

State of Vermont  
Department of Health

# **Emergency Medical Services Protocols**



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# Preface

The purpose of these protocols is to provide a common framework in Vermont for the provision of prehospital emergency medical treatment. The document is intended to portray current thinking about appropriate prehospital treatment. It should be useful for training, quality assurance and medical direction. No information in this document should take the place of on-line medical direction given by a physician or designee in the guidance of treatment for any specific patient.

The protocols reflect the terminology and assessment based approach of the 1994 National Standard EMT-Basic curriculum.

The VT EMS Office has taken care to ensure that all information in these protocols is accurate and in accordance with relevant professional guidelines as commonly practiced at the time of publication. Please report any errors in drug dosages or other language to the VT EMS Office. Use of these protocols is intended for Vermont licensed EMS organizations and their affiliated certified personnel functioning under medical direction. While these protocols may not be altered or modified, there are many options within them which require a determination by the local EMS District Medical Advisor or on-line medical direction from the receiving hospital. VT 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. Any reproduction that represents a variation of these protocols should indicate that they are an adaptation or excerpt of the VT EMS protocols.

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# Introduction

## Presumptions

The protocols are based on several presumptions to avoid repetitive verbiage. These include:

**A scene size-up has been performed and the scene has been determined as safe** - In every case, the safety of the scene should be determined before proceeding further with patient assessment and treatment. In addition, it has been determined if this incident is a medical or trauma problem, the number of patients has been determined and additional resources have been requested if needed. Appropriate body substance isolation (BSI) precautions have also been taken.

**Procedures are not specifically described** - Step by step discussions of procedures such as starting an IV, application of a splint, etc. are not described. It is presumed that providers are familiar with specific techniques through training associated with their certification.

**On-line medical direction should be routinely consulted** - Not every patient will conveniently fit within one or more of the available protocols. EMS personnel working out of the hospital should seek on-line medical direction in cases that do not fit the protocols or for circumstances where the protocols may not fully describe optimal care. In every case, on-line medical direction supersedes any specific guidance given in the protocols.

**Communications with medical direction are possible** - In rare situations where the patient is unstable and delay in treatment threatens the patient's life or limb and, after good faith attempts, the advanced EMT cannot contact Medical Direction, then the advanced EMT is authorized to use any appropriate treatment protocols as if they were standing orders. In such cases treatment must still be consistent with the advanced EMT's training and certification. Continue attempts to contact medical direction and document these attempts on the patient run record.

**Scope** - The protocols are intended to cover a range of circumstances routinely encountered by EMS personnel in the out of hospital setting. They are not intended as guidance for interfacility transfers or in-hospital care. The intent of these protocols is to provide a common foundation for EMS personnel statewide. Local EMS Districts may wish to add specific protocols for clinical or non-clinical matters.

**Incident Command**- Incident command will be structured in accordance with the Incident Command System (ICS) of the National Incident Management System (NIMS). If the emergency/disaster is multi-jurisdictional, Unified Command will be employed when practical.

**EMS personnel operating outside their squads** - These protocols, while intended for statewide use, do not constitute permission for EMS personnel to operate statewide in the same ways they would in their own local squad or EMS district. When a certified advanced EMS provider encounters a patient when not operating with his squad or in his EMS district, on-line medical direction should be consulted for treatment or involvement in patient care beyond the basic level.

**Automated External Defibrillators** are Food and Drug Administration (FDA) approved and acceptable to the EMS District Medical Advisor. The AEDs may be bi-phasic or mono-phasic. They may be configured for adults only or also include pediatric capability. The AEDs should all be configured for semi-automatic use.

**Out-of-State Operations for Vermont licensed ambulance services (this does not apply to most VT ambulance services and personnel)**- Ambulance services and EMS personnel based in Vermont who transport to out of state hospitals need to integrate their operations with the expectations for care and medical direction of the out of state hospitals. Under no circumstances should a Vermont EMS provider

perform an action beyond the scope of practice that individual is trained and certified to provide. If a provider is unclear about what protocols to follow, the default should be to follow the Vermont EMS protocols. The following additional principles should be followed during out of state operations:

- **Ambulance service based in VT, patient located in VT, being transported out of state-** The patient care should be guided by the VT EMS protocols. If the receiving out-of-state hospital uses alternative out-of-state protocols, the VT ambulance service and personnel may follow these protocols provided the care specified does not differ significantly from the VT EMS protocols and provided the scope of practice does not exceed what the person is certified to do in Vermont.
- **Ambulance service based outside VT, licensed in an adjacent state or province as well as VT, patient located in VT or out of state being transported into VT or out of state-** Unless otherwise specified by VT EMS license conditions or local EMS District medical direction, the ambulance service and personnel should use the adjacent state or province protocols and scope of practice.
- **Ambulance service based and licensed in VT, also licensed in an adjacent state or province, patient located out of state being transported out of state-** The patient care and scope of practice should be guided by the protocols from the state or province where the patient is picked up and transported.
- **Ambulance service based and licensed in VT (but not licensed in an adjacent state or province), patient located out of state being transported out of state-** The patient care and scope of practice should be guided by the Vermont EMS protocols.
- **Ambulance service licensed in VT operating out of state as part of a mass casualty or other disaster response (beyond routine mutual aid)-** In the absence of other specific medical direction from the state or province of jurisdiction, the patient care and scope of practice should be guided by the VT EMS protocols. In this case, orders normally specified as requiring on-line medical direction may be used as standing orders. In no case should any EMS provider perform an intervention that they have not been trained and certified to provide.

Please refer to pages 7 and 8 (vii and viii) of the Introduction for different representations of the above information.

## **Format**

The protocols have been divided into two major sections:

- **Clinical Protocols**
- **Non-Clinical Protocols**

The clinical protocols relate to specific care of patients with various clinical presentations. The non-clinical protocols relate to procedures or operations. Each protocol follows a consistent format.

**General Considerations:** This is background information that may be useful for a broad understanding of the emergency condition described and some cautionary notes.

**History:** This area describes the relevant history of present illness and past medical history. It includes questions that may be relevant for the EMT-Basic's focused history and during transport. Not every question will need to be asked in every case. Other questions may be appropriate in the course of assessment and treatment. Some components of the history may be most useful for advanced EMTs or might best be asked during transport. Once the chief complaint is determined, the order of other elements of the history is flexible and situation-dependent. The ordering of items in the history category of the protocol is not intended to represent the order of performance or importance.

**Physical Exam:** This section describes the relevant physical assessments. It is generally arranged in the

chronological order preferable for the emergency condition. Not all components of the assessment will be performed by every level of EMS provider. Some assessments are designated by the level of provider for which they are appropriate. This section includes the EMT-Basic's focused trauma assessment, rapid trauma assessment and the detailed physical exam.

**Treatment:** This section describes the appropriate treatment expected for each emergency condition described. Specific procedures are arranged by personnel certification level. Because of this format, some advanced procedures may be written slightly out of their preferred order of delivery by advanced EMTs. The decision about when to initiate transport is not specified. A balance of the risks and benefits to the patient from further assessment and scene treatment versus transport should be considered in every case.

Providers are allowed to administer only those medications included in their scope of practice and only when the provider is either certified to do so or is enrolled in an approved course and is acting under direct clinical supervision. Whenever possible, providers should ensure that patients are not allergic to a medication before it is given.

EMT-Basics may assist with the administration of a patient's own nitroglycerine, metered-dose inhalers, or auto-injector epinephrine device with on-line medical direction.

In every case, prior to seeking on-line medical direction, the EMT-Basic should confirm:

**Proper medication-** Verify that the right medication has been selected. If there is any confusion about trade names, etc., seek on-line consultation.

**Patient's prescription-** Verify that the medication to be administered is actually the patient's own prescription.

**Expiration date-** Verify that the medication has not passed its expiration date.

**Discoloration or impurities-** Epinephrine should appear clear and have no particulate matter in the solution. The other medications should be free of obvious contaminants.

**Form, dose and route-** Assure that the proper form of the drug is being used for the route of administration and that the dose to be administered is correct.

*Italicized type is used to indicate procedures that require a specific on-line order to perform. With the exception of oxygen and unless otherwise specified, repeat doses of all drugs by all levels of provider require an on-line order. Procedures in plain type may be performed without an on-line order, i.e., they are standing orders.*

A triangle ▲ is used to indicate procedures that require EMT-I 03 certification to perform.

It is recognized that elements involved in obtaining a history, performing a physical exam and initiating treatment may occur simultaneously or during transport. No effort has been made to provide a rigid "cook book" approach to the specific management of any medical problem.

**Technology skills:** Non-invasive monitoring such as cardiac monitoring and oxygen saturation monitoring may be performed by any level of provider **with the approval and oversight of the local EMS district medical advisor.** Pulse oximetry may be used for informational purposes only. Any alterations of treatment based on pulse oximetry readings must be approved by on-line medical direction. Capillary blood glucose measurement (not venous blood) may be performed by EMT-Intermediates and above with the approval and oversight of local medical direction. 12-lead EKGs may be obtained with the approval of medical direction but should not delay transport.

## **General approach to patient assessment**

The following general approach to patient assessment can be applied to all patients. This assessment approach covers broad areas of physical assessment, medical history and initial steps in patient treatment.

Individual clinical protocols reference specific medical history or physical assessment elements that may be relevant for the particular clinical topic.

**Initial Assessment:** This component of patient assessment is conducted immediately after the scene size up for the purpose of identifying and treating immediately life threatening conditions. This includes the assessment of mental status, airway, breathing and circulation. Immediate management of problems suspected or discovered will include manual techniques to stabilize the spine and open the airway, use of airway adjuncts, providing ventilatory support with oxygen, control of gross bleeding and use of an automated external defibrillator (AED).

**Focused History and Physical Exam:** The component of assessment conducted immediately after the initial assessment for the purpose of identifying additional injuries or problems. This component is tailored to the patient's chief complaint:

**Focused Medical Assessment:** The physical exam that focuses on the conscious medical patient's chief complaint.

**Focused Trauma Assessment:** The physical exam that focuses on the specific injury site of a responsive patient with no significant mechanism of injury.

**Rapid Trauma Assessment:** The head to toe physical exam performed quickly on the unresponsive trauma patient or the patient with a significant mechanism of injury.

As a component of the focused history and physical exam, **Baseline Vital Signs** will be obtained. This is the initial set of vital signs which includes: pulse rate and quality, blood pressure, respiratory rate and quality, skin color and condition, and, as appropriate, pupillary reaction.

**Obtain a SAMPLE history:** The SAMPLE history is an easy acronym to help the rescuer recall the following categories of information that should routinely be obtained for most patients:

- S-** Signs and Symptoms
- A-** Allergies
- M-** Medications
- P-** Pertinent past medical history
- L-** Last oral intake
- E-** Events leading to the injury or illness

When questioning a patient about medications, the provider should ask about prescription medications, non-prescription (over-the-counter) medications and herbal or other alternative/complementary agents.

**Detailed Physical Exam:** The thorough head to toe physical exam follows the focused history and physical exam on the trauma patient. The purpose of the detailed physical exam is to detect any injuries or conditions that were missed previously. This exam is ideally performed in the back of the ambulance en route to the hospital.

**Ongoing Assessment:** The component of the assessment that is conducted after all other components of the exam have been completed. The purpose of the exam is to monitor patient condition and to adjust any emergency care interventions as needed. The initial assessment is repeated and updated vital signs are obtained. This component of the assessment is conducted approximately every five minutes on the unstable patient and every 15 minutes on the stable patient.

**Documentation:** All assessments and interventions should be documented on the Vermont EMS Incident Report Form or another form approved by the local district medical advisor. Documentation of cancelled calls and non-transportations should also be done.

## **Recent Changes**

The Implementation of the EMT-Intermediate 2003 Level Includes some additional interventions:

**Administer nitroglycerin:** in tablet form or spray. Should not be administered to patients who have taken sildenafil (Viagra®) or other erectile dysfunction medications (GMP-specific phosphodiesterase Type 5 inhibitors) where nitroglycerin is contraindicated within 48 hours preceding the event (both men and women).

**Administer aspirin** means 81 mg or 325 mg in chewable tablet form. Should be avoided in patients with known hypersensitivity to non-steroidal anti-inflammatory drugs (NSAIDS), known peptic ulcers or anticoagulant history.

**Administer glucagon** means 1 mg IM if IV access cannot be secured and the patient's blood glucose level is < 80 mg/dl.

**Administer naloxone** means up to 2 mg intravenously, subcutaneously or nasally to an adult, 0.01 mg/kg for a child. It is best administered slowly until there is improvement in the respiratory pattern. Full consciousness is not the goal.

**Administer albuterol** means by nebulizer or by metered dose inhaler (MDI) with or without a spacer or nebulizer. Administer the dose ordered by on-line medical direction.

## **Standard Terminology**

**Administer high concentration oxygen:** 10 - 15 lpm of oxygen given through a non-rebreather mask to a patient who is breathing.

**Administer low concentration oxygen:** 2 - 4 lpm of oxygen generally given via a nasal cannula. A low concentration oxygen delivery device such as a Venturi mask is an acceptable alternative.

**Basic:** The term Basic includes the entire scope of practice for EMT-Basics. ECAs should not perform skills beyond their initial level of training or any modules for which they are authorized.

**EMT:** When used without a suffix, the term EMT refers to all levels of EMT.

**Endotracheal intubation:** This term includes both orotracheal and nasotracheal approaches to intubation for Paramedics.

**Other Advanced Airway Devices:** This term includes laryngeal mask airways (LMA) at the paramedic level and the Combitube® and Combitube SA® at the EMT-Intermediate levels.

**Establish an airway, maintain as indicated, suction as needed:** Ongoing evaluation and management of the patient's airway and respiratory adequacy is a priority for every patient. This phrase encompasses the full range of basic airway management techniques including patient positioning, insertion of oral and nasal airways when appropriate, oxygen administration, suctioning and positive pressure ventilatory assistance as required. Positive pressure ventilation is critical to the survival and wellbeing of patients with inadequate spontaneous respirations. There are significant drawbacks, however, to hyperventilating patients. Unless there is a clear reason to hyperventilate a patient, the provider should strive to provide ventilations that are no faster than the normal respiratory rate for a patient of that size and age.

For EMT-Intermediates this term includes use of the Combitube® for patients in respiratory or cardiac arrest with no contraindications.

For EMT-Paramedics this term includes endotracheal intubation or other advanced airway devices, pre-intubation sedation and chest decompression if indicated. It also includes the administration of flumazenil for the patient who has become excessively obtunded after the EMT-P has administered a benzodiazepine. Medical direction must be consulted before flumazenil can be administered.

**Hypoglycemia:** When a portable blood glucose measurement device is used in the field, a reading of 80 mg/dl or less is indicative of hypoglycemia.

**Pediatric patient:** A child is legally anyone under the age of 18 years. For the purposes of EMS assessment and management, these protocols consider a child to be anyone less than approximately 36 kg (80 lb) or 145 cm (58 inches or 4 feet 10 inches). A person heavier than 80 lb or taller than 58 inches is too large for a pediatric length-based resuscitation device; EMS providers should generally treat such a person as an adult. Assessment of a pediatric patient must take into account the anatomy, physiology and intellectual and emotional development characteristic of the child's stage of development.

These protocols offer specific guidance for pediatric patients where relevant. Providers should consult with on-line medical direction for any situations where a question about the appropriateness of these protocols exists.

EMT-Intermediate-03s and EMT-Paramedics should, whenever possible, use a length-based resuscitation device to determine medication doses, intravenous fluid volumes and equipment sizes for pediatric patients. For many therapies, the use of such a device for determination of medication doses and equipment sizes is evidence-based. Use of such a tape can be particularly helpful in a situation where there is no confirmed weight or age, e.g., child with no caregivers present or a disaster setting.

**Secure IV access:** This means a peripheral IV at a KVO rate or saline lock established as a medication access route or for administering fluids. Standard unmedicated IV solutions of dextrose and water, saline, or Ringer's Lactate may be used. IVs should be established using macro-drip infusion sets or saline lock devices. Advanced EMTs should follow any detailed preferences of the EMS District Medical Advisor in the selection of specific fluids or infusion devices.

With local medical direction support, EMT-Paramedics may also use intraosseous (IO) approaches for establishing an IV in pediatric or adult patients, and external jugular cannulation in adult patients.

No more than two attempts to establish an IV should be made without specific on-line medical direction. For the adult patient not more than 1000 cc of any IV fluid should be infused without on-line contact to medical direction. Unless otherwise specified, securing IV access may be performed as a standing order procedure.

## **Protocol Updates**

These protocols will be updated routinely in two ways:

1. Annual updates - Each year, the protocols will routinely be updated to reflect changes in recognized standards of care, new topics, etc. Any interested party is invited to submit written suggestions, at any time throughout the year, for protocol updates to the Department for consideration in the coming year's update.
2. Interim updates - If errors in the protocols are discovered or changes in procedure demand urgent change, the relevant protocol(s) will be updated at any time. Any interested party is invited to suggest changes.

**Matrix for Determination of  
Protocols When State Boundaries are Involved**

	<b>VT-based service transporting pt out of VT</b>	<b>VT-based service providing out-of-state mutual aid</b>	<b>VT-based dual-licensed service working out of state</b>	<b>Out-of-state service licensed in VT</b>
<b>Ambulance service base</b>	VT	VT	VT	not VT
<b>Patient location</b>	VT	other state	adjacent state	VT or adjacent state
<b>Patient destination</b>	not VT	other state	adjacent state	VT or adjacent state
<b>Ambulance service licensed by</b>	VT only	VT only	VT and adjacent state	VT and adjacent state
<b>Protocols and scope of practice to use</b>	Use VT EMS protocols as a guide. If the receiving hospital uses non-VT protocols, the service and personnel may follow these protocols provided the care specified does not differ significantly from the VT protocols and provided the scope of practice does not exceed what the person is certified to do in Vermont.	In the absence of other specific medical direction from the state or province of jurisdiction, the patient care and scope of practice should be guided by the VT EMS protocols. In this case, orders normally specified as requiring on-line medical direction may be used as standing orders. In no case should any EMS provider perform an intervention that they have not been trained and certified to provide.	The patient care and scope of practice should be guided by the protocols from the state or province where the patient is picked up and transported.	Unless otherwise specified by VT EMS license conditions or local EMS District medical direction, the ambulance service and personnel should use the adjacent state or province protocols and scope of practice.

Flowchart for Determination of Protocols When State Boundaries are Involved

