



Western Virginia EMS Council Prehospital and Interhospital Regional Trauma Triage Plan



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*This plan is written to coordinate with and supplement Virginia's State Trauma Triage Plan.
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Executive Summary

Under the *Code of Virginia* § 32.1-111.3, The Virginia Office of Emergency Medical Services acting on behalf of the Virginia Department of Health has been charged with the responsibility of maintaining a Statewide Trauma Triage Plan. Emergency Medical Services (EMS) Agencies are required by EMS Regulation 12 VAC 5-31-390 to follow specialty care hospital triage plans. This regional plan was developed for use by agencies and hospitals in the Western Virginia EMS region, and follows the guidelines set forth in the Statewide Plan, and addresses prehospital and inter-hospital patient transfers.

The Statewide Trauma Triage Plan establishes minimum criteria for identifying trauma patients and the expectation that these patients shall enter the “trauma system” and receive rapid definitive trauma care at appropriate hospitals. This regional trauma triage plan augments the Commonwealth’s minimum trauma triage standards by providing additional point of entry and resource information. This regional plan set forth standards equivalent to those proscribed by the state trauma triage plan.

The Virginia Department of Health, Office of Emergency Medical Services (OEMS), the state Trauma System Oversight and Management Committee and this regional EMS council endorse the 2011 Centers for Disease Control (CDC) *Field Triage Decision Scheme: The National Trauma Triage Protocol* and its accompanying document *Guidelines for Field Triage of Injured Patients*. The CDC is now home to the national trauma program and has assumed responsibility for establishing the national standard for trauma triage in cooperation with the American College of Surgeons (ACS) who has traditionally developed these criteria. The 2011 CDC documents have been endorsed by the following organizations:

The Joint Commission (JCAHO)	American Medical Association (AMA)
National Association of State EMS Officials (NASEMSO)	The American Public Health Association (APHA)
American College of Surgeons (ACS)	American Pediatric Surgical Association
American Academy of Pediatrics (AAP)	American College of Emergency Physicians (ACEP)
National Association of EMS Physicians (NAEMSP)	National Association of EMT’s (NAEMT)
National Association of EMS Educators	International Association of Flight Paramedics (IAFP)
National Native American EMS Association	Air Medical Physician Association (AMPA)
Commission on Accreditation of Medical Transport Systems (CAMTS)	National Ski Patrol

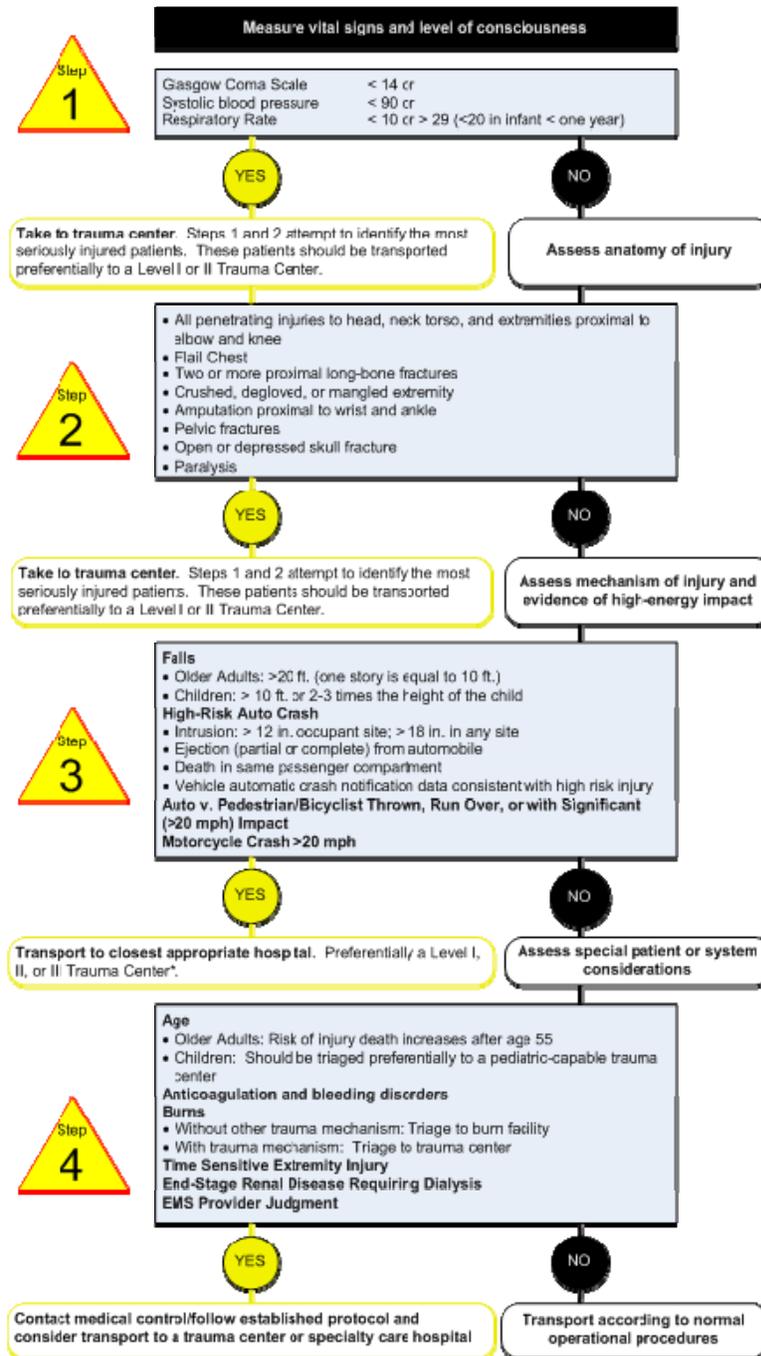
The Virginia Trauma System is an inclusive system and therefore all hospitals are required to participate in the Trauma Triage Plan. Establishing a comprehensive statewide emergency medical care system, incorporating healthcare facilities, transportation, human resources, communications, and other components as integral parts of a unified system serves to improve the delivery of emergency medical services and thereby decrease morbidity, hospitalization, disability, and mortality. This document provides uniform guidelines for prehospital and inter-hospital triage and transport of trauma patients.

The Virginia Trauma System defines a “trauma victim” as a person who has acquired serious injuries and or wounds brought on by either an outside force or an outside energy. These injuries and or wounds may affect one or more body systems by blunt, penetrating or burn injuries. These injuries may be life altering, life threatening or ultimately fatal wounds.

Trauma patient recognition and Triage is a Two-tiered System:

- Initial Field Triage in the prehospital environment (pre-hospital criteria) and;
- Secondary triage or trauma patient recognition and appropriate timely triage by all Virginia hospitals.

Field Trauma Triage Decision Scheme



Prehospital providers should transfer trauma patients with uncontrolled airway, uncontrolled external hemorrhage, or if there is CPR in progress to the closest hospital or free standing emergency department for stabilization and transfer.

Trauma Patient Transport Considerations

Regional EMS Patient Care Protocols in the Western Virginia EMS region address transport considerations. Each jurisdiction is unique in its availability of trauma resources. Consideration should be given to the hospital(s) that is/are available in the region and the resources that they have available to trauma patients when developing a point of entry plan. Pre-planning for times when the primary hospital is not available to receive trauma patients because of multiple patients, diversion, loss of resources such as power need to be made in advance of being on scene with a critical trauma patient.

Consideration should also be given to prehospital resources including, the level of care available by the ground EMS crews, and the closest Medevac service available at the time of the incident, and other conditions such as transport time and weather conditions. Use of Medevac (Air ambulances) services can assist with trauma patients reaching definitive trauma care in a timely fashion.



Field transports by helicopter of trauma patients as defined in this plan shall:

1. Lessen the time from on scene to a hospital compared to ground transport
2. Bypassing a non-trauma designated hospital to transport directly to any level trauma center should not be greater than 30 minutes
3. Trauma patients transported by air must meet the clinical triage criteria for transport and be transported to the closest Level I Trauma Center, or when appropriate the closest Level II Trauma Center.
4. Patient requires a level of care greater than can be expected by the local ground provider if the Medevac unit can be on scene in a time shorter than the ground unit can transport to the closest hospital.
5. Extenuating circumstances such as safety, egress/access should be documented similar to other "extraordinary" care scenarios.

Coordinated Approach to Related Plans

Both prehospital and hospital providers should become familiar with other related local, regional and statewide plans. These plans represent a tiered response to a growing numbers of patients, and can include:

- MCI Plans
- Disaster/WMD Plans
- Surge Capacity Plans

This Trauma Triage Plan is intended for incidents that occur during normal EMS operations.

The plans build upon one another. This Trauma Triage Plan is intended to guide treatment for a smaller number of patients that can be managed by resources available during normal day to day operations. MCI Plans provide additional guidance to agencies, municipalities and medical facilities when their normal resources are being strained. Surge plans are developed to meet the need of large scale events that may require caring for hundreds even thousands of patients.

During a mass casualty incident, point-of-entry into the trauma care system could be altered. Additional guidance should be obtained in the prehospital setting using medical control, and by medical facilities using the Near Southwest Preparedness Alliance's Regional Healthcare Coordinating Center (RHCC). The RHCC is a resource that is available to hospitals in the region, and may be contacted by calling 866-679-7422.

INTER-HOSPITAL TRIAGE CRITERIA

Hospitals not designated by the Virginia Department of Health as a Trauma Center should enter injured patients that meet the below physiological and/or anatomic criteria into the trauma system (rapid transfer to an appropriate level designated Trauma Center)

Adult Patient	Pediatric Patient
	All pediatric patients with Pediatric Trauma Scores ≤ 6 * See pediatric trauma score below
Respiratory <ul style="list-style-type: none"> • Bilateral thoracic injuries • Significant unilateral injuries in pt's >60 (e.g. pneumothorax, hemo-pneumothorax, pulmonary contusion, >5 rib fractures) • Significant unilateral injuries in patients with pre-existing cardiac and/or respiratory disease • Respiratory compromise requiring intubation • Flail chest 	Respiratory <ul style="list-style-type: none"> • Bilateral thoracic injuries • Significant unilateral injuries in patients with pre-existing cardiac and/or respiratory disease • Flail chest
CNS <ul style="list-style-type: none"> • Unable to follow commands • Open skull fracture • Extra-axial hemorrhage on CT, or any intracranial blood • Paralysis • Focal neurological deficits • GCS ≤ 12 	CNS <ul style="list-style-type: none"> • Open skull fracture • Extra-axial hemorrhage on CT Scan • Focal neurological deficits
Cardiovascular <ul style="list-style-type: none"> • Hemodynamic instability as determined by the treating physician • Persistent hypotension • Systolic B/P (<100) without immediate availability of surgical team 	
Injuries <ul style="list-style-type: none"> • Any penetrating injury to the head, neck, torso or extremities proximal to the elbow or knee without a surgical team immediately available. • Serious burns/burns with trauma (see below) • Significant abdominal to thoracic injuries in patients where the physician in charge 	Injuries <ul style="list-style-type: none"> • Any penetrating injury to the head, neck, chest abdomen or extremities proximal to the knee or elbows without a surgical team immediately available • Combination of trauma with burn injuries • Any injury or combination of injuries where the physician in charge feels treatment of the injuries would exceed the capabilities of the medical center

feels treatment of injuries would exceed capabilities of the medical center	
Special Considerations	
<ul style="list-style-type: none"> • Trauma in pregnancy (\geq 24 weeks gestation) • Geriatric • Bariatric • Special needs individuals 	

PEDIATRIC TRAUMA SCORE

COMPONENT	+2	+1	-1
Size	Child/adolescent, >20 Kg.	Toddler, 11-20 Kg.	Infant, <10 Kg.
Airway	Normal	Assisted O ₂ , mask, cannula	Intubated: ETT, EOA, Cric
Consciousness	Awake	Obtunded; loss of consciousness	Coma; unresponsiveness
Systolic B/P	>90 mm Hg; good peripheral pulses, perfusion	51-90 mm Hg; peripheral pulses, pulses palpable	<50 mm Hg.; weak pr no pulses
Fracture	None seen or suspected	Single closed fracture anywhere	Open, multiple fractures
Cutaneous	No visible injury	Contusion, abrasion; laceration <7 cm; not through fascia	Tissue loss; any GSW/Stabbing; through fascia

BURN RELATED INJURIES

The American Burn Association has identified the following injuries that usually require referral to a burn center.
<ul style="list-style-type: none"> • Partial thickness and full thickness burns greater than 10% of the total body surface area (BSA) in patients under 10 or over 50 years of age. • Partial thickness burns and full thickness burns greater than 20% BSA in other age groups. • Partial thickness and full-thickness burns involving the face, eyes, ears, hands, feet, genitalia or perineum of those that involve skin overlying major joints. • Full-thickness burns greater than 5% BSA in any age group. • Electrical burns, including lightning injuries; (significant volumes of tissue beneath the surface may be injured and result in acute renal failure and other complications). • Significant chemical burns. • Inhalation injuries.

- Burn injury in patients with pre-existing illness that could complicate management, prolongs recovery, or affects mortality.
- Any burn patient in whom concomitant trauma poses an increased risk of morbidity or mortality may be treated initially in a trauma center until stable before transfer to a burn center.
- Children with burns seen in hospitals without qualified personnel or equipment for their care should be transferred to a burn center with these capabilities.
- Burn injury in patients who will require special social and emotional or long term rehabilitative support, including cases involving child abuse and neglect.

Inter-hospital Transports by Helicopter

1. All trauma patients transported by air must meet the clinical trauma triage criteria for transport to the closest Level I or Level II trauma center or burn center
2. Patient requires a level of care greater than can be provided by the local hospital.
3. Patient requires time critical intervention, out of hospital time needs to be minimal, or distance to definitive care is long.
4. Utilization of local ground ambulance leaves local community without ground ambulance coverage.



Air Medical Resources Potentially Available to Areas in the WVEMS Region	
<i>Helicopter Air Medical Service</i>	<i>Contact Number</i>
Carilion Lifeguard 10 (Westlake), 11 (Radford) and 12 (Lexington)	888.377.7628
Central (Lynchburg)	866.924.7633
Pegasus (University of Virginia, Charlottesville)	800.552.1826
VSP Med-Flight (Abingdon, Richmond)	804.674.2000
PHI AirCare (Weyers Cave, Fredericksburg, Leesburg)	800.321.9522
LifeEvac of Virginia (Fredericksburg, Dinwiddie, Mattaponi)	877.902.7779
Wings Air Rescue (Marion, Johnson City TN, Greeneville TN, Jenkins KY)	800.946.4701
HealthNet (Charleston WV)	800.346.4206
MedFlight of East Kentucky (Pikeville KY)	877.764.7828
Wellmont Air Transport (Greeneville TN)	423.798.1279
WFUBMC AirCare (Boonville NC, Spencer VA)	800.336.6224
Duke Life Flight (Durham NC, Burlington NC)	800.362.5433
UNC Air Care (Chapel Hill NC)	800.247.6264

Trauma Triage Quality Monitoring

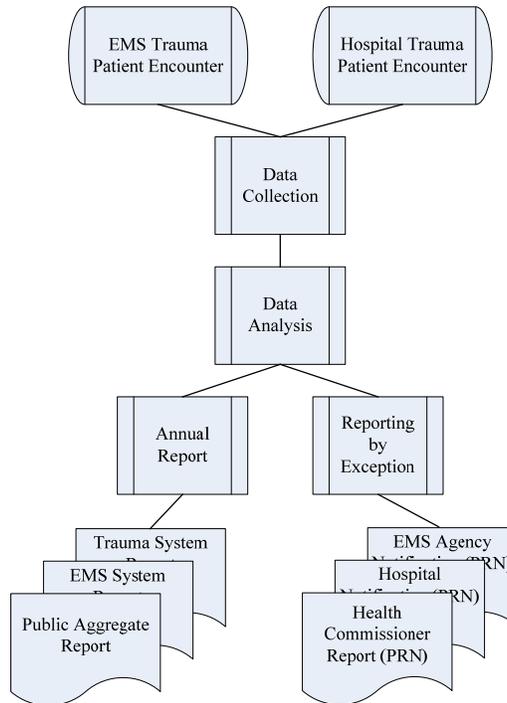
The Office of EMS is responsible for monitoring and ensuring the quality of trauma care and trauma triage in the Commonwealth. Quality monitoring and assurance is accomplished through several means including, but not limited to, the trauma center designation process, analysis of data from the Emergency Medical Services Patient Care Information System (EMS and Trauma Registries) and from other existing validated sources, the trauma performance improvement committee, feedback mechanisms, and regional Trauma Performance Improvement Committees.

The Office of EMS, acting on behalf of the Commissioner of Health, will report aggregate trauma triage findings annually to assist the EMS and Trauma Systems to improve local, regional and statewide trauma triage programs. A de-identified version of the report will be available to the public and will include, minimally, as defined in the statewide plan, the frequency of (i) incorrect triage in comparison to the total number of trauma patients delivered to a hospital prior to pronouncement of death and (ii) incorrect interfacility transfer for each region.

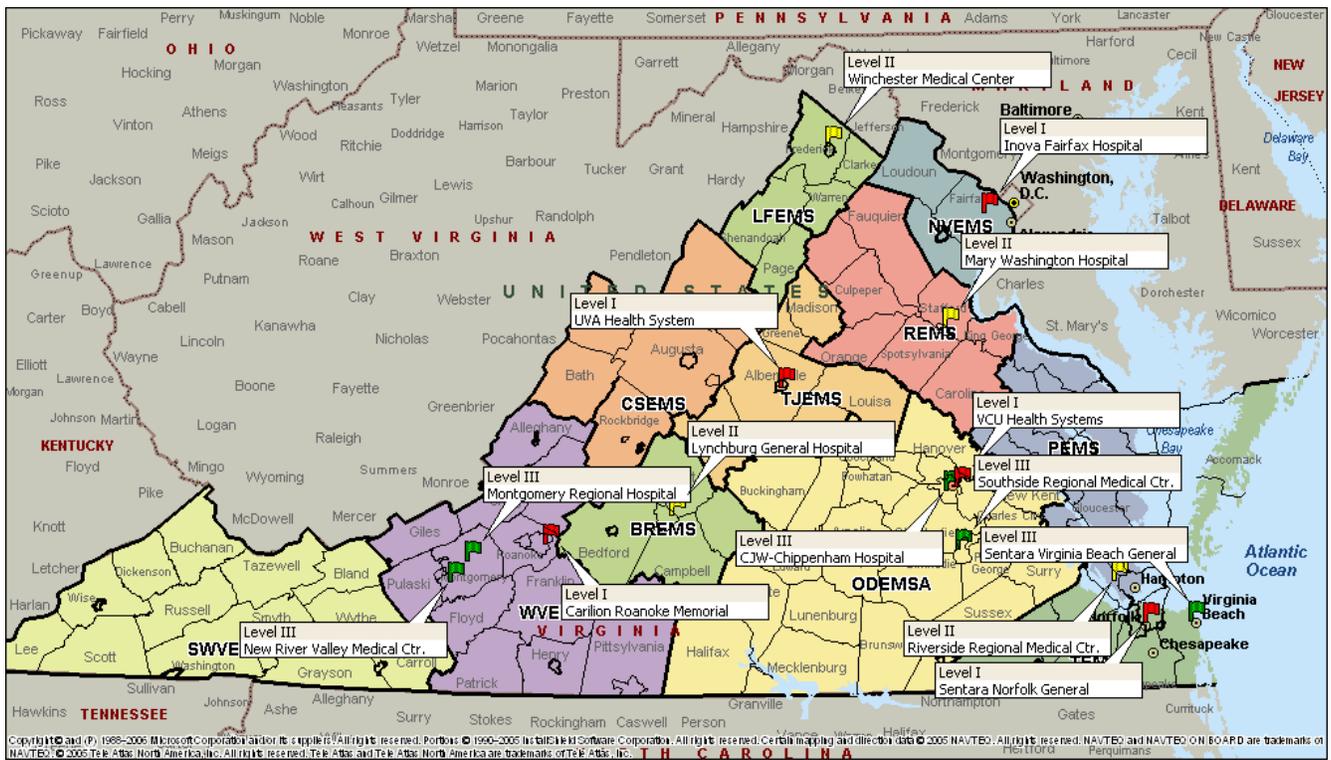
The program will ensure that each emergency medical services director or hospital is informed of any patterns of incorrect prehospital or interfacility missed triage, delayed or missed interfacility transfer as defined in the statewide plan, specific to the provider and will give the entity an opportunity to correct any facts on which such a determination is based, if the entity or its providers assert that such facts are inaccurate.

The Commissioner shall ensure the confidentiality of patient information, in accordance with § [32.1-116.2](#). Such data or information in the possession of or transmitted to the Commissioner, the EMS Advisory Board, or any committee acting on behalf of the EMS Advisory Board, any hospital or prehospital care provider, or any other person shall be privileged and shall not be disclosed or obtained by legal discovery proceedings as is written in the *Code of Virginia*, unless a circuit court, after a hearing and for good cause shown arising from extraordinary circumstances, orders disclosure of such data.

To initiate a prehospital trauma case review in the Western Virginia EMS Region, you may contact the Western Virginia EMS Council, or visit the **Performance Improvement Medical Incident Review** section of our website at www.wvems.org/mir.



Virginia Designated Trauma Centers and Designation Level Description



Trauma Center Designation Levels Defined

Centers highlighted in blue (or shaded) are located in the WVEMS region

Level I Trauma Centers

Level I trauma centers have an organized trauma response and are required to provide total care for every aspect of injury, from prevention through rehabilitation. These facilities must have adequate depth of resources and personnel with the capability of providing leadership, education, research, and system planning.

Carilion Roanoke Memorial Hospital
Bellevue @ Jefferson Streets,
Roanoke

Inova Fairfax Hospital
3300 Gallows Road, Falls Church

Sentara Norfolk General Hospital
600 Gresham Drive, Norfolk

UVA Medical Center
1224 West Main Street,
Charlottesville

VCU Medical Center
12th & Marshall Streets, Richmond

Level II Trauma Centers

Level II trauma centers have an organized trauma response and are also expected to provide initial definitive care, regardless of the severity of injury. The specialty requirements may be fulfilled by on call staff, that are promptly available to the patient. Due to some limited resources, Level II centers may have to transfer more complex injuries to a Level I center. Level II centers should also take on responsibility for education and system leadership within their region.

Lynchburg General Hospital
1901 Tate Springs Road, Lynchburg

Mary Washington Hospital
1001 Sam Perry Boulevard,
Fredericksburg

Riverside Regional Medical Center
500 J. Clyde Morris Boulevard,
Newport News

Winchester Medical Center
1840 Amherst Street, Winchester

Level III Trauma Centers

Level III centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations beyond the capabilities of a non-designated facility, and can also arrange for the transfer of the patient to a facility that can provide definitive trauma care. EMS providers who routinely transport to the two Level III Trauma Centers in the region should become familiar with the capabilities of these facilities and should use medical control when deciding whether to transport trauma patients to these Level III centers.

Level III centers should be active in EMS education and system leadership within the region.

Carilion New River Valley Medical Center

2900 Lamb Circle, Christiansburg

CJW Medical Center, Chippenham

7101 Jahnke Road, Richmond

Montgomery Regional Hospital

3700 South Main Street, Blacksburg

Sentara Virginia Beach General Hospital

1060 First Colonial Road, Virginia Beach

Southside Regional Medical Center

200 Medical Park Blvd, Petersburg

Minimum Surgical & Medical Specialties for Trauma Designation

Surgical Clinical Capabilities: (On call and promptly available)	Level of Designation		
	I	II	III
Trauma/General Surgery	X	X	X
Anesthesiology	X	X	X
Orthopedic Surgery	X	X	X
Thoracic Surgery	X	X	
Cardiac Surgery	X		
Pediatric Surgery	X		
Hand Surgery	X		
Microvascular/Replant Surgery	X		
Neurological Surgery	X	X	
Plastic Surgery	X	X	
Maxillofacial Surgery	X	X	
Ear, Nose & Throat Surgery	X	X	
Oral Surgery	X		
Ophthalmic Surgery	X	X	
Gynecological Surgery/Obstetrical Surgery	X	X	

Medical Clinical Capabilities: (On call and promptly available)	Level of Designation		
	I	II	III
Cardiology	X	X	
Pulmonology	X		
Gastroenterology	X		
Hematology	X		
Infectious Disease	X		
Internal Medicine	X	X	X
Nephrology	X		
Pathology	X	X	X
Pediatrics	X		
Radiology	X	X	X
Interventional Radiology.	X		

Western Virginia EMS Region Defined and its Resources

EMS regions are defined by the Virginia Board of Health, which enters into a contract with a private, non-profit regional EMS organization to provide various planning and coordination functions within each region. The Western Virginia EMS Council, Inc. is the contracted agency within the Western Virginia EMS region. The Code of Virginia, §32.1-111.11 charges regional EMS councils with the development and implementation of an efficient and effective regional emergency medical services delivery system. A board of directors, representing the localities served and other related organizations provides leadership and governance for the council.

Geography and Demographics

The Western Virginia EMS region encompasses the seven cities and twelve counties of Virginia's Planning Districts 4, 5 and 12. The region extends from the West Virginia border to the north, to the North Carolina border to the south. The region encompasses the urban and suburban areas of the Roanoke and Danville MSA's, as well as many rural and remote areas such as those in Patrick, Floyd and Giles counties. The region's total population (based on 1998 estimates) is 661,200. The region encompasses 9,643 square miles.

The region encompasses the counties of Alleghany, Botetourt, Craig, Floyd, Franklin, Giles, Henry, Montgomery, Patrick, Pittsylvania, Pulaski, and Roanoke; and the cities of Covington, Danville, Martinsville, Radford and Salem.

Hospitals and Free Standing Emergency Departments in the Western Virginia EMS Region

<i>Hospitals in the Western Virginia EMS Region</i> (operating 24-hour emergency departments)	
Hospital	Location
LewisGale Medical Center	Salem
LewisGale Hospital Alleghany	Low Moor (Clifton Forge)
LewisGale Hospital Montgomery (Level III TC)	Christiansburg
LewisGale Hospital Pulaski	Pulaski
Carilion Roanoke Memorial Hospital (Level I TC)	Roanoke
Carilion New River Valley Medical Center (Level III TC)	Montgomery County (Radford)
Carilion Franklin Memorial Hospital	Rocky Mount
Carilion Giles Memorial Hospital	Pearisburg
Memorial Hospital of Martinsville and Henry County	Martinsville
Danville Regional Medical Center	Danville
Pioneer Community Hospital	Stuart

EMS Agencies

The region includes 104 state-licensed EMS agencies. Of the 104 agencies, 84 are considered emergency transport agencies, and 19 others are licensed as first responder agencies and the remainder as basic and/or advanced life support care and transportation agencies. These EMS agencies comprise a mix of commercial basic and advanced life support transport agencies, air ambulance (two rotary wing units), specialized transport, industrial-based services and governmental umbrella agencies. The focus in this trauma triage plan will be on “9-1-1” emergency provider agencies, commercial advanced life support, rotary wing air transport and specialized transport providers.

Vehicles

Within the region, there are a total of 454 licensed ambulances, first response vehicles, air and other specialized transport vehicles. (This figure excludes wheelchair vans.)

Licensed EMS Vehicles in the Region	
<i>Planning District</i>	<i>Number of EMS Vehicles</i>
Planning District 4	94
Planning District 5	191
Planning District 12	184
Rotary Wing (Helicopter) serving multiple PDs	3

The licensure and designation of these vehicles does not imply they are constantly manned and ready for response. Some of these vehicles are considered “reserve,” some are unmanned during certain segments of the day and a portion are generally unmanned except for volunteer response.

Rotary wing transport in this region is provided, primarily by the Lifeguard 10 helicopter, based in Westlake in northeastern Franklin County, by Lifeguard 11, based at the Carilion New River Valley Medical Center, a Level III trauma center and AirCare 3 based at Blue Ridge Airport in Spencer. Other rotary wing services, convenient to but located outside the region, include hospital-based helicopters in Charlottesville, Va, Richmond Va, Lynchburg, Va Winston-Salem, North Carolina; Durham, North Carolina; Chapel Hill, North Carolina, and Charleston, West Virginia.

Personnel

Within the region are a total of 3318 pre-hospital EMS providers. Each of these technicians is certified by the Commonwealth, and has met specific course, continuing education and recertification requirements.

Certified EMS Providers in the Region	
<i>Level of Certification</i>	<i>Number of Providers</i>
First Responder	68
Emergency Medical Technician	2317
Enhanced	223
Intermediate	375
Paramedic	335

External Resources

Other Trauma Centers (outside the WVEMS region)

In addition to Carilion Roanoke Memorial Hospital, these other designated trauma centers should be considered as needed for major trauma patients:

- University of Virginia, **Level I** (Charlottesville)
- North Carolina Baptist Hospital, **NC Level I** (Winston-Salem, NC)
- U.N.C. Hospitals, **NC Level I** (NC) Chapel Hill, NC
- Washington Hospital Center (Medstar) **DC Level I** (Washington, DC)
- Inova Fairfax Hospital, **Level I** (Falls Church)
- Charleston Area Medical Center, **WV Level I** (Charleston, WV)
- Lynchburg General Hospital, **Level II** Lynchburg,

Burn Resources

These facilities are considered for transport of severely burned patients:

- University of Virginia Hospital (Charlottesville)
- Medical College of Virginia Hospital (Richmond)
- North Carolina Baptist Hospital (Winston-Salem, NC)
- U.N.C. Hospitals (Chapel Hill, NC)
- Washington Hospital Center (District of Columbia)
- The Shriners' Children's Hospital (Cincinnati)
- Norfolk General Hospital (Norfolk)

Additional Trauma Triage Information

Virginia Office of EMS Trauma Web page: <http://www.vdh.virginia.gov/OEMS/Trauma/index.htm>

Centers for disease Control and Injury Prevention

CDC Field Triage Report - 2011 <http://www.cdc.gov/mmwr/pdf/rr/rr6101.pdf>

CDC National Trauma Triage Protocol Podcast: <http://www2a.cdc.gov/podcasts/player.asp?f=10649>

CDC Field Triage PowerPoint:

<http://search.msn.com/results.aspx?q=CDC+Trauma+triage&FORM=CBPW&first=1>

American College of Surgeons – Committee on Trauma

<http://www.facs.org/trauma/index.html>

Western Virginia EMS Council – See Performance Improvement Website Section

www.wvems.org