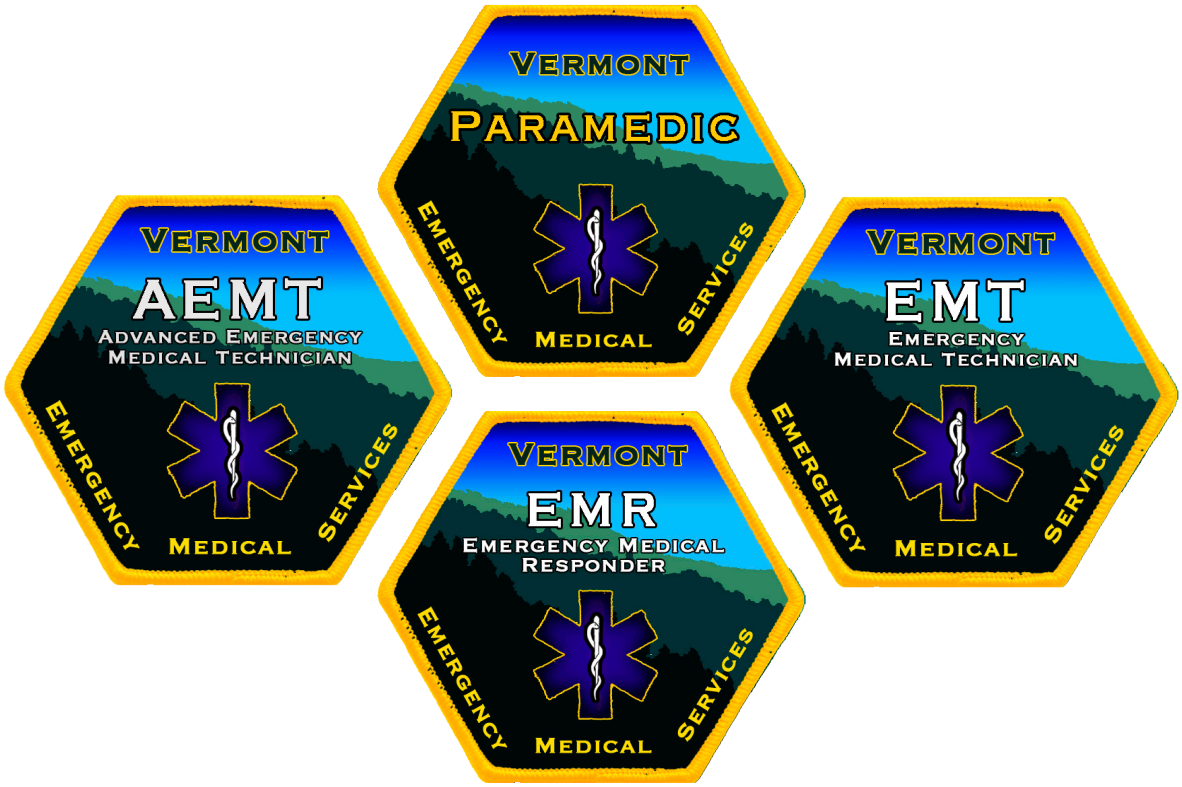
Vermont Statewide **Emergency Medical Services** Protocols



VERMONT
DEPARTMENT OF HEALTH

2013

Vermont Department of Health

Office of Public Health Preparedness and Emergency Medical Services

Vermont Statewide EMS Protocols – Version 1.4 (revision date March 17, 2014)

Legend	Definition
E	Emergency Medical Technician (EMT)
A	Advanced Emergency Medical Technician (AEMT)
P	Paramedic
X	Extended Care Protocol
	CAUTION – Red Flag topic
	Telephone Medical Control
	Pediatric

Blue underline – text formatted as a hyperlink

These protocols are a "living document" developed and drafted by the Protocol Committee of Vermont Emergency Medical Services.

These 2013 Vermont Statewide EMS Protocols were reviewed, edited, and approved of by all of Vermont's District Medical Advisors and other stakeholders. Any deviation from these protocols must be approved in writing by the Vermont EMS Office.

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

Questions and comments should be directed to:

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DISCLAIMER: Although the authors of this document have made great efforts to ensure that all the information is accurate, there may be errors. The authors cannot be held responsible for any such errors. For the latest corrections to theses protocols, see the Vermont EMS website at: http://www.vermontems.org

ACKNOWLEDGEMENT: Our new EMS patch designs come from Chris Carfaro of Richmond, VT. Chris is an Advanced EMT and affiliated with Richmond Rescue. His design for us was a donation, and he can be contacted at chriscarfaro@me.com

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Preface

We welcome you to the new Statewide Vermont EMS protocols. These protocols represent the work of many people across the state since December of 2012 and a significant step forward for EMS care in Vermont. In this process, these protocols have been reviewed by and specific feedback has been received and incorporated from:

- All 13 physicians who serve as District Medical Advisors
- Department of Mental Health
- Department of Children and Families
- Vermont State Police
- Office of the Chief Medical Examiner
- Howard Center
- Disability Rights Vermont
- Vermont Ethics Network
- Vermont Stroke Task Force
- Vermont American Heart Association
- Northern New England Poison Control
- Over 80 other EMS providers, agencies, and districts

The Vermont Department of Health EMS Office has attempted to ensure that all information in these protocols is accurate and in accordance with the best medical evidence available and relevant professional guidelines as commonly practiced at the time of publication. Use of these protocols is intended for Vermont licensed EMS organizations and their affiliated licensed personnel functioning under medical direction. EMS District Medical Advisors may restrict but not expand the scope of practice at each level as outlined in these protocols. On rare occasions drug shortages may require substitutions as communicated by the State EMS Medical Director. Vermont EMS personnel, instructors, and organizations are free to reproduce this document in whole or in part for educational, QA/QI, field guidance, or similar purposes.

We continually scan for errors of all types (medication dosing, spelling, grammar, or punctuation), clarify wording that may be confusing, incorporate feedback from EMS providers, and monitor medical literature to keep abreast of current EMS practice. Please contact the EMS office with any suggestions for future revisions or corrections at VTProtocols@state.vt.us

All licensed providers functioning within the Vermont EMS system are required to be familiar with the contents of this document pertinent to their level of training and licensure. Updates to these protocols prior to the next full revision will be posted on the Vermont EMS website and sent via email to all agency heads, district chairs, and district medical advisors. Agency heads are responsible for assuring that any updates are provided to their affiliated personnel and any required training and credentialing occurs. Any updates will also be sent to all licensed EMS providers that have provided Vermont EMS with a valid email address and are on the Vermont EMS listserver. Contact the office to add your email address to this listserver if you do not already receive periodic updates.

In these pages you will find an entirely new look. This document is much more visually appealing and easier to read than prior editions. When using an electronic version of this document, you will find hyperlinks to each referenced protocol.

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IMPORTANT CLARIFICATIONS AND EXPLANATIONS

Protocol Implementation and Transitions to New Scope of Practice Model
These protocols are written for the new Scope of Practice Model levels (EMR, EMT, AEMT and Paramedic), which include skills, medications and other interventions not allowed at the previous National Standard Curriculum levels (FR-ECA, EMT-B, EMT-I and EMT-Paramedic). When an entire agency has completed training on these protocols, they may begin to use these new protocols after 0001 hrs January 1st, 2014 regardless of the transition status of their personnel. All agencies must begin to use these protocols no later than 2359 hrs on March 31, 2014. From April 1, 2014 forward, these are the only statewide EMS protocols and must be followed by all providers, regardless of transition status. However, EMS providers who have not completed the appropriate transition course are ONLY authorized to function within the scope of their previous scope of practice (FR-ECA, EMT-B, EMT-I and EMT-Paramedic). Appendix 3 contains the scope of practice matrix which lists the skills that each provider level, both old and new, can perform.

Example 1: As of February 1st, ABC rescue squad verifies that of their affiliated providers have completed training on the new protocols and decides to begin using the new protocols. ABC has some EMT-Bs that have transitioned to EMT and some that have not. They also have some I-03s that have transitioned to AEMT and some that have not. The providers that have transitioned to EMT and AEMT can fully practice within the new protocols. The providers that have not yet completed their transition courses must also use the new protocols, but are only able to perform the skills within their old scopes of practice (EMT-B and I-03). Once they complete their transition courses, they may fully practice within the new protocols at their new levels.

Example 2: As of January 15th. XYZ Fire/Rescue has verified that all of their providers have completed transition courses to the new scopes of practice. Half of their members have completed protocol training and the other half have not. XYZ Fire/Rescue may not begin to use the new protocols until all of their providers complete the protocol training. They must complete protocol training and begin using the new protocols no later than March 31, 2014.

Please contact the EMS office with any questions about this process.

EMR Scope of Practice
The skills and interventions of the EMR scope of practice are described in the EMR Routine Patient Care section of this document.

Protocol Labeling
Protocols that are labeled #.A or #.P indicate the adult and pediatric versions of that protocol when appropriate. If no designation is listed and it is not obvious (such as newborn resuscitation), the protocol applies to both adult and pediatric patients.

Standing Orders Are Cumulative
Standing orders are those orders that may be carried out by an EMS provider – at his or her discretion – without the need for on-line Medical Control. However, EMS providers at any level of training are encouraged to contact on-line Medical Control in cases where they believe treatment

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beyond standing orders is warranted, cases where there is uncertainty regarding treatment or in cases involving medicolegal or jurisdictional issues.

The standing orders for AEMTs and Paramedics inherently include the standing orders of the lower levels. The sequence as they appear in these protocols is not necessarily the order in which they might be executed by a provider at the higher level.

Calling for Advanced Life Support
Throughout the protocols, in any case where an AEMT or Paramedic can provide interventions beyond those of an EMT, the protocol indicates, "Call for paramedic intercept, if available. If paramedic intercept is not available, call for AEMT intercept, if available." When the protocol says **call** for Paramedic or AEMT intercept, it means **consider** obtaining an intercept based upon the clinical situation and availability. The intent of this statement is to indicate those clinical situations where a paramedic can provide assessment and interventions beyond those of an AEMT and those situations where an AEMT can provide assessment and interventions beyond those of an EMT. Nothing in these protocols should be interpreted as requiring paramedic level care on certain calls or statewide. When paramedic care is available in the system that has been established locally whether through that agency's own personnel or through mutual aid or intercept agreement, the protocols indicate which clinical situations should receive that level of care. The same principle applies to the statement of when to call for an AEMT.

Transfer of Care
When transferring care of a patient, an on-duty EMS provider must ensure the receiving caregiver is licensed at an equal or higher level unless the patient's condition and reasonably anticipated complications can be effectively managed by a lower level provider's scope of practice. For example, a paramedic who is a member of a first responder agency may transfer care of a patient with an uncomplicated ankle injury to an EMT for transport. On the other hand, a patient who receives interventions at a higher level on the scene shall only have care transferred to the same or higher level provider.

Example 1: A Paramedic with a first responder agency treats a patient with an uncomplicated broken toe, but does not administer any narcotic analgesia or provide other paramedic-level interventions beyond assessment. There is no reasonable expectation that the patient may need advanced interventions during transport. Care may be transferred to an AEMT or EMT-level crew on the ambulance service which responds.

Example 2: An AEMT that is off-duty and outside of their normal response area assists as a bystander on a patient that has a seizure. Since this provider is off-duty and does not carry medications or other devices which require a physician order on their person, they have provided no AEMT-level care to the patient beyond assessment. The care of this patient may be transferred to the EMT-level crew that is responsible for the jurisdiction.

Example 3: An AEMT that responds with a first-responder agency arrives on the scene of a cardiac arrest and begins treatment including starting an IV or IO. The ambulance service that responds has EMT-level providers. Care may not be transferred to the EMT crew. The AEMT or higher provider must transport with the patient to the hospital.

Preface Continues

Vermont EMS has taken extreme 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.

Preface Continued

Requests for Out-of-Scope Procedures
Please note that while medical control may have some variation from facility to facility, on-line Medical Control may not direct providers to practice outside their scope of practice. Likewise, providers should not ask to perform procedures outside their scope of practice as defined within these protocols. Providers that perform a procedure outside their scope of practice risk the loss of their EMS licensure.

Medication and Equipment Options
Multiple medications are sometimes listed within a protocol and multiple options for some medical equipment are provided (eg. Combitube, LMA, King-LT, different types of Intraosseous devices, etc.). This is intended to provide Medical Control and agencies with options for treatment and help deal with inevitable medication shortages. This should not be interpreted as requiring agencies to stock all of the medications or devices listed in a given classification. As an example, agencies may choose to stock only one benzodiazepine or may choose to stock multiple options. When a medication becomes unavailable to an agency and there is no alternative listed in these protocols, the agency head or designee should contact the Vermont EMS office. The state medical director will work with the agency, hospital, and other parties to identify and approve appropriate alternatives and any training that may be required for a medication not usually listed or approved.

Extended Care Protocols
Throughout the document you will find sections in relevant protocols identified with an “X” in blue. These are intended to be used in remote settings where transport will be significantly delayed or impossible due to wilderness or disaster settings. These are not intended for transports of normal travel distance and time.

Incident Command
Incident command will be structured in accordance with the Incident Command System (ICS) of the National Incident Management System (NIMS).

Off-Duty EMS Personnel
These protocols apply statewide. EMS providers that are bystanders when off duty outside the normal response area of their affiliated agency should provide BLS care and notify 911. Once the agency with jurisdiction arrives, care should be transferred.

On-Duty EMS Crews Outside of Normal Response Area
These protocols apply statewide and therefore cover mutual aid responses as well as incidental patient contact regardless of where in Vermont it occurs.

Example 1: ABC Rescue squad comes across a car crash while returning to their station after transporting to a hospital that is in a different EMS district. ABC Rescue follows these statewide protocols.

Example 2: XYZ Fire/Rescue is called to provide mutual aid into a different EMS district on a mass-casualty call. XYZ Fire/Rescue follows these statewide protocols.

Preface Continues

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Protocol Determination Regarding State Borders
Ambulance services that are licensed in Vermont and a bordering state shall follow the protocols of the state where patient contact is made, regardless of the destination.

Ambulance services that are licensed in Vermont only shall follow these Vermont protocols at all times.

Continuous Quality Improvement
Quality improvement permeates every aspect of our lives… we strive for a better outcome with each decision. The Vermont Statewide EMS Protocols are no different. With each edition, we endeavor to make them better than they were before, knowing that we will improve and refine them in the future as evidence, experience and technology dictate.

The Vermont Department of Health wishes to thank the entire Vermont EMS community for its involvement in updating the Vermont Statewide EMS Protocols. The quality of this document comes from your thoughtful suggestions and feedback. These are truly *your* protocols. We would also like to thank New Hampshire Bureau of EMS for providing an excellent model for these protocols.

Be safe,

Chris Bell
Director

Mike Leyden
Deputy Director

Daniel Wolfson, MD
Medical Director

Office of Public Health Preparedness and
Emergency Medical Services
Vermont Department of Health

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RESPOND TO SCENE IN A SAFE MANNER

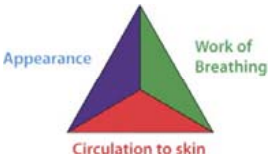
- Review dispatch information.
- Use lights and sirens and/or pre-emptive devices when responding as appropriate per emergency medical dispatch information and local guidelines.
- Use Incident Command System (ICS) for all responses and scene management.

SCENE ARRIVAL AND SIZE-UP

Standard 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. If Paramedic intercept is not available, call for AEMT intercept, if available.

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 36 kg (79 lbs) or 145 cm (57 in). Use a length-based resuscitation tape when treating pediatric patients. Contact **Medical Control** in case any uncertainty exists regarding drug dosing.
- Establish responsiveness.
- General Impression.



Comparison of Adult and Pediatric Assessment Triangle			
	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, grunting	Pallor, mottling, cyanosis

- Determine if DNR/COLST protocol applies (DNR/COLST Policy 8.8).

AIRWAY AND BREATHING

- Airway
  - Assess the patient for a patent airway.
  - Open the airway using a head-tilt/chin-lift, or a jaw thrust if suspicious of cervical spine injury.
  - Suction the airway as needed.
  - Treat foreign body obstruction in accordance with current guidelines.
  - Consider an oropharyngeal or nasopharyngeal airway.
  - Consider advanced airway interventions as appropriate and as trained and credentialed to perform.
- Assess breathing: rate, effort, tidal volume, and breath sounds.
  - If breathing is inadequate, ventilate with 100% oxygen using Bag-Valve-Mask
  - 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.
  - Consider quantitative/waveform capnography (aka: $EtCO_2$) and/or CO-oximetry, if available.
  - Assess lung sounds and chest.

Protocol Continues

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CIRCULATION ASSESSMENT

- Assess patient's pulse, noting rate, rhythm, and quality.
- Control active bleeding using direct pressure, pressure bandages, tourniquets, or hemostatic bandages. See Tourniquet Protocol – Adult & Pediatric 6.6.
  - 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.
- Establish 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 Protocol – Adult 2.20A.
  - For pediatric patients, administer fluids based on physiological signs and therapeutic end-points per the Shock Protocol -- Pediatric 2.20P. Administer IV fluid using a volume-controlled device/method such as a Buretrol, in-line 3-way stopcock or similar device.
  - Consider obtaining a blood sample, per receiving hospital's preference. Note: An AEMT may draw a blood sample during an IV initiation, but must first be trained and credentialed by their agency and hospital.

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

DISABILITY ASSESSMENT

- Assess level of consciousness appropriate for age; use Glasgow Coma Scale for trauma.
- If altered level of consciousness, check finger stick blood glucose via glucometer.
- Immobilize spine fully, if indicated by assessment, see Advanced Spinal Assessment Protocol 6.0.
- In general, pediatric patients should not be transported in a passenger safety seat if a cervical/ spinal injury is suspected. (See Pediatric Transportation 8.11.)

Glasgow Coma Scale

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

ADVANCED LIFE SUPPORT INTERCEPT

- When indicated in protocol, call for Paramedic intercept if available. If Paramedic intercept is unavailable, call for AEMT intercept, if available.

TRANSPORT DECISION

- In general, patients should be transported to the closest appropriate hospital. Operational needs and/or patient preference should be considered.
- The destination hospital and mode of transport are determined by the EMS provider with the highest medical level providing patient care; it should not be determined by other emergency responders or bystanders.
- Regionalized systems of care for STEMI, stroke and trauma patients may necessitate transport to a hospital beyond the nearest facility.
- Notify receiving facility as early as possible.

Protocol Continues

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Protocol Continues

- 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.
- Consider aeromedical transportation when indicated by patient acuity and ground transport time. See Air Medical Transport Protocol 8.1 and Trauma Triage and Transport Destination Protocol 8.16.

SECONDARY/FOCUSED ASSESSMENT AND TREATMENT

- Obtain chief complaint, history of present illness, and prior medical history.
- Complete a physical assessment as appropriate for the patient's presentation.
- Refer to appropriate protocol(s) for further treatment options.
- Determine level of pain.
- Consider field diagnostic tests including: cardiac monitoring, obtain and transmit 12-lead ECG, blood glucose, temperature, stroke assessment, pulse oximetry, quantitative/ waveform capnography, etc.
- Dress and bandage lacerations and abrasions.
- Cover evisceration with a sterile dressing 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 at least every 15 minutes (at least every 5 minutes 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 Protocol 8.16.)
- 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, placement of a cervical collar and long board immobilization if indicated, rapid extrication if indicated, airway maneuvers, and chest injury management. Other treatment and assessment should be carried out en-route to the hospital.

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 on-line Medical Control**.

- Please note that while medical control can have some variation from facility to facility, on-line Medical Control 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.

Protocol Continues

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Protocol Continues

RESPIRATORY REFERENCE TABLES

Bag-Mask Ventilation (BMV) Rates		
Patient	Basic Airway	Supraglottic/ETT*
Adult	10 – 12 breaths per minute	8 – 10 breaths per minute
Child	12 – 20 breaths per minute	8 – 10 breaths per minute
Infant	20 – 30 breaths per minute	8 – 10 breaths per minute

**** Ventilation rates should be titrated to goal $EtCO_2$, if available, or patient conditions (e.g. severe asthma, aspirin overdose, traumatic brain injury). Note: In children, pulse oximetry may identify clinically significant hypoxia that may be missed through evaluation of skin signs alone.***

Pulse Oximetry Readings and Oxygen Administration		
Percent O2 Saturation	Ranges	General Patient Care
94% – 100 %	Normal	Usually indicate adequate oxygenation; validate with clinical assessment (see below)
90% – 93%	Mild hypoxia	Consider O_2 to maintain saturation ≥ 94%. 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, hyperthermia, acidosis, alkalosis, hypoperfusion, carbon monoxide poisoning, hemoglobin abnormality (sickle cell anemia), vasoconstriction, and in the presence of nail polish.

$ETCO_2$ Readings and Ventilatory Rates		
$EtCO_2$ 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.

Signs and Symptoms of Pediatric Respiratory Distress or Failure	
Pediatric Respiratory Distress	Pediatric Respiratory Failure
• Able to maintain adequate oxygenation by using extra effort to move air. • Symptoms include increased respiratory rate, sniffing position, nasal flaring, abnormal breath sounds, head bobbing, intercostal retractions, mild tachycardia.	• Hallmarks of respiratory failure are respiratory rate less than 20 breaths per minute for children <6 years old; less than 12 breaths per minute for children <16 years old; and >60 breaths per minutes for any child; cyanosis, marked tachy-cardia or bradycardia, poor peripheral perfusion, decreased muscle tone, mottling, 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 rapid cardiac arrest.

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RESPOND TO SCENE IN A SAFE MANNER

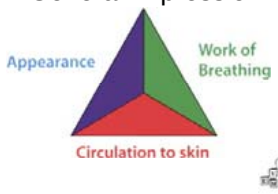
- Review dispatch information.
- Use lights and sirens and/or pre-emptive devices when responding as appropriate per emergency medical dispatch information and local guidelines.
- Use Incident Command System (ICS) for all responses and scene management.

SCENE ARRIVAL AND SIZE-UP

Standard 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. If Paramedic intercept is not available, call for AEMT intercept, if available.

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 36 kg (79 lbs) or 145 cm (57 in). Use a length-based resuscitation tape when treating pediatric patients.
- Establish responsiveness
- General Impression.



Comparison of Adult and Pediatric Assessment Triangle			
	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, grunting	Pallor, mottling, cyanosis

- Determine if DNR/COLST protocol applies (DNR/COLST Policy 8.8).

AIRWAY AND BREATHING

- Airway
  - Assess the patient for a patent airway.
  - Open the airway using a head-tilt/chin-lift, or a jaw thrust if suspicious of cervical spine injury.
  - Suction the airway as needed.
  - Treat foreign body obstruction in accordance with current guidelines.
  - Consider an oropharyngeal 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 $\geq$ 94% ($\geq$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 Tourniquet Protocol 6.6.
  - 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.

Protocol Continues

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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. If Paramedic intercept is unavailable, call for AEMT 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 protocol(s) for further treatment options.
- Determine level of pain.
- Dress and bandage lacerations and abrasions.
- Cover evisceration with a sterile dressing 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 at least every 15 minutes (at least every 5 minutes 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 Protocol 8.16)
- 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 on-line Medical Control**.
- Please note that while medical control can have some variation from facility to facility, on-line Medical Control 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 Vermont EMT-level protocols and American Heart Association guidelines for Healthcare Provider CPR.

- 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 4.3A or Musculoskeletal Injuries Protocol – Pediatric 4.3P.)
  - Cervical and Spinal Immobilization – Manual Stabilization Only (See Advanced Spinal Assessment Procedure 6.0.)
  - Extremity Hemorrhage (See Tourniquet Protocol 6.6.)
  - Nerve Agent Autoinjectors (See Nerve Agent/Organophosphate Poisoning Protocol – Adult 2.11A or Nerve Agent/Organophosphate Poisoning Protocol – Pediatric 2.11P.)
  - Splinting – Manual Stabilization Only (See Musculoskeletal Injuries Protocol – Adult 4.3A or Musculoskeletal Injuries Protocol – Pediatric 4.3P.)
  - Wound Care (See Musculoskeletal Injuries Protocol – Adult 4.3A or Musculoskeletal Injuries Protocol – Pediatric 4.3P.)

RESPIRATORY REFERENCE TABLES

Bag-Mask Ventilation (BMV) Rates		
Patient	Basic Airway	Supraglottic/ETT*
Adult	10 – 12 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).***

Signs and Symptoms of Pediatric Respiratory Distress or Failure	
Pediatric Respiratory Distress	Pediatric Respiratory Failure
• Able to maintain adequate oxygenation by using extra effort to move air. • Symptoms include increased respiratory rate, sniffing position, nasal flaring, abnormal breath sounds, head bobbing, intercostal retractions, mild tachycardia.	• Hallmarks of respiratory failure are respiratory rate less than 20 breaths per minute for children <6 years old; less than 12 breaths per minute for children <16 years old; and >60 breaths per minutes for any child; cyanosis, marked tachy-cardia or bradycardia, poor peripheral perfusion, decreased muscle tone, mottling, 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 rapid cardiac arrest.

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Extended Care Guidelines 1.2

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

Extended care patients may require repeat administration of medications beyond what is specified in regular protocols or assistance with administration of the patient's prescribed medication.
In an extended care environment, EMS providers will follow the following guidelines:

1. Every effort should be made to contact medical control for guidance.

2. If medical control is unavailable, it is reasonable to administer repeat medication dosing at the same intervals as prescribed in protocol or as prescribed for patient's own medications. Caution must be used due to cumulative effects that may result in over-sedation, hypotension, respiratory depression, etc.

3. If changes to regular protocol are necessary for medication use in extended care situations, these changes appear in the specific protocol under a separate Extended Care Section denoted by an X

Special circumstances to consider in an extended care environment:

- Protecting patient from the environment while awaiting extrication and/or transport. This may require an improvised shelter and insulation to protect the patient and providers from rain, snow and wind.
- Requesting additional resources/personnel early if an extended care call is suspected.
- Oral fluids to maintain a patient's hydration and high energy foods to maintain caloric requirements, if the patient is conscious and able to swallow.
- Limited resources due to difficulty accessing patient and/or transporting equipment to the patient's location. These resources may include:
  - Oxygen
  - Suction
  - Cardiac Monitor/AED
  - Pulse Oximetry
  - Capnography
  - Glucose Meter
  - BP Cuff and Stethoscope
  - Intravenous access
  - Medications
  - Communication with online medical control

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Abdominal Pain (Non Traumatic) – Adult 2.0A

EMT STANDING ORDERS

E

- Routine Patient Care.
- Abdominal history and physical exam.
- Maintain the patient NPO (nothing by mouth).
- Allow patient to assume a position of comfort.
- Acquire and transmit 12-lead ECG, if available, for patients age ≥40.
- Minimize scene time.
- If patient has uncontrolled pain, unstable vital signs, or signs and symptoms of an acute abdomen, call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access
- If patient is hypotensive, see Shock Protocol – Adult 2.20A.
- Contact **Medical Control** for additional fluid orders.

PARAMEDIC STANDING ORDERS

P

- See Pain Management Protocol – Adult 2.16A.
- See Nausea/Vomiting Protocol – Adult & Pediatric 2.10.
- Assess and monitor the cardiac rhythm, treat as indicated.

PEARLS:

- Obtain complete abdominal history
  - History of pain (OPQRST)
  - History of recent trauma
  - History of nausea/vomiting (color, bloody, coffee grounds)
  - History of bowel movement (last BM, diarrhea, bloody, tarry)
  - History of urine output (painful, dark, bloody)
  - History of prior abdominal surgery
  - History of acute onset of back pain
  - History last menses in female/vaginal bleeding/pelvic pain
  - History of anticoagulant medication
  - SAMPLE history
- Abdominal physical assessment:
  - Ask the patient to point to the area of pain (palpate this area last).
  - Gently palpate for tenderness, rebound tenderness, distention, rigidity, guarding, and pulsatile masses. Also palpate the flank for CVA (costovertebral angle) tenderness.
  - An acute abdomen is rigid with guarding, distension, and diffuse tenderness and may indicate a surgical emergency. An acute abdomen can be caused by many things including the following: appendicitis, cholecystitis, duodenal ulcer perforation, diverticulitis, abdominal aortic aneurysm, kidney infection, urinary tract infection, kidney stone, ectopic pregnancy, pelvic inflammatory disease or pancreatitis.

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2.0P Abdominal Pain (Non-Traumatic) – Pediatric

Medical Protocol 2.0P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Abdominal history and physical exam.
- Maintain the patient NPO (nothing by mouth).
- Allow patient to assume a position of comfort.
- Minimize scene time.
- If patient has uncontrolled pain, unstable vital signs, or signs and symptoms of an acute abdomen, call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- If patient is hypotensive, see Shock Protocol – Pediatric 2.20P.
- Contact **Medical Control** for additional fluid orders.

PARAMEDIC STANDING ORDERS

P

- See Pain Management Protocol – Pediatric 2.16P.
- See Nausea/Vomiting Protocol – Adult & Pediatric 2.10.

PEARLS:

- Obtain complete abdominal history
  - History of pain (OPQRST)
  - History of recent trauma
  - History of nausea/vomiting (color, bloody, coffee grounds)
  - History of bowel movement (last BM, diarrhea, bloody, tarry)
  - History of urine output (painful, dark, bloody)
  - History of prior abdominal surgery
  - History of acute onset of back pain
  - History last menses in female, if applicable/vaginal bleeding/pelvic pain
  - SAMPLE history
- Abdominal physical assessment:
  - Ask the patient to point to the area of pain (palpate this area last).
  - Gently palpate for tenderness, rebound tenderness, distention, rigidity, guarding, and pulsatile masses. Also palpate the flank for CVA (costovertebral angle) tenderness.
  - An acute abdomen is rigid with guarding, distension, and diffuse tenderness and may indicate a surgical emergency. An acute abdomen can be caused by many things including the following: appendicitis, cholecystitis, bowel obstruction, kidney infection, urinary tract infection, kidney stone, ectopic pregnancy, pelvic inflammatory disease, pancreatitis or constipation.

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Adrenal Insufficiency Adult & Pediatric

2.1

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.
- Obtain history of underlying condition.
- Call for Paramedic intercept, if available. If not available, call for AEMT 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

- Establish IV access and administer stress dose hydrocortisone to patient that meets criteria below:
  - **Adult:** History of adrenal insufficiency; administer hydrocortisone 100 mg IV/IM.
  - **Pediatric:** History of adrenal insufficiency; administer hydrocortisone 2 mg/kg IV/IM (maximum dose 100 mg).

PARAMEDIC EXTENDED CARE ORDERS – ADULT & PEDIATRIC

X

- After the stress dose, continue to administer hydrocortisone every 6 hours:
  - **Adult:** 100 mg IV/IM every 6 hours.
  - **Pediatric:** 2 mg/kg IV/IM every 6 hours to a maximum single dose of 100mg.
- In patients with the following signs and symptoms consider the need for repeat stress dosing:
  - Nausea, vomiting, weakness, dizzy, abdominal pain, muscle pain, dehydration, hypotension, tachycardia, fever, mental status changes.
- Additional Considerations:
  - Aggressive volume replacement therapy.
  - Vasopressors may be needed to treat refractory hypotension, see Shock Protocol – Adult 2.20A or Shock Protocol – Pediatric 2.20P.
  - Treat for hypoglycemia, see Diabetic Emergencies Protocol – Adult 2.7A or Diabetic Emergencies Protocol -- Pediatric 2.7P.
  - Normalize body temperature.

PEARLS:
Adrenal insufficiency results when the body does not produce the essential life-sustaining hormones cortisol and aldosterone, which are vital to maintaining blood pressure, cardiac contractility, water, and salt balance.
Chronic adrenal insufficiency can be caused by a number of conditions:

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

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

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

- Shock (any cause).
- Fever >100.4°F and ill-appearing.
- Multi-system trauma.
- Submersion injury.
- 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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2.2A Allergic Reaction/Anaphylaxis – Adult

Medical Protocol 2.2A

E — EMT STANDING ORDERS

- Routine Patient Care.
- For anaphylaxis with serious signs and symptoms, administer adult epinephrine autoinjector (EpiPen) 0.3 mg IM, lateral thigh preferred administration site.
  - For additional dosing, contact **Medical Control**.
- Do not delay transport.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

A — ADVANCED EMT STANDING ORDERS

- For anaphylaxis administer adult epinephrine autoinjector (preferred) **OR**
- Epinephrine (**1:1,000**) 0.3 mg (0.3 mL) IM. Lateral thigh preferred administration site. For additional dosing, contact **Medical Control.**
- Establish IV access. Administer 500-1000 mL bolus NS for SBP < 90 mmHg.
- Consider the administration of albuterol 2.5 mg via nebulizer x 1 dose. Contact **Medical Control** for additional dosing.

P — PARAMEDIC STANDING ORDERS

- Continue epinephrine (**1:1,000**) 0.3 mg (0.3 mL) IM every 5 minutes x 2 doses. For additional dosing, contact **Medical Control**.
- For severe anaphylaxis refractory to IM epinephrine, consider epinephrine (**1:10,000**) 0.1 mg (1 mL) (diluted to 10 mL with 0.9% NaCl or equivalent dilution) to assure slow IV administration over 3 to 5 minutes, may repeat x 1 dose. For additional dosing, contact **Medical Control**.
- Methylprednisolone 1 mg/kg IV (maximum 125 mg).
- Diphenhydramine 25 – 50 mg IM/IV.
- Consider ipratropium 0.5 mg and albuterol 2.5 mg via nebulizer x 1 dose (DuoNeb). Contact **Medical Control** for additional dosing.

X — PARAMEDIC EXTENDED CARE ORDERS

- Methylprednisolone 1 mg/kg IV (max 125 mg) every 6 hours if symptomatic.
- Diphenhydramine 25 – 50 mg by mouth. May repeat every 4-6 hours as needed; maximum dose of 300 mg/24 hours.

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

PEARLS:

- Allergic reactions are commonly a single system response to an allergen involving the skin. Anaphylaxis is a multi-system response to an allergen including one or more of the following **serious signs and symptoms**:
  - Severe respiratory distress,
  - Airway compromise/impending airway compromise (wheezing, swelling of the lips/ tongue, throat tightness),
  - Widespread hives, itching, swelling,
  - Altered mental status, syncope, cyanosis, delayed capillary refill or decreased level of consciousness associated with known or suspected allergenic exposure,
  - Signs of shock Shock Protocol – Adult 2.20A.
- Do not delay transport for other than epinephrine administration.
- Patients can present with anaphylaxis without a prior history of allergy.
- Wheezing may be caused by anaphylaxis but it is not the only sign.

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Allergic Reaction/Anaphylaxis – Pediatric 2.2P

EMT STANDING ORDERS

E

- Routine Patient Care.
- For anaphylaxis with serious signs and symptoms, administer **pediatric** epinephrine autoinjector (**EpiPen Jr**) 0.15 mg IM (lateral thigh preferred administration site) for patients between 10 kg and 35 kg. For patients over 35 kg, see Allergic Reaction/ Anaphylaxis Protocol – Adult 2.2A.
- For additional dosing, contact **Medical Control**.
- Do not delay transport – Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- For anaphylaxis, administer pediatric epinephrine autoinjector (**EpiPen Jr**) 0.15 mg IM (lateral thigh preferred administration site) for patients between 10 kg and 35 kg **OR**
- Epinephrine (**1:1,000**) 0.01 mg/kg (0.01 mL/kg) IM, lateral thigh preferred administration site. (Maximum single dose 0.3 mg.). For additional dosing, contact **Medical Control.**
- Consider administration of albuterol 2.5 mg via nebulizer x 1 dose. Contact M**edical Control** for additional dosing.
- Establish IV access. Administer 20 mL/kg bolus 0.9% NaCl if hypotension.

PARAMEDIC STANDING ORDERS

P

- For anaphylaxis refractory to IM epinephrine, consider epinephrine (**1:10,000**) 0.01 mg/ kg (0.1 mL/kg) (diluted to 10 mL with 0.9% NaCl or equivalent dilution) to assure slow IV administration over 3 to 5 minutes (max single dose 0.1 mg), may repeat x 1 dose. For additional dosing, contact **Medical Control**.
- Methylprednisolone 1 mg/kg IV (maximum 125 mg).
- For mild symptoms in children >1 year of age, consider diphenhydramine 1 mg/kg PO (maximum dose 50 mg). Contact **Medical Control** regarding dosing in children < 1 year.
- For moderate to severe symptoms, diphenhydramine 1 mg/kg IV/IM (maximum dose 50 mg).
- Consider ipratropium 0.5 mg and albuterol 2.5 mg via nebulizer x 1 dose (DuoNeb). Contact **Medical Control** for additional dosing.

PARAMEDIC EXTENDED CARE ORDERS

X

- Methylprednisolone 1 mg/kg IV (max 125 mg) every 6 hours if symptomatic.
- Diphenhydramine:
  - **Ages 6 to 11 years:** 12.5 – 25 mg by mouth, may repeat every 4-6 hours as needed (maximum dose of 150 mg/24 hours).
  - **Ages 2 to 5 years:** 6.25 mg by mouth, may repeat every 4-6 hours as needed (maximum dose of 37.5 mg/24 hours).

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

PEARLS:

- Allergic reactions are commonly a single system response to an allergen involving the skin. Anaphylaxis is a multi-system response to an allergen including one or more of the following **serious signs and symptoms**:
  - Severe respiratory distress,
  - Airway compromise/impending airway compromise (wheezing, swelling of the lips/tongue, throat tightness),
  - Widespread hives, itching, swelling,
  - Altered mental status, syncope, cyanosis, delayed capillary refill or decreased level of consciousness associated with known or suspected allergenic exposure,
  - Signs of shock (see Shock Protocol – Pediatric 2.20P).
- Do not delay transport for other than epinephrine administration.
- Patients can present with anaphylaxis without a prior history of allergy.
- Wheezing may be caused by anaphylaxis but it is not the only sign.

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2.3A Altered Mental Status (Unknown Etiology) – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Administer oxygen to maintain 0_2 saturation ≥ 94%.
- Assist inadequate ventilations with BMV (bag mask ventilation).
- Anticipate and avoid aspiration.
- Obtain glucose reading via glucometer.
- If blood glucose < 80 with associated altered mental status, refer to Diabetic Emergencies (Hyperglycemia/Hypoglycemia) Protocol – Adult 2.7A.
- If the patient's mental status and respiratory effort are severely depressed, consider restraint and administer naloxone 1 mg (1 mL) per nostril via atomizer for a total of 2 mg.
- Acquire and transmit 12-lead ECG if available.
- Transport patient using cervical and long board immobilization. If trauma can be excluded, transport patient in the coma/recovery position.
- Perform stroke assessment. Refer to Stroke Protocol – Adult 2.22 as indicated.
- If suspect overdose, consider contacting Poison Control at (800) 222-1222 for consultation.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- Minimize scene time.

ADVANCED EMT STANDING ORDERS

A

- Establish IV/IO access.
- For severe respiratory depression, administer naloxone 0.4 – 2 mg IV/IM/IO/SQ/ intranasal
  - Consider restraint. See Behavioral Emergencies Protocol 2.6.
  - Titrate to response
  - If no response, may repeat initial dose every 5 minutes to a total of 10 mg.
- If hypoglycemia, administer D_{50}. See Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) Protocol – Adult 2.7A.
- If hyperglycemic, give 500 mL bolus 0.9% NaCl IV/IO. See Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) Protocol – Adult 2.7A.
- If respiratory arrest, manage airway with OPA/NPA and maintain oxygenation and ventilations with BMV (bag mask ventilation).
- If hypotensive (SBP <90), administer fluid bolus 500 mL 0.9% NaCl IV/IO. Contact **Medical Control** for additional fluid or medication orders.

PARAMEDIC STANDING ORDERS

P

- Advanced airway management.
- Assess and monitor cardiac rhythm. Treat as indicated per appropriate protocol.
- If suspect toxicology, refer to Poisoning/Substance Abuse/Overdose Protocol - Adult 2.17A.
- If hypotension persists after 2 liter fluid bolus, consider vasopressors. See Shock Protocol – Adult 2.20A.
- If patient is violent or agitated, consider restraint. See Behavioral Emergencies Including Suicide Attempts & Threats Protocol 2.6.

PEARLS:

- Altered mental status may be caused by many factors including the following: stroke, drug overdose, infection, hypoglycemia, hyperglycemia or trauma.
- Titrate use of naloxone in patients with respiratory depression to avoid transition to combative behavior by patient.
- Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemic after administration of D_{50} or opiate overdose cases after administration of naloxone.

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Altered Mental Status (Unknown Etiology) – Pediatric

2.3P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Administer oxygen to maintain 0_2 saturation ≥ 94%.
  - Assist inadequate ventilations with BMV (bag mask ventilation).
  - Anticipate and avoid aspiration.
- Obtain glucose reading via glucometer.
  - If blood glucose < 60 with associated altered mental status, refer to Diabetic Emergencies (Hyperglycemia/Hypoglycemia) Protocol – Pediatric 2.7P.
- If the patient's mental status and respiratory effort are severely depressed, administer via atomizer:
  - **Infant & Toddler:** Naloxone 0.5 mg (0.5 mL) per nostril for a total of 1 mg.
  - **Small Child and Larger:** Naloxone 1 mg (1 mL) per nostril for a total of 2 mg.
- Transport patient using cervical and long board immobilization. If trauma can be excluded, transport patient in the coma/recovery position.
- If suspect overdose, consider contacting Poison Control at (800) 222-1222 for consultation.
- Call for Paramedic intercept, if available. If unavailable, call for AEMT intercept.
- Minimize scene time.

ADVANCED EMT STANDING ORDERS

A

- Establish IV/IO access.
- If hypoglycemia, administer D_{50}. See Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) Protocol – Pediatric 2.7P.
- If hyperglycemia, administer 10 mL/kg bolus of 0.9% NaCl IV/IO. See Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) Protocol – Pediatric 2.7P.
- For severe respiratory depression, administer naloxone 0.1 mg/kg IV/IO/IM/SQ/ intranasal, max dose 2 mg.
  - Consider restraint. See Behavioral Emergencies Protocol 2.6.
  - If no response, may repeat initial dose every 5 minutes to a total of 10 mg.
- If respiratory arrest, manage airway with OPA/NPA and maintain oxygenation and ventilations with BMV (bag mask ventilation).
- If hypotensive per age-based tables, administer fluid bolus 20 mL/kg 0.9% NaCl IV/ IO. May repeat x2.
  - If hyperglycemic, only administer 10 mL/kg 0.9% NaCl.
  - Contact **Medical Control** for additional fluid or medication orders.

PARAMEDIC STANDING ORDERS

P

- Advanced airway management.
- Assess and monitor cardiac rhythm. Treat as indicated per appropriate protocol.
- If suspect toxicology, refer to Poisoning/Substance Abuse/Overdose Protocol – Pediatric 2.17P.
- If hypotension persists after 60 mL/kg fluid bolus, consider vasopressors, see Shock Protocol – Pediatric 2.20P.
- If patient is violent or agitated, consider sedation. See Behavior Emergencies Including Suicide Attempts & Threats Protocol 2.6.

PEARLS:

- Altered mental status may be caused my many factors including the following: stroke, drug overdose, infection, hypoglycemia, hyperglycemia, or trauma.
- Titrate use of naloxone in patients with respiratory depression to avoid transition to combative behavior by patient.
- Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemic after administration of D_{50} or opiate overdose cases after administration of naloxone.

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2.4 Apparent Life-Threatening Event (ALTE)

EMT/ADVANCED/PARAMEDIC STANDING ORDERS

E/A/P

- 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 chronic disease (including seizures), current or recent infection, gastroesophageal reflux, recent trauma, medications, new or different mixture of formula.
  - Obtain gestational history.
- Perform a comprehensive physical exam including neurological assessment.
- Measure and record temperature (rectal temperature preferred).
- Keep the child warm and transport to hospital.
- **Contact Medical Control for assistance if the parent/guardian refuses medical care and/or transport.**

PEARLS:

An ALTE involves a frightening episode in a child less than 2 years old and involves some combination of apnea, color change, limpness, or choking.

Note: Although children who experience ALTE may have a normal physical exam upon assessment by prehospital personnel, they should be transported to the emergency department for further assessment and treatment as they often have a serious underlying condition. Assume history provided by the family/witness is accurate.

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Asthma/COPD/RAD – Adult 2.5A

EMT STANDING ORDERS

E

- Routine Patient Care.
- Place patient in position of comfort. May prefer sitting up.
- 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): 2 puffs.
  - May repeat every 5 minutes (4 doses/8 puffs total).
  - MDI containing either albuterol, levalbuterol, a combination of albuterol/ ipratropium bromide or other bronchodilator/rescue inhaler.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- Consider nebulized:
  - Albuterol 2.5 mg and ipratropium bromide 0.5 mg; may repeat albuterol 2.5 mg via nebulizer every 5 minutes (4 doses total) **OR**
  - Unit dose DuoNeb; may repeat DuoNeb every 5 minutes (4 doses total) **OR**
  - Albuterol 2.5 mg via nebulizer. May repeat every 5 minutes (4 doses total).
- For patients who do not respond to treatments, or for impending respiratory failure, consider CPAP up to a maximum of 10 cm H_2O pressure support. (Use of CPAP requires additional training and credentialing.) See Continuous Positive Airway Pressure (CPAP) Procedure 5.4.
- For patients who do not respond to treatments, or for impending respiratory failure, contact **Medical Control** to consider epinephrine (**1:1,000**) 0.3 mg (0.3 mL) IM, lateral thigh preferred administration site.

PARAMEDIC STANDING ORDERS

P

Consider:

- Levalbuterol 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total).
- 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 50 mL D_5W given IV over 10 minutes.

Caution is advised in the administration of beta-agonists to patients with coronary artery disease. Obtain and transmit ECG if possible. Contact **Medical Control** for medication orders if in doubt.

PEARLS:

- RAD: Reactive Airway Disease.
- Beware of patients with a “silent chest” as this may indicate severe bronchospasm and impending respiratory failure.
- Remember that not all wheezing is caused by asthma and that not all asthmatics wheeze.
- Patients with congestive heart failure may present with lung sounds that mimic asthma (“cardiac wheeze”).

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2.5P Asthma/Croup/RAD – Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Administer oxygen.
- Assist the patient with his/her metered dose inhaler (MDI): 2 puffs.
  - May repeat every 5 minutes (4 doses/8 puffs total).
  - MDI containing either albuterol, levalbuterol, a combination of albuterol/ ipratropium bromide or other bronchodilator/rescue inhaler
- For suspected epiglottitis, transport the patient in an upright position of comfort and limit your assessment and interventions.
- Keep child calm – if agitated, child's airway may deteriorate.
- For suspected croup, provide humidified oxygen
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access. (Do not attempt IV if suspected epiglottitis.)
- Consider nebulized:
  - Albuterol 2.5 mg and ipratropium bromide 0.5 mg; may repeat albuterol 2.5 mg every 5 minutes (4 doses total) **OR**
  - Unit dose DuoNeb; may repeat DuoNeb every 5 minutes (4 doses total).
- For patients who do not respond to treatments, or for impending respiratory failure, contact **Medical Control** to consider epinephrine (**1:1,000**) 0.01 mg/kg (0.01 mL/kg) IM, lateral thigh preferred (maximum single dose: 0.3 mg.)

PARAMEDIC STANDING ORDERS

P

- Consider levalbuterol 0.63 mg; may repeat levalbuterol 0.63 mg every 20 minutes (4 doses total).
- For suspected croup with respiratory distress, consider:
  - **Via nebulizer:** Racepinephrine 2.25% 0.5 mL in 3 mL 0.9% NaCl (preferred agent), **OR**
  - **Patient <1 year of age via nebulizer:** 2.5 mg (2.5 mL) of **1:1,000** in 3 mL 0.9% NaCl; may repeat once after 15 minutes;
  - **Patient >1 year of age via nebulizer:** 5 mg (5 mL) of **1:1,000** in 3 mL 0.9% NaCl; may repeat once after 15 minutes
- For patients who do not respond to treatments, or for impending respiratory failure, consider:
  - Epinephrine (**1:1,000**) 0.01 mg/kg (0.01 mL/kg) IM, lateral thigh preferred (maximum dose 0.3 mg).
  - Methylprednisolone 1 mg/kg IV (maximum dose 125 mg) for severe exacerbation for patient who does not respond after first nebulizer treatment.
  - Magnesium sulfate 40 mg/kg IV in 50 mL D_5W over 20 minutes. (maximum single dose 2 grams).

PEARLS:

- RAD: Reactive Airway Disease.
- For moderate or severe croup, nebulized epinephrine has shown greater efficacy than albuterol.
- Beware of patients with a "silent chest" as this may indicate severe bronchospasm and impending respiratory failure.
- If a child appears sick, is holding himself in the sniffing position (neck flexed, head extended) and is drooling, do not attempt to visualize the throat or establish IV. Keep child calm.

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Behavioral Emergencies Including Suicide Attempts & Threats

2.6

EMT/ADVANCED STANDING ORDERS – ADULT & PEDIATRIC

- Routine Patient Care.
- Approach patient using the SAFER Model.
- Observe and record the patient's behavior.
- Consider associated domestic violence or child abuse, see Response to Domestic Violence Policy 8.14.
- 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 and requires medical care or is danger to self or others, contact police and, if available, the local mental health crisis agency. (Refer to Police Custody Policy 8.12 and/or Refusal of Care Policy 8.13)
- If the patient does not appear to be an immediate threat to self or others and refuses transport:
  - Encourage patient to seek mental health evaluation.
  - Provide the mental health center emergency services number 1-800-273-TALK.
  - Avoid leaving the patient alone, if possible. Assist in contacting responsible family/friend.
- For patient with suspected Excited/Agitated Delirium:
  - Treat hyperthermia, see Hyperthermia (Environmental) Protocol – Adult & Pediatric 2.8.
  - Monitor cardiac activity **(Paramedic only)** and oxygen levels.
- If physical restraint is required, make sure adequate personnel are present. This generally means four people, one for each of the patient's extremities.
- If physical restraints are used and patient continues to be violent/agitated, call for Paramedic intercept if available. If not available, call for AEMT intercept. Refer to Restraint Procedure 6.4.
- Establish an airway, maintain as indicated, suction as needed.
- Treat other injuries and illnesses.
- If the patient is at risk for suicide or violence towards others:
  - Transport to a hospital for evaluation.
  - If patient refuses transport, contact law enforcement and, if available, the local mental health crisis agency for assistance.
- Should it appear that the patient will not be transported, **seek on-line medical direction.**

E/A/P

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.

- **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.**
- **Monitor airway and vital signs closely.**

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

- Hypoglycemia
- Hypoxia
- Head Injury, stroke, seizure post-ictal
- Poisoning, substance abuse, drug, alcohol
- Infection

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2.7A Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) – Adult

Medical Protocol 2.7A

EMT STANDING ORDERS

E

- Routine Patient Care.
- Obtain glucose reading via glucometer.
- For hyperglycemic emergency (See PEARLS*): Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- For hypoglycemic emergency (See PEARLS**): Patient must be alert enough to swallow and protect airway.
  - Oral glucose: administer commercially prepared glucose gel, or 15 to 30 mL (1 to 2 tablespoons) of Pure Vermont Maple Syrup, or equivalent, for standard dose of 15 to 30 grams sugar.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Establish IV access.
- For hyperglycemic emergency (See PEARLS*):
  - Administer 500 mL bolus of 0.9% NaCl, then 250 mL/hr.
- For hypoglycemic emergency (See PEARLS**):
  - Administer dextrose 50% up to 25 grams IV. Recheck glucose 5 minutes after administration of dextrose 50%.
    - May repeat dextrose 50% up to 25 grams IV if glucose level is <80 mg/dl with continued altered mental status.
  - If unable to establish IV access, administer glucagon 1 mg IM. Recheck glucose 15 minutes after administration of glucagon.
    - May repeat glucagon 1 mg IM if glucose level is <80 mg/dl with continued altered mental status.

AEMT/Paramedic: If patient has a severe hypoglycemic emergency with altered mental status or active seizures and the provider is unable to establish IV access, the provider may administer dextrose 50% via intraosseous (IO). See Intraosseous Access Procedure 6.2.

Due to national shortages of D_{50}, it is permissible to substitute a sterile IV bag containing 250 mL of $D_{10}W$ which will deliver the standard dose of 25 grams of glucose IV. Bolus the entire 250 mL bag in over 10 - 20 minutes or as quickly as possible. Other preparations of dextrose are permissible with approval of DMA and Vermont EMS. Caution is advised to prevent drug errors when using non-standard dosage forms.

PEARLS:

*** Hyperglycemic Emergency**: Glucose >350 mg/dl with associated signs and symptoms such as altered mental status, increased respiratory rate, or dehydration.

**** Hypoglycemic Emergency**: Glucose <80mg/dl with associated altered mental status.

- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults (e.g., myocardial infarction, arrhythmia), or changes in activity (e.g., exercise)
- Diabetics are not the only persons who become hypoglycemic. Alcoholics, some poisoned patients, and others may develop problems of glucose metabolism.
- Sulfonylureas (e.g., glyburide, glipizide) toxicity can last up to 72 hours. Patients with corrected hypoglycemia who are taking these agents are at particular risk for recurrent hypoglycemia and frequently require hospital admission. These patients should be evaluated in the Emergency Department.
- **Do not treat and release hypoglycemic patients without contacting Medical Control to discuss cause of hypoglycemic episode, interventions taken and plan for follow-up.**

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Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) – Pediatric 2.7P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Obtain glucose reading via glucometer.
- For hyperglycemic emergency (See PEARLS*): Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- For hypoglycemic emergency (See PEARLS**): Patient must be alert enough to swallow and protect airway.
  - Oral glucose: administer commercially prepared glucose gel, or equivalent.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Establish IV access.
- For hyperglycemic emergency (See PEARLS*):
  - Administer **10 mL/kg** bolus of 0.9% NaCl.
  - Contact **on-line Medical Direction** for additional fluid bolus orders.
- For hypoglycemic emergency (See PEARLS**):
  - Administer 10% dextrose IV, dosing per length-based resuscitation tape. Recheck glucose 5 minutes after administration of dextrose.
    - May repeat dextrose dose if glucose level is <60 mg/dl with continued altered mental status.
  - If unable to obtain IV access, administer glucagon. Recheck glucose 15 minutes after administration of glucagon.
    - Patients <20 kg (44 lb), give glucagon 0.5 mg IM.
    - Patients >20 kg (44 lb), give glucagon 1 mg IM.

Pediatric Dextrose Dosing Chart

Length (cm)	Weight (kg)	Color (Age)	Volume of Dextrose 10% (mL)
< 59.5	3 to 5	Gray (0-3 months)	20
59.5-66.5	6 to 7	Pink (3-6 months)	35
66.5-74	8 to 9	Red (7-10 months)	43
74-84.5	10 to 11	Purple (11-18 months)	50
84.5-97.5	12 to 14	Yellow (19-35 months)	60-80
97.5-110	15 to 18	White (3-4 years)	80
110-122	19 to 22	Blue (5-6 years)	100
122-137	24 to 30	Orange (7-9 years)	135
137-150	30 to 40	Green (10-12 years)	180

AEMT/Paramedic: If patient has a severe hypoglycemic emergency with altered mental status or active seizures and the provider is unable to establish IV access, the provider may administer dextrose 10% via intraosseous (IO). See Intraosseous Access Procedure 6.2.

PEARLS:

*** Hyperglycemic Emergency**: Glucose >350 mg/dl with associated signs and symptoms such as altered mental status, increased respiratory rate, or dehydration.

**** Hypoglycemic Emergency**: Glucose <60mg/dl with associated altered mental status.

- Causes of hypoglycemia include medication misuse or overdose, missed meal, infection, cardiovascular insults, trauma, traumatic brain injury, hypothermia, adrenal insufficiency, or changes in activity (e.g., exercise).
- **Do not treat and release hypoglycemic patients without contacting Medical Control to discuss cause of hypoglycemic episode, interventions taken and plan for follow-up.**

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2.8 Hyperthermia (Environmental) – Adult & Pediatric

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.
- Move victim to a cool area and shield from the sun or any external heat source.
- Remove as much clothing as is practical and loosen any restrictive garments.
- If alert and oriented, give small sips of cool liquids.
- Determine patient's core temperature (rectal temperature preferred).
- Monitor and record vital signs and level of consciousness.
- If temperature is >40^{0}C (104^{0}F) 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 may be used, but are less effective than evaporation.
  - Discontinue active cooling if shivering occurs or cannot be managed by paramedics (see below).
- If altered mental status, check finger stick blood glucose.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS – ADULT

A

- Establish IV access.
- Administer 500 mL 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/intranasal, 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.

PARAMEDIC STANDING ORDERS – PEDIATRIC

- Administer 20 mL/kg 0.9% NaCl IV fluid bolus for dehydration even if vital signs are normal.
- If uncontrolled shivering occurs during cooling:
  - Midazolam 0.1 mg/kg IV/IM or 0.2 mg/kg intranasal (single maximum dose 1mg); Note: a 5 mg/mL concentration is recommended for intranasal 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 PR (single maximum dose 2 mg IV or 4 mg PR).

Hyperthermia:

- PO and other non-core thermometers may be inaccurate when the temperature is outside the normal range.
- Elevated temperature may be due to environmental exposure, pharmacologic agents, or excited (agitated) delirium, see also Behavioral Emergencies Including Suicide Attempts & Threats Protocol – Adult & Pediatric 2.6, Septic Shock Protocol - Adult 2.19, or Poisoning/Substance Abuse/Overdose Protocol – Adult 2.17A or – Pediatric 2.17P. Mortality and morbidity are directly related to the length of time the victim is subject to the heat stress.
- Sweating (or lack of sweating) is an unreliable indicator of the severity of heat illness.
- Of primary concern are the patient's vital signs and mental status.
- The patient's baseline health status and medications greatly determine the likelihood of developing and recovering from heat illness.
- The very young and very old are at greatest risk of heat illness.

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Hypothermia (Environmental) – Adult & Pediatric

2.9

EMT STANDING ORDERS - ADULT & PEDIATRIC

E

- Routine Patient Care.
- Hypothermia is generally considered in two large categories: Generalized and Localized (frost bite, cold nip).
  - Thawing of localized hypothermia should be done under controlled conditions (generally in-hospital) and is painful. Complete rewarming requires prolonged active heating and is seldom possible in the field. Partial rewarming is worse than none.
- In patients with altered mental status, 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.
  - Cover with warm blankets. Cover the head and neck.
- Obtain patient's core temperature (rectal temperature preferred).
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- Check finger stick glucose by glucometer.
- 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. Check for pulse in carotids or by auscultation. Peripheral pulses may be weak or non-palpable.
- If pulse and breathing are present, continue rewarming techniques.
- If pulse and breathing are absent, start CPR:
  - If core temperature is <30°C (86°F):
    - Continue CPR.
    - Apply AED and defibrillate once only.
  - If core temperature is >30°C (86°F) see Cardiac Arrest Protocol – Adult 3.2A or Cardiac Arrest Protocol – Pediatric 3.2P.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- Administer 500 mL warm IV 0.9% NaCl bolus.

PARAMEDIC STANDING ORDERS- ADULT

P

- If pulse and breathing are absent:
  - If core temperature is <30°C (86°F):
    - Continue CPR.
    - Withhold IV medications.
    - For appropriate rhythms, attempt defibrillation once using manufacturer's recommended settings. (**ADULT**: Use 360 joules for mono- phasic and 120 – 200 joules for biphasic defibrillators. **PEDIATRIC**: 2 joules/kg.)
    - If the patient fails to respond to the initial shock, it is reasonable to perform additional defibrillation attempts according to the usual BLS guildelines while engaging in active rewarming.
  - If core temperature is >30°C (86°F):
    - Continue CPR.
    - Give IV medications based on dysrhythmia. Contact **Medical Control** for guidance.
    - Defibrillation as indicated.

STAGES OF HYPOTHERMIA AND ASSOCIATED SYMPTOMS		
Stage I	35°C – 32°C (95°F – 89.6°F)	Conscious, shivering
Stage II	<32°C – 28°C (<89.6°F – 82.4°F)	Impaired consciousness, not shivering
Stage III	<28°C – 24°C (<82.4°F – 75.2°F)	Unconscious, not shivering, vital signs present
Stage IV	<24°C (<75.2°F)	No vital signs

PEARLS:

- PO and other non-core thermometers may be inaccurate when the temperature is outside the normal range.
- Patients with severe frost bite injury may benefit from treatment at a trauma center.
- CPR should only be initiated if the patient is truly pulseless as hypothermia may be protective of body tissues and the patient's own cardiac activity, if present, is likely to be better than CPR perfusion.

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2.10 Nausea/Vomiting – Adult & Pediatric

EMT STANDING ORDERS – ADULT & PEDIATRIC

E

- Routine Patient Care.

ADVANCED EMT STANDING ORDERS -- ADULT

A

- Establish IV access.
- Consider 500 mL 0.9% NaCl IV fluid bolus for dehydration.
  - o May repeat 250 mL IV bolus if transport exceeds 15 minutes and patient's condition has not improved.

PARAMEDIC STANDING ORDERS -- ADULT

P

- Ondansetron 4 mg IV/ODT (oral dissolving tablets) **OR**
- Prochlorperazine 5 – 10 mg IV, or 5 mg IM, **OR**
- Metoclopramide 5 mg IV
- May repeat any of the above medications once after 10 minutes if nausea/ vomiting persists.
- Apply ECG; monitor for arrythmia.
- Antidote: For dystonic reactions caused by EMS administration of prochlorperazine or metoclopramide:
  - o Administer diphenhydramine 25 – 50 mg IV/IM.

PARAMEDIC STANDING ORDERS- PEDIATRIC

- Consider 20 mL/kg IV fluid bolus for dehydration.
- Ondansetron 0.1 mg/kg IV (maximum single dose 4mg), **OR**
- Ondansetron 2 mg ODT for patient 8-15 kg, 4 mg ODT patient ≥ 16 kg.

PARAMEDIC EXTENDED CARE ORDERS – ADULT & PEDIATRIC

X

- For motion sickness: consider diphenhydramine:
  - o **Adult:** 25 mg PO/chewed
  - o **Ages 2 – 5 years:** 6.25 mg PO
  - o **Ages 6 – 11 years:** 12.5 - 25 mg PO
- **Paramedic only** May repeat IM prochlorperazine or metoclopramide every 4 - 6 hours as needed.

Nausea, vomiting and epigastric abdominal pain may be signs of acute coronary syndrome in adults. Consider obtaining and transmitting ECG, if available.

PEARLS**:**

- To reduce incidence of dystonic reactions, administer prochlorperazine and metoclopramide slowly, over 1-2 minutes.
- Consider other causes of nausea such as the following: cardiac, GI bleeding, pregnancy, toxicologic, diabetes.

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Nerve Agents/Organophosphate Poisoning – Adult

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- Assess for SLUDGEM (Salivation, Lacrimation, Urination, Defecation, Gastric upset, Emesis, Muscle twitching/miosis (constricted pupils) and KILLER Bs (Bradycardia, Bronchorrhea, Bronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- Antidotal therapy should be started as soon as symptoms appear.
- All antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

Category	Description/Examples	Autoinjector Dose
Mild	If TWO (2) or more of the following are present: Blurred vision/ miosis (pupil constriction), excessive teary eyes, excessive runny nose, increased salivation, chest tightness/dyspnea, tremors/twitching, nausea/vomiting, wheezing/coughing/ secretions, acute stomach cramps, tachycardia, bradycardia	1 DuoDote (or MARK I kit); Monitor patient every 10 minutes
Worsening	If at any time after the first dose the patient develops any additional symptoms, or if symptoms worsen	2 DuoDotes (or 2 Mark I kits); Monitor patient every 10 minutes.
Severe	If **ANY** of the following are present: Strange/confused behavior, severe difficulty breathing/copious airway secretions, severe muscle twitching, involuntary urination/defecation, convulsions, loss of consciousness, respiratory arrest	3 DuoDotes (or 3 Mark I kits) AND 1 diazepam 10 mg auto-injector.

PARAMEDIC STANDING ORDERS

P

- If symptoms persist after the administration of 3 DuoDote kits (or MARK I kits) and field conditions permit:
  - Initiate cardiac monitoring.
  - Establish IV access.
  - Atropine 2 mg IV; repeat every 5 minutes until excess secretions cease (stop).
  - Pralidoxime 1 – 2 gram IV.
    - Reconstitute pralidoxime 1 gram vial with 20 mL sterile water for injection.
    - Dilute reconstituted pralidoxime 1 gram in 100 mL of 0.9% NaCl (may dilute 1-2 grams in this manner).
    - Infuse over 5 minutes (1 gram dose) to 10 minutes (2 gram dose).
  - Diazepam 5 mg IV every 5 minutes; 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 minutes, or 2 mg IM, may repeat once in 10 minutes, **OR**
    - Midazolam 2.5 mg IV/intranasal every 5 minutes; or 5 mg IM every 10 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:

- Pralidoxime maintenance infusion:
  - Reconstitute pralidoxime 1 gram vial with 20 mL of sterile water for injection (SWFI) or 0.9% NS.
  - Dilute reconstituted pralidoxime 1 gram in 100 mL of 0.9% NS.
  - Infuse 1 gram over 15-30 minutes. Maximum of 12 grams/day.

Vermont EMS has taken extreme 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.

2.11P Nerve Agents/Organophosphate Poisoning -- Pediatric

POISON Help 1-800-222-1222

Medical Protocol 2.11P

E/A

EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- Assess for SLUDGEM (Salivation, Lacrimation, Urination, Defecation, Gastric upset, Emesis, Muscle twitching/miosis (constricted pupils) and KILLER Bs (Bradycardia, Bronchorrhea, Bronchospasm).
- Remove to cold zone after decontamination and monitor for symptoms.
- Antidotal therapy should be started as soon as symptoms appear.
- All antidote auto-injections must be administered IM.

Determine dosing according to the following symptom assessment and guidelines.

Length (cm)	Weight (kg)	Color (Age)	Atropine Dose -- MILD and SEVERE	Pralidoxime Dose MILD	Pralidoxime Dose SEVERE
< 59.5	3 to 5	Gray (0-3 months)	0.25 mg IM	60 mg IM	Give 3 MILD doses in rapid succession IM. If symptoms persist, may repeat series 1 hour after last IM injection.
59.5 to 66.5	6 to 7	Pink (3-6 months)		100 mg IM	
66.5 to 74	8 to 9	Red (7-10 months)	0.5 mg IM	125 mg IM	
74 to 84.5	10 to 11	Purple (11-18 mos)		150 mg IM	
84.5 to 97.5	12 to 14	Yellow (19-35 mos)		200 mg IM	
97.5 to 110	15 to 18	White (3-4 years)		250 mg IM	
110 to 122	19 to 22	Blue (5-6 years)	1 mg IM	300 mg IM	
122 to 137	24 to 30	Orange (7-9 years)		400 mg IM	
137 to 150	30 to 40	Green (10-12 years)		500 mg IM	

*DuoDote (or MARK I kit) 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.

P

PARAMEDIC STANDING ORDERS

- In the unlikely event that field conditions permit, follow weight-based dosing and treatment guidelines:
  - Initiate cardiac monitoring.
  - Establish IV access.
  - Atropine 0.05 – 0.1 mg/kg IV or IM (minimum dose of 0.1 mg, maximum single dose 5mg); repeat every 2 – 5 minutes as needed
  - Pralidoxime 25 – 50 mg/kg 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/intranasal/IV, repeat every 5 – 10 minutes as needed.

PARAMEDIC MEDICAL CONTROL – MAY CONSIDER:

- Pralidoxime maintenance infusion:
  - Reconstitute pralidoxime 1 gram vial with 20 mL of sterile water for injection (SWFI) or 0.9% NS.
  - Dilute reconstituted pralidoxime 50 mg/kg (maximum 1 gram) in 100 mL of 0.9% NS.
  - Infuse entire volume over 15-30 minutes.

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Newborn Care 2.12

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

- For newborns requiring resuscitation, see Newborn Resuscitation Protocol 2.13.
- 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 2.13.
- Clamp and cut the umbilical cord:
  - After initial assessment and **after the cord stops pulsating**.
  - Place the umbilical clamps approximately 8 and 10 inches from the baby.
- Prevent heat loss by rapidly drying and warming:
  - Remove wet linen, wrap newborn in blankets or silver swaddler (preferred) and cover newborn's head.
  - Consider placing newborn skin-to-skin on the mother's chest or abdomen.
- Assess breathing and stimulate by providing tactile stimulation:
  - Flick soles of feet and/or rub the newborn's back.
  - If newborn is apneic or has gasping respirations, nasal flaring, or grunting, proceed to Newborn Resuscitation Protocol 2.13.
- Assess circulation, heart rate, and skin color:
  - Evaluate heart rate by one of several methods:
    - Auscultate apical beat with a stethoscope.
    - Palpate the pulse by lightly grasping the base of the umbilical cord.
  - If the pulse is <100 bpm and not increasing, proceed to Newborn Resuscitation Protocol 2.13.
  - Assess skin color; examine trunk and face; and mucus membranes.
- Record APGAR score at 1 minute and 5 minutes (see chart) only if newborn does not require resuscitation. APGAR score is less important than assessment and intervention.
- See Pediatric Color Coded Appendix A2 for vital signs.
- When possible, transport newborn in child safety seat. See Pediatric Transportation Protocol 8.11.

APGAR Scale

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

PEARLS:

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

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2.13 Newborn Resuscitation

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care—initial steps identified in Newborn Care Protocol 2.12.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- For premature infants, consider additional warming techniques, including newborn heating pad or wrapping the torso and extremities of the baby in food-grade 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. Use oxygen if newborn is premature or low birth weight. If no response to resuscitation after 90 seconds, supplement with 100% oxygen.
  - 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 rate of 90 compressions/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 heart rate <100 bpm), perform direct endotracheal suctioning via meconium aspirator.
- If bag valve mask ventilation is inadequate or chest compressions are indicated, intubate the infant using a 3.0 mm to 4.0 mm endotracheal tube. (For an infant born before 28 weeks gestation, a 2.5 mm endotracheal tube should be used.)
  - After direct visualization, improvement in heart rate and $EtCO_2$ are the best indicators of whether the tube is properly placed in the trachea.
- Establish IV/IO access. Obtain blood sample if possible.
  - If hypovolemia is suspected, administer 10 mL/kg bolus NS 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/IO 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 <60 mg/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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Normal Labor and Delivery 2.14

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

E/A/P

This protocol should be used for an imminent delivery prior to arrival at the hospital. Imminent delivery is evidenced by crowning at the vaginal opening.

- Routine Patient Care. Obtain OB history.
- Check for crowning. If there are no signs of crowning proceed with transport. If crowning is present prepare for delivery. Notify receiving facility.
- Uncomplicated labor and delivery does not require emergent transport.
- Place the mother in a comfortable, supine position. Place sterile drapes about the perineum.
- Prepare the OB kit and pediatric resuscitation equipment.
- Gently and carefully assist expulsion of the newborn from the birth canal in its natural descent. **Do not pull or push the newborn.** Prevent explosive delivery of the baby's head by placing your gloved hand on the baby's head.
- Upon complete presentation of newborn's head:
  - Instruct the mother to stop pushing.
  - Support the head. Bulb-suction the mouth then nostrils if obstructed.
  - Check to be certain the umbilical cord is not wrapped about the neck. Unwrap if necessary or if unable to remove apply two umbilical clamps and cut between the clamps to release the cord.
  - Once the newborn's airway is clear and the cord is free from around its neck, instruct the mother to push on her next contraction to complete delivery.
- For care of newborn see Newborn Care Protocol 2.12. For newborns requiring resuscitation, see Newborn Resuscitation Protocol 2.13.
- Following delivery of the newborn, the mother's vagina may continue to ooze blood. **Do not pull on the umbilical cord.**
- Apply firm continuous massage manually to the mother's lower abdomen (uterine fundus) to help reduce postpartum hemorrhage. Encourage breastfeeding if the mother prefers, as this will aid in the contraction of the uterus which will help stop the bleeding and facilitate delivery of the placenta.
- Do not attempt to examine the patient internally. Never pack the vagina to stop bleeding. Apply a sanitary napkin to the vaginal opening.
- If the placenta does deliver, preserve it in a plastic bag and transport it with the mother. Do not delay transport to wait for the placenta to deliver.

PEARLS:

- OB assessment:
  - Length of pregnancy.
  - Number of pregnancies.
  - Number of viable births.
  - Number of non-viable births.
  - Last menstrual period.
  - Due date.
  - Prenatal care.
  - Number of expected babies.
  - Stimulant or depressant drug use.

PEARLS:

- Signs of imminent delivery:
  - Membrane rupture or bloody show.
  - Contractions.
  - Urge to move bowels.
  - Urge to push.

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EMT/ADVANCED EMT STANDING ORDERS

- Routine Patient Care. Place patient in left-lateral recumbent position unless otherwise noted.
- 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.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- **For the complications listed below, initiate transport immediately (emergently) to the closest medical facility.**

E/A

Prolapsed Cord (presentation of cord first)

- Place mother in knee-chest or supine position with pillows under the buttocks.
- Palpate cord for pulse. If pulse absent in the umbilical cord support infant head or body off of the cord while gently pushing the fetus into the uterus and pressing on the lower abdomen in an upward direction only enough to regain pulse.
- Do not attempt to push the cord back. Wrap cord in a warm, sterile-saline-soaked dressing.
- Transport emergently to closest hospital.

Breech Birth (presentation of legs or buttocks)

- **Do not pull on the newborn.** Support newborn and allow delivery to proceed normally.
- After delivery of torso, if head does not deliver within 3 minutes, place a gloved hand in the vagina with palm toward newborn's face forming a "V" with index and middle fingers on either side of the newborn's nose and push the vaginal wall away to create an airspace until delivery of the head. Suction as needed.
- Transport emergently to closest hospital while maintaining airspace for the newborn.

Limb Presentation

- Place mother in knee-chest or supine position with pillows under the buttocks.
- Transport emergently to closest hospital.

Shoulder Dystocia (shoulder(s) caught on pubic symphysis)

- Suspect shoulder dystocia if newborn's head delivers normally but then retracts back into the perineum because the shoulders are trapped (turtle sign).
- If this occurs, **do not pull on the newborn's head.**
- Position mother with buttocks dropped off end of stretcher and thighs flexed upward. Apply firm pressure with an open hand immediately above the pubic symphysis.
- If delivery does not occur, transport emergently to closest hospital.

Protocol Continues

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Protocol Continues

PARAMEDIC STANDING ORDERS

P

- Establish IV access.
- Seizures—In the presence of seizures in the third trimester of pregnancy or postpartum, consider magnesium sulfate, 4 grams slow IV push over 5 minutes. See Seizures Protocol – Adult 2.18A.
- For severe postpartum hemorrhage after placental delivery, administer:
  - Oxytocin 10 Units IM.
- Tocolysis for preterm labor: 500 – 1,000 mL 0.9% NaCl IV bolus as needed.
  - Contraindications: gestation beyond 37 weeks

NOTIFY MEDICAL CONTROL IF:

- Prepartum hemorrhage.
- Postpartum hemorrhage.
- Breech presentation.
- Limb presentation.
- Nuchal cord.
- Prolapsed cord.
- Cardiac arrest of mother.

PEARLS:

- Signs of preeclampsia:
  - Hypertension.
  - Headache.
  - Nausea.
  - Vomiting.
  - Visual changes.
  - Edema.

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2.16A Pain Management – Adult

EMT STANDING ORDERS

E

- Routine Patient Care. Consider all patients as candidates for pain control regardless of transport time.
- Assess pain severity. Have the patient rate his/her pain from 0 to 10, or use another appropriate pain scale. Document value each time pain is assessed.
- Non-pharmacological control: Splint injury(s); apply ice pack(s).
- Call for Paramedic intercept, for moderate to severe acute pain (scale ≥ 4), if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Nitrous oxide: The patient must be able to self-administer this medication.
- Nitrous oxide is contraindicated in abdominal pain, pneumothorax, head-injured, or diving-emergency patients.
  - Note: Nitrous oxide may only be used if the patient has not received an opiate.
  - Use of Nitrous oxide requires approval of local Medical Control, additional training, and use of scavenger/ventilation fan.

PARAMEDIC STANDING ORDERS

P

- Assess patient for contraindications: GCS < 15 or mentation not appropriate for age, hypotension SBP <100, SpO_2 <90% on 15L O_2, allergic to narcotics, or condition preventing administration (blocked nose or no IV). If no contraindications and pain scale ≥ 4, may consider:
  - Establish IV access.
  - Fentanyl 1 mcg/kg IV/intranasal. Max initial dose 100 mcg. Administer slow over 2 to 3 minutes. (Fentanyl is the preferred narcotic agent.) **OR**
  - Morphine 0.1 mg/kg IV. Maximum initial dose 10 mg. Administer slow over 2-3 minutes.
- Reassess patient every 5 minutes. If no contraindications and patient still in moderate to severe pain may redose at 10-minute intervals at half the original dose to a total of 300 mcg Fentanyl or 20 mg Morphine.
- For nausea: see Nausea/Vomiting Protocol – Adult & Pediatric 2.10.
- **Contact Medical Control for guidance in patients with:**
  - Altered mental status or
  - Additional doses of a medication, or
  - Benzodiazepines administration in conjunction with narcotic administration for patients with musculoskeletal spasms.

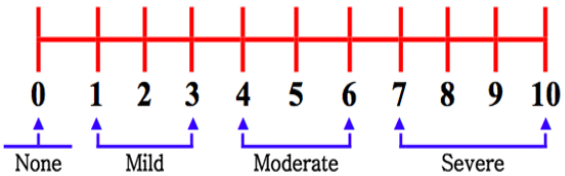
- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.
- **Antidote:** For hypoventilation from opiate administration by EMS personnel, administer naloxone 0.4 to 2.0 mg SQ/IV/IO/IM/intranasal as needed.

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 can imagine.
- Reassess the patient's pain level and vital signs every 5 minutes.
- Narcotics are not recommended for first line treatment of headache. Consult Medical Control.
- EMS professionals should not attempt to differentiate between pain and drug-seeking behavior, which could lead to under-treatment of pain.

Numeric Rating Scale

Appropriate age for use (per guideline): > 12 years



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Pain Management – Pediatric 2.16P

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Assess pain severity. Consider all patients as candidates for pain management regardless of transport time.
- Have the patient rate his/her pain from 0 to 10, or Wong-Baker "faces" scale (appropriate for chidren ages 4-12):

- Document pain scale value each time assessed.
- Consider Paramedic intercept for moderate to severe pain (scale ≥ 4), if available. If not available, call for AEMT intercept.

PARAMEDIC STANDING ORDERS

P

- Assess patient for contraindications: GCS < 15 or mentation not appropriate for age, hypotension, SpO_2 < 90% on 15L O_2, allergic to narcotics, condition preventing administration (blocked nose or no IV). If no contraindications may consider:
  - Establish IV access.
  - Fentanyl 1 mcg/kg IV/Intranasal (maximum initial dose 100 mcg). Administer slow over 2-3 minutes. (Fentanyl is preferred narcotic agent.) **OR**
  - Morphine 0.1 mg/kg IV (maximum initial dose 10 mg). Administer slow over 2-3 minutes.
- Reassess patient every 5 minutes. If no contraindications and patient still in moderate to severe pain may redose at 10-minute intervals at half the original dose to a total of 300 mcg Fentanyl or 20 mg Morphine.
- Consider Nitrous oxide as per adult protocol.
- Contact **Medical Control** for guidance with all patients with multi-systems trauma or for requests to provide additional doses of a medication.

Antidote: For hypoventilation from opiate administration by EMS personnel, administer naloxone 0.01 mg/kg to 0.1 mg/kg IV/IO/IM/SQ/intranasal up to 2 mg total dose.

Face, Legs, Activity, Cry, Consolability (FLACC) Behavioral Scale
Appropriate for children age 4 and below

Categories	Scoring		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
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, distractable	Difficult to console or comfort

Each of the five categories is scored from 0 to 2, which results in a total score between 0 and 10.

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2.17A Poisoning/Substance Abuse/Overdose – Adult

POISON Help 1-800-222-1222

Medical Protocol 2.17A

E

EMT STANDING ORDERS

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- For suspected opioid overdose with severe respiratory depression, administer naloxone 1 mg (1 mL) per nostril via atomizer for a total of 2 mg.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol - Adult 2.21A.
- For decontamination/hazardous materials exposure, see Hazardous Materials Exposure 9.0.
- For hypoglycemia, see Diabetic Emergencies Protocol - Adult 2.7A.
- For seizures, see Seizure Protocol - Adult 2.18A.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

A

ADVANCED EMT STANDING ORDERS

- For severe respiratory depression, administer naloxone 0.4 – 2 mg IV/IM/IO/SQ/ intranasal.
  - Establish IV access.
  - Consider restraint. See Behavioral Emergencies Protocol 2.6.
  - Titrate to response.
  - If no response, may repeat initial dose every 5 minutes to a total of 10 mg.
- Ingested Poison:
  - Consider activated charcoal 25 – 50 grams PO if ingestion is non-caustic substance, occurred within last 60 minutes, if patient is awake/alert, and protecting airway, AND if advised by **Medical Control**.

P

PARAMEDIC STANDING ORDERS

Suggested Treatments

- Beta Blocker and Ca Channel Blocker, see Bradycardia Protocol – Adult 3.1A.
- Dystonic Reaction:
  - Diphenhydramine 25 – 50 mg IV/IM
- Organophosphates, see Nerve Agent/Organophosphate Protocol – Adult 2.11A.
- For severe agitation, seizures or hyperthermia:
  - Midazolam 2.5 mg IV/intranasal, 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,
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS):
  - Sodium bicarbonate 1 to 2 mEq/kg IV.

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

PEARLS:

- If possible, bring container/bottles, and/or contents
- Pulse oximetry may NOT be accurate for toxic inhalational patients.

History

- Route, time, quantity and substance(s)
- Reason if known: intentional or accidental.

Protocol Continues

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Protocol Continued

Signs & Symptoms

- **Acetaminophen**: Initially normal or nausea/vomiting. If not detected and treated, may cause irreversible liver failure.
- **Anticholinergic**: Tachycardia, fever, dilated pupils, mental status changes.
- **Aspirin:** Abdominal pain, vomiting, pulmonary edema, tachypnea, fever, tinnitus and/ or altered mental status. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later. Consider in elderly with altered mental status.
- **Cardiac Medications**: Dysrhythmias, altered mental status, hypotension, hypoglycemia.
- **Sedatives/Depressants**: Bradycardia, hypotension, decreased temperature, decreased respirations, pinpoint or non-specific pupils (miosis).
- **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.
- **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.
- **Opioids:** Respiratory arrest or hypoventilation, evidence of opiate use (bystander report, drug paraphenalia, opioid perscription bottles, “track marks”), depressed mental status, miosis (constricted or “pinpoint” pupils).
- **Organophosphates**: Bradycardia, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils, SLUDGEM, BBB. See Nerve Agent/Organophosphate Poisoning Protocol – Adult 2.11A
- **Solvents**: Nausea, coughing, vomiting, and mental status change.
- **Sympathomimetic/Stimulants**: Tachycardia, hypertension, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, caffeine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), albuterol.
- **Tricyclic:** Seizures, dysrhythmias, hypotension, decreased mental status or coma.

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2.17P Poisoning/Substance Abuse/Overdose – Pediatric

POISON Help 1-800-222-1222

Medical Protocol 2.17P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- For suspected opioid overdose with severe respiratory depression, administer via atomizer:
  - **Infant & Toddler:** Naloxone 0.5 mg (0.5 mL) per nostril for a total of 1 mg.
  - **Small Child and Larger:** Naloxone 1 mg (1 mL) per nostril for a total of 2 mg.
- For suspected isolated cyanide poisoning, see Smoke Inhalation Protocol - Pediatric 2.21P.
- For decontamination/hazardous materials exposure: refer to Hazardous Materials Exposure 9.0.
- For hypoglycemia, see Diabetic Emergencies Protocol – Pediatric 2.7P.
- For seizures, see Seizures Protocol – Pediatric 2.18P.
- Call for Paramedic intercept if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- For severe respiratory depression, administer naloxone 0.1 mg/kg IV/IO/IM/SQ/ intranasal. Maximum initial dose 2 mg. Minimum initial dose 0.4 mg.
  - Consider restraint. See Behavioral Emergencies Protocol 2.6.
  - If no response, may repeat initial dose every 5 minutes to a total of 10mg.
- Ingested Poison:
  - Consider activated charcoal per length-based resuscitation tape if ingestion is non-caustic substance and occurred within last 60 minutes and if patient is awake/alert and protecting airway, AND if advised by **Medical Control**.

PARAMEDIC STANDING ORDERS

P

Suggested Treatments

- Beta Blocker and Ca Channel Blocker, see Bradycardia Protocol – Pediatric 3.1P.
- Dystonic Reaction:
  - Diphenhydramine 0.5 mg/kg IV/IM up to maximum dose 50 mg.
- Narcotic:
  - Naloxone 0.1 mg/kg IV/IO/IM/SQ/intranasal. Maximum initial dose 2 mg. Minimum initial dose 0.4 mg. Repeat every 2 minutes as needed (maximum dose 10 mg).
- Organophosphates, see Nerve Agent/Organophosphate Protocol – Pediatric 2.11P.
- Tricyclic with symptomatic dysrhythmias, (e.g., tachycardia and wide QRS)
  - Sodium bicarbonate 1 to 2 mEq/kg IV.

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

PEARLS:

- Possible, bring container/bottles, and/or contents
- Pulse oximetry may NOT be accurate for toxic inhalation patients.

HISTORY:

- Route, time, quantity and substance(s)
- Reason if known: intentional, accidental or criminal.

Protocol Continues

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Protocol Continued

Signs & Symptoms

- **Acetaminophen**: initially normal or nausea/vomiting. If not detected and treated, may cause irreversible liver failure.
- **Anticholinergic**: tachycardia, fever, dilated pupils, mental status changes.
- **Aspirin:** abdominal pain, vomiting, pulmonary edema, tachypnea, fever, tinnitus 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.
- **Sedatives/Depressants**: bradycardia, hypotension, decreased temperature, decreased respirations, pinpoint or non-specific pupils (miosis).
- **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.
- **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.
- **Opioids:** respiratory arrest or hypoventilation, evidence of opiate use (bystander report, drug paraphernalia, opioid perscription bottles, “track marks”), miosis (constricted or pinpoint pupils).
- **Organophosphates**: bradycardia, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils), SLUDGEM, BBB. See Nerve Agent/Organophosphate Poisoning Protocol – Pedatrici 2.11P.
- **Solvents**: nausea, coughing, vomiting, and mental status change.
- **Sympathomimetic/Stimulants**: tachycardia, hypertension, increased temperature, dilated pupils, anxiety, paranoia, diaphoresis. Examples are bath salts, cocaine, caffeine, methamphetamine, ecstasy, ADHD drugs, thyroid meds (rarely), albuterol.
- **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.
- Check finger stick glucose by glucometer. If the blood glucose reading is <80mg/dl, treat patient for seizures and see Diabetic Emergencies Protocol – Adult 2.7A.
- 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 activate the VNS, move the magnet across the skin directly on the VNS device 2-3 times, then remove the magnet. If unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
- Note: Do not delay medication administration.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

PARAMEDIC STANDING ORDERS

P

- Establish IV access.
- If status epilepticus is present, administer:
  - Midazolam 2.5 – 5 mg IV/intranasal repeated every 5 minutes or 10 mg IM, may repeat 5 mg IM every 10 minutes, until seizure activity is resolved (maximum dose 20 mg), **OR**
  - Lorazepam 1 – 2 mg IV, every 5 minutes or; 2 – 4 mg IM, every 10 minutes (maximum dose 8 mg), **OR**
  - Diazepam 5 – 10 mg IV (then 2.5 mg every 5 minutes (maximum dose 20 mg).
- Consider magnesium sulfate, 4 grams slow IV push over 5 minutes, in the presence of seizures in the third trimester of pregnancy or post partum.
- Contact **Medical Control** for additional dosing.

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, seizure history, trauma, hypoglycemia, alcohol/substance abuse, third-trimester pregnancy or post partum).
- Post partum patients may experience eclamptic seizures up to several weeks after giving birth.
- **Status epilepticus** is defined as any generalized seizure lasting more than 5 minutes. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- Any seizure still present upon EMS arrival and/or lasting more than 5 minutes should be treated with benzodiazepines.
- Diazepam is not effective when administered IM. It should be given IV or PR
- **If unable to quickly establish IV access, administer Midazolam IM and then attempt to establish an IV in case additional medication doses are needed. If an IV is already established administer benzodiazepine IV.**

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Seizures – Pediatric 2.18P

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- If the blood glucose reading is <60mg/dl, treat patient for seizures and see Diabetic Emergencies Protocol – Pediatric 2.7P.
- Obtain the patient's temperature for suspected febrile seizure (rectal route preferred, as appropriate).
- 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 activate the VNS, move the magnet across the skin directly on the VNS device 2-3 times, then remove the magnet. If unsuccessful, repeat every 3 – 5 minutes for a total of 3 times.
- Note: Do not delay medication administration.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

PARAMEDIC STANDING ORDERS

P

- Establish IV access.
- If status epilepticus is present, administer:
  - Midazolam 0.1 mg/kg IV or 0.2 mg/kg intranasal (single maximum dose 5 mg; Note: a 5 mg/mL concentration is recommended for intranasal administration), **OR**
  - Midazolam 5 mg IM (for patients 10 – 40 kg), **OR**
  - Lorazepam 0.1 mg/kg IV/IM (single maximum dose 4 mg), **OR**
  - Diazepam 0.2 mg/kg IV or 0.5 mg/kg PR (single maximum dose 10 mg IV or 20 mg PR).
- Any of the above may be repeated once after 5 minutes.
- Contact **Medical Control** for additional dosing.

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 seizure lasting more than 5 minutes. This is a true emergency requiring rapid airway control, treatment (including benzodiazepines), and transport.
- Any seizure still present upon EMS arrival and/or lasting more than 5 minutes should be treated with benzodiazepines.
- Diazepam is not effective when administered IM. It should be given IV or PR.
- Any seizure still present upon EMS arrival and/or lasting more than 5 minutes should be treated with benzodiazepines.
- **If unable to quickly establish IV access, administer Midazolam IM and then attempt to establish an IV in case additional medication doses are needed. If an IV is already established administer benzodiazepine IV.**

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2.19 Septic Shock – Adult

ESTABLISH SEPSIS ALERT CRITERIA

- Patient 18 years or older and not pregnant.
- Two or more SIRS criteria (Systemic Inflammatory Response Syndrome).
  - Temperature <36°C or >38°C (< 96.8^0 F or > 100.4^0 F)
  - Heart rate > 90 beats per minute
  - Respiratory rate > 20 breaths per minute
- Suspected or documented infection.
- One of the following physiological criteria present.
  - Hypoperfusion evidenced by SBP < 90 and/or MAP < 65
  - Lactate ≥ 4, if available.
  - New onset altered mental status OR increasing mental status change with previously altered mental status.

IF YES TO <u>ALL</u> SEPSIS ALERT CRITERIA CONTACT RECEIVING HOSPITAL AND REPORT "SEPSIS ALERT"

EMT STANDING ORDERS

E

- Routine Patient Care.
- Administer oxygen at a rate to keep oxygen saturation ≥94%.
- Do not delay transport.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access. Do not delay transport to start IV.
- Administer 0.9% NaCl to maintain systolic blood pressure >90 mmHg in 500 mL boluses. Total volume should not exceed 2,000 mL. Contact **Medical Control** after first 1,000 mL.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.

PARAMEDIC STANDING ORDERS

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, contact **Medical Control** and consider:
  - Norepinephrine 1 – 30 mcg/min via pump (preferred 1st line agent).
  - Dopamine infusion 5 – 20 mcg/kg/min via pump.
  - If inadequate response to norepinephrine, consider adding vasopressin:
    - Add 40 Units of vasopressin (2 vials of 20 Units each) to 100 mL D_5W. Infuse at 0.04 Units/min (6 mL/hr).
    - Vasopressin should not be titrated, it is intended as an adjunct vasopressor agent to increase MAP (mean arterial pressure) and/or decrease norepinephrine requirements.

PEARLS:

- Sepsis is a systemic inflammatory response syndrome due to infection, often resulting in significant morbidity and mortality. Septic shock is diagnosed if there is refractory hypotension that does not respond to fluid therapy.
- Severe septic shock has a 50% mortality rate and must be treated aggressively.
- Suspect infection in patients with cough, an indwelling catheter, open wounds, paralysis, recent antibiotic use, or bedridden or immuno-compromised individuals.
- Early goal directed therapy consisting of IV fluid administration and early antibiotics reduces mortality in septic patients.
- Notifying Emergency Departments of patients with possible septic shock will improve early initiation of goal directed therapy.
- When administering vasopressors, monitor IV site for signs of extravasation.

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Shock - Adult 2.20A

Any patient with signs, symptoms, and history suggesting inadequate tissue perfusion should be considered to be in shock. Make every effort to determine and treat the underlying cause. Regardless of etiology, shock patients should be transported immediately to the nearest appropriate facility for definitive care.

BASIC STANDING ORDERS

- Routine Patient Care.
- Keep the patient supine. Do not elevate feet.
- Prevent heat loss by covering with warm blankets if available and if the patient is not febrile.
- IV fluid administration should be based on physiologic signs rather than routine IV fluid administration in all patients.
- Physiological signs:
  - Altered mental status.
  - Radial pulse cannot be palpated.
  - Systolic blood pressure is < 90 mmHg.

	CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
E	Assess for pulmonary edema and/or congestive heart failure (CHF). • Obtain and transmit ECG. • If CHF is suspected refer to Congestive Heart Failure (Pulmonary Edema) Protocol 3.3.	• If patient has history of adrenal insufficiency refer to Adrenal Insufficiency Protocol 2.0. • If anaphylaxis is suspected refer to Allergic Reaction/ Anaphylaxis Protocol 2.1A. • If septic shock is suspected refer to Septic Shock Protocol 2.19. • If neurogenic shock is suspected: • Spinal immobilization.	• Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial tourniquets preferred), or hemostatic bandage. • Hemostatic bandages must be of a non-exothermic type that can be washed off with 0.9% NaCl.	
ADVANCED EMT - STANDING ORDERS				
A	Assess for signs of pulmonary edema and consider: • CPAP. • Establish IV 0.9% NaCl to keep vein open. • Contact **Medical Control** to consider 0.9% NaCl fluid bolus.	• Administer 0.9% NaCl to maintain systolic blood pressure >90 mm Hg in 500 mL boluses. Total volume should not exceed 2,000 mL. Contact **Medical Control** after the first 1,000 mL.	• Administer 0.9% NaCl to maintain mental status and peripheral perfusion and to maintain systolic blood pressure >90 mm Hg in 250 mL boluses. Total volume should not exceed 2,000 mL. Contact **Medical Control** after first 1,000 mL.	

Protocol Continues

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Shock – Adult

Protocol Continued

PARAMEDIC – Contact MEDICAL CONTROL and consider:

P

CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
(An infusion pump is required for the use of these vasopressor agents) • Norepinephrine infusion 1 – 30 mcg/min (preferred agent) OR • Dopamine infusion 5 – 20 mcg/kg/min. OR • Phenylephrine 100 – 180 mcg loading dose followed by infusion 40 – 60 mcg/min. OR • Epinephrine infusion 2 – 10 mcg/min titrated to effect. Consider additional 250 mL 0.9% NaCl fluid bolus.	• Norepinephrine 1 - 30 mcg/min (preferred agent), OR • Dopamine 5 – 20 mcg/kg/min. • If inadequate response to Norepinephrine, consider adding vasopressin infusion at 0.04 units/min. • For patient with history of adrenal insufficiency, administer stress dose of hydrocortisone 100 mg IV/IM.		If tension pneumothorax suspected: • Needle decompression.

EXTENDED CARE

X

- A tourniquet may be used temporarily to slow major bleeding while treating other life threatening concerns or to identify the best location for direct pressure. The tourniquet can be left in place for at least an hour. If direct pressure does not control bleeding, the tourniquet will need to be reapplied and left in place during evacuation.

Etiology of Shock

- **Cardiogenic Shock:** History of cardiac surgery, rhythm disturbances, or post cardiac arrest. Assess for acute MI and pulmonary edema.
  - Signs & Symptoms of cardiogenic shock: chest pain, shortness of breath, crackles, JVD, hypotension, tachycardia, diaphoresis.
- **Distributive Shock:** Anaphylaxis, see Allergic Reaction/Anaphylaxis Protocol – Adult 2.2A, neurogenic shock, sepsis, see Septic Shock Protocol – Adult 2.19. Assess for fever and signs of infection.
  - Signs & Symptoms of neurogenic shock: sensory and/or motor loss, hypotension, bradycardia versus normal heart-rate, warm, dry skin.
- **Hypovolemic Shock:** Dehydration, volume loss, or hemorrhagic shock.
  - Signs & Symptoms of hypovolemic shock: tachycardia, tachypnea, hypotension, diaphoresis, cool skin, pallor, flat neck veins.
- **Obstructive Shock:** Consider tension pneumothorax, pulmonary embolism, and cardiac tamponade.
  - Signs and symptoms of tension pneumothorax: asymmetric or absent breath sounds, respiratory distress or hypoxia, signs of shock including tachycardia and hypotension, JVD, possible tracheal deviation upon palpation above the sternal notch (late sign).

PEARLS:

For patients with uncontrolled hemorrhagic or penetrating torso injuries:

- Restrict IV fluids to maintain BP of 80-90 systolic. Delaying aggressive fluid resuscitation until operative intervention may improve the outcome. Operative intervention must be available within 30-45 minutes to utilize this strategy. In rural areas with longer transport times restricting fluid may result in exsanguination and irreversible shock.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Several mechanisms for worse outcomes associated with IV fluid administration have been suggested, including dislodgement of clot formation, dilution of clotting factors, and acceleration of hemorrhage caused by elevated blood pressure.

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Shock – Pediatric 2.20P

Any patient with signs, symptoms, and history suggesting inadequate tissue perfusion should be considered to be in shock. Make every effort to determine and treat the underlying cause. Regardless of etiology, shock patients should be transported immediately to the nearest appropriate facility for definitive care.

EMT STANDING ORDERS

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

	CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
E		If patient has history of adrenal insufficiency refer to Adrenal Insufficiency Protocol – 2.1. If anaphylaxis is suspected refer to Allergic Reaction/ Anaphylaxis Protocol – Pediatric 2.1P. If neurogenic shock is suspected, consider spinal immobilization.	• Control active bleeding using direct pressure, pressure bandages, tourniquets (commercial tourniquets preferred), or hemostatic bandage, • Hemostatic bandages must be of a non-exothermic type that can be washed off with 0.9% NaCl.	
ADVANCED EMT STANDING ORDERS				
A	Consider: • Establish IV 0.9% NaCl to keep vein open. • Contact **Medical Control** to consider 0.9% NaCl in 10 mL/kg bolus.	• Administer 0.9% NaCl in 20 mL/kg bolus to improve clinical condition. May repeat to a maximum 60 mL/ kg. Contact **Medical Control** when possible. • Therapeutic end-points (in order of importance) are: o Normal mental status, o Capillary refill, o Normal pulses, o No difference between peripheral and central pulses, o Warm extremities, and o THEN normal blood pressure, see Pediatric Color Coded Appendix A2.	• Administer 0.9% NaCl in 20 mL/kg bolus to improve clinical condition. May repeat to a maximum 60 mL/kg. Contact **Medical Control** when possible. • Therapeutic end-points (in order of importance) are: o Normal mental status, o Capillary refill, o Normal pulses, o No difference between peripheral and central pulses, o Warm extremities, and o THEN normal blood pressure, see, Pediatric Color Coded Appendix A2.	

Protocol Continues

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Shock – Pediatric

Protocol Continued

PARAMEDIC – Contact MEDICAL CONTROL and consider:

- Consider fluid administration via infusion pump.
- If signs and symptoms of hypoperfusion persist or symptoms worsen, regardless of etiology, c**ontact Medical Control and consider norepinepherine or** dopamine administration via length-based resuscitation tape in the absence of hemorrhagic shock.

P

CARDIOGENIC SHOCK	DISTRIBUTIVE SHOCK	HYPOVOLEMIC SHOCK	OBSTRUCTIVE SHOCK
If hypotensive consider: (An infusion pump is required for the use of these vasopressor agents) • Dopamine infusion 5 – 20 mcg/kg/min, (preferred agent) OR • Norepinephrine infusion 0.1 – 2 mcg/kg/min titrated to effect, OR • Epinephrine 0.1 – 1 mcg/kg/min titrated to effect.	If hypotensive consider: (An infusion pump is required for the use of these vasopressor agents) • Dopamine infusion 5 – 20 mcg/kg/min, OR • Norepinephrine infusion 0.1 – 2 mcg/kg/min titrated to effect, OR • Epinephrine 0.1 – 1 mcg/kg/min titrated to effect. • For patient with history of adrenal insufficiency, administer stress dose of hydrocortisone 2 mg/kg IV/IM (max dose 100 mg).		If tension pneumothorax suspected: • Needle decompression.

EXTENDED CARE

X

- A tourniquet may be used temporarily to slow major bleeding while treating other life threatening concerns or to identify the best location for direct pressure. The tourniquet can be left in place for at least an hour. If direct pressure does not control bleeding, the tourniquet will need to be reapplied and left in place during evacuation.

Etiology of Shock

- **Cardiogenic Shock:** History of cardiac surgery, rhythm disturbances, or post cardiac arrest. Assess for acute MI and pulmonary edema.
  - Signs & Symptoms of cardiogenic shock: chest pain, shortness of breath, crackles, JVD, hypotension, tachycardia, diaphoresis.
- **Distributive Shock:** Anaphylaxis (see Allergic Reaction/Anaphylaxis Protocol – Pediatric 2.2P) or neurogenic shock. Assess for fever and signs of infection.
  - Signs & Symptoms of neurogenic shock: sensory and/or motor loss, hypotension, bradycardia versus normal heart-rate, warm, dry skin.
- **Hypovolemic Shock:** Dehydration, volume loss, or hemorrhagic shock.
  - Signs & Symptoms of hypovolemic shock: tachycardia, tachypnea, hypotension, diaphoresis, cool skin, pallor, flat neck veins.
- **Obstructive Shock:** Consider tension pneumothorax, pulmonary embolism, and cardiac tamponade.
  - Signs and symptoms of tension pneumothorax: asymmetric or absent unilateral breath sounds, respiratory distress or hypoxia, signs of shock including tachycardia and hypotension, JVD, possible tracheal deviation above the sternal notch (late sign)

PEARLS:
For patients with uncontrolled hemorrhagic or penetrating torso injuries:

- Contact **Medical Control** to discuss restriction of IV fluids. Delaying aggressive fluid resuscitation until operative intervention may improve the outcome. Operative intervention must be available within 30-45 minutes to utilize this strategy. In rural areas with longer transport times restricting fluid may result in exsanguination and irreversible shock.
- Patients should be reassessed frequently, with special attention given to the lung examination to ensure volume overload does not occur.
- Several mechanisms for worse outcomes associated with IV fluid administration have been suggested, including dislodgement of clot formation, dilution of clotting factors, and acceleration of hemorrhage caused by elevated blood pressure.

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Smoke Inhalation – Adult 2.21A

EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Oxygen 100% via non-rebreather mask or BMV.
- Decontamination concurrent with initial resuscitation.
- If a carbon monoxide (CO) oximeter is available, consider obtaining carbon monoxide levels.
- If a measuring device is available, obtain atmospheric levels of carbon monoxide (CO) and cyanide (CN).
- If altered mental status, check finger stick glucose by glucometer.
- See Burn (Thermal) Protocol – Adult 4.0A.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

P

- Consider early advanced airway control in patients with suspected upper or lower airway burns or severe smoke inhalation. See Airway Management Protocol – Adult 5.1A.
- If you have a patient with a history of smoke exposure and an altered level of consciousness and/or hemodynamic or respiratory compromise, establish IV access and 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, administer IV over 15 minutes.
    - Depending on clinical response, a second dose may be required.
  - Consider regional plan for centralized storage of Cyanokit and means to deliver emergently to fire scene.

- 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 resulting from 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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2.21P Smoke Inhalation – Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Oxygen 100% via non-rebreather mask or BMV.
- Decontamination concurrent with initial resuscitation.
- If a carbon monoxide (CO) oximeter is available, consider obtaining carbon monoxide levels.
- If a measuring device is available, obtain atmospheric levels of carbon monoxide (CO) and cyanide (CN).
- See Burn (Thermal) Protocol – Pediatric 4.0P.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

PARAMEDIC STANDING ORDERS

P

- Consider early advanced airway control in patients with suspected upper or lower airway burns or severe smoke inhalation. See Airway Management Protocol – Pediatric 5.1P.
- If you have a patient with a history of smoke exposure and an altered level of consciousness and/or hemodynamic or respiratory compromise, establish IV access and 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 A2 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.
  - Consider regional plan for centralized storage of Cyanokit and means to deliver emergently to fire scene.

- 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 resulting from 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 2.22

VERMONT EMS STROKE SCREENING TOOL

BASIC DATA

Last time without symptoms: *(If patient awoke with symptoms, last time known to be at baseline)*

Witness/family name: **Best contact number for witness:**

New Onset Complaint (check all that apply): ☐ **Weakness R / L** ☐ **Confusion, difficulty speaking or understanding** ☐ **Numbness R / L** ☐ **Balance/coordination difficulty** ☐ **Acute visual disturbance** ☐ **Severe headache** ☐ **Other** _____

EXAMINATION

CINCINNATI STROKE SCALE		Abnormal	Normal
FACIAL DROOP:	Have patient smile or show teeth: look for asymmetry.		
	Normal: Both sides of the face move equally		
	Abnormal: One side of the patient's face droops.		
MOTOR WEAKNESS:	Have patient close eyes, extend arms, palms up for 10 seconds.		
	Normal: Arms remain extended equally, or drift equally.		
	Abnormal: One arm drifts down compared to the other, or unable to lift one arm.		
SPEECH:	Have patient repeat after you: "You can't teach an old dog new tricks"		
	Normal: Phrase is repeated clearly and correctly.		
	Abnormal: New onset of slurred speech (dysarthria), abnormal (aphasia) or none.		

BLOOD GLUCOSE (if possible):

○ Establish STROKE ALERT CRITERIA	YES
Time from onset of symptoms known to be less than 6 hours?	
Blood glucose is or has been corrected to greater than 50? (if fingerstick possible)	
Any abnormal finding on Cincinnati Stroke Scale examination?	
Deficit unlikely due to head trauma or other identifiable cause?	

*** IF YES TO ALL STROKE ALERT CRITERIA: CONTACT RECEIVING HOSPITAL AND REPORT "STROKE ALERT"**

EMT STANDING ORDERS

E

- Routine Patient Care.
- Establish Stroke Alert Criteria and notify receiving hospital of **"Stroke Alert"** if indicated. (Complete Stroke Assessment Form or active Stroke Protocol (and Stroke Report) in SIREN.)
- Administer oxygen to maintain $O_2 \geq 94\%$,
- Elevate head of stretcher to 30 ° (unless patient requires spinal immobilization);
- Minimize on-scene time. Do not delay for ALS intercept;
- Acquire and transmit 12-lead ECG, if available;
- Administer oral glucose if hypoglycemic and able to tolerate PO;
- Rapid transport to the correct facility based on the regional transport agreements.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Draw labs, if possible.
- Establish 18 gauge IV access antecubital fossa and administer 250 mL 0.9% NaCl bolus IV.
- Correct glucose if <80 mg/dl. See Diabetic Emergencies (Hyperglycemia/ Hypoglycemia) Protocol – Adult 2.7A or – Pediatric 2.7P.

PEARLS:

- Suspect stroke in patients with any of the following new onset symptoms or complaints:
  - Weakness R/L
  - Numbness R/L
  - Difficulty with speech or understanding
  - Difficulty with balance or coordination
  - Acute visual disturbance
  - Severe headache
  - Altered mental status
- Consider transporting a witness, family member or caregiver with the patient to verify the time of the onset of stroke symptoms.

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3.0 Acute Coronary Syndrome – Adult

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

EMT STANDING ORDERS

E

- Routine Patient Care.
- Acquire and transmit 12-lead ECG with baseline vitals within 10 minutes if available. (Do not delay scene time.)
  - 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 saturation <94%), or signs of heart failure at a rate to keep O_2 saturation ≥94%.
- Administer aspirin 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. Contact **Medical Control** for additional dosing.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

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

PARAMEDIC STANDING ORDERS

P

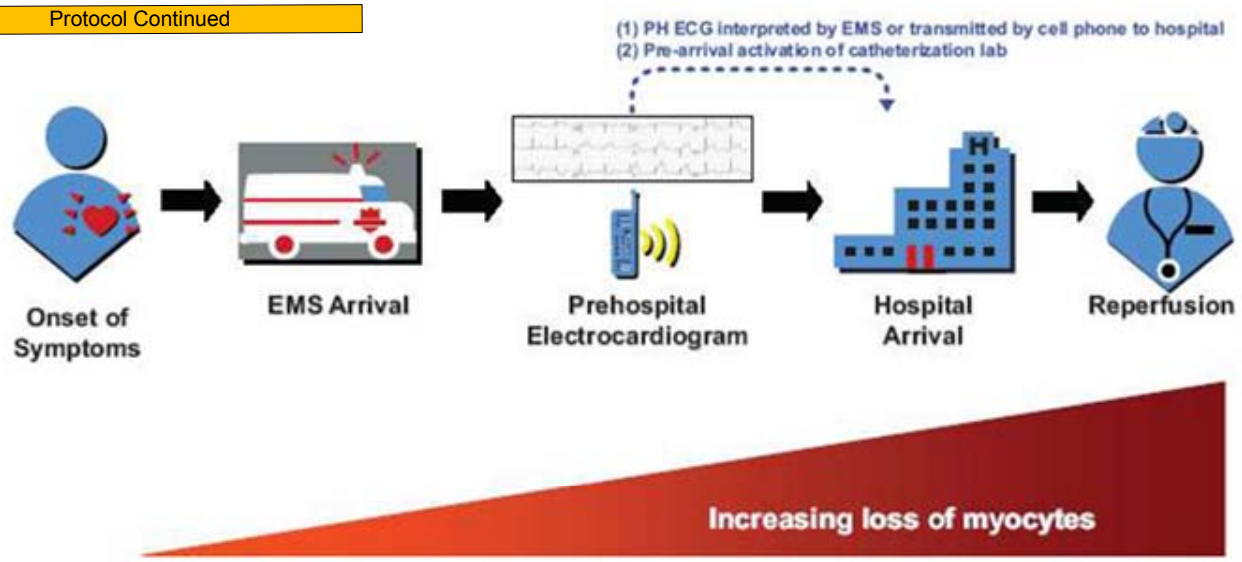
- Monitor ECG rhythm.
- Consider IV nitroglycerin at 10 mcg/min if symptoms persist after 3rd SL nitroglycerin (it is recommended two (2) IV lines or equivalent in place and the IV nitroglycerin must be on an infusion pump).
- Increase IV nitroglycerin by 10 mcg/min every 5 minutes while symptoms persist and systolic BP remains >100 mmHg. Maximum rate 200 mcg per minute.
- If IV nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally.
- Consider fentanyl 25 – 50 mcg slow IV push every five minutes up to 300 mcg and systolic BP remains >100 mmHg **OR**
- Consider morphine 2 – 4 mg IV/IM every 5 minutes to a maximum of 15 mg titrated to pain and systolic BP remains >100 mmHg.
- Treat dysrhythmias as needed; refer to the appropriate protocol.

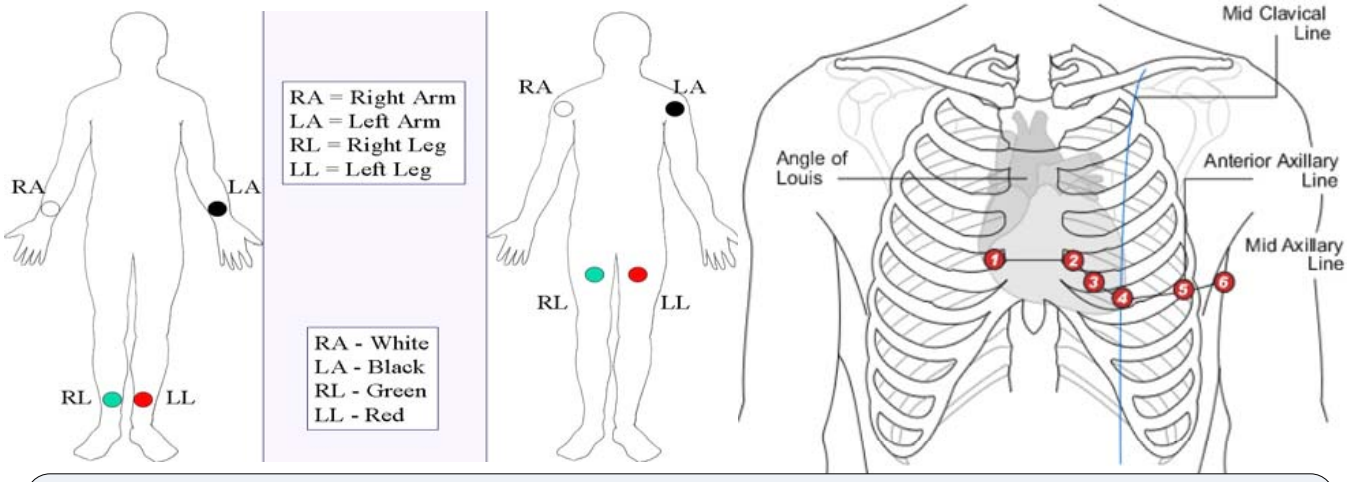
- Avoid nitroglycerin in any patient who has used a phosphodiesterase inhibitor for erectile dysfunction and pulmonary hypertension, such as sildenafil (Viagra, Revatio) or vardenafil (Levitra, Staxyn) within 24 hours, or tadalafil (Cialis, Adcirca) within 48 hours. Also avoid use in patients receiving intravenous prostacyclins for pulmonary hypertension.
- Administer nitrates with extreme caution, if at all, to patients with inferior-wall STEMI or suspected right ventricular (RV) involvement because these patients require adequate RV preload.

Protocol Continues

Vermont EMS has taken extreme 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.

Protocol Continued





PEARLS:

- Transmission of 12-lead ECG and/or communication with receiving facility is critical to the activation of a STEMI system.
- If Paramedic interpretation or automated interpretation states: "Acute MI" **or** "Meets ST Elevation MI Criteria," notify the receiving facility of a "STEMI ALERT."
- Obtain 12-lead ECG in all patients with the following signs and symptoms:
  - Chest, jaw or left arm pain; or
  - Shortness of breath; or
  - Epigastric pain; or
  - Syncope, general malaise, or palpitations; or
  - Self-administered nitroglycerin; or
  - After sudden cardiac arrest with return of cardiac activity.
- 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 or other internal bleeding.
- Patients with acute coronary syndrome (especially women, patients with a history of diabetes, and the elderly) may present with signs and symptoms other than chest pain including diaphoresis, shortness of breath, weakness, syncope and nausea.

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Bradycardia – Adult 3.1A

EMT STANDING ORDERS

E

- Routine Patient Care.
- Consider the underlying causes of bradycardia (e.g., hypoxia, hypoglycemia, toxicologic and hypothermia).
- Acquire and transmit 12-lead ECG, if available.
- **Call for Paramedic intercept if serious signs or symptoms (hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort, or acute heart failure). If Paramedic intercept not available, call for AEMT intercept, if available.**

ADVANCED EMT STANDING ORDERS

A

- Establish IV/IO access. Consider IO access if hemodynamically unstable.
- Consider and treat hypovolemia. Administer 500 mL 0.9% NaCl fluid bolus.

PARAMEDIC STANDING ORDERS

P

If Serious Signs or Symptoms (hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort, or acute heart failure):

- Consider atropine 0.5 mg IV every 3 – 5 minutes to a total of 3 mg.
- If atropine is ineffective:
  - Consider transcutaneous pacing.
  - Consider procedural sedation prior to or during pacing, if feasible:
    - Midazolam 2.5 mg IV/IO/intranasal, may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, OR
    - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes or; 2 mg IM, may repeat once in 10 minutes, OR
    - Diazepam 2 mg IV/IO, may repeat once in 5 minutes.
  - Consider analgesia prior to or during transcutaneous pacing, if feasible:
    - Fentanyl 25-50 mcg slow IV push; may repeat every 5 minutes to a total of 300 mcg, OR
    - Morphine 2-4 mg IV every 10 minutes to a total of 15 mg and systolic BP ≥100 mmHg.
- Consider dopamine infusion 5 – 10 mcg/kg/min, OR
- Consider epinephrine infusion at 2 – 10 mcg/min.
- Contact Medical Control for consultation.

Other Causes:

- Contact **Medical Control** and consider:
  - For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon 5 mg IV over 3 – 5 minutes.
  - For symptomatic calcium channel blocker overdose or hyperkalemia/renal failure, consider calcium chloride 500 to 1,000 mg (5 to 10 mL of a 10% solution) IV/IO over 10 minutes.
  - May repeat as needed. Contact **Medical Control**.
  - See Poisoning/Substance Abuse/Overdose Protocol – Adult 2.17A.

For calcium chloride administration, ensure IV patency and do not exceed 1 mL per minute. Flush with NS before and after administration. Contact **Medical Control**.

PEARLS:

- **Bradycardia,** in the context of adult medicine, is the resting heart rate of under 60 beats per minute, though it is seldom symptomatic until the rate drops below 50 beats/min. It may cause cardiac arrest in some patients, because those with bradycardia may not be pumping enough oxygen to their hearts. It sometimes results in syncope, shortness of breath, and if severe enough, death. Trained athletes, patients on beta blockers or young healthy individuals may also have a slow resting heart rate. Resting bradycardia is often considered normal if the individual has no other symptoms such as fatigue, weakness, dizziness, lightheadedness, syncope, chest discomfort, palpitations or shortness of breath associated with it. The term **relative bradycardia** is used in explaining a heart rate which, although not actually below 60 beats per minute, is still considered too slow for the individual's current medical condition.

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3.1P Bradycardia – Pediatric

Cardiac Protocol 3.1P

EMT STANDING ORDERS

E

- Routine Patient Care. Administer 100% oxygen.
- Consider and treat the underlying causes of bradycardia (e.g., hypoxia, hypoglycemia and hypothermia).
- Begin/continue CPR if heart rate is <60 bpm **AND** the child shows signs of poor systemic perfusion with hypoperfusion despite adequate ventilation and oxygenation.
- Acquire and transmit 12-lead ECG, if available.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access. Consider IO access if hemodynamically unstable.
- Consider and treat hypovolemia. Administer 20 mL/kg 0.9% NaCl IV fluid bolus.

PARAMEDIC STANDING ORDERS

P

For Bradycardia With Serious Signs and Symptoms:

- Epinephrine 0.01 mg/kg IV/IO slow push (0.1 mL/kg of **1:10,000**) every 3 – 5 minutes (max single dose 1 mL). If no IV/IO access, may give ET dose 0.1 mg/kg (0.1 mL/kg of **1:1,000**).
- Consider atropine 0.02 mg/kg IV/IO for increased vagal tone or AV blocks, may repeat once (minimum single dose: 0.1 mg; maximum single dose 0.5 mg).
- Consider transcutaneous pacing.
- Consider procedural sedation prior to or during pacing, if feasible:
  - Midazolam 0.05 mg/kg IV/IO/intranasal OR
  - Diazepam 0.05 mg/kg IV/IO.
- Consider analgesia prior to or during transcutaneous pacing, if feasible:
  - Fentanyl 0.5 to 1 mcg/kg IV/IO every 5 minutes. Maximum single dose 50 mcg. May be repeated to a total of 3 doses, **OR**
  - Morphine 0.1 mg/kg IV/IO every 10 minutes. Maximum single dose 4 mg. May be repeated to a total of 3 doses.
  - See Pain Management Protocol – Pediatric 2.16P.

Other Causes:

- Contact **Medical Control** and consider:
  - For hypoglycemia, see Diabetic Emergencies (Hyperglycemia/Hypoglycemia) Protocol – Pediatric 2.7P.
  - For symptomatic beta blocker or calcium channel blocker overdose, consider glucagon. See chart below.
  - For symptomatic calcium channel blocker overdose or hyperkalemia/renal failure, consider calcium chloride (10% solution) 20 mg/kg IV (0.2 mL/kg) slow IV push not to exceed 1 mL per minute. May repeat if clinical indication persists.
  - See Poisoning/Substance Abuse/Overdose Protocol – Pediatric 2.17P.

Glucagon	
< 20 kg (< 44 lb)	0.5 mg IV
> 20 kg(> 44 lb)	1.0 mg IV

For calcium chloride administration, ensure IV patency and do not exceed 1 mL per minute. Flush with NS before and after administration. Contact **Medical Control**.

PEARLS:

- In children, bradycardia almost always reflects hypoxia, rather than a primary cardiac problem. It is a pre-arrest rhythm, and the prognosis is poor if left untreated. Immediate delivery of high-flow oxygen and assisted ventilation are essential. Untreated bradycardia will quickly cause shock, hypotension and death.
- Combine age-specific heart rates with signs of respiratory failure and shock while assessing. If child is asymptomatic, consider supportive treatment.

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Cardiac Arrest – Adult 3.2A

EMT STANDING ORDERS

E

- Routine Patient Care—with focus on CPR.
- Immediate chest compressions (high quality CPR with minimal interruptions).
- Apply AED and use as soon as possible (with minimum interruption of chest compressions). (See AED Algorithm in Appendices.)
- If Return of Spontaneous Circulation occurs, see Post Resuscitative Care Protocol – Adult 3.5A.
- Consider termination of efforts or not attempting resuscitation (see DNR/COLST Orders 8.8 and/or Resuscitation Initiation and Termination Protocol 8.15.
- For traumatic arrest deemed appropriate for transport, all interventions beyond CPR, initial defibrillation attempt and spinal immobilization should be performed enroute to receiving facility. Minimize scene time.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Do not interrupt chest compressions for advanced airway, IV/IO placement or epinephrine administration.
- Establish IV/IO access. Administer 500 mL bolus 0.9% NaCl IV/IO in the absence of pulmonary edema.
- Monitor quantitative waveform capnography throughout resuscitation, if available, to assess and monitor airway placement and CPR quality, and to monitor for signs of Return of Spontaneous Circulation.
- Consider and correct treatable causes: hypoxia, overdose/poisoning, hypothermia and hypovolemia—treat as per specific protocol.
- If ventilation is adequate with BVM, routine placement of advanced airway can be delayed. Consider advanced airway after use of AED, as applicable.
- After first AED shock or no-shock advisory, administer epinephrine (**1:10,000**) 1 mg IV/IO; repeat every 3 to 5 minutes. (See AED Algorithm in Appendices.)
- Continue CPR for 2 minutes between interventions; stop only for rhythm check or Return of Spontaneous Circulation.

PARAMEDIC STANDING ORDERS

P

- Follow ACLS guidelines as trained and credentialed. (See Cardiac Algorithms in Appendices.)
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions. In this setting, supraglottic airways and ETTs can be considered equivalent. Attempts at ETT placement should be limited to 10 seconds or less.

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

- Defibrillation when available, with minimum interruption in chest compressions. Use manufacturer's recommendations for joule settings. In general, use 360 joules for monophasic and 120 – 200 joules for biphasic defibrillators; then CPR for 5 cycles/2 minutes; then rhythm check; then:
- Administer epinephrine (**1:10,000**) 1 mg IV/IO; repeat every 3 to 5 minutes.
  - Vasopressin 40 U IV/IO may replace first or second dose of epinephrine.
- Continue CPR for 2 minutes between interventions; Don't stop for rhythm check or Return of Spontaneous Circulation for 2 minutes.
- If no response after second defibrillation, administer:
  - Amiodarone 300 mg IV/IO (preferred first-line agent), repeat dose 150 mg as needed **OR**
  - Lidocaine 1 to 1.5 mg/kg IV/IO, repeat dose 0.5 to 0.75 mg/kg (maximum total dose 3 mg/kg.)
  - For Torsades de Pointes: Magnesium sulfate 1 to 2 g IV/IO.

Protocol Continues

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PARAMEDIC STANDING ORDERS - ADULT

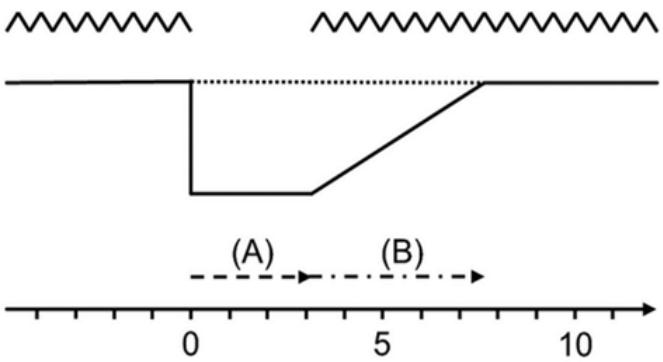
Protocol Continues

P

For asystole or pulseless electrical activity (PEA):
Continue CPR for 5 cycles (2 minutes), then rhythm check.

- Administer epinephrine (**1:10,000**) 1 mg IV/IO, repeat every 3 to 5 minutes.
  - Vasopressin 40 U IV/IO may replace first or second dose of epinephrine.
- Continue CPR for 2 minutes between interventions; Don't stop for rhythm check or Return of Spontaneous Circulation for 2 minutes.
- Consider tension pneumothorax and treat with needle decompression if indicated.
- For suspected pre-arrest metabolic acidosis, suspected or known hyperkalemia (renal failure/dialysis patient), known tricyclic antidepressant overdose, or suspected excited/agitated delirium, consider sodium bicarbonate 1 mEq/kg IV/IO. **Do not use routinely in cardiac arrest.** Administer NS flush before and after sodium bicarbonate. See Poisoning/ Substance Abuse/Overdose Protocol -- Adult 2.17A.
- For known or suspected hyperkalemia (dialysis patient/renal failure) or as an antidote for toxic effects (hypotension and arrhythmias) from calcium channel blocker or B-blocker overdose consider calcium chloride 500 to 1,000 mg (5 to 10 mL of a 10% solution) IV/IO over 10 minutes. May repeat as needed. Contact **Medical Control**. Do not mix with or infuse immediately before or after sodium bicarbonate. **Do not use routinely in cardiac arrest.** See Poisoning/Substance Abuse/Overdose Protocol – Adult 2.17A.

EFFECT OF INTERRUPTIONS TO CPR ON CORONARY PERFUSION PRESSURE



Compressions

Coronary perfusion pressure – note the interval of interruption [A] as well as the interval until the restoration of coronary perfusion pressure [A+B]

Time in Seconds

PEARLS:

- Early CPR and early defibrillation are the most effective therapies for cardiac arrest care.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Switch compressors at least every two minutes to minimize fatigue. Check rhythm and pulse during switch to avoid excessive interruptions in CPR.
- Compress when charging and resume compressions immediately after the shock is delivered to minimize interruptions to CPR.
- Do not hyperventilate as it increases intrathoracic pressure and decreases blood return to the heart. Ventilate at a rate of 8 – 10 breaths per minutes, with enough volume to produce adequate chest rise.
- Mechanical CPR devices are acceptable with appropriate training. Interruption in CPR to apply device should be limited to 10 seconds or less.

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Cardiac Arrest – Pediatric 3.2P

EMT STANDING ORDERS

E

- Routine Patient Care—with focus on CPR
- Immediate chest compressions.
- Apply AED and use as soon as possible (with minimum interruption of chest compressions). From birth to age 8 years use pediatric AED pads.
  - If pediatric AED pads are unavailable, providers may use adult AED pads, provided the pads do not overlap.
- If Return of Spontaneous Circulation occurs see Post Resuscitative Care Protocol – Pediatric 3.5P.
- Consider termination of efforts or not attempting resuscitation, see DNR/COLST 8.8 and/or Resuscitation Initiation and Termination 8.15.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Do not interrupt chest compressions for airway or IV/IO placement.
- Establish IV/IO access.
- Monitor quantitative waveform capnography throughout resuscitation, if available, to assess and monitor airway placement and CPR quality, and to monitor for signs of Return of Spontaneous Circulation.
- Consider and correct treatable causes: hypoxia, overdose/poisoning, hypothermia, hypoglycemia, and hypovolemia—treat as per specific protocol.
- Administer 0.9% NaCl 20 mL/kg fluid bolus IV/IO.

PARAMEDIC STANDING ORDERS

P

- If ventilation is adequate with BVM, routine placement of advanced airway can be delayed.
- Placement of an advanced airway during cardiac arrest should not interrupt chest compressions. In this setting, supraglottic airways and ETTs can be considered equivalent. ETT placement, if used, should be limited to 1 attempt of 10 seconds or less, as long as BMV or alternate airway provides adequate chest rise.
- Consider tension pneumothorax and treat with needle decompression if indicated.
- For suspected pre-arrest metabolic acidosis, suspected or known hyperkalemia (dialysis patient), or known tricyclic antidepressant overdose, consider sodium bicarbonate 1 mEq/kg IV/IO. Do not mix with any resuscitation drugs. Flush IV tubing with NS before and after drug administration. **Do not use routinely in cardiac arrest.**
- For known or suspected hyperkalemia (renal failure) or as an antidote for toxic effects (hypotension and arrhythmias) from calcium channel blocker or B-blocker overdose consider calcium chloride 20 mg/kg (0.2 mL/kg) slow IV/IO push. Do not mix with or infuse immediately before or after sodium bicarbonate without intervening flush. **Do not use routinely in cardiac arrest.**

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

- Use manufacturer's recommendations for joule settings. In general, defibrillate at 2J/kg; perform CPR for 2 minutes and recheck rhythm; if still a shockable rhythm, defibrillate at 4J/kg; perform CPR for 2 minutes; reassess every 2 minutes and continue to defibrillate at 4J/kg.
- If no response after first defibrillation, administer epinephrine (**1:10,000**) 0.01 mg/kg (0.1 mL/kg) IV/IO OR 0.1 mg/kg (**1:1,000**; 0.1 mL/kg) via ETT.
  - Repeat every 3 – 5 minutes.
- If no response after second defibrillation, consider:
  - Amiodarone 5mg/kg (maximum 300 mg) IV/IO (preferred first-line agent) **OR**
  - For Torsades de Pointes: Magnesium sulfate 25 – 50 mg/kg (maximum 2 grams) IV/IO over 1 – 2 minutes.

Protocol Continues

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PARAMEDIC STANDING ORDERS

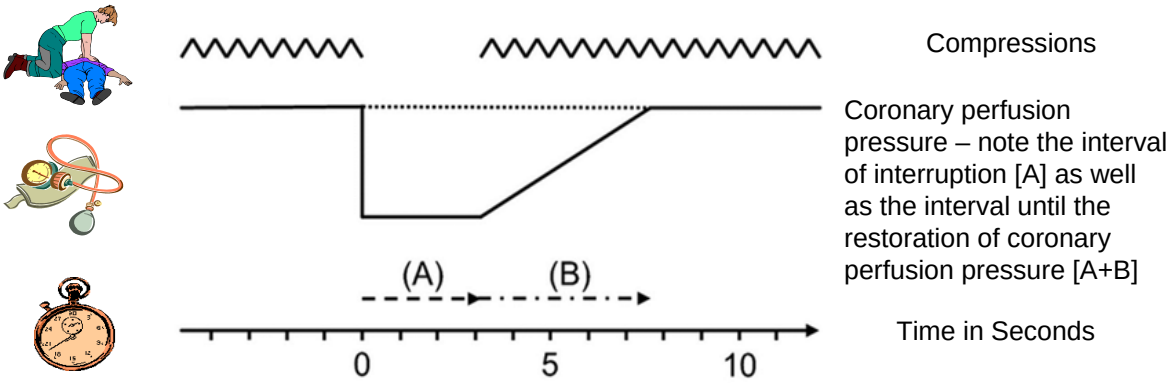
Protocol Continues

P

For Asystole or Pulseless Electrical Activity (PEA):

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

EFFECT OF INTERRUPTIONS TO CPR ON CORONARY PERFUSION PRESSURE



PEARLS:

- Optimize oxygenation, ventilation and volume status. Cardiac arrest in children typically results from progressive deterioration in respiratory or cardiovascular function.
- Minimize interruptions in chest compression, as pauses rapidly return the blood pressure to zero and stop perfusion to the heart and brain.
- Switch compressors at least every two minutes to minimize fatigue. Check rhythm and pulse during switch to avoid excessive interruptions in CPR.
- Perform “hands on” defibrillation.
  - Compress when charging and resume compressions immediately after the shock is delivered to minimize interruptions to CPR.
- Avoid excessive ventilation.
- Do not use mechanical CPR devices on children.

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Congestive Heart Failure (Pulmonary Edema) – Adult

3.3

EMT STANDING ORDERS

E

- Routine Patient Care.
- Place the patient in a semi-sitting or full sitting position.
- Contact **Medical Control** for online order to facilitate administration of the patient's own nitroglycerin, while symptoms persist and systolic BP is >100 mmHg.
- Acquire and transmit 12-lead ECG if available.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- Contact **Medical Control** to consider nitroglycerin 0.4 mg SL every 5 minutes while symptoms persist and if the systolic BP is >100 mmHg.
- Consider Continuous Positive Airway Pressure (CPAP) with maximum 10 cm H_2O pressure support. (See CPAP Protocol 5.4.)
  - Consider CPAP for patient with moderate to severe respiratory distress concurrent with the following signs and symptoms:
    - Oxygen saturation < 94%.
    - Respiratory rate > 25/minute.
    - Retractions or accessory muscle use.
  - SBP must be ≥100 mmHg to utilize CPAP.

PARAMEDIC STANDING ORDERS

P

- Consider nitroglycerin 0.4 mg SL every 5 minutes while symptoms persist and if the systolic BP is >100 mmHg.
- If not improving with above measures and systolic BP remains >100 mmHg, consider:
  - IV nitroglycerin 5 mcg/min, increase by 5 mcg/min every 3 – 5 minutes to 20 mcg/min (the IV nitroglycerin must be on an infusion pump).
  - If no response at 20 mcg/min, may increase by 10 to 20 mcg/min every 3 – 5 minutes. (Generally, accepted maximum dose: 200 mcg/min.)
- If patient improves after SL nitroglycerin, may apply nitroglycerin paste 1" – 2" transdermally.

- Avoid nitroglycerin in any patient who has used a phosphodiesterase inhibitor for erectile dysfunction and pulmonary hypertension, such as: sildenafil (Viagra, Revatio) or vardenafil (Levitra, Staxyn) within 24 hours, or tadalafil (Cialis, Adcirca) within 48 hours. Also avoid use in patients receiving intravenous prostacyclins 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:

- Nitroglycerin is the first-line medication for congestive heart failure.
- Furosemide and Narcotics have NOT been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this historically has been a mainstay of EMS treatment, it is no longer recommended.
- 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 unless symptoms worsen.
- Allow the patient to be in their position of comfort to optimize their breathing effort.

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Induced Mild Hypothermia for Comatose Survivors of Cardiac Arrest – Adult 3.4

CRITERIA FOR INDUCED MILD HYPOTHERMIA (ALL MUST BE MET)

- ROSC (return of spontaneous circulation) after cardiac arrest not related to blunt/penetrating trauma or hemorrhage. (Victims of drowning/submersion or hanging are eligible.)
- Age greater than 18 without identified pregnancy or obviously gravid uterus. (Contact **Medical Control** for induced mild hypothermia in pediatrics.)
- Quantitative waveform capnography > 20 mmHg, if available.
- Measure and record initial tympanic temperature. Initial temperature > 34° C (93.2° F).
- Remains comatose: Patient must have a GCS < 8 or not be able to follow commands (for example: patient cannot raise left or right arm on command, protrude tongue, or tighten AND release grip).
- Receiving facility must be capable of maintaining induced mild hypothermia or have a plan for expeditious transfer of patient. If neither is possible, do **NOT** initiate protocol.

EMT STANDING ORDERS

E

- Routine Patient Care.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- Maintain oxygen saturation at ≥ 94%.
- Acquire and transmit 12-lead ECG, if available.
- Perform neurological exam (GCS, Cranial nerves, reflexes, general motor tone, seizure activity).
- Expose patient and **apply cerebral cooling collar** if available. Collar may be applied by EMT even without advanced airway in place. Replace cooling pack every 20 minutes. (Providers must complete training in use of cooling collar.)
- Apply ice packs to axilla & groin.
- Alert receiving hospital of implementation of **Induced Mild Hypothermia Protocol**.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- Establish advanced airway.

PARAMEDIC STANDING ORDERS

P

- Administer cold normal saline (4°C / 40°F) bolus 30 mL/kg to max of 2,000 mL.
- For shivering or sedation:
  - Midazolam 2.5 mg IV/IO/intranasal, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes, **OR**
  - Lorazepam 1 to 2 mg IV/IO, may repeat every 15 minutes as needed (max 10 mg).
- Monitor quantitative waveform capnography with target of 35 to 40 mmHg.
- Maintain systolic blood pressure of >90 mmHg.
- For seizures, see Seizure Protocol – Adult 2.18A.

For Post-Resuscitation Hypotension: Consider vasopressors - see Post-Resuscitative Care Protocol – Adult 3.5A.

MEDICAL CONTROL ORDERS: Administration by Vermont-credentialed RSI Paramedic only

- Non-depolarizing paralytic rocuronium (1 mg/kg IV) or vecuronium (0.1 mg/kg IV) for shivering uncontrolled by benzodiazepine. Patient must be intubated. Monitor for need for sedation.

PEARLS:

- ROSC: Return of pulse and blood pressure. Abrupt sustained increase in $PETCO_2$ (typically ≥ 40 mmHg).
- If loss of spontaneous circulation occurs, go to appropriate protocol.
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- Maintain oxygen saturation at ≥ 94%.
- When exposing patient for purpose of cooling undergarments may remain in place. Be mindful of your environment and take steps to preserve the patient's modesty.
- Do not delay transport for the purpose of cooling.
- Patient outcomes can worsen if hypothermia is induced and not maintained. Maintain target temperature by utilizing ice, cooling collar and chilled fluids during transport. Monitor temperature frequently.
- Perform 12-lead ECG. Recognition and treatment of a STEMI are critical in the post-cardiac arrest patient. Consider transport to a STEMI receiving facility capable of continuing induced mild hypothermia, as per local guidelines.
- Approximately 30% of patients may sustain a seizure after sudden cardiac arrest. Evaluate patients for seizures and see Seizures Protocol – Adult 2.18A.

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3.5A Post Resuscitative Care – Adult

EMT STANDING ORDERS

E

- Optimize ventilation and oxygenation.
- Acquire and transmit a 12-lead ECG, if available.
- Initial ventilation rate of 10 - 12 BPM.
- Maintain oxygen saturation at ≥ 94%.
- With return of spontaneous circulation after non-traumatic cardiac arrest and patient is obtunded with no purposeful movements to verbal stimuli, consider: Induced Mild Hypothermia for Comatose Survivors of Cardiac Arrest – Adult 3.4.

ADVANCED EMT STANDING ORDERS

A

- Titrate ventilation rate to quantitative waveform capnography of 35 to 40 mmHg.
- When feasible, titrate FiO_2 to minimum necessary to achieve $SpO_2 \geq 94\%$.
- If SBP < 90 mmHg administer 0.9% NaCl 500 mL fluid bolus IV/IO.

PARAMEDIC STANDING ORDERS

P

- Maintain systolic blood pressure of >90 mmHg.
- Secure advanced airway if indicated. See Orotracheal Intubation Protocol 5.10.

If Cardiac Arrest Was The Result of VF or VT, Manage The Patient As Follows:

- If an antiarrhythmic medication was *not* used to convert the heart rhythm, administer amiodarone 150 mg IV/IO bolus over 10 minutes.
- If amiodarone was administered during resuscitation, do *not* administer additional amiodarone bolus.
- If the patient is having frequent PVC or runs of VT, or if the transport time will exceed 30 minutes, start an amiodarone maintenance infusion of 1 mg/min IV/IO.
- Do not use amiodarone if the patient has heart block or profound bradycardia (heart rate <60, second-degree type II AV block, or third-degree AV block).
- If another antidysrhythmic was used to terminate VF/VT, begin appropriate infusion dose of that antidysrhythmic.

For Post-Resuscitation Hypotension:

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

Consider nasogastric or orogastric tube for the intubated patient.

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"**. See Acute Coronary Syndrome Protocol – Adult 3.0.
- Avoid hyperventilation as it increases intrathoracic pressures, potentially worsening hemodynamic instability. Hyperventilation may also cause hypocarbia and elevated arterial oxygen levels (hyperoxia) and increased hospital mortality post-resuscitation from cardiac arrest.
- Monitor patient closely for recurrent cardiac arrest.

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Post Resuscitative Care – Pediatric 3.5P

EMT STANDING ORDERS

E

- Optimize ventilation and oxygenation.
- Acquire and transmit a 12-lead ECG, if available.
- Initial ventilation rate of 8 - 10 BPM.
- Maintain oxygen saturation at ≥ 94%.
- With return of spontaneous circulation after non-traumatic cardiac arrest and patient is obtunded with no purposeful movements to verbal stimuli, contact **Medical Control** for guidance and consider Induced Mild Hypothermia for Comatose Survivors of Cardiac Arrest Protocol – Adult 3.4.

ADVANCED EMT STANDING ORDERS

A

- Titrate ventilation rate to quantitative waveform capnography of 35 to 40 mm Hg.
- When feasible, titrate FiO_2 to minimum necessary to achieve $SpO_2 \geq 94\%$.
- If SBP < 90 mmHg administer 0.9% NaCl 20 mL fluid bolus IV/IO.

PARAMEDIC STANDING ORDERS

P

- Maintain systolic blood pressure of >90 mmHg.
- Secure advanced airway if indicated. See Orotracheal Intubation Protocol 5.10.

If Cardiac Arrest Was The Result of VF or VT, Manage The Patient As Follows:

- If an antiarrhythmic medication was *not* used to convert the heart rhythm, administer amiodarone 5 mg/kg IV/IO bolus over 10 minutes.
- If amiodarone was administered during resuscitation, do *not* administer additional amiodarone.
- If the patient is having frequent PVC or runs of VT, or if the transport time will exceed 30 minutes, start an amiodarone maintenance infusion of 0.005-0.01 mg/kg/min IV drip.
- Do not use amiodarone if the patient has heart block or profound bradycardia (heart rate <60, second-degree type II AV block, or third-degree AV block).
- If another antidysrhythmic was used to terminate VF/VT, begin appropriate infusion dose of that antidysrhythmic.

For Post-Resuscitation Hypotension:

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

Consider nasogastric or orogastric tube for the intubated patient.

PEARLS:

- Avoid hyperventilation as it increases intrathoracic pressures, potentially worsening hemodynamic instability. Hyperventilation may also cause hypocarbia and elevated arterial oxygen levels (hyperoxia) and increased hospital mortality post-resuscitation from cardiac arrest.
- Monitor patient closely for recurrent cardiac arrest.

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3.6A Tachycardia – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Acquire and transmit 12-lead ECG, if available
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access. Consider IO access if hemodynamically unstable.

PARAMEDIC STANDING ORDERS

P

Follow ACLS guidelines as trained and credentialed. Search for underlying causes.

If symptomatic and hemodynamically unstable:

- For regular, narrow complex: consider adenosine 6 mg rapid IV/IO, followed by rapid flush.
  - May repeat at dose of 12 mg if no conversion.
  - May repeat successful dose if rhythm recurs after conversion.
- Otherwise, synchronized cardioversion:
  Use the following initial energy doses, then escalate to the next higher energy level if no conversion. Biphasic devices: follow manufacturer's recommendations for dosing.
  - For narrow regular rhythm: 50 – 100J biphasic or 200J monophasic.
  - For narrow irregular rhythm: 120 – 200J biphasic or 200J monophasic.
  - For wide regular rhythm: 100J biphasic or monophasic.
  - For wide irregular/polymorphic VT: 120 – 200J biphasic or 360 monophasic, using unsynchronized defibrillation doses if unable to sync:
- Administer procedural sedation prior to or during cardioversion, if feasible. Do not delay cardioversion.
  - Midazolam 2.5 mg IV/IO/intranasal, may repeat once in 5 minutes or; 5 mg IM may repeat once in 10 minutes, OR
  - Lorazepam 1 mg IV/IO, may repeat once in 5 minutes or; 2 mg IM, may repeat once in 10 minutes, OR
  - Diazepam 2 mg IV/IO, may repeat once in 5 minutes.

If symptomatic, but hemodynamically stable, contact Medical Control for the following orders:

- **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/IO, followed by rapid flush.
      - May repeat at dose of 12 mg if no conversion.
      - May repeat successful dose if rhythm recurs after conversion.
    - If irregular rhythm, to control ventricular rate:
      - Diltiazem 0.25 mg/kg IV/IO (maximum dose 20 mg) over 2 minutes. (Consider 10 mg maximum dose for elderly patient or patient with low BP.)
        - May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 25 mg), if necessary.
        - Consider maintenance infusion at 5 – 15 mg/hour IV/IO, **OR**
      - Metoprolol 5 mg IV/IO over 2 – 5 minutes.
        - May repeat every five minutes to a maximum of 15 mg as needed to achieve a ventricular rate of 90 – 100 BPM.

Protocol Continues

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Protocol Continued

P

PARAMEDIC STANDING ORDERS

If symptomatic, but hemodynamically stable, contact Medical Control for the following orders: (continued from previous page)

- **For wide complex tachycardia:**
  - Only for regular rhythm with monomorphic QRS:
    - Consider: adenosine 6 mg rapid IV/IO, followed by rapid flush.
      - May repeat at dose of 12 mg if no conversion.
      - May repeat successful dose if rhythm recurs after conversion.
    - Consider:
      - Amiodarone 150 mg IV/IO mixed with 50 mL of D_5W over 10 minutes.
        - May repeat once in 10 minutes.
        - If successful, consider a maintenance infusion of 1 mg/min.
      - Lidocaine (considered second-line therapy, only if amiodarone contraindicated) 1 – 1.5 mg/kg IV/IO.
        - May repeat once in 5 minutes to maximum of 3 mg/kg.
        - If successful, consider a maintenance infusion of 1 – 4 mg/min IV/IO.

For polymorphic Ventricular Tachycardia/Torsades de Pointes:

- If pulse present, contact **Medical Control** and consider magnesium sulfate 1 – 2 gm IV/IO diluted in 50 mL D_5W over 5 – 20 minutes.

- Diltiazem is contraindicated in patients with a history of or suspected Wolff-Parkinson-White (WPW) syndrome.
- Medications should be administered cautiously in frail or debilitated patients; lower doses should be considered.
- Be cautious in rate controlling patients in rapid atrial fibrillation (A Fib) who may be compensating for another disease process such as sepsis or pulmonary embolism.

PEARLS:

- Consider and treat potential underlying causes, e.g., hypoxemia, dehydration, fever.
- Wide complex tachycardia should be considered Ventricular Tachycardia until proven otherwise.
- Do not administer Diltiazem to wide complex tachycardia.
- Signs and symptoms of hemodynamic instability:
  - Hypotension
  - Acutely altered mental status
  - Signs of shock
  - Signs of acute heart failure
  - Ischemic chest pain
- If ventricular rate is >150/min, prepare for **immediate cardioversion**. May give brief trial of medications based on specific arrhythmias. Immediate cardioversion is generally not needed if heart rate is ≤150.
- Adenosine should be administered rapidly though a proximal (e.g., antecubital) vein site followed by a rapid saline flush.

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3.6P Tachycardia – Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Acquire and transmit 12-lead ECG, if available.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access. Consider IO access if hemodynamically unstable.

PARAMEDIC STANDING ORDERS

P

If symptomatic and hemodynamically unstable:

- **For narrow complex/probable SVT:**
  - Adenosine 0.1 mg/kg rapid IV/IO not to exceed 6 mg (first dose), followed by rapid flush.
    - 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:
    - 0.5 – 1J/kg; if unsuccessful, increase to 2J/kg.
  - Administer procedural sedation prior to or during cardioversion, if feasible:
    - Midazolam 0.05 mg/kg IV/IO/intranasal OR
    - Diazepam 0.05 mg/kg IV/IO.

If symptomatic but hemodynamically stable, contact Medical Control for the following orders:

- **For narrow complex, probable supraventricular tachycardia, or regular wide complex tachycardia (monomorphic QRS ONLY):**
  - Adenosine 0.1 mg/kg IV/IO not to exceed 6mg (first dose).
    - May repeat once at 0.2 mg/kg IV/IO not to exceed 12 mg (subsequent dose).
- **For wide complex:**
  - Amiodarone 5 mg/kg IV/IO (maximum: 300 mg) 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 (Thermal) – Adult

EMT STANDING ORDERS

E

- Routine Patient Care.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- For chemical burns, consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- Stop the burning process. Cut/remove clothing and jewelry as feasible. Brush off dry chemicals. Decontaminate the patient as appropriate.
- 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, may apply room-temperature water or room-temperature wet towels or commercially-available burn dressings to the burned area for a maximum of 15 minutes. Prolonged cooling may result in hypothermia.
- Maintain body temperature.
- Cover burns with dry sheets or dressings.
- Do not apply any ointments, creams, or gels to the burn area. 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 – Adult 2.21A.
- Administer oxygen to maintain oxygen saturation ≥ 94%. Maintain airway.

ADVANCED EMT STANDING ORDERS (In all patients, use lactated ringers if available.)

A

- Establish IV access.
- Transport time less than 1 hour:
  - Administer 0.9% NaCl or LR at 500 mL/hour IV.
- Transport time greater than 1 hour and 2nd or 3rd degree burns involving ≥20% body surface area:
  - $\frac{\text{Burn Area x Pt. Wt. in Kg}}{4}$ = # mL/hour, over the first 8 hours 0.9% NaCl/LR IV.

  Example: 20% burned area, patient weighs 70kg. 20x70 = 1400/4 = 350 mL/hr.

PARAMEDIC STANDING ORDERS

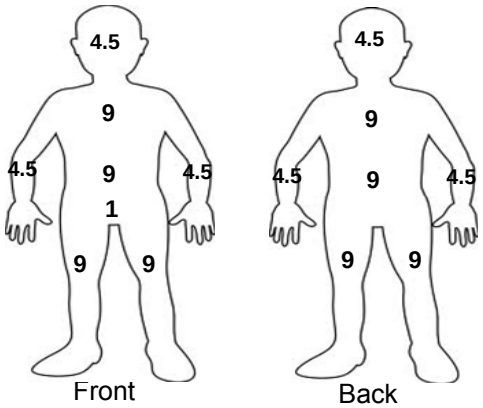
P

- 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 – Adult 5.1A.
- Refer to Pain Management Protocol – Adult 2.16A.

Expert burn center opinion recommends limiting prehospital IV fluids based on concerns for fluid overload and development of compartment syndrome. In cases where burn patients are in shock, IV fluid administration should be based on use of the Shock Protocol – Adult 2.20A.

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%



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Burns (Thermal) - Pediatric 4.0P

EMT STANDING ORDERS

E

- Routine Patient Care.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- For chemical burns, consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- Stop the burning process. Cut/remove clothing and jewelry as feasible. Decontaminate the patient as appropriate.
- 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 or commercially-available burn dressings 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. 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 – Pediatric 2.21P.
- Administer oxygen to maintain oxygen saturation ≥94%. Maintain patent airway.

ADVANCED EMT STANDING ORDERS (In all patients, use lactated ringers if available.)

A

- Establish IV access.
- Transport time less than 1 hour:
  - 5 – 15 years of age: 250 mL/hr 0.9% NaCl/LR.
  - 2 – 5 years of age: 125 mL/hr 0.9% NaCl/LR.
  - Less than 2 years of age: 100 mL/hr 0.9% NaCl/LR.
- Transport time greater than 1 hour and 2nd or 3rd degree burns involving ≥15% body surface area:
  - $\frac{\text{Burn Area x Pt. Wt. in Kg}}{4}$ = # mL/hour x first 8 hours 0.9% NaCl/LR IV.

  Example: 20% burned area, patient weighs 30 kg. 20x30 = 600/4 = 150 mL/hr.

PARAMEDIC STANDING ORDERS

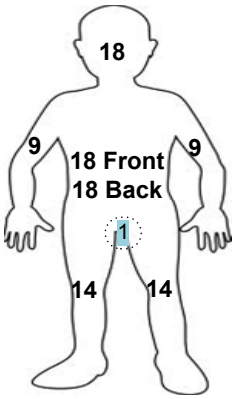
P

- 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 – Pediatric 5.1P.
- Refer to Pain Management Protocol – Pediatric 2.16P.

Expert burn center opinion recommends limiting prehospital IV fluids based on concerns for fluid overload and development of compartment syndrome. In cases where burn patients are in shock, IV fluid administration should be based on use of the Shock Protocol – Pediatric 2.20P.

Pediatric Rule of Nines
Children ≤ 1 year

Head & Neck:	18%
Left arm:	9%
Right arm:	9%
Front:	18%
Back:	18%
Left leg:	14%
Right leg:	14%
Genital region:	1%



Children > 1 year

For each year above 1, add 0.5% to each leg and subtract 1% for the head/ neck. This formula should be used until the adult rule of nines values are reached. For example, a 5-year old child would be +2% for each leg (16%) and -4% for the head/neck (14%).

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4.1 Drowning/Submersion Injuries – Adult & Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Assume c-spine injury and stabilize c-spine.
- Obtain specific history: time, temperature, associated trauma, etc.
- Begin resuscitation efforts while removing the patient from the water.
- Consider hypothermia.
- Remove wet clothes and warm the patient.
- All patients with history of submersion should be transported to the hospital.
- Reassure anxious patient.
- If water temperature is estimated to be less than 6°C (43°F) and submerged:
  - Less than 90 minute: Initiate full resuscitation
  - Greater than 90 minutes: Consider not initiating resuscitation or termination of efforts. Contact **Medical Control** for guidance.
- If water temperature is estimated to be greater than 6°C (43°F) and submerged:
  - Less than 30 minute: Initiate full resuscitation
  - Greater than 30 minutes: Consider not initiating resuscitation or termination of efforts. Contact **Medical Control** for guidance.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Consider CPAP to supplement the patient's own spontaneous respiratory effort.
- Establish IV/IO access.

Do not attempt water rescues unless properly trained and equipped. When operating on scenes involving water, use extreme caution and wear a PFD.

PEARLS:
SCUBA Diving related injuries: for patients presenting with suspected diving-related emergencies, a thorough assessment should include obtaining the patient's dive computer and/or dive plan. The major types of dive-related illnesses include Pulmonary Over-Pressurization Syndromes (POPS) and Decompression Sickness (DCS). Seriously ill patients may present with any combination of altered mental status, respiratory distress or shock. After recognition of a suspected diving related emergency, treatment should focus on supplemental oxygen and rapid transport. ED staff should be fully briefed on the patient's dive history.

References:

Michael J. Tipton, Frank St. C. Golden, November 2010. "A proposed decision-making guide for the search, rescue and resuscitation of submersion (head under) victims based on expert opinion" - *Resuscitation 82 (2011) 819– 824*

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Eye Injuries – Adult & Pediatric

4.2

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Obtain visual history (e.g., use of corrective lenses, surgeries, use of protective equipment).
- Obtain visual acuity, if possible.
- Assist patient with the removal of contact lens, if applicable.
- Chemical irritants, including pepper spray, alkali, acid or other chemical exposure:
  - Flush with copious amounts of water, or 0.9% NaCl for a minimum of 20 minutes.
  - Consider contacting Poison Control at (800) 222-1222 as soon as practical for consultation.
- Thermal burns to eyelids: patch both eyes with cool saline compress.
- Impaled object: immobilize object and patch both eyes. Do not apply pressure. Do not attempt to remove object.
- Puncture wound: place rigid protective device over both eyes (e.g., eye shield). Do not apply pressure.
- Foreign body: Minor foreign objects like dust or grit may be flushed with water or 0.9% NaCl. Patch both eyes.
- If the patient cannot close their eyelids, keep their eye moist with a sterile saline dressing.

PARAMEDIC STANDING ORDERS

P

- Proparacaine or tetracaine:
  - Apply 2 drops to affected eye; repeat every 5 minutes as needed.
- Consider use of Morgan lens for irrigation.
- Refer to Pain Management Protocol – Adult 2.16A.
- Refer to the Nausea/Vomiting Protocol – Adult & Pediatric 2.10.

PEARLS:
- For chemical exposure to eye position patient with the affected eye downward so irrigation does not run into the unaffected eye.

Dental Injuries – Adult & Pediatric

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®).
- Do not place in tap water.

EMT/ADVANCED EMT/PARAMEDIC EXTENDED CARE ORDERS

X

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

PEARLS:
- Handle the tooth carefully. Avoid touching the root of the tooth (the part of the tooth that was embedded in the gum) because it can be damaged easily. Primary (baby) teeth should not be reimplanted.

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4.3 Musculoskeletal Injuries – Adult & Pediatric

EMT STANDING ORDERS

E

- Routine Patient Care.
- Manually stabilize the injury.
- For open fractures, control bleeding and treat for shock. See Tourniquet Protocol 6.6, Shock Protocol – Adult 2.20A or Shock Protocol – Pediatric 2.20P. Remove obvious debris, irrigate open wounds with saline solution, and cover with moist sterile dressing.
- For angulated fractures with circulatory compromise, attempt to reposition to anatomical position of function. In absence of circulatory compromise, splint in position of comfort.
- Assess CSMs distal to injury before and frequently after immobilization.
  - Splint extremity as required.
  - Traction splinting is preferred technique for isolated adult and pediatric mid-shaft femur fractures.
- In a patient with a high risk mechanism of injury, immobilize and see Advanced Spinal Assessment Protocol 6.0.
- Stabilize suspected pelvic fractures with commercial device (preferred) or bed sheet.
  - It is preferable to use a scoop stretcher rather than to log-roll a patient with a suspected pelvic fracture.
- Amputations should be dressed with bulky dressings. The amputated part should be placed in a plastic bag and transported on ice to hospital with patient.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept. Minimize scene time.

ADVANCED EMT STANDING ORDERS

A

- Establish IV access.
- For significant injury, consider administration of 0.9% NaCl 500 mL bolus IV for adults; 20 mL/kg for **pediatric**.

PARAMEDIC STANDING ORDERS

P

- Assess pain level and consider pain control measures, see Pain Management Protocol – Adult 2.16A or Pain Management Protocol – Adult 2.16A.

PEARLS:

- Use ample padding for long and short spinal immobilization devices. Use ample padding when splinting possible fractures, dislocations, sprains, and strains. Remove and secure all jewelry. 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.
- Do not manipulate pelvis once fracture is suspected. Repeated manipulation can increase internal hemorrhage.

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Rhabdomyolysis/Crush Injury – Adult & Pediatric

4.4

EMT STANDING ORDERS

E

- Routine Patient Care.
- Immobilize patient if indicated.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Establish IV/IO access. Do not delay transportation to initiate IV/IO access, however if patient is entrapped it is preferable that IV/IO access be initiated and fluid bolus of 1,000 – 2,000 mL 0.9% NaCl (20 mL/kg 0.9% NaCl **pediatric**) be administered prior to extrication.

PARAMEDIC STANDING ORDERS

P

- Contact Medical Control to consider sodium bicarbonate (1 mEQ/kg adult and **pediatric**) for extended entrapment or transport times. This is used to prevent long-term renal damage. Fluid bolus is the most immediate and effective treatment in the prehospital environment.
- Assess pain level. Consider pain control measures. See Pain Management Protocol – Adult 2.16A or Pain Management Protocol – Pediatric 2.16P.

PEARLS:
Rhabdomyolysis is caused by any condition that damages skeletal muscle, particularly injury. Risk factors can include ETOH withdrawal (with delerium tremens), compartment syndrome, crush injury, stimulant and depressant drugs, certain genetic muscle diseases, heat emergencies, DVT, seizures, severe exertion (long-distance racing or similar), trauma and prolonged periods of down-time in individuals with altered mental status.

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4.5 Thoracic and Abdominal Injuries Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E

- Routine Patient Care.
- If in shock, see Shock Protocol – Adult 2.20A or Shock Protocol – Pediatric 2.20P.
- Impaled objects:
  - Do not attempt to remove an impaled object; instead, stabilize it with a bulky dressing or other means. If the impaled object is very large or unwieldy, attempt to cut object to no less than 6 inches from the patient.
- Open chest wound/penetrating injuries to chest or upper back:
  - Cover with an occlusive dressing and seal on 3 sides, or use a commercial device. If the patient's condition deteriorates, remove the dressing momentarily, then reapply. Monitor for tension pneumothorax.
- Flail segment with paradoxical movement and in respiratory distress:
  - Consider positive-pressure ventilation for severe distress.
  - Apply **no** weight to flail segment. Do not splint the chest.
- Abdominal penetrating injuries
  - Apply an occlusive dressing.
  - For evisceration, cover the organs with a saline-soaked sterile dressing and then cover it with an occlusive dressing. Do not attempt to put the organs back into the abdomen.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.
- Minimize scene time.

ADVANCED EMT STANDING ORDERS

A

- Establish IV/IO access.
- Administer fluid bolus 500 mL 0.9% NaCl IV/IO.

PARAMEDIC STANDING ORDERS

P

- Consider pain management, see Pain Management Protocol – Adult 2.16A or Pain Management Protocol – Pediatric 2.16P.
- In presence of tension pneumothorax, perform needle decompression on the affected side.
- For massive flail chest with severe respiratory compromise, consider endotracheal intubation and then assist ventilations.
- For traumatic asphyxia, support ventilations with BVM, establish two large bore IVs and infuse at least 1,000 mL 0.9% NaCl before or immediately after removal of compressive force.

SIGNS AND SYMPTOMS OF TENSION PNEUMOTHORAX:

- Increasing respiratory distress or hypoxia, AND
- Increasing signs of shock including tachycardia or hypotension AND one or more of the following:
  - Diminished or absent unilateral breath sounds
  - JVD (neck vein distension)
  - Possible tracheal deviation above the sternal notch away from the side of the injury (late sign)
  - Tympany (hyperresonance) to percussion on the affected side

PEARLS:

- Open chest wounds occur when the chest wall is penetrated by some object or the broken end of a fractured rib.
- Chest pain due to blunt trauma may be an indication of underlying injury.
- Blunt injuries such as pulmonary contusion and cardiac contusion may cause respiratory insufficiency and/or myocardial infarction. Acquire and transmit 12-lead ECG, if available.

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Traumatic Brain Injury – Adult & Pediatric

4.6

EMT STANDING ORDERS

E

- Routine Patient Care. Immobilize patient; see Advanced Spinal Assessment Protocol 6.0.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO_2 >94%.
  - **Adult:** 10 breaths per minute.
  - **Child:** 12 - 20 breaths per minute.
  - **Infant:** 20 - 30 breaths per minute.
- Hyperventilation is rarely necessary in patients with head injury and can be harmful when used inappropriately. Do not hyperventilate unless two or more clear signs of cerebral herniation are present:
  - Extensor posturing, or no 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.
- When signs of cerebral herniation are present, hyperventilate at the following rates:
  - **Adult:** 20 breaths per minute.
  - **Child:** 25 breaths per minute.
  - **Infant:** 30 breaths per minute.
  - Discontinue hyperventilation when signs/symptoms improve.
- Assess and document pupillary response and Glasgow Coma Scale every 5 min.
- If the patient is not hypotensive (systolic BP >100 mmHg), elevate the head of the backboard 12 to 18 inches, if possible.
- Check blood glucose; if hypoglycemic, see Diabetic Emergencies (Hypoglycemia/ Hyperglycemia) Protocol – Adult 2.7A or Diabetic Emergencies (Hypoglycemia/ Hyperglycemia) Protocol – Pediatric 2.7P.
- Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT STANDING ORDERS

A

- Maintain systolic BP:
  - **Adult:** >90 mmHg.
  - **Child:** 1 – 16 years: a minimum of 90mmHg.
  - **Infant:** <1 year: 65 – 90mmHg.
- Establish IV access.
- If hypotensive, administer:
  - **Adult:** Fluid bolus 500 mL 0.9% NS IV. See Shock Protocol – Adult 2.20A.
  - **Child and Infant:** Fluid bolus 20 mL/kg 0.9% NS IV. See Shock Protocol - Pediatric 2.20P.
- Administer 20 mL/kg 0.9% NS IV fluid bolus 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. See Shock Protocol – Pediatric 2.20P.
- If quantitative waveform capnography is available:
  - Ventilate to maintain a quantitative waveform capnography of 35-40 mmHg.
  - If signs of cerebral herniation are present maintain quantitative waveform capnography of 30-35 mmHg.
  - Discontinue hyperventilation when signs/symptoms improve.

Protocol Continues

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Traumatic Brain Injury – Adult & Pediatric

Protocol Continued

P

PARAMEDIC STANDING ORDERS -- ADULT

- Consider intubation if GCS is <8 and unable to maintain airway with BVM.
  - If intubation is required, consider lidocaine 1.5 mg/kg IV prior to intubation to blunt rise in ICP. (Administer approximately 3 minutes prior to intubation.)
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 2. 5mg IV/intranasal, may repeat once in 5 minutes; or 5 mg IM, may repeat once in 10 minutes, **OR**
  - Lorazepam 1 mg IV, may repeat once in 5 minutes; or 2 mg IM, may repeat once in 10 minutes, **OR**
  - Diazepam 2 mg IV, may repeat once in 5 minutes.
- For seizures, refer to Seizure Protocol – Adult 2.18A.

PARAMEDIC STANDING ORDERS -- PEDIATRIC

- If intubation is required, consider lidocaine 1.5 mg/kg IV prior to intubation.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 0.05 mg/kg IV/IM or 0.1mg/kg intranasal (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV/IM (maximum dose 1 mg), may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg), may repeat once in 5 minutes.
- For seizures, refer to Seizure Protocol – Pediatric 2.18P.

Most patients with severe head injury retain airway reflexes. Rapid transport to hospital without intubation is appropriate when possible.

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.
- Both hypoxia and hyperoxia (too little or too much oxygen) have been associated with increased mortality and worse discharge GCS scores in TBI (traumatic brain injury) patients.
- Hyperventilation causes a decrease in the cerebral blood flow by vasoconstriction as a result of decreased levels of C02 (which is a vasodilator).
- Hyperventilation should only be used for short periods of time when immediate control of increased ICP is necessary.

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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-occipital movement (such as in suspected c-spine injury), obesity or evidence of obstruction (such as drooling or stridor) may be difficult to intubate.

DEVISE A PLAN

1. Each patient will present unique challenges to airway management. Therefore, before any intervention is attempted, the provider should contemplate a plan of action that addresses the needs of the patient, and anticipates complications and how to manage them.

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.

Procedure Continues

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Procedure Continued

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 (contraindicated in head or facial trauma)
- Oral airway
- Suction
- Removal of foreign body.

Provide ventilation with a bag-valve-mask (BVM). Proper use of the BVM includes appropriate mask selection and positioning 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, when possible.

ADVANCED AIRWAY SKILLS

Only after basic procedures are deemed inappropriate or have proven to be inadequate should more advanced methods be used. Procedures documenting the use of each device/technique listed below are found elsewhere in this manual.

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.

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.

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

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

Procedure Continues

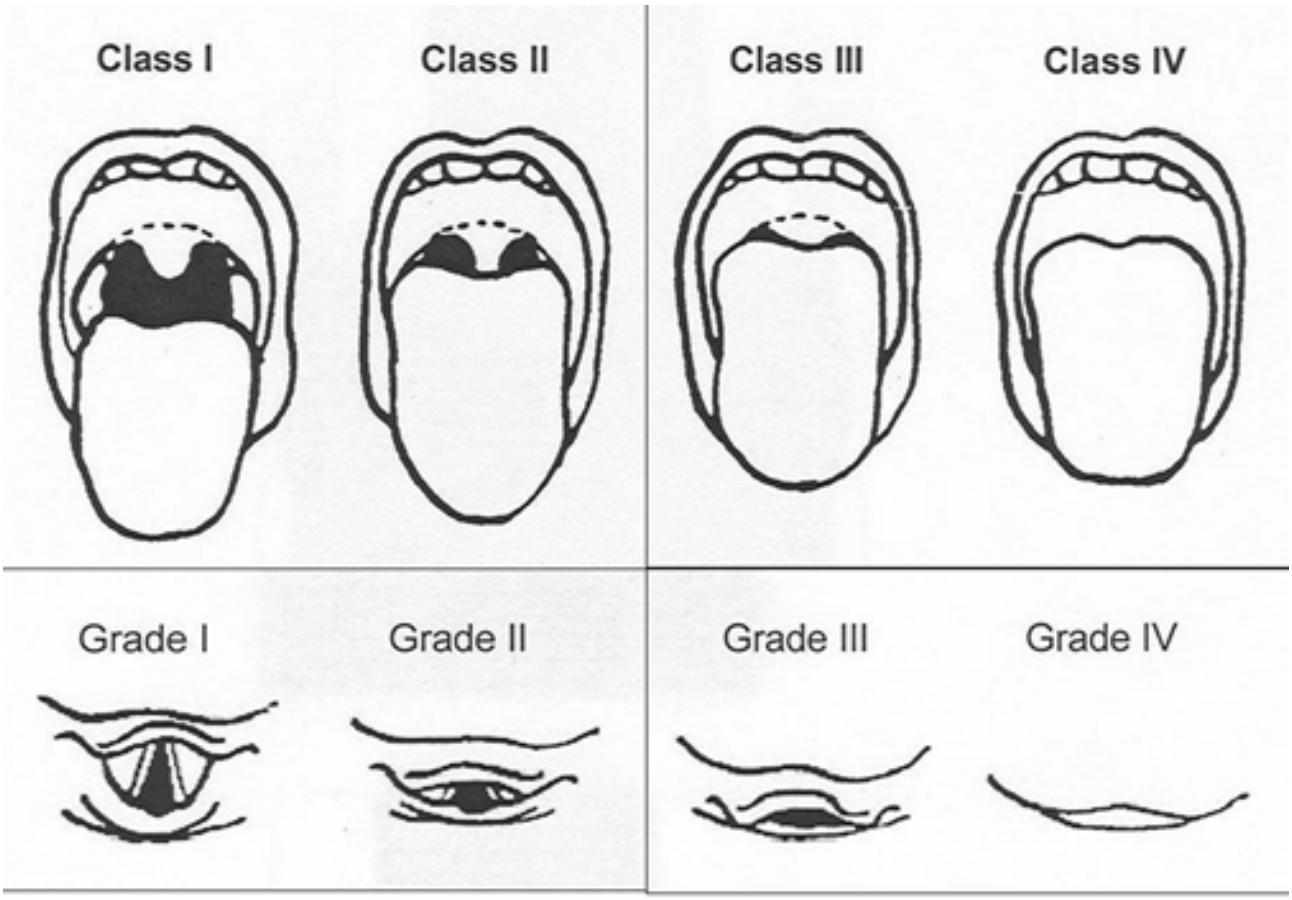
Procedure Continued

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, symmetrical chest wall rise, and quantitative waveform capnography, if available.

Classifications for Oropharyngeal and Laryngoscopy Views



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5.1A Airway Management – Adult

E

EMT STANDING ORDERS

- Routine Patient Care.
- Establish airway patency.
  - Open and maintain the airway.
  - Suctioning as needed.
  - Clear foreign body obstructions.
- Administer oxygen to maintain oxygen saturation ≥ 94%.
- Consider inserting an oropharyngeal or nasopharyngeal airway adjunct.
- If patient has a tracheostomy tube, follow the procedure for Tracheostomy Care Procedure – Adult & Pediatric 5.13.
- For apnea or hypoventilation and decreased level of consciousness with possible narcotic overdose, administer naloxone. See Poisoning/Substance Abuse/Overdose Protocol – Adult 2.17A.
- Assist ventilations with a bag-valve-mask device and supplemental oxygen as needed.

A

ADVANCED EMT STANDING ORDERS

- For adults in cardiac arrest: consider insertion of a supraglottic airway such as a King LT, Combitube or LMA. See procedures for King LT 5.7, Combitube 5.3, and LMA 5.8.
- For adults in severe respiratory distress secondary to pulmonary edema, COPD, asthma, pneumonia, near drowning or undifferentiated respiratory distress, consider use of CPAP. See CPAP Procedure 5.4.

P

PARAMEDIC STANDING ORDERS

- For impending respiratory failure with intact gag reflex or trismus: consider nasotracheal intubation. See Nasotracheal Intubation Procedure 5.9).
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider orotracheal intubation or supraglottic airway device. See Orotracheal Intubation 5.10, King LT 5.7, Combitube 5.3 and LMA 5.8).
- For adults with 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 7.1).
  - **Note: This procedure is only to be used by paramedics who are trained and credentialed to perform RSI in accordance with local Medical Direction policy and actively enrolled in an approved Vermont EMS RSI Program.**

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Airway Management – Pediatric 5.1P

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Routine Patient Care.
- Establish airway patency.
  - Open and maintain airway.
  - Suction as needed.
  - Clear foreign body obstructions.
  - Consider inserting an oropharyngeal or nasopharyngeal airway adjunct.
- Administer oxygen to maintain oxygen saturation ≥ 94%.
- If patient has a tracheostomy tube see Tracheostomy Care Procedure – Adult & Pediatric 5.13.
- For respiratory distress:
  - Administer high concentration oxygen (preferably humidified) via mask positioned on face or if child resists, held near face.
  - Attempt to keep oxygen saturation ≥ 94%; increase the oxygen rate with caution and observe for fatigue, decreased mentation, and respiratory failure.
  - For children with chronic lung disease or congenital heart disease, ask caregivers about patient's history, including home oxygen level or patient's target oxygen saturation. Maintain target saturation, and contact **Medical Control** to discuss oxygenation and appropriate destination.
    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 with BVM 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 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 – Pediatric 2.2P.
  - For Asthma/Reactive Airway Disease/Croup, refer to the Asthma/Croup/RAD Protocol – Pediatric 2.5P.

PARAMEDIC STANDING ORDERS

P

- Consider an advanced airway if airway cannot be maintained through positioning.
- For apnea/respiratory failure or impending respiratory failure with impaired or absent gag reflex: consider orotracheal intubation or supraglottic airway device. See Orotracheal Intubation 5.10, King LT 5.7 and LMA 5.8).

RESPIRATORY DISTRESS:

- Alert, irritable, anxious
- Stridor
- Audible wheezing/grunting
- Respiratory rate outside normal range for child's age
- Sniffing position
- Nasal flaring
- Head bobbing
- Neck muscle use
- Intercostal retractions
- Central cyanosis that resolves with oxygen administration
- Mild tachycardia

RESPIRATORY FAILURE:

- Sleepy, intermittently combative or agitated
- Respiratory rate < 10 breaths per minute
- Absent or shallow respirations with poor air movement
- Severe intercostal retractions
- Paradoxical breathing
- Limp muscle tone
- Inability to sit up
- Cyanosis and/or mottled skin
- Bradycardia

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5.2 Automated Transport Ventilator

E/A/P

EMT/ADVANCED EMT STANDING ORDERS

INDICATIONS

- Resuscitative efforts:
  - Can only adjust rate, tidal volume, and adult vs. child setting if applicable.
- Any patient requiring ventilatory assistance in conjunction with advanced airway adjuncts.
- Any patient requiring ventilatory assistance in conjunction with basic airway maintenance.
- Any patient requiring ventilatory assistance in conjunction with manual airway maintenance.

CONTRAINDICATIONS

- Airway obstruction
- Resistance
- Poor lung compliance
- Pneumothorax – tension pneumothorax
- Pulmonary over-pressurization (blast injury, water ascent injury, etc.)
- Children less than 5 years of age or 16 kg (35 lbs) Check manufacturer's recommendations.

PROCEDURES

1. Determine that a need for the use of the automated transport ventilator (ATV) exists. Follow manufacturer's instructions for the device.
2. Assure that all tubing is free from kinks.
3. Determine the proper tidal volume setting. This is done by determining the patient's ideal weight (approx. weight for any physically fit patient having the same sex, height, frame) and multiplying it by 6-8 mL/kg. Begin with the lowest tidal volume limit.

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

Procedure Continues

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Procedure Continues

EMT/ADVANCED EMT STANDING ORDERS

E/A/P

PROCEDURES (continued)

4. Set Breaths per Minute (BPM) control to rate of 8-15 per minute.
5. Check alarm by occluding the patient valve assembly outlet. The audible pressure limit alarm should sound as the ventilator cycles through the delivery phase.
6. Assess lung compliance and chest rise with a bag valve device. Tidal volume may be adjusted lower if poor lung compliance is found.
7. Attach the patient valve assembly to the airway device or mask used on the patient.
8. Assess the ventilation. Listen for bilateral lung sounds. Observe for proper chest rise. Chest rise should be symmetrical and patient condition should improve.
9. Count the number of complete ventilator cycles for a full minute. The number should be the same as the setting (+/-1).
10. Assess and manage the airway as you normally would for any patient with controlled ventilation.
11. If spontaneous breathing begins, it may be desirable to turn the BPM down as long as patient's spontaneous rate is 10-12 per minute.
12. Check oxygen cylinder pressure level frequently. This device will deplete a "D" cylinder rapidly.

SPECIAL CONSIDERATIONS

- Due to COPD, chest rise may not appear full Do not increase tidal volume (TV) past upper TV limit.
- If lung sounds are absent or on one side only: rule out airway obstruction, improper tube placement, or pneumothorax, and check tidal volume ml/bpm settings.
- If chest expansion is not adequate, the rescuer should slowly increase tidal volume until chest expansion is adequate, or the uppermost limit (for the patient's ideal weight) is reached.
- If chest appears to over expand, decrease tidal volume.

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5.3 Combitube

ADVANCED EMT STANDING ORDERS – ADULT IN CARDIAC ARREST ONLY

PARAMEDIC STANDING ORDERS – ADULT

A/P

Airway Procedure 5.3

INDICATIONS

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

CONTRAINDICATIONS

- Intact gag reflex
- Severe maxillofacial or oropharyngeal trauma.
- Patient less than 4 feet tall
- Allergy or sensitivity to latex (the pharyngeal balloon contains latex)

RELATIVE CONTRAINDICATIONS

- Known esophageal disease (e.g. cancer).
- Ingestion of a caustic substance.
- Burns involving the airway.

PROCEDURE

1. Choose correct size:
   - Standard Combitube: patient must be at least 5 feet tall.
   - Combitube SA(small adult): patient 4 feet to 5 1/2 feet tall.
2. Prepare Combitube
   - Test balloons
     - Proximal pharyngeal cuff (blue pilot balloon) – 100 mL
     - Distal esophageal cuff (white pilot balloon) – 15 mL
   - Lubricate device with water-soluble lubricant.
3. Preoxygenate and hyperventilate the patient, if time permits.
4. Grasp the patient's tongue and jaw with your gloved hand and pull anterior.
5. Gently insert the tube until the teeth (or gums) are between the printed rings.
6. Inflate cuff #1 (blue pilot balloon) with 100 mL of air.
7. Inflate cuff #2 (white pilot balloon) with 15 mL of air.
8. Ventilate taller blue tube (#1) with bag valve mask.
9. Auscultate for breath sounds and sounds over the epigastrium. Look for rise and fall of chest.
   - If breath sounds are present and epigastric sounds are absent, continue to ventilate through the blue tube. The tube is properly positioned in the esophagus. **Paramedic only:** In the case above you can aspirate stomach contents through the #2 white tube to relieve some gastric distention.
   - If breath sounds are absent and epigastric sounds are present, attempt to ventilate through the shorter white (#2) tube and assess for breath sounds and epigastric sounds. If breath sounds are present and epigastric sounds are absent, continue to ventilate through the white tube (#2); you have placed the tube in the trachea.
10. In addition to step #9, confirm appropriate placement with quantitative/waveform capnography if available.
11. Secure the airway with a commercial device. Apply a cervical collar.
12. Reassess tube placement frequently, especially after movement of the patient.
13. 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.

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Continuous Positive Airway Pressure (CPAP) 5.4

ADVANCED EMT STANDING ORDERS – ADULT

A

INDICATIONS

- Spontaneously breathing patient in moderate to severe respiratory distress due to congestive heart failure/pulmonary edema, asthma/COPD, pneumonia, submersion injury or Undifferentiated Respiratory Distress, concurrent with the following signs and symptoms:
  - Oxygen saturation < 94%
  - Respiratory rate > 25
  - Retractions or accessory muscle use

CONTRAINDICATIONS

- Cardiac or respiratory arrest/apnea
- Unable to follow commands
- Unable to maintain their own airway
- Agitated or combative behavior and unable to tolerate mask
- Vomiting and/or active GI bleed
- Respiratory distress secondary to trauma
- Suspicion of pneumothorax
- Facial trauma or impossible face seal
- Hypotension with SBP < 100 mmHg

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 and nasal capture device.
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 pressure to 5-10 cm H_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 vital signs and symptoms, pulse oximetry and quantitative waveform capnography.
10. If patient improves, 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 MEDICAL CONTROL ORDERS

P

- Consider administering anxiolytic. **Contact Medical Control for authorization.**
  - Midazolam 2.5 mg IV/intranasal, 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.

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5.5 Foreign-Body Obstruction

EMT/ADVAMCED EMT STANDING ORDERS

E/A

INDICATIONS

- Sudden onset of respiratory distress often with coughing, wheezing, gagging or stridor due to a foreign-body obstruction of the upper airway.

PROCEDURE

- Routine Patient Care
  - Assess the degree of foreign body obstruction.
  - Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
  - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign.
- **For an infant:** Deliver 5 back blows followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
- **For a child**: Perform subdiaphragmatic abdominal thrusts (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.

- **For adults:** A combination of maneuvers may be required,
  - First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
  - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in the patients who are in the late stages of pregnancy.
- If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove.
- **Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.**

PARAMEDIC STANDING ORDERS

P

- In unresponsive patients, visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.
- If unable to remove object, or if obstruction is secondary to trauma or edema, or if uncontrollable bleeding into the airway causes life-threatening ventilation impairment, perform endotracheal intubation. See Orotracheal Intubation Protocol 5.10.
- Consider forced right mainstem intubation (with pullback) to allow for ventilation of left lung in the extreme event of lower tracheal foreign body obstruction and inability to ventilate.
- If unable to intubate and the patient cannot be adequately ventilated by other means, perform percutaneous cricothyrotomy. See Percutaneous Cricothyrotomy Protocol 5.11.

PEARLS

If air exchange is adequate with a partial airway obstruction, do not interfere; instead, encourage the patient to cough up the obstruction. Continue to monitor the patient for adequacy of air exchange. If air exchange becomes inadequate, continue with the protocol.

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Gum Elastic Bougie/Flexguide 5.6

PARAMEDIC STANDING ORDERS – ADULT

P

INDICATIONS

- Unable to fully visualize vocal cords during an intubation attempt.

CONTRAINDICATIONS

- Use of a 6.0 or smaller ETT.

PROCEDURE

1. Lubricate Bougie with water-based lubricant.
2. Using a laryngoscope (Macintosh or Miller blade) and standard ETT 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 Orotracheal Intubation Protocol 5.10 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.

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5.7 King – LT

ADVANCED EMT STANDING ORDERS – ADULT IN CARDIAC ARREST ONLY
PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

INDICATIONS

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

CONTRAINDICATIONS

- Intact gag reflex.
- Severe maxillofacial or oropharyngeal trauma.

RELATIVE CONTRAINDICATIONS

- Ingestion of a caustic substance.
- Burns involving the airway.
- Known esophageal disease (e.g. cancer).

PROCEDURE

1. Choose correct size:

Size	Color	Height	Cuff Volume (mL)
2	Green	35 - 45 inches	30
2.5	Orange	45 - 51 inches	35
3	Yellow	4 - 5 feet	50
4	Red	5 -6 feet	70
5	Purple	6+ feet	80

2. Prepare King LT (refer to manufacturer's guidelines for use)
   Test cuffs for leaks (see volume above).
   Lubricate device with water soluble lubricant.
3. Pre-oxygenate and ventilate the patient, if time permits.
4. Grasp the patient's tongue and jaw with your gloved hand and pull forward.
5. With the King LT rotated laterally at 45 – 90 degrees such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue.
6. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin.)
7. Advance tube until base of connector is aligned with teeth or gums.
8. Inflate cuffs to appropriate volume as listed above.
9. Connect the King LT to a bag-valve device
10. While ventilating the patient, gently withdraw the tube until ventilation becomes easy and free flowing.
11. Adjust cuff inflation if necessary to obtain a seal of the airway at the peak ventilatory pressure employed.
12. Confirm appropriate placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with bagging, and quantitative waveform capnography if available.
13. Secure the device.
14. Reassess tube placement frequently, especially after movement of the patient.
15. 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.

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Laryngeal Mask Airway (LMA) 5.8

ADVANCED EMT STANDING ORDERS – ADULT IN CARDIAC ARREST ONLY

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

A/P

INDICATIONS

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

CONTRAINDICATIONS

- Intact gag reflex.
- Severe maxillofacial or oropharyngeal trauma.
- Pregnancy > 14 weeks.
- Pulmonary Fibrosis.
- Active vomiting.

RELATIVE CONTRAINDICATIONS

- Known esophageal disease (e.g. cancer).
- Ingestion of a caustic substance.
- Burns involving the airway.
- Morbid obesity.

PROCEDURE

1. Choose correct size: (Advanced EMT— Adult ONLY)

Mask	Patient Size	Cuff Volume
1	Neonate/Infants up to 5 kg	Up to 4 mL
1.5	Infants 5 – 10 kg	Up to 7 mL
2	Infants/Children 10 – 20 kg	Up to 10 mL
2.5	Children 20 – 30 kg	Up to 14 mL
3	Children 30 – 50 kg	Up to 20 mL
4	Adults 50 – 70 kg	Up to 30 mL
5	Adults 70 – 100 kg	Up to 40 mL
6	Large Adults over 100 kg	Up to 50 mL

2. Check cuff for proper inflation/deflation and leaks.
3. Lubricate the back of the mask with a water-soluble jelly.
4. Pre-oxygenate the patient.
5. Insert the LMA into the hypopharynx until resistance is met. Inflate the cuff until a seal is obtained.
   (Note: This airway does not prevent aspiration of stomach contents.)
6. Connect the LMA to a bag-valve device and ventilate the patient.
7. Confirm appropriate placement by symmetrical chest-wall rise, auscultation of equal breath sounds over the chest, and a lack of epigastric sounds with ventilation using bag-valve-mask, and quantitative waveform capnography, if available.
8. Secure the device.
9. Reassess tube placement frequently, especially after movement of the patient.
10. 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.

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5.9 Nasotracheal Intubation

PARAMEDIC STANDING ORDERS – ADULT

P

INDICATIONS

- Impending respiratory failure with intact gag reflex, or jaw is clenched and unable to be opened in spontaneously breathing patient.

CONTRAINDICATIONS

- Apnea.
- Nasal obstruction.
- Suspected basilar skull fracture.
- Severe facial trauma or suspected facial fractures.
- Patient fits on a pediatric length-based resuscitation tape.

PROCEDURE

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

Procedure Continues

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Procedure Continued

PARAMEDIC STANDING ORDERS

P

13. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.

14. Document each attempt as a separate procedure in SIREN. **An attempt is defined as placement of the tube into the patient's nostril**. For each attempt, document the time, provider, placement success, pre-oxygenation, ETT size, placement depth, placement landmark (e.g. cm at the nare), and confirmation of tube placement including chest rise, bilateral, equal breath sounds, absence of epigastric sounds and end-tidal CO_2 readings.

Sedation is not usually necessary following nasotracheal intubation.

POST INTUBATION CARE

Sedation:

- Midazolam 2.5 – 5 mg IV, every 5 – 10 minutes as needed (maximum 20 mg), **OR**
- Lorazepam 1 – 2 mg IV every 15 minutes as needed for sedation (maximum 10 mg) **AND**
- Fentanyl 50 – 100 mcg slow IV push. May repeat every 15 minutes as needed for sedation (maximum 300 mcg).

Contact **Medical Control** for additional dosing.

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5.10 Orotracheal Intubation

P

PARAMEDIC STANDING ORDERS – ADULT & PEDIATRIC

INDICATIONS

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

CONTRAINDICATION

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

CAUTIONS

- Pediatric patients should, at least initially, be managed with BVM.
- Patients with CHF should be managed with trial of CPAP if possible.
- Avoid intubating patients with severe TBI and asthmatics, if possible.

PROCEDURE

1. Prepare all equipment and have suction ready.
2. Pre-oxygenate the patient.
3. Assess for airway difficulty based on patient anatomy (e.g., short neck, obesity, decreased thyromental distance and Class III or IV oropharyngeal views on observation). Have fallback plan and equipment ready.
4. Open the patient's airway. While holding the laryngoscope in the left hand, insert the blade into the right side of the patient's mouth, sweeping the tongue to the left.
5. Use the blade to lift the tongue and the epiglottis, either directly with the straight (Miller) blade, or indirectly with the curved (Macintosh) blade.
6. Once the glottic opening is visualized, insert the tube through the vocal cords and continue to visualize while passing the cuff through the cords.
7. Remove the laryngoscope and then the stylet from the ETT.
8. Inflate the cuff with 5 – 10 mL of air.
9. Confirm appropriate proper placement with quantitative waveform capnography and also document symmetrical chest-wall rise, auscultation of equal breath sounds over the chest and a lack of epigastric sounds with ventilations using bag-valve-mask
10. 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
11. Reassess tube placement frequently, especially after movement of the patient.
12. Ongoing monitoring of ETT placement and ventilation status using waveform capnography is required for all patients.
13. Document each attempt 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.

Procedure Continues

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Procedure 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 for cardiac arrest) or BVM ventilation is not adequate, consider placing a supraglottic airway.

POST INTUBATION CARE

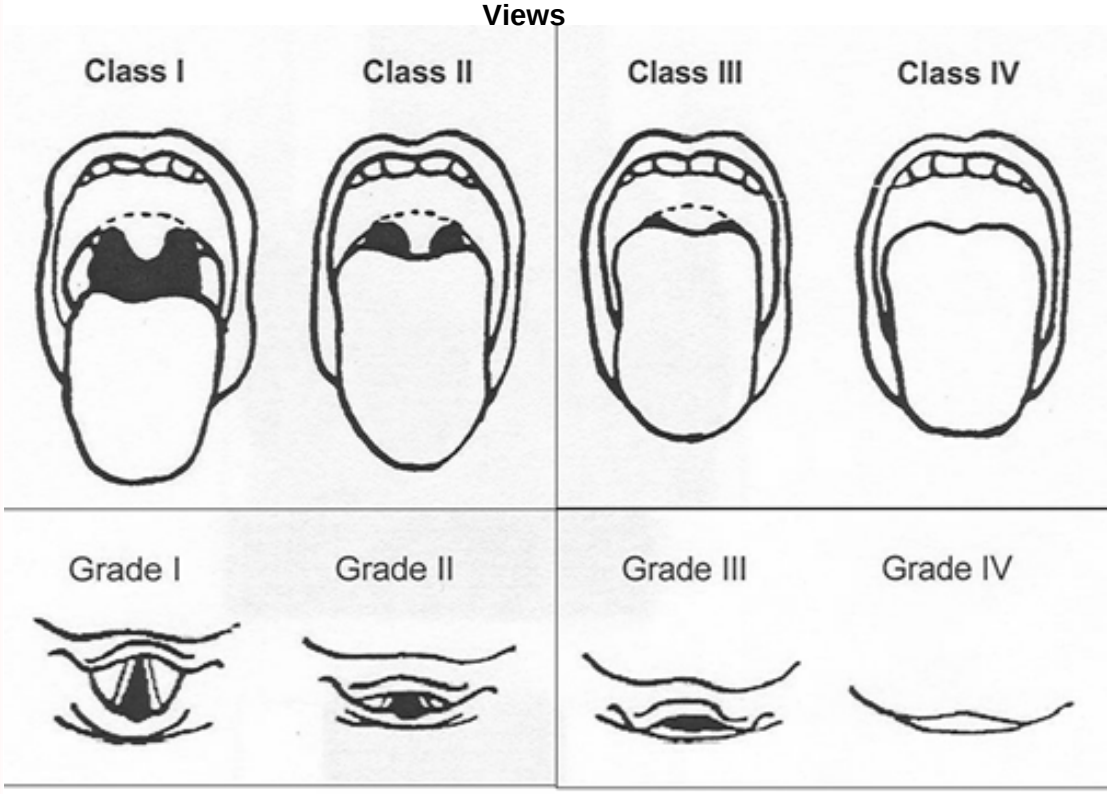
Sedation:

- Midazolam 2.5 – 5 mg IV, every 5 – 10 minutes as needed (maximum 20 mg), **OR**
- Lorazepam 1 – 2 mg IV, may repeat every 15 minutes as needed for sedation (maximum 10 mg) **AND**
- Fentanyl 50 – 100 mcg, slow IV push. May repeat every 15 minutes as needed for sedation (maximum 300 mcg).

Contact **Medical Control** for additional dosing.

Video-Laryngoscope: May be used instead of manual laryngoscope with appropriate training and credentialing. Video-laryngoscopy has been shown to have better success rates than manual laryngoscopy.

Classifications of Oropharyngeal and Laryngoscopy Views



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5.11 Percutaneous Cricothyrotomy

PARAMEDIC STANDING ORDERS

P

INDICATIONS

- Failed airway: Viable patient whose airway cannot be successfully managed by any other means.
  - All other methods have been exhausted including BVM, blind airway device, and intubation attempts;
  - Massive mid-face trauma precluding use of BVM, obstruction, trismus (clenching);
  - Inability to control the airway using less invasive measures;
  - Age > 10;
  - Last Resort: All other airway management techniques have failed. Unable to ventilate or oxygenate patient.

PROCEDURE

1. Can use Rusch QuickTrach or other approved device.
2. Pre-oxygenate patient when possible.
3. Assemble all available additional personnel
4. Locate cricothyroid membrane at the inferior portion of the thyroid cartilage (with head in neutral position, membrane is approximately 3 finger widths above the sternal notch). May be difficult to locate in obese patients.
5. Hold skin taunt over membrane and locate the midline.
6. Prep area, preferably with betadine.
7. Hold the needle bevel up at a 90-degree angle, aimed inferiorly as you approach the skin.
8. Puncture the skin with the needle and continue with firm, steady pressure while aspirating for air with the syringe.
9. As soon as air is aspirated freely, stop advancing the needle/airway assembly.
10. Modify the angle to 60 degrees from the head and advance to level of the stopper.
11. Remove the stopper while holding the needle/airway assembly firmly in place.
12. Do not advance the needle further. (NOTE: if the patient is obese and no air can be aspirated with the stopper in place, you may remove the stopper and continue advancing until air is aspirated. Be aware that without the stopper, risk of perforating the posterior aspect of the trachea is greatly increased.)
13. Hold the needle and syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
14. Secure the cannula with the neck strap.
15. Apply the $EtCO_2$ detector, then the connecting tube to the $EtCO_2$ detector and connect the other end to the BVM.
16. Confirm placement with the use of breath sounds, pulse ox, $EtCO_2$ and waveform capnography.
17. Ensure 100% FiO_2 to BVM via supplemental 0_2.

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Suctioning of Inserted Airway 5.12

ADVANCED EMT/PARAMEDIC STANDING ORDERS

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 tracheostomy tube.

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 to proper depth so that suction catheter does not extend past the tube/ device.
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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5.13 Tracheostomy Care – Adult & Pediatric

EMT/ADVANCED EMT STANDING ORDERS

E/A

INDICATIONS

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

PROCEDURE

1. Consult with the patient's caregivers for assistance.
2. Assess tracheostomy tube. Look for possible causes of distress (DOPES) which may be easily correctable, such as a detached oxygen source.
3. 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.
4. If patient's breathing is inadequate, assist ventilations using bag-valve-mask device with high-flow oxygen.
5. 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.
6. Suction if unable to ventilate via tracheostomy or if respiratory distress continues.
7. Use no more than 100 mmHg suction pressure.
8. If the tracheostomy tube has a cannula, remove it prior to suctioning.
9. Determine proper suction catheter length by measuring the obturator.
10. If the obturator is unavailable, insert the suction catheter approximately 2 – 3 inches into the tracheostomy tube. **Do not use force!**
11. 2 – 3 mL saline flush may be used to help loosen secretions.
12. 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

P

INDICATIONS

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

CONTRAINDICATIONS

- None.

PROCEDURE

1. If the patient continues in severe respiratory distress, remove tracheostomy tube and attempt bag valve mask ventilation.
2. 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).
3. 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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6.0 Advanced Spinal Assessment

Medical Procedure 6.0

E/A/P

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

PURPOSE: The intent of this protocol is to decrease injury and discomfort to patients caused by unnecessary spinal immobilization while ensuring that no spinal injuries are missed. It will assist in the identification of patients who require spinal immobilization. Determination that immobilization devices should be used should be made by the highest level EMS provider. All steps of spinal assessment algorithm below must be documented in the ePCR.

All patients that have a mechanism of injury that could cause a spinal injury, including high risk or questionable injury mechanisms, should have a spinal assessment.

Spinal Assessment: Spinal immobilization is required when ANY of the following conditions apply:

- Unstable vital signs or abnormal peripheral perfusion.
- Unreliable patient:
  - Age less than 9 years.
  - Anxious and uncooperative.
  - Communication barriers (e.g., deafness, hard of hearing, language, understanding).
  - Altered mental status (not alert and oriented x 3).
  - Evidence of alcohol or drug intoxication.
  - Distracted by circumstances or injuries to self or others (ie, any other injury capable of producing significant pain in this patient).
- Any abnormal neurological function in extremities:
  - Numbness or tingling (paresthesia).
  - Motor strength not full and symmetrical.
  - Sensation not intact and symmetrical.
- Midline tenderness on palpation:
  - Explain to the patient the actions that you are going to take. Ask the patient to immediately report any pain, and to answer questions with a “yes” or “no” rather than shaking the head.
  - With the patient’s spine supported to limit movement, begin palpation at the base of the skull at the midline of the spine.
  - Palpate the vertebrae individually from the base of the skull to the bottom of the sacrum.
  - On palpation of each vertebral body, look for evidence of pain and ask the patient if they are experiencing pain. If evidence of pain along the spinal column is encountered, the patient should be immobilized.
- Pain with movement of neck (cervical flexion, extension and rotation).
  - If the capable patient is found to be pain free, ask the patient to turn their head first to one side (so that the chin is pointing toward the shoulder on the same side as the head is rotating) then, if pain free, to the other. If there is evidence of pain the patient should be immobilized.
  - With the head rotated back to its normal position, ask the patient to flex and extend their neck. If there is evidence of pain, the patient should be immobilized. **Do not assist patient in attempts to rotate neck**.

High risk mechanisms include:

- Motor vehicle crash >60 mph, rollover, ejection. Simple low-speed, rear-end MVC can usually be excluded. (Simple low-speed collision does not include: Being pushed into oncoming traffic, being hit by a bus or large truck, rollover, or being hit by a high-speed vehicle.)
- Falls >3 feet/5 stairs. Patients >65 years or with a high-risk history such as osteoporosis should be given extra consideration, including falls from standing.
- Axial load to head/neck (e.g., diving accident, heavy object falling onto head, contact sports).
- Significant injury or mechanism of injury above the clavicle.
- Injuries involving motorized recreational vehicles.
- Bicycle or pedestrian struck/collision.

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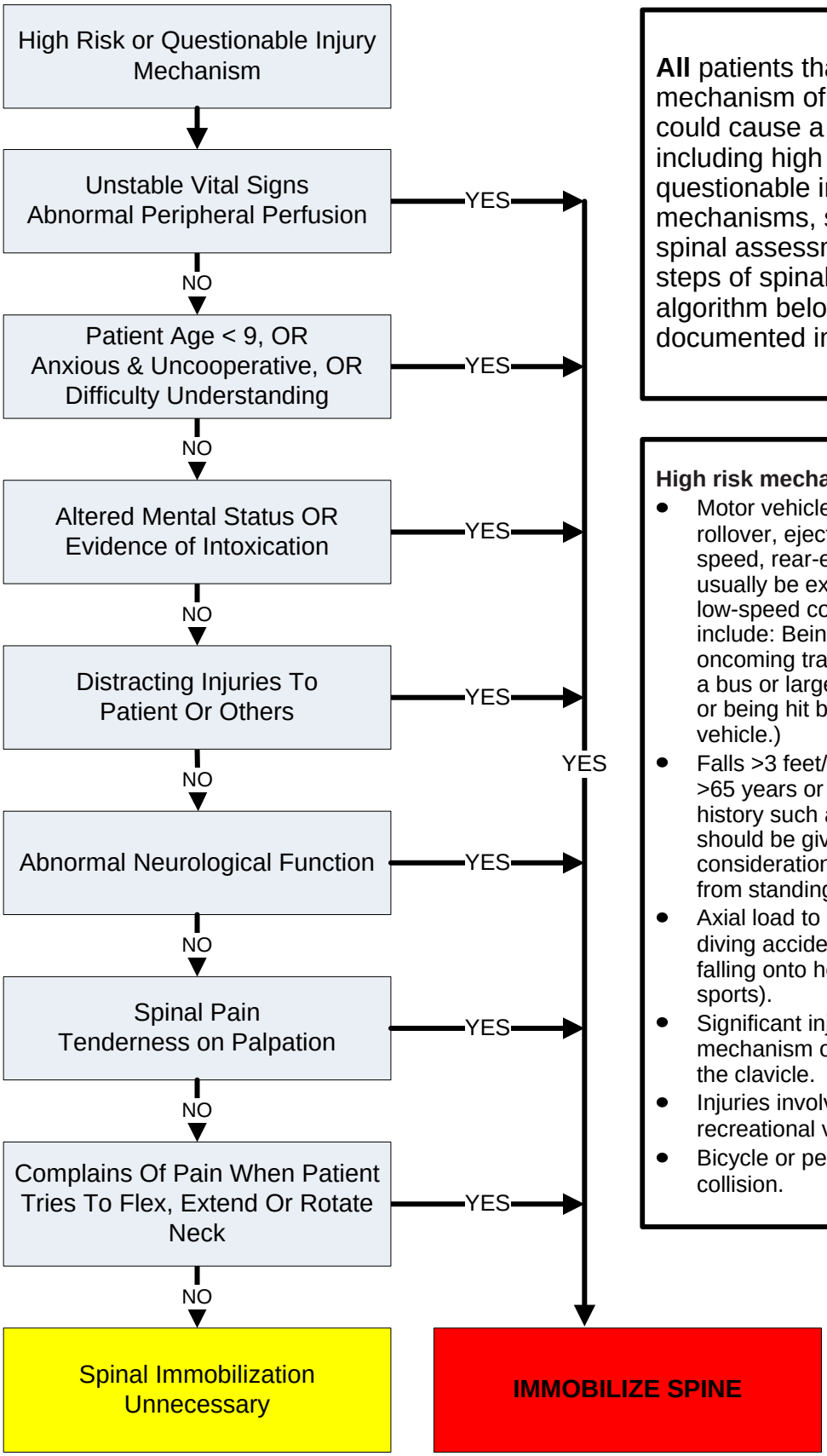
Advanced Spinal Assessment 6.0



All patients that have a mechanism of injury that could cause a spinal injury, including high risk or questionable injury mechanisms, should have a spinal assessment. All steps of spinal assessment algorithm below must be documented in the ePCR.

High risk mechanisms include:

- Motor vehicle crash >60 mph, rollover, ejection. Simple low-speed, rear-end MVC can usually be excluded. (Simple low-speed collision does not include: Being pushed into oncoming traffic, being hit by a bus or large truck, rollover, or being hit by a high-speed vehicle.)
- Falls >3 feet/5 stairs. Patients >65 years or with a high-risk history such as osteoporosis should be given extra consideration, including falls from standing.
- Axial load to head/neck (e.g., diving accident, heavy object falling onto head, contact sports).
- Significant injury or mechanism of injury above the clavicle.
- Injuries involving motorized recreational vehicles.
- Bicycle or pedestrian struck/ collision.

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ECG Acquisition, Transmission and Interpretation

6.1

ECG interpretation in the prehospital environment can be performed only by Paramedics. 12-lead ECG acquisition and transmission may be performed by EMTs, AEMTs or Paramedics. **EMRs, EMTs and AEMTs may not apply 3/4 lead ECG to patient except under direct observation/request of an on-scene Paramedic.**

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

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

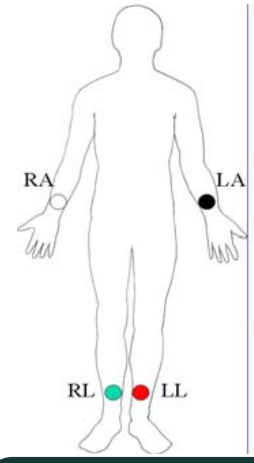
INDICATIONS

- Congestive Heart Failure/Pulmonary Edema
- Dysrhythmias, palpitations
- Suspected Acute Coronary Syndrome (chest pain, jaw pain, arm pain, epigastric pain, diaphoresis, weakness)
- Syncope
- Shortness of breath

E/A/P

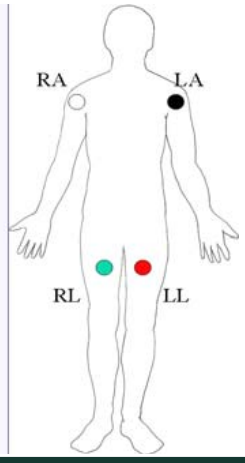
PROCEDURE

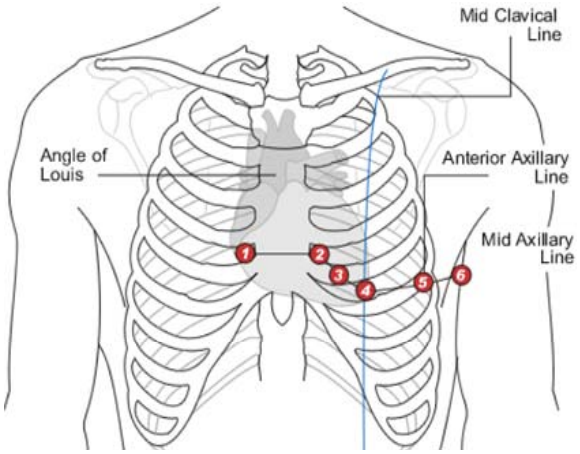
1. Prepare ECG Monitor and connect cable with electrodes.
2. Properly position the patient (supine or semi-reclined).
3. Enter patient information (e.g. age, gender) into monitor.
4. Prep chest as necessary, (e.g. hair removal, skin prep pads).
5. Apply chest and extremity leads using recommended landmarks:
   - RA – Right arm or shoulder.
   - LA – Left arm or shoulder.
   - RL – Right leg or hip.
   - LL – Left leg or hip.
   - V1 – 4TH intercostal space at the right sternal border.
   - V2 – 4TH intercostal space at the left sternal border.
   - V3 – Directly between V2 and V4.
   - V4 – 5TH intercostal space midclavicular line.
   - V5 – Level with V4 at left anterior axillary line.
   - V6 – Level with V5 at left midaxillary line.
6. Instruct patient to remain still.
7. Obtain the 12-lead ECG, read computer interpretation, and transmit if possible.
8. **EMT/AEMT:** If the computer interpretation reads, ***Acute MI*** or ***Acute MI Suspected***, or other similar message, transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements and notify receiving facility of a "**STEMI ALERT.**"
   Paramedic: If Paramedic interprets the ECG to be an acute ST-elevation myocardial infarction (STEMI), transport patient to the most appropriate facility in accordance with local STEMI guidelines/agreements and notify receiving facility of a "**STEMI ALERT.**"
9. For patients with continued symptoms consistent with acute coronary syndrome, perform repeat ECGs during transport to evaluate for evolving STEMI.
10. Copies of 12-lead ECG labeled with the patient's name and date of birth should be left with the receiving hospital and incorporated into the patient's SIREN record.



RA = Right Arm
LA = Left Arm
RL = Right Leg
LL = Left Leg

RA - White
LA - Black
RL - Green
LL - Red





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6.2 Intraosseous Access

ADVANCED EMT/PARAMEDIC STANDING ORDERS– ADULT & PEDIATRIC

A/P

Medical Procedure 6.2

DEFINITION

Intraosseous insertion establishes access in a critically ill 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 profound shock and in need of immediate life-saving intervention and unable to rapidly obtain peripheral IV access.
- May be used as a primary vascular device in cardiac arrest.

CONTRAINDICATIONS

- Placement in or distal to a fractured bone.
- Placement at an infected site.
- Placement at site where IO was already attempted.

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.
- Gloves and povidone-iodine, chlorhexidine solution or alcohol wipes.
- Primed IV tubing, IV stopcock.
- 10 mL syringe with 0.9% NaCl.
- Pressure pump/bag or 60 mL syringe for volume infusion or slow push.
- Paramedic only: 1 vial of 2% lidocaine (preservative free).
- 5 mL syringe.

Procedure Continues

IO access is not indicated simply for inability to start an IV, but rather is reserved for patients with profound shock or other critical illness.

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Procedure Continued

A/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. Choose correct needle size: 45 mm proximal humerus, 25 mm anterior tibial, 15 mm anterior tibial skin and bone (thin).
4. Prep the site. Scrub site with alcohol wipe or other cleaning solution and allow to dry.
5. Insert IO needle. Follow manufacturer's instructions for preferred sites.
6. Needle is appropriately placed if the following are present:
   - If appropriate, aspiration with syringe yields blood with marrow particulate matter.
   - Infusion of saline does not result in infiltration at the site.
   - Needle stands without support.
7. Attach IV tubing, with or without stopcock.
8. **Paramedic only**: Prior to IO syringe bolus (flush) or continuous infusion in alert **adult** patients:
   - Ensure that the patient has no allergies or sensitivity to lidocaine.
   - SLOWLY administer lidocaine 2% (preservative free) through the IO device catheter.
   - Allow 2 – 5 minutes for anesthetic effects, if possible:
     - **Adult:** 2 – 5 mL (20 – 50 mg) 2% lidocaine.
     - **Pediatric:** 0.5 mg/kg 2% lidocaine (maximum 50 mg).
9. Flush with 10 mL of 0.9% NaCl rapid bolus prior to use:
   - Recommend use of a stop cock inline with syringe for bolus infusions.
   - Use a pressure bag for continuous 0.9% NaCl infusions.
   - Infuse emergent pressors using an IV pump.
10. 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).
11. Apply ID bracelet to indicate patient has had an IO placed or attempted.

May only attempt one IO needle per site. Notify ED of missed sites.

Pearls
Any fluid or medication that can be administered through an IV may be administered through an appropriately-placed IO device.

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6.3 Quantitative Waveform Capnography

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

INDICATIONS

- Confirmation of endotracheal tube placement (required). See Nasotracheal Intubation Protocol 5.9 / Orotracheal Intubation Protocol 5.10 .
- Confirmation of supraglottic airway placement.
- Routine use of $ETCO_2$ for monitoring ventilation status is appropriate including:
  - BMV ventilation.
  - CPAP.
  - Respiratory distress.
  - Altered mental status.
  - All invasive airway procedures or blind airway devices.
- Monitoring of CPR quality and for signs of return of spontaneous circulation in cardiac arrest patients.

PROCEDURE

1. Attach capnography sensor to endotracheal tube, supraglottic airway, BMV or oxygen delivery device.
2. Observe $ETCO_2$ level and waveform morphology changes. This should be documented for patients undergoing airway management, cardiac arrest, altered mental status and respiratory distress. Printed waveform preferred for evaluating waveform morphology. (**Note**: AEMT observes $ETCO_2$ level; Paramedic observes both $ETCO_2$ level and waveform).
3. $ETCO_2$ should remain in place with the airway and be monitored until transfer of care in hospital.
4. Any loss of $ETCO_2$ detection or waveform may indicate an airway problem and should be immediately addressed.

NOTES

- There are three determinants of quantitative waveform capnography:
  1. Alveolar ventilation.
  2. Pulmonary/vascular perfusion.
  3. Metabolism.
- Sudden loss of quantitative waveform capnography:
  - Tube dislodged.
  - Circuit disconnected/obstructed.
  - Apnea.
- High levels of CO_2 (> 45 mmHg):
  - Hypoventilation/CO_2 retention.
- Low CO_2 (< 25 mmHg):
  - Hyperventilation.
  - Low perfusion: shock, pulmonary embolus, sepsis.
- Cardiac Arrest: In low-pulmonary blood flow states, such as cardiac arrest, the primary determinant of quantitative waveform capnography is blood flow. Capnography levels are a good indicator of CPR quality.
  - If capnography levels are dropping, the CPR quality may be poor, consider changing chest compressors.
  - A sudden rise in $ETCO_2$ level to 40 mmHg or greater indicates substantial improvement in blood flow and likely return of spontaneous circulation (ROSC).
  - An $ETCO_2$ level of 10 mmHg or less measured 20 minutes after the initiation of advanced cardiac life support accurately predicts death in patients with cardiac arrest. See Resuscitation Initiation and Termination Policy 8.15.

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Restraints 6.4

EMT/ ADVANCED EMT STANDING ORDERS

E/A

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. No devices such as backboards, splints, or other devices may be placed on top of the patient. Never hog-tie a patient. In order to gain control, the patient may need to be in a prone position, but must be moved to supine or lateral position as soon as possible.
6. The patient must be under constant observation by the EMS crew at all times. This includes direct visualization of the patient as well as cardiac, pulse oximetry, and quantitative waveform capnography monitoring, if available.
7. The extremities that are restrained must 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 ePCR should include the reason for the use of restraints, the type of restraints used, the time restraints were placed, circulation checks, and any injuries resulting from restraints.
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.
10. Once applied, restraint should not be removed in the field unless medically necessary to provide care.

PARAMEDIC STANDING ORDERS – ADULT ONLY (NOT PEDIATRIC)

P

PROCEDURE

1. If physical restraints are used and patient continues to be violent/agitated, pharmacological sedation may be administered as soon as possible to assist in control of patient and to help prevent patient from harming themselves.

Procedure 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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Procedure Continues

PARAMEDIC STANDING ORDERS – ADULT ONLY (NOT PEDIATRIC)

Contact **Medical Control** to consider:

- Midazolam 5 mg IM/intranasal, may repeat once in 10 minutes (IM is preferred route of administration if patient is combative); or 2.5 mg IV, may repeat once in 5 minutes, **OR**
- Lorazepam 1 mg IV, may repeat once in 5 minutes; or 2 mg IM, may repeat once in 10 minutes, **OR**
- Diazepam 2.5 mg IV, may repeat once in 5 minutes, **AND/OR**
- Haloperidol 5 mg IM, may repeat once in 5 minutes (max total dose 10 mg).
  - May combine and administer Benzodiazepine and Haloperidol in one syringe.

NOTE: Contact **Medical Control** if additional dosing is needed.

- If cardiac arrest occurs, consider fluid bolus and sodium bicarbonate early, see Cardiac Arrest Protocol – Adult 3.2A.

For acute dystonic reaction to haloperidol:

- Diphenhydramine 25 – 50 mg IV **OR** 50 mg IM.

Haloperidol can lower the seizure threshold and should be used with caution. Use lower doses of haloperidol in the elderly or frail.

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Taser (Conducted Electrical Weapon) Probe Removal and Assessment 6.5

State and local law enforcement may use a conducted electrical weapon (CEW), also called a Taser. This device is a tool that can be deployed in either a drive stun (sensory nervous system) or dart (sensory & motor nervous systems that causes neuro-muscular incapacitation) mode. In the dart mode, two probes with attached wires are discharged from the CEW. The probes are #8 straightened fish hooks that penetrate the suspect's skin a maximum of ¼ inch. Each trigger pull discharges an electric charge for a 5-second cycle. The electric charge is high voltage (generally 12,000 volts) and low amperes (generally 0.0036 amp). Current medical literature does not support routine medical evaluation for an individual after a CEW application. **In most circumstances probes can be removed by law enforcement without further EMS or other medical intervention.**

EMT/ADVANCED EMT/PARAMEDIC STANDING ORDERS

EMS should be activated and transport the patient following CEW (conducted electrical weapon) application (i.e., Taser™) in the following circumstances:

- The probe is embedded in the eye, genitals, or bone.
- Seizure is witnessed after CEW application.
- There is excessive bleeding from probe site after probe removal.
- Cardiac arrest, complaints of chest pain, palpitations.
- Respiratory distress.
- Altered mental status.
- Pregnancy.
- Developmental or physical disability and unable to assess the above.

E/A/P

INDICATIONS FOR REMOVAL

- Patient with uncomplicated conducted electrical weapon 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.
- Any condition listed above that requires transport to the emergency department.

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. Insure that the probes and barbs are intact.
6. Removed probes should be handled and disposed of like contaminated sharps in a designated sharps container, unless requested as evidence by police.
7. Cleanse wound and apply dressing.
8. If last tetanus immunization was greater than 5 years, advise the patient that they may need one.
9. Obtain a refusal of care for patients refusing transport.

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6.6 Tourniquet – Adult & Pediatric

EMT STANDING ORDERS

E

CLINICAL INDICATIONS

- Life threatening extremity hemorrhage that cannot be controlled by other means.
- Serious or life threatening extremity hemorrhage and operational considerations prevent the use of standard hemorrhage control techniques.

CONTRAINDICATIONS

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical.

PROCEDURE

1. Routine Patient Care.
2. Refer to Shock Protocol – Adult 2.20A or Shock Protocol – Pediatric 2.20P.
3. Apply tourniquet as follows:
   - Place tourniquet proximal to wound.
   - Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
   - Secure tourniquet per manufacturer instructions.
   - Note time of tourniquet application and communicate this to receiving providers.
   - Dress wounds per standard wound care protocol.
   - If delayed or prolonged transport and tourniquet application time ≥ 5 hours contact Medical Control.
4. Minimize scene time.
5. Call for Paramedic intercept, if available. If not available, call for AEMT intercept.

ADVANCED EMT/PARAMEDIC STANDING ORDERS

A/P

- Establish IV/IO access.
- Administer 500 mL bolus 0.9% NaCl IV/IO.

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Vascular Access Via Pre-Existing Central Catheters

6.7

PARAMEDIC STANDING ORDERS – ADULT ONLY

P

PROVIDER LEVEL:

- Paramedic

INDICATIONS

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

CONTRAINDICATIONS

- Suspected infection at skin site.

PROCEDURE

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

Procedure For Peripherally Inserted Central Catheter (Cook, Neo-PICC, Etc.) And Tunneled Catheter (Broviac, Hickman, Groshong, Etc.)

1. Prepare equipment:
   - 10 mL syringe (empty),
   - 10 mL syringe 0.9% NaCl, and
   - Sterile gloves (if available).
2. If more than one lumen is available (PICCs and Boviacs can have one, two, or three lumens), select the largest lumen available.
3. Vigorously prep the cap of the lumen with chlorhexidine.
4. Unclamp the catheter lumen and using a 10 mL syringe, (after unclamping the lumen) aspirate 3 – 5 mL of blood with the syringe and discard. If unable to aspirate blood, re-clamp the lumen and attempt to use another lumen (if present). If clots are present, contact **Medical Control** before proceeding.
5. Flush the lumen with 3 – 5 mL 0.9% NaCl using a the 10 mL syringe. If catheter does not flush easily (note that a PICC line will generally flush more slowly and with greater resistance than a typical intravenous catheter), re-clamp the selected lumen and attempt to use another lumen (if present).
6. Attach IV administration set and observe for free flow of IV fluid.
7. Allow titrate fluid to run at rate of 10 mL/hour to prevent the central line from clotting.

Procedure Continues

The maximum flow rates for a PICC line are 125 mL/hour for <2.0 Fr sized catheter and 250 mL/hour for >2.0 Fr sized catheters.
Note: Avoid taking a blood pressure reading in the same arm as the PICC.

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Vascular Access Via Pre-Existing Central Catheter

Procedure Continued

P

Procedure For Implanted Catheter (Port-a-Cath, P.A.S. Port, Medi-port)

1. Prepare all necessary equipment:
   - Non-coring, right angle (Huber/Haberman) needle specific for implanted vascular access ports
   - 10 mL syringe (empty),
   - Two 10 mL syringes 0.9% NaCl, and
   - Sterile gloves (if available).
2. Identify the access site; usually located in the chest.
3. Clean the access site with chlorhexidine solution.
4. Prime the non-coring needle tubing with saline.
5. Palpate the port to determine the size and center of the device. If not utilizing sterile gloves, re-clean the skin.
6. Secure the access point port firmly between two fingers and firmly insert the non-coring needle into the port, entering at a direct 90° angle. Attach a 10 mL syringe to haberman/huber needle.
7. Aspirate 3 – 5 mL of blood with the syringe. If unable to aspirate blood, re-clamp the catheter and do not attempt further use. If clots are present, contact **Medical Control** before proceeding.
8. Flush the catheter with 3 – 5 mL 0.9% NaCl using a 10 mL syringe. If catheter does not flush easily, do not attempt further use.
9. Attach IV administration set and observe for free flow of IV fluid.
10. If shock is not present, allow fluid to run at rate of KVO to prevent the central line from clotting.

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

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Interfacility Transfers 7.0

INTRODUCTION
The purpose of this section is to reconcile the unique aspects of interfacility transfer with current VT EMS Rules 6.2.6.5.5 and 6.3.6.2, licensure, and the rest of the VT Statewide EMS protocols. It is intended to provide flexibility, where possible, for individual agencies, institutions, and communities to meet their unique needs.

INTERFACILITY TRANSFER
An interfacility transfer is defined as any EMS ambulance transport from one healthcare facility to another. Examples include hospital-to-hospital, hospital-to-rehabilitation, and hospital-to-long-term care. (Guide for Interfacility Patient Transfer, NHTSA, April 2006.) In general, transports from a healthcare facility to a hospital emergency department (ED) by EMS should not be regarded as interfacility transfers.

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

Initiation of a transfer should be a carefully coordinated effort by the transferring and receiving physicians, the transferring and receiving facilities, and the transferring unit and personnel. Time or advanced notification may be needed for the transferring EMS unit to reconfigure in order to meet the needs outlined here.

STAFFING LEVELS – PARAMEDIC AND CCP INTERIM GUIDANCE
Both the scope and curriculum for this endorsement are currently undergoing review for revision based on the new Paramedic scope of practice and the evolution of interfacility transfer medicine in VT. New guidance is expected early in 2014 with subsequent updates to this protocol.

Under the National Scope of Practice Model as adopted by VT, the Paramedic scope/curriculum does not specifically address the care of the critically ill patient during an extended transport between facilities. VT EMS therefore requires specific additional training for Paramedics to provide extended transport of critically ill or injured patients if their clinical needs exceed those otherwise covered by the VT Statewide EMS protocols.

Vermont EMS currently has an “endorsement” for EMT-Paramedics related to interfacility training and credentialing known as *Critical Care Paramedic* (CCP). This level of training was intended to address the majority of interfacility transfer situations and was originally configured for the older EMT-Paramedic level. However, the new Paramedic scope (fully achieved via transition from EMT-P and contingent upon completion of protocol education) does allow for the use of pressure infusion pumps and administration of IV nitroglycerine and electrolytes, by all Paramedics. These specific items were previously restricted to only those providers with the VT CCP endorsement. (See EMS Rule 6.2.6.5.5 below.)

Protocol Continues

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Protocol Continues

6.2.6.5.5.1 EMT-Ps may be approved for an expansion of their scope of practice for critical care transfer services subject to the following terms and conditions:

6.2.6.5.5.1.1. Successful completion of a Critical Care EMT-P course approved by the Commissioner of Health.

6.2.6.5.5.1.2 Department approval of a program of continuing education for expanded scope skills and procedures.

6.2.6.5.5.1.3 Endorsement by the EMS District Medical Advisor.

6.2.6.5.5.1.4 Department approval of protocols for the expanded scope skills and procedures.

6.2.6.5.5.1.5 Department approval of a quality assurance/quality improvement program related to the expanded scope of practice.

6.2.6.5.5.1.6 Expanded scope of practice skills shall be limited to use of pressure infusion pumps.

6.2.6.5.5.1.7 Expanded scope of practice medications shall be limited to peripheral intravenous administration of heparin, nitroglycerine, nutritional preparations, antibiotics, electrolytes, and oral administration of non-narcotic analgesics.

Future work on revision of the CCP program will fall under EMS Rule 6.3.6.2 pending changes to Rules in 2014.

STAFFING LEVELS- ALL NON-PARAMEDIC CONFIGURATIONS

Some patients will have a level of acuity and/or complexity that requires a more advanced configuration/level of interfacility transport—either by air or ground. The operation of such transfer resource programs requires greater training, medical oversight, and service support, and is intended for the more limited number of acute and complex interfacility transfers that occur. If that level of resource is not readily available, it is an acceptable practice to supplement the EMS crew with hospital staff that is qualified to provide the level of care the patient requires. EMS providers must therefore refuse to transport patients that have a level of acuity and/or medication regimen that they are not comfortable with, and work with the sending facility to acquire optimal staffing (such as sending nursing staff or other provider).

The transferring physician/provider is responsible for determining the level of EMS provider and resources that are appropriate to meet the patient's current and anticipated condition and needs. In the interfacility transfer environment, all patient care delivered must be <u>within the scope of the provider's protocols and licensure.</u> (EMS providers may need to educate sending/receiving facility staff about their respective scopes of practice and any limitations contained therein.)

<u>Minimum Universal BLS staffing configurations: (EMS rule 2.1.2)</u>

1 EMT provider and 1 EMR (minimum) driver.

Scope examples:

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

Protocol Continues

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Protocol Continues

Minimum AEMT staffing configuration:
1 AEMT provider and 1 EMT or EMR driver.
Scope examples:

- No cardiac ECG monitoring.
- No ongoing or anticipated medications to be administered unless otherwise contained in AEMT scope.
- Peripheral intravenous administration any crystalloid infusion.
- Patient-controlled analgesic (PCA) pump.

MEDICAL CONTROL RESPONSIBILITIES

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

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

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

Transfer orders must be specific, appropriate to the patient being transferred, and reasonably anticipate potential complications en route. Transfer orders may reference the use of VT EMS protocols where they are applicable. If patients develop new signs and/or symptoms during transport, beyond their initial transfer diagnosis, providers may treat the new signs and/or symptoms according to VT EMS protocols. In rare circumstances where transfer orders and VT EMS protocols are in conflict, transfer orders take precedence assuming they are within the scope of the provider's level of licensure.

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

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Rapid Sequence Intubation (RSI) 7.1

Prerequisite Protocol 7.1

P

PARAMEDIC - PREREQUISITES REQUIRED

This procedure is only to be used by paramedics who are trained and credentialed to perform RSI with oversight by local Medical Control and agency participation in an RSI educational and CQI program approved by Vermont EMS. Either 2 RSI paramedics or 1 RSI paramedic and 1 RSI assistant must be present.

INDICATION

- Immediate, severe airway compromise in the adult patient 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.
- Assessment: Evaluate airway difficulty based on patient anatomy (e.g., short neck, obesity, decreased thyromental distance and Class III or IV oropharyngeal views on observation). Have fallback plan and equipment ready.
- Pharmacology: IV/Medications drawn.
- Monitor: Cardiac / O_2 saturation/ $ETCO_2$.
- Equipment : ETT (check cuff) / Stylet / BVM / Laryngoscope / Blades / Suction / Bougie / Back-up devices.

PREOXYGENATION: T minus 5 minutes .

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

PREMEDICATION: T minus 3-5 minutes.

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

{SEDATE THEN} PARALYZE: T minus 45 seconds.

- Etomidate 0.3 mg/kg IV; maximum 40 mg.
- If Etomidate is not available:
  - Ketamine 2 mg/kg IV, **OR**
  - Midazolam 0.2 mg/kg IV (0.1 mg/kg IV for patients in shock).
- Succinylcholine 1.5 mg/kg IV immediately after sedation.
- For patients with contraindications to succinylcholine:
  - 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 Orotracheal Intubation Procedure 5.10 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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Protocol Continued

PARAMEDIC - PREREQUISITES REQUIRED - Continued

P

PROOF OF PLACEMENT

- Assess for proper placement by following the procedure outlined in Orotracheal Intubation Procedure 5.10.

POST INTUBATION CARE

Sedation:

- Midazolam 2 – 5 mg IV, every 5 – 10 minutes as needed (maximum 20 mg), **OR**
- Lorazepam 1 – 2 mg IV every 15 minutes as needed for sedation (maximum 10 mg), **AND**
- Fentanyl 50 – 100 mcg IV. May repeat every 15 minutes as needed for anesthesia (maximum dose 300 mcg).
- Be sure to maintain adequate sedation if patient is paralyzed.

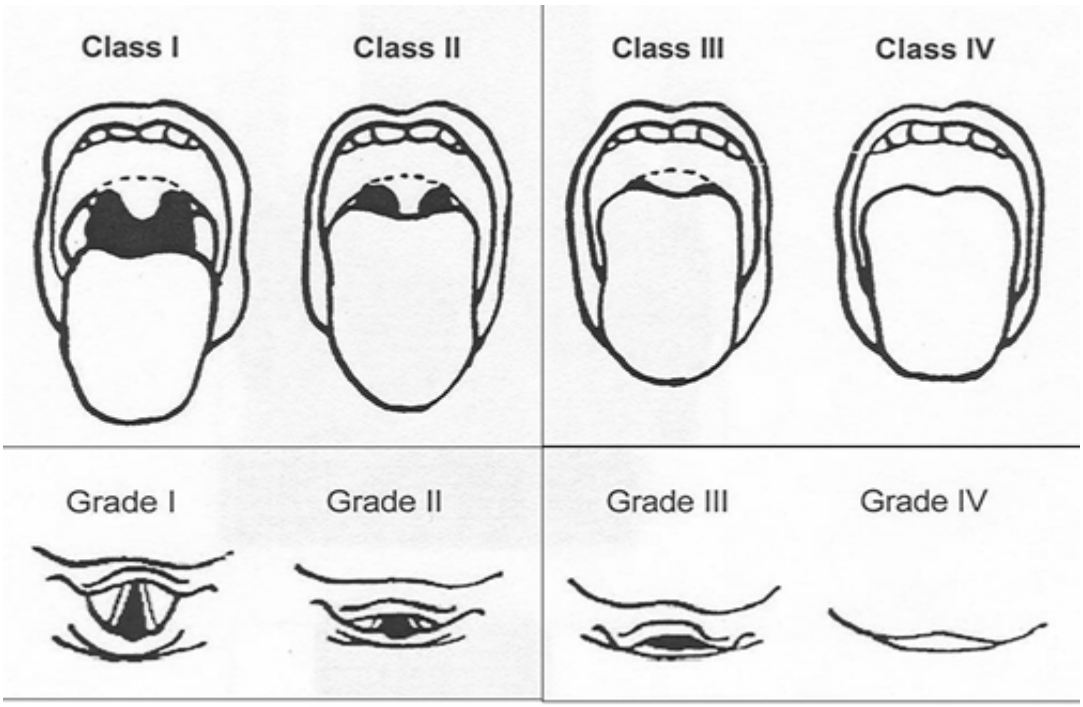
Paralysis (via on-line **Medical Control** only):

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

Contact **Medical Control** for additional dosing.

DOCUMENTATION

- Rapid Sequence Intubation is the process by which the Seven P's are carried out. "Pass The Tube" (Step 5) may require more than one attempt before successful placement. When documenting the procedure in SIREN, choose "Airway, RSI" from the Active Protocol Menu. Within the RSI protocol, document each procedure and medication, including the time performed and the provider. Document each successful or unsuccessful attempt at Step 5 (Pass The Tube) as Endotracheal Intubation. Fnish by documenting the remaining steps as part of the entire RSI sequence in SIREN.
- Follow all other required documentation outlined in Orotracheal Intubation Procedure 5.10.



Classifications of Oropharyngeal and Laryngoscopy Views

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8.0 Abuse and Neglect Assessment and Management -- Child, Elder, Incapacitated Adults, or Other Vulnerable Individuals

PURPOSE

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

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 or vulnerable adult.
  - Problems with living conditions and environment.

SPECIAL CONSIDERATIONS

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

Policy Continues

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Policy Continued

DEFINITION OF VULNERABLE ADULT ABUSE, NEGLECT AND EXPLOITATION

Most elders and people with disabilities successfully manage their own lives and are capable of providing for their own care without assistance. They are not automatically defined as "vulnerable adults" simply because of age or disability. The term "vulnerable adult" has a very specific meaning as defined by Vermont law under Title 33 of the Vermont Statutes Annotated (33 V.S.A. §6902). A person is a vulnerable adult if he/she is:

- is age 18 or older; and
- is a resident of a licensed facility such as a nursing or community care home; or
- is a patient in a psychiatric unit or hospital; or
- has received personal care services for longer than one month; or
- regardless of residence or whether any type of service is received, is impaired due to brain damage, infirmities of aging, or a physical, mental, or developmental disability.

ABUSE

Vermont law provides a broad definition of "abuse" as it applies to vulnerable adults.
Abuse is defined as:

- any treatment of a vulnerable adult which places his or her life, health, or welfare in jeopardy or which results in impairment of health;
- any conduct committed with intent to cause or reckless disregard of unnecessary pain, harm, or suffering;
  unnecessary or unlawful confinement or restraint of a vulnerable adult;
- intentionally subjecting a vulnerable adult to behavior which results in intimidation, fear, humiliation, degradation, agitation, disorientation, or other forms of serious emotional distress;
- any sexual activity with a vulnerable adult by a caregiver who volunteers for or is paid by a care-giving facility or program. (This definition shall not apply to a consensual relationship between a vulnerable adult and a spouse, nor to a consensual relationship between a vulnerable adult and a caregiver hired, supervised, and directed by the vulnerable adult);
- administration of a drug, substance or preparation to a vulnerable adult for a purpose other than legitimate and lawful medical or therapeutic treatment.

NEGLECT

Neglect may be a single incident or repeated conduct which results in physical or psychological harm. "Neglect" is defined as:

- Failing to provide care or arrange for goods or services necessary to maintain the health or safety of a vulnerable adult, including food, clothing, medicine, shelter, supervision, and medical services;
- Not protecting a vulnerable adult from abuse, neglect, or exploitation by others;

Policy Continues

Policy Continued

- Failure to carry out a plan of care for a vulnerable adult when such failure results in physical or psychological harm or a substantial risk of death to the vulnerable adult;
- Not reporting significant changes in the health status of a vulnerable adult to a physician, nurse, or immediate supervisor, when the caregiver is employed by an organization that offers, provides or arranges for personal care.

EXPLOITATION

Vermont statutes define exploitation of a vulnerable adult as:

- Willfully using, withholding, transferring or disposing of funds or property of a vulnerable adult for the wrongful profit or advantage of another;
- Acquiring possession, control or an interest in funds or property of a vulnerable adult through undue harassment or fraud;
- Forcing a vulnerable adult against his or her will to perform services for the profit or advantage of another;
- Any sexual activity with a vulnerable adult when the vulnerable adult does not consent or is incapable of resisting due to age, disability or fear of retribution or hardship.

CHILD ABUSE AND NEGLECT

Vermont law (33.V.S.A. § 4912) defines an abused or neglected child as one whose physical health, psychological growth and development or welfare is harmed or is at substantial risk of harm by the acts or omissions of his or her parent or other person responsible for the child's welfare. An abused or neglected child also means a child who is sexually abused or at substantial risk of sexual abuse by any person.

Harm can occur by:

- Abandonment of the child;
- Emotional maltreatment;
- Neglect;
- Physical injury; or
- Sexual abuse.

Risk of Harm means a significant danger that a child will suffer serious harm other than by accidental means, which would be likely to cause physical injury, neglect, emotional maltreatment, or sexual abuse.

Definitions

Child: an individual under the age of 18.

Person Responsible for a Child's Welfare: includes the child's parent; guardian; foster parent; any other adult residing in the child's home who serves in a parental role; an employee of a public or private residential home, institution or agency; or other person responsible for the child's welfare while in a residential, educational or child care setting, including any staff person.

Policy Continues

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Policy Continued

Emotional Maltreatment: a pattern of malicious behavior, which results in impaired psychological growth and development.
Neglect: failure to supply a child with adequate food, clothing, shelter or health care.
Physical Injury: death, permanent or temporary disfigurement, or impairment of any bodily organ or function other than by accidental means.
Sexual Abuse: any act or acts by any person involving sexual molestation or exploitation of a child including but not limited to incest, prostitution, rape, sodomy, or any lewd and lascivious conduct involving a child. Sexual abuse also includes the aiding, abetting, counseling, hiring, or procuring of a child to perform or participate in any photograph, motion picture, exhibition, show, representation, or other presentation which, in whole or in part, depicts a sexual conduct, sexual excitement or sadomasochistic abuse involving a child.
Substantial Child Endangerment: conduct by an adult involving or resulting in sexual abuse, and conduct by a person responsible for a child's welfare involving or resulting in abandonment, child fatality, malicious punishment, or abuse or neglect that causes serious physical injury (33.V.S.A. §4915).

REPORTING PROCEDURES
Child Abuse*
Report suspected child abuse immediately

- Call Vermont's Child Protection Line, available 24 hours a day, 7 days a week, at 800-649-5285.
  - Emergency medical personnel are mandatory reporters in the state of Vermont. This means that once you suspect a child may have been abused or neglected, you are required by law to report your suspicions to Vermont's Department for Children and Families within 24 hours.
  - Informing hospital personnel or involving law enforcement does not fulfill legal reporting responsibilities in accordance with state law.
  - Do not send reports of suspected child abuse by email.

* Responsibility for reporting child abuse and protection from liability for such good faith reporting is established by 33 VSA §4913.

Abuse to Elders and Incapacitated Adults**

- Emergency medical personnel are mandatory reporters in the state of Vermont. This means that once you suspect an adult may have been abused, neglected or exploited, you are required by law to report your suspicions to Vermont's Adult Protective Services program within 48 hours.
- Call the Vermont Adult Protective Services Program at 800-564-1612 or 802-871-3317 between the work hours of 8:00 am to 4:30 pm, Monday through Friday. To make a report after business hours, on weekends or holidays, please call the Emergency Services Program (ESP) at 800-649-5285.

**Responsibility and protection from liability for reporting an incapacitated adult or an adult who has been subjected to abuse, neglect, or exploitation is established by Vermont Adult Protective Services 33 VSA §6902

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8.1 Air Medical Transport

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

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

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

OPERATIONAL CONDITIONS

- When a patient meets the defined clinical criteria listed below and the ground transport time to the closest hospital capable of providing definitive care (e.g., Level I or 2 trauma hospital, PCI center, stroke center) exceeds the ETA of air medical transport **OR**
- Patient location, weather, or road conditions preclude the use of ambulance, **OR**
- Multiple patients are present that will exceed the capabilities of local hospital and agencies.
- In general, the patient should begin movement toward the appropriate receiving facility as soon as practical. Consider landing zones to minimize total field time.

CLINICAL CONDITIONS

- Severe respiratory compromise with respiratory arrest or abnormal respiratory rate.
- Circulatory insufficiency: sustained systolic blood pressure <90mmHg in both children and adults or other signs of shock.
- Neurologic compromise: total GCS <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 indicates ***Acute MI Suspected*** and/or Paramedic interpretation).
- Stroke: 1 or more abnormal signs of the stroke scale; and consistent with 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 Medical Control** and proceed as directed.
- Transfers from ground-ambulance to air-ambulance shall occur at the closest appropriate landing site, including a hospital heliport, an airport, or an unimproved landing site deemed safe per AMT crew 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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GENERAL CONSIDERATIONS

In 2006, the Vermont Legislature passed legislation known as the Baby Safe Haven Law. This legislation provides a mechanism for parents to surrender infants up to 30 days old at locations and facilities that are capable of safeguarding the child and avoiding abandonment of extremely vulnerable infants. In that the language of the statute specifies 9-1-1 emergency responders at a location where the responder and the person have agreed to transfer the child as a Safe Haven location, it is possible that EMS personnel and organizations may receive infants. If another organization receives the infant, EMS may play a role in transporting the child to an emergency department for any necessary medical care and transition to custody of the Department for Children and Families staff. The text of the legislation reads:

SHORT TITLE- This act shall be known as the "Baby Safe Haven Law."
LEGISLATIVE INTENT-It is the intent of the general assembly that this act provide a procedure which ensures the safety and well-being of newborns and infants. The general assembly recognizes that it is preferable for a wide array of services to be available to all expectant mothers and to newborn infants and their mothers. The procedure established in this act should be considered a safeguard that will be followed only in extraordinary circumstances.
Sec. 3. 13 V.S.A. § 1303 is amended to read:
Sec 3. 13 V.S.A. § 1303. ABANDONMENT OR EXPOSURE OF BABY

(a) A person who abandons or exposes a child under the age of two years, whereby the life or health of such child is endangered, shall be imprisoned not more than ten years or fined not more than $10,000.00, or both.

(b) (1) It is not a violation of this section if a person voluntarily delivers a child not more than 30 days of age to:
- (A) An employee, staff member, or volunteer at a health care facility.
- (B) An employee, staff member, or volunteer at a fire station, police station, place of worship, or an entity that is licensed or authorized in this state to place minors for adoption.
- (C) A 9-1-1 emergency responder at a location where the responder and the person have agreed to transfer the child.

(2) A person voluntarily delivering a child under this subsection shall not be required to reveal any personally identifiable information, but may be offered the opportunity to provide information concerning the child's or family's medical history.

(3) A person or facility to whom a child is delivered pursuant to this subsection shall be immune from civil or criminal liability for any action taken pursuant to this subsection.

(4) A person or facility to whom a child is delivered pursuant to this subsection shall:
- (A) Take temporary custody of the child and ensure that he or she receives any necessary medical care.
- (B) Provide notice that he, she, or it has taken temporary custody of the child to a law enforcement agency.
- (C) Provide notice that he, she, or it has taken temporary custody of the child to the department for children and family services, which shall take custody of the child as soon as practicable.

Policy Continues

Policy Continues

- While the statute does not specifically mention EMS personnel or organizations, EMS may become involved as a 9-1-1 emergency responder. It is also likely that EMS will be involved when an infant is delivered to any other Safe Haven. Delivery of an infant to a Safe Haven location will be an infrequent but very stressful event. Infants being delivered to the Safe Haven are at considerable risk and every possible step to safeguard the health and welfare of the infant should be taken.
- A person delivering an infant under the provisions of the Baby Safe Haven law may not make the subtle distinctions between EMS facilities and other Safe Haven locations specifically mentioned in the law. EMS personnel and organizations should be prepared to play an appropriate role in the receipt of infants delivered under the provisions of the Baby Safe Haven law.
- EMS may be summoned by a Safe Haven that receives an infant (fire, police, place of worship, adoption agency, or health care facility). Guidance being provided by the Department for Children and Families for Safe Havens suggests that when an infant is received, the Safe Haven should call an ambulance to provide treatment and transportation. The primary roles of EMS in a Baby Safe Haven encounter are as with any other patient: assess, provide treatment as indicated, transport to a hospital.
- EMS organizations with stations that could be unoccupied may wish to consider signage on entryways indicating that persons wishing to deliver an infant under the provisions of the Baby Safe Haven law should call 9-1-1 to make arrangements if the station is not staffed and should not leave an infant unattended.
- EMS organizations may wish to reach out to Safe Haven locations in their primary service area to coordinate procedures and develop local plans for handling Safe Haven encounters.
- To order additional copies of Safe Haven posters and brochures, call 802-241-2251. To find out about training opportunities from the Department for Children and Families, call 802-241-2148 or go to babysafehaven.vermont.gov

PROCEDURE

- Although EMS organizations and personnel are not specifically mentioned in the Baby Safe Haven statute, as 9-1-1 emergency responders, EMS needs to be familiar with the provisions of the law and work to facilitate the protection of infants being received.
- When involved in a Baby Safe Haven encounter, upon receiving physical custody of the baby, whether you receive an infant from the parent, a Safe Haven, or another third party, examine the baby and provide any treatment necessary according to the appropriate clinical protocol(s).
- If possible, offer the person delivering the infant the Safe Haven brochure published by the Agency of Human Services if the infant is **not** picked up at a Safe Haven.
- If it has not already been done, attempt to advise the person delivering the infant into a Safe Haven that while she/he is not required to reveal any identifying information, she/he can provide information about the child's medical history using the voluntary medical form that is attached to the DCF Safe Haven brochure. Encourage the person to complete the form and leave it with you. If the form is left with you, complete the information at the bottom of it with the date you received the baby and your location. This information should be delivered to the DCF Family Services staff person. Document this information on your EMS patient care report form as well.
- Document on your EMS patient care report any additional information about the child, the birthparents, and/or the situation that is observed or offered voluntarily, including any names the person is *willing* to provide.

Policy Continues

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Policy Continues

- Transport the infant to the hospital once appropriate EMS treatment has begun. If you receive an infant from a parent or other person, at the earliest possible opportunity, call the police of jurisdiction where you received the child and the local DCF, Family Services District Office or DCF Emergency Services contact to report what has happened (see list attached). The EMS personnel involved may have information about the parent, the circumstances of receiving the child, etc. that will be important to law enforcement and the DCF Family Services personnel, so it is important for the EMS personnel involved to make this contact. If you receive an infant from another Safe Haven, assure that the original receiver(s) have made the police and DCF contacts.
- **Important:** Once you have physical custody of the infant, always transport the child to a hospital. If the person who delivered the infant or another person comes back to you requesting the return of the baby, **do not** give the baby back. Instead, instruct the person to contact the Department of Children and Families at 800-649-4357. They will be referred to a social worker, who will assist them with the process. Urge them to act quickly, before a judge has terminated their parental rights.

DCF FAMILY SERVICES DISTRICT OFFICES AND STATEWIDE EMERGENCY SERVICES PROGRAM

BARRE – 802-479-4260
255 North Main Street, Suite 7
Barre, VT 05641-4189

BENNINGTON – 802-442-8138
200 Veterans Memorial Drive, Suite 14
Bennington, VT 05201-1956

BRATTLEBORO – 802-257-2888
232 Main Street, 2nd Floor
Brattleboro, VT 05301-2879

BURLINGTON – 802-863-7370
426 Industrial Ave. Ste. 130
Williston, VT 05495

HARTFORD – 802-295-8840
226 Holiday Drive, Suite 32
White River Junction, VT 05001-2024

MIDDLEBURY – 802-388-4660
156 South Village Green, Ste. 202
Middlebury, VT 05753

MORRISVILLE – 802-888-4576
63 Professional Drive, Suite 3
Morrisville, VT 05661-8522

NEWPORT – 802-334-6723
100 Main Street, Suite 230
Newport, VT 05855-4898

RUTLAND – 802-786-5817
220 Asa Bloomer Bldg
88 Merchants Row
Rutland, VT 05701-3449

ST. ALBANS – 802-527-7741
20 Houghton Street, Suite 211
St. Albans, VT 05478-2247

ST. JOHNSBURY – 802-748-8374
67 Eastern Avenue, Suite 4
St. Johnsbury, VT 05819-5603

SPRINGFIELD – 802-885-8900
100 Mineral Street, Suite 101
Springfield, VT 05156-3166

STATEWIDE DCF Family Service's Emergency Services Program
For after hours, weekends and holidays
800-649-5285

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8.3 Bloodborne/Airborne Pathogens

BLOOD BORNE PATHOGENS

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

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

STANDARD PRECAUTIONS

- Standard precautions 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 hand rub 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.

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.

Policy Continues

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Policy Continued

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 meningitidis, 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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8.4 Communication

EMS providers should routinely advise the receiving hospital, in a timely manner, of patients en route to that Emergency Department (except in Mass Casualty Incidents (MCI) during which routine communications cease).

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

VHF MEDICAL FREQUENCIES

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

TELEPHONE

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

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

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

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

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Communications Failure 8.5

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

- EMS personnel may, within the limits of their level of licensure, perform necessary procedures described in these protocols that under normal circumstances would require online Medical Control.
- 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 EMS District Medical Advisor and/or Hospital EMS Coordinator within 24 hours of the event.

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8.6 Consent for Treatment of a Minor

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

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

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.
- Contact Medical Control to discuss consent/refusals regarding minors. Always attempt to provide medical care that is in the best interest of the minor.
- Minors of any age may give informed consent to medical treatment associated with rape, incest or sexual abuse.
- An emancipated minor may consent to, or refuse care. A minor patient bears the burden of establishing, by legal documentation or otherwise, that he/she is emancipated. Vermont recognizes emancipation decrees lawfully obtained in other states (12 VSA §7157).

Vermont EMS has taken extreme 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.

Crime Scene/ Preservation of Evidence

8.7

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

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

- Have all EMS providers use the same path of entry and exit, if feasible.
- Do not walk through fluids.
- Do not touch or move anything at a crime scene unless it is necessary to do so for patient care (notify law enforcement prior to moving so if possible).
- Observe and document original location of items moved by crew.
- When removing patient clothing, leave it intact as much as possible.
  - Do not cut through clothing holes made by gunshot or stabbing.
- If you remove any items from the scene, such as impaled objects or medication bottles, document your actions and advise a law enforcement official.
- Do not sacrifice patient care to preserve evidence.
- Consider requesting a law enforcement officer to accompany the patient in the ambulance to the hospital.
- Document statements made by the patient or bystanders on the EMS patient care report.
  - Comments made by a patient or bystanders should be denoted in quotation marks.
- Inform staff at the receiving hospital that this is a “crime scene” patient.
- If the patient is obviously dead consistent with Resuscitation Initiation and Termination Policy 8.15, 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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8.8 Do Not Resuscitate (DNR)/ Clinician Orders For Life Sustaining Treatment (COLST)

PLEASE NOTE THE MANDATED USE OF THE VERMONT DEPARTMENT OF HEALTH'S DNR/COLST FORM IN THE FOLLOWING CIRCUMSTANCES:

All out-of-hospital DNR orders are mandated to be on the Department of Health's Vermont DNR/COLST form (link to form).

- DNR orders signed prior to July 1, 2011 may continue to be recognized as valid for EMS encounters, if the document complies with statutory requirements.
- Health care facilities and residential care facilities may document DNR/COLST orders in the patient's medical record in a facility specific manner when the patient is in their care so long as they meet the criteria below.

TO BE VALID DNR/COLST ORDERS MUST MEET THE FOLLOWING CRITERIA:

- **DNR Orders must:**
  - Be signed by the patient's clinician.
  - Certify that the clinician has consulted, or made an effort to consult, with the patient, and the patient's agent or guardian, if there is an appointed agent or guardian.
  - Must include: the name of the patient, agent or guardian giving informed consent OR meet the futility standard (section A-3).

- **COLST Orders must:**
  - Be signed by the patient's clinician.
  - Include the name of the patient, agent or guardian giving informed consent.

PEARLS

- One essential element of providing quality end-of-life care involves honoring patient preferences.
- In the past a Do-Not-Resuscitate Order (DNR) has been used when a patient does not wish to have Cardiopulmonary Resuscitation (CPR). In recent years the old "DNR" order has been incorporated into a new form known as the DNR/COLST order by the Vermont Department of Health. The old "DNR" order only dealt with CPR. The **DNR/COLST** order deals with CPR as well as intubation, transfer to hospital, antibiotics, hydration and overall goals of care and is **the only legal out-of-hospital DNR order in Vermont as of July 1, 2011 (old orders will be honored as long as they complied with the statute at the time they were executed). Healthcare and residential care facilities can document these orders in a facility specific manner for inpatients.**
- DNR/COLST is a more complete document that stands for:
  Do Not Resuscitate Order/Clinician Orders for Life Sustaining Treatment.
- These are clinician orders that convey patient's wishes for CPR, intubation, transfer to the hospital, antibiotics, artificial nutrition and hydration, as well as overall treatment goals.
- EMS personnel are required to perform CPR if indicated for a victim of cardiac arrest unless there is a signed DNR/COLST order in the out-of-hospital setting or termination of resuscitation criteria are met. See Resuscitation Initiation and Termination Policy 8.15.
- All forms of DNR/COLST remain valid during a transfer from one healthcare facility to another.

Policy Continues

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Policy Continued

PROCEDURE

- Patients should be assessed per routine procedures and if resuscitation is or may be needed, EMS personnel should make reasonable efforts to check the patient for a DNR identification (bracelet, necklace, anklet) or inquire if there is a written DNR/COLST order available. Attempt to determine the identity of the patient (specifically, name and date of birth).
- **If The Patient/Resident Has No Pulse And/Or No Respirations:**
  - GO TO SECTION A of the DNR/COLST form. If the DNR order is checked and there is a clinician signature or the patient has a DNR identification - Do Not initiate CPR or other resuscitation measures.
    - 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 dysrhythmias (ventricular fibrillation, pulseless ventricular tachycardia, pulseless electrical activity, or asystole).
- **When Confronted With A Seriously Ill Patient Who Is Not In Cardiac Arrest But Is Breathing And/Or Has A Pulse:**
  - GO TO SECTIONS B-G of the DNR/COLST form to review Orders for Other Life-Sustaining Treatment. Check for do not intubate orders (DNI), transfer to hospital orders, orders for medical interventions and other instructions.
    - Comfort Measures Only: Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen (including CPAP), oral suction and manual treatment of airway obstruction as needed for comfort.
    - Limited Additional Interventions: Includes care described in Sections B-E. Use medical treatments and IV fluids as indicated.
    - Full treatment: Includes care described in sections B-E. Use defibrillation and other interventions as indicated.

PEARLS

- A DNR Order (Section A of the DNR/COLST form) only precludes efforts to resuscitate in the event of cardiopulmonary arrest and does not affect other therapeutic interventions that may be appropriate for the patient. (Sections B through H of the COLST form address other interventions).
- EMS providers and other health care professionals must honor a DNR order or a DNR identification unless it is believed in good faith, after consultation with the patient, agent or guardian, where possible and appropriate:
  - That the patient wishes to have the DNR Order revoked if the Order is based on informed consent, or
  - That the patient with the DNR identification or order is not the individual for whom the DNR order was issued.
- A health care provider shall honor in good faith an out-of-state DNR order, orders for life sustaining treatment, or out-of-state DNR identification if there is no reason to believe that what has been presented is invalid.
- Statutory requirements for DNR or DNR/COLST require that the order be signed by the patient's clinician and include the name of the patient agent guardian or other individual giving informed consent and their relationship to the patient.
- In the absence of a valid DNR or DNR/COLST order, neither a spouse nor a healthcare agent/durable power attorney may direct you to withhold resuscitation in the event of a cardiac arrest. **Contact Medical Control f guidance.**
- Photocopies and faxes of signed DNR/COLST forms are legal and valid.
- An Advanced Directive (formerly referred to as Living Will) is different than DNR/COLST. An Advance Directive is completed by the patient, allows for nuances and is not honored in an out of hospital emergency. The DNR/COLST order is completed by a clinician, is black and white and is honored in an out of hospital emergency.
- **Contact Medical Control** for circumstances not specifically covered by this protocol. Document in SIREN any actions taken or not taken based on a DNR/COLST order.

Policy Continues

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INSTRUCTIONS FOR CLINICIANS COMPLETING VERMONT DNR/COLST FORM (DO NOT RESUSCITATE ORDER/CLINICIAN ORDERS FOR LIFE SUSTAINING TREATMENT)

Completing DNR/COLST

- The DNR/COLST form must be completed and signed by a health care clinician based on patient preferences and medical indications. A clinician is defined as a medical doctor, osteopathic physician, advance practice registered nurse or physician assistant. 18 V.S.A. § 9701(4). Verbal orders are acceptable with follow-up signature by the clinician in accordance with facility/community policy.
- Photocopies and Faxes of signed COLST forms are legal and valid; use of original is encouraged.

Special requirements for completing the DNR section of COLST (18 V.S.A. §9708)

- A DNR order may be written on the basis of either informed consent or futility. Complete section A-2 for informed consent; Section A-3 for futility.
- An order based on informed consent must include the name of the individual giving informed consent.
- An order based on futility must include a certification by the clinician and a second clinician that resuscitation would not prevent the imminent death of the patient, should the patient experience cardiopulmonary arrest.
- If patient is in a health care facility, the clinician must certify that the facility's DNR policy has been followed
- The clinician may authorize the issuance of a DNR identification to the patient
- Clinician must certify that clinician has consulted or made an attempt to consult with the patient, and the patient's agent or guardian.

Using DNR Order - Section A CPR/DNR - 18 V.S.A. § 9708(c)

- A DNR Order (Section A of the DNR/COLST form) only precludes efforts to resuscitate in the event of cardiopulmonary arrest and does not affect other therapeutic interventions that may be appropriate for the patient. (Sections B through H of the COLST Form address other interventions.)
- Health care professionals, health care facilities, and residential care facilities must honor a DNR order or a DNR Identification unless the professional or facility believes in good faith, after consultation with the patient, agent or guardian, where possible and appropriate
  - that the patient wishes to have the DNR Order revoked if the Order is based on informed consent, or
  - that the patient with the DNR identification or order is not the individual for whom the DNR order was issued.

  Documentation of basis for belief in medical record is required.

Using COLST (Sections B through H)

- Any section of COLST not completed indicates that the COLST order does not address that topic. It may be addressed in a patient's advance directive, or in other parts of the medical record.
- Oral fluids and nutrition must always be offered if medically feasible.
- When comfort cannot be achieved in the current setting, the person, including someone with "comfort measures only", may be transferred to a setting able to provide comfort.
- Treatment of dehydration is a measure that may prolong life. For a patient who desires IV fluids the order should indicate "Limited Interventions" or Full Treatment."
- A patient with or without capacity, or another person authorized to provide consent, may revoke the COLST order at any time and request alternative treatment. Exceptions may apply. See, 18 V.S.A. § 9707(h) or 18 V.S.A. § 9707(g).
- Photocopies and faxes of signed DNR/COLST forms are legal and valid; use of original is encouraged.

Reviewing DNR/COLST

This form should be reviewed periodically and a new form completed if necessary when:

1. The patient is transferred from one care setting or care level to another, or
2. There is a substantial change in the patient's health status, or
3. The patient's treatment preferences change, or
4. At least annually, but more frequently in residential or inpatient settings.

Voiding DNR/COLST

To void this form or a part of it, draw a line through each page or section to be voided and write "VOID" in large letters.

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HIPAA PERMITS DISCLOSURE OF COLST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY

DNR/COLST
CLINICIAN ORDERS
for DNR/CPR and OTHER LIFE SUSTAINING TREATMENT

FIRST follow these orders, **THEN** contact **Clinician**.

Patient Last Name

Patient First/Middle Initial

Date of Birth

(If patient/resident has no pulse and/or no respirations)

A

DO NOT RESUSCITATE (DNR)

☐ **DNR/Do Not Attempt Resuscitation (Allow Natural Death)**

CARDIOPULMONARY RESUSCITATION (CPR)

☐ **CPR/Attempt Resuscitation**

For patient who is breathing and/or has a pulse, GO TO SECTION B – G, PAGE 2 FOR OTHER INSTRUCTIONS. CLINICIANS MUST COMPLETE SECTIONS A-1 THROUGH A-5

A-1 Basis for DNR Order
Informed Consent - Complete Section A-2
Futility - Complete Section A-3

A-2 Informed Consent
Informed Consent for this DO NOT RESUSCITATE (DNR) Order has been obtained from:

_____ Name of Person Giving Informed Consent (Can be Patient)

_____ Relationship to Patient (Write "self" if Patient)

_____ Signature (If Available)

A-3 Futility (required if no consent)

☐ I have determined that resuscitation would not prevent the imminent death of this patient should the patient experience cardiopulmonary arrest. Another clinician has also so determined:

_____ Name of Other Clinician Making this Determination (Print here)

_____ Signature of Other Clinician

Dated:_____

A-4 Facility DNR Protocol (required if applicable)

This patient is ☐ is not ☐ in a health care facility or a residential care facility.

Name of Facility:_____

If this patient is in a health care facility or a residential care facility, the requirements of the facility's DNR protocol have been met._____ (Initial here if protocol requirements have been met.)

A-5 DNR Identification (optional)

I have authorized issuance of a DNR Identification (ID) to this patient. Form of ID:_____

Certification and signature for DNR

A-6 Clinician Certifications and Signature for CPR/DNR (required)
I have consulted, or made an effort to consult with the patient and the patient's agent or guardian.

Patient's Agent or Guardian_____Address or Phone_____
I certify that I am the clinician for the above patient, and I certify that the above statements are true.

_____ Signature of Clinician

_____ Printed Name of Clinician

Dated:_____

GIVE COPY TO PATIENT AND REPRESENTATIVE
SEND FORM WITH PATIENT WHENEVER TRANSFERRED OR DISCHARGED

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HIPAA PERMITS DISCLOSURE OF COLST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY

ORDERS FOR OTHER LIFE-SUSTAINING TREATMENT
(If patient/resident is breathing and/or has pulse)

B **INTUBATION AND MECHANICAL VENTILATION INSTRUCTIONS:**

If patient has DNR order and has progressive or impending pulmonary failure without acute cardiopulmonary arrest:

- ☐ Do Not Intubate/Multi-Lumen Airway (DNI)
- ☐ Trial Period of Intubation/Multi-Lumen Airway and ventilation
- ☐ Intubation/Multi-Lumen Airway and long-term mechanical ventilation if needed

C **TRANSFER TO HOSPITAL**

- ☐ Do not transfer unless comfort care needs cannot be met in current location or if severe symptoms cannot be otherwise controlled
- ☐ Transfer

D **ANTIBIOTICS**

- ☐ No antibiotics. Use other measures to relieve symptoms
- ☐ Determine use or limitation of antibiotics when infection occurs, with comfort as goal
- ☐ Use antibiotics

E **ARTIFICIALLY ADMINISTERED NUTRITION:** Offer food and liquids by mouth if feasible.

Feeding tube

- ☐ No feeding tube
- ☐ Trial period of feeding tube (Goal:_____)
- ☐ Long-term feeding tube

Parenteral nutrition or hydration (e.g. IV fluids or Total Parenteral Nutrition)

- ☐ No parenteral nutrition or hydration
- ☐ Trial period of parenteral nutrition or hydration (Goal:_____)
- ☐ Long term parenteral nutrition or hydration

F **MEDICAL INTERVENTIONS:**

- ☐ **COMFORT MEASURES ONLY** Use medication by any route, positioning, wound care and other measures to to relieve pain and suffering. Use oxygen, oral suction and manual treatment of airway obstruction as needed for comfort. Offer food and fluids by mouth, if feasible.
- ☐ **LIMITED ADDITIONAL INTERVENTIONS** Includes care described above. Use medical treatments and IV fluids as indicated. *Avoid intensive care if possible.*
- ☐ **FULL TREATMENT** Includes care described above. Use defibrillation and intensive care as indicated.

G **Other Instructions**

_____
_____
_____

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HIPAA PERMITS DISCLOSURE OF COLST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY

H **Informed Consent and Clinician Signature for COLST Order (Sections B through G)**

Informed Consent for this COLST Order has been obtained from:

Name of Person Giving Informed Consent (Patient if competent) _____ Relationship to Patient (Write "self" if Patient) _____

Signature _____

Clinician Signature for COLST

Signature of Clinician _____ Printed Name of Clinician _____

Dated: _____

Print Clinician Name	Clinician Signature (mandatory)	Phone Number
Person providing consent's signature (if available)		Date

Other Contact Information (Optional)

Name of Guardian, Agent or other Contact Person	Relationship	Phone Number	
Name of Health Care Professional Preparing Form	Preparer Title/Facility	Phone Number	Date Prepared

Review Date	Reviewer	Location of Review	Review Outcome
			☐ No Change ☐ New form completed ☐ Form Voided
			☐ No Change ☐ New form completed ☐ Form Voided
			☐ No Change ☐ New form completed ☐ Form Voided

SEND FORM WITH PATIENT WHENEVER TRANSFERRED OR DISCHARGED
GIVE COPY TO PATIENT AND REPRESENTATIVE

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8.9 Left Ventricular Assist Device (LVAD)

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

E/A/P

Medical Policy 8.9

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 an LVAD Patient

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

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

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

How the Heart Works versus How 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!

Policy Continues

Policy Continued

EMT/ ADVANCED EMT / PARAMEDIC STANDING ORDERS

E/A/P

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.

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

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

6. **VITALS**
- **Pulse**: Generally you will be unable to feel a pulse.
- **Blood Pressure**: You may or may not be able to obtain one; standard readings are unreliable and may vary from attempt to attempt. If NIBP machine can detect a blood pressure, adjust it to display Mean Arterial Pressure (MAP). This is a more reliable measure of perfusion and the calculation of MAP can overcome variations in standard readings. A MAP of 60-70 mmHg is normal.
- **Pulse-Oximetry**: Readings seem to be fairly accurate and consistent, according to 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 = low pump function.
- **Temperature**: Infection and sepsis are common, check temperature!

Policy Continues

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Policy 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 Vermont EMS Protocols. However, there are a few special considerations to keep in mind:

1. **Don't let the LVAD distract you from treating the patient!**
2. The best medical resource available to you for LVAD related problems is the patient's VAD coordinator. The patient will have a contact sheet for the VAD coordinator with them at all times. Contact the VAD coordinator as soon as possible.
3. 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.
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 pump 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 oximetry readings, or waveform capnography reading, AND:
   c. The patient does not have a valid DNR in place.

Policy Continues

E/A/P

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Policy 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 problem should be transported to Fletcher Allen Health Care, Dartmouth Hitchcock Medical Center or Albany Medical Center, whichever is closest. When in doubt, transport to the closest hospital to access more transport resources and support.
3. Always bring the patient's resource bag with you. It should have spare batteries, possibly a spare control unit, contact sheets for the VAD coordinator and directions for equipment and system alarms.
4. Always bring spare batteries for the LVAD with the patient, even if it is not 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://www.mylvad.com/assets/ems_docs/00003528-2012-field-guide.pdf

E/A/P

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8.10 Non-EMS Personnel at the Emergency Scene

GENERAL CONSIDERATIONS

Emergency medical care is a continuum involving the concerted, integrated efforts of prehospital providers, physicians, nurses, allied health personnel, clergy and mental health workers. Recognizing this offers a guide for dealing with non-prehospital providers who wish to render assistance on the scene of an emergency.

NON-PHYSICIAN INTERVENTION ON THE SCENE

(Nurses, midwives, physician assistants, allied health personnel, clergy, mental health workers, etc.)

- Control of the medical care at an emergency scene is the responsibility of the individual in attendance who is most appropriately trained and knowledgeable in providing prehospital emergency stabilization and transport. With few exceptions, this is the on-duty responding EMS licensee of the highest license level. The intervener should be thanked by a member of the responding EMS crew and be asked to report any care that was provided prior to EMS arrival.
- Confrontation should be avoided whenever possible. The appropriate involvement of non-prehospital providers should be determined by the licensed responding prehospital providers.
- On-line medical direction should be sought for situations where a cooperative working relationship is failing or has failed, or the non-prehospital provider refuses to relinquish care of the patient.
- In any circumstance where the prehospital provider believes that care proposed by an intervener deviates from protocols, follow these protocols and seek on-line medical direction.

PHYSICIAN INTERVENTION ON THE SCENE

- Prehospital providers control an emergency scene, even in the presence of a physician.
- When EMS personnel encounter a person claiming to be a physician at the scene, one of the prehospital providers should take reasonable steps to verify the identity of the physician without restricting the physician's access to provide potentially lifesaving care.
- Patient's private physician:
  - If the patient's private physician is present and assumes responsibility for the patient's care, the prehospital provider should generally defer to the orders of the private physician within the limits of the provider's training and licensure.
  - Medical direction should be contacted.
  - The private physician should be expected to accompany the patient to the hospital if interventions beyond the scope and practice of the providers have occurred.
  - The prehospital provider reverts back to following these protocols and on-line medical direction at any time when the patient's private physician is no longer in attendance.
- Not the patient's private physician:
  - If on-line medical direction CANNOT be established:
    - The prehospital provider should generally relinquish responsibility for the patient's care when the physician has identified himself and has indicated a willingness to assume responsibility and document any interventions when this care appears competent and appropriate. Always act in the best interest of the patient.
    - The prehospital provider should defer to the wishes of the physician on the scene within the limits of the provider's training and licensure.
    - If the care and treatment differ from these protocols, the physician must agree in advance to accompany the patient to the hospital.
    - In the event of a mass casualty incident or disaster, patient care needs may require the physician to remain at the scene.
  - The prehospital provider reverts back to following these protocols and on-line medical direction at any time when this physician is no longer in attendance.
  - If on-line medical direction CAN be established:
    - The on-line physician is ultimately responsible.
    - Should any disagreement between the physician on the scene and the on-line physician exist, the prehospital provider should follow the orders from the on-line physician and place the intervener physician in contact with the on-line physician.
    - The on-line physician has the option of managing the case entirely, working with the physician, or allowing the on-scene physician to assume responsibility.
- The details of any encounter with an intervener should be documented. Include the intervener's name, qualifications, and any care provided by the intervener.

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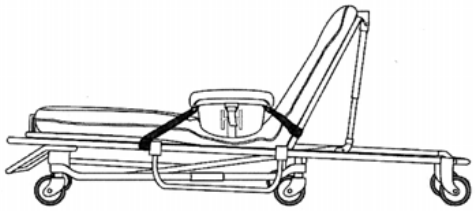
PATIENT TRANSPORT

23 VSA §1258 requires all children to be properly restrained when riding in a vehicle. An ill or injured child must be restrained in a manner that minimizes injury in an ambulance crash. The best location for transporting a pediatric patient is on the ambulance cot. The method of restraint will be determined by various circumstances including the child's medical condition and weight. Child passengers should never be transported in a side-facing orientation (i.e. on a bench seat or CPR chair).

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 fully elevated.
   - Secure safety seat with 2 pairs of belts at both forward and rear points of seat.
   - Place shoulder straps of the harness through slots just below child's shoulders and fasten snugly to child.
   - Follow manufacturer's guidelines regarding child's weight.

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

2. Car bed with both a front and rear belt path
   - For infants who cannot tolerate a semi-upright position or who must lie flat.
   - Position car bed so infant lies perpendicular to cot, keeping infant's head toward center of patient compartment.
   - Fully raise backrest and anchor car bed to cot with 2 belts, utilizing 4 loop straps supplied with car bed.
   - Only appropriate for infants from 5 – 20 lbs.



3. Restraint device (marketed to EMS) with 5-point harness (examples: Ferno Pedi-Mate, SafeGuard Transport)
   - Attach securely to cot utilizing upper back strap behind cot and lower straps around cot's frame.
   - 5-point harness must rest snugly against child.
   - Adjust head portion of cot according to manufacturer's recommendation.

Policy Continues

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Policy Continued

4. Child belted directly to backboard and/or cot in manner to prevent ramping or sliding in a front or rear end crash
   - Loop narrow belt under each arm and extend over child's shoulder securing belt at shoulder level so no gap exists above shoulder.
   - Use soft, sliding, or breakaway connector to hold shoulder straps together on chest.
   - Anchor 2 belts to non-sliding cot member and route over thighs and hips, not around waist.

5. Isolette restraint device with 3-point harness (example: International Biomed papoose)
   - Rest harness securely on child with no blanket or sheet between harness and child.
   - Attach to isolette tray at four points.
   - Additional soft Velcro straps may be added for lateral security.
   - Blanket or towels may be used to provide stabilization of the head.

NON-PATIENT TRANSPORT

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

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

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

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

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

- 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 8.12

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

PROTECTIVE CUSTODY
Protective custody is a civil status in which an incapacitated person is detained by a law enforcement officer for the purposes of:
(a) Assuring the safety of the individual or the public or both; and
(b) Assisting the individual to return to a functional condition.

- For patients who present an immediate risk of serious injury to themselves or others, consult with law enforcement or a mental health professional about the use of protective custody to transport the patient to the Emergency Department for an emergency examination. (18 VSA §7504)
- Patients who present with evidence of impaired judgment from alcohol or drug use may be placed into protective custody and transported to the Emergency Department. (33 VSA §708)

POLICE CUSTODY
Police custody means a person is under arrest. Patients in police custody who require medical care should be transported to a medical facility.

DECISION TO TRANSPORT TO THE HOSPITAL

- If law enforcement refuses to place a patient into protective custody at the request of EMS, or if police and EMS disagree about whether a patient in police custody requires transport to a medical facility for further assessment or treatment, on-line Medical Control must be contacted and a law enforcement supervisor should be requested for guidance.
- If Medical Control advises that the patient needs to be transported to the Emergency Department but you are unable to do so, document circumstances carefully in your chart and communicate with Medical Control.
- Patient medical condition is of primary concern when determining destination. When condition allows, consider law enforcement requests.

EMS INITIATED RESTRAINTS
For any patient potentially requiring restraints by EMS, see the Restraints Medical Procedure 6.4.

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.

CONDUCTED ELECTRICAL WEAPONS
Patients who have been subdued by a conducted electrical weapon (i.e., Taser™), see Taser (Conducted Electrical Weapon) Medical Procedure 6.5.

PEPPER SPRAY
Patients who have been subdued by pepper spray, see Eye and Dental Injuries 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 Including Suicide Attempts & Threats Protocol 2.6.

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8.13 Refusal of Care

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

REFUSAL OF CARE
There are three components to a valid refusal of care. Absence of any of these components will most likely result in an invalid refusal. The three components are as follows:

1. **Competence**: In general, a patient who is an adult or a legally emancipated minor is considered legally competent to refuse care. A parent or legal guardian who is on-scene or available by phone, may refuse care on his or her minor children's behalf.
2. **Capacity**: In order to refuse medical assistance a patient must have the capacity to understand the nature of his or her medical condition, the risks and benefits associated with the proposed treatment, and the risks associated with refusal of care.
3. **Informed Refusal**: A patient must be fully informed about his or her medical condition, the risks and benefits associated with the proposed treatment and the risks associated with refusing care.

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

1. Adults (≥ 18 years of age or a legally emancipated minor).
2. Orientation to person, place, time, and situation.
3. No evidence of altered level of consciousness resulting from head trauma, medical illness, intoxication, dementia, psychiatric illness or other causes.
4. No evidence of impaired judgment from alcohol or drug influence.
5. No language communication barriers (reliable translation available. e.g., on scene interpreter, language line).
6. No evidence or admission of suicidal ideation resulting in any gesture or attempt at self-harm. No verbal or written expression of suicidal ideation regardless of any apparent inability to complete a suicide.

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

Utilize the Vermont EMS Supplemental Report for Patient Non-Transport form. Any check mark in a shaded area requires on-line **Medical Control** prior to terminating the patient encounter.

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

Medical Control is to be provided all relevant information and may need to speak directly with the patient by radio or preferably a recorded landline.

Policy Continues

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Policy Continued

If Medical Control advises that the patient needs to be transported to the Emergency Department but you are unable to do so, document circumstances carefully in your chart and communicate with Medical Control.

If based on a complete patient assessment, the patient does not have the capacity to refuse care and is in need of medical treatment or protective custody and refuses care, contact law enforcement for assistance.

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

1. Treated / resolved hypoglycemia.
2. Patient with obvious head trauma and taking anticoagulant medications.
3. Intoxicated patients.
4. Abnormal vital signs.
5. Treated / resolved narcotic overdose.
6. High risk mechanism of injuries, see Advanced Spinal Assessment Procedure 6.1.
7. Patient / witness reports suicidal ideations.
8. Possible Apparent Life Threatening Event, see Apparent Life-Threatening Event (ALTE) Protocol 2.4.

PROCEDURE

1. Clearly offer the patient both treatment and transportation to the hospital and document the offer in your Patient Care Report (SIREN). **All** non-transports after patient contact require documentation in SIREN.
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 Patient Non-Transport form to the patient (or, in the case of a minor patient, the patient's parent, legal guardian, or authorized representative).
6. The Patient Non-Transport form should be signed by the patient (or, in the case of a minor patient, by the minor patient's parent, legal guardian, or authorized representative) at the time of the refusal. The form should also be dated and, where possible, signed by a witness, preferably a competent relative, friend, police officer, or impartial third person.
7. If on-line Medical Control was consulted for a refusal of care, obtain and document the physician's name in the patient care report.
8. All patients in police custody retain the right to request transport. This should be coordinated with law enforcement.
9. If child abuse is suspected and a refusal of care situation exists, the EMT must contact police immediately, see Abuse and Neglect Protocol 8.0.

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Vermont Department of Health
Emergency Medical Services
Supplemental Report for Patient Non-Transport *

108 Cherry St., PO Box 70, Burlington, VT 05402
802-863-7310 1-800-244-0911 (in VT)

Date: _____ Time: _____ EMS Agency: _____ Incident # _____

Incident Address: _____

_____

Patient Name: _____

Patient DOB: _____ If the patient is <18, is parent/guardian present? Yes ☐ No ☐

* All patient refusals must be documented in SIREN or on a patient care report.

For qualified providers with local medical direction:

If altered mental status - Blood Glucose _____ mg/dl

If chest pain, SOB or altered mental status - Pulse Ox _____%

Cardiac monitor: Rate: _____ NSR _____ Other: ☐

Situation involves:

- Chest pain ☐
- Dyspnea ☐
- Alt Mental status ☐
- Intoxication ☐
- Head injury ☐

Alert: Yes ☐ No ☐

Oriented to:

- Person Yes ☐ No ☐
- Place Yes ☐ No ☐
- Time Yes ☐ No ☐
- Situation Yes ☐ No ☐

Pulse	40	50	60	70	80	90	100	110	120	130	140	150	Obtained?	Yes ☐ No ☐
Systolic BP	50	70	90	110	130	150	170	190	210	230	250	270	Obtained?	Yes ☐ No ☐
Diastolic BP	30	40	50	60	70	80	90	100	110	120	130	140	Obtained?	Yes ☐ No ☐
Respirations	8	10	12	14	16	18	20	22	24	26	30	32	34	Obtained?	Yes ☐ No ☐

Reason for No Transport:

- ☐ Patient refuses transport against EMS advice
- ☐ Patient does not desire transport to hospital via EMS and EMS provider agrees that the patient's alternative treatment/transportation plan is acceptable.
- ☐ EMS provider does not feel transport by EMS is necessary/indicated and patient agrees.
- ☐ EMS provider does not feel transport by EMS is necessary/indicated and patient desires transport.

Patient understands clinical situation Yes ☐ No ☐

Patient verbalizes logical reasons for desiring no transport Yes ☐ No ☐

Risks explained to patient: _____

Patient verbalized understanding of risks Yes ☐ No ☐

Responsible adult family member or friend at the scene Yes ☐ No ☐

Patient's plan for seeking further medical evaluation: _____

_____

I understand that evaluation and/or treatment by Vermont certified Emergency Medical Services (EMS) personnel is not a substitute for care by my personal physician or hospital emergency department. Although I am not being transported to a hospital by EMS, my condition may still warrant care by a physician. I am responsible for seeking the care I feel is necessary,and I have a plan for doing so. I also release the EMS personnel and organizations involved with my current situation from all claims resulting from my voluntary refusal of treatment and/or transport. I understand that if I change my mind, I can call 9-1-1 at any time.

_____ _____ _____

Patient or Parent/Guardian signature Relationship (if applicable) Witness

_____ Medical Direction ID or name: _____

EMS Provider & Cert Number Consulted by: None _____ Radio _____ Phone _____ On scene _____

Check marks in shaded areas require consult with on-line medical direction.
White - Squad ; Pink - Patient; Yellow - File with District Medical Advisor Revised 5/23/2013

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Response to Domestic Violence 8.14

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 take appropriate action in accordance with state law.

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

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

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

Responsibility of EMS Provider

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

Policy Continues

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Policy Continued

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.

Referrals

The Vermont Network Against Domestic and Sexual Violence is the federally recognized domestic and sexual violence coalition in Vermont. Services include:

- Legal Advocacy and Support
- Hospital Support
- Financial and Personal Advocacy
- Shelters and Safe Homes
- Other Resources

Below are important resources that you should share with patients you suspect have been subjected to domestic or other forms of violence:

- Domestic Violence: **1-800-228-7395** (*Vermont Network Against Domestic and Sexual Violence*)
- Sexual Violence and Rape: **1-800-489-7273** (*Vermont Network Against Domestic and Sexual Violence*)
- Teen Dating Abuse: **1-866-331-9474** (*National Center on Domestic and Sexual Violence*)
- Adult Protective Services: **1-800-564-1612** (*Vermont Department of Licensing and Protection*)
- Child Abuse: **1-800-649-5285** (*Vermont Department for Children and Families*)
- Vermont Network Against Domestic and Sexual Violence website: http://www.vtnetwork.org/

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E/A/P

RESUSCITATION EFFORTS SHOULD BE WITHHELD UNDER THE FOLLOWING CIRCUMSTANCES:

- **Valid Do Not Resuscitate:** Refer to Do Not Resuscitate (DNR) & Clinician Orders (COLST) Protocol 8.8.
- **Scene Safety**: The physical environment is not safe for providers.
- **Dead on Arrival (DOA)**: A person is presumed dead on arrival when all five "Signs of Death" are present **AND** at least one associated "Factor of Death" is present.

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

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

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

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

SUDDEN UNEXPLAINED INFANT DEATH (SUID)

- An infant <**12** months who is apneic, asystolic (no heartbeat or umbilical cord pulse), and exhibiting lividity and/or rigor mortis may be presumed dead.

NEONATE

- A neonate who is apneic, asystolic, and exhibits either neonatal **maceration** (softening or degeneration of the tissues after death in utero) or **anencephaly** (absence of a major portion of the brain, skull, and scalp) may be presumed dead.
- Contact **Medical Control** if gestational age is less than 22 weeks and neonate shows signs of obvious **immaturity** (translucent and gelatinous skin, lack of fingernails, fused eyelids).

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

Policy Continues

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Policy Continued

RESUSCITATION MAY BE STOPPED UNDER THE FOLLOWING CIRCUMSTANCES:

- When the patient regains pulse/respirations. See Post Resuscitative Care Protocol – Adult 3.5A, Post Resuscitative Care Protocol -- Pediatric 3.5P, Cardiac Arrest Protocol -- Adult 3.2A or Cardiac Arrest Protocol – Pediatric 3.2P.
- The physical environment becomes unsafe for providers.
- The exhaustion of EMS providers.

TERMINATION OF RESUSCITATION (TOR) RULE (ADULTS ONLY):

1) Arrest not witnessed by emergency medical services personnel.
2) NO return of spontaneous circulation after 20 minutes of either BLS alone or combined BLS and ALS in the absence of hypothermia.
3) No shock was delivered or advised by the AED.

- o If ALL criteria are present, contact **Medical Control** and consider termination of resuscitation. Notify law enforcement.
- o **If ANY criteria are missing, continue resuscitation and transport.**

E/A

- Contact **Medical Control** to consider Termination of Resuscitation for any of the following:
  - o Arrest witnessed by EMS personnel, if patient has NO return of spontaneous circulation after 20 minutes of either BLS alone or combined BLS and ALS in the absence of hypothermia **AND** no shocks were delivered or advised; or
  - o Extrication is prolonged (>20 minutes) with no resuscitation possible during extrication (hypothermia is an exception); or
  - o If the patient is hypothermic and there is no return of spontaneous circulation after 30 minutes of either BLS alone or combined BLS and ALS.
- Cardiac arrests should generally be managed on scene until return of spontaneous circulation, decision to cease resuscitation, or criteria is met for transport to hospital as indicated by Termination of Resuscitation (TOR) Rule. If transport is initiated, resuscitation must be continued until arrival at the receiving hospital.
- May continue resuscitation and transport if conditions on scene are NOT amenable to cessation of resuscitation.

P

Contact **Medical Control** to consider Termination of Resuscitation for any of the following:

- Criteria present for Termination of Resuscitation (TOR) Rule.
- Patient is in asystole for greater than 20 minutes OR unresponsive to advanced cardiac life support with a non-shockable rhythm after 20 minutes of resuscitation and $ETCO_2$ level $\leq$ 10 mmHg.

Policy Continues

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Policy Continued

DETERMINING DEATH IN THE FIELD

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

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

E/A/P

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

MASS CASUALTY INCIDENT (MCI)

- See Mass/Multiple Casualty Triage Protocol 9.1.

DOCUMENTATION

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

- Prolonging resuscitation efforts, beyond 15 – 20 minutes, without a return of spontaneous circulation is usually futile, unless cardiac arrest is compounded by hypothermia or submersion in cold water.
- EMS providers are not required to transport every victim of cardiac arrest to a hospital. Unless special circumstances are present, it is expected that most resuscitations will be performed on-scene until the return of spontaneous circulation or a decision to cease resuscitation efforts is made based on the criteria listed. Transportation with continuing CPR is justified if hypothermia is present or suspected. Current AHA guidelines state: "cessation of efforts in the out-of-hospital setting…should be standard practice."
- An ETCO2 level of 10 mmHg or less measured 20 minutes after the initiation of advanced cardiac life support accurately predicts death in patients with cardiac arrest.

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8.16 Trauma Triage and Transport Decision

Measure Vital Signs and Level of Consciousness

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

YES →

- If feasible, and transport time ≤ 50 minutes, consider transport directly to closest Level 1 Trauma Center (FAHC, DHMC, AMC) by ground or air and notify receiving hospital of a "TRAUMA ALERT."
- If above is not feasible OR transport time > 50 minutes OR patient requires immediate airway or other stabilization not possible in field, transport to closest Emergency Department for initial management and then transfer to Level 1 Trauma Center. Notify receiving hospital of a "TRAUMA ALERT."

NO ↓

Assess Anatomy of Injury

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

YES →

NO ↓

Assess Mechanism of Injury and Evidence of High-Energy impact

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

YES →

- Transport to the closest appropriate facility.
- Consider contacting medical control about destination determination.
- Provide early patient notification
- Consider "TRAUMA ALERT".

NO ↓

Assess Special Patient or System Considerations

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

YES →

- Transport to the closest appropriate facility.
- Consider contacting medical control about destination determination.
- Provide early patient notification including presence of high risk factors.

NO ↓

Transport to closest hospital

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Hazardous Materials Exposure 9.0

PURPOSE

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

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

IDENTIFICATION

- Identification of the exposed material should be made at the earliest convenient time possible.
- Proper chemical name and spelling will be necessary for identification of procedures for Poison Control (1-800-222-1222) and receiving hospitals. Consider contacting Poison Control as soon as practical for consultation.
- Utilization of shipping papers, waybills, and Material Safety Data Sheets (MSDS) 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 Vermont Hazardous Materials Response Team HAZMAT Hotline at 800-641-5005 or through 911.

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.

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.

Protocol Continues

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Protocol Continued

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.
- 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.

Protocol Continues

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Protocol Continued

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.
- 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.
- Lining of the interior of the ambulance and further use of PPE may be necessary, dependent upon the level of completed decontamination.
- Communication of chemical exposure should be transmitted to the receiving hospital at the earliest possible time. Transmitted information should include such information as covered under the documentation and treatment section.

POISON Help®
1-800-222-1222

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9.1 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.
- Adoption of Model Uniform Core Criteria (MUCC).

DEFINITIONS

Multiple Casualty Situations

- The number of patients and the severity of the injuries do not exceed the ability of the provider to render care. Patients with life-threatening injuries are treated first.

Mass Casualty Incidents

- The number of patients and the severity of the injuries exceed the capability of the provider, and patients sustaining major injuries who have the greatest chance of survival with the least expenditure of time, equipment, supplies, and personnel are managed first.

GENERAL CONSIDERATIONS

Initial assessment to include the following:

- Location of incident.
- Type of incident.
- Any hazards.
- Approximate number of victims.
- Type of assistance required.

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.
- See Communications Policy 8.4 or Communications Failure Policy 8.5.

TRIAGE

Utilize a triage system such as "SALT" (Sort, Assess, Lifesaving Interventions, Treatment/ Transport) to prioritize patients. SALT is part of a CDC-sponsored project based upon best evidence and designed to develop a national standard for mass casualty triage.

- Assess each patient as quickly and safely as possible.
- Conduct rapid assessment.
- Assign patients to broad categories based on need for treatment (Still, Wave, Walk).
- Remember: Triage is not treatment! Stopping to provide care to one patient will only delay care for others. Standard triage care is only to correct airway and severe bleeding problems.

Protocol Continues

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Protocol Continued

TRIAGE CATEGORIES

- Immediate: **RED** Seriously injuries, immediately life-threatening problems, high potential for survival (i.e., tension pneumothorax, exposure to nerve agent resulting in severe shortness of breath or seizures). Likely to survive given available resources. If no to any of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Delayed**:** **YELLOW** Serious (not minor) injuries requiring care but management can be delayed without increasing morbidity or mortality (i.e., long bone fractures, 40% BSA exposure to Mustard gas). If yes to all of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Minimal: **GREEN** Injuries require minor care or no care (i.e., abrasions, minor lacerations, nerve agent exposure with mild runny nose). If yes to all of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Expectant: **GREY** Unlikely to survive given available resources. Does not mean Dead. Method of preserving resources: should receive comfort care or resuscitation when resources are available. Serious injuries: very poor survivability even with maximal care in hospital or pre-hospital setting (i.e., 90% body surface area burn, multiple trauma with exposed brain matter). If no to any of the following: Has a peripheral pulse? Not in respiratory distress? Hemorrhage is controlled? Follows commands or makes purposeful movements?
- Dead**:** **BLACK** Patient is not breathing after opening airway. (In children, if after giving 2 rescue breaths, if appropriate.) Deceased or casualties whose injuries are so severe that their chance of survival does not justify expenditure of limited resources. Tag patients to prevent re-triage. Do not move bodies unless they are hindering efforts to rescue live patients, or they are in danger of being further damaged, for example, burned by fire, building collapse, etc.

TAGGING SYSTEM

- Use water-repellent triage tags with waterproof markers and attach to the patient.
- Indicate patient's triage priority, degree of decontamination performed, treatment and medications received.

TRIAGE IN HAZARDOUS MATERIAL INCIDENTS

Decontamination

The need for decontamination is the "first triage decision." since decontamination can be a lengthy process, the "second decision" is which patient(s) are the first to be decontaminated. The "third decision" is based on need for treatment during the decontamination process, since only simple procedures such as antidote administration can be accomplished while wearing PPE.

Identification and Treatment

- Signs and symptoms of exposure will usually dictate the treatment required, however, at the earliest possible time, identification of the specific chemical should be made.
- Reference additional hazardous materials protocols as necessary.
- Request additional resources. Initial antidote and medical supplies may be limited to priority patients.
- Respiratory compromise is a leading factor of fatalities due to hazardous material exposure. Symptoms of chemical exposure may be delayed and occur suddenly. Constant reevaluation of respiratory status is necessary.

Protocol Continues

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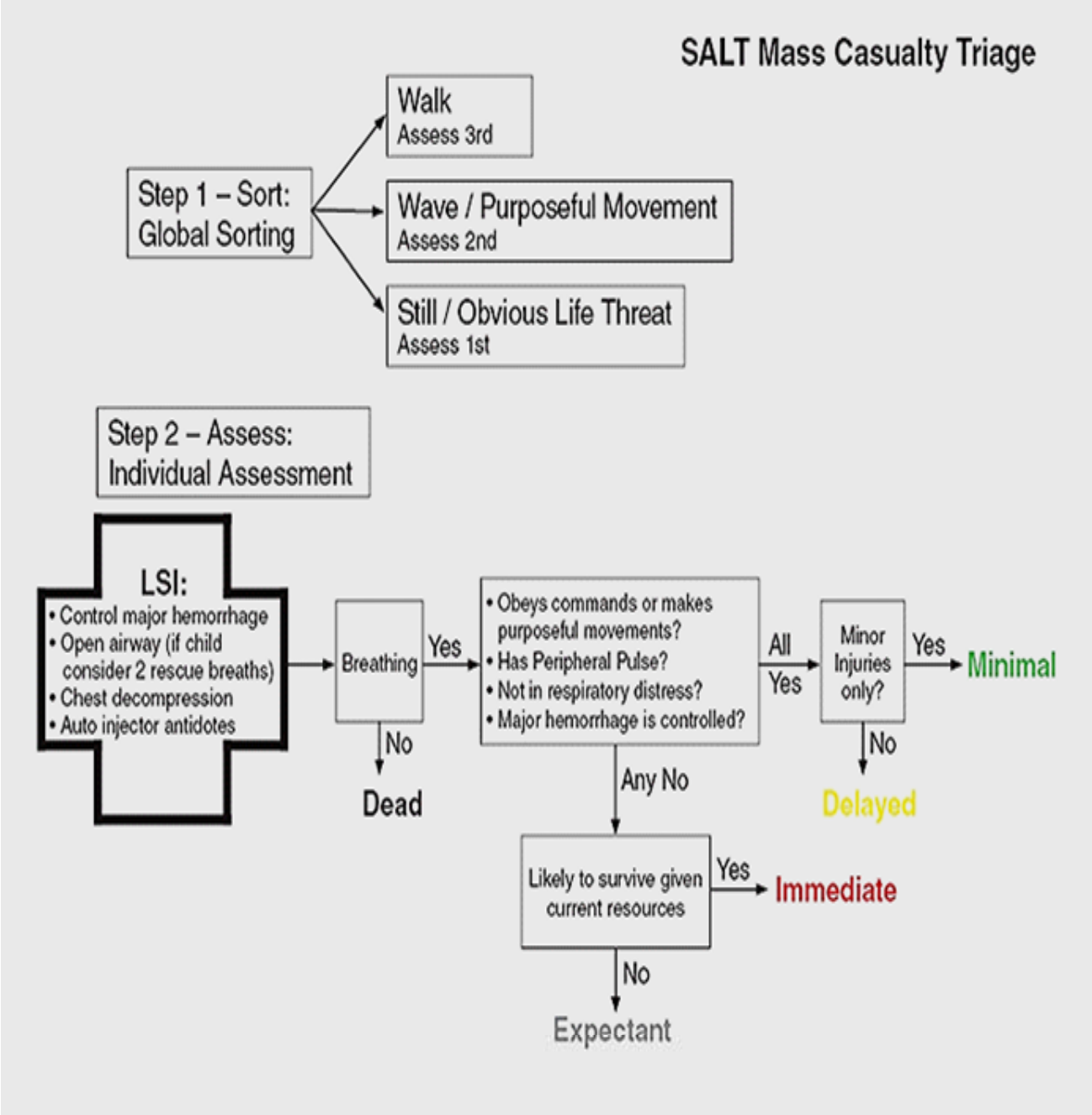
Protocol Continues



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Radiation Injuries Adult & Pediatric

9.2

EMT/ADVANCED EMT STANDING ORDERS

E/A

- Remove the patient from scene and decontaminate by appropriately trained personnel.
- If triage is required for a mass casualty event, use the following guidelines:
  - 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 "Minimal".
- 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 – Adult & Pediatric 2.10.
- Consider pain management. See Pain Management Protocol – Adult 2.16A or Pain Management Protocol – Pediatric 2.16P.

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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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Vermont Adult Medication Reference

This document is to serve as a reference for the 2013 Vermont Statewide Protocols.

See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Acetaminophen (Tylenol) **Indications/Contraindications:** • Indicated for fever control. • Avoid in patients with severe liver disease.	**CCP Only** • 500 - 1000 mg. • 650 mg every 4 hours OR 1000 mg every 6 hours, not to exceed 4,000 mg/24 hours.
Activated Charcoal **Indications:** • Poisoning/Overdose.	**Poisoning/Substance Abuse/Overdose** • 25 – 50 grams PO if advised by **Medical Control**.

Adenosine (Adenocard)
 	
Indications/Contraindications:
• Specifically for treatment or diagnosis of Supraventricular Tachycardia.
• Consider for regular or wide complex tachycardia
	Tachycardia
	• 6 mg rapid IV push, followed by rapid flush.
	  ▪ May repeat 12 mg if no conversion.
	  ▪ May repeat successful dose if rhythm recurs after conversion.

Albuterol
 	
Indications/Contraindications:
• Nebulized treatment for use in respiratory distress with bronchospasm.
• Hyperkalemia.
	Allergic Reaction/Anaphylaxis
	• 2.5 mg via nebulizer x 1 dose.
	  ▪ Contact **Medical Control** for additional dosing.
	• 0.5 mg ipratropium and 2.5 mg albuterol (DuoNeb) x 1 dose.
	  ▪ Contact **Medical Control** for additional dosing.
	
	Asthma/COPD/RAD
	• 2 puffs per dose of MDI (albuterol or combination albuterol/ipratropium bromide).
	  ▪ May repeat every 5 minutes (4 doses total).
	• 2.5 mg albuterol via nebulizer.
	  ▪ May repeat every 5 minutes (4 doses total).
	• 2.5 mg albuterol and 0.5 mg ipratropium (DuoNeb).
	  ▪ May repeat every 5 minutes (4 doses total).

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Medication	Adult Protocol/Dosing

Amiodarone (Cordarone)
 	
Indications/Contraindications:
• Antiarrhythmic used mainly in wide complex tachycardia and ventricular fibrillation.
• Avoid in patients with heart block or profound bradycardia.
• Contraindicated in patients with iodine hypersensitivity.
	Cardiac Arrest
	V-Fib/Pulseless V-Tach
	• 300 mg IV push.
	  ▪ Repeat dose of 150 mg IV push for recurrent episodes.
	
	Post Rescusitative Care
	• 150 mg IV/IO bolus over 10 minutes.
	• Infusion 1 mg/min IV/IO.
	
	Tachycardia
	Wide complex tachycardia
	• 150 mg mixed with 50 mL D_5W over 10 min.
	  ▪ May repeat once in 10 minutes.
	  ▪ If successful, consider maintenance infusion of 1 mg/min.

Aspirin **Indications/Contraindications:** • An antiplatelet drug for use in cardiac chest pain. • History of anaphylaxis to aspirin or NSAIDs • Active GI bleeding	**Acute Coronary Syndrome** • 324 mg PO.
Atropine **Indications/Contraindications:** • Anticholinergic drug used in bradycardias and organophosphate poisonings.	**Bradycardia** • 0.5 mg IV every 3 – 5 minutes up to total of 3 mg. **Nerve Agent/Organophosphate Poisoning** • 2 mg IV; repeat every 5 minutes until excess secretions cease (stop).
Atropine and Pralidoxime Auto-Injector (DuoDote or MARK I) Nerve Agent Kit **Indications/Contraindications:** • Antidote for Nerve Agents or Organophosphate Overdose.	**Nerve Agent/Organophosphate Poisoning** • Refer to Nerve Agents Organophosphate Poisoning Protocol – Adult 2.11A for symptom assessment and dosing guidelines.

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Vermont Adult Medication Reference

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Medication	Adult Protocol/Dosing
Calcium Chloride 10% solution **Indications/Contraindications:** • Indicated for calcium channel blocker overdose,hyperkalemia, or beta blocker overdose	**Bradycardia** • 500 to 1,000 mg (5 to 10 mL of a 10% solution) IV/IO over 10 minutes. • Avoid use if pt is taking digoxin. • May repeat as needed. Contact **Medical Control**. **Cardiac Arrest** • 500 to 1,000 mg (5 to 10 mL of a 10% solution) slow IV/IO push for known or suspected hyperkalemic (dialysis patient/renal failure) or an antidote for toxic effects (hypotension and arrythmias) from calcium channel blocker or Bblocker overdose. Do not mix with or infuse immediately before or after sodium bicarbonate. Do not use routinely in cardiac arrest. • May repeat as needed. Contact **Medical Control**.

Dextrose 5%, 10%, 25%, 50%
Glucose solutions
 	
Indications/Contraindications:
• Symptomatic hypoglycemia.
• Use in medication infusion medium.
	Diabetic Emergencies
	• Dextrose (D_{50}) up to 25 grams.
	  ▪ Recheck blood glucose after 5 minutes.
	  ▪ Repeat up to 25 grams if glucose levels < 80 mg/dl with continued altered mental status.

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Medication	Adult Protocol/Dosing
Diazepam (Valium) **Indications/Contraindications:** • Seizure control. • Sedation. • Anxiolytic.	**Bradycardia** • 2 mg IV/IO, may repeat once in 5 minutes. **Continuous Positive Airway Pressure (CPAP)** • 5 mg IV (then 2.5 mg every 5 minutes to total of 20 mg). **Hyperthermia** • 2 mg IV, may repeat once in 5 minutes. **Nerve Agent/Organophosphate Poisoning** • 5 mg IV every 5 minutes **OR** • 10 mg IM **OR** • Diazepam auto-injector (10mg). • Repeat 10 minutes as needed **Poisoning/Substance Abuse/Overdose** • 2 mg IV, may repeat once in 5 minutes **Restraint** • 2.5 mg IV, may repeat once in 5 minutes **Seizure** • 5 – 10 mg IV (then 2.5 mg every 5 minutes to a total of 20 mg). **Tachycardia** • 2 mg IV, may repeat once in 5 minutes. **Traumatic Brain Injury** • 2 mg IV, may repeat once in 5 minutes.

Diltiazem (Cardizem)
 	
Indications/Contraindications:
• Calcium channel blocker used to treat narrow complex SVT.
• Contraindicated in patients with heart block, ventricular tachycardia, WPW, and/or acute MI.
	Tachycardia
	Narrow Complex Tachycardia
	• 0.25 mg/kg IV/IO (maximum dose 20 mg) over 2 minutes.
	  ▪ Consider 10 mg maximum dose for elderly patient or patient with low BP.
	  ▪ May repeat dose in 15 minutes at 0.35 mg/kg (maximum dose 25 mg) if necessary.
	  ▪ Consider maintenance infusion 5 – 15 mg/hour IV/IO.

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Diphenhydramine (Benadryl) **Indications/Contraindications:** • Antihistamine used as an adjunctive treatment in allergic reactions. • Antidote for dystonic reaction.	**Allergic Reaction/Anaphylaxis** • 25 - 50 mg IV/IM ▪ May repeat 4 – 6 hours as needed, maximum dose of 300 mg/24 hrs. **Restraint** • For acute dystonic reaction to haloperidol, 25-50 mg IV **OR** 50 mg IM. **Nausea/Vomiting** • 25 – 50 mg IV/IM. • 25 mg PO/chewed. **Poisoning/Substance Abuse/Overdose** • 25 – 50 mg IV/IM.
Dopamine **Indications/Contraindications:** • A vasopressor used in shock or hypotensive states. • Infusion pump required.	**Bradycardia** • Infusion 5 – 10 mcg/kg/min. **Post Resuscitation** • Infusion 5 – 20 mcg/kg/min titrated to effect. **Septic Shock** • Infusion 5 – 20 mcg/kg/min. **Shock** • Infusion 5 – 20 mcg/kg/min.
Epinephrine 1:1,000 **Indications/Contraindications:** • Bronchodilation in Asthma and COPD exacerbation. Primary treatment for anaphlyaxis • Vasopressor in cardiac arrest.	**Allergic Reaction/Anaphylaxis** • 0.3 mg IM every 5 minutes x 2 doses. ▪ For additional dosing, contact **Medical Control**. **Asthma/COPD/RAD** • 0.3 mg IM (no repeat).

Epinephrine 1:10,000
 	
Indications/Contraindications:
• Vasopressor used in cardiac arrest.
	Allergic Reaction/Anaphylaxis
	• Refractory to IM Epi: 0.1 mg (1 mL) (diluted with 10 mL 0.9% NaCl or equivalent solution) slow IV administration over 3-5 minutes.
	  ▪ May repeat x 1 dose.
	  ▪ For additional dosing, contact **Medical Control.**
	
	Cardiac Arrest
	• 1 mg IV/IO.
	  ▪ Repeat every 3 – 5 minutes.
	
	Post-Resuscitative Care
	• Infusion 2-10 mcg/min IV/IO titrated to effect.
	
	Shock
	• Infusion 2-10 mcg/min titrated to effect.

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Etomidate (Amidate) **Indications/Contraindications:** • Sedative used in Rapid Sequence Intubation.	**Rapid Sequence Intubation** • 0.3 mg/kg IV / IO (maximum 40 mg).

Fentanyl (Sublimaze)
 	
Indications/Contraindications:
• Narcotic analgesic
• Avoid use if BP < 100 mmHg.
	Acute Coronary Syndrome
	• 25 – 50 mcg slow IV push.
	  ▪ Repeat every 5 minutes up to 300 mcg.
	
	Bradycardia
	• 25 – 50 mcg slow IV push.
	  ▪ May repeat every 5 minutes to a total of 300 mcg.
	
	Pain
	• 1 mcg/kg IV/intranasal. Max initial dose 100 mcg. Administer slow over 2 to 3 minutes.
	  ▪ Reassess patient every 5 minutes. If no contraindications and patient still in moderate to severe pain, may redose at 10-minute intervals at half the original dose to a total of 300 mcg.
	
	Rapid Sequence Intubation
	Post Intubation Paralysis
	• 50 – 100 mcg IV.
	  ▪ May repeat every 15 minutes (maximum 300 mcg).
	
	Nasotracheal and Orotracheal Intubation
	Post Intubation Care
	• 50 – 100 mcg, slow IV push.
	  ▪ May repeat every 15 minutes (maximum 300 mcg).
	  ▪ Contact **Medical Control** for additional dosing.

Glucagon
 	
Indications/Contraindications:
• Converts glycogen to glucose in the liver to increase blood sugar
• Use in patients with no IV access
• Indicated for beta blocker or calcium channel blocker overdose
	Bradycardia
	• 5 mg IV over 3 – 5 minutes.
	
	Diabetic
	• 1 mg IM.
	  ▪ Recheck glucose 15 minutes after administration of glucagon.
	  ▪ May repeat glucagon 1 mg IM if glucose level is <80 mg/dl with continued altered mental status.

Glucose Oral Glucose Solutions **Indications/Contraindications:** • Use in conscious hypoglycemic states.	**Diabetic Emergencies** • Administer 1 tube of commercially prepared glucose gel or equivalent.

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Haloperidol (Haldol) **Indications/Contraindications:** • Medication to assist with sedation of agitated patients. • Chemical restraint. • Caution: May lower seizure threshhold.	**Restraint** • 5 mg IM; may repeat once in 5 minutes, maximum total dose 10 mg.
Heparin **Indications/Contraindications** • STEMI and no affirmative finding from fibrinolytic questionnaire. • Contraindication - history of Heparin Induced Thrombocytopenia	**CCP Only** • Heparin 5000 u IV bolus.
Hydrocortisone (Solu-Cortef)	**Adrenal Insufficiency** • 100 mg IV/IM. **Shock** • 100 mg IV/IM.
Hydroxocobalamin (Cyanokit)	**Smoke Inhalation** • See Smoke Inhalation Protocol — Adult 2.21A or Smoke Inhalation Protocol – Pediatric 2.21P for administration guidance.
Ibuprofen (Motrin) **Indications/Contraindications:** • A non-steroidal anti-inflammatory drug (NSAID) fever control. • Avoid in women who are pregnant or could be pregnant. • Use with caution in patients with dehydration, cardiovascular disease, or preexisting renal disease.	**CCP Only** • 400 – 800 mg PO. • If ibuprofen has been taken within the last 6 hours: Consider acetaminophen 500 – 1,000 mg PO. • May repeat ibuprofen dose 400 - 600 mg every 6 hours or 800 mg every 8 hours. Maximum of 2,400 mg/24 hours.

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing

Ipratropium Bromide (Atrovent)
 	
Indications/Contraindications:
• Anticholinergic bronchodilator. Blocks the muscarinic receptors of acetylcholine.
• Relief of bronchospasm in patients with reversible obstructive airway disease and bronchospasm.
	Asthma/COPD/RAD
	• 2 puffs per dose of MDI combination of albuterol/ipratropium bromide.
	  ▪ May repeat every 5 minutes (4 doses total). **OR**
	• 0.5 mg ipratropium and 2.5 mg albuterol (DuoNeb).
	  ▪ May repeat every 5 minutes (4 doses total).
	
	Allergic Reaction/Anaphylaxis
	• 0.5 mg ipratropium and 2.5 mg albuterol (DuoNeb) x 1 dose
	  ▪ Contact Medical Control for additional dosing.

Ketamine **Indications/Contraindications:** • Sedative used in Rapid Sequence Intubation.	**Rapid Sequence Intubation** **{Sedate then} Paralyze** • 2 mg/kg IV* *This is a second-line medication ONLY to be used in the event that your MRH is experiencing a shortage of etomidate.
Levalbuterol (Xopenex)	**Asthma/COPD/RAD** • 2 puffs per dose of MDI. ▪ May repeat every 5 minutes (4 doses total). • 1.25 mg via nebulizer, repeat every 20 minutes (4 doses total).

Lidocaine
 	
Indications/Contraindications:
• Antiarrhythmic used for control of ventricular dysrhythmias.
• Used prior to intubation of patients with suspected increased intracranial pressure (e.g., TBI, ICH) to reduce increases in intracranial pressure
• Anesthetic for nasotracheal intubation and intraosseous.
	Cardiac Arrest
	• 1 to 1.5 mg/kg IV/IO.
	  ▪ Repeat dose 0.50 - 0.75 mg/kg up to a maximum dose of 3 mg/kg.
	
	Tachycardia
	• 1 – 1.5 mg/kg IV. (considered second-line therapy only if Amiodarone is contraindicated).
	  ▪ May repeat once in 5 minutes to maximum of 3 mg/kg.
	  ▪ If successful, consider a maintenance infusion of 1 – 4 mg/min IV/IO.
	
	Traumatic Brain Injury
	• 1.5 mg/kg approximately 3 minutes prior to intubation.
	
	Nasotracheal Intubation
	• 2% lidocaine jelly.
	
	Rapid Sequence Intubation
	• 1.5 mg/kg.
	
	Intraosseous Access
	• 2 – 5 mL (20 – 50 mg) 2% lidocaine.

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Vermont Adult Medication Reference

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See the Pediatric Color Coded Appendix for pediatric dosages

Medication	Adult Protocol/Dosing
Lorazepam (Ativan) **Indications/Contraindications:** • Seizure control. • Sedation. • Anxiolytic.	**Bradycardia** • 1 mg IV/IO, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Continuous Positive Airway Pressure (CPAP)** • 0.5 - 1 mg IV; may repeat once in 5 minutes **OR** • 1 – 2 mg IM, may repeat once in 10 minutes. **Hyperthermia** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Induced Mild Hypothermia** • 1 – 2 mg IV/IO. May repeat every 15 minutes as needed for shivering or sedation (maximum 10 mg). **Nasotracheal and Orotracheal Intubation** **Post Intubation Care** • 1 - 2 mg IV, may repeat in 15 minutes (maximum 10 mg). • Contact **Medical Control** for additional dosing **Nerve Agent/Orophosphate Poisoning** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Poisoning/Substance Abuse/Overdose** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Rapid Sequence Intubation** **Post Intubation Care** • 1 - 2 mg IV every 15 minutes as needed for sedation (maximum 10 mg) **AND** Fentanyl 50 – 100 mcg IV, may repeat every 15 minutes as needed for anesthesia (maximum dose 300 mcg). **Restraint** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Seizure** • 1 - 2 mg IV, may repeat every 5 minutes **OR** • 2 – 4 mg IM, may repeat every 10 minutes, to a total of 8 mg. **Tachycardia** • 1 mg IV/IO, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes. **Traumatic Brain Injury** • 1 mg IV, may repeat once in 5 minutes **OR** • 2 mg IM, may repeat once in 10 minutes.

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Medication	Adult Protocol/Dosing
Magnesium Sulfate **Indications/Contraindications:** • Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy. • A smooth muscle relaxor used in refractory respiratory distress resistent to beta-agonists. • Torsades de Pointes.	**Asthma/COPD/RAD** • 2 grams in 50 mL D_5W given IV over 10 minutes. **Cardiac Arrest** • 1 – 2 grams IV/IO over 5 minutes. **Obstetrical Emergencies** • 4 grams slow IV push over 5 minutes in the presence of seizure in the third trimester of pregnancy or post partum. **Seizures** • 4 grams slow IV push over 5 minutes in the presence of seizure in the third trimester of pregnancy or post partum. **Tachycardia – Torsades de Pointes.** • If pulse present, contact **Medical Control** and consider 1 – 2 grams diluted in 50 mL D_5W over 5 – 20 minutes.
Methylprednisolone (Solu-medrol) **Indications/Contraindications:** • Steroid used in respiratory distress to reverse inflammatory and allergic reactions.	**Asthma/COPD/RAD** • 1 mg/kg IV, maximum dose 125 mg. **Allergic Reaction/Anaphylaxis** • 1 mg/kg IV, maximum dose 125 mg.
Metoclopramide (Reglan) **Indications/Contraindications:** • Anti-Emetic used to control Nausea and/or Vomiting	**Nausea/Vomiting** • 5 mg IV. • May repeat once after 10 minutes if nausea/vomiting persists.
Metoprolol (Lopressor) **Indications/Contraindications:** • Use for rate control in narrow complex tachycardia with an irregular rhythm. • Contraindicated in patients with HR < 45 bpm, SBP < 100 mmHg, heart block or acute heart failure syndromes (CHF or cardiogenic shock). • Use with caution in patients with bronchospastic disease (asthma, COPD).	**Tachycardia** • 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 BPM.

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Medication	Adult Protocol/Dosing
Midazolam (Versed) **Indications/Contraindications:** • Seizure control. • Sedation. • Anxiolytic.	**Bradycardia** • 2.5 mg IV/IO/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Continuous Postive Pressure Airway (CPAP)** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Hyperthermia** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Induced Mild Hypothermia** • 2.5 mg IV/IO/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Nasotracheal and Orotracheal Intubation** **Post Intubation Care** • 2.5 – 5 mg IV, every 5 – 10 minutes as needed, maximum 20 mg). ▪ Contact Medical Control for additional dosing. **Nerve Agent/Organophosphate Poisoning** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Poisoning/Substance Abuse/Overdose** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Rapid Sequence Intubation** **Post Intubation Care** • 2 - 5 mg IV, every 5 – 10 minutes as needed (maximum dose 20 mg) AND 50 – 100 mcg Fentanyl IV, may repeat every 5 minutes as needed for anesthesia (max dose 300 mcg). **Rapid Sequence Intubation** **{Sedate then} Paralyze** • 0.2 mg/kg IV; 0.1mg/kg IV for patients in shock. **Restraint** • 2.5 mg IV may repeat once in 5 minutes **OR** • 5 mg IM/intranasal may repeat once in 10 minutes. **Seizure** • 2.5 – 5 mg IV/intranasal every 5 minutes, **OR** • 10 mg IM. May repeat 5 mg IM every 10 minutes until seizure activity resolved (maximum dose 20 mg). **Tachycardia** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes. **Traumatic Brain Injury** • 2.5 mg IV/intranasal may repeat once in 5 minutes **OR** • 5 mg IM may repeat once in 10 minutes.

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Medication	Adult Protocol/Dosing
Morphine Sulfate **Indications/Contraindications:** • Narcotic analgesic • Avoid use if BP < 100 mmHg.	**Acute Coronary Syndrome** • 2 – 4 mg IV/IM every 5 minutes to a maximum of 15 mg titrated to pain and systolic BP remains >100 mmHg. **Bradycardia** • 2 – 4 mg IV every 10 minutes to a total of 15 mg. **Pain** • 0.1 mg/kg IV. Max initial initial dose 10 mg. Administer slow over 2 to 3 minutes. ▪ Reassess patient every 5 minutes. If no contraindications and patient still in moderate to severe pain, may redose at 10-minute intervals at half the original dose to a total of 20 mg.
Naloxone (Narcan) **Indications/Contraindications:** • Narcotic overdose.	**Altered Mental Status (Unknown Etiology)** • 1 mg (1 mL) per nostril via atomizer for a total of 2 mg. • 0.4 – 2 mg IV/IO/IM/SQ/intranasal. If no response, may repeat initial dose every 5 minutes to a total of 10 mg. **Pain** • **Antidote:** For hypoventilation from opiate administration by EMS personnel, administer naloxone 0.4 – 2.0 mg SQ/IV/IO/IM/intranasal as needed. **Poisoning/Substance Abuse/Overdose** **Narcotic Overdose** • 1 mg (1 mL) per nostril via atomizer for a total of 2 mg. • 0.4 – 2 mg IV/IO/IM/SQ/intranasal. ▪ If no response, may repeat initial dose every 5 minutes to a total of 10 mg.
Neo-Synephrine	**Nasotracheal Intubation** • Pre-medicate nasal mucosa with a vasoconstricting nasal dcongestant spray such as neo-synephrine, if available.

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Medication	Adult Protocol/Dosing
Nitroglycerin **Indications/Contraindications:** • Vasodilator used in the treatment of chest pain secondary to acute coronary syndrome and CHF • Infusion pump required for infusion.	**Acute Coronary Syndrome** • Facilitate administration of patient's own nitroglycerin every 3 – 5 minutes while symptoms persist and systolic BP remains >100 mmHg, to a total of 3 doses. Contact **Medical Control** for additional dosing. • 0.4 mg SL every 3 – 5 minutes while symptoms persist and if systolic BP remains >100 mmHg. • 10 mcg/min IV if symptoms persist after 3rd SL nitroglycerin (must be on a pump). • Increase IV nitroglycerin by 10 mcg/min every 5 minutes while symptoms persist and systolic remains >100 mmHg, max dose 200 mcg/min. • If IV nitroglycerin is not available, consider the application of nitroglycerin paste 1 – 2 inches transdermally. **Congestive Heart Failure** • Contact **Medical Control** to facilitate administration of patient's own nitroglycerin, while symptoms persist and systolic BP remains >100 mmHg. • Consider nitroglycerin 0.4 mg SL every 5 minutes while symptoms persist and if the systolic BP is >100 mmHg. (**AEMTs** must contact **Medical Control** prior to administration.) • If not improving with above measures and systolic BP remains >100 mmHg, consider: IV nitroglycerin 5 mcg/min, increase by 5 mcg/min every 3 – 5 minutes to 20 mcg/min. (The IV nitroglycerin must be on an infusion pump). • If no response at 20 micrograms/minute, may increase by 10 – 20 mcg/min every 3 – 5 minute. (Generally accepted maximum rate: 200 mcg/min.) • If patient improves after SL, may apply nitroglycerin paste 1" – 2" transdermally.
Nitrous Oxide **Indications/Contraindications:** • "Non-narcotic analgesic gas • Contraindicated in abdominal pain, pneumothorax, head injury, or diving emergency patients.	**Pain** • Patient self administers gas for pain control as needed
Norepinephrine (Levophed) **Indications/Contraindications:** • Apha and Beta 1 receptor adronergic receptor agonist vasopressor • Infusion pump required.	**Post Resuscitation Care** • Infusion 1 – 30 mcg/min, titrated to effect. **Septic Shock** • Contact **Medical Control** and consider infusion 1 – 30 mcg/min **Shock** • Infusion 1 – 30 mcg/min (preferred agent).

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Medication	Adult Protocol/Dosing
Ondansetron (Zofran) Anti-emetic **Indications/Contraindications:** • Anti-emetic used to control nausea and/or vomiting.	**Nausea/Vomiting** • 4 mg IV/ODT. ▪ May repeat once after 10 minutes if nausea/vomiting persists.
Oxygen **Indications/Contraindications:** • Indicated in any condition with increased cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion. Goal oxygen saturation ≥94%. • Indicated for pre-oxygenation whenever possible prior to endotracheal intubation. Goal oxygen saturation 100%.	• 1-4 liters/min via nasal cannula. • 6-15 liters/min via NRB mask. • 15 liters via BVM / ETT / supraglottic airway.
Oxytocin (Pitocin) **Indications/Contraindications:** Post-partum hemorrhage after placental delivery	**Obstetrical Emergencies** • Oxytocin 10 units IM.
Phenylephrine Pump Required.	**Post Resuscitative Care** • 100 – 180 mcg loading dose followed by infusion 40 – 60 mcg/min, titrated to effect.

Pralidoxime (2-PAM)
 	
Indications/Contraindications:
• Antidote for Nerve Agents or Organophosphate Overdose.
• Administered with Atropine.
	Nerve Agent
	• 1 – 2 gram IV.
	  ▪ Reconstitute pralidoxime 1 gram vial with 20 mL sterile water for injection.
	  ▪ Dilute reconstituted pralidoxime 1 gram in 100 mL of 0.9% NaCl (may dilute 1-2 grams in this manner).
	  ▪ Infuse over 5 minutes (1 gram dose) to 10 minutes (2 gram dose).
	
	• **Medical Control:** See Nerve Agents/Organophosphate Poisoning Protocol – Adult 2.11A for infusion guidance.

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Medication	Adult Protocol/Dosing
Prochlorperazine (Compazine) **Indications/Contraindications:** • Anti-Emetic used to control Nausea and/or Vomiting.	**Nausea/Vomiting** • 5 – 10 mg IV, or 5 mg IM. ▪ May repeat once after 10 minutes if nausea/vomiting persists.
Proparacaine (Alcaine) **Indications/Contraindications:** • Topical anesthetic	**Eye Injuries** • 2 drops to affected eye; repeat every 5 minutes as needed.
Rocuronium **Indications/Contraindications:** • Non-depolarizing paralytic agent used as a component of rapid sequence intubation, when succinylcholine is contraindicated and for post intubation paralysis. • Onset of action is longer than succinylcholine, up to 3 minutes, patient will NOT defasciculate.	**Induced Mild Hypothermia** • 1 mg/kg IV. **Rapid Sequence Intubation** **Post Intubation Sedation** • 1 mg/kg IV via **on-line Medical Control** only. **Rapid Sequence Intubation** **{Sedate then} Paralyze** • 1 mg/kg IV.
Sodium Bicarbonate **Indications/Contraindications:** • A buffer used in acidosis to increase the pH in Cardiac Arrest, Hyperkalemia or Tricyclic Overdose, crush syndrome	**Poisoning/Substance Abuse/Overdose** **Tricyclic with symptomatic dysrhythmias, (eg. tachycardia and wide QRS):** • 1 mEq/kg IV. **Cardiac Arrest** • 1 – 2 mEq/kg IV/IO. **Rhabdomyolysis/Crush Injury** • 1 – 2 mEq/kg IV/IO.

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Medication	Adult Protocol/Dosing
Succinylcholine **Paralytic Agent** **Indications/Contraindications:** • Paralytic Agent used as a component of rapid sequence intubation. • Avoid in patients with burns >24 hours old, chronic neuromuscular disease (e.g., muscular dystrophy), ESRD, or other situation in which hyperkalemia is likely.	**Rapid Sequence Intubation** • 1.5 mg/kg IV immediately after sedation.
Tetracaine **Indications/Contraindications:** Topical anesthetic	**Eye Injuries** • 2 drops to affected eye; repeat every 5 minutes as needed.
Vasopressin **(Pitressin)** **Indications/Contraindications:** • Used in place of and/or in addition to epinephrine in the setting of cardiac arrest.	**Cardiac Arrest** • 40 units IV / IO, may replace first or second dose of epinephrine. **Septic Shock** • If inadequate response to norepinephrine, consider adding 40 units vasopressin (2 vials of 20 units each) to 100 mL D5W. Infuse at 0.04 units/min (6 mL/hr). **Shock** • If inadequate response to norepinephrine, consider adding vasopressin 0.04 units/min.
Vecuronium **Paralytic Agent** **Indications/Contraindications:** • Long-acting non-depolarizing paralytic agent. • Avoid in patients with chronic neuromuscular disease (e.g., muscular dystrophy).	**Induced Mild Hypothermia** • 0.1 mg/kg IV. (Patient must be intubated.) **Rapid Sequence Intubation** **Post Intubation Paralysis** • 0.1 mg/kg IV **via on-line Medical Control only**. **Rapid Sequence Intubation** **{Sedate then} Paralyze** • 0.1 mg/kg IV.

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Pediatric Color Coded Appendix

Weight 3-5 Kg (Avg 4.0 Kg) / Length < 59.5 cm

Gray (0-3 months)

Vital Signs	
Heart Rate	120-150
Respirations	24-48
BP Systolic	70 (+/-25)
Equipment	
ET Tube	2.5 - 3.5
Blade Size	0 - 1
Defibrillation	
Defibrillation	8 J, 15 J
Cardioversion	2 J, 4 J
Normal Saline	80 mL
Acetaminophen	HOLD
Adenosine	
1st Dose	0.4 mg
Repeat Dose	0.8 mg
Albuterol	2.5 mg
Amiodarone	20 mg
Atropine- Bradycardia	0.08 mg
- Organophosphate Poison	0.2 mg
Calcium Chloride	81 mg

Dextrose 10%	20 mL
Diazepam (IV)	1 mg
(Rectal)	2 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	0.3 mL/hr
5 mcg/kg/min	0.9 mL/hr
10 mcg/kg/min	1.7 mL/hr
20 mcg/kg/min	3.3 mL/hr
Epinephrine 1:10,000	
Cardiac	0.04 mg
Refractory Anaphylaxis	0.04 mg
Epinephrine 1:1000	
Nebulized	2.5 mg
IM	0.04 mg
Fentanyl	2 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	10 mg
Hydroxocobalamin	300 mg
Ibuprofen	HOLD
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	4 mg
Traumatic Brain Injury	6 mg
Intraosseous	2 mg
Lorazepam	0.4 mg
Magnesium Sulfate	
RAD	150 mg
Torsades	200 mg
Methylprednisolone	4 mg
Midazolam	0.4 mg
Morphine Sulfate	0.4 mg
Naloxone	0.4 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	1.5 mL/hr
0.2 mcg/kg/min	3 mL/hr
0.5 mcg/kg/min	7.5 mL/hr
1 mcg/kg/min	15 mL/hr
2 mcg/kg/min	30 mL/hr
Ondansetron - IV	0.4 mg
Pralidoxime IM	60 mg
IV (over 30-60 mins)	200 mg
Infusion	200 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	4 mEq
Tetracaine	2 drops

Weight 6-7 Kg (Avg 6.5 Kg) / Length 59.5-66.5 cm

Pink (3-6 months)

Vital Signs	
Heart Rate	120-150
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	30 mg
Atropine- Bradycardia	0.13 mg
- Organophosphate Poison	0.32 mg
Calcium Chloride	130 mg

Dextrose 10%	35 mL
Diazepam (IV)	1 mg
(Rectal)	3 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	0.5 mL/hr
5 mcg/kg/min	1.3 mL/hr
10 mcg/kg/min	2.5 mL/hr
20 mcg/kg/min	5 mL/hr
Epinephrine 1:10,000	
Cardiac	0.065 mg
Refractory Anaphylaxis	0.065 mg
Epinephrine 1:1000	
Nebulized	2.5 mg
IM	0.065 mg
Fentanyl	3 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	10 mg
Hydroxocobalamin	400 mg
Ibuprofen	HOLD
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	6.5 mg
Traumatic Brain Injury	9.75 mg
Intraosseous	3.25 mg
Lorazepam	0.65 mg
Magnesium Sulfate	
RAD	300 mg
Torsades	350 mg
Methylprednisolone	6.0 mg
Midazolam	0.6 mg
Morphine Sulfate	0.6 mg
Naloxone	0.6 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	2.4 mL/hr
0.2 mcg/kg/min	4.9 mL/hr
0.5 mcg/kg/min	12.2 mL/hr
1 mcg/kg/min	24.4 mL/hr
2 mcg/kg/min	48.7 mL/hr
Ondansetron - IV	0.6 mg
Pralidoxime IM	100 mg
IV (over 30-60 min)	325 mg
Infusion	325 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	7 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 8-9 Kg (Avg 8.5 Kg) / Length 66.5-74 cm

Red (7-10 months)

Vital Signs	
Heart Rate	120
Respirations	24-32
BP Systolic	92 (+/-25)
Equipment	
ET Tube	3.5-4.0
Blade Size	1
Defibrillation	
Defibrillation	20 J, 40 J
Cardioversion	5 J, 9 J
Normal Saline	170 mL
Acetaminophen	127.5 mg
Adenosine	
1st Dose	0.85 mg
Repeat Dose	1.7 mg
Albuterol	2.5 mg
Amiodarone	40 mg
Atropine- Bradycardia	0.17 mg
- Organophosphate Poison	0.42 mg
Calcium Chloride	172 mg

Dextrose 10%	43 mL
Diazepam (IV)	2 mg
(Rectal)	4 mg
Diphenhydramine	HOLD
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	0.7 mL/hr
5 mcg/kg/min	1.6 mL/hr
10 mcg/kg/min	3.2 mL/hr
20 mcg/kg/min	6.5 mL/hr
Epinephrine 1:10,000	
Cardiac	0.085 mg
Refractory Anaphylaxis	0.085 mg
Epinephrine 1:1000	
Nebulized	2.5 mg
IM	0.085 mg
Fentanyl	4 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	20 mg
Hydroxocobalamin	600 mg
Ibuprofen	80 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	8.5 mg
Traumatic Brain Injury	12.75 mg
Intraosseous	4.25 mg
Lorazepam	0.85 mg
Magnesium Sulfate	
RAD	350 mg
Torsades	400 mg
Methylprednisolone	8 mg
Midazolam	0.8 mg
Morphine Sulfate	0.8 mg
Naloxone	0.8 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	3.2 mL/hr
0.2 mcg/kg/min	6.4 mL/hr
0.5 mcg/kg/min	15.9 mL/hr
1 mcg/kg/min	31.9 mL/hr
2 mcg/kg/min	63.8 mL/hr
Ondansetron - IV	0.8 mg
- ODT	2 mg
Pralidoxime IM	125 mg
IV (over 30-60 min)	425 mg
Infusion	425 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	9 mEq
Tetracaine	2 drops

Weight 10-11 Kg (Avg 10.5 Kg) / Length 74-84.5 cm

Purple (11-18 months)

Vital Signs	
Heart Rate	115-120
Respirations	22-30
BP Systolic	96 (+/-30)
Equipment	
ET Tube	4
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	50 mg
Atropine- Bradycardia	0.21 mg
- Organophosphate Poison	0.52 mg
Calcium Chloride	210 mg

Dextrose 10%	50 mL
Diazepam (IV)	2 mg
(Rectal)	5 mg
Diphenhydramine	12.5 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	0.8 mL/hr
5 mcg/kg/min	2 mL/hr
10 mcg/kg/min	4 mL/hr
20 mcg/kg/min	8 mL/hr
Epinephrine 1:10,000	
Cardiac	0.105 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.105 mg
Fentanyl	5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	20 mg
Hydroxocobalamin	700 mg
Ibuprofen	100 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	10.5 mg
Traumatic Brain Injury	15.75 mg
Intraosseous	5.25 mg
Lorazepam	1 mg
Magnesium Sulfate	
RAD	400 mg
Torsades	500 mg
Methylprednisolone	10 mg
Midazolam	1 mg
Morphine Sulfate	1 mg
Naloxone	1 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	3.9 mL/hr
0.2 mcg/kg/min	7.9 mL/hr
0.5 mcg/kg/min	19.7 mL/hr
1 mcg/kg/min	39.4 mL/hr
2 mcg/kg/min	78.8 mL/hr
Ondansetron - IV	1 mg
- ODT	2 mg
Pralidoxime IM	150 mg
IV (over 30-60 min)	525 mg
Infusion	525 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	11 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 12-14 Kg (Avg 13 Kg) / Length 84.5-97.5 cm

Yellow (19-35 months)

Vital Signs	
Heart Rate	110-115
Respirations	20-28
BP Systolic	100 (+/-30)
Equipment	
ET Tube	4.5
Blade Size	2
Defibrillation	
Defibrillation	30 J, 50 J
Cardioversion	6 J, 15 J
Normal Saline	260 mL
Acetaminophen	195 mg
Adenosine	
1st Dose	1.3 mg
Repeat Dose	2.6 mg
Albuterol	2.5 mg
Amiodarone	60 mg
Atropine- Bradycardia	0.26 mg
- Organophosphate Poison	0.65 mg
Calcium Chloride	259 mg
Dextrose 10%	70 mL
Diazepam (IV)	3 mg
(Rectal)	6 mg
Diphenhydramine	10 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	0.8 mL/hr
5 mcg/kg/min	2.5 mL/hr
10 mcg/kg/min	5 mL/hr
20 mcg/kg/min	10 mL/hr
Epinephrine 1:10,000	
Cardiac	0.13 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.13 mg
Fentanyl	6.5 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	900 mg
Ibuprofen	120 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg
Lidocaine	
Cardiac Arrest	13 mg
Traumatic Brain Injury	19.5 mg
Intraosseous	6.5 mg
Lorazepam	1.2 mg
Magnesium Sulfate	
RAD	500 mg
Torsades	650 mg
Methylprednisolone	12 mg
Midazolam	1.2 mg
Morphine Sulfate	1.2 mg
Naloxone	1.2 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	4.9 mL/hr
0.2 mcg/kg/min	9.8 mL/hr
0.5 mcg/kg/min	24.4 mL/hr
1 mcg/kg/min	48.8 mL/hr
2 mcg/kg/min	97.5 mL/hr
Ondansetron - IV	1.4 mg
- ODT	2 mg
Pralidoxime IM	200 mg
IV (over 30-60 min)	650 mg
Infusion	650 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	13 mEq
Tetracaine	2 drops

Weight 15-18 Kg (Avg 16.5 Kg) / Length 97.5-110 cm

White (3-4 years)

Vital Signs	
Heart Rate:	110-115
Respirations	20-26
BP Systolic	100 (+/-20)
Equipment	
ET Tube	5
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	80 mg
Atropine- Bradycardia	0.33 mg
- Organophosphate Poison	0.82 mg
Calcium Chloride	330 mg
Dextrose 10%	80 mL
Diazepam (IV)	3 mg
(Rectal)	8 mg
Diphenhydramine	20 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	1.2 mL/hr
5 mcg/kg/min	3 mL/hr
10 mcg/kg/min	6 mL/hr
20 mcg/kg/min	12 mL/hr
Epinephrine 1:10,000	
Cardiac	0.165 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.165 mg
Fentanyl	8 mcg
Glucagon	0.5 mg
Glucose Oral	1 tube
Hydrocortisone	30 mg
Hydroxocobalamin	1200 mg
Ibuprofen	160 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg
Lidocaine	
Cardiac Arrest	16.5 mg
Traumatic Brain Injury	24.75 mg
Intraosseous	8.25 mg
Lorazepam	1.6 mg
Magnesium Sulfate	
RAD	650 mg
Torsades	800 mg
Methylprednisolone	16 mg
Midazolam	1.6 mg
Morphine Sulfate	1.6 mg
Naloxone	1.6 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	6.2 mL/hr
0.2 mcg/kg/min	12.4 mL/hr
0.5 mcg/kg/min	30.9 mL/hr
1 mcg/kg/min	61.9 mL/hr
2 mcg/kg/min	123.8 mL/hr
Ondansetron - IV	1.6 mg
- ODT	4 mg
Pralidoxime IM	250 mg
IV (over 30-60 min)	825 mg
Infusion	825 mg
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	17 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 19-22 Kg (Avg 20.75 Kg) / Length 110-122 cm

Blue (5-6 years)

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	100 mg
Atropine- Bradycardia	0.41 mg
- Organophosphate Poison	1 mg
Calcium Chloride	416 mg

Dextrose 10%	100 mL
Diazepam (IV)	4.0 mg
(Rectal)	10 mg
Diphenhydramine	30 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	1.6 mL/hr
5 mcg/kg/min	3.9 mL/hr
10 mcg/kg/min	7.8 mL/hr
20 mcg/kg/min	16 mL/hr
Epinephrine 1:10,000	
Cardiac	0.2075 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.2075 mg
Fentanyl	10 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	40 mg
Hydroxocobalamin	1500 mg
Ibuprofen	200 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	20.75 mg
Traumatic Brain Injury	31.125 mg
Intraosseous	10.375 mg
Lorazepam	2 mg
Magnesium Sulfate	
RAD	850 mg
Torsades	1050 mg
Methylprednisolone	20 mg
Midazolam	2 mg
Morphine Sulfate	2 mg
Naloxone	2 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	7.8 mL/hr
0.2 mcg/kg/min	15.6 mL/hr
0.5 mcg/kg/min	38.9 mL/hr
1 mcg/kg/min	77.8 mL/hr
2 mcg/kg/min	155.6 mL/hr
Ondansetro - IV	2 mg
- ODT	4 mg
Pralidoxime IM	300 mg
IV (over 30-60 min)	1000 mg
Infusion	1000 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	21 mEq
Tetracaine	2 drops

Weight 23-29 Kg (Avg 27 Kg) / Length 122-137 cm

Orange (7-9 years)

Vital Signs	
Heart Rate	90
Respirations	18-22
BP Systolic	105 (+/-15)
Equipment	
ET Tube	6
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	130 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.3 mg
Calcium Chloride	540 mg

Dextrose 10%	135 mL
Diazepam (IV)	5 mg
(Rectal)	13 mg
Diphenhydramine	40 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	2 mL/hr
5 mcg/kg/min	5 mL/hr
10 mcg/kg/min	10 mL/hr
20 mcg/kg/min	20 mL/hr
Epinephrine 1:10,000	
Cardiac	0.27 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.27 mg
Fentanyl	13.5 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	60 mg
Hydroxocobalamin	1900 mg
Ibuprofen	280 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	27 mg
Traumatic Brain Injury	40.5 mg
Intraosseous	13.5 mg
Lorazepam	2.8 mg
Magnesium Sulfate	
RAD	1100 mg
Torsades	1350 mg
Methylprednisolone	28 mg
Midazolam	2.8 mg
Morphine Sulfate	2.8 mg
Naloxone	2 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	10.1 mL/hr
0.2 mcg/kg/min	20.3 mL/hr
0.5 mcg/kg/min	50.6 mL/hr
1 mcg/kg/min	101.3 mL/hr
2 mcg/kg/min	202.5 mL/hr
Ondansetron - IV	2.8 mg
- ODT	4 mg
Pralidoxime IM	400 mg
IV (over 30-60 min)	1350 mg
Infusion	1350 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	27 mEq
Tetracaine	2 drops

Pediatric Color Coded Appendix

Weight 30-36 Kg (Avg 33 Kg) / Length 137-150 cm

Green (10-12 years)

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	3.6 mg
Repeat Dose	7.2 mg
Albuterol	2.5 mg
Amiodarone	180 mg
Atropine- Bradycardia	0.5 mg
- Organophosphate Poison	1.8 mg
Calcium Chloride	718 mg

Dextrose 10%	180 mL
Diazepam (IV)	7.2 mg
(Rectal)	18 mg
Diphenhydramine	50 mg
Dopamine (800 mg in 500 mL)	
2 mcg/kg/min	2.7 mL/hr
5 mcg/kg/min	7.0 mL/hr
10 mcg/kg/min	14 mL/hr
20 mcg/kg/min	28.0 mL/hr
Epinephrine 1:10,000	
Cardiac	0.36 mg
Refractory Anaphylaxis	0.1 mg
Epinephrine 1:1000	
Nebulized	5 mg
IM	0.36 mg
Fentanyl	18 mcg
Glucagon	1 mg
Glucose Oral	1 tube
Hydrocortisone	80 mg
Hydroxocobalamin	2500 mg
Ibuprofen	360 mg
Ipratropium w/ albuterol	0.5 mg
Levalbuterol	0.63 mg

Lidocaine	
Cardiac Arrest	36 mg
Traumatic Brain Injury	54 mg
Intraosseous	18 mg
Lorazepam	3.6 mg
Magnesium Sulfate	
RAD	1450 mg
Torsades	1800 mg
Methylprednisolone	36 mg
Midazolam	3.6 mg
Morphine Sulfate	3.6 mg
Naloxone	2 mg
Norepinephrine (4 mg in D_5W 250 mL)	
0.1 mcg/kg/min	12.4 mL/hr
0.2 mcg/kg/min	24.8 mL/hr
0.5 mcg/kg/min	61.9 mL/hr
1 mcg/kg/min	123.8 mL/hr
2 mcg/kg/min	247.5 mL/hr
Ondansetron - IV	3.6 mg
- ODT	4 mg
Pralidoxime IM	500 mg
IV (over 30-60 min)	1650 mg
Infusion	1650 mg/hr
Proparacaine	2 drops
Racepinephrine 2.25% Neb	0.5 mL
Sodium Bicarbonate	33 mEq
Tetracaine	2 drops

SCOPE OF PRACTICE

ADULT & PEDIATRIC OTHER SKILLS	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Advanced Spinal Assessment			*	*	*	*	*	*
Cervical Spinal Immobilization		**Manual Stabilization**	√	√	√	√	√	√
Cold Pack		√	√	√	√	√	√	√
Eye Irrigation (Morgan Lens)								√
Hot Pack		√	√	√	√	√	√	√
Restraints – Pharmacological								√
Restraints – Physical			√	√	√	√	√	√
Spinal Immobilization – Lying (Long board)		**Manual Stabilization**	√	√	√	√	√	√
Spinal Immobilization – Seated (K.E.D)		**Manual Stabilization**	√	√	√	√	√	√
Splinting		**Manual Stabilization**	√	√	√	√	√	√
Splinting – Traction		**Manual Stabilization**	√	√	√	√	√	√
Stroke Scale System	*	*	*	*	*	*	*	*
Temperature	√	√	√	√	√	√	√	√
Trauma Triage	*	*	*	*	*	*	*	*
Tourniquet	√	√	√	√	√	√	√	√
Wound Care – Occlusive Dressing			√	√	√	√	√	√
Wound Care – Pressure Bandage		√	√	√	√	√	√	√

√ *Skills allowed under existing licensure levels prior to completion of a transition course (FRECA, EMT-B, EMT-I, EMT-P)*

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SCOPE OF PRACTICE

ADULT AIRWAY MANAGEMENT	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Auto Transport Ventilator				√		√	√	√
BVM		√	√	√	√	√	√	√
Capnography						√	√	√
Chest Tube Maintenance								√
Combitube					√	√	√	√
CPAP					*	*	√	√
Endotracheal Intubation							√	√
Endotracheal Suctioning						√	√	√
KING LT-D						√	√	√
Laryngeal Mask Airway						√	√	√
Nasogastric Tube							√	√
Nasopharyngeal Airway	√		√	√	√	√	√	√
Nasotracheal Intubation							√	√
Nebulizer Treatment					√	√	√	√
Needle Decompression							√	√
Oral Suctioning	√	√	√	√	√	√	√	√
Orogastric Tube								√
Oropharynegeal Airway	√	√	√	√	√	√	√	√
Oxygen Administration		√	√	√	√	√	√	√
Percutaneous Cricothyrotomy							√	√
Pulse Oximetry				√	√	√	√	√
Rapid Sequence Intubation								**See Protocol**
Tracheostomy Maintenance				√		√	√	√

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SCOPE OF PRACTICE

PEDIATRIC AIRWAY MANAGEMENT	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Auto Transport Ventilator				√		√	√	√
BVM		√	√	√	√	√	√	√
Capnography						√	√	√
Cleared, Opened, Heimlich	√	√	√	√	√	√	√	√
Endotracheal Intubation							√	√
Endotracheal Suctioning						√	√	√
KING LT-D						√	√	√
Laryngeal Mask Airway						√	√	√
Nasogastric Tube							√	√
Nasopharyngeal Airway	√		√	√	√	√	√	√
Nebulizer Treatment					√	√	√	√
Needle Decompression							√	√
Oral Suctioning	√	√	√	√	√	√	√	√
Orogastric Tube								√
Oropharyngeal Airway	√	√	√	√	√	√	√	√
Oxygen Administration		√	√	√	√	√	√	√
Pulse Oximetry				√	√	√	√	√
Tracheostomy Maintenance				√		√	√	√

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SCOPE OF PRACTICE

ADULT MEDICATION ADMINISTRATION ROUTE	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Auto Injector		**Provider Protection**	√	√	√	√	√	√
Blood Products								√
Endotracheal							√	√
Inhalation			√	**MDI**	√	√	√	√
Intramuscular					√	√	√	√
Intraosseous					*	*	√	√
Intravenous					√	√	√	√
Intravenous Pump								√
Oral			√	√	√	√	√	√
Intranasal			* **Narcan Only**	* **Narcan Only**	√	√	√	√
Rectal							√	√
Subcutaneous					√	√	√	√
Sublingual			**Assist**	**Assist**	√	√	√	√

PEDIATRIC MEDICATION ADMINISTRATION ROUTE	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Auto Injector			√ (Epi Jr)	√	√	√	√	√
Endotracheal							√	√
Inhalation			**MDI**	**MDI**	√	√	√	√
Intramuscular					√	√	√	√
Intraosseous						√	√	√
Intravenous					√	√	√	√
Intravenous Pump								√
Oral			√	√	√	√	√	√
Rectal				**Assist Diastat**		**Assist Diastat**	√	√
Subcutaneous					√	√	√	√

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Appendix 3

SCOPE OF PRACTICE

ADULT VASCULAR ACCESS	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Blood Draw					*	*	√	√
Blood Glucose Analysis			*	*	√	√	√	√
Central Line Maintenances								√
Peripheral Venous Access					√	√	√	√
Intraosseous					* (Adult)	* (Adult)	√	√
PEDIATRIC VASCULAR ACCESS	**FRECA**	**EMR**	**EMT-B**	**EMT**	**EMT-I**	**AEMT**	**EMT-P**	**PARAMEDIC**
Pediatric Vascular Access	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	Paramedic
Blood Draw					*	*	√	√
Blood Glucose Analysis			*	*	√	√	√	√
Central Line Access							√	√
Intraosseous						√	√	√
Peripheral Venous Access					√	√	√	√
ADULT CARDIAC MANAGEMENT	**FRECA**	**EMR**	**EMT-B**	**EMT**	**EMT-I**	**AEMT**	**EMT-P**	**PARAMEDIC**
Application of 12-Lead ECG			*	*	*	*	√	√
Cardiac Arrest Epinephrine					*	*	√	√
CPR – Cardiopulmonary Resuscitation	√	√	√	√	√	√	√	√
Defibrillation – AED		√	√	√	√	√	√	√
Defibrillation – Manual							√	√
Interpretation of 12 Lead ECG							√	√
Resuscitation Initiation and Termination			*	*	*	*	*	*
STEMI System	*	*	*	*	*	*	*	*
Synchronized Cardioversion							√	√
Transcutaneous Pacing							√	√

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SCOPE OF PRACTICE

PEDIATRIC CARDIAC MANAGEMENT	FRECA	EMR	EMT-B	EMT	EMT-I	AEMT	EMT-P	PARAMEDIC
Application of 12 Lead ECG			*	*	*	*	√	√
CPR – Cardiopulmonary Resuscitation		√	√	√	√	√	√	√
Defibrillation – AED		√	√	√	√	√	√	√
Defibrillation – Manual							√	√
Interpretation of 12 Lead ECG							√	√
Synchronized Cardioversion							√	√
Transcutaneous Pacing							√	√

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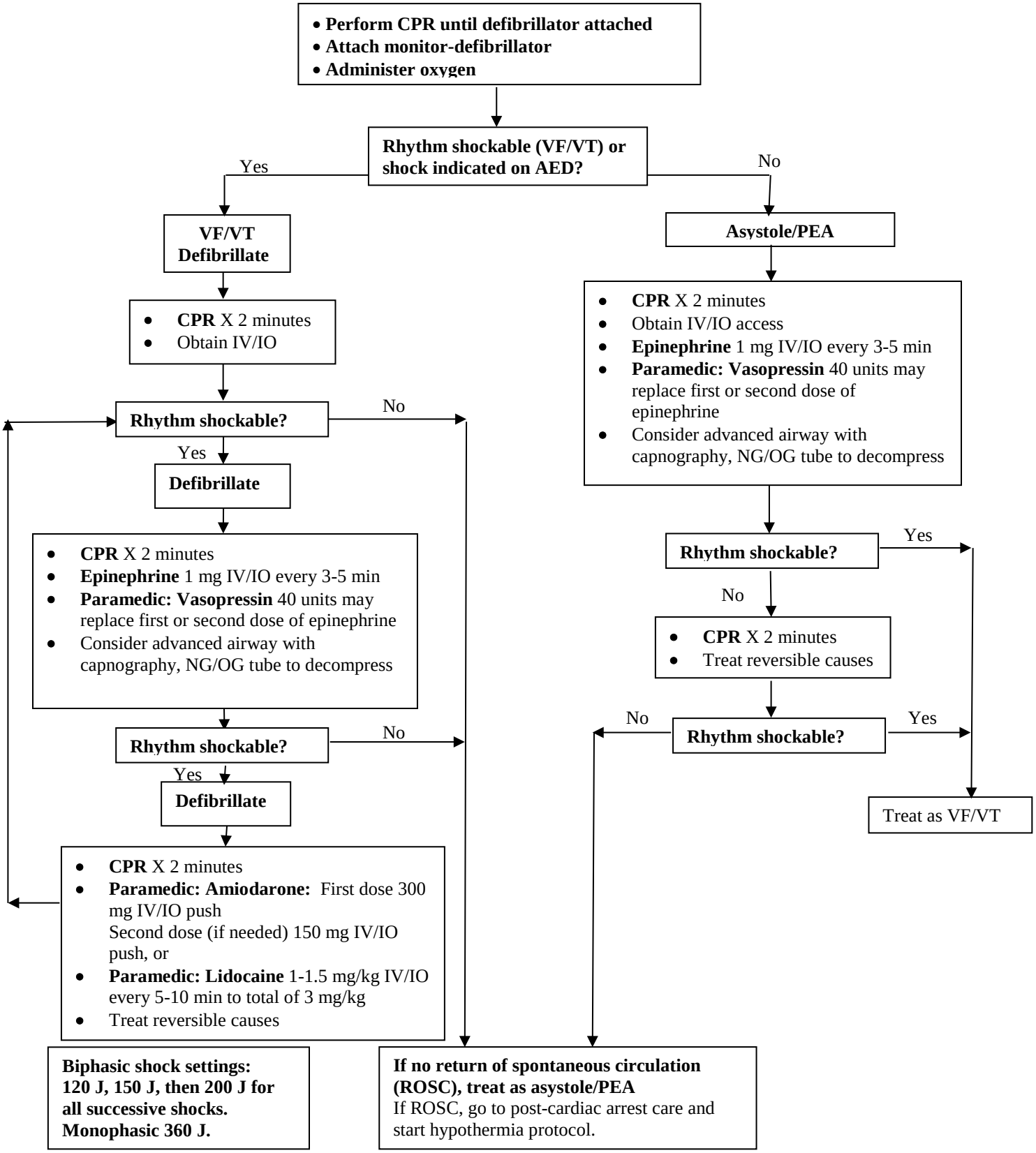
Adult Cardiac Arrest Algorithm



Appendix 4

Adult Bradycardia Algorithm

Assess appropriateness for clinical condition.
Heart rate typically <50/min if bradyarrhythmia.

↓

Identify and treat underlying cause:

- Maintain patent airway; assist breathing as necessary
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IV access
- 12-lead ECG if available; don't delay therapy

↓

Persistent bradycardia (heart rate < 50/min) causing:

- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure?

↓

No → Monitor and observe

Yes →

- **Atropine** 0.5 mg IV every 3-5 minutes to a total dose of 3 mg.

If atropine ineffective:

- **Transcutaneous pacing,** or
- **Dopamine IV/IO infusion** 2-10 mcg/kg/min, or
- **Epinephrine IV/IO Infusion** 2-10 mcg/min
- **Contact Medical Control** for consultation.

Adult Tachycardia Algorithm

Assess appropriateness for clinical condition. Heart rate typically ≥ 150/min if tachyarrhythmia.
For tachyarrhythmia ≥ 150/min, identify and treat underlying cause

- Maintain patent airway; assist breathing as necessary
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry

Persistent tachycardia causing:

- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure

Yes →

Synchronized Cardioversion

- Consider sedation
- If regular narrow complex, consider **adenosine** 6 mg rapid IV/IO followed by saline flush. May repeat at 12 mg every 1-2 minutes x 2 if no conversion.
- **Synchronized cardioversion** initial recommended doses:
  - Narrow regular: 50-100 J biphasic or 200J monophasic
  - Narrow irregular 120-200 J biphasic or 200J monophasic
  - Wide regular: 100J biphasic or monophasic
  - Wide irregular 120J biphasic or 360J monophasic

No ↓

QRS wide (>0.12 sec)?

No →

- Obtain and transmit 12-lead ECG
- IV access
- Vagal maneuvers
- **Adenosine** if regular: 6 mg, then 12 mg rapid IV push as needed. Be sure to flush line immediately after with saline
- For atrial fibrillation or atrial flutter and consider:
  - **Diltiazem** 0.25 mg/kg IV/IO followed by 0.35 mg/kg. If SBP <110, consider lower dose, or
  - **Metoprolol** 5 mg IV/IO over 2-5 minutes, may repeat every 5 minutes to a max of 15 mg.
- Contact **Medical Control** for consultation.

Yes →

- Obtain and transmit 12-lead ECG
- IV access
- **Rhythm regular and monomorphic?**

No →

Treat as torsades de pointes

- **Magnesium**
  Pulseless: *1-2 grams magnesium sulfate diluted in 10 mL NS, administer IVP.*
  With pulse: *1-2 grams magnesium sulfate diluted in 50 mL D5W or NS, administer over 5-20 minutes*

Yes →

Treat as ventricular tachycardia (VT)

- Consider **adenosine** 6-12 mg IV/IO
- Consider **amiodarone** 150 mg IV/IO mixed with 50 mL 0.9% D5W over 10 minutes, may repeat once in 10 minutes, if successful consider maintenance infusion of 1 mg/min
- **Lidocaine** considered 2nd line med 1-1.5 mg/kg IV/IO, may repeat x 1 and follow by maintenance infusion of 1-4 mg/min
- Contact **Medical Control** for consultation and to consider cardioversion.

CARDIAC ARREST TREATMENT SEQUENCE WITH AUTOMATED EXTERNAL DEFIBRILLATION

Unresponsive, no breathing or no normal breathing (only gasping)

↓

Activate emergency response system
Get AED/defibrillator
(Send second rescuer if available to do this)

↓

Check for DEFINITE pulse within 10 seconds

→ If Definite Pulse:
- Give 1 breath every 5 to 6 seconds
- Recheck pulse every 2 minutes

↓ If No Pulse

Begin cycles of 30 COMPRESSIONS and 2 BREATHS

↓

AED/defibrillator ARRIVES: Turn AED on, apply pads and clear patient and press analyze button

↓

Shock indicated (SI)

- Deliver 1 shock.
- CPR X 2 minutes (5 cycles).
- Analyze rhythm.
- If SI, deliver 2nd shock.
- CPR X 2 minutes (5 cycles).
- Analyze rhythm.
- If SI, deliver 3rd shock.
- CPR and transport.
- Continue to check rhythm and shock if indicated every 2 minutes as possible during transport

No shock indicated (NSI)

- CPR X 2 minutes (5 cycles).
- Analyze rhythm.
- ***** If NSI, CPR x 2 minutes (5 cycles).
- Analyze rhythm
- If NSI, CPR x 2 minutes (5 cycles).
- Analyze rhythm
- If NSI
  - If no signs of return spontaneous circulation (ROSC), go to ***** (asterisk above).
  - If return of spontaneous circulation (ROSC), See Post-Resuscitative Care Protocol 3.5A or 3.5P
  - After 20 minutes, check for BLS Termination of Resuscitation Rules. If arrest unwitnessed by EMS personnel, AND, No ROSC or hypothermia, AND, No AED shock was delivered or advised, contact Medical Control to consider termination of resuscitation.
  - If any TOR criteria missing, continue CPR and transport.

Notes:

- Whenever a no shock indicated (NSI) message appears, perform CPR for 2 minutes (5 cycles).
- If the patient regains a pulse, check breathing. Ventilate with high-concentration oxygen, or give oxygen by nonrebreather mask as needed.
- If you initially shock the patient and then receive an NSI message before giving three shocks, follow the steps in the above right-hand column.
- If you initially receive an NSI message and then on a subsequent analysis receive a shock indicated (SI) message, follow the steps in the above left-hand column.
- Occasionally you may need to shift back and forth between the two columns. If this happens, follow the steps until one of the indications for transport (described below) occurs.
- Transport as soon as one of the following occurs:
  - You have administered three shocks.
  - You have received three consecutive NSI messages (separated by two minutes of CPR) and Termination of Resuscitation criteria are not met.
  - The patient regains a pulse.
- If you shock the patient out of cardiac arrest and he arrests again, start the sequence of shocks from the beginning.

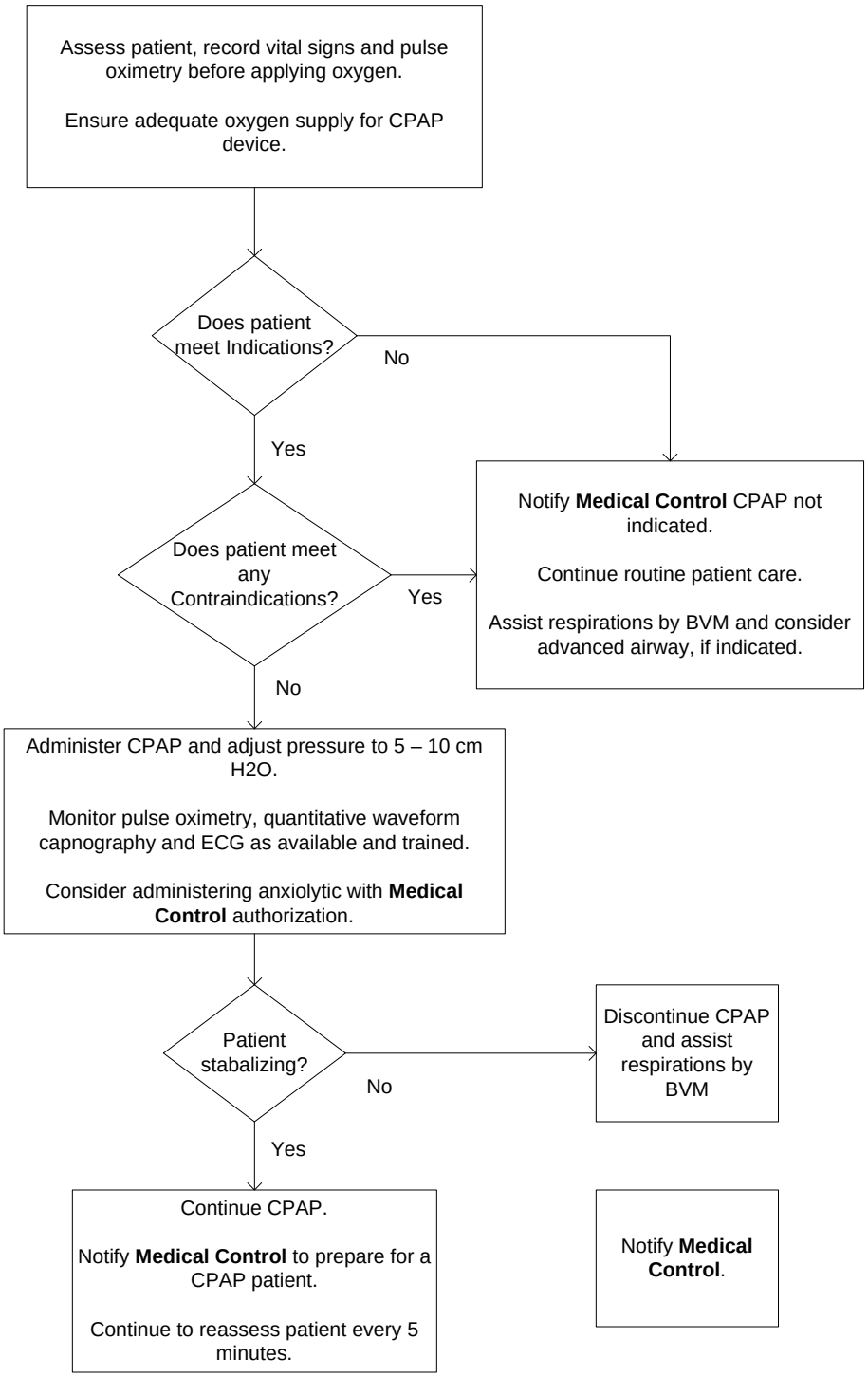
Appendix 4

CPAP for AEMT and Paramedic

CPAP Indications

Spontaneously breathing patient in moderate to severe respiratory distress due to congestive heart failure/pulmonary edema, asthma/ COPD, pneumonia, drowning or Undifferentiated Respiratory Distress, concurrent with the following:

- Oxygen saturation < 94%
- Respiratory rate > 25
- Retractions or accessory muscle use

CPAP Contraindications

Cardiac or respiratory arrest/apnea
Unable to follow commands
Unable to maintain their own airway
Agitated or combative behavior and unable to tolerate mask
Vomiting and/or active GI bleed
Respiratory distress secondary to trauma
Suspicion of pneumothorax
Facial trauma or impossible face seal
Hypotension with SBP < 100 mmHg