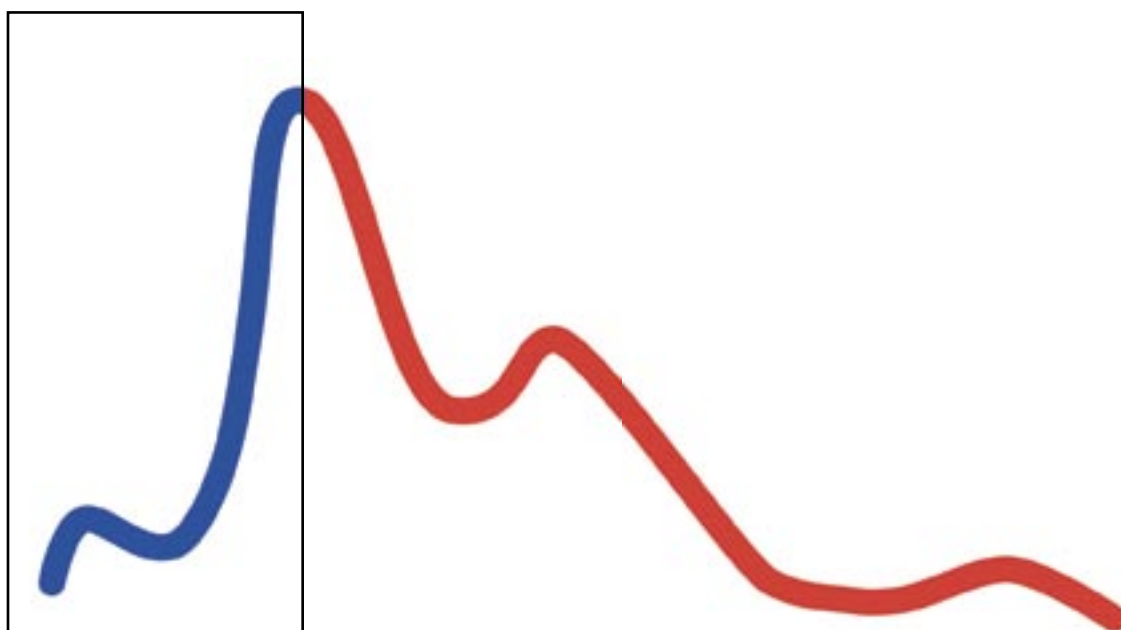


# NATIONAL TRAUMA DATA BANK PEDIATRIC REPORT 2004



**NTDB**<sup>TM</sup>  
NATIONAL TRAUMA DATA BANK



**Dataset Version 4.3**

**NTDB Annual Report 2004**

Edited by John J. Fildes, MD, FACS, Chair

**American College of Surgeons Committee on Trauma Leadership**

J. Wayne Meredith, MD, FACS  
Chair, Committee on Trauma

David B. Hoyt, MD, FACS  
Medical Director, Trauma Office  
Division of Research and Optimal Patient Care  
American College of Surgeons

**National Trauma Data Bank Committee**

Palmer Q. Bessey, MD, FACS  
David E. Clark, MD, FACS  
Jeffrey S. Hammond, MD, FACS  
Michael L. Hawkins, MD, FACS  
Michael D. McGonigal, MD, FACS  
Sidney F. Miller, MD, FACS  
Frederick H. Millham, MD, FACS  
Arthur L. Ney, MD, FACS  
Michael Rhodes, MD, FACS  
Glen H. Tinkoff, MD, FACS  
David E. Wesson, MD, FACS  
José A. Acosta, MD, FACS  
Arthur Cooper, MD, FACS  
Samir M. Fakhry, MD, FACS  
Richard J. Fantus, MD, FACS  
Ronald D. Robertson, MD, FACS

**Pediatric Surgery Subspecialty Group**

Arthur Cooper, MD, FACS  
Mary E. Fallat, MD, FACS  
Robert P. Foglia, MD, FACS  
Henri R. Ford, MD, FACS  
Victor F. Garcia, MD, FACS  
William D. Hardin, MD, FACS  
B.J. Hancock, MD, FACS  
David P. Mooney, MD, FACS  
L.R. Scherer, MD, FACS  
Perry W. Stafford, MD, FACS  
Anthony Stallion, MD, FACS  
Joseph J. Tepas, MD, FACS  
David E. Wesson, MD, FACS

**American College of Surgeons Staff**

Melanie Neal, NTDB Manager  
Henry Gunawan, Senior Programmer  
Tina Kourtis, NTDB Coordinator  
Howard Tanzman, Information Services Director

## ***Acknowledgements***

*The American College of Surgeons Committee on Trauma wishes to thank the Health Resources and Services Administration (HRSA) and the National Highway Traffic Safety Administration (NHTSA) for their support of the NTDB.*

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## FOREWORD

This has been a milestone year for the American College of Surgeons' National Trauma Data Bank (NTDB). In 2002, the NTDB was challenged to expand the data bank and make information more accessible to users. The NTDB has met and exceeded these goals by accruing over 1.2 million records to date, with almost 500,000 new records this year.

In addition, NTDB now provides information in several formats for online users, tailored to their needs and levels of knowledge. Perhaps most exciting is the new online analytic processing feature that allows users to make their own tables and graphs for use in presentations.

Since its inception in 1989, the National Trauma Data Bank has been a vital and dynamic component of the American College of Surgeons' approach to improving care for the surgical patient through data gathering and research. As we support the surgeons of the 21<sup>st</sup> century, the College must provide opportunities for their active participation in the improvement of patient care. We will continue to turn to the wealth of information contained in NTDB in our quest to find ways to deliver better surgical care. Many researchers have used the NTDB to explore important issues and to help answer questions about surgical trauma care. Hospitals count on NTDB benchmarking reports as they continually evaluate and improve performance.

The American College of Surgeons is dedicated to improving the care of the surgical patient and to safeguarding standards of care in an optimal and ethical practice environment. We are pleased to offer the NTDB as a tool for surgeons and the health care community as we work together toward the goal of optimal patient care.

Thomas R. Russell, MD, FACS  
Executive Director  
American College of Surgeons

## FOREWORD

The Department of Health and Human Services (DHHS) is committed to the collection of trauma care data that will increase the quality of health care delivery in the United States. The long-term strategy of the Health Resources and Services Administration's (HRSA's) Trauma-Emergency Medical Services (EMS) Systems Program is to (1) promote national standardization of key trauma data elements and definitions and (2) enhance States' collection and use of meaningful trauma data to improve trauma care outcomes.

The American College of Surgeons (ACS) is to be commended for the development of and dedication to the National Trauma Data Bank's (NTDB's) efforts to collect and report trauma care data. The Trauma-EMS Systems Program, along with its Federal partners, the Centers for Disease Control and Prevention (CDC) and the National Highway Traffic Safety Administration (NHTSA), continue to promote the NTDB and the State Trauma System Managers in their efforts to contribute valuable trauma care data.

Quality data will allow health care providers, policymakers, researchers, and both community and professional organizations to further establish a coordinated approach to trauma care and injury prevention. Trauma data will provide important information at the local, State, and national levels to achieve the following goals:

- Evaluate and improve the timeliness, appropriateness, and quality of patient care.
- Provide a system for comparing patient outcomes across service areas and provider groups.
- Identify environments in which individuals are at high risk for traumatic injuries.
- Prioritize and evaluate public health interventions related to injury prevention.
- Provide data for trauma care and systems benchmarking.
- Support the improvement of processes in health care delivery.

Ultimately, the information from both the NTDB and State Trauma Registries can lead to actions that reduce morbidity and mortality from traumatic injuries through a comprehensive process. This process will encourage the cooperation and coordination of all health care providers.

Congratulations to the ACS Committee on Trauma for its vision, leadership, and cooperation in this most critical component of our Nation's health care system, the collection of national trauma care data through the NTDB.

Cheryl A. Anderson, Director  
Trauma-EMS Systems Program  
Division of Health Care Emergency Preparedness  
Office of Special Programs  
Health Resources and Services Administration  
Department of Health and Human Services

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## **Pediatric Editors' Note**

The Annual Pediatric Report of the National Trauma Data Bank (NTDB), Version 4.3 represents and reflects the collaborative efforts between the National Trauma Data Bank Committee and the Pediatric Surgery Specialty Group of the American College of Surgeons Committee on Trauma. As with the overall version, it is an updated analysis of the largest aggregation of pediatric trauma registry data ever assembled. The pediatric component of the NTDB contains over 235,000 records from 474 trauma centers in the 43 states, territories, and the District of Columbia. This represents an increase of 103,092 pediatric records from the 2003 report, and reflects the explosive growth of the pediatric component.

As is also true of the overall version, the Pediatric Annual Report Version 4.3 is based on 179,203 records from the years 1999-2003. Prior to analysis, NTDB data are subjected to a quality screening for consistency and validity on such fields as age, gender, and length of stay.

The Pediatric Surgery Specialty Group is committed to working with the National Trauma Data Bank Committee to ensure that the NTDB becomes the non-proprietary national repository for trauma center registry data for children. It is estimated that 67% of Level I and 51% of Level II centers in the United States contribute data to the NTDB, virtually all of which submit pediatric as well as adult records. Our goal is to receive data on every pediatric patient treated in every trauma center in the United States, adult or pediatric.

The purpose of this report is to inform the pediatric community, the public, and decision makers about a wide variety of issues that characterize the medical community, the public, and decision makers about a wide variety of issues that characterize the current state of care for injured infants, children, and adolescents in our country. It has implications in many areas including epidemiology, injury control, research, education, acute care, and resource allocation. This effort is in keeping with the mission of the American College of Surgeons Committee on Trauma (COT) which is "To improve the care of the injured through systematic efforts in prevention, care, and rehabilitation," and the mission and vision of its Pediatric Surgery Specialty Group which are "To serve as the source of pediatric resources, support, and expert advice for the American College of Surgeons Committee on Trauma and its standing and ad hoc subcommittees," and "To ensure that all work products of the American College of Surgeons Committee on Trauma are of the highest possible value with respect to pediatric aspects of trauma care."

The NTDB is an exciting program that has the demonstrated ability, and the future potential, to significantly improve the care of injured patients in our country. The NTDB Committee and Pediatric Surgery Specialty Group would like to thank all the adult and pediatric trauma centers that contributed pediatric data and hope that this report will attract new participants. The full National Trauma Data Bank Pediatric Report 2004, Version 4.3 is available on the ACS website as a PDF file and a PowerPoint presentation at <http://www.ntdb.org>. With your support for the NTDB, we can look forward to an even more comprehensive and useful pediatric report in 2005. Thank you on behalf of the American College of Surgeons, and all of America's children.

John Fildes, MD, FACS  
Chair, National Trauma Data Bank Committee

Arthur Cooper, MD, FACS  
Chair, Pediatric Surgery Specialty Group



## List of research projects

As the NTDB welcomes new participants and continues to maintain a large group of loyal hospitals, the database is growing and becoming the most comprehensive reflection of trauma care in the United States. Investigators who are able to probe this information in the most effective ways will answer questions concerning the best methods of trauma care. The table below shows a listing of all NTDB research projects, to date.

Please visit our website at [WWW.NTDB.ORG](http://WWW.NTDB.ORG) to access our online application for NTDB data.

<b>Project Title</b>
A Comparison of 2002 Trauma I Level Patients by Hospital Type
A Need for Trauma System Reorganization in the Changing Surgical Educational Environment
A New Measure of Injury Severity Based on ICD-9 Injury and Pre-Existing Condition Codes
A Phase II/III Randomized, Controlled and Open-Labeled Trial of a 2nd Generation HBOC for the Pre-Hospital Resuscitation of Hemorrhagic Shock Patients
Abdominal Gunshot Wounds
Age-Related Gender Differences in Patient Outcomes Following Trauma
ANN for Trauma Registry
Application for 2003 Malcolm Baldrige National Quality Award for Health Care
Assessment of Potential Usage of Hemostatic Bandage in Non-Military Trauma Setting
ATV Injuries
Base Deficit in the Pediatric Population: A Predictor of Outcomes?
Baseline Query for Hypertonic Saline Study
Bayesian Survival Risk Ratios
Bench Mark Data Based on ISS and Age
Benchmarking for Deaconess Hospital Trauma Services Program
Benchmarking Mortality
Benchmarking of Mortality to that of NTDB
Benchmarking of Trauma Average ISS and Trauma Mortality Rate for Baptist Health Care Pensacola
Benchmarking, Withdrawal of Care, Variability in Diagnosis & Management and Research into Evaluating, Improving, and Auditing the NTDB
Blunt Traumatic Aortic Injury
Burn Patient Mortality National Trends
Cervical Spine Injuries
Characteristics of Near Fatal Suicide
Comparative Trauma Data Analysis & Benchmarking for Wishard Hospital
Compare NTDB Outcomes for Patients with Trauma Brain Injury to Christiana Hospital
Comparing Morbidity and Mortality Rates for TLCI and TLCIII
Comparison of St. Vincent Hospital Trauma Data to National Data
Comparison of Theda Clark Regional Medical Center with other Trauma Centers
Complication Benchmarks
Complication Comparison
Coordination, Communication, Expertise, and Information Technology Use in a Dynamic Environment.
Correlation Between Number Of Daily Admissions And Outcomes Among Trauma Patients
Correlation of Injury Location to Severity
Cost of Treatment of Eldely trauma pateints vs all others with same / simal mechinism of injuries
CSI and NAT

<b>Project Title</b>
Current Screening Criteria for Blunt Cerebrovascular Injury (BCVI) May be Inadequate
Data Visualization to Identify Trauma Patients at Risk for Medical Error
Demographics And Outcome Following Heart, Lung And Heart And Lung Trauma In The Us
Determining the Cost of Trauma
Development of a Revised Injury Severity Score (RISS)
Distal Radius Fractures in Elderly Patients
Do TRISS, ICISS and ASCOT Agree on the Identity of Quality Outliers?
Does ICP Monitoring Effect Outcome in Severely Brain Injured Patients?
Early Prediction of ICU Length of Stay in Blunt Trauma Patients
Economic Impact Of Motorcycle Helmets:
Effect of AAST Injury Scale on Outcome in Pediatric Splenic Trauma
Effects of Ultrasound FAST Exam in Decreasing Time to OR in Patients with Hemoperitoneum Due to Blunt Trauma Injury
EMS Promptness Analysis
Endophthalmitis after open globe injuries
Estimation of Tissue Oxygen Saturation in Trauma Resuscitation
Evaluating Pedestrian Trauma
Evaluation of Kentucky Trauma System Using National Trauma Data Bank Data
Evaluation of NTDB as Reference Database for Trauma Center Outcome Studies
Evaluation of Outcomes in Trauma Patients with ISS 25-75
Evaulation Of Interhospital Trauma Transfers
Examination of Injury Severity and Hospital Charges by Mechanism of Injury in Pediatric Patients
Feasibility of Developing an Older Adult Trauma Triage Decision Rule
Fiscal Year Data Frm Ntdb
Focused Hospital Units
Friday The 13 <sup>th</sup> And Trauma Incidence And Severity
Full Moon Effect on Trauma Outcomes
Functional Outcome of Trauma Patients Admitted to Higher Versus Lower Level or Undesignated Centers
Functional Status Following Blunt and Penetrating Carotid Artery Injuries.
Gender Differences in Outcomes in Pediatric Trauma
Halo Vest Immobilization in the Elderly. A Death Sentence?
Head Injury Mortality
Head Trauma Research
Hospital Length of Stay After Serious Injury
ICD-9 Procedence List Validation and Recommendations
Identifying Quality Outliers using Severity-Adjusted Mortality Rates or Functional Discharge Status: Does It Make a Difference?
Impact Of Diabetes On Trauma Outcome
Impact of Obesity on Outcome of Trauma Patients
Incidence of Burn Injuries in Pediatric Population
Incidence of VAP caused by Gram-Negative Bacilli in Trauma ICU patients
Infections Complications in Trauma Patients - Does Hypothermia Increase The Risk?
Injuries in the home
Injury Prevention Priority Scoring of Gunshot Wounds
Injury Severity Measures: Comparison of Methodologies
Injury Severity Scoring Method Using CART
Intra-Abdominal Peritoneal Lavage Study Following Abdominal Trauma

<b>Project Title</b>
ISS and Mortality Patients 8 Years Old and Under. To Compare with our Data.
Length of Stay and Discharge Status
Length of stay for trauma patients versus Milliman and Robertson
Mandible fracture and carotid trauma
Mass Casualty Disaster Simulation - Patient Research
Massachusetts General Hospital Trauma Outcomes
Medical College of Virginia Trauma Data
Morbidity and Mortality Associated with Airbag Deployment in Children
Mortality After Pelvic Fracture: The Effects of Hemodynamic Shock and the Use of External Fixation
Mortality associated with Surgical Intensive Care Unit Admission on Weekends
Multilevel Modeling of Trauma Outcomes
National Assessment of Alcohol-related Injury: Do We Have An Estimate of the Impact?
National Trauma Data Bank Annual Report 2002 Filtered for Level I and ACS Verified Facilities
National Trends In The Management And Outcomes Of Severe Splenic Injuries
National Variability in Prehospital Care for Trauma
Neural Network Decision Algorithm for Pre-Hospital Injury Severity Risk Assessment
Never Too Old: National Survey of Intentional Injury in the Elderly using the NTDB
Noscomial Pneumonia Review
NSQIP and NTDB
Optimal Timing of Spinal Fixation of Traumatic Spinal Injuries
Outcome data by ISS
PA Trauma Foundation vs. National TRACS ISS 16
Parkland's Trauma Program Benchmark Review
Partnership for Development and Dissemination of Outcomes Measures for Injured Children
Patterns of Injury Sustained by Rear Seat Passengers
Patterns of Injury with Seatbelt Use
Patterns of Trauma in Middle Aged Motorcyclists
Pediatric Mortality after MVA
Penetrating Cardiac Injuries
Penetrating Pulmonary Injuries
Popliteal Artery Injuries
Potential Patient and System Factors that Influence Discharge from Acute Care to Inpatient Rehabilitation
Predicting Financial Outcomes In Trauma
Predictive Value of Early Hospital Assessment on Outcome in Pediatric Trauma.
Predictors Of Length Of Stay After Trauma
Presence of Emergency Medicine Residency Programs at Level I Trauma Centers: Is There an Effect on Trauma Patient Outcome?
Preventing Injuries From Falls In The Elderly
Prognostic Indicators Predictive of Mortality in Geriatric Patients: When is Resuscitation Futile?
Quality Chasm In Trauma Care - Does One Exist?
Quality Trauma Care Can Be Delivered by General Surgeons in Practice at a Level II Trauma Center
Query Ntdb For Specific Injuries And The Surgical Procedures Performed As A Result Of Them For Directional Guidance In A Trau
Race/Ethnicity & Seriousness of Assault
Racial Disparities In Injury Mortality
Racial disparities in trauma: Injuries and outcomes
Rapid Infusion

<b>Project Title</b>
Rate of Operation for Liver/Splenic Trauma in Children
Re-Calculation of TRISS Survival Statistic Co-Efficients Utilizing the NTDB Data Set
Relationship Of Time To Operative Management And Patient Outcomes
Request for NTDB Data Points
Resource Utilization In The Management Of Severe Renal Trauma.
Retrospective Analysis Of Traumatic Esophageal Injury
Risk Assessment in Blunt Thoracic Trauma
Role of Pre-Hospital ALS Interventions in Trauma
San Joaquin County Trauma Planning - TRISS Study
Serious Inflicted Neurotrauma in Trauma Centers
SHOCs
Simplifying the TRISS Methodology
Spinal Cord Injury
State of Tennessee
Survival Rates of Ruptured Thoracic Aortas Repairs by Age Groups
Survivor Risk Ratio Estimation
Temporal Factors in the Quality of Trauma Care
The Burden of Suicide on Trauma Centers
The Combinations of Race and Ethnicity on Rates and Results of Drug and Alcohol Screening in Trauma Patients
The Effect of Payment Source and Race on Resource Utilization and Outcomes Following Major Trauma
The Effect of Pulmonary Artery Catheter use on Mortality in Critically Injured Patients
The Effect of Vena Cava Filters on the Survival of Trauma Patients at High Risk for Venous Thromboembolism.
The Impact of Volume on Geriatric Trauma Outcome.
The Influence Of Age On Survivorship From Pancreatic Injury
The Influence Of Altitude On Incidence And Type Of Trauma
The Sonography Outcomes Assessment Program
The Use of A1 Pre-Hospital Triage of Injured Children
The Use of Pre-Hospital Data for Mortality Prediction: A Comparison of Neural Networks with Revised Trauma Score
Thrombotic Complications Following Trauma: Incidence and Risk Factors
Timely Arrival Of Trauma Surgeon In Ed
To Establish Risk Adjusted Outcomes For Patients
Tracheobronchial Injuries Following Blunt Trauma
Trauma
Trauma and Pregnancies Risk Factors and Outcomes
Trauma in the Elderly
Trauma Report Card
Trauma Services: Benchmarking
Traumatic Hip fracture surgery outcomes and complications
Undergraduate Study module
Ureteral Trauma in Childhood
Urologic Trauma Care
Use of Double Contrast CT scan in Blunt Abdominal Trauma
Variation in Rates of Tracheostomy in Trauma Patients with Acute Respiratory Failure
Ventilator Associated Pneumonia in Trauma Patients

<b>Project Title</b>
Violence Prevention in Pediatric Population
Volume-Outcome Relationship in Trauma Centers: Is It a Function of Patient Risk?

**National Trauma Data Bank  
Annual Pediatric Report 2004  
Dataset Version 4.3**

## **Executive Summary**

The National Trauma Data Bank (NTDB) is the largest aggregation of trauma registry data ever assembled. It contains over one million records from 474 U.S. trauma centers. The 2004 Annual Pediatric Report reviews the combined data set for the period 1999 – 2003, containing 179,203 records. The goal of NTDB is to inform the medical community, the public, and decision makers about a wide variety of issues that characterize the current state of care for injured persons in our country. It has implications in many areas including epidemiology, injury control, research, education, acute care, and resource allocation.

This effort is in keeping with the mission of the American College of Surgeons (ACS) Committee on Trauma (COT) which is “To improve the care of the injured through systematic efforts in prevention, care, and rehabilitation”.

### NTDB Hospitals

- 474 hospitals submitted data.
- 127 are verified as Level I, representing 67% of Level I centers.
- 135 are verified as Level II, representing 51% of Level II centers.
- 38 are verified as Level III, representing 15% of Level III centers.
- 50 are verified as Level IV and Level V, representing 11% of Level IV and V centers.

### Patient Characteristics

- NTDB has accrued a total of 1,218,452 records, with 700,000 cases submitted for the period 1999 to 2003.
- The age distribution of patients in NTDB peaks from ages 17 to 19, representing patients injured in Motor Vehicle Traffic related incidents and by Firearm.
- 0.98% of patients died in the ED.
- 54% of patients are admitted to medical-surgical wards.
- 18% are taken directly to the operating room (OR).
- 22% are admitted to the intensive care unit (ICU).

### Mechanism of Injury

- Motor Vehicle Traffic related injuries account for 43.3% of pediatric cases in the NTDB
  - There is a dramatic rise in these injuries beginning at age 14 and peaking around age 19.
  - These injuries are associated with the largest number of hospital and ICU days utilized.
  - These injuries accounted for 53% of mortalities.
- Falls account for 16.7% of pediatric cases in the NTDB.
  - The incidence of Falls peaks around 19 years of age.
  - Falls are associated with the second largest number of hospital and ICU days utilized.
  - Falls account for 3% of mortalities.
- Struck By, Against and Transport, Other are the next most frequent categories, representing 7.4% and 6.4% of pediatric injuries, respectively. Transport, Other includes injuries from snow vehicles, off road vehicles, animal drawn vehicles, and water transport. The category Struck By, Against includes injuries from falling objects, building collapse, etc. See Appendix D for details on these injury categories.
- Firearms account for 5% of pediatric injuries in NTDB.

- Firearm injuries peak at 19 years of age, earlier than Motor Vehicle Traffic related injuries.
- Firearm injuries accounted for 21% of mortalities.
- Unintentional injuries accounted for 87% of hospital days, while intentional injuries accounted for 12% and a small percentage were undetermined.

#### Injury Severity Score

The Injury Severity Score (ISS) is a system for numerically stratifying injury severity. The ISS system has a practical range of 1-75 and risk of death increases with a higher score. NTDB categorizes ISS from 1 – 9 as Minor; 10 – 15 as Moderate; 16 – 24 as Severe; and greater than 24 as Very Severe.

- Nearly two thirds (72%) of pediatric patients suffer Minor injuries, and the remaining third are distributed nearly equally among Moderate, Severe, and Very Severe injuries.
- Average length of stay (LOS) increases by approximately two days for each consecutive severity grouping.
- The largest group (ISS 1-9) had the shortest average LOS (2.38 days), yet accounted for almost half (44%) of the total hospital days due to its size.
- The Moderate group (ISS 10-15) had an average ICU length of stay 1.35 days, accounting for 9% of all ICU days.
- The Severe group (ISS 16-24) had an average ICU length of stay 2.82 days, accounting for 23.73% of all ICU days.
- The Very Severe group (ISS > 24) had an average ICU length of stay 6.35 days, accounting for 43.57% of all ICU days.

#### Payment

- Medicaid is the largest single payment category at 22.75%.
- Managed Care accounts for 22.64%.
- Commercial Insurance accounts for 14.67%.
- Self-Pay accounts for 14.15%.

#### Mortality

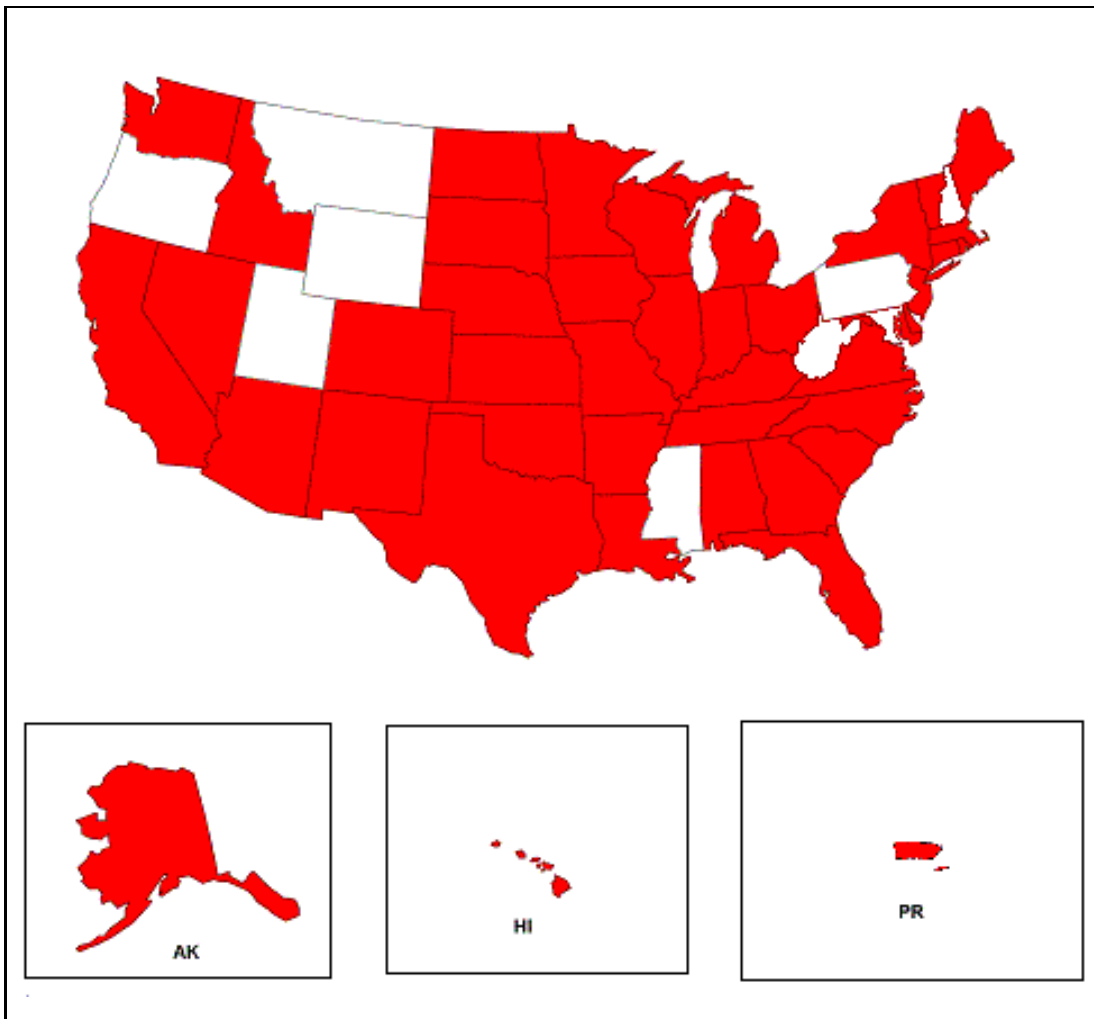
- The largest number of pediatric deaths is caused by Motor Vehicle Traffic related injuries, followed by Firearm and Other Specified and Classifiable.
- Motor Vehicle Traffic related deaths occur in 3.73% of cases.
- Other Specified and Classifiable result in death in 5.7% of cases.
- Firearms are associated with death in 13% of cases, the highest percentage of any penetrating injury.
- Pedestrian injuries are associated with death in 3.67% of cases, the highest percentage for all blunt injuries.
- Fire/Burn is associated with death in 1.84% of cases.
- The percentage of death was highest in the group aged < 1 year old.
- Deaths by age peak around ages 19 years.
  - Motor Vehicle Traffic and Firearms account for the peak.
- Firearm deaths rise dramatically from 12 to 19 years.
- Females fare better than males with regard to mortality in all severity groupings beginning in early adulthood.

#### Comments

We hope that this document has expanded your understanding of who is admitted to trauma centers in the United States, and why. We further hope that your opinions will be informed by this data, and that you will find ways to share this data with other audiences. Finally, we hope this report has piqued your interest to look more deeply at specific problems in the field of injury using the NTDB as a resource.

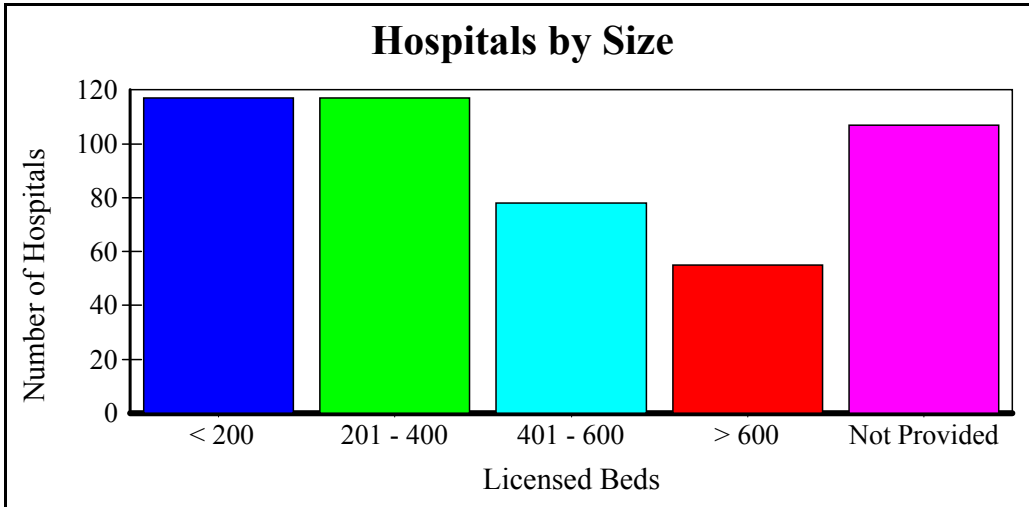
The full National Trauma Data Bank Pediatric Report 2004 is available on the ACS website as a PDF file and a PowerPoint presentation at <http://www.ntdb.org>.





**Figure 1**

States and U.S. territories from which one or more hospitals have submitted data to the NTDB are shown in red.



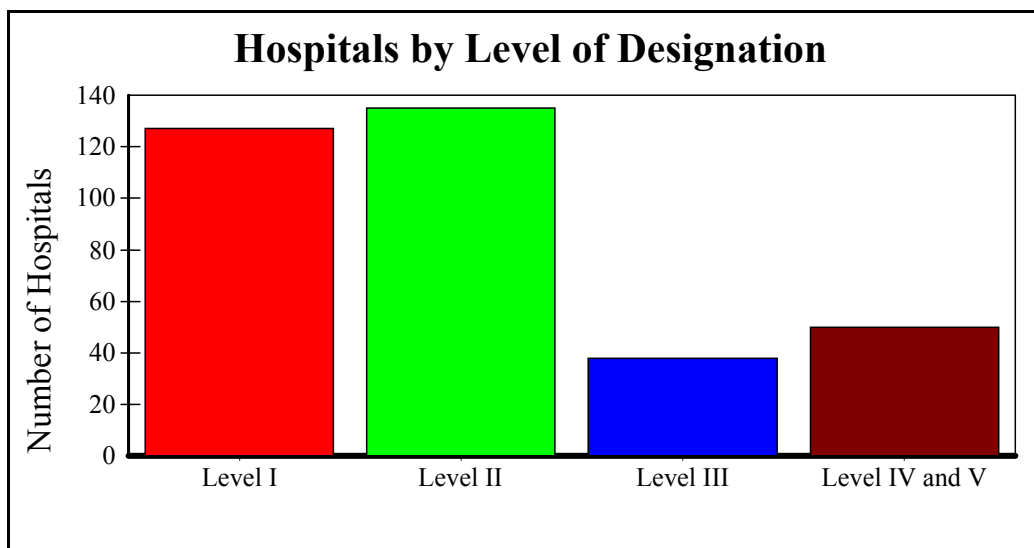
**Figure 2A**

Size of hospitals submitting data to the NTDB as indicated by number of licensed beds. Total N = 474.

Bed size	Number of Hospitals by Size	% of Total Hospitals by Size
< 200	117	24.68%
201 - 400	117	24.68%
401 - 600	78	16.46%
> 600	55	11.60%
Not Provided	107	22.57%
<b>Totals</b>	<b>474</b>	

**Figure 2B**

Hospitals by size. (Percentage of total hospitals by size = number of hospitals by bed size divided by the total number of hospitals X 100).

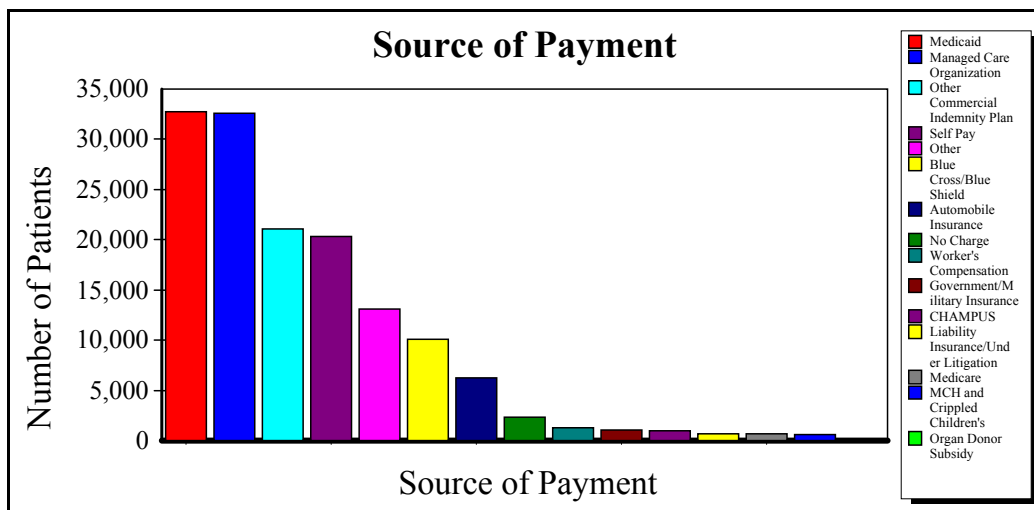


**Figure 3A**  
 Number of hospitals submitting to the NTDB ranked by level of designation. Total N = 474.

Level of Designation	Number of Hospitals Submitting to the NTDB	Number of All Trauma Centers in the U.S.*	Percentage of Submitting Hospitals
I	127	190	67.00%
II	135	263	51.00%
III	38	251	15.00%
IV and V	50	450	11.00%
Level not designated	27	0	
Level not provided	97	0	
<b>Totals</b>	<b>474</b>	<b>1154</b>	

**Figure 3B**  
 Percentage of submitting hospitals for each level of designation. (Percentage of submitting hospitals = number of hospitals submitting to the NTDB divided by the number of all trauma centers X 100 by level of designation).

\* Number of all trauma centers in the U.S. were generated from JAMA, March 26,2003-Vol 289, No.12 authored by Ellen J. MacKenzie, PhD, David B. Hoyt, MD, John C. Sacra, MD, Gregory J. Jurkovich, MD, Anthony R. Carlini, MS, Sandra D. Teitelbaum, MLS, Harry Teter, Jr, LLB.



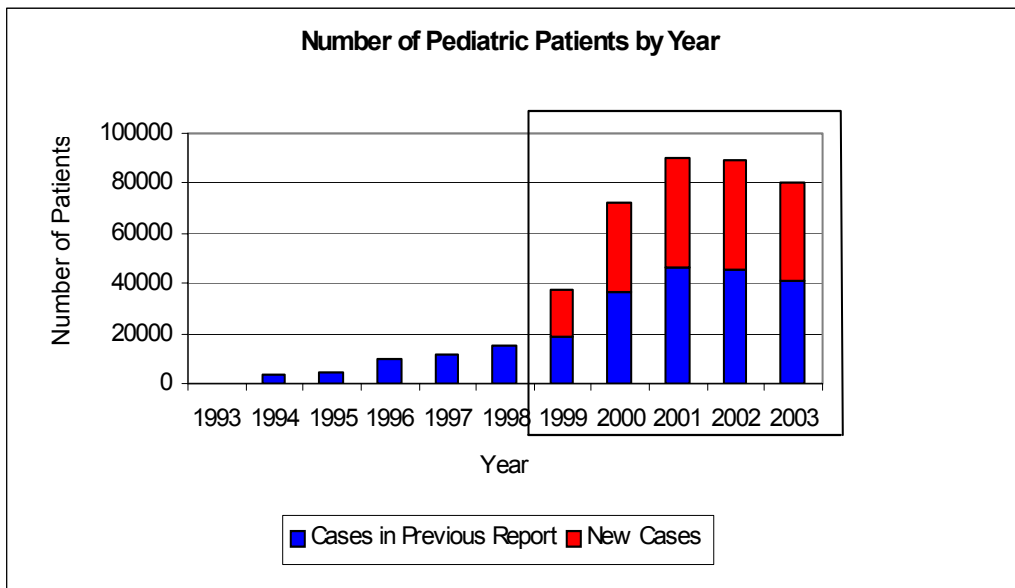
**Figure 4A**

Source of payment for hospital charges. Total patients with known source of payment = 143,814.

Source of Payment	Number of Patients	% of Total Patients
Medicaid	32,718	22.75%
Managed Care Organization	32,563	22.64%
Other Commercial Indemnity Plan	21,096	14.67%
Self Pay	20,354	14.15%
Other	13,084	9.10%
Blue Cross/Blue Shield	10,103	7.03%
Automobile Insurance	6,247	4.34%
No Charge	2,345	1.63%
Worker's Compensation	1,263	0.88%
Government/Military Insurance	1,089	0.76%
CHAMPUS	996	0.69%
Liability Insurance/Under Litigation	698	0.49%
Medicare	672	0.47%
MCH and Crippled Children's	584	0.41%
Organ Donor Subsidy	2	0.00%
<b>Totals</b>	<b>143,814</b>	

**Figure 4B**

Percentage of patients by source of payment. (Percentage of patients = number of patients by source of payment divided by the number of patients X 100).



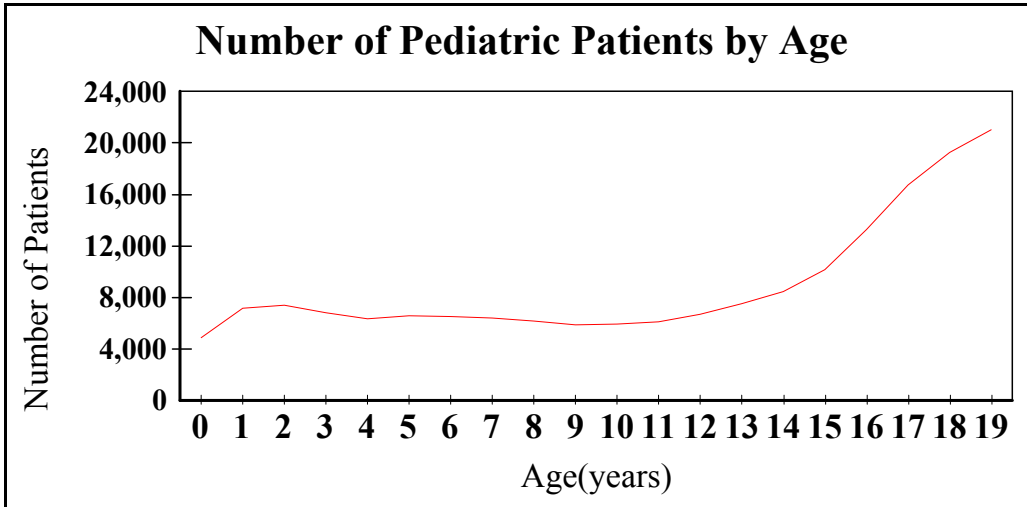
**Figure 5A**

Yearly comparison of all patients in the NTDB. The NTDB currently contains 235,042 pediatric patients records. The 2004 Annual Report reviews the combined data set for the period 1999 - 2003 that contains 179,203 records, highlighted in the box. Total N = 179,203.

Year	Total Number of Patients for Year 1993 - 2003	Number of Patients for 2004 Report
1993	238	0
1994	3,483	0
1995	4,678	0
1996	10,186	0
1997	11,527	0
1998	15,542	0
1999	18,920	*18,360
2000	36,698	*35,318
2001	46,773	*43,682
2002	45,914	*42,978
2003	41,083	*38,865
<b>Totals</b>	<b>235,042</b>	<b>179,203</b>

**Figure 5B**

\* Some records were filtered from the analysis for this report due to inconsistencies or missing data, based on the filters shown in Appendix C.



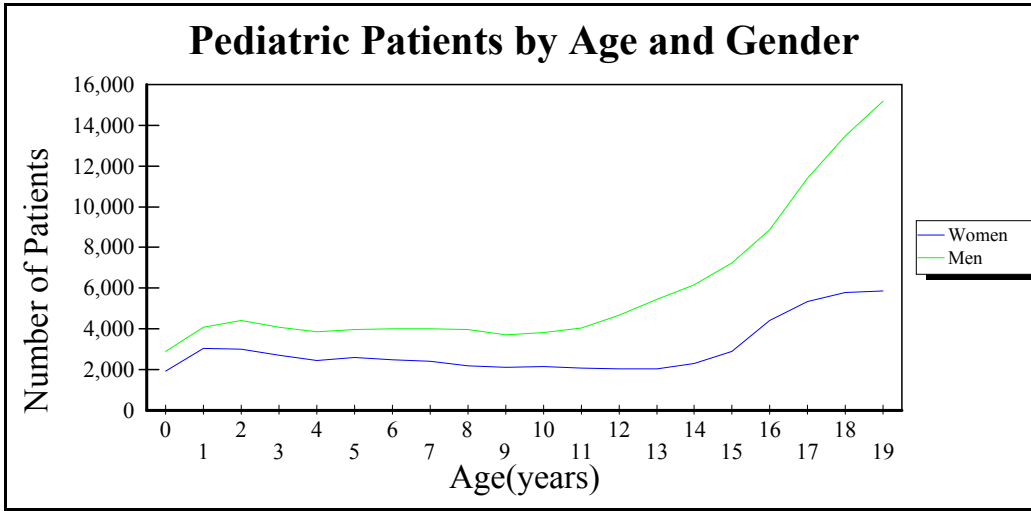
**Figure 6A**

Number of patients at each age from 0 to 19. Total N = 179,203.

Age Range	Number of Patients	% of All Patients
< 1	4,861	2.71%
1-4	27,675	15.44%
5-9	31,494	17.57%
10-14	34,738	19.38%
15-19	80,435	44.88%
<b>Totals</b>	<b>179,203</b>	

**Figure 6B**

Percentage of all patients = number of patients by age range divided by total number of patients X 100.



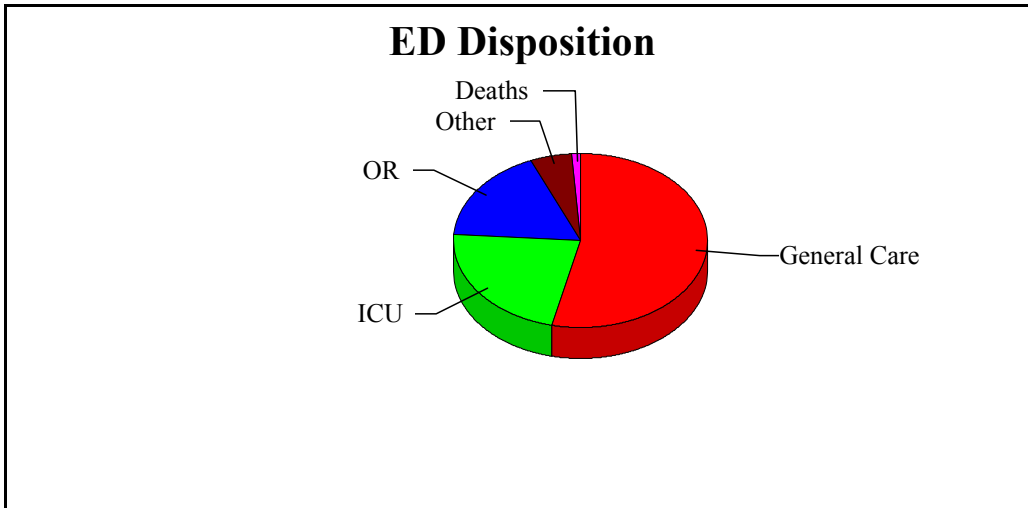
**Figure 7A**

Number of men and women at each age from 0 to 19. Total N = 179,058.

Age Range	Number of Patients	Number of Patients Men	% of Age Group Men	Number of Patients Women	% of Age Group Women
< 1	4,844	2,902	59.91%	1,942	40.09%
1-4	27,657	16,447	59.47%	11,210	40.53%
5-9	31,470	19,651	62.44%	11,819	37.56%
10-14	34,705	24,108	69.47%	10,597	30.53%
15-19	80,382	56,102	69.79%	24,280	30.21%
<b>Totals</b>	<b>179,058</b>	<b>119,210</b>		<b>59,848</b>	

**Figure 7B**

Percentage of patients for men and women at each age range from 0 to 19. (Percentage of patients by gender = number of patients by gender divided by the number of patients X 100 by age range).



**Figure 8A**

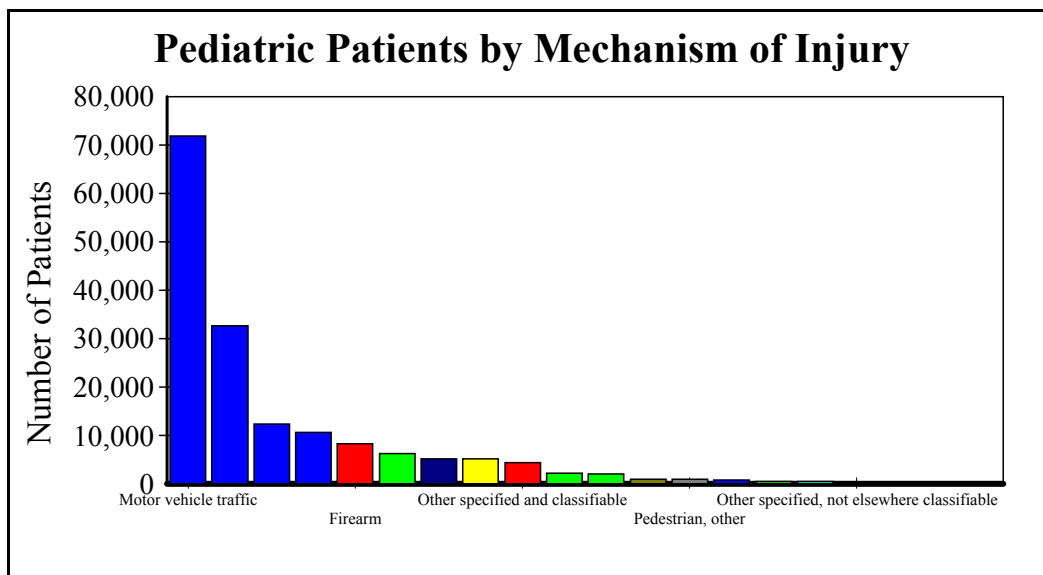
Proportional distribution of 163,542 patients treated in the emergency department before admission or death. General care was defined for the following ED dispositions: burn, ED observation, floor, and telemetry. Other was defined for the following ED dispositions: discharged SNF, unable to complete treatment. Total N = 163,542.

ED Disposition	Number of Patients	Percentage of ED Disposition Patients
General Care	87,890	53.74%
ICU	36,436	22.28%
OR	28,678	17.54%
Other	8,931	5.46%
Deaths	1,607	0.98%
<b>Totals</b>	<b>163,542</b>	

**Figure 8B**

Percentage of ED disposition = number of patients by ED disposition divided by total number of patients X 100.





**Figure 9A**

Proportional distribution of patients, grouped by mechanism of injury. Total N = 165,718.

Mechanism of injury was defined in Appendix D.

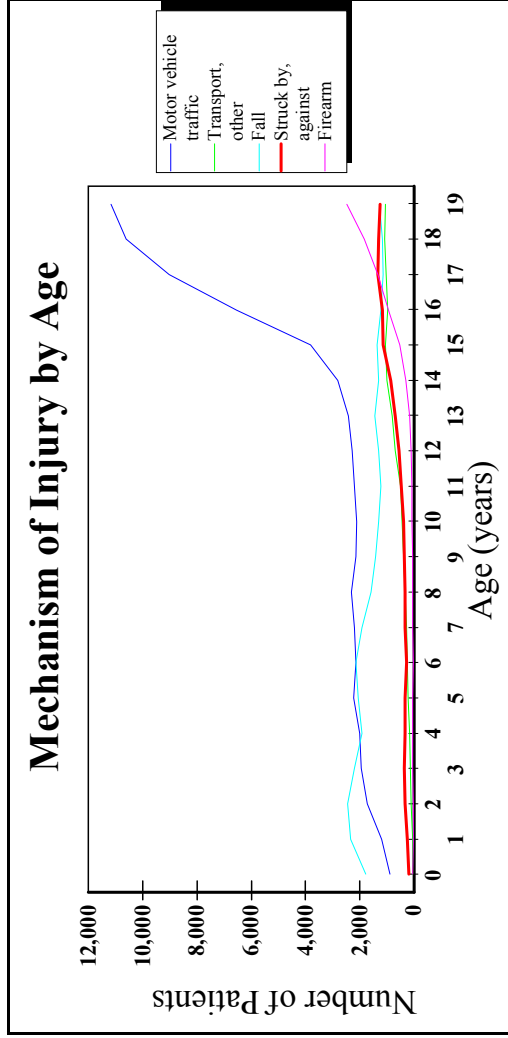
Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Green bars represent unspecified and other mechanisms. Yellow bar represents burn mechanism of injury.

Mechanism of Injury	Number of Patients	% of Total Patients by Mechanism of Injury
Motor vehicle traffic	71,782	43.32%
Fall	32,624	19.69%
Struck by, against	12,285	7.41%
Transport, other	10,665	6.44%
Firearm	8,309	5.01%
Pedal cyclist, other	6,202	3.74%
Fire/burn	5,223	3.15%
Cut/pierce	5,205	3.14%
Other specified and classifiable	4,456	2.69%
Natural/environmental	2,185	1.32%
Unspecified	2,025	1.22%
Machinery	953	0.58%
Pedestrian, other	900	0.54%
Drowning/submersion	795	0.48%
Poisoning	528	0.32%
Overexertion	477	0.29%
Other specified, not elsewhere classifiable	398	0.24%
Suffocation	376	0.23%
Other specified, not elsewhere	257	0.16%
Adverse effects	73	0.04%
<b>Totals</b>	<b>165,718</b>	

**Figure 9B**

Percentage of total patients by mechanism of injury = number of patients by mechanism of injury divided by total number of patients X 100.



**Figure 10A**

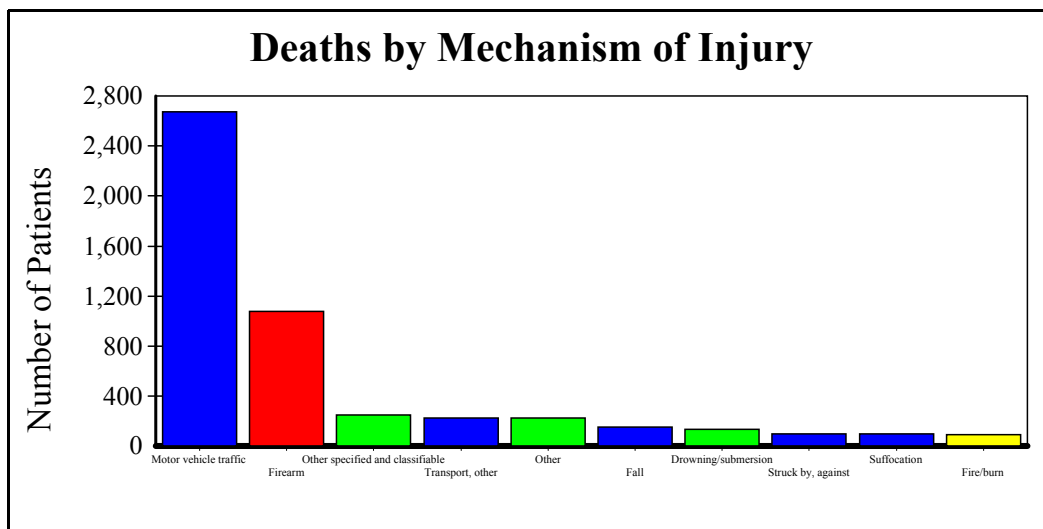
Number of patients injured by the most common mechanism of injury categories at each age from 0 to 19. Total N = 135,665.

Mechanism of injury was defined in Appendix D.

**Figure 10B**

Percentage of patients due to the most common mechanism of injury categories at each age range from 0 to 19. (Percentage of patients by mechanisms of injury = number of patients divided by the number of patients X 100 by mechanisms of injury and age range)

Age Range	Number of Patients	Number of Patients Motor vehicle traffic	% of Patients Motor vehicle traffic	Number of Patients Transport, other	% of Patients Transport, other	Number of Patients Fall	% of Patients Fall	Number of Patients Struck by, against	% of Patients Struck by, against	Number of Patients Firearm	% of Patients Firearm
< 1	2,980	897	30.10%	65	2.18%	1,788	60.00%	184	6.17%	46	1.54%
1-4	17,690	6,866	38.81%	467	2.64%	8,934	50.50%	1,276	7.21%	147	0.83%
5-9	23,485	11,037	47.00%	1,492	6.35%	9,097	38.74%	1,633	6.95%	226	0.96%
10-14	25,562	11,794	46.14%	3,429	13.41%	6,620	25.90%	2,982	11.67%	737	2.88%
15-19	65,948	41,188	62.46%	5,212	7.90%	6,185	9.38%	6,210	9.42%	7,153	10.85%
<b>Totals</b>	<b>135,665</b>	<b>71,782</b>		<b>10,665</b>		<b>32,624</b>		<b>12,285</b>		<b>8,309</b>	



**Figure 11A**

Number of deaths in each category of injury mechanism. Total N = 5,043.

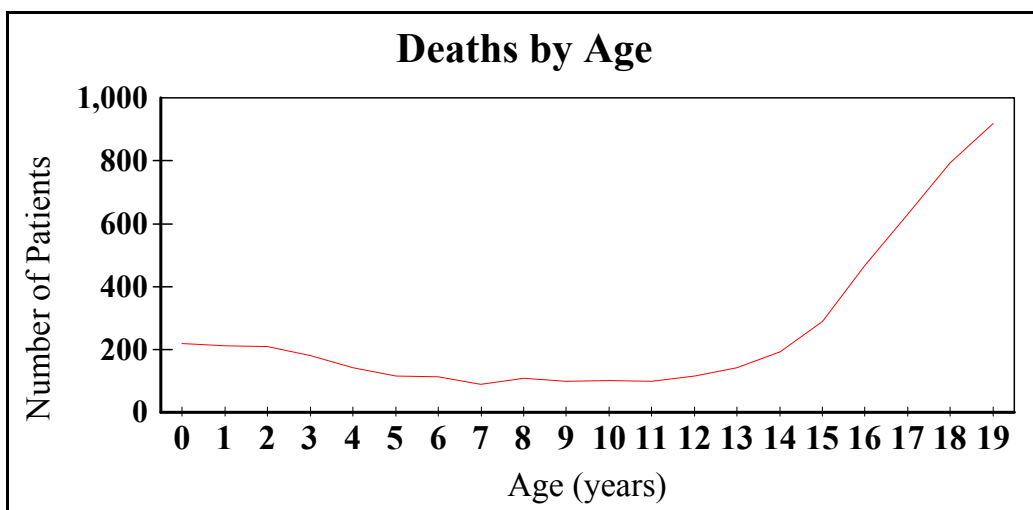
Mechanism of injury was defined in Appendix D.

Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Yellow bar represents burn mechanism. Green bars represent unspecified and other mechanisms.

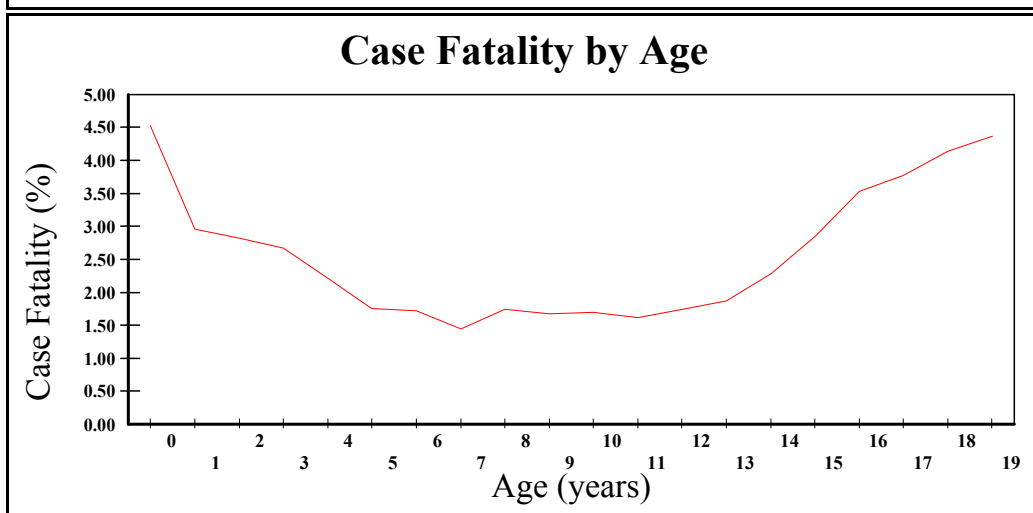
Mechanism of Injury	Number of Patients	Number of Patients Died	Case Fatality Mechanism of Injury
Motor vehicle traffic	71,782	2,676	3.73%
Firearm	8,309	1,078	12.97%
Other specified and classifiable	4,456	253	5.68%
Transport, other	10,665	227	2.13%
Fall	32,624	151	0.46%
Drowning/submersion	795	136	17.11%
Struck by, against	12,285	102	0.83%
Suffocation	376	98	26.06%
Fire/burn	5,223	96	1.84%
Cut/pierce	5,205	55	1.06%
Unspecified	2,025	55	2.72%
Pedal cyclist, other	6,202	34	0.55%
Pedestrian, other	900	33	3.67%
Machinery	953	16	1.68%
Natural/environmental	2,185	16	0.73%
Other specified, not elsewhere classifiable	398	6	1.51%
Poisoning	528	6	1.14%
Other specified, not elsewhere	257	4	1.56%
Adverse effects	73	1	1.37%
Overexertion	477		
<b>Totals</b>	<b>165,718</b>	<b>5,043</b>	

**Figure 11B**



**Figure 12A**

Number of deaths at each age from 0 to 19. Total N = 5,240.

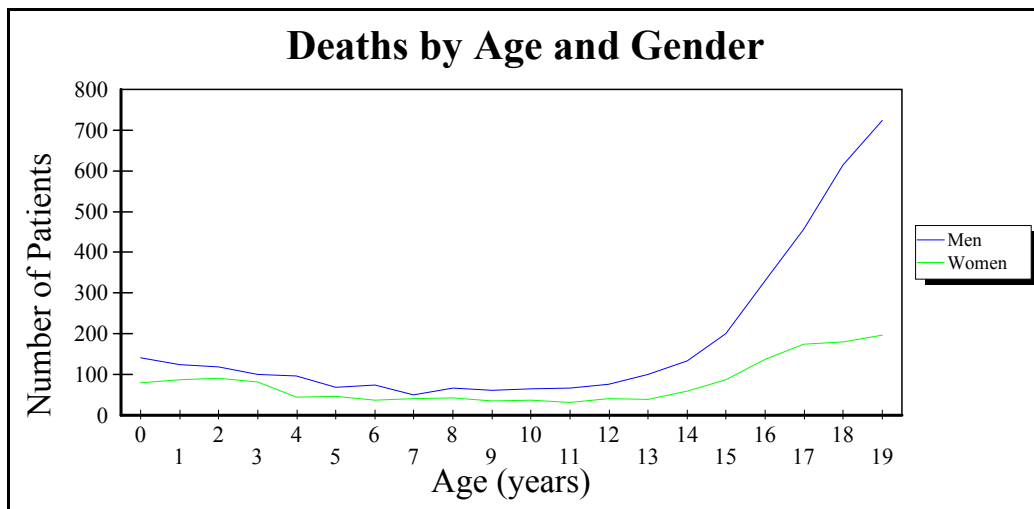


**Figure 12B**

Case fatality at each age from 0 to 19 (Case Fatality = number of deaths divided by the number of patients X 100 by age).

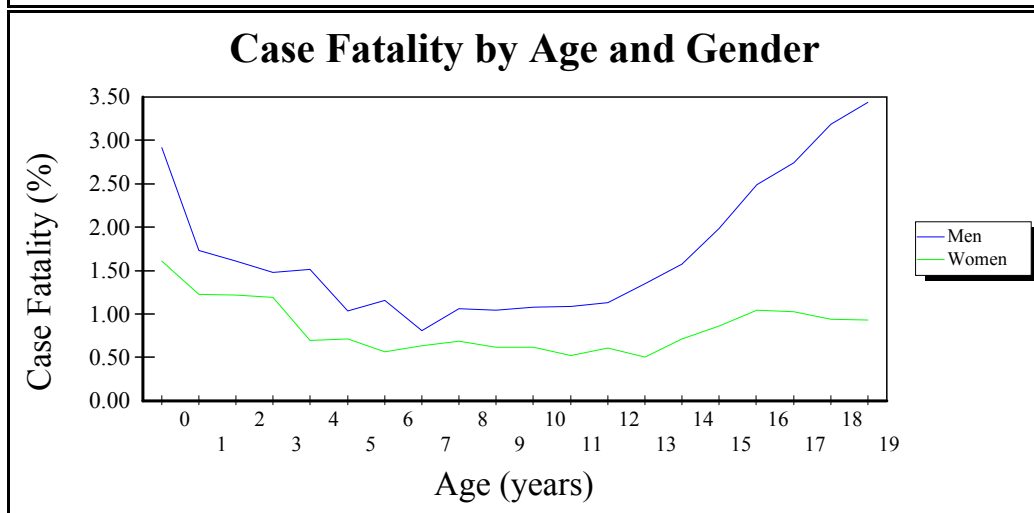
Age Range	Number of Patients	Number of Patients Died	Case Fatality by Age Range
< 1	4,861	220	4.53%
1-4	27,675	743	2.68%
5-9	31,494	525	1.67%
10-14	34,738	650	1.87%
15-19	80,435	3,102	3.86%
<b>Totals</b>	<b>179,203</b>	<b>5,240</b>	

**Figure 12C**



**Figure 13A**

Number of men and women who died at each age from 0 to 19. Total N = 5,240.



**Figure 13B**

Case fatality for men and women at each age from 0 to 19. (Case fatality = number of deaths divided by the number of patients X 100 by age and gender).

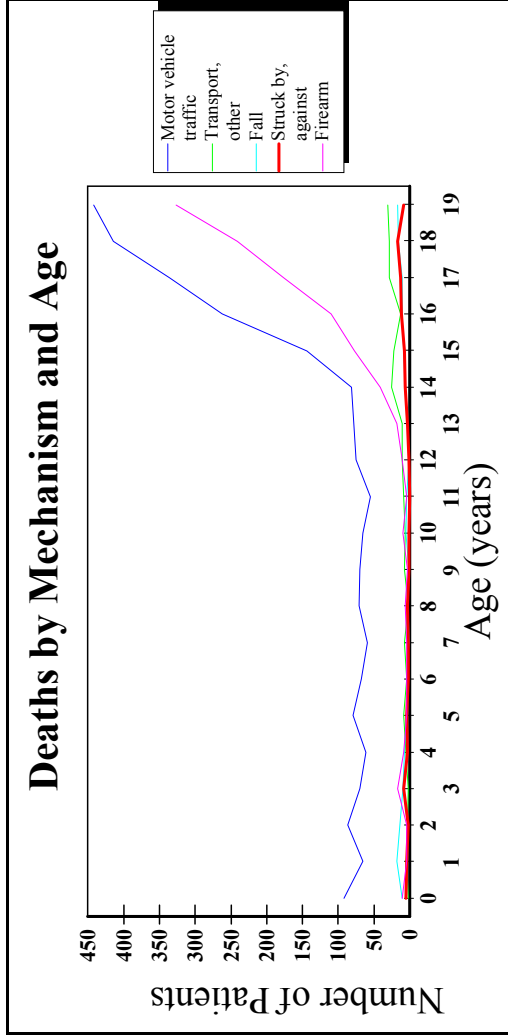
Age Range	Number of Patients Died	Number of Women	Number of Women Died	Case Fatality Women	Number of Men	Number of Men Died	Case Fatality Men
< 1	220	1,942	79	4.07%	2,902	141	4.86%
1-4	743	11,210	302	2.69%	16,447	441	2.68%
5-9	525	11,819	203	1.72%	19,651	321	1.63%
10-14	650	10,597	208	1.96%	24,108	441	1.83%
15-19	3,102	24,280	776	3.20%	56,102	2,325	4.14%
<b>Totals</b>	<b>5,240</b>	<b>59,848</b>	<b>1,568</b>		<b>119,210</b>	<b>3,669</b>	

**Figure 13C**

**Figure 14A**

Number of deaths due to injuries from the most common mechanism of injury categories at each age from 0 to 19. Total N = 4,234.

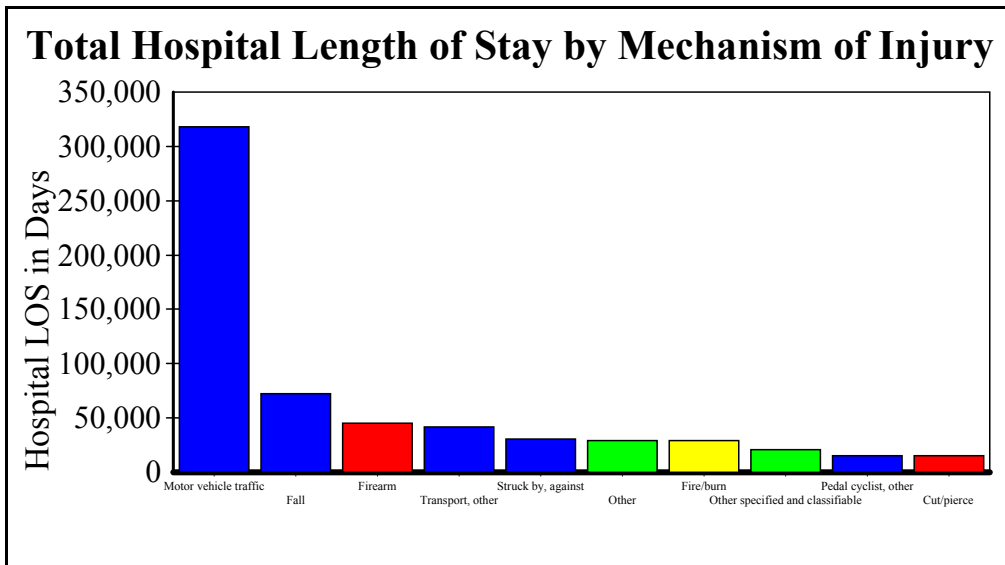
Mechanism of injury was defined in Appendix D.



**Figure 14B**

Case fatality due to the most common mechanism of injury categories at each age range from 0 to 19. (Case fatality = number of deaths divided by the number of patients X 100 by mechanism of injury and age range).

Age Range	Number of Patients Motor vehicle traffic	Number of Patients Died Motor vehicle traffic	Case Fatality Motor vehicle traffic	Number of Patients Transport, other	Number of Patients Died Transport, other	Case Fatality Transport, other	Number of Patients Fall	Number of Patients Died Fall	Case Fatality Fall	Number of Patients Struck by, against	Number of Patients Died Struck by, against	Case Fatality Struck by, against	Number of Patients Firearm	Number of Patients Died Firearm	Case Fatality Firearm
< 1	897	92	10.26%	65	2	3.08%	1,788	10	0.56%	184	5	2.72%	46	10	21.74%
1-4	6,866	284	4.14%	467	14	3.00%	8,934	48	0.54%	1,276	17	1.33%	147	33	22.45%
5-9	11,037	347	3.14%	1,492	28	1.88%	9,097	12	0.13%	1,633	12	0.73%	226	21	9.29%
10-14	11,794	355	3.01%	3,429	61	1.78%	6,620	19	0.29%	2,982	11	0.37%	737	82	11.13%
15-19	41,188	1,598	3.88%	5,212	122	2.34%	6,185	62	1.00%	6,210	57	0.92%	7,153	932	13.03%
<b>Totals</b>	<b>71,782</b>	<b>2,676</b>		<b>10,665</b>	<b>227</b>		<b>32,624</b>	<b>151</b>		<b>12,285</b>	<b>102</b>		<b>8,309</b>	<b>1,078</b>	



**Figure 15A**

Proportional distribution of total hospital length of stay, grouped by mechanism of injury. Total N = 165,718. Total hospital length of stay = 618,116 days.

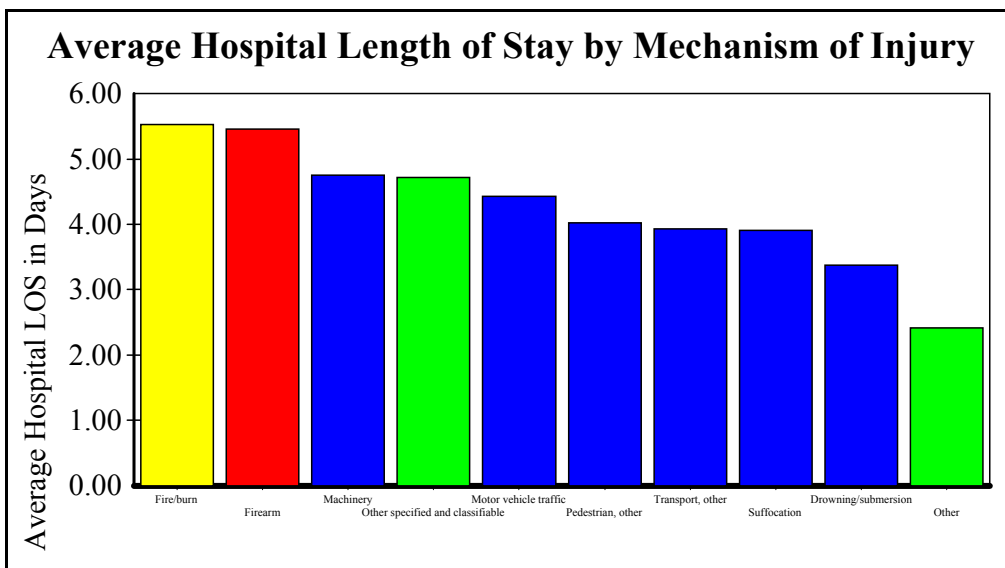
Mechanism of injury was defined in Appendix D.

Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Green bars represent unspecified and other mechanisms. Yellow bar represents burn mechanism.

**Figure 15B**

Mechanism of Injury	Number of Patients	% of Total Patients	Total of Hospital LOS in Days	% of Hospital LOS in Days	Average of Hospital LOS in Days
Motor vehicle traffic	71,782	43.32%	318,097	51.46%	4.43
Fall	32,624	19.69%	72,226	11.68%	2.21
Firearm	8,309	5.01%	45,297	7.33%	5.45
Transport, other	10,665	6.44%	41,895	6.78%	3.93
Struck by, against	12,285	7.41%	30,648	4.96%	2.49
Fire/burn	5,223	3.15%	28,838	4.67%	5.52
Other specified and classifiable	4,456	2.69%	21,022	3.40%	4.72
Pedal cyclist, other	6,202	3.74%	15,353	2.48%	2.48
Cut/pierce	5,205	3.14%	15,267	2.47%	2.93
Natural/environmental	2,185	1.32%	6,326	1.02%	2.90
Unspecified	2,025	1.22%	5,890	0.95%	2.91
Machinery	953	0.58%	4,530	0.73%	4.75
Pedestrian, other	900	0.54%	3,619	0.59%	4.02
Drowning/submersion	795	0.48%	2,681	0.43%	3.37
Suffocation	376	0.23%	1,469	0.24%	3.91
Poisoning	528	0.32%	1,279	0.21%	2.42
Other specified, not elsewhere classifiable	398	0.24%	1,188	0.19%	2.98
Overexertion	477	0.29%	961	0.16%	2.01
Other specified, not elsewhere	257	0.16%	769	0.12%	2.99
Adverse effects	73	0.04%	761	0.12%	10.42
<b>Totals</b>	<b>165,718</b>		<b>618,116</b>		



**Figure 16A**

Average hospital length of stay grouped by mechanism of injury (Average hospital length of stay = total hospital length of stay divided by the number of patients by mechanisms of injury). Total N = 165,645.

Mechanism of injury was defined in Appendix D.

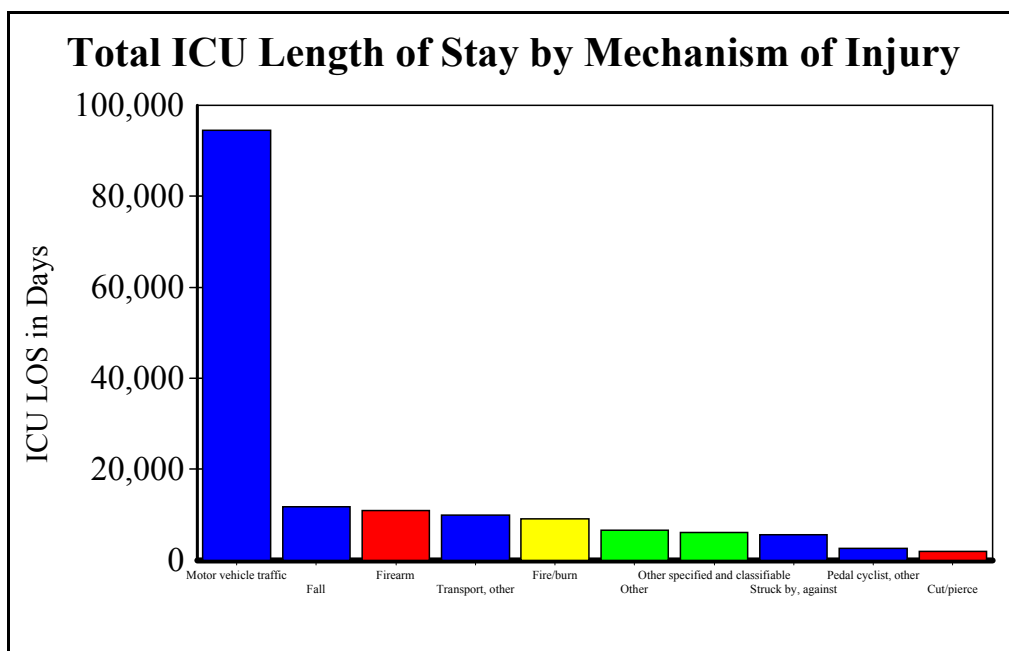
Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Yellow bar represents burn mechanism of injury. Green bars represent unspecified and other mechanisms.

Mechanism of Injury	Number of Patients	% of Total Patients	Average of Hospital LOS in Days
Fire/burn	5,223	3.15%	5.52
Firearm	8,309	5.02%	5.45
Machinery	953	0.58%	4.75
Other specified and classifiable	4,456	2.69%	4.72
Motor vehicle traffic	71,782	43.33%	4.43
Pedestrian, other	900	0.54%	4.02
Transport, other	10,665	6.44%	3.93
Suffocation	376	0.23%	3.91
Drowning/submersion	795	0.48%	3.37
Other specified, not elsewhere	257	0.16%	2.99
Other specified, not elsewhere classifiable	398	0.24%	2.98
Cut/pierce	5,205	3.14%	2.93
Unspecified	2,025	1.22%	2.91
Natural/environmental	2,185	1.32%	2.90
Struck by, against	12,285	7.42%	2.49
Pedal cyclist, other	6,202	3.74%	2.48
Poisoning	528	0.32%	2.42
Fall	32,624	19.70%	2.21
Overexertion	477	0.29%	2.01
<b>Totals</b>	<b>165,645</b>		

**Figure 16B**





**Figure 17A**

Proportional distribution of total days of ICU care grouped by mechanism of injury. Total N = 109,767. Total ICU length of stay = 159,005 days.

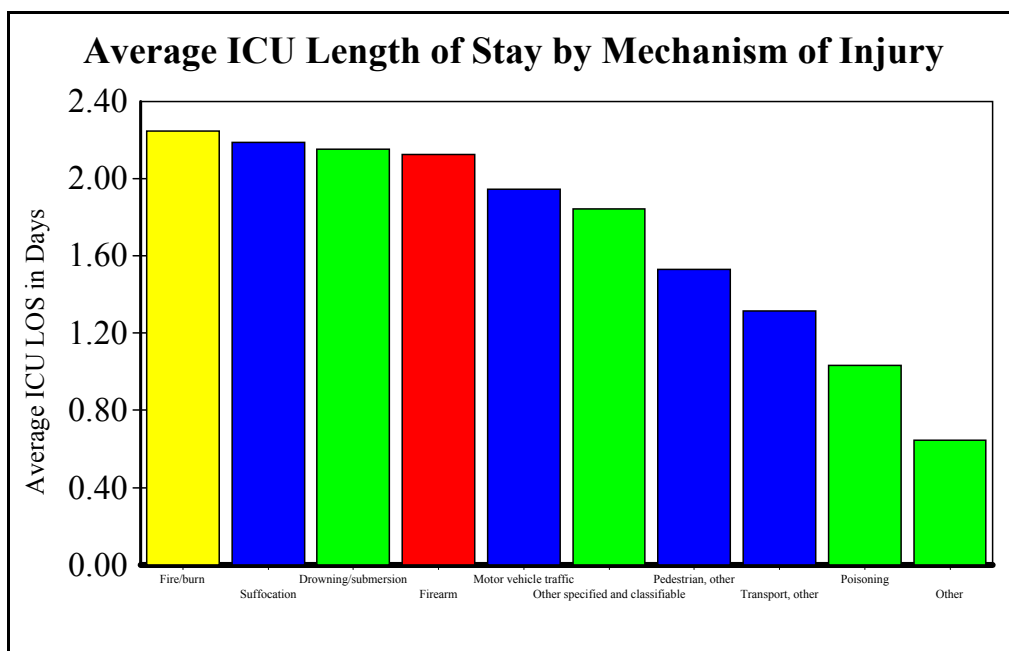
Mechanism of injury was defined in Appendix D.

Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Yellow bar represents burn mechanism of injury. Green bars represent unspecified and other mechanisms.

**Figure 17B**

Mechanism of Injury	Number of Patients	% of Total Patients	Total of ICU LOS in Days	% of ICU LOS in Days
Motor vehicle traffic	48,613	44.29%	94,450	59.40%
Fall	19,557	17.82%	11,712	7.37%
Firearm	5,135	4.68%	10,909	6.86%
Transport, other	7,579	6.90%	9,965	6.27%
Fire/burn	4,029	3.67%	9,043	5.69%
Other specified and classifiable	3,313	3.02%	6,102	3.84%
Struck by, against	7,963	7.25%	5,671	3.57%
Pedal cyclist, other	4,011	3.65%	2,676	1.68%
Cut/pierce	3,463	3.15%	1,909	1.20%
Drowning/submersion	620	0.56%	1,335	0.84%
Unspecified	1,358	1.24%	1,261	0.79%
Natural/environmental	1,387	1.26%	955	0.60%
Pedestrian, other	570	0.52%	872	0.55%
Suffocation	300	0.27%	656	0.41%
Machinery	687	0.63%	636	0.40%
Poisoning	382	0.35%	394	0.25%
Other specified, not elsewhere classifiable	270	0.25%	236	0.15%
Other specified, not elsewhere	145	0.13%	92	0.06%
Adverse effects	44	0.04%	83	0.05%
Overexertion	341	0.31%	48	0.03%
<b>Totals</b>	<b>109,767</b>		<b>159,005</b>	



**Figure 18A**

Average ICU length of stay grouped by mechanism of injury. Total N = 109,723.

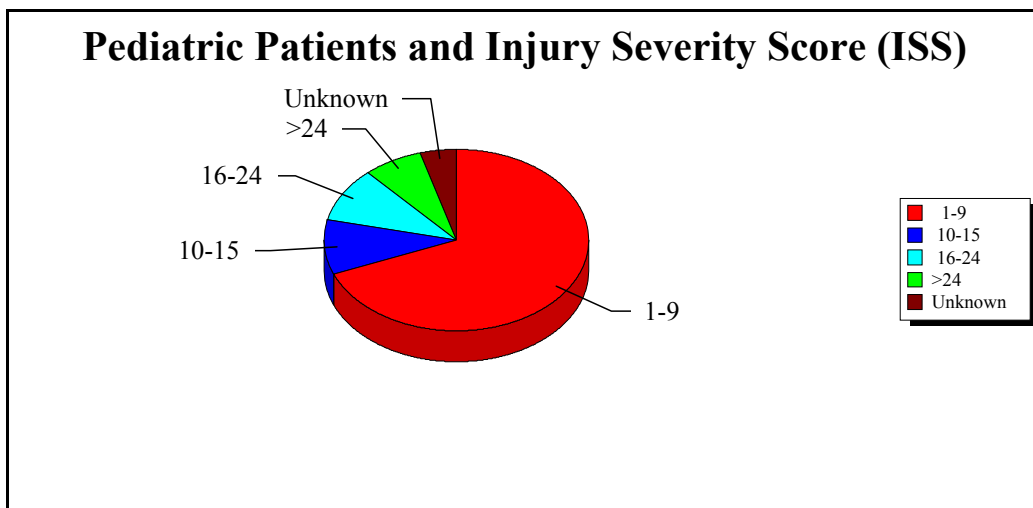
Mechanism of injury was defined in Appendix D.

Other was defined for other specified and classifiable mechanism.

Blue bars represent blunt mechanisms of injury. Red bars represent penetrating mechanisms of injury. Yellow bar represents burn mechanism of injury. Green bars represent unspecified and other mechanisms.

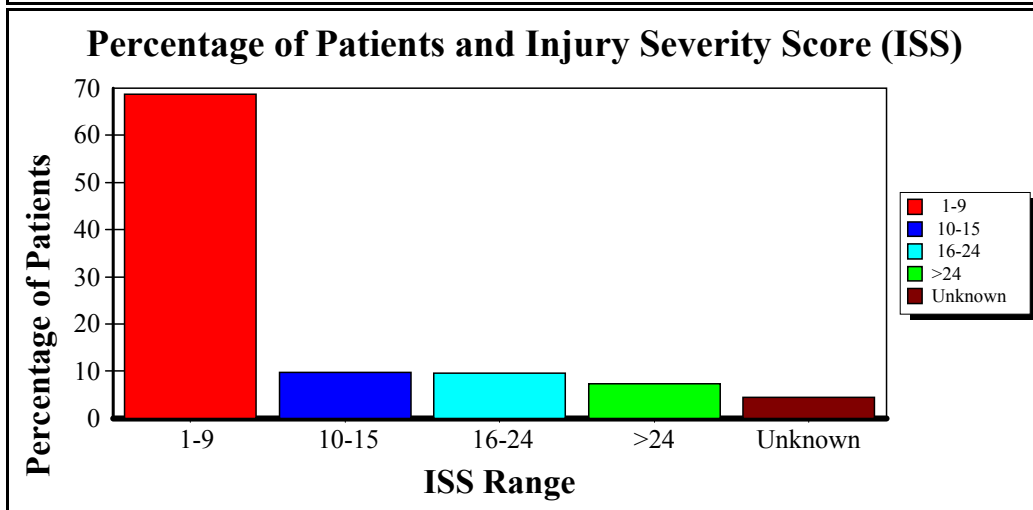
Mechanism of Injury	Number of Patients	% of Total Patients	Average of ICU LOS in Days
Fire/burn	4,029	3.67%	2.24
Suffocation	300	0.27%	2.19
Drowning/submersion	620	0.57%	2.15
Firearm	5,135	4.68%	2.12
Motor vehicle traffic	48,613	44.31%	1.94
Other specified and classifiable	3,313	3.02%	1.84
Pedestrian, other	570	0.52%	1.53
Transport, other	7,579	6.91%	1.31
Poisoning	382	0.35%	1.03
Unspecified	1,358	1.24%	0.93
Machinery	687	0.63%	0.93
Other specified, not elsewhere classifiable	270	0.25%	0.87
Struck by, against	7,963	7.26%	0.71
Natural/environmental	1,387	1.26%	0.69
Pedal cyclist, other	4,011	3.66%	0.67
Other specified, not elsewhere	145	0.13%	0.63
Fall	19,557	17.82%	0.60
Cut/pierce	3,463	3.16%	0.55
Overexertion	341	0.31%	0.14
<b>Totals</b>	<b>109,723</b>		

**Figure 18B**



**Figure 19A**

Proportional distribution of patients grouped by categories of the Injury Severity Score (ISS) range. Total N = 179,203.

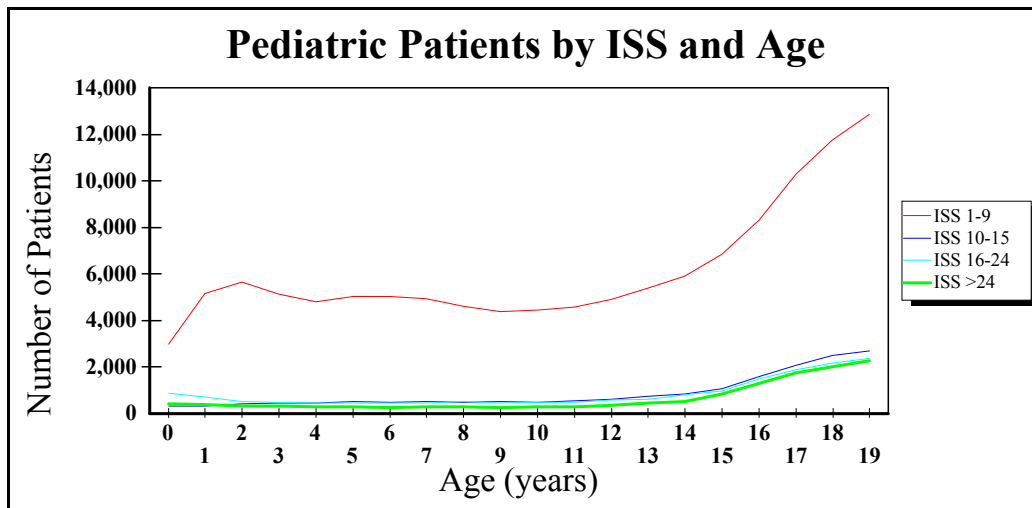


**Figure 19B**

Percentage of patients by Injury Severity Score (ISS) range. (Percentage of patients = number of patients for each ISS range divided by the total number of patients X 100).

ISS Range	Number of Patients	% of Total Patients
1-9	123,224	68.76%
10-15	17,615	9.83%
16-24	17,257	9.63%
>24	13,209	7.37%
Unknown	7,898	4.41%
<b>Totals</b>	<b>179,203</b>	

**Figure 19C**



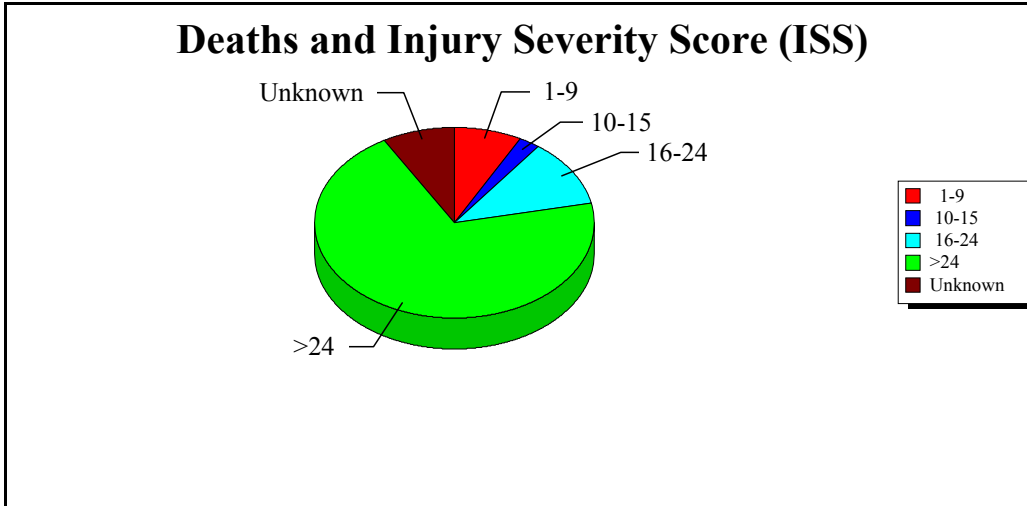
**Figure 20A**

Number of injured patients grouped by Injury Severity Score (ISS) range, at each age from 0 to 19. Total N = 171,305.

**Figure 20B**

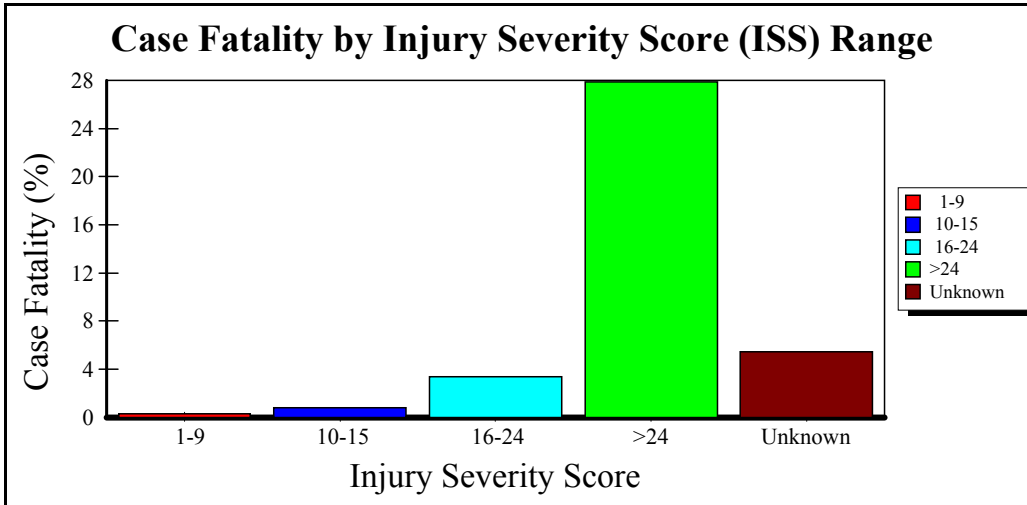
Percentage of patients by Injury Severity Score (ISS) range at each age range from 0 to 19. (Percentage of patients by ISS range = number of patients by ISS range divided by the number of patients X 100 by age range).

Age Range	Number of Patients	% of Patients	Number of Patients ISS 1-9	% of Patients ISS 1-9	Number of Patients ISS 10-15	% of Patients ISS 10-15	Number of Patients ISS 16-24	% of Patients ISS 16-24	Number of Patients ISS >24	% of Patients ISS >24
< 1	4,591	2.68%	2,998	65.30%	317	6.90%	863	18.80%	413	9.00%
1-4	25,926	15.13%	20,776	80.14%	1,640	6.33%	2,170	8.37%	1,340	5.17%
5-9	30,282	17.68%	24,045	79.40%	2,495	8.24%	2,346	7.75%	1,396	4.61%
10-14	33,347	19.47%	25,260	75.75%	3,202	9.60%	2,977	8.93%	1,908	5.72%
15-19	77,159	45.04%	50,145	64.99%	9,961	12.91%	8,901	11.54%	8,152	10.57%
<b>Totals</b>	<b>171,305</b>		<b>123,224</b>		<b>17,615</b>		<b>17,257</b>		<b>13,209</b>	



**Figure 21A**

Proportional distribution of deaths grouped by categories of Injury Severity Score (ISS) range. Total N = 5,240.

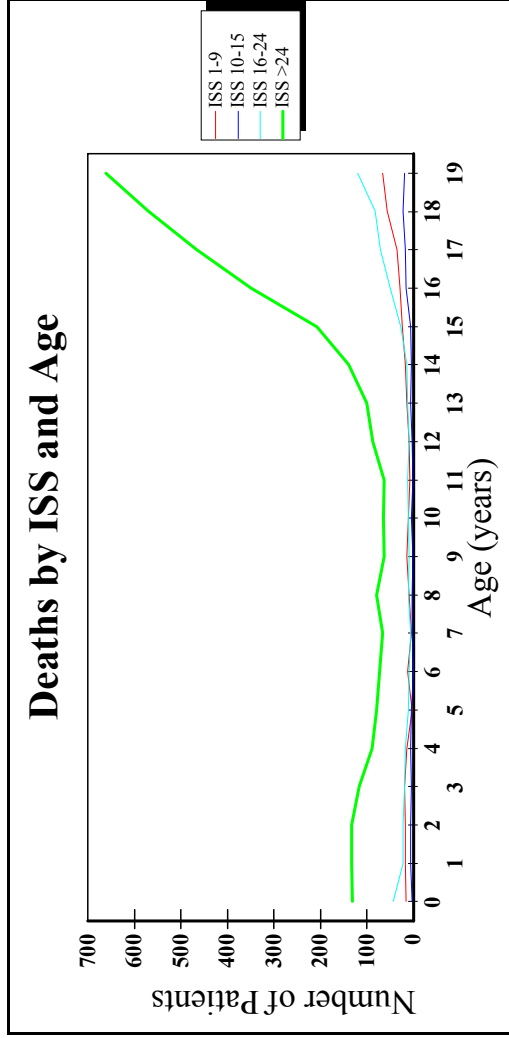


**Figure 21B**

Case fatality grouped by Injury Severity Score (ISS) range. (Case fatality = number of deaths divided by the number of patients X 100 by ISS range).

ISS Range	Number of Patients	Number of Patients Died	Case Fatality ISS Range
1-9	123,224	401	0.33%
10-15	17,615	141	0.80%
16-24	17,257	589	3.41%
>24	13,209	3,679	27.85%
Unknown	7,898	430	5.44%
<b>Totals</b>	<b>179,203</b>	<b>5,240</b>	

**Figure 21C**



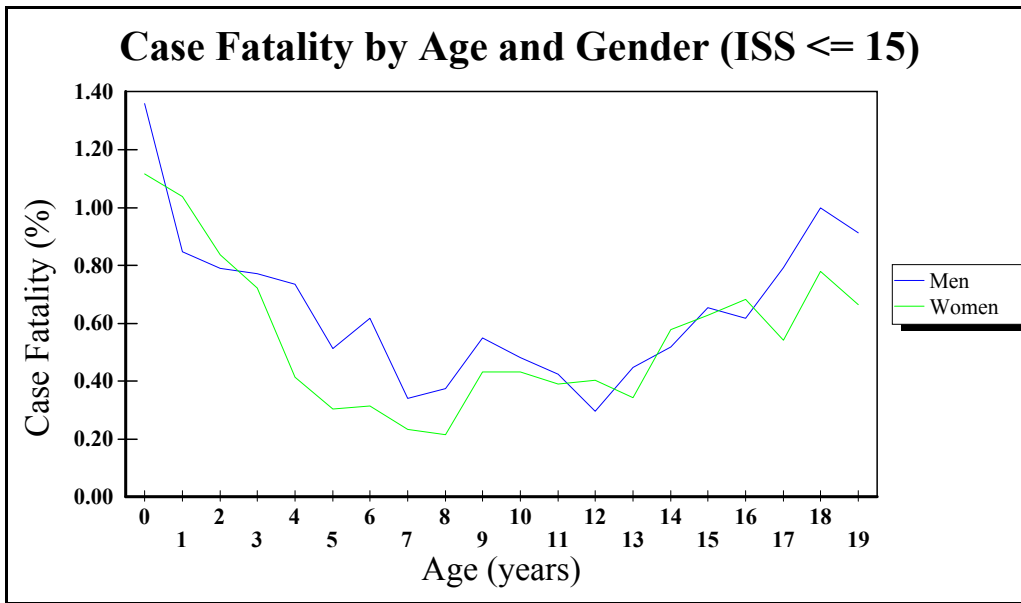
**Figure 22A**

Number of deaths grouped by Injury Severity Score (ISS) range at each age 0 to 19. Total N = 4,810.

**Figure 22B**

Case fatality by ISS range at each age range from 0 to 19. (Case fatality by ISS range = number of deaths by ISS range divided by the number of patients X 100 by age range).

Age Range	Number of Patients	Number of Patients Died	Case Fatality ISS Range	Number of Patients ISS 1-9	Number of Patients Died ISS 1-9	Case Fatality ISS 1-9	Number of Patients ISS 10-15	Number of Patients Died ISS 10-15	Case Fatality ISS 10-15	Number of Patients ISS 16-24	Number of Patients Died ISS 16-24	Case Fatality ISS 16-24	Number of Patients ISS >24	Number of Patients Died ISS >24	Case Fatality ISS >24
< 1	4,591	194	4.23%	2,998	16	0.53%	317	3	0.95%	863	44	5.10%	413	131	31.72%
1-4	25,926	646	2.49%	20,776	68	0.33%	1,640	23	1.40%	2,170	81	3.73%	1,340	474	35.37%
5-9	30,282	465	1.54%	24,045	43	0.18%	2,495	12	0.48%	2,346	49	2.09%	1,396	361	25.86%
10-14	33,347	601	1.80%	25,260	61	0.24%	3,202	21	0.66%	2,977	63	2.12%	1,908	456	23.90%
15-19	77,159	2,904	3.76%	50,145	213	0.42%	9,961	82	0.82%	8,901	352	3.95%	8,152	2,257	27.69%
<b>Totals</b>	<b>171,305</b>	<b>4,810</b>		<b>123,224</b>	<b>401</b>		<b>17,615</b>	<b>141</b>		<b>17,257</b>	<b>589</b>		<b>13,209</b>	<b>3,679</b>	

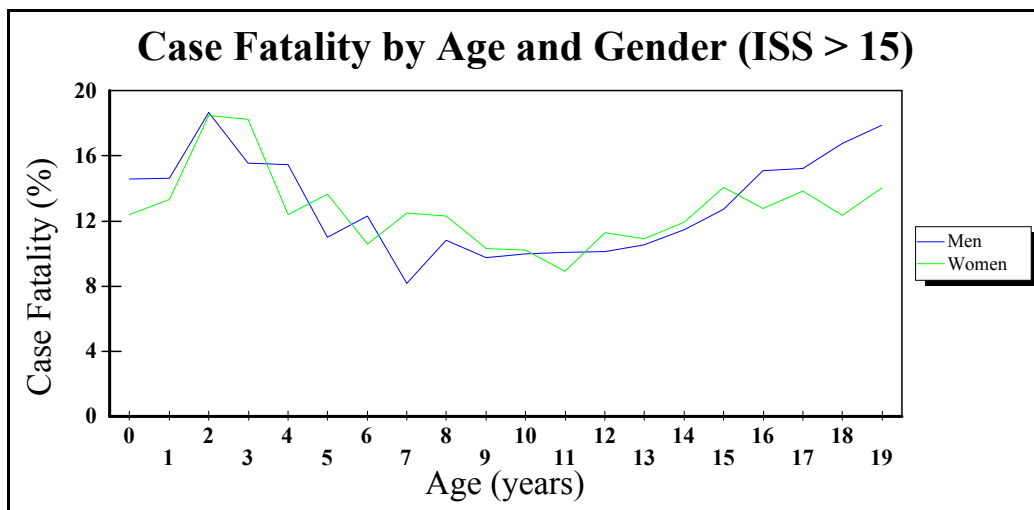


**Figure 23A**

Case fatality for patients with ISS <= 15 for men and women at each age from 0 to 19. (Case fatality = number of deaths divided by the number of patients X 100 by age and gender). Total N = 969.

**Figure 23B**

Age Range	Number of Patients ISS <= 15	Number of Patients Died ISS <= 15	Case Fatality ISS <= 15	Number of Patients Men	Number of Patients Died Men	Case Fatality Men	Number of Patients Women	Number of Patients Died Women	Case Fatality Women
< 1	3,569	45	1.26%	2,135	29	1.36%	1,434	16	1.12%
1-4	24,149	188	0.78%	14,390	113	0.79%	9,759	75	0.77%
5-9	27,733	114	0.41%	17,359	83	0.48%	10,374	31	0.30%
10-14	29,825	130	0.44%	20,798	91	0.44%	9,027	39	0.43%
15-19	63,344	492	0.78%	43,911	363	0.83%	19,433	129	0.66%
<b>Totals</b>	148,620	969		98,593	679		50,027	290	



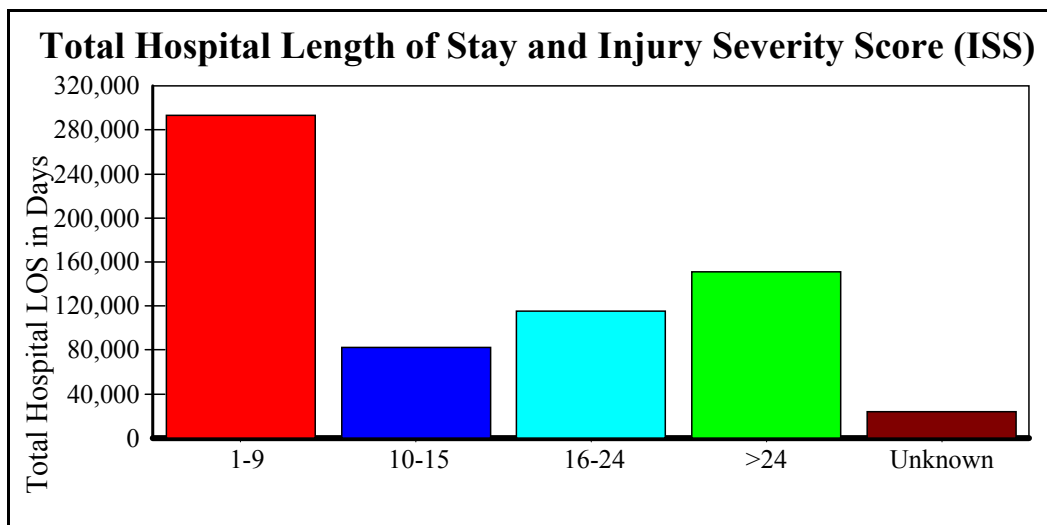
**Figure 24A**

Case fatality for patients with ISS > 15 for men and women at each age from 0 to 19. (Case fatality = number of deaths divided by the number of patients X 100 by age and gender). Total N = 4,268.

**Figure 24B**

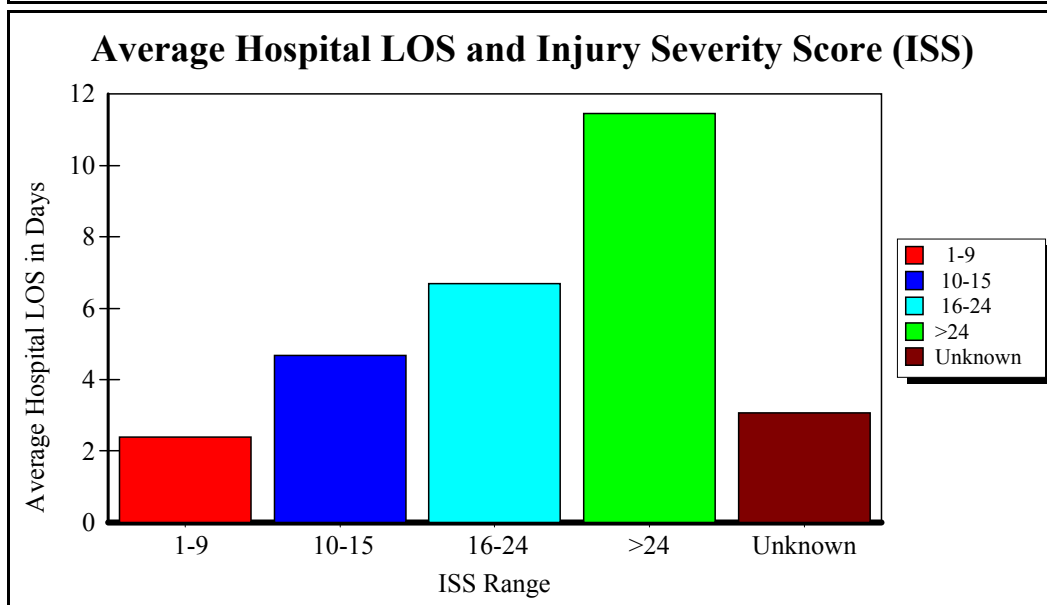
Age Range	Number of Patients ISS > 15	Number of Patients Died ISS > 15	Case Fatality ISS > 15	Number of Patients Men	Number of Patients Died Men	Case Fatality Men	Number of Patients Women	Number of Patients Died Women	Case Fatality Women
< 1	1,275	175	13.73%	767	112	14.60%	508	63	12.40%
1-4	3,508	555	15.82%	2,057	328	15.95%	1,451	227	15.64%
5-9	3,737	410	10.97%	2,292	238	10.38%	1,445	172	11.90%
10-14	4,880	519	10.64%	3,310	350	10.57%	1,570	169	10.76%
15-19	17,038	2,609	15.31%	12,191	1,962	16.09%	4,847	647	13.35%
<b>Totals</b>	<b>30,438</b>	<b>4,268</b>		<b>20,617</b>	<b>2,990</b>		<b>9,821</b>	<b>1,278</b>	





**Figure 25A**

Proportional distribution of total hospital length of stay for patients, grouped by Injury Severity Score (ISS) range. Total N = 179,203. Total hospital length of stay = 667,105 days.

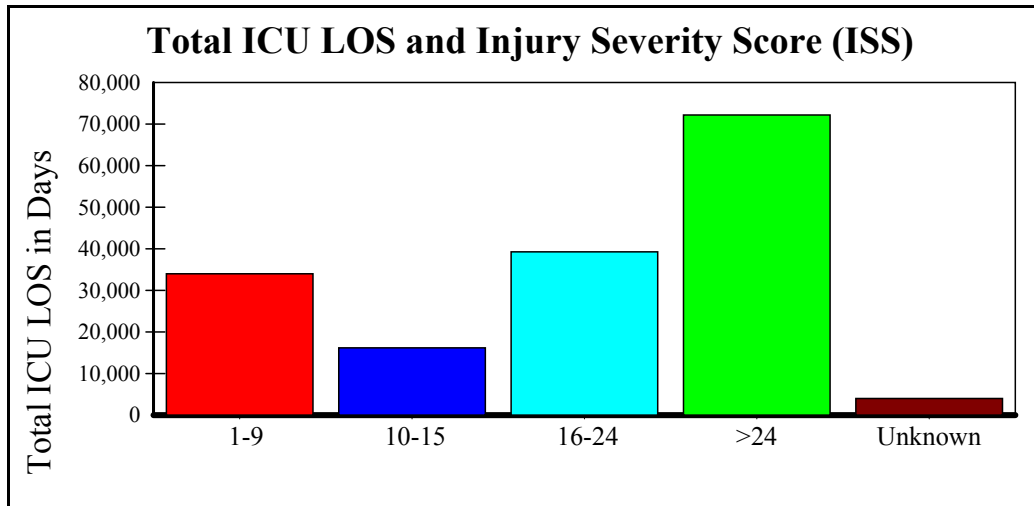


**Figure 25B**

Average hospital length of stay for each category of Injury Severity Score (ISS) range. (Average hospital length of stay = total hospital length of stay for each ISS range divided by the total number of patients).

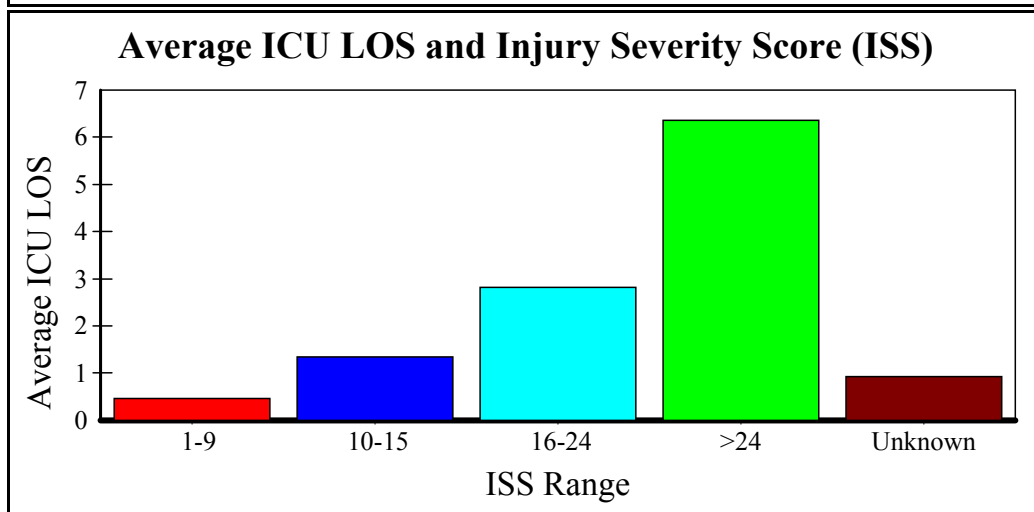
ISS Range	Number of Patients	% of Total Patients	Total of Hospital LOS in Days	% of Hospital LOS in Days	Average of Hospital LOS in Days
1-9	123,224	68.76%	293,613	44.01%	2.38
10-15	17,615	9.83%	82,282	12.33%	4.67
16-24	17,257	9.63%	115,630	17.33%	6.70
>24	13,209	7.37%	151,274	22.68%	11.45
Unknown	7,898	4.41%	24,306	3.64%	3.08
<b>Totals</b>	<b>179,203</b>		<b>667,105</b>		

**Figure 25C**



**Figure 26A**

Proportional distribution of total ICU length of stay for patients, grouped by Injury Severity Score (ISS) range. Total N = 114,137. Total ICU length of stay = 165,601 days.



**Figure 26B**

Average ICU length of stay by Injury Severity Score (ISS) range. (Average ICU length of stay = total ICU length of stay for each ISS range divided by the total number of patients).

ISS Range	Number of Patients	% of Total Patients	Total of ICU LOS in Days	% of ICU LOS in Days	Average of ICU LOS in Days
1-9	72,563	63.58%	33,944	20.50%	0.47
10-15	12,055	10.56%	16,261	9.82%	1.35
16-24	13,928	12.20%	39,300	23.73%	2.82
>24	11,363	9.96%	72,152	43.57%	6.35
Unknown	4,228	3.70%	3,944	2.38%	0.93
<b>Totals</b>	<b>114,137</b>		<b>165,601</b>		

**Figure 26C**

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Annual Report 2004**

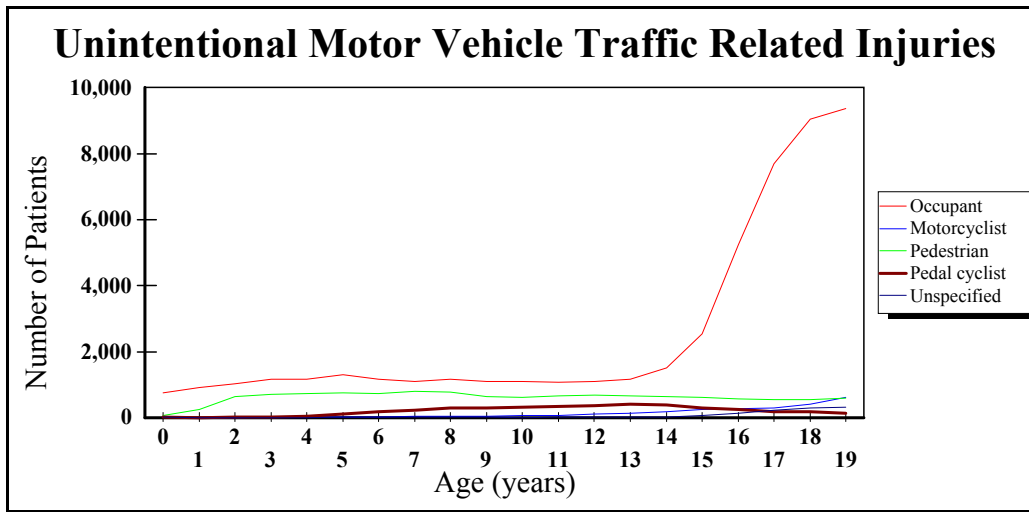
**Special Section: Unintentional Motor Vehicle Traffic Related Injuries**

Figures 27 through 32 provide detailed information on unintentional motor vehicle traffic related injuries. This grouping of injuries is based on the CDC's recommended framework of E-code grouping for presenting injury mortality and morbidity. This grouping replaces what we have called Motor Vehicle Crashes in previous NTDB annual reports.

This category includes E810 – E819 (.0-.9), described in Appendix D:

<b>Mechanism/Cause</b>	<b>Unintentional</b>
Motor vehicle traffic <sup>2,3</sup>	E810-E819 (.0-.9)
Occupant	E810-E819 (.0,.1)
Motorcyclist	E810-E819 (.2,.3)
Pedal cyclist	E810-E819 (.6)
Pedestrian	E810-E819 (.7)
Unspecified	E810-E819 (.9)

Detailed descriptions for E-codes can be found in the International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification, Fifth Edition, Volume One. DHHS Publication No. (PHS) 94-1260, U.S. Department of Health and Human Services, October 1994 (<http://cedr.lbl.gov/icd9.html>).



**Figure 27A**

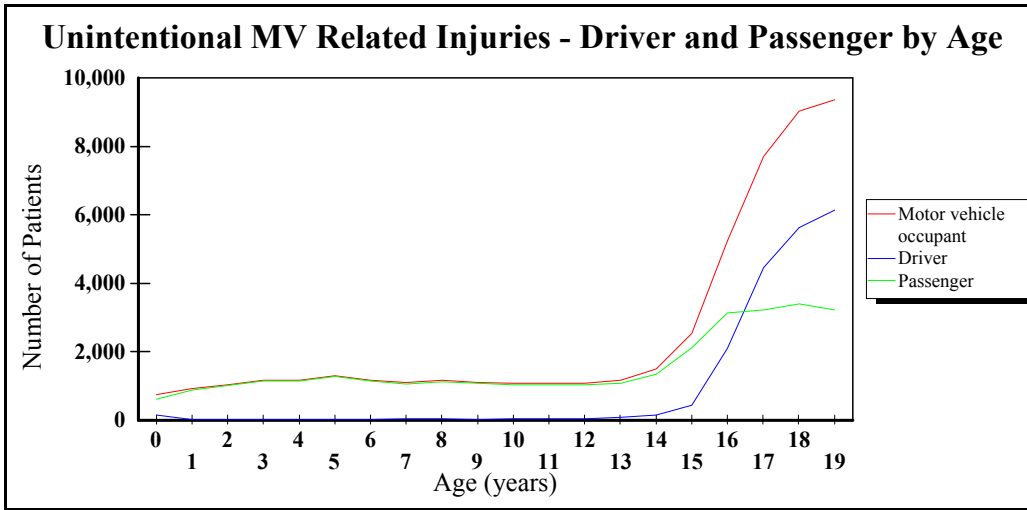
Unintentional motor vehicle traffic related injuries (UMVTRI) are classified from ICD-9-CM ECode E810 to E819.

Number of patients injured in UMVTRI, number who were occupant, motorcyclist, pedal cyclist, pedestrian and unspecified at each age from 0 to 19. Total N = 70,906.

**Figure 27B**

Percentage of patients for UMVTRI at each age range from 0 to 19. (Percentage of patients by UMVTRI = number of patients by UMVTRI divided by the number of patients X 100 by age range).

Age Range	Total Number of Patients	Number of Patients Occupant	% of Occupant	Number of Patients Motorcyclist	% of Motorcyclist	Number of Patients Pedestrian	% of Pedestrian	Number of Patients Pedal Cyclist	% of Pedal Cyclist	Number of Patients Unspecified	% of Unspecified
< 1	881	760	86.27%	32	3.63%	64	7.26%	12	1.36%	13	1.48%
1-4	6,772	4,289	63.33%	40	0.59%	2,333	34.45%	82	1.21%	28	0.41%
5-9	10,912	5,829	53.42%	169	1.55%	3,725	34.14%	1,129	10.35%	60	0.55%
10-14	11,621	5,924	50.98%	566	4.87%	3,244	27.91%	1,805	15.53%	82	0.71%
15-19	40,720	33,897	83.24%	1,873	4.60%	2,871	7.05%	1,042	2.56%	1,037	2.55%
<b>Totals</b>	<b>70,906</b>	<b>50,699</b>		<b>2,680</b>		<b>12,237</b>		<b>4,070</b>		<b>1,220</b>	



**Figure 28A**

Unintentional motor vehicle traffic related injuries (UMVTRI) sustained by occupants are classified from ICD-9-CM Ecode E810-E819(.0,.1).

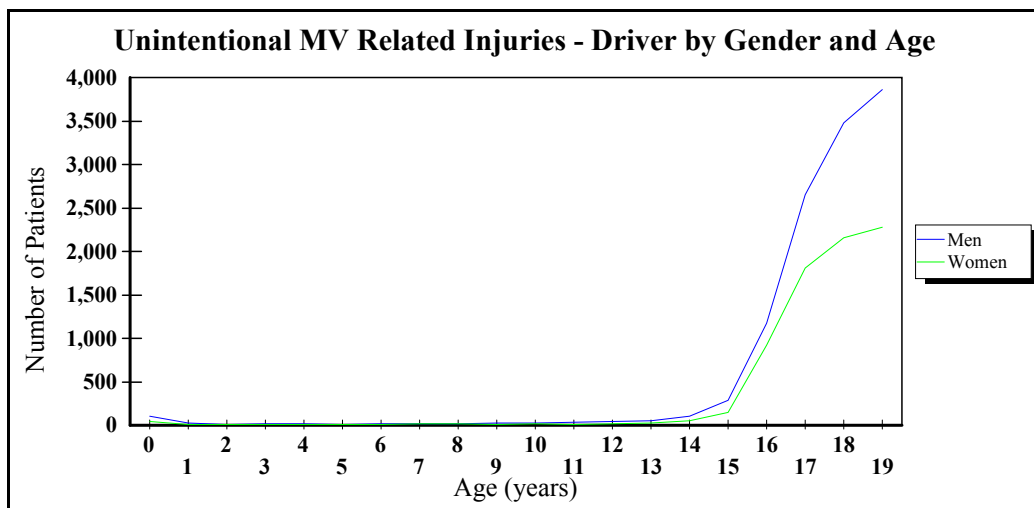
Number of patients injured in UMVTRI, number who were drivers, and number who were passengers at each age from 0 to 19. Total N = 50,699.

Age Range	Number of Patients Motor vehicle occupant	Number of Patients Driver	% of Driver	Number of Patients Passenger	% of Passenger
< 1	760	*147	19.34%	613	80.66%
1-4	4,289	*92	2.15%	4,197	97.85%
5-9	5,829	*149	2.56%	5,680	97.44%
10-14	5,924	*384	6.48%	5,540	93.52%
15-19	33,897	18,797	55.45%	15,100	44.55%
<b>Totals</b>	<b>50,699</b>	<b>19,569</b>		<b>31,130</b>	

**Figure 28B**

Percentage of patients for UMVTRI occupant - driver and passenger at each age range from 0 to 19. (Percentage of patients by UMVTRI occupant = number of patients by UMVTRI occupant divided by the number of patients X 100 by age range).

\* These records were submitted with external cause of injury codes for Motor vehicle drivers. The circumstances of these injuries are not known.



**Figure 29A**

Unintentional motor vehicle traffic related injuries (UMVTRI) sustained by occupants are classified from ICD-9-CM Ecode E810-E819(.0,.1).

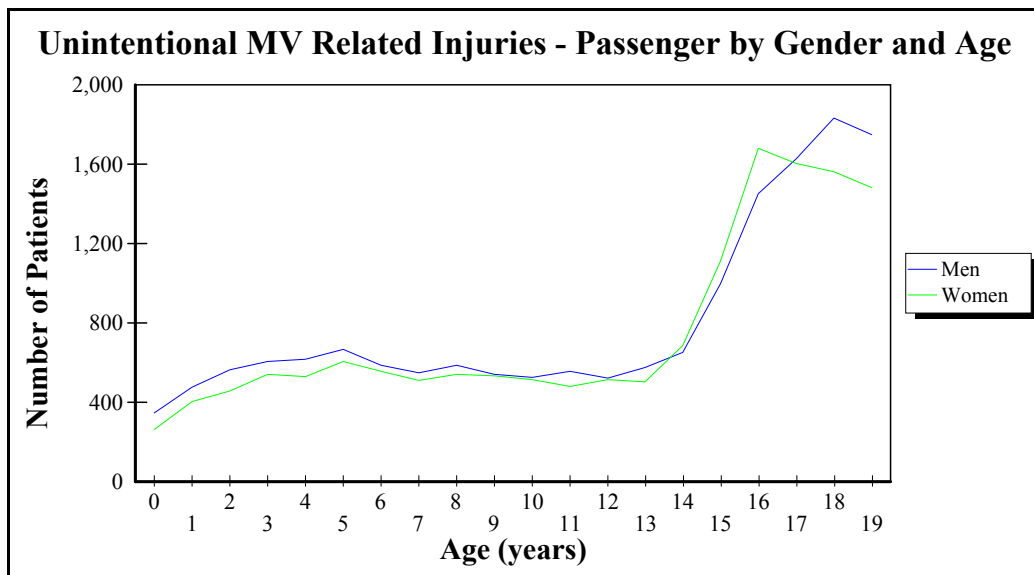
Number of patients injured in UMVTRI who were drivers for both men and women at each age from 0 to 19. Total N = 19,569.

Age Range	Number of Patients Driver	Number of Patients Driver - Men	% of Driver - Men	Number of Patients Driver - Women	% of Driver - Women
< 1	*147	106	72.11%	40	27.21%
1-4	*92	60	65.22%	32	34.78%
5-9	*149	89	59.73%	60	40.27%
10-14	*384	265	69.01%	119	30.99%
15-19	18,797	11,462	60.98%	7,322	38.95%
<b>Totals</b>	19,569	11,982		7,573	

**Figure 29B**

Percentage of drivers for men and women at each age range from 0 to 19. (Percentage of drivers by gender = number of drivers by gender divided by the number of drivers X 100 by age range).

\* These records were submitted with external cause of injury codes for MVC drivers. The circumstances of these injuries are not known.



**Figure 30A**

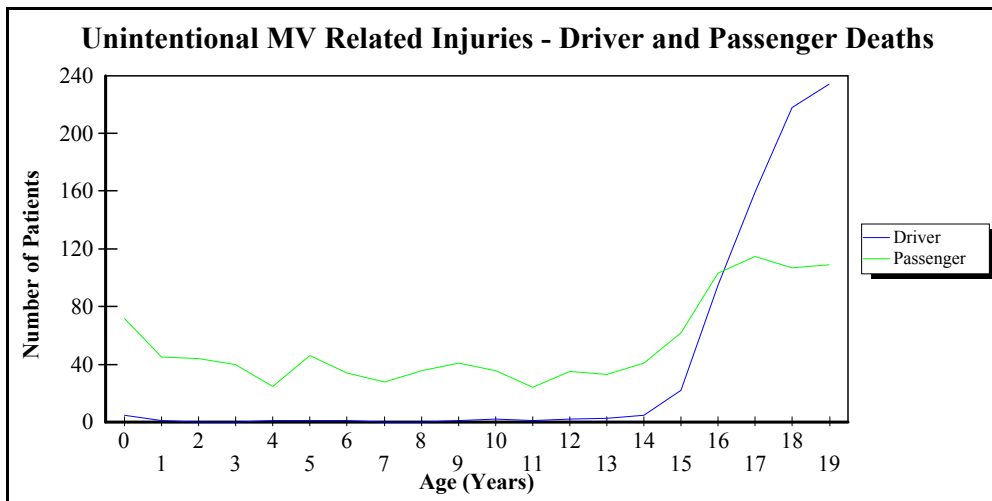
Unintentional motor vehicle traffic related injuries (UMVTRI) sustained by occupants are classified from ICD-9-CM Ecode E810-E819(.0,.1).

Number of all patients injured in UMVTRI who were passengers for both men and women at each age from 0 to 19. Total N = 31,130.

Age Range	Number of Patients Passenger	Number of Patients Passenger-Men	% of Passenger-Men	Number of Patients Passenger-Women	% of Passenger-Women
< 1	613	347	56.61%	265	43.23%
1-4	4,197	2,263	53.92%	1,931	46.01%
5-9	5,680	2,929	51.57%	2,747	48.36%
10-14	5,540	2,833	51.14%	2,700	48.74%
15-19	15,100	7,654	50.69%	7,437	49.25%
<b>Totals</b>	<b>31,130</b>	<b>16,026</b>		<b>15,080</b>	

**Figure 30B**

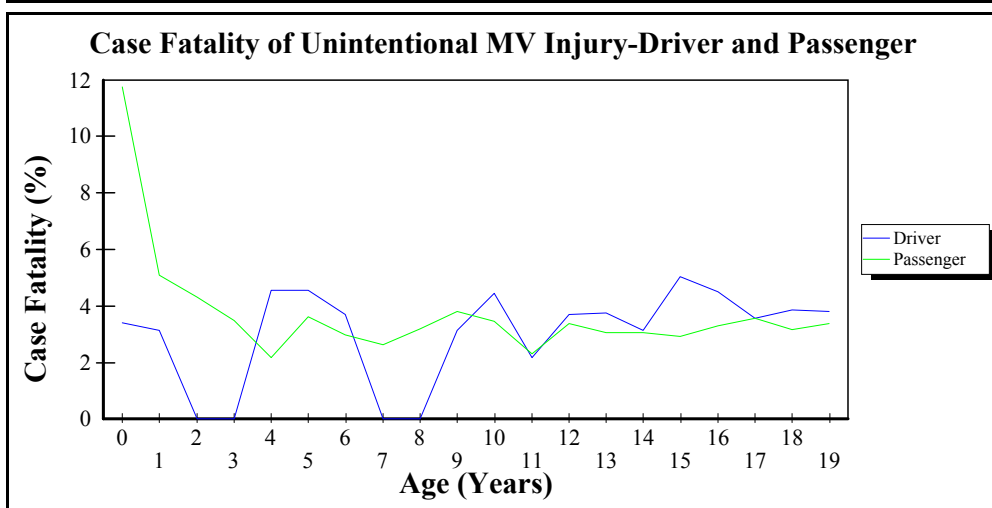
Percentage of passengers for men and women at each age range from 0 to 19. (Percentage of passengers by gender = number of passengers by gender divided by the number of passengers X 100 by age range).



**Figure 31A**

Unintentional motor vehicle traffic related injuries (UMVTRI) sustained by occupants are classified from ICD-9-CM Ecode E810-E819(.0,.1).

Number of deaths due to UMVTRI, number of deaths of drivers, and number of deaths of passengers at each age from 0 to 19. Total N = 1,827.



**Figure 31B**

Case fatality due to UMVTRI for drivers and passengers at each age from 0 to 19. (Case fatality = number of deaths divided by the number of patients X 100 by Motor vehicle occupant at each age).

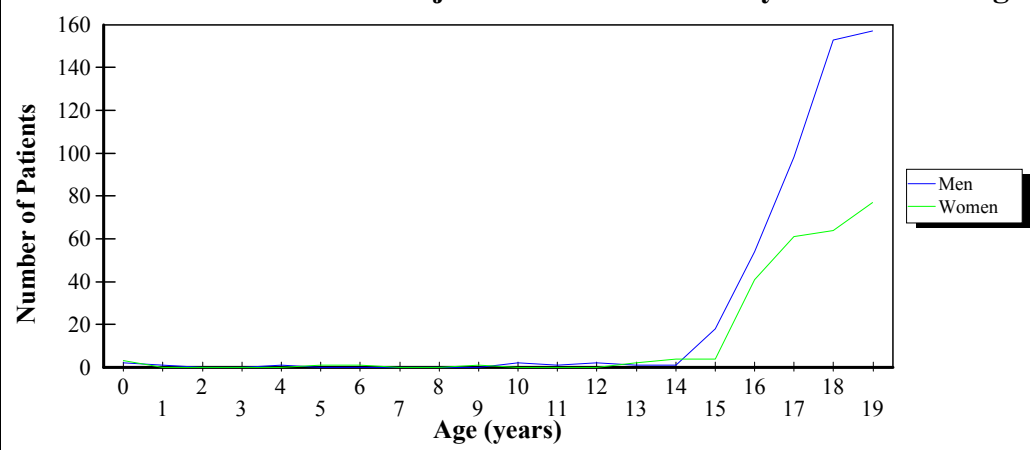
Age Range	Number of Patients Died MVC	Number of Patients Driver	Number of Patients Died Driver	Case Fatality Driver	Number of Patients Passenger	Number of Patients Died Passenger	Case Fatality Passenger
< 1	77	*147	5	3.40%	613	72	11.75%
1-4	156	*92	2	2.17%	4,197	154	3.67%
5-9	188	*149	3	2.01%	5,680	185	3.26%
10-14	182	*384	13	3.39%	5,540	169	3.05%
15-19	1,224	18,797	728	3.87%	15,100	496	3.28%
<b>Totals</b>	<b>1,827</b>	<b>19,569</b>	<b>751</b>		<b>31,130</b>	<b>1,076</b>	

**Figure 31C**

\* These records were submitted with external cause of injury codes for MVC drivers. The circumstances of these injuries are not known.



**Unintentional MV Related Injuries-Driver Deaths by Gender and Age**



**Figure 32A**

Unintentional motor vehicle traffic related injuries (UMVTTRI) sustained by occupants are classified from ICD-9-CM Ecode E810-E819(.0,.1).

Number of driver deaths due to UMVTTRI for both men and women at each age from 0 to 19. Total N = 750.

**Figure 32B**

Age Range	Total Number of Drivers	Number of Patients Driver - Men	Number of Patients Died Driver - Men	Case Fatality Driver - Men	Number of Patients Driver - Women	Number of Patients Died Driver - Women	Case Fatality Driver - Women
< 1	*147	106	2	1.89%	40	3	7.50%
1-4	*92	60	2	3.33%	32	0	0.00%
5-9	*149	89	0	0.00%	60	3	5.00%
10-14	*384	265	7	2.64%	119	6	5.04%
15-19	18,797	11,462	480	4.19%	7,322	247	3.37%
<b>Totals</b>	19,569	11,982	491		7,573	259	

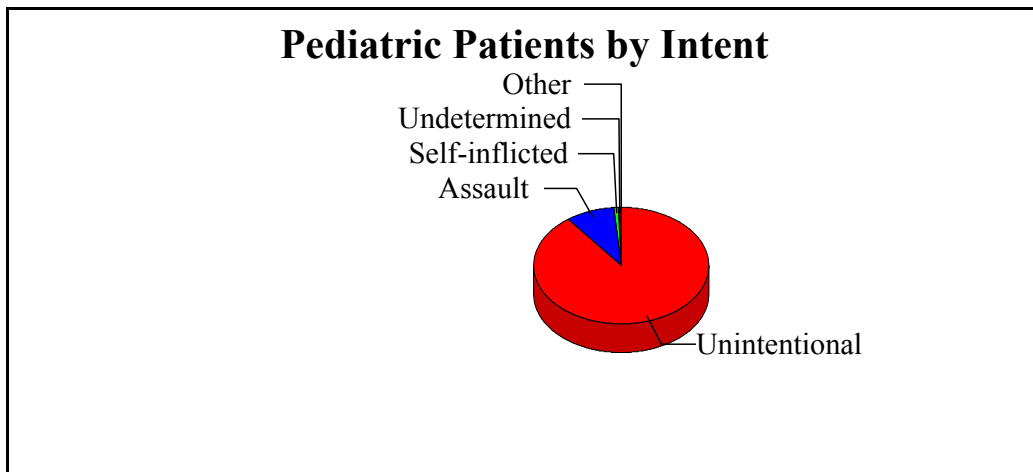
\* These records were submitted with external cause of injury codes for MVC drivers. The circumstances of these injuries are not known.

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Annual Report 2004****Special Section: Intentionality**

In August 1997, the CDC published an MMWR article titled “Recommended Framework for Presenting Injury Mortality Data”, 46(RR14): 1-30 (<http://www.cdc.gov/mmwr/preview/mmwrhtml/00049162.htm>). The framework is a matrix table of standard groupings of ICD-9 codes that are used to present injury mortality and morbidity data. The ICD-9 codes are categorized as intentional and unintentional. The intentional group is further divided into assault and self-inflicted categories.

The CDC’s purpose in developing a framework of external injury code groupings was to improve the usefulness of external cause of injury data for research, surveillance, and prevention activities. Common definitions of external cause categories and uniform presentation of data help to provide a better understanding of the scope of the injury problem in the United States and internationally and allow for comparisons of injury rates among states and communities.

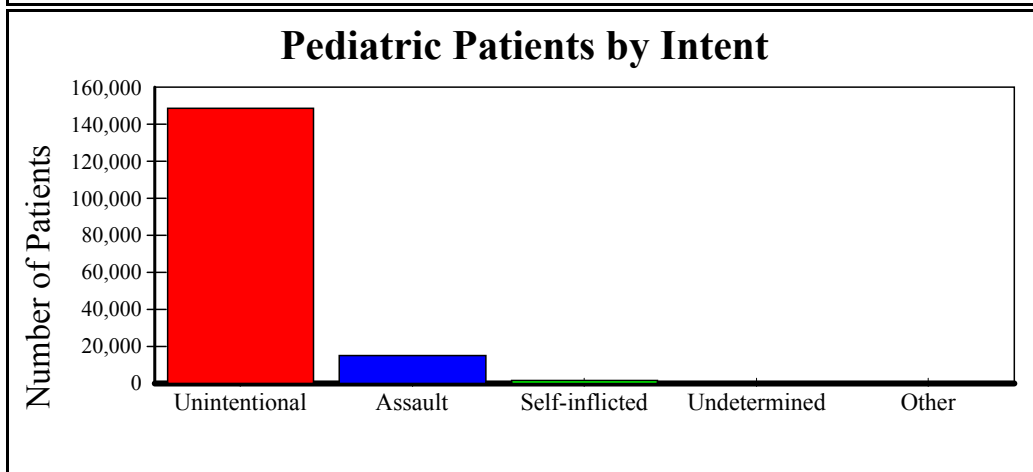
In the interest of providing useful information to the trauma community and encouraging standardization of data, NTDB has adopted the new external injury code framework in this Annual Report 2004. This approach to intentionality is seen in Figures 33 – 42.



**Figure 33A**

Proportional distribution of patients, grouped by intent. Total N = 165,718.

Intent was defined in Appendix D.



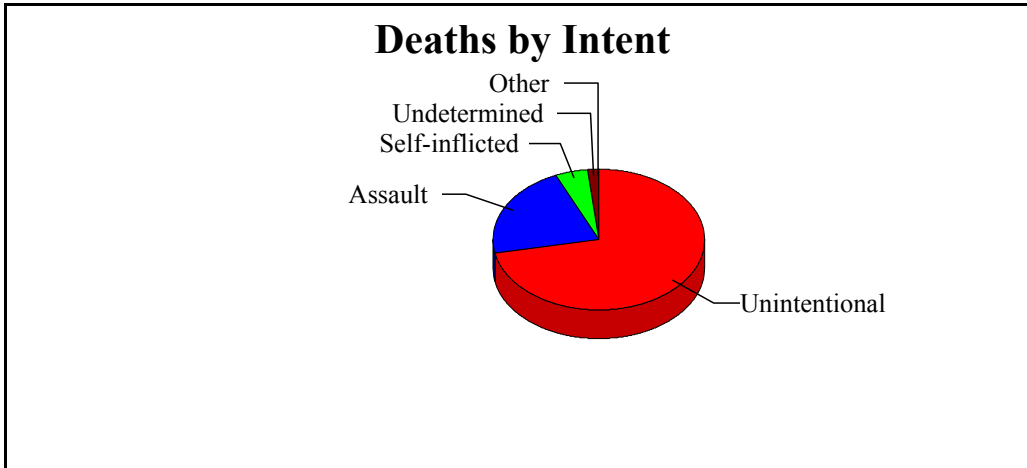
**Figure 33B**

Number of patients in each category of intent.

Intent	Number of Patients	% of Total Patients Intent
Unintentional	148,484	89.60%
Assault	14,899	8.99%
Self-inflicted	1,328	0.80%
Undetermined	862	0.52%
Other	145	0.09%
<b>Totals</b>	<b>165,718</b>	

**Figure 33C**

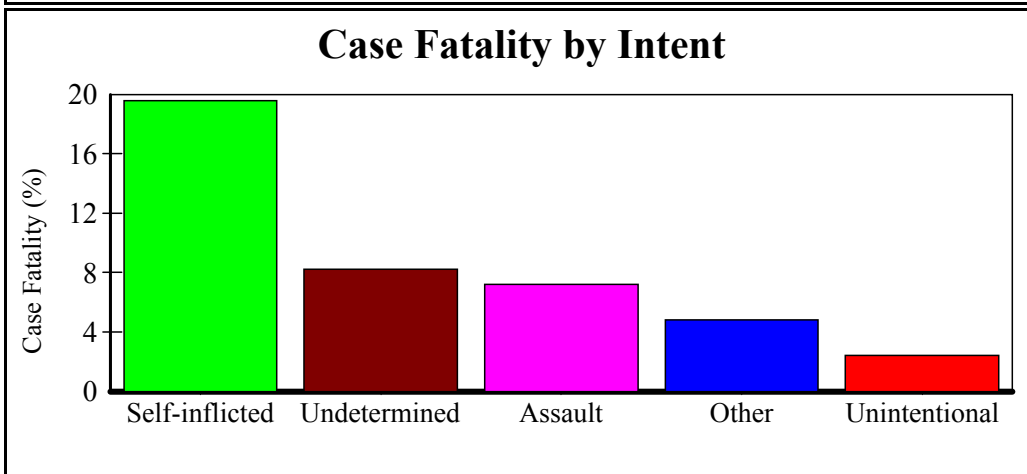
Percentage of patients by intent. (Percentage of patients = number of patients by intent divided by the number of patients X 100).



**Figure 34A**

Proportional distribution of deaths, grouped by intent. Total N = 5,043.

Intent was defined in Appendix D.

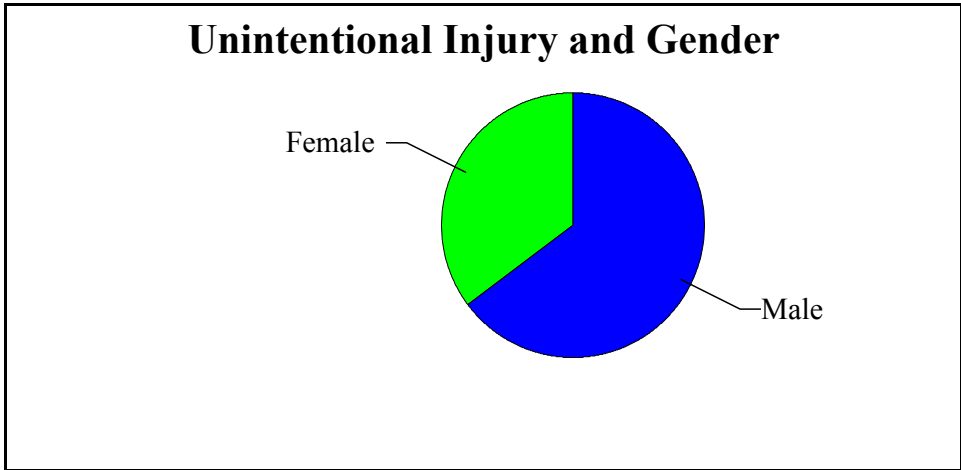


**Figure 34B**

Case fatality for each intent (Case fatality = number of deaths divided by the number of patients X 100 by intent).

Intent	Number of Patients	Number of Patients Died	Case Fatality Intent
Self-inflicted	1,328	260	19.58%
Undetermined	862	71	8.24%
Assault	14,899	1,078	7.24%
Other	145	7	4.83%
Unintentional	148,484	3,627	2.44%
<b>Totals</b>	<b>165,718</b>	<b>5,043</b>	

**Figure 34C**



**Figure 35A**

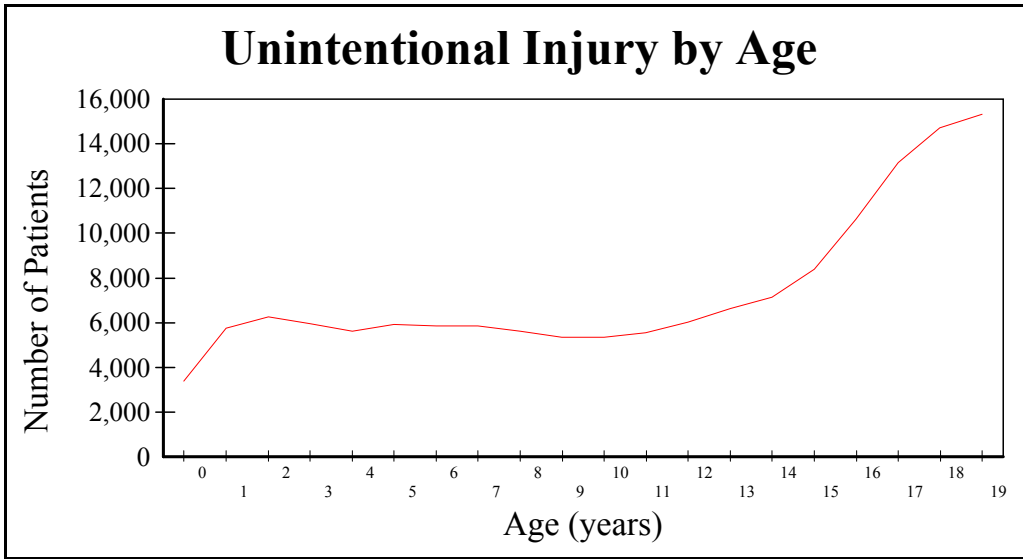
Proportional distribution of unintentional injury, grouped by gender. Total N = 148,355.

Unintentional injury was defined in Appendix D.

Gender	Number of Patients	% of Total Patients Gender
Male	95,961	64.68%
Female	52,394	35.32%
<b>Totals</b>	<b>148,355</b>	

**Figure 35B**

Percentage of patients for unintentional injury by gender. (Percentage of patients = number of patients by gender divided by the number of patients X 100).



**Figure 36A**

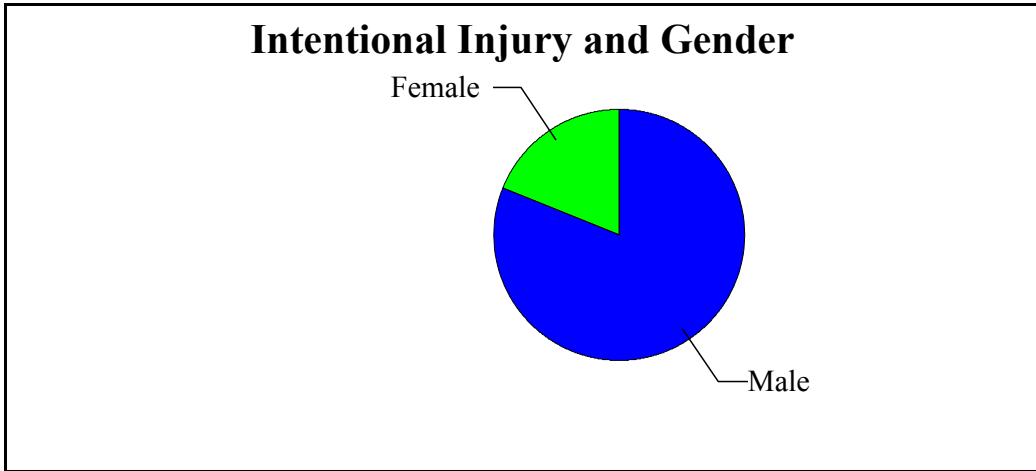
Number patients injured unintentionally at each age from 0 to 19. Total N = 148,484.

Unintentional injury was defined in Appendix D.

Age Range	Number of Patients	% of Total Patients
< 1	3,372	2.27%
1-4	23,630	15.91%
5-9	28,612	19.27%
10-14	30,726	20.69%
15-19	62,144	41.85%
<b>Totals</b>	<b>148,484</b>	

**Figure 36B**

Percentage of patients injured unintentionally by age range. (Percentage of patients by age range = number of patients by age range divided by the number of patients X 100 by age range).



**Figure 37A**

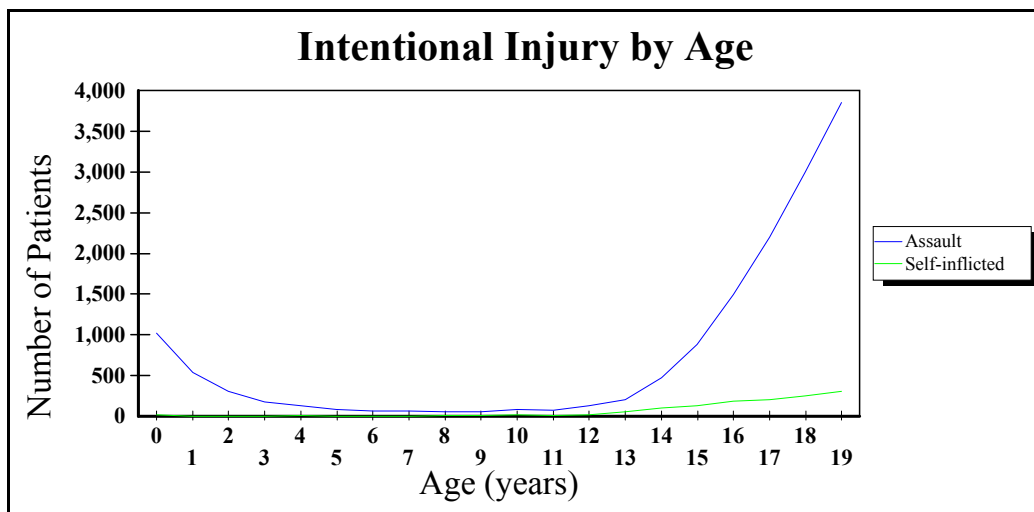
Proportional distribution of intentional injury, grouped by gender. Total N = 16,222.

Intentional injury was defined in Appendix D.

Gender	Number of Patients	% of Total Patients Gender
Female	3,048	18.79%
Male	13,174	81.21%
<b>Totals</b>	<b>16,222</b>	

**Figure 37B**

Percentage of patients for intentional injury by gender. (Percentage of patients = number of patients by gender divided by the number of patients X 100).



**Figure 38A**

Number of patients injured intentionally, for both assault and self-inflicted at each age from 0 to 19. Total N = 16,227.

Intentional injury was defined in Appendix D.

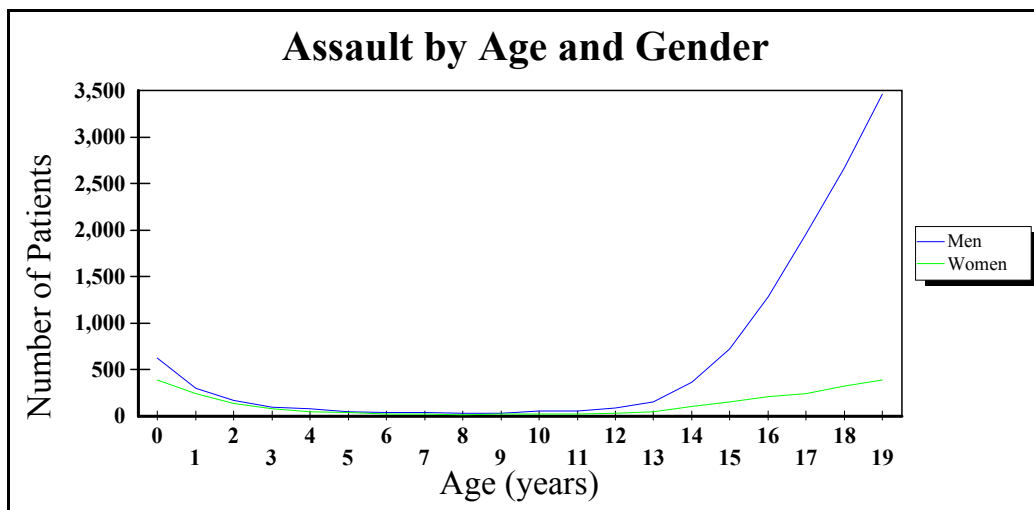
**Figure 38B**

Percentage of patients injured intentionally. (Percentage of patients by intent = number of patients by intent divided by the number of patients X 100 by age range).

Age Range	Number of Patients	Number of Patients Assault	% of Patients Assault	Number of Patients Self-inflicted	% of Patients Self-inflicted
< 1	1,034	1,018	98.45%	*16	1.55%
1-4	1,169	1,157	98.97%	*12	1.03%
5-9	354	331	93.50%	*23	6.50%
10-14	1,155	956	82.77%	199	17.23%
15-19	12,515	11,437	91.39%	1,078	8.61%
<b>Totals</b>	16,227	14,899		1,328	

\* These records were submitted with external cause of injury codes for self-inflicted. The circumstances of these injuries are not known.





**Figure 39A**

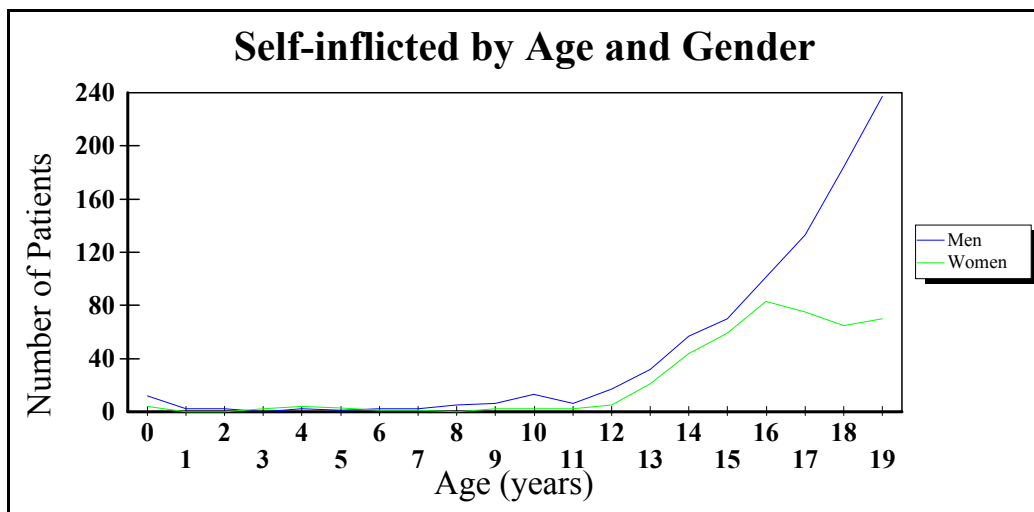
Number of patients injured intentionally, for assault at each age from 0 to 19. Total N = 14,899.

Intentional injury was defined in Appendix D.

Age Range	Number of Patients	Number of Patients Assault	% of Patients Assault
< 1	4,861	1,018	20.94%
1-4	27,675	1,157	4.18%
5-9	31,494	331	1.05%
10-14	34,738	956	2.75%
15-19	80,435	11,437	14.22%
<b>Totals</b>	<b>179,203</b>	<b>14,899</b>	

**Figure 39B**

Percentage of patients injured intentionally by age range. (Percentage of patients by age range = number of patients by assault divided by the number of patients X 100 by age range).



**Figure 40A**

Number of patients injured intentionally, for self-inflicted at each age from 0 to 19. Total N = 1,328.

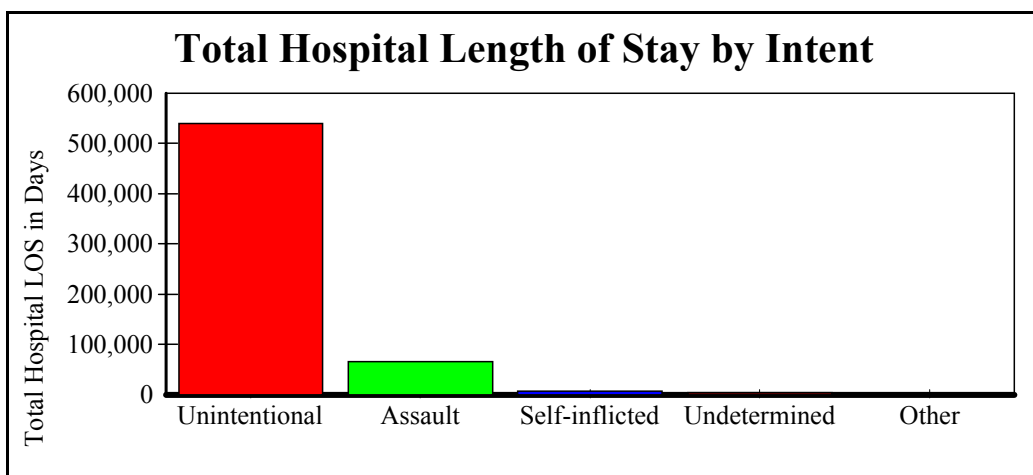
Intentional injury was defined in Appendix D.

Age Range	Number of Patients	Number of Patients Self-inflicted	% of Patients Self-inflicted
< 1	4,861	*16	0.33%
1-4	27,675	*12	0.04%
5-9	31,494	23	0.07%
10-14	34,738	199	0.57%
15-19	80,435	1,078	1.34%
<b>Totals</b>	179,203	1,328	

**Figure 40B**

Percentage of patients injured intentionally by age range. (Percentage of patients by age range = number of patients by self-inflicted divided by the number of patients X 100 by age range).

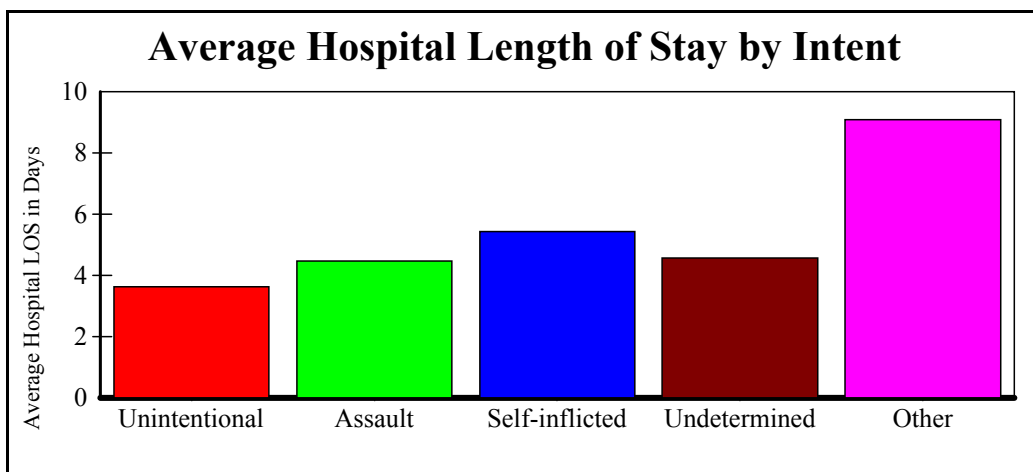
\* These records were submitted with external cause of injury codes for self-inflicted. The circumstances of these injuries are not known.



**Figure 41A**

Proportional distribution of total hospital length of stay, grouped by intent. Total N = 165,718. Total hospital length of stay = 618,116 days.

Intent was defined in Appendix D.



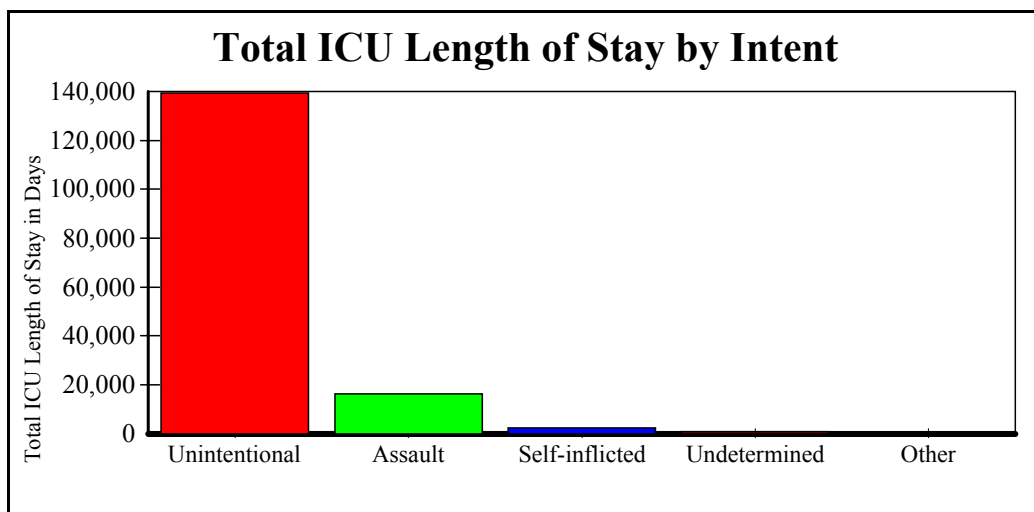
**Figure 41B**

Average hospital length of stay for patients, grouped by intent. (Average hospital length of stay = total hospital length of stay divided by the number of patients by intent)

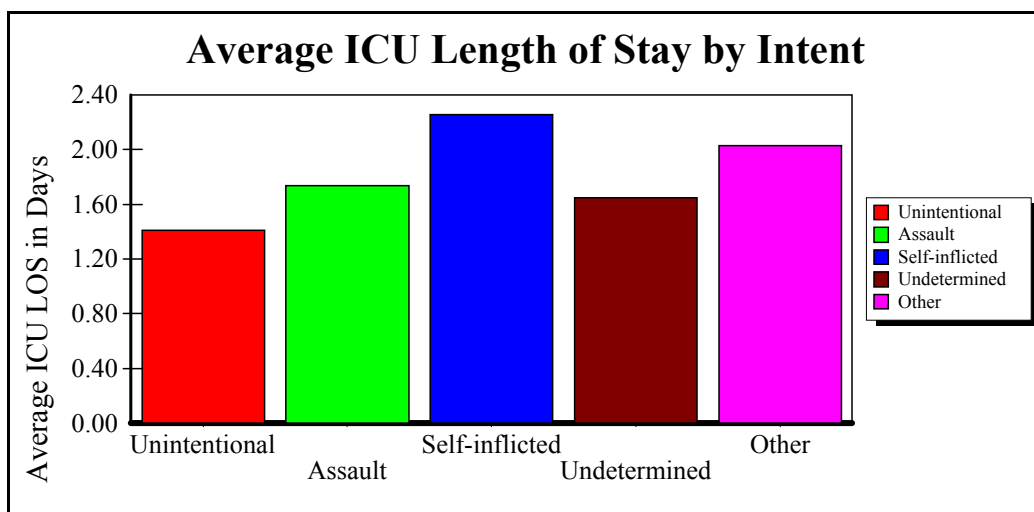
Intent	Number of Patients	% of Total Patients	Total of Hospital LOS in Days	% of Hospital LOS in Days	Average of Hospital LOS in Days
Unintentional	148,484	89.60%	539,349	87.26%	3.63
Assault	14,899	8.99%	66,331	10.73%	4.45
Self-inflicted	1,328	0.80%	7,197	1.16%	5.42
Undetermined	862	0.52%	3,923	0.63%	4.55
Other	145	0.09%	1,316	0.21%	9.08
<b>Totals</b>	<b>165,718</b>		<b>618,116</b>		

**Figure 41C**

Percentage of hospital length of stay by intent. (Percentage of hospital length of stay in days = total hospital length of stay by intent divided by the number of patients X 100).



**Figure 42A**  
 Proportional distribution of total hospital length of stay, grouped by intent . Total N = 109,767. Total hospital length of stay = 159,005 days.  
 Intent was defined in Appendix D.



**Figure 42B**  
 Average ICU length of stay grouped by intent. (Average ICU length of stay = total ICU length of stay divided by the number of patients by intent).

Intent	Number of Patients	% of Total Patients	Total of ICU LOS in Days	% of ICU LOS in Days	Average of ICU LOS in Days
Unintentional	98,716	89.93%	139,288	87.60%	1.41
Assault	9,338	8.51%	16,230	10.21%	1.74
Self-inflicted	1,027	0.94%	2,318	1.46%	2.26
Undetermined	584	0.53%	962	0.61%	1.65
Other	102	0.09%	207	0.13%	2.03
<b>Totals</b>	<b>109,767</b>		<b>159,005</b>		

**Figure 42C**  
 Percentage of ICU length of stay by intent. (Percentage of ICU length of stay in days = total ICU length of stay by intent divided by the total ICU length of stay X 100).

## Appendix A

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### ***DEFINITION OF TRAUMA PATIENT ADOPTED BY NATIONAL TRAUMA DATA BANK (NTDB)\****

- Any patient with ICD-9-CM discharge diagnosis 800.00 – 959.9
  - Excluding 905-909 (late effects of injury)
  - Excluding 910-924 (blisters, contusions, abrasion, and insect bites)
  - Excluding 930-939 (foreign bodies)
  
- All trauma-related hospital admissions
  
- All injury-related deaths in ED or after admission logistic information, coordination of daily data processing, and monitoring of the effectiveness of interaction of all involved services, including case management and resource utilization.

## Appendix B

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The following is a listing of NTDB data elements. For more detailed field information, please see the NTDB Data Submission File Format, located on the NTDB website at [www.ntdb.org](http://www.ntdb.org).

### FACILITY PROFILE RECORD

ACS Verification Level  
State Designation  
Number of Adult Hospital Beds  
Number of Pediatric Hospital Beds  
Number of Burn Hospital Beds  
Number of ICU Beds Available for Trauma Patients  
Number of ICU Beds Available for Burn Patients  
Hospital Teaching Status  
Hospital Type

### INCIDENT COMPLICATION RECORD

Complication Code  
Complication Description

### INCIDENT DEMOGRAPHICS RECORD

Date of Birth  
Age  
Gender  
Race/Ethnicity  
Principal Payment Source

### INCIDENT DIAGNOSIS RECORD

ICD-9-CM Code of Diagnosis  
Description of ICD-9-CM Code of Diagnosis  
ICD-9-CM Effective Date  
AIS Full Code of Diagnosis  
Description of AIS Code of Diagnosis  
AIS Effective Year  
AIS Severity Score  
AIS Revision

### INCIDENT DIAGNOSIS STATISTICS RECORD

Total Injury Severity Score  
TRISS Survival Probability

### INCIDENT EMERGENCY DEPARTMENT RECORD

First Recorded Date of Patient's Arrival at Reporting Hospital ED

First Recorded Time of Patient's Arrival at Reporting Hospital ED  
Was Trauma Surgeon Arrival in ED Timely?  
First Systolic Blood Pressure in ED  
First Unassisted Respiratory Rate in ED  
Respiratory Rate Assessment Qualifier in ED  
First Temperature in ED  
Temperature Scale  
Head CT Results  
Abdominal Evaluation  
Abdominal Evaluation Type  
Base Deficit/Excess in ED  
Lowest Glasgow Eye Component in ED  
Lowest Glasgow Verbal Component in ED  
Lowest Glasgow Motor Component in ED  
GCS Assessment Qualifier in ED  
Glasgow Coma Scale Total in ED  
Revised Trauma Score in ED  
Alcohol Present in Blood?  
Drugs Present?  
Admitting Service  
Emergency Department Disposition

INCIDENT INTER-HOSPITAL TRANSFER RECORD

Inter-Hospital Transfer

INCIDENT INTUBATION RECORD

Intubation Location Indicator  
Intubation Type

INCIDENT OUTCOME RECORD

Length of Stay in Hospital  
Days of Total Stay in ICU  
Ventilator Support Days  
FIM Self-Feeding Score at Discharge  
Status of FIM Self-Feeding Score  
FIM Locomotion Score at Discharge  
Status of FIM Locomotion Score  
FIM Expression Score at Discharge  
Status of FIM Expression Score  
Total FIM Score  
Date of Discharge or Death  
Discharge Disposition  
Billed Hospital Charges  
Discharge Status

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INCIDENT PRE-EXISTING COMORBIDITY FACTORS RECORD

Comorbidity Factor Code  
Comorbidity Description

INCIDENT PREHOSPITAL PROCEDURES RECORD

Prehospital Procedure

INCIDENT PROCEDURE RECORD

ICD-9-CM Code of Procedure  
Description of ICD-9-CM Code of Procedure  
ICD-9-CM Effective Date  
CPT-4 Code of Procedure  
Description of CPT-4 Code of Procedure  
CPT-4 Effective Year  
Date on Which Procedure Occurred  
Time at Which Procedure Occurred  
Number of Days After Arrival Procedure Was Done  
Number of Hours After Arrival Procedure Was Done  
Number of Minutes After Arrival Procedure Was Done

INCIDENT SAFETY EQUIPMENT RECORD

Safety Equipment Used

INCIDENT SCENE RECORD

Site at Which Injury Occurred  
Work Relatedness of Injury  
E-Code  
E-Code Description  
Lowest Glasgow Eye Component at the Scene  
Lowest Glasgow Verbal Component at the Scene  
Lowest Glasgow Motor Component at the Scene  
GCS Assessment Qualifier at the Scene  
Glasgow Coma Scale Total at the Scene  
Date on Which Injury Occurred  
Days Between Injury and Admission  
Country in Which Injury Occurred  
Injury Type



## **Appendix C**

### **Criteria for Inconsistent and Irrelevant Data**

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The NTDB Committee Data Quality Work Group has developed the National Trauma Data Bank Reference Manual. This manual is a resource for researchers as they use the database, helping them to evaluate the NTDB as a tool for research and providing information on the current limitations of the NTDB. The manual is available on the ACS website at [www.ntdb.org](http://www.ntdb.org).

Records were excluded from analysis if they met one or more of the following criteria:

- Age  $\leq$  0.0
- Age > 19
- LOS < 0
- LOS > 300
- LOS < ICU days
- Gender = Unknown
- Discrepancy between discharge status and disposition (that is, alive or dead)
- Admitted before year 1999 except Figure 2 - Figure 3, Figure 5.
- Admitted after year 2003 except Figure 2 - Figure 3, Figure 5.

## Appendix D

## Recommended framework of E-code groupings for presenting injury mortality and morbidity data

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other <sup>1</sup>
Cut/pierce	E920.0-9	E956	E966	E986	E974
Drowning/submersion	E830.0-9, E832.0-9 E910.0-9	E954	E964	E984	
Fall	E880.0-E886.9, E888	E957.0-9	E968.1	E987.0-9	
Fire/burn	E890.0-E899, E924.0-9	E958.1,.2,.7	E961, E968.0,.3	E988.1,.2,.7	
Fire/flame	E890.0-E899	E958.1	E968.0	E988.1	
Hot object/substance	E924.0-9	E958.2,.7	E961, E968.3	E988.2,.7	
Firearm	E922.0-.3,.8, .9	E955.0-4	E965.0-4	E985.0-4	E970
Machinery	E919 (.0-9)				
Motor vehicle traffic <sup>2,3</sup>	E810-E819 (.0-9)	E958.5	E968.5	E988.5	
Occupant	E810-E819 (.0,.1)				
Motorcyclist	E810-E819 (.2,.3)				
Pedal cyclist	E810-E819 (.6)				
Pedestrian	E810-E819 (.7)				
Unspecified	E810-E819 (.9)				
Pedal cyclist, other	E800-E807 (.3) E820-E825 (.6), E826.1,.9 E827-E829(.1)				
Pedestrian, other	E800-807(.2) E820-E825(.7) E826-E829(.0)				
Transport, other	E800-E807 (.0,.1,.8,.9) E820-E825 (.0-.5,.8,.9) E826.2-8 E827-E829 (.2-.9), E831.0-9, E833.0-E845.9	E958.6		E988.6	
Natural/environmental	E900.0-E909, E928.0-2	E958.3		E988.3	
Bites and stings <sup>3</sup>	E905.0-6,.9 E906.0-4,.5,.9				
Overexertion	E927				
Poisoning	E850.0-E869.9	E950.0-E952.9	E962.0-9	E980.0-E982.9	E972
Struck by, against	E916-E917.9		E960.0; E968.2		E973, E975
Suffocation	E911-E913.9	E953.0-9	E963	E983.0-9	
Other specified and classifiable <sup>4</sup>	E846-E848, E914-E915 E918, E921.0-9, E922.4,5 E923.0-9, E925.0-E926.9 E928.3, E929.0-5	E955.5,.6,.7,.9 E958.0,.4	E960.1, E965.5-9 E967.0-9, E968.4,.6, .7 E979.0-9	E985.5,.6,.7 E988.0,.4	E971, E978, E990-E994, E996 E997.0-2
Other specified, not elsewhere classifiable	E928.8, E929.8	E958.8, E959	E968.8, E969	E988.8, E989	E977, E995, E997.8 E998, E999

Mechanism/Cause					
	Unintentional	Self-inflicted	Assault	Undetermined	Other <sup>1</sup>
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All injury	E800-E869, E880-E929	E950-E959	E960-E969, E979	E980-E989	E970-E978, E990-E999
Adverse effects					E870-E879 E930.0-E949.9
Medical care					E870-E879
Drugs					E930.0-E949.9
All external causes					E800-E999

<sup>1</sup>Includes legal intervention (E970-E978) and operations of war (E990-E999).

<sup>2</sup>Three 4th-digit codes (.4 [occupant of streetcar], .5 [rider of animal], .8 [other specified person]) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle traffic category, the sum of these categories can be derived by subtraction.

<sup>3</sup>E968.5 (assault by transport vehicle), E906.5 (bite from unspecified animal), E922.4 (unintentional injury [gunshot wound] with BB/pellet), E955.6 (suicide attempt/intentionally self-inflicted injury [gunshot wound] with BB/pellet gun), E968.6 (assault [gunshot wound] with BB/pellet gun), E985.6 (undetermined intent injury [gunshot wound] with BB/pellet gun), E928.3 (unintentional human bite), and E968.7 (assault by human bite), are specific to the *ICD-9-CM* and, therefore, only apply to morbidity coding.

<sup>4</sup>E849 (place of occurrence) has been excluded from the matrix. For mortality coding, an *ICD-9* E849 code does not exist. For morbidity coding, an *ICD-9-CM* E849 code should never be first-listed E code and should only appear as an additional code to specify the place of occurrence of the injury incident.

**Note:** ICD-9 E codes for coding underlying cause of death apply to injury-related death data from 1979 through 1998. Then there is a new ICD-10 external cause of injury matrix that applies to death data from 1999 and after. This can be found on the [National Center for Health Statistics website](#).<sup>5/15/2003</sup>

## Appendix E

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The following is a listing of states and hospitals that have contributed to NTDB in any year. Some state agencies do not provide the names of contributing hospitals, so the individual hospitals are not listed below their respective states. Also, some data were received after the NTDB data collection deadline and are not included in the analysis for this report.

### State Agencies

Alabama Department of Public Health, Alabama  
 Alaska State Dept of Health, Alaska  
 LA-County Department, California  
 Delaware State, Delaware  
 Georgia State, Georgia  
 Iowa Department of Public Health, Iowa  
 Kansas State Department of Health, Kansas  
 State of Minnesota, Minnesota  
 Missouri Department of Health, Missouri  
 State of Nevada, Nevada  
 State of North Carolina, North Carolina  
 Central Ohio, Ohio  
 State of Washington, Washington  
 Illinois Department of Public Health

### Alabama

Childrens Hospital of AL  
 Crestwood Medical Center  
 DCH Regional Medical Center  
 Huntsville Hospital  
 Northeast Alabama Regional Medical Center  
 Northport Medical Center  
 University of Alabama School of Medicine  
 University of South Alabama Medical Center  
 Walker Baptist Medical Center

### Alaska

Alaska Native Medical Center  
 Flagstaff Medical Center

### Arizona

John C. Lincoln Hospital, North Mountain  
 Maricopa Integrated Health Systems  
 Scottsdale Healthcare – Osborn  
 St. Joseph's Hospital and Medical Center

### Arkansas

Arkansas Childrens Hospital

UAMS Medical Center

White River Medical Center

**California**

Arrowhead Regional Medical Center

Cedars-Sinai Medical Center

Children's Hospital Los Angeles

Harbor/UCLA Medical Center

Henry Mayo Newhall Memorial Hospital

Huntington Memorial Hospital

LAC+USC Medical Center

Loma Linda University Medical Center

Long Beach Memorial Medical Center

Martin Luther King / Drew Medical Center

Memorial Medical Center

Mercy San Juan Hospital

Northridge Hospital Medical Center

Palomar Medical Center

Providence Holy Cross Medical Center

Saint Francis Medical Center

Saint Mary Medical Center

San Francisco General Hospital

San Jose Medical Center

Santa Barbara Cottage Hospital

Santa Clara Valley Medical Center

Scripps Memorial Hospital

Sharp Memorial Hospital

Stanford Hospital & Clinics

UCLA Medical Center

UCSD Medical Center

University Medical Center

University of California Irvine Medical Center

Western Medical Center- SA

**Colorado**

Poudre Valley Hospital

**Connecticut**

Hospital of Saint Raphael

**Delaware**

Alfred I. DuPont Hospital for Children

Bayhealth Medical Center - Kent Campus

Beebe Medical Center

Christiana Hospital

Milford Memorial Hospital

Nanticoke Memorial Hospital

Wilmington Hospital

**District of Columbia**

George Washington University Medical Center  
Howard University Hospital  
Washington Hospital Center

**Florida**

All Children's Hospital  
Baptist Hospital  
Broward General Medical Center  
Halifax Medical Center  
Holmes Regional Trauma Center  
Lakeland Regional Medical Center  
Memorial Regional Hospital  
North Broward Medical Center  
Orlando Regional Healthcare  
Sacred Heart Health Systems  
Shands Jacksonville Medical Center  
Tampa General Hospital

**Georgia**

Atlanta Medical Center  
Children's Healthcare of Atlanta at Egleston  
Children's Healthcare of Atlanta of Scottish  
Floyd Medical Center  
Grady Memorial Health  
Gwinnett Medical Center  
Hamilton Medical Center  
Medical Center of Central Georgia  
Medical College of Georgia  
Memorial Hlth University Medical Center  
Morehouse  
North Fulton Regional Hospital  
Southern Regional Medical Center  
The Medical Center

**Hawaii**

The Queen's Medical Center

**Idaho**

Bonner General Hospital  
Eastern Idaho Regional Medical Center  
Magic Valley RMC  
Portneuf Medical Center  
Saint Alphonsus Regional Med Center

**Illinois**

Loyola University Medical Center

**Indiana**

Athens Regional Med Ctr  
Kwanis-Riley Regional Pediatric Trauma Center  
Memorial Hospital of South Bend

Parkview Hospital  
Saint Joseph's Regional Medical Center  
Wishard Memorial Hospital

**Kansas**

Columbia Wesley Medical Center  
Overland Park Regional Medical Center  
Stormont – Vail Health Care  
University of Kansas Medical Center

**Kentucky**

Kosair Childrens Hospital  
Regional Medical Center – Madisonville  
University of Kentucky  
University of Louisville Hospital

**Louisiana**

East Jefferson General Hospital  
Medical Center of Louisiana

**Maine**

Eastern Maine Medical Center  
Maine Medical Center

**Massachusetts**

Berkshire Medical Center  
Beth Israel Deaconess Medical Center  
Beverly Hospital  
Brigham and Women's Hospital  
Falmouth Hospital  
Lahey Clinic  
Lawrence General Hospital  
Massachusetts General Hospital  
North Shore Medical Center

**Michigan**

Borgess Medical Center  
Detroit Receiving Hospital  
Genesys Regional Medical Center  
Hackley Hospital  
Henry Ford Hospitals  
Hurley Medical Center  
McLaren Regional Medical Center  
Saint Mary's Mercy Medical Center  
Sparrow Health System  
Spectrum Health  
St. Joseph Mercy Hospital  
University of Michigan Trauma Burn Center  
William Beaumont Hospital

**Minnesota**

Hennepin County Medical Center  
Mercy Hospital  
North Memorial Medical Center  
Regions Hospital  
Saint Cloud Hospital  
Saint Luke's Hospital -  
Saint Mary's / Duluth Clinic Health System  
Unity Hospital

**Missouri**

Freeman Health System  
Independence Regional Health Center  
New Liberty Hospital District  
Research Medical Center  
Saint Luke's Hospital of Kansas City  
St. John's Health System  
St. John's Mercy Medical Center  
St. Louis University Hospital

**Nebraska**

BryanLGH Medical Center West  
Creighton University Medical Center  
Good Samaritan Hospital  
Great Plains Regional Medical Center  
Lincoln General Hospital  
Nebraska Health System University Hospital  
Regional West Medical Center  
Saint Francis Medical Center  
The Nebraska Methodist Hospital

**Nevada**

University Medical Center  
Washoe Medical Center

**New Jersey**

Atlantic City Medical Center - City  
Morristown Memorial Hospital  
NJ Trauma Center  
Robert Wood Johnson University Hospital

**New Mexico**

University Of New Mexico Hospital

**New York**

Bellevue Hospital  
North Shore University Hospital  
University Hospital Stony Brook

**North Carolina**

Carolinas Medical Center  
Cleveland Regional Medical Center



University Health Systems-East Carolina - Pitt  
Wake Forest University Baptist Medical Center

**North Dakota**

St. Luke's Hospital - North Dakota

**Ohio**

Akron City Hospital  
Miami Valley Hospital  
St. Vincent Mercy/Mercy Children's Hosp  
The University Hospital

**Oklahoma**

OU Medical Center  
St. John Medical Center

**Puerto Rico**

Puerto Rico Trauma Center

**Rhode Island**

Rhode Island Hospital

**South Carolina**

Medical University of SC  
Palmetto Health  
Regional Medical Center of Orangeburg and Cal  
Spartanburg Regional Healthcare System

**South Dakota**

Avera McKennan Hospital  
Sioux Valley Hospital USD Medical Center

**Tennessee**

Baptist Memorial Hospital  
Blount Memorial Hospital  
Bradley Memorial Hospital  
Bristol Regional Medical Center  
East TN Children's Hospital  
Erlanger Medical Center  
Johnson City Medical Center  
Le Bonheur Children's Medical Center  
Methodist Healthcare Central  
Regional Medical Center  
University of Tennessee Medical Center  
Vanderbilt University Medical Center

**Texas**

Baylor University Medical Center  
Brackenridge Hospital  
Children's Medical Center of Dallas  
Cook Children's Medical Center  
Covenant Medical Center  
Darnall Army Community Hospital

Methodist Dallas Medical Center  
Nacogdoches Medical Center  
Parkland Health & Hospital System  
University Medical Center

**Vermont**

Fletcher Allen Health Care

**Virginia**

Inova Fairfax Hospital  
Medical College of Virginia Hospitals  
Riverside Regional Medical Center  
Sentara Norfolk General Hospital

**Wisconsin**

Aurora Baycare Medical Center  
Froedtert Memorial Lutheran Hospital  
Gunderson Lutheran Hospital  
Saint Joseph's Hospital  
St. Vincent Hospital  
Theda Clark Medical Center  
University of Wisconsin



American College of Surgeons  
633 N. Saint Clair St.  
Chicago, IL 60611-3211

[www.ntdb.org](http://www.ntdb.org)