



NTDB[®]
NATIONAL TRAUMA DATA BANK

National Trauma Data Bank Pediatric Report 2007

Version 7.0

NTDB Pediatric Annual Report 2007

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Pediatric Editors' Note

The Annual Pediatric Report of the National Trauma Data Bank (NTDB), Version 7.0 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 NTDB Annual Report, 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 550,000 records from admission years 1988 to 2006. This continues to reflect the steady growth of the NTDB's pediatric component since the NTDB's inception, the expansion of which has been nearly exponential in the six most recent years.

The 2007 Pediatric Annual Report is based on 334,095 records from the years 2002–2006. The report also contains several enhancements versus previous annual reports. There are new Tables and Figures describing head, thoracic, and abdominal injuries in greater detail than was possible in previous versions. For all three body regions, both case frequency and case fatality rates are shown, by body organ injured. However, no inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death. The support of the Emergency Medical Services for Children (EMSC) Program of the Maternal Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA), United States Department of Health and Human Services (DHHS) is gratefully acknowledged.

The Pediatric Surgery Specialty Group is committed to working with the National Trauma Data Bank Committee to ensure that the NTDB remains the nonproprietary national repository for trauma center registry data for children. The ultimate goal of the Pediatric Surgery Specialty Group is to receive data on every pediatric patient treated in every trauma center in the United States, whether the trauma center is adult or pediatric, or both.

The purpose of this report is to inform the medical 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 nation. The report has important implications for injury epidemiology, injury control, research, education, acute care, and resource allocation. This effort is in keeping with the mission and vision of the Committee on Trauma 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 nation. The NTDB Committee and Pediatric Surgery Specialty Group would like to thank all of 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 2007 is available on the American College of Surgeons Web Site as a PDF file and a PowerPoint presentation at <http://www.ntdb.org>. With your support for the NTDB, including its growing pediatric component, we can look forward to an even more comprehensive and useful pediatric report in 2008. Thank you on behalf of the American College of Surgeons, and all of America's children.

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TABLE OF CONTENTS	Editors' Note.....	i
	Tables & Figures.....	3
	Appendix A: Definition of Trauma Patient.....	34
	Appendix B: NTDB Data Elements.....	35
	Appendix C: NTDB Data Quality.....	38
	Appendix D: E-Code Grouping.....	40

FIGURES	1A Number of Incidents by Year	3
	2A Number of Incidents by Age	4
	3A Number of Incidents by Age and Gender.....	5
	4A Number of Incidents by Mechanism of Injury.....	6
	5A Number of Deaths by Mechanism of Injury.....	7
	6A Case Fatality Rate by Age.....	8
	7A Case Fatality Rate by Age and Gender.....	9
	8A Average Hospital Length of Stay by Mechanism of Injury.....	10
	9A Average ICU Length of Stay by Mechanism of Injury.....	11
	10A Percentage of Incidents by Type of Injury.....	12
	11A Case Fatality Rate by Type of Injury	13
	12A Percentage of Incidents by Injury Severity Score (ISS).....	14
	13A Case Fatality Rate by Injury Severity Score (ISS).....	15
	14A Average Hospital Length of Stay by Injury Severity Score (ISS)	16
	15A Average ICU Length of Stay by Injury Severity Score (ISS).....	17
	16A Percentage Incidents by Intent.....	18
	17A Case Fatality Rate by Intent.....	19
	18A Percentage of Incidents by Organ System.....	20
	19A Case Fatality Rate by Organ System.....	21
	20A Number of Incidents with Brain/Skull Injuries	22
	21A Case Fatality Rate for Brain/Skull Injuries	23
	22A Number of Incidents with Intracranial Injuries	24
	23A Case Fatality Rate for Intracranial Injuries	25
	24A Percentage of Incidents with Thoracic Injuries.....	26
	25A Case Fatality Rate for Thoracic Injuries	27
	26A Percentage of Incidents with Abdominal Injuries.....	28
	27A Case Fatality Rate for Abdominal Injuries	29

TABLES	1B	Number and Percentage of Incidents by Year.....	3
	2B	Number and Percentage of Incidents by Age.....	4
	3B	Number and Percentage of Incidents by Age and Gender.....	5
	4B	Number and Percentage of Incidents by Mechanism of Injury.....	6
	5B	Number and Case Fatality Rate by Mechanism of Injury.....	7
	6B	Case Fatality Rate by Age.....	8
	7B	Case Fatality Rate by Age and Gender.....	9
	8B	Average Hospital Length of Stay by Mechanism of Injury.....	10
	9B	Average ICU Length of Stay by Mechanism of Injury.....	11
	10B	Number and Percentage of Incidents by Type of Injury.....	12
	11B	Number and Case Fatality Rate by Type of Injury	13
	12B	Number and Percentage of Incidents by Injury Severity Score (ISS)	14
	13B	Number and Case Fatality Rate by Injury Severity Score (ISS)	15
	14B	Average Hospital Length of Stay by Injury Severity Score (ISS)	16
	15B	Average ICU Length of Stay by Injury Severity Score (ISS).....	17
	16B	Number and Percentage of Incidents by Intent.....	18
	17B	Number and Case Fatality Rate by Intent.....	19
	18B	Number and Percentage of Incidents by Organ System.....	20
	19B	Number and Case Fatality Rate of Incidents by Organ System	21
	20B	Number and Percentage of Incidents with Brain/Skull Injuries	22
	21B	Number and Case Fatality Rate for Brain/Skull Injuries.....	23
	22B	Number and Percentage of Incidents with Intracranial Injuries	24
	23B	Number and Case Fatality Rate for Intracranial Injuries	25
	24B	Number and Percentage of Incidents with Thoracic Injuries.....	26
	25B	Number and Case Fatality Rate for Thoracic Injuries.....	27
	26B	Number and Percentage of Incidents with Abdominal Injuries.....	28
	27B	Number and Case Fatality Rate for Abdominal Injuries.....	29

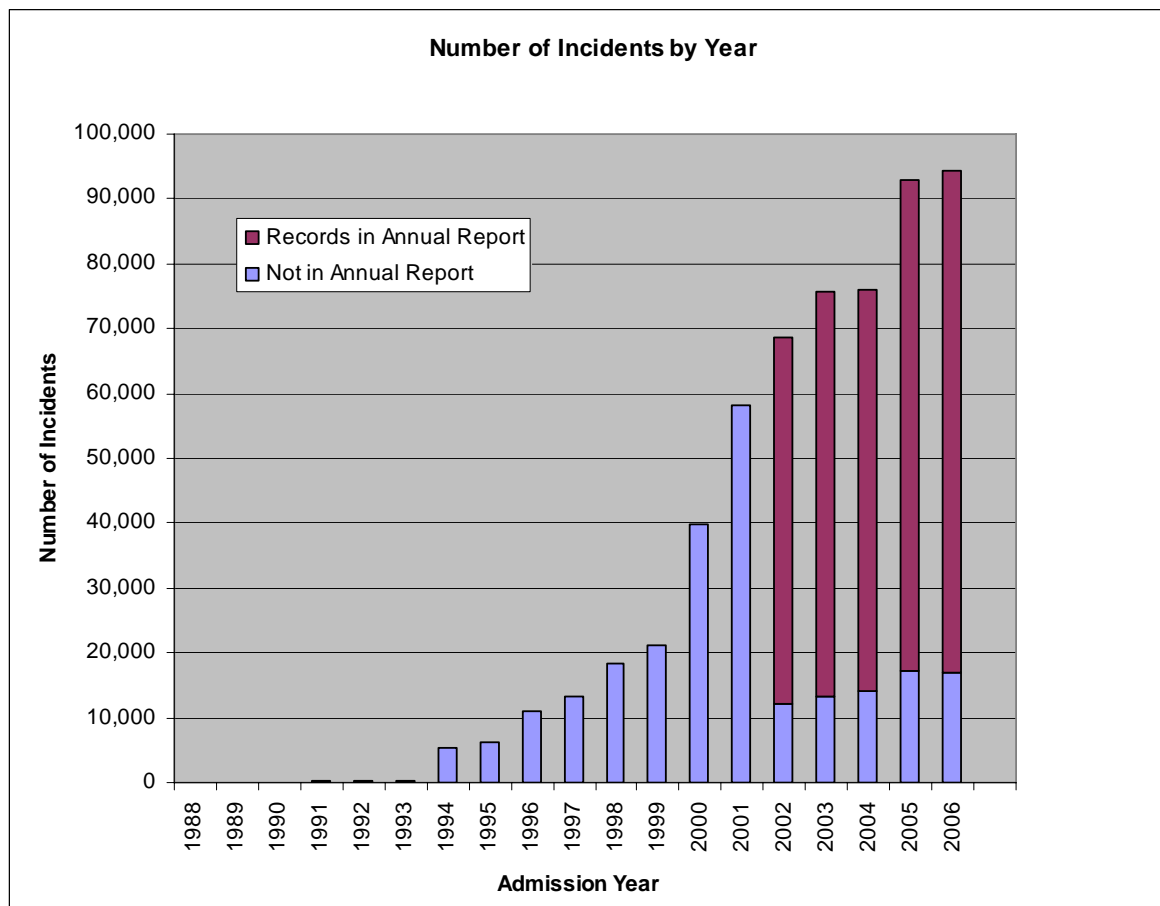


Figure 1A

Year of Admission	Number of Records in NTDB	Percent of Records in NTDB	Number of Records in Annual Report	Percent of Records in Annual Report
1988-2001	174,586	30.0	0	0.0
2002	68,581	11.8	56,335	11.9
2003	75,712	13.0	62,517	13.2
2004	75,957	13.0	61,960	13.1
2005	93,043	16.0	75,874	16.0
2006	94,309	16.2	77,409	16.3
Unknown	367	0.1	0	0.0
Total	582,555	100.0	334,095	100.0

Table 1B
Number of incidents by year in the NTDB

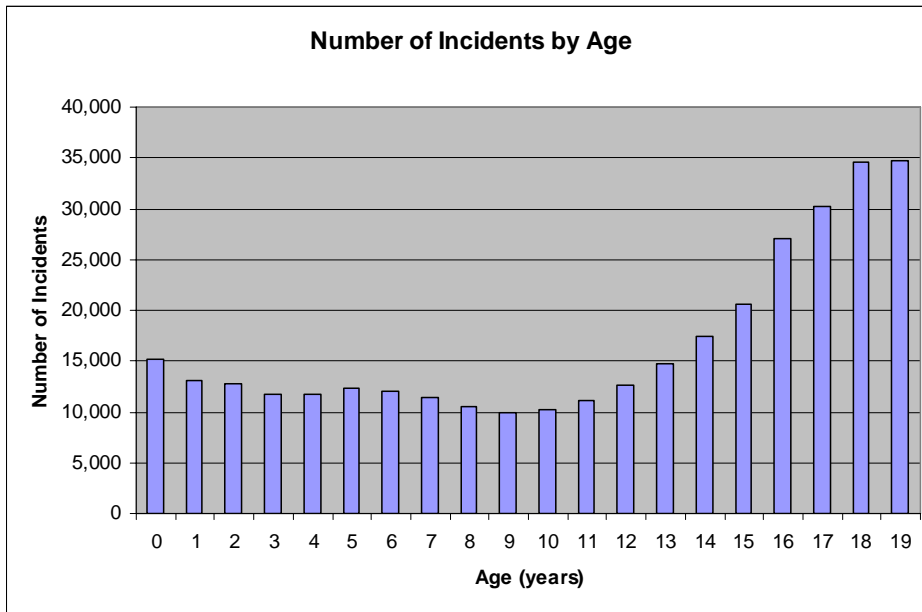


Figure 2A

Number of incidents by age.

Age	Number	Percent
0	15,229	4.6
1	13,150	3.9
2	12,711	3.8
3	11,710	3.5
4	11,730	3.5
5	12,276	3.7
6	11,985	3.6
7	11,450	3.4
8	10,535	3.2
9	9,961	3.0
10	10,254	3.1
11	11,066	3.3
12	12,616	3.8
13	14,668	4.4
14	17,508	5.2
15	20,527	6.1
16	27,122	8.1
17	30,240	9.1
18	34,645	10.4
19	34,712	10.4
Total	334,095	100.0

Table 2B

Number and percentage of incidents by age.

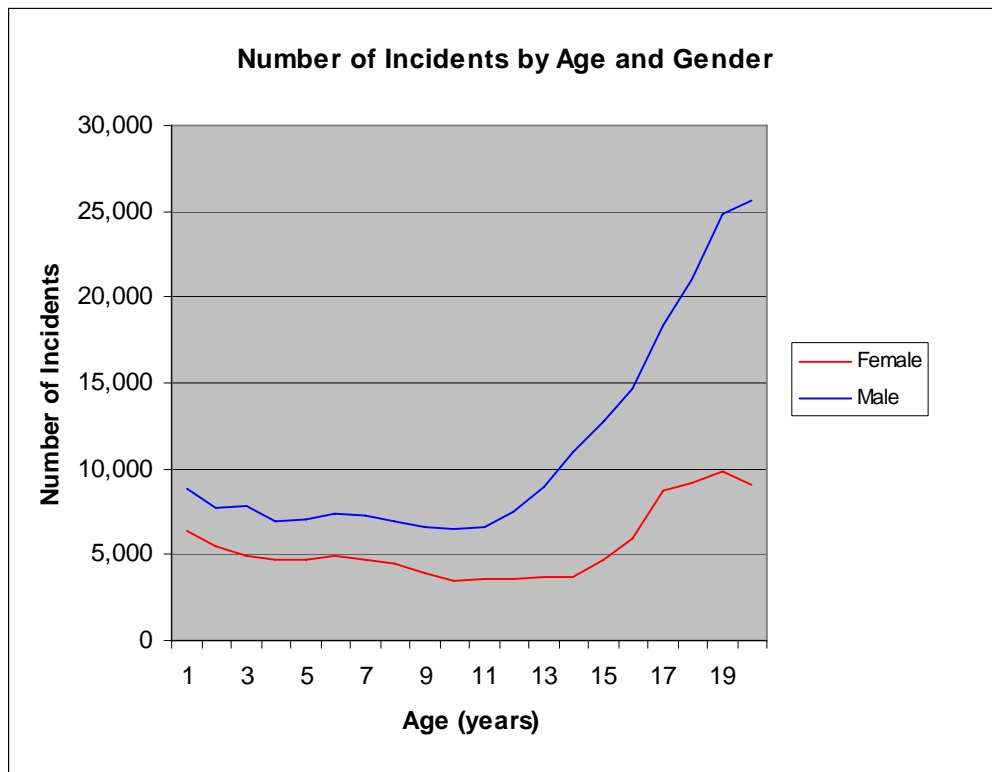


Figure 3A

Number of incidents by age and gender.

Age	Number	Number Female	Percent Female	Number Male	Percent Male
0	15,229	6,408	5.8	8,821	3.9
1	13,150	5,459	5.0	7,691	3.4
2	12,711	4,907	4.5	7,804	3.5
3	11,710	4,720	4.3	6,990	3.1
4	11,730	4,723	4.3	7,007	3.1
5	12,276	4,920	4.5	7,356	3.3
6	11,985	4,737	4.3	7,248	3.2
7	11,450	4,485	4.1	6,965	3.1
8	10,535	3,930	3.6	6,605	2.9
9	9,961	3,505	3.2	6,456	2.9
10	10,254	3,630	3.3	6,624	3.0
11	11,066	3,608	3.3	7,458	3.3
12	12,616	3,646	3.3	8,970	4.0
13	14,668	3,713	3.4	10,955	4.9
14	17,508	4,707	4.3	12,801	5.7
15	20,527	5,880	5.4	14,647	6.5
16	27,122	8,713	7.9	18,409	8.2
17	30,240	9,172	8.4	21,068	9.4
18	34,645	9,828	9.0	24,817	11.1
19	34,712	9,079	8.3	25,633	11.4
Total	334,095	109,770	100.0	224,325	100.0

Table 3B

Number and percentage of incidents by age and gender

Figure 4A Number of incidents by mechanism of injury

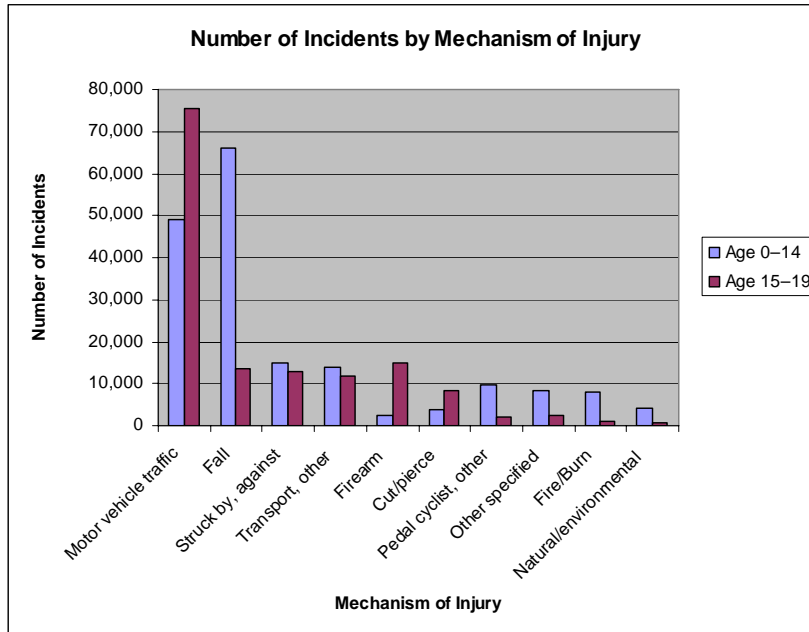


Table 4B Number and percentage of incidents by mechanism of injury (see Appendix D)

Mechanism	Number	Percent	Age	Age	Age	Age
			0-14	0-14	15-19	15-19
			Number	Percent	Number	Percent
Motor vehicle traffic	124,337	37.2	48,885	26.2	75,452	51.2
Fall	79,693	23.9	65,983	35.3	13,710	9.3
Struck by, against	27,801	8.3	14,975	8.0	12,826	8.7
Transport, other	25,488	7.6	13,828	7.4	11,660	7.9
Firearm	17,322	5.2	2,347	1.3	14,975	10.2
Cut/pierce	12,201	3.7	3,797	2.0	8,404	5.7
Pedal cyclist, other	11,875	3.6	9,807	5.2	2,068	1.4
Other specified	10,614	3.2	8,350	4.5	2,264	1.5
Fire/Burn	9,069	2.7	7,957	4.3	1,112	0.8
Natural/environmental	4,845	1.5	4,261	2.3	584	0.4
Unspecified	3,301	1.0	1,971	1.1	1,330	0.9
Fire/Flame	1,827	0.5	1,104	0.6	723	0.5
Pedestrian, other	1,799	0.5	1,411	0.8	388	0.3
Machinery	1,761	0.5	833	0.4	928	0.6
Overexertion	1,116	0.3	679	0.4	437	0.3
Suffocation	426	0.1	248	0.1	178	0.1
Drowning/submersion	384	0.1	282	0.2	102	0.1
Poisoning	185	0.1	102	0.1	83	0.1
Other natural/environmental	44	0.0	28	0.0	16	0.0
Hot object	7	0.0	1	0.0	6	0.0
Total	334,095	100.0	186,849	100.0	147,246	100.0

Figure 5A Number of deaths by mechanism of injury

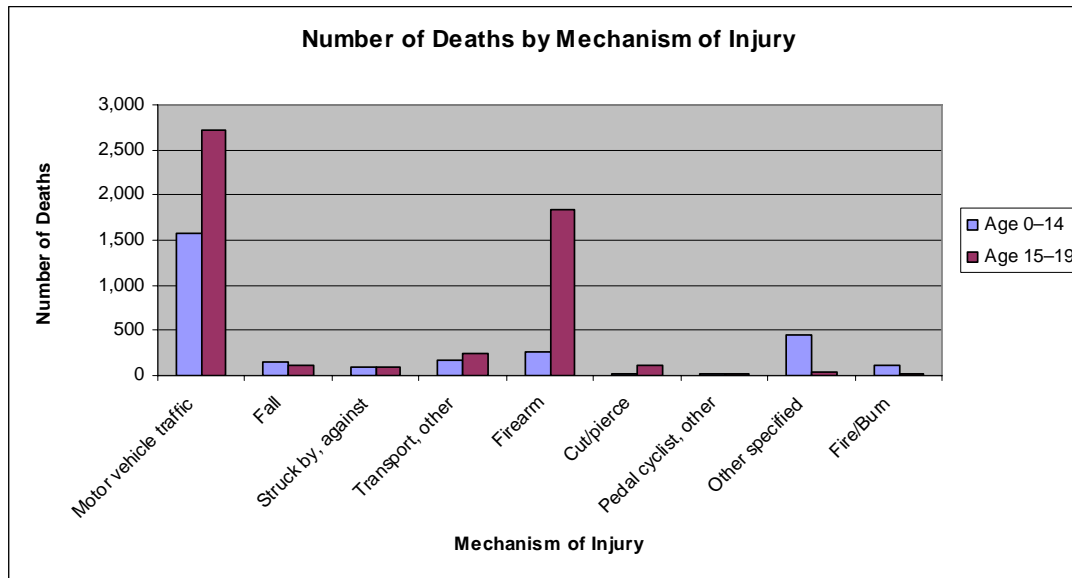


Table 5B Number and case fatality rate by mechanism of injury (see Appendix D)

Mechanism	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Case Fatality Rate
Motor vehicle traffic	124,337	4,307	3.5	48,885	1,584	3.2	75,452	2,723	3.6
Fall	79,693	262	0.3	65,983	147	0.2	13,710	115	0.8
Struck by, against	27,801	194	0.7	14,975	100	0.7	12,826	94	0.7
Transport, other	25,488	402	1.6	13,828	162	1.2	11,660	240	2.1
Firearm	17,322	2,103	12.1	2,347	259	11.0	14,975	1,844	12.3
Cut/pierce	12,201	133	1.1	3,797	15	0.4	8,404	118	1.4
Pedal cyclist, other	11,875	41	0.3	9,807	27	0.3	2,068	14	0.7
Other specified	10,614	493	4.6	8,350	448	5.4	2,264	45	2.0
Fire/Burn	9,069	136	1.5	7,957	108	1.4	1,112	28	2.5
Natural/environmental	4,845	18	0.4	4,261	18	0.4	584	0	0.0
Unspecified	3,301	65	2.0	1,971	43	2.2	1,330	22	1.7
Fire/Flame	1,827	13	0.7	1,104	9	0.8	723	4	0.6
Pedestrian, other	1,799	58	3.2	1,411	43	3.0	388	15	3.9
Machinery	1,761	15	0.9	833	7	0.8	928	8	0.9
Overexertion	1,116	0	0.0	679	0	0.0	437	0	0.0
Suffocation	426	120	28.2	248	66	26.6	178	54	30.3
Drowning/submersion	384	52	13.5	282	40	14.2	102	12	11.8
Poisoning	185	3	1.6	102	2	2.0	83	1	1.2
Other natural/environmental	44	3	6.8	28	1	3.6	16	2	12.5
Hot object	7	0	0.0	1	0	0.0	6	0	0.0
Total	334,095	8,418		186,849	3,079		147,246	5,339	

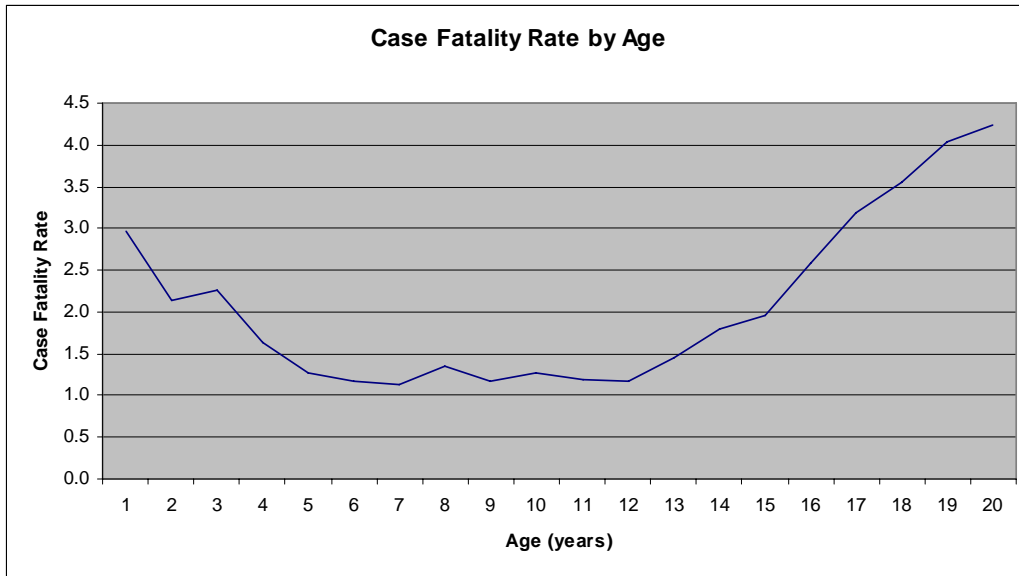


Figure 6A Case fatality rate by age

Table 6B Case fatality rate by age

Age	Number	Number Died	Case Fatality Rate
0	15,229	451	3.0
1	13,150	281	2.1
2	12,711	286	2.3
3	11,710	191	1.6
4	11,730	150	1.3
5	12,276	143	1.2
6	11,985	135	1.1
7	11,450	154	1.3
8	10,535	123	1.2
9	9,961	127	1.3
10	10,254	123	1.2
11	11,066	129	1.2
12	12,616	183	1.5
13	14,668	262	1.8
14	17,508	341	1.9
15	20,527	532	2.6
16	27,122	867	3.2
17	30,240	1,072	3.5
18	34,645	1,397	4.0
19	34,712	1,471	4.2
Total	334,095	8,418	

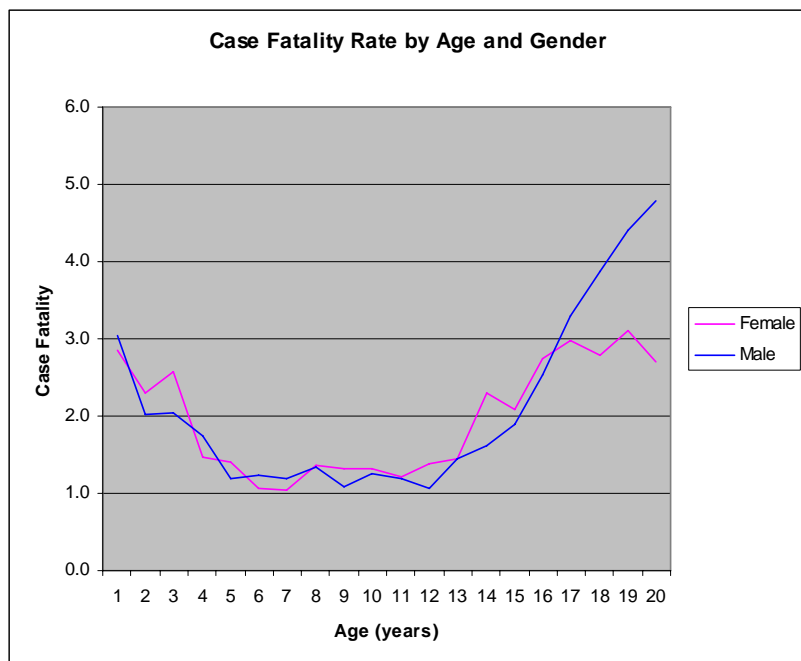


Figure 7A
Case fatality rate by age and gender.

Table 7B Case fatality rate by age and gender.

Age	Number Died	Number Female	Number Female Died	Female Case Fatality Rate	Number Male	Number Male Died	Male Case Fatality Rate
0	451	6,408	183	2.9	8,821	268	3.0
1	281	5,459	125	2.3	7,691	156	2.0
2	286	4,907	126	2.6	7,804	160	2.1
3	191	4,720	69	1.5	6,990	122	1.7
4	150	4,723	66	1.4	7,007	84	1.2
5	143	4,920	52	1.1	7,356	91	1.2
6	135	4,737	49	1.0	7,248	86	1.2
7	154	4,485	61	1.4	6,965	93	1.3
8	123	3,930	52	1.3	6,605	71	1.1
9	127	3,505	46	1.3	6,456	81	1.3
10	123	3,630	44	1.2	6,624	79	1.2
11	129	3,608	50	1.4	7,458	79	1.1
12	183	3,646	53	1.5	8,970	130	1.4
13	262	3,713	85	2.3	10,955	177	1.6
14	341	4,707	98	2.1	12,801	243	1.9
15	532	5,880	161	2.7	14,647	371	2.5
16	867	8,713	259	3.0	18,409	608	3.3
17	1,072	9,172	256	2.8	21,068	816	3.9
18	1,397	9,828	305	3.1	24,817	1,092	4.4
19	1,471	9,079	246	2.7	25,633	1,225	4.8
Total	8,418	109,770	2,386		224,325	6,032	

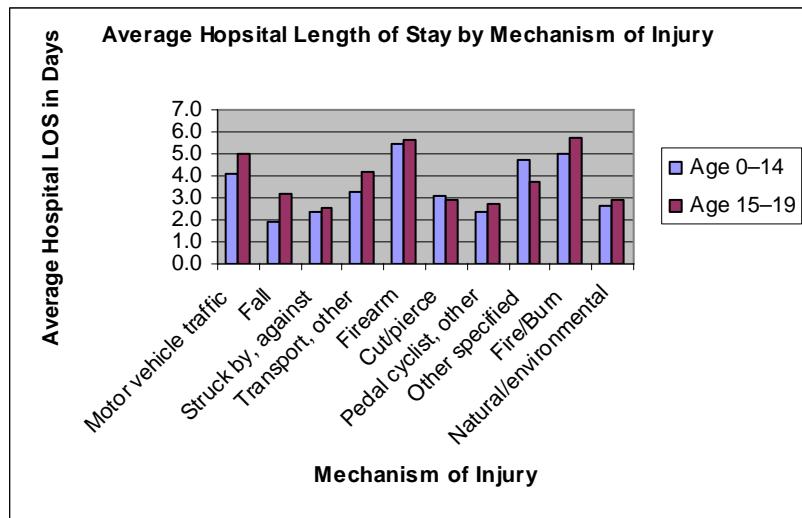


Figure 8A Average hospital length of stay by mechanism of injury (see Appendix D)

Table 8B Average hospital length of stay by mechanism of injury.

Mechanism	Number	Percent	Average LOS (Days)	Age 0-14 Number	Age 0-14 Percent	Age 0-14 Average LOS (Days)	Age 15-19 Number	Age 15-19 Percent	Age 15-19 Average LOS (Days)
Motor vehicle traffic	124,337	37.2	4.7	49,398	26.2	4.1	76,104	51.3	5.0
Fall	79,693	23.9	2.1	66,521	35.3	1.9	13,788	9.3	3.2
Struck by, against	27,801	8.3	2.5	15,114	8.0	2.4	12,972	8.7	2.5
Transport, other	25,488	7.6	3.7	13,979	7.4	3.2	11,767	7.9	4.2
Firearm	17,322	5.2	5.6	2,365	1.3	5.4	15,017	10.1	5.6
Pedal cyclist, other	12,201	3.7	3.0	3,836	2.0	3.0	8,489	5.7	2.9
Cut/pierce	11,875	3.6	2.4	9,880	5.2	2.4	2,084	1.4	2.8
Other specified	10,614	3.2	4.5	8,409	4.5	4.8	2,288	1.5	3.7
Fire/Burn	9,069	2.7	5.1	8,107	4.3	5.0	1,129	0.8	5.7
Natural/environmental	4,845	1.5	2.7	4,300	2.3	2.6	589	0.4	2.9
Unspecified	3,301	1.0	3.2	1,978	1.0	3.0	1,360	0.9	3.4
Fire/Flame	1,827	0.5	6.3	1,112	0.6	6.6	730	0.5	5.9
Machinery	1,799	0.5	3.6	1,420	0.8	3.2	392	0.3	5.3
Pedestrian, other	1,761	0.5	4.7	836	0.4	5.2	931	0.6	4.2
Overexertion	1,116	0.3	2.1	683	0.4	1.9	438	0.3	2.4
Suffocation	426	0.1	4.2	249	0.1	3.7	181	0.1	4.9
Drowning/submersion	384	0.1	5.5	285	0.2	5.7	102	0.1	4.8
Poisoning	185	0.1	3.2	102	0.1	2.8	83	0.1	3.7
Other natural/environmental	44	0.0	5.1	28	0.0	5.8	16	0.0	4.0
Hot object	7	0.0	12.3	1	0.0	2.0	6	0.0	14.0
Total	334,095	100.0		188,602	100.0		148,466	100.0	

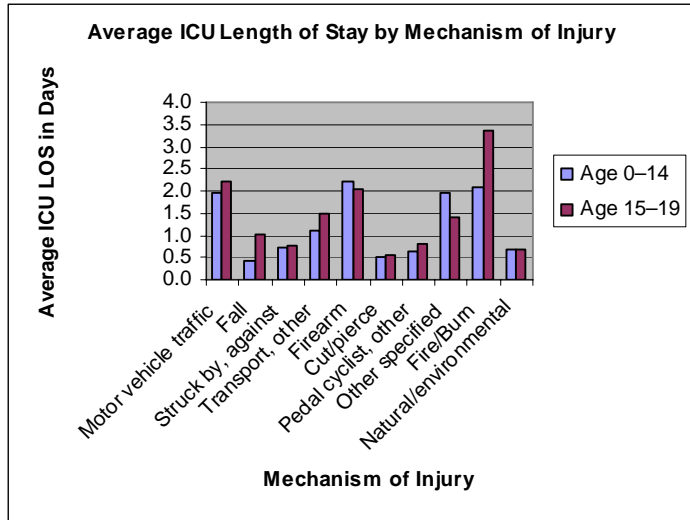


Figure 9A Average ICU length of stay by mechanism of injury (see Appendix D)

Table 9B Number and Average ICU length of stay by mechanism of injury

Note: A total of 107,505 incidents were missing ICU days.

Mechanism	Number	Percent	Average ICU Days	Age 0-14 Number	Age 0-14 Percent	Age 0-14 Average ICU Days	Age 15-19 Number	Age 15-19 Percent	Age 15-19 Average ICU Days
Motor vehicle traffic	87,799	38.7	2.1	32,533	26.9	2.0	55,266	52.2	2.2
Fall	49,434	21.8	0.5	39,983	33.1	0.4	9,451	8.9	1.0
Struck by, against	18,375	8.1	0.7	9,457	7.8	0.7	8,918	8.4	0.8
Transport, other	17,749	7.8	1.3	9,306	7.7	1.1	8,443	8.0	1.5
Firearm	12,669	5.6	2.1	1,729	1.4	2.2	10,940	10.3	2.0
Cut/pierce	7,998	3.5	0.5	2,482	2.1	0.5	5,516	5.2	0.6
Pedal cyclist, other	7,591	3.4	0.7	6,119	5.1	0.6	1,472	1.4	0.8
Other specified	7,590	3.3	1.8	6,025	5.0	2.0	1,565	1.5	1.4
Fire/Burn	6,778	3.0	2.3	5,887	4.9	2.1	891	0.8	3.4
Natural/environmental	3,214	1.4	0.7	2,805	2.3	0.7	409	0.4	0.7
Unspecified	2,163	1.0	1.1	1,276	1.1	0.9	887	0.8	1.5
Fire/Flame	1,419	0.6	3.1	827	0.7	3.0	592	0.6	3.3
Pedestrian, other	1,173	0.5	1.4	915	0.8	1.2	258	0.2	1.8
Machinery	1,194	0.5	0.9	559	0.5	1.2	635	0.6	0.7
Overexertion	630	0.3	0.2	380	0.3	0.1	250	0.2	0.4
Suffocation	339	0.1	2.5	202	0.2	3.5	147	0.1	3.1
Drowning/submersion	292	0.1	3.3	192	0.2	2.1	90	0.1	2.8
Poisoning	135	0.1	1.1	70	0.1	1.2	65	0.1	1.1
Other natural/environmental	32	0.0	4.3	20	0.0	4.7	12	0.0	3.6
Hot object	6	0.0	10.5	1	0.0	1.0	5	0.0	12.4
Total	226,580	100.0		120,768	100.0		105,812	100.0	

Figure 10A Percentage of incidents by type of injury

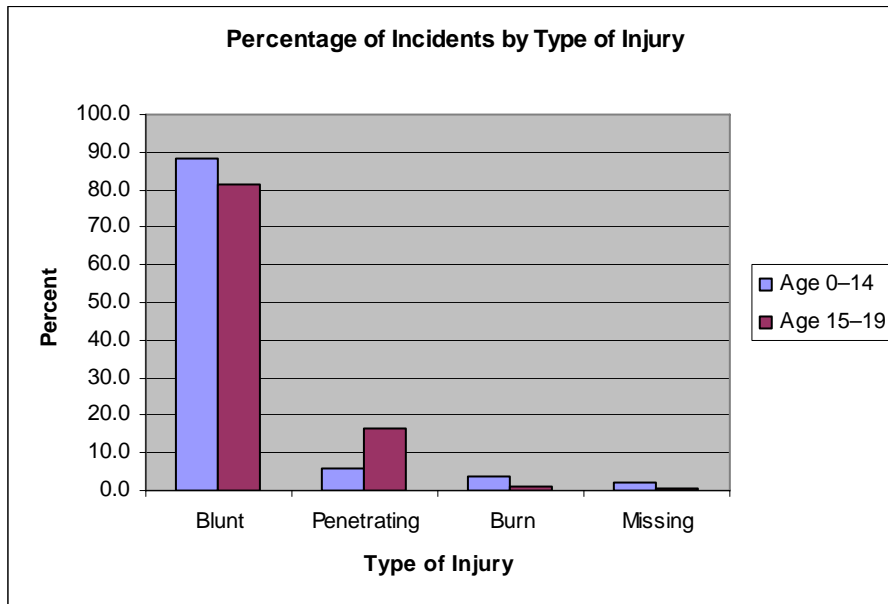


Table 10B Number and percentage of incidents by type of injury

Injury Type	Number	Percent	Age	Age	Age	Age
			0-14 Number	0-14 Percent	15-19 Number	15-19 Percent
Blunt	285,366	85.4	165,176	88.4	120,190	81.6
Burn	35,340	10.6	10,956	5.9	24,384	16.6
Penetrating	8,714	2.6	7,137	3.8	1,577	1.1
<i>Missing</i>	4,675	1.4	3,580	1.9	1,095	0.7
Total	334,095	100.0	186,849	100.0	147,246	100.0

Figure 11A Case fatality rate by type of injury

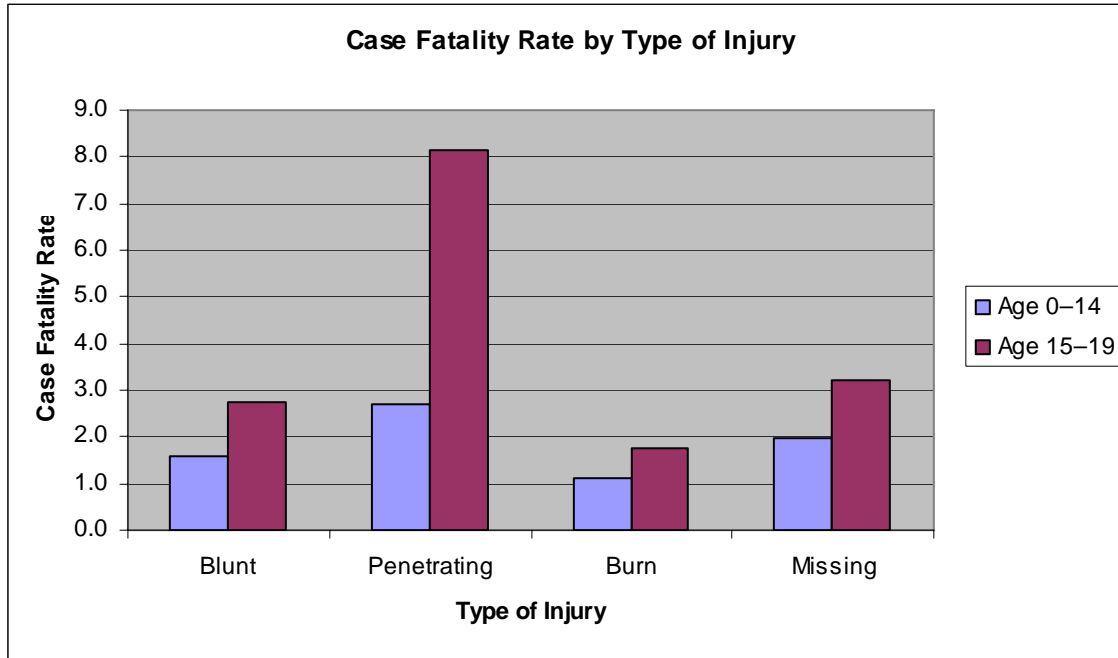


Table 11B Number and case fatality rate by type of injury

Injury Type	Number	Number Dead	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Dead	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Dead	Age 15-19 Case Fatality Rate
Blunt	285,366	5,924	2.1	165,176	2,633	1.6	120,190	3,291	2.7
Burn	35,340	2,283	6.5	10,956	298	2.7	24,384	1,985	8.1
Penetrating	8,714	106	1.2	7,137	78	1.1	1,577	28	1.8
Missing	4,675	105	2.3	3,580	70	2.0	1,095	35	3.2
Total	334,095	8,418		186,849	3,079		147,246	5,339	

Figure 12A Percentage of incidents by injury severity score (ISS)

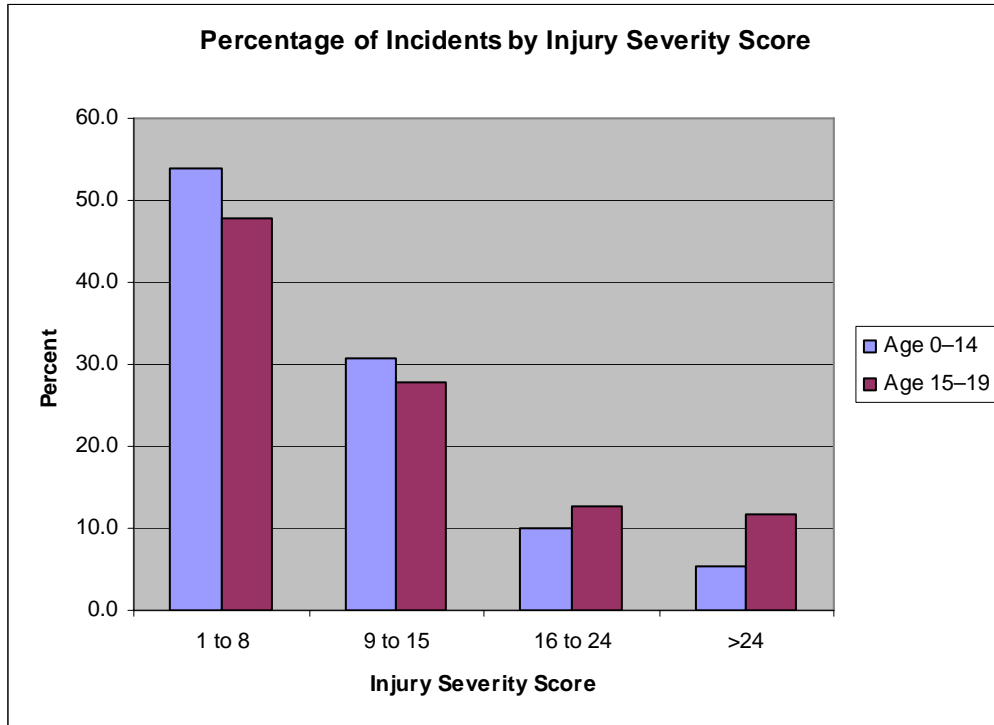


Table 12B Number and percentage of incidents by injury severity score (ISS)

ISS Range	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
1 to 8	171,126	51.2	100,621	53.9	70,505	47.9
9 to 15	98,361	29.4	57,537	30.8	40,824	27.7
16 to 24	37,422	11.2	18,598	10.0	18,824	12.8
>24	27,186	8.1	10,093	5.4	17,093	11.6
Total	334,095	100.0	186,849	100.0	147,246	100.0

Figure 13A Case fatality rate by injury severity score (ISS)

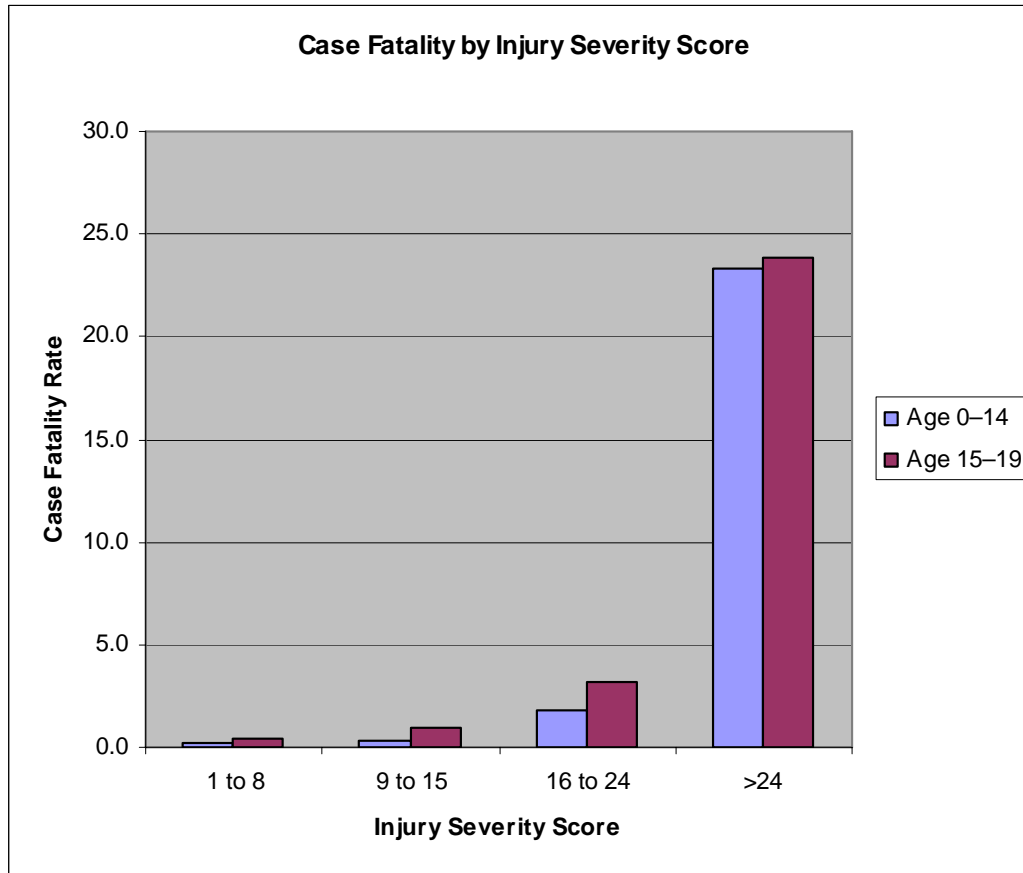


Table 13B Number and case fatality rate by injury severity score (ISS)

ISS Range	Age 0-14 Number	Age 0-14 Number Dead	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Dead	Age 15-19 Case Fatality Rate
1 to 8	100,621	199	0.2	70,505	287	0.4
9 to 15	57,537	185	0.3	40,824	373	0.9
16 to 24	18,598	340	1.8	18,824	601	3.2
>24	10,093	2,355	23.3	17,093	4,078	23.9
Total	186,849	3,079		147,246	5,339	

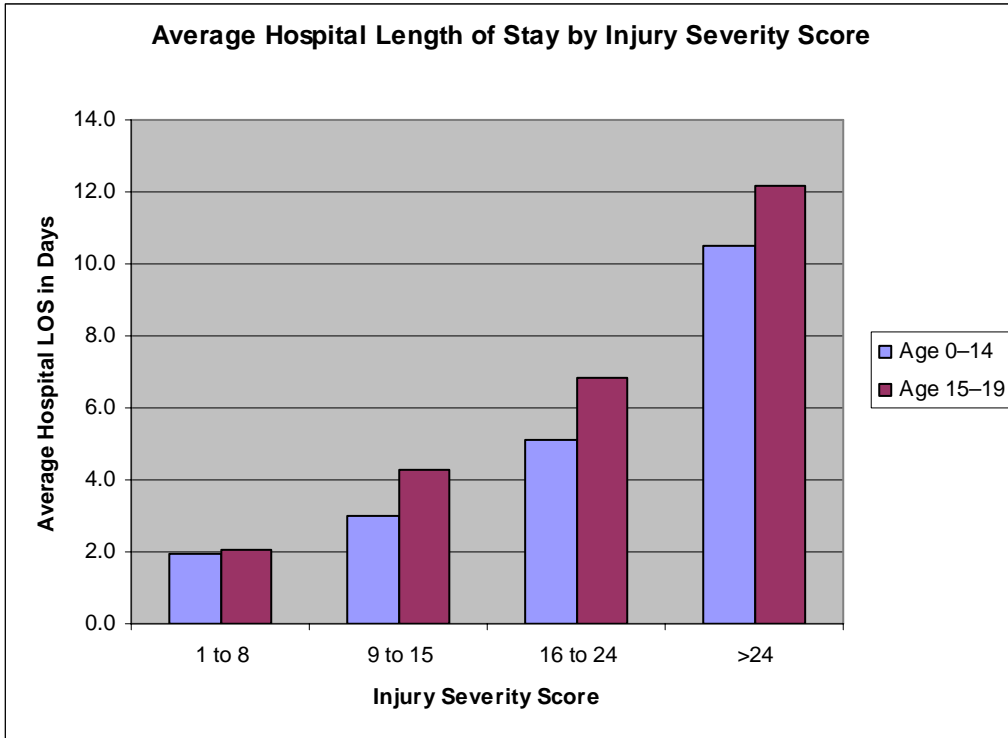


Figure 14A
Average hospital length of stay by injury severity score (ISS)

Table 14B Average hospital length of stay by injury severity score (ISS)

ISS Range	Number	Percent	Average LOS (Days)	Age 0-14 Number	Age 0-14 Percent	Age 0-14 Average LOS (Days)	Age 15-19 Number	Age 15-19 Percent	Age 15-19 Average LOS (Days)
1 to 8	171,126	51.2	2.0	100,621	53.9	2.0	70,505	47.9	2.0
9 to 15	98,361	29.4	3.5	57,537	30.8	3.0	40,824	27.7	4.3
16 to 24	37,422	11.2	6.0	18,598	10.0	5.1	18,824	12.8	6.8
>24	27,186	8.1	11.5	10,093	5.4	10.5	17,093	11.6	12.2
Total	334,095	100.0		186,849	100.0		147,246	100.0	

Figure 15A Average length of ICU stay by injury severity score (ISS)

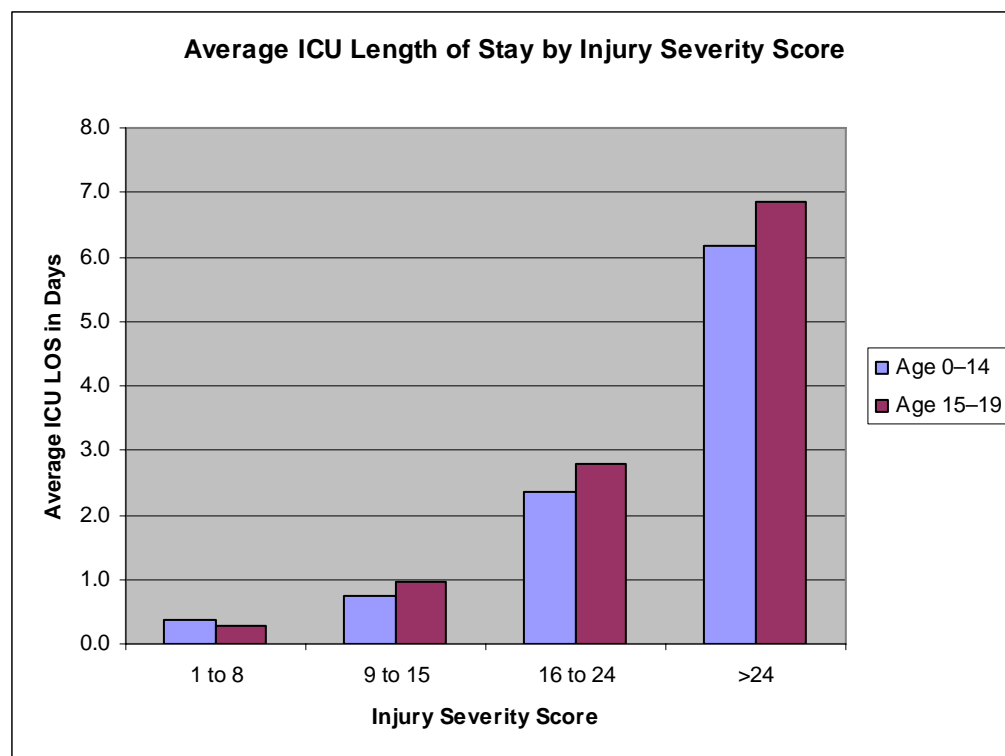


Table 15B Average ICU length of stay by injury severity score (ISS)

ISS Range	Number	Percent	Average ICU Days	Age 0-14 Number	Age 0-14 Percent	Age 0-14 Average ICU Days	Age 15-19 Number	Age 15-19 Percent	Age 15-19 Average ICU Days
1 to 8	105,491	46.6	0.3	59,879	49.6	0.4	45612	43.1	0.3
9 to 15	66,189	29.2	0.8	36,919	30.6	0.7	29270	27.7	0.9
16 to 24	30,726	13.6	2.6	15,089	12.5	2.4	15637	14.8	2.8
>24	24,174	10.7	6.6	8,881	7.4	6.2	15293	14.5	6.9
Total	226,580	100.0		120,768	100.0		105,812	100.0	

Note: A total of 107,515 incidents were missing ICU days.

Figure 16A
Percentage of incidents by intent

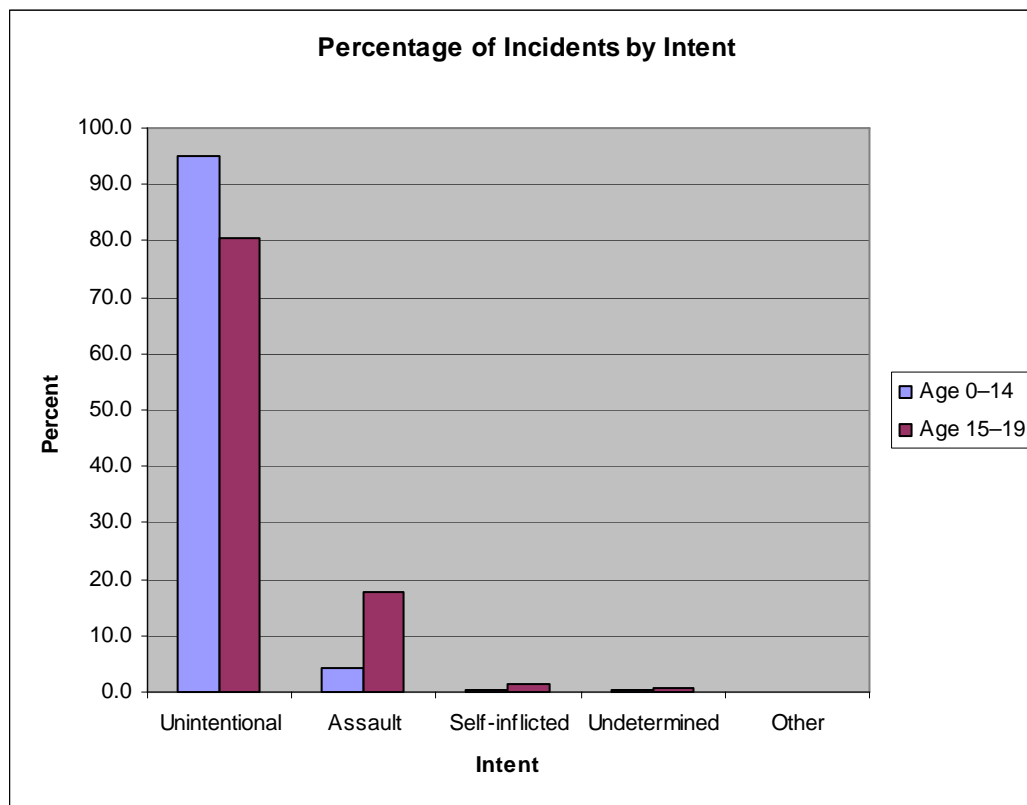


Table 16B Number and percentage of incidents by intent (see Appendix D)

Intent	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Unintentional	295,917	88.6	177,583	95.0	118,334	80.4
Assault	33,858	10.1	7,845	4.2	26,013	17.7
Self-inflicted	2,275	0.7	420	0.2	1,855	1.3
Undetermined	1,848	0.6	980	0.5	868	0.6
Other	197	0.1	21	0.0	176	0.1
Total	334,095	100.0	186,849	100.0	147,246	100.0

Figure 17A Case fatality rate by intent

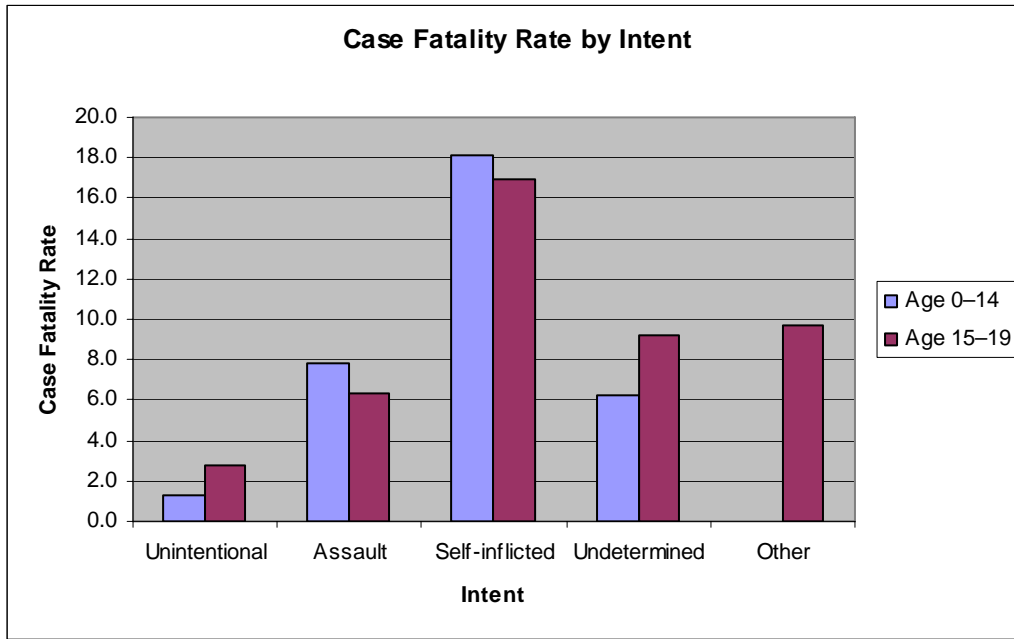


Table 17B Number and case fatality rate by intent

Intent	Number	Number Dead	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Dead	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Dead	Age 15-19 Case Fatality Rate
Unintentional	295,917	5,612	1.9	177,583	2,328	1.3	118,334	3,284	2.8
Assault	33,858	2,258	6.7	7,845	614	7.8	26,013	1,644	6.3
Self-inflicted	2,275	390	17.4	420	76	18.1	1,855	314	16.9
Undetermined	1,848	141	7.6	980	61	6.2	868	80	9.2
Other	197	17	8.6	21	0	0.0	176	17	9.7
Total	334,095	8,418		186,849	3,079		147,246	5,339	

Figure 18A Percentage of incidents by organ system

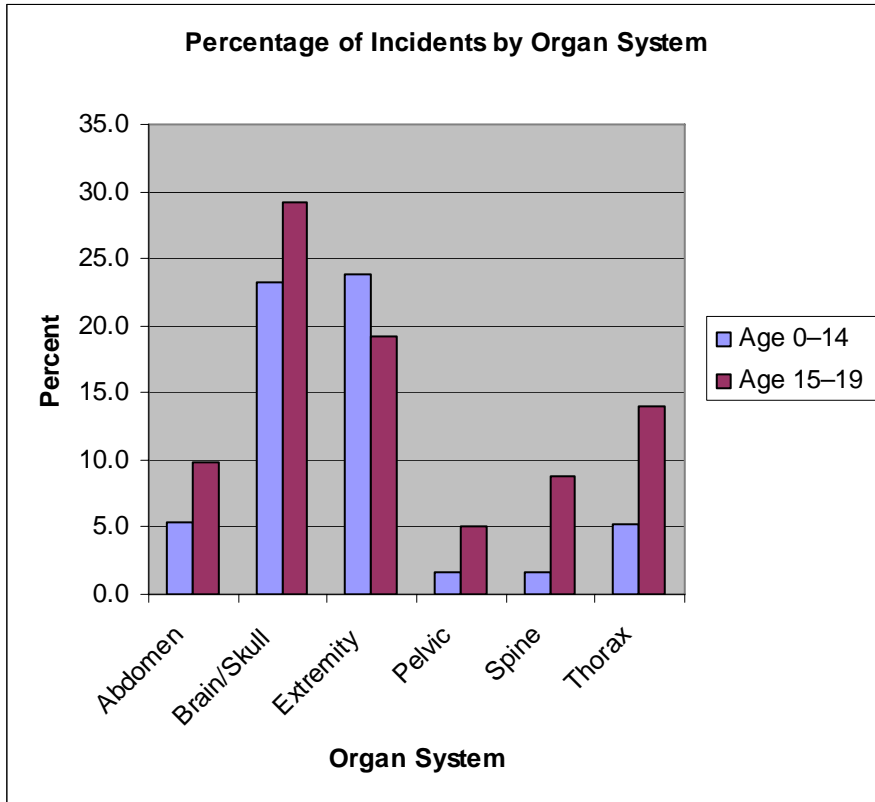


Table 18B Number and percentage of incidents by organ system

Organ System	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Abdomen	24,491	7.3	10,057	5.4	14,434	9.8
Brain/skull	86,468	25.9	43,546	23.3	42,922	29.1
Extremity	72,780	21.8	44,543	23.8	28,237	19.2
Pelvic	10,468	3.1	3,059	1.6	7,409	5.0
Spine	16,076	4.8	3,049	1.6	13,027	8.8
Thorax	30,438	9.1	9,865	5.3	20,573	14.0
Other/Unknown	161,327	48.3	94,246	50.4	67,081	45.6
Total Incidents	334,095		186,849		147,246	

Note: An incident may involve multiple organ systems and a patient will then be counted in each of the organ systems in which there is an injury. The percentage is calculated as the number of incidents in each organ system divided by the total number of incidents (334,095).

The following diagnosis codes were used for each organ system: Abdomen: 863-863.9, 864-864.1, 865-865.1, 866-867.9, and 868. Brain/Skull: 800-804.9 and 850-854.1. Extremity: 812-839.9. Pelvic: 808-808.9. Spine: 805-806.9. Thorax: 807-807.6, 810-811.1, and 860-862.9.

Figure 19A Case Fatality Rate by Organ System

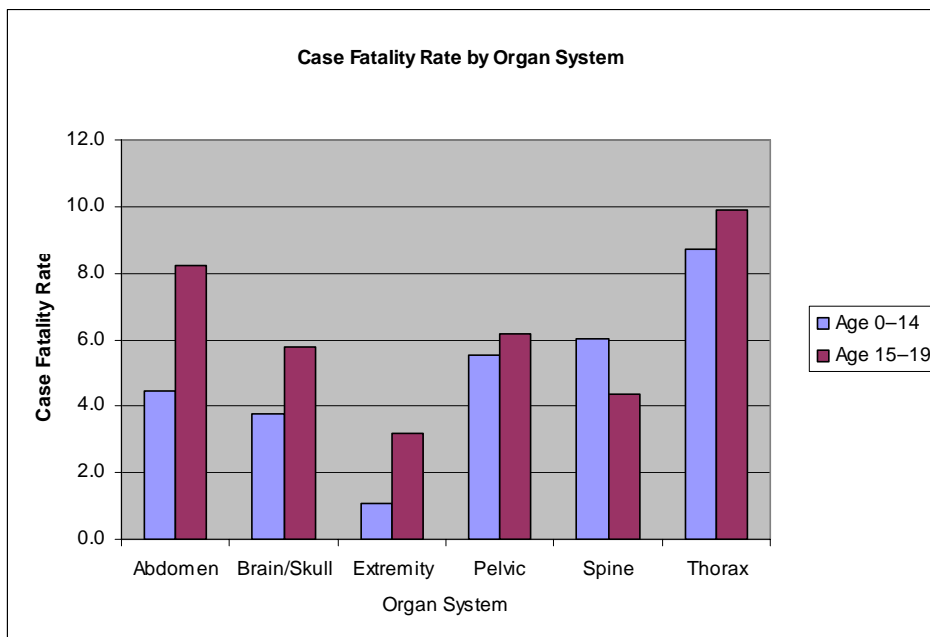


Table 19B Number and case fatality rate of incidents by organ system

Organ System	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Case Fatality Rate
Abdomen	24,491	1,636	6.7	10,057	448	4.5	14,434	1,188	8.2
Brain/Skull	86,468	4,118	4.8	43,546	1,635	3.8	42,922	2,483	5.8
Extremity	72,780	1,393	1.9	44,543	489	1.1	28,237	904	3.2
Pelvic	10,468	626	6.0	3,059	169	5.5	7,409	457	6.2
Spine	16,076	748	4.7	3,049	183	6.0	13,027	565	4.3
Thorax	30,438	2,896	9.5	9,865	861	8.7	20,573	2,035	9.9
Other/Unknown	161,327	2,939	1.8	94,246	1,183	1.3	67,081	1,756	2.6
Total	334,095	8,418		186,849	3,079		147,246	5,339	

Note: An incident may involve multiple organ systems and a patient will then be counted in each of the organ systems in which there is an injury. The case fatality rate is calculated as the number of deaths in each organ system divided by the number of incidents in that organ system. No inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death.

The following diagnosis codes were used for each organ system: Abdomen: 863-863.9, 864-864.1, 865-865.1, 866-867.9, and 868. Brain/Skull: 800-804.9 and 850-854.1. Extremity: 812-839.9. Pelvic: 808-808.9. Spine: 805-806.9. Thorax: 807-807.6, 810-811.1, and 860-862.9.

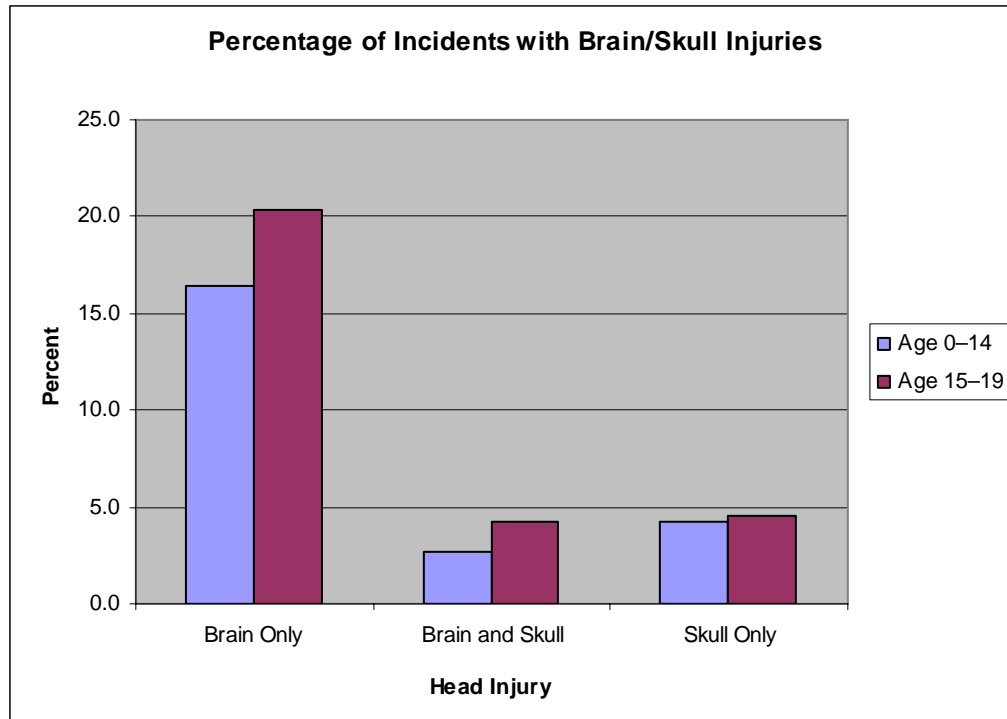


Figure 20A
Percentage of incidents with brain/skull injuries

Table 20B Number and percentage of incidents with brain/skull injuries

Head Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Brain Only	60,657	18.2	30,623	16.4	30,034	20.4
Brain and Skull	11,202	3.4	4,960	2.7	6,242	4.2
Skull Only	14,609	4.4	7,963	4.3	6,646	4.5
Total head injuries	86,468	25.9	43,546	23.3	42,922	29.1
Total incidents	334,095		186,849		147,246	

Note: An incident may involve multiple head injuries and a patient will then be counted in each of the head injury categories in which there is an injury. The percentage is calculated as the number of incidents in each head injury category divided by the total number of incidents (334,095).

The following diagnosis codes were used for Brain and Skull Injuries. Brain Injuries: 850-854.19, 803.1-803.49, 800.1-800.49, 800.6-800.99, 801.1-801.49, 801.6-801.99, 803.6-803.99, 804.1-804.49, and 804.6-804.99. Skull Injuries: 800.0-800.09, 800.5-800.59, 801.0-801.09, 801.5-801.59, 802-803.09, 803.5-803.59, 804-804.09, and 804.5-804.59.

Figure 21A Case fatality rate for brain/skull injuries

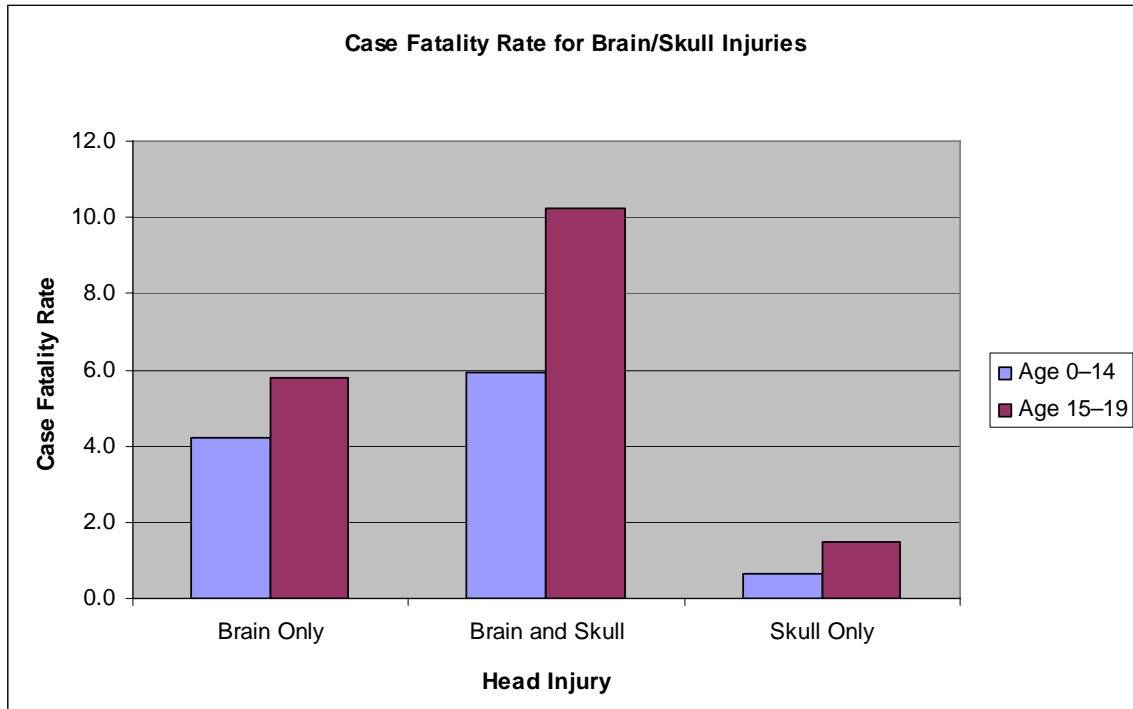


Table 21B Number and case fatality rate for brain/skull injuries

Head Injury	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Case Fatality Rate
Brain Only	60,657	3,033	5.0	30,623	1,289	4.2	30,034	1,744	5.8
Brain and Skull	11,202	933	8.3	4,960	294	5.9	6,242	639	10.2
Skull Only	14,609	152	1.04	7,963	52	0.65	6,646	100	1.50
Total	334,095	8,418		186,849	3,079		147,246	5,339	

Note: The case fatality rate is calculated as the number of deaths in each head injury category divided by the total number of incidents for that head injury category. No inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death.

The following diagnosis codes were used for Brain and Skull Injuries. Brain Injuries: 850-854.19, 803.1-803.49, 800.1-800.49, 800.6-800.99, 801.1-801.49, 801.6-801.99, 803.6-803.99, 804.1-804.49, and 804.6-804.99. Skull Injuries: 800.0-800.09, 800.5-800.59, 801.0-801.09, 801.5-801.59, 802-803.09, 803.5-803.59, 804-804.09, and 804.5-804.59.

Figure 22A Percentage of incidents with intracranial injuries

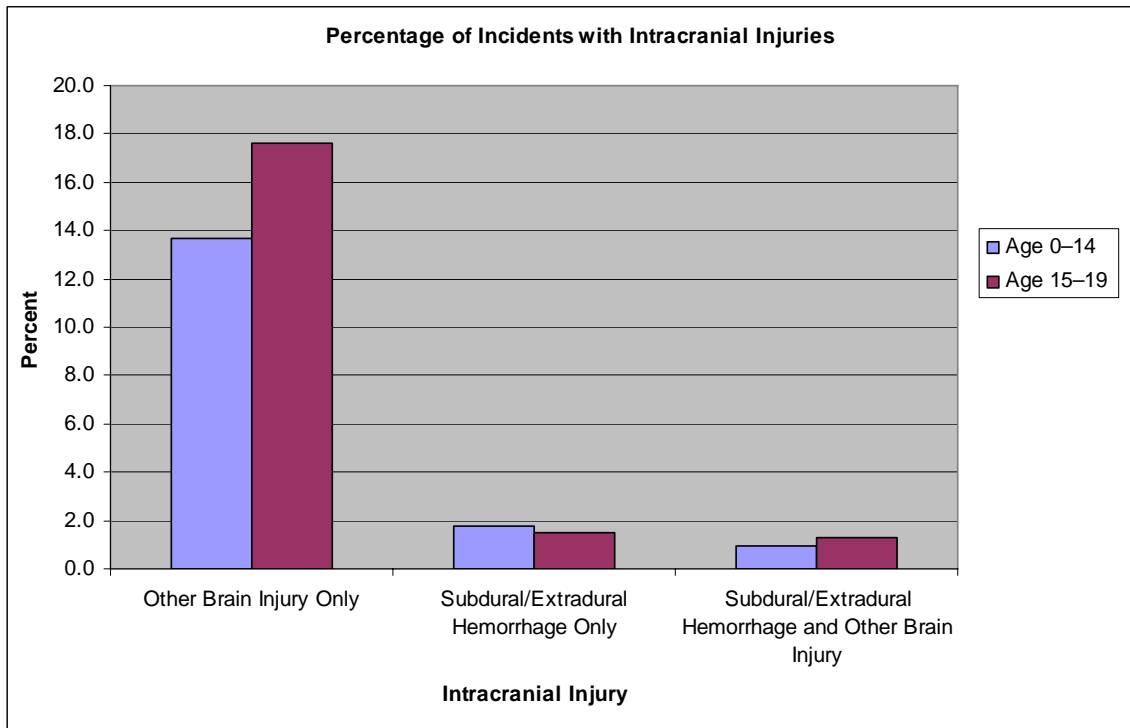


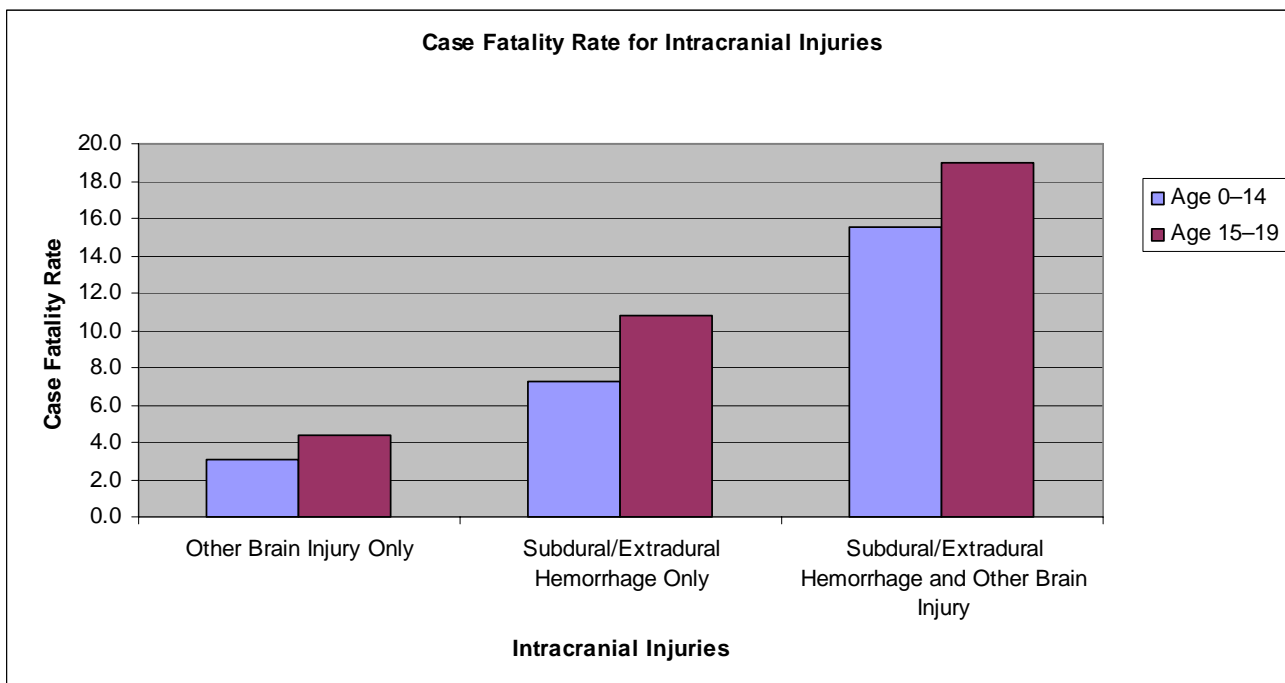
Table 22B Number and percentage of incidents with intracranial injuries

Intracranial incidents	Number	Percent	Age 0-14	Age 0-14	Age 15-19	Age 15-19
			Number	Percent	Number	Percent
Other intracranial only	51,534	15.4	25,605	13.7	25,929	17.6
Subdural/extradural hemorrhage Only	5,448	1.6	3,269	1.7	2,179	1.5
Subdural/extradural hemorrhage and other brain injury	3,675	1.1	1,749	0.9	1,926	1.3
Total Intracranial incidents	60,657	18.2	30,623	16.4	30,034	20.4
Total Incidents	334,095		186,849		147,246	

Note: The percentage is calculated as the number of incidents in each brain injury category divided by the total number of incidents (334,095).

The following diagnosis codes were used for Subdural/Extradural Hemorrhage: 852.2-852.59.

Figure 23A Case fatality rate for intracranial injuries



Note: The case fatality rate is calculated as the number of deaths in each intracranial category divided by the number of incidents per category. No inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death.

The following diagnosis codes were used for subdural/extradural hemorrhage: 852.2–852.59.

Table 23B Case fatality rate for intracranial injuries

Intracranial Incidents	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Case Fatality Rate
Other Brain Injury Only	51,534	1,924	3.7	25,605	782	3.1	25,929	1,142	4.4
Subdural/Extradural Hemorrhage Only	5,448	472	8.7	3,269	236	7.2	2,179	236	10.8
Subdural/Extradural Hemorrhage and Other Brain Injury	3,675	637	17.3	1,749	271	15.5	1,926	366	19.0
Total	60,657	3,033		30,623	1,289		30,034	1,744	

Figure 24A Percentage of incidents with thoracic injuries

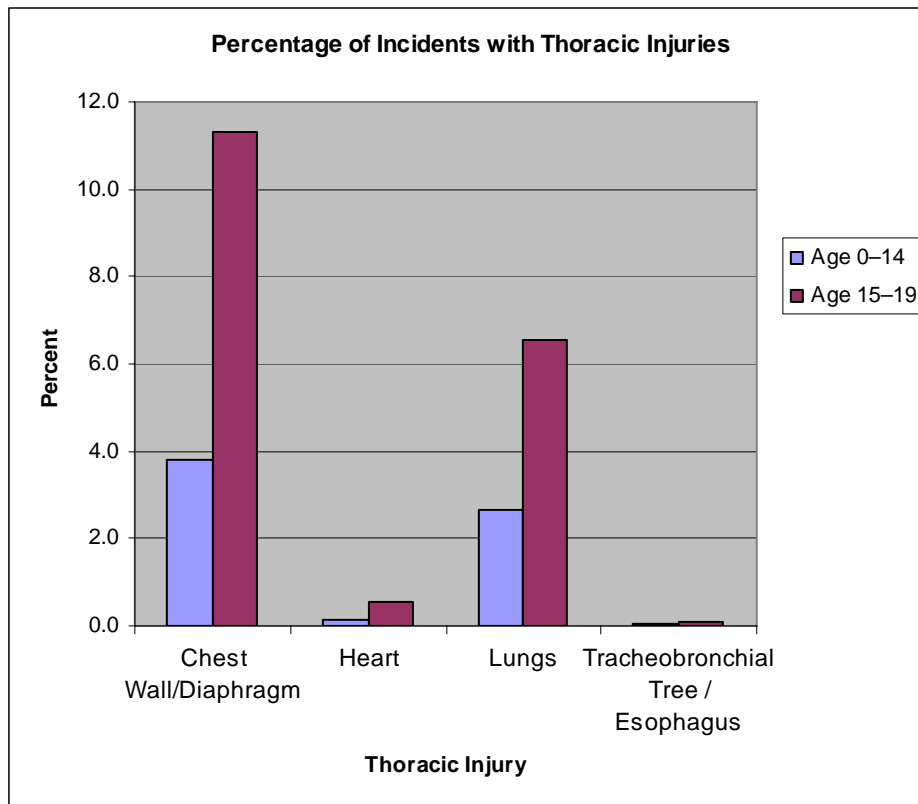


Table 24B Number and percentage of incidents with thoracic injuries

Thoracic Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Chest wall/diaphragm	23,775	7.1	7,091	3.8	16,684	11.3
Heart	1,033	0.3	222	0.1	811	0.6
Lungs	14,595	4.4	4,968	2.7	9,627	6.5
Tracheobronchial tree/esophagus	204	0.1	79	0.0	125	0.1
Other/Unknown	668	0.2	183	0.1	485	0.3
Total Incidents	334,095		186,849		147,246	

Note: An incident may involve multiple thoracic injuries and a patient will then be counted in each of the thoracic injury categories in which there is an injury. The percentage is the number of incidents in each thoracic injury category divided by the total number of incidents (334,095)

The following diagnosis codes were used for the thoracic categories: Chest wall/diaphragm: 807-807.6, 810-811.29, 860-860.9, and 862-862.19. Heart: 861-861.19. Lungs: 861.2-861.39. Tracheobronchial tree/esophagus: 862.21, 862.22, 862.31, and 862.32.

Figure 25A Case fatality rate for thoracic injuries

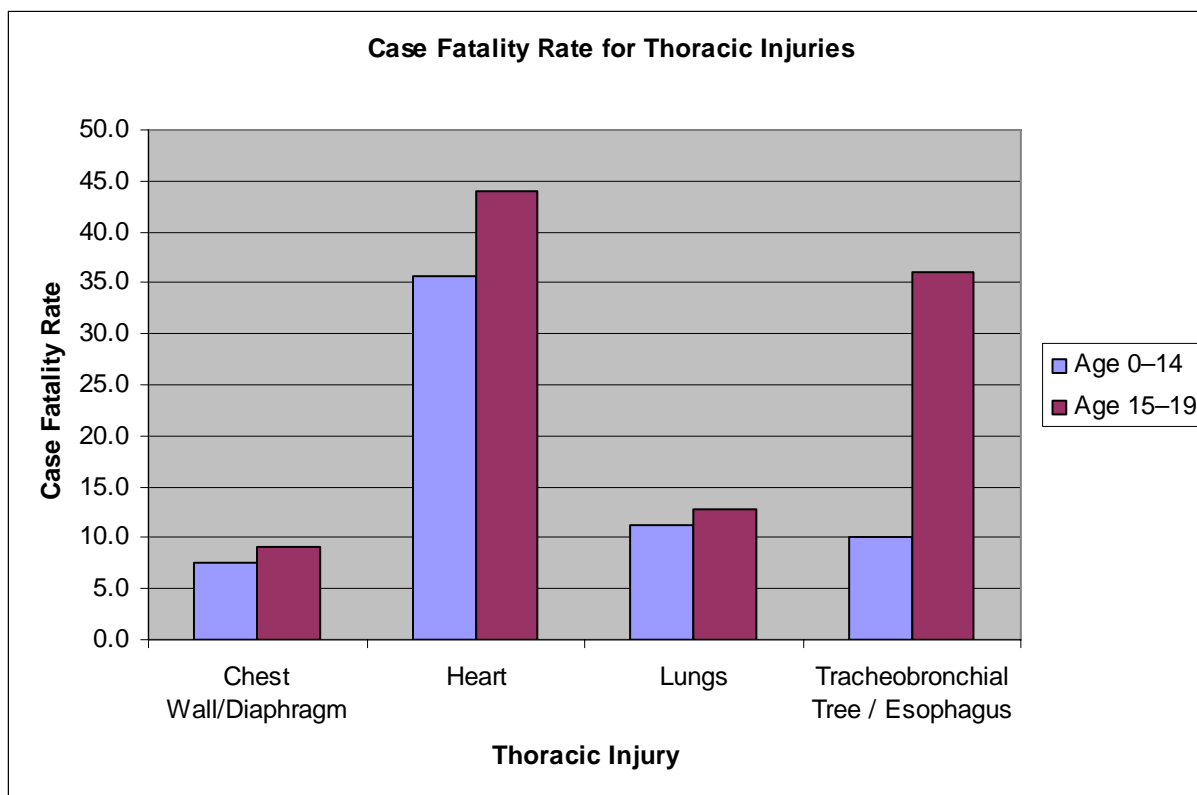


Table 25B Number and case fatality rate for thoracic injuries

Thoracic Injury	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Fatality Rate
Chest Wall/Diaphragm	23,775	2,066	8.7	7,091	540	7.62	16,684	1,526	9.15
Heart	1,033	436	42.2	222	79	35.59	811	357	44.02
Lungs	14,595	1,792	12.3	4,968	554	11.15	9,627	1,238	12.86
Tracheobronchial Tree/Esophagus	204	53	26.0	79	8	10.13	125	45	36.00
Other/Unknown	668	196	29.3	183	49	26.78	485	147	30.31
Total Incidents	334,095	8,418		186,849	3,079		147,246	5,339	

Note: An incident may involve multiple thoracic injuries and a patient will then be counted in each of the thoracic injury categories in which there is an injury. The case fatality rate is calculated as the number of deaths in each thoracic injury category divided by the number of incidents. No inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death.

The following diagnosis codes were used for the thoracic categories: Chest Wall/Diaphragm: 807–807.6, 810–811.29, 860–860.9, and 862–862.19. Heart: 861–861.19. Lungs: 861.2–861.39. Tracheobronchial Tree/Esophagus: 862.21, 862.22, 862.31, and 862.32.

Figure 26A Percentage of incidents with abdominal injuries

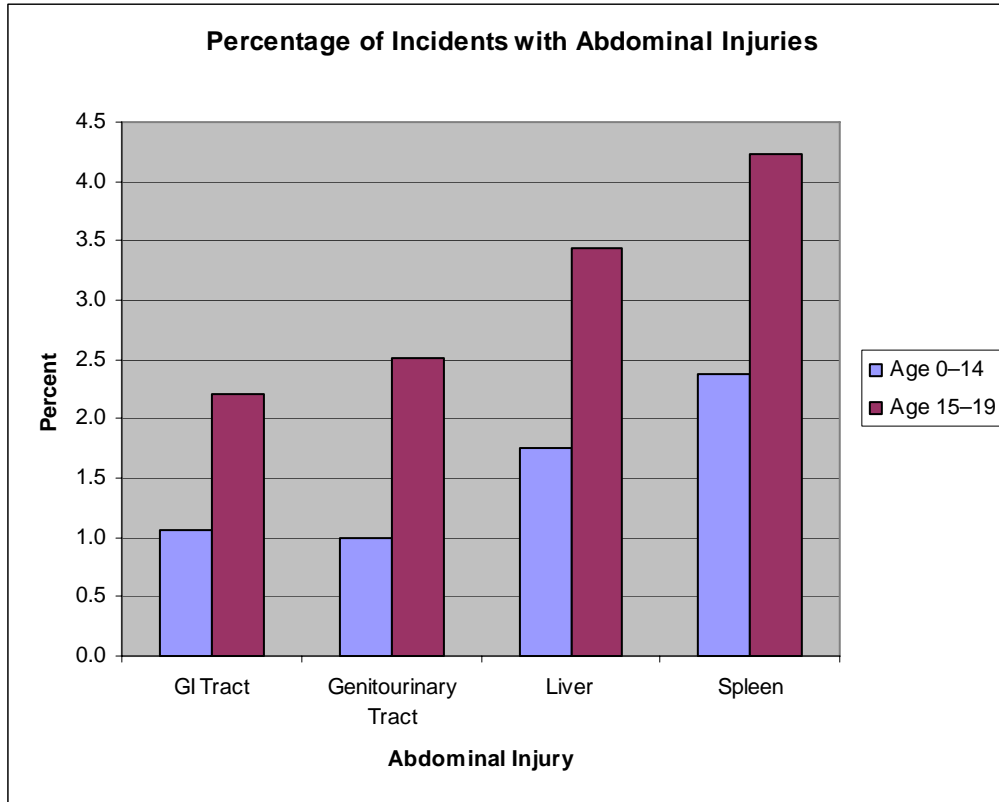


Table 26B Number and percentage of incidents with abdominal injuries

Abdominal Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
GI Tract	5,258	1.6	1,996	1.1	3,262	2.2
Genitourinary Tract	5,542	1.7	1,850	1.0	3,692	2.5
Liver	8,348	2.5	3,285	1.8	5,063	3.4
Spleen	10,654	3.2	4,435	2.4	6,219	4.2
Other/Unknown	3,303	1.0	1,126	0.6	2,177	1.5
Total Incidents	334,095		186,849		147,246	

Note: An incident may involve multiple abdominal injuries and a patient will then be counted in each of the abdominal injury categories in which there is an injury. The percentage is the number of incidents in each abdominal injury category divided by the total number of incidents (334,095)

The following diagnosis codes were used for the abdominal categories: GI Tract: 863-863.99. Genitourinary Tract: 866-867.9. Liver: 864-864.19. Spleen: 865-865.19.

Figure 27A Case fatality rate for abdominal injuries

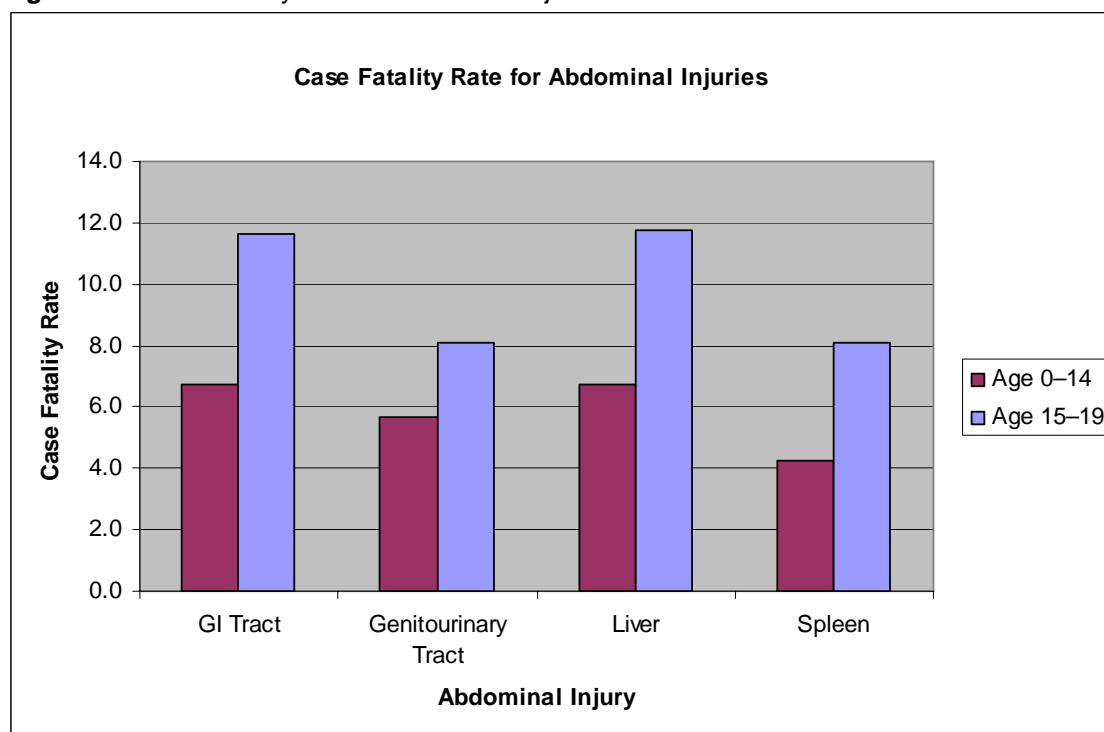


Table 27B Number and case fatality rate for abdominal injuries

Abdominal Injury	Number	Number Died	Case Fatality Rate	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Case Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Case Fatality Rate
GI Tract	5,258	513	9.8	1,996	134	6.7	3,262	379	11.6
Genitourinary Tract	5,542	403	7.3	1,850	105	5.7	3,692	298	8.1
Liver	8,348	818	9.8	3,285	222	6.8	5,063	596	11.8
Spleen	10,654	691	6.5	4,435	189	4.3	6,219	502	8.1
Other/Unknown	3,303	471	14.3	1,126	124	11.0	2,177	347	15.9
Total Incidents	334,095	8,418		186,849	3,079		147,246	5,339	

Note: An incident may involve multiple abdominal injuries and a patient will then be counted in each of the abdominal injury categories in which there is an injury. The case fatality rate is calculated as the number of deaths in each abdominal injury category divided by the number of incidents in each category. No inferences should be drawn from these data with respect to causality, since the NTDB contains no specific information on proximate cause of death, but only those injuries associated with death.

The following diagnosis codes were used for the abdominal categories: GI Tract: 863–863.99. Genitourinary Tract: 866–867.9. Liver: 864–864.19. Spleen: 865–865.19.

Appendix A
Definition of Trauma Patient

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.

* Definition of trauma patient was generated from the Resources for Optimal Care of the Injured Patients: 1999 by Committee on Trauma of the American College of Surgeons.

Appendix B
NTDB Data Elements

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.

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. Records were excluded from the analysis for this report if they contained missing and/or invalid values for any of the following items:

1. Date of Birth
2. Gender
3. E-Code
4. Injury Severity Score
5. Length of Stay
6. Discharge Disposition/ Discharge Status
7. Valid diagnosis code according to NTDB inclusion criteria

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:

Flag No	Data Field	Edit Check
1	Date of Birth	Year of Birth must be non-missing and less than or equal to Date of Admission. Year of Birth plus 120 must not be greater than Year of Admission.
2	Gender	Gender must be non-missing and Male or Female.
3	E-Code	The E-code record must be non-missing or and cannot be E849.x
4	Injury Severity Score	ISS must be non-missing, an integer between 0 and 75, and the sum of three squares.
5	Length of Stay	Length of Stay must be non-missing and an integer between 0 to 364.
6	Discharge Disposition/Discharge Status	Discharge Disposition and Discharge Status must be non-missing and consistent (Alive/Died). Records with Discharge Disposition of "Other" or "Unknown" are not flagged.
7	Valid Trauma Diagnosis Code (ICD-9 Code or AISCODE)	All patients with ICD-9-CM discharge diagnosis 800.00 – 959.9, excluding 905-909, 910-924, and 930-939. Or any non-missing AIS code.
8	Hospital Length of Stay < ICU length of stay	The Length of ICU stay must be non-missing and less than or equal to the Hospital Length of Stay.
9	Year of Admission	Year of Admission must be non-missing and greater than or equal to 1993.
10	Date of Injury	Date of Injury must be non-missing and less than or equal to Date of Admission.
11	ED Arrival Time	ED Arrival Time must be non-missing, based on 24-hour clock from 00:00 to 23:59, and with valid entries for hour and minute.
12	Initial ED systolic blood pressure	Initial ED systolic blood pressure must be non-missing and an integer between 0 and 299.

Flag No	Data Field	Edit Check
13	Initial ED respiratory rate	Initial ED Respiratory Rate must be non-missing and an integer between 0 and 59. Missing
14	ED Disposition	If ED disposition is equal to DOA, then final hospital disposition must be DOA and must have Initial ED Systolic Blood Pressure = 0, Initial ED Respiratory Rate = 0. In addition, missing ED disposition are flagged.
15	Discharge or Death Date	Date of Discharge or Death must be non-missing and greater than or equal to Date of Admission.
16	Lowest Glasgow Coma Scale Eye component in ED	Glasgow Coma Scale Eye component must be non-missing and an integer between 1 and 4.
17	Lowest Glasgow Coma Scale Verbal component in ED.	Glasgow Coma Scale Verbal component must be an integer between 1 and 5. If Glasgow Coma Scale qualifier indicates patient intubated then GCS Verbal must be missing. However, if qualified does not indicate patient intubated then missing will be flagged.
18	Lowest Glasgow Coma Scale Motor component in ED	Glasgow Coma Scale Motor component must be non-missing and an integer between 1 and 6
19	Glasgow Coma Scale Qualifier	Glasgow Coma Scale qualifier must be non-missing and equal to T (intubated), TP (intubated and chemically paralyzed), S (chemically sedated), or L (legitimated value).
20	Number of Days to Admission	Number of Days to admission must be non-missing and an integer between 0 and 30.
21	Probability of Survival	Probability of Survival must be non-missing and a value between 0 and 1.
22	Ventilator Days	Ventilator Days must be non-missing and less than or equal to the Hospital Length of Stay.
23	FIM locomotion score at discharge	FIM locomotion score must be non-missing and an integer between 0 and 4.
24	FIM expression score at discharge	FIM expression score must be non-missing and an integer between 0 and 4.
25	FIM Score Total at discharge	Total FIM must be non-missing and an integer between 1 and 12.
26	FIM self-feeding score at discharge	FIM self-feeding score must be non-missing and an integer between 0 and 4.
27	Glasgow Coma Scale Total	Glasgow Coma Scale Total must be non-missing and sum of Glasgow Coma Scale Eye, Verbal, and Motor component. If one of the components are missing then the value is flagged since the total score is invalid.

Appendix D E-Code Grouping

Recommended Framework for E-Code Groupings for Presenting Injury Mortality and Morbidity Data. Reference MMWR 1997;46:1–30.

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
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/flare	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 ^{2,3}	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 ³	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 ⁴	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	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
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

¹Includes legal intervention (E970–E978) and operations of war (E990–E999).

²Three 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.

³E968.5 (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.

⁴E849 (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— the 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](#).