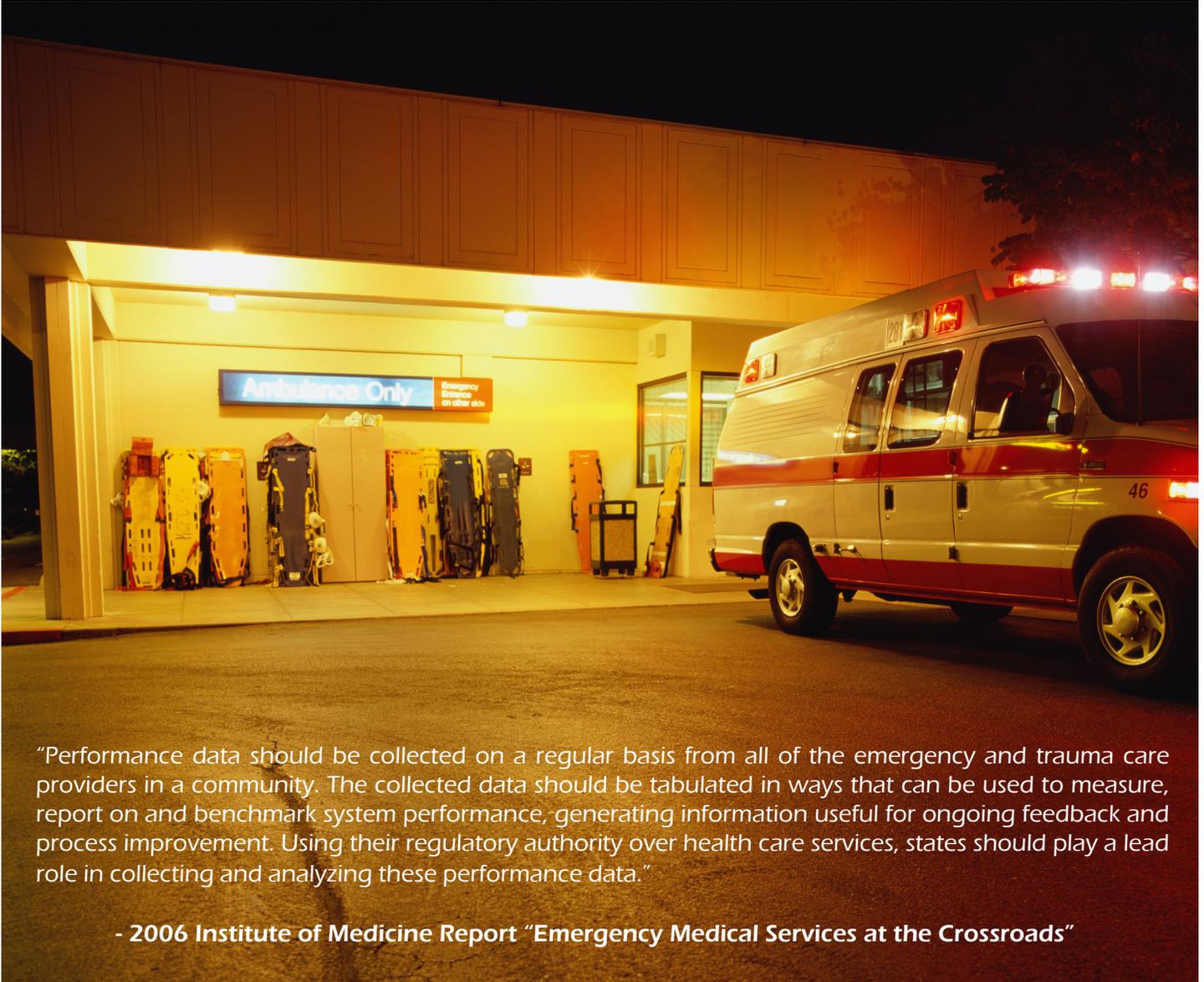


2005 Trends in Emergency Medicine and Trauma



"Performance data should be collected on a regular basis from all of the emergency and trauma care providers in a community. The collected data should be tabulated in ways that can be used to measure, report on and benchmark system performance, generating information useful for ongoing feedback and process improvement. Using their regulatory authority over health care services, states should play a lead role in collecting and analyzing these performance data."

- 2006 Institute of Medicine Report "Emergency Medical Services at the Crossroads"

Virginia Office of Emergency Medical Services
Division of Trauma and Critical Care



*Medicine is the only profession
that labours incessantly
to destroy the reason
for its own existence.*

~James Bryce, 1914



Mission Statement

To reduce death and disability resulting from sudden or serious injury and illness in the Commonwealth through planning and development of a comprehensive, coordinated statewide EMS system; and provision of other technical assistance and support to enable the EMS community to provide the highest quality emergency medical care possible to those in need.

<http://www.vdh.virginia.gov/oems/>

Preface

An excerpt from the 2006 Institute of Medicine Report “Emergency Medical Services at the Crossroads” provides a basis for the rationale behind the creation of this report:

Performance data should be collected on a regular basis from all of the emergency and trauma care providers in a community. Over time, emerging technologies may support more simplified and streamlined data collection methods such as wireless transmission of clinical data and direct links to patient electronic health records. However, these types of technical upgrades would likely require federal financial support, and EMS personnel would have to be persuaded to transition from paper-based run records, which are less amenable to efficient performance measurement. The collected data should be tabulated in ways that can be used to measure, report on, and benchmark system performance, generating information useful for ongoing feedback and process improvement. Using their regulatory authority over health care services, states should play a lead role in collecting and analyzing these performance data.

Data for this report was taken from the Virginia Statewide Trauma Registry (VSTR) and the Pre-hospital Patient Care Reports (PPCR). The collection of both trauma registry and PPCR data has been ongoing for several years. We are working towards full compliance and once we have that, we will redirect resources to begin looking at the quality of the data submitted. Due to this ongoing increase in compliance and data accuracy, we expect next years report to contain figures that more accurately reflect the actual number of patients cared for by our EMS and trauma systems.

This years report contains mostly counts and is void of any in-depth analyses. As we become more confident in the data we will expand the depth and breadth of what we include in this report. A goal for next year is to also include population data so that rates and relative risks can be calculated which will lend greater insight into the actual impact of these numbers.

The rationale behind the production of this report *now* is that we feel an obligation to give something back to the hospitals and agencies that have diligently been reporting for years. At the time of this report approximately 85% of the 731 EMS agencies, 94% of the 80 non-designated hospitals, and 85% of the 14 designated trauma centers submitted *something* for 2005. As already mentioned, we will soon be able to shift resources to better assess the quality of that “something”.

The databases that house VSTR and the PPCR are constantly being updated. Not all analyses were run on the same day therefore totals in one section of the report may not be consistent with others due to additional data being uploaded. This is the result of having a dynamic system and cannot easily be avoided.

This report will be available for download on the OEMS website in PDF format. It has been structured so that each 2-page spread can be printed double sided and used as independent, one-page “quick fact” handouts.

The Office of Emergency Medical Services is responsible for the accuracy of assembling this information but does not represent that any subsequent use of this data is appropriate or endorse or support any conclusions or references that may be drawn from the use of this data.

The following are excerpts from the Code of Virginia as well as the *VSTR Reporting Requirements*. These documents provide an insight into the data that was used in creating this report.

§ 32.1-116.1. Prehospital patient care reporting procedure; trauma registry; confidentiality.

A. In order to collect data on the incidence, severity and cause of trauma, integrate the information available from other state agencies on trauma and improve the delivery of prehospital and hospital emergency medical services, there is hereby established the Emergency Medical Services Patient Care Information System. The Emergency Medical Services Patient Care Information System shall include the prehospital patient care reporting procedure and the trauma registry.

All licensed emergency medical services agencies shall participate in the prehospital patient care reporting procedure by making available to the Commissioner or his designees the minimum data set on forms prescribed by the Board or locally developed forms which contain equivalent information. The minimum data set shall include, but not be limited to, type of medical emergency or nature of the call, the response time, the treatment provided and other items as prescribed by the Board.

Each licensed emergency medical services agency shall upon request disclose the prehospital care report to law-enforcement officials (i) when the patient is the victim of a crime or (ii) when the patient is in the custody of the law-enforcement officials and has received emergency medical services or has refused emergency medical services.

The Commissioner may delegate the responsibility for collection of this data to the Regional Emergency Medical Services Councils, Department of Health personnel or individuals under contract to the Department. The Advisory Board shall assist in the design, implementation, subsequent revisions and analyses of the data of the prehospital patient care reporting procedures.

B. All licensed hospitals which render emergency medical services shall participate in the trauma registry by making available to the Commissioner or his designees abstracts of the records of all patients admitted to the institutions' trauma and general surgery services with diagnoses related to trauma. The abstracts shall be submitted on forms provided by the Department and shall include the minimum data set prescribed by the Board.

The Commissioner shall seek the advice and assistance of the Advisory Board and the Committee on Trauma of the Virginia Chapter of the American College of Surgeons in the design, implementation, subsequent revisions and analyses of the trauma registry.

(1987, c. 480; 2002, cc. 568, 658; 2003, c. 471.)

Cases required to be reported to VSTR:

1. Injured/Trauma **patients admitted** to the facility with **ICD9-CM codes of 348.1, 800.0 - 959.9, 994.0 and 994.1, excluding** 905-909 (late effect injuries), 910-924 (blisters, contusions, abrasions and insect bites), and 930-939 (foreign bodies).

This reporting includes ALL admissions, including 23 hours admits for observation, as an inpatient; NOT emergency room observation unless held in the emergency room due to no inpatient bed availability. Patients not admitted to an inpatient status do not need to be reported. It also includes reporting all admissions for patients where the trauma codes are secondary diagnoses.

2. Injured/Trauma **patients transferred** from one hospital to another because of acute trauma, patient may be transferred directly from the emergency department or from an inpatient unit.

3. **Victims of acute trauma that die** within the hospital, including, the emergency department and those who are DOA *after arrival* to the hospital.

Trauma in Virginia

Designated Trauma Centers

EXPLANATION OF DATA

There are **14** designated trauma centers in Virginia, of which, at the completion of this report, 13 were submitting data to the Virginia Statewide Trauma Registry. A trauma center's designation is defined by the following criteria:

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, 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.

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.

Level I Trauma Centers

- **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**
2nd & Marshall Streets, Richmond

Level II Trauma Centers

- **Lynchburg General Hospital**
1901 Tate Springs Road, Lynchburg
- **Riverside Regional Medical Center**
500 J. Clyde Morris Boulevard,
Newport News
- **Winchester Medical Center**
1840 Amherst Street, Winchester

Level III Trauma Centers

- **Carilion New River Valley Medical Center**
2900 Lamb Circle, Christiansburg
- **CJW Medical Center, Chippenham**
7101 Jahnke Road, Richmond
- **CJW Medical Center, Johnston-Willis**
1401 Johnston-Willis Drive, Chesterfield
- **Montgomery Regional Hospital**
3700 South Main Street, Blacksburg
- **Sentara Virginia Beach General Hospital**
1060 First Colonial Road, Virginia Beach
- **Southside Regional Medical Center**
801 South Adams Street, Petersburg

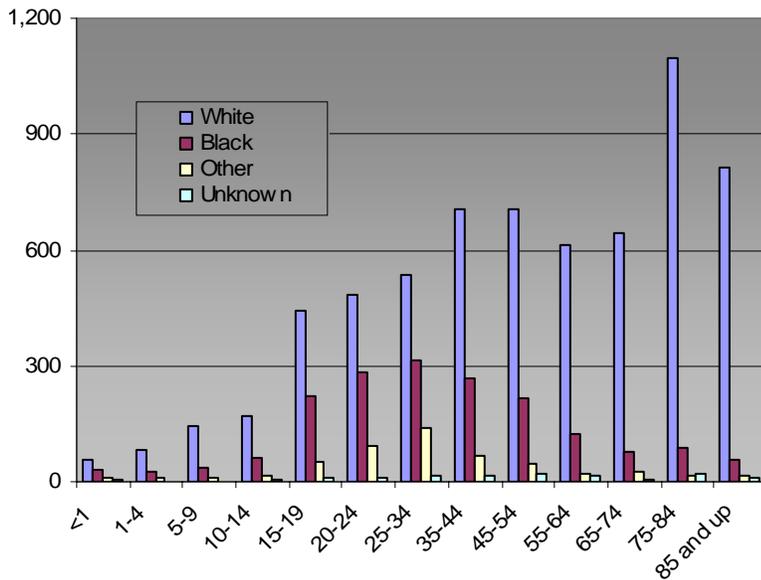


Trauma in Virginia

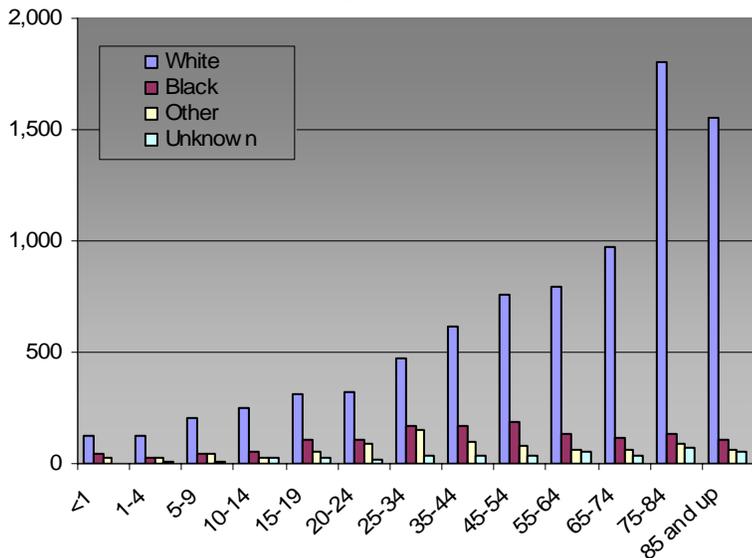
Demographics

Trauma affects every race, age, gender, and socioeconomic status...

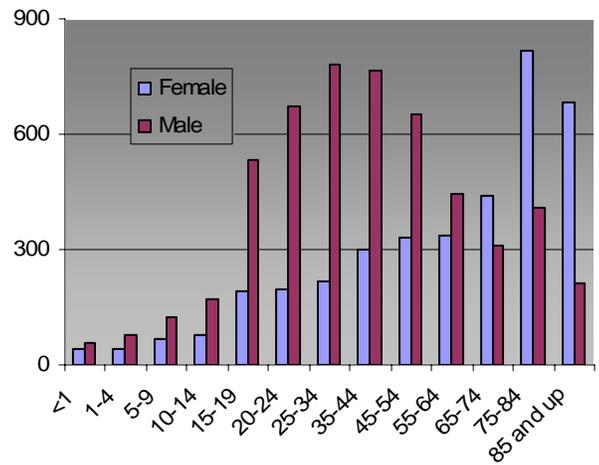
**Age and Race Distribution
Designated Trauma Center**



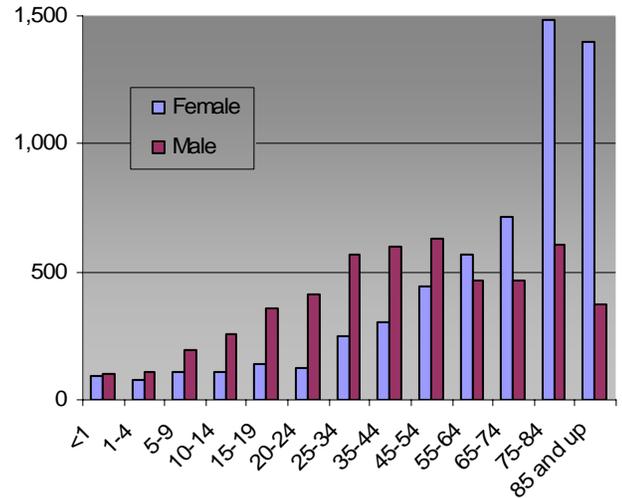
**Age and Race Distribution
Non-Designated Hospital**



**Age and Gender Distribution
Designated Trauma Center**



**Age and Gender Distribution
Non-Designated Hospital**



Trauma in Virginia

Triage

Virginia's 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 *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 State EMS Advisory Board.

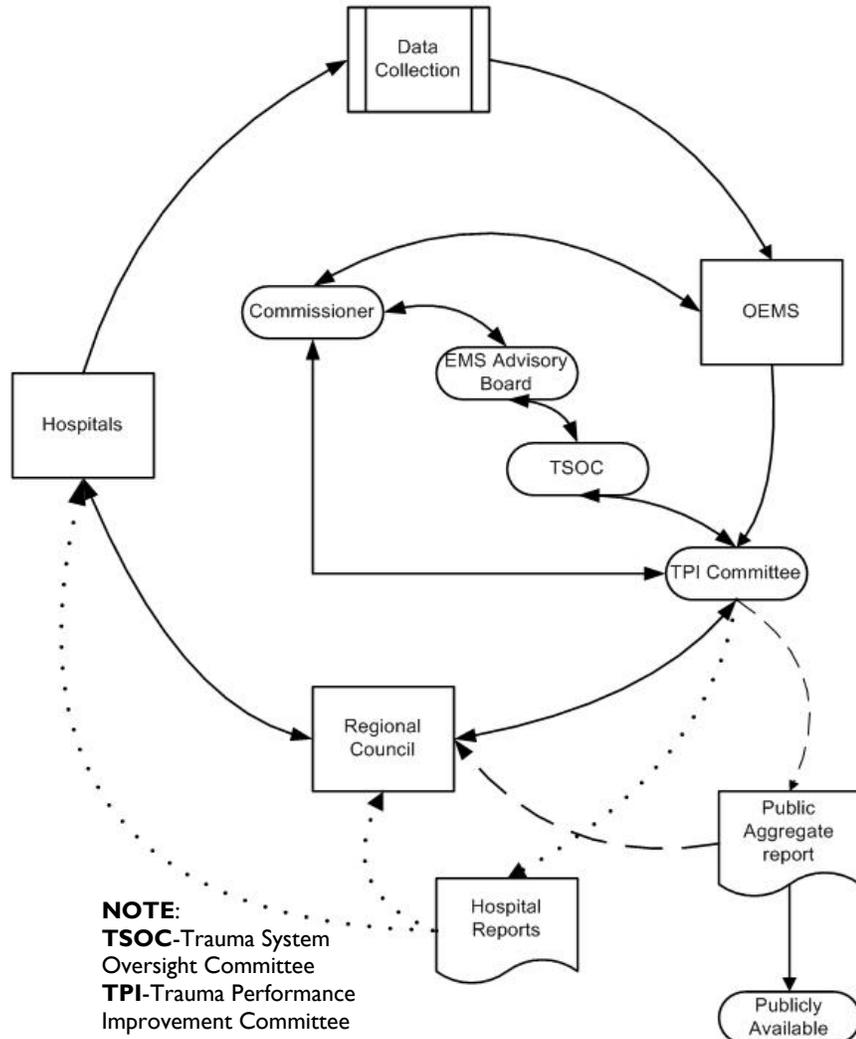
Recognizing the complexity of Virginia's variability in demographics and geography, the State Trauma Triage Plan has been designed to set a template for the Regional EMS Councils to develop, monitor, and revise a regionalized trauma triage plan. Through regionalized Trauma Performance Improvement Committees, issues in trauma care on scene, in transit, and within hospitals can be addressed.

Virginia's Trauma Triage Plan can be found at:
<http://www.vdh.virginia.gov/oems/trauma/traumacenters.asp>

The chart below details the flow of information from the initial collecting of data to the report becoming available to the public.

EXPLANATION OF DATA

Trauma data collection and Trauma Triage serve to assure that seriously injured citizens reach definitive care as fast as possible. This is accomplished by the trauma patient being recognized and entered into the trauma system at the earliest possible time.



NOTE:
TSOC-Trauma System Oversight Committee
TPI-Trauma Performance Improvement Committee



Trauma in Virginia

Triage

Diagnoses listed in the Virginia Trauma Triage Plan

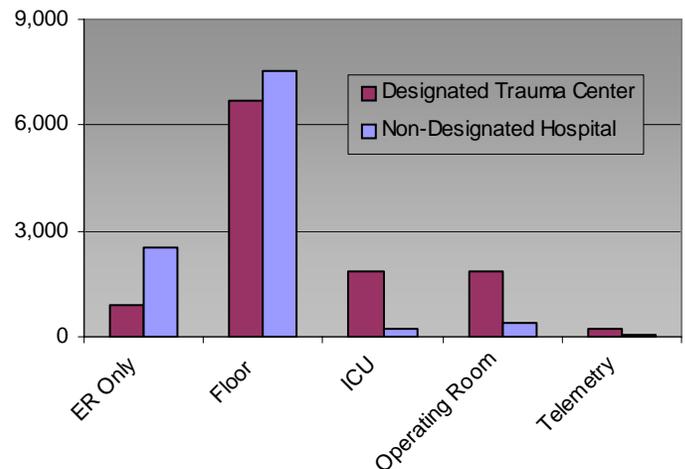
	Designated Trauma Center	Non-Designated Hospital	Total
>5 rib fractures	322	79	401
Burn	2294	332	2626
Extra-axial hemorrhage	1075	291	1366
Flail chest	69	Not available	Not available
Hemothorax	140	30	170
Open skull fracture	165	19	184
Pneumothorax	900	169	1069
Pulmonary contusion	732	75	807
Vert. column fracture w/ cord injury	152	22	174
GCS<=12	3798	366	4164
Systolic BP <100	2556	749	3305
Penetrating injury	3537	491	4028

Eight in ten Americans feel having a trauma system in place is equally or more important than having state police.

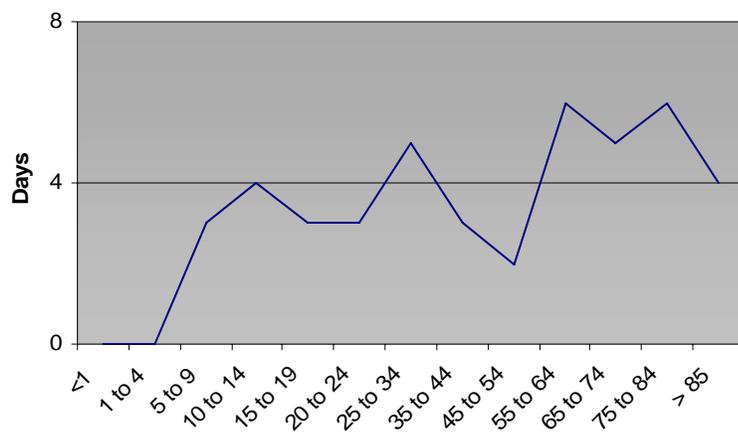
Nine in ten Americans feel that having a trauma system in place is equally or more important than having a HAZMAT team.

Source: 2005 Harris Interactive Market Research Poll

Location of Admission



Average Length of Stay by Age



Transport Methods Utilized

	Designated Trauma Centers	Non-Designated Hospitals	Total
Ambulance	5877	5338	11215
Private Vehicle	890	2551	3441
Walk-in	404	438	842
Helicopter	595	4	599
Public Transportation	0	63	63
Other	68	239	307
Not listed	4172	2373	6545

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 109 Governor Street, UB-55
 Richmond, VA 23219

Trauma in Virginia

Admissions

EXPLANATION OF DATA

The trauma system in Virginia is inclusive. All hospitals with 24 hour emergency rooms provide some degree of trauma care. The decision to become a designated trauma center is voluntary. Designation carries a cost related to the fact that the trauma services must be continuously available and ready to provide care to patients who might require treatment. Trauma triage guidelines act to direct severely injured patients to the nearest appropriate trauma center.

All hospitals whether designated or not should make every effort possible to participate in and improve the trauma system. Due to the unexpected nature of injury, trauma patients and their families cannot choose their location of care. It is incumbent upon the healthcare system to provide these patients with the most optimal care possible regardless of location and circumstances. The purpose of the designation process is to assure consistent quality and performance of entry level trauma centers and to promote continued improvement and development of experienced centers.

Virginia Trauma Center standards are based upon national standards put forth by the American College of Surgeons and the American College of Emergency Physicians. The Virginia standards are reviewed and updated based on changes in the national standards as well as the evolving needs of the Trauma System in Virginia.

Designation is meant to identify those hospitals that will make a commitment to provide a given level of care for the multiple injured patients and who welcome public acknowledgment of that capability. Knowledge of trauma care capabilities, with improved field categorization and pre-hospital capabilities will help all those involved in the trauma care delivery system make decisions that are in the best interest of the patient.

An “inclusive trauma care system” is one that incorporates every health care facility in a community in a system to provide a continuum of services for all injured patients who require care in an acute care facility.

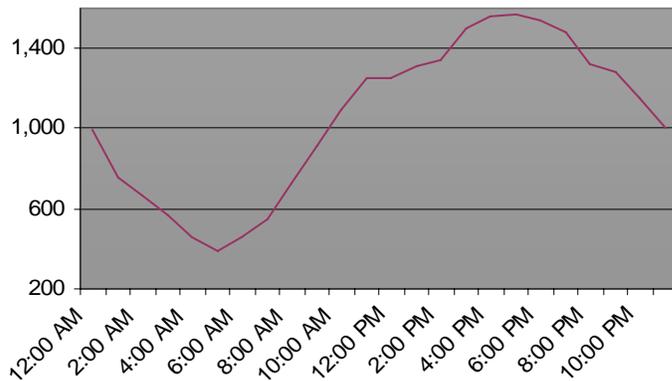
Trauma Admissions		
	Designated Trauma Centers	Non-designated Hospitals
2003	10877	5302
2004	11571	5562
2005	8972	10989



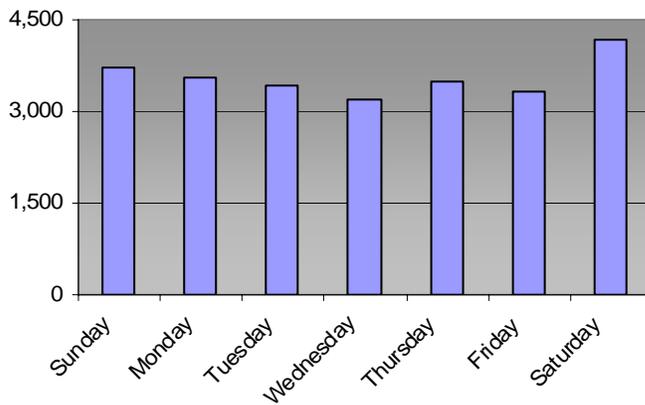
Trauma in Virginia

Admissions

Hourly Trauma Distribution



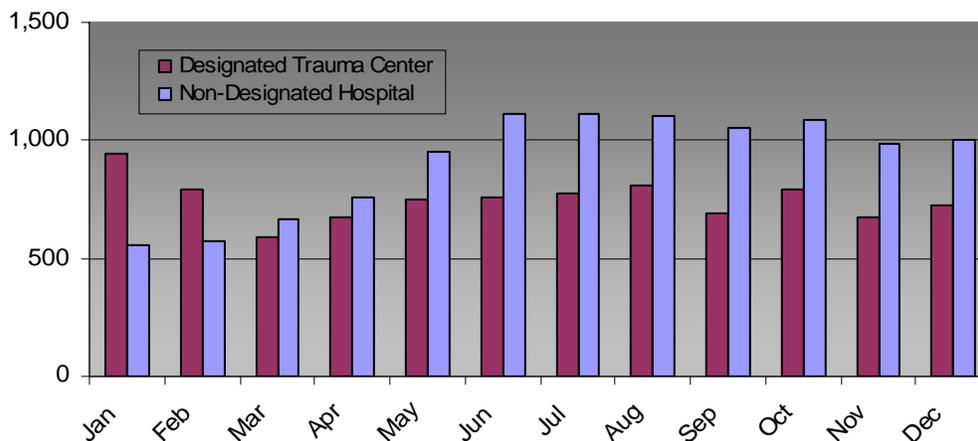
Daily Trauma Distribution



2005 Trauma Admissions by Month

	Designated Trauma Center	Percent	Non-designated Hospital	Percent
January	942	10	561	5
February	790	9	581	5
March	591	7	662	6
April	677	7	762	7
May	747	8	949	9
June	760	8	1109	10
July	774	9	1112	10
August	808	9	1106	10
September	691	9	1050	10
October	792	9	1085	10
November	672	7	987	9
December	728	8	1025	9
Total	8972	100	10989	100

Monthly Trauma Distributions



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Trauma in Virginia

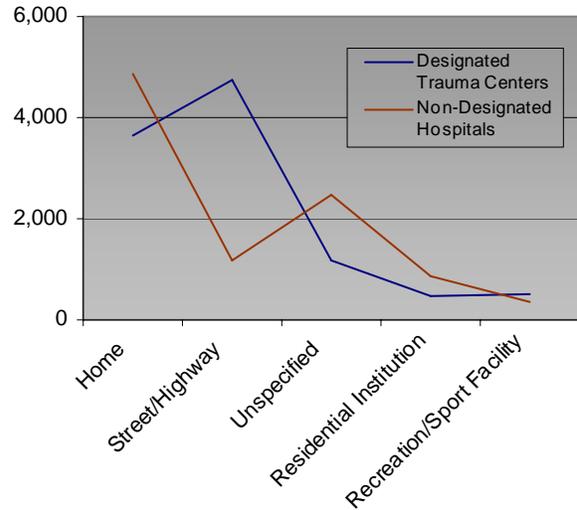
Mechanisms of Injury

External Causes of Injury

E-codes permit classification of environmental events, circumstances, and conditions as the cause of injury, poisoning, and other adverse effects. E-codes are to be used as an additional code for more detailed analysis.

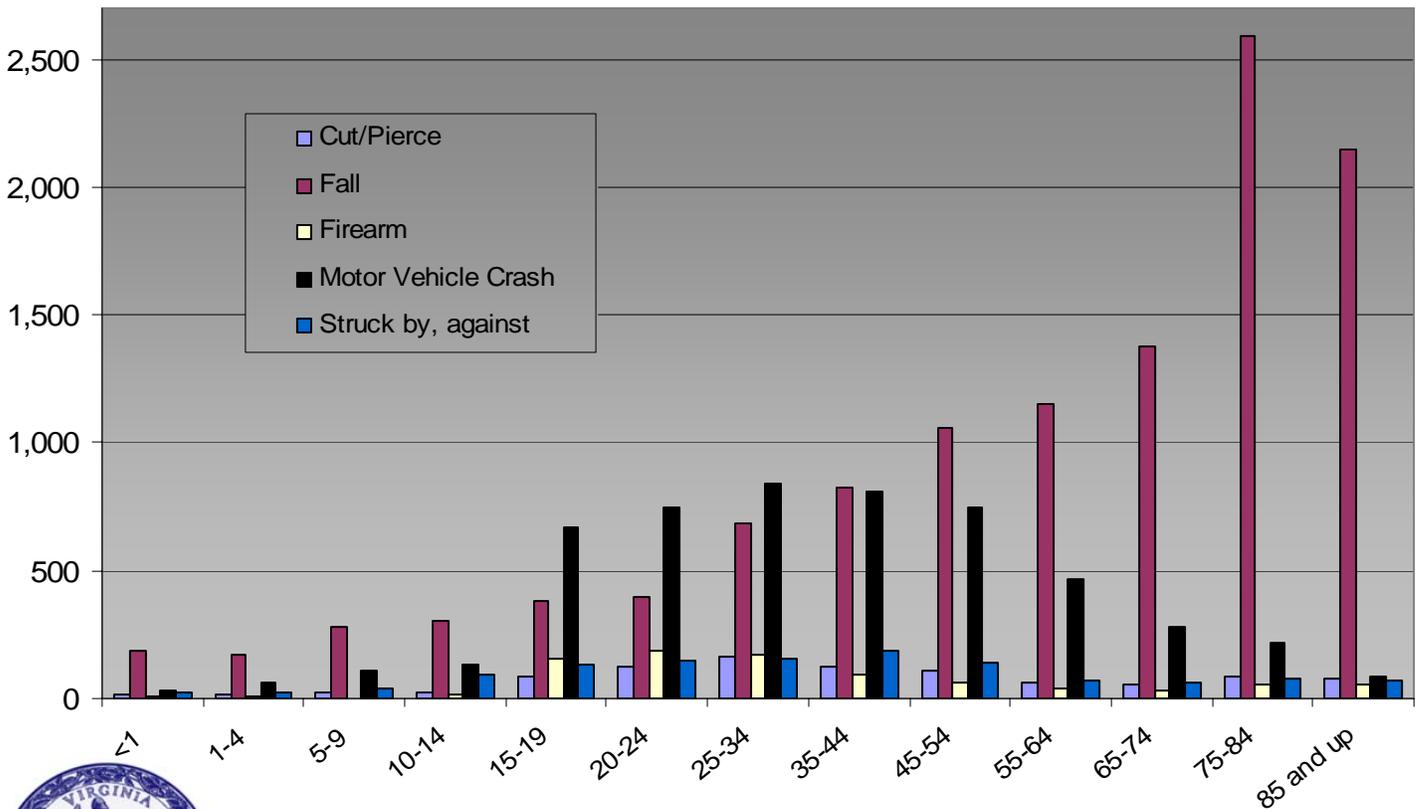
There were 451 unique E-codes reported. The 10 most frequently reported represent 53% of all cases. 'Injury Location' and 'Mechanism of injury' are groupings of similar E-codes.

Five Most Common Injury Locations



The most common ways injuries occur otherwise called the 'Mechanism of Injury' are...

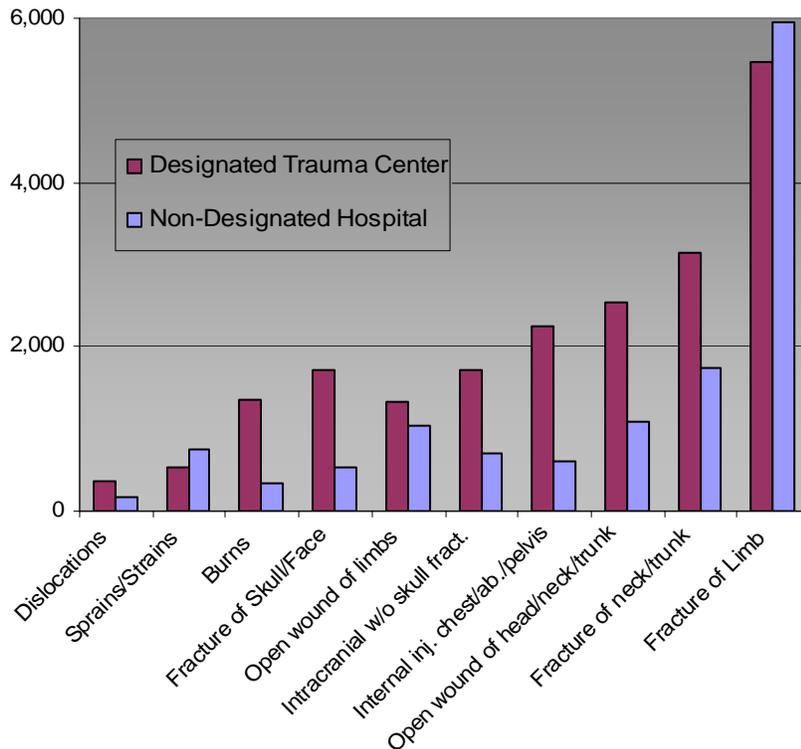
Mechanism of Injury by Age



Trauma in Virginia

Diagnoses

The most common types of injuries suffered by trauma patients are...



Ten Most Common Diagnosis Groups

	Designated Trauma Centers	Non-Designated Hospitals	Total
Dislocations	354	181	535
Sprains/Strains	543	761	1304
Burns	1347	332	1679
Fracture of the Skull/Face	1729	530	2259
Open wound of the upper/lower limb	1326	1033	2359
Intracranial injury w/o skull fracture	1718	694	2412
Internal inj. of chest/ab/pelvis	2247	600	2847
Open wound of the head/neck/trunk	2542	1090	3632
Fracture of neck/trunk	3151	1753	4904
Fracture of Upper/Lower Limb	5478	5954	11432
Total	21340	14925	36265

*Falls are the most common type of mechanism and occur in the following locations...

Most Common Locations of Falls	
Home	6317
Unspecified	1845
Residential Institution	1163
Public Building	511
Place for Recreation/sport	428
Street/Highway	428

*Fractures are the most common type of injury and the following are the most common types of fractures...

Fracture Types	
Femur	4612
Lower limb (excluding femur)	3265
Upper limb	2860
Vertebral column	2214
Chest	1970
Head/Neck	1228
Pelvis	1231
Face/Skull	1033
Total	18413

***Reminder:** These figures are from the Trauma Registry and therefore only include patients admitted to the hospital as a trauma.

Trauma in Virginia

The burden of injury

Length of Stay (LOS) in Days for the Ten Most Common E-codes

E-code	Description	Mean LOS	Median LOS	Frequency
885.9	Fall on Same Level, Slip/Trip/Stumble: Other	4.90	4	3609
888.9	Other and Unspecified Fall: Unspecified Fall	5.55	4	2906
816.0	Motor Vehicle Traffic Accident Due to Loss of Control, without Collision on the Highway: Driver of Motor Vehicle Other Than Motorcycle	4.72	2	1223
812.0	Other Motor Vehicle Traffic Accident Involving Collision with Motor Vehicle: Driver of Motor Vehicle Other Than Motorcycle	4.44	2	1152
880.9	Fall On/From Stairs/Steps: Other Stairs/Steps	4.37	3	915
884.9	Fall From One Level to Another: Other	3.93	2	733
812.1	Other Motor Vehicle Traffic Accident Involving Collision with Motor Vehicle: Passenger in Motor Vehicle Other Than Motorcycle	4.25	2	475
816.1	Motor Vehicle Traffic Accident Due to Loss of Control, without Collision on the Highway: Passenger in Motor Vehicle Other Than Motorcycle	4.45	2	425
881.0	Fall On/From Ladders/Scaffolding: Ladder	3.68	2	405
966	Assault by Cutting and Piercing Instrument	2.82	1	404

Trauma can result in disabling conditions with long-term care and loss of productivity costs.

The economic cost of injury nationally is:

- \$225 billion annually
- \$117 billion in direct health care costs
- \$64.9 billion in lost wages



Source: US Department of Health and Human Service Health Resources and Services Administration (HRSA)

Trauma in Virginia

Trauma Fund

Purpose: To provide financial support to Designated Trauma Centers to defray the costs of providing emergency medical care to victims of trauma.

Trauma Center Level	Percent Distribution	Funds Collected Jul-Sep 05	Funds Collected Oct-Dec 05	Funds Collected Jan-Mar 06	Total Funds Collected 06 & 1st Gen'l Funds*	Total Distributions First Year of Fund
Level I						
Roanoke Memorial	14.16%	\$86,942.40	\$170,970.55	\$264,400.48	\$312,452.33	\$834,765.76
Inova Fairfax	26.98%	\$165,657.19	\$325,761.68	\$503,780.00	\$595,336.43	\$1,590,535.30
Norfolk General	14.84%	\$91,117.60	\$179,181.00	\$277,097.67	\$327,457.10	\$874,853.37
UVA	13.23%	\$81,232.20	\$159,741.55	\$247,035.19	\$291,931.10	\$779,940.04
VCU	17.38%	\$106,713.20	\$209,849.44	\$324,525.44	\$383,504.34	\$1,024,592.42
Level II						
Lynchburg General	1.12%	\$6,876.80	\$13,523.09	\$20,913.03	\$24,713.74	\$66,026.66
Riverside Regional	1.39%	\$8,534.60	\$16,783.13	\$25,954.57	\$30,671.52	\$81,943.82
Winchester	2.67%	\$16,393.80	\$32,238.09	\$49,855.00	\$58,915.80	\$157,402.69
Level III						
Carillion New River Valley	0.25%	\$1,535.00	\$3,018.55	\$4,668.09	\$5,516.46	\$14,738.10
CJW Richmond	1.81%	\$11,113.40	\$21,854.29	\$33,796.95	\$39,939.17	\$106,703.81
Montgomery	0.65%	\$3,991.00	\$7,848.22	\$12,137.03	\$14,342.80	\$38,319.05
Southside Regional	0.64%	\$3,929.60	\$7,727.48	\$11,950.30	\$14,122.14	\$37,729.52
Virginia Beach General	4.88%	\$29,963.20	\$58,922.05	\$91,121.07	\$107,681.31	\$287,687.63
Total	100.00%	\$613,999.98	\$1,207,419.11	\$1,867,234.82	\$2,206,584.24	\$5,895,238.16

*These figures contain the funds collected for the fourth quarter of FY06 from the DMV and DCJS and the first quarterly disbursement of General Funds of FY07

More information on the trauma fund can be found in the full trauma fund document, the "Virginia Office of Emergency Medical Services Trauma Fund Grant Information and Disbursement Policy." This document and other trauma related documents can be found at: www.vdh.virginia.gov/oems/trauma/traumacenters.asp

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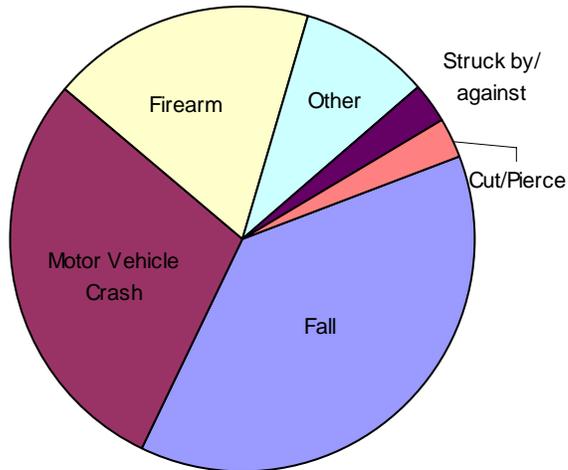
Trauma in Virginia

Outcomes (fatal)

Trauma Death Injury Mechanisms Designated Trauma Centers

	Frequency	Percent
Fall	184	37
Motor Vehicle Crash	144	29
Firearm	91	19
Other	45	9
Struck by/ against	15	3
Cut/Pierce	13	3
Total	492	100

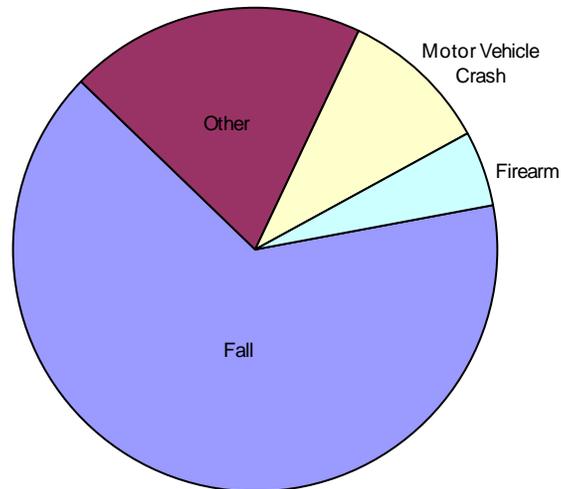
Trauma Death Injury Mechanisms Designated Trauma Centers



Trauma Death Injury Mechanisms Non-Designated Hospitals

	Frequency	Percent
Fall	144	65
Other	45	20
Motor Vehicle Crash	22	10
Firearm	11	5
Total	222	100

Trauma Death Injury Mechanisms Non-Designated Hospitals



About nine in ten Americans think it is extremely or very important for an ambulance to take them to a trauma center in the event of a life-threatening injury, even if it is not the closest hospital.

About one in three Americans believe that the hospital nearest to them is a trauma center.

(Less than 8% of hospitals have a trauma program)



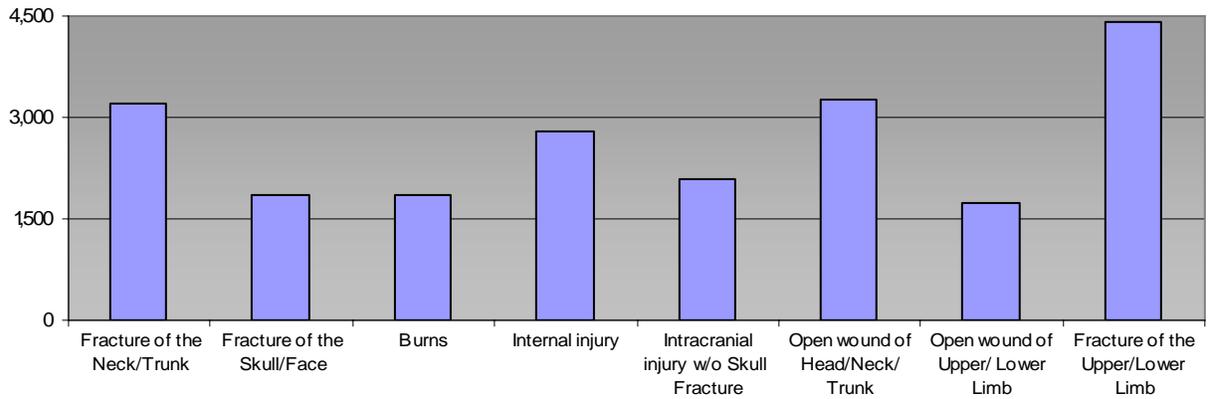
Source: 2005 Harris Interactive Market Research Poll

Trauma in Virginia

Outcomes (non-fatal)

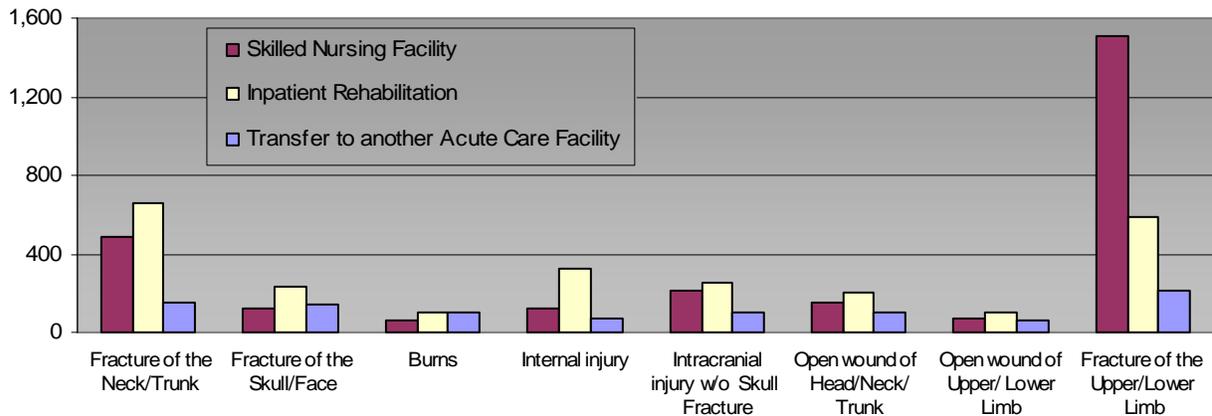
After a trauma patients acute care hospital admission, they may be...

Discharged Home



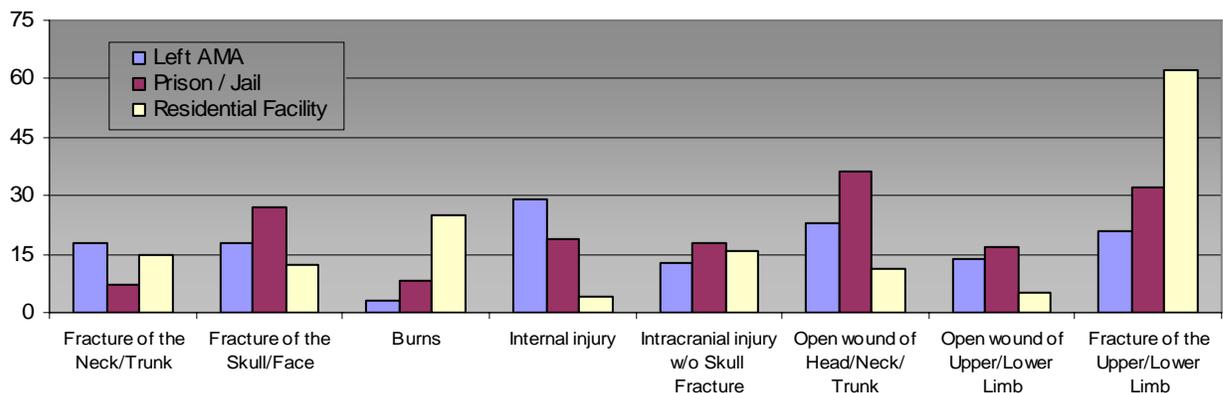
Or

Receive Further Treatment



Or

Additional Outcomes



Pre-hospital Patient Care

Call Volume

EXPLANATION OF DATA

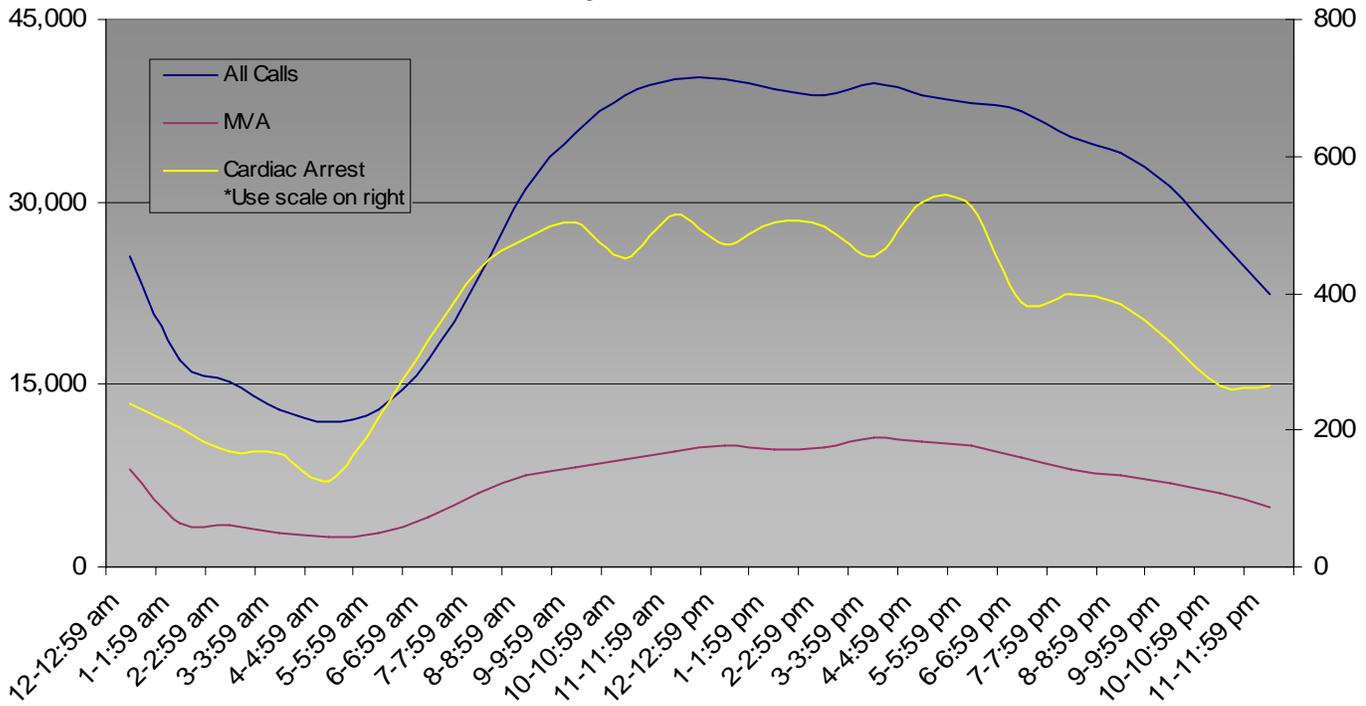
There were over 700,000 EMS calls reported for 2005. In approximately 146,000 of those calls advanced life support was given.

Total for frequencies such as call distribution by day of week may not equal the total number of calls. These types of inconsistencies are due to agencies reporting some but not all variables.

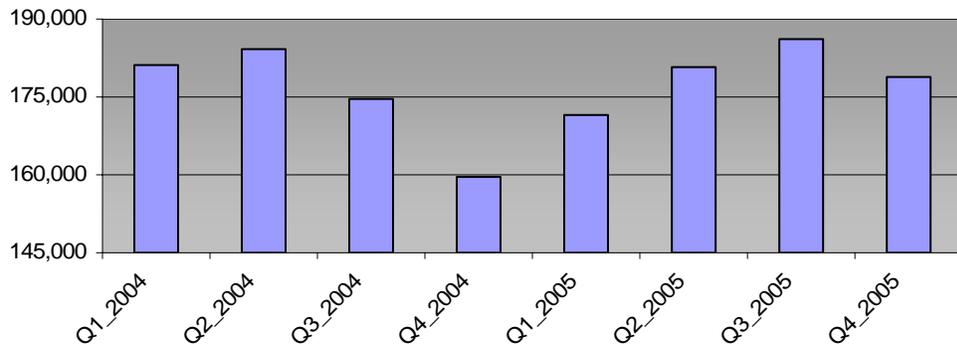
Call Distribution by Day of the Week

Sunday	95757
Monday	104461
Tuesday	100182
Wednesday	100011
Thursday	98923
Friday	102640
Saturday	103818

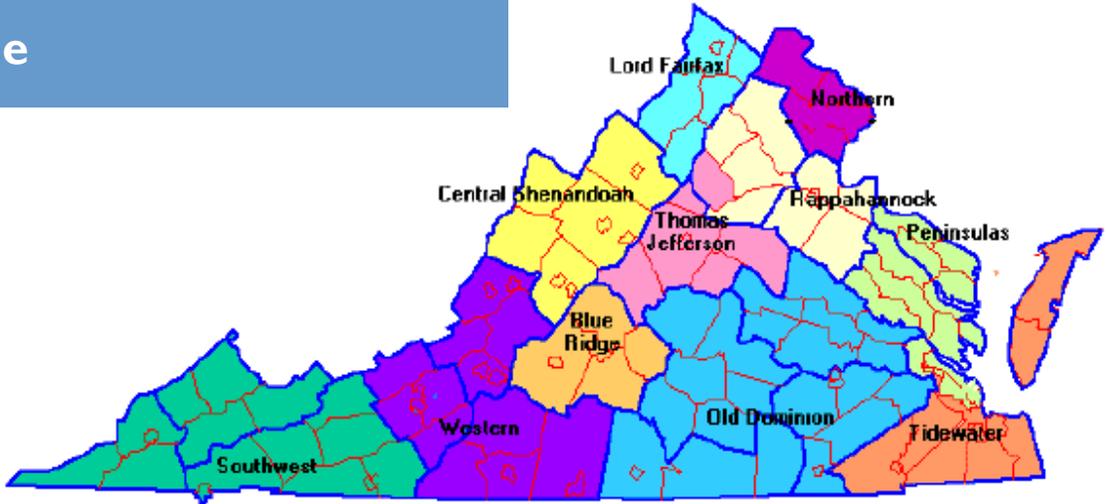
Hourly Call Distribution



Call Volume by Quarter



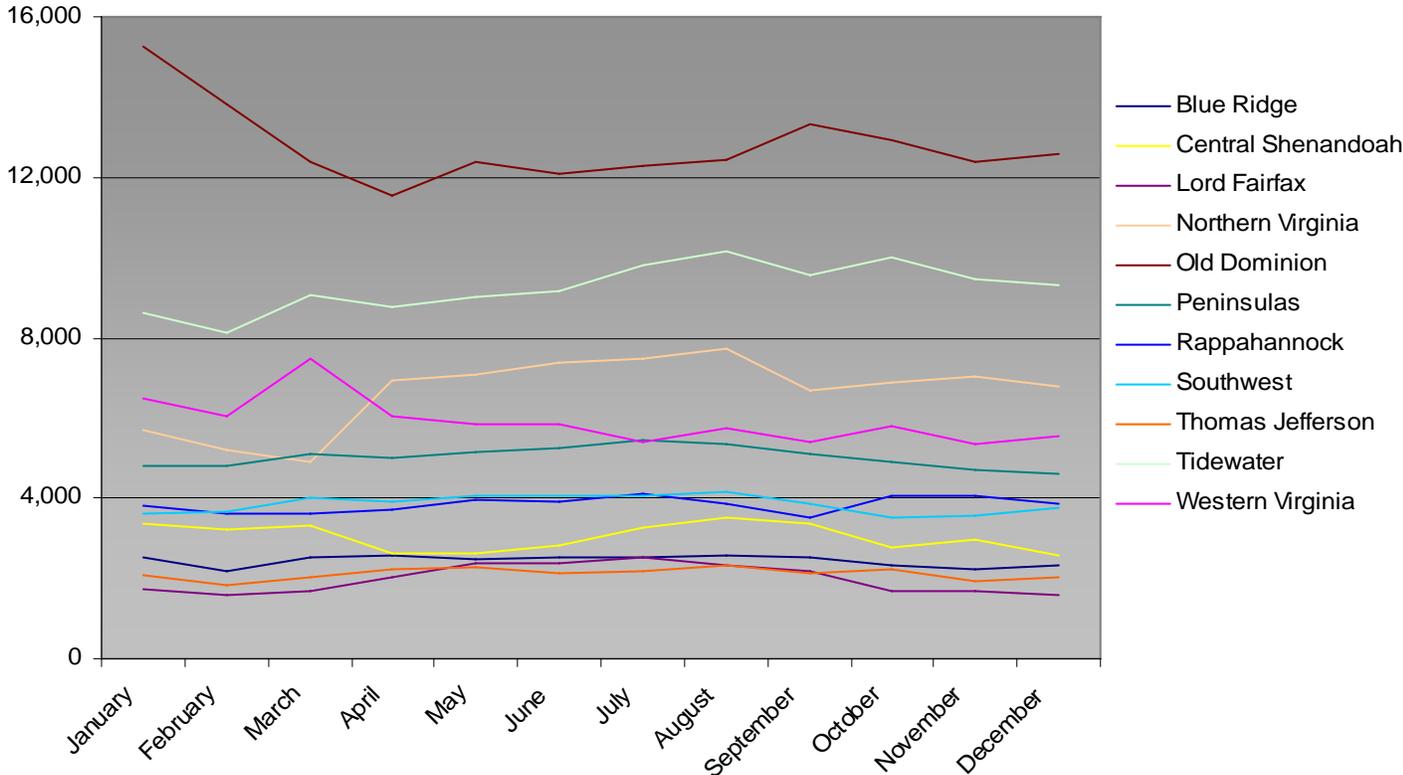
Pre-hospital Patient Care Call Volume



The Office of EMS contracts with 11 Regional EMS Councils to provide programs, services and coordination for local EMS agencies. These non-profit organizations provide or organize EMS training; assist in the consolidated testing program; review grant requests; serve as a clearinghouse for EMS information; and coordinate the writing of trauma triage plans and disaster management plans.

Each council also coordinates regional medical direction including the designation of a regional medical director and the development and maintenance of regional EMS protocols, ambulance restocking agreements and medication kit exchange programs.

Monthly Call Distribution



NOTE: Call volumes have not been adjusted to population density therefore it is logical that the regions with the highest population volume will also have the highest call volume.

Pre-hospital Patient Care

Level of Care

EXPLANATION OF DATA

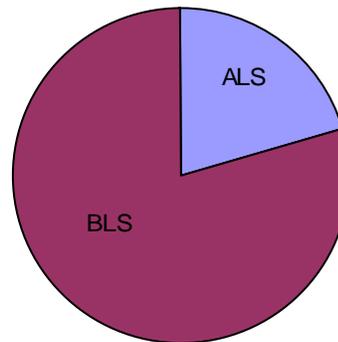
PPCR stands for Pre-hospital Patient Care Report System. The PPCR system is a pre-hospital electronic medical records system for Virginia. It is a database of collected EMS information and is designed to be a critical link to the future of EMS in Virginia. The PPCR system provides a method for each EMS agency in Virginia to enter patient care data into a central database.

At a minimum, data submission is required quarterly each calendar year. Agencies have the option to submit data more frequently. Agencies have until the last day of the month following the end of a quarter, to compile and submit that period's data. If the last day of the month falls on a weekend or a state holiday, data will be due by the next business day.

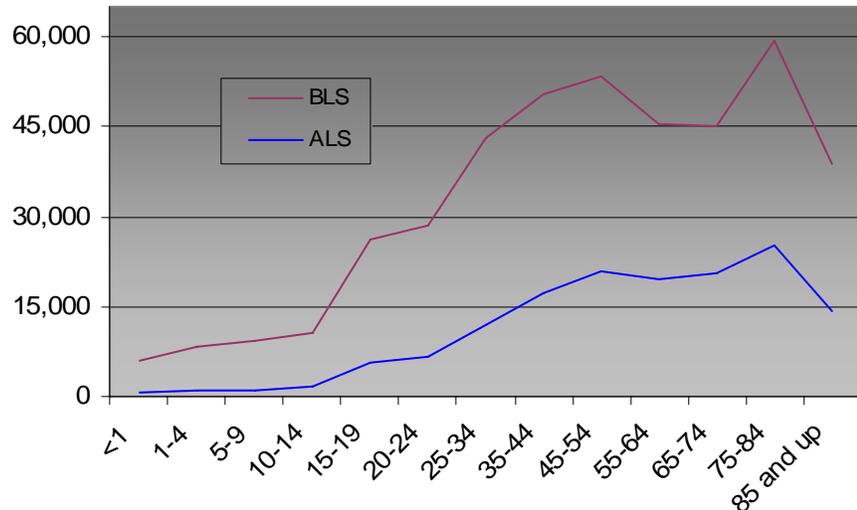
Quarter	Submission Deadline
1 January - March	April 30
2 April - June	July 31
3 July - September	October 31
4 October - December	January 31

Attendant in Charge Level		
	Frequency	Percent
EMT	237920	37
EMT Paramedic	184960	29
EMT Cardiac Technician	81398	13
EMT Intermediate	79982	12
EMT Shock Trauma	35893	6
Nurse	3017	>1
Other	18833	3

Types of calls



Level of Care by Age



Who is served by the Virginia EMS System?



Pre-hospital Patient Care

Response Times

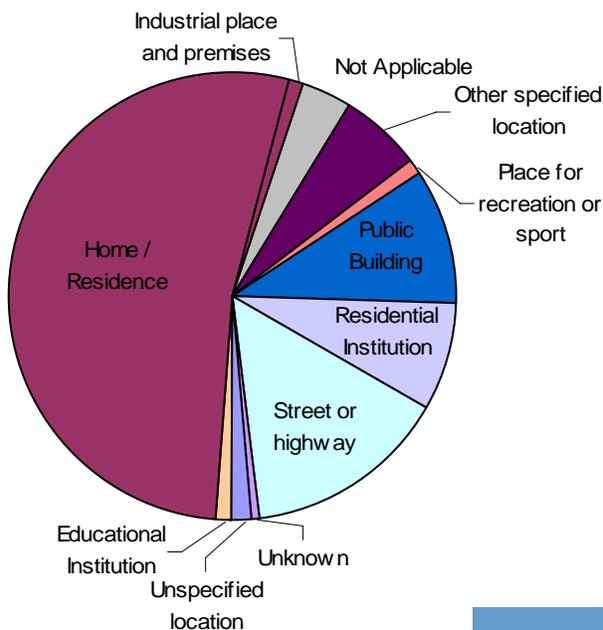
From the 2005 Legislative Session:

32.1-111.4. Regulations; emergency medical services personnel and vehicles; response times; enforcement provisions; civil penalties. A uniform definition of “response time” and requirements, developed in consultation with the Emergency Medical Services Advisory Board, for each agency to measure response times starting from the time a call for emergency medical care is received until

(i) the time an appropriate emergency medical response unit is responding and

(ii) the appropriate emergency medical response unit arrives on the scene, and requirements for agencies to collect and report such data to the Director of the Office of Emergency Medical Services who shall compile such information and make it available to the public upon request...

Location Types



Statewide Response Times

	Average (In minutes)	# of calls
Call Rec'd/ Unit Dispatched	9	655414
Call Rec'd/ Unit Enroute	12	638706
Unit Enroute/ Arrive Scene	9	648988
Arrive Scene/ Arrive Patient	4	542510
Arrive Scene/ Leave Scene	22	555396
Leave Scene/ Arrive Destination	15	493933
Leave Scene/ In Service	40	546061
Call Rec'd/ In Service	74	641558



NEMSiS is a national effort to standardize the data collected by EMS agencies.

NEMSiS stands for the National Emergency Medical Services Information System. NEMSiS is the national repository that will be used to potentially store EMS data from every state in the nation. Since the 1970s, the need for EMS information systems and databases has been well established, and many statewide data systems have been created. However, these EMS systems vary in their ability to collect patient and systems data and allow analysis at a local, state, and national level.

For this reason, the NEMSiS project was developed to help states collect more standardized elements and eventually submit the data to a national EMS database.

Such a database will be useful in:

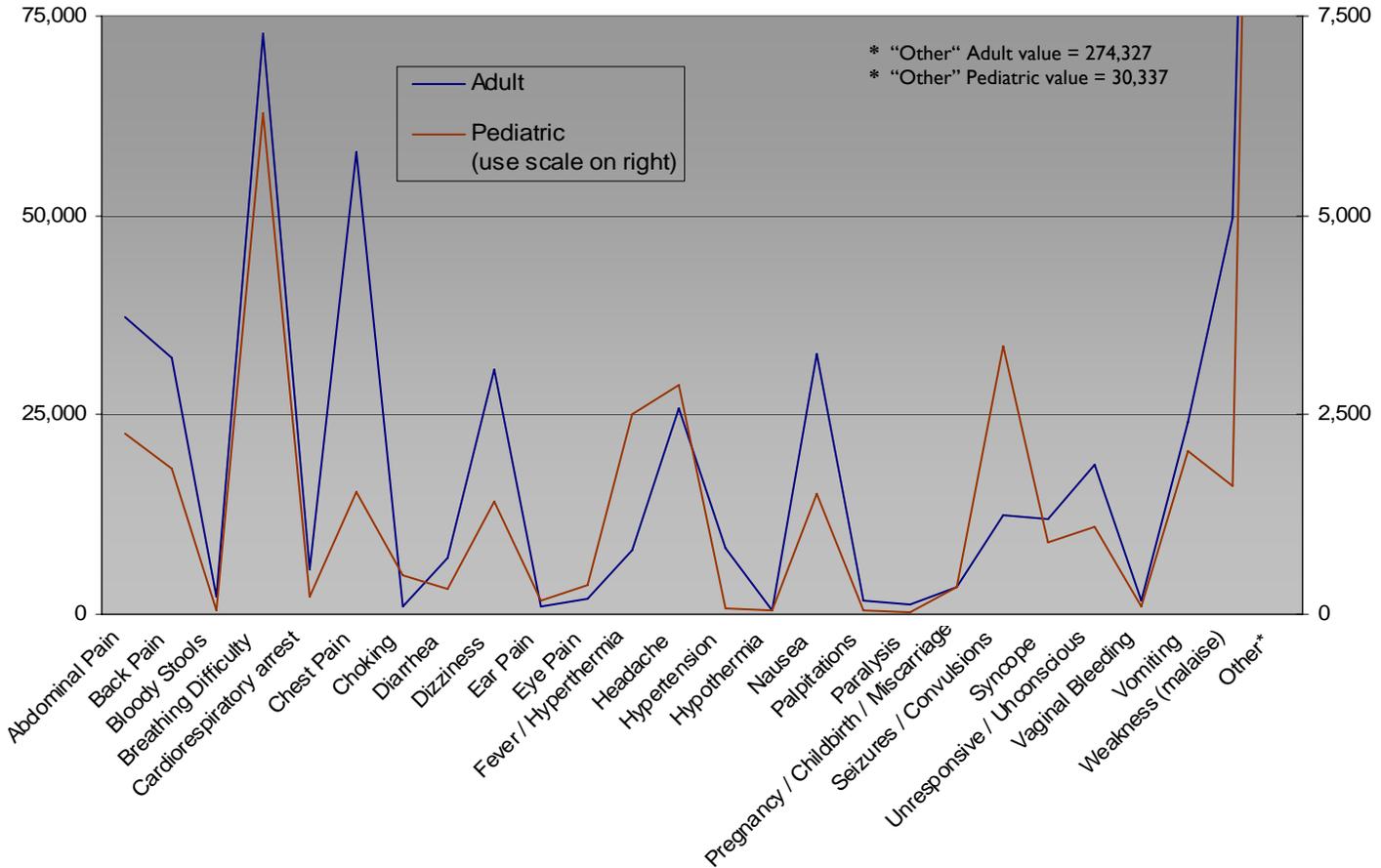
- Developing nationwide EMS training curricula
- Evaluating patient and EMS system outcomes
- Facilitating research efforts
- Determining national fee schedules and reimbursement rates
- Addressing resources for disaster and domestic preparedness
- Providing valuable information on other issues or areas of need related to EMS care
- And much more

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Pre-hospital Patient Care Call Types

Signs and Symptoms



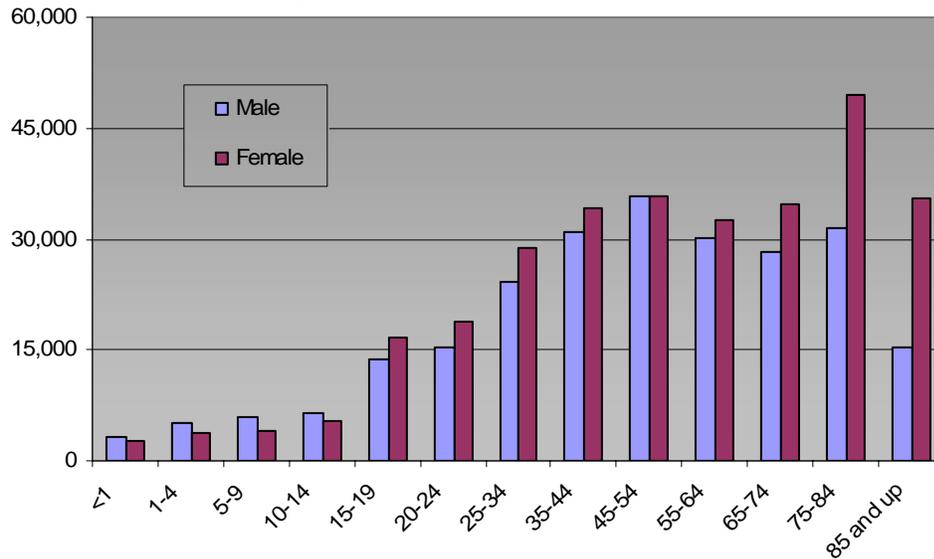
10 Most Common Signs/Symptoms	
Breathing difficulty	77692
Chest pain	58306
Weakness	50444
Abdominal pain	38609
Nausea	33500
Back pain	33295
Dizziness	31533
Headache	28188
Vomiting	25576
Unresponsive/Unconscious	19526

10 Most Common Procedures Performed	
ECG monitoring	116764
Intravenous catheter	97533
Oxygen by mask	65250
Bleeding control	17725
Oxygen by cannula	92053
Intravenous fluids	72063
Medication admin.	50135
Spine immobilization	31714
Backboard	30389
Extremity immobilization	12709



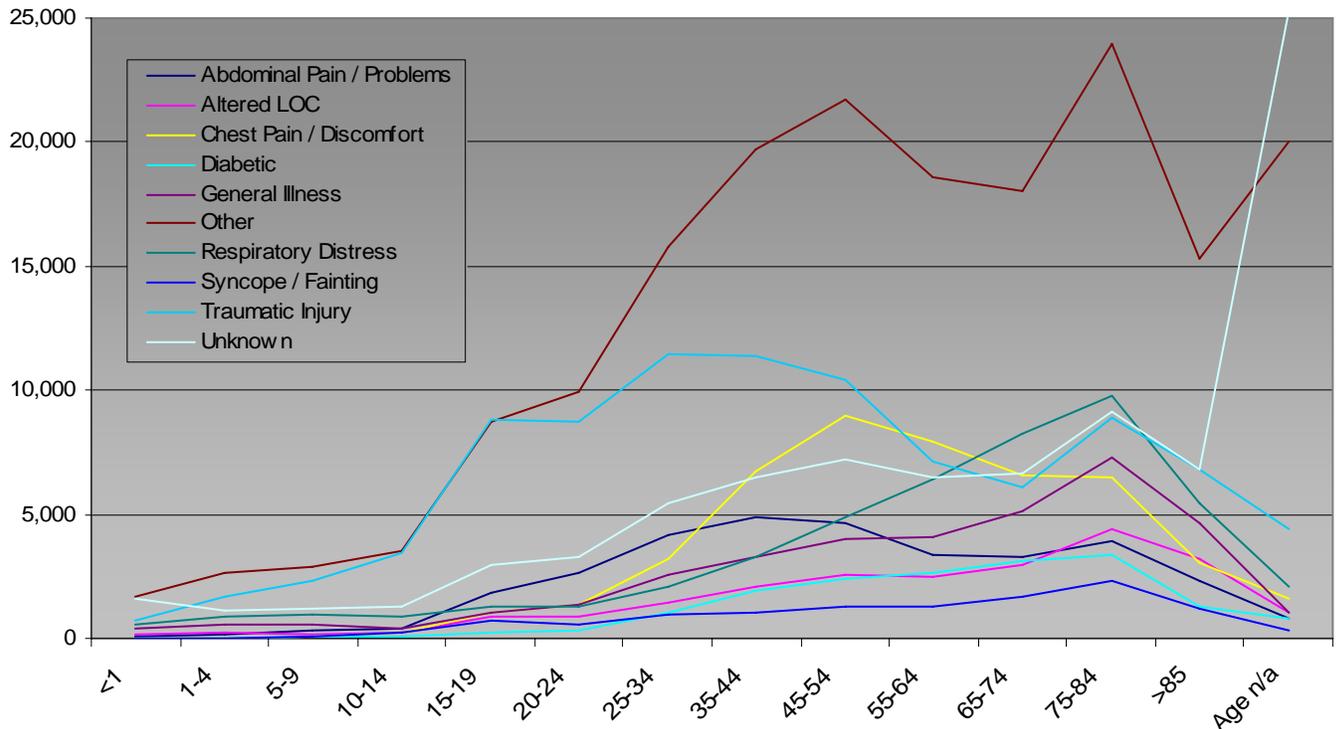
Pre-hospital Patient Care Demographics

Age and Gender Distribution



Race	
American Indian/ Alaska Native	639
Asian/Pacific Islander	458
Black, Hispanic	2098
Black, Non-Hispanic	148922
Other/Unknown	93673
White, Hispanic	16388
White, Non-Hispanic	361586
Total	627887

10 Most Common Clinical Assessments by Age



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Pre-hospital Patient Care

Managing Chest Pain

Over 11,000 people met the criteria for calls deemed by the provider as cardiac chest pain and were provided with ALS care.

Inclusion criteria:

Variable	Criteria
Age	45 and over
Type of call	Scene
Signs/Symptoms	Chest pain
Clinical Assessment	Cardiac rhythm disturbance OR chest pain/discomfort
LOC Provided	ALS

Exclusion Criteria:

Variable	Criteria
Mechanism of injury	All except N/A
Motor vehicle impact	All
Procedures	CPR, AED, assisted ventilation, EGTA, EOA, PTL, ET, nasal airway, oral airway, chest decompression, backboard, immobilization, NG tube, bleeding control, burn care, obstetrical care

Incomplete PPCR records were omitted. **This may have resulted in a deflation of the frequencies returned.**

EXPLANATION OF DATA

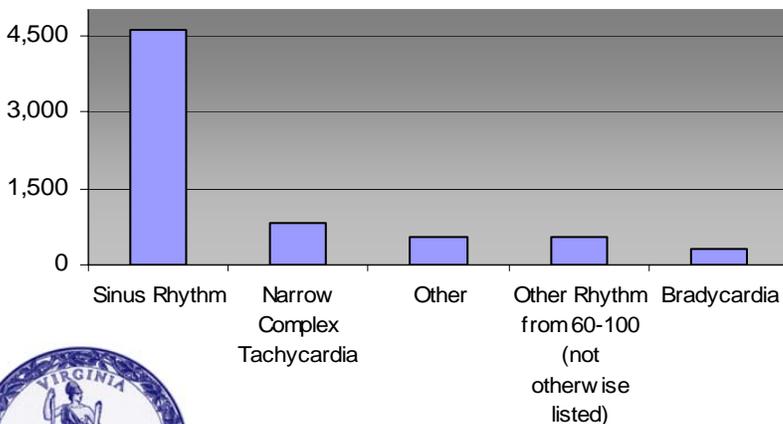
Common Procedures for Chest Pain Patients

Procedure	Frequency	Percent
ECG Monitoring	10457	93
Intravenous Catheter	8508	76
Oxygen by Cannula	6929	62
Medication Administration	6598	59
Intravenous Fluids	6146	55
Other	5297	47
Oxygen by Mask	3145	28

Chest Pain Initial EKG Reading

	Frequency	Percent
Sinus Rhythm	4599	70
Narrow Complex Tachycardia	830	13
Other	552	9
Other rhythm from 60-100	545	8

Initial EKG Reading



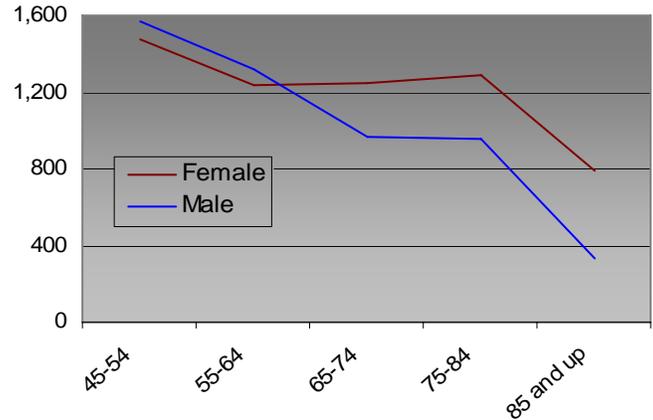
Pre-hospital Patient Care

Managing Chest Pain

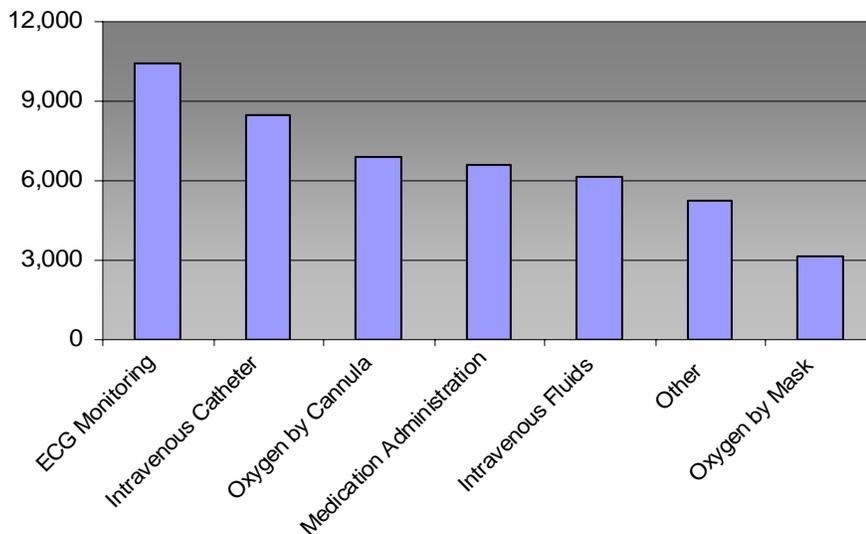
**Chest Pain
Age/Gender Distribution**

Age (years)	Female	Male	Unknown	Total
45-54	1471	1572	5	3048
55-64	1240	1324	5	2569
65-74	1248	966	4	2218
75-84	1293	956	4	2253
85 and up	793	333	4	1130
Total	6045	5151	22	11218

**Age and Gender Distribution for
Chest Pain Patients**



**Treatments used for Patients
with Cardiac Symptoms**



- Since patient care protocols vary by region and agency, conclusions cannot be drawn with this data but rather demonstrates how PPCR data can be used to measure compliance with patient care protocols.

**Chest Pain
Destination Determination**

	Frequency	Percent
Closest Facility	6939	62
Patient/Family Choice	3877	35
Patient's Physician Choice	247	2
Other	155	1

**Chest Pain
Treatment Authorization**

	Frequency	Percent
Standing orders	11257	95
On-line (Radio/telephone)	412	3
Not applicable	84	1
Transfer Orders (Patient Specific)	55	<1
Unknown/Other	23	<1

Pre-hospital Patient Care

EMS-C

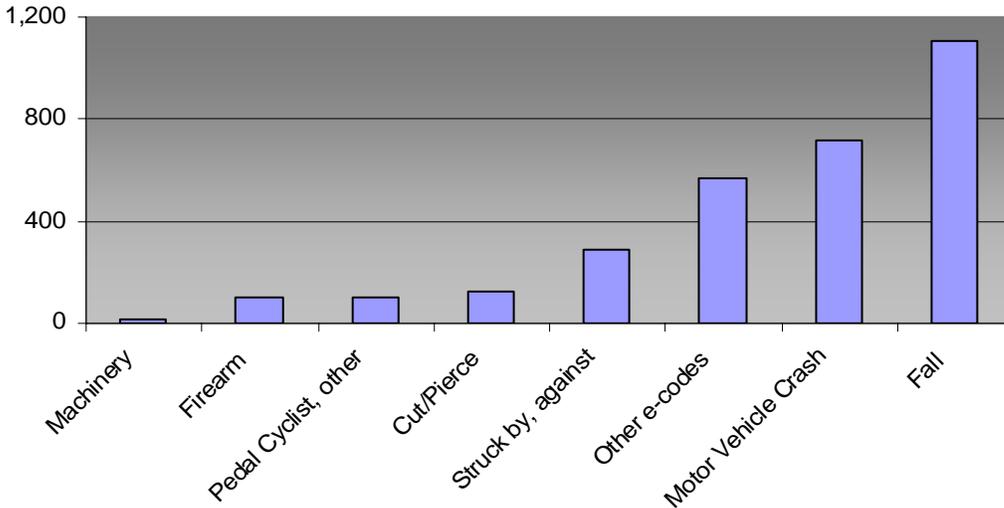


VIRGINIA EMERGENCY MEDICAL SERVICES FOR CHILDREN (VA EMSC)

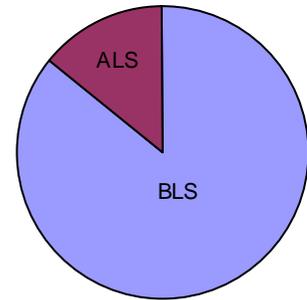
Established in 1996.

The program aims to improve pediatric emergency care capabilities, childhood injury prevention initiatives, pediatric data and school health within the Commonwealth of Virginia through education, system development and research. The goals are to ensure that state-of-the-art emergency medical care is available for all ill or injured children and adolescents; that pediatric services are well integrated into an emergency medical services (EMS) system; and that the entire spectrum of emergency services, including primary prevention of illness and injury, acute care and rehabilitation, are provided to children and adolescents.

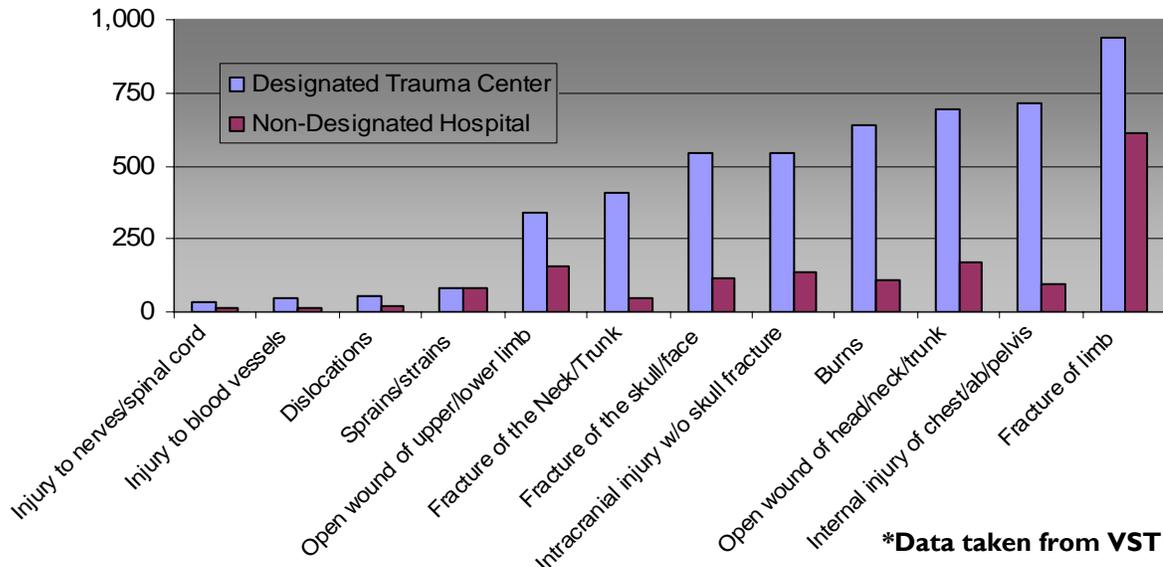
Pediatric Mechanisms of Injury



Pediatric Call Types



Common Pediatric Diagnosis Groups*



*Data taken from VSTR



Pre-hospital Patient Care

Motor Vehicle Accidents



National Highway Traffic Safety Administration
Focus on Motor Vehicle Collisions (MVC's)

Alcohol

A motor vehicle crash is considered to be alcohol-related if at least one driver or non-occupant (such as a pedestrian or pedalcyclist) involved in the crash is determined to have a blood alcohol concentration (BAC) of .01 gram per deciliter(g/dL) or higher. The term "alcohol related" does not indicate that a crash or fatality was caused by the presence of alcohol. Traffic fatalities in alcohol-related crashes fell by 2.4% from 17,105 in 2003 to 16,694 in 2004. The 16,694 alcohol-related fatalities in 2004 comprise 39% of total traffic fatalities for the year. An estimated 248,000 people were injured in crashes where police reported that alcohol was present. Approximately 1.4 million drivers were arrested in 2003 for driving under the influence of alcohol or narcotics (2004 data not yet available). 21% of the children age 14 and younger who were killed in MVC's were killed in alcohol-related crashes.

Children

In 2004, there were a total of 42,636 traffic fatalities in the United States. The 14 and under age group accounted for 5% (2,157) of those traffic fatalities. This age group accounted for 4% (1,638) of all vehicle occupant fatalities, 9% (246,000) of all people injured in motor vehicle crashes, and 8% (214,000) of all the vehicle occupants injured in crashes. Nearly one-fifth (19%) of all children between the ages of 5 and 9 who were killed in traffic crashes were pedestrians.

Pedestrians

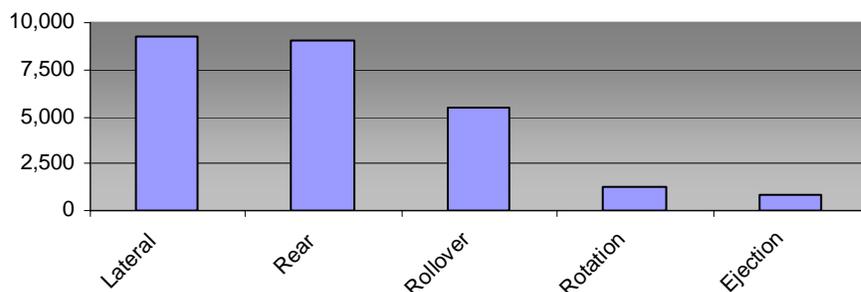
In 2004, 4,641 pedestrians were killed in traffic crashes in the United States, a decrease of 15% from the 5,489 pedestrians killed in 1994. There were 68,000 pedestrians injured in traffic crashes in 2004. 72% of the fatalities occurred in urban areas, at non-intersection locations (79%), in normal weather conditions (89%), and at night (66%). More than two-thirds of the pedestrians killed in 2004 were males.

Speeding

Speeding is one of the most prevalent factors contributing to traffic crashes. The economic cost to society of speeding related crashes is estimated by NHTSA to be \$40.4 billion per year. In 2004, speeding was a contributing factor in 30 percent of all fatal crashes and 13,192 lives were lost in speeding related crashes.

All National MVC information taken from NHTSA's National Center for Statistics & Analysis. <http://www-nrd.nhtsa.dot.gov>

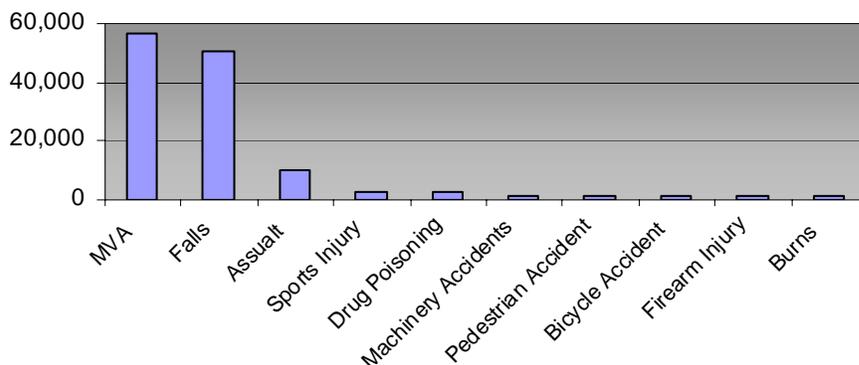
Type of Motor Vehicle Impacts



Motor vehicle accidents are the most common cause of traumas in Virginia.

For "type of impact" and "safety devices" fields, agencies are permitted to report up to five items for each. Therefore, counts are not indicative of actual number of cases.

10 most Common Injury Mechanisms



Safety Devices Used in MVC's	
Shoulder and lap belt	27969
None	10672
Airbag Deployed	7756
Helmet	2122
Child Safety Seat	1037
Shoulder belt only	909
Lap belt only	706

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Trauma in Virginia

Poison

The Virginia Poison Control Network (VPCN) provides poison information and consultative services to all residents of the Commonwealth of Virginia and is comprised of the three centers listed above. They serve to decrease the morbidity, mortality and health care costs by reducing unnecessary outpatient visits and hospital admissions, as well as improve the quality of care provided to patients with accidental or self-poisoning.



2005	Virginia Poison Center/VCU	Blue Ridge Poison Center/UVA	National Capital Poison Center
Total Virginia population served by center	2,404,300	3,031,997	1,975,199
Total calls handled (Includes human and animal exposures and information calls)	26,002	28,923	22,907
Human Exposure Cases received	26,338	25,133	17,044
Number of lectures given by staff to health care professionals	69	130	127
Number of health professional trainees rotating through center	67	113	240
Number of public education/health fair presentations	122	153	n/a
Number of poison prevention packets/sets of materials distributed	413,005	1,056,520	499,839

