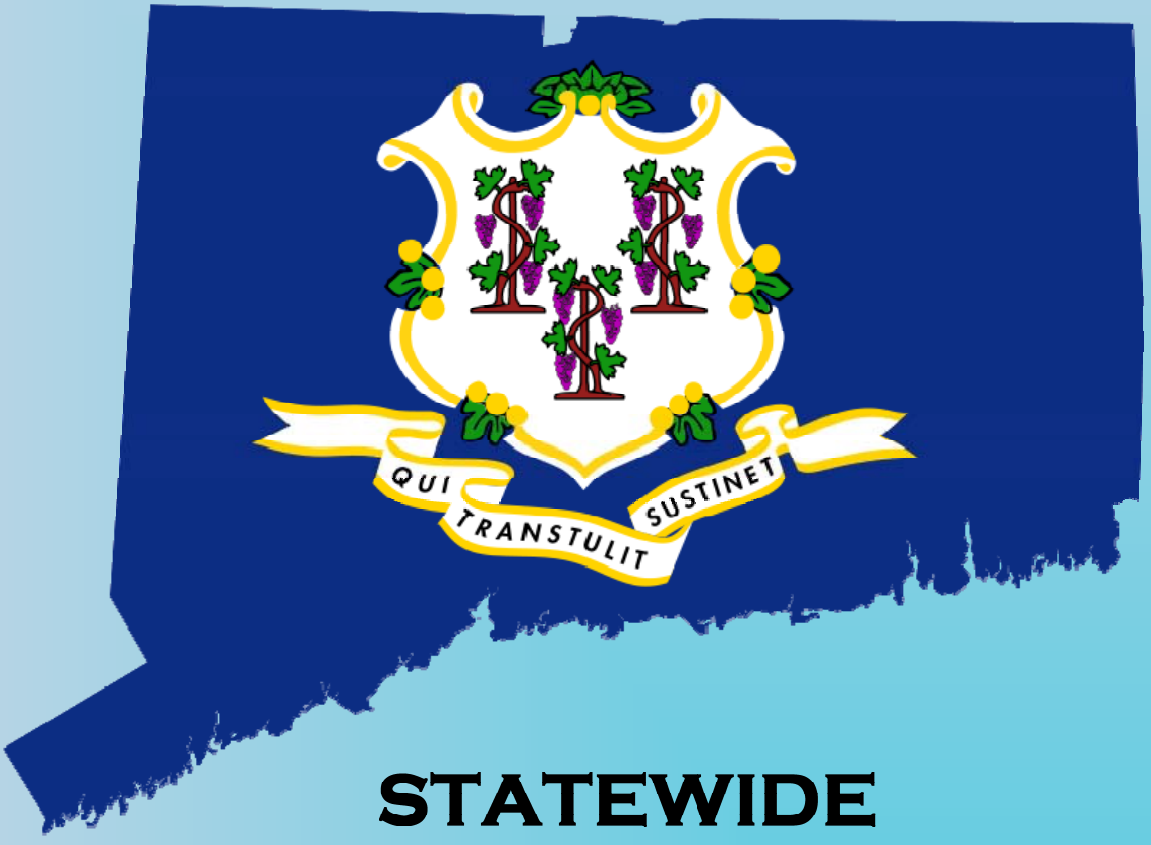
# CONNECTICUT




# STATEWIDE EMERGENCY MEDICAL SERVICES PROTOCOLS

v2016.1

DPH Keeping Connecticut Healthy

**Connecticut Department of Public Health**

**Office of Emergency Medical Services**

Statewide Patient Care Protocols – 2016 – Version 1

| Legend | Definition |
|---|---|
| EMR | Emergency Medical Responder (EMR) |
| E | Emergency Medical Technician (EMT) |
| A | Advanced Emergency Medical Technician (AEMT) |
| P | Paramedic |
| | CAUTION – Red Flag topic |
| | Telephone Medical Control |
| | Pediatric |

Blue underline – text formatted as a hyperlink

This document is the Statewide Emergency Medical Services Protocols for Connecticut Pre-hospital Medical Providers – 2016.

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:**

**State of Connecticut**
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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, see the Connecticut OEMS website at: http://www.ct.gov/dph/ems

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# Dedication & Acknowledgement



Dedication

The first edition of 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.

Two individuals: David Bailey and John Spencer deserve special acknowledgement. Without their tireless commitment, this first set of the Connecticut Statewide EMS Protocols would not have been possible.



Connecticut OEMS in conjunction with CEMSMAC has taken caution to ensure all information is accurate and in accordance with professional standards in effect at the time of publication. These protocols, policies, or procedures MAY NOT BE altered or modified without prior approval.

# Preface

Welcome to the first edition of the Connecticut Statewide EMS Protocols. 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 prehospital 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 "floor" or 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 section 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 Continued



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# 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", Coler RN, MEd., Paramedic, OEMS Director



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# Revision and Updates 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 in 5 business days.
- 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 yearly review of the Statewide Emergency Medical Services Protocols by the Connecticut Emergency Medical Services Medical Advisory Committee/Statewide Emergency Medical Services Protocol Subcommittee.



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# Routine Patient Care 1.0

**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.

**Patient Approach:**

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

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

- Determine if DNR Protocol applies (Do Not Resuscitate Orders & Advanced Directives)

**Airway and Breathing:**

- Airway
  - Assess the patient for a patent airway.
  - Open the airway using a head-tilt/chin-lift, or a jaw thrust if suspicious of cervical spine injury.
  - Suction the airway as needed.
  - Treat foreign body obstruction in accordance with current protocols.
  - Consider an oropharyngeal or nasopharyngeal airway.
  - Consider advanced airway interventions as appropriate and as trained and credentialed to perform.
- Assess breathing: rate, effort, tidal volume, and breath sounds.
  - If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask
  - If breathing is adequate, but patient’s oxygen saturation is ≤ 94% (≤ 90% for COPD patient) or short of breath, administer oxygen.
    - Both skin signs and pulse oximetry are important in assessing potential hypoxia.
  - Consider quantitative waveform capnography (aka: $EtCO_2$) and/or CO-oximetry, if available.
  - Assess lung sounds and chest.

Protocol Continues





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Protocol Continues

**Circulation Assessment**

- Assess patient's pulse, noting rate, rhythm, and quality.
- Control active bleeding using direct pressure, pressure bandages, tourniquets, or hemostatic bandages.
  - Hemostatic bandages must be of a non-exothermic type that can be washed off with 0.9% NaCl (normal saline).
  - Assess patient's skin color, capillary refill, temperature, and moisture.
- Provide IV access and fluid resuscitation as appropriate for the patient's condition.
  - For adult patients, administer fluids to maintain systolic blood pressure per the Shock Protocols 2.19A, 2.20, and 4.4.
  - For pediatric patients, administer fluids based on physiological signs and therapeutic end-points per the Shock Protocol 2.19P, 2.20, and 4.4.
  - For adult patients with suspected dehydration without shock administer IV fluids as indicated in increments of 250 mL.
  - Consider obtaining a blood sample, per receiving hospital's preference.

NOTE: An IV for the purposes of these protocols is a saline lock or line with 0.9% NaCl (normal saline) or Lactated Ringers, unless otherwise specified in an individual protocol. Routes of medication administration when written as "IV" can also include "IO".

**Disability assessment:**

- Assess level of consciousness appropriate for age; use Glasgow Coma Scale for trauma.
- Spinal Motion Restriction by collaring patient, placing flat on cot and securing, if indicated by Spinal Injury Protocol 4.5.
- In general, pediatric patients should not be transported in a passenger safety seat if a cervical/spinal injury is suspected. (See Pediatric Transport 6.10).

**Transport Decision**

- 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 Section 1 of Public Act 15-223.
- Refer to the Trauma Triage and Transport Decision 6.18 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.

**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.
- Determine level of pain.
- Consider field diagnostic tests including: cardiac monitoring, blood glucose, temperature, stroke assessment, pulse oximetry, quantitative waveform capnography, etc.
- Dress and bandage lacerations and abrasions.
- Cover evisceration with an occlusive dressing and cover to prevent heat loss.
- Stabilize impaled objects. Do not remove an impaled object unless it interferes with CPR or your ability to maintain the patient's airway.
- Monitor vital signs approximately every 15 minutes (more frequently if the patient is unstable).

Protocol Continues



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# Routine Patient Care 1.0



Protocol Continues

| Bag-Valve Ventilation Rates | | |
|---|---|---|
| Patient | Basic Airway | Supraglottic/ETT* |
| Adult | 12 – 20 breaths per minute | 8 – 10 breaths per minute |
| Child | 12 – 20 breaths per minute | 8 – 10 breaths per minute |
| Infant | 20 – 30 breaths per minute | 18 – 10 breaths per minute |

** Ventilation rates should be titrated to goal $EtCO_2$, if available, or patient conditions (e.g. severe asthma, aspirin overdose, traumatic brain injury)*

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

| Percent $O_2$ 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.<br>• 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. | |

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

| Glasgow Coma Scale | | | | | | |
|---|---|---|---|---|---|---|
| Eye Response | Score | Verbal Response | Verbal - 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 |



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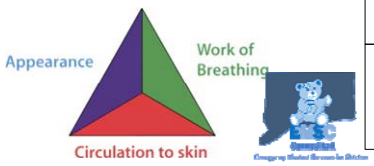
**Respond to Scene in a Safe Manner:**

- 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:**

- Determine mechanism of injury / nature of illness.
- If patient is in cardiac arrest refer to the Cardiac Arrest Protocol – Adult 3.2A or Cardiac Arrest Protocol Pediatric 3.2P.
- Determine if pediatric protocols apply. "Pediatric Patient" is defined as a child who fits on a length-based resuscitation tape up to 36kg (79 lbs) or 145cm (57 in).
- Establish responsiveness
- General Impression.




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

Determine if DNR Protocol applies (Do Not Resuscitate Orders & Advanced Directives)

**Airway and Breathing:**

- Airway
  - Assess the patient for a patent airway.
  - Open the airway using a head-tilt/chin-lift, or a jaw thrust if suspicious of cervical spine injury.
  - Suction the airway as needed.
  - Treat foreign body obstruction in accordance with current protocols.
  - Consider an oropharyngeal airway.
- Assess breathing: rate, effort, tidal volume, and breath sounds.
  - If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask
  - Administer oxygen to maintain $O_2$ saturation ≥94% (≥90% for COPD patient).
    - Skin signs, pulse oximetry and mental status are important in assessing potential hypoxia.
- Assess lung sounds and chest.

**Circulation Assessment:**

- Assess patient's pulse, noting rate, rhythm, and quality.
- Control active bleeding using direct pressure, pressure bandages, tourniquets, or hemostatic bandages. See Musculoskeletal Injuries Protocol 4.3 and Tourniquet Application Procedure 6.17
  - Apply a topical hemostatic bandage, in combination with direct pressure, for wounds in anatomical areas where tourniquets cannot be applied and sustained direct pressure alone is ineffective or impractical. Only apply topical hemostatic agents in a gauze format that supports wound packing. Only utilize topical hemostatic agents which have been determined to be effective and safe in a standardized laboratory injury model. Protocol Continues
  - Assess patient's skin color, capillary refill, temperature, and moisture.

Protocol Continues



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# 1.1 EMR Routine Patient Care

Protocol Continues

**Disability assessment:**

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

**Advanced Life Support Intercept:**

- When indicated in protocol, call for Paramedic intercept if available.

**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.
- Determine level of pain.
- Dress and bandage lacerations and abrasions.
- Cover evisceration with an occlusive dressing and cover to prevent heat loss.
- Stabilize impaled objects. Do not remove an impaled object unless it interferes with CPR or your ability to maintain the patient's airway.
- Monitor vital signs approximately every 15 minutes (more frequently if the patient is unstable).

**Major Multiple System Trauma:**

- Patients that meet trauma criteria must be expeditiously moved into the trauma system to maximize the likelihood of survival. (See Trauma Triage and Transport Decision Protocol 6.18).
- 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.

**Circumstances Not Covered Under Statewide EMS Protocols:**

- It is impossible to write a protocol for every potential situation. In rare instances where the patient's best interests may not be specifically addressed in a protocol, **contact Direct Medical Oversight.**
- Please note that while medical direction can have some variation from facility to facility, Direct Medical Oversight may not direct providers to practice outside their scope of practice, and likewise, providers should not ask to perform procedures outside their scope of practice as defined within these protocols.

**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 EMT-level protocols** and American Heart Association guidelines for Healthcare Provider CPR. **This protocol serves as a general overview of the EMR scope however within this document the individual protocols may also refer directly to the EMR scope of practice and applicable EMR care measures.**

- Airway Management – Adult & Pediatric (See Airway Management Protocol -- Adult 5.1A or Airway Management Protocol – Pediatric 5.1P.)
  - BVM
  - Cleared, Opened
  - Oral Suctioning
  - Oropharyngeal Airway
  - Oxygen Administration
- Cardiac Management – Adult & Pediatric (See Cardiac Arrest Protocol – Adult 3.2A or Cardiac Arrest Protocol – Pediatric 3.2P.)
  - CPR – Cardiopulmonary Resuscitation
  - Defibrillation – AED

Protocol Continues





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Protocol Continues

**EMR Scope of Practice (Continued):**

- Other Skills
  - Burn Care (See Burns (Thermal) Protocol – Adult 4.0A or Burns (Thermal) Protocol – Pediatric 4.0P.)
  - Childbirth (See Obstetrical Emergencies Protocol 2.15)
  - Cold / Hot Pack (See Musculoskeletal Injuries Protocol – Adult & Pediatric 4.3.)
  - Cervical and Spinal Motion Restriction – Manual Stabilization Only (See Spinal Trauma Protocol 4.5.)
  - Extremity Hemorrhage (See Musculoskeletal Injuries Protocol 4.3 and Tourniquet Application Procedure 6.17.)
  - Nalaxone Administration (See Poisoning/Substance Abuse/Overdose – Adult & Pediatric 2.17A & 2.17P.)
  - Nerve Agent Autoinjectors (See Nerve Agent/Organophosphate Poisoning Protocol – Adult 2.12A or Nerve Agent/Organophosphate Poisoning Protocol – Pediatric 2.12P.)
  - Splinting – Manual Stabilization Only (See Musculoskeletal Injuries Protocol – Adult & Pediatric 4.3.)
  - Wound Care (See Musculoskeletal Injuries Protocol – Adult & Pediatric 4.3.)

**Respiratory Reference Tables**

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

*** Ventilation rates should be titrated to goal $EtCO_2$, if available, or patient conditions (e.g. severe asthma, aspirin overdose, traumatic brain injury).**

| Pediatric Respiratory Distress | Pediatric Respiratory Failure |
|---|---|
| • Able to maintain adequate oxygenation by using extra effort to move air.<br>• 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. | |

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



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# 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: OEMS.DPH@CT.GOV within 48 hours of the event. Use of this protocol must be documented in the Patient Care Report.



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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, consider acquiring and transmitting a 12-lead EKG for upper abdominal or epigastric pain, see 12-Lead Acquisition Protocol 6.0.
- Vaginal bleeding or suspected pregnancy see, Obstetrical/Gynecological Emergencies Protocol 2.16.

**ADVANCED EMT STANDING ORDERS - ADULT**

A

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

**PARAMEDIC STANDING ORDER – ADULT**

P

- See Pain Management Protocol 2.16A.
- See Nausea/Vomiting Protocol 2.11.
- Assess and monitor cardiac rhythm.

Abdominal Physical Assessment

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

PEARLS:

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



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# 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 100mg IV/IM. **OR** Methylprednisolone 125 mg IV/IM/IO
- Pediatric: History of adrenal insufficiency; administer hydrocortisone 2mg/kg, to a maximum of 100 mg IV/IM **OR** Methylprednisolone 2 mg/kg IV/IM/IO up to a maximum dose of 125mg.
- If signs of shock are present treat per: Shock Non-Traumatic Protocol 2.20.

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).





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# Allergic Reaction/Anaphylaxis Adult 2.2A



## E — EMT STANDING ORDERS

- Routine Patient Care.
- For anaphylaxis, administer adult epinephrine autoinjector (EpiPen) 0.3mg IM in the lateral thigh.
- For patient who has a history of anaphylactic reaction and prescribed EpiPen, consider immediate administration of an EpiPen.
- For additional dosing, contact Direct Medical Oversight.

- For nausea of vomiting see Nausea/Vomiting Protocol 2.11.
- Do not delay transport.

## A — ADVANCED EMT STANDING ORDERS

- For anaphylaxis:
  - Administer adult epinephrine autoinjector (preferred) **OR**

**If operating under 2007 Scope of Practice**

- Epinephrine (**1:1,000**) 0.3mg (0.3ml) IM. May repeat epinephrine 0.3mg IM, every 5 minutes (3 doses total).
- Consider the administration of albuterol 2.5mg via nebulizer. Repeat albuterol 2.5mg, every 5 minutes (4 doses total) via nebulizer.

- For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.20.

## P — PARAMEDIC STANDING ORDERS

- Continue Epinephrine (**1:1,000**) 0.3 mg (0.3 ml) IM every 5 minutes until signs/ symptoms resolve.

After Epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:

- Diphenhydramine 25 – 50mg IM/IV.
- If the patient presents with hives consider Famotidine (Pepcid) 20 mg IV.

- For anaphylaxis refractory, after 3 or more doses of IM epinephrine, (e.g. persistent hemodynamic compromise, brochospasm), consider:
  - Epinephrine infusion 2-10micrograms/minute until symptoms resolve.

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

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

PEARLS:
Allergic reactions are commonly a response to an allergen involving the skin. Anaphylaxis is defined as: Hypotension **or** respiratory compromise **with** known allergen exposure **or** acute onset of symptoms with two of more of the following:

- Respiratory compromise: (dyspnea, wheezing, stridor)
- Angioedema or facial/lip/tongue swelling
- Widespread hives, itching, swelling
- Persistent gastrointestinal involvement (vomiting, diarrhea, abdominal pain)
- Altered mental status, syncope, cyanosis, delayed capillary refill, or decreased level of consciousness associated with known/suspected allergenic exposure
- Signs of shock



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# Allergic Reaction/Anaphylaxis Pediatric 2.2P



## EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis administer:
  - Pediatric Epinephrine autoinjector (EpiPen Jr) 0.15 mg IM in the lateral thigh if less then 25 kg.
  - Adult Epinephrine autoinjector (EpiPen) 0.3 mg IM in lateral thigh if 25 kg or greater.
- For patient who has a history of anaphylactic reaction and prescribed EpiPen, consider immediate administration of an EpiPen.
- For additional dosing, contact Direct Medical Oversight.
- For nausea of vomiting see Nausea/Vomiting Protocol 2.11.
- Do not delay transport.

## ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis: Epinephrine autoinjector's as described above (preferred)
  **OR If operating under 2007 Scope of Practice**
  - Epinephrine (**1:1,000**) 0.01 mg/kg (0.01 ml/kg) IM, lateral thigh preferred. (Maximum single dose of 0.3 mg). Repeat Epinephrine 0.01 mg/kg IM, every 5 minutes until signs and symptoms resolve.
  - Consider the administration of albuterol 2.5mg via nebulizer. Repeat albuterol 2.5mg, every 5 minutes (4 doses total) via nebulizer.
- For signs of shock consider fluid per Shock – Non-Traumatic Protocol 2.20.

## PARAMEDIC STANDING ORDERS

P

After Epinephrine has been administered or for isolated skin symptoms of allergic reaction consider:

- Diphenhydramine 1.25 mg/kg by mouth **OR**
- Diphenhydramine 1 mg/kg IV/IM (Maximum dose 50 mg).

- For anaphylaxis refractory, after 3 or more doses of IM epinephrine, (e.g. persistent hemodynamic compromise, brochospasm), consider:
  - Epinephrine infusion 0.1 – 2 micrograms/kg/minute (Maximum 10 micrograms/minute) until symptoms resolve.

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

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

PEARLS:
Allergic reactions are commonly a response to an allergen involving the skin. Anaphylaxis is defined as: Hypotension **or** respiratory compromise **with** known allergen exposure **or** acute onset of symptoms with two of more of the following:

- Respiratory compromise: (dyspnea, wheezing, stridor)
- Angioedema or facial/lip/tongue swelling
- Widespread hives, itching, swelling
- Persistent gastrointestinal involvement (vomiting, diarrhea, abdominal pain)
- Altered mental status, syncope, cyanosis, delayed capillary refill, or decreased level of consciousness associated with known/suspected allergenic exposure
- Signs of shock

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# Apparent Life-Threatening Event (ALTE) 2.3

**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:

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



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# 2.4A Asthma, COPD, RAD - Adult

**EMT STANDING ORDERS**

E

- Routine Patient Care.
- Attempt to keep oxygen saturation ≥ 94% (90% in COPD); increase the oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure.
- Assist the patient with their metered dose inhaler (MDI): 4 - 6 puffs.
  - o May repeat every 5 minutes as needed.
  - o 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:
  - o CPAP up to a maximum of 10cm $H_2O$ pressure support.

**ADVANCED EMT STANDING ORDERS**

A

**If operating under 2009 National Scope of Practice**

- 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.
- For patients who do not respond to treatments, or for impending respiratory failure, consider:
  - o CPAP up to a maximum of 10cm $H_2O$ pressure support.

**PARAMEDIC STANDING ORDERS**

P

Consider:

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

Consider:

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

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

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

PEARLS:

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





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# Asthma, Bronchiolitis, Croup - Pediatric 2.4P

**E**

**ASTHMA, BRONCHIOLITIS, CROUP – EMT STANDING ORDERS**

- Routine Patient Care.
- Attempt to keep oxygen saturation ≥ 94%; 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.
  - o May repeat every 5 minutes as needed.
  - o MDI containing either albuterol, levalbuterol, or a combination of albuterol/ipratropium bromide.
- For patients ≤ 2 who present with increased work of breathing and rhinnorhea, provide nasal suctioning with saline drops and bulb syringe.

Wheezing ≥ 2 years or history of asthma — YES →

**A**

**ASTHMA – ADVANCED EMT STANDING ORDERS**

**If operating under 2007 National Scope of Practice**

- Consider unit dose DuoNeb OR albuterol 2.5 mg and ipatropium 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 5.3 Procedure.

NO ↓

**P**

**ASTHMA – PARAMEDIC STANDING ORDERS**

Consider:

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

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

- Magnesium sulfate 40 mg/kg in 100 ml 0.9% NaCl IV over 20 minutes
- Epinephrine (1:1,000) 0.01 mg/kg (0.01 mL/kg) IM. (Maximum dose less then 25 kg is 0.15 mg or greater then 25 kg is 0.3 mg)

Wheezing < 2 years old — YES →

**P**

**BRONCHIOLITIS – PARAMEDIC STANDING ORDERS**

For patients who do not respond to suctioning or for impeding respiratory failure consider:
Nebulized epinephrine (1:1,000) 3 mg (3 mL) in 3 mL normal saline.

NO ↓

History of stridor or barky cough — YES →

**P**

**CROUP – PARAMEDIC STANDING ORDERS**

Consider:
Dexamethasone 0.6 mg/kg by mouth or IM/IV (by mouth preferred) maximum 10 mg.
Croup with stridor at rest:
Nebulized epinephrine (1:1,000) 3 mg (3 mL) in 3 mL normal saline.

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

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

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# 2.5 Behavioral Emergencies Adult & Pediatric



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

E/A

- Routine Patient Care.
- Approach patient using the SAFER Model.
- Observe and record the patient's behavior.
- Consider associated domestic violence or child abuse, see Response to Domestic Violence Procedure 6.13.
- 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 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 6.11 and/or Refusal of Care Procedure 6.14)
- 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 Excited/Agitated Delirium:

- Treat hyperthermia, see Hyperthermia Protocol 2.10.
- Monitor cardiac activity and oxygen levels.

**PARAMEDIC STAND ORDERS - ADULT**

P

See Restraints Procedure 6.14

**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.



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# 2.6 Childbirth

## EMR/EMT/ADVANCED EMT STANDING ORDERS

E/A

Routine Patient Care

- Determine if signs of imminent delivery are present.
- Expose as necessary to assess for bleeding/discharge, crowning, prolapsed cord, breech, limb presentation
- Do not digitally examine or insert anything into the vagina.
  - Exceptions: fingers may be inserted to manage baby's airway in breech presentation or to treat prolapsed or nuchal cord
- Place mother in left-lateral recumbent position except as noted:
  - Prolapsed cord:
    - Knee-chest position or Trendelenberg position.
    - Support infant head or body to permit blood flow through cord.
- If presenting part is not baby's head, cord is prolapsed or unable to unwrap nuchal cord, contact **Direct Medical Oversight** and immediately transport to nearest appropriate hospital per local OB diversion protocol.

Delivery:

- Slow, controlled delivery of head; apply gentle perineal pressure.
- If umbilical cord is wrapped around child's neck, gently unwrap prior to delivery.
- Following delivery, follow Newborn Care Protocol 2.13
- After cord stops pulsating, double clamp cord 10-12 inches from abdomen and cut between clamps.
- Allow spontaneous delivery of placenta; do not apply traction to umbilical cord.
- Do not delay transport for delivery of placenta. Massage uterus in transit to encourage placenta delivery.
- If placenta delivers, package for hospital staff.

Post Partum Care:

- Assess for hemorrhage. See Shock – Non-Traumatic Protocol 2.20.
- Massage abdominal wall overlying uterine fundus until firm.

## PARAMEDIC STANDING ORDERS

P

- Active seizures – See Seizures Protocol 2.18A.

**PEARLS:**

OB Assesment:

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

Notify Direct Medical Oversight if:

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

Signs of imminent delivery:

- Urge to move bowels
- Urge to push
- Crowning



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# 2.7 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.
- For nausea/vomiting see Nausea Protocol 2.11.

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

A/P

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

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

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.





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# 2.8 Hyperthermia – Adult & Pediatric



**E**

**NG ORDERS- ADULT & PEDIATRIC**

- Routine Patient Care.
- Move victim to a cool area and shield from the sun or any external heat source.
- Remove as much clothing as is practical and loosen any restrictive garments.
- If alert and oriented, give small sips of cool liquids.
- Monitor and record vital signs and level of consciousness.
- 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 ℃) or if shivering occurs and cannot be managed by paramedics (see below).

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

**A**

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

**PARAMEDIC STANDING ORDERS- ADULT**

**P**

- If uncontrolled shivering occurs during cooling:
  - Midazolam 2.5 mg IV/IN, may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes **OR**
  - Lorazepam 1mg IV, may repeat once in 5 minutes or; 2 mg IM, may repeat once in 10 minutes **OR**
  - Diazepam 2 mg IV, may repeat once in 5 minutes
- Consider 10 – 20ml/kg 0.9% NaCl IV fluid bolus for dehydration even if vital signs are normal.

**PARAMEDIC STANDING ORDERS- PEDIATRIC**

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

PEARLS:

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

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



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# 2.9A Hypoglycemia – Adult



**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.
- 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 – ADULT**

**** AEMTS must be practicing under 2007 National Scope of Practice ****

A/P

- Administer dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 70 mg/dL or to a maximum of 25 grams (250mL).
- If unable to establish IV access, administer glucagon 1 mg IM or Glucapen 1 mg IM.
  - Recheck glucose 15 minutes after administration of glucagon.
  - May repeat glucagon 1 mg IM if glucose level is <70 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:

- Hypoglycemic emergency is defined as glucose <70 mg/dL with associated altered mental status, GCS <15.
- There are no statistically significant differences in the median recovery time to a GCS score of 15 following administration of D10% versus D50%. D10% may benefit patients by decreasing the likelihood of post-treatment hyperglycemia and reducing the likelihood of extravasation injury.
- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults (e.g., myocardial infarction, arrhythmia), or changes in activity (e.g., exercise).
- Sulfonylureas (e.g., glyburide, glipizide) have long half-lives ranging from 12-60 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent symptoms and frequently require hospital admission.
- 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.



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# 2.9P Hypoglycemia – Pediatric

**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.
- 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**

**** AEMTS must be practicing under 2007 National Scope of Practice ****

A/P

- Administer dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater than 70 mg/dL or per Pediatric Color Coded Appendix 2
- If unable to establish IV access:
- Patients less then 20 kg, give glucagon 0.5 mg IM or Glucapen Jr 0.5 mg IM.
- Patients equal to or greater then 20 kg, give glucagon 1 mg IM or Glucapen 1 mg IM.

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

PEARLS:

- Hypoglycemic emergency in pediatrics is defined as glucose <70 mg/dL with associated altered mental status, GCS <15.
- There are no statistically significant differences in the median recovery time to a GCS score of 15 following administration of D10% versus D50%. D10% may benefit patients by decreasing the likelihood of post-treatment hyperglycemia and reducing the likelihood of extravasation injury.
- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults (e.g., myocardial infarction, arrhythmia), or changes in activity (e.g., exercise).
- Sulfonylureas (e.g., glyburide, glipizide) have long half-lives ranging from 12-60 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent symptoms and frequently require hospital admission.
- 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.



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# Hypothermia – Adult & Pediatric 2.10



**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.
- Maintain horizontal position.
- Apply truncal warm packs.
- Consider covering the patient's mouth and nose with a surgical mask to prevent respiratory heat loss.
- A minimum of 45 – 60 second assessment of respirations and pulse is necessary to confirm respiratory arrest or cardiac arrest.
- If pulse and breathing are present, continue re-warming techniques.
- If pulse and breathing are absent, start CPR see Cardiac Arrest Protocols 3.2

**ADVANCED EMT - ADULT ONLY**

A

- Warm IV 0.9% NaCl 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 medications based on dysrhytmia (consider increasing the dosing time to allow drugs to circulate).
  - Defibrillation as indicated.

| | |
|---|---|
| STAGE: I | Conscious, shivering |
| Core Temp: | 35 to 32°C |
| Treatment: | Warm environment and clothing, warm sweet drinks, and active movement (if possible). |
| STAGE: II | Impaired consciousness, not shivering |
| Core Temp: | <32 to 28°C |
| Treatment: | 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 III: | Unconscious, not shivering, vital signs present |
| Core Temp: | <28 to 24°C |
| Treatment: | HT II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management. |
| STAGE: IV | No vital signs |
| Core Temp: | <24°C |
| Treatment: | HT II and III management plus CPR and up to three doses of epinephrine (at an intravenous or intraosseous dose of 1 mg) and defibrillation, with further dosing guided by clinical response; 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 35oC (95oF).
- 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).



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# 2.11 Nausea/Vomiting Adult & Pediatric

**EMT STANDING ORDERS- ADULT & PEDIATRIC**

E

- Routine Patient Care.

**ADVANCED EMT STANDING ORDERS- ADULT**

A

- Consider 500 ml IV fluid bolus for dehydration even if vital signs are normal.
  - o May repeat 250ml 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).**

**PARAMEDIC STANDING ORDERS- ADULT**

P

- Ondansetron 4 mg IV/PO **OR**
- Prochlorperazine 5 – 10 mg IV, or 5 mg IM, **OR**
- Metoclopramide 5 mg IV
  - o May repeat any of the above medications once after 10 minutes if nausea/vomiting persists.

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

- Administer diphenhydramine 25 – 50 mg IV/IM.

**PARAMEDIC STANDING ORDERS- PEDIATRIC**

- Consider 10 – 20 ml/kg IV fluid bolus for dehydration even if vital signs are normal.
- Ondansetron 0.1 mg/kg IV(maximum single dose 4mg), **OR**
- If patient is 5 years of age or older: Ondanestron PO 4 mg

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

PEARLS:

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



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# Nerve Agents
# Organophosphate Poisoning - Adult
# 2.12A



**EMERGENCY MEDICAL RESPONDER/EMT/ADVANCED EMT STANDING ORDERS**

E/A

- Routine Patient Care.
- Assess for SLUDGEM (Salivation, Lacrimation, Urination, Defecation, Gastric upset, Emesis, Muscle twitching/miosis (constricted pupils) and KILLER Bs (Bradycardia, Bronchorrhea, Bronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- 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.

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

**PARAMEDIC STANDING ORDERS**

P

- If field conditions permit, initiate cardiac monitoring and consider the administration of IV medications if properly equipped and trained.
- If symptoms persist after the administration of 3 DuoDote kits:
  - Atropine 2 mg IV; repeat every 5 minutes until secretions clear
  - Pralidoxime 1 – 2 gram IV over 30 – 60 minutes
  - Diazepam 5 mg IV 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 may repeat once in 5, or 2 mg IM, may repeat once in 10 minutes, **OR**
    - Midazolam 2.5 mg IV/IN every 5 minutes; or 5 mg IM every 10 minutes as needed

**PARAMEDIC DIRECT MEDICAL OVERSIGHT – MAY CONSIDER:**

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

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# 2.12P Nerve Agents Organophosphate Poisoning - Pediatric

## EMT/ADVANCED EMT STANDING ORDERS

E/A

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

Determine dosing according to the following symptom assessment and protocols.

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

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

## PARAMEDIC STANDING ORDERS

P

- In the unlikely event that field conditions permit, and service is equipped and trained, follow weight-based dosing and treatment protocols:
  - Initiate cardiac monitoring.
  - Establish IV access.
  - Atropine 0.05 – 0.1 mg/kg IV or IM (minimum dose of 0.1 mg, maximum single dose 5 mg); repeat every 2 – 5 minutes as needed
  - Pralidoxime 25 – 50 mg/kg/doses IV (maximum dose 1 gram) or IM (maximum dose of 2 grams), may repeat within 30 – 60 minutes as needed, then again every hour for 1 – 2 doses as needed.
  - Diazepam 0.3 mg/kg IV (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/IM (maximum dose 4 mg), repeat every 5 – 10 minutes as needed, **OR**
    - Midazolam 0.2 mg/kg IM/IN/IV, repeat every 5 – 10 minutes as needed.

## PARAMEDIC DIRECT MEDICAL OVERSIGHT – MAY CONSIDER:

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



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# Newborn Care 2.13



## EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- For newborns requiring resuscitation, see Newborn Resuscitation 2.14.
- Routine Patient Care—dry, warm, position, stimulate.
- Assess airway by positioning and clearing secretions (only if needed):
  - Place the newborn on back or side with head in a neutral or slightly extended position.
  - Routine suctioning is discouraged even in the presence of meconium-stained amniotic fluid. Suction oropharynx then nares only if the patient exhibits respiratory depression and/or obstruction, see Newborn Resuscitation Protocol 2.14.
- Clamp and cut the umbilical cord:
  - After initial assessment and after the cord stops pulsating.
  - Leave a minimum of 6 inches of cord.
- Prevent heat loss by rapidly drying and warming:
  - Remove wet linen, wrap newborn in blankets or silver swaddler/space blanket (preferred) and cover newborn's head.
  - Consider placing newborn skin-to-skin on the mother's chest or abdomen.
- Assess breathing by providing tactile stimulation:
  - Flick soles of feet and/or rub the newborn's back.
  - If newborn is apneic or has gasping respirations, nasal flaring, or grunting, proceed to Newborn Resuscitation Protocol 2.14.
- Asses circulation, heart rate, and skin color:
  - Evaluate heart rate by one of several methods:
    - Auscultate apical beat with a stethoscope.
    - Palpate the pulse by lightly grasping the base of the umbilical cord.
  - If the pulse is <100 bpm and not increasing, proceed to Newborn Resuscitation Protocol 2.14.
  - Assess skin color; examine trunk and face; and mucus membranes.
- Record APGAR score at 1 minute and 5 minutes (see chart).
- See Pediatric Color Coded Appendix A2 for vital signs.
- When possible, transport newborn in child safety seat.

### APGAR Scale

| Feature Evaluated | 2 Points | 1 Point | 0 Points |
|---|---|---|---|
| **A**ctivity (Muscle Tone) | Active Movement | Arms and legs flexed (Weak, some movement) | Limp or flaccid |
| **P**ulse | Over 100 bpm | Below 100 bpm | Absent |
| **G**rimace (Irritability/reflexes) | Cry, sneeze, cough, active movement | Grimace (some flexion of extremities) | No reflexes |
| **A**ppearance (Skin Color) | Completely pink | Body pink, Extremities blue | Blue, pale |
| **R**espiration | Vigorous cry Full breaths | Slow, irregular, or gasping breaths, weak cry | Absent |

PEARLS:

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



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# 2.14 Newborn Resuscitation

## EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care—initial steps identified in Newborn Care Protocol 2.13.
- 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 120 mm Hg.
- If ventilations are inadequate, or if the chest fails to rise, or the heart rate is less then 100, initiate positive pressure (bag-valve-mask) ventilations at 40 – 60 breaths per minute.
  - Note: resuscitation should be initiated with room air.
  - Inflation pressures should be individualized to achieve an increase in heart rate or movement of the chest with each breath. Be aware that bag-valve-mask pop-off valves may deliver inconsistent results.
- After 30 seconds of ventilations, assess heart rate:
  - Auscultate apical beat with a stethoscope or palpate the pulse by lightly grasping the base of the umbilical cord.
- For heart rate <100, reassess ventilatory technique and continue ventilations.
- For heart rate <60 after attempts to correct ventilations:
  - Initiate CPR at a 3:1 ratio (for a range of 90 compression/minute and 30 ventilations/minute). Minimize interruptions. Reassess every 60 seconds; if not improving, continue CPR with 100% oxygen until recovery of a normal heart rate, then resume room air.

## PARAMEDIC STANDING ORDERS

P

- If meconium is present and the newborn is not vigorous (poor muscle tone, weak respiratory effort, or hear rate <100 bpm), perform direct endotracheal suctioning, via meconium aspirator.
- If bag valve mask ventilation is inadequate or chest compressions are indicated, consider intubating the baby using a 3.0mm - 4.0mm endotracheal tube. (For an infant born before 28 weeks gestation, a 2.5mm endotracheal tube should be used.)
  - Heart rate and $EtCO_2$ are the best indicators of whether the tube is properly placed in the trachea.
- Establish IV/IO. Obtain blood sample if possible.
  - If hypovolemia is suspected, administer 10 ml/kg bolus over 5 – 10 minutes.
  - If the heart rate fails to improve with chest compressions, administer epinephrine (1:10,000) 0.01 – 0.03 mg/kg IV (0.1 – 0.3 ml/kg).
  - IV is preferred route for epinephrine—if there is a delay in establishing access, may administer via ETT 0.05 to 0.1 mg/kg (1:10,000).
  - If glucose level is <70mg/dL:
    - Administer dextrose per Pediatric Color Coded Appendix A2.

PEARLS:

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



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# Obstetrical Emergencies 2.15



## EMT/AEMT/PARAMEDIC STANDING ORDERS

- Routine Patient Care.
- Obtain history.
  - Abdominal pain with associated symptoms (syncope, lightheadedness, nausea, vomiting, fever).
  - Vaginal bleeding (onset, duration, quantity, syncope, lightheadedness).
- If the patient is hypotensive, consider fluids per Shock – Non-Traumatic Protocol 2.20 **(AEMT/Paramedics)**

E/A/P

**For Obstetrical Patients:**

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

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

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

## EMT STANDING ORDERS

E

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

## ADVANCED EMT STANDING ORDERS

A

- Establish vascular access.

## PARAMEDIC STANDING ORDERS

P

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

- Magnesium sulfate, 4 grams IV bolus over 10 minutes, then consider 1 gram/hr continuous infusion see Seizure Protocol 2.18A.
- Contact Direct Medical Oversight and follow local OB Diversion Protocols if available.

PEARLS: Moderate/Severe symptoms of Pre-Eclampsia include:

| | | |
|---|---|---|
| BP ≥ 160/100 | Confusion | Nausea |
| Severe Headache | RUQ Abd pain | Shortness of breath |
| Visual disturbances | Epigastric pain | |



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# 2.16A Pain Management - Adult

**EMT/AEMT STANDING ORDERS**

E/A

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Have the patient rate his/her pain from 0 to 10, or use another appropriate pain scale. If there is a language barrier, use self report scale, see Pain – Pediatric Protocol 2.16P.

**PARAMEDIC STANDING ORDERS**

P

- Unless the patient has altered mental status, consider **one** of the following for pain control:
  - Fentanyl 1 microgram/kg slow 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, every 5 minutes to a total of 4 mg titrated to pain relief, **OR**
  - Morphine 0.1 mg/kg IV/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. **OR**
  - Ketamine 0.3 mg/kg IV/IO/IM
    - Consider Versed 2.5 mg IV or IM for serious re-emergence reactions

**Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone 0.4 mg IV/IM or 2 mg IN. If no response, may repeat initial dose every 5 minutes to a total of 10 mg.

- For nausea: see Nausea/Vomiting Protocol 2.11.
- **Contact Direct Medical Oversight for guidance in patients with:**
  - Altered mental status or
  - Additional doses of a medication, or
  - Benzodiazepines administration in conjunction with narcotic administration for patients with musculoskeletal spasms.

- Medications should be administered cautiously in frail, debilitated patients, or patients over 65 years of age; lower doses should be considered.
- Use caution for altered mental status, hypoventilation, hypotension, or allergy.
- Continuous cardiac and $ETCO_2$ monitoring if available should always be utilized in patients receiving narcotics.

PEARLS:

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



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# Pain Management - Pediatric 2.16P



## EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Use ample padding when splinting musculoskeletal injuries.
- Consider the application of a cold pack for 30 minutes.
- Rate the patient's pain:
  - Children greater than 8 years of age:
    - Ask the patient to rate pain on a scale from 0 – 10, where 0 is no pain and 10 is the worst pain ever experienced by the patient.
  - Children 3 – 8 years of age:
    - Use the Wong-Bakers FACES Scale (see Pain Management - Pediatric Protocol 2.17P Page 2).
  - Children less than 3 years of age or non-verbal:
    - Use the r-FLACC Pain Scale, see Pain Management - Pediatric Protocol 2.17P Page 2.

## PARAMEDIC STANDING ORDERS

P

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

- Fentanyl 1 micrograms/kg IV/IM/IN (maximum dose 100 micrograms) may repeat 0.5 micrograms/kg (Maximum dose 50 micrograms) every 5 minutes. May be repeated to a total of 3 doses, OR
- Morphine 0.1 mg/kg IV (maximum dose 5 mg) may repeat 0.05 mg/kg (maximum dose 2.5 mg) every 5 minutes May be repeated to a totoal of 3 doses.

**Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone per Pediatric Color Coded Appendix 2.

Contact Direct Medical Oversight for guidance regarding

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

- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.
- Narcotics should be administered with caution for patients with altered mental status
- Continuous cardiac and $ETCO_2$ monitoring if available should always be utilized in patients receiving narcotics.

PEARLS:

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

Protocol Continues



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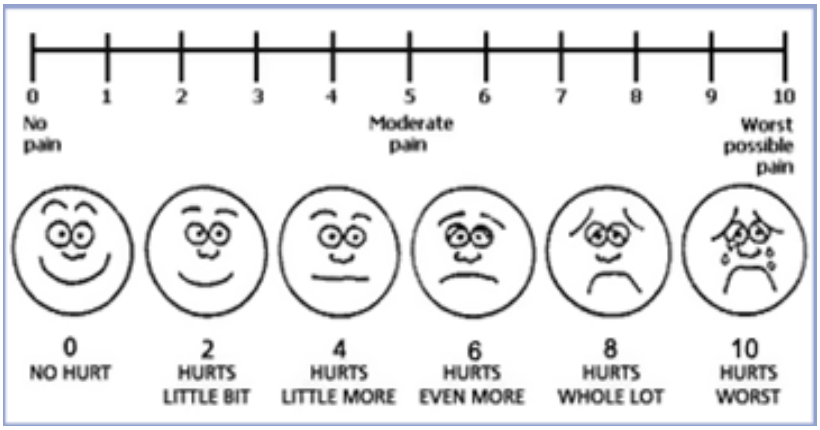
# 2.16P Pain Management - Pediatric

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.

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# 2.17A Poisoning/Substance Abuse/Overdose - Adult

## EMR/EMT/AEMT STANDING ORDERS

E/A

- 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 if available and equipped consider:
  - Naloxone 1 mg (1 mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2 mg. OR by use of an auto-injector as described by sponsor hospital.
  - If not response repeat in 3 – 5 minutes.
  - For additional doses call Direct Medical Oversight.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol 2.21A.
- For decontamination/hazardous materials exposure, see Hazardous Materials 7.0.
- For hypoglycemia, see Hypoglycemia Emergencies Protocol 2.9A.
- For seizures, see Seizure Protocol 2.18A.

## PARAMEDIC STANDING ORDERS

P

For suspected opiate overdose with severe respiratory depression consider:

- Naloxone 0.4 – 2.0 mg IV/IM or 2 mg IN.
- If no response, may repeat every 3 – 5 minutes to a total of 10 mg.

**Suggested Treatments**

- Beta Blocker and Calcium Channel Blocker refer to Bradycardia Protocol 3.1A .
- Dystonic Reaction:
  - Diphenhydramine 25 – 50 mg IV/IM
- Organophosphates, see Nerve Agent/Organophosphate Protocol 2.12A.
- Suspected Sympathomimetic/Stimulant:
  - Midazolam 2.5 mg IV/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes; or 2 mg IM may repeat once in 20 minutes, **OR**
  - Diazepam 2mg IV, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 20 minutes,
- Tricyclic, Benadryl, or Cocaine with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS):
  - Sodium bicarbonate 2 mEq/kg IV.

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

PEARLS:

- If possible, bring container/bottles, and/or contents
- Pulse oximetry may NOT be accurate for toxic inhalational patients.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Quantitive Waveform Capnography Procedure 5.7.

Protocol Continues





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# Poisoning/Substance Abuse/Overdose - Adult

# 2.17A

Protocol Continued

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

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



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# 2.17P Poisoning/Substance Abuse/Overdose - Pediatric



## 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 2.21P.
- For decontamination/hazardous materials exposure: refer to Hazardous Materials 7.0.
- For hypoglycemia, see Diabetic Emergencies 2.9P.
- For seizures, see Seizures 2.18P.
- For suspected opiate overdose with severe respiratory depression consider:
  - Naloxone 0.1 mg/kg IN. May repeat to a maximum dose of 2 mg.

## ADVANCED EMT STANDING ORDERS

****IF PRACTICING UNDER 2007 SCOPE OF PRATICE****

A

For suspected opiate overdose with severe respiratory depression consider:

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

## PARAMEDIC STANDING ORDERS

P

**Suggested Treatments**

- 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 2.12P.
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS > 100 milliseconds):
  - Sodium bicarbonate 2 mEq/kg IV.

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.

PEARLS:

- If possible, bring container/bottles, and/or contents.
- Pulse oximetry may NOT be accurate for toxic inhalational patients.
- Capnography may be helpful for monitoring respiratory status and titrating to lowest effective naloxone dose. See Quantitative Waveform Capnography Procedure 5.7.

Protocol Continues

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# Poisoning/Substance Abuse/Overdose- Pediatric

# 2.17P

Protocol Continued

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

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



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# 2.18A Seizures - Adult

**EMT/ADVANCED EMT STANDING ORDERS**

E/A

- Routine Patient Care.
- If the blood glucose reading is <70 mg/dL, see Hypoglycemia Protocol 2.9A.
- If diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
- Note: do not delay medication administration.

**PARAMEDIC STANDING ORDERS**

P

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

- Midazolam 10 mg IM (preferred route) every 10 minutes or 5 – 10 mg IV/ IN every 5 minutes, **OR**
- Lorazepam 2 – 4 mg IV every 5 minutes to a total of 8 mg, **OR**
- Diazepam 5 – 10 mg IV (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 bolus over 10 minutes, then consider 1 gram/hr continuous infusion.

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

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

PEARLS:

- Do not attempt to restrain the patient; protect 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. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- IM/IN is the preferred route for midazolam where an IV has not been previously established.
- IM midazolam should be administered to the lateral thigh.
- Diazepam and lorazepam are not well absorbed IM and should be given IV.
- There is an increase risk of apnea with >2 doses of benzodiazepines.



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# Seizures – Pediatric 2.18P

**EMT/ADVANCED EMT STANDING ORDERS**

E/A

- Routine Patient Care.
- If the blood glucose reading is <70mg/dl, see Hypoglycemia Protocol 2.9P.
- Obtain the patient's temperature for suspected febrile seizure (rectal route preferred, as appropriate). Treat fever per Pediatric Color Coded Appendix A2..
- If diazepam rectal gel (Diastat) has been prescribed by the patient's physician, assist the patient or caregiver with administration in accordance with physician's instructions.
- If the patient has an implanted vagus nerve stimulator (VNS), suggest that family use the VNS magnet to activate the VNS and assist if required.
  - To use the VNS magnet, pass the magnet closely over the VNS device; if unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
- Note: do not delay medication administration.

**PARAMEDIC STANDING ORDERS**

P

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

- 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 (single maximum dose 4 mg) repeat every 5 minutes, **OR**
- Lorazepam 0.1 mg/kg IV (single maximum dose 4 mg) repeat every 5 minutes, **OR**
- Diazepam 0.1 mg/kg IV (single maximum dose 10 mg IV) repeat every 5 minutes.

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

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

PEARLS:

- Do not attempt to restrain the patient; protect 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. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- IM/IN is the preferred route for midazolam where an IV has not been previously established.
- IM midazolam should be administered to the lateral thigh.
- Diazepam and lorazepam are not well absorbed IM and should be given IV.
- There is an increase risk of apnea with >2 doses of benzodiazepines.



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# 2.19A 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.

**EMT STANDING ORDERS - ADULT**

E

- Routine Patient Care.
- Administer oxygen at a rate to keep oxygen saturation ≥94%.
- 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 0.9% NaCl to maintain systolic blood pressure >90 mmHg OR MAP >65 mmHg in 500 mL boluses every 20 minutes. 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 fluid infused, continue up to 4,000 mL IV 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) **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.



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# 2.19P 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.

**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.
- 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 conciousness.
- Administer fluid bolus of 20 mL/kg of 0.9% NaCl 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 - ADULT**

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:**

- Nor**e**pinephrine (preferred) 0.05 – 0.1 micrograms/kg/min, titrated to effect to a maximum dose 2 micrograms/kg/min, OR
- Epinephrine 0.1 – 1 microgram/kg/min, titrated to effect.

PEARLS:

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



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# Shock (Non-Traumatic) Adult & Pediatric

# 2.20

**Recognize Compensated Shock – Adult**
- Anxiety
- Tachycardia
- Tachypnea
- Diaphoresis

**SHOCK**
**Inadequate tissue perfusion that impairs cellular metabolism**

**Recognize Compensated Shock – Pediatric**
- Delayed Capillary Refill
- Decreased or bounding peripheral pulses
- Palpable central pulse w/ a decreased distal pulse
- Cool extremities
- Altered mental status
- Mild tachypnea

**Trauma Involved?**

NO

YES → See Shock – Traumatic Protocol 4.4

Consider →

**ADULT:** Administer 0.9% NaCl in 250 mL boluses to maintain BP > 90, not to exceed 2000 ML without consultation with Direct Medical Oversight.
**PEDIATRIC:** Administer fluid bolus of 20 mL/kg of 0.9% NaCl 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.)
**ADULT & PEDIATRIC:** Obtain finger stick lactate level (if available and trained) & consider vasopressors per **Direct Medical Oversight.**

Consider → **CARDIOGENIC SHOCK**

Primary pump failure Decreased cardiac output

See Congestive Heart Failure – Adult Protocol 3.3.

**ADVANCED EMT STANDING ORDERS**
Assess for signs of pulmonary edema and consider use of CPAP – 5.2 Procedure
**PARAMEDIC STANDING ORDERS**
Consider the use of one of the following medications with the use of an IV pump or flow restricting device:
**Norepinephrine:** 1 – 30 micrograms/minute titrated to effect is the preferred agent. **OR**
**Phenylephrine:** 100 – 180 microgram loading dose followed by infusion of 40 – 60 micrograms/min titrated to effect. **OR**
**Epinephrine Infusion:** 2 – 10 micrograms/minute titrated to effect.

* 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 orders.

Consider → **DISTRIBUTIVE SHOCK**

Inadequate blood volume distribution.

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

Protocol Continued





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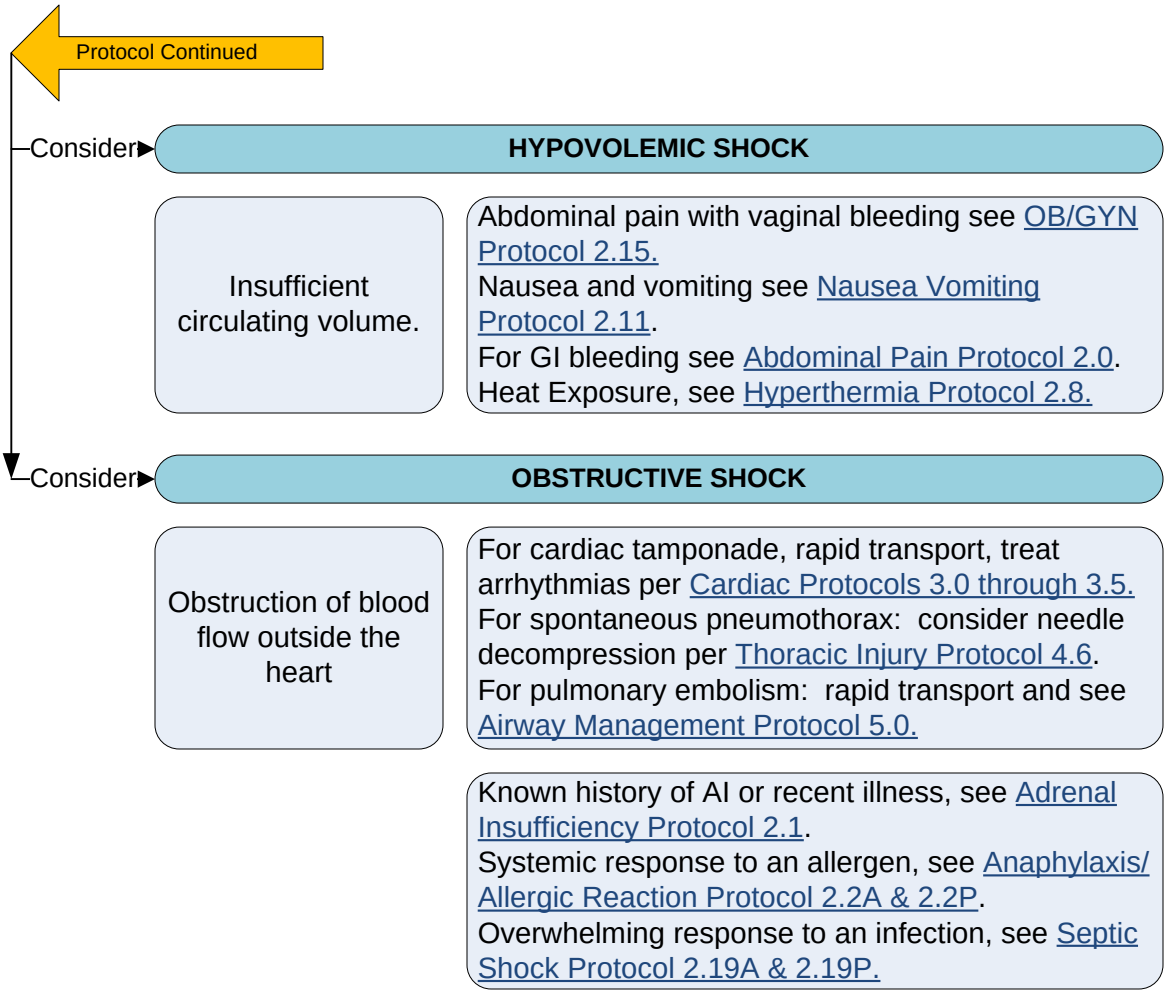
# 2.20 Shock (Non-Traumatic) Pediatric & Adult



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# Smoke Inhalation - Adult 2.21A

**EMT STANDING ORDERS**

E

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

**ADVANCED EMT/PARAMEDIC STANDING ORDERS**

****AEMT's Practicing Under 2007 National Scope of Practice****

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 0.9% NaCl 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.

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

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

PEARLS:

- Smoke is a dangerous mixture of toxic gases and suspended chemicals consequential to combustion. 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.





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# Smoke Inhalation - Pediatric 2.21P

**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**

****AEMT's Practicing Under 2007 National Scope of Practice****

A/P

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

- Hydroxocobalamin via use of Cyanokit
  - Reconstitute: Place the vial of hydroxocobalamin in an upright position; add 0.9% NaCl to the vial (200 mL for 5 grams vial 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 per Pediatric Color Coded Appendix 2 over 7.5 minutes for 100 mL vial set or 15 minutes for 200 mL vial set.
  - Depending on clinical response, a second dose may be required.

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

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**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.



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# Stroke – Adult & Pediatric 2.22



**EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS**

- Routine Patient Care.
- Obtain glucose reading via glucometer. If less than 70mg/dL treat per Hypoglycemia Protocol 2.9.
- Perform Cincinnati Pre-hospital Stroke Scale, or equivalent nationally recognized stroke scale.
- Clearly determine time of onset of the symptoms or the last time seen well.
  - If the patient wakes from sleep or is found with symptoms of stroke, the time of onset of first symptoms is defined as the last time the patient was observed to be normal.
- If any 1 of the signs of the stroke scale is abnormal notify the emergency department of a "Stroke Alert" as soon as possible, per local stroke plan, and ensure to provide the last time seen well and onset of symptoms.
- Elevate the head of the stretcher 30 degrees.
- Do not delay for ALS intercept.
- On scene goal should be ≤15 minutes
- Consider air medical transport per local stroke plan, see Air Medical Transport Procedure 6.2
- 12-lead ECG if available.
- Consider transporting a witness, family member, or caregiver with the patient to verify the time of the onset of stroke symptoms.
- Patient should be reassessed every 15 minutes including a repeat of applicable Stroke Scale.

| Prehospital Stroke Scale |
|---|
| **Facial Droop:** *Have the patient smile and show teeth.*<br>Normal: Both sides of the face move equally well..<br>Abnormal: One side of the face does not move as well as the other. |
| **Arm Drift:** *Have the patient close their eyes and hold arms extended.*<br>Normal: Both arms move the same, or both arms don't move at all.<br>Abnormal: One arm doesn't move, or one arm drifts down compared to the other. |
| **Speech:** *Ask the patient to repeat a phrase such as, "You can't teach an old dog new trick".*<br>Normal: Patient says the correct words without slurring.<br>Abnormal: Patient slurs words, says the wrong word, or is unable to speak. |
| If 1 or more of the above 3 signs are abnormal, then your patient has an abnormal stroke scale finding. An abnormal stroke scale finding has a high probability of having a stroke. |

PEARLS:
The "D's of Stroke Care" "Improve Door to Needle Time"

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



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# 2.23 Syncope Adult & Pediatric

**EMT STANDING ORDERS- ADULT**

E

- Routine Patient Care
- Maintain oxygen saturation ≥94 %
- 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 analysis if available; refer to Hyperglycemia 2.7A&P or Hypoglycemia 2.9 A&P Protocols if indicated.
- Assess for signs/symptoms of trauma if related or from fall associated with syncope; refer to Spinal Injury Protocol 4.5 if indicated.
- Prevent and treat for shock; see Shock – Non-traumatic 2.0 or Shock – Traumatic Protocol 4.4.
- Consider ALS intercept.

**ADVANCED EMT STANDING ORDERS**

A

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

**PARAMEDIC STANDING ORDERS**

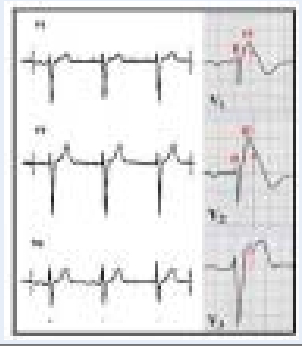
P

- 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**







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# Acute Coronary Syndrome Adult 3.0

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

## EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- Obtain 12-lead ECG with baseline vitals within 10 minutes if available and practical; and transmit per sponsor hospital policy.
  - o If 12-lead ECG indicates a STEMI transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements. Notify receiving facility of a "STEMI Alert".
- Administer oxygen only to patients with dyspnea, hypoxia ($O_2$ sat <94%), or signs of heart failure at a rate to keep $O_2$ saturation ≥94%.
- If patient has not taken Aspiring 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

**IF OPERATING UNDER 2007 NATIONAL SCOPE OF PRACTICE**

- Nitroglycerin 0.4 mg SL every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg.

## PARAMEDIC STANDING ORDERS - ADULT

P

- Consider IV nitroglycerin at 10 micrograms/minute if symptoms persist after 3rd SL nitroglycerin (it is recommended two (2) IV lines should be in place).
- Increase IV nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic BP remains >100 mmHg.
- If IV 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 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/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.



Protocol Continues

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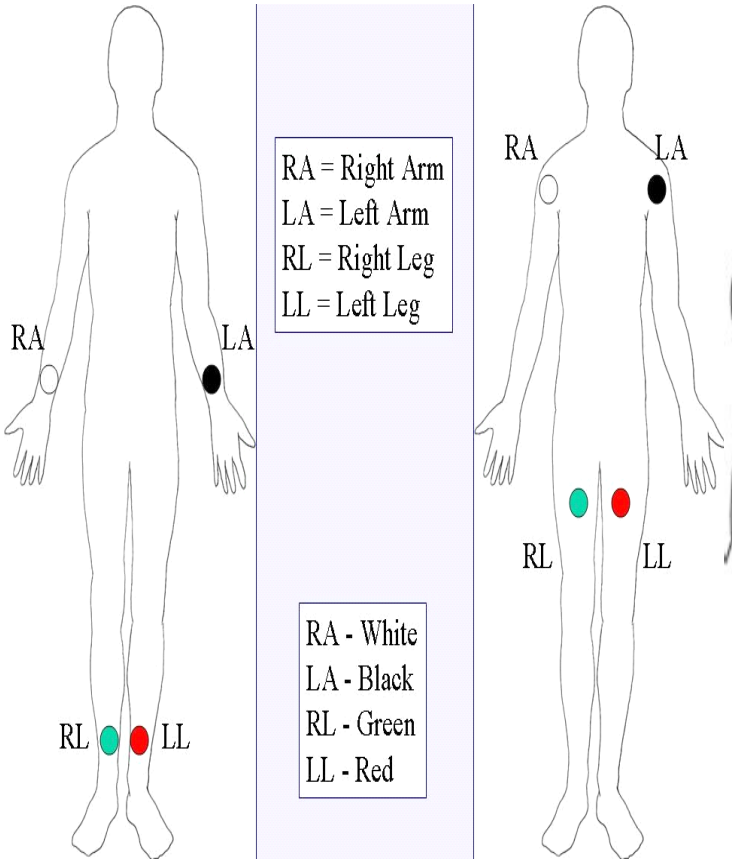
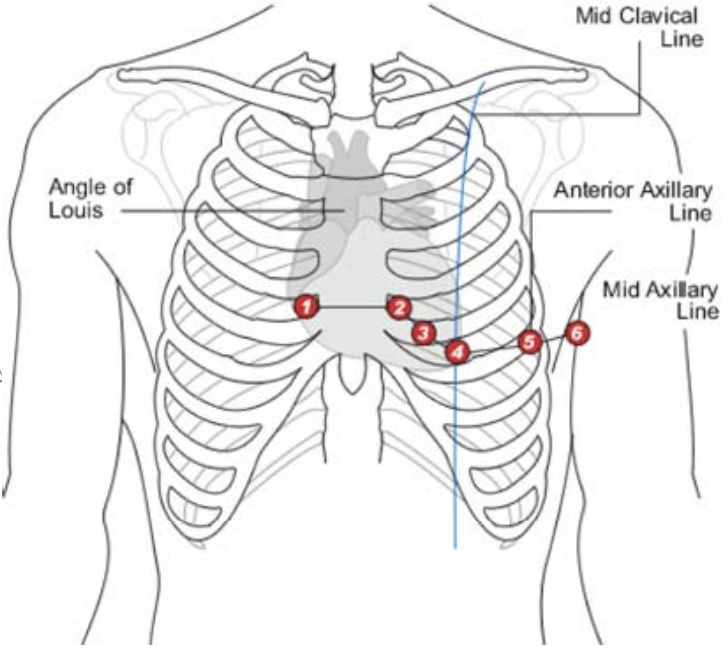
# 3.0 Acute Coronary Syndrome Adult

Protocol Continued

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




PEARLS:

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





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# 3.1A Bradycardia – Adult



## EMT/ADVANCED EMT STANDING ORDERS

E/A

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

## PARAMEDIC STANDING ORDERS

P

**If symptomatic and hemodynamically unstable:**

- Consider atropine 0.5 mg IV 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/IN, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes, **OR**
    - Lorazepam 1 mg IV, may repeat once in 5 minutes; or 2 mg IM, may repeat once in 10 minutes, **OR**
    - Diazepam 2 mg IV; may repeat once in 5 minutes.

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
- Norepinephrine 1 – 30 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 over 3 – 5 minutes.
- For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:
  - Calcium gluconate 2 grams IV over 5 minutes, with continuous cardiac monitoring OR
  - Calcium chloride (10% solution) 1 gram IV over 5 minutes, with continuous cardiac monitoring.

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

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



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# Bradycardia – Pediatric 3.1P

**EMT/ADVANCED EMT STANDING ORDERS**

E/A

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

**PARAMEDIC STANDING ORDERS**

P

- Epinephrine 1:10,000; 0.01 mg/kg IV (0.1 mL/kg of 1:10,000) every 3 – 5 minutes.
- Consider atropine 0.02 mg/kg IV 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/IN, **OR**
- Diazepam 0.05 mg/kg IV.

**Other Causes:**

- For hypoglycemia see Hyperglycemia Protocol 2.7P or Hypoglycemia Protocol 2.9P.
- For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 0.025 – 0.5 mg/kg.
- For symptomatic calcium channel blocker overdose consider:
- Calcium gluconate (10% solution) 100 mg/kg IV with a maximum 2 gm dose over 5 minutes; may repeat in 10 minutes, **OR**
- Calcium chloride (10% solution) 20 mg/kg IV (0.2 mL/kg) with a maximum 1 gm dose over 5 minutes; not to exceed 1 mL per minute. May repeat in clinical indication persists.

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

PEARLS:

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



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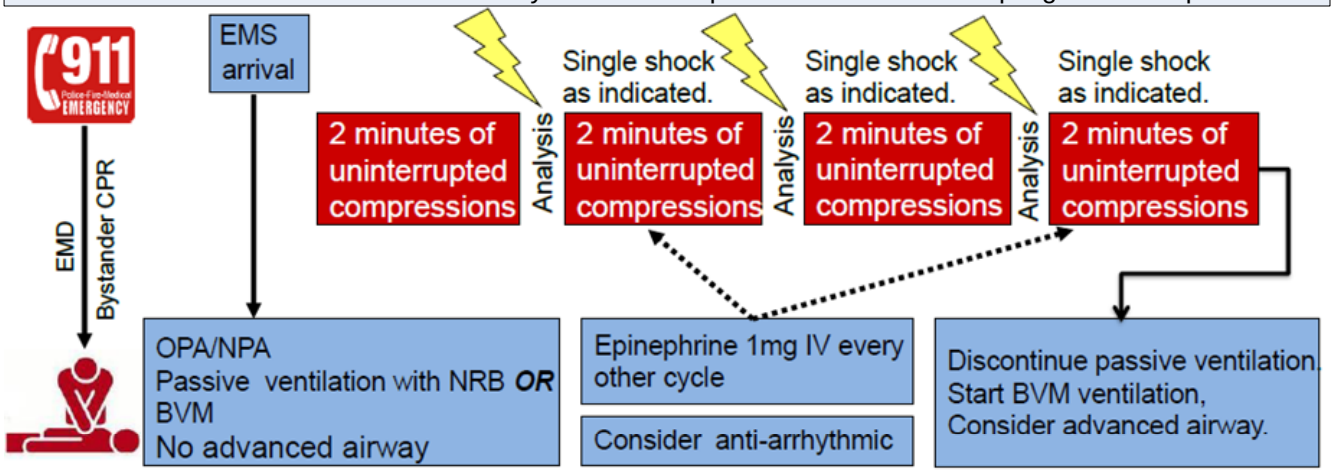
# 3.2A Cardiac Arrest – Adult

- Perform 2 minute cycles of uninterrupted chest compressions
- Interrupt chest compressions only for rhythm/pulse check and defibrillation.
- Ventilation / Oxygenation options:
  - For arrests of suspected cardiac etiology
    - Passive insufflation – apply high flow oxygen via NRB OR
    - BVM ventilation – 1 breath every 10 chest compressions without interrupting chest compressions
  - For arrests of non-cardiac etiology, including respiratory, trauma, and suspected overdoses:
    - BVM ventilation – 1 breath every 10 chest compressions without interrupting chest compressions




**EMT STANDING ORDERS - ADULT**

E

- Routine Patient Care—with focus on CPR
- Immediate chest compressions.
- Use AED as soon as possible, with minimal interruption of chest compressions.
- Continue 2 minute cycles of uninterrupted chest compressions followed by AED analysis and shock for 4 cycles (8 minutes).
- Place an oral or nasal airway.
- Ventilation / oxygenation options during 4 cycles (8 minutes):
  - Apply high flow oxygen via NRB, **OR**
  - BVM ventilation 1 breath every 10 chest compressions during recoil and without interrupting compressions. **Consider the use of a pediatric BVM to deliver only the necessary volume to achieve chest rise.**
  - Consider advanced airway **only** if airway patency cannot be maintained using basic maneuvers and adjuncts.
- After 4 cycles (8 minutes):
  - Continue 2 minute cycles of uninterrupted chest compressions.
  - If passive insufflation was used, switch to BVM ventilation.
- Consider treatable causes: hypoxia, overdose/poisoning, hypothermia, hypoglycemia, and hypovolemia—treat as per specific protocol.
- If ROSC occurs see Post Resuscitative Care Protocol 3.5.
- Consider termination of efforts or not attempting resuscitation (see Do Not
- Resuscitate Orders 6.7) and/or
  (Resuscitation Initiation and Termination Procedures 6.15.)

Protocol Continues





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# Cardiac Arrest – Adult



Protocol Continued

**ADVANCED EMT STANDING ORDERS - ADULT**

A

- Consider placement of a Combitube after 8 minutes or 4 cycles of CPR.
- Place IV without interrupting chest compressions.

**PARAMEDIC STANDING ORDERS - ADULT**

P

- Place IV/IO if not already completed without interrupting chest compressions.
- If utilizing a BVM, monitor quantitative waveform capnography throughout resuscitation to assess CPR quality and to monitor for signs of Return of Spontaneous Circulation (ROSC).
- Defibrillate as indicated per manufacturer's recommendations.
- After 4 cycles (8 minutes):
  - Consider endotracheal intubation or use of an alternative airway without interrupting chest compressions.
- Administer anti-dysrhytmic as indicated.
- Consider tension pneumothorax and treat with needle decompression.
- For suspected pre-existing metabolic acidosis, suspected or known hyperkalemia (dialysis patient), known tricyclic antidepressant overdose, or suspected excited/agitated delirium consider:
  - Sodium bicarbonate 2 mEq/kg IV.
- For suspected or known hyperkalemia (dialysis patient) consider:
  - Calcium gluconate 2 gram IV, OR
  - Calcium chloride (10%) 1 gram IV.

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

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

PEARLS:

- It is expected, unless special circumstances are present, resuscitation will be performed on
- scene until ROSC or termination of efforts. See Resuscitation Initiation and Termination Procedures 6.15.
- Early CPR and early defibrillation are the most effective therapies for cardiac arrest care.
- **Minimize interruptions in chest compression**, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- **Recognizing the goal of immediate uninterrupted chest compressions, consider delaying application of mechanical CPR devices until after the first four cycles (8 minutes). If applied during the first 4 cycles, the goal is to limit interruptions. Mechanical devices should only be used by services that are practiced and skilled at their application.**
- Switch compressors at least every two minutes to minimize fatigue.
- Perform chest compressions while defibrillator is charging and resume compressions immediately after the shock is delivered.



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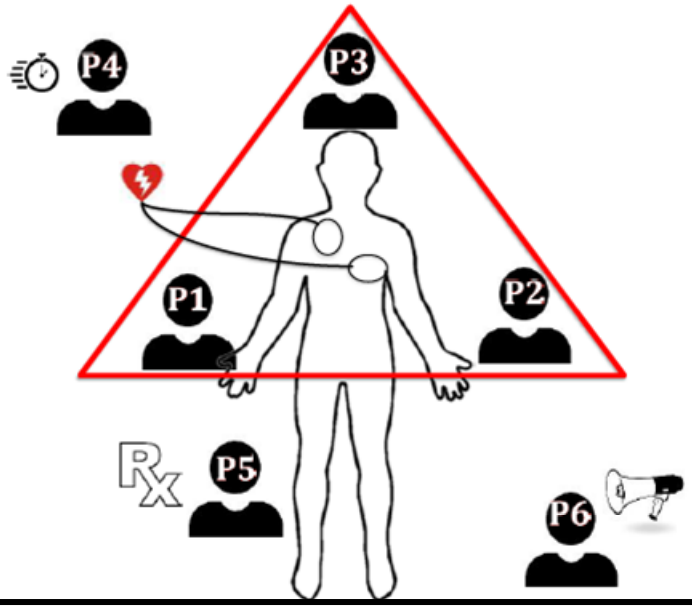
# 3.2A Team Focused CPR - Adult

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




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

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

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

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

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

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

Protocol Continues





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# Team Focused CPR – Adult



Protocol Continued

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

**Example Cardiac Arrest Check List**

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

**Consider possible causes:**

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



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# Cardiac Arrest – Pediatric 3.2P

## EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine patient Care—with focus on CPR
- Immediate chest compressions.
- Apply AED and use as soon as possible (with minimum interruption of chest compressions). From birth to age 8 years use pediatric AED pads.
  - If pediatric AED pads are unavailable, providers may use adult AED pads, provided the pads do not overlap.
- Consider termination of efforts or not attempting resuscitation, see Do Not Resuscitate (DNR) Orders and/or Resuscitation Initiation and Termination Procedure 6.15.
- 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 3.5.
- If ventilation is adequate with BVM, routine placement of advanced airway can be deferred.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions. in this setting, supraglottic airways and ETTs can be considered equivalent.
- For suspected metabolic acidosis, suspected or known hyperkalemia (dialysis patient), or known tricyclic antidepressant overdose, consider:
  - Sodium bicarbonate 2 mEq/kg IV.

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

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

**For Asystole or Pulseless Electrical Activity (PEA):**

- Administer Epinephrine (1:10,000) 0.01 mg/kg (0.1 mL/kg) IV 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.
- 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.

ETT should be a last resort for administration of medications





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# 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 Continuous Positive Airway Pressure (CPAP) with maximum 10cm $H_2O$ pressure support.

**ADVANCED EMT STANDING ORDERS - ADULT**

A

- Establish IV access

****AEMTs practicing under 2007 National Scope of Practice****

- 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

While symptoms persist and systolic blood pressure remains >100 mmHg, consider:

- IV nitroglycerin 20 micrograms/minute, increase by 10 – 20 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 or SL nitroglycerin is unavailable or unable to be administered.

- 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.



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# 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.
- Maintain oxygen saturation at ≥ 94%.

## PARAMEDIC STANDING ORDERS - ADULT

P

- If the patient is unresponsive, consider transport to a facility capable of inducing therapeutic hypothermia.
- Maintain systolic blood pressure of >90 mmHg.

**For Post-resuscitation hypotension:**

- Administer 0.9% NaCl in 250 – 500ml boluses. Total volume should not exceed 2,000ml.
- Consider one of the following medications **with the utilization of an IV pump or IV flow regulating device:**
  - Norepinephrine infusion 1 – 30 microgram/min **OR**
  - Phenylephrine 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min. **OR**
  - Epinephrine infusion 2 – 10 microgram/minute titrated to effect
- Consider nasogastric or orogastric tube for the intubated patient if available.

## PARAMEDIC STANDING ORDERS - PEDIATRIC

**Post-Resuscitative Care**

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

**For Post-Resuscitation Hypotension:**

- IV 0.9% NaCl 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 – 2 micrograms/kg/min titrated to effect, **OR**
    - Epinephrine 0.1 – 1 micrograms/kg/min titrated to effect.

PEARLS:

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



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# Tachycardia - Adult 3.5A

**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.**

**If symptomatic and hemodynamically unstable:**

- Synchronized cardioversion: Follow manufacturer's recommendations for dosing.

- Consider administer of one of the following prior to or during cardioversion, if feasible:
  - Midazolam 2.5 mg IV/IN, may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes or; 2 mg IM, may repeat once in 10 minutes, **OR**
  - Diazepam 2 mg IV, may repeat once in 5 minutes.

**If symptomatic, but hemodynamically stable:**

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

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



Protocol Continues

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# 3.5A Tachycardia - Adult

Protocol Continued

**PARAMEDIC** **STANDING ORDERS - ADULT**

P

**For wide complex tachycardia:**

- For regular rhythm with monomorphic QRS:
  - Consider: adenosine 6 mg rapid IV.
    - May repeat at dose of 12 mg after 1 – 2 minutes if no conversion.
    - May repeat successful dose if rhythm recurs after conversion.

Consider:

- 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
  - May repeat once in 5 minutes to a maximum of 3 mg/kg.
  - If successful, consider a maintenance infusion of 1 – 4 mg/minute

**For polymorphic Ventricular Tachycardia/Torsades de Pointes:**

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

- Diltiazem is contraindicated in patients with a history of or suspected Wolff-Parkinson-White (WPW) syndrome.
- Consider reducing Diltiazem dose by 50% in elderly patients.
- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.

PEARLS:

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





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# Tachycardia – Pediatric 3.5P

**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:**

- Attempt vagal maneuvers, for regular rhythms.
- If vagal maneuvers fail and rhythm is regular:
  - Adenosine 0.1 mg/kg IV not to exceed 6 mg (first dose).
    - Repeat once at 0.2 mg/kg not to exceed 12 mg (subsequent dose).
- If adenosine is ineffective or for wide complex, perform 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, IN **OR**
  - Diazepam 0.05 mg/kg IV.

**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 not to exceed 6 mg (first dose).
    - May repeat once at 0.2 mg/kg IV not to exceed 12 mg (subsequent dose).
- **For wide complex:**
  - Contact **Direct Medical Oversight** for consideration of amiodarone 5 mg/kg IV (maximum: 300mg) over 20 – 60 minutes.

PEARLS:

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



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# 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 2.21A.
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines.
- Do not include 1st degree burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, apply room-temperature water or room-temperature wet towels to the burned area for a maximum of 15 minutes. Prolonged cooling may result in hypothermia.
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments, creams, or gels to the burn area.

## ADVANCED EMT STANDING ORDER

A

- If patient has sustained burns >20% TBSA then initiate fluid resuscitation:
  - Transport time less than 1 hour:
    - Administer 0.9% NaCl at 500 mL/hour
  - Transport time greater than 1 hour:
    - Administer 0.9% NaCl at 1 – 2 mL/kg x % burn/8 = hourly rate x first 8 hours.

## PARAMEDIC STANDING ORDER

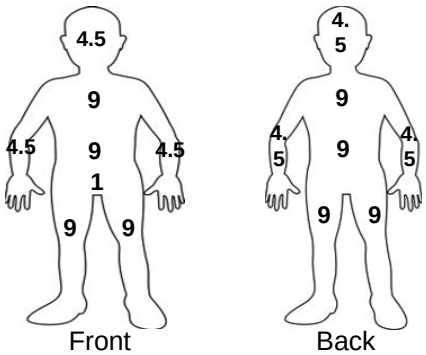
P

- If the patient has respiratory difficulty, burns about the mouth or neck, or is producing carbonaceous sputum, consider advanced airway management, see Airway Management Protocol 5.1A.
- Refer to Pain Management Protocol 2.16A.

In cases where burn patients are in shock, IV fluid administration should be based on the use of the Shock – Traumatic Protocol 4.4.

**Rule of Nines**

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




PEARLS:

- Patients with severe frostbite injury may benefit from urgent treatment with IV TPA at a burn center.
- Patients who sustain 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.

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# Burns - Pediatric 4.0P

## 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 2.21P.
- For chemical burns consider contacting Poison Control at 800-222-1222.
- Maintain patent airway.
- Determine percent extent of the burn using rule of nines. Remember to use the Pediatric Rule of Nines.
- Do not include 1st degree burns in burn surface area (BSA)%.
- Determine depth of injury.
- If a partial thickness burn (2nd degree) is <10% body surface area, apply room-temperature water or room-temperature wet towels to the burned area for a maximum of 15 minutes. Prolonged cooling may result in hypothermia.
- Maintain body temperature.
- Cover burns with dry, sterile sheets, or dry, sterile dressings.
- Do not apply any ointments, creams, or gels to the burn area.

## ADVANCED EMT STANDING ORDERS

A

- 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

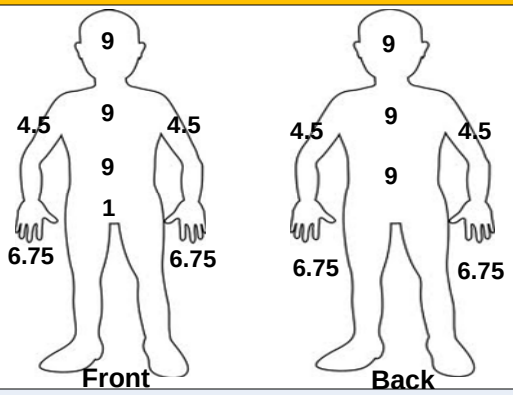
P

- If the patient has respiratory difficulty, 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 2.16P.

In cases where burn patients are in shock, IV fluid administration should be based on the use of the Shock – Traumatic Protocol 4.4.

**Rule of Nines**

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




PEARLS:

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

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# 4.1 Drowning/Submersion Injuries Adult & Pediatric

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

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

**EMT/AEMT/PARAMEDIC STANDING ORDERS**

E/A/P

- Routine Patient Care.
- Consider spinal motion restriction for suspected spinal injury, see Spinal Injury Protocol 4.5.
- 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 2.10. (Refer to table below).
- 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 with submersion injuries should be transported to the hospital.
- Consider CPAP to supplement the patient's own respiratory effort per CPAP Procedure 5.3.

| | |
|---|---|
| STAGE I:<br>Core Temp:<br>Treatment:<br>Stage II: | Conscious, shivering<br>35 - 32°C<br>Warm environment and clothing, warm sweet drinks, and active movement (if possible)<br>Impaired consciousness, not shivering |
| Core Temp:<br>Treatment: | <32 - 28°C<br>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 III:<br>Core Temp:<br>Treatment: | No vital signs<br><28 - 24°C<br>Stage II management plus airway management as required; ECMO or CPB in cases with cardiac instability that is refractory to medical management. |
| Stage IV:<br>Core Temp:<br>Treatment: | No vital signs<br><24°C<br>Stage II and III management plus CPR and up to three doses of epinephrine (at an I ntravenous 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 Stage III or IV hypothermia may benefit from treatment at a facility capable of ExtraCorporeal Membrane Oxygenation (ECMO) or CardioPulmonary Bypass (CPB).





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# Eye & Dental Injuries Adult & Pediatric

4.2

## EYE – EMT/ADVANCED EMT STANDING ORDERS

E/A

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

## EYE - PARAMEDIC STANDING ORDERS

P

- Proparacaine or tetracaine apply:
  - 2 drops to affected eye; repeat every 5 minutes as needed up to 5 doses.
- Consider use of Morgan lens for irrigation.
- Refer to Pain Management Protocol 2.16A.
- Refer to the Nausea Protocol 2.11.

## 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.



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# 4.3 Musculoskeletal Injuries Adult & Pediatric



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

**E**

- Routine Patient Care.
- Manually stabilize the injury.
- Control bleeding with pressure and/or tourniquet, see Tourniquet Procedure 6.16. Consider hemostatic dressing for severe hemorrhage.
- 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 4.5.
- 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 2.16.
- Administer 0.9% NaCl in 250 mL boluses to maintain systolic blood pressure greater than 90 mmHG. Total volume not to exceed 2000 mL without Direct Medical Oversight consulation

## STANDING ORDERS - PEDIATRIC

- Administer 0.9% NaCl in 20 mL/kg boluses to improve clinical condition (capillary refill rate, extremity pulses and warmth, mentation, and blood pressure.) Total volume not to exceed 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 an/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.



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# 4.4 Shock – Traumatic Adult & Pediatric



Recognize Compensated Shock – Adult
- Anxiety
- Tachycardia
- Tachypnea
- Diaphoresis

**SHOCK**

**Inadequate tissue perfusion that impairs cellular metabolism**

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

Hemorrhagic shock: Locations of blood loss include the chest, abdomen, pelvis, and multiple long bone fractures. Signs include pale, cool, clammy skin, tachycardia, and or hypotension.
Neurogenic shock: May occur after an injury to the spinal cord disrupts sympathetic outflow resulting in unopposed vagal tone. Signs include warm, dry skin, bradycardia, and/or hypotension.

**EMT STANDING ORDERS – ADULT & PEDIATRIC**
- 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 6.17, or hemostatic bandage.
- Keep warm and prevent heat loss.
- Assess blood glucose.
- Do not delay transport; consider hospital destination per Trauma Triage and Transport Decision Protocol 6.18.

**ADVANCED EMT STANDING ORDERS - ADULT**
- Administer 0.9% NaCl to maintain systolic blood pressure >90 mmHg in 250 – 500 mL boluses. Total volume should not exceed 2000 mL without consultation with Direct Medical Oversight.

**ADVANCED EMT STANDING ORDERS - PEDIATRIC**
- Administer fluid bolus 20 mL/kg of 0.9% NaCl 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**
- Consider obtaining a finger stick lactate level (if available and trained)
- If tension pneumothorax is suspected, consider needle thoracostomy, See Thoracic Injury Protocol 4.6.
- If cardiac tamponade is suspected, rapid transport and treat arrhythmias per Cardiac Protocols 3.0 – 3.5.

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

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



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# Spinal Trauma 4.5

The Connecticut Department of Public Health and the physician EMS medical directors of the Connecticut EMS Medical Advisory Committee have approved the following protocol. This protocol represents a significant change in practice for EMS providers. It reflects our intention to ensure EMS standards in Connecticut remain consistent with the best emergency medicine standards. Services should consult with their EMS sponsor hospital regarding implementation of and training in the use of this protocol. Resources are available on the Education and Training page of the CT OEMS website at: http://www.ct.gov/dph/EMS

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

## EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

### 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 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 baseline for patient);
- Cervical flexion, extension and rotation elicits midline spinal pain.

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

- Altered mental status (e.g., dementia, preexisting brain injury, developmental delay, psychosis, 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.

Protocol Continues





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# 4.5 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.

E/A/P

**If patient requires spinal motion restriction:**

- Apply a cervical collar.
- For ambulatory patients, allow the patient to sit on the stretcher, and then lie flat. (The "standing take-down" is eliminated.).
- 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.
- 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 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 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 vise-versa should be accomplished while continuing to limit motion of the spine. The use of slide boards, sheet lifts, etc. should be considered.

- **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



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# 4.5 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 <u>with both front and rear belt paths;</u>
  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.

**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.
- Caution should be exercised in older patients (e.g. 65 years or older) and in very young patients (e.g. less than 3 years of age), as spinal assessment may be less sensitive discerning spinal fractures in these populations.
- 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





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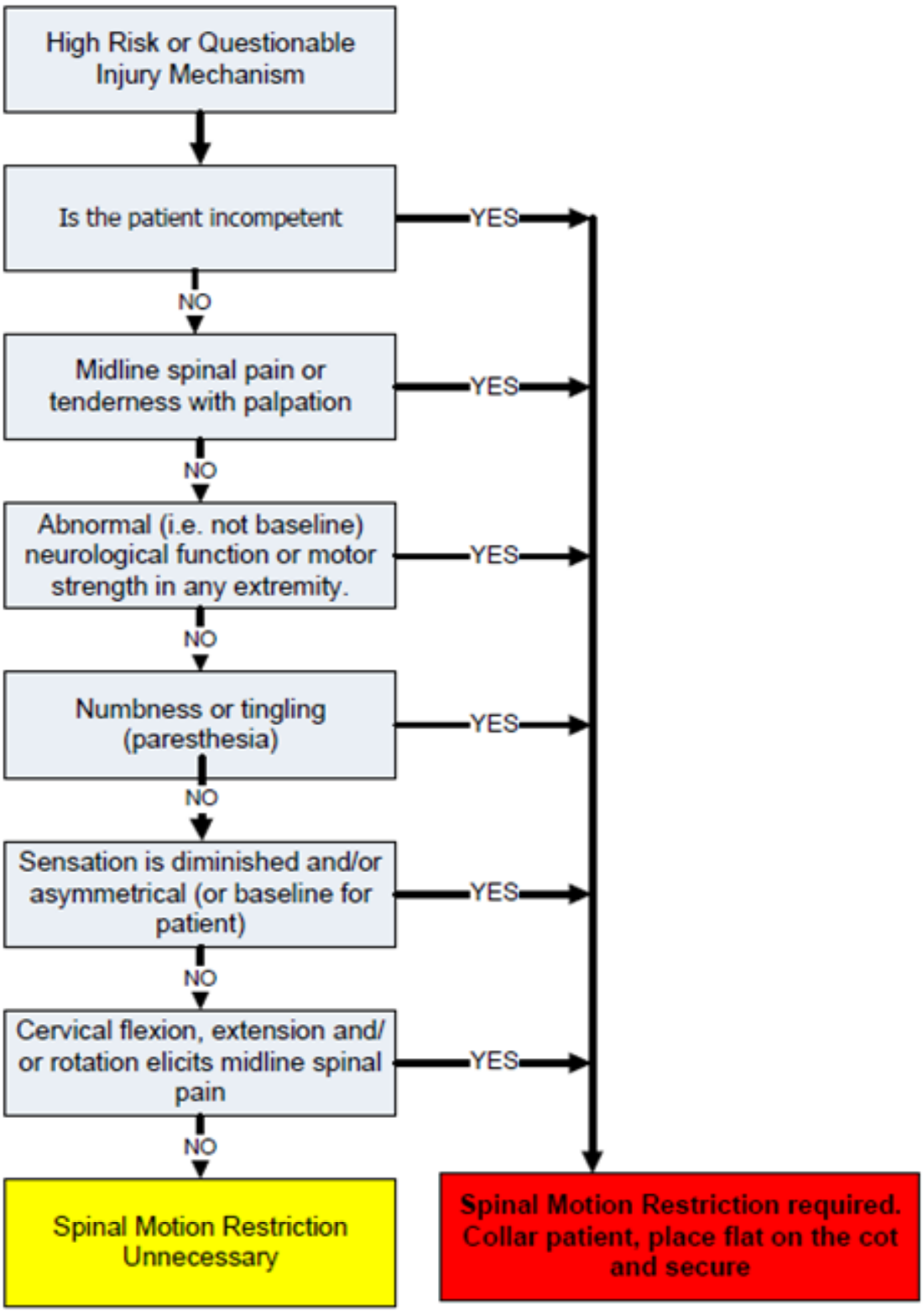
Protocol Continued





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# 4.6 Thoracic Injuries Adult & Pediatric

**EMT & ADVANCED EMT STANDING ORDERS**

E/A

- Routine patient care.
- If in shock, see Traumatic Shock Protocol 4.4.
- Impaled objects:
  - Secure in place with a bulky dressing.
- Open chest wound:
  - Cover with an occlusive dressing, sealed on 3 sides, or use a commercial device; if the 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.

**PARAMEDIC STANDING ORDERS - ADULT**

P

- Consider pain management, see Pain Management Protocol 2.16.
- In presence of tension pneumothorax*, perform needle decompression using ≥ 3.25 inch angiocath. Repeat decompression may be necessary with returned signs of tension pneumothorax.

* Signs and symptoms of Tension Pneumothorax:

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





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# 4.7 Traumatic Brain Injury Adult & Pediatric

## EMT STANDING ORDERS - ADULT

E

- Routine Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining $SpO_2$ >90%.
- Assess and document pupillary response and Glasgow Coma Scale every 5 minutes.
- Check blood glucose; if hypoglycemic, see Hypoglycemia Protocol 2.9.

## ADVANCED EMT STANDING ORDERS - ADULT

A

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

## PARAMEDIC STANDING ORDERS - ADULT

P

- If quantitative waveform capnography is available:
  - Ventilate to maintain a quantitative waveform capnography of 35 – 40 mmHg.
  - Do not hyperventilate unless clear signs of cerebral herniation are present
  - If signs of cerebral herniation* are present, maintain quantitative waveform capnography of 30 – 35 mmHg. If quantitative waveform capnography is not available, ventilate at the following rates::
    - Adult: 20 breaths per minute.
    - Child: 25 breaths per minute.
    - Infant: 30 breaths per minute.
- Discontinue hyperventilation when signs/symptoms improve.
- Consider intubation if GCS is <8.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 2.5 mg IV/IN may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes or; 2 mg IN may repeat once in 10 minutes, **OR**
  - Diazepam 2 mg IV; may repeat once in 5 minutes.



Protocol Continues

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# 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/IM or 0.1 mg/kg in (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV/IM maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

* SIGNS OF HERNIATION (2 or More)

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

PEARLS:

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





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# 5.0 Airway Management

**The goal of good airway management is good gas exchange.**

**ASSESSMENT**

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

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

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

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

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

- First, assess for difficulty of mask seal. Patients with facial hair, facial fractures, obesity, 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 using BVM with PEEP valve at 3 $cmH_20$. 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 own inhalation effort.

Procedure Continues



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**ADVANCED AIRWAY SKILLS**

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

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

**Supraglottic Airways:** 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:

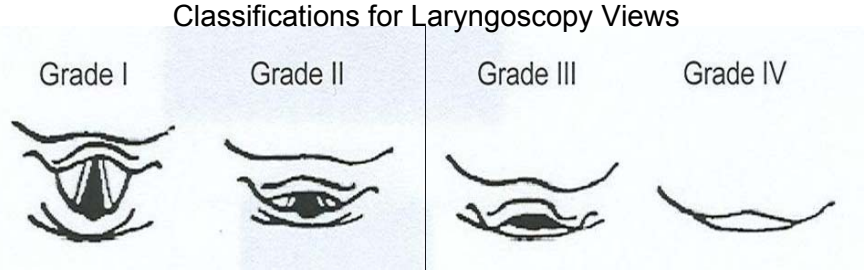
- Massive facial trauma
- Upper airway obstruction due to edema, mass or foreign body.

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

Classifications for Laryngoscopy Views



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# 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.
- Administer oxygen for oxygen saturation < 94% or shortness of breath.
- Consider inserting an oropharyngeal or nasopharyngeal airway adjunct.
- Assist ventilations with a bag-valve-mask device and supplemental oxygen as needed.

**EMTs If Sponsor Hospital trained and approved or AEMTs operating under 2007 scope of practice:**

- For adults in severe respiratory distress (Asthma/COPD/Pulmonary Edema/ Near Drowning) consider use of CPAP, see CPAP Procedure 5.3.

**PARAMEDIC STANDING ORDERS**

P

- Use least invasive method for respiratory failure. NRB → CPAP → BVM → SGA → ETT → Cri.
- For impending respiratory failure with intact gag reflex or trismus: consider Nasotracheal Intubation, see Nasotracheal Intubation Procedure 5.5.
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider supraglottic airway device or orotracheal intubation see Supraglottic Airways 5.10 or Orotracheal Intubation 5.6.
- 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 Procedure 5.8.
  - **Note: this procedure is only to be used by paramedics who are trained and credentialed to perform RSI by their Sponsor Hospital.**
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate:
  - Consider Cricothyrotomy – Precutaneous Procedure 5.2 **OR**
  - Consider Surgical Cricothyrotomy – Bougie Assisted Procedure 5.11 *.

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



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# Airway Management - Pediatric 5.1P



## E

**EMT/ADVANCED EMT STANDING ORDERS**

- 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 A2.
  - If unable to maintain an open airway through positioning, consider placing an oropharyngeal and/or nasopharyngeal airway.
- Determine if child's respiratory distress/failure is caused by a preexisting condition
  - For Allergic Reaction/Anaphylaxis, refer to the Allergic Reaction/ Anaphylaxis Protocol 2.2P.
  - For Asthma/Reactive Airway Disease/Croup, refer to the Asthma/ Bronchiolitis/Croup Protocol 2.4P.

## P

**PARAMEDIC STANDING ORDERS**

- 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 Procedure 5.3.
- Use least invasive method for respiratory failure. NRB → CPAP → BVM → SGA → ETT → Cri.
- Proceed to advanced airway only if airway cannot be maintained with positioning or ventilated via BVM.
- If feasible, place an OGT to decompress the stomach.
- If you cannot establish an airway or ventilate, see Cricothyrotomy Percutaneous Procedure 5.2.

| Pediatric Respiratory Distress | Pediatric Respiratory Failure |
|---|---|
| • Child is able to maintain adequate oxygenation by using extra effort to move air<br>• Signs include increased respiratory rate, sniffing position, nasal flaring, abnormal breath sounds, head bobbing, intercostal restractions, 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. | |



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# Continuous Positive Airway Pressure (CPAP) 5.2

**EMT/AEMTs WITH SPONSOR HOSPITAL APPROVAL OR AEMTs PRACTICING UNDER 2007 NATIONAL SCOPE OF PRACTICE**

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
- Agitated or combative behavior
- 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. Apply pulse oximetry, capnography nasal capture device and ECG as available and trained.
4. Choose appropriate sized device mask for patient, assemble the CPAP device, attach to oxygen supply and insure oxygen is flowing (follow manufacturers directions for preparation for your particular device).
5. Place mask over face and secure with straps until minimal air leak.
6. Adjust Positive End Expiratory Pressure (PEEP) to 5-10 $cmH_2O$ to effect for patient condition.
7. Recheck mask for leaks and adjust straps as needed to minimize air leaks.
8. Reassure anxious patient.
9. Monitor pulse oximetry, quantitative waveform capnography and ECG as available and trained.
10. If patient stabilizes, maintain CPAP for duration of transport and notify receiving hospital to prepare for a CPAP patient.
11. If patient begins to deteriorate, discontinue CPAP and assist respirations by BVM
12. Document CPAP procedure, including time and provider. Document serial pulse oximetry and capnography readings to demonstrate effects.

**PARAMEDIC STANDING ORDERS**

P

***Paramedics may utilize CPAP on Pediatric patients starting at 5 cmH20 of PEEP***

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

- Administer benzodiazipines with caution in patients with signs of hypercarbia.
- While not a contraindication; caution should be used in hypotensive patients.



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# Cricothyrotomy - Percutaneous 5.3

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.



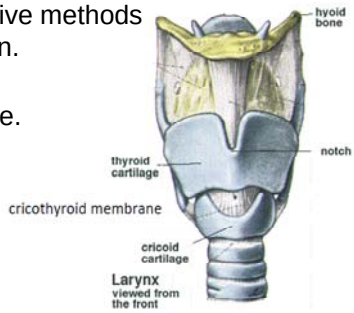
P

## PARAMEDIC STANDING ORDERS - ADULT

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

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

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




**EQUIPMENT:**
- Commercially prepared percutaneous cricothyrotomy device.
- Chlorhexadine wipes.
- Bag-valve-mask.
- Quantitative Waveform $ETCO_2$.

**PROCEDURE:**
(May vary slightly with different devices)
- 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 $ETCO_2$



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# 5.4 Gum Elastic Bougie/Flexguide - Adult

P

**PARAMEDIC STANDING ORDERS – ADULT**

**INDICATIONS**

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

**LIMITATIONS**

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

**PROCEDURE**

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

**SIGNS OF TRACHEAL PLACEMENT**

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

PEARLS:

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



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# Nasotracheal Intubation 5.5



**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. NRB → CPAP → BVM → SGA → ETT → Cric.

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.
- Lubricate the ETT with water-based lubricant.
- Remove the nasal airway and gently insert the ETT with continuous quantitiative 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 quantitiative 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 and securing patient to a long backboard (even for the medical patient) to protect the placement of the ETT.

Protocol Continues



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# 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 Procedures 5.3 or 5.11.

**POST INTUBATION CARE – ADULT**

P

Sedation:

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

**AND**

- Fentanyl 50 – 100 micrograms, slow IV push.

**POST INTUBATION CARE – PEDIATRIC**

Sedation:

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

**AND**

- Fentanyl 3-4 mcg/kg slow IV push.



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# Orotracheal Intubation 5.6



**PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC**

P

**INDICATIONS**

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

**CONTRAINDICATION**

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

**PROCEDURE**

1. Prepare all equipment and have suction ready.
2. Pre-oxygenate the patient.
3. Open the patient's airway. While holding the laryngoscope in the left hand, insert the blade into the right side of the patient's mouth, sweeping the tongue to the left. Use video laryngoscopy, if available and trained.
4. Use the blade to lift the tongue and the epiglottis, either directly with the straight (Miller) blade, or indirectly with the curved (Macintosh) blade.
5. Once the glottic opening is visualized, insert the tube through the vocal cords and continue to visualize while passing the cuff through the cords.
6. Remove the laryngoscope and then the stylet from the ETT.
7. Inflate the cuff with 5 – 10 mL of air.
8. **Confirm appropriate proper placement by quantitative waveform capnography** symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask, condensation in the ETT.
9. Secure the ETT, consider applying a cervical-collar to protect the placement of the ETT
10. Reassess tube placement frequently, especially after movement of the patient.
11. **Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.**
12. Document each attempt **(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



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# 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 INTUBATION CARE**

**Adult Patients**

Sedation:

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

**Pediatric Patients**

P

Sedation:

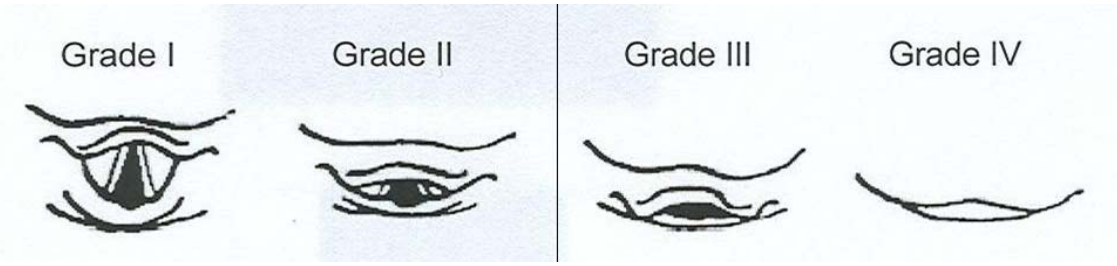
- Midazolam 0.1 mg/kg (4 mg maximum dose) every 10 minutes as needed, **OR**
- Lorazepam 0.1 mg/kg (4 mg maximum dose) every 10 minutes as needed.

**AND**

- Fentanyl 3-4 mcg/kg slow IV push.

**VIDEO LARYNGOSCOPY:**

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




Classifications for Laryngoscopy Views



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# 5.7 Quantitative Waveform Capnography



**PARAMEDIC** **STANDING ORDERS – ADULT & PEDIATRIC**

P

**Indications:**

- Confirmation of and ongoing monitoring of ETT and supraglottic airway device placement and ventilation status in both adult and pediatric patients, see Airway Management – Adult 5.1A/Pediatric 5.1P, Nasotrachel 5.5, Orotracheal Intubation 5.6 Protocols, Supraglottic Airways 5.10.
- To confirm and document ETT and supraglottic airway device placement, after every move, and at transfer of care.
- $ETCO_2$ should be used when respiratory distress is significant and or patient does not respond to initial beta-agonist treatment, see Asthma, COPD,RAD 2.4A OR Asthma, Bronchiolitis, Croup 2.4P.
- Routine monitoring of ventilation status in patients with altered mental status or patients with a history of asthma, CHF, diabetes, circulatory shock, pulmonary embolus and or acidosis.
- Monitoring of CPR quality and for signs of return of spontaneous circulation (ROSC) in cardiac arrest patients. High quality chest compressions are achieved when the $ETCO_2$ is at least 10-20 mmHg. If $ETCO_2$ abruptly increases it is reasonable to consider that this as an indicator of ROSC.
- To assist with termination of resuscitation efforts when $ETCO_2$ is <20 mmHg despite adjusting the quality of chest compressions. Low $CO_2$ production after 20 minutes of effective CPR is a predictor of mortality. See Resuscitation Initiation & Termination Policy 6.15.
- Monitoring patients following administration of narcotic pain medications or sedatives for evidence of hypoventilation and/ or apnea.
- For head injuries see, Traumatic Brain Injury Protocol 4.7.

**Procedure:**

- Attach the sensor to endotracheal tube, supraglottic airway, BVM or apply cannula with $ETCO_2$ mouth scoop or bi-cannula.
- Observe numeric capnometry $CO_2$ level, (normal $ETCO_2$ range 35-45 mmHg) and real-time capnography waveforms.
- Numeric capnometry as well as capnography morphology should be documented for patients undergoing airway management, cardiac arrest, altered mental status and respiratory distress.

**Notes:**

- High levels of $CO_2$ (>45 mmHg) may indicate hypoventilation/$CO_2$ retention, considering adjusting rate and depth of ventilation.
- Low levels of $CO_2$ (< 35 mmHg) may indicate hyperventilation, low perfusion, pulmonary embolus and/or sepsis, consider adjusting rate and depth of ventilation.
- Colorimetric $CO_2$ detectors are not an alternative to quantitative waveform capnography. ETT and supraglottic airway device placement should always be confirmed using quantitative waveform capnography.



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# Rapid Sequence Intubation (RSI) 5.8

**PARAMEDIC - PREREQUISITES REQUIRED - ADULT ONLY**

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

P

**INDICATION**

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

**PROCEDURE: THE SEVEN P'S**

**PREPARATION "SOAPME":** T minus 5 minutes.

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

**PREOXYGENATION:** T minus 5 minutes .

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

**PREMEDICATION:** T minus 3-5 minutes.

- Consider atropine 0.5 mg IV for bradycardia.

**PARALYZE AND SEDATE:** T minus 45 seconds.

- **Sedative Options:**
  - Etomidate (0.3 mg/kg IV; maximum 40 mg) OR
  - Ketamine: 2 mg/kg IV
- If Etomidate or Ketamine are not available:
  - Midazolam 0.2 mg/kg IV; 0.1 mg/kg IV for patients in shock.
- **Paralytic Options:**
  - Succinylcholine: 1.5 mg/kg IV immediately after sedation (maximum 200 mg). **OR**
  - Rocuronium 1 mg/kg IV, **OR**
  - Vecuronium 0.1 mg/kg IV.

**PASS THE TUBE**: T minus 0 seconds.

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

**SUCCINYLCHOLINE CONTRAINDICATIONS:**

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

Protocol Continues



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# 5.8 Rapid Sequence Intubation (RSI)

Protocol Continued

**PARAMEDIC - PREREQUISITES REQUIRED - Continued**

P

**PROOF OF PLACEMENT**

- Assess for proper placement by following the procedure outlined in Procedure: Orotracheal Intubation 5.6.

**POST INTUBATION CARE**

Sedation:

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

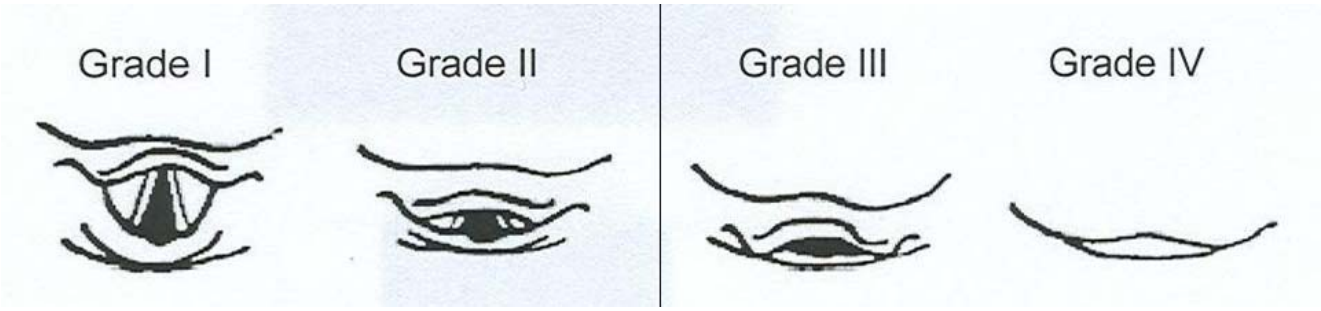
Paralysis (via **Direct Medical Oversight** only):

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

**DOCUMENTATION**

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

If failed airway and unable to ventilate consider Cricothyrotomy Protocols 5.3 or 5.11.




Classifications for Laryngoscopy Views





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# Suctioning of Inserted Airway 5.9

**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

E/A/P

## INDICATIONS

- Obstruction of the airway (secondary to secretions, blood, and/or any other substance) in a patient currently being assisted by an inserted airway such as an endotracheal tube, King LTD, or combi-tube. For tracheostomy tube see Tracheostomy Care 5.12.

## CONTRAINDICATIONS

- None.

## PROCEDURE

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



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# 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. **AEMT'S can only utilize a Combitube per the current Connecticut Scope of Practice.**

- Single Lumen Device (e.g., King, iGel, LMA Supreme).
- Double Lumen Device (e.g., Combitube).



**ADVANCED EMTs MAY UTILIZE A COMBITUBE ONLY FOR ADULT PATIENTS IN CARDIAC ARREST**

**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, if available**.
- Secure the device.
- Document the time, provider, provider level and success for the procedure. Complete all applicable airway confirmation fields including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal $CO_2$ readings.
- Reassess placement frequently, especially after patient movement.

A/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.
- Sedation may be used if required once a supraglottic airway is in place:
  - Midazolam 2 – 5 mg IV, every 5 – 10 minutes, as needed, **OR**
  - Lorazepam 1- 2 mg IV, may every 15 minutes as needed (maximum: 10 mg) **AND** Fentanyl 50 – 100 mcg, slow IV push.

**POST TUBE PLACEMENT CARE – PEDIATRIC**

Sedation:

- Midazolam 0.1 mg/kg (4 mg maximum dose) every 10 minutes as needed, **OR**
- Lorazepam 0.1 mg/kg (4 mg maximum dose) every 10 minutes as needed.

**AND**

- Fentanyl 2-3 micrograms/kg IV.

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# 5.11 Surgical Cricothyrotomy Bougie Assisted - Adult

**PARAMEDIC** **W/ SPONSOR HOSPITAL TRAINING AND APPROVAL - ADULT**

P

**INDICATIONS:**

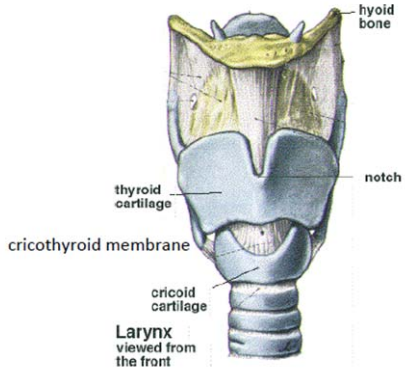
- Inability to adequately oxygenate and ventilate using less invasive methods

**CONTRAINDICATIONS:**

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

**EQUIPMENT:**

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




**PROCEDURE:**

- Position the patient supine and extend the neck as needed to improve anatomic view.
- Prep neck with Chlorhexidine
- Using your non-dominant hand, stabilize the larynx and locate the following landmarks: thyroid cartilage (Adam's apple) and cricoid cartilage. The cricothyroid membrane lies between these cartilages.
- Make an approximately 3 cm vertical incision 0.5 cm deep through the skin and fascia, over the cricothyroid membrane. With finger, dissect the tissue and locate the cricothyroid membrane.
- Make approximately a 1.5 cm horizontal incision through the cricothyroid membrane.
- With your finger or other suitable object (blunt end of scalpel, etc.), bluntly dilate the opening through the cricothyroid membrane. Consider use of a tool (cric-hook, curved hemostat etc.) to maintain this opening with gentle yet controlled pressure.
- Insert the bougie curved-tip first through the incision and angled towards the patient's feet.
- Advance the bougie into the trachea feeling for "clicks" of tracheal rings and until "hangup" when it cannot be advanced any further. This confirms tracheal position.
- 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.



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# 5.12 Tracheostomy Care



## EMT/ADVANCED EMT STANDING ORDER – ADULT & PEDIATRIC

E/A

**INDICATIONS:**

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

**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 bag-valve-mask device with high-flow oxygen.
- If on a ventilator, remove the patient from the ventilator prior to using bag valve mask device as there may be a problem with the ventilator or oxygen source.

P

**PARAMEDIC PROCEDURES:**

- Suction if unable to ventilate via tracheostomy or if respiratory distress continues.
- Use no more than 100 mmHg suction pressure.
- If the tracheostomy tube has a cannula, remove it prior to suctioning.
- Determine proper suction catheter length by measuring the obturator.
- If the obturator is unavailable, insert the suction catheter approximately 2 – 3 inches into the tracheostomy tube. **Do not use force!**
- 2 – 3ml saline flush may be used to help loosen secretions.
- If the patient remains in severe distress, continue ventilation attempts using bag valve mask with high-flow oxygen via the tracheostomy. Consider underlying reasons for respiratory distress and refer to the appropriate protocol for intervention.

## PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

**INDICATIONS**

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

**CONTRAINDICATIONS**

- None.

**PROCEDURE**:

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



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# Ventilator 5.13

**PARAMEDIC – ADULT & PEDIATRIC**

P

## PURPOSE

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

## INDICATIONS

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

## CONTRAINDICATIONS

- Pediatric patients with advanced airways placed by EMS.

## SPECIAL CONSIDERATIONS

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

## SETTINGS

The following initial settings are recommended.

**Mode:** Assist Control (AC) – Volume

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

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

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

Protocol Continues



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# 5.13 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, traumatic brain injury).

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

**PEEP:** 2 to 5 $cmH_2O$.

**ALARM SETTINGS**

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

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

P

**SCOPE**

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

This procedure may vary slightly dependent upon device specific directions





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# 12-Lead ECG Acquisition 6.0



**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 – 4$^{TH}$ intercostal space at the right sternal border.
   - V2 – 4$^{TH}$ intercostal space at the left sternal border.
   - V3 – Directly between V2 and V4.
   - V4 – 5$^{th}$ 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.



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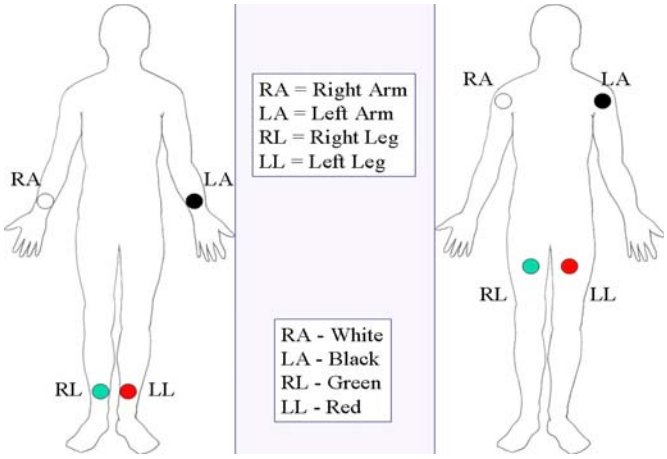
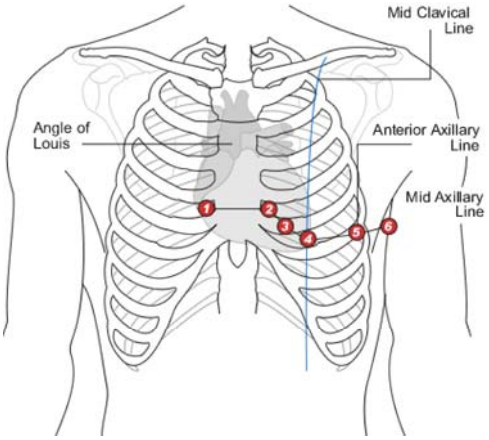
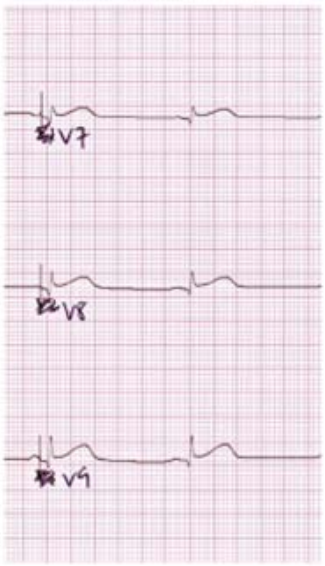
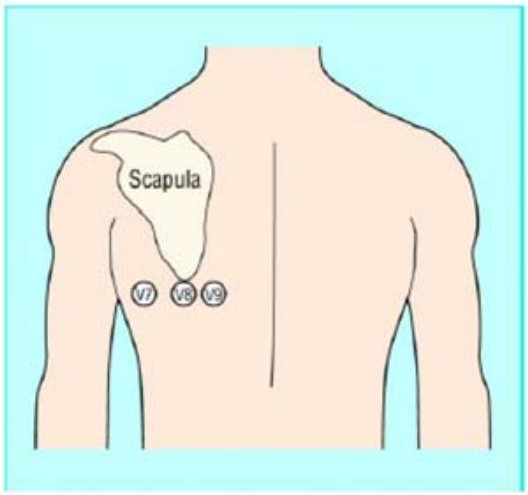
# 12-Lead ECG Acquisition




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").



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# Abuse and Neglect of Children and the Elderly

# 6.1



***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.

***Procedure for Assessment***

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

***Special Considerations***

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

Procedure Continues



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Procedure Continued

***Reporting Procedures***

**Child Abuse***

**Report suspected child abuse immediately**

- Mandated reporters must report orally to the Department of Children and Families' (DCF) Hotline or a law enforcement agency within 12 hours of suspecting that a child has been abused or neglected and must submit a written report (DCF-136 ) to DCF within 48 hours of making the oral report.
- DCF 24 Hour Hotline 1-800-842-2288

* Responsibility for reporting child abuse and protection from liability for such reporting is established by the CT General Statute 17a-101.

For further information regarding the report of Child Abuse refer to OEMS Communications Statement 15-02.

**Abuse to Elders****

**Report suspected 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.



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# Air Medical Transport 6.2

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 Oversightl 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, 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 both children and adults 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.
- 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 with an uncontrolled airway or uncontrollable hemorrhage should be brought to the nearest hospital unless advanced life support (ALS) service (by ground or air) can intercept in a more timely fashion.
- AMT is **NOT** indicated for patients in cardiac arrest.
- 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.





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# 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.

***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.

Procedure Continues



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# Bloodborne/Airborne Pathogens 6.3

Procedure Continued

## *Airborne Personal Protective Equipment (APPE)*

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

## Pre-hospital - Procedures and Considerations

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

## *Decontamination and Follow-up*

- In addition to accepted procedures for cleaning and disinfecting surfaces and equipment with approved solutions and for the proper disposal of contaminated items, the use of fresh air ventilation should be incorporated (e.g., open all doors and windows to allow fresh air after arrival at the hospital).

- All personnel in contact with the patient should wash their hands thoroughly with warm water and an approved hand-cleansing solution. When soap and water are not immediately available, a hand sanitizer containing 60% isopropyl alcohol is recommended as an interim step until thorough hand washing is possible.

- Contaminated clothing should not be brought home by the employee for laundering, but laundered in a department provided washer or by other uniform cleaning arrangements.

- Ambulances equipped with airborne pathogen filtration systems should be cleaned and maintained in accordance with the manufacturer's guidelines.

- As soon as possible following all suspected blood borne or airborne exposures, the EMS provider should complete all appropriate documentation as identified in their department's specific policies.





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# Communications Failure 6.4

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 Medical Control as soon as possible.
- The EMS provider shall provide a written notification pertaining to the communications failure describing the events, including the patient's condition and treatment given, and referencing the EMS Incident Report. This report must be filed with the Agencies Sponsor Hospital's EMS Medical Director and/or Hospital EMS Coordinator within 48 hours of the event.



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# 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.

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

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

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

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

*Special Circumstances*

- A minor parent who has not yet reached his/her eighteenth birthday may consent to or refuse care on behalf of his or her minor children, provided that the minor parent has the capacity to understand the nature of the treatment and the possible consequences of consenting to or refusing care.
- Any minor patient does not require parental consent for treatment of sexually transmitted diseases.
- 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.





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# Crime Scene Preservation of Evidence

# 6.6

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

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

- Have all EMS providers use the same path of entry and exit, if feasible.
- Do not walk through fluids.
- Do not touch or move anything at a crime scene unless it is necessary to do so for patient care (notify law enforcement prior to moving so if possible).
- Observe and document original location of items moved by crew.
- When removing patient clothing, leave it intact as much as possible.
  - Do not cut through clothing holes made by gunshot or stabbing.
- If you remove any items from the scene, such as impaled objects or medication bottles, document your actions and advise a law enforcement official.
- Do not sacrifice patient care to preserve evidence.
- Consider requesting a law enforcement officer to accompany the patient in the ambulance to the hospital.
- Document statements made by the patient or bystanders on the EMS patient care report.
  - Comments made by a patient or bystanders should be denoted in quotation marks.
- Inform staff at the receiving hospital that this is a “crime scene” patient.
- If the patient is obviously dead consistent with the Resuscitation Initiation & Termination Policy 6.15, 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.



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# 6.7 Do Not Resuscitate (DNR) Orders

***Recognized DNR Options in Connecticut***

1. The following are the only recognized DNR options in Connecticut:

- 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.

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

**Note:** Neither a Living Will or a Connecticut Advanced Health Care Directive form is as effective as a valid DNR order. 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.

When a written DNR order is not available and a Power of Attorney is present and requests that resuscitation be withheld, contact **Direct Medical Oversight** for guidance.

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

A DNR order written by a physician or APRN (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.

***For Patients Being Transferred***

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

***DNR Orders from Other States***

EMS providers should contact **Direct Medical Oversight** for guidance when presented with any DNR form that is from another state.

***Revocation of a DNR Order***

A DNR order may be revoked by the patient or an authorized representative 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.

You must have a valid DNR order, DNR transfer form, or DNR bracelet. Neither an Advanced Health Directive or a Living Will may be treated as a DNR order.

*In accordance with Public Act 16-39 Sec. 21

Protocol Continues





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# Do Not Resuscitate (DNR) Orders 6.7

Protocol Continued

***Procedures not to be Performed***

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

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

***Procedures that may be performed***

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

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

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



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# 6.8 Intraosseous Access

**PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC**

P

Procedure 6.8

## Definition

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

## Indication

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

## Contraindications

- Placement in or distal to a fractured bone including the pelvis.
- Placement at a burn or infected site.
- Placement distal to a source of major bleeding in an extremity.

## Complications

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

## Equipment:

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

Procedure Continues



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# Intraosseous Access 6.8

Procedure Continued

P

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

1. Place the patient in a supine position.
2. Identify the bony landmarks as appropriate for device.
3. Prep the site.
4. Needle is appropriately placed if the following are present:
   - Aspiration with syringe yields blood with marrow particulate matter.
   - Infusion of saline does not result in infiltration at the site.
   - Needle stands without support.
5. Attach IV tubing, with or without stopcock.
6. Prior to IO syringe bolus (flush) or continuous infusion in alert patients:
   - Ensure that the patient has no allergies or sensitivity to lidocaine.
   - SLOWLY administer lidocaine 2% (preservative free) through the IO device catheter into the medullary space.
   - Allow 2 – 5 minutes for anesthetic effects, if feasible:
     - Adult: 1 – 2.5 mL (20 – 50 mg) 2% lidocaine.
     - Pediatric: 0.5 mg/kg 2% lidocaine.
7. Flush with 10 mL of 0.9% NaCl rapid bolus prior to use:
   - Recommend use of a stop cock inline with syringe for bolus infusions.
   - Use a pressure bag for continuous 0.9% NaCl infusions.
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).



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# Left Ventricular Assist Device (LVAD) 6.9



**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

**PURPOSE**

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

**Highlights of Assessing and Treating and LVAD Patient**

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

**Overview of an LVAD**

E/A/P

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

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

**How the Heart Works versus How LVADs Work**

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

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

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

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

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

Protocol Continues



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# 6.9 Left Ventricular Assist Device (LVAD)

Protocol Continued

**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

**Assessing the LVAD Patient**

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

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

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

E/A/P

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

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

**6. VITALS**:
- Pulse: generally, you will be unable to feel a pulse.
- Blood Pressure: you may or may not be able to obtain one, standard readings are unreliable and may vary from attempt to attempt. If NIBP machine can detect a blood pressure, adjust it to display Mean Arterial Pressure (MAP). This is a more reliable measure of perfusion and the calculation for MAP can overcome variations in standard readings. A MAP of 60-70 is normal.
- Pulse-oximetry: readings seem to be fairly accurate and consistent, according to TEMSIS data, despite the manufacturer stating that pulse oximetry often doesn't work.
- Quantitative Continuous Waveform Capnography: This should remain accurate, as it relies on respiration, not pulse. Normal (printed) waveform shape with a normal respiratory rate and low $CO_2$ readings (<30) can indicate low perfusion = poor pump function.
- Temperature: infection and sepsis are common, check temperatures!



Protocol Continues

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# Left Ventricular Assist Device (LVAD) 6.9

Protocol Continued



**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

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

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

**Treating the LVAD Patient**

Generally, treatments for an LVAD patient will follow the current CT EMS Protocols. However, there area few special considerations to keep in mind:

1. Don't let the LVAD distract you from treating the patient!

2. The best medical resource available to you for LVAD related problems is the patient's VAD coordinator. The patient will have a contact sheet for the VAD coordinator with them at all times. Contact the VAD coordinator as soon as possible.

3. If you are assisting patient to change batteries or power source, never remove both batteries at the same time. This will cause the LVAD pump to immediately stop!

4. Sepsis and stroke are leading causes of death for LVAD patients. Keep this in mind when assessing and treating a patient with an altered mental status.

E/A/P

5. Treating ECG changes:
- Many LVAD patients already have an implanted defibrillator and/or a pacemaker in place. These devices will often respond to an ECG change before you can.
- The continuous flow of the LVAD means changes in ECG rhythms, including atrial fibrillation, SVT, ventricular tachycardia and even ventricular fibrillation, may have minimal to no short-term effect on the cardiac output and stability. Treat ECG changes according to protocol.
- Use of external pacing or defibrillation is unchanged for LVAD patients. Use standard pad placements including avoiding placement over AICDs and pacemakers.
- Use of ACLS medications is unchanged for LVAD patients. Follow standard AHA and protocol guidelines as appropriate.

6. LVAD patients are always on anticoagulant medications. Keep this in mind when treating traumatic injuries. Even minor appearing chest or abdominal trauma, such as a seatbelt mark, could be hiding a very serious injury.

7.Regarding CPR, LVAD manufacturers currently recommend against CPR, especially if there is any evidence the pump is still functioning. There currently are no published studies or published consensus statements regarding whether and under what circumstances to perform CPR on a dead LVAD patient. LVAD devices are not all the same and, if at all possible, clinical decisions regarding LVADs should be made in consultation with the patient's VAD coordinator. The decision whether to perform CPR should be made based upon best clinical judgment of the provider in consultation with the patient's family and the VAD coordinators or medical control. In any event, CPR should be initiated only where:

a. You have confirmed the pump has stopped (by listening for pumps sounds) AND all trouble shooting efforts to restart it (connect wires, batteries, new control unit, etc.) have failed, AND

b. The patient is unconscious, unresponsive, and has no detectable signs of life (no pulse, no blood pressure, no pulse ox readings, or waveform capnography reading, AND:

c. The patient does not have a valid DNR in place.

Protocol Continues



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# 6.9 Left Ventricular Assist Device (LVAD)

Protocol Continued

**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

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

**Transport of the LVAD Patient**

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

2. Patients with an LVAD should be transported to their VAD resource hospital, if possible. Check with your patient to see which hospital is their resource center. When in doubt, transport to the closest hospital to access more transport resources and support.

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

E/A/P

4. Always bring spare batteries for the LVAD with the patient, even if it is not an LVAD problem (see # 3. above). Fresh batteries generally last 3-5 hours. Dead batteries means a dead patient!

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

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

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

Recommended Unit Resource: Print EMS Guide for Mechanical Circulatory Support and place in all ambulances (20 pages). This guide has excellent information and trouble shooting guidance for the 5 LVAD devices that patients could have out in the public. Access the resource guide at: http://mylvad.com/sites/mylvadrp/files/EMS%20Field%20Guides/MCSO%20EMS%20GUIDE%202015%20.pdf



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# 6.10 Pediatric Transportation

PATIENT TRANSPORT

An ill or injured child must be restrained in a manner that minimizes injury in an ambulance crash. The best location for transporting a pediatric patient is on the ambulance cot. The method of restraint will be determined by various circumstances including the child's medical condition and weight.

CONVENTIONAL CAR SEATS

1. **Convertible car seat** with <u>two belt paths (front and back) with four points for belt attachment to the cot</u> 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.

2. **Stretcher harness device with 5 point harness**

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

- Attach securely to cot utilizing upper back strap behind cot and lower straps around cot's frame.
- 5-point harness must rest snugly against child. Secure belt at child's shoulder level so no gaps exists above shoulders.
- Adjust head portion of cot according to manufacturer's recommendation.
- Pedi-mate fits children weighing 10 – 40 lbs. SafeGuard Transport fits children weighing 22 – 100 lbs.
- Follow manufacturer's guidelines regarding weight.

Protocol Continues





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# 6.10 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 manufacture's guidelines.
   - Blankets or towels may be used for additional stabilization

**NON-PATIENT TRANSPORT**

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

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

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



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# Police Custody 6.11



**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 Emergency Evaluation Request (P.E.E.R.)**

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 P.E.E.R. 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.

**EMS Initiated Restraints**

For any patient potentially requiring restraints by EMS, see the Restraints Procedure 6.14.

**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 6.16.

**Pepper Spray**

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

**Excited Delirium**

Excited/Agitated Delirium is characterized by extreme restlessness, irritability, and/or high fever. Patients exhibiting these signs are at high risk for sudden death, see Behavioral Emergencies 2.5.



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# 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.



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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

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





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# 6.12 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. No language communication barriers. Reliable translation available (e.g., on scene interpreter, language line).
6. No evidence or admission of suicidal ideation resulting in any gesture or attempt at self-harm. No verbal or written expression of suicidal ideation regardless of any apparent inability to complete a suicide.

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

Consider 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.

Protocol Continues



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# Refusal of Care 6.12

Protocol Continued

If the patient is intoxicated and in need of medical treatment and refuses care, police can take custody of the individual under a P.E.E.R., see Police Custody Procedure 6.11

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

1. Treated / resolved hypoglycemia, See Hypoglycemia Protocol 2.9A.
2. Patient with obvious head trauma and taking anticoagulant medications
3. Intoxicated patients
4. Abnormal vital signs
5. Treated / resolved narcotic overdose
6. High risk mechanism of injuries, see Spinal Trauma 4.5.
7. Patient / witness reports suicidal ideations
8. Possible Apparent Life Threatening Event, see ALTE Protocol 2.2

**Procedure**

1. Clearly offer the patient both treatment and transportation to the hospital and document the offer in your Patient Care Report.
2. Perform an assessment of the patient's mental capacity and, to the extent permitted by the patient, a physical exam including vital signs. Your assessment, or the patient's refusal of care, must be fully documented in your Patient Care Report
3. Explain to the patient the nature and severity of his/her illness or injury, the treatments being proposed, the risks and consequences of accepting or refusing treatment, and the potential alternatives. Fully document the explanation given to the patient in your patient care report.
4. A parent or legal guardian may refuse care for a minor or:
   - When a parent or legal guardian is not reasonably available, another adult family member (e.g., grandparent), or other authorized representative having custody of the minor, may refuse care.
   - EMS personnel may accept a telephonic refusal of care, provided that they have explained the consequences of refusing care; telephonic refusal of care should be carefully documented.
5. Prepare and explain the refusal of Care form to the patient (or, in the case of a minor patient, the patient's parent, legal guardian, or authorized representative).
6. The Refusal of Care form should be signed by the patient (or, in the case of a minor patient, by the minor patient's parent, legal guardian, or authorized representative) at the time of the refusal. The form should also be dated and, where possible, signed by a witness, preferably a competent relative, friend, police officer, or impartial third person.
7. If **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. This should be coordinated with law enforcement.
9. If child abuse is suspected and a refusal of care situation exists, the EMT must contact police immediately, see Abuse and Neglect Protocol 6.1.





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# 6.13 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.

Protocol Continues



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# Response to Domestic Violence 6.13

Procedure 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.

Protocol Continues



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# 6.13 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.



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# Restraints 6.14



**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

E/A/P

**INDICATIONS**

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

**PROCEDURE**

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 lateral or supine position utilizing soft restraints. No devices such as backboards, splints, or other devices maybe placed on top of the patient and no restraint shall ever be placed across a patients chest. Never hog-tie a patient. In order to gain control, the patient may need to be in a prone position, but must be moved to supine or lateral position as soon as possible.
6. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac, pulse oximetry, and quantitative waveform capnography monitoring, if available.
7. The extremities that are restrained 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 EMS Incident Report should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, and circulation checks.
9. If a patient is restrained by law enforcement personnel with handcuffs or other devices 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.



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Protocol Continued

**PARAMEDIC STANDING ORDERS - ADULT**

Once physically restrained or if physical restraints are not necessary consider:

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

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

- Ketamine 3 – 4 mg/kg IM; or 1 -2 mg/kg IV; **OR**
- Midazolam 5 mg IV/IM/IN; may repeat once in 5 minutes.
  - If agitation continues after the second dose of midazolam, then consider:
    - Haloperidol 10 mg IM.

**NOTE**: Contact **Direct Medical Oversight** for additional doses.

- If cardiac arrest occurs, consider fluid bolus and sodium bicarbonate early, see Cardiac Arrest Protocol 3.2A.
- For acute dystonic reaction to haloperidal:
  - Diphenhydramine 25 – 50 mg IV/IM.

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



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# Resuscitation Initiation and Termination 6.15

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

June 7, 2010

The Following Will Be Policy For Emergency Medical Service Care Providers:

Guidelines for EMR, EMT, AEMT, and Paramedic

Determination of Death/Discontinuation of Pre-Hospital Resuscitation for Adults Age 18 and Over

Non-Mass Casualty Situations

**Procedure For Determination of Death:**

Local emergency responders and EMS personnel in Connecticut who are trained in any of the National Standard curricula are instructed to follow the most recent national guidelines of the American Heart Association.
All clinically dead patients will receive all available resuscitative measures including cardiopulmonary resuscitation (CPR) unless contraindicated by one of the exceptions defined below. A clinically dead patient is defined as any unresponsive patient found without respirations and without a palpable carotid pulse.
The person who has the highest level of currently valid EMS certification (above EMR level), has active medical control, has direct voice communication for medical orders, and who is affiliated with an EMS organization present at the scene will be responsible for, and have the authority to direct, resuscitative activities.
In the event there is a personal physician present at the scene who has an ongoing relationship with the patient, that physician may decide if resuscitation is to be initiated. In the event there is a registered nurse from a home health care or hospice agency present at the scene who has an ongoing relationship with the patient, and who is operating under orders from the patient's private physician, that nurse (authorized nurse) may decide if resuscitation is to be initiated. If the physician or nurse decides resuscitation is to be initiated, usual medical direction procedures will be followed.

Protocol Continues





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# Resuscitation Initiation and Termination 6.15

Protocol Continued

**Resuscitation must be started on all patients who are found apneic and pulseless UNLESS** the following conditions exist ***(SECTION I (a-d) are applicable to an EMR level provider):***

I. **Traumatic injury or body condition** clearly indicating biological death (irreversible brain death), limited to:

- **Decapitation:** the complete severing of the head from the remainder of the patient's body.
- **Decomposition or putrefaction:** the skin is bloated or ruptured, with or without sof tissue sloughed off. The presence of at least one of these signs indicated death occurred at least 24 hours previously.
- **Transection of the torso:** the body is completely cut across below the shoulders and above the hips through all major organs and vessels. The spinal column may or may not be severed.
- **Incineration**: 90% of body surface area 3° burn as exhibited by ash rather than clothing and complete absence of body hair with charred skin.

**Section (e) and (f) require additional assessment and/or confirmation found under "General Procedures," a-d.**

- Dependent lividity with rigor mortis (when clothing is removed there is a clear demarcation of pooled blood within the body, and the body is generally rigid). **DOES NOT APPLY TO VICTIMS OF LIGHTNING STRIKES, DROWNING OR HYPOTHERMIA in which case follow your specific protocols.**
- Injuries incompatible with life (such as massive crush injury, complete exsanguination, severe displacement of brain matter)

II. Pronouncement of death at the scene by a licensed Connecticut physician or authorized registered nurse.

III. A valid DNR bracelet is present (per CGS 19a-580d), when it:

- Conforms to the state specifications for color and construction.
- Is intact: it has not been cut, broken or shows signs of being repaired.
- Is on the wrist or ankle
- Displays the patient's name and the physician's name.

Protocol Continues



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# Resuscitation Initiation and Termination 6.15



Protocol Continued

## GENERAL PROCEDURES:

In cases of dependent lividity **with** rigor mortis and in cases of injuries incompatible with life, the condition of clinical death must be confirmed by observation of the following:

- Reposition the airway and look, listen, and feel for at least 30 seconds for spontaneous respirations; respiration is absent.
- Palpate the carotid pulse for at least 30 seconds; pulse is absent.
- Examine the pupils of both eyes with a light; both pupils are non-reactive.
- Absence of a shockable rhythm with an AED for 30 seconds or lack of cardiac activity with a cardiac monitor [paramedic] (in at least 2 leads) for 30 seconds.

**If all the components above are confirmed, no CPR is required.**

If CPR has been initiated but all the components above have been subsequently confirmed, CPR may be discontinued and medical direction contacted as needed.

**Special Consideration:** For scene safety and/or family wishes, provider may decide to implement CPR even if all the criteria for death are met.

**If any of the findings are different than those described above, clinical death is NOT confirmed and resuscitative measures must be immediately initiated or continued and the patient transported to a receiving hospital unless paramedic intercept is pending. Termination of resuscitative efforts could then be implemented by the paramedic protocol below.**

### Do Not Resuscitate (DNR) With Signs of Life:

If there is a DNR bracelet or DNR transfer form and there are signs of life (pulse and respiration), EMS providers should provide standard appropriate treatment under existing protocols matching the patient's condition. To request permission to withhold treatment under these conditions for any reason, contact Direct Medical Oversight (DMO).

If there is documentation of a DO NOT INTUBATE (DNI) advanced directive, the patient should receive full treatment per protocols with the exception of intubation. If for any reason intubation is being considered in a patient with a documented DNI directive, DMO **must** be contacted.

Protocol Continues

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Protocol Continued

**TERMINATION OF RESUSCITATIVE EFFORTS (PARAMEDIC LEVEL ONLY): NONTRAUMATIC CARDIAC ARREST**

Discontinuation of CPR and ALS intervention may be implemented after contact with medical direction if all of the following criteria have been met:

1. Patient must be least 18 years of age.

2. Patient is in cardiac arrest at the time of arrival of advanced life support, no pulse, no respirations, and no heart sounds.

3. ACLS is administered for at least twenty (20) minutes, according to AHA/ACLS Guidelines

4. There is no return of spontaneous pulse and no evidence of neurological function (non-reactive pupils, no response to pain, no spontaneous movement).

5. Patient is asystolic in two (2) leads

6. No evidence or suspicion of any of the following: drug/toxin overdose, hypothermia, active internal bleeding, preceding trauma.

7. All Paramedic personnel involved in the patient's care agree that discontinuation of the resuscitation is appropriate.

All seven items must be clearly documented in the EMS patient care report (PCR).

DMO should be established prior to termination of resuscitation in the field. The final decision to terminate resuscitative efforts should be a consensus between the on-scene paramedic and the DMO physician. **CONTACT DMO** for confirmation of terminating resuscitation efforts.

**If any of the above criteria are not met and there are special circumstances whereby discontinuation of pre-hospital resuscitation is desired, contact DMO.**

Logistical factors should be considered, such as collapse in a public place, family wishes, and safety of the crew and public.

Examples: Inability to extricate the patient, significant physical environmental barriers, unified family wishes with presence of a living will.

**All patients who are found in ventricular fibrillation or whose rhythm changes to ventricular fibrillation should in general have full resuscitation continued and transported.**

Patients who arrest after arrival of EMS should be transported.

Protocol Continues



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# Resuscitation Initiation and Termination 6.15



Protocol Continued

## TRAUMATIC CARDIAC ARREST:

1. Patients must be at least 18 years of age.

2. Resuscitation efforts **may** be terminated with approval of DMO in any blunt trauma patient who, based on thorough primary assessment, is found apneic, pulseless, and asystolic on ECG upon arrival of emergency medical services at the scene.

3. Victims of penetrating trauma found apneic and pulseless by EMS, should be rapidly assessed for the presence of other signs of life, such as pupillary reflexes, spontaneous movement, response to pain and electrical activity on ECG. Resuscitation **may** be terminated with permission of DMO if these signs of life are absent. If resuscitation is not terminated, transport per protocol.

4. Do not delay initiating proper BLS resuscitation in order to contact DMO.

5. Cardiopulmonary arrest patients in whom mechanism of injury does not correlate with clinical condition, suggesting a non-traumatic cause of arrest, should have standard ALS resuscitation initiated.

## DISPOSITION OF REMAINS:

I. Disposition of dead bodies is not the responsibility of EMS personnel but efforts must be taken to insure that there is a proper transfer of the responsibility for scene security. However, to be helpful to family, police, and others, EMS personnel may assist those who are responsible.

II. When a decision has been made to withhold or withdraw resuscitation, the body may be removed in one of the following ways:

a. The Office of the Chief Medical Examiner (860-679-3980 or 1-800-842-8820) must be notified of any death, which may be subject to investigation, by the Chief Medical Examiner (CGS19a-407), which includes all deaths that occur outside a health care institution. Normally the police make this notification otherwise EMS personnel should make the notification and document on the patient care record.

b. If the body is in a secure environment (protected from view by the public or from being disturbed or moved by unauthorized people), the police should be contacted if not present already. The personal physician or coverage must be notified if at all possible and EMS personnel may leave when the patient has been turned over to the police. Example: a death at home

c. If the body is not in a secure environment notify the police. The police may contact the Office of the Chief Medical Examiner for authorization to move the body by hearse, or the medical Examiner may elect to send a vehicle for the body. EMS personnel may leave after turning the scene over to other appropriate authority. Example: death occurring on the street.

d. If the body is not in a secure environment and police have not yet arrived, transport the body to the hospital if scene safety is a concern. Example: death in the street with an unruly crowd of people.

Protocol Continues

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Protocol Continued

**DETERMINATION OF DEATH/DISCONTINUATION OF RESUSCITATION NOTES:**

Consider the needs of survivors when considering the discontinuation of resuscitation, especially if crisis management services may be needed. Transport from the scene may be the better option.

Scene management and safety of the crew and public may prevent withholding/ discontinuation of resuscitation. In general, do not cease resuscitation in public places/ establishments.

Tubes and IV lines may be removed if patient is being picked up by a funeral home. If the patient is deemed a medical examiner's case, leave tubes and lines in place. In all cases of trauma, tubes and IV lines must be left in place.

Documentation of all encounters with the patient's family, personal physician, scene physician or nurse, medical examiner, law enforcement, and DMO should be on the PCR.

**DNR TRANSFER FORM:**

a. To transmit a DNR order during transport by an EMS provider between healthcare institutions, the DNR order shall be documented on the DNR transfer form.

b. The DNR transfer form shall be signed by a licensed physician or a registered nurse and shall be recognized as such and followed by EMS providers.

c. The DNR remains in place during transport as well as to the point of admission to the receiving facility.

**REVOCATION OF THE DNR:**

When EMS providers are providing care *in pre-hospital emergency settings*, a patient or authorized representative may revoke a DNR order by removing a DNR bracelet from a patient's extremity or by telling the EMS provider. If the EMS provider is told to revoke the DNR, the provider documents the request or causes the request to be documented in the patient's permanent medical record and notifies the attending physician and the physician who issued the DNR order. CGS 19a-580d-7. In the event that EMS providers cannot verify the DNR status, the patient should be transported with normal care protocols followed.

**A copy of all PCRs documenting pre-hospital deaths must be provided to medical direction within 24 hours of the event**



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# 6.16 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

E/A/P

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

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

### INDICATIONS FOR REMOVAL

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

### CONTRAINDICATIONS TO REMOVAL

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

### PROCEDURE

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominant hand.
4. Remove probe by pulling straight out in a single quick motion.
5. Removed probes should be handled and disposed of like contaminated sharps in a designated sharps container, unless requested as evidence by police.
6. Cleanse wound and apply dressing.





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# 6.17 Tourniquet Application

**EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS**

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

**INDICATIONS:**

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

**PROCEDURE:**

E/A/P

1. If hemorrhage is not severe, attempt to control the hemorrhage with direct pressure, bandaging.
2. With a commercial tourniquet:

- Place tourniquet proximal to wound on the affected extremity.
- Tighten per manufacturer instructions until hemorrhage stops and distal pulses are extinguished.
- If initial tourniquet fails to stop bleeding, ensure proper deployment of first tourniquet, and consider placement of a second tourniquet just proximal to first.
- Document time of tourniquet application and communicate this clearly with receiving facility.
- Do not cover tourniquet.
- Dress wounds per standard wound care and consider use of hemostatic bandage.
- Reassess for re-bleeding frequently, especially after any patient movement.
- Proper tourniquet placement often causes significant pain. Consider pain management, see Pain Protocol 2.16.
- Do not remove or loosen tourniquet once hemostasis achieved.

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

PEARLS:

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



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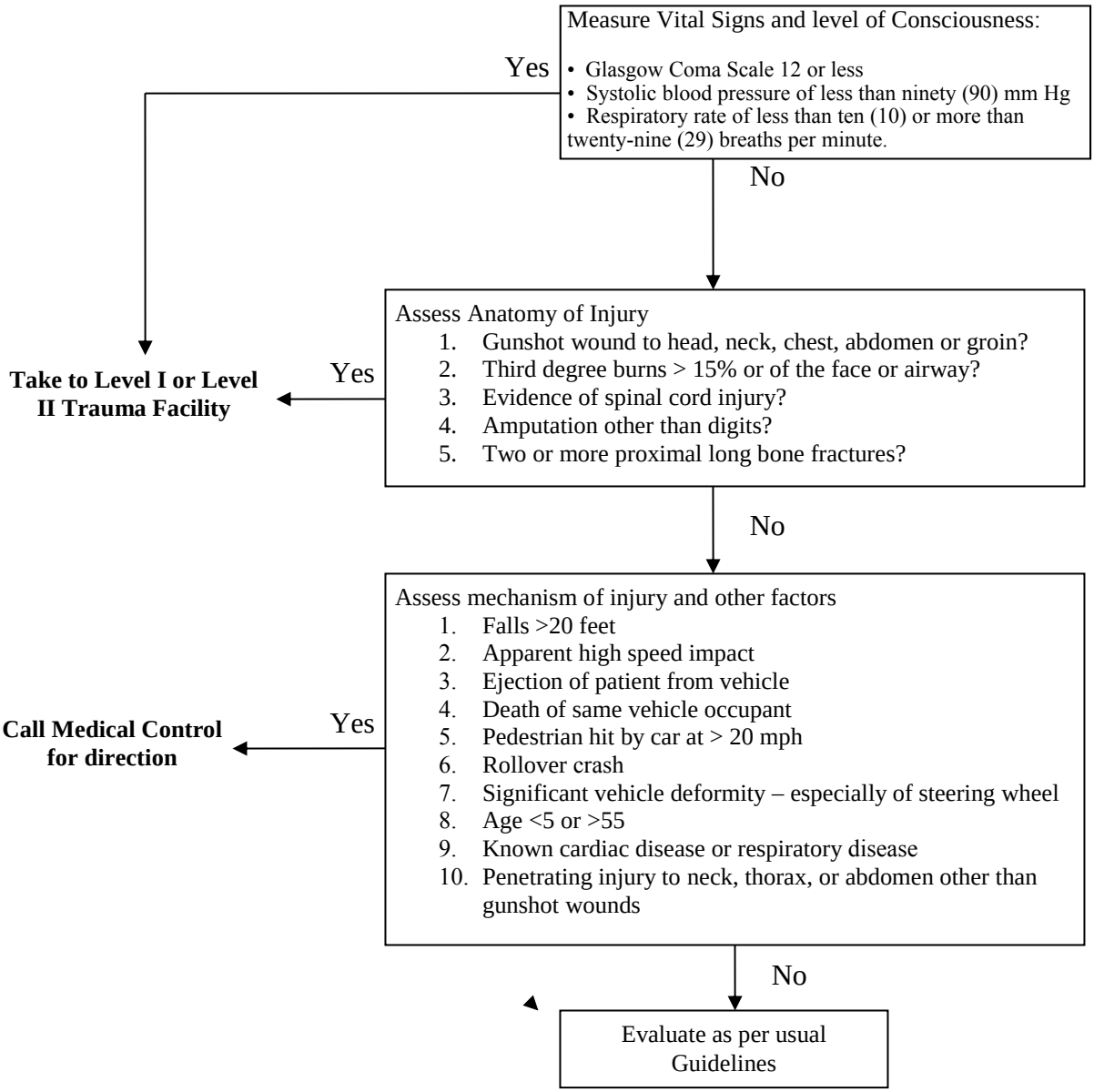
# 6.18 Trauma Triage and Transport Decision



When transport to a Level I or II Trauma facility is indicated, but the ground transport time to that hospital is judged to be greater than twenty (20) minutes, determination of destination hospital shall be in accordance with medical control.




- Severely injured patients <13 years should be taken to a Level I or II facility with pediatric resources including pediatric ICU.
- All EMS providers transporting trauma patients to hospitals shall provide receiving hospital with a complete OEMS approved patient care form ***prior to departing from the hospital***.

**WHEN IN DOUBT, CONSULT WITH MEDICAL CONTROL**

*State of Connecticut Regulation of Department of Public Health, Concerning Statewide Trauma System: Section 19a-177-5.



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## Purpose

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

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

## Identification

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

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

## Personal Safety

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

## Hospital Notification

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

## Patient Decontamination

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

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

Protocol Continues



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# 7.0 HAZARDOUS MATERIALS EXPOSURE

Protocol Continued

## Mass/Gross Decontamination

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

## Technical Decontamination

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

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

## Definitive/Fine Decontamination

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

## Decontamination of Special Populations

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

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

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

Protocol Continues





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Protocol Continued

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

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

**Treatment during Decontamination**

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

**Document Exposure and Treatment Information**

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

**Transport**

- EMS personnel transporting potentially contaminated patients (e.g., patients who have received gross decontamination) must have appropriate PPE.
- Lining of the interior of the ambulance and further use of PPE may be necessary, dependent upon the level of completed decontamination.
- If an ambulance has transported a contaminated patient, it can only be used to transport similarly contaminated patients until proper decontamination of the vehicle is complete.
- Contaminated patients will not be transported by helicopter.



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# 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.

**Communication**

- Within the scope of a Mass Casualty Incident, the EMS provider may, within the limits of their scope of practice, perform necessary ALS 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



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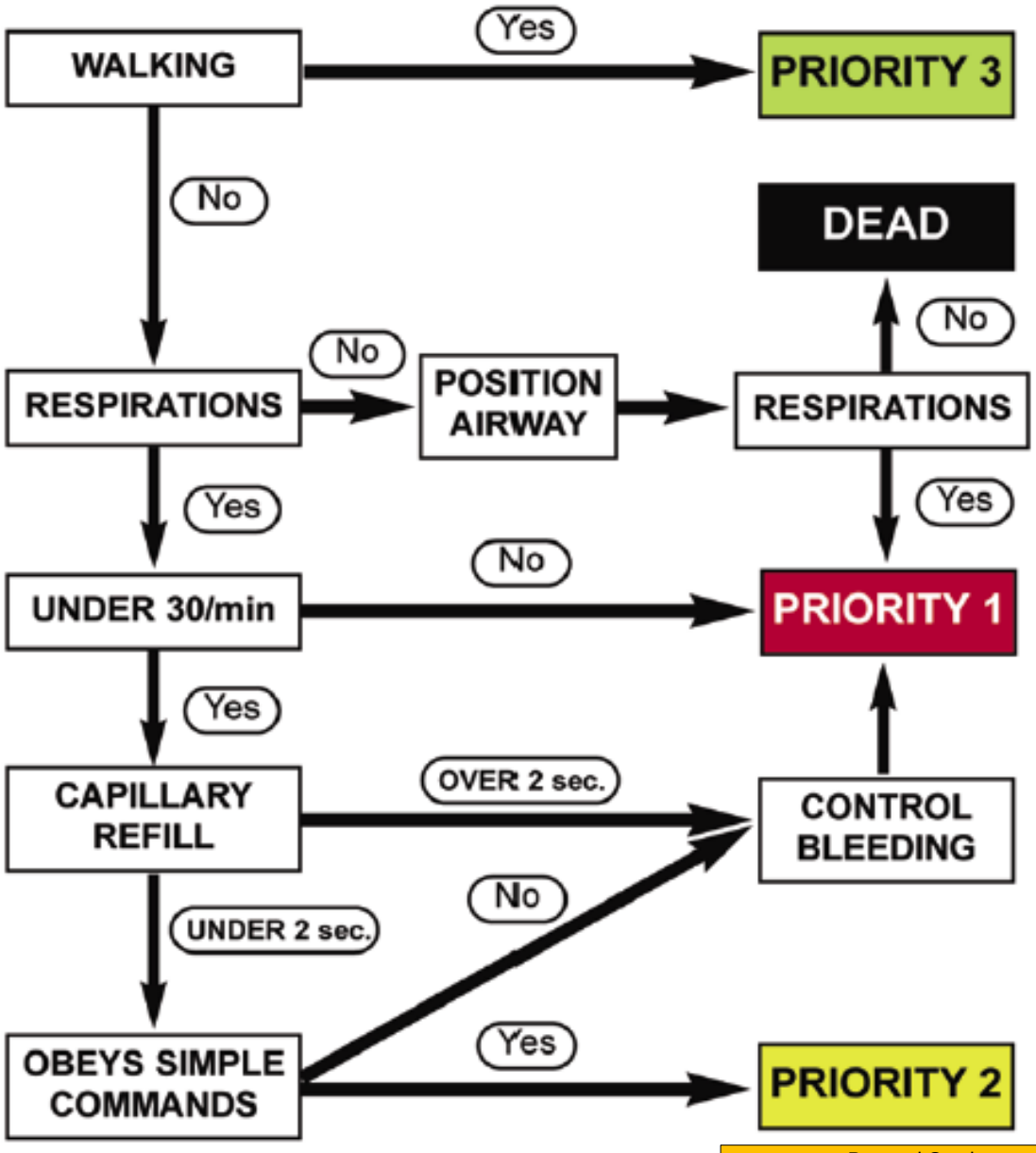
Protocol Continued

**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



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# 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





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# 7.2 Radiation Injuries Adult & Pediatric

Exposure to radioactive source or radioactive material/debris

**EMT/ADVANCED EMT STANDING ORDERS**

E/A

- Remove the patient from scene and decontaminate by appropriately trained personnel.
- Triage tools for mass casualty incident
  - If vomiting starts:
    - Within 1 hour of exposure, survival is unlikely and patient should be tagged “Expectant.”
    - Less than 4 hours after exposure, patient needs immediate decontamination and evaluation and should be tagged “immediate.”
    - 4 hours after exposure, reevaluation can be delayed 24 – 72 hours if no other injury is present and patient should be tagged “Delayed”.
- Routine Patient Care.
- Treat traumatic injuries and underlying medical conditions.
- Patients with residual contamination risk from wounds, shrapnel, or internal contamination should be wrapped in water repellent dressings to reduce cross contamination.
- Consider Air Medical Transport after proven definitive decontamination of patient.

**PARAMEDIC STANDING ORDERS**

P

- Consider anti-emetic, see Nausea/Vomiting Protocol 2.11.
- Consider pain management, see Pain Management Protocol 2.16.

PEARLS:

- In general, trauma patients who have been exposed to or contaminated by radiation should be triaged and treated on the basis of the severity of their conventional injuries
- A patient who is contaminated with radioactive material (e.g. flecks of radioactive material embedded in their clothing and skin) generally poses a minimal exposure risk to medical personnel.



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| Medication | Adult Protocol/Dosing |
|---|---|
| **Adenosine (Adenocard)**<br><br>**Indications:**<br>• Specifically for treatment or diagnosis of Supraventricular Tachycardia.<br>• Consider for regular or wide complex tachycardia | **Tachycardia**<br>• 6 mg rapid IV push.<br>• May repeat adenosine at dose of 12 mg if no conversion.<br>• May repeat successful dose of adenosine if rhythm recurs after conversion. |
| **Albuterol Beta-Agonist**<br><br>**Indications:**<br>• Nebulized treatment for use in respiratory distress with bronchospasm. | **Allergic Reaction/Anaphylaxis**<br>• 2.5 mg via nebulizer.<br>▪ May repeat 2.5 mg via nebulizer, repeat every 5 minutes (4 doses total)<br><br>**Asthma/COPD/RAD**<br>• 4-6 puffs per dose of MDI .<br>• May repeat every 5 minutes, as needed.<br>• Albuterol is second line drug, the initial treatment should be 2.5 mg albuterol and 0.5mg ipratropium (DuoNeb).<br>• May repeat every 5 minutes (3 doses total).<br>• Following 3 DuoNeb treatments, 2.5 mg albuterol via nebulizer every 5 minutes, as needed. |
| **Amiodarone (Cordarone)**<br><br>**Indications:**<br>• Antiarrhythmic used mainly in wide complex tachycardia and ventricular fibrillation.<br>• Avoid in patients with heart block or profound bradycardia.<br>• Contraindicated in patients with iodine hypersensitivity. | **Cardiac Arrest**<br>**V-Fib/Pulseless V-Tach**<br>• 300 mg IV push.<br>• Repeat dose of 150 mg IV push for recurrent episodes.<br><br>**Tachycardia**<br>**Wide complex tachycardia**<br>• 150 mg over 10 min.<br>• May repeat once in 10 minutes.<br>• If successful, consider maintenance infusion of 1 mg/minute. |
| **Aspirin**<br><br>**Indications:**<br>• An antiplatelet drug for use in cardiac chest pain.<br>**Contraindications:**<br>• History of anaphylaxis to aspirin or NSAIDs<br>• Active GI bleeding | **Acute Coronary Syndrome**<br>• If patient has not taken Aspirin within 24 hours and is able to swallow; administer 324 mg PO (chewable).<br>• If patient has taken Aspirin within 24 hours, supplement their previously taken Aspirin up to 324 mg PO (chewable) |

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|---|---|
| **Atropine**<br><br>**Indications:**<br>• Anticholinergic drug used in bradycardias and organophosphate poisonings. | **Bradycardia**<br>• 0.5 - 1.0 mg IV every 3 – 5 minutes up to maximum of 3 mg.<br><br>**Organophosphate Poisoning and Nerve Agent**<br>• 2 mg IM or IV every 5 minutes as needed.<br><br>**Rapid Sequence Intubation**<br>• Consider 0.5mg IV for bradycardia |
| **Atropine and Pralidoxime Auto-Injector (DuoDote) Nerve Agent Kit**<br><br>**Indications:**<br>• Antidote for Nerve Agents or Organophosphate Overdose. | **Nerve Agents**<br>• Patients experiencing: apnea, convulsions, unconsciousness, flaccid paralysis administer 3 DuoDote and 1 atropine (10 mg) auto-injectors.<br>• Patients experiencing: dyspnea, twitching, nausea, vomiting, sweating, anxiety, confusion, constricted pupils, restlessness, weakness administer 1 DuoDote.<br>• Maintenance Dose: 1 DuoDote every 3 hours. |
| **Calcium Chloride 10% solution**<br><br>**Indications:**<br>• Indicated for calcium channel blocker overdose. | **Bradycardia**<br>For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:<br>• 1 gm IV / IO over 5 minutes, ensure IV patency and do not exceed 1 mL per minute. |
| **Calcium Gluconate**<br>**Indications:**<br>• Indicated for hyperkalemia or calcium channel blocker overdose. | **Bradycardia**<br>For suspected hyperkalemia with ECG changes or symptomatic calcium channel blocker overdose consider:<br>• 2 gm IV/IO over 5 minutes, with constant cardiac monitoring |
| **Dexamethasone**<br>**Indications:**<br>• Asthma/Croup | **Asthma – Adult**<br>• 10 mg IV or by mouth |
| **Dextrose**<br><br>**Indications:**<br>• Sympomatic hypoglycemia. | **Diabetic Emergencies**<br>• Administer Dextrose 10% IV via premixed infusion bag (preferred) or prefilled syringe until mental status returns to baseline and glucose level is greater then 70 mg/dL or to a maximum of 25 grams (250mL). |

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|---|---|
| **Diazepam (Valium) Benzodiazepine**<br><br>**Indications/Contraindications:**<br>• Seizure control.<br>• Sedation.<br>• Anxiolytic. | **Bradycardia**<br>• 2 mg IV, may repeat once in 5 minutes<br>**CPAP**<br>• Consider administering anxiolytic:<br>• 5 mg IV(then 2.5 mg every 5 minutes to a total of 20 mg)<br>**Hyperthermia**<br>• 2 mg IV, may repeat once in 5 minutes<br>**Nerve Agent**<br>• 5 mg IV every 5 minutes; or 10 mg IM **OR**<br>• Diazepam auto-injector (10 mg).<br>▪ Repeat 10 minutes as needed<br>**Poisoning/Substance Abuse/OD**<br>• 2 mg IV, may repeat once in 5 minutes, **OR**<br>• 5 mg IM, may repeat once in 20 minutes<br>**Seizure**<br>• 5-10 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg).<br>**Restraints**<br>• 2 mg IV, may repeat once in 5 minutes, **OR**<br>• 5 mg IM, may repeat once in 20 minutes<br>**Tachycardia**<br>• 2 mg IV, may repeat once in 5 minutes<br>**Traumatic Brain Injury**<br>• 2 mg IV, may repeat once in 5 minutes |
| **Diltiazem (Cardizem)**<br><br>**Indications:**<br>• Calcium channel blocker used to treat narrow complex SVT.<br>**Contraindications:**<br>• Patients with heart block, ventricular tachycardia, WPW, and/or acute MI. | **Tachycardia**<br>**Narrow Complex Tachycardia**<br>• 0.25 mg/kg IV (maximum dose 20 mg).<br>▪ May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 20 mg) if necessary.<br>▪ Consider maintenance infusion 5 – 15 mg/hour. |
| **Diphenhydramine (Benadryl)**<br><br>**Indications:**<br>• Antihistamine used as an adjunctive treatment in allergic reactions.<br>• Antidote for dystonic reaction. | **Allergic Reaction/Anaphylaxis**<br>• 25-50 mg IV/IO/IM/PO.<br><br>**Dystonia as it appears in Behavioral, Nausea/Vomiting, and Poisoning/Substance/Abuse protocols**<br>• 25-50 mg IV Or 50 IM. |

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|---|---|
| **Epinephrine 1:1,000**<br>**Indications:**<br>• Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphlyaxis<br>• Vasopressor in cardiac arrest. | **Allergic Reaction/Anaphylaxis**<br>• 0.3 mg IM<br>  ▪ May repeat every 5 minutes to a total of 3 doses.<br><br>**Refractory Anaphylaxis/Septic Shock/Bradycardia/Post-Resuscitative Care**<br>• Epinephrine infusion 2-10 micrograms/minute until symptoms resolve.<br><br>**Asthma/COPD/RAD**<br>• 0.3 mg IM (no repeat). |
| **Epinephrine 1:10,000**<br>**Indications:**<br>• Vasopressor used in cardiac arrest. | **Cardiac Arrest**<br>• 1 mg IV.<br>  ▪ Repeat every 3 – 5 minutes. |
| **Etomidate (Amidate)**<br>**Indications:**<br>• Sedative used in Rapid Sequence Intubation. | **Rapid Sequence Intubation**<br>• 0.3 mg/kg IV / IO (maximum 40 mg). |
| **Fentanyl (Sublimaze)**<br>**Indications:**<br>• Narcotic analgesic<br><br>**Contraindications:**<br>• Use cautiously if BP < 100 mmHg. | **Acute Coronary Syndrome**<br>• 1 microgram/kg (up to 100 micrograms) IV<br>  ▪ May repeat every five minutes to a max dose of 300 micrograms<br><br>**Pain Control**<br>• Fentanyl 1microgram/kg IV/IM/IN (single max dose of 100 microgram)<br>  ▪ May be repeated every 5 minutes to a total of 300 micrograms titrated to pain relief.<br>**Post Intubation**<br>• 50 – 100 micrograms IV. |
| **Famotidine (Pepcid)**<br>**Indications:**<br>• Treatment of urticaria | **Anaphylaxis/Allergic Reaction**<br>• 20 mg/IV |

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|---|---|
| **Glucagon**<br><br>**Indications:**<br>• Converts glycogen to glucose in the liver to increase blood sugar<br>• Use in patients with no IV access<br>• Indicated for beta blocker or calcium channel blocker overdose | **Diabetic**<br>• 1 mg IM.<br>▪ Recheck glucose 15 minutes after administration of glucagon.<br>▪ May repeat glucagon 1mg IM if glucose level is <70 mg/dL with continued altered mental status.<br><br>**Bradycardia**<br>• 5 mg IV over 3 – 5 minutes. |
| **Glucose Oral Glucose Solutions**<br><br>**Indications:**<br>• Use in conscious hypoglycemic states. | **Diabetic Emergencies**<br>• Administer 1 tube of commercially prepared glucose gel or equivalent. |
| **Haloperidol (Haldol) Phenothiazine Preparation**<br><br>**Indications:**<br>• Medication to assist with sedation of agitated patients.<br>• Chemical restraint. | **Restraints**<br>• 5 – 10 mg IM; may repeat once in 5 minutes, (max total dose 10 mg).<br>• For Excited Delirium:<br>▪ Haloperidol 10 mg IM.<br>. |
| **Hydrocortisone (Solu-Cortef)** | **Adrenal Insufficiency**<br>• 100 mg IV/IM. |
| **Hydromorphone**<br>**Indications/Contraindications**<br>• Pain Control | **Pain – Adult**<br>• 0.5-1 mg IV, every 5 minutes to a total 4 mg titrated to pain relief. |
| **Hydroxocobalamin (Cyanokit)** | **Smoke Inhalation**<br>• Via use of Cyanokit |

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|---|---|
| **Ipratropium Bromide (Atrovent)**<br><br>**Indications:**<br>• Anticholinergic bronchodilator. Blocks the muscarinic receptors of acetylcholine.<br>• Relief of bronchospasm in patients with reversible obstructive airway disease and bronchospasm. | **Asthma/COPD/RAD**<br>• 0.5 mg ipratropium and 2.5 mg Albuterol (DuoNeb).<br>▪ May repeat every 5 minutes (3 doses total). |
| **Ketamine**<br><br>**Indications:**<br>• Sedative used in suspected Excited Delirium patients<br>• Pain Management<br>• Sedative used in Rapid Sequence Intubation. | **Excited Delerium/Behavioral Emergencies**<br>• 3-4 mg/kg IM; or 1-2 mg/kg IV<br><br>**Pain Management**<br>• 0.3 mg/kg IV/IO/IM<br><br>*Consider Versed 2.5 mg IV or IM for serious reemergence reactions*<br><br>**Rapid Sequence Intubation**<br>2 mg/kg IV |
| **Levalbuterol**<br>• **(Xopenex)** | **Asthma/COPD/RAD**<br>• 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total). |
| **Lidocaine**<br><br>**Indications:**<br>• Antiarrhythmic used for control of ventricular dysrhythmias.<br>• Anesthetic for nasotracheal intubation and intraosseous. | **Cardiac Arrest**<br>• 1 mg/kg IV.<br>▪ Repeat dose 0.75 mg/kg up to a maximum dose of 3 mg/kg.<br>**Tachycardia**<br>• 1 – 1.5 mg/kg IV. (considered second-line therapy to Amiodarone).<br>▪ May repeat once in 5 minutes to maximum of 3 mg/kg.<br>▪ If successful, consider a maintenance infusion of 1 – 4 mg/minute.<br><br>**Nasotracheal Intubation**<br>• 2% lidocaine jelly.<br><br>**Intraosseous**<br>• 1 - 2.5 mL of 2% lidocaine. |

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|---|---|
| **Lorazepam (Ativan)**<br>**Benzodiazepine**<br><br>**Indications:**<br>• Seizure control.<br>• Sedation.<br>• Anxiolytic. | **Bradycardia**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes.<br><br>**CPAP**<br>• 0.5-1 mg IV/IM; may repeat once in 5 minutes or, 1-2mg IM may repeat once in 10 minutes.<br><br>**Hyperthermia**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes.<br><br>**Nerve Agent**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes.<br><br>**Poisoning/Substance Abuse/OD**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes.<br><br>**Post Intubation/SGA Care**<br>• 1-2 mg IV every 15 minutes as needed (maximum 10mg)<br><br>**Restraints**<br>• 2 mg IM, may repeat once in 5 minutes; or 1 mg IV, may repeat once in 5 minutes<br><br>**Seizure**<br>• 2-4 mg IV every 5 minutes to a total of 8 mg<br><br>**Tachycardia**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes.<br><br>**Traumatic Brain Injury**<br>• 1 mg IV, may repeat once in 5 minutes **OR**<br>• 2 mg IM, may repeat once in 10 minutes. |

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|---|---|
| **Magnesium Sulfate**<br><br>**Indications:**<br>• Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy.<br>• A smooth muscle relaxor used in refractory respiratory distress resistent to beta-agonists.<br>• Torsades de Pointes. | **Asthma/COPD/RAD**<br>• 2 grams in 100ml NS given IV over 10 minutes.<br><br>**OB/GYN**<br>• Magnesium sulfate, 4 grams IV bolus over 10 minutes, then consider 1 gram/hr continuous infusion<br><br>**Seizures**<br>• Magnesium sulfate, 4 grams IV bolus over 10 minutes, then consider 1 gram/hr continuous infusion<br><br>**Cardiac Arrest/Tachycardia – Torsades de Pointes.**<br>• 1 – 2 grams IV over 5 minutes. |
| **Methylprednisolone (Solu-medrol)**<br>**Indications:**<br>• Steroid used in respiratory distress to reverse inflammatory and allergic reactions. | **Adrenal Insufficiency**<br>• 125 mg IV/IO/IM<br><br>**Asthma/COPD/RAD**<br>• 125 mg IV. |
| **Metoclopramide (Reglan)**<br><br>**Indications:**<br>• Anti-Emetic used to control Nausea and/or Vomiting. | **Nausea/Vomiting**<br>• 5 mg IV.<br>• May repeat once after 10 minutes if nausea/vomiting persists. |
| **Metoprolol (Lopressor)** | **Tachycardia**<br>• 5 mg IV over 2 – 5 minutes.<br>▪ May repeat every five minutes to a maximum of 15 mg as needed to achieve a ventricular rate of 90 – 100. |

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|---|---|
| **Midazolam (Versed)**<br>**Benzodiazepine**<br><br>**Indications:**<br>• Seizure control.<br>• Sedation.<br>• Anxiolytic. | **Bradycardia**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**CPAP**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**Hyperthermia**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**Nerve Agent**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**Poisoning/Substance Abuse/OD**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**Post ETT Care**<br>• 2.5 – 5 mg IV, every 5 – 10 minutes as needed.<br><br>**Rapid Sequence Intubation**<br>• 0.2 mg/kg IV; 0.1mg/kg IV for patients in shock.<br><br>**Seizure**<br>• Midazolam 10 mg IM (preferred route) every 10 minutes or 5 – 10 mg IV/IN every 5 minutes<br>**Restraints**<br>• 5 mg IM, may repeat once in 5 minutes; or 2.5mg IV/IN, may repeat once in 5 minutes<br>Excited/Agitated Delirium<br>• 5 mg IV/IM/IN; may repeat once in 5 minutes<br><br>**Tachycardia**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes.<br><br>**Traumatic Brain Injury**<br>• 2.5 mg IV/IN may repeat once in 5 minutes **OR**<br>• 5 mg IM may repeat once in 10 minutes. |

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|---|---|
| **Morphine Sulfate**<br><br>**Indications:**<br>• Narcotic analgesic<br><br>**Contraindications**<br>• Use caution if BP < 100 mmHg. | **Pain**<br>• 0.1 mg/kg IV/IM (single max dose of 10 mg)<br>▪ May repeat every 5 minutes to a total of 20 mg titrated to pain relief and if systolic BP is >100 mmHg.<br>**Acute Coronary Syndrome**<br>• 0.1 mg/kg IV/IM (up to 5 mg)<br>▪ May repeat every 5 minutes to a maximum of 15 mg titrated to pain as long as systolic BP remains >100 mmHg. |
| **Naloxone (Narcan) Narcotic Antagonoist**<br><br>**Indications:**<br>• Narcotic overdose. | **Pain**<br>**Antidote:** For hypoventilation from opiate administration by EMS personnel, assist ventilations and administer naloxone 0.4mg IV/IM or 2 mg IN. If no response, may repeat initial dose every 5 minutes to a total of 10 mg.<br><br>**Poisoning/Substance Abuse/OD**<br>**Narcotic OD**<br>▪ 1 mg (1mL) per nostril (IN) via prefilled syringe and atomizer for a total of 2 mg. **OR** through the use of Auto-injector **OR**<br>• 0.4-2 mg IV/IM<br>▪ If no response, may repeat every 3 - 5 minutes to a total of 10 mg. |
| **Nitroglycerin**<br><br>**Indications:**<br>• Vasodilator used in the treatment of chest pain secondary to acute coronary syndrome and CHF | **Acute Coronary Syndrome**<br>• 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<br>• 0.4 mg SL every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg.<br>• 10 micrograms/minute if symptoms persist after 3rd SL nitroglycerin<br>▪ Increase IV nitroglycerin by 10 micrograms/minute every 5 minutes while symptoms persist and systolic remains >100 mmHg.<br>• If IV nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally.<br><br>**Congestive Heart Failure**<br>• Consider nitroglycerin 0.4 mg SL every 5 minutes while symptoms persist and if the systolic BP is >140 mmHg.<br>• IV nitroglycerin 20 micrograms/minute, increase by 10 - 20 micrograms/minute every 3 – 5 minutes (it is recommended two (2) IV lines should be in place). (Generally, accepted maximum dose: 400 micrograms/minute.)**OR**<br>▪ Nitroglycerin paste 1" – 2" transdermally. |

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|---|---|
| **Norepinephrine (Levophed)**<br><br>**Indications:**<br>• Apha and Beta 1 receptor adronergic receptor agonist vasopressor | **Bradycardia**<br>• Infusion 1-30 microgram/minute titrated to effect must be given via pump or IV flow regulating device.<br>**Post Resuscitation Care**<br>• Infusion 1-30 microgram/minute titrated to effect must be given via pump or IV flow regulating device.<br>**Septic Shock**<br>• Infusion 1-30 microgram/minute titrated to effect must be given via pump or IV flow regulating device. |
| **Olanzapine (Zyprexa)**<br><br>**Indications/Contraindications:**<br>• To assist with chemical restraint | **Chemical Restraint:**<br>• 5 – 10 mg IM |
| **Ondansetron (Zofran)**<br><br>**Indications:**<br>• Anti-Emetic used to control Nausea and/or Vomiting. | **Nausea/Vomiting**<br>• 4 mg by mouth (ODT) or IV |
| **Oxygen**<br><br>**Indications:**<br>• 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%.<br>• Indicated for pre-oxygenation whenever possible prior to endotracheal intubation. Goal oxygen saturation 100%. | • 1-4 liters/min via nasal cannula.<br>• 6-15 liters/min via NRB mask.<br>• 15 liters or higher via BVM / ETT / supraglottic airway. |
| **Phenylephrine (Neo-Synephrine)** | **Cardiogenic Shock**<br>• 100 – 180 microgram loading dose followed by infusion of 40 – 60 micograms/min titrated to effect.<br>**Post Resuscitative Care**<br>• 100 – 180 microgram loading dose followed by infusion 40 – 60 microgram/min titrated to effect. |

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# CT Adult Medication Reference

**This document is to serve as a reference for the 2016 CT Patient Care Protocols.**
**See the Pediatric Color Coded Appendix for pediatric dosages**

| Medication | Adult Protocol/Dosing |
|---|---|
| **Pralidoxime (2-PAM)**<br>**Indications:**<br>• Antidote for Nerve Agents or Organophosphate Overdose.<br>• Administered with Atropine. | **Nerve Agent**<br>• 1 – 2 gram over 30 – 60 minutes.<br>• **Medical Control:** Maintenance infusion: up to 500 mg per hour (maximum of 12 grams/day). |
| **Procainamide**<br>**Indications:**<br>• Treatment of wide complex tachycardia | **Wide Complex Tachycardia**<br>• 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)**<br>**Indications:**<br>• Anti-Emetic used to control Nausea and/or Vomiting. | **Nausea/Vomiting**<br>5 – 10 mg IV, or 5 mg IM. |
| **Proparacaine (Alcaine)**<br>**Indications:**<br>• Topical anesthetic | **Eye & Dental**<br>• 2 drops to affected eye; repeat every 5 minutes as needed up to 5 doses. |
| **Rocuronium**<br>**Indications:**<br>• Non-depolarizing paralytic agent used as a component of rapid sequence intubation, when succinylcholine is contraindicated and for post intubation paralysis.<br>• Onset of action is longer than succinylcholine, up to 3 minutes, patient will NOT defasciculate. | **Rapid Sequence Intubation**<br>• 1 mg/kg IV. |
| **Sodium Bicarbonate**<br>**Indications:**<br>• A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose. | **Poisoning/Substance Abuse/OD**<br>**Tricyclic with symptomatic dysrhythmias, (eg. tachycardia and wide QRS):**<br>• 2 meq/kg IV.<br><br>**Cardiac Arrest**<br>• 2 meq/kg IV. |

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# CT Adult Medication Reference

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**See the Pediatric Color Coded Appendix for pediatric dosages**

| Medication | Adult Protocol/Dosing |
|---|---|
| **Succinylcholine Paralytic Agent**<br><br>**Indications:**<br>• Paralytic Agent used as a component of rapid sequence intubation.<br>**Contraindications:**<br>• 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**<br>• 1.5 mg/kg IV immediately after sedation (maximum 200 mg). |
| **Tetracaine**<br><br>**Indications:**<br>• Topical anesthetic | **Eye & Dental**<br>• 2 drops to affected eye; repeat every 5 minutes as needed. |
| **Vecuronium Paralytic Agent**<br><br>**Indications:**<br>• Long-acting non-depolarizing paralytic agent.<br>**Contraindications:**<br>• Avoid in patients with chronic neuromuscular disease (e.g., muscular dystrophy). | **Induced Therapeutic Hypothermia**<br>• 0.1 mg/kg IV.<br><br>**Rapid Sequence Intubation**<br>• 0.1 mg/kg IV. |

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# CT Pediatric Color Coded Medication Reference

V2016.1

## 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**
ET Tube: 2.5 - 3.5
Blade Size: 0 - 1

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

**Normal Saline** 80 ml

| | |
|---|---|
| Acetaminophen | 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 | 81mg |
| Dextrose 10% | 20 ml |
| Diazepam (IV) | 0.4 mg |
| Diphenhydramine | HOLD |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 0.3 ml/hr |
| 5 microgram/kg/min | 0.9 ml/hr |
| 10 microgram/kg/min | 1.7 ml/hr |
| 20 microgram/kg/min | 3.3 ml/hr |
| Epinephrine 1:10,000 | 0.04 mg |
| Epinephrine 1:1000 Nebulized | 2.5 mg |
| Epinephrine 1:1000 IM | 0.04 mg |
| Fentanyl | 4 microgram |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 8 mg |
| Hydroxocobalamin | 300 mg |
| Ibuprofen | HOLD |

| | |
|---|---|
| Ipratropium w/ albuterol | 500 microgram |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 4 mg |
| -Traumatic Brain Injury | 6 mg |
| - Intraosseous | 2 mg |
| Lorazepam | 0.4 mg |
| Magnesium Sulfate | |
| - RAD | 160 mg |
| - Torsades | 200 mg |
| Methylprednisolone | 8 mg |
| Midazolam IV | 0.4 mg |
| Morphine Sulfate | 0.4 mg |
| Naloxone | 0.4 mg |
| Norepinephrine | |
| Ondansetron - IV | 0.4 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 200 mg |
| - Infusion | 80 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 8 mEq |
| Tretracaine | 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**
ET Tube: 3.5
Blade Size: 1

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

**Normal Saline** 130 ml

| | |
|---|---|
| Acetaminophen | 97.5 mg |
| Adenosine: | |
| 1st Dose- | 0.65 mg |
| Repeat Dose- | 1.3 mg |
| Albuterol | 2.5 mg |

| | |
|---|---|
| Amiodarone | 32.5 mg |
| Atropine- Bradycardia | 0.13 mg |
| - Organophosphate Poison | 0.32 mg |
| Calcium Chloride | 130 mg |
| Dextrose 10% | 35 ml |
| Diazepam (IV) | .65 mg |
| Diphenhydramine | HOLD |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 0.5 ml/hr |
| 5 microgram/kg/min | 1.3 ml/hr |
| 10 microgram/kg/min | 2.5 ml/hr |
| 20 microgram/kg/min | 5.0 ml/hr |
| Epinephrine 1:10,000 | 0.065 mg |
| Epinephrine 1:1000 Nebulized | 2.5 mg |
| Epinephrine 1:1000 IM | 0.065 mg |
| Fentanyl | 6.5 microgram |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 13 mg |
| Hydroxocobalamin | 400 mg |
| Ibuprofen | HOLD |

| | |
|---|---|
| Ipratropium w/ albuterol | 500 microgram |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 6.5 mg |
| -Traumatic Brain Injury | 9.75 mg |
| - Intraosseous | 3.25 mg |
| Lorazepam | 0.65 mg |
| Magnesium Sulfate | |
| - RAD | 260 mg |
| - Torsades | 325 mg |
| Methylprednisolone | 13.0 mg |
| Midazolam | 0.65 mg |
| Morphine Sulfate | 0.65 mg |
| Naloxone | 0.65 mg |
| Norepinephrine | |
| Ondansetron - IV | 0.65 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 325 mg |
| - Infusion | 130 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 13 mEq |
| Tretracaine | 2 drops |

## 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**
ET Tube: 3.5 -4.0
Blade Size: 1

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

**Normal Saline** 170 ml

| | |
|---|---|
| Acetaminophen | 127.5 mg |
| Adenosine: | |
| 1st Dose- | 0.85 mg |
| Repeat Dose- | 1.7 mg |
| Albuterol | 2.5 mg |

| | |
|---|---|
| Amiodarone | 42.5 mg |
| Atropine- Bradycardia | 0.17 mg |
| - Organophosphate Poison | 0.42 mg |
| Calcium Chloride | 172 mg |
| Dextrose 10% | 43 ml |
| Diazepam (IV) | 0.85 mg |
| Diphenhydramine | HOLD |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 0.7 ml/hr |
| 5 microgram/kg/min | 1.6 ml/hr |
| 10 microgram/kg/min | 3.2 ml/hr |
| 20 microgram/kg/min | 6.5 ml/hr |
| Epinephrine 1:10,000 | 0.85 mg |
| Epinephrine 1:1000 Nebulized | 2.5 mg |
| Epinephrine 1:1000 IM | 0.85 mg |
| Fentanyl | 8.5 micrograms |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 17 mg |
| Hydroxocobalamin | 600 mg |
| Ibuprofen | 80 mg |

| | |
|---|---|
| Ipratropium w/ albuterol | 500 micrograms |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 8.5 mg |
| -Traumatic Brain Injury | 12.75 mg |
| - Intraosseous | 4.25 mg |
| Lorazepam | 0.85 mg |
| Magnesium Sulfate | |
| - RAD | 340 mg |
| - Torsades | 425 mg |
| Methylprednisolone | 17.0 mg |
| Midazolam | 0.85 mg |
| Morphine Sulfate | 0.85 mg |
| Naloxone | 0.85 mg |
| Norepinephrine | |
| Ondansetron - IV | 0.8 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 425 mg |
| - Infusion | 210 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 17 mEq |
| Tretracaine | 2 drops |

# CT Pediatric Color Coded Medication Reference

## Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

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

**Equipment**
ET Tube: 4.0
Blade Size: 1

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

**Normal Saline** 210 ml

| | |
|---|---|
| Acetaminophen | 157.5 mg |
| Adenosine: | |
| 1st Dose- | 1.05 mg |
| Repeat Dose- | 2.1 mg |
| Albuterol | 2.5 mg |

| | |
|---|---|
| Amiodarone | 52.5 mg |
| Atropine- Bradycardia | 0.17 mg |
| - Organophosphate Poison | 0.52 mg |
| Calcium Chloride | 210 mg |
| Dextrose 10% | 50 ml |
| Diazepam (IV) | 1.05 mg |
| Diphenhydramine | 10.5 mg |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 0.8 ml/hr |
| 5 microgram/kg/min | 2.0 ml/hr |
| 10 microgram/kg/min | 4.0 ml/hr |
| 20 microgram/kg/min | 8.0 ml/hr |
| Epinephrine 1:10,000 | 0.105 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.105 mg |
| Fentanyl | 10.5 micrograms |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 21 mg |
| Hydroxocobalamin | 700 mg |
| Ibuprofen | 100 mg |

| | |
|---|---|
| Ipratropium w/ albuterol | 500 micrograms |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 10.5 mg |
| -Traumatic Brain Injury | 15.75 mg |
| - Intraosseous | 5.25 mg |
| Lorazepam | 1.05 mg |
| Magnesium Sulfate | |
| - RAD | 420 mg |
| - Torsades | 525 mg |
| Methylprednisolone | 21 mg |
| Midazolam | 1.05 mg |
| Morphine Sulfate | 1.05 mg |
| Naloxone | 1.05 mg |
| Norepinephrine | |
| Ondansetron - IV | 1 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 525 mg |
| - Infusion | 210 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 21 mEq |
| Tretracaine | 2 drops |

Purple (11-18 Months)

## Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

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

**Equipment**
ET Tube: 4.5
Blade Size: 2

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

**Normal Saline** 260 ml

| | |
|---|---|
| Acetaminophen | 195 mg |
| Adenosine: | |
| 1st Dose- | 1.3mg |
| Repeat Dose- | 2.6 mg |
| Albuterol | 2.5 mg |

| | |
|---|---|
| Amiodarone | 65 mg |
| Atropine- Bradycardia | 0.26 mg |
| - Organophosphate Poison | 0.65 mg |
| Calcium Chloride | 259 mg |
| Dextrose 10% | 60-80 ml |
| Diazepam (IV) | 1.3 mg |
| Diphenhydramine | 13 mg |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 0.8 ml/hr |
| 5 microgram/kg/min | 2.5 ml/hr |
| 10 microgram/kg/min | 5.0 ml/hr |
| 20 microgram/kg/min | 10 ml/hr |
| Epinephrine 1:10,000 | 0.13 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.13 mg |
| Fentanyl | 13 micrograms |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 26 mg |
| Hydroxocobalamin | 900 mg |
| Ibuprofen | 120 mg |

| | |
|---|---|
| Ipratropium w/ albuterol | 0.5 microgram Levalbuterol |
| 0.63 mg Lidocaine: | |
| - Cardiac Arrest | 13 mg |
| -Traumatic Brain Injury | 19.5mg |
| - Intraosseous | 6.5 mg |
| Lorazepam | 1.3 mg |
| Magnesium Sulfate | |
| - RAD | 520 mg |
| - Torsades | 650 mg |
| Methylprednisolone | 26 mg |
| Midazolam | 1.3 mg |
| Morphine Sulfate | 1.3 mg |
| Naloxone | 1.3 mg |
| Norepinephrine | |
| Ondansetron - IV | 1.3 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 650 mg |
| - Infusion | 260 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 26 mEq |
| Tretracaine | 2 drops |

Yellow (19-35 Months)

## Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

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

**Equipment**
ET Tube: 5.0
Blade Size: 2

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

**Normal Saline** 330 ml

| | |
|---|---|
| Acetaminophen | 247.5 mg |
| Adenosine: | |
| 1st Dose- | 1.65 mg |
| Repeat Dose- | 3.3 mg |
| Albuterol | 2.5 mg |

| | |
|---|---|
| Amiodarone | 82.5 mg |
| Atropine- Bradycardia | 0.33 mg |
| - Organophosphate Poison | 0.82 mg |
| Calcium Chloride | 330 mg |
| Dextrose 10% | 80 ml |
| Diazepam (IV) | 1.65 mg |
| Diphenhydramine | 16.5 |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 1.2 ml/hr |
| 5 microgram/kg/min | 3.0 ml/hr |
| 10 microgram/kg/min | 6.0 ml/hr |
| 20 microgram/kg/min | 12 ml/hr |
| Epinephrine 1:10,000 | 0.165 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.165 mg |
| Fentanyl | 16.5 micrograms |
| Glucagon | 0.5 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 33 mg |
| Hydroxocobalamin | 1200 mg |
| Ibuprofen | 160 mg |

| | |
|---|---|
| Ipratropium w/ albuterol | 500 microgram |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 16.5 mg |
| -Traumatic Brain Injury | 24.75 mg |
| - Intraosseous | 8.25 mg |
| Lorazepam | 1.65 mg |
| Magnesium Sulfate | |
| - RAD | 660 mg |
| - Torsades | 825 mg |
| Methylprednisolone | 33 mg |
| Midazolam | 1.65 mg |
| Morphine Sulfate | 1.65 mg |
| Naloxone | 1.65 mg |
| Norepinephrine | |
| Ondansetron - IV | 1.65 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 825 mg |
| - Infusion | 330 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 33 mEq |
| Tretracaine | 2 drops |

Green (3-4 yrs)

# CT Pediatric Color Coded Medication Reference

V2016.1

## 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**
ET Tube: 5.5
Blade Size: 2

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

**Normal Saline** 410 ml

| | |
|---|---|
| Acetaminophen | 311.25 mg |
| Adenosine: | |
| 1st Dose- | 2.075 mg |
| Repeat Dose- | 4.15 mg |
| Albuterol | 2.5 mg |
| Amiodarone | 103.75 mg |
| Atropine- Bradycardia | 0.41 mg |
| - Organophosphate Poison | 1.0 mg |
| Calcium Chloride | 416 mg |
| Dextrose 10% | 100 ml |
| Diazepam (IV) | 2.0 mg |
| Diphenhydramine | 20 mg |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 1.6 ml/hr |
| 5 microgram/kg/min | 3.9 ml/hr |
| 10 microgram/kg/min | 7.8 ml/hr |
| 20 microgram/kg/min | 16 ml/hr |
| Epinephrine 1:10,000 | 0.2075 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.2075 mg |
| Fentanyl | 20 micrograms |
| Glucagon | 1 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 41.5 mg |
| Hydroxocobalamin | 1500 mg |
| Ibuprofen | 200 mg |
| Ipratropium w/ albuterol | 500 micrograms |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 20.75 mg |
| -Traumatic Brain Injury | 31.125mg |
| - Intraosseous | 10.375 mg |
| Lorazepam | 2.0 mg |
| Magnesium Sulfate | |
| - RAD | 830 mg |
| - Torsades | 1037.5 mg |
| Methylprednisolone | 41.5 mg |
| Midazolam | 2.0mg |
| Morphine Sulfate | 2.0 mg |
| Naloxone | 2 mg |
| Norepinephrine | |
| Ondansetron - IV | 2.0 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 1037 mg |
| - Infusion | 415 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 41.5 mEq |
| Tretracaine | 2 drops |

Blue (5-6 yrs)

## Weight 24-28 Kg (Avg 27 Kg)

Length 122-137 cm

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

**Equipment**
ET Tube: 6.0
Blade Size: 2-3

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

**Normal Saline** 540 ml

| | |
|---|---|
| Acetaminophen | 405 mg |
| Adenosine: | |
| 1st Dose- | 2.7 mg |
| Repeat Dose- | 5.4 mg |
| Albuterol | 2.5 mg |
| Amiodarone | 135 mg |
| Atropine- Bradycardia | 0.5 mg |
| - Organophosphate Poison | 1.3 mg |
| Calcium Chloride | 540 mg |
| Dextrose 10% | 135 ml |
| Diazepam (IV) | 2.7 mg |
| Diphenhydramine | 27 mg |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 2 ml/hr |
| 5 microgram/kg/min | 5 ml/hr |
| 10 microgram/kg/min | 10 ml/hr |
| 20 microgram/kg/min | 20 ml/hr |
| Epinephrine 1:10,000 | 0.27 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.27 mg |
| Fentanyl | 27 micrograms |
| Glucagon | 1 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 54 mg |
| Hydroxocobalamin | 1900 mg |
| Ibuprofen | 280 mg |
| Ipratropium w/ albuterol | 500 micrograms |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 27 mg |
| -Traumatic Brain Injury | 40.5 mg |
| - Intraosseous | 13.5 mg |
| Lorazepam | 2.7 mg |
| Magnesium Sulfate | |
| - RAD | 1080 mg |
| - Torsades | 1350 mg |
| Methylprednisolone | 54 mg |
| Midazolam | 2.7 mg |
| Morphine Sulfate | 2.7 mg |
| Naloxone | 2 mg |
| Norepinephrine | |
| Ondansetron - IV | 2.7 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 1350 mg |
| - Infusion | 540 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 54 mEq |
| Tretracaine | 2 drops |

Orange (7-9 yrs)

## Weight 30-36 Kg (Avg 33 Kg)

Length 137-150

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

**Equipment**
ET Tube: 6.5
Blade Size: 3

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

**Normal Saline** 720 ml

| | |
|---|---|
| Acetaminophen | 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 |
| Dextrose 10% | 180 ml |
| Diazepam (IV) | 3.3 mg |
| Diphenhydramine | 33 mg |
| Dopamine (800 mg in 500 cc) | |
| 2 microgram/kg/min | 2.7 ml/hr |
| 5 microgram/kg/min | 7.0 ml/hr |
| 10 microgram/kg/min | 14.0 ml/hr |
| 20 microgram/kg/min | 28.0 ml/hr |
| Epinephrine 1:10,000 | 0.33 mg |
| Epinephrine 1:1000 Nebulized | 5 mg |
| Epinephrine 1:1000 IM | 0.33 mg |
| Fentanyl | 33 micrograms |
| Glucagon | 1 mg |
| Glucose Oral | 1 tube |
| Hydrocortisone | 66 mg |
| Hydroxocobalamin | 2500 mg |
| Ibuprofen | 360 mg |
| Ipratropium w/ albuterol | 500 micrograms |
| Levalbuterol | 0.63 mg Lidocaine: |
| - Cardiac Arrest | 36 mg |
| -Traumatic Brain Injury | 54 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 | |
| Ondansetron - IV | 3.6 mg |
| - ODT | 4 mg |
| Pralidoxime IV | 1650 mg |
| - Infusion | 720 mg/hr |
| Proparacaine | 2 drops |
| Sodium Bicarbonate | 66 mEq |
| Tretracaine | 2 drops |

Green(10-12 yrs)

# ADULT Scope of Practice

| Airway Management | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| BVM | X | X | X | X |
| Chest Tube Maintenance | | | | X |
| Cleared, Opened, Heimlich | X | X | X | X |
| Combitube | | | X | X |
| CPAP | | ▲ | ▲ | X |
| Endotracheal Intubation | | | | X |
| Endotracheal Suctioning | | | X | X |
| KING LT-D | | | | X |
| Laryngeal Mask Airway | | | | X |
| Nasogastric Tube | | | | X |
| Nasopharyngeal Airway | | X | X | X |
| Nasotracheal Intubation | | | | X |
| Nebulizer Treatment | | | ✱ | X |
| Needle Decompression | | | | X |
| Oral Suctioning | X | X | X | X |
| Oropharyngeal Airway | X | X | X | X |
| Oxygen Administration | X | X | X | X |
| Pulse Oximetry | | X | X | X |
| Rapid Sequence Intubation | | | | ▲ |
| Tracheostomy Maintenance | | | | X |
| Ventilator Operation | | | | X |

| Vascular Access | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Blood Draw | | | ✱ | X |
| Blood Glucose Analysis | | X | X | X |
| Central Line Maintenance | | | | X |
| Peripheral Venous Access | | | X | X |
| Intraosseous - Adult | | | | X |

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# ADULT Scope of Practice



| Medication Administration Route | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Auto Injector | Limited | X | X | X |
| Blood Products | | | | X |
| Endotracheal | | | | X |
| Inhalation | | MDI | ✱ | X |
| Intramuscular | | | ✱ | X |
| Intraosseous | | | | X |
| Intravenous | | | X | X |
| Intravenous Pump | | | | X |
| Oral | | X | X | X |
| Intranasal | Naloxone Only | X | ✱ | X |
| Rectal | | | | X |
| Subcutaneous | | | ✱ | X |
| Sublingual | | X | X | X |

| Cardiac Management | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Application of 12 Lead ECG | | ✱ | ✱ | X |
| Application of 3 or 4 lead ECG | | | | X |
| CPR | X | X | X | X |
| Defibrillation - AED | X | X | X | X |
| Defibrillation - Manual | | | | X |
| Interpretation of 12 Lead ECG | | | | X |
| Interpretation of 3 or 4 lead | | | | X |
| Synchronized Cardioversion | | | | X |
| Transcutaneous Pacing | | | | X |

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# PEDIATRIC Scope of Practice

| Airway Management | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| BVM | X | X | X | X |
| Capnography | | | | X |
| Cleared, Opened, Heimlich | X | X | X | X |
| Endotracheal Intubation | | | | X |
| Endotracheal Suctioning | | | X | X |
| King LT-D | | | | X |
| Laryngeal Mask Airway | | | | X |
| Nasogastric Tube | | | | X |
| Nasopharyngeal Airway | | X | X | X |
| Nebulizer Treatment | | | ✱ | X |
| Needle Decompression | | | | X |
| Oral Suctioning | X | X | X | X |
| Oropharyngeal Airway | X | X | X | X |
| Oxygen Administration | X | X | X | X |
| Pulse Oximetry | | X | X | X |
| Tracheostomy Maintenance | | | | X |
| Ventilator Operation | | | | X |

| Vascular Access | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Blood Draw | | | | X |
| Blood Glucose Analysis | | X | X | X |
| Central Line Access | | | | X |
| Intraosseous | | | ✱ | X |
| Peripheral Venous Access | | | ✱ | X |

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# PEDIATRIC Scope of Practice

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| Medication Administration Route | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Auto Injector | | X | X | X |
| Endotracheal | | | | X |
| Inhalation | | MDI | ✱ | X |
| Intramuscular | | | ✱ | X |
| Intraosseous | | | ✱ | X |
| Intravenous | | | ✱ | X |
| Intravenous Pump | | | | X |
| Oral | | X | X | X |
| Rectal | | Assist Diastat | Assist Diastat | X |
| Subcutaneous | | | ✱ | X |

| Cardiac Management | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Application of 12 Lead ECG | | ▲ | ▲ | X |
| Application of 3 or 4 Lead ECG | | | | X |
| CPR | X | X | X | X |
| Defibrillation - AED | X | X | X | X |
| Defibrillation - Manual | | | | X |
| Interpretation of 12 Lead ECG | | | | X |
| Interpretation of 3 or 4 lead | | | | X |
| Synchronized Cardioversion | | | | X |
| Transcutaneous Pacing | | | | X |

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# ADULT & PEDIATRIC Scope of Practice

| OTHER SKILLS | EMR | EMT | AEMT | PARAMEDIC |
|---|---|---|---|---|
| Advanced Spinal Assessment | | X | X | X |
| Burn Care | X | X | X | X |
| Cervical Spinal Immobilization | Manual Stabilization | X | X | X |
| Childbirth | X | X | X | X |
| Cold Pack | X | X | X | X |
| Extrication | | X | X | X |
| Eye Irrigation (Morgan Lens) | | | | X |
| Hot Pack | X | X | X | X |
| Restraints - Pharmacological | | | | X |
| Restraints - Physical | | X | X | X |
| Spinal Immobilization - Lying (Long board) | Manual Stabilization | X | X | X |
| Spinal Immobilization - Seated (K.E.D.) | Manual Stabilization | X | X | X |
| Spinal Immobilization - Standing | Manual Stabilization | X | X | X |
| Splinting | Manual Stabilization | X | X | X |
| Splinting - Traction | Manual Stabilization | X | X | X |
| Stroke Scale | | X | X | X |
| Temperature | | X | X | X |
| Wound Care - Occlusive Dressing | X | X | X | X |
| Wound Care Pressure Bandage | X | X | X | X |

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***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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