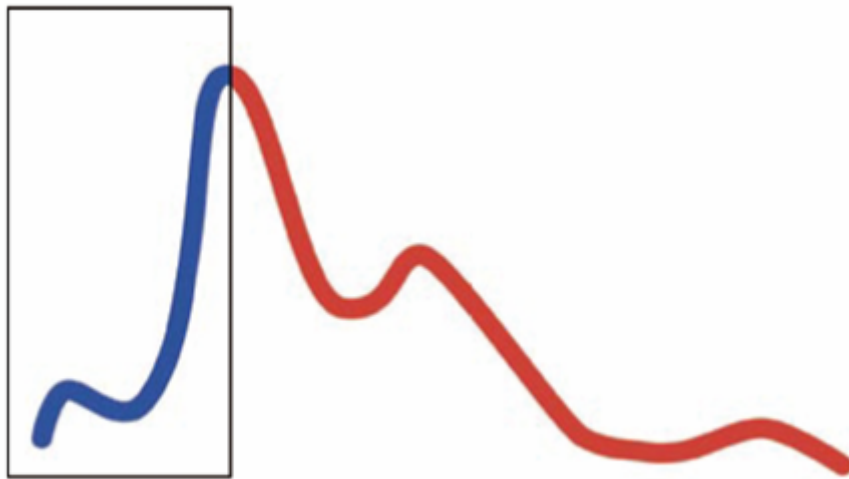


# National Trauma Data Bank Pediatric Report 2005



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



Dataset Version 5.0

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**NTDB Pediatric Annual Report 2005**

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### Pediatric Editors' Note

The Annual Pediatric Report of the National Trauma Data Bank (NTDB), Version 5.0 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, this report is an updated analysis of the largest aggregation of pediatric trauma registry data ever assembled. The pediatric component of the NTDB contains more than 285,000 records from U.S. trauma centers. The Pediatric Annual Report Version 5.0 is based on 221,451 records from the years 2000 to 2004. Prior to analysis NTDB data are subjected to a quality screening for consistency and validity (see Appendix C).

The Pediatric Surgery Specialty Group is committed to working with the National Trauma Data Bank Committee to ensure that the NTDB becomes the nonproprietary national repository for trauma center registry data for children. It is estimated that 70% of Level I and 53% of Level II trauma centers in the United States contribute data to the NTDB. Our goal is to receive data on every 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 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, 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."

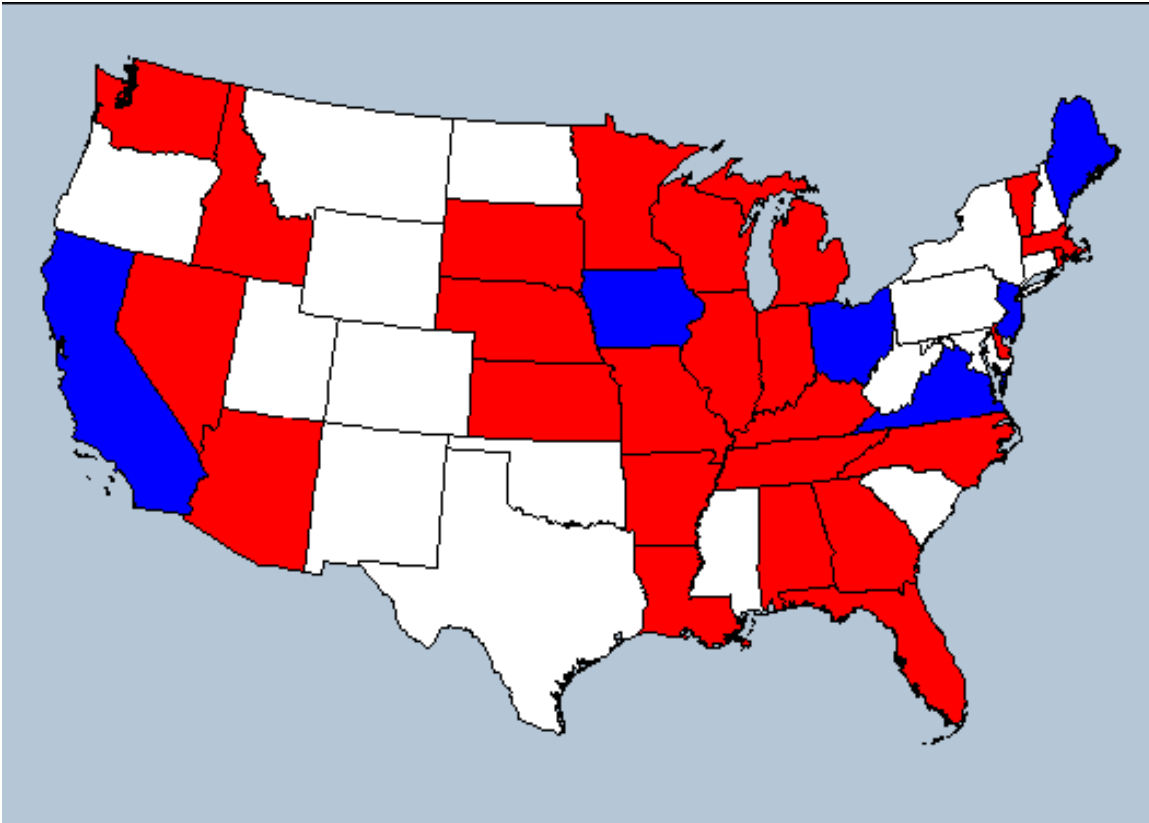
The NTDB is an exciting program that has the potential to significantly improve the care of injured patients in our country. The NTDB Committee would like to thank all the trauma centers that contributed data and hopes that this report will attract new participants.

The full National Trauma Data Bank Report, Version 5.0 is available on the ACS Web site 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 2006. Thank you on behalf of the American College of Surgeons and all of America's children.

NTDB wishes to thank the Emergency Medical Services for Children program of HRSA, whose support made the development of this report possible.

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

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



States and U.S. territories submitting data to the NTDB. Percentages are based on the number of centers submitting data in each state, divided by the number of centers identified by the Trauma Information Exchange Program of the American Trauma Society.

Red – 67% or more centers in the state have reported to NTDB  
Blue – 34% to 66%  
White – 0 to 33%

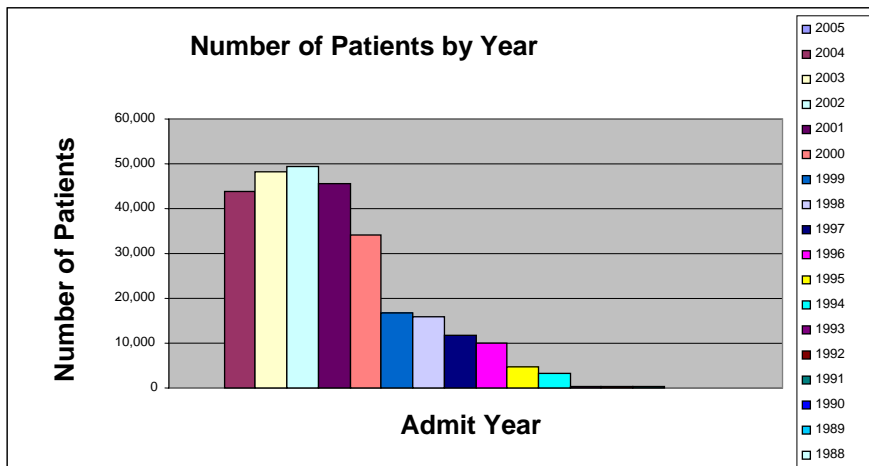


Figure 1A  
Number of patients in NTDB by year of admission.

Admit Year	Patient Count	Percent
2005	93	0.03
2004	43,841	15.37
2003	48,309	16.93
2002	49,481	17.34
2001	45,719	16.03
2000	34,101	11.95
1999	16,807	5.89
1998	15,995	5.61
1997	11,724	4.11
1996	10,099	3.54
1995	4,678	1.64
1994	3,359	1.18
1993	302	0.11
1992	332	0.12
1991	301	0.11
1990	114	0.04
1989	32	0.01
1988	8	0.00
<b>Total</b>	<b>285,295</b>	<b>100.00</b>

Figure 1B

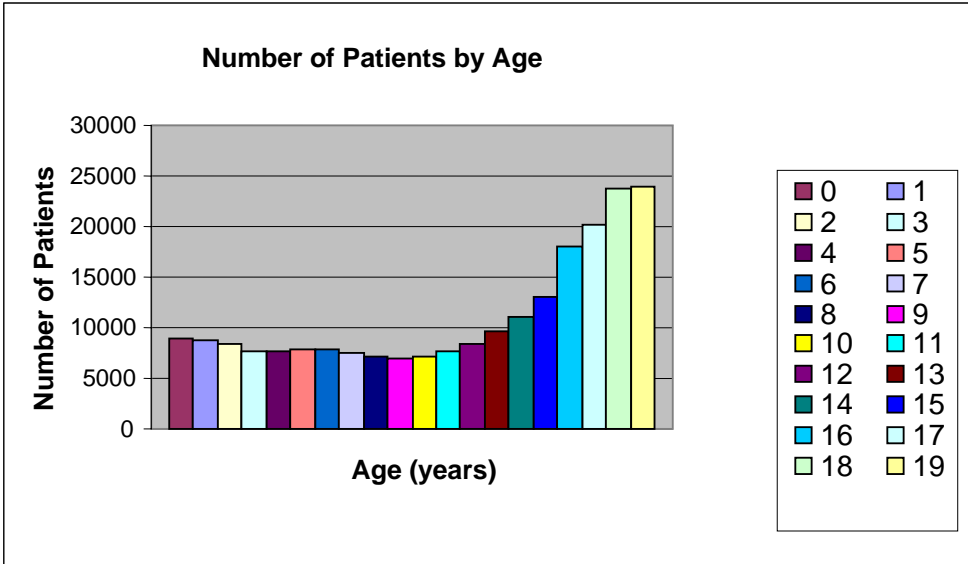


Figure 2A  
Number of patients by age.

Age	Number	Percent
0	8,971	4.05
1	8,686	3.92
2	8,425	3.80
3	7,733	3.49
4	7,649	3.45
5	7,870	3.55
6	7,929	3.58
7	7,539	3.40
8	7,082	3.20
9	6,886	3.11
10	7,153	3.23
11	7,618	3.44
12	8,462	3.82
13	9,564	4.32
14	11,147	5.03
15	12,958	5.85
16	18,067	8.16
17	20,096	9.07
18	23,752	10.73
19	23,864	10.78
<b>Total</b>	<b>221,451</b>	<b>100.00</b>

Figure 2B

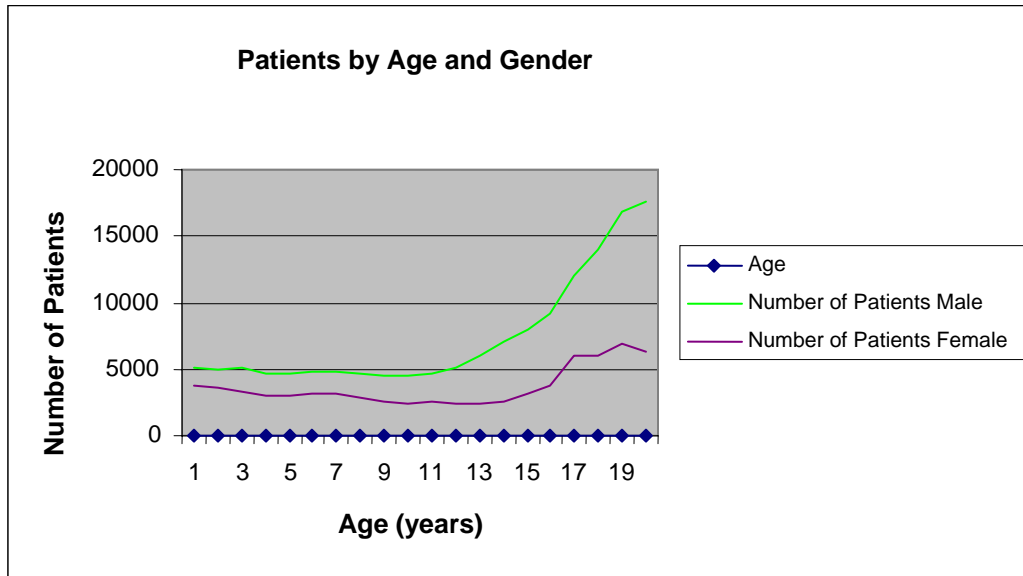


Figure 3A  
Number of males and females by age.

Age	Number	Number Males	Percent Males	Number Females	Percent Females
0	8,971	5,160	3.48	3,811	5.22
1	8,686	5,015	3.38	3,671	5.03
2	8,425	5,142	3.46	3,283	4.50
3	7,733	4,661	3.14	3,072	4.21
4	7,649	4,600	3.10	3,049	4.18
5	7,870	4,765	3.21	3,105	4.25
6	7,929	4,829	3.25	3,100	4.25
7	7,539	4,726	3.18	2,813	3.85
8	7,082	4,536	3.06	2,546	3.49
9	6,886	4,451	3.00	2,435	3.33
10	7,153	4,604	3.10	2,549	3.49
11	7,618	5,142	3.46	2,476	3.39
12	8,462	6,021	4.06	2,441	3.34
13	9,564	7,041	4.74	2,523	3.46
14	11,147	8,042	5.42	3,105	4.25
15	12,958	9,126	6.15	3,832	5.25
16	18,067	12,074	8.13	5,993	8.21
17	20,096	14,016	9.44	6,080	8.33
18	23,752	16,904	11.39	6,848	9.38
19	23,864	17,577	11.84	6,287	8.61
<b>Totals</b>	<b>221,451</b>	<b>148,432</b>	<b>100.00</b>	<b>73,019</b>	<b>100.00</b>

Figure 3B  
Percentage of patients for males and females 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.)



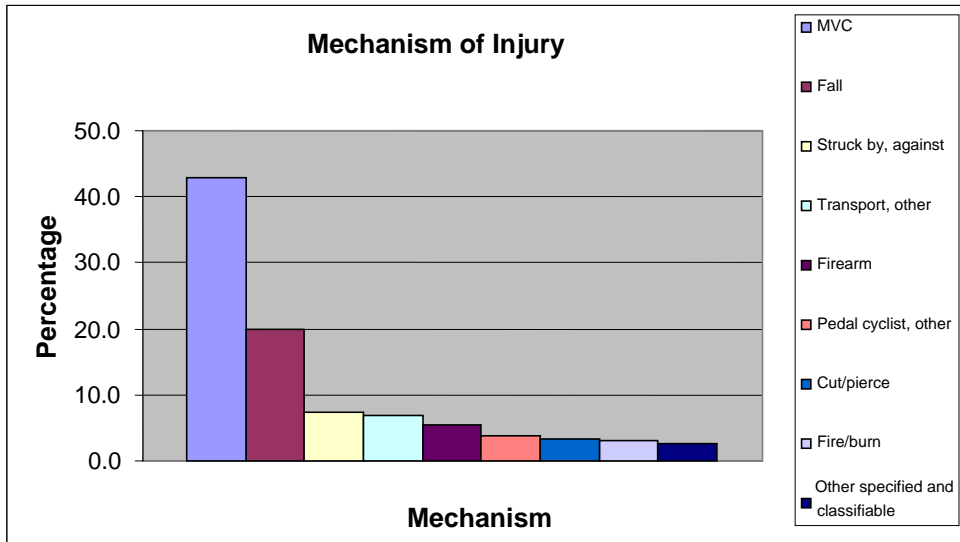


Figure 4A  
Patients grouped by mechanism of injury, as defined in Appendix D. Other includes the other specified and classifiable mechanism.

Mechanism	Count	Percent
Motor vehicle traffic	90,130	42.90
Fall	41,893	19.94
Struck by, against	15,435	7.35
Transport, other	14,480	6.89
Firearm	11,453	5.45
Pedal cyclist, other	7,717	3.67
Cut/pierce	6,905	3.29
Fire/burn	6,700	3.19
Other specified and classifiable	5,387	2.56
Natural/environmental	2,782	1.32
Unspecified	2,294	1.09
Machinery	1,197	0.57
Pedestrian, other	1,098	0.52
Overexertion	567	0.27
Other specified, not elsewhere classifiable	551	0.26
Drowning/submersion	487	0.23
Suffocation	369	0.18
Other specified, not elsewhere	322	0.15
Poisoning	254	0.12
Adverse effects	63	0.03
<b>Total</b>	<b>210,084</b>	<b>100.00</b>

Figure 4B  
Percentage of total patients by mechanism of injury = number of patients by mechanism of injury divided by total number of patients X 100.

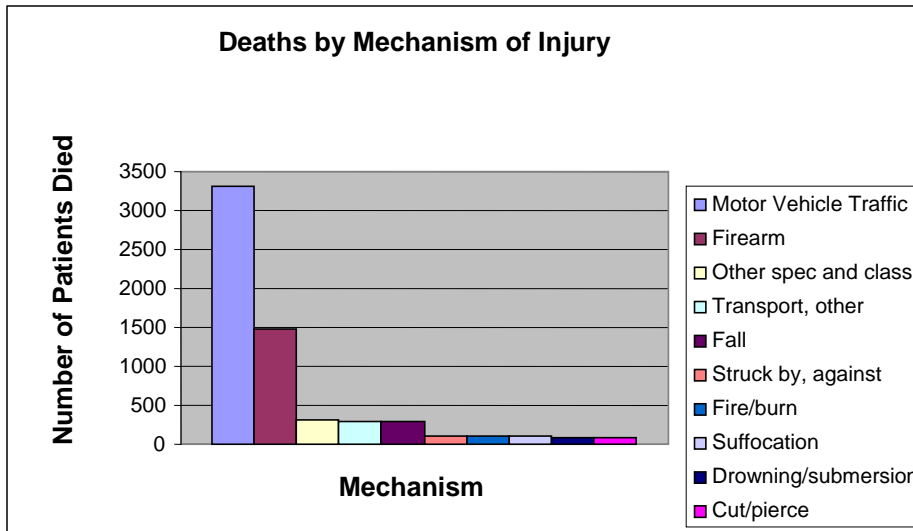


Figure 5A  
Number of deaths in each category of injury mechanism, as defined in Appendix D. Other includes the other specified and classifiable mechanism.

Mechanism	Number	Number Died	Fatality Rate for Mechanism
Overexertion	567	0	0.00
Fall	41,893	186	0.44
Pedal cyclist, other	7,717	41	0.53
Natural/environmental	2,782	17	0.61
Struck by, against	15,435	110	0.71
Other specified, not elsewhere	322	3	0.93
Cut/pierce	6,905	76	1.10
Poisoning	254	3	1.18
Machinery	1,197	18	1.50
Fire/burn	6,700	104	1.55
Transport, other	14,480	282	1.95
Other specified, not elsewhere classifiable	551	12	2.18
Unspecified	2,294	55	2.40
Adverse effects	63	2	3.17
Motor vehicle traffic	90,130	3,305	3.67
Pedestrian, other	1,098	41	3.73
Other specified and classifiable	5,387	309	5.74
Firearm	11,453	1,485	12.97
Drowning/submersion	487	78	16.02
Suffocation	369	102	27.24
<b>Total</b>	<b>210,084</b>	<b>6,229</b>	

Figure 5B

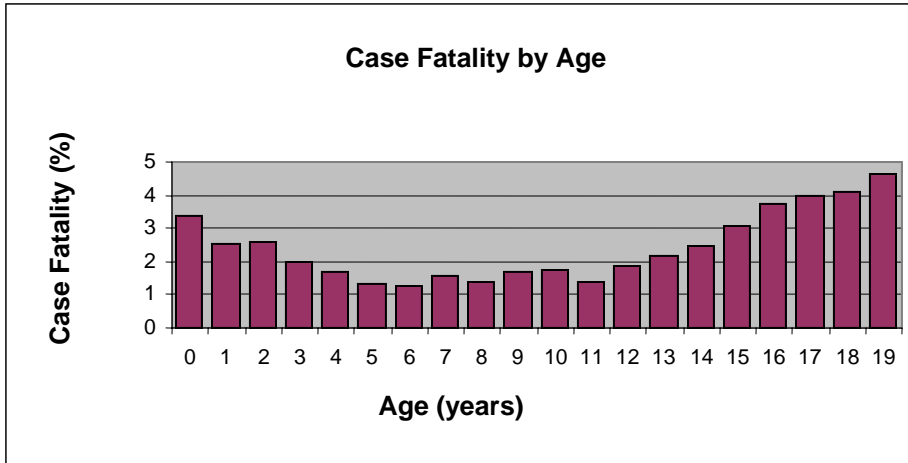


Figure 6A  
Case fatality grouped by age. Case fatality = number of deaths divided by the number of patients X 100.

Age	Number	Number Died	Percent Died
0	8,971	300	3.34
1	8,686	220	2.53
2	8,425	217	2.58
3	7,733	154	1.99
4	7,649	127	1.66
5	7,870	102	1.30
6	7,929	98	1.24
7	7,539	118	1.57
8	7,082	97	1.37
9	6,886	116	1.68
10	7,153	125	1.75
11	7,618	104	1.37
12	8,462	157	1.86
13	9,564	208	2.17
14	11,147	273	2.45
15	12,958	398	3.07
16	18,067	675	3.74
17	20,096	804	4.00
18	23,752	973	4.10
19	23,864	1,112	4.66
<b>Total</b>	<b>221,451</b>	<b>6,378</b>	

Figure 6B

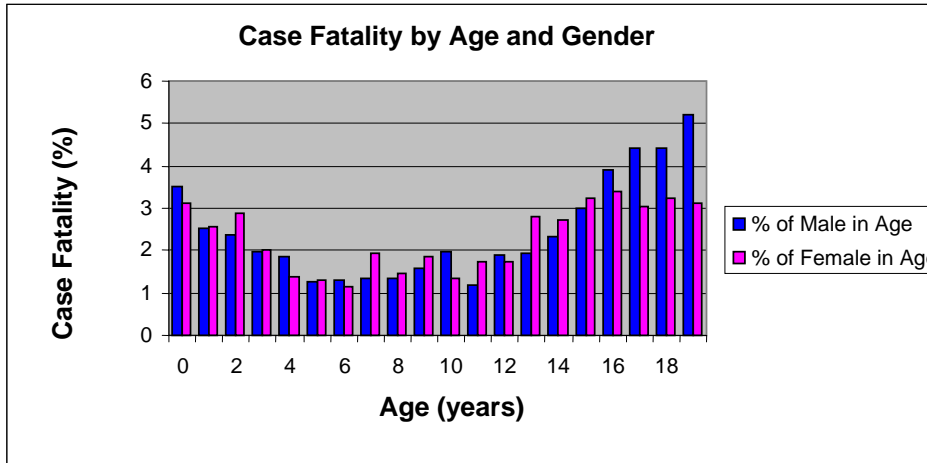


Figure 7A  
Case fatality for males and females grouped by age. Case fatality = number of deaths divided by the number of patients X 100.

Age	Total Deaths	Number Males	Number Male Deaths	Percent Male Deaths	Number Females	Number Female Deaths	Percent Female Deaths
0	300	5,160	181	3.51	3,811	119	3.12
1	220	5,015	126	2.51	3,671	94	2.56
2	217	5,142	122	2.37	3,283	95	2.89
3	154	4,661	92	1.97	3,072	62	2.02
4	127	4,600	85	1.85	3,049	42	1.38
5	102	4,765	61	1.28	3,105	41	1.32
6	98	4,829	63	1.30	3,100	35	1.13
7	118	4,726	64	1.35	2,813	54	1.92
8	97	4,536	60	1.32	2,546	37	1.45
9	116	4,451	71	1.60	2,435	45	1.85
10	125	4,604	91	1.98	2,549	34	1.33
11	104	5,142	61	1.19	2,476	43	1.74
12	157	6,021	115	1.91	2,441	42	1.72
13	208	7,041	137	1.95	2,523	71	2.81
14	273	8,042	188	2.34	3,105	85	2.74
15	398	9,126	274	3.00	3,832	124	3.24
16	675	12,074	472	3.91	5,993	203	3.39
17	804	14,016	620	4.42	6,080	184	3.03
18	973	16,904	750	4.44	6,848	223	3.26
19	1,112	17,577	917	5.22	6,287	195	3.10
<b>Totals</b>	<b>6,378</b>	<b>148,432</b>	<b>4,550</b>		<b>73,019</b>	<b>1,828</b>	

Figure 7B

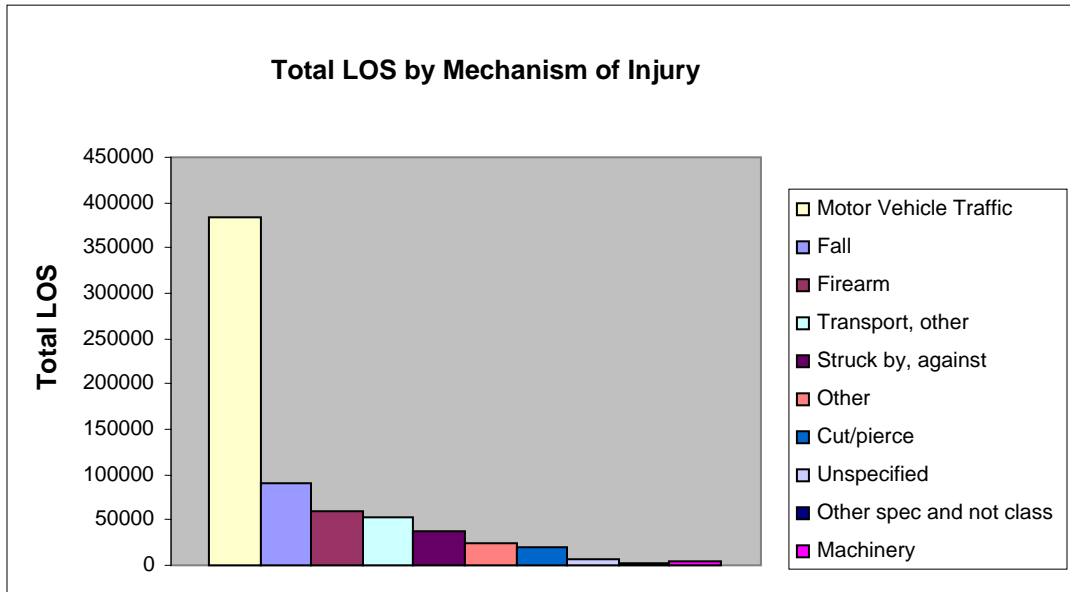


Figure 8A

Mechanism	Number	Percent	Total LOS	Percent	Average LOS
Motor vehicle traffic	86,278	42.96	383,094	51.00	4.44
Fall	40,129	19.98	90,250	12.02	2.25
Struck by, against	14,704	7.32	37,081	4.94	2.52
Transport, other	13,913	6.93	53,805	7.16	3.87
Firearm	10,831	5.39	59,157	7.88	5.46
Pedal cyclist, other	7,427	3.70	18,137	2.41	2.44
Cut/pierce	6,624	3.30	19,895	2.65	3.00
Fire/burn	6,307	3.14	33,547	4.47	5.32
Other specified and classifiable	5,134	2.56	24,200	3.22	4.71
Natural/environmental	2,658	1.32	7,443	0.99	2.80
Unspecified	2,194	1.09	6,597	0.88	3.01
Machinery	1,138	0.57	5,466	0.73	4.80
Pedestrian, other	1,061	0.53	4,059	0.54	3.83
Overexertion	554	0.28	1,113	0.15	2.01
Other specified, not elsewhere classifiable	509	0.25	1,743	0.23	3.42
Drowning/submersion	439	0.22	2,020	0.27	4.60
Suffocation	328	0.16	1,511	0.20	4.61
Other specified, not elsewhere	307	0.15	900	0.12	2.93
Poisoning	244	0.12	732	0.10	3.00
Adverse effects	60	0.03	386	0.05	6.43
<b>Total</b>	<b>200,839</b>		<b>751,136</b>		

Figure 8B

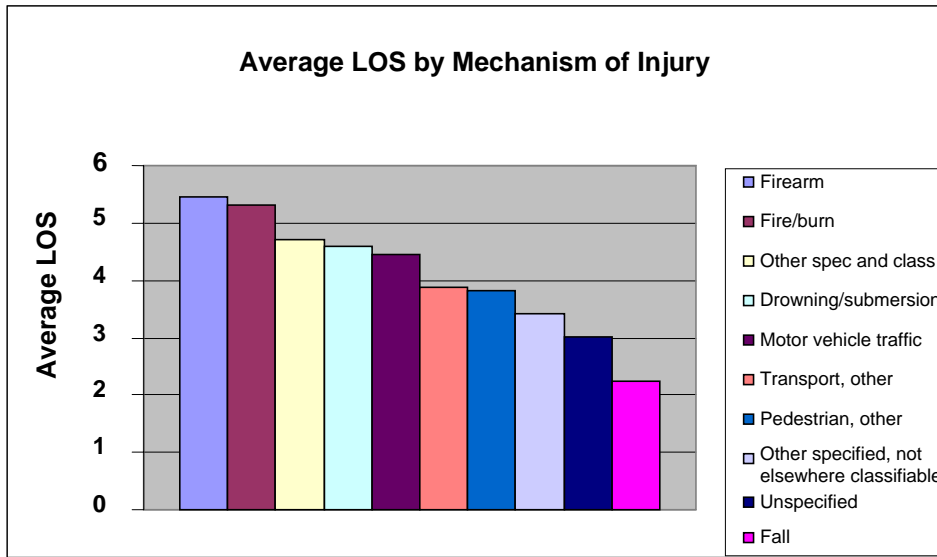


Figure 9A  
Average hospital length of stay by mechanism of injury, as defined in Appendix D. Other includes the other specified and classifiable mechanism.

Mechanism	Number	Percent	Average LOS
Firearm	10,831	6.49	5.46
Fire/burn	6,307	3.78	5.32
Other specified and classifiable	5,134	3.08	4.71
Drowning/submersion	439	0.26	4.60
Motor vehicle traffic	86,278	51.73	4.44
Transport, other	13,913	8.34	3.87
Pedestrian, other	1,061	0.64	3.83
Other specified, not elsewhere classifiable	509	0.31	3.42
Unspecified	2,194	1.32	3.01
Fall	40,129	24.06	2.25
<b>Total</b>	<b>166,795</b>	<b>100</b>	

Figure 9B

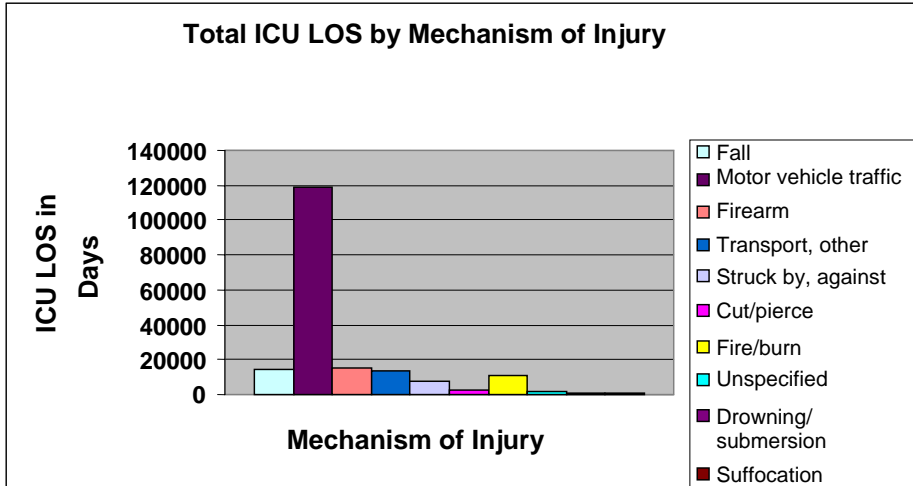


Figure 10A  
Total days of ICU care by mechanism of injury, as defined in Appendix D. Other includes the other specified and classifiable mechanism.

Mechanism	Number	Percent	Total ICU LOS
Motor vehicle traffic	57,973	44.27	118,860
Fall	23,707	18.10	14,582
Transport, other	9,872	7.54	13,160
Struck by, against	9,462	7.23	7,394
Firearm	6,512	4.97	15,477
Pedal cyclist, other	4,741	3.62	3,305
Fire/burn	4,621	3.53	11,333
Cut/pierce	4,226	3.23	2,503
Other specified and classifiable	3,700	2.83	8,141
Natural/environmental	1,657	1.27	1,211
Unspecified	1,437	1.10	1,646
Machinery	794	0.61	676
Pedestrian, other	653	0.50	960
Overexertion	347	0.26	37
Drowning/submersion	331	0.25	918
Other specified, not elsewhere classifiable	299	0.23	391
Suffocation	257	0.20	623
Other specified, not elsewhere	169	0.13	89
Poisoning	156	0.12	217
Adverse effects	33	0.03	83
<b>Total</b>	<b>130,947</b>	<b>100.00</b>	<b>201,606</b>

Figure 10B

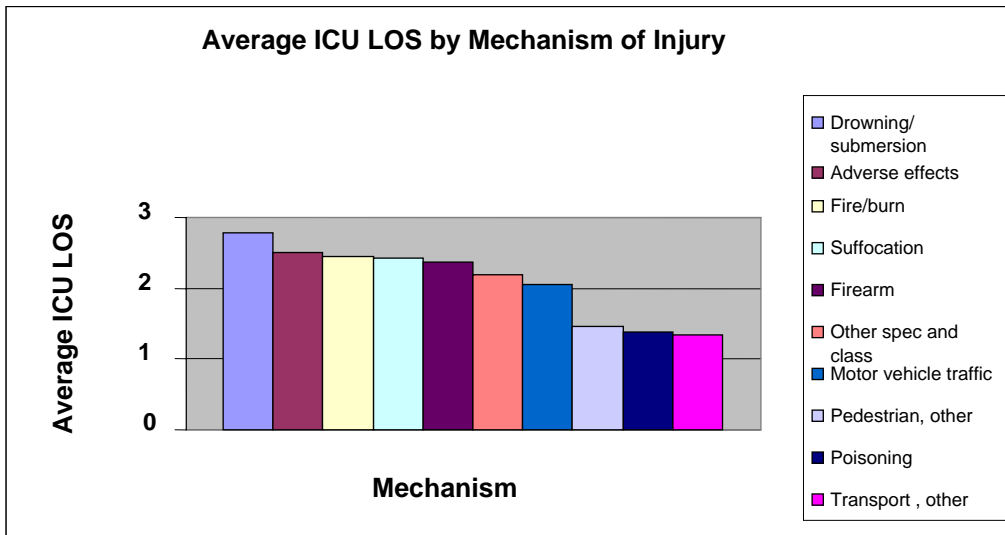


Figure 11A  
Average length of ICU care, grouped by mechanism of injury, as defined in Appendix D. Other includes the other specified and classifiable mechanism.

Mechanism	Number	Percent	Average ICU LOS
Drowning/submersion	331	0.25	2.77
Adverse effects	33	0.03	2.52
Fire/burn	4,621	3.53	2.45
Suffocation	257	0.20	2.42
Firearm	6,512	4.97	2.38
Other specified and classifiable	3,700	2.83	2.20
Motor vehicle traffic	57,973	44.27	2.05
Pedestrian, other	653	0.50	1.47
Poisoning	156	0.12	1.39
Transport, other	9,872	7.54	1.33
Other specified, not elsewhere classifiable	299	0.23	1.31
Unspecified	1,437	1.10	1.15
Machinery	794	0.61	0.85
Struck by, against	9,462	7.23	0.78
Natural/environmental	1,657	1.27	0.73
Pedal cyclist, other	4,741	3.62	0.70
Fall	23,707	18.10	0.62
Cut/pierce	4,226	3.23	0.59
Other specified, not elsewhere	169	0.13	0.53
Overexertion	347	0.26	0.11
<b>Total</b>	<b>130,947</b>	<b>100.00</b>	

Figure 11B



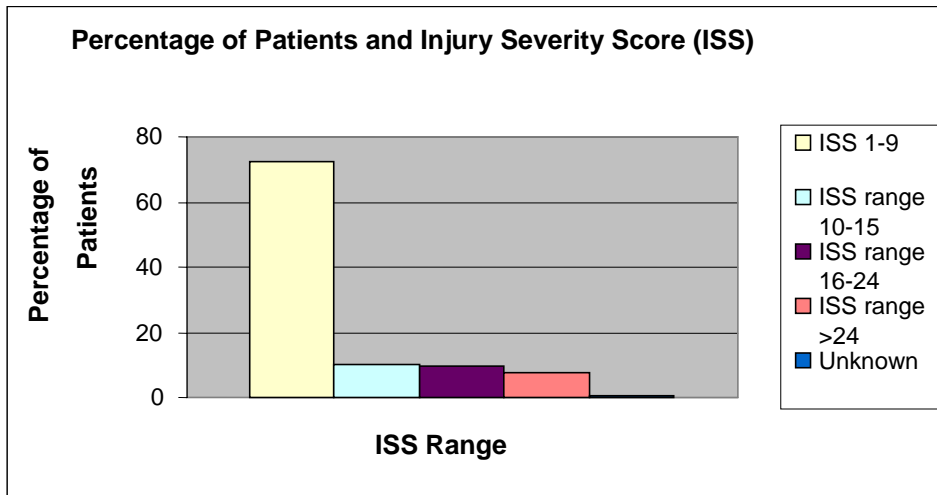


Figure 12A  
Percentage of patients by Injury Severity Score (ISS) range.

ISS Range	Number	Percent
1 to 9	159,864	72.19
10 to 15	22,471	10.15
16 to 24	21,761	9.83
> 24	16,629	7.51
Unknown	726	0.33
<b>Total</b>	<b>221,451</b>	<b>100.00</b>

Figure 12B

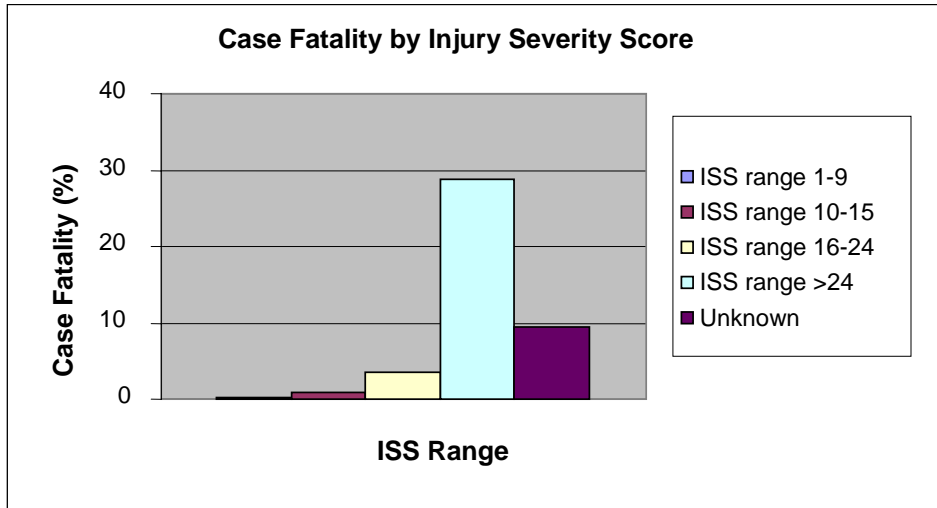


Figure 13A  
Case fatality by Injury Severity Score (ISS) range.

ISS Range	Number	Number of Deaths	Percent of Deaths
1 to 9	159,864	195	0.12
10 to 15	22,471	211	0.94
16 to 24	21,761	758	3.48
> 24	16,629	4,784	28.77
Unknown	726	68	9.37
<b>Total</b>	<b>221,451</b>	<b>6,016</b>	

Figure 13B

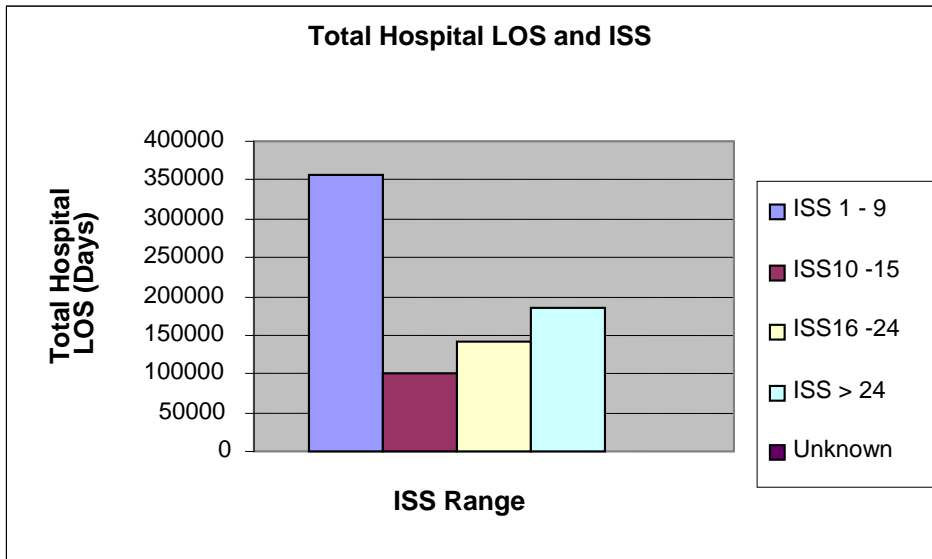


Figure 14A  
Total hospital length of stay by ISS.

ISS Range	Number	Percent	Total LOS	Percent LOS	Average LOS
1 to 9	152,265	71.91	357,515	45.62	2.35
10 to 15	21,737	10.27	100,654	12.84	4.63
16 to 24	21,136	9.98	140,299	17.90	6.64
> 24	15,976	7.54	183,999	23.48	11.52
Unknown	630	0.30	1,179	0.15	1.87
<b>Total</b>	<b>211,744</b>	<b>100.00</b>	<b>783,646</b>	<b>100.00</b>	

Figure 14B

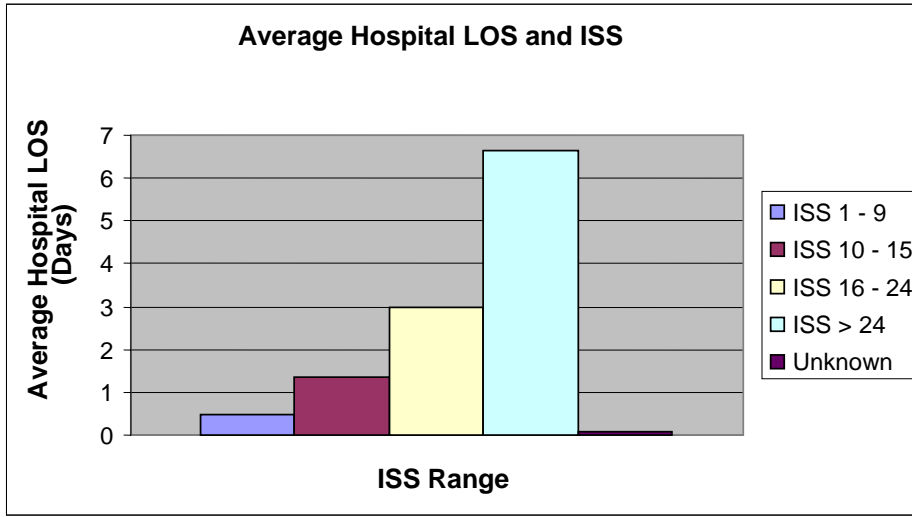


Figure 15A  
Average hospital length of stay, grouped by ISS.

ISS Range	Number	Percent	Total ICU LOS	Percent ICU LOS	Average ICU LOS
1 to 9	89,863	65.75	43,587	20.80	0.49
10 to 15	15,254	11.16	20,886	9.97	1.37
16 to 24	17,185	12.57	51,204	24.43	2.98
> 24	14,121	10.33	93,675	44.70	6.63
Unknown	244	0.18	203	0.10	0.83
<b>Total</b>	<b>136,667</b>	<b>100.00</b>	<b>209,555</b>	<b>100.00</b>	

Figure 15B

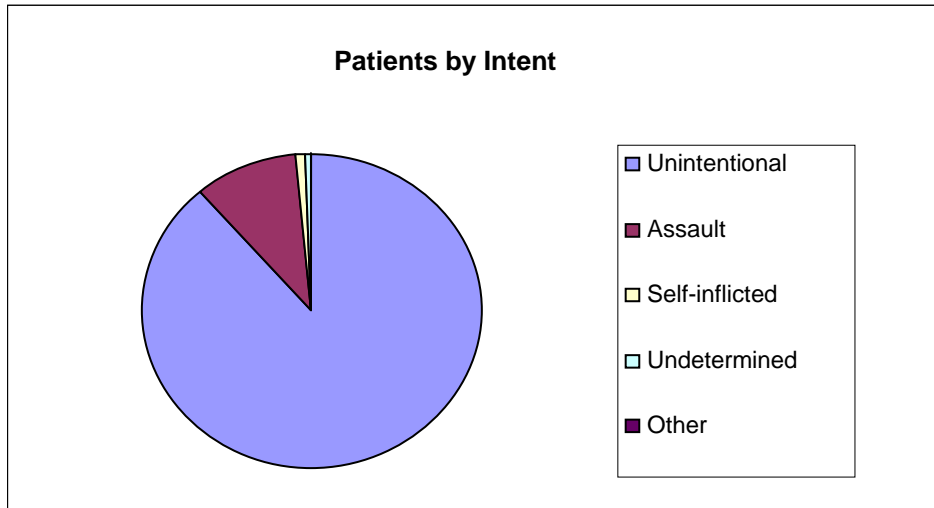


Figure 16A  
Patients by intent, as defined in Appendix D.

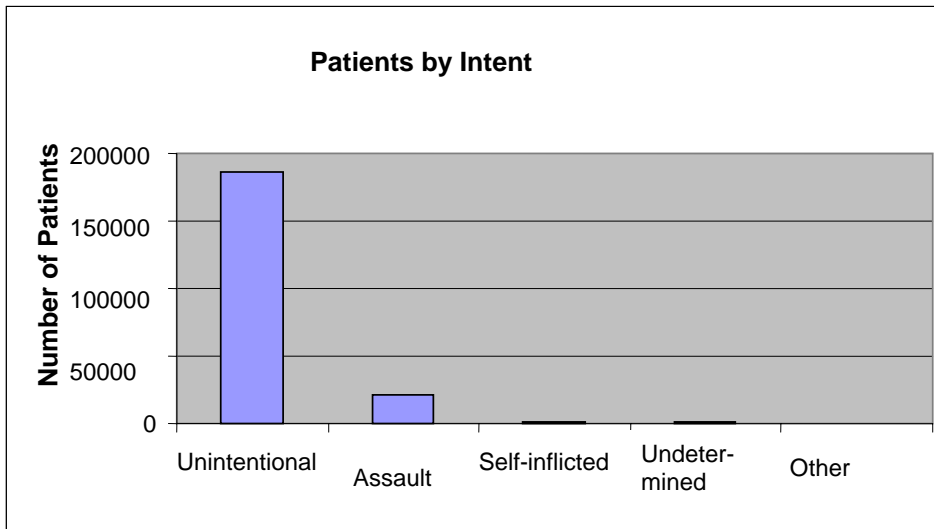


Figure 16B  
Number of patients in each category of intent, as defined in Appendix D.

Intent	Number	Percent
Unintentional	186,275	88.67
Assault	20,941	9.97
Self-inflicted	1,536	0.73
Undetermined	1,161	0.55
Other	171	0.08
	<b>210,084</b>	<b>100.00</b>

Figure 16C

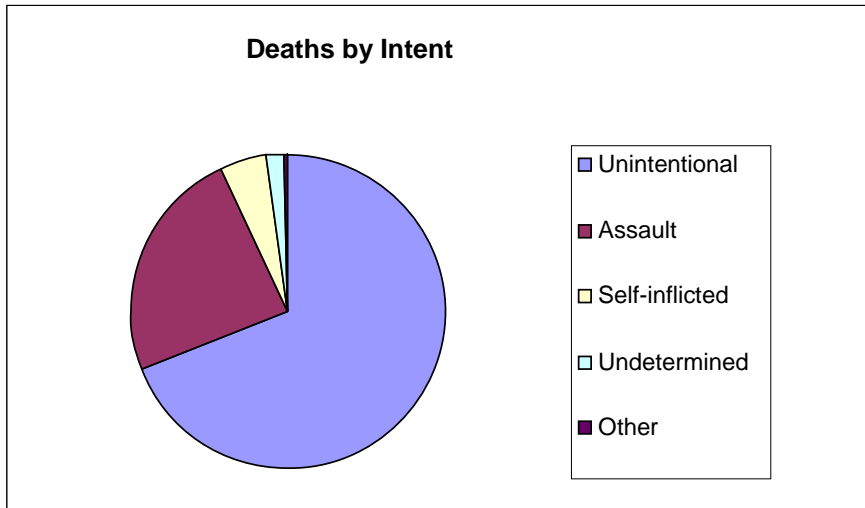


Figure 17A  
Deaths by intent,  
as defined in  
Appendix D.

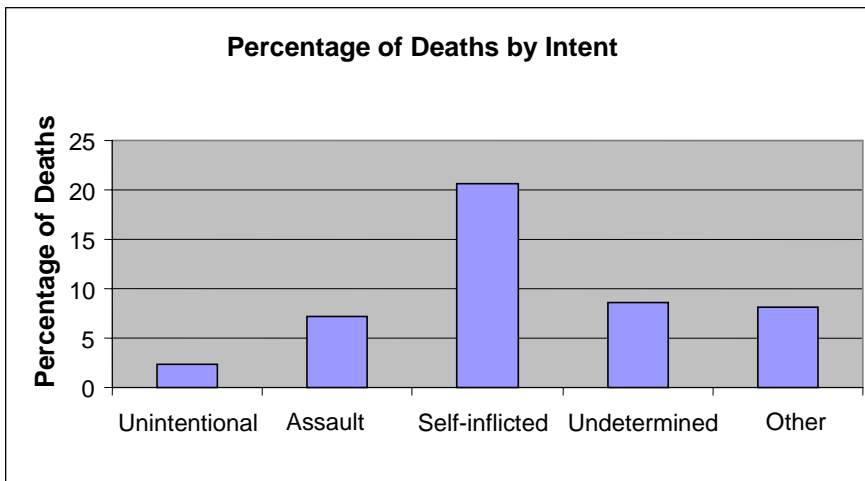


Figure 17B  
Percentage of  
deaths by intent,  
as defined in  
Appendix D.

Intent	Number	Deaths	Percent
Unintentional	186,275	4,295	2.31
Assault	20,941	1,505	7.19
Self-inflicted	1,536	316	20.57
Undetermined	1,161	99	8.53
Other	171	14	8.19
	<b>210,084</b>	<b>6,229</b>	

Figure 17C

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**Appendix A**

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

All patients 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)

**AND**

Who were admitted

**OR**

Who died after receiving any evaluation or treatment or were dead on arrival

**OR**

Who transferred into or out of the hospital.

## **Appendix B**

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 Web site 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

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 NTDB Data Quality

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 Web site at [www.ntdb.org](http://www.ntdb.org). Records were excluded from the analysis for this report if they contained missing and/or invalid values for any of the following items:

- Date of birth
- Gender
- LOS
- ISS
- Ecode
- Discharge disposition/Discharge status
- LOS < ICU days

In addition, NTDB data records were screened for the following field-specific edit checks. Records were not excluded from analysis (unless also listed above) based on the following checks, but were flagged in the dataset if they failed the check:

Data Field	Edit Check
Gender	Valid values are Male and Female
LOS < ICU days	The total ICU days must be less than the total length of stay
Year of Admission	Year of Admission greater than or equal to 1993
Date of Birth	Year of Birth is less than or equal to Year of Admission and Year of Birth plus 120 is less than Year of Admission
Incident date	Must fall between date of injury and admission date
E-Code (primary)	Should not be E849.x
ED arrival time	Based on 24-hour clock from 0000 to 2359 with valid entries for hour and minute
Initial ED systolic blood pressure	Must have First Systolic Blood Pressure between 0 and 299
Initial ED respiratory rate	First Unassisted Respiratory Rate between 0 and 59
ED disposition	If DOA, then final hospital disposition must be DOA and must have First Systolic Blood Pressure = 0, First Unassisted Respiratory Rate = 0
Discharge date	Year of Admission must be less than or equal to Year of Death
Injury Severity Score (ISS)	Valid range is from 0 to 75, and must be the sum of three squares
Length of Stay (LOS)	Valid range is 0 to 364
Discharge disposition/discharge status	Must be consistent (lived/died)
FIM score total	Total FIM must be an integer between 1 and 12
FIM – feed	Individual component values must be between 0 and 4
FIM – express	Individual component values must be between 0 and 4
FIM -- locomotion	Individual component values must be between 0 and 4
Glasgow Coma Scale (GCS) eye	Valid range is 1 to 4, or “unobtainable”, “unknown” or “missing”
GCS verbal	Valid range is 1 to 5, or “unobtainable”, “unknown” or “missing” If GCS qualifier indicates patient intubated GCS Verbal must be “unobtainable”
GCS motor	Valid ranges is 1 to 6, or “unobtainable” “unknown” or

<b>Data Field</b>	<b>Edit Check</b>
	"missing"
GCS qualifier	T, TP, S, L
GCS total	Must be sum of GCS Eye, Verbal, and Motor if all three are numeric; must be "unobtainable" if any of the above are "unobtainable"
Number of days to admission	Valid range is 0 to 30, "unknown", or "missing"
Probability of survival	Valid range is 0 to 1
Ventilator days	Cannot be greater than Length of Stay

**Appendix D****Recommended Framework for 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

**Appendix D (continued)**

## Recommended Framework for E-Code Groupings for Presenting Injury Mortality and Morbidity Data

Mechanism/Cause	Manner/Intent				
	Unintentional	<u>Self-inflicted</u>	Assault	Undetermined	Other <sup>1</sup>
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
I. 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 Web site](#).