Board. This group sustains our Statewide EMS Protocols and makes the process of creating and updating the Protocols open, transparent and available to anyone that would like to take part. We are continuously grateful for all the work being done.

Preface

Where possible, evidence based guidelines (EBG) have been used to create the clinical care protocols you see in this document. When no formal EBG was applicable, a process of consensus building with regional medical direction input was used to arrive at the final product. A newly strengthened, bi-directional relationship between the Connecticut EMS Medical Advisory Committee and the Regional Medical Advisory Committees has made this possible.

The development of these protocols support the ongoing initiative among the New England states to unify pre-hospital care across the region. This document not only bring us closer to more consistent pre-hospital care in Connecticut but also increases the potential to provide more efficiently across state borders, share educational materials and data/quality assurance process within the New England states.

These Protocols address the minimum competencies that providers will be able to demonstrate at both BLS and ALS levels. Sponsor Hospitals may chose not to authorize specific medications or procedures, but may not add or substitute anything not already written in the protocols without going through the revision process as described. The Protocols are color coded within each protocol by provider level.

Emergency Medical Responder (EMR) routine patient care is separately addressed in EMR Routine Patient Care Protocol 1.1. It is understood that the EMR will function up to their scope of practice outlined by the National EMS Scope of Practice Model using the Connecticut EMT-level protocols and American Heart Association guidelines for Healthcare Provider CPR. Within this document individual protocols may also refer directly to the EMR scope of practice and applicable EMR care measures/interventions.

It is assumed that the Paramedic standing orders include those of the EMT and AEMT, likewise AEMT standing orders include all of those orders listed under EMT. The sequence of orders in these protocols is not necessarily the order in which they might be executed. Standing orders listed in this document are not orders that must be carried out. They are orders that may be carried out at the discretion of the EMS provider without the need for on-line medical control.

EMS providers at any level of training are encouraged to contact medical control in cases where they feel that additional treatment is warranted beyond standing orders or cases where there is uncertainty regarding treatment. EMRs and EMTs are encouraged to facilitate timely and appropriate 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.

Preface Continues

Preface

Preface Continued

While medical control may have some variation from facility to facility, direct medical oversight 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 may be considered the “preferred agent”, the list is intended to provide latitude to medical directors and sponsor 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 need to be carried by every service

It is with great excitement that this preface is being written. For all who are reading, please keep in mind the great commitment and sacrifice EMS providers make daily in the course of their work. They have chosen to answer “the call” of a career that demands passion, purpose and heart and are due tremendous gratitude.

Be Safe,

Richard Kamin MD, , CEMSMAC Co-chair, OEMS Medical Director
Kyle McClaine MD, CEMSMAC Co-chair
Raffaella, “Ralf”, Calciano RN, MEd., Paramedic, OEMS Director

ToC

Revision and Update Procedure

In the event of a need or desire to deviate from the Statewide Emergency Medical Services Protocols, the respective Regional Emergency Medical Services Medical Advisory Committee or Sponsor Hospital will submit: The wanted change, the clinical or operational motivation for the change, the revised protocol to accommodate the change, and any supporting documentation or literature to the Department of Public Health, Office of Emergency Medical Services Medical Director.

It is expected that there would be two types of requests:

- **An emergency change** that is identified due to a medication/equipment shortage/ supply issue or a dramatic shift in the standard of clinical care such that delay in implementing the change would result in a risk to the public health.
    - These will be reviewed by the Commissioner of Public Health or their designee and the Connecticut Emergency Medical Services Medical Advisory Committee/ Statewide Emergency Medical Services Protocol Subcommittee in an expedited manner and the decision made conveyed to the petitioner within 5 business days of receipt by CT statewide protocol subcommittee chair.
- A desired change that is not considered an emergency will be reviewed quarterly, if not sooner, by the Commissioner of Public Health or their designee and the Connecticut Emergency Medical Services Medical Advisory Committee/Statewide EMS Protocol Subcommittee. The decision made will be conveyed to the petitioner once it is available.

Neither of the above will replace, although may supplement, the planned review every two years of the Statewide Emergency Medical Services Protocols by the Connecticut Emergency Medical Services Medical Advisory Committee/Statewide Emergency Medical Services Protocol Subcommittee.

1.0 Routine Patient Care

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 protocols.
- Use Incident Command System (ICS) 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.
- Call for Paramedic intercept, if available, for patients with unstable vital signs, respiratory distress or other life threatening conditions.

Patient Approach:

- Establish responsiveness.
- Determine mechanism of injury / nature of illness.
- Obtain chief complaint, history of present illness, and prior medical history.
- Complete a physical assessment as appropriate for the patient's presentation.
- Determine if pediatric protocols apply. "Pediatric Patient" is defined as a child who fits on a length-based resuscitation tape up to 36kg (79 lbs.) or 145cm (57 in).
- Refer to appropriate protocols(s) for further treatment options.
- Monitor vital signs approximately every 15 minutes (more frequently if the patient is unstable).
- Determine if DNR Protocol applies - see Do Not Resuscitate Orders 6.7 & MOLST

Massive external hemorrhage:

- Control any active bleeding 4.10 Hemorrhage Control

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.
- Clear the airway as needed (upper airway suctioning)
- Treat foreign body obstruction in accordance with current protocols
- Place an oropharyngeal or nasopharyngeal airway.
- Consider advanced airway interventions as appropriate and as trained and/or credentialed to perform.

Breathing

- Assess breathing: rate, quality, effort, lung sounds
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99% (≥90% for COPD patients)
- If breathing appears adequate but there is evidence of hypoxia, administer oxygen
- If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask (2 person technique is preferred)
- Both skin signs and pulse oximetry are important in assessing potential hypoxia.

ToC

Protocol Continues

1.0 Routine Patient Care

Protocol Continued

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

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

Circulation Assessment:

- Assess patient's pulse, noting rate, rhythm, and quality.
- Control active bleeding
- Assess patient's skin color, capillary refill, temperature, and moisture.
- Provide IV/IO access and fluid resuscitation as appropriate for the patient's condition and age.
- Consider obtaining a blood sample, per receiving hospital's preference.

NOTE: An IV/IO for the purposes of these protocols is a saline lock of protocols is a saline lock or line with normal saline or Lactated Ringers, unless otherwise specified in an individual protocol. Routes of medication administration when written as "IV" can also include "IO". All IV/IO medications administered as an infusion should be clearly labeled with the following elements:

- Patient Name
- Time/Date
- Medication Name/Dosage/Concentration
- Name of paramedic preparing infusion bag

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 4.6.
- In general, pediatric patients should not be transported in a passenger safety seat if a cervical/spinal injury is suspected. See Pediatric Transport Protocol 6.11.

Major Multiple System Trauma

- Patients that meet trauma criteria must be expeditiously moved into the trauma system to maximize the likelihood of survival.
- Minimize scene time to less than 10 minutes post-extrication.
- On scene field measures should be limited to the initial assessment, rapid trauma assessment, BLS, CPR, manual stabilization of spine, and airway maneuvers.
- Prevent hypothermia

Secondary/Focused Assessment and Treatment:

- Obtain chief complaint, history of present illness, and prior medical history.
- Complete a physical assessment as appropriate for the patient's presentation.
- Refer to appropriate protocols(s) for further treatment options.
- Consider field diagnostic tests including: cardiac monitoring, blood glucose (if available), temperature, stroke assessment, pulse oximetry, quantitative waveform capnography, etc.

Protocol Continues

1.0 Routine Patient Care

Protocol Continued

Transport:

- The destination hospital and mode of transport are determined by the pre-hospital provider with the highest medical level providing patient care; or as determined in accordance with Connecticut General Statutes section 19a-180d.
- Refer to the Trauma Triage and Transport Decision 6.20 and Air Medical Transport 6.2 procedures as necessary.
- Notify receiving facility as early as possible.
- Lights and sirens should be justified by the need for immediate medical intervention that is beyond the capabilities of the ambulance crew using available supplies and equipment. Use of lights and sirens should be documented on the patient care report. Exceptions can be made under extraordinary circumstances.
- Non emergent medical transports from home or a medical facility with self or caretaker managed devices is an EMT level skill. The caretaker must travel with the patient if it is not a self managed device.

Hospital Transfer of Care/Documentation

- A verbal report must be given to the appropriate hospital staff prior to leaving the patient.
- An ePCR (electronic Patient Care Report) shall be sent to the receiving hospital for each patient. In the case of a trauma alert, the ePCR must be left at the receiving hospital prior to leaving.

ToC

Percent O_2 Saturation	Ranges	General Patient Care
94% – 100 %	Normal	Usually indicate adequate oxygenation; validate with clinical assessment. (see below)
90% – 93%	Mild hypoxia	Consider O_2 to maintain saturation ≥ 94%. Caution in COPD patients.
Less than 90%	Moderate to severe hypoxia	Give oxygen to maintain saturation ≥ 94%, as needed.

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

$EtCO_2$ Reading	Ranges	General Patient Care
35 mmHg – 45 mmHg	Normal	Usually indicate adequate ventilation; validate with clinical assessment. (see below)
Greater than 45 mmHg	Hypercarbia	Consider increasing ventilatory rate, assess adjuncts for occlusions.
Less than 35 mmHg	Hypocarbia	Consider slowing ventilatory rate.

Pediatric Respiratory Distress	Pediatric Respiratory Failure
• Able to maintain adequate oxygenation by using extra effort to move air. • Symptoms 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 -greater than 60 breaths per minute 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 decompensate quickly.	

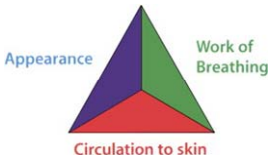
Protocol Continues

1.0 Routine Patient Care

Protocol Continued

Glasgow Coma Scale

EYE OPENING		VERBAL RESPONSE			MOTOR RESPONSE	
Eye Response	**Score**	**Adults**	**Infants**	**Score**	**Motor Response**	**Score**
Open	4	Oriented and alert	Babbles	5	Obeys commands/spontaneous	6
To voice	3	Disoriented	Irritable	4	Localizes pain	5
To Pain	2	Inappropriate words	Cries to pain	3	Withdraws to pain	4
No response	1	Moans, unintelligible	Moans	2	Decorticate flexion	3
		No response	No response	1	Decerebrate extension	2
					No response	1



	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

Bag-Valve Ventilation Rates*

Adult	12 – 20 breaths per minute
Child	12 – 20 breaths per minute
Infant	20 – 30 breaths per minute

ToC

1.1 EMR Routine Patient Care

EMR Scope of Practice:

It is understood that Emergency Medical Responders will function up to their scope of practice outlined by the National EMS Scope of Practice Model using the Connecticut EMR-level protocols and AHA/ARC guidelines for Healthcare Provider CPR. This protocol serves as a general overview of the EMR scope however within this document the individual protocols (see list below) may also refer directly to the EMR scope of practice and applicable EMR care measures.

- Appendix Scope of Practice
- 2.15A/P Nerve Agent Auto injectors: Nerve Agent/Organophosphate Poisoning Protocol
- 2.18 Childbirth
- 2.20A/P Poisoning/Substance Abuse
- 2.3A/P Epinephrine Auto-injector administration - Allergic reactions/Anaphylaxis
- 3.2A/P Cardiac Arrest (CPR/Defibrillation)
- 4.0A/P Burn Care - Burns (Thermal)
- 4.10 Hemorrhage Control
- 4.4 Musculoskeletal Injuries (Manual Stabilization/hot and cold packs)
- 6.7 Do Not Resuscitate Protocol
- 6.20 Trauma Triage and Transport Decision Protocol

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 protocols.
- Use Incident Command System (ICS) 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.
- Call for Paramedic intercept, if available, for patients with unstable vital signs, respiratory distress or other life threatening conditions.

Patient Approach

- Establish responsiveness.
- Determine mechanism of injury / nature of illness.
- General Impression.
- Obtain chief complaint, history of present illness, and prior medical history.
- Complete a physical assessment as appropriate for the patient's presentation.
- Determine if pediatric protocols apply. "Pediatric Patient" is defined as a child who fits on a length-based resuscitation tape up to 36kg (79 lbs.) or 145cm (57 in).
- Refer to appropriate protocols(s) for further treatment options.
- Monitor vital signs approximately every 15 minutes (more frequently if the patient is unstable).

Protocol Continues

1.1 EMR Routine Patient Care

Protocol Continued

Massive external hemorrhage

- Control any active bleeding 4.10 Hemorrhage Control

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.
- Clear the airway as needed (upper airway suctioning)
- Treat foreign body obstruction with manual dislodgement techniques.
- Place an oropharyngeal or nasopharyngeal airway as needed

Breathing

- Assess breathing: rate, quality and effort.
- If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask (2 person technique is preferred)
- If breathing appears adequate but there is evidence of hypoxia, administer oxygen
- Assess for appropriate chest movement or evidence of trauma

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

Circulation:

- Assess patient's pulse, noting rate, rhythm, and quality.
- Assess patient's skin color, capillary refill, temperature, and moisture
- Control active bleeding

Disability:

- Assess level of consciousness appropriate for age.
- For suspected spinal injuries, provide manual stabilization of head and neck.
- Provide manual stabilization of limb injuries

Major Multiple System Trauma

- Patients that meet trauma criteria must be expeditiously moved into the trauma system to maximize the likelihood of survival.
- Minimize scene time to less than 10 minutes post-extrication.
- On scene field measures should be limited to the initial assessment, rapid trauma assessment, BLS, CPR, manual stabilization of spine, and airway maneuvers.
- Prevent hypothermia

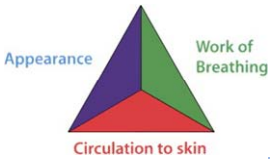
Transfer of Care/Documentation

- Provide complete verbal report to transporting EMS provider
- Timely documentation must be completed

Protocol Continues

1.1 EMR Routine Patient Care

Protocol Continued



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Bag-Valve Ventilation Rates*	
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Pediatric Respiratory Distress	Pediatric Respiratory Failure
• Able to maintain adequate oxygenation by using extra effort to move air. • Symptoms 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 decompensate quickly.	

ToC

1.2 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 Connecticut 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 Advisory Committee.** 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 direct medical oversight.
- 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 protocols 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 protocols modified in the next protocols cycle to the protocols subcommittee of the Medical Advisory Committee.
- 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 direct medical oversight, 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 contact with direct medical oversight.
- 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 Sponsor Hospital's EMS Medical Director, Hospital EMS Coordinator, and Office of EMS at: dph.oems@ct.gov within 48 hours of the event. Use of this protocol must be documented in the Patient Care Report.

ToC

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2.0A Abdominal Pain (Non-Traumatic) Adult

EMT STANDING ORDERS – ADULT

E

- Routine Patient Care.
- If equipped and per sponsor hospital recommendations, for patients >30 years and older with upper abdominal or epigastric pain/heartburn, acquire and transmit a 12-lead EKG - see 12-Lead Acquisition Protocol 6.0.
- Vaginal bleeding or suspected pregnancy see, Obstetrical Emergencies Protocol 2.18.

ADVANCED EMT STANDING ORDERS - ADULT

A

- If patient is hypotensive, treat according to Shock – Non-traumatic Protocol 2.23.

PARAMEDIC STANDING ORDER – ADULT

P

- Treat pain per the Pain Management protocol. A chief complaint of non-traumatic abdominal pain is not a contraindication to pain management. See Pain Management Protocol 2.19A.
- See Nausea/Vomiting Protocol 2.14. Assess and monitor cardiac rhythm.

Abdominal Physical Assessment

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

ToC

PEARLS:

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

2.1 Adrenal Insufficiency Adult & Pediatric

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/IO/IM. **OR** Methylprednisolone 125 mg IV/IO/IM
- Pediatric: History of adrenal insufficiency; administer hydrocortisone 2 mg/kg, to a maximum of 100 mg IV/IO/IM **OR** Methylprednisolone 2 mg/kg IV/IO/IM up to a maximum dose of 125 mg.
- If signs of shock are present treat per: Shock Non-Traumatic Protocol 2.23.

ToC

PEARLS:

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

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

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

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

PEARLS:

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

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

2.2 Alcohol/Benzodiazepine Withdrawal - Adult

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.

ADVANCED EMT STANDING ORDERS- ADULT

A

- Consider 500 ml IV fluid bolus

PARAMEDIC STANDING ORDERS- ADULT

P

For active seizures, see Seizure Protocol 2.21A

For tremors, anxiety, altered mental status, hypertension, tachycardia, hallucinations or status-post seizures administer:

- Lorazepam 1-2 mg IV/IO (preferred) or IM/IN, may repeat once in 5 minutes **OR**
- Diazepam 5-10 mg IV/IO (preferred) or IM/IN, may repeat once in 5 minutes **OR**
- Midazolam 2.5 mg IV/IO (preferred), may repeat once in 5 minutes
  OR
  Midazolam 5 mg IM/IN, may repeat in 10 minutes.

If additional treatment is required, obtain **Direct Medical Oversight.**

PEARLS:

- Suspect alcohol withdrawal in patients with a history of regular alcohol use who have had recent decrease or cessation of alcohol use. Symptoms may present within hours or days.
- Patients may still experience alcohol withdrawal despite having significant blood alcohol levels if below baseline intoxication.
- Patients experiencing alcohol withdrawal may ultimately require large doses of benzodiazepines to achieve sedation. Conversely, benzodiazepines may display a synergistic effect with alcohol. Carefully assess patient response to benzodiazepines when considering repeat dosing.

2.3A Allergic Reaction/Anaphylaxis Adult

V2025.1

EMR/EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis, administer:
  - Adult epinephrine autoinjector (EpiPen) 0.3 mg IM in the lateral thigh.
  - EMT an above may alternately administer epinephrine 0.3 mg via syringe if Sponsor Hospital trained, authorized and approved
- For additional dosing, contact **Direct Medical Oversight.**
- For nausea of vomiting see Nausea/Vomiting Protocol 2.14.
- Do not delay transport.

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis, administer:
  - Adult epinephrine autoinjector (preferred) OR
  - Epinephrine 0.3 mg (0.3 ml) of 1 mg/ml (1:1,000) IM. Repeat epinephrine every 5 minutes until signs & symptoms resolve.
  - Consider the administration of 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 2.23.
- After Epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:
  - Diphenhydramine 25 – 50 mg IV/IO/IM.

PARAMEDIC STANDING ORDERS

P

- If the patient presents with hives, consider Famotidine (Pepcid) 20 mg IV/IO.
- For anaphylaxis refractory to IM epinephrine including respiratory failure or profound shock, consider:
  - Epinephrine infusion 2-10 micrograms/minute until symptoms resolve.
  - Do not delay administration of additional IM epinephrine to prepare infusion
- For anaphylaxis with hypotension refractory to epinephrine and patient is taking a Beta Blocker, consider administering 1mg glucagon IV/IO (preferred) or IM.

ToC

CAUTION: Epinephrine is available in different routes and concentrations. Re-check the dosing/concentration, and utilize second provider confirmation (if available).

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

PEARLS:

Clinical Criteria for Pediatric Anaphylaxis:

1) Known or likely allergen exposure with hypotension OR respiratory compromise
   OR
2) Presenting with acute onset of TWO or more of the following symptoms (with or without airway compromise):

- Breathing: shortness of breath, wheezing, stridor, dysphagia, dysphonia
- Angioedema: facial/lip/tongue/uvula swelling, throat tightening, voice change
- Skin: hives, itching, swelling, erythema
- Gastrointestinal: vomiting, diarrhea, abdominal pain
- Poor perfusion: altered mental status, syncope, cyanosis, delayed capillary refill, signs of shock

2.3P Allergic Reaction/Anaphylaxis Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis administer:
  - If <25kg administer 0.15 mg epinephrine 1mg/ml (1:1, 000) IM, lateral thigh preferred via pedi autoinjector (preferred) or via syringe if sponsor hospital authorized and approved.
  - If >25kg administer 0.3 mg epinephrine 1mg/ml (1:1, 000) IM, lateral thigh preferred via adult autoinjector (preferred) or via syringe if sponsor hospital authorized and approved.
- For additional dosing, contact Direct Medical Oversight.
- For nausea of vomiting see Nausea/Vomiting Protocol 2.14. Do not delay
- transport.

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis, administer epinephrine as described above.
  - Repeat epinephrine every 5 minutes until signs and symptoms resolve.
  - Consider the administration of 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 2.23.

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/IO/IM (Maximum dose 50 mg).
- For anaphylaxis refractory, after 3 or more doses of IM epinephrine, (e.g. persistent hemodynamic compromise, bronchospasm), consider:
  - Epinephrine 0.1 – 0.5 micrograms/kg/min, start low and titrate to effect

CAUTION: Epinephrine is available in different routes and concentrations. Re-check the dosing/concentration, and utilize second provider confirmation (if available).

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

PEARLS:
Clinical Criteria for Pediatric Anaphylaxis:

1) Known or likely allergen exposure with hypotension OR respiratory compromise
OR
2) Presenting with acute onset of TWO or more of the following symptoms (with or without airway compromise):

- Breathing: shortness of breath, wheezing, stridor, dysphagia, dysphonia
- Angioedema: facial/lip/tongue/uvula swelling, throat tightening, voice change
- Skin: hives, itching, swelling, erythema
- Gastrointestinal: vomiting, diarrhea, abdominal pain
- Poor perfusion: altered mental status, syncope, cyanosis, delayed capillary refill, signs of shock

2.4 Brief Resolved Unexplained Event (BRUE)

EMT/ADVANCED/PARAMEDIC STANDING ORDERS

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

PEARLS:

- A BRUE involves a frightening episode in a child less than 2 years old and involves some combination of apnea, color change to cyanosis, limpness, or choking.
- Non-accidental trauma should always be considered in an infant who presents with BRUE.
- **Note:** Although children who experience BRUE may have a normal physical exam upon assessment by pre-hospital 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.

2.5A Asthma, COPD, RAD - Adult

Please see Appendix 4 for 2.5A UPDATES RELATING TO COVID-19

EMT STANDING ORDERS

E

- Routine Patient Care.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99% (≥90% for COPD patients).
- Assist the patient with their 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 who do not respond to treatments, or for impending respiratory failure, if available with sponsor hospital training and approval consider:

CPAP, See CPAP 5.2 Protocol.

For patients with known history of asthma/RAD **AND** impending respiratory failure, consider:

- Epinephrine 0.3 mg (0.3 ml) of 1 mg/ml (1:1,000) IM, lateral thigh preferred. For additional dosing, contact Direct Medical Oversight.

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:

- Bi-Level Positive Airway Pressure, See BiPAP 5.2.1 Protocol
- Levalbuterol 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total).

Consider:

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

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

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

PEARLS:

- Be certain of diagnosis when considering epinephrine. The use of epinephrine in patients with known cardiac disease may increase cardiac complications.
- Chronic Obstructive Pulmonary Disease (COPD) refers to a group of lung diseases (most commonly emphysema and chronic bronchitis) that block airflow and make breathing difficult.
- Reactive Airway Disease (RAD) refers to a group of conditions that include reversible airway narrowing due to the external stimulation.
- Patient with a “silent chest” may have severe bronchospasm with impending respiratory failure.

2.5P Asthma, Bronchiolitis, Croup - Pediatric

Please see Appendix 4 for 2.5A UPDATES RELATING TO COVID-19

ASTHMA, BRONCHIOLITIS, CROUP – EMT STANDING ORDERS

E

- Routine Patient Care.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%; 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 ≤ 2 who present with increased work of breathing and rhinorrhea, provide nasal suctioning with saline drops and bulb syringe.

Wheezing ≥ 2 years or history of asthma → YES

NO

Wheezing < 2 years old → YES

NO

History of stridor or barky cough → YES

ASTHMA – EMT STANDING ORDERS

E

- For impending respiratory failure, consider Epinephrine 0.15 mg (0.15 mL) of 1 mg/ml (1:1,000) IM, lateral thigh preferred."

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. For patients who do not respond to treatments, or for impending respiratory failure, consider: CPAP, See CPAP 5.2 Protocol.

ASTHMA – PARAMEDIC STANDING ORDERS

P

Consider:

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

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

- Magnesium sulfate 40 mg/kg in 100 ml normal saline IV/IO over 20 minutes.
- Epinephrine 0.01 mg/kg (0.01 ml/kg) of 1 mg/ml (1:1,000) IM.(Maximum dose <25 kg is 0.15 mg or >25 kg is 0.3 mg).

BRONCHIOLITIS – PARAMEDIC STANDING ORDERS

P

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

- Nebulized racemic epinephrine 0.5 ml of 2.25% (11.25 mg) with 3 mL 0.9% NaCl **OR**
- Nebulized epinephrine, 5 mg of 1 mg/ml (1:1,000).

CROUP – PARAMEDIC STANDING ORDERS

P

Consider:

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

Croup with stridor at rest, consider:

- Nebulized racemic epinephrine 0.5 ml of 2.25% (11.25 mg) with 3 mL 0.9% NaCl **OR**
- Nebulized epinephrine, 5 mg of 1 mg/ml (1:1,000).

Protocol Continues

2.5P Asthma, Bronchiolitis, Croup - Pediatric

Protocol Continued

Please see Appendix 4 for 2.5A UPDATES RELATING TO COVID-19

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

PEARLS:

For suspected Epiglottitis:

- Transport the patient in an upright position and limit your assessment and interventions

Bronchiolitis:

- Incidence peaks in 2-6 month old infants.
- Frequent history of low-grade fever, runny nose, and sneezing.
- Signs and symptoms include: tachypnea, rhinorrhea, wheezes and / or crackles.

Croup:

- Incidence peaks in children over age 6 months.
- Signs and symptoms include: hoarseness, barking cough, inspiratory stridor, signs of respiratory distress
- Avoid procedures that will distress child with severe croup and stridor at rest.

ToC

2.6 Behavioral Emergencies Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS- ADULT & PEDIATRIC

E/A

- Routine Patient Care.
- Approach patient using the SAFER Model.
- Observe and record the patient's behavior and living conditions.
- Consider associated domestic violence or abuse/neglect of children or elderly, see Abuse and Neglect of Children and the Elderly 6.1 or Response to Domestic Violence Procedure 6.15.
- Determine if patient is under the care of mental health professionals and record contact information.

Assess for risk to self and others. Ask patient directly if he is thinking about hurting self or others.

A patient who lacks capacity or is a danger to self or others may not refuse care. If patient refuses care, contact police if unable to convince patient to be transported. (Refer to Police Custody Procedure 6.13, Refusal of Care Procedure 6.14 and/or Restraints 6.16)

If the patient does not appear to be an immediate threat to self or others and refuses transport:

- Encourage patient to seek mental health evaluation.
- Avoid leaving the patient alone, if possible. Assist in contacting responsible family/friend.

For patient with suspected Extreme Agitation/Combativeness:

Treat hyperthermia, see Hyperthermia Protocol 2.11. Monitor cardiac activity and oxygen levels.

PARAMEDIC STANDING ORDERS - ADULT

P

Anxiety Management (RASS + 1; Anxious, apprehensive, but not aggressive)
For significant anxiety where BLS interventions(i.e. verbal reassurance, deescalation, redirection, and if possible, removal from stimulus) have been attempted and are unsuccessful, consider:

- Midazolam 2 mg IV may repeat once in 10 minutes, OR
- Midazolam 5 mg IM/IN may repeat once in 10 minutes OR
- Lorazepam 0.5mg IV, May repeat once in 10 minutes OR
- Diazepam 2.5mg IV, may repeat once in 10 minutes

See Restraints Procedure 6.16

Agitation must be thought of as a clinical problem rather than bad behavior

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

- Hypoglycemia
- Head Injury, stroke, seizure (post-ictal)
- Poisoning, substance abuse, drugs or alcohol
- Infection

Capacity: Patients have decision making capacity when they can demonstrate understanding of the situation, appreciation of the consequences of their decision, reasoning in their thought process and can communicate their wishes.

Protocol Continues

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.

Transport to Pediatric Urgent Crisis Centers (UCC)
FOR PROVIDERS WITH SPONSOR HOSPITAL APPROVAL

- Consider transport to one of the state's urgent crisis centers for children aged 4 to 18 yo with depression, anxiety, emotional and behavioral dysregulation, substance abuse, self-injurious behavior not requiring medical intervention, homicidal/suicidal ideation.
- Contact the UCC directly to notify them of the potential patient and confirm willingness to accept.
- Receiving care at a UCC is voluntary - if physical or pharmacologic restraint is needed and/or they are not willing to go, a UCC is not an appropriate destination.
- Patients with minor injuries may be appropriate for a UCC
- Patients intoxicated with alcohol or other substance may be appropriate, but the UCC is not able to manage withdrawal.
- Patients with threat of or recent history of violence may be appropriate for a UCC if they don't need pharmacologic or mechanical restraint.

The current list of crisis centers, phone number and hours are below.

- **The Village for Families and Children**
  1680 Albany Avenue, Hartford - (860) 297-0520
  Mon – Fri 0700-2300

- **Yale New Haven Hospital (Patients will be triaged through the YNHH ED**)
  1 Park St, New Haven – (203) 688-4707
  7 days / 24 hours

- **The Child and Family Agency of Southeastern Connecticut in New London**
  255 Hempstead Street, New London, CT – (860) 437-4550
  Mon-Thur 0700-2000, Friday 0700 - 1700

- **Wellmore Behavioral Health in Waterbury**
  141 East Main St, Waterbury - (203) 580-4298
  7 days / 24 hour

2.7 Childbirth & Newborn Care

EMR/EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient care.
- Obtain obstetrical (OB) history.
- If delivery not imminent place mother in left-lateral recumbent position.
- Expose as necessary to assess patient.
- Determine if signs of imminent delivery are present. If not present, proceed with transport to hospital with OB capability.
- Do not digitally examine or insert anything into the vagina.
- If obstetrical complication is present, consider contacting **Direct Medical Oversight** and transport to nearest appropriate hospital per local OB Diversion Protocol. (See Obstetrical Emergencies Protocol 2.18)
- 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 still cover head after it emerges, tear membrane with fingers to permit escape of fluid.
  - If umbilical cord is wrapped around infant'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.
- For newborns requiring resuscitation, see Newborn Resuscitation Protocol 2.17.
- 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.
    - Wrap newborn and mother in blankets or silver swaddler/space blanket (preferred) and cover newborn's head.
- 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 2.17.
- 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 2.17.
- Assess circulation, heart rate, and skin color:
  - Evaluate heart rate by one of several methods:
    - Utilize ECG monitoring (superior accuracy to clinical assessment)
    - If ECG is unavailable/not authorized, auscultate apical beat with a stethoscope or 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 2.17.
  - Assess skin color: examine trunk, face and mucus membranes.

Protocol Continues

2.7 Childbirth & Newborn Care

Protocol Continued

EMR/EMT/ADVANCED EMT STANDING ORDERS

E/A

- Record APGAR score at 1 minute and 5 minutes (see chart)
- See Pediatric Color Coded Appendix 2 for vital signs.
- 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 waiting for delivery.
  - Massage abdominal wall overlying uterine fundus.
  - If placenta delivers, package for hospital staff.
- Monitor blood loss and patient's perfusion. (See Obstetrical Emergencies Protocol 2.18). 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 2.21A.

APGAR Scale

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

PEARLS:

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 **Direct Medical Oversight** 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.

2.8A Fever (100.4°F/38°C) – Adult

ADVANCED EMT STANDING ORDERS

A

- Routine Patient Care.
- Evaluate for shock secondary to severe sepsis.
- Obtain temperature if possible.
- Passive cooling; remove excessive clothing.
- For temperature >100.4°F (38°C) or, if temperature is not available and patient feels clinically febrile:
  - If no acetaminophen was taken in last 4 hours:
    - Consider administering acetaminophen 500 – 1,000 mg PO **OR**
    - Consider administering acetaminophen 1 gram IV/IO over 15 minutes if contraindication to PO medications (altered mental status, difficulty swallowing, etc.),

PARAMEDIC STANDING ORDERS

P

- If acetaminophen was taken within the last 4 hours:
  - Consider administering ibuprofen 400 mg PO

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

ToC

History

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

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

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

PEARLS:

- Avoid inducing shivering.
- The primary goal of treating fever is increasing comfort rather than normalization of body temperature. Fever is a physiologic mechanism that helps fight infection. There is no evidence that fever worsens illness or causes long-term neurologic complications.
- Acetaminophen may be administered if ibuprofen was administered prior to EMS arrival and patient remains febrile
- This protocol is not to be used for environmental hyperthermia / heatstroke
- Fever alone without other priority signs or symptoms may not require a paramedic response

2.8P Fever – Pediatric (≥ 3months of age)

EMT STANDING ORDERS

E

- Routine Patient Care.
- Evaluate for shock secondary to severe sepsis
- Obtain temperature—rectal temperature preferred as appropriate. Passive cooling; remove excessive clothing/bundling.

ADVANCED/PARAMEDIC STANDING ORDERS

A/P

- For temperatures >100.4° Fahrenheit (38°C) or patient clinically feels febrile, consider obtaining temperature - rectal temperature preferred as appropriate (see PEARLS below)
  - If acetaminophen was last taken more than 4 hours ago:
    - Consider administering acetaminophen 15 mg/kg PO per Pediatric Color Coded Appendix 2
      - If acetaminophen has been taken within the last 4 hours, but less than 15 mg/kg was administered:
    - Consider administering acetaminophen catch-up dose to reach total of 15 mg/kg within last 4 hours.

- Protocol is ONLY for use with patients ≥3 months of age.
- For patients with suspicion of hyperthermia/heatstroke, treat per Hyperthermia Protocol 2.11.

ToC

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

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

- For patients where transport is refused, urge caregivers to observe for signs of serious illness, encourage appropriate fluid intake, and safely store antipyretics.

PEARLS:

- Avoid inducing shivering.
- The primary goal of treating fever is increased comfort rather than normalization of body temperature.
- Fever is a physiologic mechanism that helps fight infection. There is no evidence that fever worsens illness or causes long-term neurologic complications.
- Children should never take aspirin.
- Rectal temperature measurement is the most accurate method of measuring temperature in the field and should be obtained if age appropriate and condition warrants. Parent / Guardian should be consulted and support obtaining a rectal temperature.
- Document time and method by which temperature was obtained.

2.9 Hyperglycemia– Adult & Pediatric

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

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care
- Obtain glucose reading if available.
- For nausea/vomiting, see Nausea Protocol 2.14.

ADVANCED EMT/PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A / P

Adult:

- Obtain 12 lead EKG
- Consider EtCO2 monitoring if available
- Consider potential for sepsis per Septic Shock Protocol 2.22A
- Administer 500 Lactated Ringers or Normal Saline bolus, may repeat x1.

Pediatric:

- Administer 10 mL/kg bolus of Lactated Ringers or Normal Saline, may repeat x1.

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

ToC

PEARLS:

- Diabetic Ketoacidosis is a life threatening emergency defined as uncontrolled hyperglycemia with the signs and symptoms of ketoacidosis.
- Signs and symptoms of Diabetic Ketoacidosis include uncontrolled blood glucose greater than or equal to 250 mg/dL, weakness, altered mental status, abdominal pain, nausea, and vomiting, polyuria (excessive urination), polydipsia (excessive thirst), a fruity odor on the breath (from ketones), and tachypnea.
- Common causes of Diabetic Ketoacidosis include infection, acute coronary syndrome, and medication non-compliance.
- Hyperglycemic Hyperosmolar Nonketotic Syndrome (HHNS) is characterized by blood glucose levels greater than 600 mg/dL and profound dehydration without significant ketoacidosis. Most patients present with severe dehydration and focal or global neurological 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.

2.10 Hyperkalemia

EMT/AEMT STANDING ORDERS

E/A

- Routine Patient Care.
- Acquire 12 Lead ECG if available and transmit as directed by sponsor hospital.
- For serum lab value ≥ 6 mmol/L, request paramedic if available but do not delay transport.

PARAMEDIC STANDING ORDERS

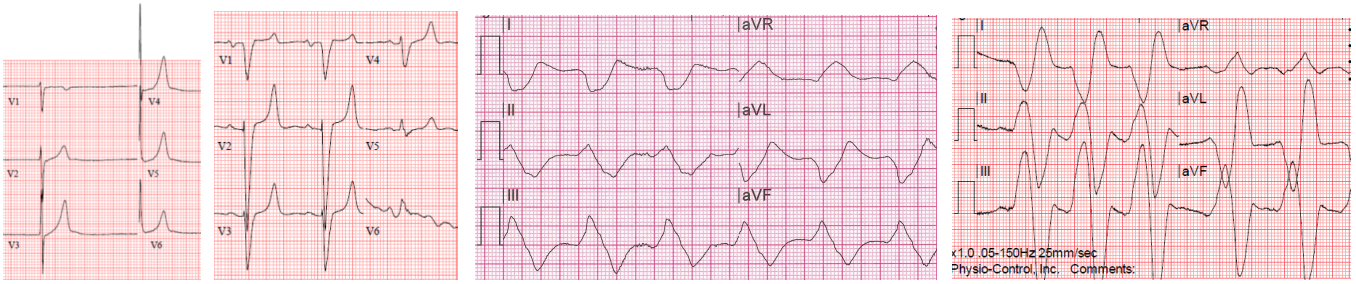
P

If patient presents with clinical factors predisposing him or her to hyperkalemia (see definitions below) AND 12 lead ECG findings are consistent with moderate to severe hyperkalemia (definitions below):

- Maintain continuous cardiac monitoring.
- Assure patent vascular access.
- Administer:
  - Calcium chloride 1 gram IV over at least 5 minutes OR calcium gluconate 3 grams IV over 5 minutes
    - ➢ May repeat x1 after 5 minutes.
  - Nebulized albuterol (repeat continuously up to a max total of 20 mg)

Contact Direct Medical Oversight for possible additional doses of calcium.

Examples of moderate (6.2 mmol/L) to very severe (≥8 mmol/L) hyperkalemia ECG patterns:



PEARLS:

- Hyperkalemia can lead to sudden death from cardiac arrhythmias without warning.
- Some clinical factors predisposing patients to hyperkalemia:
  - o Chronic renal failure
  - o Acute renal failure (may be secondary to dehydration, shock, nephrotoxins, obstruction, etc.)
  - o Crush injury/Compartment syndrome/rhabdomyolysis
- ECG Evidence of hyperkalemia:
  - o Moderate: Peaked T waves with widening of QRS (>120 ms), increases in the PR interval and decrease in P wave amplitude.
  - o Severe: Very wide QRS complex (often >240 ms) and loss of P waves. ECG pattern may develop a rounded and undulating "sine wave" pattern, especially in the limb leads.
- Ventricular fibrillation or asystole may develop without ECG evidence of hyperkalemia.
- The electrophysiological effects of hyperkalemia are proportional to both the potassium level and its rate of increase.
- For serum potassium lab value known to be ≥6 mmol/L without ECG findings of hyperkalemia, maintain continuous cardiac monitoring and consider obtaining direct medical oversight.
- Calcium gluconate is preferred to patients with a pulse.
- Calcium chloride is irritating to veins and must not be injected into tissues, since severe necrosis and sloughing may occur. Administer slowly, taking care to avoid extravasation.

2.11 Hyperthermia – Adult & Pediatric

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.
- Consider exertional heat stroke in any intensely exercising athlete, laborer, fire, police or EMS personnel, etc. with altered mental status - See Exertional Heat Stroke Protocol 2.11.1.
- 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.
  If temperature is >104^{0}F (40^{0}C) or if altered mental status is present, begin active cooling by:
  - Continually misting the exposed skin with tepid water while fanning the victim (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 101.5 °F (38.5°C) or if shivering occurs and cannot be managed by paramedics.

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

A

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

PARAMEDIC STANDING ORDERS- ADULT

P

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

Hyperthermia:
Elevated temperature may be due to environmental exposure, pharmacologic agents, or extreme agitation/combativeness, see Behavioral Emergencies Protocol 2.6. Mortality and morbidity are directly related to the length of time the victim is subject to the heat stress.

2.11.1 Exertional Heat Stroke

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

Exertional Heat Stroke (EHS) is a unique and emergent hyperthermic condition that occurs in individuals performing intense physical activity, typically but not limited to, warm environments.

INDICATION:
Consider EHS in any intensely exercising athlete, laborer, fire or EMS personnel with altered mental status.

PROTOCOL:

E/A/P

1. Perform Rapid Routine Assessment (<5 min). Assess for other causes of AMS including but not limited to hypoxia, hypoglycemia, inadequate perfusion or head injury.
2. Consider EHS in any intensely exercising athlete, laborer, fire, police or EMS personnel with altered mental status.
3. If EHS has been confirmed and appropriate cooling has been initiated by an appropriate onsite medical team, athletic trainer, coach, or instructor, DO NOT interrupt cooling for assessment or transport.
4. If care not already initiated and EHS is suspected, immediately perform a rectal temperature (T_{REC}) assessment.
5. If T_{REC} is at or above 40°C (104°F), initiate immediate rapid cooling to a temperature less than 40°C within 30 minutes of collapse. The recommended minimum cooling rate is 0.15°C per minute.
    a. Best practice for cooling an EHS patient is whole-body cold water immersion from the neck down (0.2-0.3°C per minute)
    b. Immersion in ice water filled body bag or tarp may also yield acceptable cooling rates (0.15°-0.17C per minute).
    c. Ice packs, fans, cold water dousing or shower do not achieve acceptable cooling rates. Rotating ice water towels covering as much of body surface area as possible should be considered a minimum cooling modality en route.
6. Discontinue cooling at 39°C (102°F). If a T_{REC} is not available, cooling should not be interrupted or delayed in cases of suspected EHS. Cool for a minimum of 20 minutes / clinical improvement if resources available on scene, or transport with best available active cooling method (Body bag with ice water or rotating ice water soaked towels)
7. Do not interrupt cooling for diarrhea, emesis, combativeness, or seizures. IV/IM medications are rarely needed.
8. Transport, with full notification to closest receiving facility that EHS is suspected, request T_{REC} be reassessed on turnover.

ToC

- For events with medical personnel and cooling means on-site, the only appropriate standard is to cool the EHS patient in place. Transportation of an EHS patient should only be done if it is impossible to adequately cool the patient, or after adequate cooling has been verified by a rectal temperature.
- The only accurate or acceptable body temperature measurement in exercising individuals is a rectal temperature (T_{REC}).
- EMS must ensure early pre-notification of hospitals if they will be receiving an inadequately cooled EHS patient, or suspect EHS in a scenario where treatment has not been initiated.

2.12A Hypoglycemia – Adult

Hypoglycemia is defined as blood glucose <60 mg/dL with associated altered mental status.

EMT STANDING ORDERS – ADULT

E

- Routine Patient Care
- Obtain glucose reading if available.
- Oral glucose: administer commercially prepared glucose gel or equivalent.
  - Hypoglycemic patients must be alert enough to swallow and protect airway.
- If unable to administer oral glucose (or equivalent), administer patient's prescribed, commercially prepared intranasal glucagon delivery device or glucagon autoinjector (if available).
- For patients with an insulin pump who are hypoglycemic with associated altered mental status:
  - Stop the pump, disconnect or remove 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.

- Contact Direct Medical Oversight for patients requesting refusal.
  See Refusal of Care Protocol 6.14 for exception to high-risk criteria.

ADVANCED EMT/PARAMEDIC STANDING ORDERS – ADULT

A/P

- Administer dextrose 10% IV/IO via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is >60 mg/dL or to a maximum of 25 grams (250 mL).
- May repeat if glucose level is <60 mg/dL with continued altered mental status.
- If unable to establish IV/IO access, administer glucagon 1mg IM, glucagon autoinjector 1 mg IM or glucagon 3mg IN via commercially prepared delivery device
  - Recheck glucose 15 minutes after administration of glucagon.
  - May repeat glucagon if glucose level <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.
- Encourage patients who refuse transport after improvement in mental status 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.
- Oral glucose equivalents include 3-4 glucose tablets, 4oz. fruit juice (eg, orange juice), non-diet soda, 1 tablespoon of pure Connecticut maple syrup, sugar or honey.

2.12P Hypoglycemia – Pediatric

Hypoglycemia is defined as blood glucose <60 mg/dL with associated altered mental status.

EMT STANDING ORDERS

E

- Routine Patient Care
- Obtain glucose reading if available.
- Oral glucose: administer commercially prepared glucose gel or equivalent.
  - Hypoglycemic patients must be alert enough to swallow and protect airway.
- If unable to administer oral glucose (or equivalent), administer patient's prescribed, commercially prepared intranasal glucagon delivery device or glucagon autoinjector (if available).
- For patients with an insulin pump who are hypoglycemic with associated altered mental status (GCS <15):
  - Stop the pump, disconnect or remove 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 5 mL/kg dextrose 10% IV/IO via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 60 mg/dL or per Pediatric Color Coded Medication Reference Appendix 2
- If unable to establish IV/IO access:
  - Patients < 20 kg, give glucagon 0.5 mg IM, glucagon pediatric autoinjector 0.5 mg IM
  - Patients ≥ 20 kg, give glucagon 1 mg IM, glucagon autoinjector 1 mg IM or glucagon 3 mg IN via commercially prepared delivery device

ToC

- 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.
- 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.
- Oral glucose equivalents include 3-4 glucose tablets, 4oz. fruit juice (e.g. orange juice), non-diet soda, 1 tablespoon of pure Connecticut maple syrup, sugar or honey.
- Patients with diagnosed inborn error of metabolism (e.g. glycogen storage disease) may have a care plan directing oral corn starch for hypoglycemia. If patient is alert enough to swallow and protect their airway, assist caregiver with administration of oral corn starch instead of oral glucose per established care plan.

2.13 Hypothermia – Adult & Pediatric

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Avoid rough movement and excess activity.
- Prevent further heat loss:
  - Insulate from the ground and shield from wind/water.
  - Move to a warm environment.
  - Gently remove any wet clothing and dry patient.
  - Cover with warm blankets. Cover the head and neck.
- If unresponsive, obtain esophageal or rectal temperature, if feasible.
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dl, see Hypoglycemia Protocol 2.12A & Hypoglycemia Protocol 2.12P.
- Maintain horizontal position.
- Apply truncal warm packs. Wrap packs in towels and do not place directly on skin.
- Consider covering the patient's mouth and nose with a surgical mask to prevent respiratory heat loss.
- A minimum of 45 – 60 second assessment of respirations and pulse is necessary to confirm respiratory arrest or cardiac arrest.
- If pulse and breathing are present, continue re-warming techniques.
- If pulse and breathing are absent, start CPR. Unless there are contraindications to CPR, continue to perform CPR and do not consider Termination of Resuscitation until the core temperature is above 32°C (90°F) without ROSC. See Cardiac Arrest Protocols 3.2

Localized Injuries

- Expose the affected area and remove any jewelry or clothing.
- Apply loose, dry sterile dressing to the affected area, placing gauze between fingers/toes.

ToC

ADVANCED EMT - ADULT ONLY

A

- Warm IV normal saline 38°C - 42°C (101.4°F – 107.6°F) should be used.

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

- If pulse and breathing are absent and esophageal or rectal temperature is <32°C (89.6°F):
  - Continue CPR.
  - Give IV/IO medications based on dysrhythmia. Limit epinephrine doses to three and increase dosing interval to 6 – 10 minutes.
  - Defibrillation as indicated.

Protocol Continues

2.13 Hypothermia – Adult & Pediatric

Protocol Continued

STAGES OF HYPOTHERMIA

	STAGE I:	STAGE II:	STAGE III:	STAGE IV:
	Conscious, shivering	Impaired consciousness, not shivering	Unconscious, not shivering, vital signs present	No vital signs
Core Temp	35° - 32°C	<32° - 28°C	<28- 24°C	<24°C
Treatment	Warm environment and clothing, warm sweet drinks, and active movement (if possible).	Cardiac monitoring, minimal and cautious movements to avoid arrhythmias , horizontal position and immobilization, full-body insulation, active external and minimally invasive re-warming techniques (warm environment; chemical, electrical, or forced-air heating packs or blankets; warm parenteral fluids).	Stage II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management.	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; re-warming with ECMO or CPB (if available) or CPR with active external and alternative internal re-warming.

PEARLS

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

ToC

2.14 Nausea/Vomiting Adult & Pediatric

EMT STANDING ORDERS- ADULT & PEDIATRIC

E

- Routine Patient Care.
- For severe nausea, consider allowing 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.

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

- Consider ondansetron 4 mg IV/IO/IM/PO. May repeat once after 10 minutes if nausea/vomiting persists

ADVANCED EMT STANDING ORDERS- PEDIATRIC

- Ondansetron 0.1 mg/kg IV/IO (maximum single dose 4 mg), **OR**
  If patient is 20 kg or larger: Ondansetron PO 4 mg

PARAMEDIC STANDING ORDERS- ADULT

P

- Prochlorperazine 5 – 10 mg IV/IO infusion or slow IV push over 1-2 minutes, or 5 mg IM, **OR**
- Metoclopramide 5 – 10 mg IV/IO infusion over 15 minutes or IM, **OR**
- Droperidol 0.625 – 1.25 mg slow IV push over 1-2 minutes or IM, **OR**
- Haloperidol 0.5 – 2 mg slow IV/IO or IM, **OR**
- Diphenhydramine 12.5-25 mg IV/IO/IM
  - May repeat any anti-emetic once after 10 minutes if nausea/vomiting persists.
  - May administer one dose of an anti-emetic from an alternate class if the initial anti-emetic is ineffective

Antidote: For dystonic reactions caused by EMS prochlorperazine, droperidol or metoclopramide: Administer diphenhydramine 25 – 50 mg IV/IO/IM.

PARAMEDIC STANDING ORDERS- Pediatric

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

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

- All anti-emetics can prolong QT. Avoid anti-emetics in patients with known prolonged QTc over 500ms

PEARLS:

- To reduce incidence of dystonic reactions, administer prochlorperazine and metoclopramide slowly.
- Haloperidol and droperidol are profoundly sedating. This should be considered prior to administration

2.15A Nerve Agents Organophosphate Poisoning - Adult

EMERGENCY MEDICAL RESPONDER/EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Assess for SLUDGEM (**S**alivation, **L**acrimation, **U**rination, **D**efecation, **G**astric upset, **E**mesis, **M**uscle twitching/miosis (constricted pupils) and KILLER **B**s (**B**radycardia, **B**ronchorrhea, **B**ronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- If trained and available antidotal therapy should be started as soon as symptoms appear.
- All antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

Category	Description/Examples	Syringe (AEMT/Paramedic) or Autoinjector dose
Mild	If TWO (2) or more of the following are present: Blurred vision/miosis; excessive lacrimation; excessive nasal secretions; increased salivation; chest tightness/dyspnea; tremors/twitching; nausea/vomiting; wheezing/coughing respiratory secretions; acute stomach cramps; tachycardia; bradycardia.	• Atropine 2 mg IM • Pralidoxime 600 mg IM • Repeat in 10 min if needed
Worsening	If at any time after the first dose the patient develops any additional symptoms or if symptoms worsen.	• Atropine 4 mg IM • Pralidoxime 1200 mg IM
Severe	If **ANY** of the following are present: Strange/confused behavior; severe difficulty breathing/copious airway secretions; severe muscle twitching; involuntary urination/defecation; convulsions; loss of consciousness; respiratory arrest.	• Atropine 6 mg IM • Pralidoxime 1800 mg IM

ToC

PARAMEDIC STANDING ORDERS

P

- If field conditions permit, initiate cardiac monitoring and consider the administration of IV/IO medications if properly equipped and trained.
- If symptoms persist after the administration of 3 DuoDote kits:
  - Atropine 2 mg IV/IO; double the dose and repeat every 5 minutes (i.e 4 mg, the 8 mg, etc.) until out of atropine or bronchorrhea ceases.
  - Pralidoxime 1 gram IV/IO over 60 minutes
  - Diazepam 5 mg IV/IO every 5; or 10 mg IM or diazepam auto-injector (10 mg) every 10 minutes, as needed.

  Instead of diazepam, may use either:

  - Lorazepam 1 mg IV/IO may repeat once in 5, or 2 mg IM, may repeat once in 10 minutes, **OR**
  - Midazolam 2.5 mg IV/IO/IN every 5 minutes; or 5 mg IM every 10 minutes as needed
- If actively seizing, see Seizures Adult Protocol 2.21A

PEARLS:

- If Atropine toxicity is observed, cease administration and treat as appropriate.

2.15P Nerve Agents Organophosphate Poisoning - Pediatric

E/A

EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient Care.
- Assess for SLUDGEM (**S**alivation, **L**acrimation, **U**rination, **D**efecation, **G**astric upset, **E**mesis, **M**uscle twitching/miosis (constricted pupils) and KILLER **B**s (**B**radycardia, **B**ronchorrhea, **B**ronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- Antidotal therapy should be started as soon as symptoms appear if available, equipped and trained.
- When administered by EMTs, listed IM injections are via autoinjector.

Determine dosing according to the following symptom assessment and protocols.

Tag Color	Signs & Symptoms of SLUDGEM	Medication Dose and Monitoring Interval		Maintenance Dose
RED (Pediatric)	Yes	Age < 1 year	Atropine 0.5 mg IM* Monitor every 3 minutes	Atropine 0.5 mg IM every 3 – 5 minutes as needed.
	Yes	Age > 1 year	Atropine 2 mg IM Pralidoxime 600 mg IM Monitor every 3 minutes	
GREEN (Pediatric)	No	None Monitor every 10 minutes for evidence of exposure.		

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

P

PARAMEDIC STANDING ORDERS

- In the unlikely event that field conditions permit, and service is equipped and trained, follow weight-based dosing and treatment protocols:
  - Initiate cardiac monitoring.
  - Establish IV/IO access.
  - Atropine 0.05 – 0.1 mg/kg IV/IO or IM (minimum dose of 0.1 mg, maximum single dose 5 mg); repeat every 2 – 5 minutes as needed
  - Pralidoxime 25 mg/kg IV/IO/IM (max 2 grams), may repeat within 30 – 60 minutes as needed.
  - Diazepam 0.3 mg/kg IV/IO (0.5 mg/kg per rectum) (maximum dose 10 mg), repeat every 5 – 10 minutes as needed
    Instead of diazepam, may use either:
    - Lorazepam 0.1 mg/kg IV/IO/IM (maximum dose 4 mg), repeat every 5 – 10 minutes as needed, **OR**
    - Midazolam 0.2 mg/kg IM/IN/IV/IO, repeat every 5 – 10 minutes as needed.

2.17 Newborn Resuscitation

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care—initial steps identified in Childbirth & Newborn Care Protocol 2.7.
- For premature infants, consider additional warming techniques, including wrapping the baby in food- or medical-grade plastic wrap.
- If the mouth or nose is obstructed or heavy secretions are present, suction oropharynx then nares using a bulb syringe or mechanical suction using the lowest pressure that effectively removes the secretions, not to exceed 100 mm Hg.
- If ventilations are inadequate, or if the chest fails to rise, or the heart rate is less then 100, initiate positive pressure (BVM) ventilations at 40 – 60 breaths per minute.
  - Note: resuscitation should be initiated with room air.
  - Inflation pressures should be individualized to achieve an increase in heart rate or movement of the chest with each breath. Be aware that bag-valve-mask pop-off valves may deliver inconsistent results.
  - Consider applying ETCO2 capnography if trained with sponsor hospital approval.
- Apply pulse oximetry monitoring to right hand (pre-ductal).
- Targeted preductal SpO2 after birth:
  - 1 min: 60-65%
  - 2 min: 65-70%
  - 3 min: 70-75%
  - 4 min: 75-80%
  - 5 min: 80-85%
  - 10 min: 85-95%
- After 30 seconds of ventilations, assess heart rate:
  - Utilize ECG monitoring (superior accuracy to clinical assessment of heart rate)
  - If ECG is unavailable/not authorized, auscultate apical beat with a stethoscope or palpate the pulse by lightly grasping the base of the umbilical cord.
- For heart rate <100, reassess ventilatory technique and continue ventilations.
- For heart rate <60 after attempts to correct ventilations:
  - Initiate CPR at a 3:1 ratio (for a range of 90 compression/minute and 30 ventilations/minute). Minimize interruptions. Reassess every 60 seconds; if not improving, continue CPR with 100% oxygen until recovery of a normal heart rate, then resume room air.
- If heart rate >100/min but breathing is labored or there is persistent cyanosis/hypoxia:
  - Position and clear airway
  - Continue to monitor SpO2/ECG
  - Provide supplemental oxygen as needed

PARAMEDIC STANDING ORDERS

P

- If meconium is present and the newborn is not vigorous (poor muscle tone, weak respiratory effort, or heart rate <100 bpm), initiate standard resuscitation techniques. Consider intubation and suctioning via meconium aspirator if the airway is obstructed
- If bag valve mask ventilation is inadequate or chest compressions are indicated, consider intubating the baby using a 3.0 mm - 4.0 mm endotracheal tube. (For an infant born before 28 weeks gestation, a 2.5 mm endotracheal tube should be used.)
  - Heart rate and $EtCO_2$ are the best indicators of whether the tube is properly placed in the trachea.
  - Consider inserting a laryngeal mask (e.g. LMA, iGEL, etc.) for newborns ≥34 weeks gestation if endotracheal intubation (ETI) is unsuccessful or as an alternative to ETI.

ToC

Protocol Continues

2.17 Newborn Resuscitation

Protocol Continued

PARAMEDIC STANDING ORDERS

P

- 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 0.01 – 0.03 mg/kg IV/IO (0.1 – 0.3 ml/kg) of 0.1 mg/ml (1:10,000) IV/IO
  - IV is preferred route for epinephrine—if there is a delay in establishing access, may administer via ETT 0.05 to 0.1 mg/kg (0.1 mg/ml).
  - If glucose level is <60 mg/dL:
    - Administer dextrose per Pediatric Color Coded Appendix 2.

PEARLS:

- ALS NOTES: Flush all meds with 0.5 to 1.0 ml normal saline or follow all ETT meds with positive-pressure ventilation.

2.18 Obstetrical Emergencies

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: >500 ml estimated blood loss or blood loss with hemodynamic instability.
- Severe Pre-eclampsia/Eclampsia: SBP> 160 or DBP>110, new onset cerebral or visual disturbances, severe & persistent RUQ pain, pulmonary edema or 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 **Direct Medical Oversight** 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 2.23)

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.
- If umbilical cord pulse is absent, 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 (Extreme knee-chest position/McRobert's maneuver). Apply firm pressure with an open hand immediately above pubic symphysis.
- If the above method is unsuccessful, consider rolling the patient to the all fours position.

Protocol Continues

2.18 Obstetrical Emergencies

Protocol Continued

EMR & EMT STANDING ORDERS

E

For postpartum hemorrhage:

- Vigorously massage fundus until uterus is firm.
- If possible initiate breast feeding
- If blood loss is > 500 mL or patient is hemodynamically unstable, treat according to Shock Protocol 2.23

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

- See Cardiac Arrest Protocol 3.2A
- 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 decubitus position.

AEMT/PARAMEDIC STANDING ORDERS

A/P

- Establish IV access above the diaphragm.
- For preterm labor:
  - 20 mL/kg 0.9% NaCl, may repeat once

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.

ToC

PRE-ECLAMPSIA / ECLAMPSIA

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

EMT/ADVANCED EMT STANDING ORDERS

E

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

ADVANCED EMT STANDING ORDERS

A

- Establish vascular access.

PARAMEDIC STANDING ORDERS

P

For patients in the third trimester of pregnancy or post-partum who are seizing, post-ictal or have symptoms of severe preeclampsia (SBP> 160 or DBP>110, new onset confusion, severe headache, visual disturbances, severe & persistent RUQ pain or pulmonary edema):

- Administer 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 2.21A.)
- Contact **Direct Medical Oversight** and follow local OB Diversion Protocols (if available).

2.19A Pain Management - Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries and positioning patient.
- Provide reassurance, psychological support and distraction.
- Consider the application of a cold pack for 30 minutes.
- Ask patient to rate his/her pain from 0 to 10 where 0 is no pain at all and 10 is the worst pain he/she has ever experienced. If there is a language barrier, use behavioral (r-FLACC) pain scale, see Pain – Pediatric Protocol 2.19P.

ADVANCED EMT STANDING ORDERS

A

Consider Acetaminophen (May choose only **ONE** of the following):

- Acetaminophen 1 gram IV/IO infusion over at least 15 minutes **OR**
- Acetaminophen 1 gram PO

PARAMEDIC STANDING ORDERS

P

After appropriate BLS intervention, if patient still reports pain ≥4/10, paramedic should offer/ discuss analgesic administration with patient regardless of vital signs or patient affect. When appropriate, analgesia should be offered prior to movement or procedures likely to worsen pain. If analgesia is withheld for moderate to severe pain, the reasons/decision-making should be documented in Patient Care Report.

Unless the patient has altered mental status, consider one or a combination of the following analgesic options:

- Opioid analgesic (Moderate/severe pain only; Choose only **ONE** of the following):
  - Fentanyl 1 microgram/kg slow IO/IV/IM/IN (single max dose of 100 microgram), may be repeated every 5 minutes to a total of 300 micrograms titrated to pain relief, **OR**
  - Hydromorphone 0.5 – 1 mg IV/IO/IM, every 5 minutes to a total of 4 mg titrated to pain relief, **OR**
  - Morphine 0.1 mg/kg IV/IO/IM (single max dose of 10 mg) every 5 minutes to a total of 20 mg titrated to pain relief and if systolic BP is >100 mmHg.
- Ketamine 0.2 mg/kg ideal body weight (IBW) IV/IO (Max 20 mg/dose; Dilute dose in at least 10 mL; Syringe push over 2-3 minutes or infusion) **OR** Ketamine 0.3 mg/kg ideal body weight (IBW) IM (Max 30 mg/dose)
  - Moderate/severe pain only
  - May repeat ketamine administration once after 10 minutes if indicated
  - Consider midazolam 2.5 mg IV/IO/IM if dysphoria / emergence reaction develops
- Non-steroidal anti-inflammatory drug (NSAID - May choose only **ONE** of the following):
  - Ketorolac 15 mg IV/IO/IM, **OR**
  - Ibuprofen 400 mg PO

For diagnosed history of migraine and moderate to severe headache consistent with previous migraines, consider administering one of the following treatments (IV route preferred):

- Metoclopramide 10 mg IV/IO infusion over 15 minutes or IM. If akathisia or dystonic reaction develops, see Poisoning/Overdose Protocol 2.20A, **OR**
- Both prochlorperazine 10 mg IV/IO infusion over 15 minutes or IM **and** diphenhydramine 25-50 mg IV/IO/IM.

Protocol Continues

2.19A Pain Management - Adult

Protocol Continued

PARAMEDIC STANDING ORDERS

P

For nausea: see Nausea/Vomiting Protocol 2.14. May administer one dose of anti-emetic prophylactically prior to opioid or ketamine.

Opioid Antidote: For hypoventilation from opioid administration by EMS, first attempt tactile stimulation. Assist ventilations. Administer the lowest dose of naloxone to maintain oxygenation. If ventilation is effective, start with naloxone 0.04 mg IV/IO or ≤0.5 mg IM/IN. Titrate naloxone doses up to 2.0 mg (max total of 10 mg) as needed.

Contact Direct Medical Oversight for direction if:

- Patient presents with altered mental status
- Considering administration of additional analgesic doses beyond standing order
- Considering co-administration of a benzodiazepine with an opioid

- Ketorolac and ibuprofen are contraindicated in pregnancy, renal insufficiency, peptic ulcer, anticoagulation or in any patient with potential for bleeding/likely to need surgery. Avoid use in suspected fractures or undifferentiated abdominal pain.
- Acetaminophen is contraindicated in patients with liver failure. Do not exceed total 1 gram in 4 hours.
- Medications should be administered cautiously to the frail, debilitated, or patients over 65 years of age; administer reduced doses of opioids and/or ketamine to this population.
- Continuous cardiac and ETCO2 monitoring (if available) should always be utilized in patients receiving opioids or ketamine. Closely monitor for sedation. Use caution for altered mental status, hypoventilation, hypotension, ETOH intoxication or allergy. Avoid Ketamine for analgesia if known cocaine use due to increased risk of cardiovascular toxicity.
- If patient condition/circumstances allow, ask patient if he or she has a "non-opioid directive". If so, discuss treatment options. Unless patient, guardian or health care proxy revokes this directive, do not administer opioids.

PEARLS:

- Opioids are preferred for acute, severely painful conditions and end-of-life palliative care. Ketamine, IV acetaminophen and ketorolac are alternatives/adjuncts in such cases when opioids are undesirable or ineffective.
- Consider treating mild to moderate pain (rated 0-5) with non-opioid options if appropriate for patient condition and not contraindicated.
- The pain score initiates a conversation with the patient to better understand his or her current level of pain. This information should then be used to guide management decisions.
- Consider alternatives to opioids for chronic pain. Opioids may still be appropriate for chronic pain such as vaso-occlusive/sickle-cell crisis, special care plans, acute exacerbation of chronic pain, etc.
- Consider lower doses of opioid when co-administered with ketamine, acetaminophen and/or NSAID.
- Use of oral analgesics should be limited to mild/moderate pain.
- Regularly reassess the patient's pain level and vital signs.
- Opioids are not recommended for first line treatment of headache and should be reserved for severe headaches only.
- Consider diluting naloxone in syringe or bag of IV fluid to facilitate titration.
- If available, fentanyl is the preferred analgesic in the pregnant patient. Titrate cautiously. Avoid maternal hypoventilation as resultant hypoxia may be harmful to the fetus.
- Accurately/effectively communicate EMS analgesic administration details to receiving medical staff.

2.19P Pain Management - Pediatric

EMT/STANDING ORDERS

E

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries and positioning patient.
- Consider the application of a cold pack for 30 minutes.
- Provide reassurance, psychological support and distraction.
- Rate the patient's pain:
  - Children greater than 8 years of age:
    - Ask the patient to rate pain on a scale from 0 – 10, where 0 is no pain and 10 is the worst pain ever experienced by the patient.
  - Children 3 – 8 years of age:
    - Use the Wong-Bakers FACES Scale, see Pain Management - Pediatric Protocol 2.19P).
  - Children less than 3 years of age or non-verbal:
    - Use the r-FLACC Pain Scale, see Pain Management - Pediatric Protocol 2.19P.

ADVANCED EMT STANDING ORDERS

A

- Consider Acetaminophen 15 mg/kg PO (max dose 1 gram)

PARAMEDIC STANDING ORDERS

P

Unless the patient has altered mental status, consider one or a combination of the following analgesic options:

- Opioid analgesic (Moderate/severe pain only; Choose only **ONE** of the following):
  - Fentanyl 1 micrograms/kg IV/IO/IM/IN (maximum dose 100 micrograms) May repeat 0.5 micrograms/kg (Maximum dose 50 micrograms) every 5 minutes to a total of 3 doses, **OR**
  - Morphine 0.1 mg/kg IV/IO (maximum dose 5 mg) may repeat 0.05 mg/kg (maximum dose 2.5 mg) every 5 minutes to a total of 3 doses.
- Ibuprofen 10 mg/kg PO (max dose 400 mg)

Antidote: For hypoventilation from opioid administration by EMS personnel, first attempt tactile stimulation. Assist ventilations and administer naloxone per Pediatric Color Coded Appendix 2. If ventilation and oxygenation is effective, titrate naloxone to administer the lowest dose necessary to maintain oxygenation/spontaneous respiration.

For nausea: see Nausea/Vomiting Protocol 2.14.

- Contact Direct Medical Oversight for guidance regarding:

  Altered mental status **or**
  Requests to provide additional doses of a medication

- Ibuprofen is contraindicated in pregnancy, renal insufficiency, peptic ulcer, anticoagulation or any patient with potential for bleeding/likely to need surgery. Avoid use in suspected fractures or undifferentiated abdominal pain.
- Acetaminophen is contraindicated in patients with liver failure. Do not exceed total 1 gram in 4 hours.

Protocol Continues

2.19P Pain Management - Pediatric

Protocol Continued

- Medications should be administered cautiously to frail or debilitated patients; Administer reduced doses of opioids to this population.
- Continuous cardiac and ETCO2 monitoring (if available) should always be utilized in patients receiving opioids. Closely monitor for sedation. Use caution for altered mental status, hypoventilation, hypotension, ETOH intoxication or allergy. Avoid Ketamine for analgesia if known cocaine use due to increased risk of cardiovascular toxicity or allergy.
- If patient condition/circumstances allow, ask patient if he or she has a "non-opioid directive". If so, discuss treatment options. Unless patient, guardian or health care proxy revokes this directive, do not administer opioids.

PEARLS:

- Opioids are preferred for acute, severely painful conditions and end-of-life palliative care.
- Consider treating mild to moderate pain (rated 0-5) with non-opioid options if appropriate for patient condition and not contraindicated.
- Consider lower doses of opioid when co-administered with acetaminophen and/or ibuprofen.
- The pain score initiates a conversation with the patient to better understand his or her current level of pain. This information should then be used to guide management decisions.
- Regularly reassess the patient's pain level and vital signs.
- Naloxone should not be used for neonatal patients (<1 month old).
- Consider diluting naloxone in syringe or bag of IV fluid to facilitate titration.
- Accurately/effectively communicate EMS analgesic administration details to receiving medical staff.

ToC

Protocol Continues

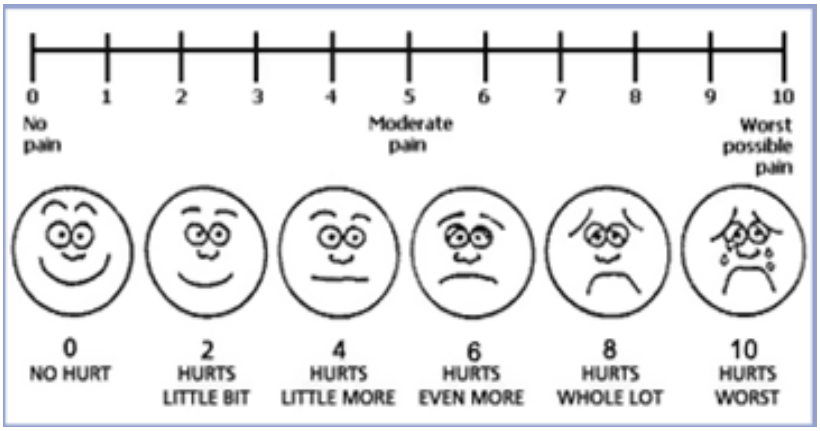
2.19P Pain Management - Pediatric

Protocol Continued

Wong-Baker FACES Scale

For patients 3 – 8 years of age

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



r-FLACC Pain Scale

For patients less than 3 years of age or non-verbal patients

Criteria	Score - 0	Score - 1	Score - 2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort

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.

2.20A Poisoning/Overdose/Substance Use Disorder - Adult

EMR/EMT/AEMT STANDING ORDERS

E

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical.
- Prior to calling Poison Control attempt to identify substance, quantity, time/route of exposure and patient information (weight, medications, history, intentional, accidental).
- For suspected opiate overdose with severe respiratory depression:
  - Provide basic airway interventions and BVM ventilation
  - If available and equipped, consider Naloxone 2 - 4 mg IN or 0.4 mg IM
    - EMR providers can only draw and inject naloxone with sponsor hospital approval
    - EMR/EMT draw and inject naloxone needs to be from a unit dose vial (0.4 mg in 1 mL)
  - If inadequate response, repeat naloxone in 3 – 5 minutes.
  - For additional naloxone doses contact Direct Medical Oversight.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol 2.24A. For decontamination/hazardous materials exposure, see Hazardous Materials Exposure 7.0.
- For hypoglycemia, see Hypoglycemia Protocol 2.12A.
- For seizures, see Seizure Protocol 2.21A.

ADVANCED EMT STANDING ORDERS

A

For suspected opiate overdose with severe respiratory depression consider:

- Naloxone 0.04 – 2 mg IV/IO/IM or 0.4 - 4 mg IN.
- If no response, may repeat every 3 – 5 minutes to a total of 10 mg.

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/IO/IM
- Organophosphates, see Nerve Agent/Organophosphate Protocol 2.15A.
- Suspected Sympathomimetic/Anticholinergic Stimulant:
  - Midazolam 2.5 mg IV/IO/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes, **OR**
  - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes; or 2 mg IM may repeat once in 20 minutes, **OR**
  - Diazepam 2 mg IV/IO, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes,
  - Treat hyperthermia/dehydration, see Hyperthermia Protocol 2.11.
  - Treat seizures per Seizure Protocol 2.21A
- For sodium channel blocker toxicity (e.g. Tricyclic, Benadryl or Cocaine) with symptomatic dysrhythmia (e.g. tachycardia and wide QRS) administer:
  - Sodium bicarbonate 2 mEq/kg IV/IO.

Protocol Continues

Protocol Continued

PARAMEDIC STANDING ORDERS

P

Paramedic- Buprenorphine

- This procedure may only be performed by Paramedic providers whom have completed buprenorphine administration training approved by their Sponsor Hospital.
- The following procedures are authorized for patients whom have overdosed on opioids **AND** meet criteria.

1) Assess the patient for exclusion criteria:
   - Age <18
   - Altered mental status or lack of medical decision-making capacity
   - Severe Medical Illness
   - Pregnant
   - Taken any methadone within the past 10 days

If any of the above are present, the patient is NOT eligible for buprenorphine, Continue with standard overdose protocol.

2) Calculate a Clinical Opiate Withdrawal Scale (COWS) score (See Appendix 6)
   Score of less than 5?
   - Patient is NOT eligible for Buprenorphine. Continue to standard overdose protocol

   ☐ Score equal to or greater than 5?
   - Counsel patient regarding Buprenorphine treatment for opiate withdrawal
   - Assess desire to initiate treatment
   - If patient DECLINES, patient is NOT eligible for Buprenorphine

3) Patient eligible and agrees to Buprenorphine treatment

   ☐ Give water to moisten mucous membranes
   ☐ Administer 16 mg SL Buprenorphine
   ☐ Reassess COWS Score after 10 minutes
   ☐ If COWS improved, maintain supportive care
   ☐ If COWS worsened or not improved, administer additional 8 mg SL Buprenorphine
   ☐ Supportive care. Treat nausea/vomiting per Nausea/Vomiting Protocol 2.14
   ☐ Recommend transport and initiate referral procedure

MAX DOSE 24 MG BUPRENORPHINE PER ENCOUNTER

REFER TO QUICK REFERENCE in APPENDIX 6

This protocol is designed to provide general guidelines for treatment. Specific treatments or antidotes may be appropriate as directed by direct medical oversight or in consultation with poison control in direct conjunction with direct medical oversight.

Protocol Continues

2.20A Poisoning/Overdose/Substance Use Disorder - Adult

Protocol Continued

PEARLS

- Airway management should remain paramount.
- Consider alternative treatments when multiple naloxone doses are administered, including advanced airway management.
- If able to adequately ventilate and oxygenate a patient with suspected opioid overdose, administer the lowest naloxone dose necessary to achieve spontaneous ventilation and oxygenation.
- If NOT able to adequately ventilate and oxygenate a patient with suspected opioid overdose, administer naloxone at the maximum end of the dose range.
- Buprenorphine-precipitated withdrawal may occur and is more common when a long-acting opioid has been taken. The treatment for precipitated withdrawal is to administer additional buprenorphine and provide supportive care
- If possible, bring container/bottles, and/or contents of suspected ingested drugs.
- Pulse oximetry may NOT be accurate for patients suffering from toxic inhalation.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Quantitative Waveform Capnography Procedure 5.7.
- For opioid OD, consider harm reduction education and/or leaving a naloxone overdose prevention kit (See Naloxone Leave Behind 6.9).

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:** Tinnitus, abdominal pain, vomiting, tachypnea, fever and/or altered mental status. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later.
- **Cardiac Medications:** dysrhythmias, altered mental status, hypotension, hypoglycemia.
- **Depressants:** bradycardia, hypotension, decreased temperature, decreased respirations, non-specific pupils.
- **Dystonic Reaction:** Neurological movement disorder, in which sustained muscle contractions cause twisting and repetitive movements or abnormal postures. This may be induced by antipsychotics, such as haloperidol, or anti-emetics such as prochlorperazine or metoclopramide.
- **Opiate:** Respiratory depression or arrest, pinpoint pupils, decreased mental states. Prolonged overdoses may result in compartment syndrome and/or hypothermia.
- **Organophosphates:** bradycardia, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- **Solvents:** nausea, coughing, vomiting, mental status change and arrhythmias. Patient with significant solvent exposure, must be handled gently to reduce the incident of arrhythmia and/or subsequent cardiac arrest.
- **Sympathomimetic/Stimulants:** tachycardia, hypertension, seizures, agitation, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), salbutamol (Albuterol), anticholinergics.
- **Tricyclic**: seizures, dysrhythmias, hypotension, decreased mental status or coma.

2.20P Poisoning/Overdose/Substance Use Disorder - Pediatric

POISON Help 1-800-222-1222

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical. Prior to calling Poison Control attempt to identify substance, quantity, time/route of exposure and patient information (weight, medications, history, intentional, accidental).
- For suspected isolated cyanide poisoning, see Smoke Inhalation 2.24P.
- For decontamination/hazardous materials exposure: refer to Hazardous Materials Exposure 7.0.
- For hypoglycemia, see Hypoglycemia 2.12P.
- For seizures, see Seizures 2.21P.
- For suspected opiate overdose with severe respiratory depression:
  - Provide basic airway interventions and BVM ventilation
  - If available and equipped, consider Naloxone 2 - 4 mg IN or 0.4 mg IM.
    - EMR providers can only draw and inject naloxone with sponsor hospital approval.
    - EMR/EMT draw and inject naloxone needs to be from a unit dose vial (0.4 mg in 1 mL)
  - If inadequate response, repeat naloxone in 3 – 5 minutes

ADVANCED EMT STANDING ORDERS

A

For suspected opiate overdose with severe respiratory depression consider:

- Naloxone IV/IM refer to Pediatric Color Coded Medication Reference Appendix 2. repeat every 5 minutes as needed to a total of 10 mg.

PARAMEDIC STANDING ORDERS

Suggested Treatments

P

- Beta Blocker and Calcium Channel Blocker, see Bradycardia Protocol 3.1P.
- Dystonic Reaction:
  - Diphenhydramine 1 mg/kg IV/IM up to 50 mg
- Organophosphates, see Nerve Agent/Organophosphate Protocol 2.15P.
- Sympathomimetic/Anticholinergic Stimulant:
  - Midazolam 0.1 mg/kg IM/IV/IN (max 2 mg), may repeat once in 5 minutes **OR**
  - Lorazepam 0.1 mg/kg IM/IV (max 2 mg), may repeat once in 5 minutes; **OR**
  - Diazepam 0.1 mg/kg IV (preferred route, max 2 mg), may repeat once in 5 minutes; **or** 0.1 mg/kg IM (max 5 mg), may repeat once in 20 minutes
  - Treat hyperthermia/dehydration, see Hyperthermia Protocol 2.11.
  - Treat seizures per Seizure Protocol 2.21P.
- For sodium channel blocker toxicity (e.g. Tricyclic, Benadryl or Cocaine) with symptomatic dysrhythmia (e.g. tachycardia and wide QRS) administer:
  - Sodium bicarbonate 2 mEq/kg IV/IO.

ToC

****Naloxone is contraindicated for Neonatal patients (Age <1 month).**

This protocol is designed to provide general guidelines for treatment. Specific treatments or antidotes may be appropriate as directed by direct medical oversite or in consultation with Poison Control in direct conjunction with direct medical oversight.

Protocol Continues

2.20P Poisoning/Overdose/Substance Use Disorder - Pediatric

Protocol Continued

PEARLS:

- If possible, bring container/bottles, and/or contents.
- Airway management should remain paramount.
- Consider alternative treatments when multiple doses of naloxone are administered, including advanced airway management.
- Pulse oximetry may NOT be accurate for toxic inhalational patients.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Quantitative Waveform Capnography Procedure 5.7.

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:** Tinnitus, abdominal pain, vomiting, tachypnea, fever and/or altered mental status. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later. **Cardiac**
- **Medications:** dysrhythmias, altered mental status, hypotension, hypoglycemia. **Depressants:** bradycardia, hypotension, decreased temperature, decreased respirations, non-specific pupils.
- **Dystonic Reaction:** Neurological movement disorder, in which sustained muscle contractions cause twisting and repetitive movements or abnormal postures. This may be induced by antipsychotics, such as haloperidol, or anti-emetics such as prochlorperazine or metoclopramide.
- **Opiate:** Respiratory depression or arrest, pinpoint pupils, decreased mental states. Prolonged overdoses may result in compartment syndrome and/or hypothermia.
- **Organophosphates:** bradycardia, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- **Solvents:** nausea, coughing, vomiting, mental status change and arrhythmias. Patient with significant solvent exposure, must be handled gently to reduce the incident of arrhythmia and/or subsequent cardiac arrest.
- **Sympathomimetic/Stimulants:** tachycardia, hypertension, seizures, agitation, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), salbutamol, (Albuterol), anticholinergics.
- **Tricyclic:** seizures, dysrhythmias, hypotension, decreased mental status or coma.

2.21A Seizures - Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dL, see Hypoglycemia Protocol 2.12A.
- If intranasal midazolam/diazepam or diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
  - Do not delay medication administration

PARAMEDIC STANDING ORDERS

P

While seizure activity is present, consider administration of one of the following until maximum dose is reached or seizure activity ceases.
****Do not delay administration of midazolam to establish vascular access. If IV/IO is not already in place, administer midazolam IM if available.****

- Midazolam 10 mg IM (preferred route) (5 mg if ≤39kg) every 5 minutes or 5 mg IV/IO/IN every 5 minutes, **OR**
- Lorazepam 4 mg IV/IO/IM (**see note**) (2 mg if ≤39kg) every 5 minutes to a total of 8 mg, **OR**
- Diazepam 10 mg IV/IO, then 2.5 mg every 5 minutes to a total of 20 mg

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

- Magnesium sulfate, 4 grams IV/IO bolus over 10 minutes, then consider 1 gram/hr continuous infusion.

- For IN administration of midazolam, use 5 mg/mL concentration.
- Continuous cardiac and $ETCO_2$ monitoring (if available) should always be utilized in patients receiving benzodiazepines
- 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 the patient from injury.
- History preceding a seizure is very important. Find out what precipitated the seizure (e.g., medication non-compliance, active infection, trauma, hypoglycemia, poisoning).
- **Status epilepticus** is defined as any generalized seizures lasting more than 5 minutes or recurrent seizures without regaining full consciousness in between. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- Cardiac arrest, dysrhythmias and other conditions may present as seizure-like activity
- Continuous ECG monitoring should be part of routine paramedic seizure care
- IM midazolam should be administered to the lateral thigh.
- Diazepam is not well absorbed IM and should be administered IV/IO.
- Lorazepam may only be administered IM if midazolam is unavailable.

2.21P Seizures – Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dl, see Hypoglycemia Protocol 2.12P.
- Obtain the patient's temperature for suspected febrile seizure (rectal route preferred, as appropriate).
- Treat fever per Pediatric Color Coded Medication Reference Appendix 2. If intranasal midazolam/diazepam or diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
  - Do not delay medication administration.

PARAMEDIC STANDING ORDERS

P

While seizure activity is present, consider administration of the following until seizure activity ceases or maximum dose is reached.

****Do not delay administration of midazolam to establish vascular access. If IV/IO is not already in place, administer midazolam IM if available.****

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

- For IN administration of midazolam, use 5 mg/mL concentration.
- Continuous cardiac and $ETCO_2$ monitoring (if available) should always be utilized in patients receiving benzodiazepines
- 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 the patient from injury.
- History preceding a seizure is very important. Find out what precipitated the seizure (e.g., medication non-compliance, active infection, trauma, hypoglycemia, poisoning).
- **Status epilepticus** is defined as any generalized seizures lasting more than 5 minutes or recurrent seizures without regaining full consciousness in between. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- IM midazolam should be administered to the lateral thigh.
- Diazepam and lorazepam are not well absorbed IM and should be given IV/IO.

2.22A Septic Shock – Adult

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK

- Suspected infection – YES
- Evidence of sepsis criteria – YES (2 or more):
  - Temperature < 96.8 °F or > 100.4 °F.
  - Heart rate > 90 bpm.
  - Respiratory rate > 20 bpm.
  - Systolic blood pressure < 90 mmHg OR Mean Arterial Pressure (MAP) <65 mmHg.
  - New onset altered mental status OR increasing mental status change with previously altered mental status.
  - Serum lactate level >4 mmol/L if available and trained or ETCO2 less than or equal to 25 mmHg.

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dL, see Hypoglycemia Protocol 2.12A.
- Do not delay transport.
- If positive sepsis screen, notify receiving facility to the suspicion of sepsis.

ADVANCED EMT STANDING ORDERS - ADULT

A

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

PARAMEDIC STANDING ORDERS - ADULT

P

- Obtain serum lactate level (if available and trained)
- If there is no response after 2,000 ml IV/IO fluid infused, continue up to 4,000 mL IV/IO fluid and consider administrating one of the following **with the use of an IV pump or an IV flow regulating device:**
  - Norepinephrine 1 – 30 micrograms/minute (preferred), titrate dosage in increments of 1-4 mcg/min every 3-5 minutes **OR**
  - Epinephrine infusion 2 – 10 micrograms/minute.

PEARLS:

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

2.22P Septic Shock – Pediatric

IDENTIFICATION OF POSSIBLE SEPTIC SHOCK

- Suspected infection – YES
- Temperature >100.4°F or <96.8°F
- Heart rate greater than normal limit for age (heart rate may not be elevated in septic hypothermic patients) **AND** at least one of the following indications of altered organ function:
  - Altered mental status
  - Capillary refill time <1 second (flash) or >3 seconds
  - Mottled cool extremities
  - Finger stick lactate level >4 mmol/L if available and trained ETCO2 less than or equal to 25 mmHg.

Note: Consider early consultation with Direct Medical Oversight for suspected pediatric septic shock patients.

EMT STANDING ORDERS - PEDIATRIC

E

- Routine Patient Care.
- Monitor and maintain airway and breathing as these may change precipitously
- Administer oxygen and continue regardless of oxygen saturation levels. Obtain blood glucose reading if available. If the blood glucose reading is <60 mg/dL, see Hypoglycemia Protocol 2.12P.
- 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 20 mL/kg of normal saline or lactated ringers 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: Reassessment of patient after boluses should include assessment of improving clinical signs and signs of volume 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 Direct Medical Oversight to consider:
  - Additional fluids, **OR**

One of the following medications through **the use of an IV pump or IV flow regulating device:**

- Norepinephrine infusion 0.1 – 0.5 micrograms/kg/min titrated to effect, **OR**
- Epinephrine 0.1 – 0.5 micrograms/kg/min, start low and titrate to effect.

PEARLS:

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

2.23 Shock (Non-Traumatic) Adult & Pediatric

Recognize Compensated Shock - Adult

- Anxiety
- Tachycardia
- Tachypnea
- Diaphoresis

SHOCK

- Inadequate tissue perfusion that impairs cellular metabolism
- Mental status change
- Hypotension

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 4.5***

EMT STANDING ORDERS - ADULT & PEDIATRIC:

E

- Routine patient care.
- Keep the patient supine. Do not elevate feet.
- If not febrile, prevent heat loss with blankets and warm environment.
- Consider acquiring and transmitting ECG if trained and approved.

Consider ▶

ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

A

- ETCO2 < 25 mmHg may indicate poor perfusion/shock.

ADULT: Administer NS or LR in 250 mL boluses to maintain SBP > 90, not to exceed 2000 mL without consultation with Direct Medical Oversight.

PEDIATRIC: Administer fluid bolus of 20 mL/kg of NS or LR by syringe push (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 inadequate hemodynamic response after 2,000 ml IV fluid infused, consider (IV pump or flow restricting device required):

- Norepinephrine infusion 1 – 30 microgram/minute (preferred), **OR**
- Epinephrine infusion 2 – 10 micrograms/minute

PEDIATRIC: If there is inadequate hemodynamic response after 60 mL/kg IV fluid infused, contact Direct Medical Oversight.

Consider ▶ **CARDIOGENIC SHOCK**

Primary pump failure Decreased cardiac output

Consider early vasopressor (IV pump or flow restricting device required):

- Norepinephrine infusion 1 – 30 microgram/minute (preferred), **OR**
- Epinephrine infusion 2 – 10 micrograms/minute

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

Consider ▶ **DISTRIBUTIVE SHOCK**

Inadequate blood volume distribution.

Known history of adrenal insufficiency or recent illness, see Adrenal Insufficiency 2.1
Systemic response to an allergen, see Anaphylaxis/Allergic Reaction 2.3A
Suspected infection, see Septic Shock 2.22A

Consider ▶ **HYPOVOLEMIC SHOCK**

Insufficient circulating volume.

Abdominal pain with vaginal bleeding see Obstetrical Emergencies 2.18.
Nausea and vomiting see Nausea Vomiting Protocol 2.14. For GI bleeding see Abdominal Pain Protocol 2.0A.
Heat exposure, see Hyperthermia Protocol 2.11.

Consider ▶ **OBSTRUCTIVE SHOCK**

Obstruction of blood flow outside the heart

For cardiac tamponade, rapid transport, treat arrhythmias per Cardiac Protocols 3.0 – 3.5.
For spontaneous pneumothorax: consider needle decompression per Thoracic Injury Protocol 4.7.
For pulmonary embolism: rapid transport and see Airway Management Protocol 5.0.

2.24A Smoke Inhalation - Adult

EMT STANDING ORDERS

E

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

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

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

- Hydroxocobalamin via use of Cyanokit
  - Reconstitute: Place the vial of hydroxocobalamin in an upright position; add normal saline to the vial (200 mL for 5 grams vial or 100 mL for 2.5 grams vial) using the transfer spike. Fill to the line.
  - Rock vial for at least 60 seconds (do not shake).
  - Using vented intravenous tubing, infuse as directed.
  - Depending on clinical response, a second dose may be required.
- If stridor at rest, consider nebulized Epinephrine 5 mg of 1 mg/mL (1:1000).

ToC

- 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/IO as hydroxocobalamin.

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

PEARLS:

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

2.24P Smoke Inhalation - Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Oxygen 100% via non-rebreather mask or BVM.
- Decontamination concurrent with initial resuscitation.
- Meter (if available) atmospheric levels of carbon monoxide (CO) and cyanide (CN).

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

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

- Hydroxocobalamin via use of Cyanokit
  - Reconstitute: Place the vial of hydroxocobalamin in an upright position; add normal saline to the vial (200 mL for 5 grams vial or 100 mL for 2.5 grams vial) using the transfer spike. Fill to the line.
  - Rock vial for at least 60 seconds (do not shake).
  - Using vented intravenous tubing, infuse 70 mg/kg hydroxocobalamin (see chart below) 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.
- If stridor at rest, consider nebulized Epinephrine 5 mg of 1 mg/mL (1:1000).

- 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/IO as hydroxocobalamin.

6.6 lbs	8.8 lbs	11 lbs	13.2 lbs	15.4 lbs	17.6 lbs	19.8 lbs	22 lbs	24.2 lbs	26.4 lbs	28.6 lbs	30.8 lbs
Gray			Pink		Red		Purple		Yellow		
225 mg	300 mg	350 mg	425 mg	500 mg	575 mg	650 mg	700 mg	775 mg	850 mg	925 mg	1000 mg
9 mL	12 mL	14 mL	17 mL	20 mL	23 mL	26 mL	28 mL	31 mL	34 mL	37 mL	40 mL

33 lbs	35.2 lbs	37.4 lbs	39.6 lbs	41.8 lbs	44 lbs	46.2 lbs	48.4 lbs	50.6 lbs	52.8 lbs	55 lbs
White				Blue					Orange	
1050 mg	1125 mg	1200 mg	1275 mg	1350 mg	1400 mg	1475 mg	1550 mg	1625 mg	1700 mg	1750 mg
42 mL	45 mL	48 mL	51 mL	54 mL	56 mL	59 mL	62 mL	65 mL	68 mL	70 mL

57.2 lbs	59.4 lbs	61.6 lbs	63.8 lbs	66 lbs	68.2 lbs	70.4 lbs	72.6 lbs	74.8 lbs	77 lbs	79.2 lbs
Orange				Green						
1825 mg	1900 mg	1975 mg	2050 mg	2100 mg	2175 mg	2250 mg	2325 mg	2400 mg	2450 mg	2525 mg
73 mL	76 mL	79 mL	82 mL	84 mL	87 mL	90 mL	93 mL	96 mL	98 mL	101 mL

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

PEARLS:

- Smoke is a dangerous mixture of heated toxic gases and suspended chemicals. Cyanide (CN) and carbon monoxide (CO) are commonly present in smoke and should be suspected in all smoke inhalation victims.
- Remove the excess hydroxocobalamin from vial before spiking and infusing the medication

2.25 Stroke – Adult & Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Obtain glucose reading via glucometer, if available. If less than 60 mg/dL treat per Hypoglycemia Protocol 2.12A.
- Perform BE-FAST Stroke Scale
- Clearly determine the last known well time (at baseline)
- If last known well within 24 hours and any of the signs of the stroke scale is abnormal, follow local stroke destination plan, notify the emergency department of a "Stroke Alert" as soon as possible including the time last known well.
- Elevate the head of the stretcher 30 degrees.
- ALS should be requested but do not delay transport for ALS intercept.
- Minimize scene time with a goal of ≤15 minutes. Limit on-scene interventions to necessary assessment and stabilizing care.
- Consider air medical transport per local stroke plan, see Air Medical Transport Procedure 6.2
- Acquire 12-lead ECG if available. Do not delay transport for 12 lead ECG.
- Consider transporting a witness, family member, or caregiver with the patient to verify the time of the onset of stroke symptoms.
- Patient should be reassessed every 15 minutes including a repeat of applicable Stroke Scale.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- En-route to the hospital, obtain vascular access with a minimum of 20g IV, proximal to the wrist. Transport should not be delayed to obtain vascular access.

ToC

BE-FAST Stroke Scale

Balance: Perform bilateral index finger-to-nose test and bilateral heel-to-shin test
Does the patient have sudden loss of balance or coordination, trouble walking or dizziness?

Eyes: Assess 4 quadrants of visual field by having patient locate your index finger.
Does the patient have acute trouble seeing out of one or both eyes, visual field loss or double vision?

Facial Droop: *Have the patient smile and show teeth.*
Does the patient's face look uneven, have acute drooping or numbness on one side?

Arm Drift: *Have patient close their eyes, raise and extend both arms with palms up for 10 seconds.*
Does one arm pronate (rotate inward), drift downward, or is there acute weakness of one arm?

Speech: *Ask the patient to repeat a phrase such as, "You can't teach an old dog new tricks".*
Does the patient have slurred speech, trouble speaking, understanding or seem confused?

Time: What time was the patient last known well (last appear normal)? ____:____
What time did the symptoms start ? ____:____

If 1 or more of the above signs are abnormal, then your patient may be experiencing a stroke and, if <24 hours since patient was last known well, transport emergently and activate a stroke alert.

PEARLS:

- Perform BE-FAST for any acute complaint of visual disturbance, altered mental status, dizziness/ vertigo, difficulty walking/balance/coordination, severe headache, speech difficulty or weakness.
- Acute onset of stroke symptoms <24 hours from last known well time is an emergency with rapid transport indicated.

Protocol Continues

2.25 Stroke – Adult & Pediatric

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

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

	YES	NO	Unknown
Time last known well (TLKW) < 24 hours?	☐	☐	☐
Any abnormal finding not attributable to head trauma?	☐	☐	☐
Blood Glucose >60?	☐	☐	☐

TIME LAST KNOWN WELL:
: AM/PM

BLOOD GLUCOSE LEVEL:
mg/dL

BE-FAST Stroke Scale

Item	Score
Balance	
Normal gait and coordination	0
Ataxia, dizziness or vertigo	1
Eyes	
No visual disturbances	0
Loss of visual field or diplopia	1
Face	
Symmetrical	0
Facial droop	1
Arms	
Absent	0
Unilateral paralysis, weakness or pronator drift	1
Speech	
Normal	0
Aphasia, dysphasia or dysarthria	1

History:

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

Medications:
- ❑ Coumadin/ warfarin
- ❑ Pradaxa/ dabigatran
- ❑ Xaralto/ rivaroxaban
- ❑ Eliquis/ apixaban
- ❑ Aspirin
- ❑ Other anitcoag

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

Say "Stroke Alert" in Med Patch if patient meets the Stroke Criteria, even if symptoms have resolved.

2.25 Stroke – Adult & Pediatric

Please refer to your local Stroke agreement plan.

2.26 Syncope Adult & Pediatric

EMT STANDING ORDERS- ADULT

E

- Routine Patient Care.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%.
- If equipped and trained obtain a 12-Lead EKG and transmit per sponsor hospital direction. If acute coronary syndrome is suspected, refer to Acute Coronary Syndrome Protocol 3.0.
- Obtain blood glucose, if available. Refer to Hyperglycemia Protocol 2.9 or Hypoglycemia Protocols 2.12 A & P if indicated.
- Assess for signs/symptoms of trauma if related or from fall associated with syncope; refer to Spinal Trauma Protocol 4.5 if indicated.
- Prevent and treat for shock; see Shock (Non-traumatic) Protocol 2.23 or Shock Traumatic Protocol 4.5.
- Consider ALS intercept.

ADVANCED EMT STANDING ORDERS

A

- Consider fluids per Shock (Non-Traumatic) Protocol 2.23.

PARAMEDIC STANDING ORDERS

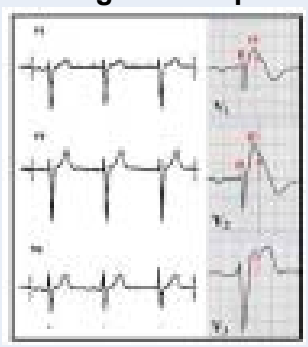
P

- Ensure cardiac monitoring and treat for 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 a more serious medical emergency.
- Syncope that occurs during exercise often indicates an ominous cardiac cause. Patients should be evaluated at the ED. Syncope that occurs following exercise is almost always vasovagal and benign.
- Prolonged QTc (generally >500 ms) and Brugada Syndrome (incomplete RBBB pattern in V1/V2 with ST segment elevation) should be considered in all patients.
- There is no evidence that supports acquiring orthostatic vital signs.
- Syncope can indicated of many medical emergencies including:
  - Myocardial infarction
  - Pulmonary embolism
  - Cardiac arrhythmias
  - Vaso-vagal reflexes
  - Diabetic emergencies
  - Poisoning/drug effects
  - Dehydration
  - Hypovolemia
  - Seizures
  - Ectopic pregnancy

Brugada Sample



2.27 Hospice

Introduction

The treatment goals of hospice patients differ significantly for those of other patients. Maintaining patient dignity and quality of life, rather than treating medical conditions is the objective. In these circumstances, **EMS clinicians should make every effort to reach a Hospice provider** (family/nursing staff should have 24/7 contact information). If a Mobile Integrated Healthcare (MIH) program with hospice expertise is available, please consider activating them. If Hospice is not reachable or if challenging scenarios regarding patient treatment and transportation, discuss with DMO.

Hospice patients generally wish to remain at home and transport to the hospital should be the exception. EMS clinicians should clarify with hospice patients and families the patient's overall goals of care for the patient during this encounter (e.g. comfort focused treatment and pain management). 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 preference.

EMS clinicians should **avoid** the following interventions for these patients:

- 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, endotracheal intubation, supraglottic airway, cardioversion, cardiac pacing, defibrillation.
- Hospice patients should not be transported to the hospital except when transport is specifically requested by the patient, their healthcare agent, or Power of Attorney, and preferably in consultation with the hospice team and exhaustion of other comfort focused treatments at home are inadequate at controlling symptoms.

Many hospice patients will have an emergency hospice kit that contains medications that patient caregivers are instructed to use to treat commonly encountered medical issues.

Common Adult Hospice Emergency Kit/"Comfort Packs" Medications

Symptom	Medication	Initial suggested dose and route
Delirium & Agitation	Haloperidol (Haldol; tablets or 2mg/mL solution)	0.5-2mg PO Q2-8H PRN
	Lorazepam (Ativan; tablets or 2mg/mL solution)	0.5mg-2mg PO Q1-6H PRN
Excessive secretions	Atropine Solution 1% drops	1-2 drops SL every 1-6H PRN
	Hyoscyamine (Levsin)	0.125-mg SL or SQ Q4H
Fever	Acetaminophen suppository	650mg PO or PR
Nausea/Vomiting	Chlorpromazine	12.5-50mg PO Q6-8H
	Dexamethasone	2-8mg PO Q4-8H

Protocol Continues

2.27 Hospice

Protocol Continued

	Haloperidol (Haldol; 2mg/mL solution)	0.5-2mg PO Q2-4H PRN
	Lorazepam (Ativan; 2mg/mL solution)	0.5mg-2mg PO Q1-4H PRN
	Metoclopramide (Reglan)	5-20mg PO Q6H
	Ondansetron (Zofran)	4-8mg PO Q4-8H
	Prochlorperazine	5-10mg PO Q6-8H
	Scopolamine transdermal patch	1 or 2 of the 1.5mg patches applied Q72H
Pain & Dyspnea	Morphine Sulfate Oral Solution 20mg/mL	5-10mg SL Q 1-2H PRN
Seizure	Diazepam Supp/Lorazepam	10mg PR

*PO= oral, SL=sublingual, SQ= subcutaneous, PR=rectal

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care
- Contact the hospice team
- For poorly controlled symptoms
  - Breakthrough Pain: Encourage family to use medication from their emergency hospice kit
  - Dyspnea/Air Hunger: Administer oxygen via nasal cannula to relieve shortness of breath. Use a fan to blow air directly at a patients' face
  - Dehydration: Moisten lips with petroleum jelly. Use 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.

PARAMEDIC STANDING ORDERS

P

Consult with hospice providers regarding symptom management. Encourage patient/family to use medication from their emergency hospice kit. If symptoms are refractory, consider the following treatment adjuncts from EMS formulary:

- Breakthrough Pain and Dyspnea: Pain management- Adult (2.19A) & Pediatric (2.19P)
- Nausea/Vomiting: Nausea/vomiting (2.14. For excessive secretions, consider gentle airway suctioning.
- Anxiety/Agitation: (See Behavioral Emergencies 2.6)

Protocol Continues

2.27 Hospice

Protocol Continued

PEARLS

- Understand the reason EMS was called (e.g. acute trauma, poorly controlled pain, family anxiety/fear about dying process). Many hospice patients may not benefit nor want to be transported to the hospital, and the use of compassionate communication skills can clarify and address patient and family concerns. Hospice providers know the patient and their can of plan of care best and are an invaluable resource.
- Many hospice patients have high burden of pain/symptoms and may already be receiving high doses of opioids (>60mg of oral morphine per day) and/or benzodiazepines. Some of these patients may be opiate or benzodiazepine tolerant.
- Opioids are a good treatment for air hunger and shortness of breath in addition to pain. Morphine and methadone doses vary widely among patients. Patients with advanced renal failure may have oxycodone or hydromorphone to limit potential neurotoxicity. The following is an example of opiate dosage equivalent for 60mg of oral morphine:
    - 25 mcg/hr fentanyl transdermal
    - 60mg/day of hydrocodone
    - 40mg/day of oxycodone
    - 15mg/day of oxymorphone
- Opioid overdose is a rare event in hospice patients. Naloxone administration can precipitate a pain crisis in hospice patients and should be generally avoided. If an accidental opioid overdose is strongly suspected, a titrated dose of naloxone can be attempted by an ALS unit.
- Actively dying patients may experience anxiety, confusion, delirium, noisy/agonal breathing as part of the dying process and distressing for family to witness but are not thought to be distressing to the patient. Repositioning is the first intervention.

3.0 Acute Coronary Syndrome - Adult

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

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- Obtain 12-lead ECG with baseline vitals within 10 minutes if available and practical; and transmit per sponsor hospital policy.
  - If 12-lead ECG indicates a STEMI transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements. Initiate local process for catheterization lab activation ("STEMI Alert").
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%.
- If patient has not taken Aspirin within 24 hours and is able to swallow; administer 324 mg PO (chewable). If patient has taken Aspirin within 24 hours, supplement their previously taken Aspirin up to 324 mg PO (chewable).
- Facilitate administration of the patient's own nitroglycerin every 3 – 5 minutes while symptoms persist and systolic BP remains >100 mmHg, to a total of 3 doses.

ADVANCED EMT STANDING ORDERS – ADULT

A

- Consider IV before administration of nitroglycerin
- Nitroglycerin 0.4 mg SL every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg.

ToC

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider IV/IO nitroglycerin at 10 micrograms/minute if symptoms persist after 3rd SL nitroglycerin (it is recommended two (2) IV/IO lines should be in place).
  - Increase IV/IO nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic BP remains >100 mmHg.
- If IV/IO or SL nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally.

Consider:

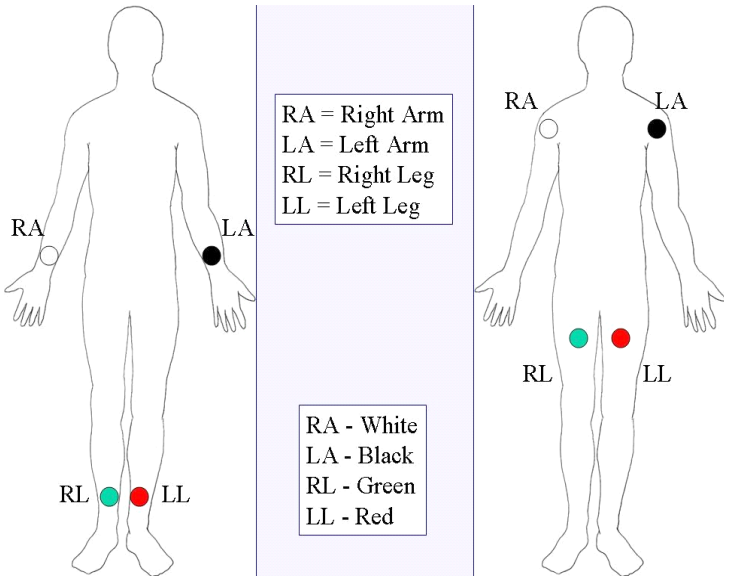
- Fentanyl 1 microgram/kg (up to 100 micrograms) slow IV/IO push every five minutes up to a max dose of 300 micrograms as long as systolic BP remains >100 mmHg. **OR**
- Morphine 0.1 mg/kg IV/IO/IM (up to 5 mg) every 5 minutes to a maximum of 15 mg titrated to pain as long as systolic BP remains >100 mmHg
- Treat dysrhythmias as needed; refer to the appropriate protocol.
- For nausea: see Nausea/Vomiting Protocol 2.14.

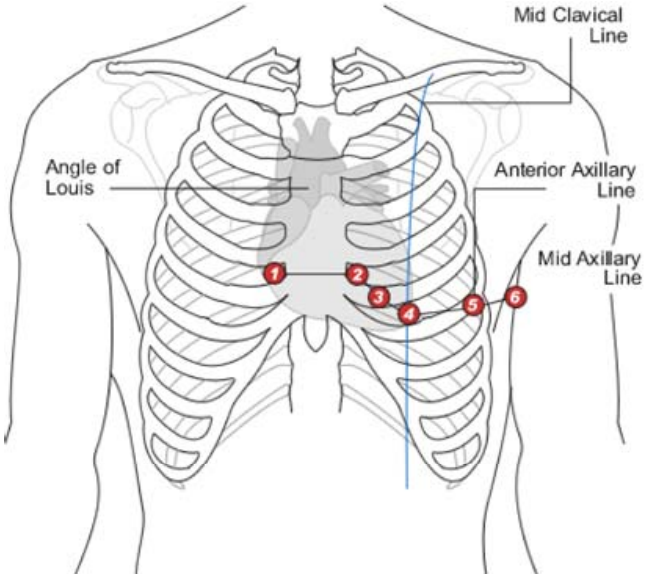
Protocol Continues

3.0 Acute Coronary Syndrome – Adult

Protocol Continued

- Avoid nitroglycerin in any patient who has used a phosphodiesterase inhibitor within 48 hours 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 or morphine 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:

- Early notification of the receiving facility, preferably from the bedside, has been shown to significantly improve patient outcome for STEMI patients.
- If available, 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.
- Consistent with AHA Mission Lifeline goals, scene time goal is <15 minutes.

3.0 Acute Coronary Syndrome – Adult

Please refer to your local STEMI agreement plan.

3.1A Bradycardia – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider the underlying causes of bradycardia (e.g., acute coronary syndrome, hyperkalemia, hypoxia, hypothermia).
- 12 Lead ECG if available and transmit as directed by sponsor hospital.

AEMT STANDING ORDERS

A

- Consider administering fluid bolus of up to 500 mL 0.9% NaCl

PARAMEDIC STANDING ORDERS

P

If symptomatic and hemodynamically unstable:

- Consider atropine 1 mg IV/IO every 3 – 5 minutes to a total of 3 mg. If atropine is ineffective:
  - Consider transcutaneous pacing.
  - Consider administration of the following prior to or during transcutaneous pacing, if feasible:
    - Midazolam 2.5 mg IV/IO/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes, **OR**
    - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes; or 2 mg IM, may repeat once in 10 minutes, **OR**
    - Diazepam 2 mg IV/IO; may repeat once in 5 minutes **OR** alternatively, provide analgesia per Pain Management Protocol 2.19A

Consider one of the following medications **through the utilization of an IV pump or an IV flow regulating device:**

- Epinephrine infusion at 2 – 10 micrograms/minute, OR
- **Contact Direct Medical Oversight** for expert consultation.

Other Causes:

- For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 5 mg IV/IO over 3 – 5 minutes.
- For suspected hyperkalemia with ECG changes, see Hyperkalemia Protocol 2.10.
- For symptomatic calcium channel blocker overdose, consider:
  - Calcium gluconate 2 grams IV/IO over 5 minutes, with continuous cardiac monitoring, **OR**
  - Calcium chloride (10% solution) 1 gram IV/IO over at least 5 minutes, with continuous cardiac monitoring.

For calcium chloride administration, ensure IV/IO patency and administer over at least 5 minutes.

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.
- In the un-intubated patient, analgesics may not be administered in combination with benzodiazepines without Direct Medical Oversight.
- Atropine will likely be ineffective in Mobitz 2, complete heart block, cardiac transplant patients and hypothermia.

3.1P Bradycardia – Pediatric

E/A EMT/ADVANCED EMT STANDING ORDERS

- 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 and transmit as directed by sponsor hospital.

P PARAMEDIC STANDING ORDERS

- Epinephrine 0.01 mg/kg IV/IO (0.1 mL/kg) of 0.1 mg/ml (1:10,000) IV/IO, maximum single dose 0.3 mg every 3 – 5 minutes.
- Consider atropine 0.02 mg/kg IV/IO for increase vagal tone or AV blocks, may repeat once (minimum single dose: 0.1 mg; maximum single dose 0.5 mg)
- Consider transcutaneous pacing.

Consider administration of one of the following prior to/during pacing, if feasible:

  - Midazolam 0.05 mg/kg IV/IO/IN, **OR**
  - Lorazepam 0.05 mg/kg IV/IO**, OR**
  - Diazepam 0.05 mg/kg IV/IO.

Other Causes:

- For hypoglycemia see Hyperglycemia Protocol 2.9 or Hypoglycemia Protocol 2.12P.
- For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 0.05 mg/kg.
- For symptomatic calcium channel blocker overdose consider: Calcium gluconate (10% solution) 100 mg/kg IV/IO with a maximum 2 gram dose over 5 minutes; may repeat in 10 minutes, **OR**
- Calcium chloride (10% solution) 20 mg/kg IV/IO (0.2 mL/kg) with a maximum 1 gram dose over 5 minutes; administer over at least 5 minutes. May repeat in clinical indication persists.

ToC

- For calcium chloride administration, ensure IV/IO patency and administer over at least 5 minutes.
- In pediatrics, bradycardia is often secondary to hypoxia. Correct hypoxia and support ventilation.

PEARLS:

- Combine age specific heart rates with signs of respiratory failure and shock while assessing. If child is asymptomatic, consider no treatment.
- Atropine will likely be ineffective in Mobitz 2, complete heart block, cardiac transplant patients and hypothermia.

3.2A Cardiac Arrest – Adult

EMT STANDING ORDERS - ADULT

E

- Primary focus should be on high-performance CPR with minimal chest compression interruptions and early defibrillation.
- EMS agencies should use a “pit crew” approach when using this protocol to ensure the most effective and efficient cardiac arrest care. See pearls.
- Perform 2-minute cycles of high-performance CPR.
- Compressions should be depth of at least 2 inches or 5 cm and rate of 100-120/min) and allow complete recoil.
- Rhythm/pulse check and defibrillation occur between cycles.
- Ventilation/Compression options:
- BLS Airway - 30 compressions: 2 breaths. 2 person BVM strongly preferred
- Advanced airway (SGA, ETT or cuffed tracheostomy tube) - 1 breath every 6 seconds without interrupting chest compressions.
- Ensure effective ventilation and oxygenation using objective measures including appropriate ETCO2 tracing, chest rise and lack of signs of ineffective ventilation (gaseous distension etc). Consider supraglottic airway (if trained and Sponsor Hospital authorized) if ventilation is not adequate with BVM. For arrests of suspected respiratory etiology, consider early SGA placement.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions.
- A lone rescuer may start their resuscitation with compressions for witnessed, sudden cardiac arrest of presumed cardiac etiology, so as to prioritize early compressions and AED use
- If trained and sponsor hospital approved, monitor quantitative waveform capnography throughout resuscitation to assess and monitor airway placement, CPR quality, and for signs of return of spontaneous circulation (ROSC). If ETCO2 is low or falling, reassess CPR quality and adjust if needed.
- Consider treatable causes: hypoxia, overdose/poisoning, hypoglycemia, hyperkalemia, hypothermia, and hypovolemia (treat as per specific protocol)
- When appropriate, consider termination of efforts. See Resuscitation Initiation and Termination Procedure 6.17
- For guidance on when to withhold resuscitation, see Do Not Resuscitate (DNR) Orders Protocol 6.7 and/or Resuscitation Initiation and Termination Procedure 6.17

ADVANCED EMT STANDING ORDERS - ADULT

A

- Obtain vascular access (IV preferred) without interrupting chest compressions.
- If patient remains pulseless, administer:
  - Epinephrine 1 mg in 10 mL (1:10,000), 1 mg IV/IO every 3-5 minutes

PARAMEDIC STANDING ORDERS - ADULT

P

- Ensure effective ventilation and oxygenation using objective measures including appropriate ETCO2 tracing, chest rise and lack of signs of ineffective ventilation (gaseous distension etc). Consider supraglottic airway or endotracheal intubation if ventilation is not adequate with BVM. For arrest of suspected respiratory etiology, consider early airway placement.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions.

Protocol Continues

3.2A Cardiac Arrest – Adult

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

P

- Once advanced airway is placed, breaths should be administered 1 breath every 6 seconds.
- If VF/Pulseless VT persists following second defibrillation, in addition to AEMT standing orders, administer:
  - Amiodarone 300 mg IV/IO.
    - If after 5 minutes, VF/pulseless VT remains unresponsive to CPR, defibrillation, and vasopressor therapy, administer an additional 150 mg amiodarone IV/IO.
    - If successful, consider amiodarone (1mg/mL) maintenance infusion at 1 mg/minute.
  - **OR**, if amiodarone is unavailable/contraindicated: 1.5 mg/kg lidocaine IV/IO.
    - Repeat lidocaine 0.75 mg/kg IV/IO every 5-10 minutes until defibrillation is successful up to a maximum total dose of 3 mg/ kg.
    - If successful/ROSC, consider maintenance infusion of lidocaine 1-4 mg/min.
  - For Torsades de Pointes: Magnesium sulfate 1-2 grams diluted in 10 mL IV/ IO over 1–2 minutes.
- Consider tension pneumothorax and if suspected treat with needle decompression. See Needle Thoracostomy Protocol 6.10
- For suspected or known hyperkalemia (e.g., dialysis patient, crush injury, dehydration/acute kidney injury, etc.), administer 1g Calcium Chloride **OR** 3g Calcium Gluconate IV/IO push; Repeat dose every 5 minutes as clinically indicated. For additional treatment post ROSC, see Hyperkalemia Protocol 2.10.
- For suspected sodium channel blocker overdose (e.g. tricyclic antidepressants), consider:
  - Sodium bicarbonate 2 mEq/kg IV/IO.
- If return of spontaneous circulation (ROSC) occurs see Post Resuscitative Care Protocol 3.4.

ToC

PEARLS:

- **Look for and treat reversible causes early in the resuscitation.**
- Early CPR with minimal interruptions and defibrillation are the most effective therapies for cardiac arrest.
- It is expected, unless special circumstances are present, that resuscitation will be performed on scene until ROSC or termination of efforts. See Resuscitation, Initiation, and Termination Procedures 6.17.
  - Consider early transport for rare cases where there is a strong suspicion of a reversible cause that can be addressed in hospital but not in the field, such as acute myocardial infarction or pulmonary embolism.
  - Consider transport for cases of persistent VF/VT or PEA with high ETCO2 for whom there may be hospital specific treatments indicated or for whom all EMS treatment options have been exhausted.

Protocol Continues

3.2A Cardiac Arrest – Adult

Protocol Continued

PEARLS cont'd

- Switch compressors at least every two minutes to minimize fatigue.
- To better minimize perishock pause, consider:
  - Charging manual defibrillator prior to each rhythm check.
  - Performing chest compressions while AED is charging
  - Hovering hands above patient while delivering a shock
  - Resuming compressions immediately after a shock is delivered.
- A mechanical CPR device may be applied in a patient in active cardiac arrest AFTER 8 minutes (4 cycles) of manual CPR. Mechanical CPR devices must only be applied in a manner that coordinates with pulse/rhythm checks while strictly limiting all breaks in CPR to less than 10 seconds. This may require that the device be applied over two or more 2-minute cycles of chest compressions
- Pit Crew CPR should be emphasized and routinely practiced. 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.

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
- ❑ 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

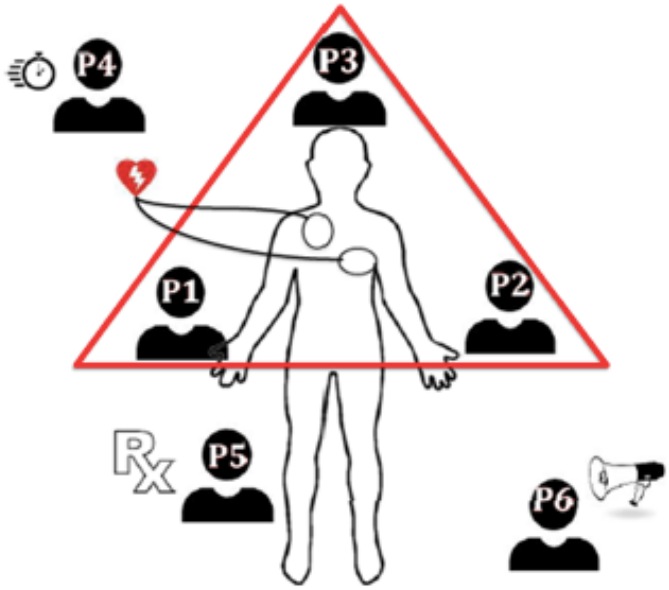
Pit Crew CPR example:(following page)

ToC

Protocol Continues

3.2A Cardiac Arrest – Adult

Protocol Continued



POSITION #1 - Compressor 1 (right side of patient):

- Initiates chest compressions at rate of 100-120/min at a 30:2 ratio for a BLS airway or continuously for an ALS airway

POSITION #2 - Compressor 2 (left side of patient): Sets up defibrillator

- Alternates 2 minute of chest compressions with Position

POSITION #3 - Airway (At patient's head

- Manages airway either with BVM, or if insufficient ventilation can consider supraglottic device placement or endotracheal intubation.
- If using BVM, ratio is 30:2. If advanced airway, ventilate 1 breath every 6 seconds

POSITION #4 - Team Leader (Outside CPR triangle):

- Coaches the metrics
- Calls for compressor change every two minutes
- 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

3.2P Cardiac Arrest – Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine patient Care—with focus on CPR.
  Immediate chest compressions.
- Perform 2-minute cycles of high performance CPR.
- Rhythm/pulse check and defibrillation occur between cycles.
- Ventilation / Oxygenation options:
  - Single provider: 30 compressions: 2 breaths
  - Multiple providers: 15 compressions: 2 breaths
  - Advanced airway: 1 breath every 2-3 seconds without interrupting 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.
- Consider termination of efforts or not attempting resuscitation, see Do Not Resuscitate (DNR) Orders 6.7 and/or Resuscitation Initiation and Termination Procedure 6.17
- Consider treatable causes: hypoxia, overdose/poisoning, hypoglycemia, hypothermia, and hypovolemia (treat as per specific protocol).

PARAMEDIC STANDING ORDERS

P

- Monitor quantitative waveform capnography, throughout resuscitation to assess and monitor airway placement, CPR quality, and to monitor for signs of Return of Spontaneous Circulation (ROSC).
- 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. Cuffed ETT's are preferred in the pediatric setting. If using a cuffed ETT please refer to the guidelines below:
  - A cuffed pediatric ETT should generally be 1/2 size smaller than the appropriately sized uncuffed ETT. An audible leak should be present prior to cuff inflation or the tube should be downsized.
  - Take care not to overinflate pediatric ETT cuffs. If a manometer is available, do not exceed 20 cm H2O pressure. Otherwise, assess for cuff leak first and then carefully inflate cuff just until cuff leak is no longer auscultated.
- Once advanced airway is placed breaths should be administered 1 breath every 2-3 seconds.
- For suspected sodium channel blocker overdose (e.g. tricyclic antidepressants), consider:
  - Sodium bicarbonate 2 mEq/kg IV/IO.
- For suspected or known hyperkalemia (e.g., dialysis patient, crush injury, dehydration/ acute kidney injury, etc.), administer 20 mg/kg Calcium Chloride OR 60 mg/kg Calcium Gluconate IV/IO push; Repeat dose every 10 minutes as clinically indicated.

ToC

Protocol Continues

3.2P Cardiac Arrest – Pediatric

Protocol Continued

PARAMEDIC STANDING ORDERS - continued

P

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 and recheck rhythm; if still a shockable rhythm, defibrillate at 6 J/kg; perform CPR for 2 minutes and recheck rhythm; if still a shockable rhythm, defibrillate at 8 J/kg; reassess every 2 minutes and continue to defibrillate at 8 J/kg."
- If no response after first defibrillation, administer epinephrine 0.01 mg/kg (1:10,000) (0.1 mL/kg) IV/IO **OR** 0.1 mg/kg (1:1,000; 0.1 mL/kg) via ETT as a last resort if unable to obtain IV/IO.
  - Repeat every 3 – 5 minutes.
- If no response after second defibrillation, consider:
  - Amiodarone 5 mg/kg (maximum 300 mg) IV/IO, **OR**
  - Lidocaine 1 mg/kg (maximum 100 mg).
  - For Torsades de Pointes: Magnesium sulfate 25 – 50 mg/kg (maximum 2 grams) IV/IO over 1–2 minutes.

For Asystole or Pulseless Electrical Activity (PEA):

- Administer first dose of epinephrine as soon as possible after identifying the initial rhythm as Asystole or PEA (0.01 mg/kg (1:10,000)(0.1mL/Kg) IV/IO or 0.1 mg/kg (1:1000; 0.1mL/kg) via ETT as a last resort if unable to obtain IV/IO.
- 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.
  - Pulse obtained, **OR**
  - Shockable rhythm obtained, **OR**
  - Decision made to discontinue further efforts

- ETT should be a last resort for administration of medications.
- Except as indicated in this protocol, follow applicable AHA/ARC PALS and BLS guidelines

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 >100 mmHg.
- 12-lead ECG, if available and transmit as directed by sponsor hospital.

If sponsor hospital trained and credentialed then:

- Consider CPAP, See CPAP 5.2 Protocol.

ADVANCED EMT STANDING ORDERS - ADULT

A

- Establish IV access
- For patients with known history of congestive heart failure, consider nitroglycerine 0.4 – 0.8 mg SL every 5 minutes while symptoms persist and if the systolic blood pressure is >100 mmHg.

PARAMEDIC STANDING ORDERS - ADULT

P

If signs/symptoms persist and systolic blood pressure remains >100 mmHg, consider:

- Bi-Level Positive Airway Pressure, See BIPAP 5.2.1 Protocol.
- IV/IO nitroglycerin 50 micrograms/minute, increase by 50 micrograms/minute every 3 – 5 minutes (it is recommended two (2) IV lines be in place). (Generally accepted maximum dose: 400 micrograms/minute.) **OR**
- Nitroglycerin paste 1" - 2" transdermally if IV/IO or SL nitroglycerin is unavailable or unable to be administered.

ToC

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

PEARLS:

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

3.4 Post Resuscitative Care – Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS - ADULT

E/A

- If feasible, acquire and transmit a 12-lead EKG as directed by sponsor hospital.
- Initial ventilation rate of 10 - 12 BPM, then titrate to quantitative waveform capnography of 35 to 40 mm Hg, if available.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%

PARAMEDIC STANDING ORDERS - ADULT

P

- Maintain systolic blood pressure of >90 mmHg.

For Post-resuscitation hypotension:

- Administer normal saline in 250 – 500 ml boluses. Total volume should not exceed 2,000 ml.
- Consider one of the following medications **with the utilization of an IV pump or IV flow regulating device:**
  - Norepinephrine infusion 1 – 30 microgram/min **OR**
  - Epinephrine infusion 2 – 10 microgram/minute titrated to effect
- Consider orogastric tube for the intubated patient if available.

PARAMEDIC STANDING ORDERS - PEDIATRIC

For Post-Resuscitation Hypotension:

- IV normal saline 20 mL/kg (may repeat x1) **AND/OR**
  - Consider one of the following **with the utilization of an IV pump or IV flow regulating device:**
    - Norepinephrine infusion 0.1 – 0.5 mcg/kg/min titrated to effect (30 micrograms/minute maximum), **OR**
    - Epinephrine 0.1 – 0.5 micrograms/kg/min, start low and titrate to effect. No maximum dosage.

PEARLS:

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

3.5A Tachycardia - Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Care.
- 12-lead ECG if available, acquire and transmit as directed by sponsor hospital.

PARAMEDIC STANDING ORDERS

P

- **Follow ACLS guidelines as trained and credentialed.**
- **This protocol does NOT apply to tachycardias believed to be originating from the SA node (i.e. "sinus tachycardia")**

If symptomatic and hemodynamically unstable:

- Synchronized cardioversion: Follow manufacturer's recommendations for dosing.
- Consider administering of one of the following prior to or during cardioversion, if feasible:
  - Midazolam 2.5 mg IV/IO/IN, may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, **OR**
  - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes or; 2 mg IM, may repeat once in 10 minutes, **OR**
  - Diazepam 2 mg IV/IO, may repeat once in 5 minutes.

If symptomatic, but hemodynamically stable:

For narrow complex tachydysrhythmia:

- Regular rhythm (with heart rate persistently >150 bpm)
  - Attempt vagal maneuvers, modified valsalva maneuver preferred
    - ➢ Do NOT perform carotid sinus massage
  - If vagal maneuvers fail and the rhythm is regular, consider:
    - Adenosine 6 mg rapid IV/IO.
    - May repeat at dose of 12 mg if no conversion.
    - May repeat successful dose if rhythm recurs after conversion.
- Irregular tachycardia or regular tachycardia persisting after adenosine, consider:
  - Diltiazem 10 mg IV/IO over at least 2 minutes.
    - May repeat every 10 minutes, to a maximum total of 30 mg, to achieve a ventricular rate of <110
    - Consider maintenance infusion at 5 – 15 mg/hour.

OR

  - Metoprolol 5 mg IV/IO over 2 – 5 minutes.
    - May repeat every five minutes, to a maximum total of 15 mg, as needed to achieve a ventricular rate of <110.

ToC

Protocol Continues

3.5A Tachycardia - Adult

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

P

For wide complex (QRS > 0.12 seconds) tachycardia (hemodynamically stable):

- For regular rhythm with monomorphic QRS:
  Consider one of the following (may administer 1st line without adenosine):
  - Procainamide: 25 – 50 mg/minute infusion until either:
    - Arrhythmia is suppressed
    - Hypotension ensures
    - QRS duration increases by >50%
    - The maximum dose of 17 mg/kg is given **OR**
  - Amiodarone 150 mg over 10 minutes
    - May repeat once in 10 minutes
    - If successful, consider a maintenance infusion of 1 mg/minute. **OR**
  - Lidocaine (considered second-line therapy) 1 – 1.5 mg/kg IV/IO
    - May repeat once in 5 minutes to a maximum of 3 mg/kg.
    - If successful, consider a maintenance infusion of 1 – 4 mg/minute
  - If suspected supraventricular rhythm, may consider adenosine 6 mg rapid IV/IO prior to other antiarrhythmics
    - May repeat at dose of 12 mg after 1 – 2 minutes if no conversion.
    - May repeat successful dose if rhythm recurs after conversion.

For polymorphic Ventricular Tachycardia/Torsades de Pointes:

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

- Adenosine, diltiazem, and metoprolol are contraindicated in atrial fibrillation when there is a history or suspicion of Wolff-Parkinson-White (WPW) Syndrome.
- Atrial fibrillation with WPW should only be treated with cardioversion or procainamide. Consider diluting and infusing as a bolus infusion.
- Medications should be administered cautiously in frail or debilitated patients; lower doses and slower administration should be considered.
- Avoid beta blockers in patients with COPD/Asthma history.

PEARLS:

- Consider and treat potential underlying causes (e.g. hypoxemia, dehydration, fever).
- Wide complex tachycardia should be considered Ventricular Tachycardia until proven otherwise.
- It's preferred but not required to administer same class rate control agent patient is prescribed.
- Afib with WPW may present as an irregularly irregular rhythm with wide but variable QRS width
- 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 Care.
- 12-lead ECG if available, acquire and transmit as directed by sponsor hospital.

PARAMEDIC STANDING ORDERS

P

If symptomatic and hemodynamically unstable:

- **For narrow complex/probable SVT, or for wide complex:**
- Consider synchronized cardioversion:
  - 1 J/kg; if unsuccessful, increase to 2 J/kg.
- Consider administration of one of the following prior to or during cardioversion, if feasible:
  - Midazolam 0.05 mg/kg IV/IO, IN **OR**
  - Diazepam 0.05 mg/kg IV/IO.
- Attempt vagal maneuvers, for regular rhythms.
- If vagal maneuvers fail and rhythm is regular:
  - Adenosine 0.1 mg/kg IV/IO not to exceed 6 mg (first dose).
    - Repeat once at 0.2 mg/kg not to exceed 12 mg (subsequent dose).

If symptomatic but hemodynamically stable:

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

ToC

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

4.0A Burns - Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Stop the burning process.
- Remove jewelry.
- Decontaminate the patient as appropriate.
- Assess the patient's airway for evidence of smoke inhalation or burns: soot around mouth or nostrils, singed hair, carbonaceous sputum, see Smoke Inhalation Protocol 2.24A.
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines.
- Do not include superficial burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, consider applying any of the following wet dressings (at room-temperature) to the burned area for comfort/pain relief. Use caution to avoid hypothermia.
    - Commercially available water-based gel
    - Wet towels
    - Water or saline
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments or creams to the burn area.

ADVANCED EMT STANDING ORDER

A

- If patient has sustained burns >20% TBSA then initiate fluid resuscitation:
    - Transport time less than 1 hour:
        - Administer normal saline at 500 mL/hour
    - Transport time greater than 1 hour:
        - Administer normal saline at 1 – 2 mL/kg x % burn/8 = hourly rate x first 8 hours.

PARAMEDIC STANDING ORDER

P

- If the patient has respiratory difficulty, stridor at rest, burns about the mouth or neck, or is producing carbonaceous sputum, consider advanced airway management, see Airway Management Protocol 5.1A.
- Refer to Pain Management Protocol 2.19A.

For suspected or verified Hydrofluoric Acid skin exposure:

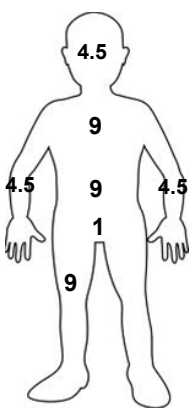
a) Apply gauze soaked with 2.5% calcium gluconate gel to effected sites if available.
b) Change dressing and apply new gauze soaked with 2.5% calcium gluconate gel to effected sites every 2 minutes as needed for ongoing pain.
c) Use caution in disposing of used gauze as it may contain trace amounts of HF.

4.0P Burns - Adult

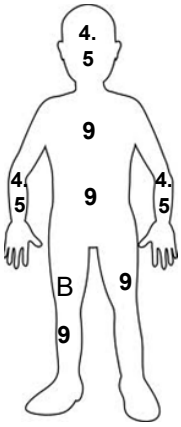
In cases where burn patients are in shock, IV/IO fluid administration should be based on the use of the Shock – Traumatic Protocol 4.5.

Rule of Nines

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



Front



Back

PEARLS:

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

4.0P Burns - Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Stop the burning process.
- Remove jewelry.
- Decontaminate the patient as appropriate.
- Assess the patient's airway for evidence of smoke inhalation or burns: soot around mouth or nostrils, singed hair, carbonaceous sputum, see Smoke Inhalation Protocol 2.24P.
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines. Remember to use the Pediatric Rule of Nines.
- Do not include superficial burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, consider applying any of the following wet dressings (at room-temperature) to the burned area for comfort/pain relief. Use caution to avoid hypothermia.
  - Commercially available water-based gel
  - Wet towels
  - Water or saline
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments or creams to the burn area.

ADVANCED EMT STANDING ORDERS

A

- If patient has sustained burns >20% TBSA then initiate fluid resuscitation:
  - Transport time less than 1 hour:
    - 5 – 15 years of age: Administer 0.9% NaCl at 250 mL/hr.
    - 2 – 5 years of age: Administer 0.9% NaCl at 125 mL/hr.
    - Less than 2 years or age: Administer 0.9% NaCl at 100 mL/hr.
- Transport time greater than 1 hour:
  - Administer 0.9% NaCl at 2mL/kg x % burn/8= hourly rate x first 8 hours.

PARAMEDIC STANDING ORDERS

P

- If the patient has respiratory difficulty, stridor at rest, burns about the mouth or neck, or is producing carbonaceous sputum, consider advanced airway management, see Airway Management Protocol 5.1P.
- Refer to Pain Management Protocol 2.19P.

ToC

Protocol Continues

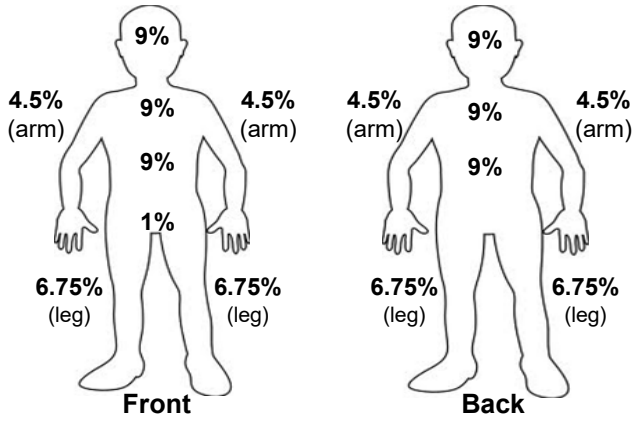
4.0P Burns - Pediatric

Protocol Continued

In cases where burn patients are in shock, IV fluid administration should be based on the use of the Shock – Traumatic Protocol 4.5.

Rule of Nines

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



PEARLS:

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

4.1 Drowning/Submersion Injuries Adult & Pediatric

EMT/AEMT/PARAMEDIC STANDING ORDERS

E/A/P

- Routine Patient Care.
- Consider spinal motion restriction for suspected spinal injury, see Spinal Trauma Protocol 4.6.
- If unresponsive, obtain temperature if available.
- Consider **NOT** initiating resuscitation efforts with:
  - A clear history of prolonged submersion prior to cooling and/or cardiac arrest prior to submersion.
- Obtain specific history: time, temperature, associated trauma, etc.
- Consider hypothermia and treat per Hypothermia Protocol 2.13.
- Remove wet clothes and warm the patient.
- Consider acquisition of a 12-Lead ECG per 12-Lead ECG Protocol 6.0 if equipped and trained.
- Conscious patients who survive any form of drowning are at a risk of deterioration and should be transported to the hospital. Encourage transport and evaluation even if asymptomatic (asymptomatic near drowning patients should be observed for 4-6 hours for the development of complications).
- Consider CPAP, See CPAP 5.2 Protocol or Bi-Level PAP, See BIPAP 5.2.1 Protocol *Paramedic only

ToC

PEARLS:

- There is no need to perform a Heimlich maneuver to clear the lungs of aspirated water; only a modest amount of water is aspirated into the lungs by most drowning victims, and is rapidly absorbed into the central circulation.
- Begin resuscitation efforts while removing the patient from the water if safe to do so.
- Do not attempt water rescues unless properly trained and equipped. When operating on scenes involving water, use extreme caution and wear a PFD.

Protocol Continues

4.1 Drowning/Submersion Injuries Adult & Pediatric

Protocol Continued

EMT/AEMT/PARAMEDIC STANDING ORDERS

E/A/P

- Routine Patient Care.
- Consider spinal motion restriction for suspected spinal injury, see Spinal Trauma Protocol 4.6.
- If unresponsive, obtain temperature if available.
- Consider **NOT** initiating resuscitation efforts with:
  - A clear history of prolonged submersion prior to cooling and/or cardiac arrest prior to submersion.
- Obtain specific history: time, temperature, associated trauma, etc. Consider
- hypothermia and treat per Hypothermia Protocol 2.13.
- Remove wet clothes and warm the patient.
- Consider acquisition of a 12-Lead ECG per 12-Lead ECG Protocol 6.0 if equipped and trained.
- Conscious patients who survive any form of drowning are at a risk of deterioration and should be transported to the hospital. Encourage transport and evaluation even if asymptomatic (asymptomatic near drowning patients should be observed for 4-6 hours for the development of complications).
- Consider CPAP to supplement the patient's own respiratory effort per CPAP 5.2 Protocol.

ToC

PEARLS:

- There is no need to perform a Heimlich maneuver to clear the lungs of aspirated water; only a modest amount of water is aspirated into the lungs by most drowning victims, and is rapidly absorbed into the central circulation.
- Begin resuscitation efforts while removing the patient from the water if safe to do so.
- Do not attempt water rescues unless properly trained and equipped. When operating on scenes involving water, use extreme caution and wear a PFD.

4.2 Eye & Dental Injuries Adult & Pediatric

EYE – EMT/ADVANCED EMT STANDING ORDERS

E/A

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

EYE - PARAMEDIC STANDING ORDERS

P

- Proparacaine or tetracaine apply:
  - 2 drops to affected eye; repeat every 5 minutes as needed up to 5 doses.
- Consider use of Morgan lens for irrigation. Large volume, up to 2 liters of crystalloid, warm lactated ringers preferred.
- Refer to Pain Management Protocol 2.19A.
- Refer to the Nausea Protocol 2.14.

ToC

DENTAL AVULSION – EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

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

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.

4.3 Prehospital Blood Product Transfusion

PARAMEDIC STANDING ORDERS - ADULT & PEDIATRIC ≥5 YEARS OF AGE

This protocol is specific to the administration of group O low titer whole blood and group O packed red blood cells.

INDICATIONS

1. Signs of massive hemorrhage. See Shock 2.23, 4.5, Obstetrical 2.18
2. Traumatic injury (penetrating or blunt) See Shock 4.5
3. Witnessed arrest from hemorrhage or suspected hemorrhage < 5 min prior to provider arrival and continuous CPR throughout downtime. See Traumatic Cardiac Arrest 4.9
4. Postpartum and third trimester hemorrhage. See Obstetrical 2.18

Direct Medical Oversight Orders Required:

5. Rupturing aneurysm. See Abdominal Pain Non Traumatic 2.0A
6. GI bleeding. See Shock (non-traumatic) 2.23
7. Intra-abdominal bleed (i.e. ruptured ectopic pregnancy, AAA)

AND the one or more of following physiological parameters

P

- ✓ Systolic (SBP) < 90mm Hg (Manual pressure is preferred over electronic if possible and practical) AND/OR
- ✓ HR >120 bpm OR
- ✓ Pediatric: Obvious external blood loss and age-based BP and/or HR suggestive of hemorrhagic shock per CT protocols

CONTRAINDICTIONS:

1. Known transfusion reaction
2. Alert patient with medical decision-making capacity not willing to accept blood
3. Patient age < 5 years old
4. Patients who meet the CT Resuscitation Initiation and Termination guidelines.
5. Damage or destruction of the body incompatible with life (i.e. decapitation, transection of torso)
6. Women of child bearing potential: Extreme caution should be used when using Rh positive blood products to avoid alloimmunization.

TREATMENT

1. Direct the control of active external bleeding. See Shock-Traumatic 4.5 AND Secure and maintain airway. Manage hypoxia with ventilation and oxygenation. See Airway Management 5.1A
2. Attempt to obtain informed consent for blood product transfusion. - “I am going to give you blood to help save your life. Is this ok?” Utilize implied consent if unconscious or otherwise unable to provide informed consent.
3. Inspect blood product unit for expiration date, type and acceptable temperature dot.
4. Utilize patent IV or IO. There is no minimum IV cath however, larger is better.
5. Administer blood product, wide open rate, utilizing the Sponsor Hospital approved blood warming process and equipment.
    - Adult: 350-1000 ml
    - Pediatric: 10-20 ml/kg (Max 500 ml)

Protocol Continues

4.3 Prehospital Blood Product Transfusion

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

Monitor for signs / symptoms of a transfusion reaction.

- Monitor vital signs every 10 minutes including temperature.
- Transfusion reaction present/suspected?
- NO - Continue transfusion and begin transport.
- YES - STOP THE TRANSFUSION Flush line with NS. Keep blood product bag and admin set for testing.
- Consider Acute Allergic Reaction/Anaphylaxis 2.3A.
- Notify receiving facility as soon as possible that blood product has/is being transfused.
- Notify receiving facility as soon as possible if a suspected transfusion reaction occurs.
- Document transfusion start time and volume infused on PCR and other documents as required.

P

PEARL:

Time is of the essence for maximal benefit. Transfusion should be started as soon as practical and without unnecessary delay to transport

Alloimmunization refers to an immune response to foreign antigens from another human, most commonly occurring after pregnancy or blood transfusions. In these cases, foreign cells that contain specific antigens, or proteins on the cell surface that can generate an immune response, are present in the body.

4.4 Musculoskeletal Injuries Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Manually stabilize the injury.
  Control bleeding according to 4.10 Hemorrhage Control.
- Remove obvious debris, irrigate open wounds with saline solution, and cover with moist sterile dressing.
- Assess Circulation-Sensory-Motor distal to injury before and frequently after immobilization.
  - Splint extremity as required.
  - Traction splinting is preferred technique for isolated adult and pediatric mid-shaft femur fractures.
- In a patient with a high risk mechanism of injury, see Spinal Injury Protocol 4.6.
- Stabilize suspected pelvic fractures in the presence of hypotension or other signs of shock with an appropriate commercial device (preferred) or bed sheet.

ADVANCED EMT & PARAMEDIC STANDING ORDERS - ADULT

A/P

- Assess pain level and consider pain control measures, see Pain Management Protocol 2.19A.
- Administer normal saline in 250 mL boluses to maintain systolic blood pressure greater than 90 mmHG. Total volume not to exceed 2000 mL without Direct Medical Oversight consultation.

STANDING ORDERS - PEDIATRIC

- Administer normal saline in 20 mL/kg boluses to improve clinical condition (capillary refill rate, extremity pulses and warmth, mentation, and blood pressure.) Total volume not to exceed 40 mL/kg without Direct Medical Oversight consultation.

- **Paramedics may straighten severely angulated fractures if the distal extremity has signs of decreased perfusion.**
  - Pre-Medication with sedation and/or analgesia should be strongly considered.
- **Paramedics may contact Direct Medical Oversight for any other reductions not meeting this protocol. EMRs, EMTs, and AEMTs should splint angulated fractures in position found.**
  - In unusual circumstances or extremely prolonged transport times, EMTs and AEMTs may contact Direct Medical Oversight for authorization to straighten severely angulated fractures if the distal extremity has signs of decreased perfusion.

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.
- Cold packs may be applied to affected areas (avoid direct contact with skin).
- For amputations, clean amputated part, wrap in saline soaked sterile dressing, and place in airtight container. If ice is available, place container on ice (there should be no direct contact between tissue and the ice).

4.4.1 Prophylactic Cefazolin for Open Fracture or Major Open Wounds

PARAMEDIC STANDING ORDERS - ADULT AND PEDIATRIC

P

Indications:

- Open extremity fracture (indicated by visible bone).
- Amputation proximal to the hand or foot.
- Major soft tissue injury such as:
  - Exposed Tendon
  - Exposed Bone
  - Large, Deep Tissue Laceration or Avulsion
  - Evisceration
  - Major Open Crush Injury
  - Large Visibly Contaminated Wounds (*NOT to include isolated stab or gunshot wounds, routine "road rash" or minor abrasions*).

Contraindications:

- Known penicillin or cefazolin allergy
- Life threats not yet addressed.
- Patient contact duration too short

Dose and Administration:**

- **Patient weight greater than or equal to 39 kg, Cefazolin 2G IV/IO over 1-2 minutes**
- **Patient weight less than 39 kg, Cefazolin 50 mg/kg IV/IO over 1-2 minutes; round dose to nearest 100 mg**

Note: Reconstitute 1G per 10 cc Sterile Water for injection (preferred) or Normal Saline.

****Time of administration is particularly important and MUST be documented clearly on the PCR and verbally reported to receiving facility upon transfer of care**.

4.5 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 STANDING ORDERS – ADULT & PEDIATRIC

E
- Routine patient care.
- Follow appropriate Traumatic Emergency protocols 4.0 – 4.7.
- Keep patient supine.
- Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial preferred) see Tourniquet Procedure 6.19, or hemostatic bandage.
- Keep warm and prevent heat loss.
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dl, see Hypoglycemia Protocol 2.12A & Hypoglycemia Protocol 2.12P.
- Do not delay transport; consider hospital destination per Trauma Triage and Transport Decision Protocol 6.20.

ADVANCED EMT STANDING ORDERS - ADULT

A
- Administer normal saline to maintain systolic blood pressure >90 mmHg in 250 – 500 mL boluses. Total volume should not exceed 1000 mL without consultation with Direct Medical Oversight.

ADVANCED EMT STANDING ORDERS - PEDIATRIC
- Administer fluid bolus 20 mL/kg of normal saline by syringe push method (may repeat to a maximum of 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
- If tension pneumothorax is suspected, see Needle Decompression 6.10
- If cardiac tamponade is suspected, rapid transport and treat arrhythmias per Cardiac Protocols 3.0 – 3.5.
- Consider whole blood administration, see Prehospital Blood Product Transfusion 4.3

ToC

- Record time tourniquet is applied.
- Hemostatic bandages must be non-exothermic type that washes off with normal saline.

PEARLS:
For patients with uncontrolled hemorrhagic or penetrating torso injuries:
- Restrict IV fluids:
  1. Delaying aggressive fluid resuscitation until operative intervention may improve outcome.
  2. Several poor outcomes associated with IV fluid administration have been suggested, including dislodgement of clot formation, dilution of clotting factors, and acceleration of hemorrhage caused by elevated blood pressure.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Do not overlook the possibility of associated domestic violence and child abuse.

4.6 Spinal Trauma

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

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

ASSESSMENT FOR SELECTIVE SPINAL CARE

Patients who have experienced a mechanism of spinal injury require spinal motion restriction (as described further on) and protection of the injury site if they are >65 or <3 years of age or exhibit any of the following:

- Midline spinal pain, spinal deformity 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 changed from patient's baseline);
- Cervical rotation (45° either direction) or flexion/extension 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, etc.);
- Alcohol or drug intoxication;
- Distracted by significant injuries to self or others;
- Insurmountable communication barriers (e.g. hearing impairment, language, etc.).

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 or displays clinical indications of injury (e.g. midline spinal pain or deformity of the spine). When possible, the highest level provider on scene should determine whether spinal motion restriction is to be used or discontinued (collar removed, etc.).

When spinal motion restriction has been initiated and a higher level provider arrives, patients should be reassessed for spinal injury (as described in this section) to determine the most appropriate ongoing care.

ToC

Protocol Continues

4.6 Spinal Trauma

Protocol Continued

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

CARE FOR PATIENTS WITH POSSIBLE SPINAL INJURY

- 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.
- Apply adequate padding to prevent tissue ischemia and minimize discomfort.

If patient requires spinal motion restriction:

E/A/P

- Apply a cervical collar.
- For ambulatory patients, move the stretcher as close to the patient as possible, allow the patient to sit on the stretcher and then lie flat.
- Pull sheets, other flexible devices, scoops and scoop-like devices should preferentially be utilized to move non-ambulatory patients when appropriate. Long, rigid spine boards should have only limited utilization.
- Once the patient is moved to the stretcher, remove any hard backboard device.
- Patients should only be transported to the hospital on a rigid vacuum mattress or hard backboard if removal would delay transport of an unstable patient or it is necessary for other treatment priorities.
- Lay the patient flat on the stretcher, secure firmly with all straps, and leave the cervical collar in place. Elevate the back of the stretcher only if necessary to support respiratory function, patient compliance or other significant treatment priority. If possible, limit any stretcher back elevation to <30°.
- Instruct the patient to avoid moving their head or neck as much as possible.
- Consider the use of SpO_2 and $EtCO_2$ to monitor respiratory function.
- For conscious patients who poorly tolerate a rigid cervical collar (e.g., due to kyphosis, ankylosing spondylitis, anxiety, shortness of breath), the cervical collar may be replaced with a towel roll and/or padding to minimize spinal motion.
- Patients with nausea or vomiting may be placed with stretcher back elevated or in a lateral recumbent position, maintaining the head in a neutral position using manual stabilization, padding, pillows, and/or the patient's arm. Refer to applicable nausea and vomiting protocol.
- Transfer from ambulance to hospital stretchers and vice-versa should be accomplished while continuing to limit motion of the spine. The use of slide boards, sheet lifts, etc. should be considered.

ToC

- **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 the sending physician requires a long backboard be used, it should be padded to minimize patient discomfort.
- **Use spinal motion restriction with CAUTION for patients presenting with dyspnea and position appropriately.** Spinal motion restriction may limit respiratory function with the greatest effect experienced by geriatric and pediatric patients restricted to a long spine board.
- **Combative patients:** Avoid methods that provoke increased spinal movement and/or combativeness.
- **Patients with penetrating trauma such as a gunshot or stab wounds should NOT be immobilized on a long spine board.** Additional movement will not worsen an already catastrophic spinal injury with neurological deficit. Emphasis should be on airway and breathing management, treatment of shock, and rapid transport to a level 1 or 2 trauma center.

Protocol Continues

4.6 Spinal Trauma

Protocol Continued

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

PEDIATRIC PATIENTS

- For pediatric patients 6 y/o and younger or <60 pounds requiring spinal motion restriction, transport in a pediatric restraint system (as described in the ambulance minimum equipment list).
- Utilize pediatric restraint systems for older/larger children when appropriate and they fall within the device's recommended range.
- Apply padding and cervical collar as tolerated to minimize the motion of the child's spine.
- Rolled towels may be used for very young children or those who do not tolerate a collar. Avoid methods that provoke increased spinal movement.
- In a motor vehicle crash infants and children may remain in their own child safety seat, provided all of the following conditions are met:

  1) The seat has a self-contained harness;
  2) It is a convertible seat with both front and rear belt paths;
  3) Visual inspection, including under movable seat padding, does not reveal cracks or deformation;
  4) Vehicle in which safety seat was installed was capable of being driven from the scene of the crash;
  5) Vehicle door nearest the child safety seat was undamaged;
  6) The airbags (if any) did not deploy;
  7) Provider ensures appropriate assessment of patient posterior.

- If the patient requires significant care (e.g. airway management) that cannot be adequately performed in the car seat or pediatric restraint system, remove the patient and secure him/her directly to the stretcher.

ToC

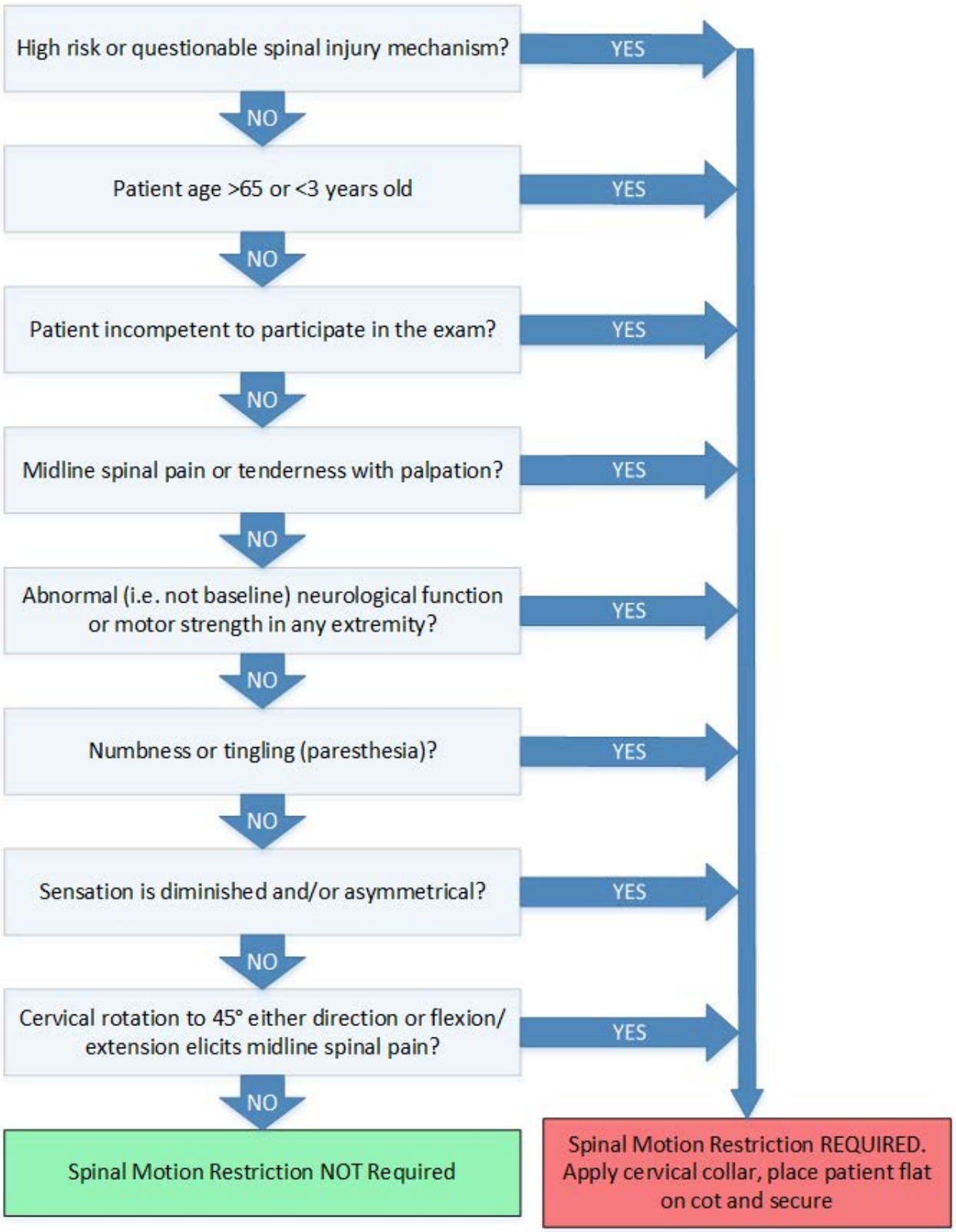
PEARLS:

- As with traumatic brain injury, 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 and be cognizant of the risk of secondary injury.
- In some circumstances, extrication of a patient using traditional spinal immobilization techniques may result in greater spinal movement or may dangerously delay extrication.
- Studies suggest protecting the injury site from pressure may be as important as reducing spinal movement.
- All patients who have suffered possible spinal trauma should be handled gently and spinal motion should be minimized.
- Only remove secure-fitting helmets from patients receiving spinal motion restriction when necessary to provide clinically important patient care (e.g. airway maintenance, ventilation, etc.).

Protocol Continues

4.6 Spinal Trauma

Protocol Continued



4.7 Thoracic Injuries Adult & Pediatric

EMT & ADVANCED EMT STANDING ORDERS

E/A

- Routine patient care.
- If in shock, see Shock Traumatic Protocol 4.5.
- Impaled objects:
  - Secure in place with a bulky dressing.
- Open chest wound:
  - Cover with an occlusive dressing, sealed on 3 sides, or use a commercial device; if the patients 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 Protocol 6.2.

PARAMEDIC STANDING ORDERS - ADULT

P

- Consider pain management, see Pain Management Protocol 2.19A.
- In presence of tension pneumothorax, see Needle Decompression 6.10

* 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)

4.8 Traumatic Brain Injury Adult & Pediatric

EMT STANDING ORDERS - ADULT

E

- Routine Care.
- Apply oxygen to maintain Sp02 >94%. If breathing is inadequate, ventilate with 100% oxygen using normal ventilation parameters.
- Assess and document pupillary response and Glasgow Coma Scale every 5 minutes.
- Obtain blood glucose, if available. If the blood glucose reading is <60 mg/dl, see Hypoglycemia Protocol 2.12A.

ADVANCED EMT STANDING ORDERS - ADULT

A

- Administer normal saline or lactated ringers in 250-500 mL boluses to maintain systolic blood pressure >90 mmHg or if evidence of shock such as tachycardia or dropping blood pressure. Total volume should not exceed 2000 mL without consultation with Direct Medical Oversight. Do not delay transport for IV access.

PARAMEDIC STANDING ORDERS - ADULT

P

- If quantitative waveform capnography is available:
  - Ventilate to maintain quantitative waveform capnography of 35-45 mmHg.
  - If quantitative waveform capnography is not available, ventilate at normal physiologic rates:
    - Adult: 10-12 breaths per minute (1 breath every 5-6 seconds)
    - Child: 12-20 breaths per minute 1 breath every 3-5 seconds).
    - Infant: 20-30 breaths per minute (1 breath every 2-3 seconds).
- If unable to properly ventilate or oxygenate patient using BLS airway techniques, consider intubation. Peri-intubation hypotension or hypoxia should be avoided as best as possible. Consider reduced dose induction agents.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 2.5 mg IV/IO/IM may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, **OR**
  - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes or; 2 mg IM may repeat once in 5 minutes, **OR**
  - Diazepam 2 mg IV/IO; may repeat once in 5 minutes.

ToC

Protocol Continues

4.8 Traumatic Brain Injury Adult & Pediatric

Protocol Continued

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20 mL/kg; may repeat x2 (maximum total 60 mL/kg) to maintain systolic BP greater than 70 mmHg systolic.
- 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/IO/IM or 0.1 mg/kg in (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV/IO/IM maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV/IO (maximum dose 5 mg); may repeat once in 5 minutes.

- Prevention of hypoxia, hypotension and hypocapnia are imperative to prevent secondary brain injury.
- In moderate to severe TBI, permissive hypotension is NOT appropriate
- Intubation should be approached with extreme caution as it has been associated with worse outcomes when performed in the out-of-hospital environment for patients with traumatic brain injury.

PEARLS:

SIGNS OF CEREBRAL 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.

4.9 Traumatic Cardiac Arrest

Traumatic cardiac arrest requires specific interventions that vary from a medical cardiac arrest. For example, in trauma there is a focus on early airway/breathing intervention and (when indicated) rapid transport to a trauma center. If the underlying cause of arrest is not reversed, the likelihood of survival is minimal.

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

E/A/P

INDICATION

This protocol applies to cardiopulmonary arrest believed to have been caused by blunt force trauma, penetrating injury or massive hemorrhage

EXCLUSION CRITERIA

This protocol does not apply to lightning strikes, hypothermia, drowning and suspected commotio cordis. CPR should not be initiated in a declared mass casualty incident - see Mass/Multiple Casualty Triage Protocol 7.1

Consider not initiating resuscitation or early termination of efforts if there are obvious signs of death, injuries incompatible with life or other defined criteria are met – see Resuscitation Initiation and Termination Protocol 6.17

PARAMEDIC STANDING ORDERS - ADULT & PEDIATRIC

P

Consider termination of resuscitation and presumption if:

- Anticipated transport time to an ED/trauma center is 15 minutes or greater **AND**
- There is no ROSC despite effective airway management, needle decompression (if indicated), pelvic binding (if indicated) and IV fluid therapy

ToC

IF RESUSCITATION IS INITIATED:

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care
- Provide chest compressions and BVM ventilations
  - Provide early airway intervention using OPA/NPA and suction
  - During positive pressure ventilation, allow open chest wounds to freely vent air
- Aggressively attempt to control internal and external hemorrhage
  - See Traumatic Shock Protocol 4.5 and Tourniquet Application Procedure 6.19.
  - For blunt force trauma, apply commercial pelvic binder (preferred) or pelvic sheet wrap - See Pelvic Fracture Stabilization 6.12
- For blunt force trauma, restrict spinal motion - see Spinal Injury Protocol 4.6
- Apply AED and follow prompts
- If anticipated transport time is ≥15 minutes and no paramedic is available, consider DMO consult for possible termination of resuscitation
- If anticipated transport time is <15 minutes or if ROSC occurs, initiate rapid transport

Protocol Continues

4.9 Traumatic Cardiac Arrest

Protocol Continued

ADVANCED EMT STANDING ORDERS - ADULT & PEDIATRIC

A

- Ensure quality of ventilation with capnography (if available)
- Place supraglottic airway (ADULT) - see Supraglottic Airway Protocol 5.10
- Establish vascular access. Defer IV/IO until transporting except when transport interval is expected to be ≥15 minutes.
  - ADULT - Administer 500 mL bolus Lactated Ringers or Normal Saline. May repeat to max of 2000 mL
  - PEDIATRIC - Administer 20 mL/kg bolus Lactated Ringers or Normal Saline via syringe method. Max repeat to max of 60 ml/kg
- Administer epinephrine
  - ADULT – Administer 1 mg epinephrine, 1:10,000 (0.1 mL/kg) concentration IV/IO
    - ➢ Repeat every 3-5 minutes
  - PEDIATRIC – Administer 0.01 mg/kg epinephrine, 1:10,000 (0.1 mL/kg) concentration IV/IO
    - ➢ Repeat every 3-5 minutes

PARAMEDIC STANDING ORDERS - ADULT & PEDIATRIC

P

- Consider early placement of an advanced airway without interrupting chest compressions - See Airway Management 5.0, Supraglottic Airway 5.10, Orotracheal Intubation 5.6 and/or Cricothyrotomy 5.3 protocols
- For blunt or penetrating chest trauma, perform bilateral needle chest decompression – see Needle Decompression Procedure 6.10
- Apply cardiac monitor and treat displayed rhythm
  - If asystole or agonal (disorganized and <20/minute) **AND** no signs of life, terminate resuscitation – see Resuscitation Initiation and Termination Protocol 6.17
- For witnessed arrest from hemorrhage or suspected hemorrhage occurring < 5 minutes prior to blood administration capable paramedic arrival, consider blood transfusion - see Prehospital Blood Product Transfusion 4.3

ToC

- If blood product has been administered, DMO consult is required if termination of resuscitation is being considered

- If resuscitation is initiated and anticipated transport time to an ED/trauma center is <15 minutes, minimize time spent on-scene (goal <10 minutes). Limit on-scene treatments to CPR, assuring adequate airway, ventilation (e.g. needle thoracostomy if indicated) and hemorrhage control.

PEARLS:

- When possible, use warmed fluids and minimize patient heat loss when treating traumatic shock or traumatic cardiac arrest
- Always remember, a medical cardiac arrest can lead to a traumatic injury (e.g., a cardiac arrest while driving).

4.10 Hemorrhage Control

EMT STANDING ORDERS

INDICATION:

External hemorrhage encountered in the prehospital environment.

E

- Routine Patient Care
- **Apply direct pressure**, using direct manual pressure 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. Do not apply tourniquets over joints. If wound is just distal to a joint, the tourniquet should be placed just proximal to joint.
    - If initial tourniquet fails to stop bleeding, ensure proper deployment of first tourniquet, and consider placement of a second tourniquet just proximal to first.
    - Document time of tourniquet application and communicate this clearly with receiving facility.
- **Pack wounds** of groin, neck or axillary injuries not amenable to limb tourniquet.
  - Utilize non-exothermic hemostatic dressing or, if not available, gauze dressing.
  - Direct pressure should be applied per manufacturer guidelines after packing
  - Apply pressure dressing
  - Communicate to receiving provider regarding any material packed into wound
- **Apply junctional tourniquet if available, trained and**, if bleeding site is amenable
  - Apply device following manufacturer's guidelines

ADVANCED EMT STANDING ORDER

A

- Administer fluids per Shock – Trauma Adult & Pediatric Protocol 4.5.

PARAMEDIC STANDING ORDER

P

- Consider whole blood administration, see Prehospital Blood Product Transfusion 4.3.
- Consider pain management, see Pain Management Protocol 2.19.
- Consider tranexamic acid (TXA) administration, 2 grams in 10mL (200 mg/mL) IV/IO syringe bolus over at least 1 minute.

TXA Indications

- Evidence of significant trauma **AND**
- Evidence or concern for severe, ongoing external and/or internal hemorrhage **AND**
- Presence of one or more markers of hemodynamic instability.
  - Sustained systolic BP < 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
- Women who are known or suspected to be pregnant with a fetus of viable gestational age (> 24 weeks).

Protocol Continues

4.10 Hemorrhage Control

Protocol Continued

- 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. Consider use of a device at least 2 inches wide, otherwise it is more likely to cause injury.
- Do not pack or force any dressing into a wound in the chest or abdomen.
- Rapid TXA administration may cause hypotension
- Do not delay transport to administer TXA

Pearls:

- Do not remove or loosen tourniquet once hemostasis is achieved.
- Delay in placement of a tourniquet for life threatening hemorrhage significantly increases mortality. Do not wait for hemodynamic compromise to apply a tourniquet.
- Transport patients directly to a Level I or Level II trauma center if feasible and provide earliest possible notification/trauma alert.
- Notify receiving facility of TXA administration prior to arriving.

ToC

5.0 Airway Management

The goal of good airway management is good gas exchange.

ASSESSMENT

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

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

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

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

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

- First, assess for difficulty of mask seal. Patients with facial hair, facial fractures, obesity, 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 and management plan.
2. Airway management is a continuum of interventions, not an “all or none” treatment. Frequently patients may only need airway positioning or a nasal or oral airway to achieve adequate ventilation and oxygenation. Others will require more invasive procedures. The provider should choose the least invasive method that can be employed to achieve adequate ventilation and oxygenation.
3. Continually reassess the efficacy of the plan and change the plan of action as the patient’s needs dictate.
4. In children, a graded approach to airway management is recommended. Basic airway maneuvers and basic adjuncts followed by bag-valve-mask ventilation are usually effective.

BASIC SKILLS

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

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

Provide ventilation with a bag-valve-mask (BVM), consider attaching PEEP valve at 5-10 cm H_20 to BVM. Avoid PEEP in patients with suspected pneumothorax or recent tracheobronchial surgery. Proper use of the BVM includes appropriate mask selection and 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. If the patient has some respiratory effort; synchronize ventilations with the patient’s inhalation effect. Consider applying ETCO2 capnography if trained with sponsor hospital approval.

Protocol Continues

5.0 Airway Management

Protocol Continued

ADVANCED AIRWAY SKILLS

Only after basic procedures are deemed inappropriate or have proven to be inadequate should more advanced methods be used. Use the least invasive method to achieve effective oxygenation. Procedures documenting the use of each airway device/technique listed below are found elsewhere in these protocols.

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

- King LT.
- Combitube/EasyTube.
- LMA.

ETT: The endotracheal tube was once considered the optimal method or "gold standard" for airway management. It is now clear, however, that the incidence of complications is unacceptably high when intubation is performed by inexperienced providers or monitoring of tube placement is inadequate. The optimal method for managing an airway will, therefore, vary based on provider experience, emergency medical services (EMS) or healthcare system characteristics, and the patient's condition. **Use capnography continuously for placement and CO_2 monitoring**. Use video laryngoscopy, if available and trained.

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

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

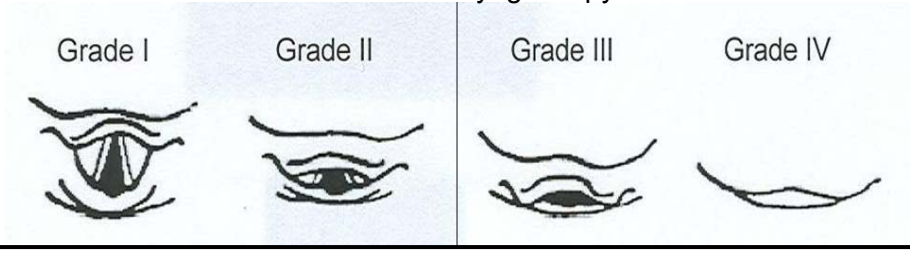
- Massive facial trauma
- Upper airway obstruction due to edema, mass or foreign body.

DOCUMENTATION

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

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

Classifications for Laryngoscopy Views



5.1A Airway Management - Adult

EMT STANDING ORDERS

E/A

- Routine patient care.
- Establish airway patency.
  - Open the airway.
  - Suctioning as needed.
  - Clear foreign body obstructions.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%.
- Consider inserting an oropharyngeal or nasopharyngeal airway adjunct.
- Assist ventilations with a bag-valve-mask device and supplemental oxygen as needed. Consider ETCO2 capnography (if trained and sponsor hospital approved)
- Consider attaching PEEP valve at 5-10 cm H2O to BVM. Avoid PEEP in patients with suspected pneumothorax or recent tracheobronchial surgery.

EMTs (if Sponsor Hospital trained and approved) and ADVANCED EMTs

- For adults in cardiac arrest consider placement of SGA with waveform ETCO2.
- For severe respiratory distress, consider use of CPAP, see CPAP Protocol 5.2.

ADVANCED EMT STANDING ORDERS

- Consider Bi-Level Positive Airway Pressure, See BIPAP Protocol 5.2.1

PARAMEDIC STANDING ORDERS

P

- Use the least invasive airway method to achieve effective oxygenation.
- For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation, see Nasotracheal Intubation Protocol 5.5.
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider supraglottic airway device or orotracheal intubation see Supraglottic Airway Protocol 5.10 or Orotracheal Intubation Protocol 5.6.
- If stridor at rest, consider nebulized Epinephrine 5 mg of 1 mg/mL (1:1000).
- 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 Protocol 5.8*.

***Note: This procedure is only to be used by paramedics who are trained and credentialed to perform RSI by their Sponsor Hospital.**

- Ventilator Protocol 5.12
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate:
  - Consider Cricothyrotomy – Percutaneous Protocol 5.3.2 **OR**
  - Consider Surgical Cricothyrotomy – Bougie Assisted Protocol 5.3.1A*.

***Note: This procedure is only to be used by paramedics who are trained and credentialed to perform bougie assisted surgical cricothyrotomy by their Sponsor Hospital.**

5.1P Airway Management - Pediatric

EMT/ADVANCED EMT 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
- Consider additional help.
- For respiratory distress:
  - Administer high concentration oxygen (preferably humidified) via mask positioned on face or if child resists, held near face.
  - Administer oxygen for oxygen saturation < 94% or shortness of breath; observe for fatigue, decreased mentation, and respiratory failure.
  - For children with chronic lung disease or congenital heart disease, maintain or increase home oxygen level to patient's target saturations. **Note:** Pulse oximetry is difficult to obtain in children. Do not rely exclusively on pulse oximetry. If child continues to exhibit signs of respiratory distress despite high oxygen saturation levels, continue oxygen administration.
- For respiratory failure or for distress that does not improve with oxygen administration:
  - Assist ventilations at rate appropriate for child's age. Reference Pediatric Color Coded Appendix 2.
  - If unable to maintain an open airway through positioning, consider placing an oropharyngeal and/or nasopharyngeal airway.
  - Consider attaching PEEP valve at 5-10 cm H2O to BVM. Avoid PEEP in patients with suspected pneumothorax or recent tracheobronchial surgery.
  - Consider ETCO2 capnography if trained with sponsor hospital approval.
- Determine if child's respiratory distress/failure is caused by a preexisting condition
  - For Allergic Reaction/Anaphylaxis, refer to the Allergic Reaction/Anaphylaxis Protocol 2.3P
  - For Asthma/Reactive Airway Disease/Croup, refer to the Asthma/ Bronchiolitis/Croup Protocol 2.5P.

PARAMEDIC STANDING ORDERS

P

- For pediatric patients with severe respiratory distress due to asthma or bronchiolitis, consider the use of CPAP starting at 5 cmH_20 of PEEP, see CPAP Protocol 5.2.
- Use least invasive airway method to achieve effective oxygenation.
- Proceed to advanced airway only if airway cannot be maintained with positioning or ventilated via BVM.
- If stridor at rest, consider nebulized Epinephrine 5 mg of 1 mg/ml (1:1,000).
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate.

Pediatric Respiratory Distress	Pediatric Respiratory Failure
• 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.	• 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.
- In the younger Pediatric population, allow patients to be in a position of comfort and diminish anxiety.

5.2 Continuous Positive Airway Pressure (CPAP)

EMT/AEMTs WITH SPONSOR HOSPITAL APPROVAL OR AEMTs

E/A

INDICATIONS

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

CONTRAINDICATIONS

- Cardiac/Respiratory arrest
- Unable to follow commands
- Unable to maintain their own airway
- Vomiting and/or active GI bleed
- Respiratory distress secondary to trauma
- Suspicion of pneumothorax

PROCEDURE

1. Ensure adequate oxygen supply for CPAP device.
2. Explain procedure to patient. Be prepared to coach patient for claustrophobia or anxiety.
3. Place patient in upright position.
4. Apply pulse oximetry, capnography nasal capture device and ECG as available and trained.
5. Choose appropriate sized device mask for patient, assemble the CPAP device, attach to oxygen supply and ensure oxygen is flowing (follow manufacturers directions for preparation for your particular device).
6. Place mask over face and secure with straps until minimal air leak.
7. Adjust pressure between 5-15 cmH2O, based on patient condition and response.
8. Recheck mask for leaks and adjust straps as needed to minimize air leaks.
9. Reassure anxious patient.
10. Monitor pulse oximetry, quantitative waveform 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
13. Document CPAP procedure, including time and provider. Document serial pulse oximetry and capnography readings to demonstrate effects.

For Nausea/Vomiting, see Nausea/Vomiting (Adult & Pediatric 2.14)

PARAMEDIC STANDING ORDERS

P

***Paramedics may utilize CPAP on pediatric patients, starting pressure of 5, titrating up to 10 cm H2O**

- For adults and pediatrics - consider administering anxiolytic:
  - Midazolam 0.05 mg/kg (max. 2.5 mg) IV/IO, may repeat once in 5 minutes or; 0.1 mg/kg (max. 5 mg) IM/IN*, may repeat once in 10 minutes **OR**
  - Lorazepam 0.05 mg/kg (max 1 mg) IV/IO, may repeat once in 5 minutes or; 0.1 mg/kg (max. 2 mg) IM, may repeat once in 10 minutes **OR**
  - Diazepam 0.1 mg/kg (max. 5 mg) IV/IO, may repeat once in 5 minutes

- Administer benzodiazepines with caution in elderly patients, or those with signs of hypercarbia or respiratory fatigue.
- *For IN administration of Midazolam, use a 5 mg/ml concentration.
- While not a contraindication, caution should be used in hypotensive patients.

5.2.1 Bilevel Positive Airway Pressure - ADULT

ADVANCED EMT / PARAMEDIC STANDING ORDERS

A/P

INDICATIONS

- Spontaneously breathing patient in severe respiratory distress, e.g. due to Asthma/COPD, Congestive Heart Failure / Pulmonary Edema, Pneumonia or Drowning.
- AEMTs may only provide bilevel ventilation (with sponsor hospital approval) utilizing single patient use, oxygen flow powered devices (not mechanical ventilators).

CONTRAINDICATIONS

- Cardiac/Respiratory arrest.
- Unable to follow commands.
- Unable to maintain their own airway.
- Vomiting and/or active upper GI bleed.
- Respiratory distress secondary to trauma.
- Suspicion of pneumothorax.

PROCEDURE

1. Ensure adequate oxygen supply for CPAP device.
2. Explain the procedure to patient. Be prepared to coach patient for claustrophobia or anxiety.
3. Place the patient in upright position.
4. Monitor the patients SpO2, Capnography, ECG and Blood pressure.
5. Choose the appropriate sized mask for patient.
6. Set the ventilator to the patient appropriate setting. (if equipped)
7. IPAP: Adjust as needed, minimum of 10 cmH2O; not to exceed 20 cmH2O.
8. EPAP: Adjusted as needed, minimum of 5 cmH2O; not to exceed 14 cmH2O.
9. Pressure support to be no less than 5 cmH2O (Difference of IPAP-EPAP).
10. Set back-up ventilatory rate of no less than 8 BPM. (if equipped).
11. Set FiO2 to appropriate level to maintain an SpO2 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 of bilevel ventilation.

- For Nausea/Vomiting, see Nausea/Vomiting (Adult & Pediatric 2.14)

PARAMEDIC STANDING ORDERS

P

- Consider administering anxiolytic:
  - Midazolam 2.5 mg IV/IO may repeat once in 5 minutes, or 5 mg IM/IN* may repeat once in 10 minutes **OR**
  - Lorazepam 1 mg IV/IO may repeat once in 5 minutes, or 2 mg IM may repeat once in 10 minutes **OR**
  - Diazepam 5 mg IV/IO, may repeat once in 5 minutes
- For Nausea/Vomiting, see Nausea/Vomiting (Adult & Pediatric 2.14)

ToC

Protocol Continues

5.2.1 Bilevel Positive Airway Pressure - ADULT

Protocol Continued

- Keep in mind Bilevel PAP uses large volumes of oxygen.
- While not a contraindication, caution should be used in hypotensive patients.
- Administer benzodiazepines with caution in elderly patients, or those with signs of hypercarbia or respiratory fatigue.
- *For IN administration of midazolam use a 5 mg/mL concentration.

PEARLS:

- Refer to device specific settings when applicable.
- For hypoxic respiratory failure, keep a narrow pressure gradient. Set iPAP/ePAP at 10/5, then increase both by the same amount until oxygenation improves or to a max of 20/14.
- For hypercarbic respiratory failure, set a wide pressure gradient. Set the iPAP/ePAP at 10/5, then increase the iPAP until CO2 values improve or to a max of 20/5.
- For mixed respiratory failure, consider correcting oxygenation first utilizing the theory above. Lowering the ePAP after will improve exhalation once SpO2 values have been corrected.

ToC

5.3.1A CRICOTHYROTOMY - SURGICAL, Bougie Assisted - Adult

PARAMEDIC W/ SPONSOR HOSPITAL TRAINING AND APPROVAL - ADULT

INDICATIONS:

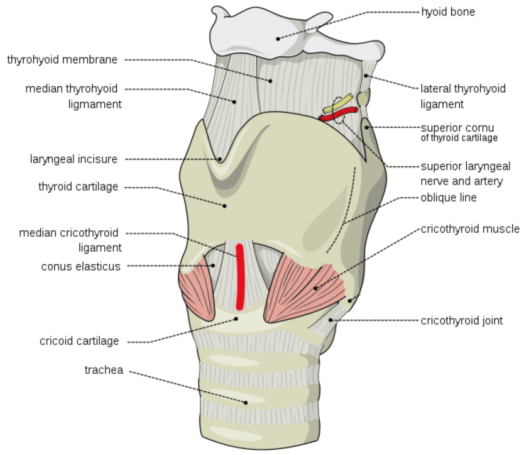
- Inability to adequately oxygenate and ventilate using less invasive methods

CONTRAINDICATIONS:

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

EQUIPMENT:

- Chlorhexidine
- #10 blade (preferred) scalpel
- Bougie
- 6.0 mm endotracheal tube
- 10ml Syringe
- BVM
- Quantitative $ETCO_2$



PROCEDURE:

P

- Position the patient supine and extend the neck as needed to improve anatomic view.
- Position self on same side of patient as paramedic's own dominant hand (if possible)
- Prep neck with Chlorhexidine
- Using your non-dominant hand, identify & stabilize anatomy ('laryngeal handshake'):

  Step 1: Using the thumb and middle finger of the non-dominant hand, palpate the top of the larynx and roll from side to side.

  Step 2: Slide the finger and thumb down over the thyroid laminae.

  Step 3: Palpate the cricoid cartilage with the middle finger and thumb. Now use the index finger to palpate the cricothyroid membrane. Continue to stabilize the larynx with middle finger and thumb.

- Holding the scalpel like a pen between thumb and forefingers, make an approximately 5 cm (2") vertical incision through the skin and soft tissue at the midline of the neck over the cricothyroid membrane. Incision should start just above the thyroid cartilage and extend below the cricoid ring. This incision may be extended up to 10 cm (4") if neck is obese and/or unable to palpate landmarks.
- With index finger, dissect the tissue and palpate the cricothyroid membrane.
- Make approximately a 1.5 cm horizontal stab incision through the cricothyroid membrane, being careful not to penetrate into the posterior tracheal wall.

ToC

Protocol Continues

5.3.1A CRICOTHYROTOMY - SURGICAL, Bougie Assisted - Adult

Protocol Continued

P

- Use finger to bluntly dilate the incision through the cricothyroid membrane and establish connection with the tracheal lumen.
- Insert the bougie, curved-tip first, through the incision along the pad of the finger and angled towards the patient's feet.
- Advance a 6.0 mm endotracheal tube (ensure all air aspirated out of cuff) over the bougie and into the trachea.
- Remove bougie while stabilizing ETT ensuring it does not become dislodged.
- Inflate the cuff with 5 – 10 ml of air.
- 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.
- Secure the ETT.
- Reassess tube placement frequently, especially after movement of the patient.
- Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.

ToC

PEARLS:

- This procedure is commonly associated with significant bleeding, often from injury to the superficial anterior jugular vein. All personnel in the area should utilize proper PPE including eye and face protection. Unless arterial spurting is observed or a deep vessel is believed to have been injured, complete the procedure. Address bleeding with direct pressure once an airway is established.
- This procedure may be modified by local sponsor hospital to include use of tracheal hooks or other instrumentation. Additional instrumentation may increase the complexity of the procedure.

5.3.2 Cricothyrotomy - Percutaneous

This procedure cannot be performed until the provider has received training from their EMS service on the commercial device selected and is deemed competent. The device, training, and use is subject to Sponsor Hospital approval.

PARAMEDIC STANDING ORDERS - ADULT

P

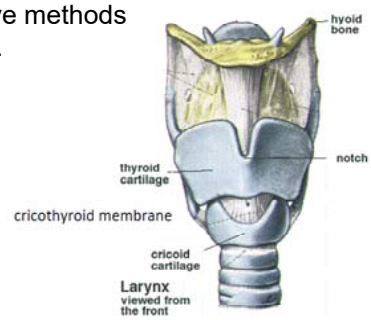
This protocol is intended for the use of commercially prepared rapid cricothyrotomy devices. Devices requiring use of a guide wire may not be used. Approved devices have a plastic cannula preloaded onto a metal introducer (e.g., Rusch QuickTrach).

- 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. Chlorhexidine wipes.
- Bag-valve-mask.
- Quantitative Waveform $ETCO_2$.



PROCEDURE:
(May vary slightly with different devices)

- Position the patient supine and extend the neck as needed to improve anatomic view.
- Prepare neck with Chlorhexidine.
- 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.
- Insert needle bevel through soft tissue and cricothyroid membrane at 90-degree angle while aspirating with syringe.
- As soon as air is freely aspirated stop advancing the needle as this indicates entry into the trachea.
- 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.)
- Remove the stopper while holding assembly firmly in place.
- 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.
- Secure cannula in place with neck strap.
- Inflate cuff if one is present.
- Apply BVM with waveform $ETCO_2$ and ventilate the patient.
- Confirm placement by assessing for bilateral lung sounds and presence of quantitative and qualitative $ETCO_2$.
- Frequently reassess placement and continuously monitor $ETCO_2$

5.3.3 Cricothyrotomy - Percutaneous (Pediatric)

The equipment, training, and use are subject to Sponsor Hospital approval

PARAMEDIC STANDING ORDERS - PEDIATRIC (<12 YEARS OLD)

P

INDICATIONS:
Inability to adequately oxygenate/Ventilate or intubate using less invasive methods including: BMV, SGA and ETT.

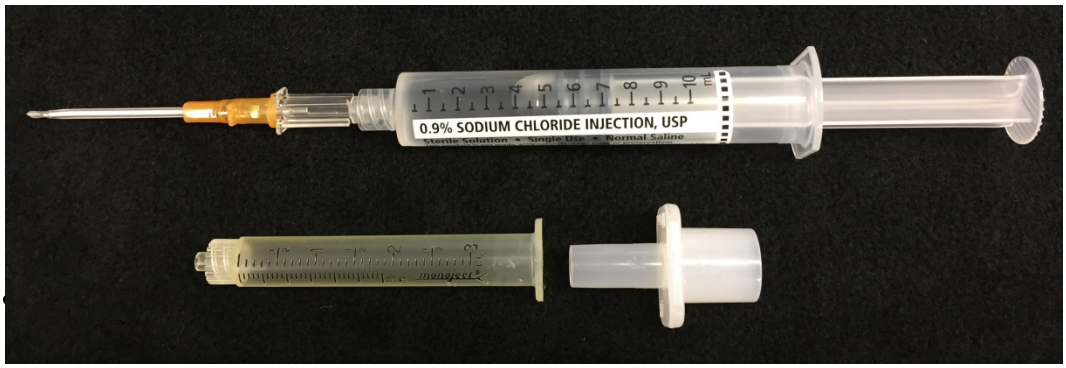
CONTRAINDICATIONS:
None if unable to ventilate by any other means

EQUIPMENT:

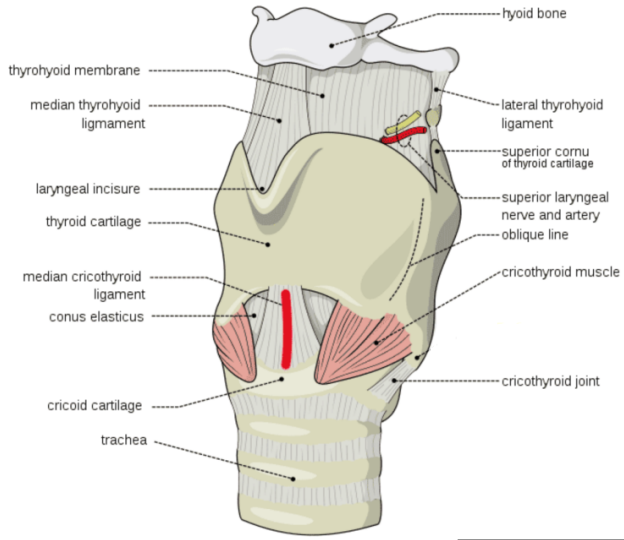
- Chlorhexidine wipes.
- Appropriately sized BVM (pedi or infant)
- Quantitative Waveform $ETCO_2$.
- 2x2s
- Select appropriate over-the-needle catheter (14, 16 or 18 gauge)
- 10 mL NS prefilled syringe (expel 5 mL to allow for aspiration)
- 3 mL syringe
- 7.5 ET tube adapter

PROCEDURE:

- Assemble equipment as pictured:



- Position supine-45° head elevation, head extended upward/backward
- Stabilize the larynx with non-dominant hand (index finger and thumb)
- Feel for the depression at the bottom border of the cartilage



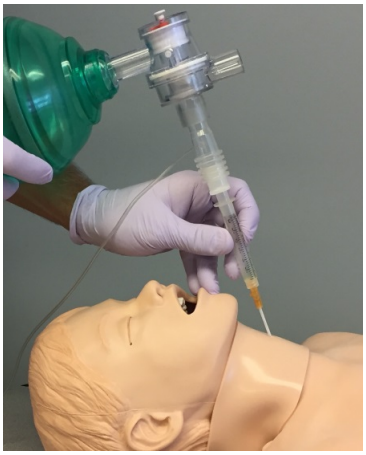
Protocol Continues

5.3.3 Cricothyrotomy - Percutaneous (Pediatric)

Protocol Continued

PARAMEDIC STANDING ORDERS - PEDIATRIC (<12 YEARS OLD)

P



- In the area of the depression, midline of neck, puncture through skin with the over-the-needle catheter, bevel down.
- Advance over-the-needle catheter through the cricothyroid membrane, directed toward the chest at approximately a 30 degree angle.
- Aspirate for air (indicates tracheal placement - stop advancing needle at this point)
- Advance the catheter and remove the needle.

After successful insertion of catheter:

- Connect catheter to BVM via 3 mL syringe (plunger removed) and 7.5 ETT adapter
- Ventilate with 100% FiO2 - Confirm tracheal placement using EtCO2
  - Auscultate for bilateral lung sounds
- Monitor SpO2 for improvement
- Secure device

ToC

PEARLS:

- With partial or complete upper airway obstruction, ventilate with an I:E ratio of 1:8 (rate of ~6 breaths/minute) to reduce the risk of pulmonary barotrauma. Adjust this ratio/rate based on clinical monitoring including SpO2, ETCO2, compliance, chest distension, hemodynamics, etc.
- Continuously evaluate the airway and be aware of potential complications:
  - Perforation of posterior tracheal wall and/or esophagus
  - Bleeding
  - Damage to laryngeal structures
  - Barotrauma if not allowing sufficient time for full exhalation
  - Hypoventilation / Hypoxia
- For commercial percutaneous airway devices, see 5.3.2 Cricothyrotomy - Percutaneous

5.4 Gum Elastic Bougie/Flexguide - Adult

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

SIGNS OF TRACHEAL PLACEMENT

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

PEARLS:

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

5.5 Nasotracheal Intubation

PARAMEDIC **STANDING ORDERS - ADULT**

P

INDICATIONS

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

CONTRAINDICATION

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

PROCEDURE

- Pre-medicate nasal mucosa with 2% lidocaine jelly and nasal decongestant spray, and/or Benzocaine Spray if available.
- Pre-oxygenate the patient.
- Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
- Select appropriate ETT size. It is recommended to start with a 7.0 ETT and adjust based on nostril size.
- Lubricate the ETT with water-based lubricant.
- Remove the nasal airway and gently insert the ETT with continuous quantitative waveform capnography monitoring, keeping the bevel toward the septum (a gentle rotation movement may be necessary at the turbinates).
- Continue to advance the ETT while listening for maximum air movement and watching for capnography wave form.
- 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. this happens, slightly withdraw the ETT and rotate it toward the midline and attempt to advance tube again with the next inspiration.
- 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.
- Placement depth should be from the nares to the tip of the tube: approximately 28cm in males and 26 cm in females.
- Inflate cuff with 5 – 10 mL of air.
- Confirm appropriate placement by quantitative waveform capnography. symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bagging, and condensation in the ETT.
- Secure the ETT, consider applying a cervical-collar (even for the medical patient) to protect the placement of the ETT.

ToC

Protocol Continues

5.5 Nasotracheal Intubation

Protocol Continued

PARAMEDIC STANDING ORDERS

- Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.
- Document each attempt as a separate procedure so it can be time stamped in the ePCR. **An attempt is defined as placement of the tube into the patient's nare**. For each attempt, document the time, provider, placement success, pre-oxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's lip), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO_2 readings.

If continued intubation attempts are unsuccessful (maximum of 3 attempts) consider Cricothyrotomy. See Cricothyrotomy Protocols 5.3.

POST TUBE PLACEMENT CARE – ADULT

Sedation:

Option 1:

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5 - 15 minutes as needed.

Option 2:

- Fentanyl (preferred) 100 mcg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Morphine 2-5 mg, slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed **OR**
- Hydromorphone (Dilaudid) 0.5 - 1 mg, slow IV/IO push

AND

- Midazolam (preferred) 2 - 5 mg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Lorazepam 1 -2 mg IV/IO, repeat every 10 minutes as needed (maximum total 10 mg)

POST TUBE PLACEMENT CARE – PEDIATRIC

Sedation/Analgesia:

Option 1:

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

Option 2:

- Fentanyl (preferred) 1 mcg/kg IV/IO (max 100 mcg), repeat every 5-10 minutes as needed **OR**
- Morphine 0.1 mg/kg (max 5 mg), slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed.

AND

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

5.6 Orotracheal Intubation

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

INDICATIONS

- Apnea/respiratory failure. Impending respiratory failure. Impaired or absent gag reflex.

CONTRAINDICATION

- None if clinically indicated

PROCEDURE

1. Prepare all equipment and have suction ready. Cuffed ETTs are also preferred for pediatric patients and should generally be ½ size smaller than the appropriately sized uncuffed ETT.
2. Pre-oxygenate the patient.
3. Position patient in 'sniffing position' and optimize alignment of ear to sternal notch.
4. Open the patient's airway. While holding the laryngoscope in the left hand, insert the blade into the right side of the patient's mouth, sweeping the tongue to the left. Use video laryngoscopy, if available and trained.
5. Use the blade to lift the tongue and the epiglottis, either directly with the straight (Miller) blade, or indirectly with the curved (Macintosh) blade.
6. Once the glottic opening is visualized, insert the tube through the vocal cords and continue to visualize while passing the cuff through the cords.
7. Remove the laryngoscope and then the stylet from the ETT.
8. Adults: Inflate the cuff with 5-10 mL of air.

   Pediatric cuffed ETTs: An audible leak should be present prior to cuff inflation or the tube should be downsized. Take care not to overinflate pediatric ETT cuffs. If a manometer is available, do not exceed 20 cm H2O pressure. Otherwise, assess for cuff leak first and then carefully inflate cuff just until cuff leak is no longer auscultated.
9. **Confirm appropriate proper placement by quantitative waveform capnography** symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask, condensation in the ETT.
10. Secure the ETT, consider stabilizing head to protect the placement of the ETT
11. Reassess tube placement frequently, especially after movement of the patient.
12. **Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.**
13. Document each attempt **(maximum of 3 attempts)** as a separate procedure so it can be time stamped in the ePCR. **An attempt is defined as placement of the blade into the patient's mouth**. For each attempt, document the time, provider, placement success, pre-oxygenation, airway grade, ETT size, placement depth, placement landmark (e.g. cm at the patient's lip), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO_2 readings.

Protocol Continues

5.6 Orotracheal Intubation

Protocol Continued

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

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

- Monitor oxygen saturation and end-tidal CO_2 **AND**
- Ventilate the patient with 100% oxygen via a BVM until ready to attempt intubation again.

If continued intubation attempts are unsuccessful **(maximum of 3 attempts)** consider alternative airway.

POST TUBE PLACEMENT CARE – ADULT

Sedation:

Option 1:

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5 - 15 minutes as needed.

Option 2:

- Fentanyl (preferred) 100 mcg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Morphine 2-5 mg, slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed **OR**
- Hydromorphone (Dilaudid) 0.5 - 1 mg, slow IV/IO push

AND

- Midazolam (preferred) 2 - 5 mg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Lorazepam 1 -2 mg IV/IO, repeat every 10 minutes as needed (maximum total 10 mg)

POST TUBE PLACEMENT CARE – PEDIATRIC

Sedation/Analgesia:

Option 1:

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

Option 2:

- Fentanyl (preferred) 1 mcg/kg IV/IO (max 100 mcg), repeat every 5-10 minutes as needed **OR**
- Morphine 0.1 mg/kg (max 5 mg), slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed.

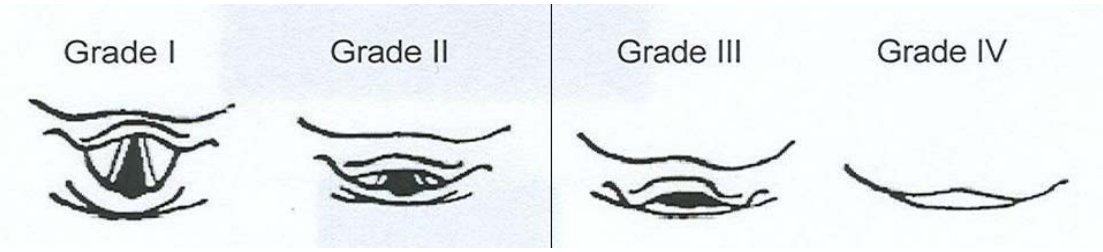
AND

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

VIDEO LARYNGOSCOPY:

- May be used instead of manual laryngoscopy with appropriate training and credentialing by sponsor hospital. Video laryngoscopy has been shown to have better success rates then manual laryngoscopy.

Cormack-Lehane Classification for Laryngoscopy Views



5.7 Quantitative Waveform Capnography

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

*EMTs (with sponsor hospital authorization) may monitor ETCO2 solely when using a BVM to confirm effective ventilation and supraglottic airway placement

INDICATIONS:

- Confirmation and monitoring of advanced airway placement
- Monitoring of patients in significant respiratory distress
- Monitoring of CPR quality and to assist in determining viability in cardiac arrest
- Monitoring of ventilation quality and effectiveness in patients being BVM assisted or in respiratory arrest **with special attention to head injured patients** (Traumatic Brain Injury Protocol 4.8.)
- Monitoring of ventilation status in patients receiving narcotic pain medication or sedatives
- Any other case in which the provider deems ETCO2 monitoring clinically relevant

PROCEDURE:

- Connect sensor adapter/tubing (ET/BVM adapter OR nasal cannula with scoop) to monitor unit and airway device as per manufacturer instructions.
  ***Note-Some manufacturers require tubing be connected to the monitor and calibrated prior to being placed on patient.**
- Observe capnometry **(Normal: 35-45 mmHg)**
- Observe waveform capnography for **morphology and consistency**
- Providers should document capnometry and capnography in all cases of advanced airway management, cardiac arrest, respiratory arrest and severe respiratory distress.

NOTES:

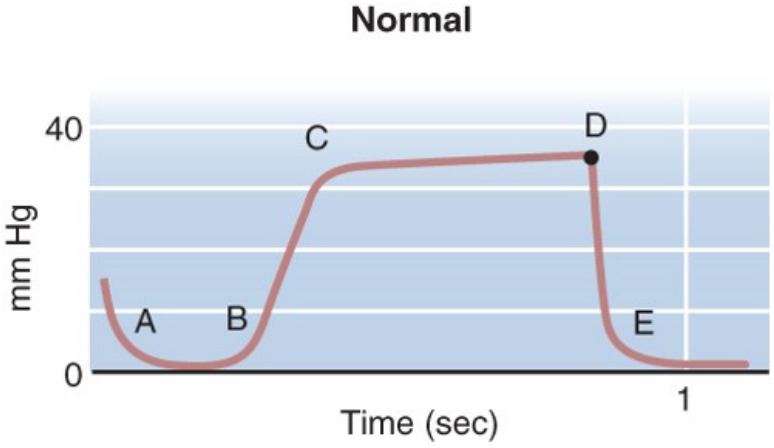
- Colorimetric detectors are not an alternative to waveform capnography
- High ETCO2 levels may indicate hypoventilation
- Low ETCO2 levels may indicate hyperventilation, low perfusion
- ETCO2 is a better indicator of ventilation effectiveness than SPO2
- Overventilation (rate and volume) is common during manual ventilation
- Providers should use waveform capnography to insure appropriate rate and volume

Phase I (A-B): Initial stage of exhalation

Phase II (B-C): Expiratory upslope

Phase III (C-D): Expiratory or alveolar plateau

Phase IV (D-E): Inspiratory downstroke



5.8A Rapid Sequence Intubation (RSI) Adult

PARAMEDIC - PREREQUISITES REQUIRED*

***NOTE: This procedure is only to be used by paramedics who are trained and credentialed to perform RSI by their local sponsor hospital.**

INDICATION

- Immediate severe airway compromise and/or imminent respiratory failure not amendable to less invasive forms of treatment

PROCEDURE: THE SEVEN P'S

PREPARATION "SOAPME": T minus 5 minutes.

- Suction set up.
- Oxygen: 100% non-rebreather mask, with bag-valve mask ready.
- Airway : ETT (check cuff), Stylet, BVM.
- Pharmacology: IV/IO access patent, medications drawn.
- Monitor: Cardiac / O_2 saturation / $ETCO_2$.
- Equipment: Laryngoscope / Blades / Suction / Bougie / Back-up devices.

POSITIONING:

P

- Position patient (ear to sternal notch, sniffing position) to maximize visibility.

PREOXYGENATION: T minus 5 minutes .

- When possible, use a non-rebreather mask or CPAP/Bilevel PAP (if appropriate & at highest available FiO2) for at least 3 minutes to effect nitrogen washout and establish an adequate oxygen reserve. In emergent cases, administer 8 vital capacity bag-valve-mask breaths with 100% oxygen.
- Consider applying nasal cannula with oxygen regulator turned up to its fullest capacity, (nasal cannula should remain in place until endotracheal tube is secured).

PREMEDICATION: T minus 3-5 minutes .

- Consider Fentanyl, 1-2 mcg/kg for suspected increased ICP, ischemic heart disease or aortic dissection.
- For hypotension before, during, or after intubation consider 50-200 mcg phenylephrine every 2-5 minutes as needed. Assure appropriate volume resuscitation and other indicated treatments for hypotension.

PARALYZE AND SEDATE: T minus 45 seconds.

- **Sedative Options:**
  - Etomidate: 0.3 mg/kg IV/IO; maximum 30 mg **OR**
  - Ketamine: 2 mg/kg ideal body weight (IBW) IV/IO

If Etomidate or Ketamine are not available:

  - Midazolam 0.2 mg/kg IV/IO; 0.1 mg/kg IV/IO for patients in shock.

- **Paralytic Options:**
  - Succinylcholine: 1.5 mg/kg IV/IO immediately after sedation (maximum 200 mg). **OR**
  - Rocuronium 1 mg/kg IV/IO, **OR**
  - Vecuronium 0.1 mg/kg IV/IO.

Protocol Continues

5.8A Rapid Sequence Intubation (RSI) Adult

Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

PASS THE TUBE & PROOF OF PLACEMENT: T minus 0 seconds.

- Observe for fasciculations approximately 90 seconds after succinylcholine to indicate imminent paralysis.
- After paralysis is achieved, follow the procedure outlined in Procedure: Orotracheal Intubation Protocol 5.6 to place the ETT.
- Assess for proper placement by following the procedure outlined in Orotracheal Intubation Protocol 5.6.

POST INTUBATION CARE

Analgesia and Sedation:

Option 1:

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5-15 minutes as needed

Option 2:

- Fentanyl (preferred) 100 mcg IV/IO, repeat every 5-10 minutes as needed **OR**
- Morphine 2-5 mg, slow IV/IO push (be cautious of hypotension), repeat every 5-10 minutes as needed **OR**
- Hydromorphone (Dilaudid) 0.5-1 mg, slow IV/IO push

AND

- Midazolam (preferred) 2-5 mg IV/IO, repeat every 5-10 minutes as needed OR
- Lorazepam 1-2 mg IV/IO, repeat every 10 minutes as needed (maximum total 10mg)

Paralysis: If needed after sedative and analgesic have been administered, may consider:

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

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 Orotracheal Intubation Protocol 5.6

SUCCINYLCHOLINE CONTRAINDICATIONS:

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

If failed airway and unable to ventilate, consider Cricothyrotomy Protocols 5.3.

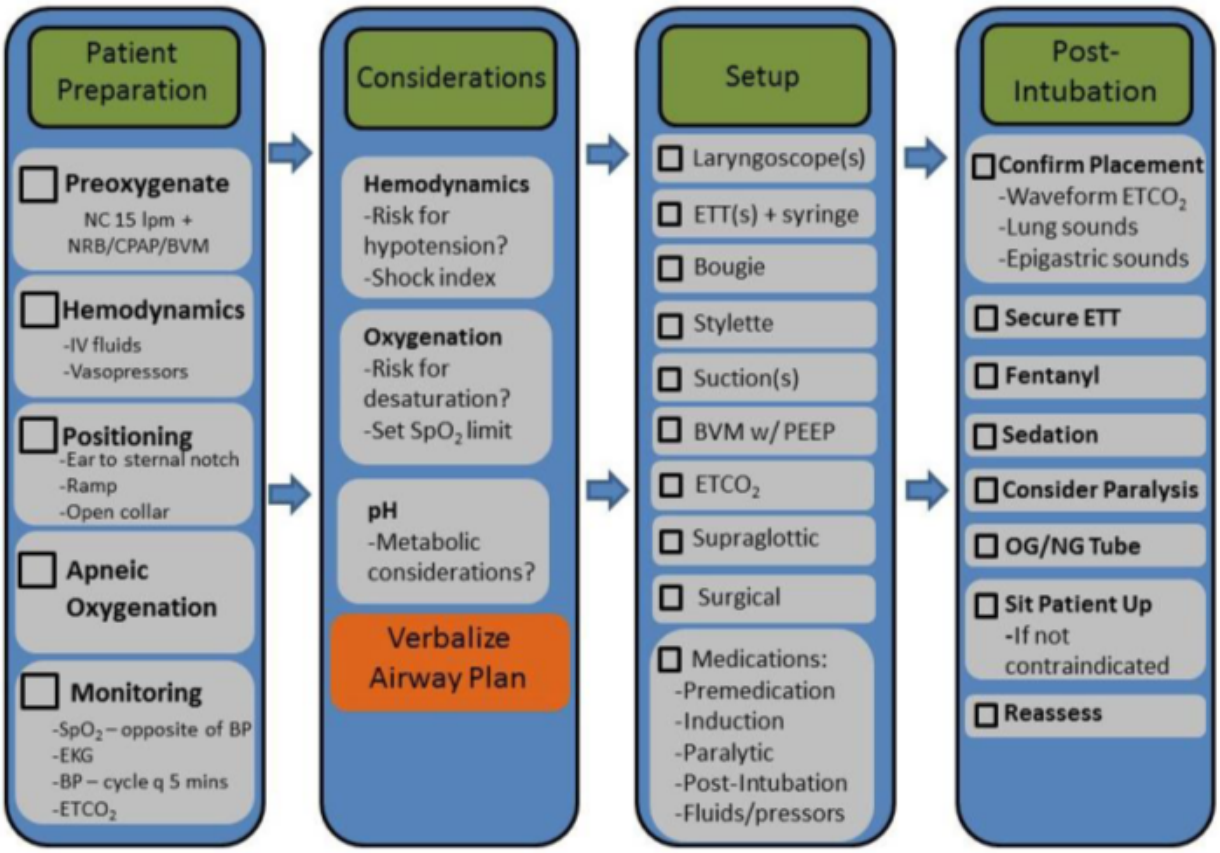
Protocol Continues

5.8A Rapid Sequence Intubation (RSI) Adult

Protocol Continued

Rapid Sequence Intubation Checklist

New Hampshire Bureau of EMS



ToC

5.8P Rapid Sequence Intubation (RSI) Pediatric

PARAMEDIC - PREREQUISITES REQUIRED*

***NOTE: This procedure is only to be used by paramedics who are trained and credentialed to perform RSI by their local sponsor hospital.**

INDICATION

- Immediate severe airway compromise and/or imminent respiratory failure not amendable to less invasive forms of treatment

PROCEDURE: THE SEVEN P'S

PREPARATION "SOAPME": T minus 5 minutes.

- Suction set up.
- Oxygen: 100% non-rebreather mask, with bag-valve mask ready.
- Airway : ETT (check cuff if applicable), stylet, BVM.
- Pharmacology: IV/IO access patent, medications drawn up.
- Monitor: Cardiac / O_2 saturation / $ETCO_2$.
- Equipment: Laryngoscope / Blades / Suction / Bougie / Back-up devices.

POSITIONING:

P

- Position patient (ear to sternal notch, sniffing position) to maximize visibility.

PREOXYGENATION: T minus 5 minutes .

- When possible, use a non-rebreather mask or CPAP (if appropriate & at highest available FiO2) for at least 3 minutes to effect nitrogen washout and establish an adequate oxygen reserve. In emergent cases, administer 8 vital capacity bag-valve-mask breaths with 100% oxygen.
- Consider applying nasal cannula with oxygen regulator turned up to its fullest capacity, (nasal cannula should remain in place until endotracheal tube is secured).

PREMEDICATION: T minus 3-5 minutes .

- Consider atropine 0.02 mg/kg IV/IO for children with bradycardia, all children <1 years being intubated and children <5 years receiving succinylcholine.

PARALYZE AND SEDATE: T minus 45 seconds.

- **Sedative Options:**
  - Ketamine: 2 mg/kg IV/IO, **OR**
  - Midazolam 0.2 mg/kg IV/IO (0.1 mg/kg IV/IO for patients in shock), **OR**
  - If age >2 years, consider Etomidate 0.3 mg/kg IV/IO.
- **Paralytic Options:**
  - Succinylcholine: 1 mg/kg IV/IO after sedation, maximum dose is 75 mg, **OR**
  - Rocuronium 1 mg/kg IV/IO, **OR**
  - Vecuronium 0.1 mg/kg IV/IO.

ToC

Protocol Continues

5.8P Rapid Sequence Intubation (RSI) Pediatric

Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

PASS THE TUBE & PROOF OF PLACEMENT: T minus 0 seconds.

- Observe for fasciculations approximately 90 seconds after succinylcholine to indicate imminent paralysis.
- After paralysis is achieved, follow the procedure outlined in Procedure: Orotracheal Intubation Protocol 5.6 to place the ETT.
- Assess for proper placement by following the procedure outlined in Orotracheal Intubation Protocol 5.6.

POST INTUBATION CARE

Analgesia and Sedation:

Option 1:

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5-15 minutes as needed

Option 2:

- Fentanyl (preferred) 1-2 mcg/kg IV/IO (max 100 mcg), repeat every 5-10 minutes as needed **OR**
- Morphine 0.1 mg/kg (max 5 mg), slow IV/IO push (be cautious of hypotension), repeat every 5-10 minutes as needed

AND

- Midazolam (preferred) 0.1 mg (maximum single dose 4 mg), repeat every 5-10 minutes as needed **OR**
- Lorazepam 0.1 mg IV/IO, (maximum single dose 4 mg) repeat every 10 minutes as needed.

Paralysis: If needed after sedative and analgesic have been administered, may consider:

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

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 Orotracheal Intubation Protocol 5.6

SUCCINYLCHOLINE CONTRAINDICATIONS:

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

If failed airway and unable to ventilate, consider Cricothyrotomy Protocols 5.3.

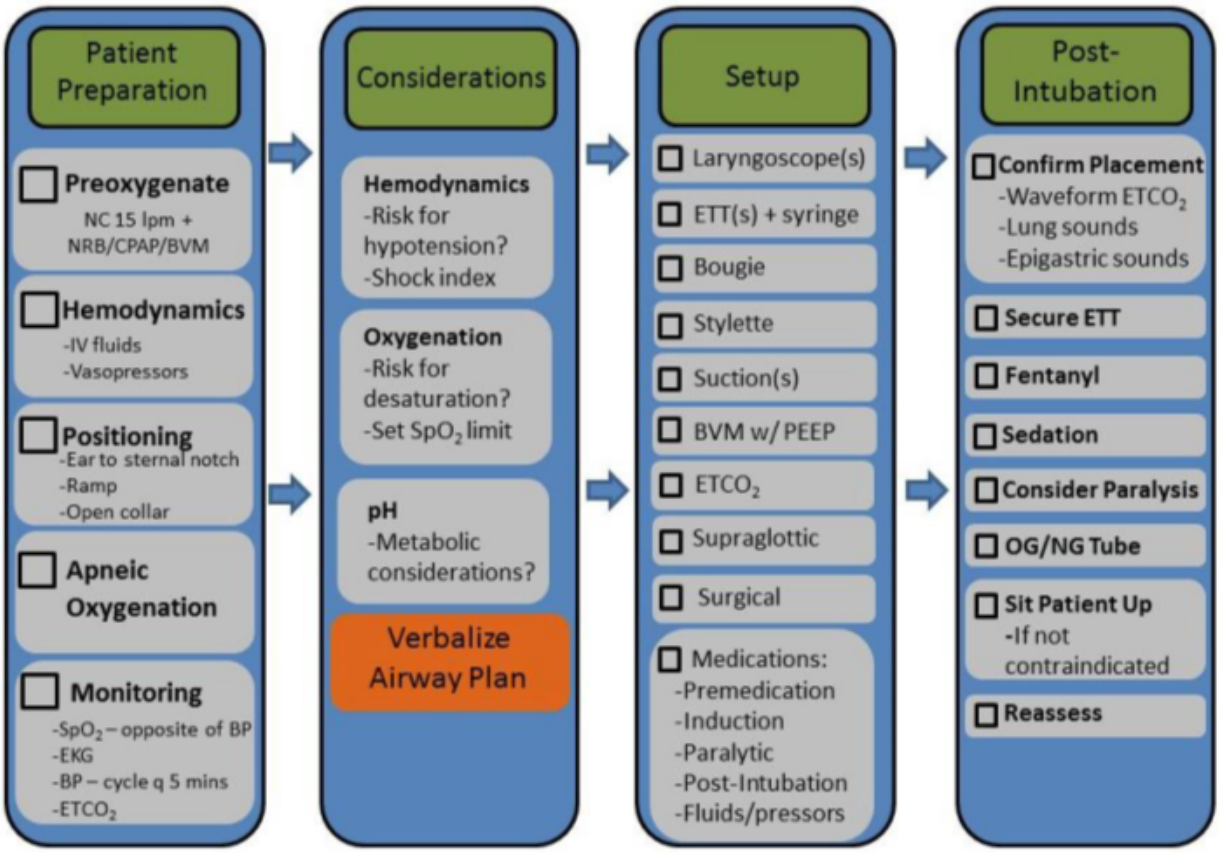
Protocol Continues

5.8P Rapid Sequence Intubation (RSI) Pediatric

Protocol Continued

Rapid Sequence Intubation Checklist

New Hampshire Bureau of EMS



ToC

5.9 Suctioning of Inserted Airway

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.

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 for adults/adolescents, 10 seconds for infants/children and 5 seconds for neonates; Use lowest pressure that effectively removes secretions.
8. When necessary to loosen thick secretions, sterile 0.9% saline may be instilled into the inserted airway (followed by 2-3 ventilations) prior to suctioning; 2.5 mL for adults/adolescents, 1.5 mL for infants/children and 0.5 mL for neonates; Not recommended to be done routinely so as to reduce risk of infection.
9. Re-attach the ventilation device to the patient.

ToC

- Do not insert suction catheter into or through NPA/OPA. Suctioning through an NPA may cause aspiration of the airway device.
- This procedure should be performed using sterile technique to the extent that is possible.
- EMT's may only perform deep suctioning of an inserted airway if Sponsor Hospital trained, authorized and approved.

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.

- Single lumen (e.g., King, iGel, LMA Supreme) or double lumen device (e.g., Combitube)
- EMTs may ONLY use single lumen, laryngeal mask type airways (e.g. LMA, iGel, etc.)

E / A

EMTs and ADVANCED EMTs may ONLY use a supraglottic airway for ADULT patients in CARDIAC ARREST. EMTs require sponsor hospital approval.

INDICATIONS:

- Cardiac Arrest.
- 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.

RELATIVE CONTRAINDICATIONS:

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

PROCEDURE:

- Insertion procedure should follow manufacturer guidelines as each device is unique.
- Confirm appropriate placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bag valve mask ventilation, and **quantitative waveform capnography**.
- 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.

P

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

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

Protocol Continues

5.10 Supraglottic Airway - Adult & Pediatric

Protocol Continued

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

P

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

POST TUBE PLACEMENT CARE – ADULT

Sedation:

Option 1:

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5 - 15 minutes as needed.

Option 2:

- Fentanyl (preferred) 100 mcg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Morphine 2-5 mg, slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed **OR**
- Hydromorphone (Dilaudid) 0.5 - 1 mg, slow IV/IO push

AND

- Midazolam (preferred) 2 - 5 mg IV/IO, repeat every 5 - 10 minutes as needed **OR**
- Lorazepam 1 -2 mg IV/IO, repeat every 10 minutes as needed (maximum total 10 mg)

POST TUBE PLACEMENT CARE – PEDIATRIC

Sedation/Analgesia:

Option 1:

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

Option 2:

- Fentanyl (preferred) 1 mcg/kg IV/IO (max 100 mcg), repeat every 5-10 minutes as needed **OR**
- Morphine 0.1 mg/kg (max 5 mg), slow IV/IO push (be cautious of hypotension), repeat every 5 - 10 minutes as needed.

AND

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

5.11 Tracheostomy Care

EMT/ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

E/A

INDICATIONS

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

CONTRAINDICATIONS

- None

EMT & AEMT PROCEDURES

- 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 a bag-value-mask device with high flow oxygen. Consider applying ETCO2 capnography if trained with sponsor hospital approval.
- If on a ventilator, remove the patient from the ventilator prior to using bag-valve-mask device.
- If unable to ventilate with a bag-valve-mask device or respiratory distress continues, suction tracheostomy using the following procedure:
  - Pre-oxygenate when possible for 30-60 seconds.
  - Adult – use no more than 100 mmHg of suction pressure
  - Pediatric – use no more than 80 mmHg of suction pressure
  - If the tracheostomy tube has a cannula, remove it prior to suctioning.
  - Determine the proper suction catheter length, by measuring the obturator.
  - If obturator isn't available, insert the suction catheter no more than 2-3 inches into the tracheostomy tube. **Do Not Use Force!**
  - Apply suctioning while removing the catheter. Catheter can be gently rotated while withdrawing. This should take 10-15 seconds.
  - 2-3 mL flush of saline may be used to help loosen secretions

PARAMEDIC PROCEDURES:

P

INDICATIONS

- An adult or pediatric patient with an established tracheostomy in respiratory distress or failure, where EMT/AEMT 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 over the stoma. NOTE: Consider using a pediatric/infant mask over stoma for a better seal.
- If another tracheostomy tube is available from caregivers, insert it into stoma and resume ventilation.
- If patient has an un-cuffed tracheostomy tube, and is not receiving appropriate tidal volume during ventilations – exchange tracheostomy tube using a Bougie inserted into the tracheostomy with a cuffed endotracheal tube.

Preface Continues

5.11 Tracheostomy Care

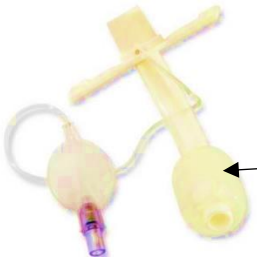
Protocol Continued

- If no other tracheostomy tube is available, or provider is unable to replace tracheostomy, a standard endotracheal tube or used tracheostomy tube (after being cleaned) may be used.
- Consider use of Bougie to reintroduce tracheostomy and/or endotracheal tube.

If patient remains in severe distress, consider other underlying reasons for respiratory distress and reference appropriate protocol.

Ventilation of Cuffed v. Un-Cuffed Tracheostomy

Cuffed



Balloon on cuff – should be fully inflated prior to using BVM on patient.

Attach 10cc syringe here to inflate balloon.

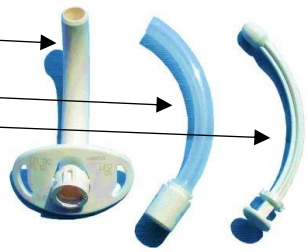
- Is there a balloon on the outside of the cuff?
- If so ensure that the balloon is fully inflated.
- If balloon is not fully inflated prior to assisting ventilations patient may not receive proper tidal volume and may risk air escaping into the stomach.
- If attempting to ventilate an un-cuffed tracheostomy, and successful ventilation is not occurring consider exchanging un-cuffed tracheostomy for a cuffed ETT.

P

Inner cannula may be required to BVM

May need to clean inner cannula to connect to BVM

- Un-Cuffed Tracheostomy
- Inner Cannula
- Obturator



5.12 Ventilator

PARAMEDIC – ADULT & PEDIATRIC

CONTRAINDICATIONS

Pediatric patients under 45 kg with advanced airways placed by EMS

PURPOSE

- To define the methodology and practice for using an EMS transport ventilator or patient's existing ventilator.

INDICATIONS

- Adult patients with advanced airways placed by EMS prehospital. The use of ventilators in the pre-hospital interfacility transport 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 device and transition to EMS transport ventilator.

SPECIAL CONSIDERATIONS

- All patients receiving mechanical ventilation will have an appropriate size BVM with mask, an appropriately sized OPA, continuous waveform ETC02, and a 10cc luer lock syringe readily accessible.

SETTINGS

P

The following initial settings are recommended for patients with a new need for mechanical ventilation.

Mode: Assist Control (AC) – Volume

Tidal Volume: start at 6 mL/kg of Ideal Body Mass to a max of 8 ml/kg

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

5.12 Ventilator

Protocol Continued

PARAMEDIC – ADULT & PEDIATRIC

Rate: Initially 8 - 12, titrate to appropriate $EtCO_2$ based on patient's condition (e.g. severe asthma, aspirin overdose).

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

PEEP: Start at 5 cmH_2O, may increase to 10 cmH_2O if needed to support oxygenation

ALARM SETTINGS

- High pressure alarm: 35 cmH_20
- Low pressure alarm, if available: 4 cmH_20

Further adjustments in ventilator settings may be done in conjunction with **Direct Medical Oversight.**

To troubleshoot an alarming ventilator or a difficult to ventilate patient, check for problems using the SCOPE mnemonic below:

"SCOPE"

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

P

PEARLS

- Ensure patient's ventilator is plugged into inverter in ambulance (many ventilator batteries are only operational for short periods)
- Some home vents require O2, while others don't. Check with caregiver for vent requirements.
- Transport on the patient's home vent settings. Settings may only be changed by a paramedic or patient's knowledgeable caregiver in a true emergency setting.
- Dislodgement of ventilator tubing or even the patient's tracheostomy occurs most commonly during transfer of a patient. Ensure adequate communication during patient movement, and assign a provider to control the ventilator tubing during movement.
- Home trach/ventilator patients should have a spare trach available; ensure this is transported with the patient.
- An appropriately sized BVM must always be readily available when transporting these patients.

This procedure may vary slightly dependent upon device specific directions.

6.0 12-Lead ECG Acquisition

EMTS AND ADVANCED EMTS WITH SPONSOR HOSPITAL TRAINING AND APPROVAL

In patients with suspected Acute Coronary Syndrome, a 12-Lead ECG should ideally be done on first patient contact, during transport and on arrival at the ED. ECG results should be transmitted and medical control notified per sponsor hospital policies and direction.

INDICATIONS

- Congestive Heart Failure/Pulmonary Edema
- Dysrhythmias
- Suspected Acute Coronary Syndrome
- Syncope/near syncope
- Shortness of breath/difficulty breathing
- Stroke/CVA
- Chest pain, pressure or discomfort
- Radiating pain to neck, shoulder, back, or either arm
- Sweating incongruent with environment
- Abnormal heart rate
- Profound weakness/dizziness
- Nausea, vomiting
- Epigastric pain
- Previous cardiac history
- Other cardiac risk factors (hypertension, diabetes, history of smoking, obesity, family history of heart disease, hypercholesterolemia)

E/A/P

PROCEDURE

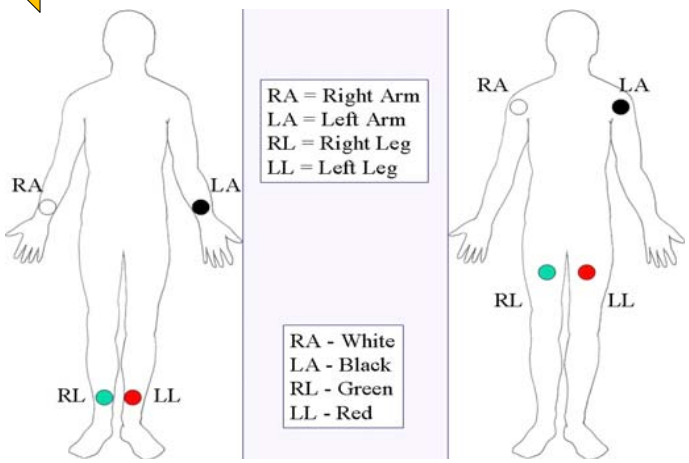
1. Prepare ECG Monitor and connect cable with electrodes.
2. Properly position the patient (supine or semi-reclined).
3. Enter patient information (e.g. age, gender) into monitor.
4. Prep chest as necessary, (e.g. hair removal, skin prep pads).
5. Apply chest and extremity leads using recommended landmarks: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

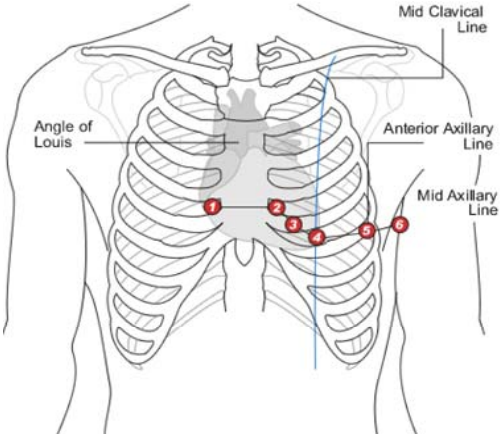
ToC

Protocol Continues

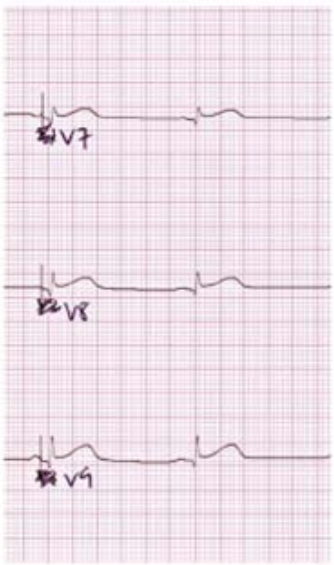
6.0 12-Lead ECG Acquisition

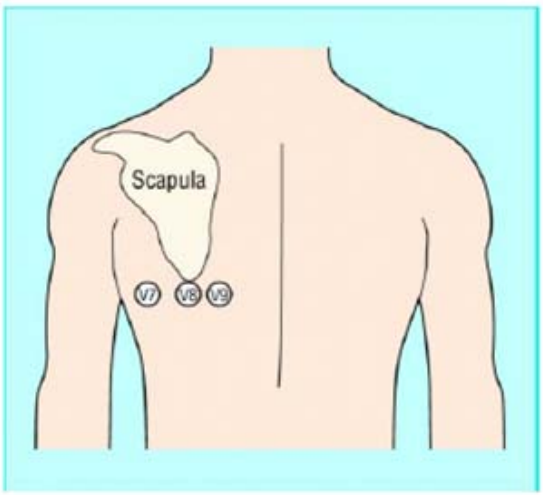
Protocol Continued





Consider posterior leads for suspected isolated posterior STEMI





PEARLS:

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

6.1 Abuse and Neglect of Children and the Elderly

Purpose

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

- Child abuse / neglect
- Elder abuse / neglect
- Abuse / neglect of persons with disability
- Human trafficking / exploitation

Scene Safety

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

Procedure for Assessment

General

- Interview patient in a calm, respectful and private manner.
- Note psychological/behavioral characteristics of abuse including: excessive crying, passivity or aggression, inappropriate interaction with caregivers, 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.
- Obtain pertinent history related to presenting injury / illness.
- Do not interrogate, accuse, or otherwise address specifics of abuse or neglect to the patient, caregiver, or bystander.
- Document verbatim any patient statements of instances of rough handling, sexual abuse, alcohol/drug abuse, verbal or emotional abuse, isolation or confinement, misuse of property, threats, and gross neglect such as restriction of fluids, food, medications, or hygienic care.
- Note any potential indicator of an abusive or neglectful circumstance or environment:
  - Unsolicited history provided by the patient, caregivers, or bystanders.
  - Delay in seeking care for injury or illness.
  - Injury inconsistent with history provided, developmental abilities, or mobility potential.
  - Conflicting reports regarding injury from the patient, caregiver / parents, or bystanders.
  - Patient unable, or unwilling, to describe mechanism of injury.
  - Patient confined to restricted space or position.
  - Problems with living conditions and environment.

Protocol Continues

6.1 Abuse and Neglect of Children and the Elderly

Protocol Continued

- Assess for signs of abuse including the following:
  - Injuries in unusual locations, (e.g., genitals, breasts, buttocks, ears) and/or injuries hidden by clothing / hair
  - Multiple fractures, bruises or other injuries in various stages of healing.
  - Injuries during pregnancy.
  - Scald burns with demarcated immersion lines without splash marks.
  - Burns or injuries consistent with cigarette burns, rope burns, or other identifiable patterned markings (hand prints, whips, curling iron, clothing iron).
  - Pregnancy or presence of sexually transmitted disease in child.
- Whenever possible, secure and bag (in paper) clothing or items needed as evidence.

Elderly Abuse

- In addition to the general signs of abuse listed above, note any visible bed sores, lack of hygiene, and/or undernourishment
- Document living conditions.

Patients with Disability

- When interviewing patients with cognitive and / or developmental disabilities use plain language, short phrases, and allow adequate time to respond.
- Patterns of abuse will be similar to those listed above, but are often more extensive

Sexual Assault

- Provide compassionate, non-judgmental support.
- Patient may prefer EMS provider of the same gender, if available.
- Limit history and physical contact with patient to that which is essential.
- Patient should not drink or eat from time of contact.
- If possible, secure and transport clothing / belongings worn by patient during alleged assault, if not already done so by police.
- If possible, communicate with receiving hospital early so that a sexual assault nurse examiner (SANE) and victims advocate personnel may be available upon patient arrival.

Human Trafficking

- In addition to general signs of abuse, observe and note the following: tattoos of names, bar codes, intentional scarring, lack of (or inaccurate) personal identification.
- Victims may refuse transport to the hospital due to fear or influence of abuser(s).

Reporting Procedures

- According to CT laws, any and all cases of suspected abuse, neglect, or exploitation of children, the elderly, and persons with disabilities must be reported. This applies even in cases when the patient is not transported.
- If a parent, guardian, or caretaker refuses treatment of a patient whom you feel needs medical attention, contact law enforcement immediately.
- Documentation is vital as information often changes with time.
- Document in the EMS patient care record the date and time abuse was reported

Protocol Continues

6.1 Abuse and Neglect of Children and the Elderly

Protocol Continued

Child Abuse*

Report suspected child abuse immediately.

- DCF 24 Hour Hotline 1-800-842-2288
- Following oral report, must submit a written report, (Form DCF-136, which can be found on the DCF website) to DCF within 48 hours.
- Responsibility for reporting child abuse and protection from liability for such reporting is established by the CT General Statutes 17a -101.
- For further information regarding the report of Child Abuse refer to OEMS Communications Statement 15-02

Elder Abuse

Report suspected elder abuse immediately.

- To report cases of suspected abuse, neglect or exploitation, call the toll-free In State referral line at 1-888-385-4225 during normal business hours or 211 after hours.
- **Responsibility and protection from liability for reporting an elderly patient who has been subjected to abuse, neglect, self-neglect or exploitation, or is living in hazardous conditions is established by the CT General Statute 17b-451.
- For further information regarding the report of Elder Abuse refer to OEMS Communications Statement 15-04.

Abuse of Persons with Disabilities:

Report suspected cases immediately.

- To report cases, contact the Office of Protection and Advocacy for Persons with Disabilities at 860-297-4300 or 800-842-7303
- Written reports must be submitted within 5 days of oral report.
- For further information regarding the reporting of persons with disabilities refer to CT General Statute 46a-11b of the Connecticut General Statutes.

Sexual Assault: There is no mandatory reporting in the state of Connecticut for adult patients following sexual assault. All patients should be encouraged to seek treatment and make a formal report.

Human Trafficking

- There is no mandatory reporting in the state of CT for human trafficking, unless it involves the abuse of children, the elderly, or persons with disability.
- EMS Providers are encouraged to call US Department of Homeland Security at 866-347-2423 or submit report online at www.ice.gov/tips

6.2 Air Medical Transport

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

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

AMT does not require approval of Direct Medical Oversight. However, if in doubt of the appropriateness of a patient for AMT, please contact Direct Medical Oversight as soon as possible.

Operational Considerations

- 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, burn center, 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 Considerations

- Severe respiratory compromise with respiratory arrest or abnormal respiratory rate.
- Circulatory insufficiency: sustained systolic blood pressure <90 mmHg in adults, age-appropriate hypotension in children or other signs of shock.
- Neurologic compromise: total GCS <9, or motor component <5. If the patient's neurologic status improves above these limits, consider canceling the helicopter and transporting to the local hospital.
- Trauma: All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee; chest wall instability or deformity (e.g., flail chest); two or more proximal long-bone fractures; crushed, degloved, mangled, or pulseless extremity; amputation proximal to wrist or ankle; pelvic fracture; open or depressed skull fracture; paralysis.
- Electrocution injuries with loss of consciousness, arrhythmia, or any respiratory abnormality.
- Burns greater than 20% Body Surface Area partial and/or full thickness burns; evidence of airway or facial burns; circumferential extremity burns; burns associated with trauma.
- STEMI: If 12-lead ECG indicates a STEMI (e.g., machine reads ***Acute MI Suspected*** and/or Paramedic interpretation).
- Stroke: 1 or more abnormal signs of the stroke scale; per local stroke plans.
- Critically ill children, including those with chronic and/or special healthcare needs.

Additional Notes

- Patients unable to be effectively oxygenated/ventilated or with uncontrollable external hemorrhage should be brought to the nearest hospital. BLS providers confronted with this circumstance should consider ALS intercept (by ground or air) if available.
- AMT is **NOT** indicated for patients in cardiac arrest. If the patient experiences cardiac arrest after the request of AMT, the patient should be transported to the nearest hospital. If arrival of AMT is imminent, the AMT crew may be utilized for assistance in 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 Direct Medical Oversight** 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.

6.3 Bloodborne/Airborne Pathogens

Blood Borne Pathogens

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

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

Body Substance Isolation (BSI) procedures

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

Exposure - Procedures and Considerations

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

ToC

Protocol Continues

6.3 Bloodborne/Airborne Pathogens

Protocol Continued

Airborne Pathogens

Emergency medical services personnel should assume that all patients who present with respiratory distress, cough, fever, or rash are potentially infectious with airborne pathogens and must protect themselves accordingly by use of appropriate Airborne Personal Protective Equipment (APPE), Body Substance Isolation (BSI), and approved procedures.

Airborne Personal Protective Equipment (APPE)

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

Pre-hospital - Procedures and Considerations

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

Decontamination and Follow-up

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

ToC

6.3A Central Line Access

PARAMEDIC STANDING ORDERS – ADULT

P

Definition

A central line is a common method of maintaining long-term venous access in select patients. They may be inserted peripherally in an arm or in the patient's chest. The distal end of the line usually sits just outside of the right atrium and medications & fluids reach the central circulation nearly as soon as they exit the catheter lumen.

Indications - For patients who already have a central line that may be externally accessed.

1. Immediate vascular access for cardiac arrest.
2. Intravenous fluids or medications are urgently needed, peripheral intravenous access cannot by established in a timely manner, AND the patient exhibits one (1) or more of the following:
    a. Hemodynamic instability (systolic BP <90).
    b. Symptomatic tachycardia or bradycardia requiring urgent intervention.
    c. Patient in extremis with immediate need for medication or intravenous fluids (e.g., patient in status epilepticus, impending arrest, airway/ respiratory failure, dextrose in a patient refractory to IM glucagon, etc.).

Contraindications:

1. Central lines shall not be accessed for routine vascular access.
2. Inability to infuse through the catheter.
3. Paramedics may not establish or place a central line, including subcutaneous port access

- Consider alternate routes of medication administration prior to central line access
    - Vasopressor infusions should preferentially be administered via central line (if available)

Equipment:

1. Clean non-latex gloves
2. Sterile 10cc syringe without saline
3. Clean flush with 0.9% NSS
4. Alcohol or 2% Chlorhexidine wipes
5. Drip set and fluids
6. Some catheters may require a sterile adapter to convert it to a needless adapter (i.e. luer lock).

Protocol Continues

6.3A Central Line Access

Protocol Continued

PARAMEDIC STANDING ORDERS – ADULT

P

Procedure:

1. Use clean gloves and maintain sterility of connections.
2. Take note of the position of the catheter where it is inserted into the patient. Ensure the depth of the catheter does not change while manipulating it.
3. Take note of any markings on the tubing. If noted, use the distal-most lumen.
4. Scrub the connector for at least 15 seconds and:
    a. If using an alcohol wipe allow to air dry for at least 5 seconds
    b. If using a chlorhexidine wipe, allow to air dry for at least 20 seconds
    c. If the tubing requires an adapter, clean the tubing then apply the sterile adapter.
5. Ensure all connections to the line are secure while proceeding.
6. Attach a 10 ml syringe with 0.9% NS, unclamp if necessary, and gently flush the line. If it does not flush, remove the syringe, DO NOT use the catheter for access and re-clamp.
7. If line flushes, remove the syringe and attach the catheter to the end of the IV tubing and begin infusion of fluids. Adjust the rate appropriate to the needs of the patient. DO NOT apply a pressure bag or otherwise attempt to squeeze the fluid bag.
8. Administer medications though IV tubing port if indicated.
9. IV maintenance fluids must be maintained during transport (i.e. “TKO”).
10. All patients with central lines accessed in the prehospital setting must be transported to the hospital unless presumed on scene.

Notify receiving provider that central line was accessed by EMS. Access of the central line in the prehospital setting may result in need to replace the central line.

Pearls:

1. Do not flush the central line with less than a 10 ml syringe. Smaller size syringes may generate too much pressure and can damage the catheter.
2. Ensure the infusion line is adequately flushed prior to mixing medications to prevent compatibility issues.
3. The maximum flow rate of certain central lines is potentially less than a peripheral intravenous catheter.
4. Ensure all connections are tight and the fluid has not run out in the bag/ infusion line to reduce risk of air embolism.
5. For peripherally inserted lines, keep patient’s extremity straight to avoid kinking the line and obstructing flow.
6. Central lines access the patient’s central circulation, and the risk of infection is high. Avoid contamination to ports and connections while accessing. Use a new pair of clean gloves when directly handling the central line catheter.

6.4 Communications Failure

In case of a communications failure with Direct Medical Oversight due to equipment malfunction or incident location, the following will apply:

- EMS personnel may, within the limits of their certifications, 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 **Direct Medical Oversight** 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 Agencies Sponsor Hospital EMS Medical Director and/or Hospital EMS Coordinator within 48 hours of the event.

6.5 Consent for Treatment of a Minor

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

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

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

Refusals:

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

Except for the special circumstances listed below, a minor may not refuse care. When a minor attempts to refuse care and/or transport to the hospital, EMS personnel should enlist the assistance of the police, including requesting that the police place the minor in protective custody. While the decision to restrain a minor is a difficult one, at times EMS providers may be in a situation where restraint is unavoidable. Exercise special care when restraining minor patients. (Refer to Restraints 6.16.)

If there is any concern regarding a minor's treatment and/or transport options, do not hesitate to contact direct medical oversight.

Special Circumstances

- A minor parent who has not yet reached his/her eighteenth birthday may consent to or refuse care on behalf of his or her minor children, provided that the minor parent has the capacity to understand the nature of the treatment and the possible consequences of consenting to or refusing care.
- Any minor patient does not require parental consent for treatment of sexually transmitted diseases.
- A minor does not require parental consent for treatment of a pregnancy-related problem.
- A minor in a mental health crisis does not require parental consent for emergency treatment.
- Any patient 12 years of age or older may voluntarily submit to a healthcare facility for drug dependency or any problem related to drugs.
- An emancipated minor may consent to, or refuse health care. A minor patient bears the burden of establishing, by legal documentation or otherwise, that he/she is emancipated. Such a minor must be at least 16 years of age.

6.6 Crime Scene Preservation of Evidence

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.
- Limit number of personnel entering crime scene to those necessary for patient care.
- Do not walk through fluids.
- Do not touch or move anything at a crime scene unless it is necessary to do so for patient care (notify law enforcement prior to moving so if possible).
- Observe and document original location of items moved by crew.
- When removing patient clothing, leave it intact as much as possible and place items preferably in paper bag, not plastic as it may ruin their value as evidence.
- 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.
- When possible, place any victim to be transported on a clean sheet. When the victim is removed at the receiving destination, retain the sheet for law enforcement. This is particularly important in crimes which trace evidence may be transferred.
- Document statements made by the patient or bystanders on the EMS patient care report.
- Comments made by a patient or bystanders should be denoted in quotation marks.
- Inform staff at the receiving hospital that this is a “crime scene” patient.
- If the patient is obviously dead consistent with the Resuscitation Initiation & Termination Policy 6.17, 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.

6.7 Do Not Resuscitate (DNR) Orders

Recognized DNR Options in Connecticut

The following are the currently recognized forms/bracelets for EMS "Do Not Attempt Resuscitation" options in Connecticut without requiring DMO.

- Statewide DNR transfer form documenting the patient's name and signed by a physician or RN and that clearly documents the DNR order pursuant to CGS 19a-580d-2 ***OR***
- DNR bracelet approved by CT DPH worn by a patient, inscribed with both the patient and physician's names.
  - The bracelet should be affixed to the patient and shall not appear to be broken or cut.
- A ***MOLST*** pursuant to CGS 19a-580h order is present that has instructions guiding patient resuscitation preferences.
- For patients present or residing in a healthcare facility, or being transferred a DNR order written by a physician or APRN (as of 10/01/2016*) at a nursing home, hospital, or other healthcare facility issued in accordance with the healthcare facility's policies and procedures can be accepted by the EMS provider.

NOTE: A patient's healthcare agent under an Advanced Health Care Directive form may ***NOT*** direct EMS providers to withhold resuscitation in the absence of a valid DNR Order without **Direct Medical Oversight**.

Orders from Other States

- When a ***DNR/POLST*** is from another state the EMS provider contacts **Direct Medical Oversight** for guidance.
- When recognized DNR guidance is not available and Medical Power of Attorney is present and requests that resuscitation be withheld, contact **Direct Medical Oversight** for guidance.

Plastic
Printed: picture of a hand and "EMS ALERT"
Inside: white, lined paper with patient's name, doctor's name and phone #

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

TRANSFER OF "DO NOT RESUSCITATE" ORDER

Name: _____ Identification Number: _____
Please print

Healthcare Institution: _____

I, the undersigned, attest that the above named person has a valid "Do Not Resuscitate" order which was written on: _____

By _____, M.D. and is retained in this person's medical record at the above location.

_____ _____
Signature of M.D. or R.N. Printed Name

_____
Date

Metal
Front: engraved with "EMS Alert and patient's name
Back: Doctor's name and phone #

(Photos of valid CT DNR bracelets/order)

Protocol Continues

6.7 Do Not Resuscitate (DNR) Orders

Protocol Continued

For Patients on Hospice

A patient on hospice is not inherently ***DNR.*** In the absence of a ***DNR or MOLST*** a discussion of goals of care should occur, if there is sufficient time. A conversation clarifying "goals of care" can occur with the patient, hospice representative or a family member. If "goals of care" remain unclear, or one of the recognized ***DNR/MOLST*** is not present provider should contact DMO.

Consider contacting the hospice agency who can be a resource for end-of-life symptom management.

Revocation of a DNR Order

A DNR order may be revoked by the patient or an authorized representative ***"Authorized representative"*** *means a person who is otherwise authorized by law to provide consent to the issuance or revocation of a DNR order for an incapable or incompetent patient"* in any of the following ways, regardless of whether they reside at home or in a healthcare facility:

- Removing the DNR bracelet from the patients extremity, ***OR***
- Telling an individual licensed healthcare provider or certified emergency medical technician. Such healthcare provider or emergency medical technician shall enter, or cause to be entered, the contents of the statement in the patient's permanent medical record and notify the attending physician and the physician who issued the DNR order.

In accordance with CT General Statutes 19a-580d

Withholding resuscitation/procedures

If there is a valid DNR order and the patient is in cardiac or respiratory arrest, EMS providers should **NOT** start resuscitation. Provider should focus on providing support to bystanders/ family. Refer to Resuscitation Initiation and Termination 6.17.

Procedures that may be performed

Until a patient with a valid DNR is in cardiac or respiratory arrest, all other indicated care is still appropriate (unless otherwise specified).

If there is a valid ***MOLST/POLST,*** refer to that document for specific procedures that are not to be performed.

A Living Will or a Connecticut Advanced Health Care Directive form is NOT a valid DNR order.

Living will definition: https://portal.ct.gov/AG/Health-Issues/Connecticuts-Living-Will-Laws

6.7A Gastric Tube Insertion

PARAMEDIC **STANDING ORDERS – ADULT & PEDIATRIC**

P

INDICATIONS

- Intubated patients

CONTRAINDICATIONS

– Severe facial trauma with distortion of airway anatomy
– Caustic ingestions

EQUIPMENT

- Gastric tube of appropriate size with a secondary lumen "sump"/air vent; 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 an orogastric 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.

6.8 Intraosseous Access

ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

This protocol applies to all IO insertion sites approved by the local sponsor hospital

INDICATIONS

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

CONTRAINDICATIONS

- Placement in or distal to a fractured bone including the pelvis.
- Placement at a burn or infected site.
- Placement distal to a source of major bleeding in an extremity.
- Placement near prosthetic limb, joint or orthopedic procedure
- Inability to identify/landmark insertion site

COMPLICATIONS

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

A/P

EQUIPMENT:

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

PROCEDURE:

When using a commercial IO device, follow manufacturer's instructions.

1. Position extremity as appropriate for insertion site
2. Landmark insertion site and determine correct needle length
3. Cleanse the site and insert needle
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 patients who are alert or responsive to pain, if clinical condition allows, administer local anaesthetic prior to IO syringe bolus (flush) or infusion
    - Assure the patient has no allergy to lidocaine
    - Prime the extension set with 2% lidocaine (preservative free)
        - Note: Priming volume of most large bore extension sets is approximately 1 mL

Protocol Continues

6.8 Intraosseous Access

Protocol Continued

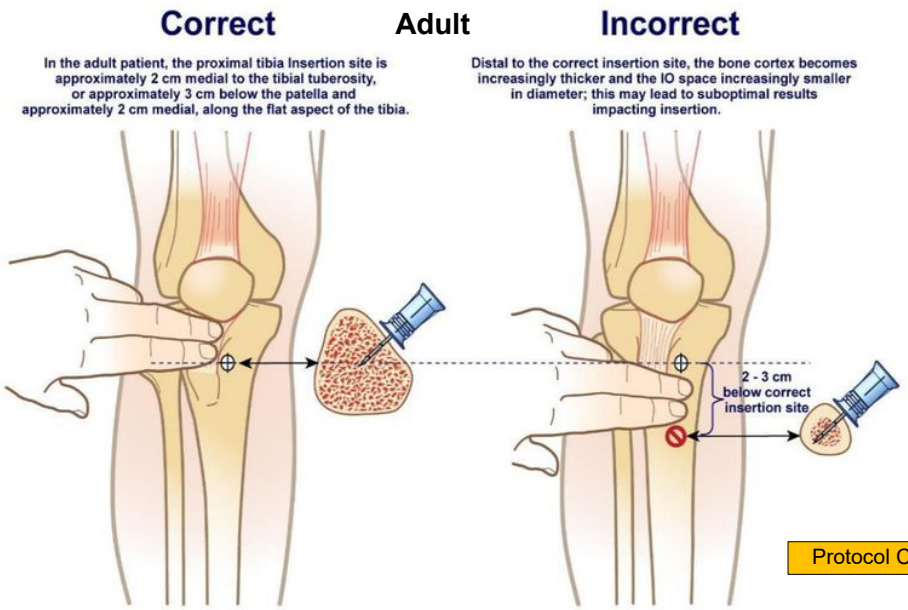
- Very slowly administer lidocaine 2% (preservative free) IO over 120 seconds. The final ~20 mg of the dose in the extension set must be slowly pushed in using the first 1mL of a normal saline flush.
  - Adult - 40 mg lidocaine (2 mL of 2% lidocaine)
  - Pediatric – 0.5 mg/kg lidocaine (not to exceed 40 mg)
- Allow lidocaine to dwell in IO medullary space for 60 seconds
- Flush with 5-10 mL of normal saline
- Slowly administer ½ the previously administered dose of lidocaine IO over 60 seconds.
- For patients not responding to IO lidocaine, refer to Pain Management Protocol 2.19A & 2.19P
- May repeat the ½ dose lidocaine as needed, not to exceed a total dose of 3 mg/kg (max 300 mg)

7. Use a pressure bag for continuous 0.9% NaCl infusions.
8. Stabilize needle:
   - Consider utilizing a commercially available stabilization device as recommended by the manufacturer, **OR**
   - Stabilize needle on both sides with sterile gauze and secure with tape (avoid tension on needle).

A/P

Attempt only one IO insertion per site. Notify ED of unsuccessful attempts

PEARLS:
- Proximal humerus site may produce higher flow rates
- Adult: proximal tibia site is 1 finger width medial to tibial tuberosity. Pediatrics: proximal tibia site is 1 finger width both medial AND distal to the tibia tuberosity



Protocol Continues

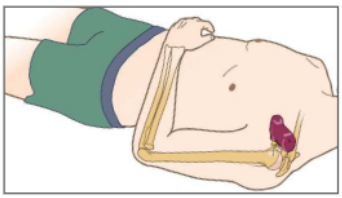
6.8 Intraosseous Access

Protocol Continued

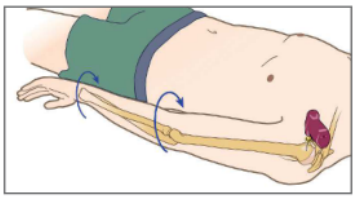
A/P

Arm Positioning

Using either method below, adduct elbow, rotate humerus internally.

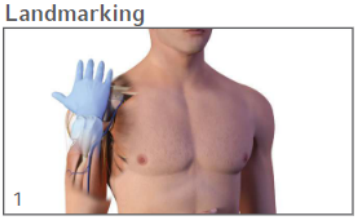


Place the patient's hand over the abdomen with arm tight to the body.



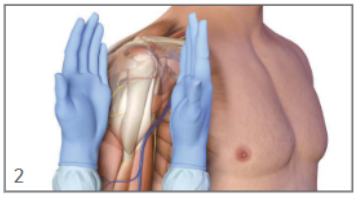
Place the arm tight against the body, rotate the hand so the palm is facing outward, thumb pointing down.

Landmarking

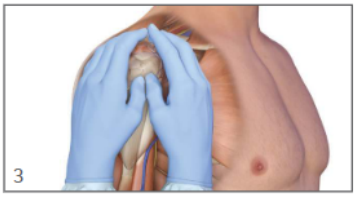


Place your palm on the patient's shoulder anteriorly.

- The area that feels like a "ball" under your palm is the general target area
- You should be able to feel this ball, even on obese patients, by pushing deeply

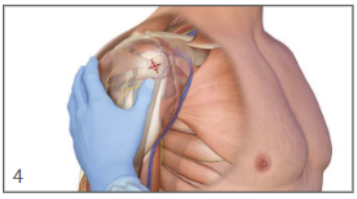


Place the ulnar aspect of one hand vertically over the axilla. Place the ulnar aspect of the opposite hand along the midline of the upper arm laterally.



Place your thumbs together over the arm.

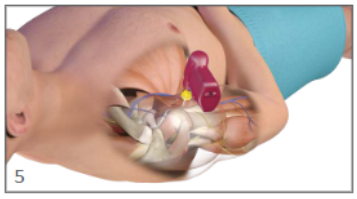
- This identifies the vertical line of insertion on the proximal humerus

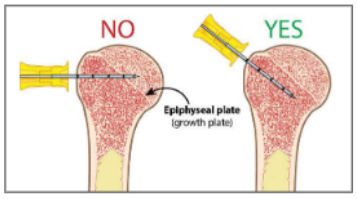


Palpate deeply as you climb up the humerus to the surgical neck.

- It will feel like a golf ball on a tee – the spot where the "ball" meets the "tee" is the surgical neck

The insertion site is on the most prominent aspect of the greater tubercle, 1 to 2 cm above the surgical neck.





Point the needle tip at a 45-degree angle to the anterior plane and posteromedial.

6.9 Naloxone Leave Behind/Naloxone Overdose Prevention Kit

Naloxone Leave Behind/Naloxone Overdose Prevention Kit

EMS providers may leave behind a Naloxone Overdose Prevention Kit with patient, family, friends, or bystanders following suspected opioid overdose calls.

Following an opioid overdose reversal with naloxone, EMS providers should:

1. Encourage transport. If an alert, oriented person refuses care, document in ePCR.
2. Provide harm reduction information.
3. Offer Naloxone Overdose Prevention Kit.
4. Review indications and administration instructions for specific naloxone product to be left behind.
5. Encourage calling 911 in overdose situations.
6. Document kit distribution in ePCR.
7. Gather pertinent information (see below).

Naloxone Leave Behind Kits May Be Provided to:

1. Patient who refuses treatment/transport
2. Patient family member or friend when a patient is transported
3. As replacement for bystander/layperson who provided naloxone prior to EMS arrival
4. Individual requesting naloxone at EMS station or on scene

Each kit should contain:

- A standard naloxone dose
- Instruction card for naloxone use
- CPR face shield (optional)
- Pamphlets on Opioid Overdose First Aid and Recovery.

Please keep track of/note how many naloxone leave behind kits are distributed. Other information is not required unless specified by the Sponsor Hospital Medical Director.

6.10 Needle Thoracostomy - Adult and Pediatric

PARAMEDIC STANDING ORDERS – ADULT

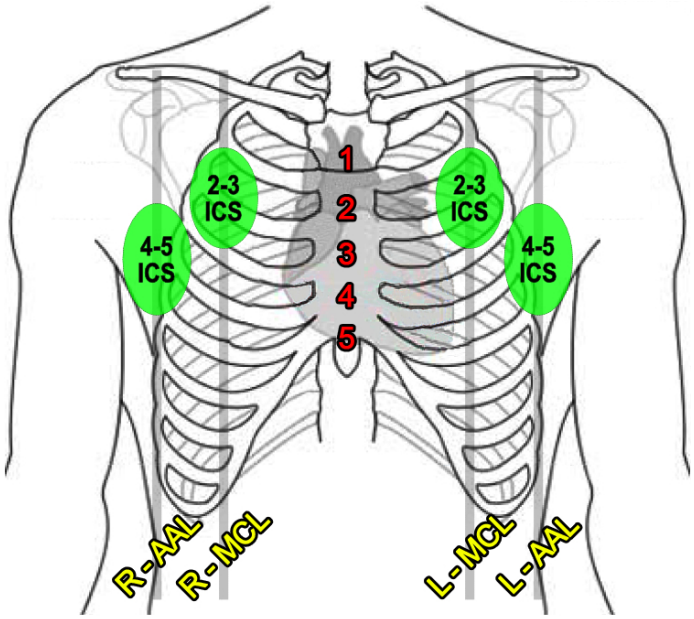
P

Indication

- Any traumatic cardiac arrest with chest or abdominal trauma undergoing resuscitation.
- Suspected tension pneumothorax AND either
  - Persistent and/or worsening hypoxia despite supplemental oxygen
    OR
  - Hypotension and/or rapidly worsening hemodynamics

Procedure:

1. Position patient supine (if possible given situation and patient location).
2. Identify insertion site:
   a. **2nd intercostal space (ICS) in the midclavicular line**
      i. Keep in mind the clavicle extends almost to the lateral aspect of the shoulder
      ii. DO NOT insert medial to the nipple line to help avoid great vessel/cardiac injury
      iii. 2nd ICS is lateral to the raised 'bump' of the Sternal Angle/Angle of Louis.
   b. **Adults Only: 4th-5th intercostal (ICS) space in the anterior axillary line**
      i. Palpate 4th or 5th ICS at edge of sternum and follow curvature of chest laterally to the anterior axillary line.
      ii. Anterior axillary line runs along the front crease of armpit (anterior axillary fold).
      iii. Avoid inserting too inferiorly so as not to enter below the diaphragm/into the abdominal cavity.
      iv. Remain above both the level of the xiphoid process and the inframammary fold.
3. Prepare insertion site with chlorhexidine.



AAL = Anterior Axillary Line MCL = Mid-Clavicular Line
ICS = Intercostal Space

4. For standard over-the-needle catheters, remove end cap from needle hub to allow air escape
   a. Consider attaching syringe partially filled with saline to needle hub to observe air escape.

Protocol Continues

6.10 Needle Thoracostomy - Adult and Pediatric

Protocol Continued

P

5. Insert 10 - 14 gauge, 3.25" (8cm) or longer catheter-over-needle device through skin at 90° angle over the top of the rib (at the inferior border of the intercostal space)
   a. Pediatric (<36 kg/79 lb): Utilize a 14 to 18 gauge, 2” (5 cm) catheter-over-needle device.
   b. Neonate (<28 days): Utilize a 23 or 25 gauge butterfly needle or a 20 or 22 gauge catheter-over-needle device. Both can be attached to a three-way stopcock and a syringe.
6. Advance device until evidence of entry into the pleural space.
   a. A distinctive "pop" should be noted and air or blood may exit.
   b. Advance needle and catheter slightly to assure entry into pleural space (≤3 cm past 1st contact of needle with rib).
   c. Do not continue to advance the needle beyond this point.
   d. Advance the catheter off the needle (do not advance the needle further) fully to the chest wall.
7. Remove the needle, leaving the plastic catheter in place.
8. If available, a one way valve may be attached.
9. Monitor the catheter for kinking and/or clogging, and the patient for recurring signs of tension pneumothorax.
10. Document the procedure including clinical signs suggestive of tension pneumothorax, location of procedure, type and size of device used, and clinical response.

PEARLS:

- Follow additional device-specific instruction from the manufacturer and Sponsor Hospital Medical Oversight
- Untreated, tension pneumothorax may rapidly progress to hypotension and cardiovascular collapse, especially in the mechanically ventilated patient. Tension pneumothorax may also present with hypoxia without obvious cardiovascular impairment, particularly in patients breathing without assistance.
- Consider tension pneumothorax in all cases of pulseless electrical activity (PEA) arrest.
- Clinical signs of tension pneumothorax vary but may include:
  - Absent breath sounds
  - Decreased compliance to ventilation
  - Respiratory distress
  - Hypoxia
  - Hypotension
  - Tachycardia
  - Hyperresonance to percussion on the affected side
  - Jugular venous distention
- Absence of tracheal deviation should not affect clinical decision-making.
- Some patients may require multiple decompressions on the same side.
- If blood is evacuated from the needle, consider the presence of a hemothorax, hemopneumothorax or entry into a vascular/cardiac structure.
- In the spontaneously breathing patient, assure any open thoracic wounds are covered with an occlusive dressing.
- Diaphragmatic rupture with herniation of abdominal organs into the thorax may present similar to hemo/pneumothorax. Signs and symptoms may include:
  - Gross deformity and/or sunken appearance to abdomen.
  - Bowel sounds present in the thorax.
  - Diminished/Absent bowel sounds in the abdomen with other signs of thoracic involvement including pain and dyspnea.
  - Incidence is greater on left vs. right due to the presence of the liver.

6.11 Pediatric Transportation

PATIENT TRANSPORT

CT Motor Vehicle CHP 246, Sec 14-100a, requires all children be properly restrained when riding in a vehicle.

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 recommended that agencies develop standard operating procedure/policy for pediatric transport that reflects their ambulance configurations and specific pediatric transport equipment /devices

CONVENTIONAL CAR SEATS

1. Convertible car seat with two belt paths (front and back) with four points for belt attachment to the cot is considered best practice for pediatric patients who can tolerate a semi-upright position.

- Position safety seat on cot facing foot-end with backrest elevated to meet back of child safety seat.
- Secure safety seat with 2 pairs of belts at both forward and rear points of seat.
- Place shoulder straps of the harness through slots just below child's shoulders and fasten snugly to child.
- Follow manufacturer's guidelines regarding child's weight.

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

- 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.

Protocol Continues

6.11 Pediatric Transportation

Protocol 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 who medically require the use of a car bed and who fall within the manufactures height and weight limits set forth on the seat label

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

ToC

MOTHER AND NEWBORN TRANSPORT

- 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 Federal Motor Vehicle Safety Standard (FMVSS No. 213) may be used to secure infant.
- It is not appropriate to transport children, even in a child restraint system, on the side facing multi-occupant bench seat or side facing seats located in the rear of ground ambulances.
- Consider using parents own safety seat/device if it meets published standards for child weight.
- 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.
- Transport option of the rear-facing EMS provider's seat in a size- appropriate child restraint system that complies with FMVSS 213 (convertible or combination seat but not infant only seat, using a forward facing belt path) or in an integrated child restraint system seat (certified by manufacturer) to meet the injury criteria FMVSS 213.
- Special attention should be paid to the high risk of hypothermia in newborns

Protocol Continues

6.11 Pediatric Transportation

Protocol Continued

NON-PATIENT TRANSPORT

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

If no other vehicle is available and circumstances dictate that the ambulance must transport a well child, he/she may be transported in the following locations:

- Captain's chair in patient compartment using a size appropriate integrated seat or a convertible safety seat.
- Passenger seat of the driver's compartment if child is large enough (according to manufacturer's guidelines) to ride forward-facing in a child safety seat or booster seat. Airbag should be turned off. If the air bag can be deactivated, an infant, restrained in a rear-facing infant seat, may be placed in the passenger seat of the driver's compartment.

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

The patient's safety seat may be used to transport the child to the hospital after involvement in a minor crash if ALL of the following apply:

- It is a convertible seat with both front and rear belt paths.
- Visual inspection, including under movable seat padding, does not reveal cracks or deformation.
- Vehicle in which safety seat was installed was capable of being driven from the scene of the crash.
- Vehicle door nearest the child safety seat was undamaged.
- The air bags (if any) did not deploy.

ToC

6.12 Pelvic Fracture Stabilization

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

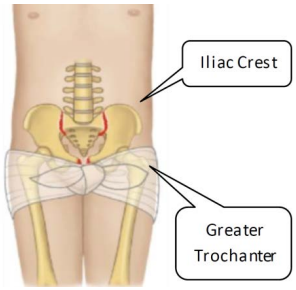
E/A/P

Indications:

- Suspected Pelvic Fracture based on mechanism of injury (see pearls)

AND either

- Evidence of hemodynamic compromise (BP <90, signs of poor perfusion, cardiac arrest)
  Or
- Pelvic instability (see pearls)



Contraindications:

- Suspected isolated femoral neck ("hip") fracture
- Suspected traumatic hip dislocation

Procedure

1. With patient in supine position, remove his or her clothing.
2. Pass commercial binder or sheet (folded longitudinally to width of 8-12”/20-30cm) under legs.
3. Slide the sheet or commercial device up superiorly until it is centered under the greater trochanters of the patient’s femurs.
4. Tighten the binder or pull the sheet ends opposite each other till desired force/ effect is achieved. If legs externally rotated, assess for correction toward normal alignment.
5. Secure binder or sheet. For sheet, either:
   a. Use Kelly clamps to secure opposite ends together (flat).
   b. Twist ends together then secure ends by tucking and taping/clamping.
   c. Tie ends together (least desirable - may be more likely to loosen)
6. ‘Log-rolling’ patient may cause further injury. Avoid log rolling or limit to no more than 15°rotation. If possible, use scoop or multi-person lift when moving.

ToC

PEARLS

Pelvic fracture should be suspected in:

- High speed front and side impact MVCs
- Pedestrian and motorcyclist MVCs
- Fall from height
- Crush Injury

Assess for instability by gentle, inward compression on the iliac crests and palpation over the pubic symphysis (feeling for separation/diaphysis). If iliac crests move inward with compression, try and hold in position until binder can be applied. Do NOT “rock” the pelvis so as to avoid further injury.

Proper positioning/landmarking is important to avoid worsening injury and allow laparotomy access.

If possible, apply binder prior to moving the supine trauma patient.

Apply no more than about 35 pounds of force. Avoid over-correction. Externally rotated legs should move closer to anatomic position/midline and not become inwardly rotated.

Refer to commercial pelvic binder manufacturer instructions for additional direction.

6.13 Police Custody

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.

Police Request for Emergency Examination (PREE)

Under Connecticut Law a Police Officer is authorized to take into custody any person whom the officer reasonably believes meets the criteria for commitment.

- Patient has significant psychiatric disabilities
- Is dangerous to himself or others ***or***
- Is gravely disabled

The officer may request the patient be transported to a general hospital for emergency examination.

- If law enforcement refuses to place a patient on a PREE at the request of EMS, Direct Medical Oversight 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, **Direct Medical Oversight** must be contacted and a law enforcement supervisor should be requested for guidance.

ToC

EMS Initiated Restraints

For any patient potentially requiring restraints by EMS, see the Restraints Procedure 6.16.

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

Patients who have been subdued by a Taser device, see Tasers Procedure 6.18.

Pepper Spray

Patients who have been subdued by pepper spray, see Eye and Dental Protocol 4.2.

Extreme Agitation/Combativeness

Extreme Agitation/Combativeness is characterized by extreme restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death, see Behavioral Emergencies 2.6.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

October 1, 2009

The following will be Policy for Emergency Medical Service care providers:

EMS RESPONSE TO DETENTION/HOLDING FACILITIES

EMS providers are often called to detention or holding facilities to assess, treat and transport detainees. It is important to keep in mind that detainees have the same rights to medical treatment, as does the lay public.

Request for Evaluation Only

While it is beyond the practice for paramedics or EMTs to provide intentional treat and release services, EMS responders often encounter situations where a patient (or law enforcement) desires evaluation, but does not want transportation. When in such a situation, EMS responders must treat the scenario the same as they would a patient in a home or at an accident scene who requests evaluation only. The EMS responder should follow good medical judgment in these situations, including doing a full history and assessment. Vitals signs should be assessed, including checking blood sugar if relevant.

Patient/detainee Refusal of Transport

If in the judgment of the EMS provider the patient/detainee should be medically evaluated at the hospital, every attempt should be made to convince the patient/detainee (and law enforcement) to allow ambulance transportation to a local medical facility. EMS responders should offer transportation several times; fully explain the potential medical consequences of refusing care to the patient/detainee and make every effort to ensure all parties understand the risks, and advise the patient/detainee to ask the law enforcement officer to recall 911 if necessary. Should the patient/detainee refuse this offer of transport, a full refusal PCR should be completed. The law officer should witness it. In the event the patient/detainee refuses care and refuses to sign the PCR, document this fact and have the law officer attest to the patient's refusal to sign.

Protocol Continues

6.13 Police Custody

Protocol Continued

Police Officer Ordered Transport

In the event the patient/detainee refuses treatment and transportation, but law enforcement orders it, EMS should transport the patient/detainee and document all circumstances in the PCR. In all cases a law enforcement officer should accompany a detainee in the ambulance.

Law Enforcement Refused Transport

In the event the patient/detainee requests transport, but the law enforcement officer refuses to allow the patient/detainee to be transported, document this fact, including the name of the officer in your report. The officer can legally sign a refusal for a patient/detainee who requests transportation (however in practice this is not typically done). Documentation should also include the EMS responder's cautions to the law enforcement officer on the consequences of withholding necessary evaluation and or treatment. The EMS responder should request that the law enforcement officer sign under this documentation. Medical Direction must be contacted (see section below).

Medical Control

EMS responders are always encouraged to contact Medical Direction to allow the on-line physician to speak directly with the patient/detainee or law enforcement officer in an effort to convince them of the need for further medical evaluation. In all circumstances in which a patient/detainee is given an approved EMS medication such as a breathing treatment or dextrose, and then refuses transport or has transport denied by the law enforcement officer, the EMS responder must contact Medical Direction

ToC

Scope of Practice

At no time should an EMS responder perform any treatments or evaluation methods beyond their scope of practice such as dispensing or verifying medications or administering medications such as insulin.

Transport Destination

The law enforcement officer may determine the hospital of choice unless it conflicts with patient/detainee need as determined by regional guideline or state regulation. Medical Direction should be contacted with any questions.

Approved by Commissioner Galvin 10.01.2009

6.14 Refusal of Care

PURPOSE:
Establish protocols 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. The patient is able to demonstrate clear thought process and understanding of risk of refusals.
6. No language communication barriers. Reliable translation available (e.g., on scene interpreter, language line).
7. No evidence or admission of suicidal ideation resulting in any gesture or attempt at self-harm. No verbal or written expression of suicidal ideation regardless of any apparent inability to complete a suicide.

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 Direct Medical Oversight for all patients who present a threat to themselves, present with an altered level of consciousness or diminished mental capacity, or have history or examination findings consistent with a high-risk refusal.

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

Documentation shall include assessment of competence/capacity and the patient's understanding of risk/benefit.

Protocol Continues

6.14 Refusal of Care

Protocol Continued

If a patient has significant psychiatric disabilities and is a danger to themselves or others, or is gravely disabled and in need of immediate care and treatment, police can take custody of the individual under a P.R.E.E., see Police Custody Procedure 6.13

If a patient is incapacitated by alcohol and in need of medical treatment but refuses care, police may have them brought forthwith to a hospital (CGS 17a-683). A written form is not required under this statute. See Police Custody Procedure 6.13. A written form is not required under this statute.

A person may be committed on an emergency basis if a clinical social worker or advanced practice registered nurse with certain training, physician, or psychologist signs an emergency certificate stating the patient has psychiatric disabilities, is dangerous or gravely disabled, and in need of immediate care and treatment.

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

1. Treated/resolved hypoglycemia, (see Hypoglycemia Protocol 2.12A). ***Unless***:
   -History of insulin-dependent diabetes, **and**;
   -Not taking sulfonylureas, **and**;
   -Return to normal mental status, **and**;
   -Post-treatment glucose reading is >80 mg/dL, **and**;
   -Is witnessed to eat, **and**;
   -Has normal vital signs, **and**;
   -Is advised to follow up with primary care physician.
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 Advanced Spinal Assessment 4.6.
7. Patient/witness reports suicidal ideations
8. Possible Brief Resolved Unexplained Event (BRUE), see BRUE Protocol 2.4.
9. Patients who have been struck by a Conductive Electrical Weapon, see Tasers Protocol 6.18
10. Situations in which the EMS clinician believes the patient's condition for which they are refusing care presents a legitimate threat to life or limb.

Direct medical oversight should be considered as a means of obtaining a second opinion with the goal of helping the patient to realize the seriousness of their condition and accept transport"

Procedure:

1. Clearly offer the patient both treatment and transportation to the hospital and document the offer in your Patient Care Report.
2. Perform an assessment of the patient's mental capacity and, to the extent permitted by the patient, a physical exam including vital signs. Your assessment, or the patient's refusal of care, must be fully documented in your Patient Care Report.
3. Explain to the patient the nature and severity of his/her illness or injury, the treatments being proposed, the risks and consequences of accepting or refusing treatment, and the potential alternatives. Fully document the explanation given to the patient in your patient care report.
4. A parent or legal guardian may refuse care for a minor or:

Protocol Continues

6.14 Refusal of Care

Protocol Continued

- 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 **Direct Medical Oversight** was consulted for a refusal of care, obtain and document the physician's name in the patient care report.
8. All patients in police custody retain the right to request transport, however while rarely done, police can refuse care for a patient requesting transport. This should be coordinated with law enforcement. See Police Custody Procedure 6.13
9. For patients <12 months, regardless of chief complaint, consider, during assessment, that the child be completely exposed to look for any bruising, intra-oral injury or other signs of abuse.
10. If child abuse is suspected and a refusal of care situation exists, the EMT must contact DCF immediately, see Abuse and Neglect Protocol 6.1. Consider contacting local law enforcement if immediate harm to life or limb is suspected.

ToC

PEARLS

Legally Emancipated Minor: General Provisions: Sec. 46b-150b. Order of emancipation. If the Superior Court or the Probate Court, after hearing, finds that: The minor has entered into a valid marriage, whether or not that marriage has been terminated by dissolution. **OR** (2) The minor is on active duty with any of the armed forces of the United States of America. **OR** (3) The minor willingly lives separate and apart from his parents or guardian, with or without the consent of the parents or guardian, and that the minor is managing his own financial affairs, regardless of the source of any lawful income. **OR** (4) For good cause shown, it is in the best interest of the minor, any child of the minor or the parents or guardian of the minor, the court may enter an order declaring that the minor is emancipated.

The Minor should possess documentation of emancipation status.

Conservatorship: A conservator is a person appointed by the Probate Court to oversee the financial or personal affairs of an adult. There are two kinds of conservators. A conservator of the person supervises personal affairs and is authorized to make healthcare decisions. A conservator of the estate is responsible for financial affairs and is not authorized to make healthcare decisions. There should be paperwork showing evidence of the appointment. EMS should honor a request by the conservator of the person regarding transport / refusal status, regardless of the patient's current condition. http://www.ctprobate.gov/Pages/Conservatorships.aspx

Medical power of attorney or legal healthcare representative is a person whom is authorized in writing by the patient to make all medical decisions for a patient in the event that the patient is unable to make (based on competency) or communicate decisions regarding their own medical care. This is different from a conservatorship of the person (who is court appointed and may make medical decisions at any time). https://portal.ct.gov/AG/Health-Issues

6.15 Response to Domestic Violence

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

When domestic violence is suspected, the EMS provider should further assess the patient and notify local law enforcement.

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

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

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

ToC

Protocol Continues

6.15 Response to Domestic Violence

Protocol Continued

Responsibility of EMS Provider

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

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

When Cleared to Proceed

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

ToC

Protocol Continues

6.15 Response to Domestic Violence

Protocol Continued

Children on scene

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

Referrals

Agencies should develop a resource list of services and advocacy groups available to patients who are victims of domestic violence. This may include:

- A domestic violence crisis line.
- A Sexual Assault Crisis Line.
- Emergency shelter and transportation.
- Legal advocacy.
- Hospital and court accompaniment.
- Information about public assistance.

ToC

6.16 Restraints

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

E/A/P

INDICATIONS

Any patient who exhibits an altered mental status and may harm himself, herself, or others or interfere with their own care may be restrained to prevent injury to the patient or crew. Restraining must be performed in a humane manner and used only as a last resort.

PROCEDURE

1. Scene and EMS safety, first.
2. Request law enforcement assistance, as necessary.
3. When appropriate, attempt less restrictive means of managing the patient, including verbal de-escalation.
4. Ensure that there are sufficient personnel available to physically restrain the patient safely.
5. Restrain the patient in a sitting(preferred), lateral or supine position utilizing soft restraints. Stretcher straps should be applied as the standard procedure for all patients during transport. No devices such as backboards, splints, or other devices may be placed on top of the patient and no restraint including stretcher straps, should ever restrict chest wall motion. No restraint device should impede patient care. Never hog-tie a patient. In order to gain control, the patient may need to be in a prone position, but must be moved to supine or lateral position as soon as possible.
6. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization and constant monitoring of airway patency, respiratory status with pulse oximetry, circulatory status and extremity perfusion with capillary refill in those physically restrained. Cardiac monitoring and quantitative waveform capnography must be utilized for all sedation cases.
7. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible.
8. Documentation in the electronic patient care report should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
9. If a patient is restrained by law enforcement personnel with handcuffs or other devices 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 CONTINUED ON NEXT PAGE

Protocol Continues

PEARLS:

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

6.16 Restraints

Protocol Continued

PARAMEDIC STANDING ORDERS - ADULT

SEDATION PATHWAY

Perform Richmond Agitation Sedation Score

Score	Description	
+4	Combative	Overtly combative or violent, immediate danger to self
+3	Very agitated	Pulls or removes tube(s) or catheter(s); Aggressive
+2	Agitated	Frequent non-purposeful movement; fights ventilator
+1	Restless	Anxious but movement not aggressive or vigorous
0	Alert and calm	Awake and quiet
-1	Drowsy	Not fully alert, sustained (>10 seconds) awakening, eye contact to voice
-2	Light sedation	Briefly (<10 seconds) awakens with eye contact to voice
-3	Moderate sedation	Any movement (but no eye contact) to voice
-4	Deep sedation	No response to voice, but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

P

PROCEDURE:

1. Observe the patient. Is the patient alert and calm? (Score 0)
2. Does the patient have behavior that is consistent with restlessness or agitation
   -- Assign score +1 to +4 using the criteria listed above
3. If the patient is not alert, in a loud speaking voice state the patients name and direct patient to open eyes and look at speaker. Repeat once if necessary. Can prompt patient to continue looking at speaking.
   -- Patient has eye opening and eye contact, which is sustained for more than 10 seconds (Score -1)
   -- Patient has eye opening and eye contact, but this is not sustained for 10 seconds (Score -2)
   -- Patient has any movement in response to voice, excluding eye contact (Score -3)
4. If patient does not respond to voice, physically stimulate patient by shaking shoulder and then rubbing sternum if there is no response.
   -- Patient has any movement to physical stimulation (score -4)
   -- Patient has no response to voice or physical stimulation (score -5)

ToC

Protocol Continues

6.16 Restraints

Protocol Continued

For the agitated patient with a RASS of +1, +2, +3 who present a danger to themselves or others and are unresponsive to de-escalation techniques, consider administering:

- Droperidol 2.5 mg IV/IO or 5 mg IM. May repeat once in 10 minutes **OR**
- Haloperidol 5 mg IM. May repeat once in 10 minutes

AND / OR

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

For patients with a RASS of +4, Extreme Agitation/Combativeness OR extreme agitation/combativeness with severe agitation OR ineffective control with benzodiazepines above, administer:

- Ketamine (preferred) 4 mg/kg IM (round to nearest 50 mg), max single dose 500 mg. May administer additional 100 mg ketamine IM in 5-10 minutes; **OR** If vascular access, may alternatively administer 1 mg/kg ketamine IV/IO over 2 minutes. May administer additional 0.5-1 mg/kg IV/IO in 5 minutes (max total 2 mg/kg); **OR**

Administer benzodiazepines as authorized above **AND** consider:

- Droperidol 2.5 mg IV/IO or 5 mg IM. May repeat once in 10 minutes **OR** Haloperidol 5 mg IM. May repeat once in 10 minutes.
- For acute akathisia/dystonic reaction to Haloperidol or Droperidol, administer Diphenhydramine 25-50 mg IV/IO/IM

PARAMEDIC STANDING ORDERS - Pediatric (Patient <36kg/79 lbs or <145 cm/57 in)

For the pediatric patient with Extreme Agitation/Combativeness who is unresponsive to de-escalation techniques, consider:

- Ketamine (preferred) 4 mg/kg IM, maximum single dose 150 mg. If vascular access, may alternatively administer 1 mg/kg (max 40 mg) slow IV/IO over at least 2 minutes; **OR**
- Midazolam 0.1 mg/kg IM/IN/IV/IO (max 2mg), may repeat once in 5 minutes; **OR**
- Lorazepam 0.1 mg/kg IM/IV/IO (max 2 mg), may repeat once in 5 minutes; **OR**
- Diazepam 0.1 mg/kg IV/IO (preferred route, max 2 mg), may repeat once in 5 minutes; **OR** 0.1 mg/kg IM (max 5 mg), may repeat once in 20 minutes **OR**
- For age ≥7 years, Droperidol 0.625 mg/IM

If cardiac arrest occurs with extreme agitation/combativeness with severe agitation consider early administration of fluid bolus, sodium bicarbonate and calcium chloride/ calcium gluconate (see Cardiac Arrest Protocol 3.2A/P)
If emergence reaction is observed secondary to ketamine, administer midazolam one time at the adult/pediatric dosage specified above.
NOTE: Contact **Direct Medical Oversight** for additional adult/pediatric medication doses.

Protocol Continues

6.16 Restraints

Protocol Continued

- Continued patient struggling against restraints may lead to hyperkalemia, rhabdomyolysis, and/or cardiac arrest, sedation may be necessary to prevent continued forceful struggling by the patient.
- Extreme agitation/combativeness is a state of altered mental status that includes disordered thinking, psychomotor agitation, and may often include tachycardia, tachypnea, hyperthermia, and dilated pupils. Features of altered mental status may include aggression, hallucinations, and psychosis. 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/droperidol with caution to patients who are already on psychotropic medications which may precipitate serotonin syndrome, malignant hyperthermia or prolonged QTc.
- Placing a patient in prone position creates a severe risk of airway and ventilation compromise and death.
- Rapid intravenous administration of ketamine or benzodiazepines increases the risk of respiratory depression/apnea
- When administering medications for sedation, basic and advanced airway management equipment must be available at the patient's side.
- Patient's requiring sedation should receive 12 lead ECG when possible.
- Do not administer haloperidol or droperidol if QTc is known to be >500ms.

ToC

PEARLS:

- Utilization of a commercially approved spit mitigation device or face mask (not N95/P100) should be considered for actively spitting patients.
- Use of sedation should be at the sole discretion of the paramedic(s) on scene.
- If a patient requires physical restraint due to severe agitation, sedation is generally indicated

Protocol Continues

6.16 Restraints

Protocol Continued

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AGITATION

MILD	MODERATE	SEVERE
AGITATED BUT COOPERATIVE	DISRUPTIVE WITHOUT DANGER	AGITATED WITH DANGER
◉ Conversational ◉ Easily calmed with simple, non-pharmacological intervention	◉ Loud and destructive but distractible ◉ Can have a conversation, even if brief ◉ Does not pose an immediate threat to self or others ◉ Requires pharmacological intervention	◉ Unable to interact ◉ Poses an IMMEDIATE threat to self or others ◉ Requires rapid sedation
- Verbal de-escalation	- Verbal de-escalation - Safe manual restraint as necessary - Droperidol OR - Haloperidol and/or - Benzodiazepines	- Attempt verbal de-escalation - Safe manual restraint - Ketamine OR - Benzodiazepines and consider Droperidol / Haloperidol
0	+1	+2	+3	+4
		RASS SCORE		

- ✦ Patients who receive high-dose sedative or dissociative-dose ketamine require continuous airway and hemodynamic monitoring including waveform end-tidal capnography
- ✦ Adjust doses based on patient size and clinical judgment

6.17 Resuscitation Initiation and Termination

WHEN NOT TO START

Resuscitation efforts should be withheld or discontinued under the following circumstances:

- **VALID DO NOT RESUSCITATE or MOLST ORDER:** Refer to DNR Procedure 6.7.
- **SCENE SAFETY**: The physical environment is not safe for providers.
- **DEAD ON SCENE**: A person is presumed dead on EMS 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 and Rigor mortis of any degree. Both must be present. Additionally, paramedic must apply ECG to confirm absence of organized cardiac electrical activity in at least two leads **or** EMT/AEMT must consult online DMO for orders to presume death.
- Major blunt or penetrating trauma without organized cardiac electrical activity on ECG in at least two leads.

- Assess for pulse, respiration and heart sounds for at least 30 seconds.
- EMR providers may withhold CPR if above criteria are met but an EMT, AEMT or Paramedic is required for EMS to presume death in the field.
- Severe hypothermia may present with signs similar to the signs of death. Carefully consider history of present illness to aid in differentiating hypothermia from death.

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 **DIRECT MEDICAL OVERSIGHT** 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.

Protocol Continues

6.17 Resuscitation Initiation and Termination

Protocol Continued

EMT/ADVANCED EMT STANDING ORDERS – ADULT & PEDIATRIC

E/A

Resuscitation may be stopped under the following circumstances:

- The physical environment becomes unsafe for providers.
- The exhaustion of EMS providers.
- Extrication is prolonged (>15 minutes) with no resuscitation possible during extrication (hypothermia is an exception).

EMT/ADVANCED DIRECT MEDICAL OVERSIGHT - MAY CONSIDER:

Consider **Direct Medical Oversight** for orders to stop resuscitation if the AED has advised "no shock" for 20 minutes of resuscitation and paramedic/hospital care is not available within an additional 20 minutes (hypothermia is an exception) and the $ETCO_2$ is less than 10 mmHg (if available).

PARAMEDIC STANDING ORDER – ADULT & PEDIATRIC

P

- Asystole or agonal rhythm (defined as wide QRS complexes at an irregular rate <20 per minute with no P waves)
  - Consider termination of resuscitation if there is no return of spontaneous circulation after 20 minutes of resuscitation in the absence of hypothermia and the $ETCO_2$ is less than 10 mmHg.

PARAMEDIC DIRECT MEDICAL OVERSIGHT - MAY CONSIDER:

- PEA with a rate above 20 or refractory and recurrent ventricular fibrillation / ventricular tachycardia
  - Consider early expert consultation with **Direct Medical Oversight** for direction and possible orders to transport, continue or terminate resuscitation
  - Consider resuscitation for up to 60 minutes from the time of dispatch.
  - Request to terminate efforts may be appropriate prior to 60 minutes based on factors including but not limited to $ETCO_2$ less than 10 mmHg, age, co-morbidities, distance from, and resources available at the closest hospital.

- Patients with ventricular assist devices (VADs) for whom it is indicated to start resuscitation should almost always be transported with continuing resuscitation, see VAD Procedure 6.21.
- 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/suspected or patient shows signs of viability and specialized hospital care is indicated for reversible causes.

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.

Protocol Continues

6.17 Resuscitation Initiation and Termination

Protocol 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 Triage Protocol 7.1.

ToC

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, Direct Medical Oversight, 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.

6.18 TASERS (Conductive Electrical Weapon)

State and local law enforcement may use a conductive energy weapon called a Taser. This device is a non-lethal tool. When used, the device discharges a wire that, at the distal end, contains an arrow-like barbed projectile that penetrates the suspect's skin and embeds itself, allowing a 5-second incapacitating electric shock. Current medical literature does not support routine medical evaluation for an individual after Taser application. **In most circumstances probes can be removed by law enforcement without further medical intervention.**

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

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

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

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.

- Contact **Direct Medical Oversight** for patients requesting refusal of medical attention.

6.19 Transcutaneous Pacing - Adult and Pediatric

PARAMEDIC STANDING ORDERS

P

Indication

- Bradycardia with inadequate cardiac or cerebral perfusion evidenced by hypotension, altered mental status, chest pain/discomfort, pulmonary edema, or other signs of shock

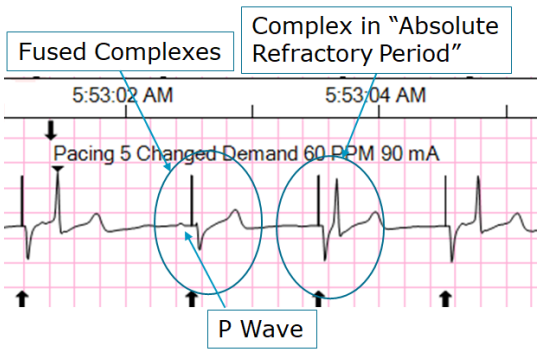
Contraindication

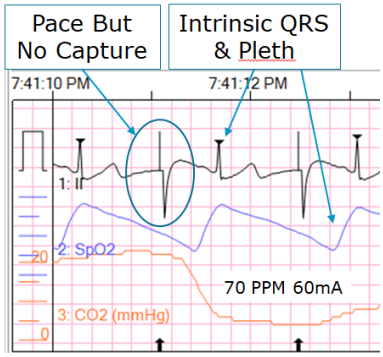
- Hypothermia with a core temperature < 86 deg F

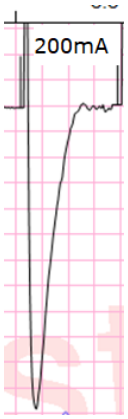
Procedure:

1. Explain procedure to patient (if applicable)
2. Apply ECG monitoring leads and therapy pads (anterior/posterior pad placement preferred)
3. Set "demand mode" and pacing rate of 60-70 PPM for adults,100 PPM for pediatrics
4. Initiate pacing beginning at low mA output setting
5. Assess for electrical capture (wide, aberrant complex following the pacer spike and a well defined T wave). Increase energy by 5-10 mA every 5-10 seconds until consistent electrical capture is observed, then set current 5-10 mA above this threshold to maintain capture. Stop and refer to "troubleshooting" if 130 mA is reached without capture.
6. Confirm mechanical capture by assessing femoral and radial pulses as well as SpO2 pleth corresponding to paced beat (note: at high mA settings, chest wall contraction may be sufficient to generate weak, pulsatile circulation that may be visible as an SpO2 pleth)
7. Confirm improved perfusion by assessing for resolution of symptoms, increased mental status, blood pressure and ETCO2. Note: In an intubated patient, ETCO2 <20 mmHg may indicate inadequate perfusion/lack of effective mechanical capture.

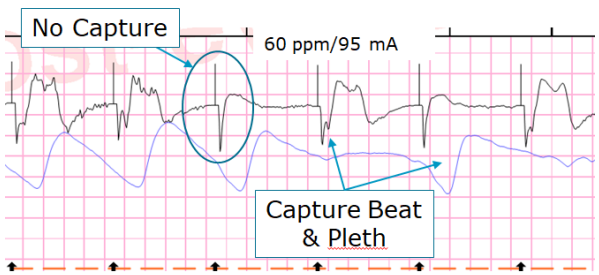
Examples of **NO** electrical capture



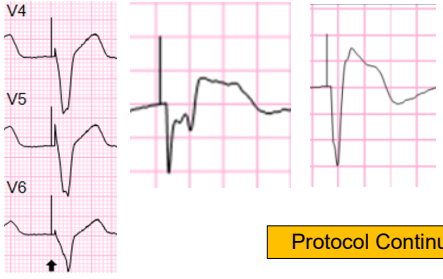




Intermittent capture



Examples of electrical capture



Protocol Continues

6.19 Transcutaneous Pacing - Adult and Pediatric

Protocol Continued

P

8. Consider administration of the following prior to, or during transcutaneous pacing:
   - Midazolam 2.5 mg IV/IO/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes
     OR
   - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes; or 2 mg IM, may repeat once in 10 minutes
     OR
   - Diazepam 2 mg IV/IO; may repeat once in 5 minutes
     OR
   - Provide analgesia per Pain Management Protocol 2.19

Troubleshooting:

If pacer is firing but not capturing:

- Confirm good therapy pad contact. If applicable, switch to anterior/posterior pad placement
- Consider and treat reversible causes (see Protocol Bradycardia 3.1A):
  - Hypoxia / hypoventilation
  - Hyperkalemia
  - Toxin or medication overdose
  - Inadequate perfusion
- May consider escalating to device's maximum mA setting after other considerations have been addressed

If pacer is not firing:

- Confirm leads & pads are attached, pacer is turned on, rate & mA are set appropriately
- Check if device is over-sensing. If so, turn down EKG gain and/or switch to fixed mode

If limb leads become disconnected, most devices will continue pacing but switch to a fixed pacing rate mode. Reapply limb leads to confirm ongoing capture and switch back to demand mode.

If mechanical capture is confirmed but perfusion is still inadequate, consider increasing pacer rate and see Protocol 2.23 Shock (Non-Traumatic)

PEARLS:

- For most patients, less than 50 mA produces minimal discomfort but an output of 50-100 mA is usually required to achieve capture.
- Consider the hemodynamic effects of medications and patient BP when considering sedation or analgesia.
- Higher mA setting will produce more skeletal muscle contraction and larger post-impulse deflection/artifact on the EKG.
- Assure effective communication and coordination during transition to the Emergency Department to avoid unintended cessation of pacing. The hospital's transcutaneous pacer device should usually attached to the patient and prepared to take over pacing prior the EMS pacer being stopped or disconnected.
- It is safe to touch the patient's skin while transcutaneously pacing.

6.20 Trauma Triage and Transport Decision

Injury Patterns	Mental Status & Vital Signs
• Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure	**All Patients** • **GCS ≤ 13** • Respiratory distress or need for respiratory support • **Room-air pulse oximetry < 90%** **Age < 1 year** • **RR < 20 or > 60 breaths/min** • **SBP < 70 mmHg + (2 x age years)** **Age 1–9 years** • **RR < 10 or > 29 breaths/min** • **SBP < 70 mmHg + (2 x age years)** **Age 10–64 years** • **RR < 10 or > 29 breaths/min** • **SBP < 90 mmHg or** • **HR > SBP** **Age ≥ 65 years** • **RR < 10 or > 29 breaths/min** • SBP < 110 mmHg or • **HR > SBP**

→ Transport to a Level I or Level II trauma center or the highest level trauma center within 30 minutes (or closest acute care hospital if no trauma center per local trauma destination guidelines). Consider Direct Medical Oversight for destination guidance.

No

YELLOW CRITERIA

Moderate Risk for Serious Injury

Mechanism of Injury	EMS Judgement
• **High-Risk Auto Crash** – Partial or complete ejection – Significant intrusion (including roof) ♦ > 12 inches occupant side OR ♦ **> 18 inches any site OR** ♦ Need for extrication for entrapped patient – Death in passenger compartment – Child (Age 0–9) unrestrained or in unsecured child safety seat – Vehicle telemetry data consistent with severe injury • Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.) • Auto vs. pedestrian/bicycle rider thrown, run over, or with significant impact • Fall from height > 10 feet (all ages)	**Consider risk factors, including:** • Falls from height < 10 feet (including ground level falls) in young children (age ≤ 5 years) or **older adults (age ≥ 65 years) with significant head impact** • **Anticoagulant use** • Suspicion of child abuse • Special, high-resource healthcare needs • **Pregnancy > 20 weeks** • Burns in conjunction with trauma • Children should be triaged preferentially to pediatric capable centers **If concerned, take to a trauma center**

→ Transport preferentially to a trauma center or to a facility capable of timely and thorough evaluation and initial management of potentially serious injuries (per local trauma destination guidelines). Consider Direct Medical Oversight.

No

Transport per protocol.
When in doubt, transport to a trauma center

6.21 Ventricular Assist Devices (VAD)

EMS Procedure for Patients Presenting With Ventricular Assist Devices (VADs)

Purpose: To Provide direction regarding how EMS assessment and treatment will differ for a patient presenting with a VAD

Overview:

Highlights of Assessing and Treating a VAD Patient

- Recognize that patient has a VAD.
- Rapidly assess and determine if your patient has an VAD problem/cardiovascular compromise or an unrelated illness or injury
- A completely stable VAD patient may have no palpable pulse or measurable blood pressure
- Mental status and skin color/capillary refill must be used to determine patient hemodynamic status/perfusion
- Patients with a VAD should almost never be pronounced dead at the scene

The patient and his or her VAD-trained family/companion(s) are experts on the device and should be utilized for information and assistance with the device.

The best medical resource available to EMS for VAD related problems is the patient's VAD coordinator. The patient will have a contact sheet for the VAD coordinator with him or her at all times. Contact the VAD coordinator as soon as possible. Instructions and advice from the VAD coordinator should be followed. It is not required to contact direct medical oversight for confirmation.

ToC

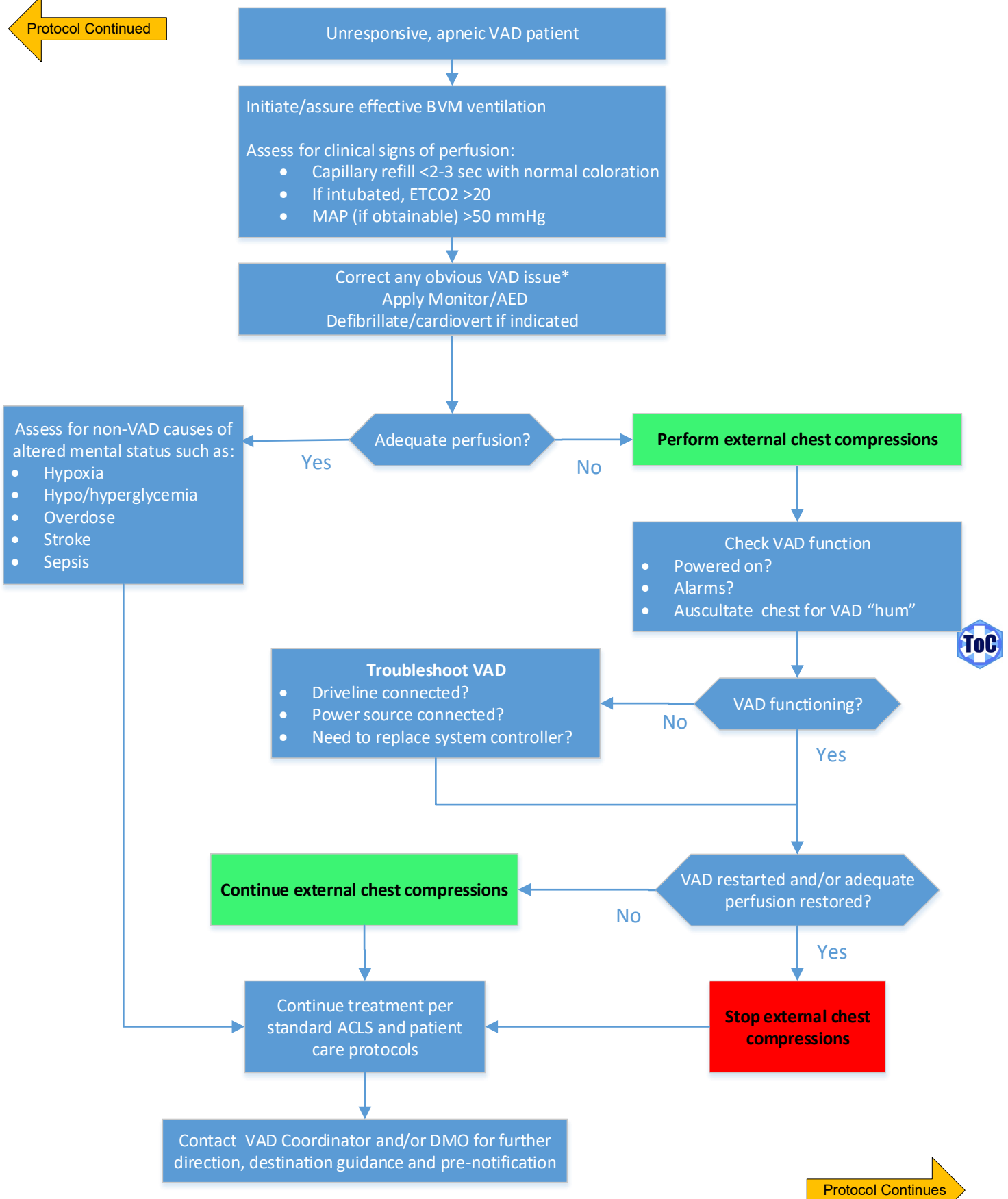
Patient Assessment and Management

- Support patient's oxygenation, airway and ventilations per usual protocols
- If unresponsive or altered mental status, follow algorithm below.
- For patients experiencing VAD-related complications or cardiovascular problems, expedite transport to the medical facility where the VAD was placed. If the patient's clinical condition and/or operational considerations do not allow this, consult DMO and the patient's VAD coordinator to determine the next most appropriate VAD Center/Hospital destination.
- If patient has a functioning VAD and is experiencing a non-cardiovascular-related problem, assess and treat per appropriate protocol(s). Transport to a facility that is appropriate for the patient's main presenting problem without manipulating the device
- Establish IV/IO access based on the patient's acuity and provider judgment
- Place the patient on continuous cardiac monitoring and acquire 12 lead ECG
- Utilize quantitative continuous waveform capnography (if available and authorized) as an adjunct to assessing perfusion. Normal waveform shape with a normal respiratory rate and low CO2 readings (<30) may indicate low perfusion/ poor pump function.
- Obtain temperature (if available) and closely assess for signs/symptoms of infection or sepsis.

Protocol Continues

6.21 Ventricular Assist Devices (VAD)

Protocol Continued



Protocol Continues

*If there is an obvious, easily correctable issue with the VAD (such as the driveline is visibly disconnected and just needs to be reconnected), attempt to address that first. Quickly advance to the next steps in the algorithm if unable to easily correct the issue or if the issue is corrected but the patient remains pulseless/apneic.

6.21 Ventricular Assist Devices (VAD)

Protocol Continued

PEARLS for Patients with VADs

- When indicated, use of external pacing, cardioversion or defibrillation is unchanged for VAD patients. Use standard pad placements including avoiding placement over AICDs and pacemakers. Do not disconnect VAD.
- Accurate measurement of systolic and diastolic blood pressures via automatic non-invasive cuff may be difficult to obtain. If NIBP can detect a blood pressure, the mean arterial pressure (MAP) will usually be most accurate and is a more reliable measure of perfusion. The NIBP should be adjusted to display MAP. A MAP of 60-70mmHg is normal.
- Flow through many VAD devices is not pulsatile and patients may not have a palpable pulse. Doppler may be more accurate at determining both pulse and blood pressure and, if available, should be used.
- Pulse-oximetry readings may be fairly accurate and consistent despite manufacturers stating that pulse oximetry often doesn't work.
- Patient may be awake with a functioning pump in VF, VT, PEA or asystole. If the encountered rhythm is thought to be new, ACLS therapies, including defibrillation may be attempted. Evaluate clinical condition and provide care in consultation with VAD coordinator and/or DMO.
- The patient's emergency travel bag should accompany him/her at all times. If feasible, bring the patient's Power Module, cable and Display Module with the patient to the hospital
- The most common cause for VAD alarms are low batteries or battery failures
- Primary pump failure is a very rare occurrence. For other conditions, follow the protocol most appropriate, based on the patient's clinical condition. The most common VAD complications, in descending occurrence, are:
  - Infection
  - Bleeding
  - Arrhythmias
  - CHF
  - Aortic Insufficiency
  - Stroke/TIA
  - Cardiac Tamponade
- All patients with a VAD are anti-coagulated.

ToC

6.22 Emergency Incident Rehabilitation

Purpose

This protocol describes the roles of EMS providers in the process of rehabilitation of emergency responders. Rehab is designed to prevent, detect, and treat such conditions as heat exhaustion, hyperthermia, and dehydration among the workforce, and to remove operational personnel from duty if they cannot safely rotate back into emergency response efforts. *No evidence-based guidelines currently exist for vital signs ranges or other clinical indicators that can safely allow a responder to return to duty. Unless there is a local policy regarding return to duty, responders managed for symptoms or findings as below should be transported to the hospital, or execute an informed refusal of transport.*

1. An Emergency Incident Rehabilitation (EIR) area:

a. Should be designated by the incident commander (IC) or designated sector officer. It should be in a safe location, and upwind and uphill from the hot zone if the incident involves airborne or waterborne threats.

b. The specific incident will dictate the type and configuration of the rehab area to be established. For example, if hazardous materials are involved, a decontamination corridor must separate the hot zone from the rehab area.

2. Responsibilities:

a. ***Incident Commander:*** The incident commander has discretion as to how to implement formal emergency incident rehabilitation (EIR). The IC should consider the circumstances of each incident, and make adequate provisions early in the incident for the rest and rehabilitation of all members operating at the scene. These provisions may include: physical and mental rest; fluid and food replenishment; relief from extreme climatic conditions and other environmental parameters of the incident; and medical evaluation, treatment, and monitoring.

ToC

b. ***Rehab Officer:*** An EMT, AEMT, Paramedic, or other EMS team member such as an RN, APRN, PA, or physician, should/may be assigned to the rehab area, and, if appropriate, may be designated by the IC as the Rehab Officer (RO). If available and practical, it is preferable that ALS-level personnel and equipment be present, as indicated in NFPA 1500. Rehab sector medical personnel and other assets should be dedicated to support of firefighters and other operational emergency responders, and should be assigned no other responsibilities.

c. ***Rehab Team:*** Should include sufficient personnel to perform rehab sector functions for the maximum number of personnel anticipated to be in the Rehab Area at any given time. A ratio of one Rehab Team member for every 10 personnel on scene is recommended. The team should include sufficient EMS personnel to perform medical monitoring tasks, but may include non-EMS personnel also.

d. ***Supervisors/Company Officers:*** All supervisors and company officers should maintain their awareness of the condition of all personnel operating within their span of control, and ensure that adequate steps are taken to provide for each member's safety and health. The ICS structure should be used to request relief and/or reassignment of fatigued crews.

e. ***Personnel:*** Any member who believes that fatigue or exposure to heat or cold is approaching a level that could affect his/her performance or the operation in which he/she is involved should advise his/her supervisor or company officer. Personnel should also remain aware of the health and safety of other members of the crew.

Protocol Continues

6.22 Emergency Incident Rehabilitation

Protocol Continued

3. Establishing the Rehabilitation Sector:

a. The IC should establish a Rehab Sector or Group when conditions indicate that rest and rehabilitation is needed for personnel operating at an incident scene or training exercise. This determination should be made based upon the anticipated duration of the operation, level of physical exertion, and environmental conditions, including temperature, humidity, and wind chill. Guidelines to consider include:

- Heat stress index >90°F
- Wind chill index <10°F
- Personnel have completed (or will complete) exertional work with second 30 minute SCBA cylinder, if fire fighting is involved
- Personnel have used (or will use) SCBA or other protective breathing devices for > 45 minutes of physical exertion;
- It is recommended that an EMS vehicle, not otherwise involved in emergency operations at the scene, be positioned at the Rehab Area. If required, an additional ambulance should be requested to the scene for this purpose. Except under extreme circumstances, this ambulance should not be used for transport of civilian patients.

b. The location of the Rehab Area will be designated by the IC and/or the RO, and should:

- Be far enough from the scene to allow personnel to safely remove (and leave outside the area) SCBA and/or PPE, and remove personnel from the imminent dangers the scene presents, yet close enough to allow prompt re-entry completion
- Provide adequate protection from environmental conditions and exhaust fumes
- Be easily accessible by EMS units
- Be large enough to accommodate several crews
- For extreme heat conditions, have shaded areas, misting systems and/or fans, and an area to sit down
- For extreme cold and/or wet conditions, have dry, protected, heated areas, and dry clothing
- Be integrated with departmental system for personnel accountability, using a single entry and exit point when feasible. Sites that have been used include a nearby building, garage, or lobby; a school bus or large van; and an open, shaded area

4. Rehab Operations:

a. **Resources:** The RO should secure, through the IC or Logistics Officer, all necessary resources to properly supply the sector. These may include oral fluids, foods, medical supplies, paperwork, lighting, heaters, fans, a means of access to toilet facilities, and other assets as appropriate to the incident.

b. **Rotation of Personnel/Accountability:** Working units will be assigned to the Rehab Sector by the IC or his designee (e.g., Operations Officer). When possible, the entire unit should be assigned to the Rehab Sector as a group. The crew designation, names of members, times of entry and exit, and appropriate medical information should be documented by the Rehab Officer or designee on a PCR form or similar document. Personnel rotated to the Rehab Sector should not leave until directed by the RO. If any member requires transport to a medical facility, the IC shall be notified immediately.

c. **Hydration:** During exertional activity, in both hot and cold weather, personnel should consume at least one quart per hour of water, activity beverage, or combination. Carbonated and caffeinated beverages should be avoided. During a typical 20-minute rehab cycle, 12-32 ounces of fluids are recommended.

d. **Nutrition:** Food should be provided whenever operations exceed 3 hours. Fatty and salty foods should be avoided.

Protocol Continues

ToC

6.22 Emergency Incident Rehabilitation

Protocol Continued

5. Medical Evaluation:

a. Ask members arriving at the Rehab Area if they have any symptoms of dehydration, heat/cold stress, physical exhaustion, cardiopulmonary abnormalities, emotional/mental stress or other symptoms they are concerned about.

b. Complete a medical evaluation, appropriate treatment and/or transport, *and patient care report* for all members who report such symptoms.

c. A medical evaluation, with appropriate treatment and/or transport, should also be completed for any member meeting any of the following criteria:

- The RO or Rehab Sector EMS staff observes evidence of one of the above conditions displayed by a member.
- Another member, officer, or supervisor indicates he/she does not appear well.
- The member had to leave an evolution for reasons of excessive fatigue or symptoms.

d. Consider the possibility of toxic exposure in ill or injured responders at fire, hazmat, and certain law enforcement operational scenes.

e. For personnel with signs or symptoms of dehydration or fatigue, check for toxic exposure, heat-related illness, chest pain, and/or change in mental status: these are medical emergencies; obtain ALS treatment if available and transport to a hospital emergency department.

ToC

Adapted from DHS-Wide BLS & ALS Protocols, US Department of Homeland Security, 2010.

6.23 Double Sequential Defibrillation - Adult

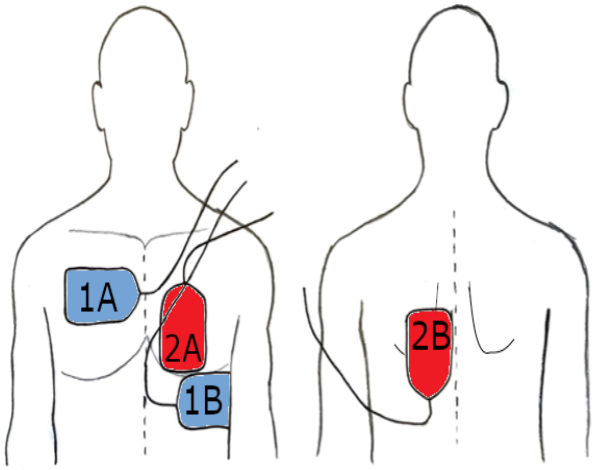
PARAMEDIC STANDING ORDERS – ADULT

INDICATION: Ventricular Fibrillation / Tachycardia refractory to 3 consecutive shocks with no change in rhythm and a second defibrillator is available.

- Refractory ventricular fibrillation/tachycardia is defined as NOT CONVERTED by standard defibrillation (no change in rhythm)
- Recurrent ventricular fibrillation/tachycardia is defined as SUCCESSFULLY CONVERTED by standard defibrillation techniques but subsequently returns.

P

1. Consider vector change (VC) or double sequential defibrillation (DSD) if agency trained, authorized, and approved
   - Do not delay additional shocks or vector change to perform double sequential defibrillation.
2. Pre-plan with team to assure minimally interrupted chest compressions during pad application. Mechanical CPR devices may need to be temporarily removed to facilitate placement of anterior-posterior pads.
3. Apply a second set of pads (as diagrammed), ensuring the pads are NOT touching and are NOT directly underneath the piston of any mechanical CPR device.
4. Immediately resume compressions, performing at least one minute of compressions prior to defibrillation.
5. Precharge manual defibrillator(s) to maximum energy during CPR
6. Pause CPR. If AED is being used, press "analyze".
7. When both monitors are charged and all persons are clear,a single clinician administers the shocks sequentially (AED first) with a short pause (~ 0.5 seconds) between them. Immediately resume compressions after defibrillation.
8. May repeat procedure every 2 minutes as indicated if refractory ventricular fibrillation/ tachycardia persists



PEARLS

- "Vector change" refers to changing pad placement / energy direction (e.g. from anterior/lateral to anterior/posterior)
- Both defibrillators/AEDs used must belong to agencies that approve of the use of their equipment for double sequential defibrillation. Literature demonstrates low risk of equipment damage with double sequential defibrillation but services assume risk of non-warranty equipment damage.
- Current data indicates increased efficacy with early use of both vector change and dual sequential defibrillation.
- If applying a mechanical CPR device, consider preemptively applying the second set of pads

7.0 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 7.1

Resources:
CT DEEP Environmental Emergency: 860-424-3338 CT National Guard 14th Civil Support Team: 860-524-4951

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:
Emergency Response Guidebook (ERG)
Poison Control: 1-800-222-1222
Chemtrec: 1-800-424-9300

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 7.1 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

7.0 Hazardous Material Exposure

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

- Patients should be decontamination prior to transport.
- EMS personnel transporting potentially contaminated patients (e.g., patients who have received gross decontamination) must wear appropriate personal protective equipment.
- 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.

ToC

7.1 MASS/MULTIPLE CASUALTY TRIAGE

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 Mass Casualty Incident (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.

FEMA Mass Casualty Incident Definition

- Mass casualty incidents are incidents resulting from man-made or natural causes resulting in illness or injuries that exceed or overwhelm the EMS and hospital capabilities of a locality, jurisdiction, or region. A mass casualty incident is likely to impose a sustained demand for health and medical services rather than the short, intense peak demand for these services typical of multiple casualty Incidents.

FEMA Multi-Casualty Incident Definition

- Multi-casualty incidents are incidents involving multiple victims that can be managed, with heightened response (including mutual aid if necessary), by a single EMS agency or system. Multi-casualty incidents typically do not overwhelm the hospital capabilities of a jurisdiction and/or region, but may exceed the capabilities for one or more hospitals within a locality. There is usually a short, intense peak demand for health and medical services, unlike the sustained demand for these services typical of mass casualty incidents.

Command Structure

- EMS Personnel at an MCI shall function within the established Incident Command System (ICS). The Incident Commander or his /her designee shall determine the EMS provider's role at an MCI if such command has been established prior to arrival. Typically, an EMT or Paramedic will be assigned to either an EMS command or clinical position.
- Utilizing the current NIMS Incident Command Structure each incident should at the very least have a Medical Group Supervisor, Triage Unit Leader, Treatment Unit Leader, and a Patient Transportation Unit Leader. Depending on the size and scope of the incident, additional roles may be assigned per the NIMS structure.

ToC

Communication

- During a Mass Casualty Incident, EMS providers may perform necessary, life-saving procedures, within their scope of practice, without direct medical oversight, even if such procedures would ordinarily require DMO.
- Within the scope of a Mass Casualty Incident, the EMS provider may, within the limits of their scope of practice, perform necessary procedures, that under normal circumstances would require a direct physician's 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 shall be documented thoroughly.

Triage

- Utilize a triage system such as "SMART" to prioritize patients.
- Assess each patient as quickly and safely as possible.
- Conduct rapid assessment.
- Assign patients to broad categories based on need for treatment.
- Remember: Triage is not treatment! Stopping to provide care to one patient will only delay care for others. Standard triage care is only to correct airway and severe bleeding problems.

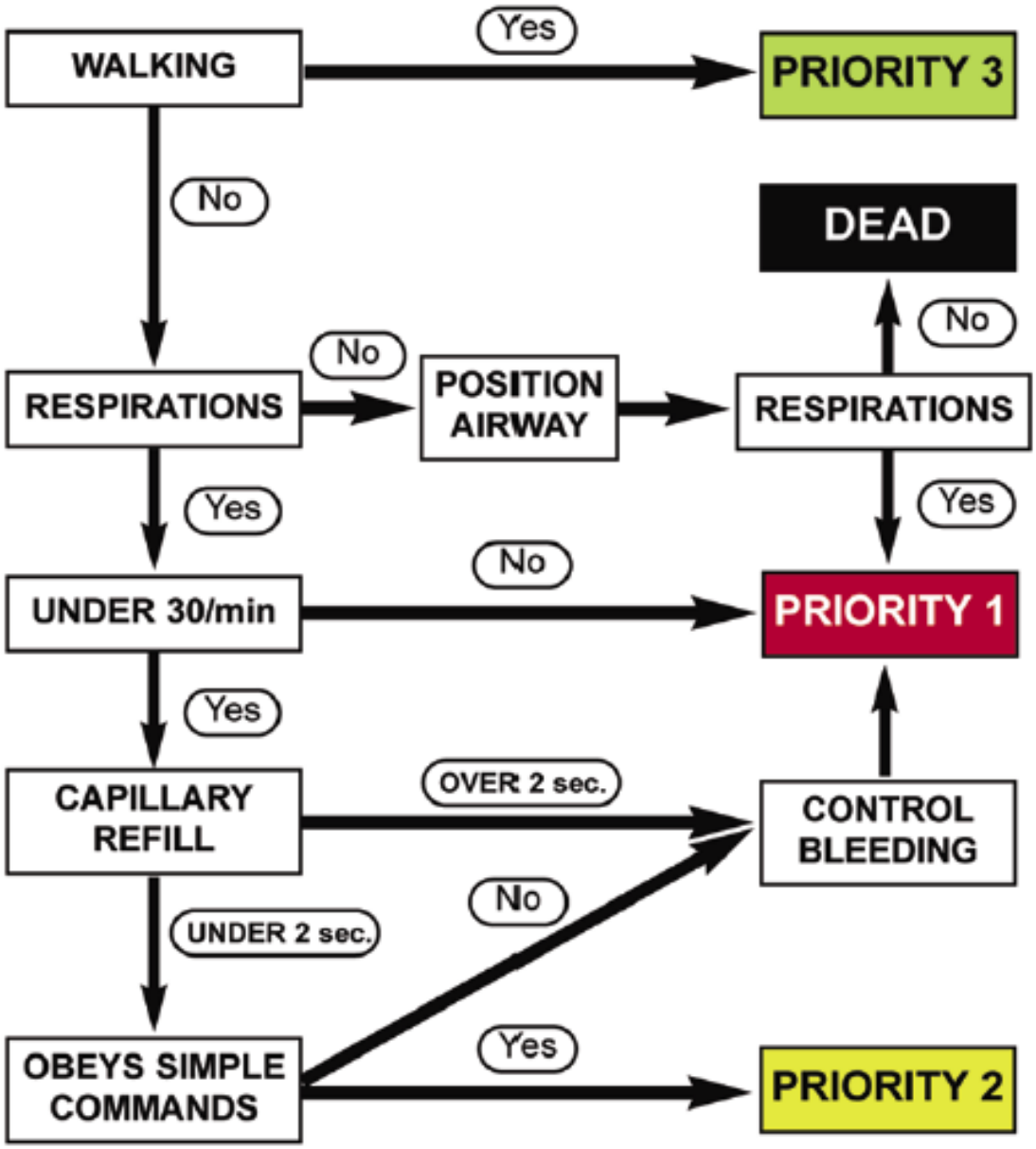
Protocol Continues

7.1 MASS/MULTIPLE CASUALTY TRIAGE

Protocol Continued

Triage Categories

- **Priority 1**: Life threatening injuries. Symptoms involving serious impairment of 2 or more organ systems, seizing, altered mental status, unconsciousness, severe respiratory compromise, or hemorrhaging.
- **Priority 2:** Patients who have no immediate life-threatening injuries/effects but injury or exposure is suspected and do not require urgent care.
- **Priority 3:** Patients able to walk and talk after event or exposure of which care can be delayed.
- **Dead/Expectant:** Deceased or casualties whose injuries are so severe that their chance of survival does not justify expenditure of limited resources. As circumstances permit, casualties in this category may be reexamined and possibly re-triaged to a higher category. Do not move bodies unless they are hindering efforts to rescue live patients, or they are in danger of being further damaged, for example, burned by fire, building collapse, etc.



Protocol Continues

7.1 MASS/MULTIPLE CASUALTY TRIAGE

Protocol Continued

Tagging System

- Use water-repellent triage tags with waterproof markers and attach to the patient.
- Indicate patient's triage priority, degree of decontamination performed, treatment and medications received.

Triage in Hazardous Material Incidents

Decontamination

- The need for decontamination is the "first triage decision." since decontamination can be a lengthy process; the "second decision" is which patient(s) are the first to be decontaminated. The "third decision" is based on need for treatment during the decontamination process, since only simple procedures such as antidote administration can be accomplished while wearing PPE.

Identification and Treatment

- Signs and symptoms of exposure will usually dictate the treatment required, however, at the earliest possible time, identification of the specific chemical should be made.
- Reference additional hazardous materials protocols as necessary.
- Request additional resources. Initial antidote and medical supplies may be limited to priority patients.
- Respiratory compromise is a leading factor of fatalities due to hazardous material exposure. Symptoms of chemical exposure may be delayed and occur suddenly. Constant reevaluation of respiratory status is necessary.

ToC

7.2 Radiation Injuries Adult & Pediatric

Exposure to radioactive source or radioactive material/debris

E/A EMT/ADVANCED EMT STANDING ORDERS

- Don standard PPE capable of preventing skin exposure to liquids and solids (gown and gloves), mucous membrane exposure to liquids and particles (face mask and eye protection), and **most importantly** inhalational exposure to particles (N95 face mask or respirator).
- Remove the patient from scene and decontaminate by appropriately trained personnel.
- 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.

P PARAMEDIC STANDING ORDERS

- Consider anti-emetic, see Nausea/Vomiting Protocol 2.14.
- Consider pain management, see Pain Management Protocol 2.19.

PEARLS:

- In general, patients exposed to or contaminated by radiation should be triaged and treated according to the severity of their conventional injuries.
- Patients contaminated with radioactive material generally pose minimal exposure risk to clinicians who use appropriate PPE. Respiratory protection is essential for first responders.
- Irradiated patients pose no threat to clinicians.

Triage tips for radiation mass casualty incidents:

- Time to nausea and vomiting is a reliable indicator of receiving a significant dose of ionizing radiation. The more rapid the onset of vomiting, the higher the whole-body dose of radiation.
  - 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”.
- Tissue burns are a late finding (weeks following exposure) of ionizing radiation injury. If burns are present acutely, they are from a thermal or chemical mechanism.
- Seizures may suggest acute radiation syndrome if accompanied by early vomiting. If other clinical indicators do not suggest a severe radiation exposure (eg: whole-body dose of greater than 20 Gy) consider other causes of seizure.

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8.0 Staffing Guidelines

Purpose

The purpose of this guideline is to outline the minimum staffing requirements for all levels of inter-facility transfers.

Scope:

EMS agencies operating under the Connecticut Statewide Inter-facility Transport Protocols.

Guideline

Emergent and non-emergent inter-facility transfers require different staffing patterns based on patient acuity and risk of decompensation en-route to the receiving facility. The following describes the minimum staffing requirements based on the risk of patient deterioration. The transporting paramedic may request additional staff support when necessary and should be informed of the patient condition and interventions as early as possible.

Stable patients with minimal-low risk of deterioration and/or routine, scheduled transfers:

- **Definition**
  - Patients who are hemodynamically stable with patent, maintainable airways that are free of secretions, adequate breathing with or without supplemental oxygen (e.g. COPD patients who are oxygen dependent), and signs of adequate tissue perfusion and free of neurological deficits or neurological deficits consistent with their baseline presentation requiring transport/transfer to another facility for medical evaluation or care transition.
- **BLS-EMT interventions**
  - IV locks without fluids running
  - Capped & Secured PICC, Midlines, Central venous line, and Dialysis catheters
  - Capped & Secured Ports (accessed, but no fluids/medications running)
  - Capped & Secured NG/OG tubes (not attached to suction)
  - Previously placed and properly secured indwelling catheters such as urinary catheters or suprapubic tubes
  - Oxygen delivery (Nasal cannula, oximizer, tracheostomy mask, venti mask)
  - Wound vacuum
  - Lifevest (patient not requiring a cardiac monitor)
  - Established feeding tubes not connected to enteral nutrition
  - Patient controlled/patient managed maintenance medications
    - If abrupt discontinuation of the medication may result in precipitous patient decline/ decompensation, the appropriate level provider should be selected with input from DMO.
    - For patient controlled opioid analgesia, naloxone must be available.
  - Patient managed LVAD that is operating normally.
  - Tracheostomies
    - Established, patient managed
    - Does not require frequent suctioning or other daily/timed interventions (exclusive of regular O2 requirements

ToC

Protocol Continues

Protocol Continued

- Transport is not for respiratory concerns

- **Minimum Staffing Required**
  - One (1) EMT-Basic provider attending the patient.

- **ALS-AEMT Interventions**
  - Any intravenous cystalloid infusions without pharmacological agents
  - Any medications within the advanced-EMT scope of practice
  - **Minimum staffing required**
    - One (1) advanced EMT provider attending the patient.
- **ALS-Paramedic Interventions**
  - Medication infusions within the paramedic scope of practice in which:
    - No dose adjustment or titration is anticipated to be required for the transport.
    - Excluding crystalloid fluids, no more than two medications are infusing.
    - No more than one medication infusion that is an inotrope, chronotrope, vasopressor or vasodilator.
  - Central venous catheter maintenance
  - Continuous bladder irrigation
  - Single chest tube monitoring/maintenance that does not require suction
  - Long term patients on a mechanical ventilator not coming from an acute care setting, without other advance interventions and who are not anticipated to require setting changes en-route.
  - **Minimum staffing required**
    - One (1) IFT paramedic attending the patient.

Potentially unstable patients with a medium risk of deterioration

- **Definition**
  - Patient who appears adequately perfused and oxygenated either with or without interventions to maintain perfusion/oxygen. Patient should not require escalating interventions to maintain perfusion or oxygenation. Patient may require advanced airway management/maintenance, supplemental oxygen, NIPPV, or mechanical ventilatory support. Patient may require medication(s)/interventions to maintain perfusion but is not receiving more than one infusion of vasoactive medication. Patient requiring transport/ transfer to another facility for a higher and/or ICU level care.
  - Patients who may be hemodynamically stable, who may be conscious, may require advanced airway management/maintenance, require supplemental oxygen, NIPPV, or mechanical ventilatory support, signs of adequate or inadequate tissue perfusion, requiring transport/transfer to another facility for a higher level of care.

Protocol Continues

Protocol Continued

- **Interventions**
  - Transcutaneous pacing (Note: If pacing AND patient is mechanically ventilated, refer to critical/unstable patient guidance.)
  - NIPPV (CPAP/BiPAP)
  - Acute mechanically ventilated patients with uncomplicated ventilator settings such assist/control (A/C) or synchronized intermittent mechanical ventilation (SIMV)
  - Medical monitoring devices within the scope of practice of IFT paramedics
  - Arterial Lines
  - Chest tube monitoring/maintenance that requires suction and/or more than one chest tube.
  - Maintenance of blood products and/or previously infusing medications for which adjustment/titration is not anticipated.

- **Minimum staffing required**
  - One (1) IFT paramedic and one (1) EMT both attending the patient. Multiple interventions within this category may raise the complexity of a patient and the next higher staffing model should be considered. When a second attendant is unavailable, transport with a single IFT paramedic attendant may be considered (on a case by case basis) while weighing the risk/benefit in consultation with direct medical oversight. The transporting paramedic must concur with any alternate staffing decision.

ToC

Unstable patients with a high risk of deterioration

- **Definitions**
  - Patients who are hemodynamically unstable who may or may not be conscious, may require advanced airway management/maintenance, supplemental oxygen, NIPPV, mechanical ventilatory support, with signs of adequate or inadequate tissue perfusion requiring transport/transfer to another facility for a higher level of care.
- **Interventions**
  - Multiple vasoactive medications
  - Decompensated shock refractory to interventions
  - **Transvenous pacing** (non-epicardial wires)- CCT team preferred
  - Mechanically ventilated patients with complicated ventilator settings that may require adjustment en-route
  - Transduced arterial line
- **Minimum staffing required**
  - One (1) IFT paramedic and one (1) paramedic both attending the patient. When a second paramedic attendant is unavailable, transport with an IFT paramedic and a second attendant who is an EMT may be considered (on a case by case basis) while weighing the risk/benefit in consultation with direct medical oversight. The transporting IFT paramedic must concur with any alternate staffing decision.

Protocol Continues

Protocol Continued

Critical care transport

- **Definitions**
  - Patients requiring complex management who may be dependent on highly specialized equipment and/or specially trained providers.
- Interventions
  - Neonatal critical monitoring and support
  - Fetal heart monitoring
  - ICP monitoring
  - Invasive CVP monitoring
  - IABP or similar devices
  - ECMO
- **Minimum staffing required**
  - **Option 1:** Dedicated critical care transport team.
  - **Option 2:** One (1) IFT paramedic and one (1) hospital based advanced health care provider (e.g. RN, RT, APP, Physician) familiar with equipment required and can meet patient's anticipated needs. Additional crew members as needed at discretion of IFT paramedic.

8.1 Routine IFT Patient Care

Intake/Response

- IFT call taker obtains relevant information that helps determine the following:
  - Level of care needed (BLS, Paramedic, IFT Trained Paramedic, Specialty team)
  - Patient stability
  - Number/Training of providers required – based on patient acuity
  - Equipment required
- Respond to facility in safe manner
- Agencies should coordinate with their sending facilities concerning response for IFTs that are time sensitive and may require a “Hot Response”
  - STEMI
  - Unstable Trauma
  - Active Stroke
  - Immediate Surgical Need

Scene

- Obtain report from RN/Physician
  - Determine if patient is being “Actively Managed” or is “Stable”
  - Develop treatment plan/orders with Provider for any changes that may occur during transport
- Obtain contact information for:
  - Sending facility provider (available during transport)
  - Receiving facility provider (available during transport)
  - Specialist (if required) i.e.: Neurology, Cath lab
- Obtain appropriate paperwork
  - EMATALA form (if required)
  - Lab work
  - Radiology studies
  - Discharge summary
  - Misc. (goals of care, blood paperwork, consent forms, DNR/DNI, MOLST)

Patient

- Conduct patient assessment
  - Ensure patient condition is as dispatched
  - Once assessment is finalized, IFT provider determines if available resources will meet treatment/patient needs during transport.

Protocol Continues

Protocol Continued

- Ensure all equipment/medications required for transport are available.
- Verify equipment required for transport is intact and fully functional.
- Ensure any currently running medication for the following:
  - Correct dose setting (in pump)
  - Patent IV/IO, appropriate access for infused medications
  - Sufficient amount of medication for transport (including consideration for delays, i.e. ambulance bread down, traffic, weather, etc.)

Transport/Transfer of Care

- If patient is being transferred to the Emergency Department, ensure proper pre-notifications are made.
- If patient condition changes during transport, IFT provider must contact receiving facility with an update prior to arriving.
- During transfer of care, ensure the following information is relayed:
  - Medications doses
  - Pump settings
  - Additional treatment(s) during transport
  - Changes during transport
  - Patient paperwork handed over
  - If intubated do final check of ETT placement after patient movement
  - Ventilator/NIV settings
  - Updated labs

PEARLS:

- Prior to transport, (post assessment), all providers must be comfortable with transport plan.
- IFT provider may need to call for additional resources prior to transport.
- IF required IFT provider should consult with DMO for guided decision making.

Aortic Dissection & Aortic Aneurysm

P

Prior to Transport

- It is recommended that central/midline access and/or multiple peripheral access are in place.
- Blood/Blood product transfusion – Refer to IFT Blood Product Protocol 8.4
- Discuss specific hemodynamic parameters for target blood pressures and heart rate with the sending physician ***PRIOR*** to initiating transport. (NOTE: hemodynamic goals **MUST** include HR, not just blood pressure.)
- Obtain orders for titration of actively infusing medications (as required).
- If patient is not currently receiving anti-hypertensives, then obtain orders for blood pressure management during transport.

Care During Transport

Abdominal Aortic Aneurysm (AAA) - Leaking	Aortic Dissection – Thoracic
Administer supplemental O2 (as needed)	Administer supplemental O2 (as needed)
Continuous cardiac monitoring	Continuous cardiac monitoring Serial 12-leads
Assess every 5-10 minutes: • Heart rate and blood pressure • Mental status exam • Bilateral lower extremity distal circulation	Assess every 5-10 minutes: • Heart rate and blood pressure • Mental status & neurological exam (CPSS or FAST) • Bilateral upper AND lower extremity distal circulation
Administer pain management – Pain Management Protocol 2.19A&P ***NOTE:*** Ketamine should be utilized for pain control in rare circumstances, due to its inotropic and chronotropic effects.	Administer pain management – Pain Management Protocol 2.19A&P ***NOTE*:** Ketamine is *contraindicated* for aortic dissection
Plan for care in the event of clinical of deterioration	Plan for care in the event of clinical of deterioration

See Medications

Protocol Continues

Protocol Continued

Medications

NOTE: Medication doses listed are general guidelines, please ensure you are following sending facility's orders.

clevidipine (Cleviprex)

- ✓ Start: 1-2mg/**hour** IV, double rate every 90 seconds until near BP goal, then increase by small increments every 5-10minutes until goal is reached.
- ✓ Max dose: 21mg/**hour** (Up to 32mg/hour may be ordered in extreme circumstances)
- ✓ Each 1-2mg/**hour** increase = 2-4mmHg decrease in SBP

esmolol: Increase 50 mcg/kg/minute every 4 minutes until goal systolic blood pressure, heart rate and/or mean arterial pressure is achieved to a maximum of 300 mcg/kg/minute. If patient requires titration enroute – physician may order a 500mcg/kg dose prior to any titrations up.

labetalol: Increase 2 mg/minute every 10 minutes until goal systolic blood pressure, heart rate and/or mean arterial pressure is achieved to a maximum of 8 mg/minute

lopressor (Metoprolol): Sending physician may order 5 mg IV boluses every 5 minutes until a goal blood pressure or heart rate is achieved to a maximum of 15 mg.

nicardipine(Cardene): Increase by 2.5 mg/**hour** every 10 minutes until a goal systolic blood pressure is achieved to a maximum of 15 mg/**hour**

nitroprusside:

- ✓ Increased by 0.5 mcg/kg every 5 minutes until goal systolic blood pressure and/or mean arterial pressure is achieved to a maximum of 4 mcg/kg/minute
- ✓ If systolic blood pressure is less than 90 mmHg or heart is less than 60 bpm, discontinue drip and contact direct medical oversight.

8.3 Arterial Line Maintenance - Non-Transduced

P

Prior to Transport

- Confirm that the A-Line **DOES NOT** need to be transduced during transport
- Check for adequate perfusion of limb A-line is placed in (color, pulse, sensation, movement, capillary refill time, temperature)
- Check site for the following: (Notify sending facility if found)
  - Hematoma
  - Bleeding
  - Signs of infection
- Note when line was placed and last time dressing changed
- Ensure that catheter is visible through dressing
- Ensure line is secured in a way that prevents catheter movement.
- Ensure that a minimum of a 500mL bag of normal saline is attached to line (bag should have at least 250mL in it)
- Ensure bag is pressurized to at least 300mHg, and remains pressurized during transport
- Ensure all vented caps (if present) are replaced by non-vented caps
- Ensure all connections are tight, and that stopcocks are appropriately placed to prevent backflow

Care During Transport

- Having bleeding control materials readily available
- Continue to monitor site for adequate perfusion of limb A-line is placed in (color, pulse, sensation, movement, capillary refill time, temperature)
- Check site routinely for any signs of bleeding

Complications During Transport

- If line is pulled:
  - Immediately hold direct pressure over insertion site
  - Hold pressure for a least 10 minutes
  - Once bleeding slows/stops apply pressure dressing to site
  - Ensure adequate limb perfusion
- If line stops flowing – do not remove it, clamp fluids, ensure it remains secured and let receiving facility know.
- If area around line appears swollen (i.e. hematoma or infiltrated) apply even direct pressure, stop fluid. Line should stay in place.

8.3.1 Arterial Line Maintenance - Transduced

P

Prior to Transport

- Check site for the following: (Notify sending facility if found)
  - Hematoma
  - Bleeding
  - Signs of infection
- Note when line was placed and last time dressing changed
- Assess distal perfusion on extremity line is placed in
- Ensure that catheter is visible through dressing
- Ensure line is secured in a way that prevents catheter movement, i.e. Splint patient's wrist for transport.
- Pressure Bag
  - Ensure that a minimum of a 500mL bag of normal saline is attached to line (bag should have at least 250mL in it)
  - Ensure bag is pressurized to at least 300mHg, and remains pressurized during transport
- Ensure all vented caps (if present) are replaced by non-vented caps
- Ensure all connections are tight, and that stopcocks are appropriately placed to prevent backflow
- **Ensure there is absolutely no air in any of the tubing.**
- Ensure transducer is at phlebostatic axis
- "Zero" the arterial line
- Perform "square wave" test

Care During Transport

- Monitor waveforms
- Having bleeding control materials readily available
- Continue to monitor site for adequate perfusion of limb A-line is placed in (color, pulse, sensation, movement, capillary refill time, temperature)
- Check site routinely for any signs of bleeding

Complications During Transport

- Overdamped or underdamped waveform
  - Is catheter or tubing kinked?
  - Is pressure bag pressurized to 300mmHg?
  - Are there any bubbles or clots in the line?
  - Perform a "square wave" test
  - If waveform still appears incorrect after performing the above do not perform any further troubleshooting.

Protocol Continues

Protocol Continued

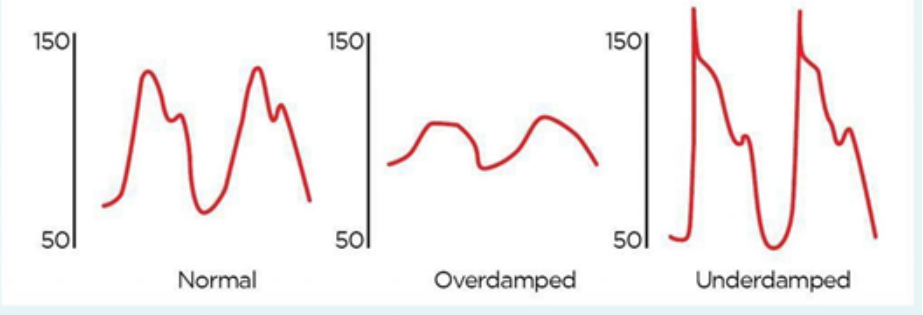
- If line is pulled
  - Immediately hold direct pressure over insertion site
  - Hold pressure for a least 10 minutes
  - Once bleeding slows/stops apply pressure dressing to site
  - Ensure adequate limb perfusion
- Signs of obstruction – do not remove it, clamp fluids, ensure it remains secured and let receiving facility know.
- If area around line appears swollen (i.e. hematoma or infiltrated) apply even direct pressure, stop fluid. Line should stay in place.

PEARLS:

- Never use arterial line for administration of medication or additional fluids.

P

Fig 1. **Arterial waveforms**



Protocol Continues

Protocol Continued

P

Square Wave Test:

1. Activate flush device
2. Observe square wave generated on bedside monitor
3. Count oscillations after square wave
4. Note distance between oscillations

Optimally Damped:
1-2 oscillations before returning to baseline. Values obtained are accurate.

Underdamped:
>2 oscillations. Systolic pressure overestimated and diastolic pressure may be underestimated

Overdamped:
<1 1/2 oscillations. Systolic pressure underestimated and diastolic pressure may be overestimated

8.4 Blood Products

P

Prior to Transport

NOTE: Any item with a "*" next to it may have been done prior to EMS arrival.

- Ensure patency of IV. *
- Ensure 1 additional IV is in place.* (Blood line CANNOT have any other medication administered)
- Look for signs of transfusion reaction (see below) *
- The following steps should be done prior to transport: *
    - Was patient consent obtained?
    - Was the blood typed and cross-matched?
    - Was the blood product being administered verified by two providers?
        - Does physician's order with patient ID match the blood banks?
        - Is the patient's name, DOB and record number match?
        - What is the patient's blood type v. the donor's?
        - Has it been checked for Rh-factor compatibility?
        - What is the blood's expiration date?
    - Were baseline vitals obtained?
    - Was a temperature obtained pre/post administration?
    - Is there a documentation of reaction in the first 15 minutes?
- Ensure copies of orders from the Physician and blood bank are transported with the patient.
- Ensure any paperwork about the specific blood product accompanies the patient.
- Obtain fluid administration guidelines (in case of reaction).
- Obtain hemodynamic goals

Care During Transport

- Continue to ensure IV patency.
- If infusion finishes:
    - DO NOT dispose of IV bag that held the blood. This MUST be transferred with the patient.
    - Flush infusion site with NS ONLY.
    - Record transfusion end-time and vital signs
    - Do NOT mix blood products from different blood banks. If another unit of blood is required, it MUST have come from sending facility

ToC

Protocol Continues

Protocol Continued

P

Complications During Transport

Transfusion Reactions

- **Acute Hemolytic Reaction**

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

- **Non-hemolytic Febrile Reaction**

  Fever, chills, rigors, vomiting, hypotension

- **Allergic Reaction**

  Urticaria, hives (usually without fever or hypotension)

- **Volume Overload**

  Dyspnea, hypoxia, rales, tachycardia, jugular vein distention

- **Transfusion-Related Acute Lung Injury ("TRALI")**

  Dyspnea, hypoxia, rales, tachycardia, jugular vein distention

If a reaction occurs:

- **STOP** the infusion if any of the above symptoms are discovered!
- Start infusion of normal saline
- Contact **sending physician or DMO**
- Treat hypotension with IV fluid per sending physician order or DMO order.
- Treat anaphylaxis
- If minor allergic reaction (urticaria/wheezing) administer **diphenhydramine**, 50 mg IV
- If SpO2 is below 90% or patient experiences wheezing / rales, administer high-flow supplemental oxygen and consider positive pressure ventilation.
- Lasix may be considered for volume overload, consult with sending physician prior to transport.
- Treat fever per Fever Adult and Pediatric Protocol 2.8A&P
- Notify issuing hospital's blood bank of any suspected reaction.

8.5 Continuous Bladder Irrigation (CBI)

P

Prior to Transport

- Confirm proper connection to Irrigation and drainage ports of the 3-way urinary catheter. Ensure urinary catheter is properly secured to the patient
- Ensure proper drainage color, clarity and volume
- Check height of Irrigation and Outflow chambers
- Perform a physical abdominal exam to assess for distention and/or discomfort
- Obtain I/O amounts

Care During Transport

- Ensure the height of irrigation fluid chamber remains above the bladder
- Ensure outflow drainage bag remains below the bladder to prevent backflow.
- Monitor drainage for change to color, consistence and amount.
    - Drainage should remain clear and without clots for duration of treatment
    - Drainage outflow should equal that of the inflow volume
- Ensure adequate irrigant levels throughout transport.
    - At 900mL, irrigation solution should be considered for replenishment
    - At 300mL, irrigation solution **MUST** be replenished
- Adjust the irrigation infusion to allow the prescribed rate of irrigant to flow into the catheter and bladder.

ToC

Complications During Transport

Dislodged Tubing – Reconnect using aseptic technique.

Leaking Around Catheter

- Assess for obstruction
- Assess for bladder spasm
    - Avoid cold irrigation fluid
    - Ensure urinary catheter is properly secured to patient

Bright Red Drainage or Clots Present

- Increase the infusion rate and observe the drainage and patient comfort.
- Upon successfully clearing hematuria and/or clots, return to initial irrigation rate
- Contact DMO if problem persists

Decreased/Absent Draining or New Abdominal Pain

- Turn off irrigant and check for kinks in tubing
- Perform a physical abdominal exam and note discomfort and/or distention
- Check height of Irrigation chamber
- Make reasonable attempts to clear blockage using a Toomey syringe.
- Contact DMO if problem persists.

P

Always ensure proper hand hygiene and clean gloves are being used.

Prior to Transport

Assess patency: (for previously accessed lines, if line isn't accessed it is recommended that sending facility staff access it prior to transport).

- Was line placement (if new line) confirmed with imaging and insertion depth documented?
- Mark line for depth (cm)
- Select appropriate port (i.e. Red ports typically utilized for blood draws only) Confirm what port sending facility has been using
- Utilize aseptic technique by scrubbing selected port for 15 seconds with alcohol or chlorhexidine disinfectant wipe
- Disengage all applicable clamps
- Flush lightly with 5mL of a 10mL Normal Saline (NS) syringe with air purged
- Disconnect syringe and apply alcohol disinfectant cap
- If signs of infection, notify sending facility prior to transport.

Assess for signs of infection:

- Localized reddening and swelling
- Purulent discharge or discharge of any sort
- Assess for mechanical defects (i.e. cracks, leaks, debris, signs of aging)
- Assess clean dressings have been properly applied and the catheter is secured
- Has receiving facility been notified of possible infection?

Care During Transport

Never use syringe smaller than 10ml for medication administration.

Medication administration - No Infusion Running

- Locate and select appropriate port
- Utilize antiseptic technique by scrubbing port for 15 seconds with disinfectant wipe
- Purge air from 10mL 0.9% NS syringe prior to connecting to port
- Flush lightly with 5mL of the purged 10mL NS syringe
- Administer selected medication
- Flush with 10mL 0.9% NS
- Disconnect syringe and apply alcohol disinfectant cap

ToC

Protocol Continues

Protocol Continued

Medication administration - continuous Infusion

- Confirm medication compatibility
- Stop infusion
- Follow the above steps for medication push
- Flush with 20mL of 0.9% NS
- Continue infusion

Complications During Transport

- If resistance is met while flushing/infusing stop administering medication or infusion.
- Arrhythmias due to possible Right Atrial placement of the distal catheter, contact DMO.

P

PEARLS:

- At the conclusion of a medication administration, administer flush consistent with medication being administered, or a gentle 20mL normal saline flush.
- Avoid administering the following via Midline catheters: Vancomycin, Amiodarone, Erythromycin, Dilantin, Penicillin or Chemotherapeutic vesicants.

ToC

P

Prior to Transport

- Obtain history/type of lung injury (i.e. pneumothorax v. hemo-pneumothorax)
- Ensure that the chest tube is secured to the patient, and that the drainage system remains in an upright position and below the level of the patient's chest at all times.
- Regularly evaluate lung sounds and vital signs.
- Regularly evaluate for signs/symptoms of a tension pneumothorax. (Increasing hypoxia, increasing difficulty breathing, decreasing blood pressure, decreased lung sounds)
- Tubes and connections should be evaluated following any movement of the patient to ensure leak-proof operation and chest tube patency.
- Discuss how tube is to be transported (with suction, without suction etc.)
- If chest tube(s) needs to be attached to suction, obtain amount, and ensure transport unit can provide, including multiple suctioning capability.
- If patient has more than 1 chest tube, ensure that there are sufficient personal to ensure stabilization/maintenance of all equipment. (See "Staffing Guideline 8.0")
    - If the patient has ***Heimlich Valve*** – it may not be attached to suction or to a water seal chamber.
- Ensure the valve is attached in the correct direction.
- Ensure *outlet valve* is not blocked

Check the following initially and after moving the patient:

- Ensure the dressing remains dry and occlusive.
- Ensure there are no kinks or dependent loops (e.g., a loop or turn in the tubing that forces the drainage to move against gravity to reach the collection chamber in the tubing.
- Check/document the amount of water in the water seal chamber. If the water level appears low ask a staff member if it requires refilling prior to departure.

Care During Transport

Monitor the following items after routine assessment of patient's vital signs:

- Monitor for signs of tension pneumothorax (increased: hypoxia, respiratory distress and hypotension)
- Drainage (document the appearance and amount of fluid, at the start and at the conclusion of transport).
- Bubbling in the water seal chamber
- Gentle rise and fall of the water level, which corresponds with the patient's respirations is called, "tidaling" and indicates that the system is functioning properly.

ToC

Protocol Continues

Protocol Continued

P

Complications During Transport

Abnormal bubbling in the water seal chamber

- Remember, gentle rise and fall of the water level, which corresponds with the patient's respirations is called "tidaling" and indicates that the system is functioning properly.
- Continuous air bubbling confirms a constant air leak from a tube connection or from the patient's chest (e.g., unresolved pneumothorax).
- Intermittent bubbling confirms an intermittent air leak from the patient's chest.
- No air bubbling confirms no air leak from the patient's chest and no air leak from a tube connection.

Entire chest tube is removed from the chest:

- Cover with a three-sided dressing and contact **SENDING PYSICIAN.**

Chest drainage system tips over and spills:

- Contact **SENDING PHYSICIAN**; you may be instructed to clamp tube.

Evidence of Tension Pneumothorax

- If tube is clamped – unclamp it
- If unit is not on suction, attach it to suction at appropriate pressure
- Refer to Needle Decompression Protocol 6.10

Chest drainage system is crushed or broken open, or the chest drain becomes detached from the chest tube:

- Contact **SENDING PHYSICIAN** immediately, do not reconnect; you may be instructed to place the end of the chest tube in a bottle of sterile water to create a seal.
- May be instructed to create a 1-way valve using the finger of a sterile glove

PEARLS:

- Chest tubes should generally not be clamped for transport as this greatly increases the risk of accumulation of air, fluid and/or the development of a tension physiology.

High Flow Nasal Cannula (HFNC)

P

Prior to Transport

- Ensure the ambulance main oxygen tank has sufficient O2 prior to transport
    - **Due to the amount of O2 required on a HFNC most patients will not be able to be transported by ambulance on the HFNC system.**
    - **If the O2 requirement exceeds ambulance capability – discussion MUST be had with sending facility (physician and respiratory therapist) on alternative treatment for transport. This may include: NIV or NRB.**
- Ensure sufficient portable oxygen tanks are available for the transition from the hospital to the ambulance, and vice versa
- Ensure the patient is placed on a cardiac monitor, pulse oximetry, and continuous waveform capnography
- Obtain the following information from the sending provider prior to transfer:
    - Reason for HFNC
    - Review respiratory/ventilatory goals and parameters with sending facility **prior** to transport
    - Patient's height and ideal body weight
    - Last ABG, if possible
    - Prior sedation and analgesic agents used, and any adverse events
    - Obtain patient's RASS scores
- Assess the patient's breath sounds bilaterally, and the respiratory status
- **Confirm that oxygenation/ventilation and airway goals are being met and are maintainable for the duration of transport.**
- **Establish an action plan for a potential change in patient needs/status or if O2 supply is depleted.**
- Ensure patient is appropriately sedated for medical condition, and for transport.
- Document the patient's HFNC settings, vital signs (including SpO2 and EtCO2), and any medications being administered prior to transfer
- Transfer the patient to the transport NIV as soon as possible to ensure stability
    - IFT crew should ensure stability on the transport HFNC, at the sending facility, prior to initiating the patient transfer
    - Obtain written orders as required from the sending provider

ToC

Protocol Continues

Protocol Continued

P

Care During Transport

- Ensure continuous SPO2 and ETCO2 monitoring
- Ensure appropriate suction equipment readily available
- Ensure BVM is readily available
- Ensure NIV/intubation equipment is readily available
- Monitor the hemodynamic status closely, especially if patient has increased PEEP requirements
- Ensure proper infection control procedures due to high amount of aerosolized material.

  (Ambulance vent on, N95, goggles etc.)

Potential Direct Medical Oversight/Transport Orders

- Change in oxygenation provision: patient may need to be switched to NIV or NRB for transport.

8.9 Intracerebral Hemorrhage

P

Prior to Transport

- It is recommended that mid-line catheter and/or two large IV peripheral lines are in place prior to transport.
- Is patient on any anticoagulants or antiplatelet?
  - Confirm reversal of anticoagulation/antiplatelet has been initiated or considered.
- Check if C-spine has been cleared or if patient should remain in cervical collar.
- Elevate the head of the stretcher to 30 degrees and ensure the patient's head/neck is placed in a neutral and inline position on the stretcher.
- Obtain target blood pressure, MAP, and heart rate guidelines from sending facility.
- Obtain orders for titration of actively infusing medications (as required)
- If patient is not currently receiving anti-hypertensives, then obtain orders for blood pressure management during transport.
- Ensure or obtain recent (within the hour) blood sugar.
- Check for fever – consider treatment prior to transport
- Check to see if antiepileptic loading is necessary

Care During Transport

- Continuous cardiac monitoring
- **Avoid hypotension, hypoxia, hypo/hypercapnia***
- Administer oxygen per Traumatic Brain Injury Adult and Pediatric Protocol 4.8
- Perform and document serial neurologic evaluations every 5-10minutes (mental status & CPSS)
- Monitor blood pressure and heart rate.
- Treatment of nausea and vomiting per Nausea/Vomiting Adult/Pediatric Protocol 2.14
- Treatment of acute seizure activity per Seizures Adult and Pediatric Protocols 2.21 A & P
- Airway & Ventilator Management
  - Assure appropriate analgesia/sedation while carefully avoiding hypotension. IFT Sedation & Rapid Sequence Intubation 8.15
  - Ventilator concerns: IFT Ventilator Management 8.13
  - Prioritize patient comfort while using the minimal amount of narcotics required.
  - Propofol for sedation/seizures if patient require continuous sedation
  - Maintain continuous ETCO2 and SPO2 monitoring
  - Assure ETCO2 remains in the range of 35-45mmHg, unless specific orders for other target.

Protocol Continues

Protocol Continued

Potential Direct Medical Oversight Orders

Condition	Guidelines
Hemorrhagic transformation of Acute Ischemic Stroke	SBP <180mmHg DBP <110mmhg
Aneurysmal Sub-Arachnoid Hemorrhage	SBP <140mmHg
Atraumatic Intracerebral hemorrhage	SBP <140mmHg
Traumatic Brain Injury	50-69 y/o SBP ≥ 100mmHg 15-49y/o or > 70y/o SBP ≥ 110mmHg If SBP is >180mmHg contact DMO
Neurogenic Shock	MAP ≥85mmHg

P

The above numbers are goals, not one time absolutes.

See Medications

ToC

Protocol Continues

Protocol Continued

Medications

NOTE: Medication doses listed are general guidelines, please ensure you are following sending facility's orders.

Blood Pressure Management

clevidipine (Cleviprex):

- ✓ Start: 1-2mg/**hour** IV, double rate every 90 seconds until near BP goal, then increase by small increments every 5-10minutes until goal is reached.
- ✓ Max dose: 21mg/**hour** (Up to 32mg/hour may be ordered in extreme circumstances)
- ✓ Each 1-2mg/**hour** increase = 2-4mmHg decrease in SBP

hydralazine: 5 – 20 mg intermittent boluses (AHA dosing)

labetalol: 10 mg over 1-2 minutes

nicardipine (Cardene): Increase by 2.5 mg/**hour** every 10 minutes until a goal systolic blood pressure is achieved to a maximum of 15 mg/**hour.**

ICP Management

hypertonic saline: Confirm dose prior to transport

mannitol: 20%, 0.25-1.0g/kg

Antiepileptic Therapies

levetiracetam (Keppra): 500–1000 mg IV

fosphenytoin: 20 mg /kg IV

phenytoin (Dilantin): 20mg/kg IV \

benzodiazepines: Refer to Seizure Adult/Pediatric Protocol 2.21 A&P

phenobarbital: 20 mg/kg IV

barbiturates: pentobarbital (10 mg/kg) or thiopental (1.5–3.5 mg/kg)

PEARLS:

- Consider securing airway early and prior to transport
- Normal saline is the preferred fluid when treating a patient with an intra-cranial hemorrhage
- Patient's that experience any of the "Three H's" (Hypoxia, Hypotension, & Hyperventilation) have a significantly increased mortality and morbidity, even if episode is transient.

8.10 Malignant Hyperthermia (NHM)

P

Prior to Transport

- Confirm patient history and agent that stimulated the MH:
  - Inhaled Halogenates
  - Anesthetics
  - Depolarizing Paralytics
- Baseline Vital Signs and Assess; expect the following:
  - Hyperthermia
  - Increased CO2 production – ETCO2
  - Unexplained Tachycardia
  - Muscle rigidity
  - Potential Acidosis
  - Potential signs of Rhabdomyolysis
  - Potential Hyperkalemia

Care During Transport

- May require increased supplemental oxygen due to increase oxygen demand
- Maintain active cooling for patients with core temperature >39C, and discontinue when temperature decreased to 38C
  - Uncover the patient
  - Rapidly administer 20 to 30 mL/kg IV isotonic crystalloid for patients without signs of CHF
  - Pack voids with cooling packs
- Treat Hyperkalemia as appropriate. See Hyperkalemia Protocol 2.10
- Monitor and document urine output.
- Treat dysrhythmias with standard medications, but avoid CA channel blockers

PEARLS:

- Reoccurrence can occur up to 13 hours following initial treatment and is most common in pediatric patients and those patient's with increased muscle mass
- Normal saline is preferred fluid for MH patients.

See Medications

Protocol Continues

Protocol Continued

Medications

NOTE: Medication doses listed are general guidelines, please ensure you are following sending facility's orders.

0.9% Normal Saline: 500ml bolus in the presence of hyperkalemia and/or acidosis followed by 10- 20ml/kg/hour

albuterol: 10 mg over 5 minutes

calcium chloride: 1gm IV/IO over 5 minutes

calcium gluconate: 2gm IV/IO over 5 minutes

dantrolene (Dantrium,Ryanodex): Loading dose: 2.5 mg/kg, may be repeated to a max dose of 30 mg/kg

insulin: 0.1 – 0.2 units/kg

oxygen: Titrate to patient's oxygen saturation 94-99%

sodium bicarbonate: 2meq/kg

ToC

8.11 Mechanical Ventilation

P

Prior to Transport

- Ensure the ambulance main oxygen tank has sufficient O2 prior to transport
- Ensure sufficient portable oxygen tanks are available for the transition from the hospital to the ambulance, and vice versa
- Ensure the patient is placed on a cardiac monitor, pulse oximetry, and continuous waveform capnography
- Ensure appropriate staffing for transport IFT Staffing Guidelines 8.0
- Obtain the following information from the sending provider prior to transfer:
  - Reason for the intubation
  - Number of days intubated
  - Ventilator settings, any recent adjustments, failed modes of ventilation
  - Patient's height and ideal body weight
  - ETT placement (at the teeth/gums) and confirmatory imaging studies
  - Last ABG, if possible
  - Prior sedation and analgesic agents used, and any adverse events
  - Obtain patient's RASS scores
- Assess the patient's breath sounds bilaterally, and the respiratory status
- Ensure patient is appropriately sedated for medical condition, and for transport.
- Document the patient's ventilator settings, vital signs (including SpO2 and ETCO2), and any medications being administered prior to transfer
- Transfer the patient to the transport ventilator as soon as possible to ensure stability
  - IFT crew should ensure stability on the transport ventilator at sending facility prior to initiating the patient transfer
  - If possible, have Respiratory Therapist present during transfer of patient from hospital vent to transport vent
  - If possible, request an ABG be performed once patient is placed on the transport ventilator prior to transfer
- Obtain written orders as required from the sending provider (including hemodynamic parameters and sedation/analgesia) IFT Sedation and Analgesia 8.15
- Obtain recommendations concerning potential oxygenation/ventilation issues during transport from sending provider and respiratory therapist.
- If patient is ventilated via tracheostomy obtain spare tracheostomy for transport

Care During Transport

- Ensure continuous SPO2 and ETCO2 monitoring
- Ensure appropriate suction equipment readily available
- Ensure BVM is readily available
- Monitor the hemodynamic status closely, especially if patient has increased PEEP requirements

Protocol Continues

Protocol Continued

- Goal peak airway pressure (PAP) ≤ 35 mmHg and goal plateau airway pressure (Pplat) ≤ 30 mmHg
- Document RASS during transport – q15min or change in condition
- Adjust sedation/analgesia as required IFT Sedation and Analgesia 8.15

Potential Direct Medical Oversight/Transport Orders

Ventilator settings

- Please ensure ventilator being used is capable of supporting patient requirements and settings are equivalent.
- Mode of ventilation and basic settings: Select the most appropriate mode of ventilation that best matches the hospital settings

Volume Control – *preferred mode of ventilation*

Continuous Mandatory Ventilation (CMV) or Assist-Control/Volume Control (AC/VC)

o	Tidal volume (**TV**) (IBW)	Set 6-8 mL/kg of ideal body weight
o	Respiratory rate (**RR**)	Set 10 – 20 breaths/minute
o	Positive end-expiratory pressure (**PEEP**)	Set 5-15 cmH2O
o	Fraction of inspired oxygen (**FiO2**)	Set 21 – 100%

Pressure Control

Pressure Control Ventilation (PCV) or Assist-Control/Pressure Control (AC/PC)

o	Pressure Control (**Pcontr)**	Set 5-15 cmH2O
o	Positive end-expiratory pressure (**PEEP**)	Set 5-8 cmH2O
o	Respiratory rate (**RR**)	Set 10 – 20 breaths/minute
o	Fraction of inspired oxygen (**FiO2**)	Set 21 – 100%

Contact Medical Oversight for approval of any settings outside the parameters listed above.

8.12 Nasogastric/Orogastric Tubes

P

Prior to Transport

- Ensure proper connections/adapters present/Toomey syringe
- Obtain suction parameters (mmHg/continuous v. intermittent)
- Obtain I/O amounts
- Ensure NG/OG is properly secured
- Review placement verification and note depth
- Hold enteral nutrition during transport

Care During Transport

- Ensure suction settings are appropriate
- Re-assess depth post patient movement
- Document output amounts

Complication During Transport

Inability to Suction/New Abdominal Pain

- Ensure tube has not moved
- Ensure proper suction setting
- Make attempt to clear blockage using a Toomey syringe
- If NG/OG continues to not work, but is in proper position cap the tube and do not use it any further.

NG/OG tube falls out

- NG tube: do not replace
- OG tube: can be replaced if needed
    - Must be a new OG tube
    - Refer to Gastric Tube Insertion Protocol 6.7A

P

Prior to Transport

- Ensure the ambulance main oxygen tank has sufficient O2 prior to transport
- Ensure sufficient portable oxygen tanks are available for the transition from the hospital to the ambulance, and vice versa
- Ensure the patient is placed on a cardiac monitor, pulse oximetry, and continuous waveform capnography
- Obtain the following information from the sending provider prior to transfer:
  - Reason for NIV
  - Review respiratory/ventilatory goals and parameters with sending facility **prior** to transport
  - NIV settings, any recent adjustments, failed settings
  - Patient's height and ideal body weight
  - Last ABG, if possible
  - Prior sedation and analgesic agents used, and any adverse events
  - Obtain patient's RASS scores
- Assess the patient's breath sounds bilaterally, and the respiratory status
- **Confirm that oxygenation/ventilation and airway goals are being met and are maintainable for the duration of transport.**
- **Establish an action plan for a potential change in patient needs/status.**
- Ensure patient is appropriately sedated for medical condition, and for transport.
- Document the patient's NIV settings, vital signs (including SpO2 and ETCO2), and any medications being administered prior to transfer
- Transfer the patient to the transport NIV as soon as possible to ensure stability
  - IFT crew should ensure stability on the transport NIV, at the sending facility, prior to initiating the patient transfer
  - If possible, have Respiratory Therapist present during transfer of patient from hospital NIV to transport NIV
  - Ensure proper sized face mask (no leaks)
- Obtain written orders as required from the sending provider

Care During Transport

- Ensure continuous SPO2 and ETCO2 monitoring
- Ensure appropriate suction equipment readily available
- Ensure BVM is readily available
- Ensure intubation equipment is readily available
- Monitor the hemodynamic status closely, especially if patient has increased PEEP requirements

ToC

Protocol Continues

Protocol Continued

P

Potential Direct Medical Oversight/Transport Orders

Selection of NIV Settings: Please ensure ventilator being used is capable of supporting patient requirements and settings are equivalent.

Continuous positive airway pressure (CPAP)

- To be used in patients with hypoxia
- CPAP (ePAP) 5-15mmHg or physician specific order
- FiO2 21 – 100%

Bi-level positive airway pressure

- To be used in patients with **hypercapnia, or hypercapnia and hypoxia**
- Refer to your company transport ventilator to review the terminology
- Inspiratory peak airway pressure (**iPAP**) = Peak airway pressure (**Ppeak**) 10-20 cmH2O or physician specific order
- Expiratory peak airway pressure (**ePAP**) = positive end-expiratory pressure (**PEEP**) Set 5-15cmH2O or physician specific order
- **FiO2** Set to 21 – 100%
- If available, set back up ventilator rate to a minimum of 10bpm or as physician ordered.

ToC

PEARLS:

- Changing the ePAP alone directly affects oxygenation and indirectly effects ventilation, consider changing iPAP as needed.
- Changing the iPAP alone affects ventilation
- Increasing either pressure setting can result in hypotension and cardiovascular collapse; closely monitor the patient's hemodynamic status with any changes
- With inability to tolerate NIPPV, or if the patient meets any of the contraindications, consider the need for emergent intubation

Contact Medical Oversight for approval of any settings outside the parameters listed above.

P

Prior to Transport

- Obtain contact information for receiving L+D department.
- Transport of patients who are in labor with concern for imminent delivery may be delayed for delivery of infant at sending facility.
- Arrangements should be made for proper transport of neonate.
    - Specialty team if necessary
    - Proper neonatal restraint
- If after assessment the patient is considered to be at higher risk for delivery, but transport is still warranted, additional staffing should be on board prior to transport. (Staff may include OB staff, EMT, medic)If any confusion or disagreement arises regarding the need for additional OB staff, Medical Control physician and sending physician should be in direct communication.
- Routine IFT initial assessment must include:
    - Patient history
        - Estimated due date
        - Number of fetuses
        - Estimated fetal gestational age
        - Maternal history of any complications
        - Condition of membranes, dilation
        - Gravida / Para
        - Timing and nature of contractions
        - Fetal Position
        - Fetal HR
    - Treatments administered and results of those treatments
    - Ongoing treatment summary, including, goals/guidelines

Care During Transport

- Patients should be transported in a left-lateral position or sitting upright, if possible.
- Routine monitoring based on patient's condition

Complications during transport

- Eclampsia: Refer to Seizure Protocol 2.21A & Obstetrical Emergencies 2.18
- Cardiac Arrest: Refer to Cardiac Arrest Protocol 3.2A & Obstetrical Emergencies 2.18
    - Transport to nearest facility
    - Immediate pre-hospital notification of potential need for immediate C-Section.
    - Ensure Uterine Displacement
    - Focus should be on resuscitation of mother.

Protocol Continues

Protocol Continued

- Hemorrhage/Trauma: Obstetric Emergencies Protocol 2.18
- Delivery: Childbirth and Newborn Care Protocol 2.7
- Any change during transport (i.e. seizures, bleeding etc.) receiving hospital MUST be notified - including both the receiving ER and L+D.

See Medications

P

ToC

Protocol Continues

Protocol Continued

Medications

antibiotics: varies dependent on medication

blood: per sending facility IFT Blood & Prehospital Blood Product Transfusion 8.4

labetalol: 10-20mg IV q10-30min prn (Maximum cumulative dose 300mg) Drip: 1-2mg/min IV

hydralazine: 5-10 mg IV q20-40 min prn or 5mg IM/IV x1 (max 20mg total) Drip: 0.5-10mg/hour

magnesium: Adult Medication Appendix 1

oxytocin (Pitocin): 10units IM x1 (after placental delivery) or 20 milliunits/min IV

Tranexamic acid (TXA): Post-Partum: 1gm/10 minutes (no later than 3 hours after birth, max of 2gms in 24 hours.)

PEARLS:

- If patient is on magnesium ensure adequate monitoring of respiratory status and reflexes.

P

Prior to Transport

- Obtain goals of sedation
- Obtain analgesic goals
- Calculate IBW
- Review what medications have/have not worked
- Obtain current medications and dosing (including intermittent dosing guidelines)
- Obtain current hemodynamic status and goal hemodynamic parameters
- Ensure proper amount of medication for transport is present
- Obtain orders for titration (dosing, order of medications to change)
- Consideration for restraint

Care During Transport

- Goal RASS for patients requiring deeper sedation during transport should be -4.
- Ensure hemodynamic goals are maintained
- Monitor/Document:
  - ETCO2
  - SPO2
  - EKG
  - Vitals
  - RASS (every 15 minutes or when sedation/analgesia is adjusted)
- If ventilated – ensure patient/ventilator synchrony

Complications During Transport

- Hemodynamic changes
  - Ensure sedation/pain medications are titrated appropriately
  - Consider a fluid bolus
  - If necessary add a vasopressor
- Ventilatory status change
  - If patient is ventilated use the DOPE pneumonic
  - Ensure sedation/pain control is appropriate

See Medications

ToC

Protocol Continues

Protocol Continued

Medications

dexmedetomidine (Precedex): 0.2-1.4mcg/kg/hour (ICU sedation). 0.2-1mcg/kg/hour (non- intubated patients)

diazepam (Valium): Adult Medication Appendix 1

diprovan (Propofol):

- ✓ Patient must have airway secured (intubation/tracheostomy) prior to transport.
- ✓ Bolus of 0.5- 1 mg/kg IV over 20-30 sec (can repeat if needed and hemodynamics have remained stable)
- ✓ Initiate infusion at 5-10 mcg/kg/min, increase in 5-10 mcg/kg/min increments
- ✓ Typical maximum dose: 50 mcg/kg/min

fentanyl: Adult Medication Appendix 1

Drip: Dependent on other adjunctive medications (facility dependent)

hydromorphone (Dilaudid): Adult Medication Appendix 1

ketamine: Adult Medication Appendix 1

Drip: Dependent on other adjunctive medications (facility dependent)

lorazepam (Ativan): Adult Medication Appendix 1

midazolam (Versed): Adult Medication Appendix 1

morphine: Adult Medication Appendix 1

PEARLS:

- You can have sedation without analgesia and vice versa
- Ensure consideration of synergistic relationship of using both sedation and analgesia together

P

Prior to Transport

- Important Times:
  - ER request to ambulance arrival 15 minutes
  - Pt. arrival at ER to transfer 30 minutes
  - Door to Device 60 minutes
- Ensure the patient has 2 large bore IVs; however, do not delay transport to definitive care. Additional peripheral access may be gained during transport.
- Place defibrillation pads on STEMI patient prior to transport
- Ensure you have copy of available 12-lead EKGs performed, however, do not delay transport to definitive care. 12-lead EKG may be obtained during transport
- Obtain guidance for treating anxiety during transport
- Ensure destination drop off location (ER, Floor or Catheterization lab)
- If transfer is an NSTEMI:
  - Obtain patient's troponin
- Obtain list of medications administered by hospital prior to transport

Care During Transport

- Treat pain and nausea/vomiting as needed. Nausea/Vomiting 2.14, Pain Management 2.19A&P Acute Coronary Syndrome.3.0
- Target Mean Arterial Pressure (MAP) of 65mmHg or greater
- Target systolic pressure greater than 80 mmHg

Complications During Transport

- Treat arrhythmias as appropriate. Bradycardia Protocol 3.1A & Tachycardia Protocols 3.5A
- In patients experiencing cardiogenic shock ***without*** pulmonary congestion, administer 100 – 250 ml fluid boluses PRN to obtain and maintain management goals. ***Note:*** This should NOT be done if the patient is anemic.
- If hypotension continues and/or signs of cardiogenic shock are present. Shock (Non-Traumatic Protocol 2.23)

Potential Direct Medical Oversight/Transport Orders

- Pain control
- Treatment of dysrhythmias
- Treatment of anxiety

See Medications

Protocol Continues

Protocol Continued

Medications

NOTE: Medication doses listed are general guidelines, please ensure you are following sending facility's orders.

oxygen: Titrate to patient's oxygen saturation 94-99%

amiodarone: For patients converted using loading dose, IV maintenance of 1mg/min

clopidogrel (Plavix) :300 mg PO x1 loading dose, if available from sending facility.

dobutamine:

- ✓ 0.5-1 mcg/kg/min IV continuous infusion initially, then 2-20 mcg/kg/min; not to exceed 40 mcg/kg/min
- ✓ Be cautious with dobutamine. Although dobutamine increases contractility, it also decreases systemic vascular resistance (SVR) which may lead to hypotension

dopamine: 5-20mcg/kg/min IV, titrated to effect.

fentanyl – Acute Coronary Syndrome Protocol 3.0

furosemide (Lasix): 40 mg IVP if severe pulmonary congestion continues after cardiac output is improved and BP stabilizes

morphine – Acute Coronary Syndrome Protocol 3.0

nicardipine (Cardene): Initiate therapy at 5 mg/**hour**, increase infusion rate by 2.5 mg/ **hour** every 5 minutes up to a maximum of 15 mg/**hour,** until desired blood pressure reduction is achieved.

nitroglycerine (IV drip): If patient responds positively to NTG tablets, consider continuous NTG infusion at 10mcg/min and titrate every 5-10 min at 5-10 mcg/min

norepinephrine (Levophed)

- ✓ 1-30 mcg/min. Titrated to SBP of 90 or MAP of 65.
- ✓ Weight based: 0.1-0.5mcg/kg/min. Titrated to SBP of 90 or MAP of 65.

ticagrelor: (Brilinta):180mg PO

heparin: IV loading dose 60 units/kg, max 4000 IU IV bolus, then infusion 12 units/kg/**hour** for patients >70 kg, with maximum dose of 1,000 IU**/hour.**

PEARLS:

- Beta Blockers should be withheld.
- Be extremely cautious with afterload and/or preload reducing agents.
- Patients receiving thrombolytics may experience dysrhythmias such as accelerated Idioventricular. Generally anti-dysrhythmics and/or cardioversion are contraindicated, unless the patient presents in ventricular tachycardia or ventricular fibrillation.

8.17 Stroke

P

Prior to Transport

- Patient last know well time and symptom onset time (if available)
- Neurologic exam/NIHSS prior to thrombolytic administration
- Neurologic exam/NIHSS after thrombolytic administration and/or most recent exam findings
- Vital signs
- Obtain blood pressure parameters **PRIOR** to transport.
- Obtain orders for titration of actively infusing medications (as required)
- If patient is not currently receiving anti-hypertensives, then obtain orders for blood pressure management during transport.
- **Obtain contact information for specific DMO if needed during transport. This may be the sending or receiving physician.**

Note: Acute stroke transfers involving recent or ongoing IV thrombolytic administration may be considered time sensitive emergences - particularly when be transferred for possible thrombectomy. Discuss transport priority with sending physician.

Thrombolytic Administration Completed Prior to Transport

Obtain from sending facility:

- The thrombolytic drug name and total dose administered
- Time started and time infusion completed

Alteplase Administration During Transport

- Confirm with sending facility staff the desired dose and method to administer the total desired alteplase dose.

Care During Transport

- Assess vital signs and perform a neurological evaluation (CPSS) and mental status exam at least every 15 minutes during transport.
- Monitor for external hemorrhage and signs of internal hemorrhage

Complications During Transport

- **Acute worsening of neurologic condition:** Acute worsening of neurological deficits, new neurological deficits, development of severe headache, vomiting, deterioration of mental status, Etc.
    - If patient is receiving thrombolytic infusion, pause the infusion, and contact DMO for further guidance.
    - Notify receiving hospital emergency department with an update on patient's condition and an estimated time of arrival
- ***Acute and/or worsening of hypertension:*** *Contact DMO for guidance, or use sending physician's standing orders for antihypertensive therapy*

Protocol Continues

Protocol Continued

Condition	Guidelines	Guidelines
Acute Ischemic Stroke receiving thrombolytic	Pre- thrombolytic SBP <185mmHg DBP <110mmHg	24 hours post- thrombolytic SBP <180mmHg DBP < 105mmHg
Acute Ischemic Stroke ***NOT*** receiving thrombolytic	SBP <220mmHg DBP <110mmHg	
Hemorrhagic transformation of Acute Ischemic Stroke	SBP <180mmHg DBP <110mmhg	

Document the following in EMS transfer record:

- Patient last know well time and symptom onset time (if available)
- Neurologic exam/NIHSS prior to thrombolytic administration
- Time and specific finding for each element of EMS neurological exams (e.g. “1432, alert and oriented x4/4, speech clear and fluent, facial motor tone intact, and symmetrical.”) **DO NOT** simply document “CPSS negative.”
- If any neurological changes occur document the time they occurred, and what the change was.
- Serial vitals with times
- Time thrombolytic was started, was completed and dose administered.

P

ToC

See Medications

Protocol Continues

Protocol Continued

Medications

NOTE: Medication doses listed are general guidelines, please ensure you are following sending facility's orders.

clevidipine(Cleviprex):

- ✓ Start: 1-2mg/**hour** IV, double rate every 90 seconds until near BP goal, then increase by small increments every 5-10 minutes until goal is reached.
- ✓ Max dose: 21mg/**hour** (Up to 32mg/hour may be ordered in extreme circumstances)
- ✓ Each 1-2mg/**hour** increase = 2-4mmHg decrease in SBP

esmolol (Brevibloc): Increase 50 mcg/kg/minute every 4 minutes until goal systolic blood pressure and/or mean arterial pressure is achieved to a maximum of 300 mcg/kg/minute.

labetalol:10 mg over 1-2 minutes, followed by 2-8mg/minute continuous infusion. Adjust dose in increments of 2mg/minute every 10 minutes as needed to achieve blood pressure goals to a max of 8mg/minute.

lopressor (Metoprolol): Sending physician may order 5 mg IV boluses every 5 minutes until a goal blood pressure or heart rate is achieved to a maximum of 15 mg.

nicardipine(Cardene): Increase by 2.5 mg/**hour** every 10 minutes until a goal systolic blood pressure is achieved to a maximum of 15 mg/**hour.**

nitroprusside:

- ✓ Increased by 0.5 mcg/kg every 5 minutes until goal systolic blood pressure and/or mean arterial pressure is achieved to a maximum of 4 mcg/kg/minute
- ✓ If systolic blood pressure is less than 90 mmHg or heart is less than 60 bpm, discontinue drip and contact **DMO.**

P

Critical Care Team

Does not include patients with epicardial pacemaker wires

Prior to Transport

- Secure additional battery as necessary
- Determine underlying rhythm
- Confirm electrical capture (pacer spike followed by wide complex QRS and T wave)
- Confirm mechanical capture (Peripheral pulses, SPO2 pleth, Arterial Waveform, Ultrasound, ETCO2, etc.)
- Confirm lead is secured to patient
- As appropriate, preemptively place Transcutaneous therapy pads
- Document transvenous pacer settings:
    - Pulse Rate
    - Current Amplitude
    - Sensitivity
    - Automatic of Manual mode
    - PSR Code (Below chart for information only - maintain setting)

Code	Chamber Paced	Chamber Sensed	Response
AOO	Atrium	None	None
VOO	Ventricle	None	None
DOO	Both	None	None
AAI	Atrial	Atrial	Inhibit
VVI	Ventricle	Ventricle	Inhibit
DDD	Both	Both	Trigger/Inhibit

Care During Transport

- Patient will require continuous monitoring and should be treated accordingly in the event of deterioration.

Protocol Continues

8.18 Transvenous Pacing

Protocol Continued

P

Complications During Transport

- Failure to capture or sense by the pacer and accompanying symptoms should be treated following a brief survey for common failures:
  - **B**attery failure – in most cases a “low battery” alarm is indicative of a device failure within 24 hours.
    - Once the battery is removed the TVP will typically continue for 30 seconds before shutting off
  - **L**ead wire failure or detachment – inspect wires and reattach as necessary
  - **E**xternal Pulse Generator failure (Rare)
  - **D**islodgement of lead wire from myocardial wall
- If unable to correct a transvenous pacer failure, treat symptomatic bradycardia in accordance with medical oversight orders and/or Bradycardia Protocol 3.1A
- If TVP loses mechanical capture adjust settings based on transport care plan or with direct medical oversight guidance.
- If pacer capture but persistent hypotension, treat for shock in accordance with medical oversight and/or Shock (Non-Traumatic) 2.23.
- Symptomatic tachycardia and arrhythmias Tachycardia Protocol 3.5A
- If patient experiences cardiac arrest, disconnect leads from pacer generator and follow Cardiac Arrest Protocol 3.2A

CT Adult Medication Reference

This document is to serve as a reference for the v2025.1 CT Patient Care Protocols. See the Pediatric Color Coded Appendix for pediatric dosages.

Adenosine (Adenocard)

Indications:

- Specifically for treatment or diagnosis of Supraventricular Tachycardia.
- Consider for regular or wide complex tachycardia

Tachycardia

- 6 mg rapid IV/IO push.
- May repeat adenosine at dose of 12 mg if no conversion.
- May repeat successful dose of adenosine if rhythm recurs after conversion.

Albuterol

Beta-Agonist

Indications:

- Respiratory distress with bronchospasm.
- Moderate to severe hyperkalemia

Contraindications:

- Allergy

Allergic Reaction/Anaphylaxis

- 2.5 mg via nebulizer; May repeat 2.5 mg 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.
- Initial treatment should be 2.5 mg albuterol and .5mg 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.

Hyperkalemia

- 2.5 mg via nebulizer. Repeat continuously up to a max total of 20mg.

Acetaminophen

Non-opioid analgesic

Indications:

- Pain management

Contraindications:

- Allergy
- Liver failure
- Do not exceed total 1 gram in 4 hours

Pain Management

- 1 gram IV/IO infusion over at least 15 minutes
- Mild to moderate pain: 1 gram PO

Fever

- 500 - 1000 mg, PO **OR**
- 1 gram IV/IO over 15 minutes if contraindication to PO medications

Amiodarone (Cordarone)

Indications:

- 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/IO push.
- Repeat dose of 150 mg IV/IO push for recurrent episodes.

Tachycardia

Wide complex tachycardia

- 150 mg over 10 min.
- May repeat once in 10 minutes.
- If successful, consider maintenance infusion of 1 mg/minute.

Aspirin

Indications:

- An anti-platelet drug for use in cardiac chest pain.

Contraindications:

- History of anaphylaxis to aspirin or NSAIDs
- Active GI bleeding

Acute Coronary Syndrome

- If patient has not taken Aspirin within 24 hours and is able to swallow; administer 324 mg PO (chewable).
- If patient has taken Aspirin within 24 hours, supplement.

CT Adult Medication Reference

Atropine

Anticholinergic

Indications:

- Bradycardia
- Organophosphate poisoning
- Cholinergic nerve agent exposure

Contraindications:

- Allergy
- Cease administration if atropine toxicity is observed (tachycardia, dry/hot skin, etc.)

Bradycardia

- 1 mg IV/IO every 3 – 5 minutes up to maximum of 3 mg.

Organophosphate Poisoning and Nerve Agent

- 2 mg IM or IV/IO; double dose and repeat every 5 minutes (i.e. 4 mg, then 8mg, etc.) until out of atropine or bronchorrhea ceases.

Atropine and Pralidoxime Auto-Injector (DuoDote)

Nerve Agent Kit

Indications:

- Antidote for Nerve Agents or Organophosphate Overdose.

Nerve Agents

- Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer 3 DuoDote and 1 atropine (10 mg) auto-injectors.
- Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer 1 DuoDote.
- Maintenance Dose: 1 DuoDote every 3 hours.

Buprenorphine

Indications:

- Suspected opioid overdose with naloxone reversal.
- COWS 5+

Contraindications:

- Under 18 years old
- Altered mental status
- Severe medical illness
- Pregnancy
- Methadone use within 10 days

Poisoning/Overdose 2.20A

- 16 mg SL

Calcium Chloride

10% solution

Indications:

- Moderate to severe hyperkalemia
- Calcium channel blocker (CCB) overdose.

Caution:

Risk of tissue damage with extravasation - Ensure IV/IO patency

Bradycardia with suspected hyperkalemia or CCB OD

- 1 gm IV/IO over 5-10 minutes

Cardiac arrest with suspected hyperkalemia

- 1 gm IV/IO

Hyperkalemia

- 1 gm IV/IO over 5 minutes, ensure IV/IO patency; May repeat once after 5 minutes.

CT Adult Medication Reference

Calcium Gluconate **Indications:** • Moderate to severe hyperkalemia • Calcium channel blocker (CCB) overdose. **Contraindications:** • Allergy	**Bradycardia with suspected calcium channel blocker OD** • 2 gm IV/IO over 5 minutes, with constant cardiac monitoring **Cardiac arrest with suspected hyperkalemia** • 3 gm IV/IO **Hyperkalemia** • 3 gm IV/IO over 5 minutes; May repeat once after 5 minutes.
Cefazolin (Ancef) **Indications:** • Open extremity fracture (indicated by visible bone) • Amputation proximal to the hand or foot • Major soft tissue injury **Contraindications:** • Known penicillin or cefazolin allergy • Life threats not yet addressed • Patient contact duration too short	**Prophylaxis for Open Fracture or Major Open Wounds:** • If ≥ 39 kg, 2 grams IV/IO over 1-2 minutes • If < 39 kg, 50 mg/kg IV/IO over 1-2 minutes; round dose to nearest 100 mg

CT Adult Medication Reference

Dexamethasone **Indications:** • Asthma/Croup	**Asthma – Adult** • 10 mg IV/IO or by mouth
Dextrose **Indications:** • Symptomatic hypoglycemia.	**Diabetic Emergencies** • Administer Dextrose 10% IV/IO via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater then 60 mg/dL or to a maximum of 25 grams (250mL).
Diazepam (Valium) **Benzodiazepine** **Indications:** • Seizure control • Sedation • Anxiolytic • Alcohol withdrawal • Post-intubation sedation **Contraindications:** • Allergy	**Alcohol Withdrawal** • 5-10 mg IV/IO (preferred) or IM/IN; may repeat once in 5 minutes **Bradycardia – Transcutaneous Pacing** • 2 mg IV/IO, may repeat once in 5 minutes **CPAP / Bilevel PAP** • Consider administering anxiolytic: • 5 mg IV/IO(then 2.5 mg every 5 minutes to a total of 20 mg) **Nerve Agent** • 5 mg IV/IO every 5 minutes; or 10 mg IM **OR** • Diazepam auto-injector (10 mg); Repeat every 10 minutes as needed **Poisoning/Overdose/Substance Use Disorder** • 2 mg IV/IO, may repeat once in 5 minutes, **OR** • 5 mg IM, may repeat once in 20 minutes **Seizure** • 5-10 mg IV/IO (then 2.5 mg every 5 minutes to a total of 20 mg). • Assist caregiver with rectal gel as prescribed **Restraints** • 2 mg IV/IO, may repeat once in 5 minutes, **OR** • 5 mg IM, may repeat once in 20 minutes **Tachycardia - Cardioversion** • 2 mg IV/IO, may repeat once in 5 minutes **Traumatic Brain Injury** • 2 mg IV/IO, may repeat once in 5 minutes **Behavioral Emergencies - Anxiety** • 2.5 mg IV/IO • May repeat once in 10 minutes
Diltiazem (Cardizem) **Indications:** • Calcium channel blocker used to treat narrow complex SVT. **Contraindications:** • Patients with heart block, ventricular tachycardia, WPW with atrial fibrillation, and/or acute MI.	**Tachycardia** **Narrow Complex Tachycardia** • 10 mg IV/IO over at least 2 minutes • May repeat dose in 10 minutes to max of 30 mg • Consider maintenance infusion 5 – 15 mg/hour

CT Adult Medication Reference

Diphenhydramine (Benadryl)

Antihistamine

Indications:

- Allergic reaction.
- With epinephrine for anaphylaxis
- Antidote for dystonic reaction/akathisia
- Antiemetic

Contraindications:

- Allergy

Allergic Reaction/Anaphylaxis

- 25-50 mg IV/IO/IM/PO.

Dystonia/Akathisia as it appears in **Behavioral Emergencies, Nausea/Vomiting, Pain Management** and **Poisoning/ Overdose/Substance Use Disorder protocols**

- 25-50 mg IV/IO Or 50 IM

Pain Management - Migraines receiving prochlorperazine

- 25-50 mg IV/IO/IM

Nausea/Vomiting

- 12.5-25 mg IV/IO/IM
- May repeat once in 10 minutes if nausea/vomiting persists

Droperidol

Antipsychotic / Antiemetic

Indications:

- Agitation/combativeness (off-label)
- Antiemetic

Contraindications:

- Allergy
- Do not use if known or suspected prolonged QTc intervals >500 ms
- Avoid use in patients who are already on psychotropic medications which may precipitate serotonin syndrome, malignant hyperthermia or prolong QTc
- Use with caution in known home medication use of anti-arrhythmic, Parkinson's medications, or methadone

Nausea/Vomiting

- 0.625 – 1.25 mg slow IV push over 1-2 minutes or IM
- May repeat once in 10 minutes if nausea/vomiting persists

Restraint

- Agitation / combative behavior 2.5 mg slow IV/IO or 5 mg IM
- May repeat once in 10 minutes
- May be given in conjunction with a benzodiazepine

Epinephrine 1 mg/ml (1:1,000)

Adrenergic agonist

Indications:

- Severe Asthma and COPD exacerbation
- Anaphylaxis
- Bradycardia refractory to atropine and/or TCP
- Fluid refractory shock (Septic, anaphylactic, post-resuscitative, cardiogenic)
- Stridor at rest (nebulized)

Contraindications:

- Allergy

Allergic Reaction/Anaphylaxis

- 0.3 mg IM; May repeat every 5 minutes until signs & symptoms resolve.

Refractory Anaphylaxis/Septic Shock/Bradycardia/Post-Resuscitative Care/Cardiogenic Shock

- Epinephrine infusion 2-10 micrograms/minute.

Asthma/COPD/RAD

- 0.3 mg IM

Smoke Inhalation & Airway Management – stridor at rest

- 5 mg nebulized (no repeat).

CT Adult Medication Reference

Epinephrine 0.1 mg/ml (1:10,000)	**Cardiac Arrest** • 1 mg IV. ▪ Repeat every 3 – 5 minutes.
Etomidate (Amidate) **Indications:** • Sedative used in Rapid Sequence Intubation.	**Rapid Sequence Intubation** • 0.3 mg/kg IV/IO (maximum 30 mg).
Fentanyl (Sublimaze) **Opioid analgesic** **Indications:** • Moderate to severe pain • Post-intubation analgesia **Contraindications:** • Allergy • Use cautiously if BP < 100 mmHg.	**Acute Coronary Syndrome** • 1 microgram/kg (up to 100 micrograms) IV/IO; may repeat every five minutes to a max dose of 300 micrograms. **Pain Management** • 1 microgram/kg IV/IO/IM/IN (single max dose of 100 microgram); May repeat every 5 minutes to a total of 300 micrograms, titrated to pain relief. **Post Intubation analgesia** • 100 mcg, slow IV/IO, may repeat every 5 - 10 minutes as needed
Famotidine (Pepcid) **Indications:** • Treatment of urticaria	**Anaphylaxis/Allergic Reaction** • 20 mg/IV/IO

CT Adult Medication Reference

Glucagon
Indications:
• Converts glycogen to glucose in the liver to increase blood sugar
• Use in patients with no IV/IO 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 <60 mg/dL with continued altered mental status.
	Bradycardia
	• 5 mg IV/IO over 3 – 5 minutes.

Glucose Oral Solutions **Indications:** • Use in conscious hypoglycemic states.	**Diabetic Emergencies** • Administer 1 tube of commercially prepared glucose gel or equivalent.
Haloperidol (Haldol) **Antipsychotic** **Indications:** • Extreme agitation/combativeness • Suspected extreme agitation/combativeness • Ineffective control of agitated patient after benzodiazepines • Antiemetic **Contraindications:** • Allergy • Administer haloperidol with caution to patients who are already on psychotropic medications which may precipitate serotonin syndrome or malignant hyperthermia.	**Restraints** • In conjunction with benzodiazepine, haloperidol 10 mg IM. **Nausea/Vomiting** • 0.5 - 2 mg IV/IO or IM • May repeat once in 10 minutes if nausea/vomiting persists
Hydrocortisone (Solu-Cortef)	**Adrenal Insufficiency** • 100 mg IV/IO/IM.
Hydromorphone (Dilaudid) **Opioid analgesic** **Indications:** • Moderate to severe pain • Post-intubation analgesia **Contraindications:** • Allergy	**Pain Management** • 0.5-1 mg IV/IO, every 5 minutes to a total 4 mg titrated to pain relief. **Post Intubation analgesia** • 0.5-1 mg slow IV/IO.
Hydroxocobalamin (Cyanokit)	**Smoke Inhalation** • Via use of Cyanokit

CT Adult Medication Reference

Ibuprofen (Advil)

Non-steroidal anti-inflammatory
Non-opioid analgesic

Indications:

- Mild to moderate pain

Contraindications:

- Allergy
- Pregnancy
- Renal insufficiency
- Peptic ulcer
- Potential for bleeding/likely to need surgery
- Undifferentiated abdominal pain
- Potential for bleeding/likely to need surgery
- Suspected fractures

Pain Management

- 400 mg PO; Do not combine with other NSAID.

Fever

- 400 mg PO; Do not combine with other NSAID.

Ipratropium Bromide (Atrovent)

Indications:

- 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 (DuoNeb).
  - May repeat every 5 minutes (3 doses total).

Ketamine

Indications:

- Extreme agitation/combativeness
- Suspected extreme agitation/combativeness
- Ineffective control of agitated patient after benzodiazepines
- Moderate to severe pain
- Sedative used in Rapid Sequence Intubation
- Post-intubation analgesia
- Post-intubation sedation

Contraindications:

- Allergy

Precaution

Use with caution in patients who present in a shock state due to concerns of myocardial depression

Restraints - Dosing - Actual Body Weight

- 4 mg/kg IM (round to nearest 50mg), max single dose 500 mg; may administer additional 100 mg IM in 5-10 minutes.
- 1 mg/kg IV/IO over 2 minutes; may administer additional 0.5-1 mg/kg IV/IO in 5 minutes (max total 2 mg/kg).

Pain Management - Dosing - IBW - See Ref. Chart

- Ketamine 0.2 mg/kg IV/IO (Max 20mg/dose; Dilute dose in at least 10 mL; Syringe push over 2-3 minutes or infusion), may repeat once in 10 minutes if indicated
- Ketamine 0.3 mg/kg IM (Max 30 mg/dose, may repeat once in 10 minutes if indicated)

Rapid Sequence Intubation - Dosing IBW - See Ref. Chart

- 2 mg/kg IV/IO

Post Advanced Airway Analgesia and Sedation - Dosing IBW - See Ref. Chart

- Ketamine 1 mg/kg ideal body weight (IBW) IV/IO, repeat every 5-15 minutes as needed

CT Adult Medication Reference

Ketorolac (Toradol) **Non-steroidal anti-inflammatory** **Non-opioid analgesic** **Indications:** • Moderate to severe pain **Contraindications:** • Allergy • Pregnancy • Renal insufficiency • Peptic ulcer • Potential for bleeding/likely to need surgery • Undifferentiated abdominal pain • Potential for bleeding/likely to need surgery • Suspected fractures	**Pain Management** • 15 mg IV/IO/IM; Do not combine with other NSAID
Levalbuterol (Xopenex)	**Asthma/COPD/RAD** • 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total).

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

CT Adult Medication Reference

Lorazepam (Ativan)

Benzodiazepine

Indications:

- Seizure control
- Sedation
- Anxiolytic
- Alcohol withdrawal
- Post-intubation sedation

Contraindications:

- Allergy

Alcohol Withdrawal

- 1-2 mg IV/IO(preferred) or IM/IN; may repeat once in 5 minutes

Behavioral Emergencies - Anxiety

- 0.5 mg IV/IO
- May repeat once in 10 minutes

Bradycardia – Transcutaneous Pacing

- 1 mg IV/IO, may repeat once in 5 minutes **OR**
- 2 mg IM, may repeat once in 10 minutes.

CPAP / Bilevel PAP

- 0.5-1 mg IV/IO/IM; may repeat once in 5 minutes or,
- 1-2 mg IM may repeat once in 10 minutes

Nerve Agent

- 1 mg IV/IO, may repeat once in 5 minutes **OR**
- 2 mg IM, may repeat once in 10 minutes.

Poisoning/Overdose/Substance Use Disorder

- 1 mg IV/IO, may repeat once in 5 minutes **OR**
- 2 mg IM, may repeat once in 20 minutes.

Post Intubation Sedation

- 1-2 mg IV/IO every 15 minutes as needed (maximum 10mg)

Restraints

2 mg IM, may repeat once in 5 minutes; or 1 mg IV/IO, may repeat once in 5 minutes

Seizure

- >39 kg: 4 mg IV/IO/IM every 5 minutes to a total of 8 mg
- ≤39 kg: 2 mg IV/IO/IM every 5 minutes to a total of 8 mg

Tachycardia - Cardioversion

- 1 mg IV/IO, may repeat once in 5 minutes **OR**
- 2 mg IM, may repeat once in 10 minutes.

Traumatic Brain Injury

- 1 mg IV/IO, may repeat once in 5 minutes **OR**
- 2 mg IM, may repeat once in 5 minutes.

Magnesium Sulfate

Indications:

- 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 100ml NS given IV/IO over 10 minutes.

Seizures

- Magnesium sulfate, 4 grams IV/IO bolus over 10 minutes, then consider 1 gram/hr continuous infusion.

Cardiac Arrest/Tachycardia – Torsades de Pointes.

- 1 – 2 grams IV/IO over 5 minutes.

Methylprednisolone (Solu-medrol)

Indications:

- Steroid used in respiratory distress to reverse inflammatory and allergic reactions.

Adrenal Insufficiency

- 125 mg IV/IO/IM

Asthma/COPD/RAD

- 125 mg IV/IO.

CT Adult Medication Reference

Metoclopramide (Reglan) **Anti-emetic** **Indications:** • Nausea and/or vomiting (anti-emetic) • Migraine (diagnosed history and symptoms consistent with previous migraines) **Contraindications:** • Allergy	**Nausea/Vomiting** • 5 - 10 mg IM, or 5 - 10 mg IV/IO over 15 minute infusion. Repeat at 10 minutes after infusion complete. **Pain Management - Migraine** • 10 mg IV/IO infusion over 15 minutes or 10 mg IM
Metoprolol (Lopressor) **Beta Blocker** **Indications:** • Termination of AV nodal re-entry arrhythmia • Rate control in narrow complex tachycardia with an irregular rhythm **Contraindications:** • Atrial fibrillation with Wolff-Parkinson-White Syndrome	**Tachycardia** • 5 mg IV/IO over 2 – 5 minutes. • May repeat every five minutes to a maximum of 15 mg as needed to achieve a ventricular rate of <110

CT Adult Medication Reference

Midazolam (Versed)
Benzodiazepine

Indications:
- Seizure control.
- Sedation
- Anxiolytic
- Alcohol withdrawal
- Management of emergence reaction (ketamine)

Contraindications:
- Allergy

Alcohol Withdrawal
- 2.5 mg IV/IO (preferred); may repeat once in 5 minutes OR
- 5 mg IM/IN; may repeat once in 10 minutes

Behavioral Emergencies - Anxiety
- 2 mg IV/IO or 5 mg IM/IN
- May repeat once in 10 minutes

Bradycardia – Transcutaneous Pacing
- 2.5 mg IV/IO/IN may repeat once in 5 minutes **OR**
- 5 mg IM; may repeat once in 10 minutes.

CPAP / Bilevel PAP
- 2.5 mg IV/IO/IN; may repeat once in 5 minutes **OR**
- 5 mg IM; may repeat once in 10 minutes.

Emergence Reaction from Ketamine
- 2.5 mg IV/IO/IM
- 5 mg IM; may repeat once in 10 minutes.

Nerve Agent
- 2.5 mg IV/IO/IN; may repeat once in 5 minutes **OR**
- 5 mg IM; may repeat once in 10 minutes.

Poisoning/Overdose/Substance Use Disorder
- 2.5 mg IV/IO/IN; may repeat once in 5 minutes **OR**
- 5 mg IM; may repeat once in 20 minutes.

Post Intubation Sedation
- 2 – 5 mg IV/IO; may repeat every 5 – 10 minutes as needed.

Rapid Sequence Intubation
- 0.2 mg/kg IV/IO; 0.1mg/kg IV/IO for patients in shock.

Seizure
- If >39 kg, 10 mg IM (preferred route) every 10 minutes or 5 mg IV/IO/IN every 5 minutes
- If ≤39 kg, 5 mg IM (preferred route) every 10 minutes or 5 mg IV/IO/IN every 5 minutes

Restraints
- 5 mg IM, may repeat once in 5 minutes; **OR**
- 2.5 mg IV/IO/IN, may repeat once in 5 minutes

Tachycardia
- 2.5 mg IV/IO/IN may repeat once in 5 minutes **OR**
- 5 mg IM may repeat once in 10 minutes.

Traumatic Brain Injury
- 2.5 mg IV/IO/IN may repeat once in 5 minutes **OR**
- 5 mg IM may repeat once in 10 minutes.

Morphine Sulfate
Opioid analgesic

Indications:
- Moderate to severe pain

Contraindications
- Allergy
- BP < 100 mmHg.
- Patient with non-opioid directive

Pain Management
- 0.1 mg/kg IV/IO/IM (single max dose of 10 mg); May repeat every 5 minutes to a total of 20 mg, titrated to pain relief and if systolic BP is >100 mmHg.

Acute Coronary Syndrome
- 0.1 mg/kg IV/IO/IM (up to 5 mg); May repeat every 5 minutes to a maximum of 15 mg titrated to pain as long as systolic BP remains >100 mmHg.

CT Adult Medication Reference

Naloxone
Opioid Antagonist

Indications:

- Opioid overdose with respiratory depression

Contraindications:

- Allergy
- Neonate Age <1 month

Pain Management

For iatrogenic opiate overdose, administer lowest dose to maintain oxygenation. If ventilation is effective, start with naloxone 0.04 mg IV/IO or ≤0.5 mg IM/IN. Titrate naloxone doses up to 2 mg (max total 10 mg) as needed.

Poisoning/Overdose/Substance Use Disorder

- 2 - 4 mg IN **OR** through the use of auto-injector.
- 0.04 - 2 mg IV/IO/IM

If no response, may repeat every 3 - 5 minutes to a total of 10 mg.

Nitroglycerin

Indications:

- Vasodilator used in the treatment of chest pain secondary to acute coronary syndrome and CHF.

Acute Coronary Syndrome

- Facilitate administration of the patient's own nitroglycerin every 3-5 minutes while symptoms persist and systolic BP remains >100mmHg, 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.
  - Increase IV/IO nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic remains >100 mmHg.
- If IV/IO nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally.

Congestive Heart Failure

- Consider nitroglycerin 0.4 mg SL every 5 minutes while symptoms persist and if the systolic BP is >100 mmHg.
- IV/IO nitroglycerin 50 micrograms/minute, increase by 50 micrograms/minute every 3 – 5 minutes (it is recommended two (2) IV/IO lines should be in place). (Generally, accepted maximum dose: 400 micrograms/minute.) **OR**
  - Nitroglycerin paste 1" – 2" transdermally.

Norepinephrine (Levophed)

Indications:

- Alpha and Beta 1 receptor adrenergic receptor agonist vasopressor.

Post Resuscitation Care

- Infusion 1-30 microgram/minute titrated to effect must be given via pump or IV/IO flow regulating device.

Septic Shock

- Infusion 1-30 microgram/minute titrated to effect must be given via pump or IV/IO flow regulating device.

Cardiogenic Shock

- Norepinephrine Infusion 1-30 microgram/minute

CT Adult Medication Reference

Ondansetron (Zofran) **Indications:** • Anti-Emetic used to control nausea and/or vomiting.	**Nausea/Vomiting** • 4 mg by mouth (ODT) or IV/IO/IM.
Oxygen **Indications:** • 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% (90% for patients with COPD history) • High flow rate may be used as an adjunct prior to advanced airway placement.	• 1-6 liters/min via nasal cannula. • 10-15 liters/min via NRB mask. • 15 liters / min or higher via BVM / ETT / supraglottic airway.
Phenylephrine (Neo-Synephrine) **Indications**: • Hypotension in the peri-intubation period when using rapid sequence intubation. **Contraindications:** • Hypersensitivity, Ventricular tachycardia Onset: One minute Duration: 10-20 minutes	**Rapid Sequence Intubation** • 50 – 200 micrograms slow IV push every 2-5 minutes as needed for hypotension o Note: Assure appropriate volume resuscitation and other indicated treatments for hypotension. Formulation: • Prefilled syringe or vial supplied as 50-100 micrograms/mL concentration that allows IV/IO administration without requiring dilution
Pralidoxime (2-PAM) **Indications:** • Antidote for Nerve Agents or Organophosphate Overdose. • Administered with Atropine.	**Nerve Agent** • 1 – 2 gram over 30 – 60 minutes. • **Medical Control:** Maintenance infusion: up to 500 mg per hour (maximum of 12 grams/day).
Procainamide **Indications:** • Treatment of wide complex tachycardia.	**Wide Complex Tachycardia** • 25-50 mg/minute infusion until arrhythmia is suppressed, hypotension ensues, QRS duration increases by > 50% or the maximum dose of 17 mg/kg is given.
Prochlorperazine (Compazine) Anti-emetic **Indications**: • Nausea and/or vomiting (anti-emetic) • Migraine (diagnosed history and symptoms consistent with previous migraines). **Contraindications:** • Allergy	**Nausea/Vomiting** • 5 – 10 mg IV/IO, or 5 mg IM; may repeat once after 10 minutes if nausea/vomiting persists. **Pain Management - Migraine** • 10 mg IV/IO infusion over 15 minutes or 10 mg IM.
Proparacaine (Alcaine) **Indications:** • Topical anesthetic	**Eye & Dental** • 2 drops to affected eye; repeat every 5 minutes as needed up to 5 doses.

CT Adult Medication Reference

Rocuronium

Indications:

- Non-depolarizing paralytic agent used as a component of rapid sequence intubation, when succinylcholine is contraindicated and for post intubation paralysis.
- Onset of action is longer than succinylcholine, up to 3 minutes, patient will NOT defasciculate.

Rapid Sequence Intubation

- 1 mg/kg IV/IO.

Sodium Bicarbonate

Indications:

- A buffer used in acidosis to increase the pH in Cardiac Arrest.
- Sodium Channel Blocker Overdose to increase the sodium gradient across the cell membrane.

Poisoning/Overdose/Substance Use Disorder

Tricyclic with symptomatic dysrhythmias, (eg. tachycardia and wide QRS):

- 2 mEq/kg IV/IO.

Cardiac Arrest

- 2 meq/kg IV/IO.

Succinylcholine

Paralytic Agent

Indications:

- Paralytic Agent used as a component of rapid sequence intubation.

Contraindications:

- 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

- 1.5 mg/kg IV/IO immediately after sedation (maximum 200 mg).

Tetracaine

Indications:

- Topical anesthetic

Eye & Dental

- 2 drops to affected eye; repeat every 5 minutes as needed.

Tranexamic Acid (TXA)

Indications:

- Evidence of significant trauma AND
- Evidence of severe bleeding
- The presence of hemodynamic instability **AND**
- The injury occurred within the past 3 hours

Contraindications:

- Patients <15 years old
- Known allergy to TXA
- Isolated head injury
- Pregnancy with a fetus of viable gestational age

Hemorrhage Control

- Mix 2 grams in 10mL (200mg/mL) IV/IO syringe bolus over at least 1 minute

Shock – Trauma

- Consider tranexamic acid see, **Hemorrhage Control Protocol 4.10**

CT Pediatric Color Coded Medication Reference

v2025.1

Weight 3-5 Kg (Avg 4.0 Kg)

Length < 59.5

Gray (0-3 months)

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

Equipment
Cuffed ET Tube: 2.0-3.0
Uncuffed ET Tube: 2.5-3.5
Blade Size: 0 - 1

Defibrillation
Defibrillation: 8 J, 15 J, 24 J, 32 J
Cardioversion: 2 J, 4 J

Normal Saline 80 ml

Acetaminophen	HOLD
Adenosine:	
1st Dose-	0.4 mg
Repeat Dose-	0.8 mg
Albuterol	2.5 mg
Amiodarone	20 mg
Atropine- Bradycardia	0.08 mg
- Organophosphate Poison	0.2 mg
Calcium Chloride	81 mg
Calcium Gluconate	240 mg
Dextrose 10%	20 ml
Diazepam (IV/IO)	0.4 mg
Diphenhydramine	4 mg
Droperidol	HOLD
Epinephrine 0.1mg/ml (1:10000)	0.04 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.04 mg
Epinephrine Infusion	0.4-2 micrograms/min
Fentanyl	4 microgram
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	8 mg
Hydroxocobalamin	See Protocol
Ibuprofen	HOLD
Ipratropium w/ albuterol	500 microgram
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	4 mg
- Intraosseous	2 mg
Lorazepam	0.4 mg
Magnesium Sulfate	
- RAD	160 mg
- Torsades	200 mg
Methylprednisolone	8 mg
Midazolam IV/IO	0.4 mg
Morphine Sulfate	0.4 mg
Naloxone	0.4 mg
Norepinephrine	0.4-2 micrograms/min
Ondansetron - IV/IO	0.6 mg
- ODT	4 mg
Pralidoxime IV/IO	200 mg
- Infusion	80 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	8 mEq
Tetracaine	2 drops

Weight 6-7 Kg (Avg 6.5 Kg)

Length 59.5-66.5

Pink (3-6 Months)

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

Equipment
Cuffed ET Tube: 3.0
Uncuffed ET Tube: 3.5
Blade Size: 1

Defibrillation
Defibrillation: 10 J, 20 J, 30 J, 50 J
Cardioversion: 2 J, 5 J

Normal Saline 130 ml

Acetaminophen	97.5 mg
Adenosine:	
1st Dose-	0.65 mg
Repeat Dose-	1.3 mg
Albuterol	2.5 mg
Amiodarone	32.5 mg
Atropine- Bradycardia	0.13 mg
- Organophosphate Poison	0.32 mg
Calcium Chloride	130 mg
Calcium Gluconate	390 mg
Dextrose 10%	35 ml
Diazepam (IV/IO)	.65 mg
Diphenhydramine	6.5 mg
Droperidol	HOLD
Epinephrine 0.1mg/ml (1:10000)	0.065 mg
Epinephrine 1mg/ml (1:1000) Nebulize	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.065 mg
Epinephrine Infusion	0.7-3.3 micrograms/min
Fentanyl	6.5 micrograms
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	13 mg
Hydroxocobalamin	See Protocol
Ibuprofen	HOLD
Ipratropium w/ albuterol	500 microgram
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	6.5 mg
- Intraosseous	3.25 mg
Lorazepam	0.65 mg
Magnesium Sulfate	
- RAD	260 mg
- Torsades	325 mg
Methylprednisolone	13.0 mg
Midazolam	0.65 mg
Morphine Sulfate	0.65 mg
Naloxone	0.65 mg
Norepinephrine	0.7-3.3 micrograms/min
Ondansetron - IV/IO	0.975 mg
- ODT	4 mg
Pralidoxime IV/IO	325 mg
- Infusion	130 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	13 mEq
Tetracaine	2 drops

ToC

Weight 8-9 Kg (Avg 8.5 Kg)

Length 66.5-74

Red (7-10 Months)

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

Equipment
Cuffed ET Tube: 3.0-3.5
Uncuffed ET Tube: 3.5-4.0
Blade Size: 1

Defibrillation
Defibrillation: 20 J, 40 J, 50 J, 70 J
Cardioversion: 5 J, 9 J

Normal Saline 170 ml

Acetaminophen	127.5 mg
Adenosine:	
1st Dose-	0.85 mg
Repeat Dose-	1.7 mg
Albuterol	2.5 mg
Amiodarone	42.5 mg
Atropine- Bradycardia	0.17 mg
- Organophosphate Poison	0.42 mg
Calcium Chloride	172 mg
Calcium Gluconate	510 mg
Dextrose 10%	43 mL
Diazepam (IV/IO)	0.85 mg
Diphenhydramine	8.5 mg
Droperidol	HOLD
Epinephrine 0.1mg/ml (1:10000)	0.085 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.85 mg
Epinephrine Infusion	0.9-4.3 micrograms/min
Fentanyl	8.5 micrograms
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	17 mg
Hydroxocobalamin	See Protocol
Ibuprofen	80 mg
Ipratropium w/ albuterol	500 micrograms
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	8.5 mg
- Intraosseous	4.25 mg
Lorazepam	0.85 mg
Magnesium Sulfate	
- RAD	340 mg
- Torsades	425 mg
Methylprednisolone	17.0 mg
Midazolam	0.85 mg
Morphine Sulfate	0.85 mg
Naloxone	0.85 mg
Norepinephrine	0.9-4.3 micrograms/min
Ondansetron - IV/IO	1.275 mg
- ODT	4 mg
Pralidoxime IV/IO	425 mg
- Infusion	210 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	17 mEq
Tetracaine	2 drops

Appendix 2

CT Pediatric Color Coded Medication Reference

v2025.1

Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

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

Equipment
Cuffed ET Tube: 3.5
Uncuffed ET Tube: 4.0
Blade Size: 1

Defibrillation
Defibrillation: 20 J, 40 J, 60 J, 80 J
Cardioversion: 5 J, 10 J

Normal Saline 210 ml

Acetaminophen	157.5 mg
Adenosine:	
1st Dose-	1.05 mg
Repeat Dose-	2.1 mg
Albuterol	2.5 mg
Amiodarone	52.5 mg
Atropine- Bradycardia	0.17 mg
- Organophosphate Poison	0.52 mg
Calcium Chloride	210 mg
Calcium Gluconate	630 mg
Dextrose 10%	50 ml
Diazepam (IV/IO)	1.05 mg
Diphenhydramine	10.5 mg
Droperidol	HOLD
Epinephrine 0.1mg/ml (1:10000)	0.105 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.105 mg
Epinephrine Infusion	1.1-5.3 micrograms/min
Fentanyl	10.5 micrograms
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	21 mg
Hydroxocobalamin	See Protocol
Ibuprofen	100 mg
Ipratropium w/ albuterol	500 micrograms
Levalbuterol	0.63mg
Lidocaine:	
- Cardiac Arrest	10.5 mg
- Intraosseous	5.25 mg
Lorazepam	1.05 mg
Magnesium Sulfate	
- RAD	420 mg
- Torsades	525 mg
Methylprednisolone	21 mg
Midazolam	1.05 mg
Morphine Sulfate	1.05 mg
Naloxone	1.05 mg
Norepinephrine	1.1-5.3 micrograms/min
Ondansetron - IV/IO	1.575 mg
- ODT	4 mg
Pralidoxime IV/IO	525 mg
- Infusion	210 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	21 mEq
Tetracaine	2 drops

Purple (11-18 Months)

Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

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

Equipment
Cuffed ET Tube: 4.0
Uncuffed ET Tube: 4.5
Blade Size: 2

Defibrillation
Defibrillation: 30 J, 50 J, 80 J, 100 J
Cardioversion: 6 J, 15 J

Normal Saline 260 ml

Acetaminophen	195 mg
Adenosine:	
1st Dose-	1.3mg
Repeat Dose-	2.6 mg
Albuterol	2.5 mg
Amiodarone	65 mg
Atropine- Bradycardia	0.26 mg
- Organophosphate Poison	0.65 mg
Calcium Chloride	259 mg
Calcium Gluconate	780 mg
Dextrose 10%	60-80 ml
Diazepam (IV/IO)	1.3 mg
Diphenhydramine	13 mg
Droperidol	0.625 mg
Epinephrine 0.1mg/ml (1:10000)	0.13 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.13 mg
Epinephrine Infusion	1.3-6.5 micrograms/min
Fentanyl	13 micrograms
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	26 mg
Hydroxocobalamin	See Protocol
Ibuprofen	120 mg
Ipratropium w/albuterol	500 micrograms
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	13 mg
- Intraosseous	6.5 mg
Lorazepam	1.3 mg
Magnesium Sulfate	
- RAD	520 mg
- Torsades	650 mg
Methylprednisolone	26 mg
Midazolam	1.3 mg
Morphine Sulfate	1.3 mg
Naloxone	1.3 mg
Norepinephrine	1.3-6.5 micrograms/min
Ondansetron - IV/IO	1.95 mg
- ODT	4 mg
Pralidoxime IV/IO	650 mg
- Infusion	260 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	26 mEq
Tetracaine	2 drops

Yellow (19-35 Months)

ToC

Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

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

Equipment
Cuffed ET Tube: 4.5
Uncuffed ET Tube: 5.0
Blade Size: 2

Defibrillation
Defibrillation: 30 J, 70 J, 100 J, 130 J
Cardioversion: 8 J, 15 J

Normal Saline 330 ml

Acetaminophen	247.5 mg
Adenosine:	
1st Dose-	1.65 mg
Repeat Dose-	3.3 mg
Albuterol	2.5 mg
Amiodarone	82.5 mg
Atropine- Bradycardia	0.33 mg
- Organophosphate Poison	0.82 mg
Calcium Chloride	330 mg
Calcium Gluconate	990 mg
Dextrose 10%	80 ml
Diazepam (IV/IO)	1.65 mg
Diphenhydramine	16.5
Droperidol	0.625 mg
Epinephrine 0.1mg/ml (1:10000)	0.165 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.165 mg
Epinephrine Infusion	1.7-8.3 micrograms/min
Fentanyl	16.5 micrograms
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	33 mg
Hydroxocobalamin	See Protocol
Ibuprofen	160 mg
Ipratropium w/ albuterol	500 microgram
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	16.5 mg
- Intraosseous	8.25 mg
Lorazepam Magnesium Sulfate	1.65 mg
- RAD	660 mg
- Torsades	825 mg
Methylprednisolone	33 mg
Midazolam	1.65 mg
Morphine Sulfate	1.65 mg
Naloxone	1.65 mg
Norepinephrine	1.7-8.3 micrograms/min
Ondansetron - IV/IO	2.475 mg
- ODT	4 mg
Pralidoxime IV/IO	825 mg
- Infusion	330 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	33 mEq
Tetracaine	2 drops

White (3-4 yrs)

CT Pediatric Color Coded Medication Reference

v2025.1

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
Cuffed ET Tube: 5.0
Uncuffed ET Tube: 5.5
Blade Size: 2

Defibrillation
Defibrillation: 40 J, 85 J, 120 J, 170 J
Cardioversion: 10 J, 20 J

Normal Saline 410 ml

Acetaminophen	311.25 mg
Adenosine:	
1st Dose-	2.075 mg
Repeat Dose-	4.15 mg
Albuterol	2.5 mg

Amiodarone	103.75 mg
Atropine- Bradycardia	0.41 mg
- Organophosphate Poison	1.0 mg
Calcium Chloride	416 mg
Calcium Gluconate	1245 mg
Dextrose 10%	100 ml
Diazepam (IV/IO)	2.0 mg
Diphenhydramine)	20 mg
Droperidol	0.625 mg
Epinephrine 0.1mg/ml (1:10000)	0.2075 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.2075 mg
Epinephrine Infusion	2.1-10.4 micrograms/min
Fentanyl	20 micrograms
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	41.5 mg
Hydroxocobalamin	See Protocol
Ibuprofen	200 mg

Ipratropium w/ albuterol	500 micrograms
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	20.75 mg
- Intraosseous	10.375 mg
Lorazepam	2.0 mg
Magnesium Sulfate	
- RAD	830 mg
- Torsades	1037.5 mg
Methylprednisolone	41.5 mg
Midazolam	2.0 mg
Morphine Sulfate	2.0 mg
Naloxone	2 mg
Norepinephrine	2.1-10.4 micrograms/min
Ondansetron - IV/IO	3.113 mg
- ODT	4 mg
Pralidoxime IV/IO	1037 mg
- Infusion	415 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	41.5 mEq
Tetracaine	2 drops

Blue (5-6 yrs)

Weight 24-28 Kg (Avg 27 Kg)

Length 122-137 cm

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

Equipment
Cuffed ET Tube: 5.5
Uncuffed ET Tube: 6.0
Blade Size: 2-3

Defibrillation
Defibrillation: 50 J, 100 J, 160 J, 220 J
Cardioversion: 15 J, 30 J

Normal Saline 540 ml

Acetaminophen	405 mg
Adenosine:	
1st Dose-	2.7 mg
Repeat Dose-	5.4 mg
Albuterol	2.5 mg

Amiodarone	135 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.3 mg
Calcium Chloride	540 mg
Calcium Gluconate	1620 mg
Dextrose 10%	135 ml
Diazepam (IV/IO)	2.7 mg
Diphenhydramine	27 mg
Droperidol	0.625 mg
Epinephrine 0.1mg/ml (1:10000)	0.27 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.27 mg
Epinephrine Infusion	2.7-13.5 micrograms/min
Fentanyl	27 micrograms
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	54 mg
Hydroxocobalamin	See Protocol
Ibuprofen	280 mg

Ipratropium w/ albuterol	500 micrograms
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	27 mg
- Intraosseous	13.5 mg
Lorazepam	2.7 mg
Magnesium Sulfate	
- RAD	1080 mg
- Torsades	1350 mg
Methylprednisolone	54 mg
Midazolam	2.7 mg
Morphine Sulfate	2.7 mg
Naloxone	2 mg
Norepinephrine	2.7-13.5 micrograms/min
Ondansetron - IV/IO	4.0 mg
- ODT	4 mg
Pralidoxime IV/IO	1350 mg
- Infusion	540 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	54 mEq
Tetracaine	2 drops

Orange (7-9 yrs)

ToC

Weight 30-36 Kg (Avg 33 Kg)

Length 137-150 cm

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

Equipment
Cuffed ET Tube: 6.0
Uncuffed ET Tube: 6.5
Blade Size: 3

Defibrillation
Defibrillation: 60 J, 150 J, 200 J, 260 J
Cardioversion: 15 J, 30 J

Normal Saline 720 ml

Acetaminophen	540 mg
Adenosine:	
1st Dose-	3.3 mg
Repeat Dose-	6.6 mg
Albuterol	2.5 mg

Amiodarone	165 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.8 mg
Calcium Chloride	718 mg
Calcium Gluconate	1980 mg
Dextrose 10%	180 ml
Diazepam (IV/IO)	3.3 mg
Diphenhydramine	33 mg
Droperidol	0.625 mg
Epinephrine 0.1mg/ml (1:10000)	0.33 mg
Epinephrine 1mg/ml (1:1000) Nebulized	5 mg
Epinephrine 1mg/ml (1:1000) IM	0.33 mg
Epinephrine Infusion	3.3-16.5 micrograms/min
Fentanyl	33 micrograms
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	66 mg
Hydroxocobalamin	See Protocol
Ibuprofen	360 mg

Ipratropium w/ albuterol	500 micrograms
Levalbuterol	0.63 mg
Lidocaine:	
- Cardiac Arrest	36 mg
- Intraosseous	18 mg
Lorazepam	3.3 mg
Magnesium Sulfate	
- RAD	1320 mg
- Torsades	1650 mg
Methylprednisolone	66 mg
Midazolam	3.6 mg
Morphine Sulfate	3.6 mg
Naloxone	2 mg
Norepinephrine	3.3-16.5 micrograms/min
Ondansetron - IV/IO	4.0mg
- ODT	4 mg
Pralidoxime IV/IO	1650 mg
- Infusion	720 mg/hr
Proparacaine	2 drops
Sodium Bicarbonate	66 mEq
Tetracaine	2 drops

Green(10-12 yrs)

Appendix 2

Adult and Pediatric Scope of Practice

Airway - Ventilation - Oxygenation

Skill	EMR	EMT	AEMT	Paramedic
Airway - nasal	✓	✓	✓	✓
Airway - oral	✓	✓	✓	✓
Airway - supraglottic		*^	✓	✓
Airway Obstruction -direct laryngoscopy				✓
Airway Obstruction - manual maneuvers	✓	✓	✓	✓
Bag-valve-mask (BVM)	✓	✓	✓	✓
Bilevel Positive Airway Pressure			*	✓
Chest decompression - needle				✓
Chest tube - monitoring and management				*
Chest tube placement - assist only				*
CPAP		*	✓	✓
Cricothyrotomy				✓
End tidal CO2 w/waveform capnography		*	✓	✓
Endotracheal intubation				✓
Gastric decompression - NG or OG tube				✓
Head tilt - chin lift	✓	✓	✓	✓
Jaw-thrust	✓	✓	✓	✓
Mouth-to-barrier	✓	✓	✓	✓
Mouth-to-mask	✓	✓	✓	✓
Mouth-to-mouth	✓	✓	✓	✓
Mouth-to-nose	✓	✓	✓	✓
Mouth-to-stoma	✓	✓	✓	✓
Oxygen therapy - High flow nasal cannula				✓
Oxygen therapy - Humidifiers		✓	✓	✓
Oxygen therapy - Nasal cannula	✓	✓	✓	✓
Oxygen therapy - Non-rebreather mask	✓	✓	✓	✓
Oxygen therapy - partial rebreather mask		✓	✓	✓
Oxygen therapy - simple face mask		✓	✓	✓
Oxygen therapy - Venturi mask		✓	✓	✓
Pulse oximetry		✓	✓	✓
Suctioning - tracheobronchial of an intubated patient		*	✓	✓
Suctioning - upper airway	✓	✓	✓	✓

*Subject to sponsor hospital approval

^EMTs limited to only laryngeal mask supraglottic airways (both inflatable and non inflatable cuff devices)

Adult and Pediatric Scope of Practice

Cardiovascular – Circulation

Skill	EMR	EMT	AEMT	Paramedic
Cardiac monitoring 12-lead acquisition & interpretation				✓
Cardiac monitoring 12-lead acquisition & transmission		✱	✱	✓
Cardiac monitoring – 3 or 4 lead				✓
Cardioversion - electrical				✓
CPR	✓	✓	✓	✓
Defibrillation - AED	✓	✓	✓	✓
Defibrillation - Manual				✓
Hemorrhage control - Direct Pressure	✓	✓	✓	✓
Hemorrhage control - Tourniquet	✓	✓	✓	✓
Hemorrhage control - Wound packing	✓	✓	✓	✓
Mechanical CPR Device		✓	✓	✓
Telemetric monitoring devices and transmission of clinical data		✓	✓	✓
Transcutaneous pacing				✓
Transvenous pacing - monitor and maintain				✱
Vagal maneuvers				✓

✱ *Subject to sponsor hospital approval.*

Splinting – Spinal Motion Restriction – Patient Restraint

Skill	EMR	EMT	AEMT	Paramedic
Cervical collar		✓	✓	✓
Emergency moves for endangered patients	✓	✓	✓	✓
Extremity splinting		✓	✓	✓
Extremity stabilization - Manual	✓	✓	✓	✓
Long spine board		✓	✓	✓
Manual cervical stabilization	✓	✓	✓	✓
Mechanical patient restraint		✓	✓	✓
Pelvic binder		✓	✓	✓
Seated SMR (KED)		✓	✓	✓
Splint - traction		✓	✓	✓

✱ *Subject to sponsor hospital approval.*

Adult and Pediatric Scope of Practice

Medication Administration – Routes

Skill	EMR	EMT	AEMT	Paramedic
Aerosolized/nebulized			✓	✓
Endotracheal tube				✓
Intradermal				✓
Intramuscular *EMR limited to naloxone* *EMT limited to naloxone and epinephrine*	✱	✱	✓	✓
Intramuscular – auto-injector	✱	✓	✓	✓
Intranasal *EMR limited to naloxone*	✓	✓	✓	✓
Intranasal - unit-dosed, premeasured	✓	✓	✓	✓
Intraosseous – initiation, peds or adult			✓	✓
Intravenous (including IV pumps)			✓	✓
Mucosal/Sublingual		✓	✓	✓
Nasogastric				✓
Oral		✓	✓	✓
Rectal (*EMT/AEMT limited to patient's own diazepam*)		✓	✓	✓
Subcutaneous			✓	✓
Topical				✓
Transdermal				✓

Medical Director Approved Medications

Skill	EMR	EMT	AEMT	Paramedic
Antidote auto-injector	✓	✓	✓	✓
Epinephrine auto-injector	✓	✓	✓	✓
Immunizations			✱	✱
Inhaled beta agonist/anticholinergic			✓	✓
Patient's own metered dose inhaler		✓	✓	✓
Intranasal opioid antagonist	✱	✱	✓	✓
Intravenous			✓	✓
Blood / blood products				✱
Opioid antagonist auto-injector	✱	✱	✓	✓
Oral and topical OTC meds				✓
Oral aspirin for chest pain		✓	✓	✓
Oral glucose for hypoglycemia		✓	✓	✓
Parenteral analgesia for pain			✓	✓
Patient's own sublingual nitroglycerin		✓	✓	✓
Sublingual nitroglycerin			✓	✓
Thrombolytic				✓

✱ *Subject to sponsor hospital approval.*

Adult and Pediatric Scope of Practice

IV Initiation – Maintenance Fluids

Skill	EMR	EMT	AEMT	Paramedic
Access indwelling catheters & central IV ports				✱
Central line monitoring				✱
IO – initiation, peds or adult			✓	✓
IV - maintenance of medicated IV fluids				✓
IV - maintenance of non-medicated IV fluids			✓	✓
IV access			✓	✓
IV initiation - peripheral			✓	✓
IV pumps				✓

Skills - Miscellaneous

Skill	EMR	EMT	AEMT	Paramedic
Assisted complicated delivery		✓	✓	✓
Assisted delivery (childbirth)	✓	✓	✓	✓
Blood chemistry analysis				✓
Blood glucose monitoring		✱	✓	✓
Blood pressure automated		✓	✓	✓
Blood pressure manual	✓	✓	✓	✓
Eye irrigation	✓	✓	✓	✓
Eye irrigation hands free (Morgan)				✓
Ultrasound – Point of care				✱
Venous blood sampling			✓	✓

✱ *Subject to sponsor hospital approval.*

ToC

Termination of Resuscitation Checklist

Resuscitation may be stopped under any of the following circumstances:

- The physical environment becomes unsafe for providers
- EMS providers too exhausted to continue
- Extrication is prolonged (>15 minutes) with no resuscitation possible during extrication (hypothermia is an exception)
- A valid DNR or MOLST order for the patient is identified
- Patient is belatedly identified to have all five “signs of death” and at least one “factor of death”

Paramedics may consider terminating resuscitation on standing order if all of the following are met:

- □ High quality CPR for at least 20 minutes
- □ Effective ventilation
- □ ETCO2 <10 mmHg
- □ IV/IO access with clinically appropriate fluid bolus
- □ Medications administered as indicated
- □ Hs & Ts considered and treated as appropriate
- □ Not a VAD patient
- □ No environmental hypothermia
- □ Clinical death exam - IMMEDIATELY prior to termination of resuscitation/presumption of death, perform assessment of at least 30 seconds for pulse, respiration, heart tones and ECG observation.
  - o Unresponsive/no motor effort
  - o Apnea with no agonal breaths
  - o Absence of palpable pulses at carotid, radial, and femoral sites
  - o Absence of heart sounds
  - o Unresponsive pupils
  - o Poor ECG activity (asystole or wide and slow PEA <20)
- □ All on scene agree with termination of resuscitation and presumption of death

In all other circumstances, Direct Medical Oversight must be consulted for possible orders to terminate resuscitation.

General EMS Guidance during COVID-19

COVID-19 Dispatch Modification for First Responders

- In an effort to reduce the exposure of emergency medical first responders, many of whom are relied upon for providing critical law enforcement and fire protection to the community, dispatch practices for first responders may be altered from what you are used to. Please be aware of how resources are being dispatched in your area of operations.

Patient at Risk for COVID-19

- When treating a patient who may be at risk for COVID-19, minimize the number of responders making patient contact and providing direct care as needed. Consider limiting the initial number of personnel entering the scene (area of patient contact) to one unless the situation dictates more (e.g. cardiac arrest).
- When first responders and the transporting ambulance arrive at the same time, the patient contact should be made by a transporting crew member unless the first responder is of a higher certification. Additional personnel should only enter when needed for care or extrication as requested by the primary responder.
- Screen all patients for COVID-19 (observing 6 feet separation during initial phase), use appropriate PPE, and place a surgical mask on any patient who screens positive for COVID-19 symptoms.
- Patient care should never be delayed if imminent risk cannot be ruled out and/or life-saving care is needed that can be provided by the first responder (CPR, hemorrhage control, etc.).
- If a patient at risk for COVID-19 is refusing transport (and for this subset of EMS patients only) EMS may dispense with obtaining a signature as part of an informed patient refusal. In these cases, document the patient's verbal informed refusal (and any witnesses present) to avoid unnecessary close contact with the patient. Urge these patients to contact their local public health authority and primary care for further guidance.

ToC

If COVID-19 is suspected, EMS providers should use all personal protective equipment (PPE), as follows:

- Facemask
  - A surgical mask is acceptable when not performing aerosol generating procedures and there is a shortage of N-95 respirators.
  - N-95 respirators or respirators that offer a higher level of protection should be used when performing or present for an aerosol-generating procedure.
- Eye protection (i.e., goggles or disposable face shield that fully covers the front and sides of the face).
  - Personal eyeglasses and contact lenses are NOT considered adequate eye protection.
- A single pair of disposable patient examination gloves. Change gloves if they become torn or heavily contaminated and,
- Isolation Gown
  - When in limited supply, gowns should be prioritized for aerosol generating procedures, and care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of EMS personnel (e.g., moving patient onto a stretcher).

Protocol Continues

General EMS Guidance during COVID-19

Protocol Continued

- Properly doff PPE, clean and disinfect equipment, and dispose of material according to agency protocol/policy.
- When supply and ability to re-supply is adequate fit-tested EMS personnel should return to use of respirators for patients with known or suspected COVID-19.
- If a patient at risk of COVID-19 is ambulatory and his or her clinical condition allows, it is acceptable to permit the patient to walk to the ambulance. Utilizing a stair chair or stretcher for a well appearing, ambulatory patient who is at risk of COVID-19 may unnecessarily place EMS personnel in close proximity to the patient.

Guidance Regarding Aerosol-Generating Procedures in Patients with Known or Suspected COVID-19

- Aerosol generating procedures are interventions performed on patients that can generate infectious aerosols. Nebulized medications, CPAP/Bi-Level PAP BVM, intubation, alternate airway placement, suctioning, CPR, etc are all aerosol-generating procedures.
- When possible, please attempt to avoid these procedures unless considered essential to treat a life-threatening illness (severe asthma not responding to other interventions, BVM in a patient not ventilating adequately, CPR needed in a pulseless patient, etc).
- EMS may (if patient condition allows) defer CPAP/Bi-Level PAP, respiratory therapies or other aerosol generating procedures to the receiving hospital to reduce exposure risk.
- Please consider the use of less invasive modalities if feasible – e.g. use of a supraglottic airway instead of endotracheal intubation; use of video laryngoscopy instead of direct laryngoscopy.
- The amended asthma protocols permit metered dose inhaler (MDI) use in place of nebulizers, and it is acceptable to do so for all patients during this period. Parenteral therapy (e.g. intramuscular epinephrine) may be necessary for the safer treatment of severe bronchospasm. If any questions, please discuss individual cases with direct medical oversight.
- As with EVERY patient encounter, make attempts to minimize the number of providers that must be within 6 feet of the patient.
- When necessary to use these modalities, ensure all providers within proximity to the patient are wearing appropriate PPE - eye protection (goggles or face shield), gown, gloves, and an N95 mask.
- Please **DISCONTINUE** aerosol producing procedures (i.e. nebulizers or CPAP/Bi-Level PAP) **PRIOR TO ENTERING** an Emergency Department. This is critical to avoid unnecessary exposure to others.
- If NOT POSSIBLE to discontinue the procedure, please alert the receiving facility to this situation.
- If available, consider use of high-efficiency filters in-line with CPAP/Bi-Level PAP and on BVM exhalation ports to reduce aerosol release. Keep in mind that leaks in the BVM/CPAP mask seal may still release aerosolized infectious fluid. Filters should be of a design consistent for this intended use (e.g. inline filter for ventilator circuit). Test for fit and function prior to patient use. Carefully monitor CPAP pressure and ETCO2 to assure proper function is maintained with introduction of an in-line filter. **This step may reduce aerosol release but does not take the place of appropriate PPE including an N95 with droplet/contact precautions.**

ToC

Protocol Continues

General EMS Guidance during COVID-19

Protocol Continued

Recommendations regarding PPE:

- Surgical masks can be used and reused throughout a shift unless soiled, damaged, or exposed to person of concern.
- While relying on a surgical mask as PPE it is important to place a surgical mask or oxygen face mask (if clinically indicated) on any patient that has clinical concern for COVID-19
- N95 masks can be used until soiled, damaged, or exposed to a person of concern. This could mean multiple - shift use for a single N95 mask. Keep your N95 mask in a paper bag in between uses.
- Face shields may be reused after appropriate cleaning and disinfection. Adhere to recommended manufacturer instructions.

  When manufacturer instructions for cleaning and disinfection are unavailable (such as for single use disposable face shields) consider:

  1. While wearing gloves, carefully wipe the inside, followed by the outside of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaner wipe.
  2. Carefully wipe the outside of the face shield or goggles using a wipe or clean cloth saturated with EPA-registered hospital disinfectant solution.
  3. Wipe the outside of face shield or goggles with clean water or alcohol to remove residue.
  4. Fully dry (air dry or use clean absorbent towels).

- Remove gloves and perform hand hygiene.

Helpful Links:

- https://www.cdc.gov/covid/hcp/infection-control/guidance-risk-assesment-hcp.html?CDC_AAref_Val=https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.thml
- https://www.cdc.gov/covid/hcp/infection-control/index.html

2.5A Asthma, COPD, RAD - Adult (Modified COVID-19 Pandemic Protocol)

- A modified protocol will be utilized during the COVID-19 State of Emergency to limit the use of aerosol-generating procedures (AGPs) such as nebulizers and CPAP/Bi-Level PAP. This is due to the associated higher risk of disease transmission to personnel in the immediate area of AGPs.
- **Nebulized medications and CPAP should be reserved for patients in moderate to severe respiratory distress who are non-responsive to, or ineligible for, non-AGP treatments (i.e. MDI, IM epinephrine, etc.)**
- If a nebulizer/CPAP/Bi-Level PAP/AGP must be used, personnel should utilize both airborne and droplet precautions including an N95 mask, gloves, gown, face shield and appropriately fitting goggles.
- Services may consider administration of nebulized medication while on scene outdoors or with ambulance doors open (if environment and circumstances permit).
- If necessary to administer an AGP in the ambulance, utilize exhaust fan and close the connection to the driver's compartment.
- EMS agencies unable to obtain MDI medications may administer the patient's own inhaler.
- **Temporarily discontinue nebulized medication and CPAP/Bi-Level PAP during the move from ambulance to hospital room.**

ALL LISTED TREATMENTS ARE AUTHORIZED ON STANDING ORDER UNLESS OTHERWISE SPECIFIED. AEMT and paramedic treatment is inclusive of all prior treatment options.

EMT STANDING ORDERS

E

- Routine Patient Care.
- Administer oxygen as needed to maintain O2 saturation of 94% to 99% (≥90% for COPD patients).
- Administer patient's metered dose inhaler (MDI)*: 4 - 6 puffs, via spacer if available; Repeat every 5 minutes as needed.
- For impending respiratory failure, if available with sponsor hospital training and approval consider:
  - CPAP, See CPAP 5.2 Protocol [***HIGH-RISK AGP***]

ADVANCED EMT STANDING ORDERS

****If operating under 2007 National Scope of Practice**

A

- Consider administering MDI* 4-6 puffs, via spacer if available; May repeat every 5 minutes as needed.
- For moderate/severe symptoms not responding to MDI (if available) contact DMO for possible orders:
  - 0.3 mg (0.3 ml) Epinephrine** IM (1mg/ml or 1:1,000), lateral thigh preferred
- Consider nebulized albuterol 2.5 mg & ipratropium bromide 0.5 mg ('DuoNeb') [***HIGH-RISK AGP***]
  - Consider repeat 'DuoNeb' every 5 minutes (3 doses total). [***HIGH-RISK AGP***]
- Consider nebulized albuterol 2.5 mg every 5 minutes, as needed [***HIGH-RISK AGP**]

Protocol Continues

2.5A Asthma, COPD, RAD - Adult (Modified COVID-19 Pandemic Protocol)

Protocol Continued

PARAMEDIC STANDING ORDERS

P

- Consider Bi-Level Positive Airway Pressure, See 5.2.1 Protocol.
- Consider administering MDI*: 4-6 puffs, via spacer if available; May repeat every 5 minutes as needed.
- If 60 years old or younger, no history of cardiac disease and with moderate/severe symptoms, consider prior to nebulized medication:
  - 0.3 mg (0.3 ml) Epinephrine** IM (1 mg/ml or 1:1,000), lateral thigh preferred
- If age greater than 60 years or history of cardiac disease, consider MDI or nebulized bronchodilator prior to epinephrine.
  - For patients who do not respond to nebulizer/MDI or, for impending respiratory failure, consider: 0.3 mg (0.3 ml) Epinephrine IM (1 mg/ml or 1:1,000), lateral thigh preferred.
- For severe distress after administration of IM Epinephrine, MDI or nebulized beta agonist, consider: Magnesium sulfate, 2 grams in 100ml NS given IV/IO over 10 minutes.
- Consider Levalbuterol 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total). [***HIGH-RISK AGP***]
- For exacerbation COPD or Asthma, consider;
  - Dexamethasone 10 mg IV/IO or by mouth OR
  - Methylprednisolone 125 mg IV/IO

ToC

* MDI must contain either albuterol, levalbuterol, or a combination of albuterol/ipratropium bromide.

**With sponsor hospital approval: MDIs containing terbutaline may be administered; paramedics may substitute terbutaline 0.25mg IM or SC in place of epinephrine

PEARLS:

- Be certain of diagnosis when considering epinephrine. The use of epinephrine in patients with known cardiac disease may increase cardiac complications.
- 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 the external stimulation.
- Beware of patients with a “silent chest” as this may indicate severe bronchospasm and impending respiratory failure.

2.5P Asthma/Bronchiolitis/Croup - Pediatric (Modified COVID-19 Pandemic Protocol)

Refer to explanatory guidance at beginning of Appendix 4 2.5A - Adult Asthma

ASTHMA, BRONCHIOLITIS, CROUP – EMT STANDING ORDERS

E

- Routine Patient Care.
- If breathing is adequate, administer oxygen as needed to maintain O2 saturation of 94% to 99%; increase the oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure.
- Administer patient's metered dose inhaler (MDI)*: 4 - 6 puffs, via spacer if available; Repeat every 5 minutes as needed
- For patients ≤ 2 who present with increased work of breathing and rhinorrhea, provide nasal suctioning with saline drops and bulb syringe.[*** HIGH-RISK AGP***]

Wheezing ≥ 2 years or history of asthma — YES → **A**

NO

ASTHMA – ADVANCED EMT STANDING ORDERS

If operating under 2009 National Scope of Practice

A

- Consider administering MDI*: 4-6 puffs, via spacer if available; Repeat every 5 minutes as needed
- For moderate/severe symptoms not responding to MDI (if available) and no history of cardiac disease, consider: 0.01 mg/kg (0.01 ml/kg) Epinephrine IM (1 mg/ml or 1:1,000 concentration). Maximum dose <25kg is 0.15 mg or >25 kg is 0.3 mg.
- Consider nebulized albuterol 2.5 mg & ipratropium bromide 0.5 mg ('DuoNeb'); may repeat every 5 minutes (max 3 doses total) [*** HIGH-RISK AGP***]
  Consider nebulized albuterol 2.5 mg every 5 minutes, as needed. [*** HIGH-RISK AGP***]
- For patients who do not respond to treatments, or for impending respiratory failure, consider: CPAP, See CPAP 5.2 Protocol. [*** HIGH-RISK AGP***]

ASTHMA – PARAMEDIC STANDING ORDERS

P

- For severe distress after administration of IM Epinephrine, MDI or nebulized beta agonist, consider Magnesium sulfate 40 mg/kg in 100 ml normal saline IV/IO over 20 minutes.
- Consider:
  - Dexamethasone 0.6 mg/kg PO/IM/IV (PO preferred), maximum 10 mg OR
  - Methylprednisolone 2 mg/kg IV/IO/IM, maximum 125 mg

Wheezing < 2 years old — YES → **P**

NO

BRONCHIOLITIS – PARAMEDIC STANDING ORDERS

P

- Provide appropriate supportive care including supplemental oxygen, suctioning, hydration and ventilatory support if indicated

History of stridor or barky cough — YES → **P**

CROUP – PARAMEDIC STANDING ORDERS

P

Consider:

- Dexamethasone 0.6 mg/kg by mouth or IM/IV/IO (by mouth preferred) maximum 10 mg Croup with stridor at rest, consider:
- Nebulized racemic epinephrine 0.5 ml of 2.25% (11.25 mg) with 3 mL 0.9% NaCl **OR** Nebulized epinephrine, 5 mg of 1 mg/ml (1:1,000). [*** HIGH-RISK AGP***]

* MDI must contain either albuterol, levalbuterol, or a combination of albuterol/ ipratropium bromide Child with a "silent chest" may have severe bronchospasm with impending respiratory failure.

PEARLS:

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

Appendix 4 - COVID-19 Update

COVID-19

Emergency Medical Services Non-Transport Guidance

Purpose:

We are actively monitoring the spread and community impact of the novel coronavirus, COVID-19 on local Emergency Medical Services and Emergency Department resources. We propose a policy to identify and advise patients with suspected COVID-19 infections who activate the EMS system who do not require transport to the hospital.

When is this policy enacted?

This is NOT a standing protocol, but may be enacted by local EMS agency Medical Direction when significant strain is recognized within the EMS or hospital system. Such strain may manifest as lack of staff or lack of resources including when:

-Hospitals are exceeding maximum census

-Hospitals and stand-alone emergency departments are experiencing significant overcrowding

-Hospitals have enacted surge plans, i.e. alternative care sites

-There is a significant shortage of available transport-capable EMS units

Systems implementing this protocol are encouraged to have a mechanism in place for timely, post-encounter follow-up (telehealth or in-person) with patients who are not transported, including opportunities to connect patients with outpatient clinical resources when indicated. When possible, patients who are at high risk of progressing to severe COVID19 disease should be identified and prioritized for follow-up and outpatient referral (if applicable).

Background:

COVID-19 infections in the community have the potential to overwhelm both pre-hospital and in-hospital resources. Transport of well-appearing patients, in the absence of available treatment options, will both take resources away from critically ill patients, and unnecessarily expose additional people to infection. As such, we propose a non-transport policy to allow EMS personnel to screen and advise patients who can safely remain at home.

COVID-19

Emergency Medical Services Non-Transport Guidance

For patients with suspected COVID-19 infection

Don appropriate PPE prior to patient contact,
Minimize number of providers having contact and maintain social distancing as able.

Does the patient have symptoms consistent with COVID-19?

Fever
Cough
Shortness of breath
Other symptoms including: fatigue, myalgias, sore throat, anosmia (loss of smell)

NO → Follow normal treatment protocols.

YES ↓

Are the patient's vital signs within the following limits?

HR <100
RR <20 and >8
BP >100 Systolic
O2 Saturation >94% (ambulatory)

NO → Follow normal treatment protocols.

YES ↓

Does the patient meet any of the following exclusions?

- Red flag or worrying symptoms:
  - Chest pain, if age >35 years
  - Altered mental status
  - Seizure
  - Respiratory distress or exhaustion
  - Rapidly worsening symptoms
  - Significant wheezes, rales, or rhonchi
  - Unstable or unwell appearing based on the judgement of the EMS provider
- Patients with underlying comorbidities including:
  - Transplant, HIV, Sickle Cell Disease or other immunocompromising conditions
  - Patients receiving chemotherapy or other immunosuppressive medications
- Patient can not tolerate PO
- Patient does not agree to non-transport
- Patient does not have medical decision-making capacity.

YES → NO ↓

Consider Non-Transport

- Evaluate the patient's appropriateness for home care including:
  - Other caregivers at home
  - A separate room where the patient can recover
  - Access to food and other necessities
  - Medically fragile people in the home
- Consider 211, local public health, or other services as available
- Provide the patient with information on COVID-19:
  - CDC handout: "What to do if I'm Sick"
  - Number for the local public health department
  - Local COVID-19 Hotline
- Encourage the patient to call their PCP (or OB/GYN if pregnant)
- Maintain a record of patients who are not transported including basic demographics and assessment
- EMS should contact local direct medical oversight with questions

Connecticut Emergency Medical Services
COVID-19 Patient Non-Transport Form

Provider: _____ *Report Date:* _____

Incident/Call Number _____ *Ambulance Service:* _____

Patient Information

Last name: _____ First name: _____ MI: _____

DOB: _____ Last 4 of SSN: _____

Street Address: _____

City/Town: _____ State: _____ Zip Code: _____

Phone Number: _____ Gender: _____

Race/Ethnicity (check all that apply): ☐ Asian ☐ Native American/Alaska Native ☐ Black/African American ☐ White ☐ Native Hawaiian/Pacific Islander ☐ Unknown ☐ Other:_____

PCP: _____ PCP Phone Number: _____

Clinical Screening

Is patient a healthcare provider? ☐ Y ☐ N ☐ Unk *Recent travel hx, if yes, where?* _____

Contact with known COVID-19 Patient? ☐ Y ☐ N ☐ Unk *Date of Symptom Onset:*_____ _____

Presenting Vital Signs: BP: _____ RR: _____ HR:_____ SPO2: _____

Does the Patient Have COVID-19 Symptoms?

Fever
Shortness of breath
Myalgias
Cough
Fatigue
Sore throat
Others: _____

Are the Patient's Vital Signs Within the Following Limits?

BP >100 Systolic
HR<100 BPM
RR >8 and <20
SPO2 >94% Ambulatory

Does the Patient Meet any of the Following Exclusions to Non-Transport?

-Chest pain, if age >35 years
-Altered mental status
-Respiratory distress/failure
-Rapidly Worsening Symptoms
-Significant wheezes/ronchi/rales
-Patient cannot tolerate PO
-Patient does not agree to non-transport
-Unstable/unwell in provider's judgment
-Significant comorbidities including
  -HIV
  -Transplant patient
  -Sickle Cell Disease
  -Other immunocompromising conditions
-Patients receiving chemotherapy or other immunosuppressive medication

Consider Non-Transport:

Evaluate the patient's appropriateness for home care:
-Other caregivers at home
-A separate room where the patient can recover
-Access to food/water/other necessities
-Medically fragile people in the home?

Provide resources:
-211, local public health, other resources as available
-Information on COVID-19 including:
  -CDC handout "What to do if I'm sick"
  -Local COVID hotline

Encourage the patient to call their PCP or OB/GYN (if pregnant)

EMS should direct questions to local direct medical oversight or their Medical Director

Ideal Body Weight Chart

Ideal Body Weight Chart Female	
Height in Ft/In	Wt.
5.0	48kg
5.1	49kg
5.2	50kg
5.3	52kg
5.4	55kg
5.5	57kg
5.6	59kg
5.7	62kg
5.8	64kg
5.9	66kg
5.10	69kg
5.11	71kg
6.0	73kg
6.1	75kg
6.2	78kg
6.3	80kg
6.4	82kg
6.5	85kg
6.6	87kg
6.7	89kg
6.8	92kg
6.9	94kg

Ideal Body Weight Chart Male	
Height in Ft/In	Wt.
5.0	52kg
5.1	53kg
5.2	55kg
5.3	57kg
5.4	59kg
5.5	62kg
5.6	64kg
5.7	66kg
5.8	68kg
5.9	70kg
5.10	73kg
5.11	75kg
6.0	78kg
6.1	80kg
6.2	82kg
6.3	85kg
6.4	87kg
6.5	89kg
6.6	91kg
6.7	94kg
6.8	96kg
6.9	98kg

OPIOID SURVIVOR ALGORITHM

v2025.1

ASSESS OPIOID WITHDRAWAL SYMPTOMS

Objective Signs:	Subjective Symptoms:
-Tachycardia	-Nausea
-Diaphoresis	-Stomach/Abdominal cramps
-Restlessness/Agitation	-Body Aches
-Dilated Pupils	-Achy Bones/Joints
-Rhinorrhea or Lacrimation	-Restlessness
-Vomiting	-Hot and Cold
-Yawning	-Nasal Congestion
-Piloerection	

SIGNS OR SYMPTOMS PRESENT

ASSESS FOR EXCLUSION CRITERIA

-Under 18 Years of Age
-Pregnant
-Any Methadone Use within the last 10 days
-AMS/Unable to give consent
-Severe Medical Illness
-Current Opioid Intoxication and/or physical signs of Opioid impairment. (Drowsiness, Nodding off, Respiratory Depression)
- Intoxication or recent use of Benzos or Alcohol
-Unable to Comprehend Risks and benefits
-Not a buprenorphine candidate for any other reason

YES

Not eligible for prehospital treatment

NO

COWS EQUAL TO OR GREATER THAN 5

NO

YES

Received Naloxone

NO

-Provide Supportive treatment and counseling
-Assess patient interest in buprenorphine

Patient agrees to treatment.

Patient Denies Treatment

- Offer Referral to Local Recovery Services
- Provide Reference and Education Materials

1. Assure moist mucus membranes (give water if needed)
2. Administer 16 mg buprenorphine Sublingually
3. Reassess after 10 minutes

IF SYMPTOMS IMPROVE

IF SYMPTOMS WORSEN OR PERSIST

1. Re-dose with 8 mg buprenorphine Sublingually
2. Total **Max dose 24 mg Sublingually per encounter**

1.) Recommend Transport
2.) Verify Demographic information
3.) Inform patient that local recovery services will initiate contact within 24 hours to offer additional resources and treatment

PATIENT AGREES TO TRANSPORT

PATIENT DECLINES TRANSPORT

-Provide Narcan "Leave Behind" Kit
-Provide Reference Materials
-Contact Program Administrator to facilitate MD Follow-up with any treat with non-transport

Appendix 6

COWS

CLINICAL OPIATE WITHDRAWAL SCALE

For each item, circle the number that best describes the patient's signs or symptom. Rate on just the apparent relationship to opiate withdrawal. For example, if heart rate is increased because the patient was jogging just prior to assesment, the increase pulse rate would not add to the score.

Resting Pulse Rate: beats / minute

Measured after patient is sitting or lying for one minute

- (0) *pulse rate 80 or below*
- (1) *pulse 81 to 100*
- (2) *pulse 101 to 120*
- (4) *pulse rate greate than 120*

GI Upset:

over last 1/2 hour

- (0) *no GI symptoms*
- (1) *stomach cramps*
- (2) *nausea or loose stool*
- (3) *vomiting or diarrhea*
- (5) *multiple episodes of diarrhea or vomiting*

Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.*

- (0) *no report of chills or flushing*
- (1) *subjective report of chills or flushing*
- (2) *flushed or observable moistness on face*
- (3) *beads of sweat on brow or face*
- (4) *sweat streaming off face*

Tremor:

Observation of outstretched hands

- (0) *no tremor*
- (1) *tremor can be felt, but not observed*
- (2) *slight tremor observable*
- (4) *gross tremor or muscle twitching*

Restlessness:

Observation during assessment

- (0) *able to sit still*
- (1) *reports difficulty sitting still, but is able to do so*
- (3) *frequent shifting or extraneous movements of legs/arms*
- (5) *unable to sit still for more than a few seconds*

Yawning:

Observation during assessment

- (0) *no yawning*
- (1) *yawning once or twice during assessment*
- (2) *yawning three or more times during assessment*
- (4) *yawning several times/minute*

Pupil size:

- (0) *pupils pinned or normal size for room light*
- (1) *pupils possibly larger than normal for room light*
- (2) *pupils moderately dilated*
- (5) *pupils so dilated that only the rim of the iris is visible*

Anxiety or Irritability:

Measured after patient is sitting or lying for one minute

- (0) *none*
- (1) *patient reports increasing irritability or anxiousness*
- (2) *patient obviously irritable or anxious*
- (4) *patient so irritable or anxious that participation in the assessment is difficult*

Bone or Joint aches:

If the patien was having pain previously, only the additinal component attributed to opiates withdrawal is scored

- (0) *not present*
- (1) *mild diffuse discomfort*
- (2) *patient reports severe diffuse aching of joints/muscles*
- (4) *patient is rubbing joints or muscles and is unable to sit still because of discomfort*

Gooseflesh skin:

- (0) *skin is smooth*
- (3) *piloerrection of skin can be felt or hairs standing up on arms*
- (5) *prominent piloerrection*

Runny nose or tearing:

Not acounted for by cold symptoms or allergies

- (0) *not present*
- (1) *nasal stuffiness or unusually moist eyes*
- (2) *nose running or tearing*
- (4) *nose constantly running or tears streaming down cheeks*

Total Score:

The total score is the sum of all 11 items

Initials of person completing assessment:

Score: 5- 12 = ***mild;*** 13-24 = ***moderate;***
25-36 = ***moderately severe;***
more than 36 = ***severe withdrawal***

Appendix 6

Thank you to all Connecticut EMS providers for your commitment and dedication to patient care, and to improving the EMS system in the state!

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