

# Regional Trauma Triage Plan

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## ***Executive Summary***

The Peninsulas EMS Council, Inc. has adopted the Virginia Trauma Triage Plan as a template for development of a regional trauma triage plan in accordance with the Code of Virginia 32.1-111.3.

The PEMS Regional Trauma Triage Plan addresses all issues regarding trauma triage, pre-hospital trauma management, and the transport of trauma victims to hospitals appropriate for their level of injury; providing guidance for pre-hospital and hospital agencies by providing a uniform set of criteria for the triage and transportation of trauma patients.

The primary goal of the PEMS Regional Trauma Triage Plan is to support the statewide plan by facilitating the identification, management and transportation of trauma victims through the coordinated efforts of pre-hospital EMS and inter-hospital triage and management. In accordance with the Virginia Trauma Triage Plan, it also supports the use of data collection through the EMS Registry and the Statewide Trauma Registry.

The development and monitoring of these criteria is performed by the PEMS Trauma Task Force in collaboration with the PEMS Regional Performance Improvement Committee which is a sub-committee of the Medical Advisory Committee.

The Peninsulas EMS Council is committed to the facilitation of education and training designed to improve and maintain the knowledge, skills and abilities of all healthcare providers as it relates to trauma care; thereby decreasing prolonged hospitalization, disability, morbidity and mortality.

## ***Definition & Recognition of a Trauma Patient***

The PEMS Regional Trauma Triage Plan defines a trauma victim as any person who has acquired serious, life or limb threatening injuries brought about by blunt or penetrating forces and/or burns. It establishes a two-tiered system for the recognition of trauma patients:

- Initial pre-hospital EMS field triage and transport to an appropriate facility
- Timely secondary triage and appropriate transfer decisions by all regional hospitals

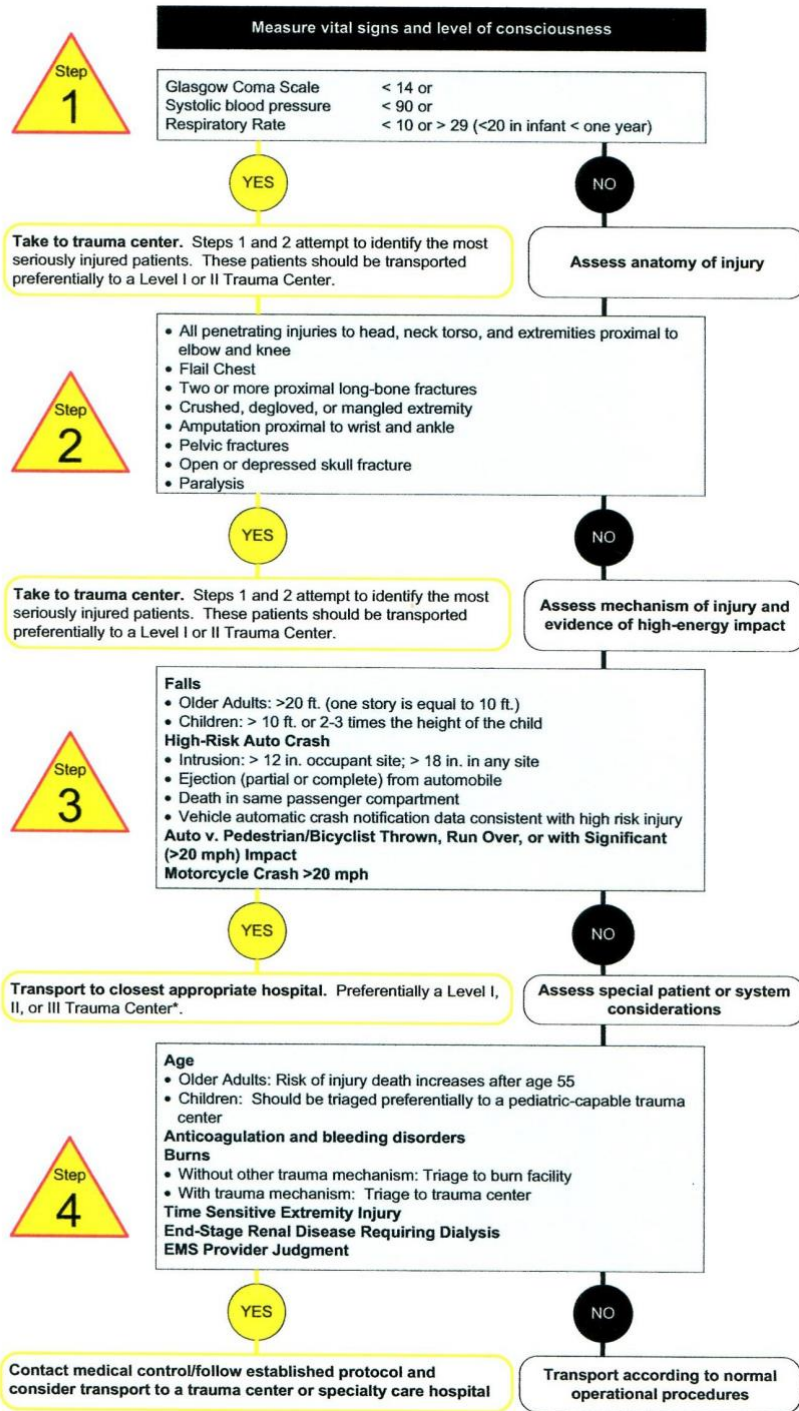
The PEMS Regional Trauma Triage Plan identifies factors that will help all providers identify appropriate considerations for the transportation and/or transfer of individual trauma patients; wherever their point of entry into the Virginia Trauma System. Decisions will be guided by factors such as geography, hospital capabilities and/or trauma center designations and the availability of helicopter EMS.

The PEMS Regional Patient Care-Protocols, Policies & Procedures<sup>1</sup> shall be used as the primary reference with respect to the routine management of trauma patients. (See *Trauma Field Triage* policy)

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<sup>1</sup> PEMS Regional Patient Care-Protocols, Policies & Procedures

**Virginia Field Trauma Triage Decision Scheme**



### ***Trauma Patient Transport Considerations***

As advised in the Virginia Trauma Triage Plan, all transport considerations will be addressed through the PEMS Regional Policies, Procedures & Protocols.<sup>1</sup> Consideration must be given to the hospital(s) that are available within the PEMS region and the resources they have available for trauma patients. Pre-planning for times when the primary hospital may not be available to receive trauma patients (multiple patients, diversions, loss of power or other resources) should be done before arriving on scene with a critical trauma patient.

Consideration must also be given to prehospital resources, such as level of care available by the ground EMS crew, the closest available Helicopter EMS (HEMS) at the time of the incident, as well as transport times and weather conditions. When used appropriately, HEMS can facilitate trauma patients reaching definitive care in a timely fashion.

Field transport of trauma patients by helicopter is expected to:

1. Lessen the time from on scene to a hospital as compared to ground transport.
2. Bypass a non-trauma designated hospital to transport directly to a trauma center in 30 minutes or less.
3. Meet the clinical triage criteria for transport to the closest Level I Trauma Center or when appropriate, to the closest Level II Trauma Center.
4. Meet the greater level of care needed by the patient; provided that HEMS can be **on scene** in a time shorter than the ground unit can transport to the closest hospital; and/or
5. Document extenuating circumstances such as safety, egress/access problems or other “extraordinary” care scenarios.

### ***Mass Casualty/Disaster Planning & Response***

All prehospital and hospital providers should become familiar with other related plans for the region. The **Hampton Roads Mass Casualty Incident Response Guide**<sup>2</sup> will be used as the primary reference for training and assisting first responders and emergency department personnel in the management of multiple or mass casualty incidents. It is recommended that copies of this document be kept in every EMS Supervisor, Battalion Chief, Quick Response and other Command vehicles; at each EMS agency’s headquarters and stations, in each jurisdiction’s Emergency Communications/911 Center and Emergency Operations Center; adjacent to the radio consoles in emergency departments and in each of the Regional Healthcare Coordinating Centers (RHCC).

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<sup>1</sup>Peninsulas Regional Patient Care Protocols, Policies & Procedures

<sup>2</sup>2013 Hampton Roads Mass Casualty Response Guide

## INTER-HOSPITAL TRIAGE CRITERIA

Hospitals not designated by the Virginia Department of Health as a Trauma Center should consider entering injured patients that meet the below physiological and/or anatomic criteria into the trauma system and initiate rapid transfer to an appropriate designated Trauma Center where the physician in charge feels treatment of injuries would exceed capabilities of the medical center.

Adult Patient	Pediatric Patient
	Patients with Pediatric Trauma Scores less than 7, see pediatric trauma score ( <i>See page 7</i> )
<b>Respiratory</b> <ul style="list-style-type: none"> <li>• Bilateral thoracic injuries</li> <li>• Significant unilateral injuries in patients &gt;55 (e.g., pneumothorax, hemopneumothorax, pulmonary contusion, &gt;5 rib fractures)</li> <li>• Significant unilateral injuries in patients with pre-existing cardiac and/or respiratory disease</li> <li>• Respiratory compromise requiring intubation</li> <li>• Chest wall instability or deformity (e.g. flail chest)</li> </ul>	<b>Respiratory</b> <ul style="list-style-type: none"> <li>• Bilateral thoracic injuries</li> <li>• Significant unilateral injuries in patients with pre-existing cardiac and/or respiratory disease/not including asthma</li> <li>• Chest wall instability or deformity (e.g., flail chest)</li> </ul>
<b>CNS</b> <ul style="list-style-type: none"> <li>• Open skull fracture</li> <li>• Extra-axial hemorrhage on CT, or any intracranial blood</li> <li>• Paralysis</li> <li>• Focal neurological deficits</li> <li>• GCS less than 13</li> </ul>	<b>CNS</b> <ul style="list-style-type: none"> <li>• Open skull fracture</li> <li>• Extra-axial hemorrhage on CT Scan</li> <li>• Focal neurological deficits</li> </ul>
<b>Cardiovascular</b> <ul style="list-style-type: none"> <li>• Hemodynamic instability as determined by the treating physician</li> <li>• Persistent hypotension</li> </ul>	
<b>Injuries</b> <ul style="list-style-type: none"> <li>• Any penetrating injury to the head, neck, torso, or extremities proximal to the elbow or knee without a surgical team immediately available, where the physician in charge feels treatment of injuries would exceed capabilities of the medical center</li> <li>• Serious burns/burns with trauma (<i>See page 8</i>)</li> <li>• Significant abdominal to thoracic injuries in patients where the physician in charge feels treatment of injuries would exceed capabilities of the medical center</li> </ul>	<b>Injuries</b> <ul style="list-style-type: none"> <li>• Any penetrating injury to the head, neck, torso, or extremities proximal to the elbow or knee without a surgical team immediately available, where the physician in charge feels treatment of injuries would exceed capabilities of the medical center</li> <li>• Any injury or combination of injuries where the physician in charge feels treatment of the injuries would exceed the capabilities of the medical center</li> </ul>
<b>Special Considerations</b> <ul style="list-style-type: none"> <li>• Trauma in pregnancy (greater than 20 weeks gestation)</li> <li>• Geriatric</li> <li>• Bariatric</li> <li>• Individuals with special needs</li> </ul>	

***Pediatric Trauma Score***

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

## ABA Criteria for Burn Center Referral

**The American Burn Association has identified the following criteria for referral to a Burn Center.**

1. Partial thickness burns greater than 10% total body surface area (TBSA).
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
3. Third degree burns in any age group.
4. Electrical burns, including lightning injury.
5. Chemical burns.
6. Inhalation injury.
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
9. Burned children in hospitals without qualified personnel or equipment for the care of children.
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention.



### ***Inter-Hospital Transports by Helicopter***

1. Trauma patients transported by air should meet the clinical trauma triage criteria for transport to the most appropriate trauma or burn center

**OR**

2. Patient requires a level of care greater than can be provided by the local hospital

**OR**

3. Patient requires time critical intervention, out-of-hospital time needs to be minimized, or distance to advanced care is long

**OR**

4. Utilization of local ground ambulance leaves local community without ground ambulance coverage.

### ***PEMS Regional Trauma Performance Process***

The **PEMS Regional Trauma Performance Improvement Plan**<sup>3</sup> is the governing document for the administration of trauma-related performance improvement initiatives performed by the **Performance Improvement Committee (PIC)** under the direction of the Medical Advisory Committee (MAC) for the Peninsulas EMS Council, Inc. (PEMS).

The Regional EMS Trauma Performance Improvement Plan identifies region-wide performance improvement process to:

- Assess adherence to regional patient care protocols.
- Assess performance gaps in systemic EMS issues and assist agencies in identifying methods for reducing or eliminating gaps.
- Identify educational needs of pre-hospital providers.
- Provide consistent means for resolving problems involving patient care.
- Monitor compliance of agencies within the PEMS region with Virginia Department of Health Prehospital and Interhospital State Trauma Triage Plans.

### ***PEMS Trauma Task Force***

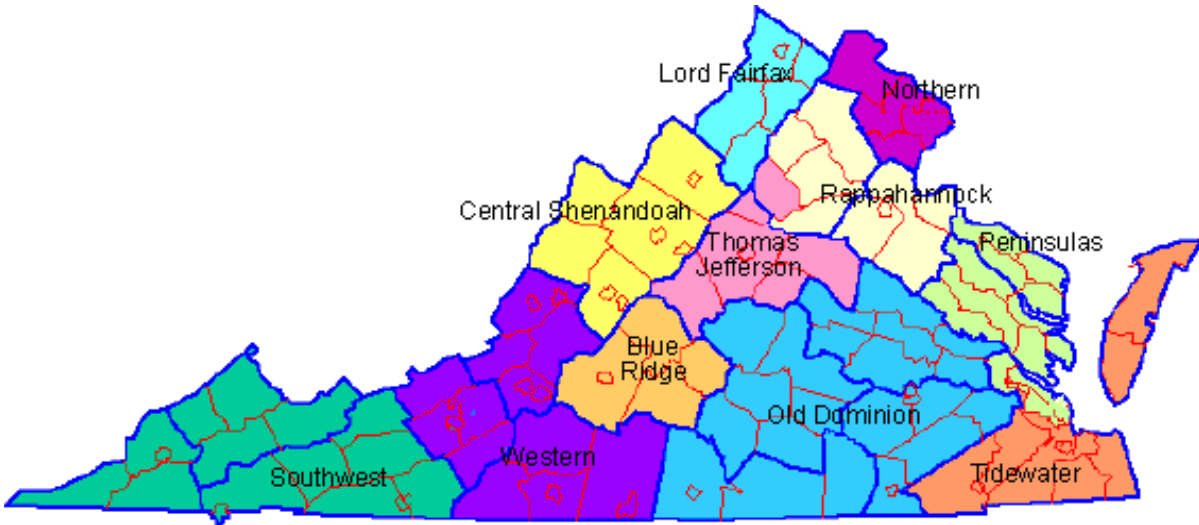
The PEMS Trauma Task Force includes representatives from the EMS community and from each hospital likely to receive trauma patients transported by agencies in the PEMS region. The task force meets quarterly and shall work to improve overall trauma management and care within the region by collecting & summarizing general performance data, determining potential education objectives based upon that data and improving communication between hospitals and EMS agencies. The Trauma Task Force shall conduct a complete review and/or revision of the PEMS Regional Trauma Plan annually and work collaboratively with the following committees:

- The PEMS Performance Improvement Committee
- The Policies, Procedures & Protocols Committee.

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<sup>3</sup> The PEMS Regional Performance Improvement Plan

***PEMS Region Demographics***



**Regional Facts**

The Peninsulas (plural) EMS Council service area includes the sixteen cities and counties located on the three Virginia peninsulas (the Virginia Peninsula, the Middle Peninsula and the Northern Neck) on the western shore of the Chesapeake Bay. These jurisdictions comprise a population of 618,101 spread across 2,727 square miles.

**Virginia Peninsula**



The Virginia Peninsula is the Southernmost of three peninsulas on the western shore of the Chesapeake Bay. It is bounded by the York River, James River, Hampton Roads and Chesapeake Bay. The Peninsula consists of six jurisdictions - the cities of Hampton, Newport News, Poquoson and Williamsburg and the counties of James City and York. These jurisdictions comprise a population of 476,846 spread across 393 square miles.

While the land portion of Hampton Roads is divided into two regions, the Peninsula on the north side, and South Hampton Roads or Tidewater on the south side, Hampton Roads has long been used as a common name for the metropolitan areas that surround the body of water of the same name. More recently, that name has been used to formally represent all of the traditional jurisdictions of the Hampton Roads Metropolitan Urban Area as well as the two southernmost counties the Middle Peninsula. **The hospitals located on the Virginia Peninsula include:**

- Bon Secours Mary Immaculate Hospital
- Hampton Veterans Administration Medical Center
- Langley Air Force Base Hospital
- Riverside Regional Medical Center (Level II Trauma Center)
- Sentara Careplex Hospital
- Sentara Williamsburg Regional Medical Center
- Riverside Doctors' Hospital

## **Middle Peninsula**



The Middle Peninsula is the second of three large peninsulas on the western shore of Chesapeake Bay. It lies between the Virginia Peninsula and the Northern Neck Peninsulas. The Middle Peninsula is bounded by the Rappahannock River, the York River and the Chesapeake Bay. It encompasses six Virginia counties: Essex, Gloucester, King and Queen, King William, Mathews, and Middlesex. These jurisdictions comprise a population of 90,826 spread across 1,283 square miles.

### **The Hospitals that are located on the Middle Peninsula include:**

- VCU Tappahannock Hospital
- Riverside Walter Reed Hospital

## **Northern Neck**



The Northern Neck is the northernmost of three peninsulas on the western shore of the Chesapeake Bay. This peninsula is bounded by the Potomac River on the north and the Rappahannock River on the south. It encompasses the following Virginia counties: Lancaster, Northumberland, Richmond, and Westmoreland. These jurisdictions comprise a population of 50,429 spread across 746 square miles.

### **The Hospitals that are located on the Northern Neck include:**

- Bon Secours Rappahannock General Hospital

## ***References***

### **EMS Regulation**

#### **12 VACS 5-31-390. Destination/trauma triage**

An EMS agency shall participate in the Regional Trauma Triage Plan established in accordance with § 32.1-111.3 of the Code of Virginia.

### **Trauma Triage Related Resources**

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

#### **Centers for Disease Control and Injury Prevention**

CDC Field Triage main page: <http://www.cdc.gov/fieldtriage>

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

CDC Field Triage PowerPoint: <http://www.cdc.gov/fieldtriage/>

American College of Surgeons- Committee on Trauma: <http://www.facs.org/trauma/index.html>

### **PEMS Related Resources as found in Footnotes**

PEMS Regional Patient Care – Protocols, Policies & Procedures

PEMS Regional Performance Improvement Plan

2013 Hampton Roads Mass Casualty Response Guide

## ***Appendix A - Trauma Centers, Hospitals, and Burn Centers***

### **Level I Trauma Centers**

Level I Trauma Centers have an organized trauma response and are required to provide definitive 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. There are **no Level I Trauma Centers within the PEMS Region.**

### **LEVEL I Trauma Centers:**

- **Sentara Norfolk General Hospital** (*TEMS Region*)..... 600 Gresham Drive, Norfolk
- **VCU Medical Center** (*ODEMSA Region*)..... 12<sup>th</sup> & Marshall Streets, Richmond

### **Level II Trauma Centers:**

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

These facilities should also take on responsibility for education and system leadership within the region.

### **One Level II Trauma Center is located within the PEMS Region:**

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

The next closest Level II Trauma Center is:

- **Mary Washington Hospital** (*REMS Region*)..... 1001 Sam Perry Boulevard, Fredericksburg

### **Level III Trauma Centers**

Level III centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and arrange for the transfer of the patient to a facility that can provide definitive trauma care.

These facilities should also take on responsibility for education and system leadership within the region.

### **No Level III Trauma Center is located within the PEMS Region**

### **Non Trauma Center Hospitals**

Non-Trauma Centers, can provide prompt assessment, resuscitation, stabilization, and arrange for the transfer of the patient to a facility that can provide definitive trauma care.

### **Non-Trauma Centers located within the PEMS Region includes:**

- **Bon Secours Mary Immaculate Hospital** .....2 Bernadine Dr., Newport News
- **Bon Secours Rappahannock General Hospital**..... 101 Harris Dr., Kilmarnock
- **VCU Tappahannock Hospital** .....618 Hospital Rd, Tappahannock
- **Riverside Walter Reed Hospital** .....7519 Hospital Dr., Gloucester
- **Sentara Careplex** .....3000 Coliseum Dr., Hampton
- **Sentara Williamsburg RMC**.....100 Sentara Cr, Williamsburg
- **Riverside Doctors' Hospital**..... 1500 Commonwealth Ave, Williamsburg

### **Burn Centers**

**No Burn Center is located in the PEMS Region.** Virginia Commonwealth University is designated as a State & ABA Burn Center. Sentara Norfolk General Hospital is designated as a State level 1 Burn Center.

**Pediatric Trauma Centers**

**No Pediatric Trauma Center is located in the PEMS Region.** Virginia Commonwealth University (VCU) Health and Children’s Hospital of the Kings Daughters (CHKD) are both designated as Level 1 Pediatric Trauma Centers. It should be noted that Sentara Norfolk General Hospital as a Level 1 Trauma Center, Riverside Regional Medical Center, and Mary Washington Hospital as Level 2 Trauma Centers are all pediatric capable.