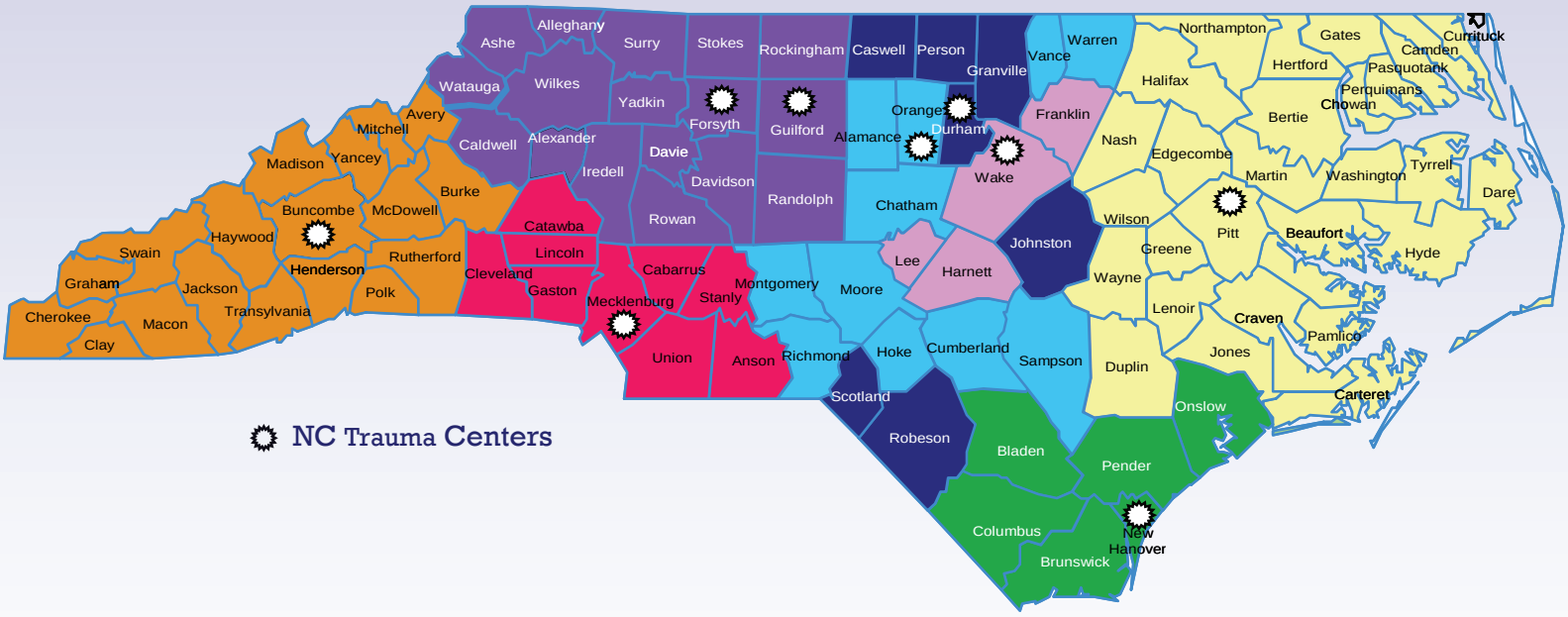
North Carolina Trauma Registry 2006 Annual Report

A SUMMARY OF COLLECTED DATA

Date: 02/11/2008



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North Carolina Trauma System Mission Statement

To provide optimal trauma care and services to the people in North Carolina by:

Facilitating injury prevention activities;

Enhancing knowledge of and education about the trauma system;

Monitoring and improving quality of care;

Identifying resources to meet system needs;

Facilitating research that enhances evidence-based practice;

Assuring that quality trauma care is available for under-served and special needs populations through expansion of and equitable utilization of existing resources; and

Collaborating with agencies with similar interests.

North Carolina Trauma System History

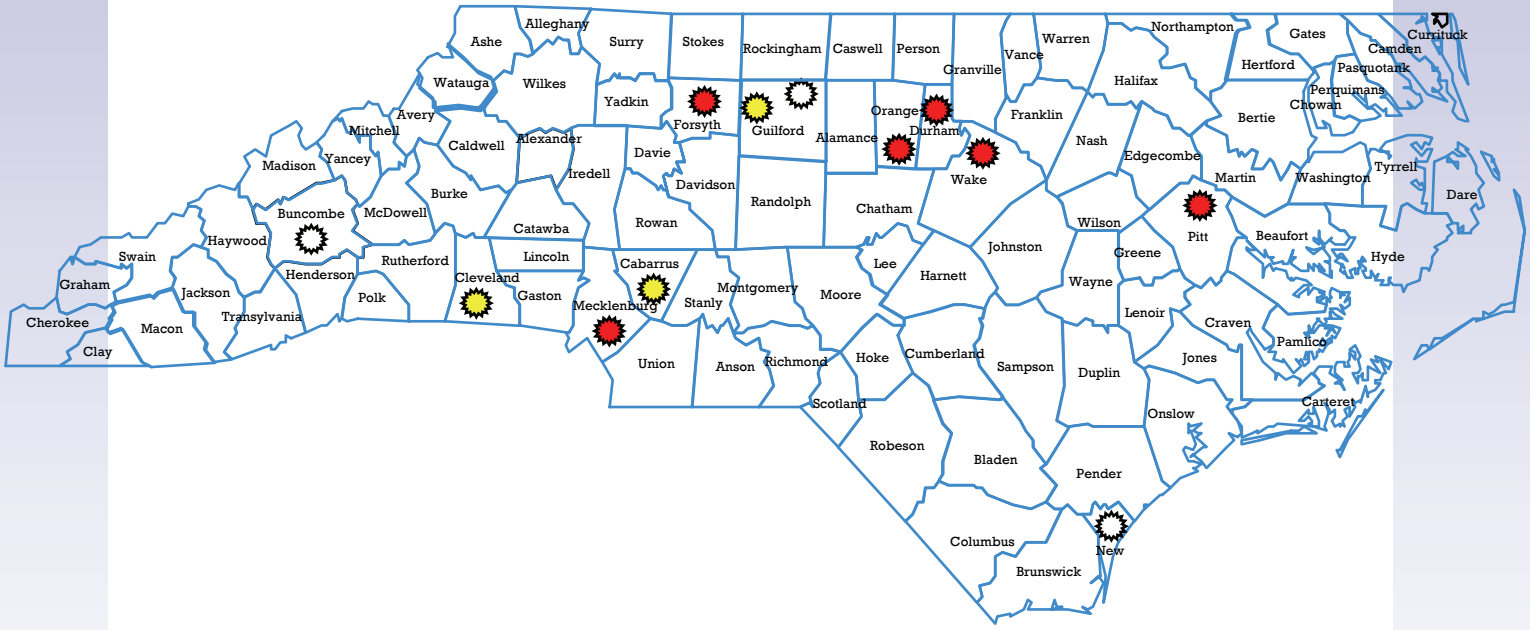
In North Carolina, the first tentative steps toward the creation of a trauma system took place in the mid-'70's. Not long after the North Carolina Emergency Medical Services Act of 1973 was implemented, the newly formed North Carolina Office of Emergency Medical Services (OEMS) asked hospitals to categorize themselves with respect to their ability to care for patients suffering from, among other things, trauma, burns, and spinal cord injuries. This was accomplished with only limited success, however, since as many facilities over-categorized as under-categorized themselves.

Trauma Center Designation: By 1980, OEMS had developed criteria for Level I and II trauma centers (based upon the American College of Surgeons "Resources for Optimal Care of the Injured Patient" guidelines) and established a site visit process for those hospitals interested in seeking state designation. The impetus for the designation initiative originated with the Federal EMS Act of 1973. OEMS aggressively sought funds through this program that funneled millions into the state in the late '70's and early '80's through the 1201, 1202 and 1203 categorical grants. These funds allowed for significant improvements in emergency department and ambulance equipment across the state. They provided extensive pre-hospital training programs and, with the added help of Appalachian Regional Commission funding, significantly improved the state's communications system. By 1982, Duke Hospital, UNC Hospital, and North Carolina Baptist Hospital had received the first Level I trauma center designations in North Carolina. Pitt County Memorial Hospital was designated the first Level II trauma center in 1983, followed by Moses H. Cone Memorial Hospital in 1984, Carolinas Medical Center in 1986, WakeMed in 1987, New Hanover Regional Medical Center in 1989, and Mission Hospitals in 1995. Pitt County Memorial Hospital upgraded to a Level I in 1985, Carolinas Medical Center in 1990 and WakeMed in 2006. Today there are six Level I and three Level II centers in North Carolina. Level III criteria were developed in 1990, and the first Level III center, Cleveland Regional Medical Center, was designated in 1997 with Northeast Medical Center following in 2000 and High Point Regional in 2006.

There are 12 designated Trauma Centers in North Carolina. There are six Level I Trauma Centers, three Level II Trauma Centers and three Level III Trauma Centers. Of the six Level I Trauma Centers, four are also verified as Level I Trauma Centers by the American College of Surgeons (ACS).

There are two burn centers in North Carolina, one of which is a verified Burn Center by the American Burn Association (ABA).

Figure 1: North Carolina Trauma Centers



Level I Trauma Center (six Designated Centers)

Level II Trauma Center (three Designated Centers)

Level III Trauma Center (three Designated Centers)

CMC

Carolinas Medical Center's F.H. "Sammy" Ross, Jr. Center-named in tribute to the late F.H. "Sammy" Ross, Jr.-provides specialized trauma care for children and adults.

This designated Level One trauma center provides the highest level of trauma care for accidents that occur in Mecklenburg and the 14 surrounding counties in the Carolinas. Some 1,500 major trauma victims receive care following vehicle crashes, industrial accidents or falls. Emergency room specialists treat thousands of less threatening injuries.

The F.H. "Sammy" Ross, Jr. Center maintains the full accreditation of the American College of Surgeons and is regarded as one of the nation's elite trauma care hospitals.

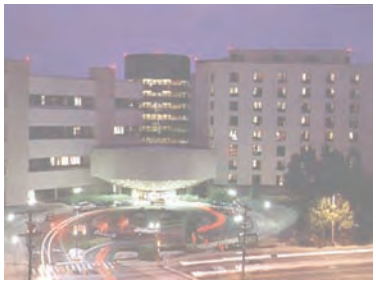
Trauma programs and services realize enormous benefit from access to a full array of support components, including: emergency transport (mobile intensive care ambulances, medical helicopters and fix-wing crafts); up-to-date emergency and critical care units; and, Carolinas Rehabilitation.

Physical facilities include a specialized Emergency Department with five resuscitation-equipped areas; an operating room designated for trauma; and a trauma intensive care unit with 10 beds.

CMC's Center for Pre-hospital Medicine further broadens the scope of the F.H. "Sammy" Ross, Jr. Center, enabling its faculty to offer their expertise toward the development of emergency medical response teams throughout the region.

Duke

The Duke University Trauma Service was developed in 1975 specifically to improve the care for trauma patients. To continue in those efforts, Duke University Hospital was an active participant in the development of the North Carolina Trauma System, becoming one the first to be designated as a Level I Trauma Center in 1982. The Trauma Center has continued to grow and expand over the years to meet the needs of the ever growing trauma population. Duke has in-house trauma attending 24 hours/day, personnel dedicated to performance improvement, regional trauma, disaster preparedness, and injury prevention initiatives. In 2004 Duke Trauma Center was verified by the ACS as a Level I center. Duke Trauma Center remains dedicated to the care of the trauma patient, education of the care givers, and the prevention of injury.



Pitt

The Trauma Center at Pitt County Memorial Hospital (PCMH) has been designated as a trauma center by the State of North Carolina since 1983. Pitt County Memorial Hospital received its American College of Surgeons, Committee on Trauma Verification as a Level 1 Trauma Center in 2005.

The Trauma Center is the seat for the Eastern Regional Advisory Committee (ERAC) which covers 13,000 square miles, serves a population over 1.2 million people and has an average population density of 90 people per square mile. Twenty-nine counties make up ERAC and 21 community hospitals refer patients to the trauma center. There are 155 EMS agencies representing more than 4,000 EMS professionals operating in eastern North Carolina.

During fiscal year 2006, the PCMH Emergency Department served 52,566 patients; 2,753 sustained significant trauma and required hospitalization, and 162 (6%) died as a direct result of their traumatic injury. The Trauma Center averaged a 6.6-day length of stay and admitted 29% of its patients with an ISS > 16, but maintained a mortality rate of 16% staying below the national average for those severely injured patients. The Trauma Center has been nationally recognized for its ongoing commitment to excellence in rural trauma care.

UNC

The University of North Carolina at Chapel Hill is home to UNC Hospitals' state designated Level I Trauma Center.

The Trauma Faculty work closely with the faculty from the North Carolina Jaycee Burn Center, the only verified burn center in the state of North Carolina, which is also located at UNC.

This established program serves as the lead institution for the MidCarolina Regional Advisory Committee (RAC) and actively participates in the State Committee on Trauma (COT).

More than 2,000 multiply injured patients, including burns, are admitted annually to the Center and are cared for by a fully-staffed infrastructure which is certified through the North Carolina Office of Emergency Medical Services (OEMS). Patient care is overseen by ABS certified trauma/ critical care specialists and is directed by the general surgical chief resident with assistance from a senior resident and at least two junior residents. There are currently six full time critical care board certified trauma surgeons at UNC, led by Dr. Preston B. Rich, chief of trauma and surgical critical care .

The Trauma Program Office is responsible for overseeing all aspects of trauma care with regard to maintaining compliance with state and national criteria and guidelines for level I status. This includes development of standards and policies guided by performance improvement initiatives, participation in the North Carolina registry, extensive outreach and injury prevention education and activities, alcohol and other drug intervention and counseling, and regional disaster preparedness responsibilities. This staff includes the trauma program manager, trauma clinical coordinator, trauma/RAC outreach coordinator, trauma registrars, alcohol and other drug social worker, regional emergency preparedness coordinator and administrative staff people. We will be adding a full time Injury Prevention Coordinator to our staff this year.

WFUBMC

In 1982, Wake Forest University Baptist Medical Center became one of the first state designated Level 1 Trauma Centers in North Carolina. In 2001, WFUBMC became the first trauma center in the state to obtain verification by the American College of Surgeons as a Level 1 Adult and Pediatric Trauma Center. The Trauma Center also includes one of only two burn centers in the state, as well as serving as one the of the lead trauma centers for the Triad RAC. Located in Winston-Salem, WFUBMC serves a 19-county area in northwestern North Carolina as well as five counties in southern Virginia. WFUBMC admits over 3,000 injured patients a year with over half of them being seriously injured. The Trauma Program is committed to the care of the injured patient from pre-hospital to rehabilitation. In addition, there is a strong commitment to injury prevention through the Safe Kids program as well as Safe Communities.

WakeMed

WakeMed, a Level I Trauma Center located in Raleigh, NC, provides care for a large number of patients, most of whom are injured within Wake County. Rapid growth since the creation of a tiered system is reflective of increasing capture of injury patients in Wake County as well as growth in population. Mortality rates remain at or below regional and national benchmarks. Injury prevention efforts focus on all populations with a special emphasis on populations that suffer disproportionately from injury. Target populations include children, elderly, Hispanic, under funded and underserved populations. WakeMed Trauma Center endorses the Trauma Center mission of reducing unintentional injuries by providing support and investigation into areas of the population most at risk by seeking epidemiological evidence and approaches to reduction of injury. The WakeMed Trauma Center supports educational health and safety programs in the community and region.

Mission

Mission Hospitals is a 764 bed Level II Trauma Center serving the mountainous and wilderness terrain of western North Carolina. Mission is the only tertiary care provider for the 17 western North Carolina counties that serve as home for more than 800,000 residents, a large percentage of whom are retirees, and that host tens of thousands of tourists year round.

Mission Hospitals is deeply committed to the provision of trauma care to this region by meeting and/or exceeding all trauma center designation criteria, the provision of two air medical units positioned such to cover the entire region promptly and staffing the trauma center with a cadre of experienced and dedicated trauma care providers including five, hospital-based trauma surgeons/surgical intensivists and three, hospital-based orthopedic trauma surgeons.

Moses Cone

Moses Cone Memorial Hospital is one of five hospitals within the Moses Cone Health System. Moses Cone is designated as a Level II Trauma Center by the North Carolina Office of EMS and serves primarily Guilford County.

Approximately 1,500 trauma patients per year are admitted to the hospital with 50% of them admitted to the trauma service. The trauma service is made up of a full-time trauma medical director and associate medical director, two physician assistants, a trauma program manager, two trauma registrars and an office coordinator. Both the trauma medical director and associate medical director have specialized training in surgical critical care as well as trauma.

Moses Cone Trauma Service includes an Injury Prevention Coalition called Safe Guilford. This coalition is made up of more than 30 organizations within Guilford County that provide injury prevention activities and education for the citizens of Guilford County.

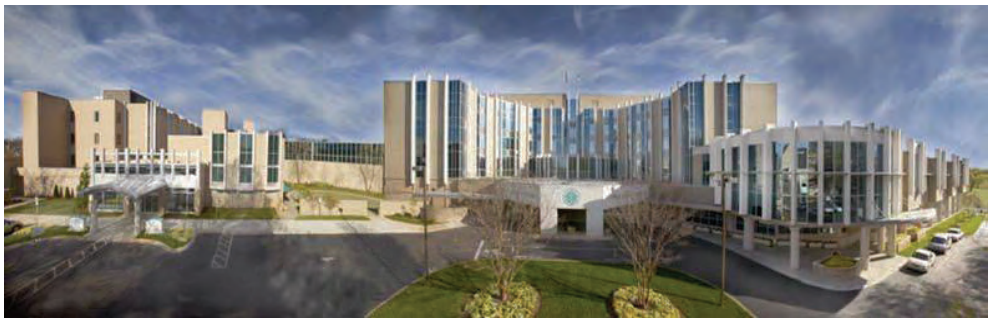
New Hanover

For patients who suffer life-threatening or life-changing injury, New Hanover Regional Medical Center in Wilmington provides the only trauma center in the region. New Hanover Regional Medical Center is a state designated Level II Trauma Center. As a Trauma Center, board-certified surgeons, nurses and other staff are available 24 hours a day, seven days a week.

More than 1,900 patients per year are admitted to the hospital through the Trauma Center, one of 10 Level II or higher trauma sites designated by the state's Office of Emergency Medical Services. Trauma Services includes a medical director, trauma program manager, trauma coordinator, trauma physicians assistant, registrars, SERAC manager, SERAC regional emergency response & recovery coordinator and specialist, and an injury prevention coordinator.

New Hanover Regional Medical Center maintains a Trauma Registry, which logs all cases to ensure injured patients are transported to the hospital appropriate for their level of injury.

Cleveland



Cleveland Regional Medical Center (CRMC) located in Shelby, became the state's first Level III Trauma Center in 1997.

In March 2007, the hospital opened an 88,000 square foot Trauma Center/Emergency Department. CRMC is licensed for 261 beds. The Emergency Department sees 49,000 patients per year.

The Centers of Excellence within the hospital serve the community and surrounding region with seamless coordinated care designed with the patient in mind. Cleveland Regional Medical Center partners with Carolinas Healthcare System and Carolinas Medical Center to provide a quality of care on a continuum that exceeds the patient's expectations in diagnosis, treatment, and education. In a recent study it was found that patients transferred to a Level I Trauma Center from a designated Level III Trauma Center had improved survival compared with similar patients originating in non-designated hospitals.

High Point

High Point Regional Health System became a designated trauma center in February of 2006. As a Level III trauma center, High Point Regional provides initial assessment, resuscitation and stabilization for all types of trauma patients. Surgeons are available within 30 minutes of notification for a procedure. The hospital is part of a state-wide focused effort that now includes 12 trauma centers, with dedicated resources and specially trained staff. Along with Wake Forest Baptist University Medical Center (trauma level III) and Moses Cone Memorial Hospital (trauma level II), the Triad is the only region in North Carolina that is served by hospitals designated in all three trauma levels. High Point Regional Health System meets the statewide standards to enhance recovery and patient care.

NorthEast

NorthEast Medical Center is a Level III Trauma Center and a 457 bed, private not-for-profit healthcare organization offering a variety services. NorthEast Medical Center enjoys partnerships with Carolinas Healthcare System, Duke University Medical Center and Stanly Regional Medical Center. These partnerships include clinical and research projects, as well as business ventures.

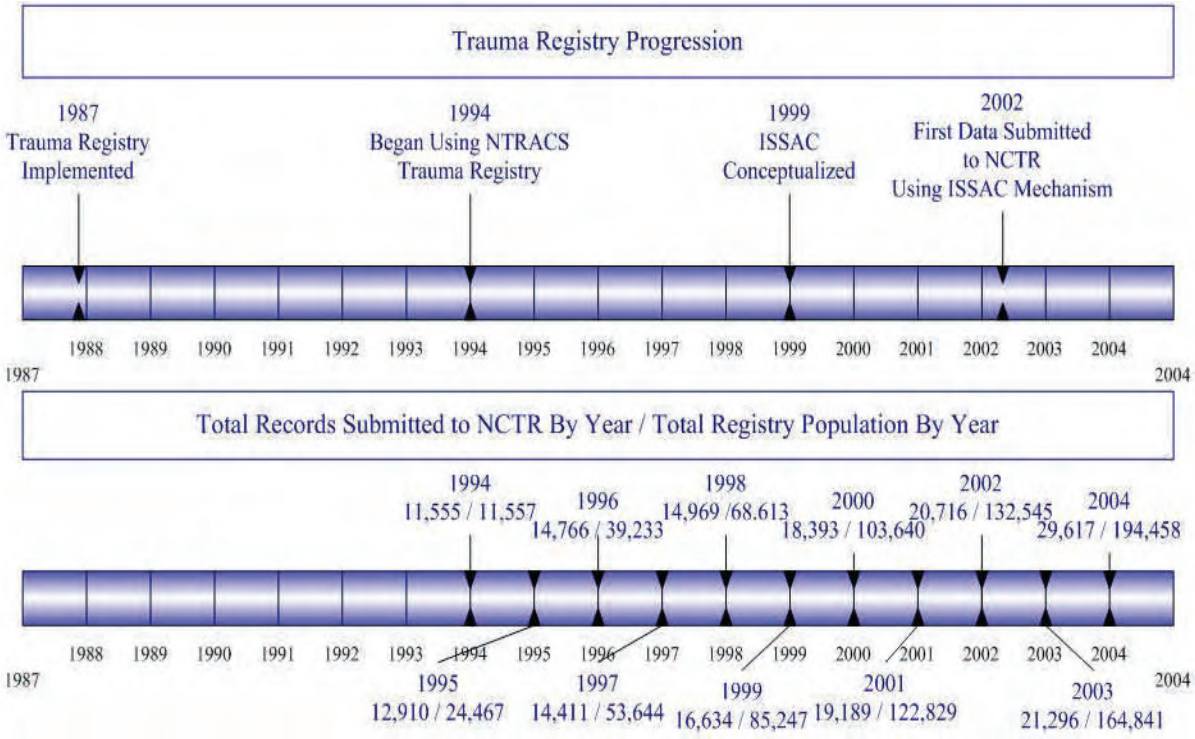
The Emergency Care Center experienced nearly 80,000 visits this past year, with approximately 1,250 patients entered into the Trauma Registry. NorthEast currently has sub-specialties readily available for trauma patients, including neurosurgery and a pediatric intensive care unit. NorthEast also supports a mobile intensive care transport service to ensure patients are delivered to definitive care in a timely manner.

NorthEast is proud to support North Carolina communities by demonstrating a proactive approach to meeting the needs of a rapidly growing population. Prime examples include the Jeff Gordon Children's Hospital at NorthEast Medical Center and the Clinical Services, Oncology and Cardiology expansions.

By the late '80's, OEMS realized the importance of establishing a state trauma registry. This endeavor was initiated by OEMS in 1987, with a registry being custom programmed through the Department of Surgery at UNC-CH, and supported by OEMS' operating budget and grants from the Governor's Highway Safety Program (GHSP). The registry, from the outset, was guided by a Trauma Registry Task Force, a group that met quarterly and was comprised of epidemiologists and OEMS staff, as well as hospital administrators, emergency physicians, trauma registrars, trauma nurse coordinators, and trauma medical directors from each of the trauma centers. The strong collegial relationship engendered by this Task Force continues today.

The state's decision from the outset, with Task Force concurrence, to mandate usage of the same software by all trauma centers has been key to the state's ability to operate a successful registry for research and performance improvement purposes. An upgrade was needed to this customized software by the mid-'90's and, in 1994, resulted in a migration to the NTRACS® software originally offered through the American College of Surgeons. As of May 2005, this software is supported by Digital Innovations, Inc. (DI).

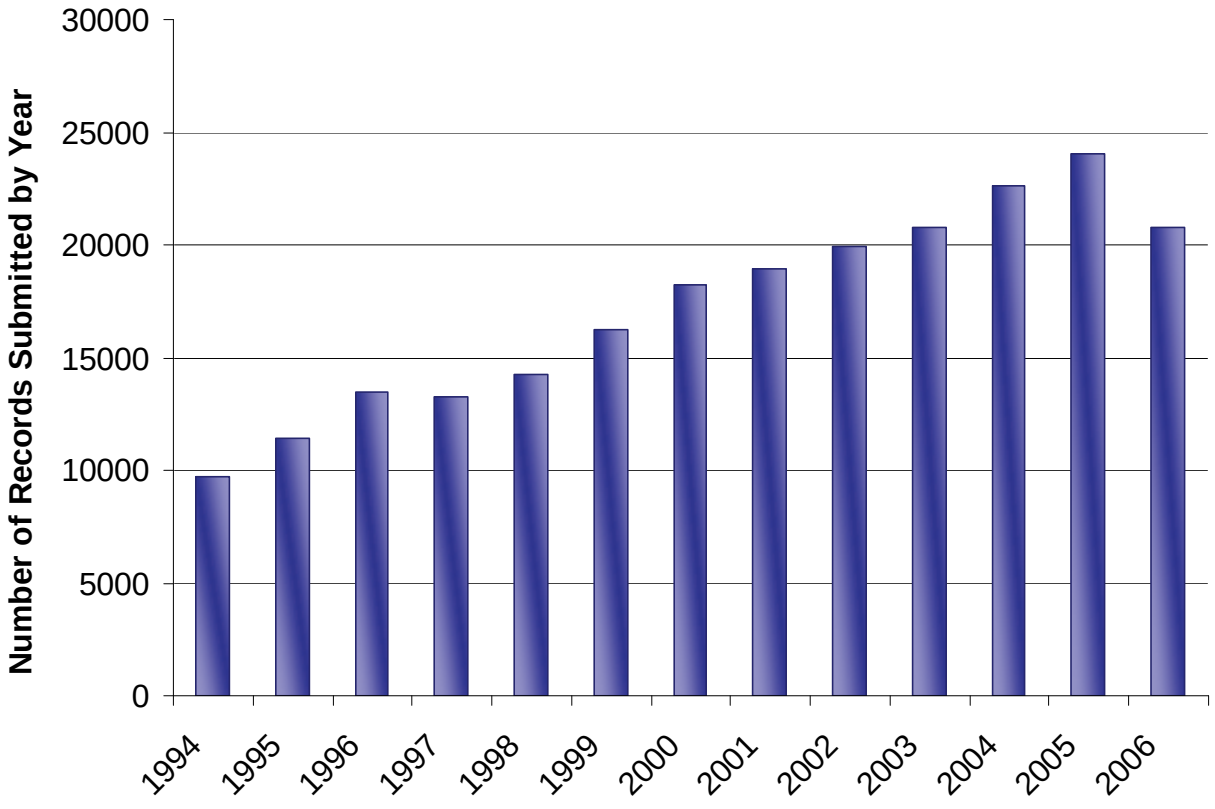
Figure 2: Trauma Registry Progression



Today our NTRACS® users have the ability to enter more than 250 data points on each trauma patient who is admitted to a trauma center, transferred out of the hospital or who dies in the emergency department with a trauma-related diagnosis. Fifteen hospitals (including all 12 trauma centers) use this software.

By the late '90's, however, OEMS began to search for a way to capture at least key data points on trauma patients from non-participating hospitals (about 117). In 2003 and 2004, the state sought and received funding through the federal EMS and Trauma grant program of the Health Resources and Services Administration (HRSA) to assist with this effort. Hence, in 2003, OEMS was able to offer, free of charge, a mechanism to capture a smaller version of the larger trauma registry from these hospitals. With approximately 35 data points, this mechanism (called ISSAC) of the registry is now in use by 20 hospitals. More hospitals are being added each month. The state now has more than 200,000 patients (just since 1994) entered via NTRACS® and more than 200,000 submitted through the ISSAC mechanism.

Figure 3: Growth of NCTR From 1994—2006



During the early '90's, OEMS solicited funds from the GHSP to commission the National Highway Traffic Safety Administration (NHTSA) to conduct a comprehensive assessment of emergency medical services in North Carolina.

In July 1990, OEMS received the review which included recommendations that OEMS do the following:

1) form a task force to address recommendations relating to emergency/acute care;
2) review legislation to assure it had the authority to designate trauma centers and assist in developing a state trauma system;
3) develop a state trauma system based on the existing injury data resources and epidemiology for North Carolina;
4) coordinate all available resources to ensure that the state's most severely injured patients were taken to trauma centers; and
5) develop pre-hospital triage, inter-hospital transfer, and air medical trauma guidelines.

The chair of the State EMS Advisory Council then convened a trauma system task force and charged it with developing a statewide trauma system. In November 1992, the Trauma System Task Force submitted its report, calling for:

1) a standardized nomenclature for the trauma system and the trauma patient;
2) new legislation to enable development of a statewide trauma system; and
3) the trauma system to remain voluntary and inclusive.

Largely as a result of these recommendations, the Trauma System Act of 1993 was passed by the state legislature. A Trauma System Task Force was then reconvened and charged with drafting a set of rules that would further define many of the specifics of the state trauma system.

After two years, the Task Force presented a draft of these rules, which were then revised after seeking input at three public meetings (in March 1996), from each acute care hospital in North Carolina, as well as from numerous other interested parties and professional health care organizations.

The proposed rules specified three levels of trauma centers, the processes to be followed for initial and renewal designation, related enforcement procedures, and the design for an inclusive state and regional trauma system. The basic building blocks of the proposed new trauma system were the Regional Advisory Committees (RACs) that would each be affiliated with a Level I and/or II trauma center. RACs were to plan, establish and maintain a coordinated trauma system on the regional level.

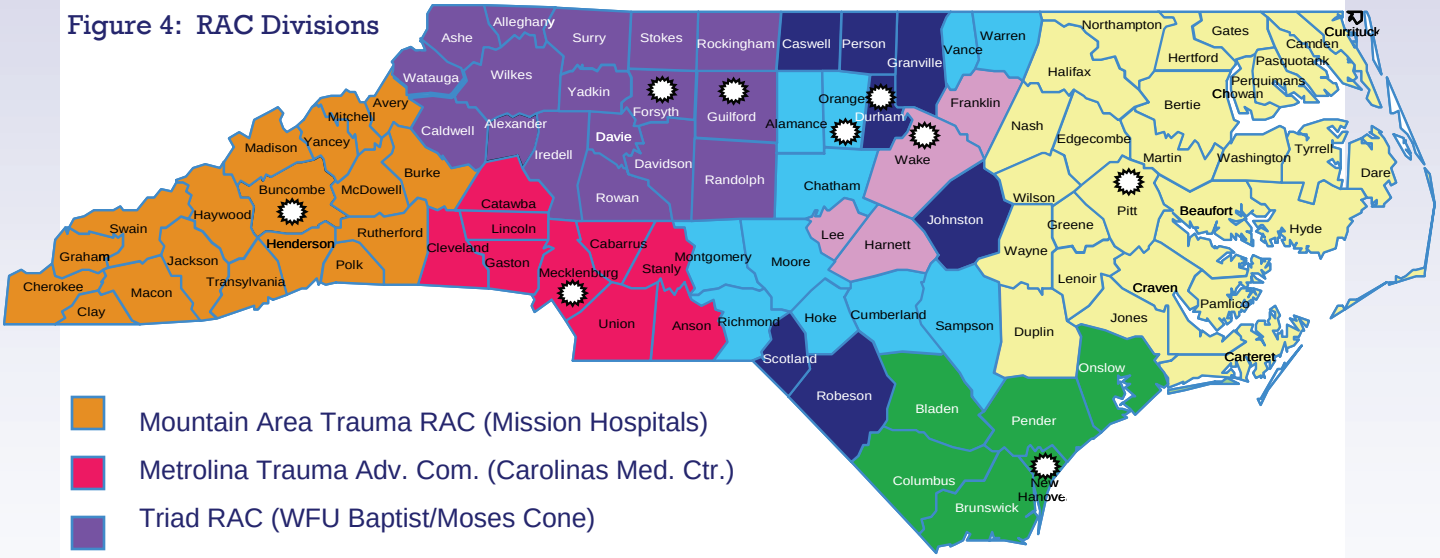
Each hospital, as mandated by the rules, had to choose a RAC affiliation. The RACs were to develop medical protocols, transfer agreements and regional plans related to education, training, injury prevention and performance improvement. In addition, as originally envisioned, a "minimum data set" from each hospital would flow to the designated trauma center for each RAC and then be processed for transmission to the state trauma registry. The data set would permit the registry to collect statewide data on injury, with participating hospitals using the aggregate data as a benchmark for quality improvement activities and outcome measures.

In June 1996, in accordance with the state's guidelines, cost projections were developed to cover operation of the trauma system for its first five years. This included costs to be incurred by the state and the state's providers of trauma care, as well as costs for the expanded trauma registry. S since no state funds could be identified, enactment of the rules could not take place during the 1997 legislative session. The trauma rules were revised to exclude the need for additional state funding and were then approved (as the first trauma rules in the state) in the 1998 legislative session. The "minimum data set" requirement built into the first draft of the rules had to be sacrificed. This in itself had a lasting impact on the ability of the trauma registry to acquire benchmark data from hospitals across the state, rather than from just its trauma centers (whose data is mandated). Only recently has HRSA funding enabled us to incorporate into our trauma registry the non-trauma center data originally envisioned in the RAC database. This data is now sent directly to the state (versus to a RAC's trauma center) in aggregate form for use by the RACs for performance improvement. The Trauma System Act of 1993 and the 1998 trauma rules continued to serve as the framework for North Carolina's trauma system for the next few years.

Seven RACs were initially developed (increased to eight in 2005), with Duke Endowment funds assisting with the hiring of seven RAC coordinators who quickly began to address many needs of the trauma system within their respective regions. RACs then took on the additional task of assisting the state with bioterrorism hospital preparedness planning following the events of September 11th. Out of necessity, this temporarily drew some attention away from trauma as more pressing issues had to be addressed. However, on the plus side, bioterrorism planning greatly integrated trauma with public health, emergency management, law enforcement, and other agencies.

A number of other trauma system benefits arose from the bioterrorism focus as a result of the federal bioterrorism hospital preparedness funding, coupled with EMS and trauma funding (all from HRSA). This funding brought approximately $16 million into OEMS from 2002 to 2004. The funds enabled OEMS to conduct a three-day Trauma Stakeholder meeting in Greensboro in January 2001 that helped identify the strengths, weaknesses, opportunities and threats for the state's trauma system. It provided monies for some rural ATLS classes, for a Trauma Outcomes Performance Improvement Course (TOPIC), for the expansion of our state trauma registry to include non-trauma centers, and for a state hospital bed and inventory software program. It also funded improvements to the state communications system and provided burn courses for more than 500 medical professionals on the care of burn patients in the first 24 to 48 hours after injury. An additional $13.4 million in 2004 allowed for further funding of state trauma registry activities and for the development of the state's first rural trauma team development courses.

Figure 4: RAC Divisions



Throughout the '90's, membership had been steadily growing in the Trauma Registry Task Force meetings that continued to meet each quarter. Other trauma stakeholders began to set their meetings so they took place on the same day as the Trauma Registry Task Force. This included groups such as the North Carolilna Division of the American Trauma Society (NCATS), trauma RAC coordinators, and the American College of Surgeons' NC Committee on Trauma (NCCOT). Consequently, as years passed and the trauma registry matured, Task Force discussions grew to include an extensive array of trauma matters rather than discussion of registry matters alone. By 2002, a change was needed, and by January 2003 the Trauma Registry Task Force was disbanded (with its work being absorbed by a variety of able committees) and the State Trauma Advisory Committee (STAC) came into formal existence. Although members are still being added to the STAC, it was clear from the beginning that the STAC's mission is to provide a public forum to facilitate trauma system development and coordination of trauma activities involving the state's various trauma interest groups. In April of 2004, the STAC helped OEMS develop a formal trauma mission statement.

Statutes and Rules Revisited: In late 2001, the state recognized the need for major revisions to its EMS and trauma rules, as well as some modification to the Trauma System Act of 1993. The trauma center criteria needed to undergo a revision to reflect many of the changes in the American College of Surgeons most recent version of the "Resources for Optimal Care of the Injured Patient." There had been major changes in the state's trauma center designation process. OEMS needed to seek further protection from discovery for its trauma and pre-hospital databases, as well as for the regional performance improvement activities. Proposed changes were suggested for the Trauma System Act and new rules were drafted and widely disseminated for comment. The statute changes were approved and a majority of the rules became permanent on April 1, 2003 and the remainder on January 1, 2004.

A Committee on Trauma (COT) Consultative Visit: A logical next step in the development of North Carolina's trauma program included a three-day Committee on Trauma consultative site visit in August 2004. This was another undertaking funded out of the HRSA bioterrorism hospital preparedness grant and should go a long way toward helping shape the future of North Carolina's trauma system. Following the visit, in early 2005, a trauma task force convened to prioritize each of the site team's recommendations. A team of stakeholders will convene in the fall of 2005 to address a few pressing issues such as how inclusive North Carolina's trauma system should be in the future. A state plan should follow, and probably a trauma system cost study.

According to the Center for Disease Control (CDC), Trauma is the leading cause of death for individuals between the ages of 1 and 44.

Inclusion Criteria

For a patient to be included in the NCTR it must meet the following criteria:

- ICD9 code in the range of 800 - 959.9 and who are either
  - Admitted to the hospital for greater than 23.59 hours (24 hours or more) from an emergency department (ED) or
  - Dead on Arrival (DOA) or
  - Transferred in from the ED to the OR or ICU or
  - Transferred to another hospital

Reporting Schedule

Data are submitted on a quarterly basis for all completed records. Trauma Centers are required to submit all completed data in their registry. North Carolina requires records to be complete within 90 days post-discharge. The reporting schedule is:

Quarter	Records Included	Submission Date
First	All records through October prior to download	January 31
Second	All records through January prior to download	April 30
Third	All records through April prior to download	July 31
Fourth	All records through July prior to download	October 31

Research and Data Requests

The NCTR may release data in aggregate form or in a limited data set. There are currently two types of data request.

When straight facts (e.g. bench-marking or policy making purposes) are required from the NCTR, necessitating no interpretation of data, this is considered a Routine Data Request (RDR).

A request for data requiring or leading to any interpretation or extensive analysis, (e.g. for testing a hypotheses or from which conclusions will be drawn) is considered a scientific Data Request.

Data request forms and further explanation of the research process can be found online at:
http://www.ncems.org/trauma/trauma_registry.htm

A listing of the trauma registry data files can be found at the end of this report.

Hospitals Submitting Data Included in this Report

The Hospitals of the NCTR who contributed data to this report include all of the designated Trauma Centers in the State of North Carolina. These hospitals are Carolinas Medical Center, Cleveland Regional Medical Center, Duke University Medical Center, High Point Regional Medical Center, Mission St. Joseph's Health, Moses H. Cone Memorial Hospital, New Hanover Regional Medical Center, NorthEast Medical Center, Pitt County Memorial Hospital, University of North Carolina Hospitals, Wake Forest University Baptist Medical Center, and WakeMed Center.

EXAMPLES OF COMPLETION RATES

The following table shows the percentage of data entry completion for selected data elements in the NCTR. For the purposes of this report, a field is considered to be complete if it has not been left as the default of Not Recorded, or it is not blank or it does not contain the values of Not Done/ Doc or Not Available.

Data Item	Percent Complete
Race	99.23
Sex	99.93
Age	99.86
Occupation	66.22
Mechanism of Injury (Blunt, Burn, Pen)	99.21
External Cause of Injury	99.74
Injury Time	72.27
Injury City / State	63.54 /67.13
EMS Report	46.19
Hospital Transfer	96.51
Patient Origin	97.72
Transport	98.20
Chief Complaint	98.72
Arrival Condition	93.27
Arrival GCS	81.18
ED Disposition	99.10
Admit Service	99.62
Probability of Survival	68.75
Vent Days	50.27
Primary Payer Source	99.94
Secondary Payer Source	25.07

For the purposes of this report any data containing the values of Blank, Not Available, Not Done/ Doc or Not Recorded are considered to be Unknown.

July, October and August were the highest census months for all patients in the registry. July, August and May were the highest census months for pediatric patients. Pediatric is defined as any patient younger than the age 18.

Figure 5: Admissions by Month for All Registry Patients

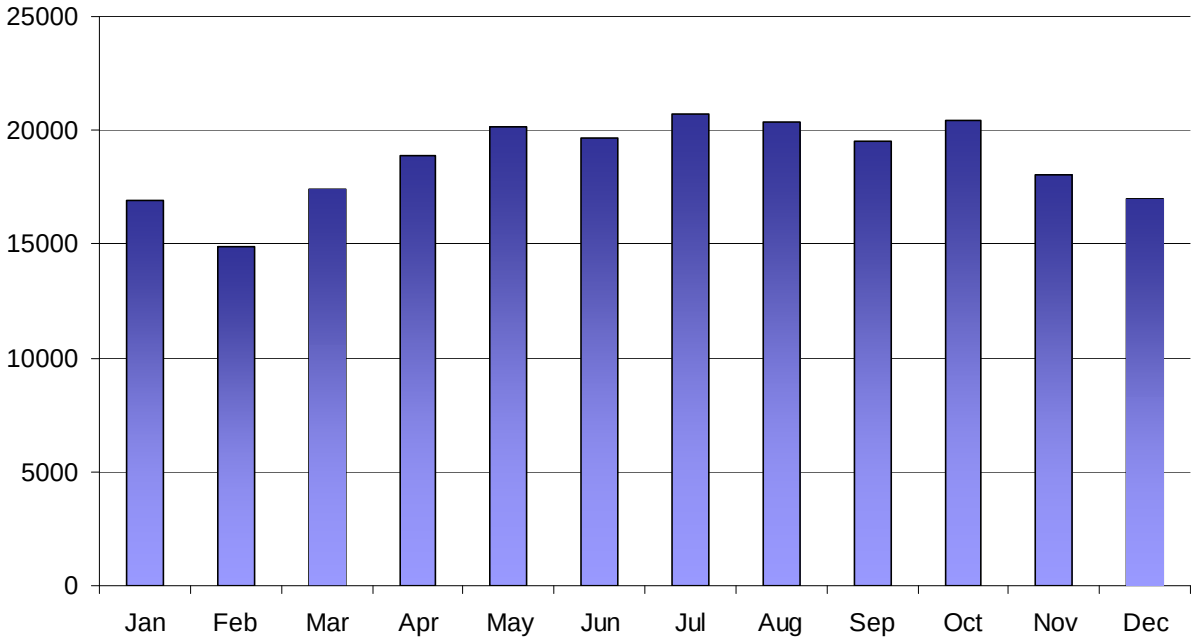
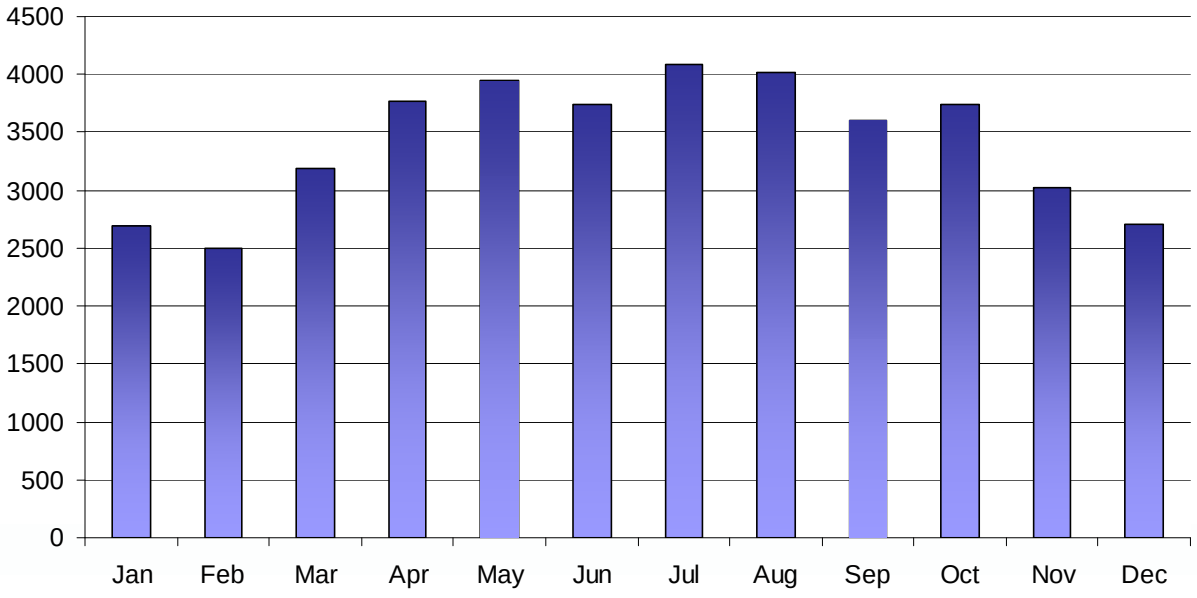


Figure 6: Admissions by Month for Pediatric Patients



The patient age distribution rises steadily with the highest number of patients being in the age range 25 to 44 years old.

Figure 7: Age Distribution

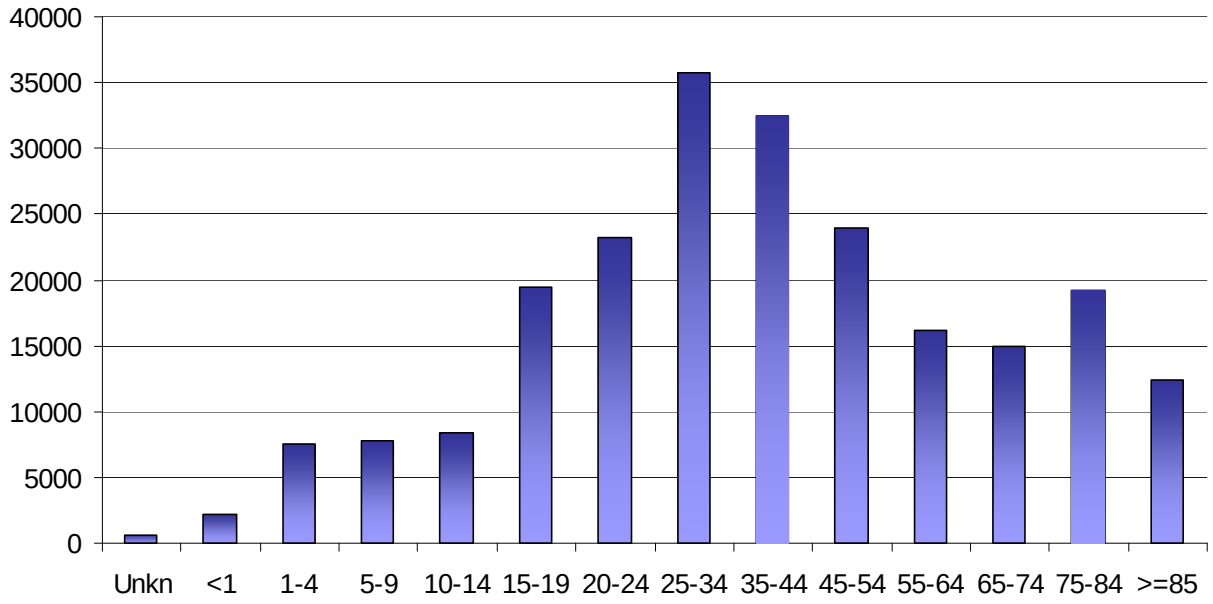


Table 1: Age Distribution of Patients

Age Range	Frequency	Percentage
Unknown	570	.25
Less than 1	2177	.97
1 - 4	7543	3.37
5 - 9	7785	3.48
10 - 14	8335	3.72
15 - 19	19424	8.67
20 - 24	23190	10.35
25 - 34	35790	15.98
35 - 44	32499	14.51
45 - 54	23970	10.70
55 - 64	16207	7.23
65 - 74	14927	6.66
75 - 84	19212	8.58
85 or Greater	12397	5.53

The greatest peak in numbers occurs with male patients in the age range 25-34, closely followed by males in the age range 35-44. The female population peaks in the age range 75-84.

Figure 8: Age Distribution of Patients by Gender

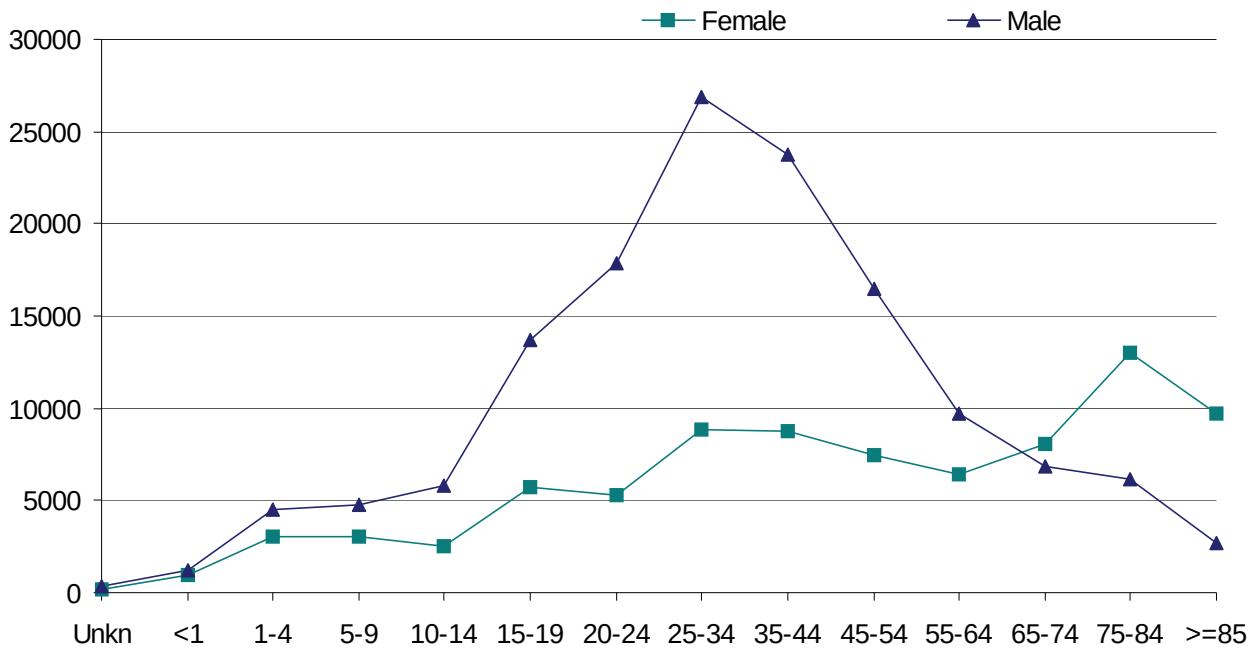


Table 2: Age Distribution by Gender

Age Range	Unknown	Female	Male
Unknown	50	162	358
Less than 1	1	947	1229
1 - 4	1	3022	4520
5 - 9	1	3002	4782
10 - 14	0	2501	5834
15 - 19	6	5728	13690
20 - 24	7	5286	17897
25 - 34	8	8879	26903
35 - 44	4	8736	23759
45 - 54	3	7450	16517
55 - 64	3	6459	9745
65 - 74	1	8061	6865
75 - 84	3	13025	6184
85 or Greater	0	9699	2698

Regardless of race, the age distribution still peaks between the ages of 25-44.

Figure 9: Age Distribution by Race

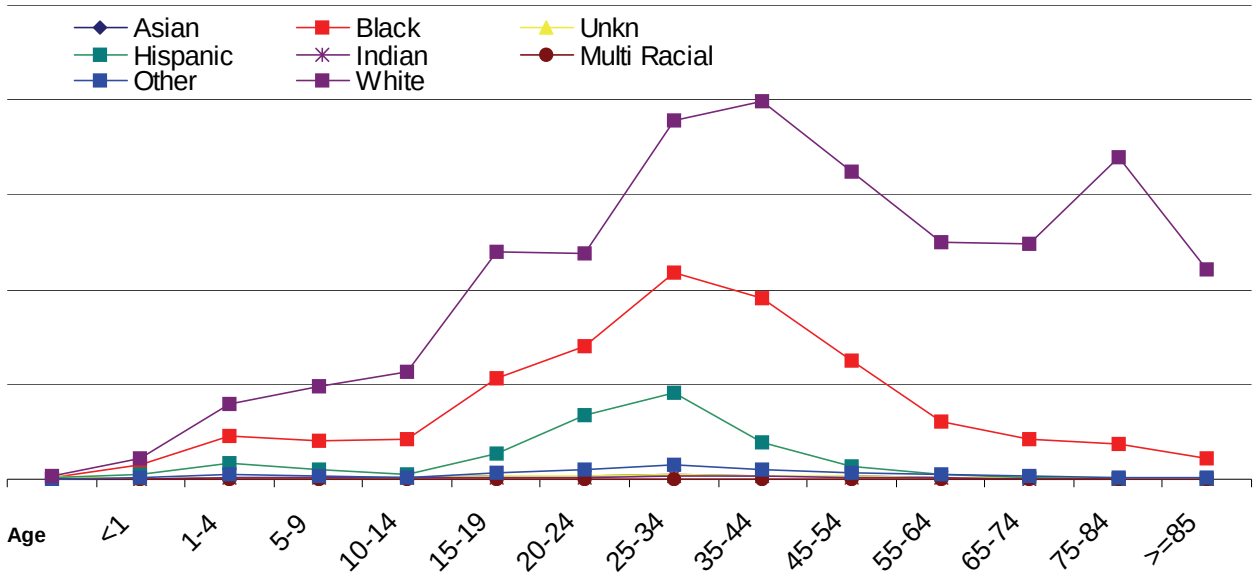


Table 3: Age Distribution by Race

Age Range	Asian	Black	Unk	Hispanic	Indian	Multi Racial	Other	White
Unknown	5	106	195	47	0	0	24	193
<1	25	742	25	231	11	1	85	1057
1-4	84	2286	54	871	69	8	236	3935
5-9	66	2047	74	488	50	1	172	4887
10-14	58	2097	75	273	48	3	122	5659
15-19	128	5349	177	1354	98	2	353	11963
20-24	141	6985	139	3338	108	4	536	11939
25-34	229	10903	226	4583	194	2	731	18922
35-44	198	9537	196	1963	160	1	548	19896
45-54	137	6241	151	708	119	0	369	16245
55-64	88	3016	95	229	53	0	214	12512
65-74	37	2118	91	78	29	1	160	12413
75-84	34	1877	125	35	30	0	118	16993
>=85	10	1125	92	32	6	1	87	11044

More than 60% of the patient population is composed of males.

Figure 10: Gender Distribution

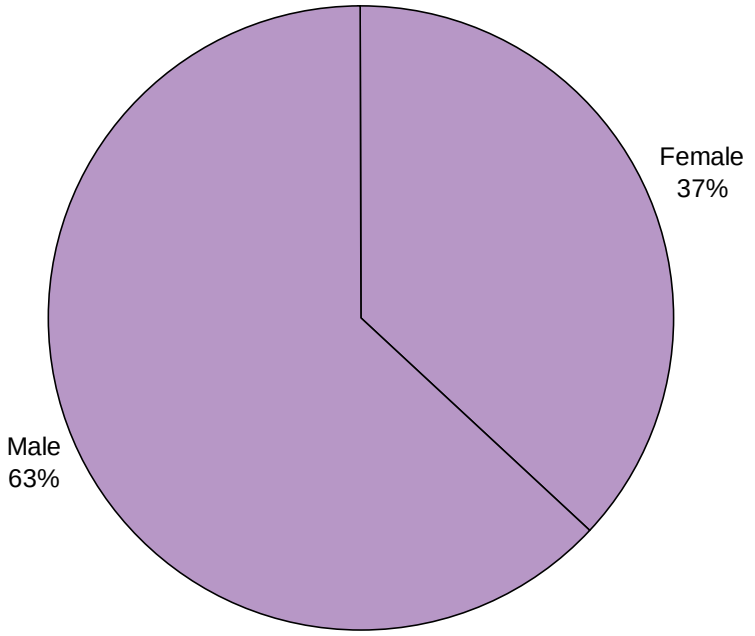


Table 4: Gender Distribution

Gender	Frequency	Percentage
Female	82957	37.03
Male	140981	62.93

The White, Black and Hispanic populations account for more than 96% of the patient population.

Figure 11: Race Distribution

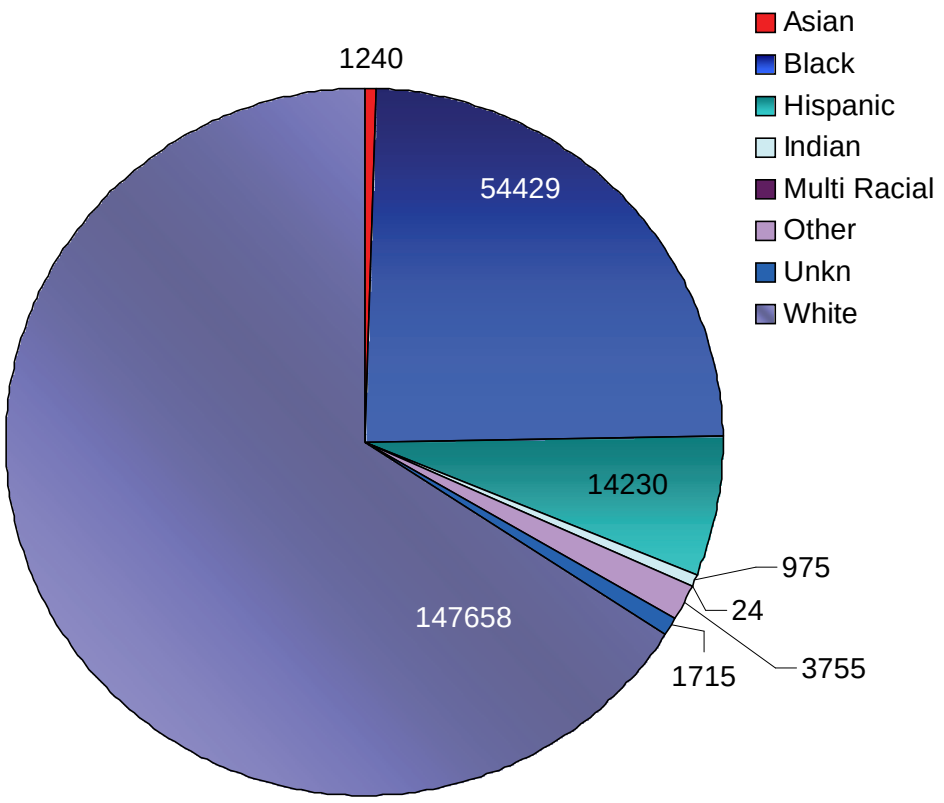


Table 5: Race Distribution

Race	Frequency	Percentage
Asian	1240	.55
Black	54429	24.30
Hispanic	14230	6.35
Indian	975	.44
Multi Racial	24	.01
Other	3755	1.68
Unknown	1715	.77
White	147658	65.91

White males account for more than 38% of the trauma registry patient population and white females account for more than 27% of the patient population. Black males make up more than 17% of the patient population and black females make up over 7% of the population.

Figure 12: Gender and Race Distribution

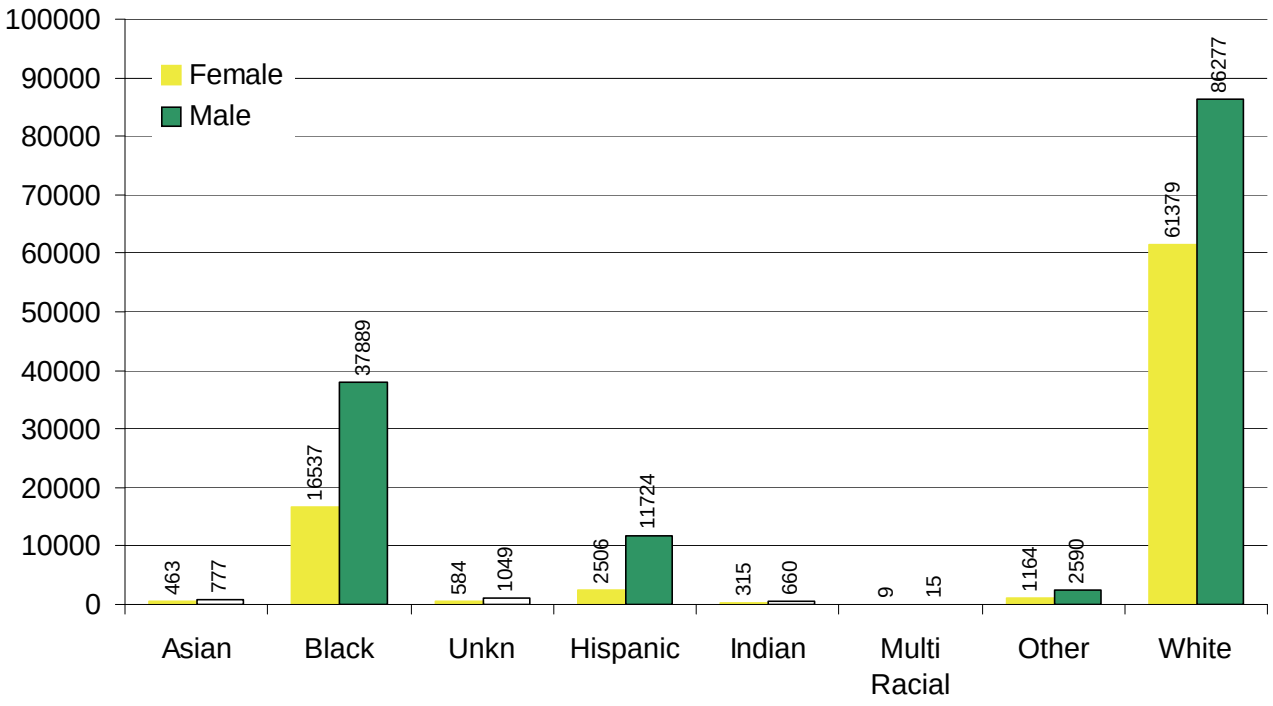


Table 6: Gender and Race Distribution

Gender	Asian	Black	Hispanic	Indian	Multi-Racial	Other	Unknown
Female	463	16537	2506	315	9	1164	584
Male	777	37889	11724	660	15	2590	1049
Total	1240	54429	1715	14230	24	3755	147658

The vast majority, more than 82%, of patients suffering from traumatic injury are reported to have a blunt mechanism of injury (MOI).

For the purposes of this report, the MOI classifications are:

- **Blunt:** Non-penetrating injury from an external force
- **Penetrating:** Injury from a projective force or piercing injury, and entering deeply causing tissue and / or organ damage
- **Burn:** Injury from excessive exposure to chemical, thermal, electrical, or radioactive Agents

Figure 13: Mechanism of Injury

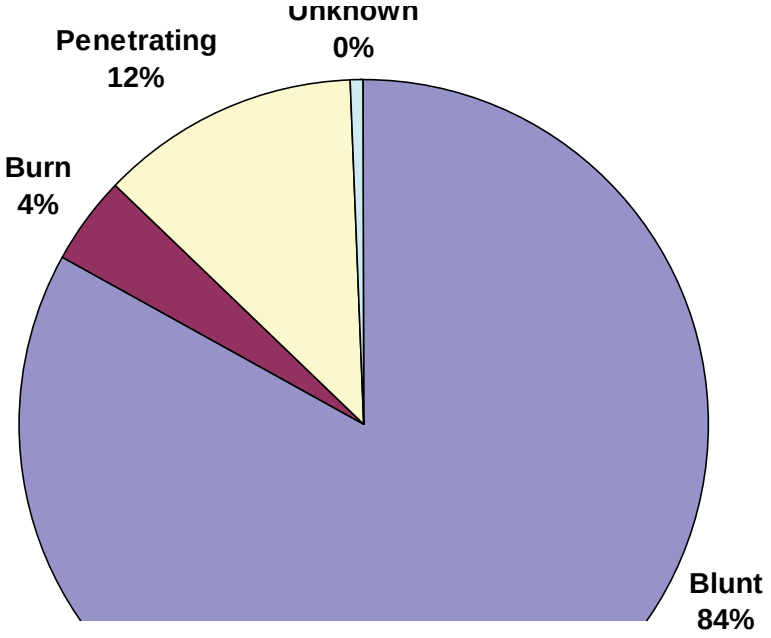


Table 7: Mechanism of Injury (MOI)

Mechanism	Frequency	Percentage
Blunt	185881	82.97
Burn	9607	4.29
Penetrating	27584	12.31
Unknown	954	0.43

Blunt injuries are the highest MOI for all age groups.

Figure 14: MOI by Age Group

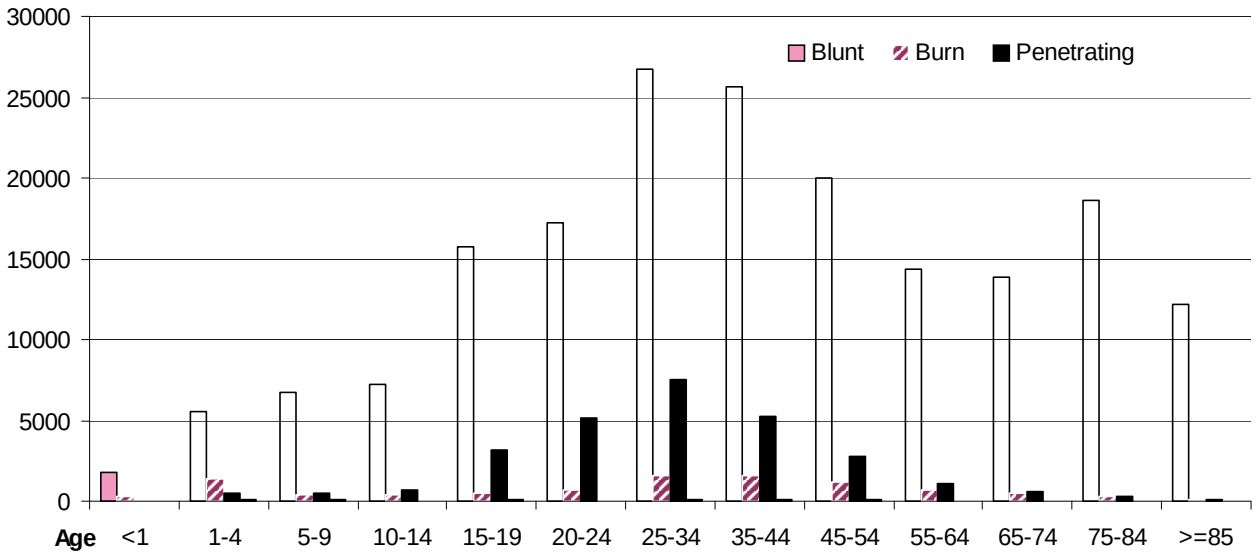


Table 8: MOI by Age Group

Age Group	Blunt	Burn	Penetrating	Unknown
<1	1805	315	34	23
1-4	5576	1346	493	128
5-9	6776	416	537	56
10-14	7234	382	671	48
15-19	15777	462	3131	54
20-24	17238	726	5187	39
25-34	26691	1551	7478	70
35-44	25598	1562	5256	83
45-54	19953	1212	2741	64
55-64	14339	710	1114	44
65-74	13866	448	565	48
75-84	18572	323	273	44
>=85	12172	135	67	23
Unknown	284	19	37	230

More than 94% of blunt injuries and over 92% of burn injuries survive. Almost 91% of penetrating injuries survive.

Figure 15: MOI by Survival

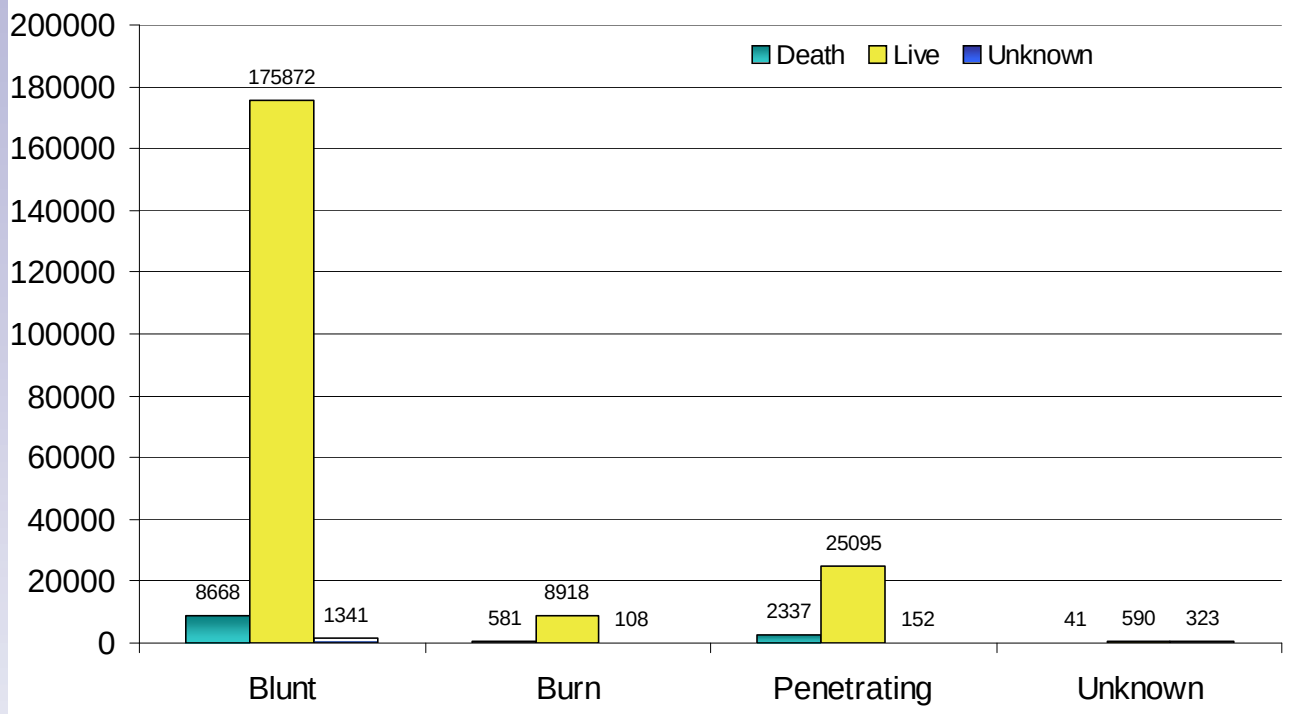


Table 9: MOI by Survival

LiveDie	Blunt	Blunt %	Burn	Burn %	Penetrating	Penetrating %	Unk	Unk %	Total
Die	8668	4.66	581	6.05	2337	8.47	41	4.30	11627
Live	175872	94.62	8918	92.83	25095	90.98	590	61.84	210475
Unk	1341	.72	108	1.12	152	.55	323	33.86	1924
Total	185881	100	9607	100	27584	100.00	954	100	224026
% of All MOI	82.97		4.29		12.31		0.43		100

The hospital length of stay is calculated from the time the patient arrives in the ED, or is admitted to the hospital if the patient bypasses the ED, until the time they are discharged from the hospital.

Figure 16: MOI by Hospital LOS

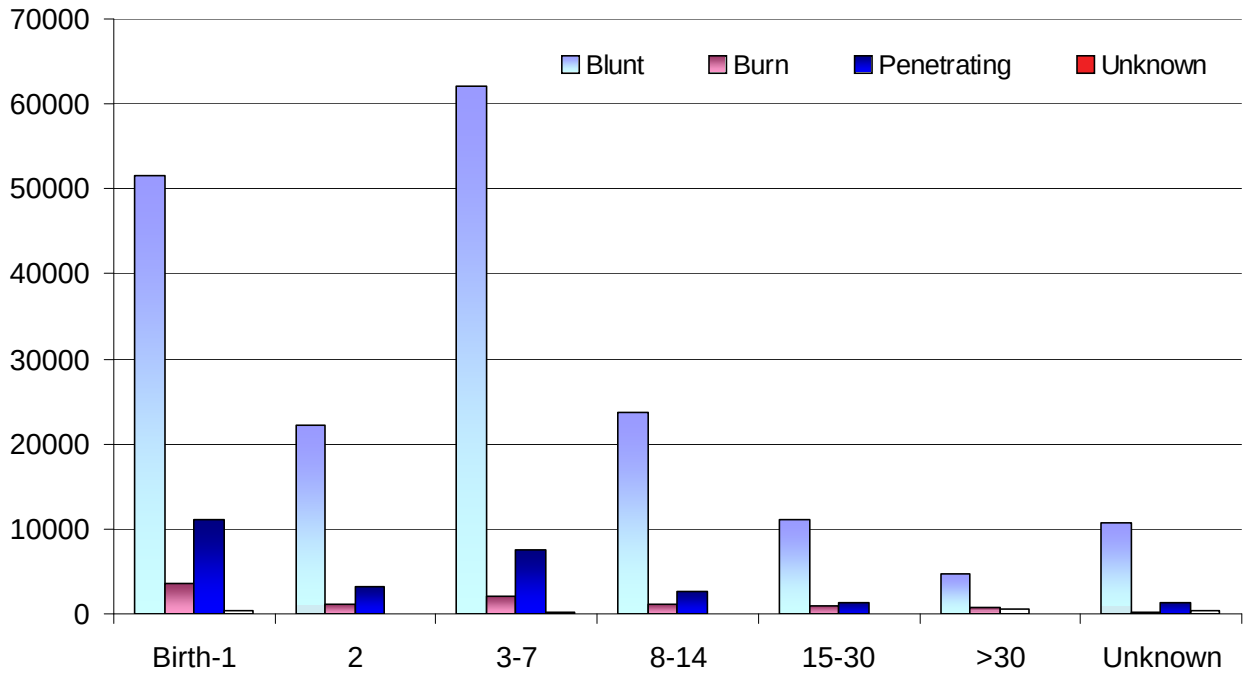


Table 10: MOI by Hospital LOS

Hospital Days	Blunt	Burn	Penetrating	Unknown	Total
Birth-1	51481	3558	11014	345	66398
2	22177	1042	3233	75	26527
3-7	62110	1983	7525	147	71765
8-14	23641	1191	2570	53	27455
15-30	11164	939	1295	34	13432
>30	4621	692	579	13	5905
Unknown	10687	202	1368	287	12544
Total	185881	9607	27584	954	224026

The cause of injury (COI) and intent of injury are derived from grouping the external cause code (E-Code) reported in each patient record using International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The grouping is developed and maintained by the Center for Injury and Research and Control (CIRCL) a the University of Pittsburg. Motor vehicle traffic related injuries are the major cause of injury.

Table 11: COI

Cause of Injury	Unknown	UNINTENTIONAL	SELF-INFLICTED	ASSAULT	UNDETERMINED	OTHER	Total
Unknown	102	0	0	0	0	0	102
Cut/Pierce	0	4338	743	5876	95	1	11053
Drowning / Submersion	0	138	0	2	0	0	140
Fall	0	60456	181	65	3652	693	65047
Fire/Flame	0	4057	137	89	20	0	4303
Hot Object Substance	0	3340	4	126	15	0	3485
Firearm	0	1657	1634	9844	640	133	13908
Machinery	0	3850	0	0	0	0	3850
MV Occupant	0	61204	0	0	0	0	61204
Motorcyclist	0	7849	0	0	0	0	7849
Pedal Cyclist	0	1663	0	0	0	0	1663
Pedestrian	0	6987	0	0	0	0	6987
Unspecified	0	3092	5	1433	67	8	4605
Other	0	0	0	106	1	334	441
Pedal Cyclist, Other	0	2338	0	0	0	0	2338
Pedestrian, Other	0	619	0	0	0	0	619
Transport	0	10957	0	0	0	0	10957
Natural / Environmental	0	1847	0	0	0	0	1847
Overexertion	0	610	0	0	0	0	610
Poisoning	0	114	36	2	8	0	160
Struck By, Against	0	7235	0	7161	0	70	14466
Suffocation	0	56	96	17	3	0	172
Other specified, Classifiable	2	3590	146	1377	27	4	5146
Other Specified, Not Classifiable	0	145	67	445	56	0	713
Medical Care	0	0	0	0	0	35	35
Drugs	0	0	0	0	0	9	9
Total	104	186142	3049	26543	4584	1287	221709

Table 12: COI by Age Group

Cause of Injury	Unk	<1	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	>=85	Total
Unknown	1	2	3	4	2	2	11	25	21	13	8	6	4	0	102
Cut/Pierce	12	6	202	212	228	919	1683	3015	2523	1311	501	275	141	25	11053
Drowning / Submersion	0	3	33	25	12	16	8	18	12	7	3	2	1	0	140
Fall	118	716	2199	2310	1608	1423	1890	3949	5336	5816	6297	8447	14200	10738	65047
Fire/Flame	8	19	186	173	208	243	337	726	801	622	397	284	218	81	4303
Hot Object Substance	9	266	1059	179	94	119	202	433	435	318	153	105	75	38	3485
Firearm	22	8	58	86	274	2067	3241	4021	2264	1103	415	217	100	32	13908
Machinery	2	1	51	52	39	191	428	787	829	630	474	236	108	22	3850
MV Occupant	70	318	1359	1560	1638	8802	8811	11507	9161	6701	4301	3427	2805	744	61204
Motorcyclist	6	4	18	58	205	530	1199	1958	1764	1323	591	151	35	7	7849
Pedal Cyclist	1	0	37	267	375	175	116	171	251	173	66	18	11	2	1663
Pedestrian	4	7	569	572	486	545	585	1055	1290	888	420	270	235	61	6987
Unspecified	26	99	78	54	67	449	574	912	910	562	306	210	254	104	4605
Other	1	1	6	16	15	55	63	97	88	52	26	11	8	2	441
Pedal Cyclist, Other	3	0	102	513	529	188	100	207	285	213	129	50	16	3	2338
Pedestrian, Other	0	0	88	51	46	45	49	73	103	55	43	37	25	4	619
Transport	11	23	175	549	1115	1587	1367	2114	1755	1065	569	326	230	71	10957
Natural / Environmental	1	15	237	220	117	66	109	258	293	249	133	79	58	12	1847
Overexertion	1	4	18	9	43	59	45	104	97	83	51	38	42	16	610
Poisoning	0	0	72	5	16	19	5	7	14	11	7	1	3	0	160
Struck By, Against	14	69	414	536	843	1474	1737	3063	3027	1835	761	375	225	93	14466
Suffocation	2	11	23	15	19	10	11	24	33	20	3	0	1	0	172
Other specified, Classifiable	34	567	478	205	251	274	412	890	830	627	321	141	84	32	5146
Other Specified, Not Classifiable	4	29	34	19	28	60	82	157	139	81	29	12	25	14	713
Medical Care	5	0	2	2	2	0	2	7	3	6	3	0	0	3	35
Drugs	0	1	5	0	0	0	0	0	1	0	0	1	1	0	9
Total	355	2169	7506	7692	8260	19318	23067	35578	32265	23764	16007	14719	18905	12104	221709

The leading COI for females is falls, followed by motor vehicle incidents. The leading COI for males is motor vehicle incidents, followed by falls.

Table 13: COI by Gender

Cause of Injury	Unknown	Female	Male	Total
Unknown	0	36	66	102
Cut/Pierce	3	1686	9364	11053
Drowning / Submersion	0	45	95	140
Fall	9	36007	29031	65047
Fire/Flame	0	1006	3297	4303
Hot Object Substance	0	1300	2185	3485
Firearm	6	1653	12249	13908
Machinery	3	408	3439	3850
MV Occupant	7	26343	34854	61204
Motorcyclist	1	861	6987	7849
Pedal Cyclist	0	237	1426	1663
Pedestrian	2	2118	4867	6987
Unspecified	1	1412	3192	4605
Other	0	123	318	441
Pedal Cyclist, Other	0	528	1810	2338
Pedestrian, Other	0	176	443	619
Transport	2	3106	7849	10957
Natural / Environmental	0	796	1051	1847
Overexertion	0	229	381	610
Poisoning	0	75	85	160
Struck By, Against	3	2162	12301	14466
Suffocation	0	44	128	172
Other specified, Classifiable	1	1301	3844	5146
Other Specified, Not Classifiable	0	235	478	713
Medical Care	0	19	16	35
Drugs	0	2	7	9
Total	38	81908	139763	221709

Across all LOS groups, motor vehicle traffic related injuries account for the most COI with falls following closely behind.

Table 14: COI by Hospital LOS

Cause of Injury	Unknown	0-1	2	3-7	8-14	15-30	>30	Total
Unknown	1	27	9	31	17	10	7	102
Cut/Pierce	598	5166	1548	2917	560	200	64	11053
Drowning / Submersion	3	66	19	28	14	9	1	140
Fall	3682	13356	7304	27482	9362	3043	818	65047
Fire/Flame	80	1525	416	775	550	520	437	4303
Hot Object Substance	86	1295	427	842	461	259	115	3485
Firearm	587	4853	1224	3879	1860	1014	491	13908
Machinery	181	1331	530	1060	440	233	75	3850
MV Occupant	3250	18613	6529	17527	8203	4776	2306	61204
Motorcyclist	444	1775	872	2464	1251	725	318	7849
Pedal Cyclist	135	553	218	432	161	118	46	1663
Pedestrian	487	2043	665	1838	917	663	374	6987
Unspecified	347	1513	627	1168	479	314	157	4605
Other	19	137	60	127	44	43	11	441
Pedal Cyclist, Other	150	980	373	653	124	46	12	2338
Pedestrian, Other	51	168	60	171	92	52	25	619
Transport	1019	3334	1361	3205	1143	602	293	10957
Natural / Environmental	112	695	358	522	104	44	12	1847
Overexertion	53	228	124	161	31	12	1	610
Poisoning	7	95	24	17	13	4	0	160
Struck By, Against	745	5552	2685	4077	875	384	148	14466
Suffocation	8	79	25	40	13	5	2	172
Other specified, Classifiable	227	1970	656	1307	520	302	164	5146
Other Specified, Not Classifiable	52	278	128	179	47	18	11	713
Medical Care	2	3	4	13	7	3	3	35
Drugs	0	5	1	3	0	0	0	9
Total	12326	65640	26247	70918	27288	13399	5891	221709

Only 5.22% of all trauma registry patients died, with 94.01% surviving. The balance of .77% patients, survival could not be determined.

Table 15: COI by Survival

Cause of Injury	Die	Live	Unknown
Unknown	7	95	0
Cut/Pierce	201	10793	59
Drowning / Submersion	24	115	1
Fall	2444	61977	626
Fire/Flame	429	3815	59
Hot Object Substance	49	3406	30
Firearm	2069	11761	78
Machinery	90	3740	20
MV Occupant	3580	57277	347
Motorcyclist	443	7370	36
Pedal Cyclist	118	1530	15
Pedestrian	772	6172	43
Unspecified	253	4196	156
Other	23	415	3
Pedal Cyclist, Other	31	2297	10
Pedestrian, Other	41	572	6
Transport	401	10484	72
Natural /Environmental	20	1818	9
Overexertion	2	605	3
Poisoning	5	149	6
Struck By, Against	246	14152	68
Suffocation	37	130	5
Other specified, Classifiable	267	4835	44
Other Specified, Not Classifiable	18	688	7
Medical Care	1	34	0
Drugs	0	9	0
Total	11571	208435	1703

The location of injury is the type of location where the injury occurred as specified by an external cause code.

Figure 17: Location of Injury Occurrence

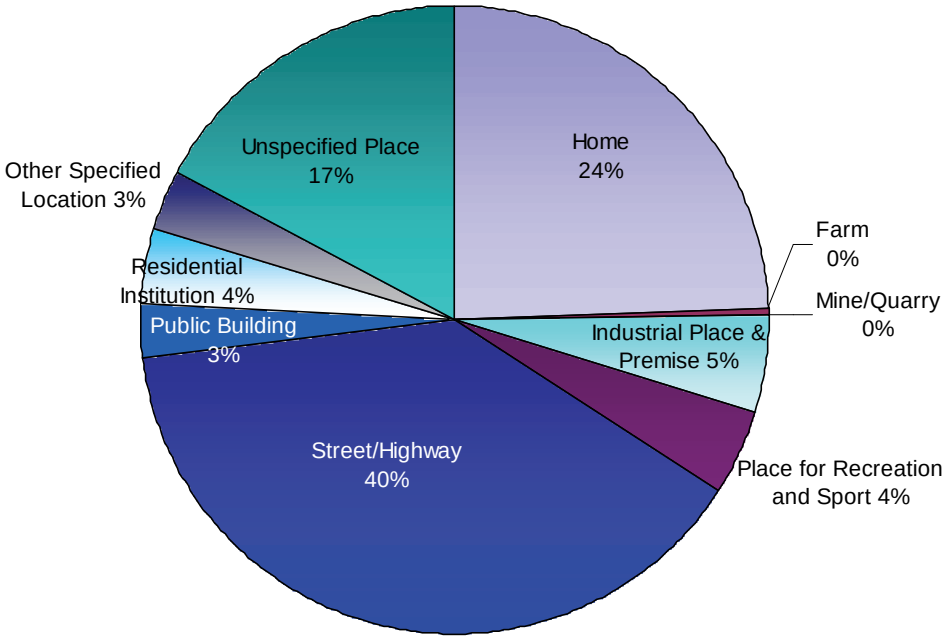


Table 16: Location of Injury Occurrence

Injury Site	Frequency	Percentage
Home	54509	24.33
Farm	937	0.42
Mine/Quarry	75	0.03
Industrial Place & Premise	11199	5.00
Place for Recreation / Sport	9526	4.25
Street/Highway	87647	39.12
Public Building	6145	2.74
Residential Institution	8269	3.69
Other Specified Location	7310	3.26
Unspecified Place	38367	17.13
Unknown	42	0.02
Total	224026	100

The state location of injury is which state of the United States or country outside of the U.S. the injury occurred. For the purposes of this report, states bordering North Carolina are: Georgia, South Carolina, Tennessee and Virginia.

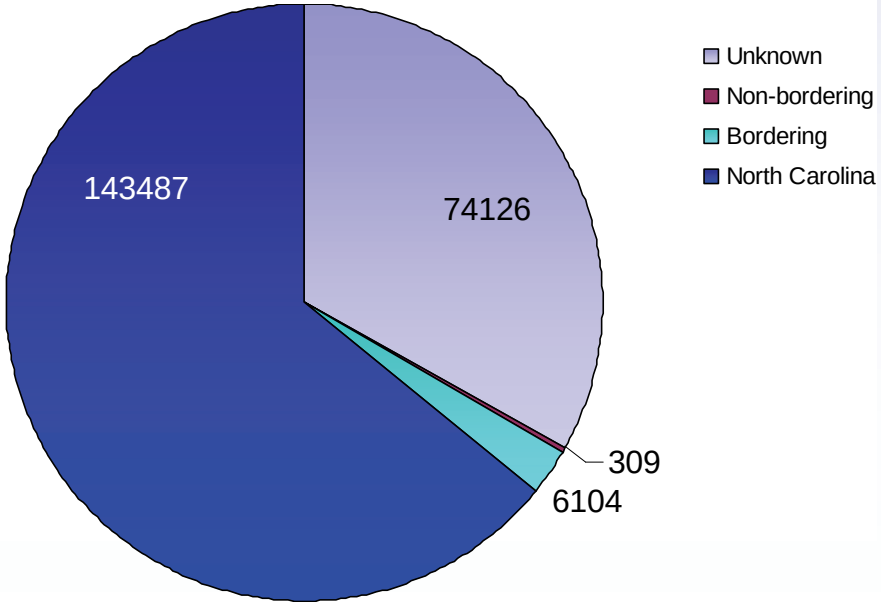
Table 17: Injury State by U.S. Census Regions

State	Frequency	Percentage
Unknown	74126	33.09
West	28	0.01
South	149779	66.86
Northeast	48	0.02
Out-of-Country	22	0.01
Midwest	23	0.01
Total	224026	100

Table 18: Injury State by Bordering & Non-Bordering States

Instate	Frequency	Percentage
Unknown	74126	33.09
Non-bordering	309	0.14
Bordering	6104	2.72
North Carolina	143487	64.05
Total	224026	100

Figure 18: Injury State by Bordering & Non-Bordering States

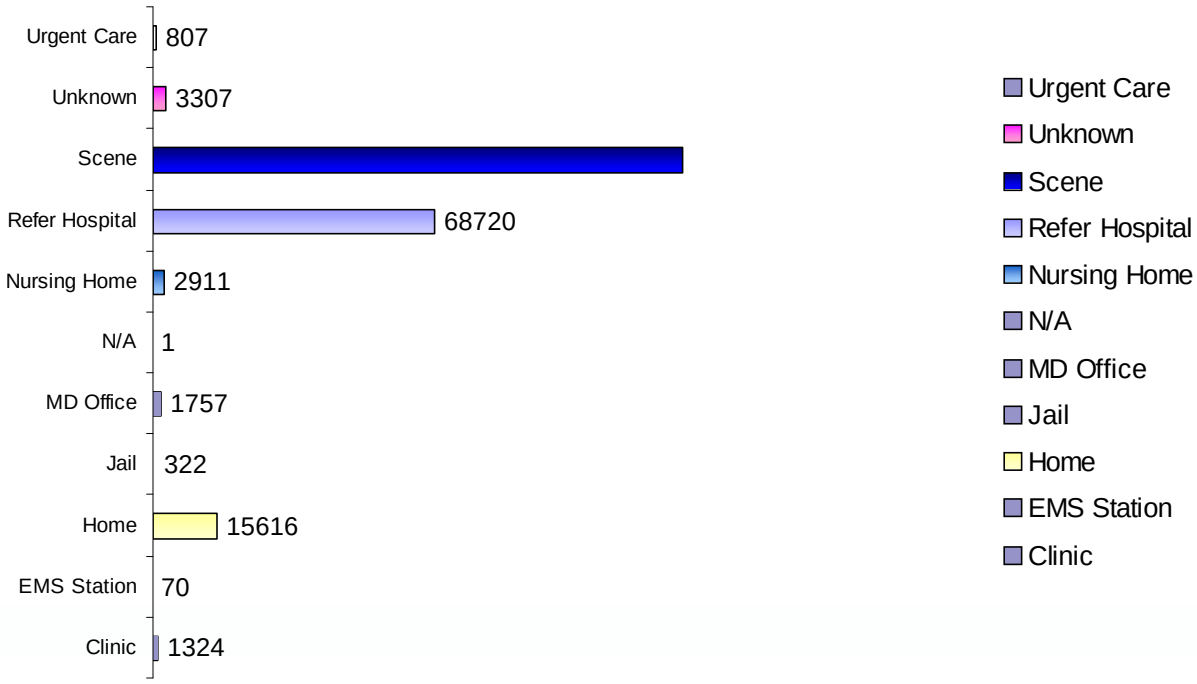


The patient origin is the location from which the patient came prior to arrival at the hospital. If the patient was injured at home, the origin is considered to be the scene of the injury. The vast majority , more than 57%, of patients arrive from the scene of the injury.

Table 19: Patient Origin

Origin	Frequency	Percentage
Clinic	1324	0.59
EMS Station	70	0.03
Home	15616	6.97
Jail	322	0.14
MD Office	1757	0.78
N/A	1	0.00
Nursing Home	2911	1.30
Refer Hospital	68720	30.68
Scene	129191	57.67
Unknown	3307	1.48
Urgent Care	807	0.36
Total	224026	100

Figure 19: Patient Origin

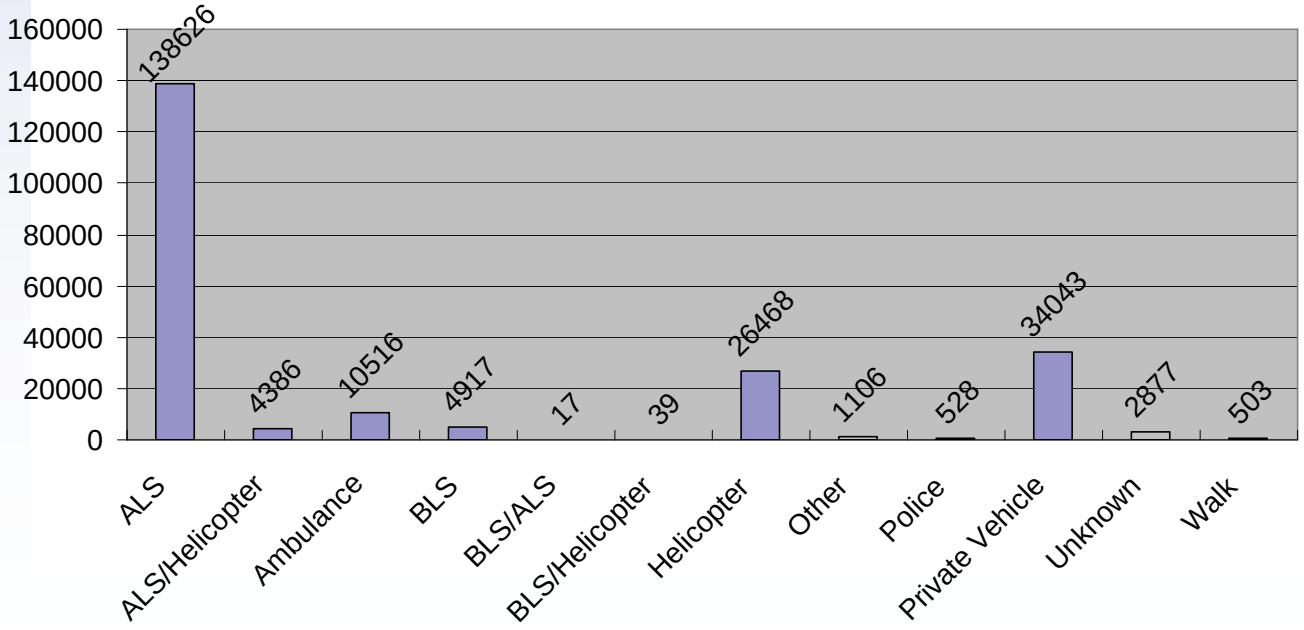


The mode of transportation indicates how the patient arrived at the hospital. Emergency Medical Services (EMS) transports more than 82% of all reported trauma patients.

Table 20: Mode of Transport

Mode of Transport	Frequency	Percentage
ALS	138626	61.88
ALS/Helicopter	4386	1.96
Ambulance	10516	4.69
BLS	4917	2.19
BLS/ALS	17	0.01
BLS/Helicopter	39	0.02
Helicopter	26468	11.81
Other	1106	0.49
Police	528	0.24
Private Vehicle	34043	15.20
Unknown	2877	1.28
Walk	503	0.22
Total	224026	100

Figure 20: Mode of Transport



The condition of a patient can be documented by EMS or Hospital personnel using a simple assessment. The information below is for those patients reported to be transported by some type of Emergency Medical Ambulance provider.

Figure 21: Scene Condition

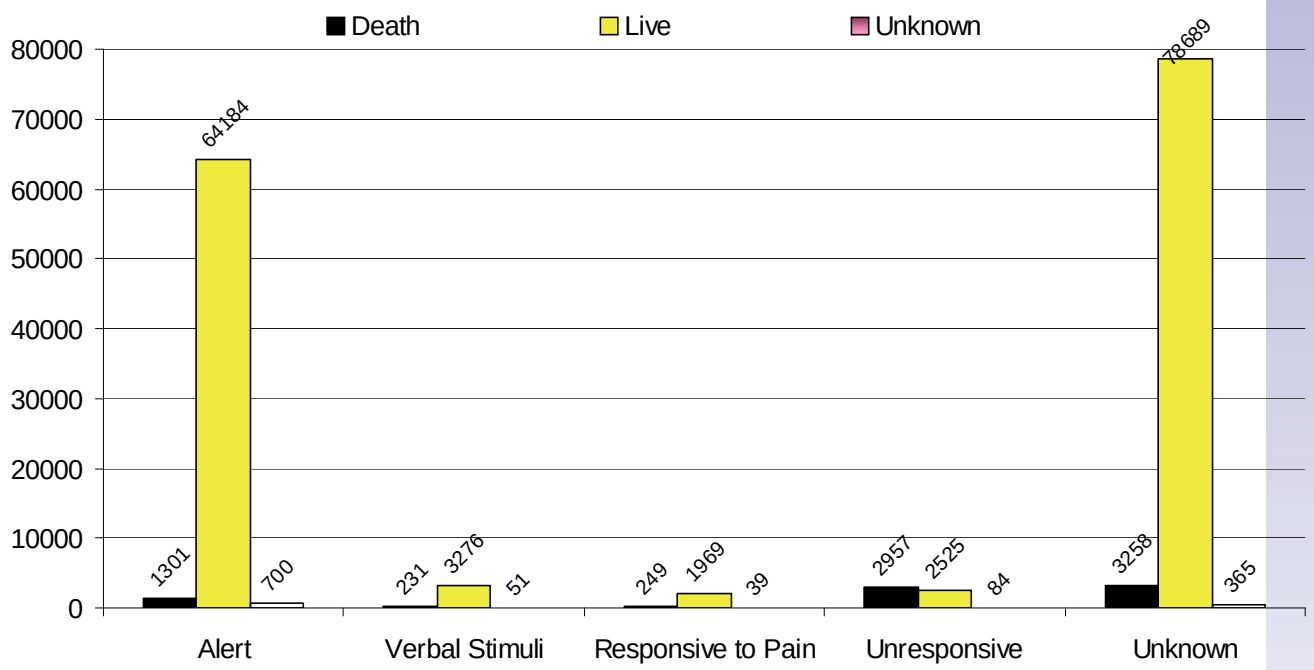


Table 21: Scene Condition

Scene Condition	Death	Live	Unknown	Total
Alert	1301	64184	700	66185
Verbal Stimuli	231	3276	51	3558
Responsive to Pain	249	1969	39	2257
Unresponsive	2957	2525	84	5566
Unknown	3258	78689	365	82312
Total	7996	150643	1239	159878

ARRIVAL CONDITION FOR ALL PATIENTS

The condition of a patient can be documented by EMS or hospital personnel using a simple assessment. The information below is for all patients reported in the trauma registry.

Figure 22: Arrival Condition for All Registry Patients

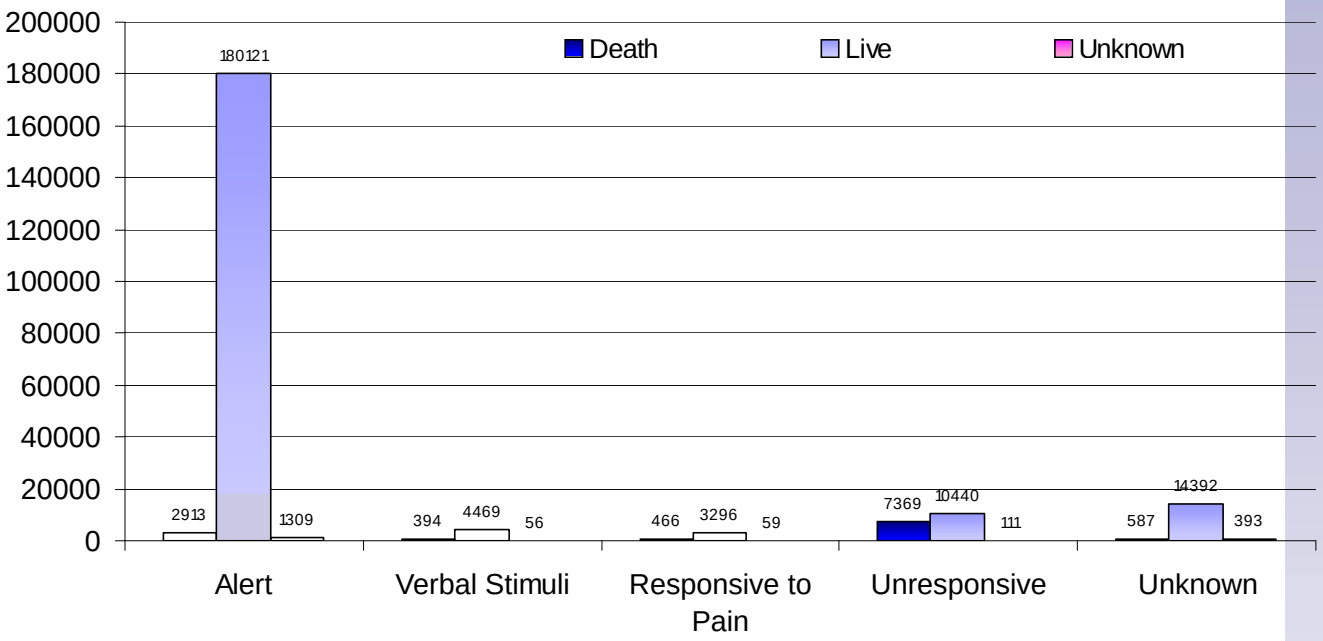


Table 22: Arrival Condition for All Registry Patients

Arrival Condition	Death	Live	Unknown	Total
Alert	2913	180121	1309	184343
Verbal Stimuli	394	4469	56	4919
Responsive to Pain	466	3296	59	3821
Unresponsive	7369	10440	111	17920
Unknown	587	14392	393	15371
Total	11728	212718	1928	226374

ARRIVAL CONDITION FOR TRANSPORTED PATIENTS

The condition of a patient can be documented by EMS or hospital personnel using a simple assessment. The information below is for only those patients reported in to be transported by some type of Emergency Medical Ambulance provider.

Figure 23: Arrival Condition for Transported Patients

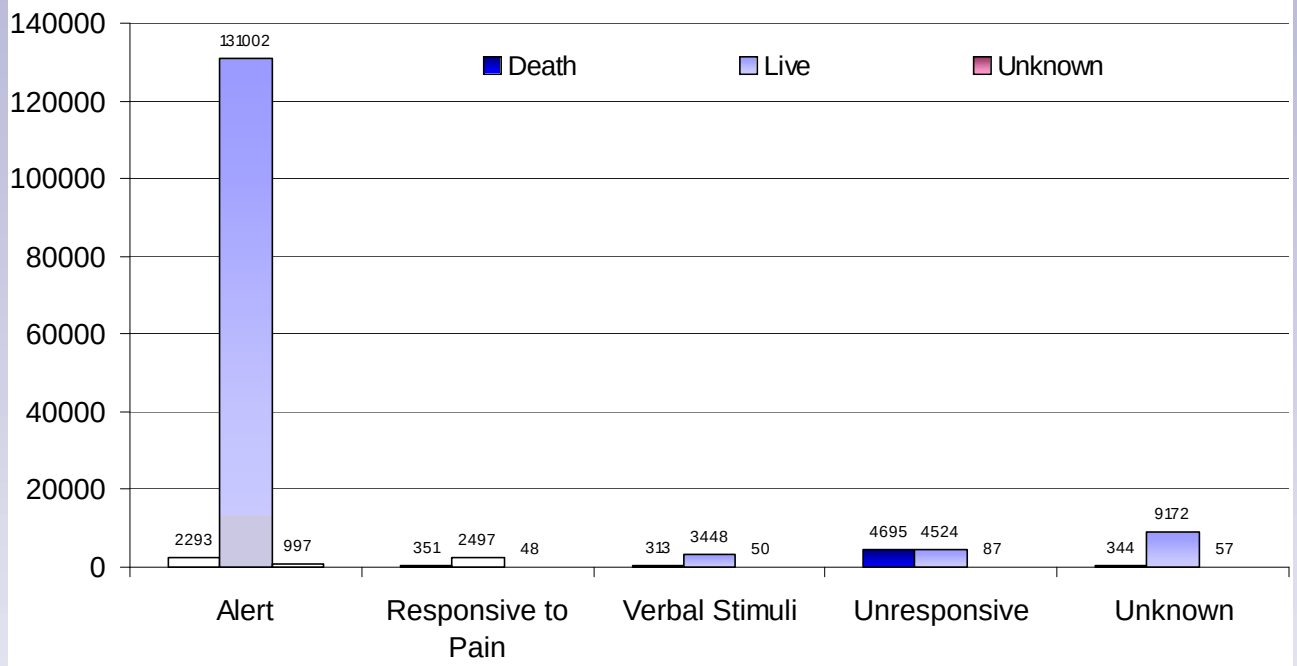


Table 23: Arrival Condition for Transported Patients

Arrival Condition	Death	Live	Unknown	Total
Alert	2293	131002	997	134292
Verbal Stimuli	351	2497	48	2896
Responsive to Pain	313	3448	50	3811
Unresponsive	4695	4524	87	9306
Unknown	344	9172	57	9573
Total	7996	150643	1239	159878

Table 24: Scene Condition Compared to Arrival Condition by Survival Status.

Disposition = Death						
	Arrival Condition					
Scene Condition	**A**	**V**	**P**	**U**	**Unk**	**Total**
A	1042	54	34	152	19	1301
V	68	65	15	78	5	231
P	30	17	80	115	7	249
U	58	28	67	2774	30	2957
Unk	1095	149	155	1576	283	3258
Total	2293	313	351	4695	344	7996
Disposition = Live						
	Arrival Condition					
Scene Condition	**A**	**V**	**P**	**U**	**Unk**	**Total**
A	62076	622	231	366	889	64184
V	2142	780	134	150	70	3276
P	739	287	601	291	51	1969
U	565	177	375	1343	65	2525
Unk	65480	1582	1156	2374	8097	78689
Total	131002	3448	2497	4524	9172	150643
Disposition = Unknown						
	Arrival Condition					
Scene Condition	**A**	**V**	**P**	**U**	**Unk**	**Total**
A	669	12	7	6	6	700
V	28	15	5	2	1	51
P	8	7	14	10	0	39
U	14	7	12	51	0	84
Unk	278	9	10	18	50	365
Total	997	50	48	87	57	1239

A=Alert, V=Responds to Verbal Stimuli, P=Responds to painful stimuli, U=Unresponsive, Unk= Unknown

The Glasgow Coma Scale (GCS) is a method of scoring a patient's level of consciousness by measuring their response to visual, verbal, and motor stimuli and commands. The scores range from three to 15 with higher scores representing higher levels of consciousness. The information below is for those patients reported to be transported by some type of Emergency Medical Ambulance provider.

Figure 24: Scene GCS

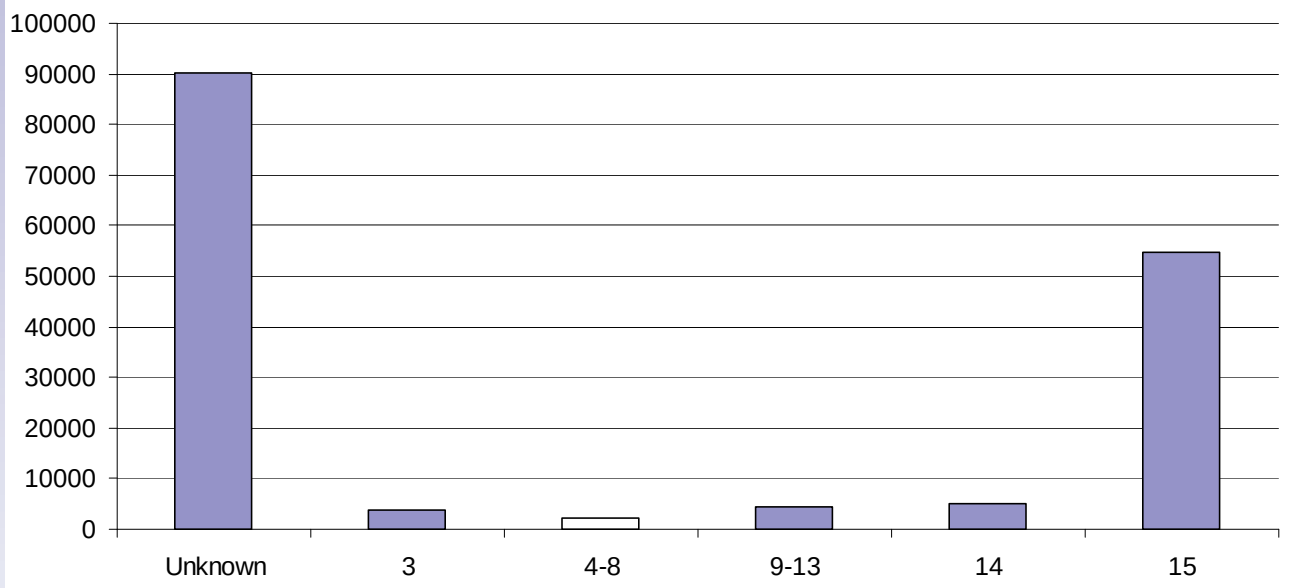


Table 25: Scene GCS

Scene GCS	Frequency	Percentage
Unknown	90123	56.19
3	3781	2.36
4-8	2222	1.39
9-13	4536	2.83
14	5140	3.20
15	54595	34.04
Total	160397	100

ARRIVAL GCS FOR ALL PATIENTS

The Glasgow Coma Scale (GCS) is a method of scoring a patient's level of consciousness by measuring their response to visual, verbal, and motor stimuli and commands. The scores range from three to 15 with higher scores representing higher levels of consciousness. The information below is for all trauma registry patients.

Figure 25: Arrival GCS for All Trauma Registry Patients

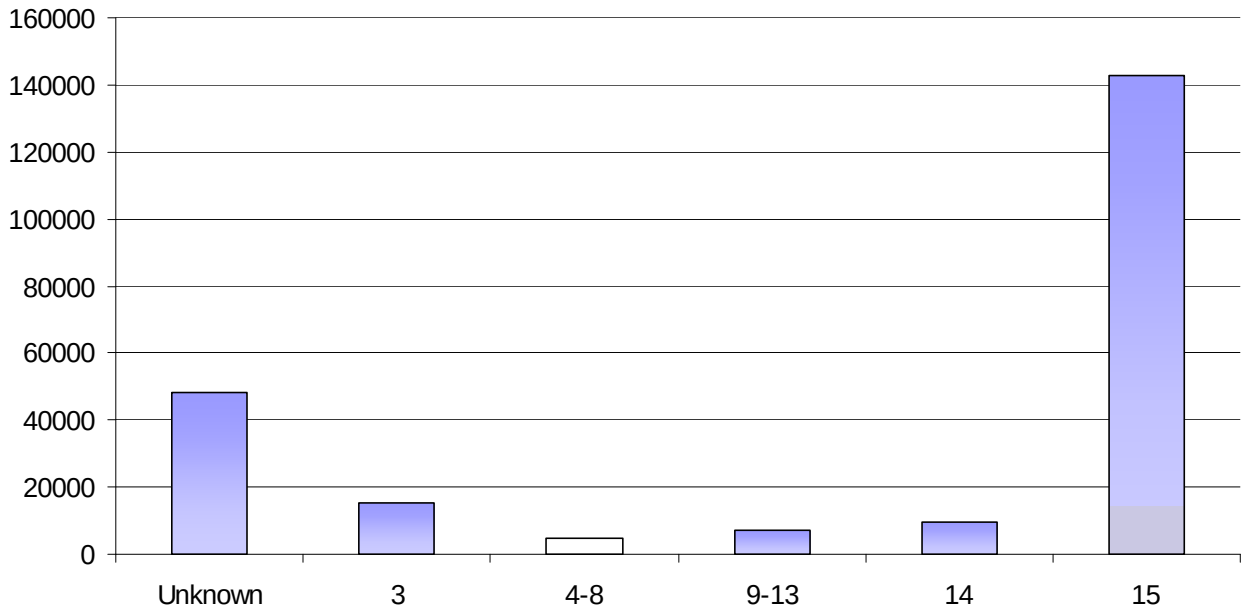


Table 26: Arrival GCS for All Trauma Registry Patients

Arrival GCS	Frequency	Percentage
Unknown	48001	21.15
3	15357	6.77
4-8	4548	2.00
9-13	6981	3.08
14	9416	4.15
15	142671	62.86
Total	226974	100

The Glasgow Coma Scale (GCS) is a method of scoring a patient's level of consciousness by measuring their response to visual, verbal, and motor stimuli and commands. The scores range from three to 15 with higher scores representing higher levels of consciousness. The information below is for those patients reported to be transported by some type of Emergency Medical Ambulance provider.

Figure 26 : Arrival GCS For Transported Patients

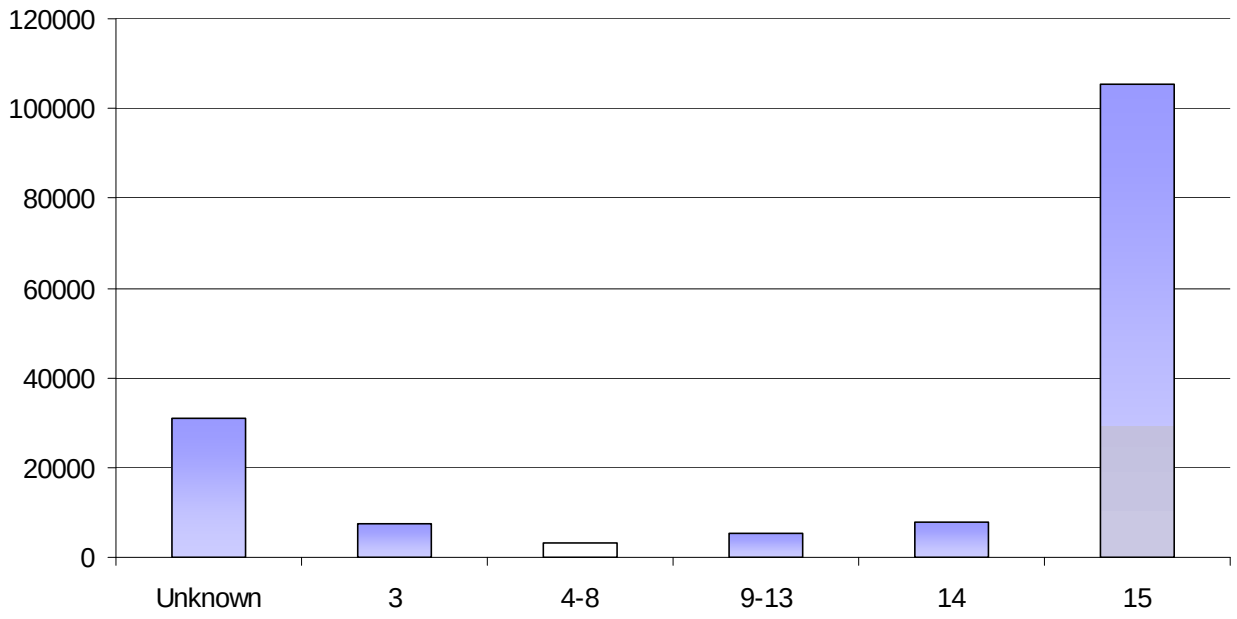


Table 27: Arrival GCS For Transported Patients

Arrival GCS	Frequency	Percentage
Unknown	30877	19.25
3	7609	4.74
4-8	3116	1.94
9-13	5497	3.43
14	7767	4.84
15	105531	65.79
Total	160397	100

SCENE GCS COMPARED TO ARRIVAL GCS

The Glasgow Coma Scale (GCS) is a method of scoring a patient's level of consciousness by measuring their response to visual, verbal, and motor stimuli and commands. The scores range from three to 15 with higher scores representing higher levels of consciousness. The information below is for those patients reported to be transported by some type of Emergency Medical Ambulance provider.

Table 28: Scene GCS Compared to Arrive GCS by Survival Status

Disposition = Death							
	Arrival GCS						
Scene GCS	**Unk**	**3**	**4-8**	**9-13**	**14**	**15**	**Total**
Unknown	916	3078	509	314	222	1112	6151
3	183	2780	170	22	5	8	3168
4-8	43	350	129	38	6	8	574
9-13	46	139	49	104	39	53	430
14	42	43	4	32	44	80	245
15	183	143	23	62	85	713	1209
Total	1413	6533	884	572	401	1974	11777
Disposition = Live							
	Arrival GCS						
Scene GCS	**Unk**	**3**	**4-8**	**9-13**	**14**	**15**	**Total**
Unknown	36231	5411	2122	3688	4784	85544	137780
3	144	1353	390	157	63	181	2288
4-8	242	885	672	434	137	248	2618
9-13	583	510	249	1020	815	2007	5184
14	720	127	44	320	1263	3523	5997
15	7950	448	112	714	1875	48287	59386
Total	45870	8734	3589	6333	8937	139790	213253
Disposition = Unknown							
	Arrival GCS						
Scene GCS	**Unk**	**3**	**4-8**	**9-13**	**14**	**15**	**Total**
Unknown	532	25	31	28	37	448	1101
3	3	35	9	5	0	3	55
4-8	4	24	24	13	3	3	71
9-13	4	3	6	23	9	22	67
14	19	0	2	1	12	23	57
15	156	3	3	6	17	408	593
Total	718	90	75	76	78	907	1944

There has been a slight increase through the years of patients being transferred from one hospital to another.

Table 29: Transfers by COI

Cause of Injury	Hospital Transfer			Total
	Unk	No	Yes	
Unknown	0	76	26	102
CUT/PIERCE	377	7873	2806	11056
DROWNING	3	90	47	140
FALL	1141	48913	15030	65084
FIRE/FLAME	78	1474	2755	4307
HOT OBJECT	60	1337	2091	3488
FIREARM	352	9260	4308	13920
MACHINERY	115	2132	1606	3853
MV OCCUPANT	1209	39270	20790	61269
MOTORCYCLIST	128	5108	2620	7856
PEDAL CYCLIST	28	1089	548	1665
PEDESTRIAN	131	4806	2057	6994
UNSPECIFIED	359	2646	1606	4611
OTHER	10	271	161	442
PEDAL CYCLIST	38	1517	784	2339
PEDESTRIAN,OTHER	12	387	220	619
TRANSPORT	138	6702	4129	10969
NATURAL/ ENVIRON	70	1162	616	1848
OVEREXERTION	19	486	106	611
POISONING	0	82	78	160
STRUCK BY,AGAINST	401	9295	4781	14477
SUFFOCATION	2	119	51	172
OTHER CLASSIFIABLE	113	2735	2318	5166
OTHER NOT CLASSIFIABLE	31	483	201	715
MEDICAL CARE	1	10	24	35
DRUGS	0	5	4	9
Total	4816	147328	69763	221907

Figure 27: Transfers by Year

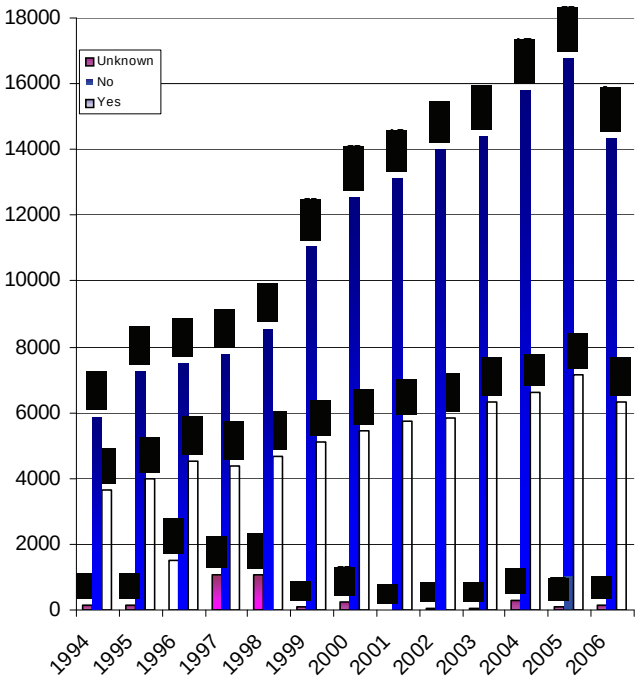
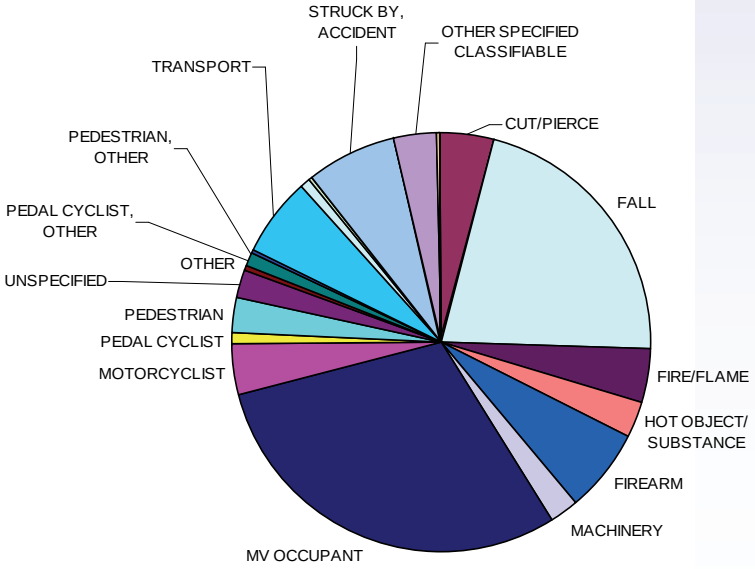


Figure 28: Transfers by COI



The hour of admission to reporting hospitals peaks between 1800 (6:00 pm) to 1900 (7:00 pm).

Figure 29: Hour of Admission

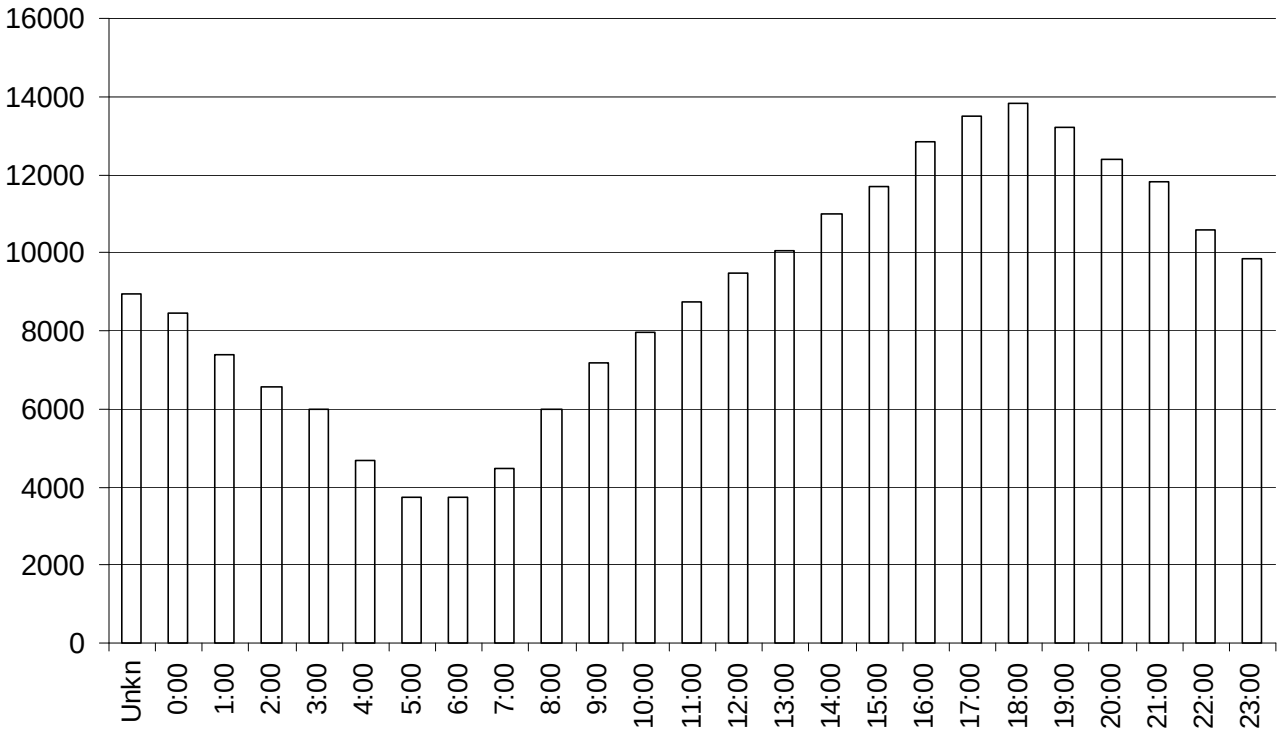
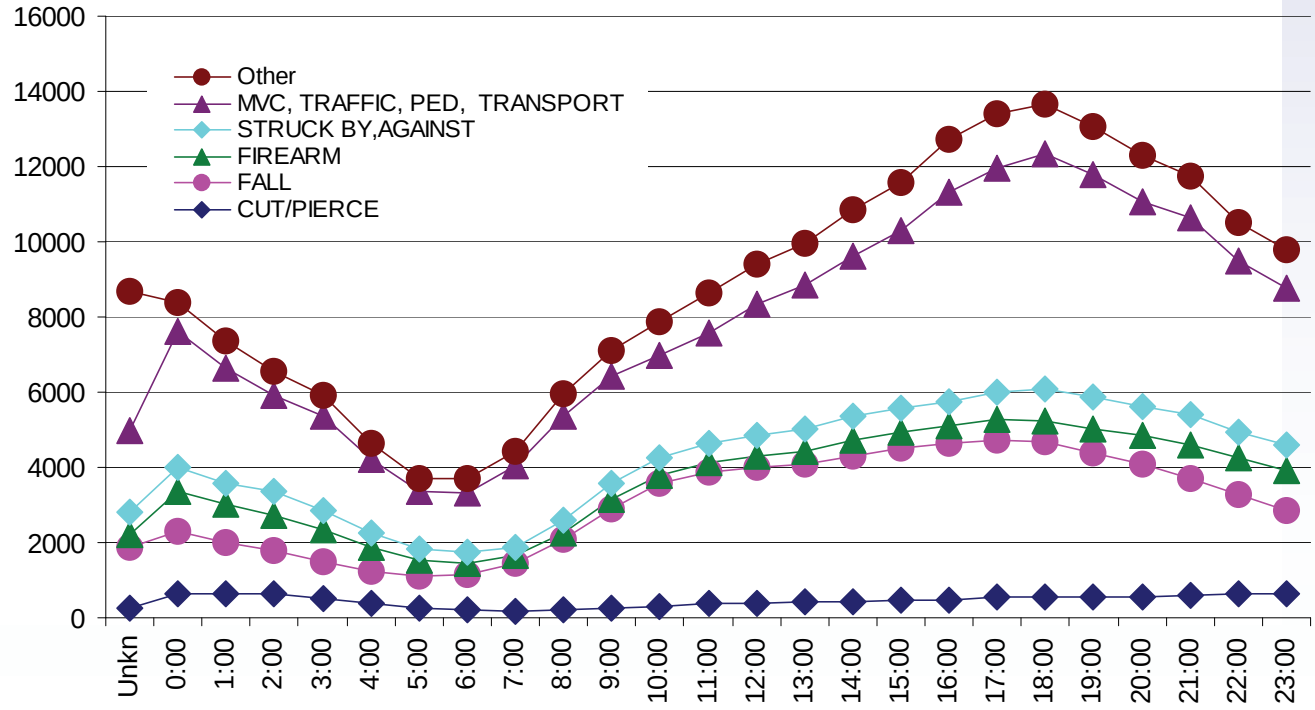


Figure 30: Hour of Admission by COI



ADMISSION BY DAY OF WEEK

The day of admission peaks overall on Saturday and is predominantly due to motor vehicle crash, traffic, pedestrian and transport related injuries.

Figure 31: Admission by Day of Week

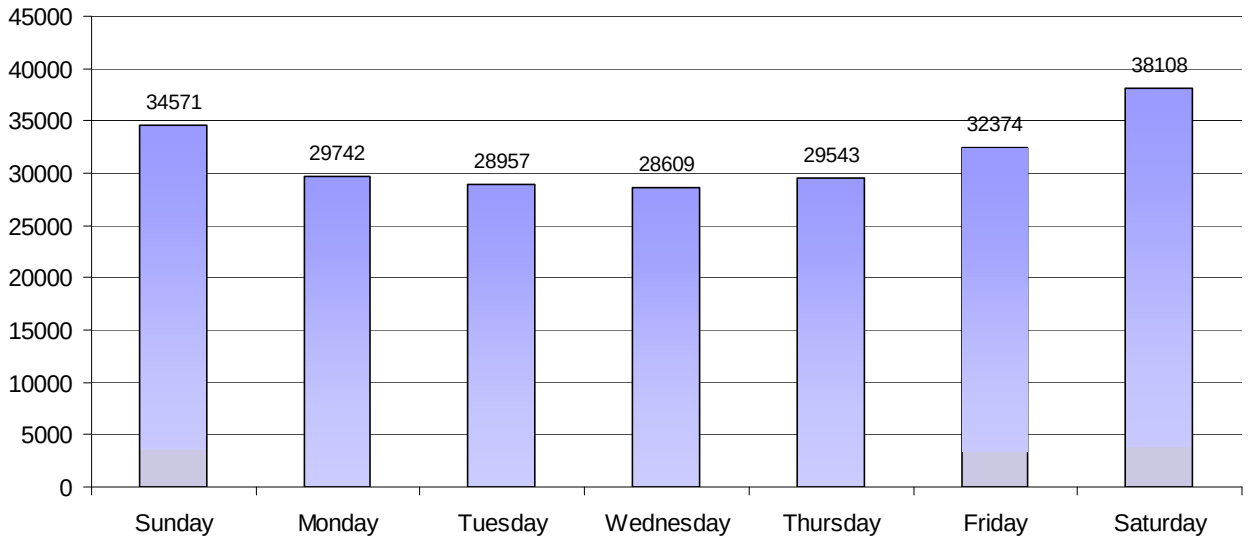
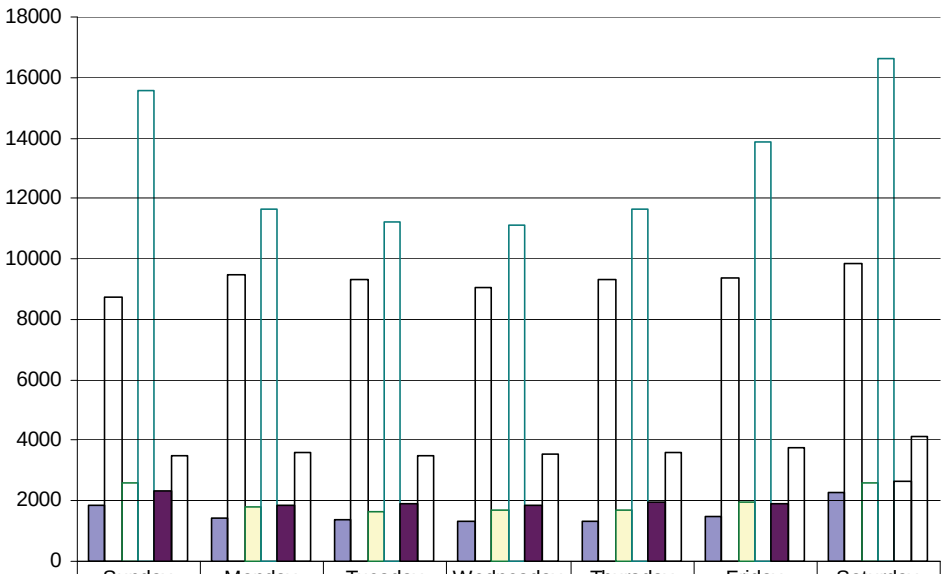


Figure 32: Admission by Day of Week and COI



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
CUT/PIERCE	1853	1434	1357	1314	1343	1495	2260
FALL	8712	9460	9301	9077	9316	9379	9838
FIREARM	2595	1786	1648	1678	1668	1954	2590
MVC, TRAFFIC, PED, TRANSPORT	15568	11621	11209	11135	11664	13885	16628
STRUCK BY,AGAINST	2327	1833	1931	1846	1963	1927	2650
Other	3516	3608	3511	3559	3589	3734	4142

Trauma team activation indicates that an alert was called and the trauma team was activated. Nearly 70% of all trauma registry patients have not activated the trauma team.

Figure 33: Trauma Team Activation

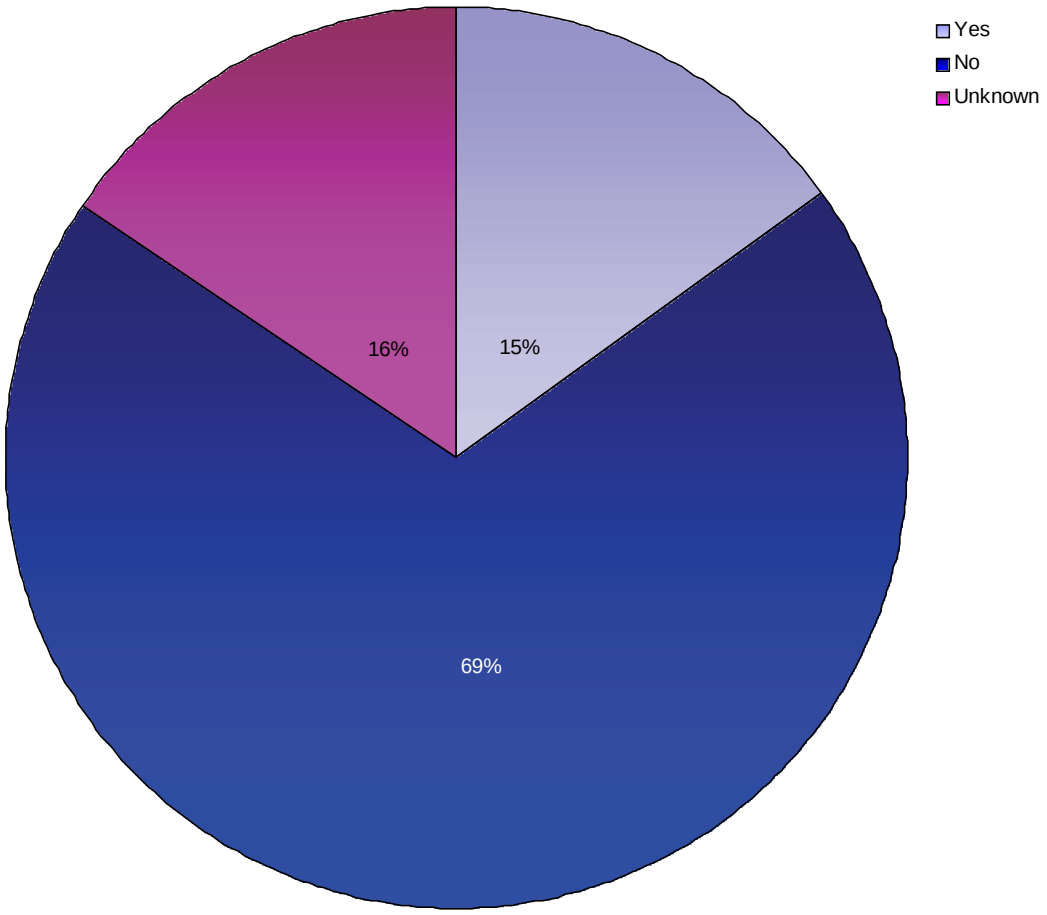


Table 30: Trauma Team Activation

Trauma Team Activated	Frequency	Percentage
Yes	33564	14.98
No	155584	69.45
Unknown	34878	15.57
Total	224026	100

The admission service is the service to which the patient was designated upon admission to the hospital. Of all the patients admitted, over 40 percent were admitted through the Trauma Service.

Table 31: Admission Service

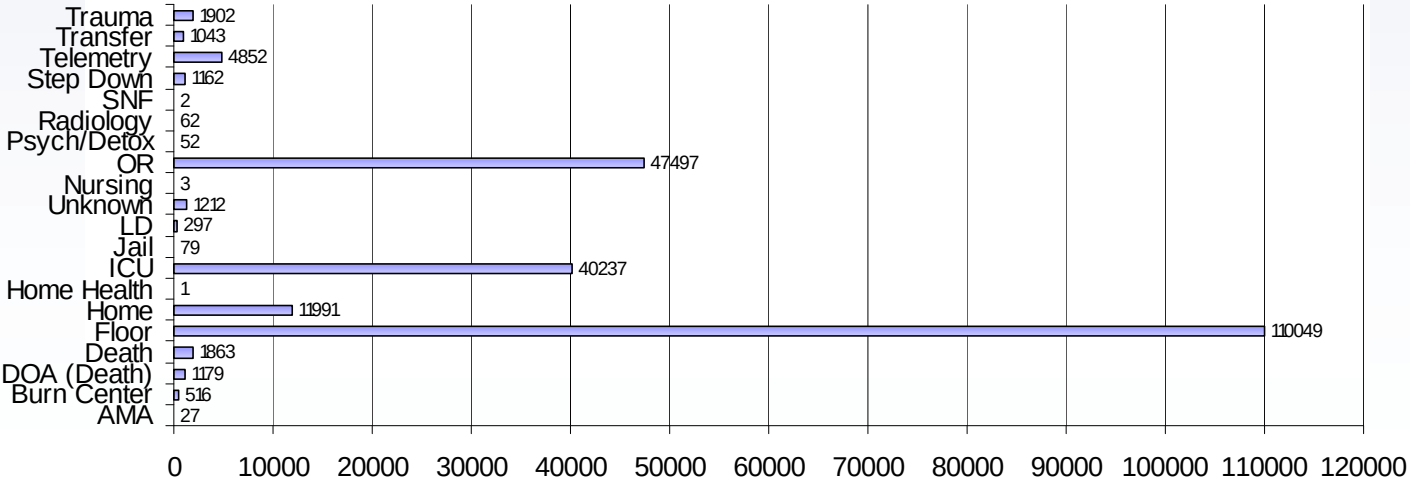
Admit Service	Frequency	Percentage
Burn	6712	3.00
Cardiology	335	0.15
CT Surgery	504	0.22
ENT	1727	0.77
Gen Surgery	1184	0.53
Hand	923	0.41
Medicine	9137	4.08
Neuro	14427	6.44
OB/GYN	795	0.35
Ophtha	1592	0.71
Oral Surgery	1221	0.55
Ortho	62370	27.84
Other	587	0.26
Pediatric Surgery	4944	2.21
Pediatrics	2813	1.26
Plastics	4577	2.04
Psychiatry	121	0.05
Renal	6	0.00
Trauma	91915	41.03
Unknown	17662	7.88
Urology	258	0.12
Vascular Surgery	216	0.10
Total	224026	100

The emergency department (ED) disposition is the location of the patient after treatment in the emergency department. Over 49% of all trauma registry patients are admitted to the floor after leaving the ED

Table 32: Emergency Department Disposition

ED Disposition	Frequency	Percentage
AMA	27	0.01
Burn Center	516	0.23
DOA (Death)	1179	0.53
Death	1863	0.83
Floor	110049	49.12
Home	11991	5.35
Home Health	1	0.00
ICU	40237	17.96
Jail	79	0.04
LD	297	0.13
Unknown	1212	0.54
Nursing Home	3	0.00
OR	47497	21.20
Psych/Detox	52	0.02
Radiology	62	0.03
SNF	2	0.00
Step Down	1162	0.52
Telemetry	4852	2.17
Transfer	1043	0.47
Trauma Center	1902	0.85
Total	224026	100

Figure 34: ED Disposition



The injury severity score (ISS) is an anatomical scoring system that provides an overall score for patients with multiple injuries. Each injury is assigned an abbreviated injury scale (AIS) score, with one being minor, five severe, and six a non-survivable injury. Each score is then assigned to one of six body regions (head, face, chest, abdomen, extremities and external). Only the highest AIS score in ach body region is used. The three most severely injured body regions have their score squared and added together to produce the ISS figure. The majority, over 67%, of patients in the trauma registry have an ISS between one and nine.

Figure 35: ISS Distribution

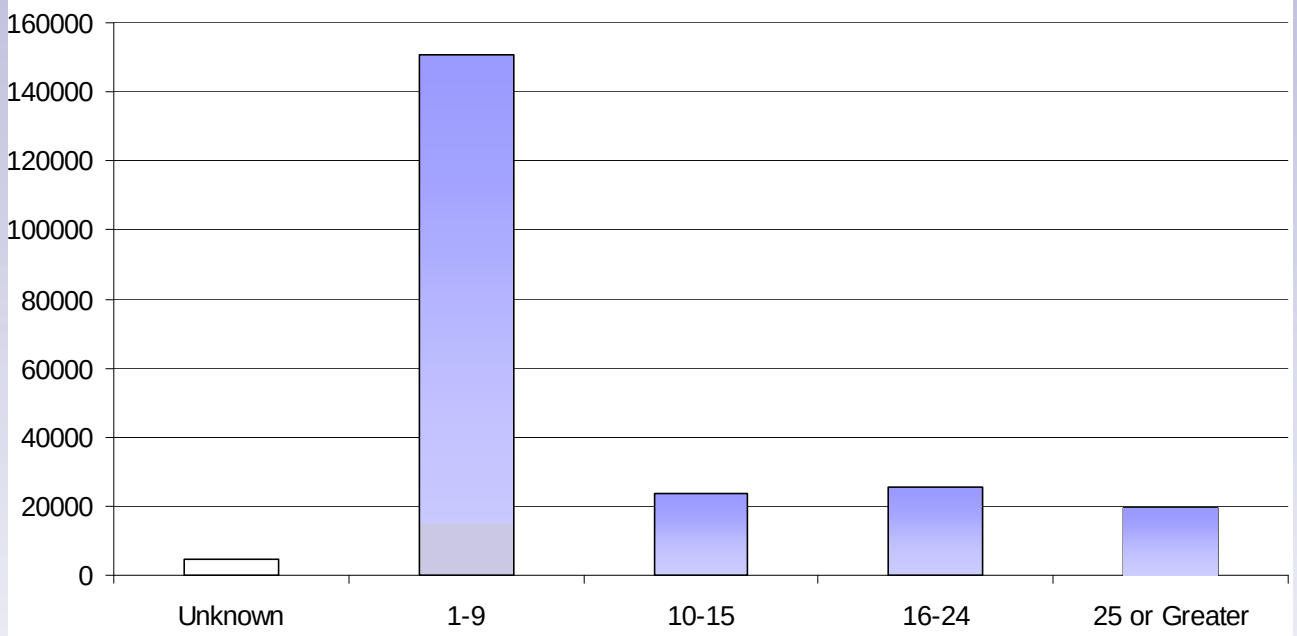


Table 33: ISS Distribution

ISS	Frequency	Percentage
Unknown	4681	2.09
1-9	150895	67.36
10-15	23591	10.53
16-24	25595	11.43
25 or Greater	19264	8.60
Total	224026	100

INJURY SEVERITY SCORE (ISS) BY HOSPITAL LOS

The hospital length of stay (LOS) is the number of days a patient was in the hospital after being admitted. The majority, 67.36% of patients were discharged within 10 days of admission.

Figure 36: ISS by Hospital LOS

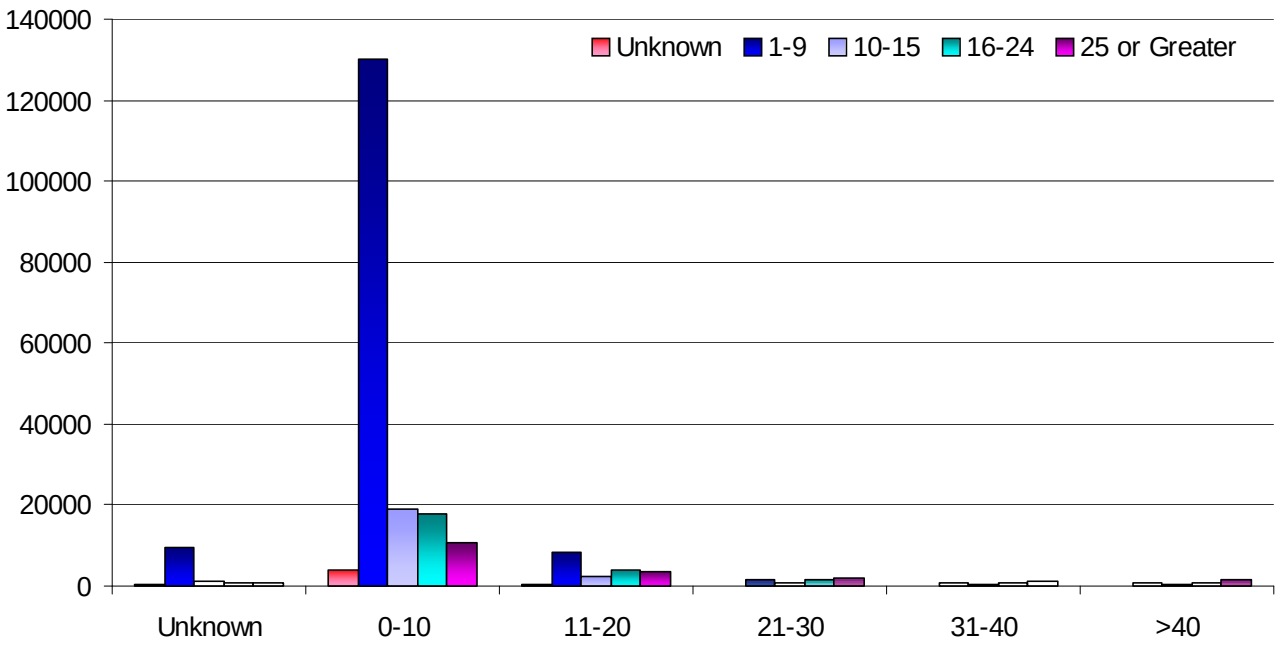


Table 34: ISS by Hospital LOS

	ISS						
Hospital LOS	**Unknown**	**1-9**	**10-15**	**16-24**	**25 or**	**Total**	**Percentage**
Unknown	519	9338	1205	836	646	12544	5.60
0-10	3777	130180	18847	17771	10627	181202	80.88
11-20	245	8288	2414	4119	3574	18640	8.32
21-30	77	1767	618	1404	1869	5735	2.56
31-40	28	664	242	631	1022	2587	1.15
>40	35	658	265	834	1526	3318	1.48
Total	4681	150895	23591	25595	19264	224026	100
Percentage	2.09	67.36	10.53	11.43	8.60	100	

INJURY SEVERITY SCORE (ISS) BY SURVIVAL

More than 93% of the trauma registry patients survived their injuries.

Figure 37: ISS By Survival

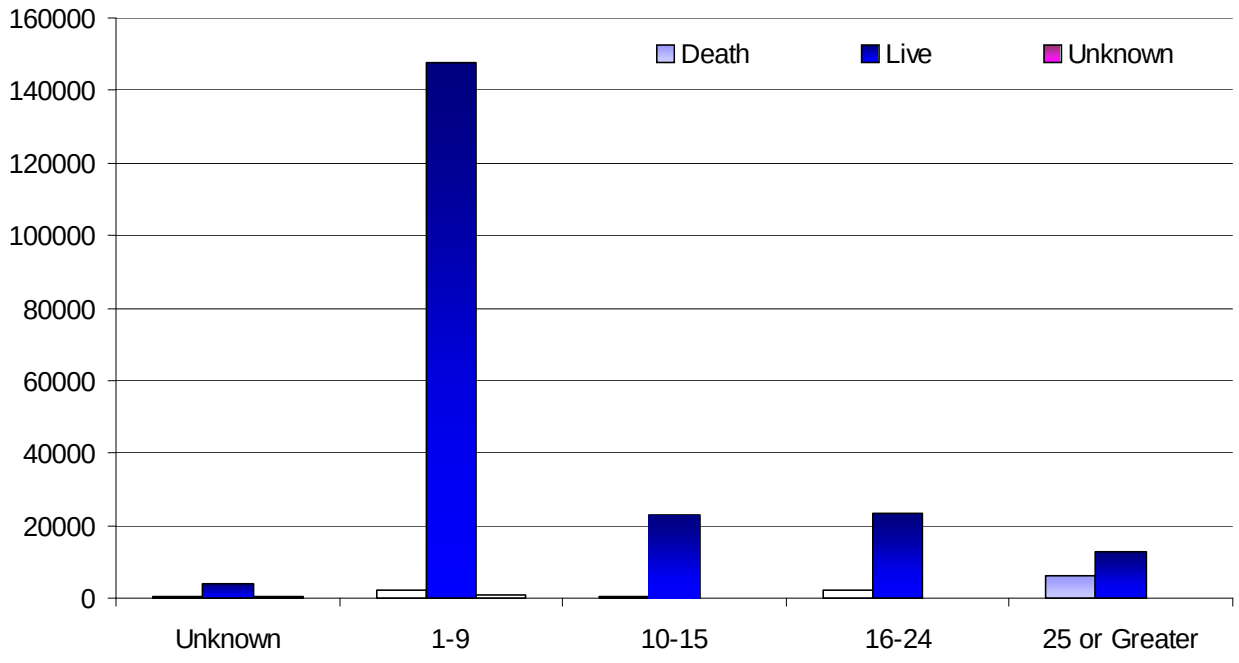


Table 35: ISS By Survival

ISS	Death	Live	Unknown	Total	Percentage
Unknown	403	3905	373	4681	2.09
1-9	2239	147591	1065	150895	67.36
10-15	594	22841	156	23591	10.53
16-24	2053	23385	157	25595	11.43
25 or Greater	6338	12753	173	19264	8.60
Total	11627	210475	1924	224026	100
Percentage	5.19	93.95	0.86	100	

Figure 38: ISS by Age Groups

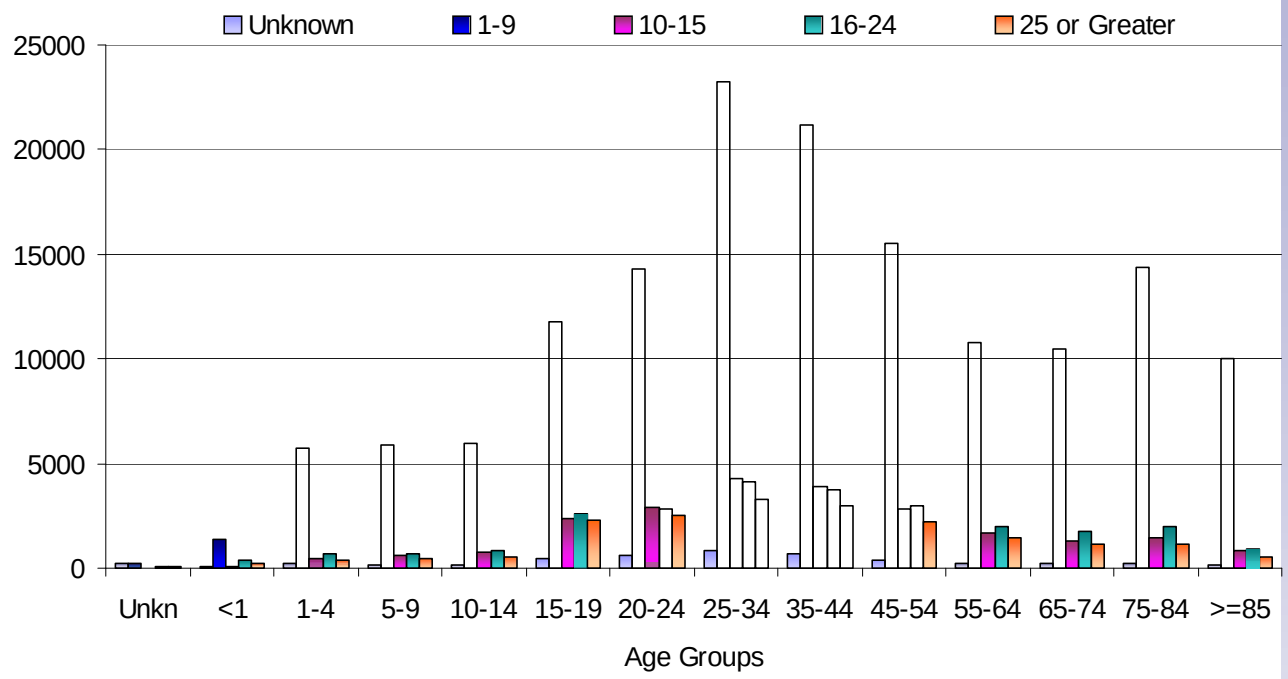


Table 36: ISS by Age Groups

	ISS					
Age	**Unknown**	**1-9**	**10-15**	**16-24**	**≥ 25**	**Total**
Unkn	203	218	26	65	58	570
<1	62	1397	91	398	229	2177
1-4	240	5700	494	715	394	7543
5-9	135	5892	628	703	427	7785
10-14	128	5990	789	870	558	8335
15-19	450	11767	2355	2566	2286	19424
20-24	630	14329	2881	2810	2540	23190
25-34	841	23277	4260	4094	3318	35790
35-44	670	21182	3936	3763	2948	32499
45-54	418	15511	2825	2975	2241	23970
55-64	263	10774	1709	2014	1447	16207
65-74	246	10468	1311	1737	1165	14927
75-84	262	14393	1436	1980	1141	19212
>=85	133	9997	850	905	512	12397
Total	4681	150895	23591	25595	19264	224026

The intensive care unit (ICU) Length of Stay (LOS) is the number of days a patient was reported to have stayed in an intensive care bed during their hospital stay. Over 90% of the trauma registry patients spent 10 days or less in the ICU.

Figure 39: ICU LOS

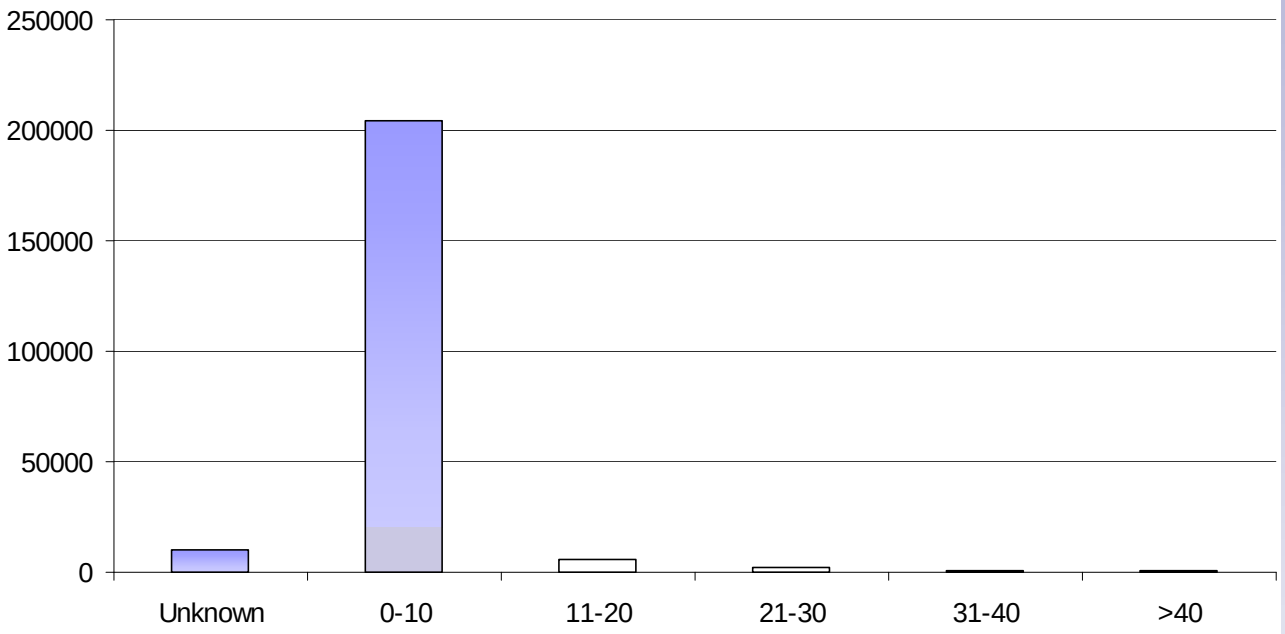


Table 37: ICU LOS

ICUDAYS	Frequency	Percent
Unknown	10334	4.61
0-10	204228	91.16
11-20	5663	2.53
21-30	2083	0.93
31-40	822	0.37
>40	896	0.40
Total	224026	100

VENTILATION SUPPORT DAYS

Ventilation (Vent) support days are the number of days a patient was reported to be on ventilator support. If a patient was ventilated during an OR visit and recovery this time is not included in the count of ventilation support days. Approximately 50% of the trauma registry patients spent 10 days or less ventilated. In approximately 47% of the patient population, ventilation days were not recorded.

Figure 40: Vent Days

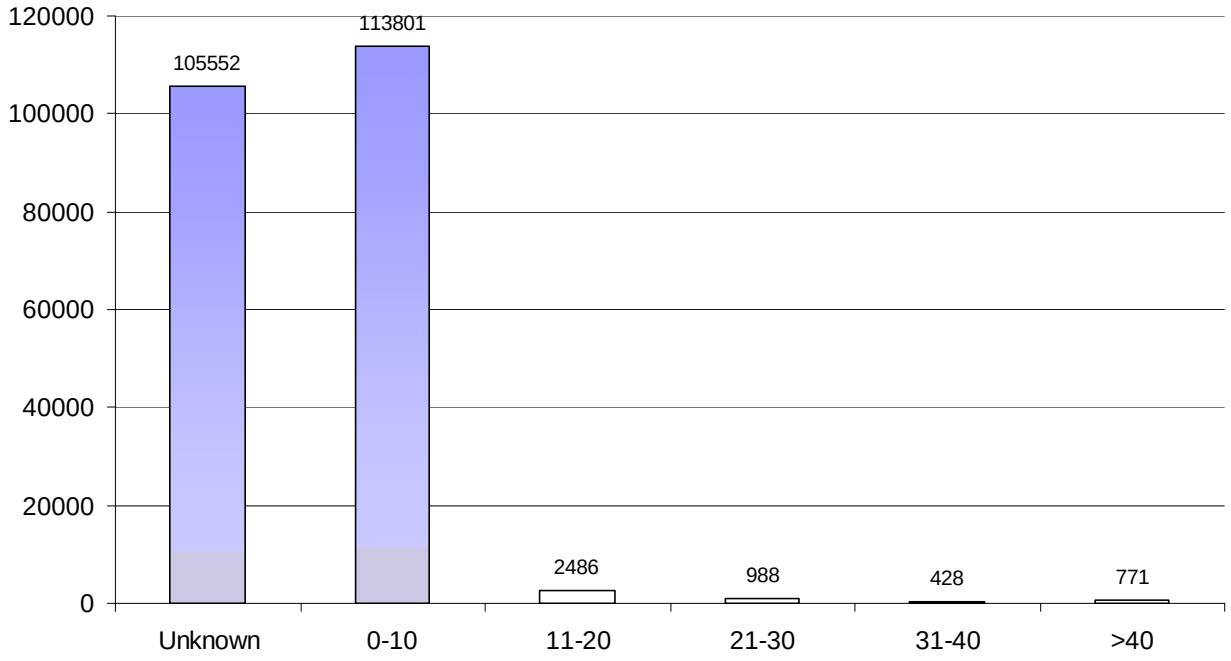


Table 38: Vent Days

Vent Days	Frequency	Percentage
Unknown	105552	47.12
0-10	113801	50.80
11-20	2486	1.11
21-30	988	0.44
31-40	428	0.19
>40	771	0.34
Total	224026	100

The hospital length of stay (LOS) is the number of days a patient was in the hospital after being admitted. Nearly 81% of all trauma registry patients spent between zero and 10 days in the hospital.

Figure 41: Hospital LOS

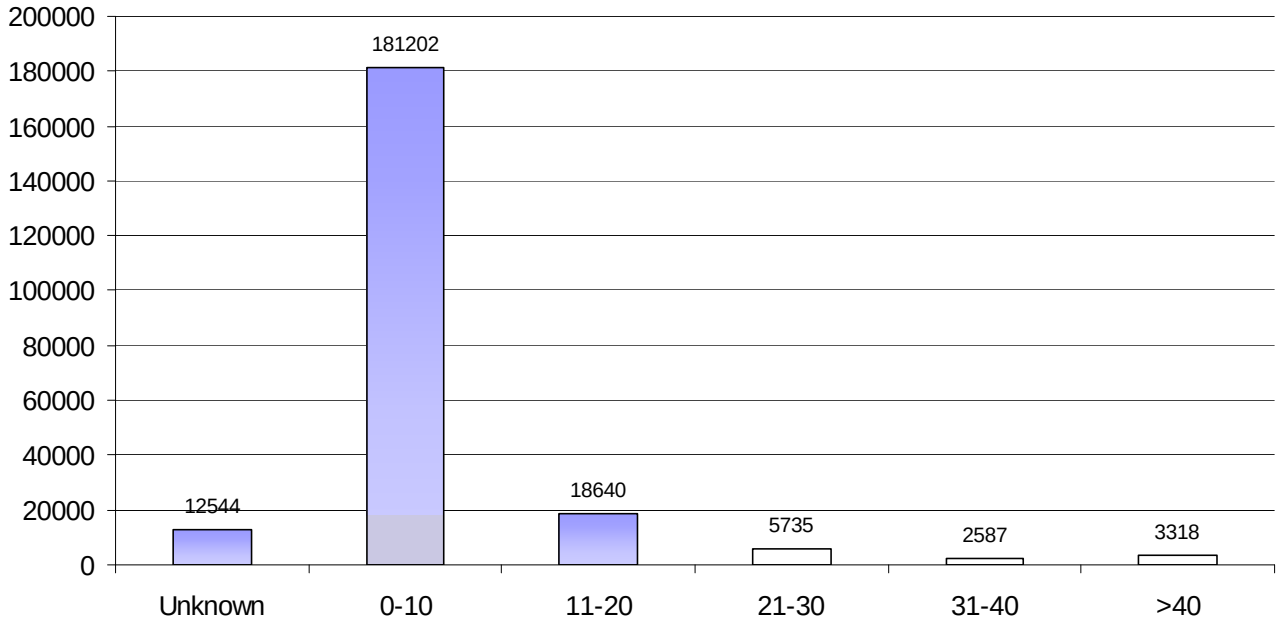


Table 39: Hospital LOS

Hospital LOS	Frequency	Percentage
Unknown	12544	5.60
0-10	181202	80.88
11-20	18640	8.32
21-30	5735	2.56
31-40	2587	1.15
>40	3318	1.48
Total	224026	100

The hospital disposition is the location to which the patient was released when leaving the hospital. Approximately 67% of the trauma registry patients were discharged home.

Figure 42: Hospital Disposition

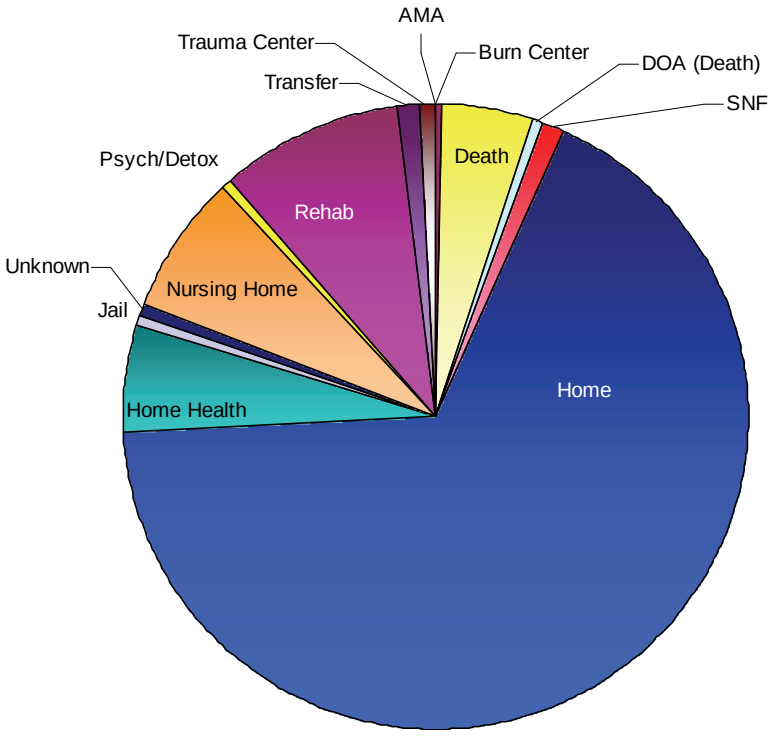


Table: 40 Hospital Disposition

Hospital Disposition	Frequency	Percentage
AMA	163	0.07
Burn Center	594	0.27
Death	10519	4.70
DOA (Death)	1110	0.50
SNF	2816	1.26
Home	150730	67.28
Home Health	12629	5.64
Jail	1162	0.52
Unknown	1282	0.57
Nursing Home	16569	7.40
Psych/Detox	1181	0.53
Rehab	20952	9.35
Transfer	2736	1.22
Trauma Center	1583	0.71
Total	224026	100

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DEMOGRAPHICS
Address
Age
City of Residence
Country of Residence
County of Residence
DOB
Gender
Occupation
Patient Full Name
Rave
Social Security #
State of Residence
Zip Code of Residence
INJURY
City of Injury
Country of Injury
County of Injury
Date of Injury
Location of Injury by E-Code
Mechanism of Injury (Blunt/Penetrating
Primary E-Code & Description
Safety Equipment
Secondary E-Code & Description
State of Injury
Time of Injury
Zip Code of Injury
PRE-HOSPITAL
Airway
Ambulance Run Number
Arrival Time at Hospital
Arrival time at Scene
Condition of Patient
CPR

PRE-HOSPITAL (EMS)
Departure Time
Dispatch Date & Time
EMS Provider
Fluids
GCS Components
MAST
Pulse
Respiratory Rate
RTS
Scene EMS Report
Systolic BP
REFERRING HOSPITAL
Airway
Arrival Date & Time
CPR
Discharge Date & Time
GCS Components
Hospital Transfer
Name of Referring Hospital
Pulse
Respiratory Rate
RTS
Systolic BP
ED ADMIT
Arrival Condition
Arrival Date & Time
Arrived From
Chief Complaint
Direct Admit
Discharge Date & Time
Mode of Transport
Time Anesthesia MD Called & Arrived
Time EDP Called & Arrived

ED ADMIT
Time Neuro Surgeon Called & Arrived
Time Orthopedic Surgeon Called & Arrived
Time Surgical Chief Resident Called & Arrived
Time Trauma Surgeon Called & Arrived
Trauma Team Activations & Times
ED ASSESSMENT I
Airway
Base Deficit Value
CPR
Drug Screen Results
ETOH Level
GCS Components
Hematocrit Value
Pulse
Respiratory Rate
RTS
Systolic BP
Temperature
ED ASSESSMENT II
Abdominal CT Results, Date & Time
Abdominal Ultrasound Results, Date & Time
Admitting Service
Aortogram Results, Date & Time
Arteriogram Results, Date & Time
Chest CT Results, Date & Time
Consult Services, Dates & Times
ED Disposition
Head CT Results, Date & Time
OR Disposition
Peritoneal Lavage Results, Date & Time
HOSPIAL DIAGNOSIS
AIS Codes
Diagnosis Codes

HOSPIAL DIAGNOSIS
Injury Severity Score (ISS)
Probability of Survival
PROCEDURES
Date & Time of Procedure
ICD-9 Procedure Codes
OP Location
OR Visit Number
COMPLICATIONS
Complication Category
TRAC Code
HOSPITAL OUTCOME
23 Hour Observation
Autopsy
Cause of Death
Discharge Date & Time
Discharge Service
Hospital Disposition
Hospital LOS
ICU LOS
Organ Donation
Vent Days
FINANCIAL
Hospital Charges
Insurance - Primary & Secondary
Reimbursed Charges
CUSTOM
ED Thoracotomy
Referring Hospital Report Status
Trauma Center Level
Vehicle Position