



Thomas Jefferson EMS Council

Trauma Triage Plan

2009 Edition

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Executive Summary

State Trauma Triage Plan

Under *the Code of Virginia § 32.1-111.3*, The Office of Emergency Medical Services (OEMS) acting on behalf of the Virginia Department of Health has been charged with the responsibility of developing a Statewide Trauma Triage Plan. This plan is to include prehospital and interhospital patient transfers.

The *Code* states that the State Trauma Triage Plan shall incorporate, but not be limited to, the plans prepared by the regional emergency medical services councils. The following trauma triage plan for the Thomas Jefferson EMS Council (TJEMS) region is intended to be an integral component of the State Trauma Triage Plan. In addition, it provides specific guidance to EMS providers functioning with the TJEMS region.

Data Collection, Use and Discoverability

The *Code* further directs the collection of data through The PPCR Program and State Trauma Registry and protects its ability to be used by Trauma Committees that report to the Governors EMS Advisory Board. In accordance with § 32.1-116.2. of the *Code*, any such data or information in the possession of or transmitted to the Commissioner (OEMS as the designee), 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, unless a circuit court, after a hearing and for good cause shown arising from extraordinary circumstances, orders disclosure of such data.

Trauma System

The Virginia Trauma System is an inclusive system and all hospitals 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 will serve to improve the delivery of emergency medical services and thereby decrease morbidity, hospitalization, disability, and mortality.

Decreasing morbidity, hospitalization, disability, and mortality can be achieved by reducing the time period that acutely injured patients are identified and assisted in reaching definitive high quality trauma care. A coordinated effort between ground and air prehospital resources, as well as hospitals, whether trauma designated or not, can lead to getting the right patient to the right hospital, in the shortest amount of time possible, while maximizing resources.

Regional Trauma Triage Plan

This document will provide a uniform set of recommended criteria for prehospital and interhospital triage and transport of trauma patients in the TJEMS region. The development and monitoring of these criteria is performed by the State Trauma Triage Performance and Improvement Committee, a subcommittee of the Governors Advisory Board's Trauma System Oversight and Management Committee and the TJEMS Operational Medical Directors Committee. The State Office of EMS is the enforcement body for the State Trauma Triage Plan. As a planning and coordinating organization, TJEMS does not possess enforcement powers for the Regional Trauma Triage Plan but seeks compliance via a collaborative, consultative process.

Recognizing the variability of Virginia's demographics and geography, the State Trauma Triage Plan has been designed as a template for the Regional EMS Councils to develop, monitor and revise a regional trauma triage plan. In addition, problems, concerns and other issues related to trauma care on scene, in transit and within hospitals can be addressed through regional Trauma Performance Improvement Committee activities. These activities include, but are not limited to, conducting, promoting, and encouraging programs of education and training designed to enhance the knowledge, skills and abilities of healthcare providers involved in trauma care.

Definition of a Trauma Patient

Trauma Patient:

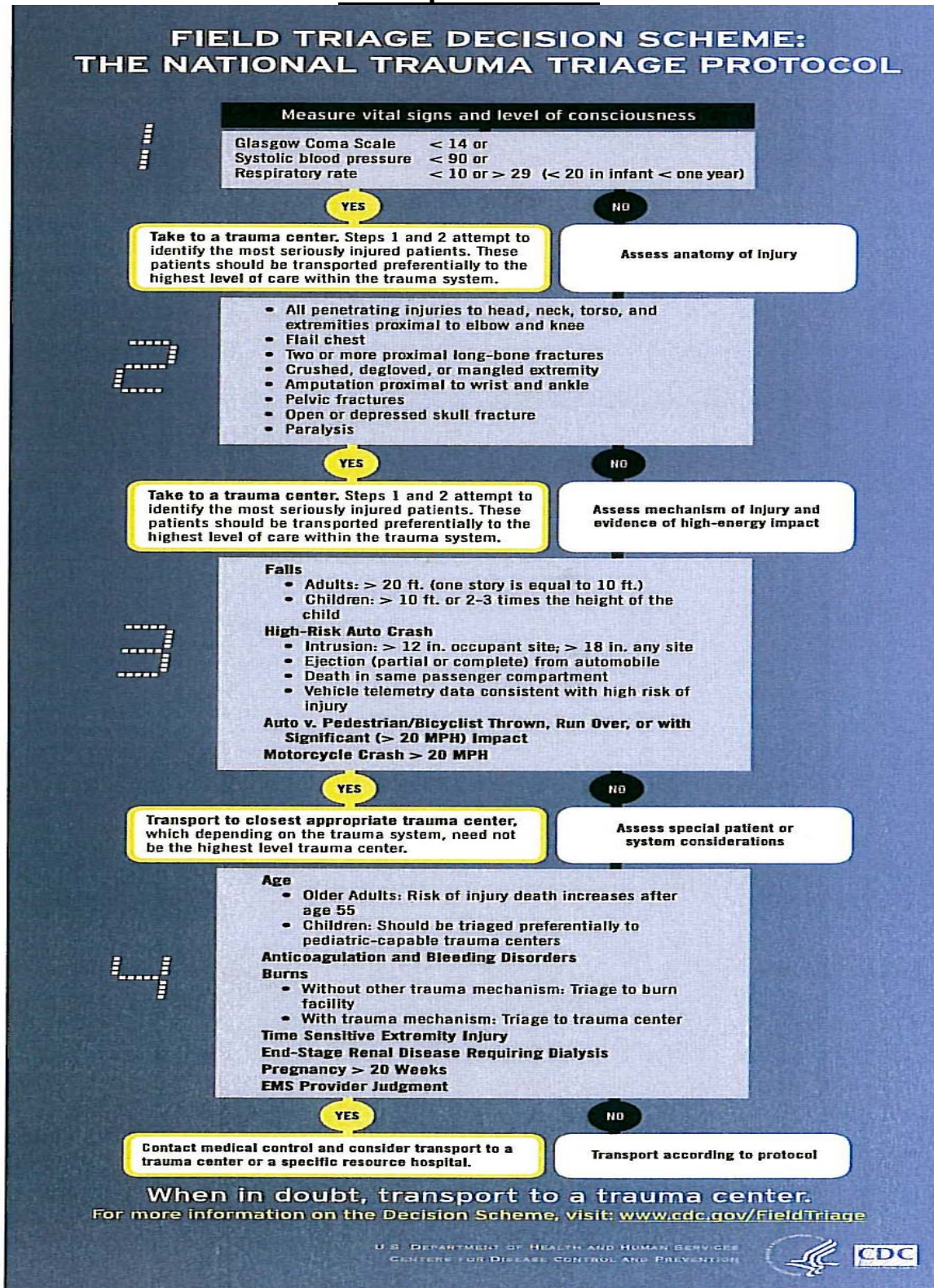
A person who has acquired serious injuries brought on by unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical, or chemical energy or from the absence of such essentials as heat or oxygen. These injuries may affect one or more body systems and may be life altering, life threatening or ultimately fatal.

Two-tiered System for the recognition of a trauma patient:

- Initial triage in the prehospital setting.
- Secondary triage at local hospitals.

The purpose of the Statewide Trauma Triage Plan is to establish prehospital and hospital criteria for the purpose of identifying the trauma patient. The TJEMS Regional Trauma Triage Plan is intended to identify the best point of entry into the trauma system for these patients. Many factors including, but not limited to, geography, hospital capabilities and the availability of air medical services will help to guide where the identified trauma patient will be transported or transferred.

Trauma Patient Transport and Transfer Criteria Prehospital Criteria



Hospital Criteria

Adult Patient	Pediatric Patient
	Any pediatric patient with a Pediatric Trauma Score ≤ 6 (see Pediatric Trauma Score below).
Airway <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. 	Airway <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. • 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. • Trauma patient with burn injuries. • Significant abdominal or thoracic injuries in patients where the physician in charge feels the level of care needed exceeds the capabilities of the medical center. 	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. • Trauma patient with burn injuries. • Any injury or combination of injuries where the physician in charge feels the level of care needed exceeds the capabilities of the medical center.
Special Considerations <ul style="list-style-type: none"> • Trauma in pregnancy (≥ 24 week gestation) • Geriatric Patient • Bariatric Patient • Special Needs Patient 	

Pediatric Trauma Score

COMPONENT	+2	+1	-1
Size	Child/adolescent, >20kg.	Toddler, 11-20kg.	Infant <10kg.
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	51-90 mm Hg; carotid pulse palpable	<50 mm Hg; 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

<p>The American Burn Association has identified the following injuries that usually require referral to a burn center.</p> <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 or 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.
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Trauma Patient Transport Considerations

Trauma patients are to be transported to the designated trauma center that can be reached in the shortest amount of time. The patient may be transported by ground or air medical service. In general, air medical transportation should be considered if the combined patient treatment and transport time to the trauma center will exceed 30 minutes. Medical control is a resource should there be a question of appropriate destination or transport modality.

For most transports originating in the TJEMS region, the **UVA Medical Center**, 1224 West Main Street, Charlottesville, VA is the most appropriate destination for trauma patients. The following trauma centers may also be appropriate in certain circumstances:

VCU Medical Center

12th & Marshall Streets, Richmond, VA

Lynchburg General Hospital

1901 Tate Springs Road, Lynchburg

Criteria for Air Medical Transport

Transport from the Incident Scene

Transport from the incident scene to a designated trauma center via helicopter should be made according to the following criteria:

1. Trauma patient transport and transfer criteria are met.
2. Patient requires a level of care greater than can be provided by the responding ground transport agency.

1 or 2 above PLUS any of the following:

- Difficult access situations:
 - * Wilderness rescue
 - * Ambulance egress or access impeded at the scene by road conditions, weather, or traffic.
- Time/Distance Factors:
 - * Transport time to the trauma center by ground is greater than transport time to the trauma center by helicopter.
 - * Patient extrication time > 20 minutes.
 - * Utilization of ground ambulances may leave locality without ground ambulance coverage for an extended period of time.

Interfacility Transport by Helicopter

Transport from a non-trauma center hospital to a designated trauma center via helicopter should be made according to the following criteria:

1. Trauma patient transport and transfer criteria are met.
2. Patient requires a level of care greater than can be provided by the non-trauma center hospital.
3. Patient requires time critical intervention, out-of-hospital time needs to be minimal, or time/distance to definitive care is long.
4. Utilization of ground ambulance may leave locality without ground ambulance coverage for an extended period of time.

Regional EMS Mass Casualty Incident (MCI) Plans and Disaster/Weapons of Mass Destruction (WMD) Plans

Both prehospital and hospital providers should become familiar with other related Regional EMS/public health emergency plans. These plans represent a tiered response to increasing numbers of patients:

- MCI Plan
- Disaster/WMD Plan
- Surge Capacity Plan

These plans are designed to compliment one another. The Regional Trauma Triage Plan is intended to guide transport and transfer destinations for a limited number of patients that can be managed by resources available during normal daily operations. The MCI and Disaster/WMD Plans provide additional guidance to agencies, municipalities and medical facilities when the numbers of patients exceed that which can be managed by regularly available resources. The Surge Capacity Plan is currently being developed by the Northwest Regional Emergency Management Committee, a multi-region collaboration of public safety officials, hospital representatives and regional planning and health agencies, to meet the need of large-scale events that may require caring for hundreds or even thousands of patients.

Trauma Performance Improvement (TPI)

The Office of EMS will coordinate a program for monitoring the quality of trauma care. This program will provide for the collection and analysis of data on emergency medical and trauma services from existing validated sources, including but not limited to the Prehospital Patient Care Report (PPCR) Program and the Trauma Registry.

The Office of EMS, acting on behalf of the Commissioner of Health, will report aggregate findings of the analysis annually to each Regional EMS Council. The findings

of the report shall be used by the Councils to improve their Regional Trauma Triage Plan, including triage, transport and trauma center designation criteria.

The State Trauma Performance Improvement (TPI) Committee will also review such data on a quarterly basis and report its findings to the Health Commissioner and the EMS Advisory Board. The program for monitoring and reporting the results of trauma services data analysis will be the sole means of encouraging and promoting compliance with the trauma triage criteria.

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 hospital or emergency medical services director is informed of any incorrect interfacility transfer or triage, as defined in the statewide plan, specific to the provider and will give the provider an opportunity to correct any facts on which such determination is based, if the provider asserts that such facts are inaccurate.

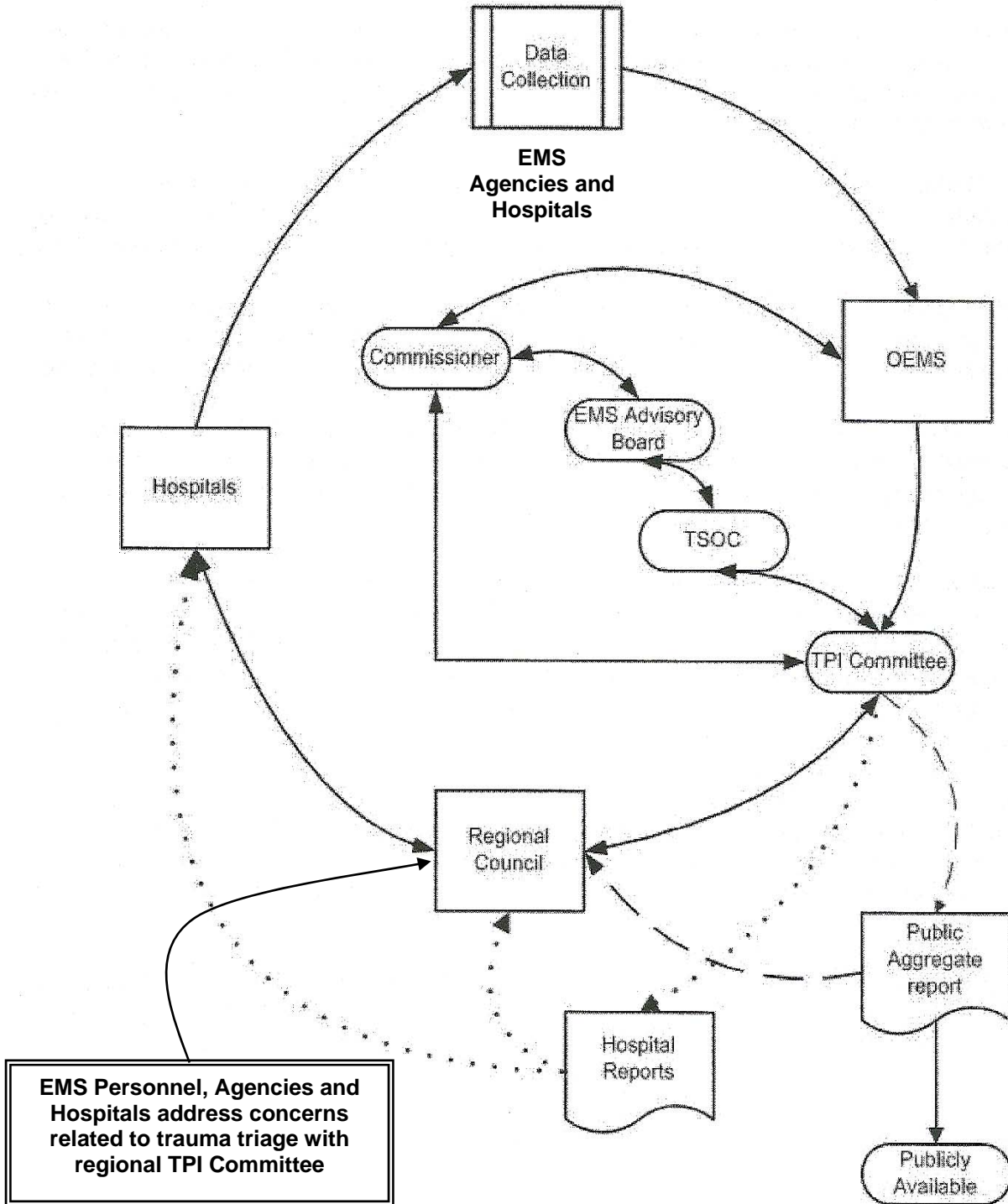
The Commissioner shall ensure the confidentiality of patient information, in accordance with § 32.1-111.3. Such data or information in the possession of or transmitted to the commissioner, the EMS Advisory Board, or any committee acting on behalf of the EMS Advisory Board, any hospital or prehospital 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 causes shown arising from extraordinary circumstances, order disclosure of such data.

Methodology:

The Office of EMS biostatistician will provide a retrospective analysis of the previous calendar year's trauma triage activities to the EMS Advisory Board, by the Board's August quarterly meeting. This same report will be provided to the Regional Councils for use in satisfying their obligation to provide TPI initiatives for the fiscal year.

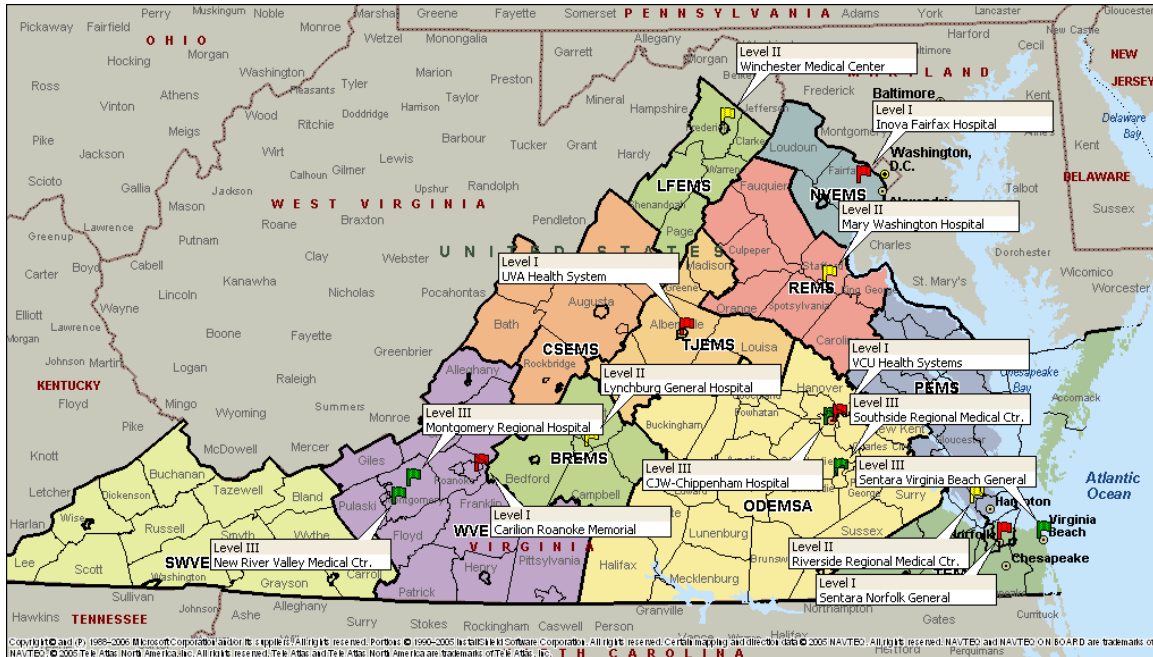
TJEMS intends to provide the Office of EMS with information that reflects the previous fiscal year's TPI activities including, but not limited to, the following: 1) topic of measurement 2) methodology of measurement 3) action taken following data analysis (loop closure).

Schematic of Trauma Performance Improvement



Appendix A

Trauma Center/Regional Council Map



Region	Level 1 Trauma Centers
Western Virginia	Carilion Roanoke Memorial Hospital Bellevue @ Jefferson Streets, Roanoke
Northern Virginia	Inova Fairfax Hospital 3300 Gallows Road, Falls Church
Tidewater	Sentara Norfolk General Hospital 600 Gresham Drive, Norfolk
TJEMS	UVA Medical Center 1224 West Main Street, Charlottesville
Old Dominion	VCU Medical Center 12 th & Marshall Streets, Richmond

Region	Level 2 Trauma Centers
Blue Ridge	Lynchburg General Hospital 1901 Tate Springs Road, Lynchburg
Peninsula	Riverside Regional Medical Center 500 J. Clyde Morris Blvd., Newport News
Lord Fairfax	Winchester Medical Center 1840 Amherst Street, Winchester
Rappahannock	Mary Washington Hospital 1001 Sam Perry Blvd., Fredericksburg

Region	Level 3 Trauma Centers
Western Virginia	Carilion New River Valley Medical Center 2900 Lamb Circle, Christiansburg
Old Dominion	CJW Medical Center, Chippenham 7101 Jahnke Road, Richmond
Western Virginia	Montgomery Regional Hospital 3700 South Main Street, Blacksburg
Tidewater	Sentara Virginia Beach General Hospital 1060 First Colonial Road, Virginia Beach
Old Dominion	Southside Regional Medical Center 801 South Adams Street, Petersburg

Trauma Center Designation

Level I

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.

Level II

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, which is 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.

Level III

Level III centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility for education and system leadership within their region.

Appendix B

Regional EMS Councils

<ul style="list-style-type: none"> • Blue Ridge EMS Council (BREMS) 1900 Tate Springs Road, Suite 14 Lynchburg, VA 24501 	<ul style="list-style-type: none"> • Central Shenandoah EMS Council (CSEMS) 2312 West Beverley Street Staunton, VA 24401
<ul style="list-style-type: none"> • Lord Fairfax EMS Council (LFEMSC) 117 W Boscawen Street Winchester, VA 22601 	<ul style="list-style-type: none"> • Northern Virginia EMS Council (NOVA) 44983 Knoll Square, Suite 75 Ashburn, VA 20147
<ul style="list-style-type: none"> • Old Dominion EMS Alliance (ODEMSA) 1463 Johnston-Willis Drive Richmond, VA 23235 	<ul style="list-style-type: none"> • Peninsulas EMS Council (PEMS) PO Box 2348, Gloucester, VA 23061
<ul style="list-style-type: none"> • Rappahannock EMS Council (REMS) 2301 Fall Hill Avenue, Suite 101 Fredericksburg, VA 22401 	<ul style="list-style-type: none"> • Southwest Virginia EMS Council (SWVAEMS) 329 West Main Street Abingdon, Virginia 24210
<ul style="list-style-type: none"> • Thomas Jefferson EMS Council (TJEMS) 2205 Fontaine Ave., Suite 302 Charlottesville, Virginia 22903 	<ul style="list-style-type: none"> • Tidewater EMS Council (TEMS) 855 W. Brambleton Avenue Norfolk, VA 23510-1001
<ul style="list-style-type: none"> • Western Virginia EMS Council (WVEMS) 3229 Brandon Avenue, Suite 7 Roanoke, VA 24018-1547 	

Appendix C

Demographics

	Virginia	TJEMS
Residents	7,712,091	197231
Square Miles	39594.07	2457.47
Localities	134	7
Trauma Centers		
Level I	5	1
Level II	4	0
Level III	5	0
Licensed Hospitals	87	2
Regional EMS Councils	11	1
Licensed EMS Agencies	750	40
Medevac Agencies	13	1
EMS Vehicles	3,600	77 Ground/83 Non-Xport
EMS Providers	33,143	804 (affiliated w/ground agency)
First Responders	1,572	
BLS Providers	23,709	516 (affiliated w/ground agency)
ALS Providers	7,862	288 (affiliated w/ground agency)

Appendix D

EMS Regulation

12 VAC 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*.

§ 32.1-111.3. Statewide Emergency Medical Care System.

A. The Board of Health shall develop a comprehensive, coordinated, emergency medical care system in the Commonwealth and prepare a Statewide Emergency Medical Services Plan which shall incorporate, but not be limited to, the plans prepared by the regional emergency medical services councils. The Board shall review the Plan triennially and make such revisions as may be necessary. The objectives of such Plan and the system shall include, but not be limited to, the following:

1. Establishing a comprehensive statewide emergency medical care system, incorporating facilities, transportation, manpower, communications, and other components as integral parts of a unified system that will serve to improve the delivery of emergency medical services and thereby decrease morbidity, hospitalization, disability, and mortality;
2. Reducing the time period between the identification of an acutely ill or injured patient and the definitive treatment;
3. Increasing the accessibility of high quality emergency medical services to all citizens of Virginia;
4. Promoting continuing improvement in system components including ground, water and air transportation, communications, hospital emergency departments and other emergency medical care facilities, consumer health information and education, and health manpower and manpower training;
5. Improving the quality of emergency medical care delivered on site, in transit, in hospital emergency departments and within the hospital environment;
6. Working with medical societies, hospitals, and other public and private agencies in developing approaches whereby the many persons who are presently using the existing emergency department for routine, no urgent, primary medical care will be served more appropriately and economically;
7. Conducting, promoting, and encouraging programs of education and training designed to upgrade the knowledge and skills of health manpower involved in emergency medical services;
8. Consulting with and reviewing, with agencies and organizations, the development of applications to governmental or other sources for grants or other funding to support emergency medical services programs;

9. Establishing a statewide air medical evacuation system which shall be developed by the Department of Health in coordination with the Department of State Police and other appropriate state agencies;
10. Establishing and maintaining a process for designation of appropriate hospitals as trauma centers and specialty care centers based on an applicable national evaluation system;
11. Establishing a comprehensive emergency medical services patient care data collection and evaluation system pursuant to Article 3.1 (§ 32.1-116.1 et seq.) of this chapter;
12. Collecting data and information and preparing reports for the sole purpose of the designation and verification of trauma centers and other specialty care centers pursuant to this section. All data and information collected shall remain confidential and shall be exempt from the provisions of the Virginia Freedom of Information Act (§ 2.2-3700 et seq.); and
13. Establishing a registration program for automated external defibrillators, pursuant to § 32.1-111.14:1.

B. The Board of Health shall also develop and maintain as a component of the Emergency Medical Services Plan a statewide prehospital and interhospital Trauma Triage Plan designed to promote rapid access for pediatric and adult trauma patients to appropriate, organized trauma care through the publication and regular updating of information on resources for trauma care and generally accepted criteria for trauma triage and appropriate transfer. The Trauma Triage Plan shall include:

1. A strategy for implementing the statewide Trauma Triage Plan through formal regional trauma triage plans developed by the regional emergency medical services councils which can incorporate each region's geographic variations and trauma care capabilities and resources, including hospitals designated as trauma centers pursuant to subsection A of this section. The regional trauma triage plans shall be implemented by July 1, 1999, upon the approval of the Commissioner.
2. A uniform set of proposed criteria for prehospital and interhospital triage and transport of trauma patients, consistent with the trauma protocols of the American College of Surgeons' Committee on Trauma, developed by the Emergency Medical Services Advisory Board, in consultation with the Virginia Chapter of the American College of Surgeons, the Virginia College of Emergency Physicians, the Virginia Hospital and Healthcare Association, and prehospital care providers. The Emergency Medical Services Advisory Board may revise such criteria from time to time to incorporate accepted changes in medical practice or to respond to needs indicated by analyses of data on patient outcomes. Such criteria shall be used as a guide and resource for health care providers and are not intended to establish, in and of themselves, standards of care or to abrogate the requirements of § 8.01-581.20. A decision by a health care provider to deviate from the criteria shall not constitute negligence per se.
3. A program for monitoring the quality of care, consistent with other components of the Emergency Medical Services Plan. The program shall provide for collection and analysis

of data on emergency medical and trauma services from existing validated sources, including but not limited to the emergency medical services patient care information system, pursuant to Article 3.1 (§ 32.1-116.1 et seq.) of this chapter, the Patient Level Data System, and mortality data. The Emergency Medical Services Advisory Board shall review and analyze such data on a quarterly basis and report its findings to the Commissioner. The first such report shall be for the quarter beginning on July 1, 1999. The Advisory Board may execute these duties through a committee composed of persons having expertise in critical care issues and representatives of emergency medical services providers. The program for monitoring and reporting the results of emergency medical and trauma services data analysis shall be the sole means of encouraging and promoting compliance with the trauma triage criteria.

The Commissioner shall report aggregate findings of the analysis annually to each regional emergency medical services council, with the first such report representing data submitted for the quarter beginning July 1, 1999, through the quarter ending June 30, 2000. The report shall be available to the public and shall identify, 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 Advisory Board shall ensure that each hospital or emergency medical services director is informed of any incorrect interfacility transfer or triage, as defined in the statewide plan, specific to the provider and shall give the provider an opportunity to correct any facts on which such determination is based, if the provider asserts that such facts are inaccurate. The findings of the report shall be used to improve the Trauma Triage Plan, including triage, and transport and trauma center designation criteria. 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 Advisory Board, or any committee acting on behalf of the 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, unless a circuit court, after a hearing and for good cause shown arising from extraordinary circumstances, orders disclosure of such data.

C. Whenever any state-owned aircraft, vehicle, or other form of conveyance is utilized under the provisions of this section, an appropriate amount not to exceed the actual costs of operation may be charged by the agency having administrative control of such aircraft, vehicle or other form of conveyance.