



NTDB[®]
NATIONAL TRAUMA DATA BANK

National Trauma Data Bank Pediatric Report 2006

Version 6.1

NTDB Pediatric Annual Report 2006

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Pediatric Editors' Note

The Annual Pediatric Report of the National Trauma Data Bank (NTDB), Version 6.1 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 325,000 records from admission years 1988 to 2005. 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 Pediatric Annual Report Version 6.1 is based on 241,457 records from the years 2001–2005. 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 2006, Version 6.1 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 2007. Thank you on behalf of the American College of Surgeons, and all of America's children.

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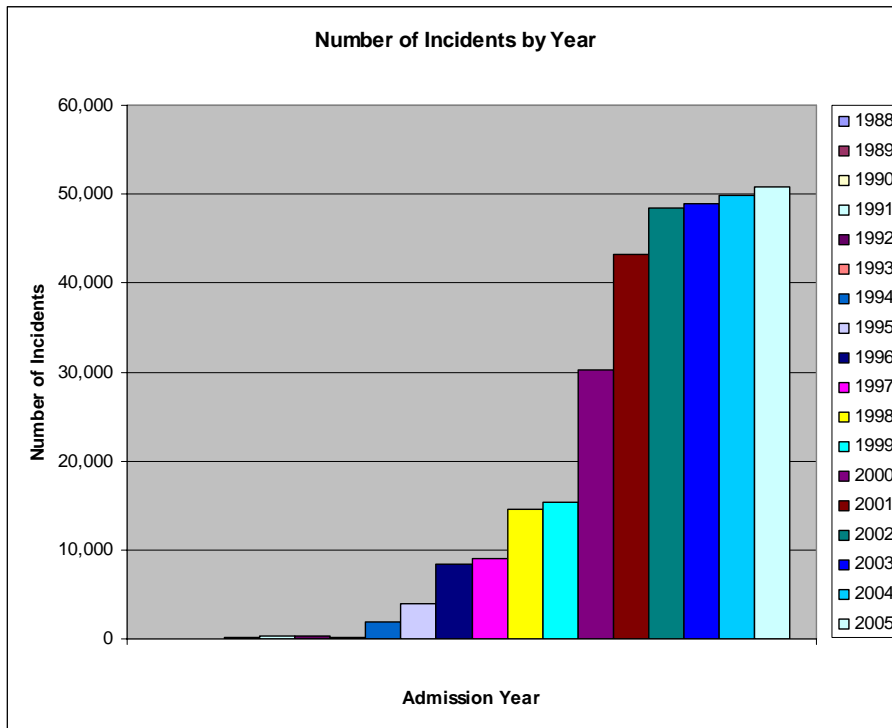


Figure 1A

Number of incidents by year in the **entire** NTDB. Note that the rest of the report only displays data from year 2001–2005.

Admission Year	Number	Percent
1988	8	0.00
1989	24	0.01
1990	96	0.03
1991	257	0.08
1992	250	0.08
1993	235	0.07
1994	1,830	0.56
1995	3,917	1.20
1996	8,460	2.59
1997	9,084	2.78
1998	14,609	4.48
1999	15,433	4.73
2000	30,248	9.27
2001	43,214	13.25
2002	48,473	14.86
2003	48,981	15.02
2004	49,946	15.31
2005	50,843	15.59
Total	325,908	
NTDB v 6.1 Total	241,457	

Table 1B

Number of incidents by year in the **entire** NTDB. Note that the rest of the report only displays data from year 2001–2005.

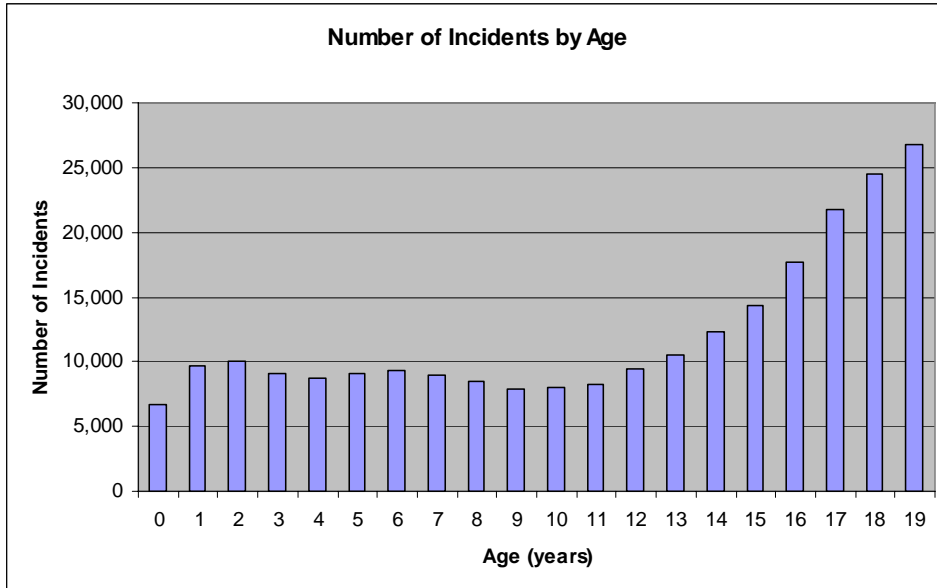


Figure 2A

Number of incidents by age.

Age	Number	Percent
0	6,664	2.76
1	9,627	3.99
2	9,982	4.13
3	9,110	3.77
4	8,705	3.61
5	9,123	3.78
6	9,376	3.88
7	8,975	3.72
8	8,482	3.51
9	7,935	3.29
10	8,017	3.32
11	8,306	3.44
12	9,388	3.89
13	10,544	4.37
14	12,317	5.10
15	14,308	5.93
16	17,649	7.31
17	21,716	8.99
18	24,512	10.15
19	26,721	11.07
Total	241,457	100.01

Table 2B

Number and percent of incidents by age.

Figure 3A Number of incidents by age and gender.

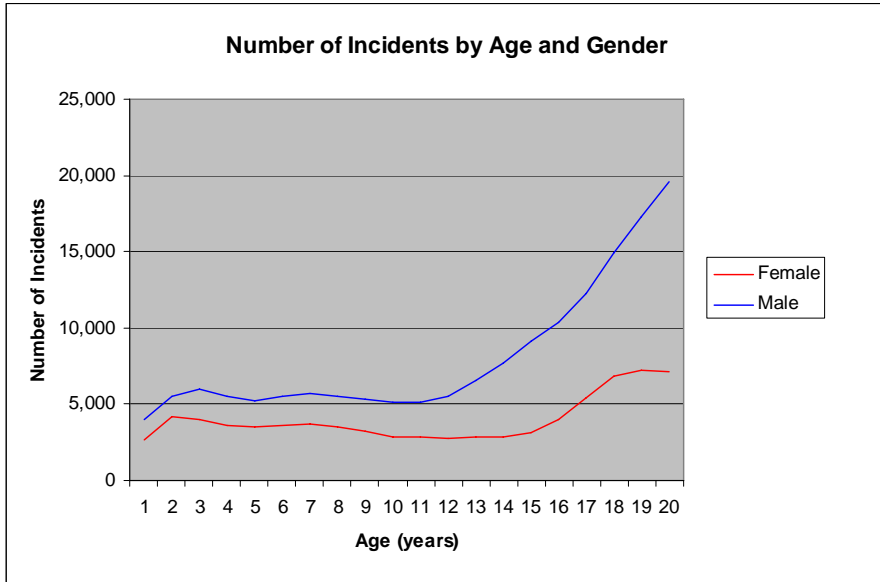


Table 3B Number and percent of incidents by age and gender

Age	Number	Number Female	Percent Female	Number Male	Percent Male
0	6,664	2,647	3.32	4,017	2.48
1	9,627	4,148	5.20	5,479	3.39
2	9,982	3,953	4.96	6,029	3.73
3	9,110	3,640	4.57	5,470	3.38
4	8,705	3,498	4.39	5,207	3.22
5	9,123	3,621	4.54	5,502	3.40
6	9,376	3,674	4.61	5,702	3.53
7	8,975	3,482	4.37	5,493	3.40
8	8,482	3,190	4.00	5,292	3.27
9	7,935	2,845	3.57	5,090	3.15
10	8,017	2,872	3.60	5,145	3.18
11	8,306	2,776	3.48	5,530	3.42
12	9,388	2,868	3.60	6,520	4.03
13	10,544	2,812	3.53	7,732	4.78
14	12,317	3,157	3.96	9,160	5.66
15	14,308	3,960	4.97	10,348	6.40
16	17,649	5,417	6.79	12,232	7.56
17	21,716	6,822	8.56	14,894	9.21
18	24,512	7,196	9.03	17,316	10.71
19	26,721	7,151	8.97	19,570	12.10
Total	241,457	79,729	100.00	161,728	100.00

Figure 4A Number of incidents by mechanism of injury

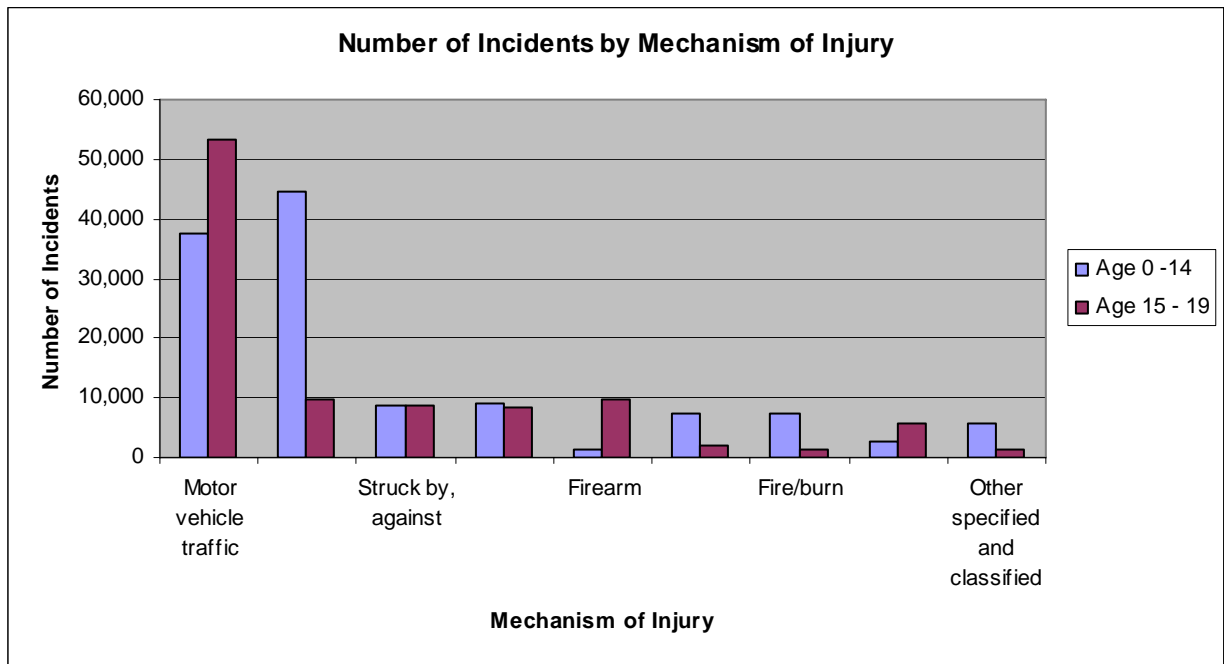


Table 4B Number and percent of incidents by mechanism of injury

Mechanism	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Motor vehicle traffic	90,847	37.62	37,624	27.55	53,223	50.73
Fall	54,513	22.58	44,723	32.75	9,790	9.33
Struck by, against	17,373	7.20	8,693	6.37	8,680	8.27
Transport, other	17,293	7.16	8,966	6.57	8,327	7.94
Firearm	11,127	4.61	1,475	1.08	9,652	9.20
Pedal cyclist, other	9,193	3.81	7,296	5.34	1,897	1.81
Fire/burn	8,696	3.60	7,266	5.32	1,430	1.36
Cut/pierce	8,361	3.46	2,740	2.01	5,621	5.36
Other specified and classified	7,158	2.96	5,830	4.27	1,328	1.27
Natural/environmental	3,663	1.52	3,218	2.36	445	0.42
Unspecified	2,368	0.98	1,420	1.04	948	0.90
Pedestrian, other	1,379	0.57	1,110	0.81	269	0.26
Machinery	1,290	0.53	665	0.49	625	0.60
Other specified, not elsewhere classified	1,010	0.42	605	0.44	405	0.39
Overexertion	773	0.32	423	0.31	350	0.33
Suffocation	319	0.13	183	0.13	136	0.13
Drowning/submersion	308	0.13	222	0.16	86	0.08
Poisoning	155	0.06	99	0.07	56	0.05
Adverse effects	88	0.04	53	0.04	35	0.03
Missing	5,543	2.30	3,940	2.89	1,603	1.53
Total	241,457	100.00	136,551	100.00	104,906	99.99

Figure 5A Number of deaths by mechanism of injury

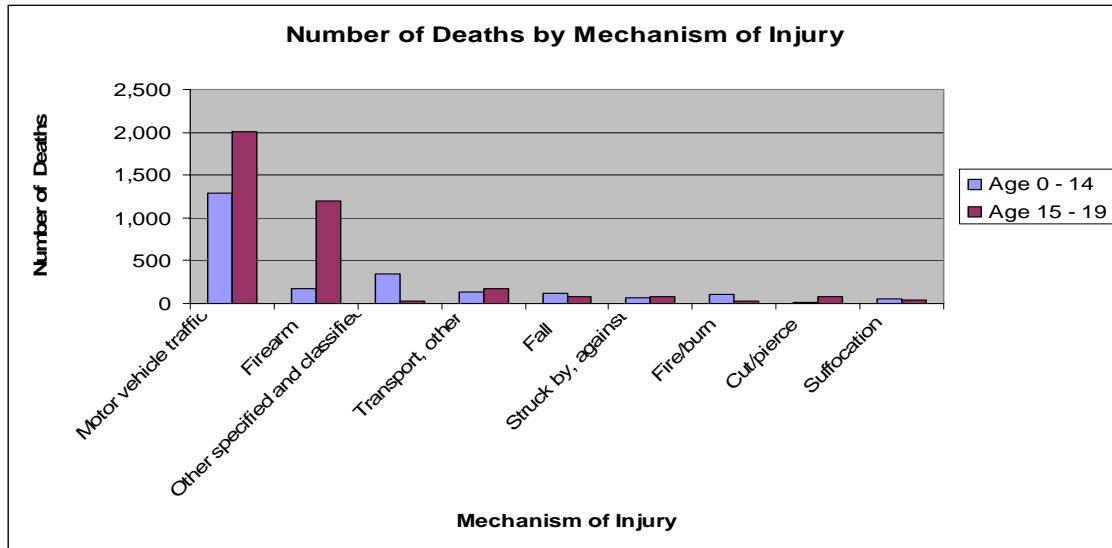


Table 5B Number and percent of deaths and case fatality rate by mechanism of injury

Mechanism of injury	Age 0-14 Number	Age 0-14 Number Died	Age 0-14 Fatality Rate	Age 15-19 Number	Age 15-19 Number Died	Age 15-19 Fatality Rate
Motor vehicle traffic	37,624	1,294	3.44	53,223	2,005	3.77
Firearm	1,475	169	11.46	9,652	1,202	12.45
Other specified and classified	5,830	347	5.95	1,328	31	2.33
Transport, other	8,966	133	1.48	8,327	175	2.10
Fall	44,723	118	0.26	9,790	85	0.87
Struck by, against	8,693	65	0.75	8,680	75	0.86
Fire/burn	7,266	100	1.38	1,430	24	1.68
Cut/pierce	2,740	12	0.44	5,621	78	1.39
Suffocation	183	48	26.23	136	37	27.21
Unspecified	1,420	37	2.61	948	18	1.90
Pedestrian, other	1,110	37	3.33	269	12	4.46
Pedal cyclist, other	7,296	24	0.33	1,897	14	0.74
Drowning/submersion	222	28	12.61	86	9	10.47
Natural/environmental	3,218	20	0.62	445	2	0.45
Other specified, not elsewhere classified	605	14	2.31	405	6	1.48
Machinery	665	9	1.35	625	2	0.32
Adverse effects	53	0	0.00	35	1	2.86
Poisoning	99	1	1.01	56	0	0.00
Overexertion	423	0	0.00	350	0	0.00
Missing	3,940	15	0.38	1,603	7	0.44
Total	136,551	2,471		104,906	3,783	

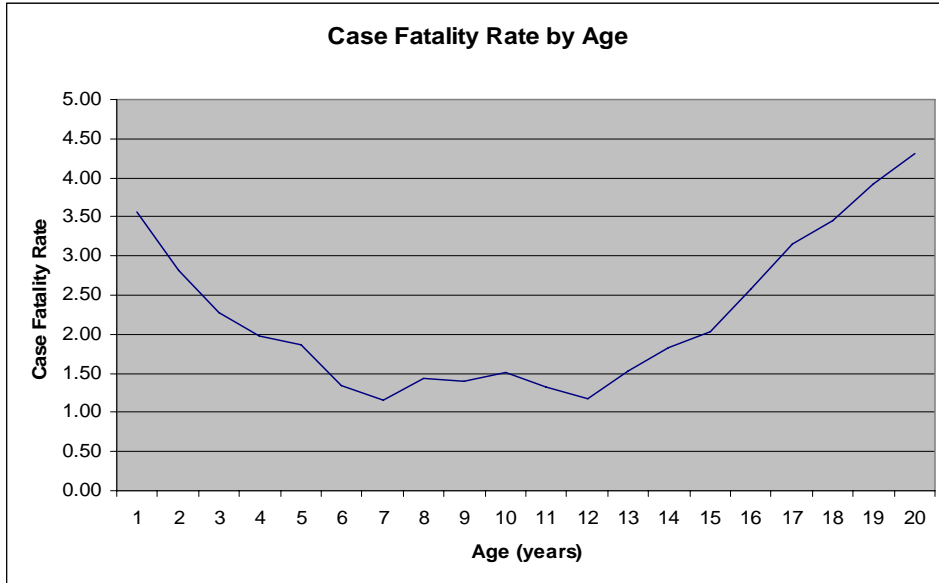


Figure 6A

Case fatality rate by age.

Age	Number	Number Died	Case Fatality Rate
0	6,664	238	3.57
1	9,627	272	2.83
2	9,982	227	2.27
3	9,110	181	1.99
4	8,705	162	1.86
5	9,123	123	1.35
6	9,376	109	1.16
7	8,975	129	1.44
8	8,482	119	1.40
9	7,935	120	1.51
10	8,017	106	1.32
11	8,306	98	1.18
12	9,388	144	1.53
13	10,544	192	1.82
14	12,317	251	2.04
15	14,308	368	2.57
16	17,649	555	3.14
17	21,716	748	3.44
18	24,512	961	3.92
19	26,721	1,151	4.31
Total	241,457	6,254	

Table 6B

Case fatality rate by age.

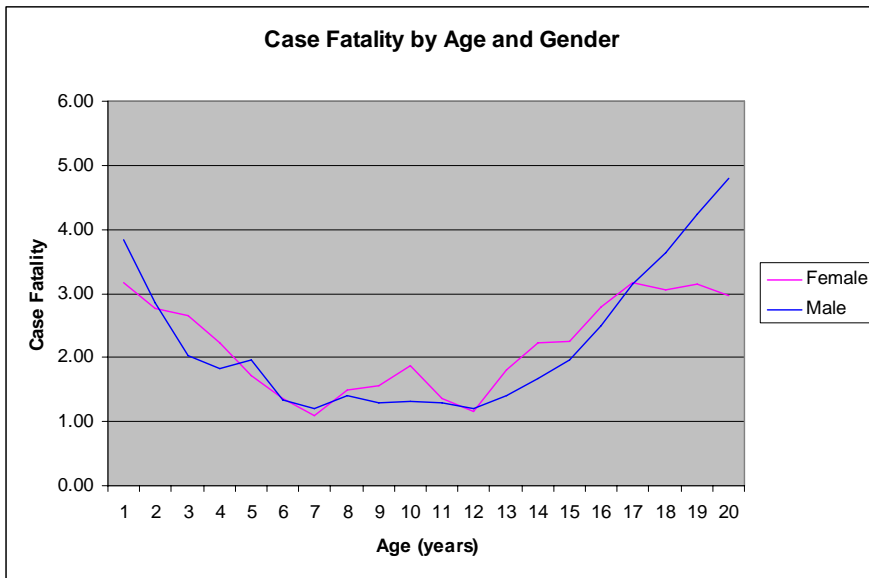


Figure 7A
Case fatality rate
by age and gender.

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	238	2,647	84	3.17	4,017	154	3.83
1	272	4,148	115	2.77	5,479	157	2.87
2	227	3,953	105	2.66	6,029	122	2.02
3	181	3,640	81	2.23	5,470	100	1.83
4	162	3,498	60	1.72	5,207	102	1.96
5	123	3,621	49	1.35	5,502	74	1.34
6	109	3,674	40	1.09	5,702	69	1.21
7	129	3,482	52	1.49	5,493	77	1.40
8	119	3,190	50	1.57	5,292	69	1.30
9	120	2,845	53	1.86	5,090	67	1.32
10	106	2,872	39	1.36	5,145	67	1.30
11	98	2,776	32	1.15	5,530	66	1.19
12	144	2,868	52	1.81	6,520	92	1.41
13	192	2,812	63	2.24	7,732	129	1.67
14	251	3,157	71	2.25	9,160	180	1.97
15	368	3,960	110	2.78	10,348	258	2.49
16	555	5,417	171	3.16	12,232	384	3.14
17	748	6,822	208	3.05	14,894	540	3.63
18	961	7,196	226	3.14	17,316	735	4.24
19	1,151	7,151	212	2.96	19,570	939	4.80
Total	6,254	79,729	1,873		161,728	4,381	

Figure 8A Total hospital length of stay by mechanism of injury

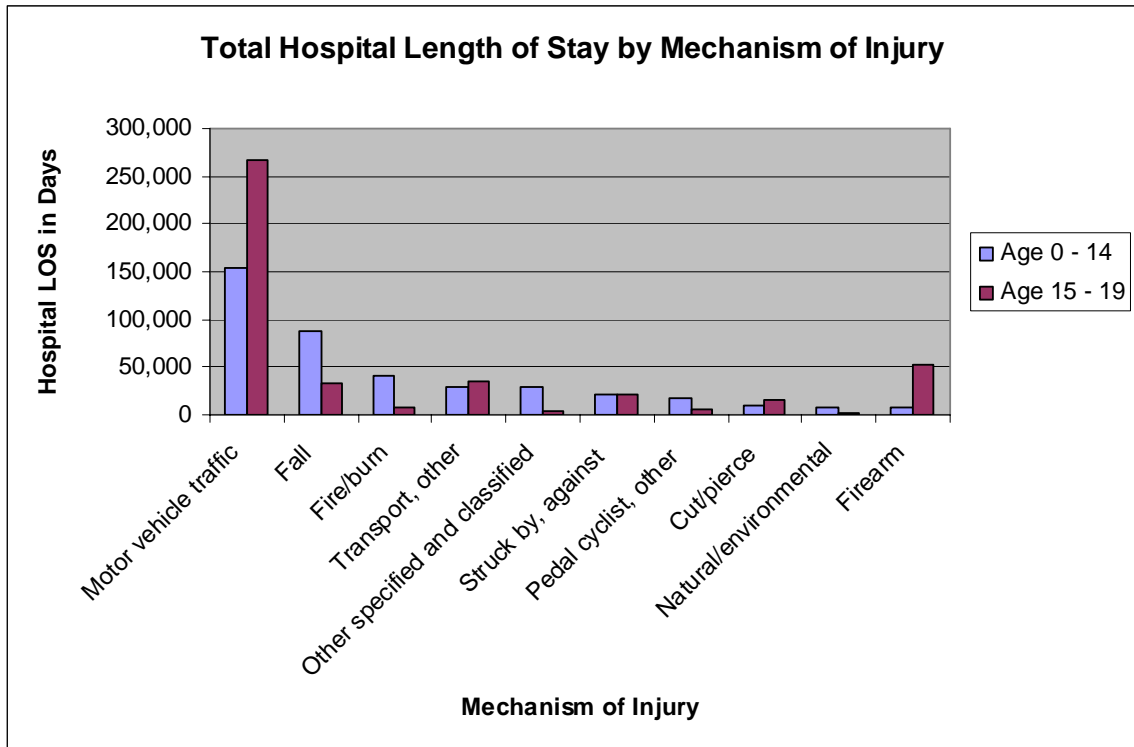


Figure 8B Average hospital length of stay by mechanism of injury

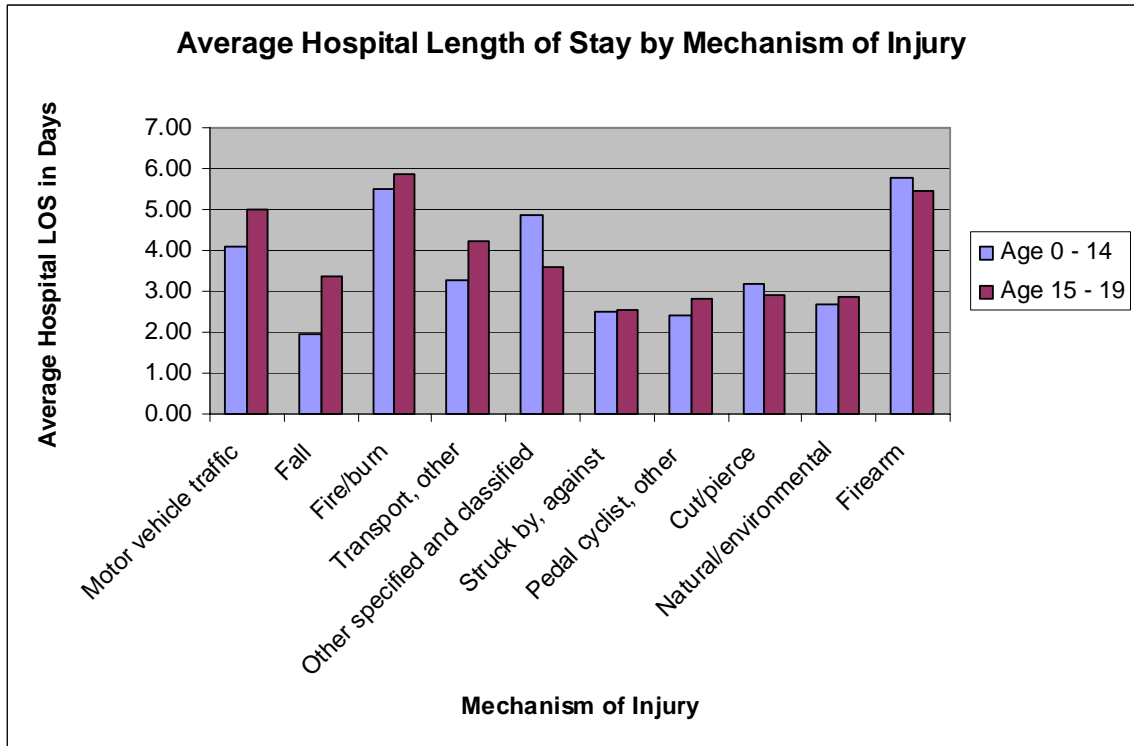


Table 8C Total length and average length of hospital stay by mechanisms of injury

Mechanism of injury	Age 0–14 Total LOS (Days)	Age 0–14 Percent Total LOS	Age 0–14 Average LOS (Days)	Age 15–19 Total LOS (Days)	Age 15–19 Percent Total LOS	Age 15–19 Average LOS (Days)
Motor vehicle traffic	153,204	36.34	4.07	266,152	58.35	5.00
Fall	87,968	20.87	1.97	32,930	7.22	3.36
Fire/burn	40,051	9.50	5.51	8,359	1.83	5.85
Transport, other	29,504	7.00	3.29	35,015	7.68	4.21
Other specified and classified	28,371	6.73	4.87	4,792	1.05	3.61
Struck by, against	21,926	5.20	2.52	22,199	4.87	2.56
Pedal cyclist, other	17,578	4.17	2.41	5,341	1.17	2.82
Cut/pierce	8,778	2.08	3.20	16,442	3.60	2.93
Natural/environmental	8,602	2.04	2.67	1,269	0.28	2.85
Firearm	8,515	2.02	5.77	52,642	11.54	5.45
Unspecified	4,134	0.98	2.91	3,104	0.68	3.27
Pedestrian, other	3,571	0.85	3.22	1,363	0.30	5.07
Machinery	3,414	0.81	5.13	2,566	0.56	4.11
Other specified, not elsewhere classified	1,985	0.47	3.28	1,363	0.30	3.37
Drowning/submersion	1,476	0.35	6.65	508	0.11	5.91
Overexertion	973	0.23	2.30	835	0.18	2.39
Suffocation	656	0.16	3.58	743	0.16	5.46
Adverse effects	574	0.14	10.83	307	0.07	8.77
Poisoning	295	0.07	2.98	209	0.05	3.73
<i>Missing</i>	8,268	1.96	2.10	4,176	0.92	2.61
Total	421,575	100.00		456,139	100.00	

Figure 9A Total ICU length of stay by mechanism of injury

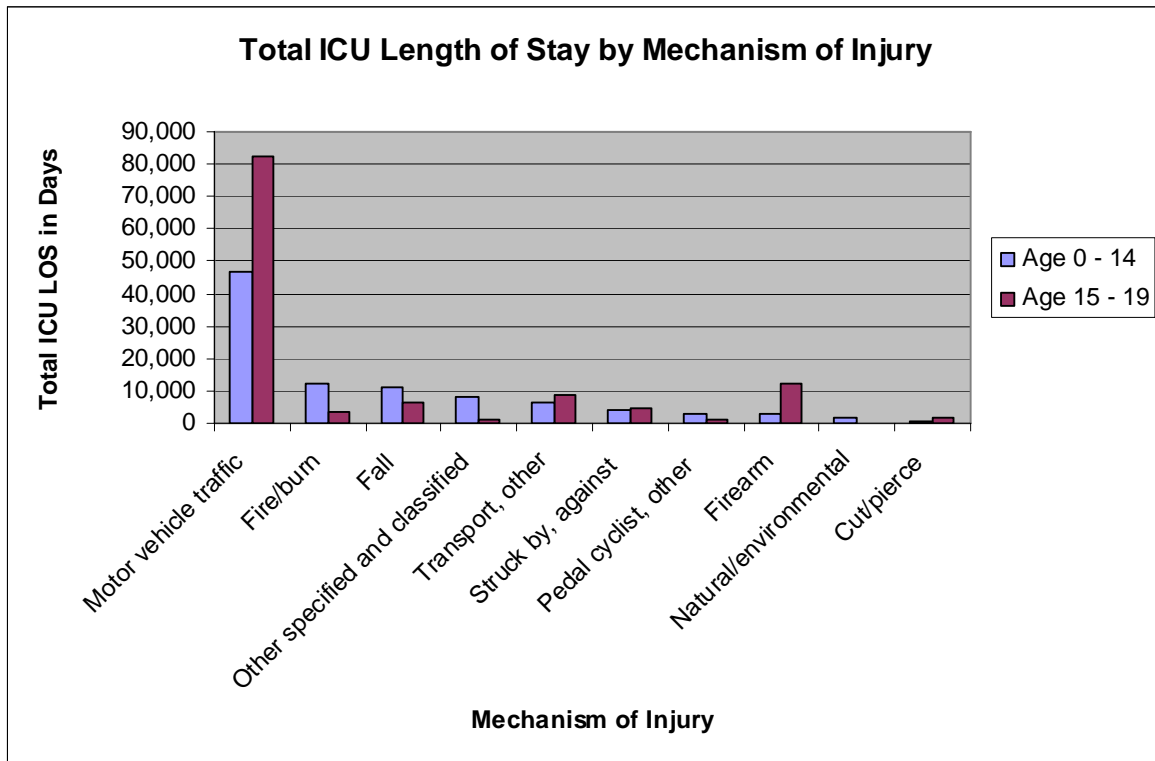


Figure 9B Average ICU length of stay by mechanism of injury

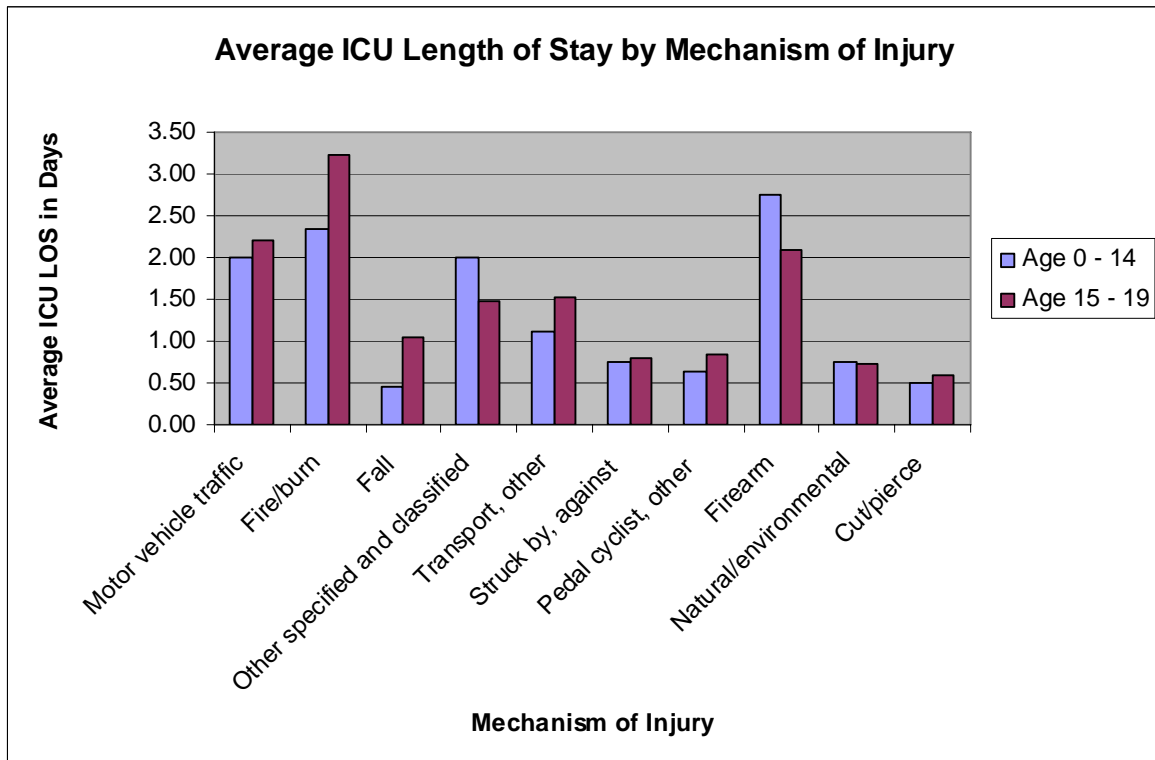


Table 9C Total length and average length of ICU stay by mechanism of injury

Mechanism of Injury	Age 0–14 Total ICU length (Days)	Age 0–14 Percent Total ICU length	Age 0–14 Average ICU length (Days)	Age 15–19 Total ICU length (Days)	Age 15–19 Percent Total ICU length	Age 15–19 Average ICU length (Days)
Motor vehicle traffic	46,800	45.92	1.99	82,617	65.31	2.21
Fire/burn	12,303	12.07	2.33	3,583	2.83	3.23
Fall	11,341	11.13	0.44	6,608	5.22	1.05
Other specified and classified	8,237	8.08	2.00	1,357	1.07	1.48
Transport, other	6,509	6.39	1.11	8,822	6.97	1.52
Struck by, against	3,932	3.86	0.75	4,501	3.56	0.81
Pedal cyclist, other	2,885	2.83	0.65	1,078	0.85	0.83
Firearm	2,681	2.63	2.75	12,431	9.83	2.09
Natural/environmental	1,479	1.45	0.74	220	0.17	0.74
Cut/pierce	863	0.85	0.50	1,974	1.56	0.59
Unspecified	810	0.79	0.90	896	0.71	1.57
Pedestrian, other	800	0.78	1.22	281	0.22	1.69
Drowning/submersion	669	0.66	4.37	242	0.19	3.10
Machinery	596	0.58	1.37	246	0.19	0.60
Other specified, not elsewhere classified	318	0.31	0.88	267	0.21	1.06
Suffocation	242	0.24	1.75	421	0.33	3.57
Adverse effects	120	0.12	3.24	84	0.07	3.82
Poisoning	91	0.09	1.38	50	0.04	1.25
Overexertion	16	0.02	0.07	47	0.04	0.28
<i>Missing</i>	1,235	1.21	0.52	766	0.61	0.71
Total	101,927	100.00		126,491	100.00	

Figure 10A Percent of incidents by type of injury

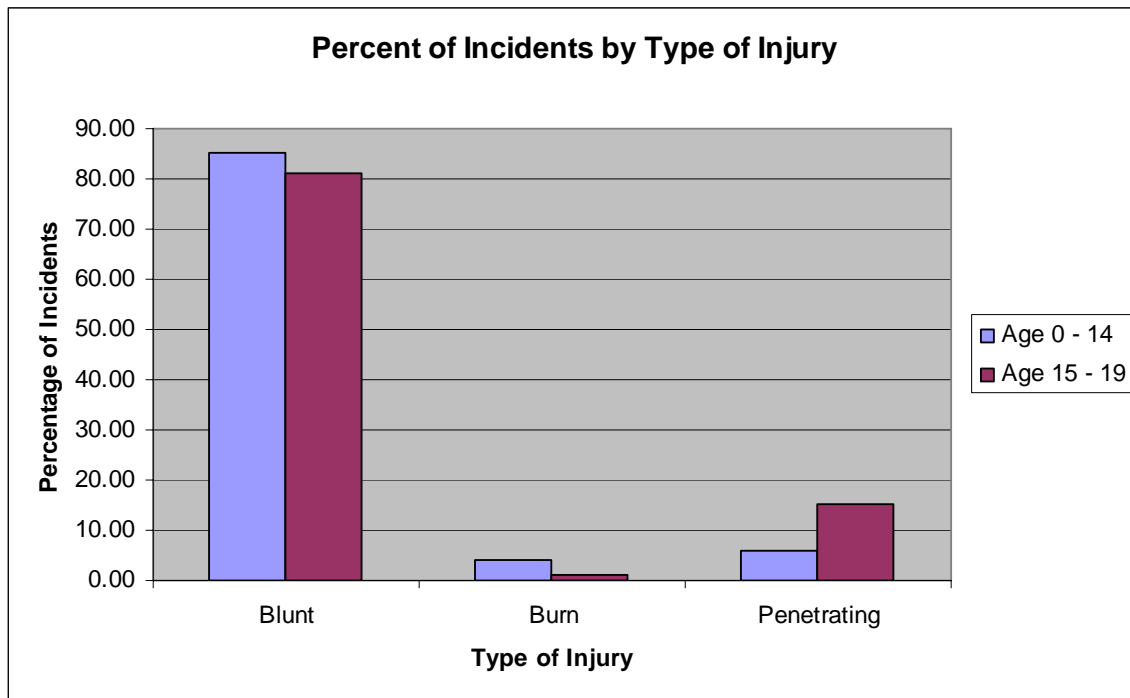


Table 10B Number and percent of incidents by type of injury

Injury Type	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Blunt	201,284	83.36	116,073	85.00	85,211	81.23
Burn	6,817	2.82	5,617	4.11	1,200	1.14
Penetrating	23,747	9.83	7,849	5.75	15,898	15.15
<i>Missing</i>	9,609	3.98	7,012	5.14	2,597	2.48
Total	241,457	100.00	136,551	100.00	104,906	100.00

Figure 11A Percent of deaths by type of injury

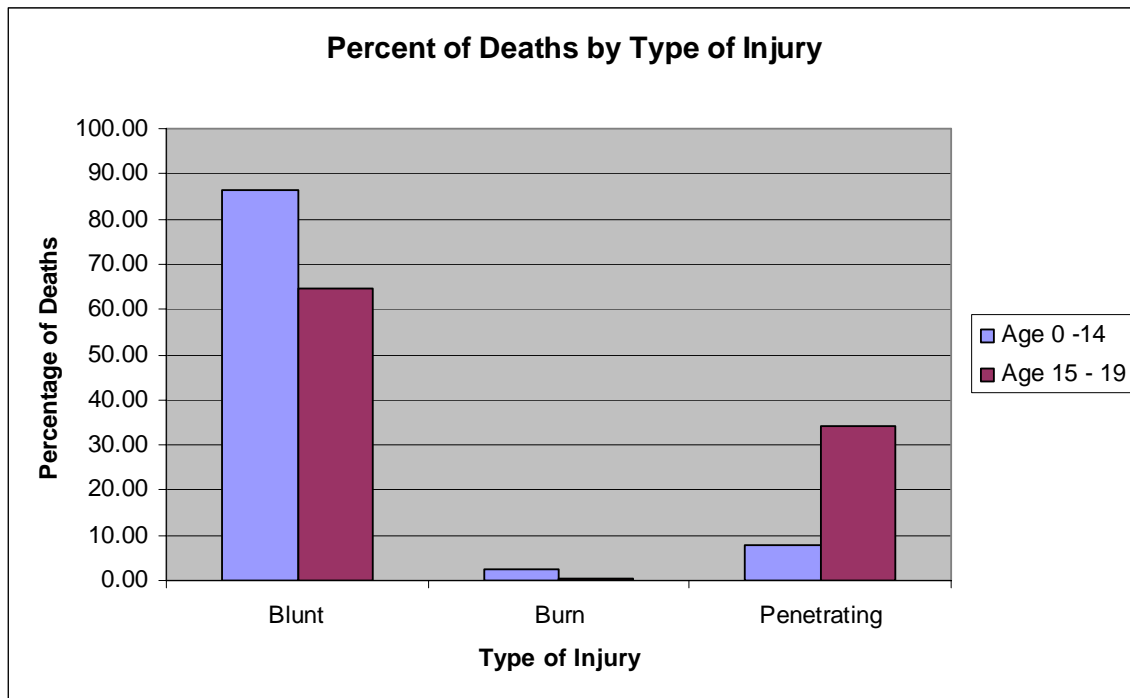


Table 11B Number and percent of deaths by type of injury

Injury Type	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Blunt	4,572	73.11	2,135	86.40	2,437	64.42
Burn	87	1.39	64	2.59	23	0.61
Penetrating	1,488	23.79	197	7.97	1,291	34.13
<i>Missing</i>	107	1.71	75	3.04	32	0.85
Total	6,254	100.00	2,471	100.00	3,783	100.00

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

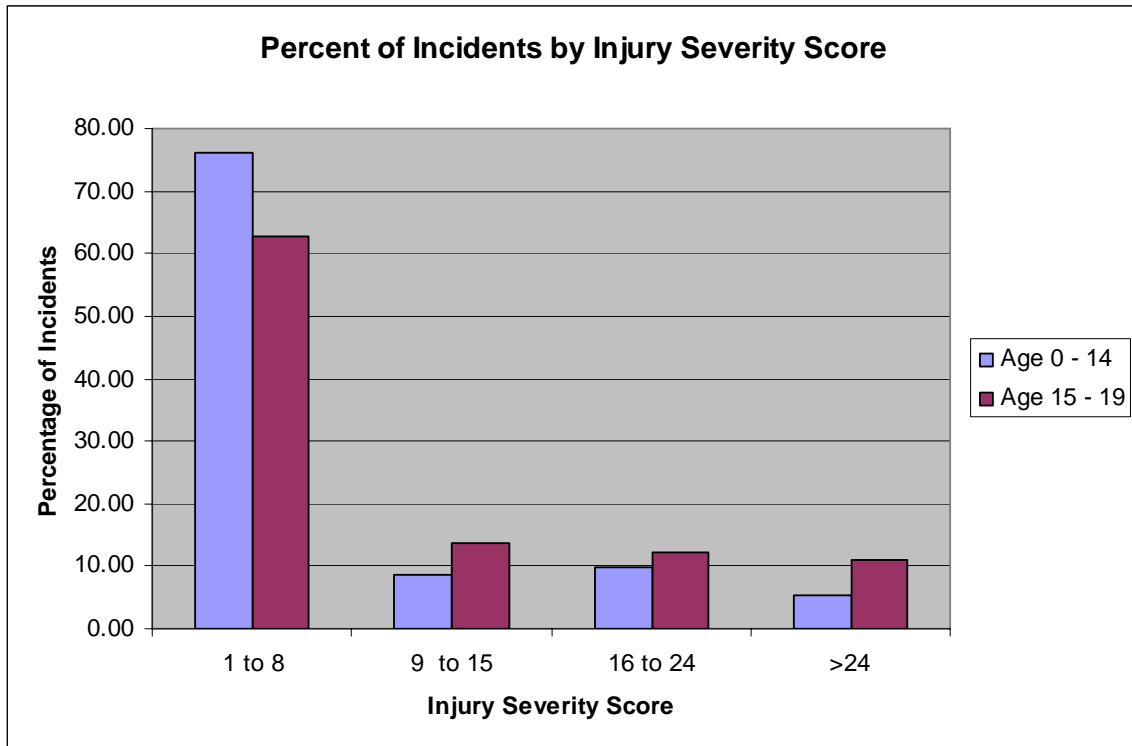


Table 12B Number and percent of incidents by injury severity score (ISS)

ISS Range	Number	Percent	Age	Age	Age	Age
			0-14 Number	0-14 Percent	15-19 Number	15-19 Percent
1 to 8	126,607	52.43	75,377	76.10	51,230	62.81
9 to 15	69,633	28.84	40,499	8.76	29,134	13.79
16 to 24	26,178	10.84	13,284	9.73	12,894	12.29
>24	19,039	7.89	7,391	5.41	11,648	11.10
Total	241,457	100.00	136,551	100.00	104,906	99.99

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

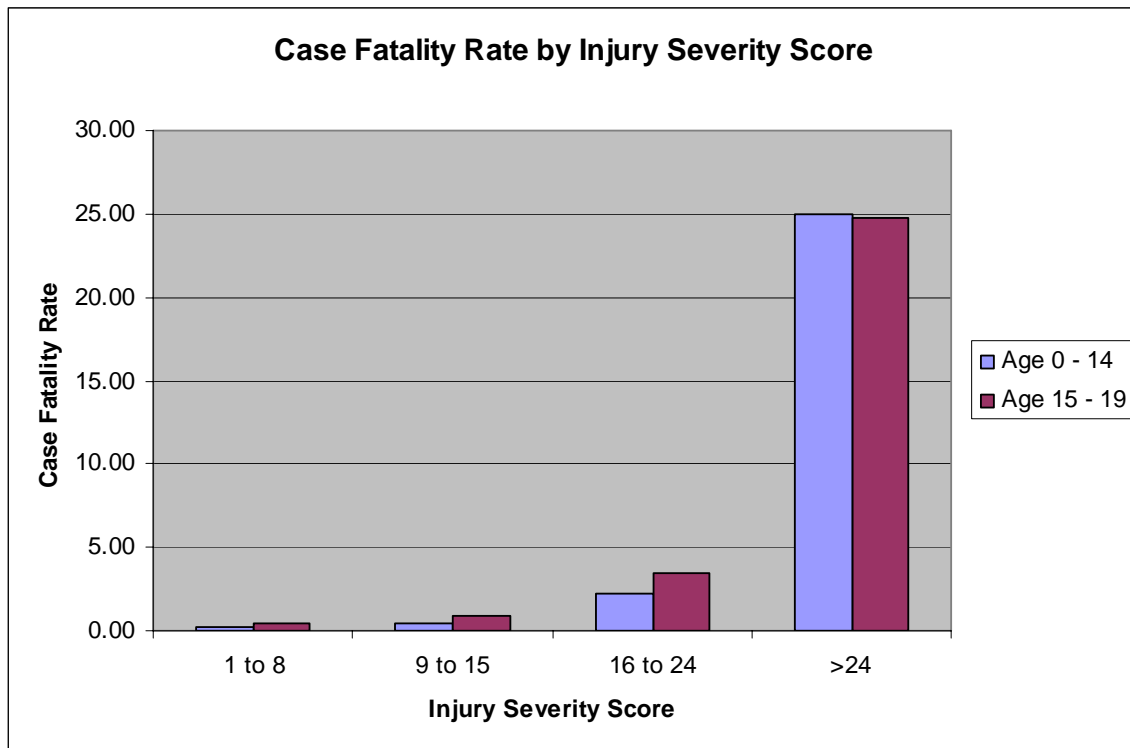


Table 13B Number and percent of deaths and case fatality rate by injury severity score (ISS)

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	75,377	167	0.22	51,230	206	0.40
9 to 15	40,499	161	0.40	29,134	249	0.85
16 to 24	13,284	298	2.24	12,894	440	3.41
>24	7,391	1,845	24.96	11,648	2,888	24.79
Total	136,551	2471		104,906	3783	

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

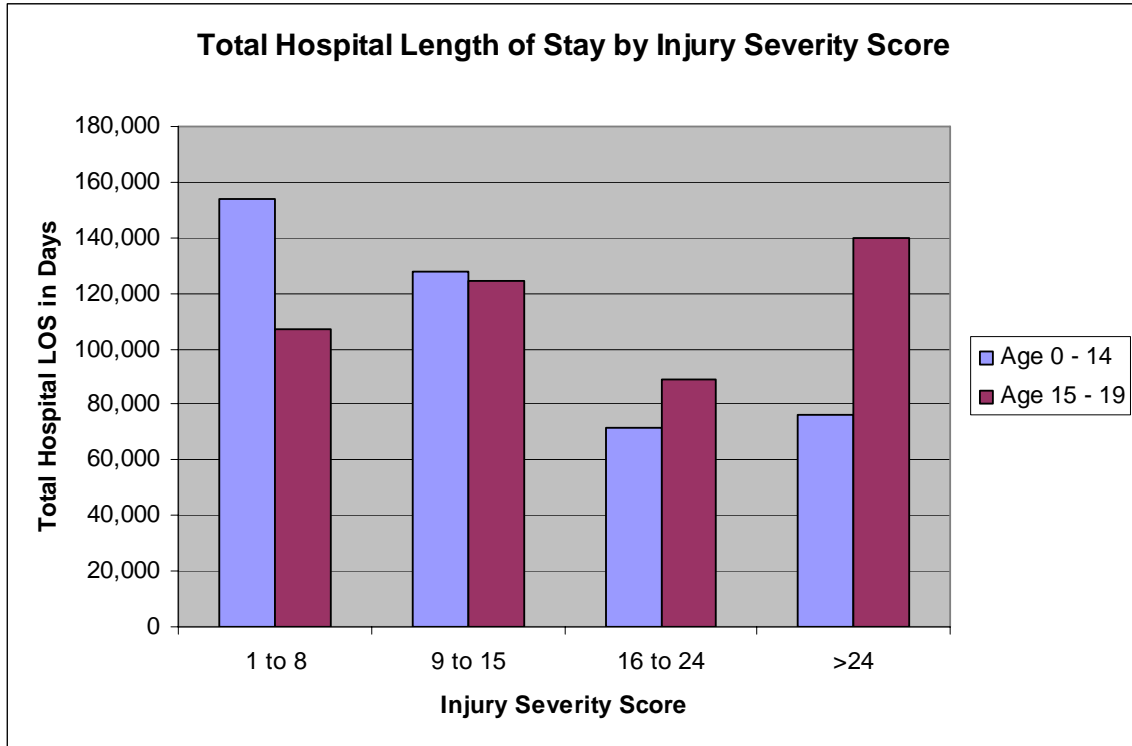


Figure 14B Average hospital length of stay by injury severity score (ISS)

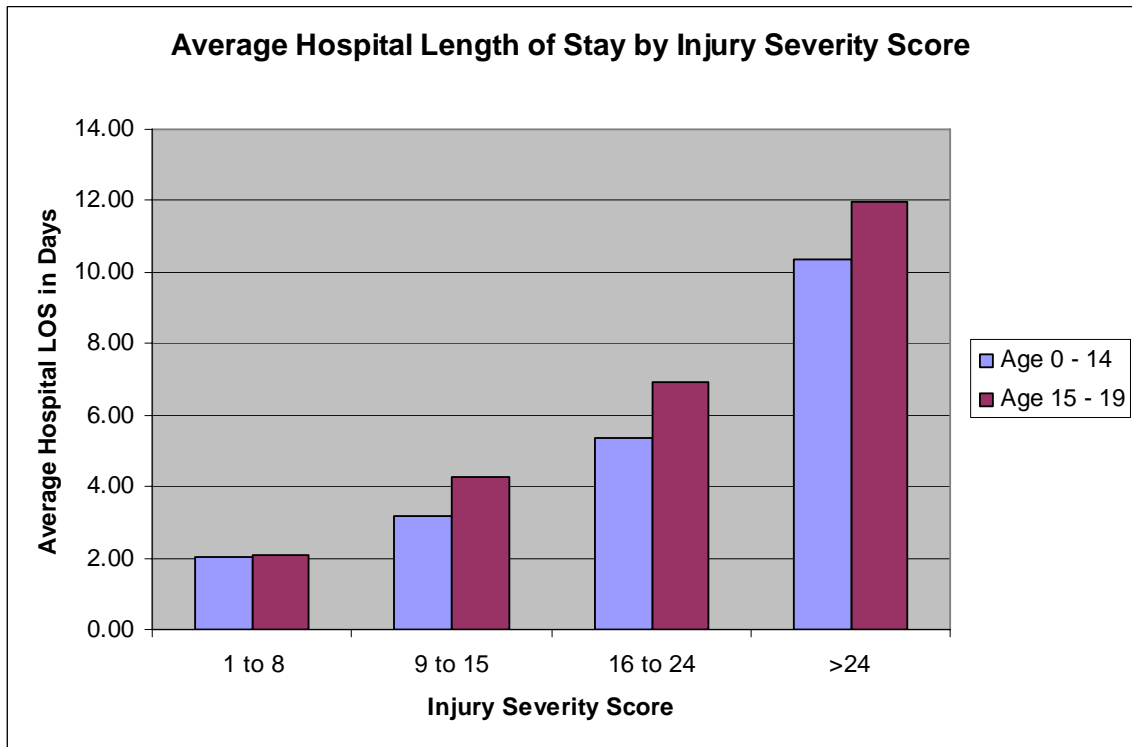


Table 14C Total length and average hospital length of stay by injury severity score (ISS)

ISS Range	Age 0–14 Number	Age 0–14 Percent	Age 0–14 Total LOS (Days)	Age 0–14 Percent Total LOS	Age 0–14 Average LOS (Days)	Age 15–19 Number	Age 15–19 Percent	Age 15–19 Total LOS (Days)	Age 15–19 Percent Total LOS	Age 15–19 Average LOS (Days)
1 to 8	75,377	55.20	154,143	35.86	2.05	51,230	48.83	106,881	23.22	2.09
9 to 15	40,499	29.66	127,875	29.75	3.16	29,134	27.77	124,684	27.09	4.28
16 to 24	13,284	9.73	71,308	16.59	5.37	12,894	12.29	89,020	19.34	6.90
>24	7,391	5.41	76,517	17.80	10.35	11,648	11.10	139,730	30.36	12.00
Total	136,551	100.00	429,843	100.00	20.92	104,906	100.00	460,315	100.00	25.27

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

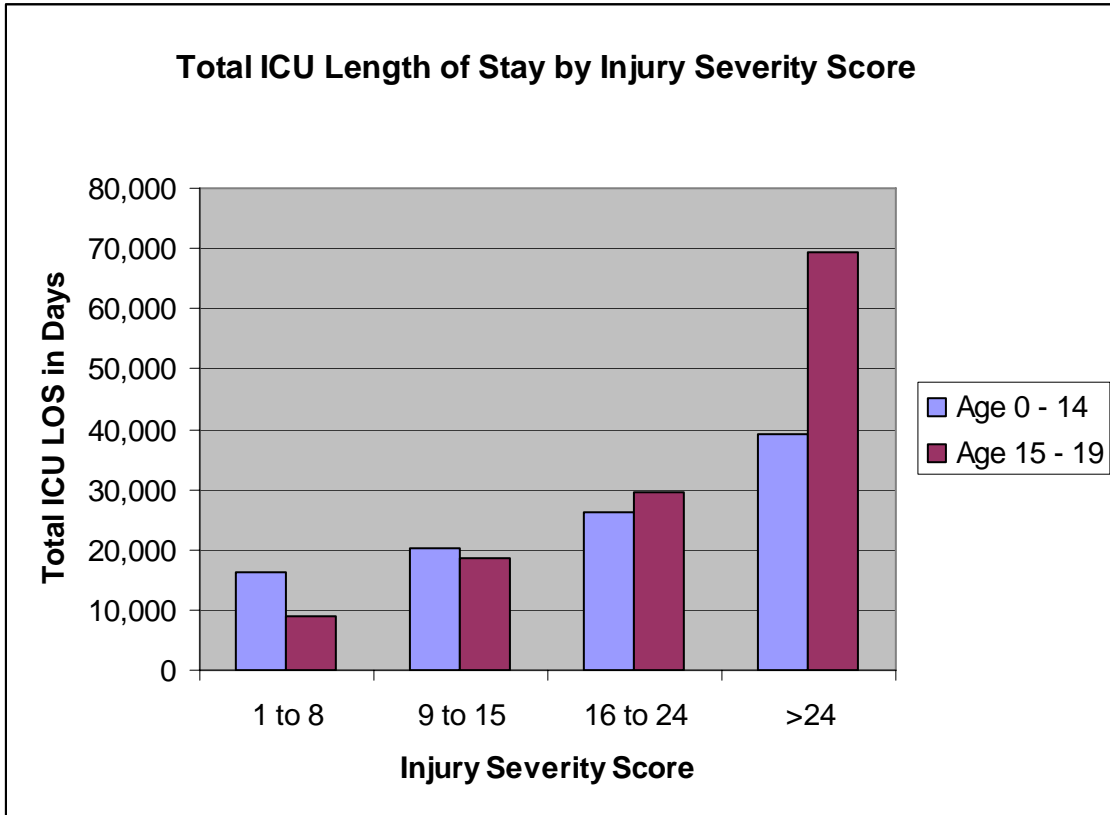


Figure 15B Average ICU length of stay by injury severity score (ISS)

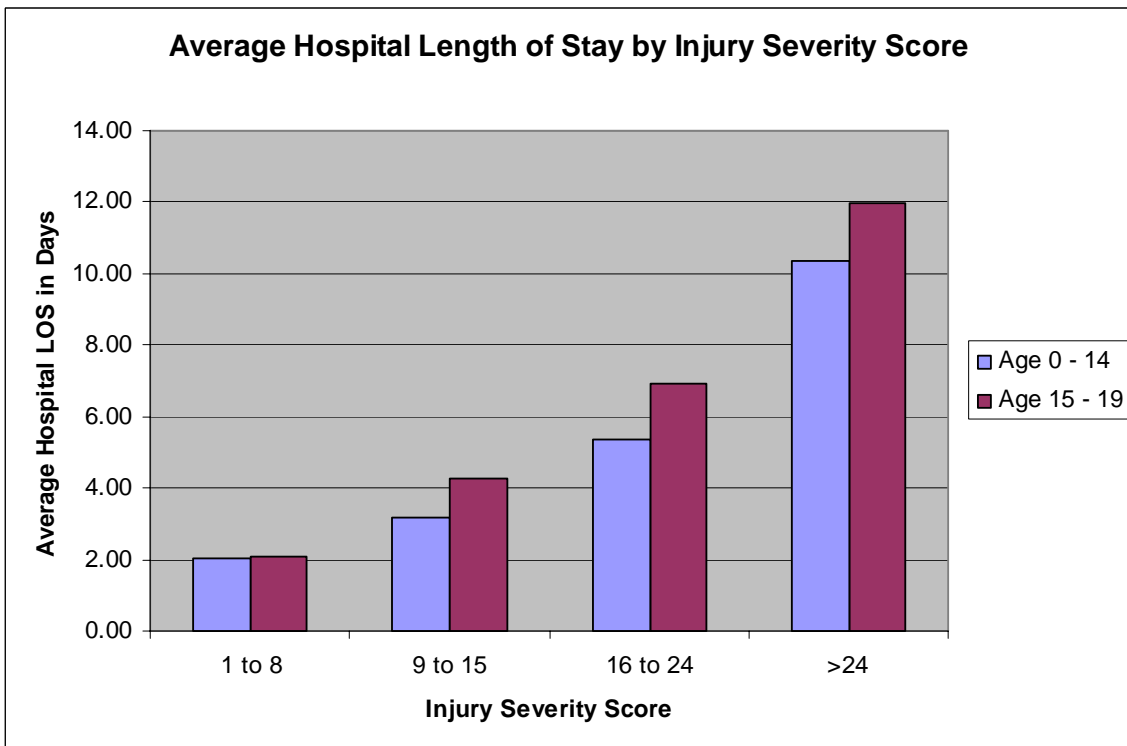


Table 15C Total length and average length of ICU stay by injury severity score (ISS)

ISS Range	Age 0–14 Number	Age 0–14 Percent	Age 0–14 Total ICU length (Days)	Age 0–14 Percent Total ICU length	Age 0–14 Average ICU length (Days)	Age 15–19 Number	Age 15–19 Percent	Age 15–19 Total ICU length (Days)	Age 15–19 Percent Total ICU length	Age 15–19 Average ICU length (Days)
1 to 8	41,463	49.32	16,201	15.89	0.39	30,519	43.00	9,010	7.12	0.30
9 to 15	25,510	30.34	20,169	19.79	0.79	19,837	27.95	18,680	14.77	0.94
16 to 24	10,643	12.66	26,325	25.83	2.47	10,439	14.71	29,429	23.27	2.82
>24	6,452	7.67	39,232	38.49	6.08	10,172	14.33	69,372	54.84	6.82
Total	84,068	100.00	101,927	100.00	9.74	70,967	100.00	126,491	100.00	10.88

Figure 16A Percent of incidents by intent

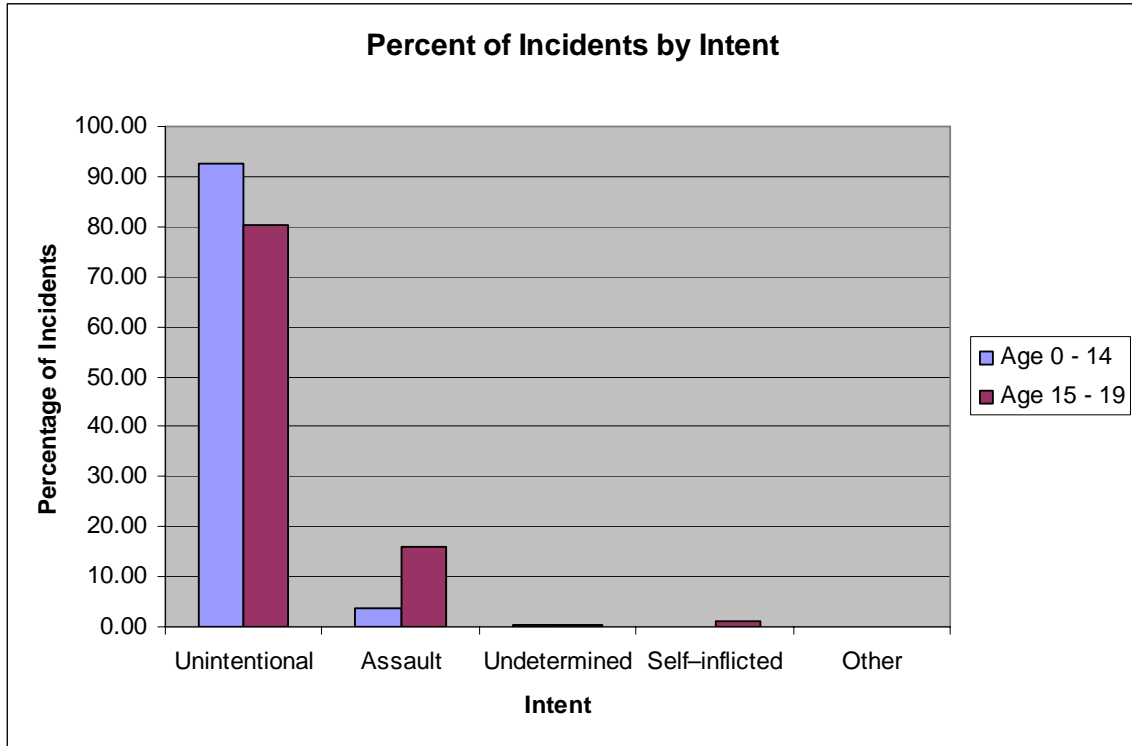


Table 16B Number and percent of incidents by intent

Intent	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Unintentional	210,675	87.25	126,332	92.52	84,343	80.40
Assault	22,221	9.20	5,275	3.86	16,946	16.15
Self-inflicted	1,537	0.64	246	0.18	1,291	1.23
Undetermined	1,261	0.52	696	0.51	565	0.54
Other	220	0.09	62	0.05	158	0.15
<i>Missing</i>	5,543	2.30	3,940	2.89	1,603	1.53
Total	241,457	100.00	136,551	100.01	104,906	100.00

Figure 17A Case fatality rate by intent

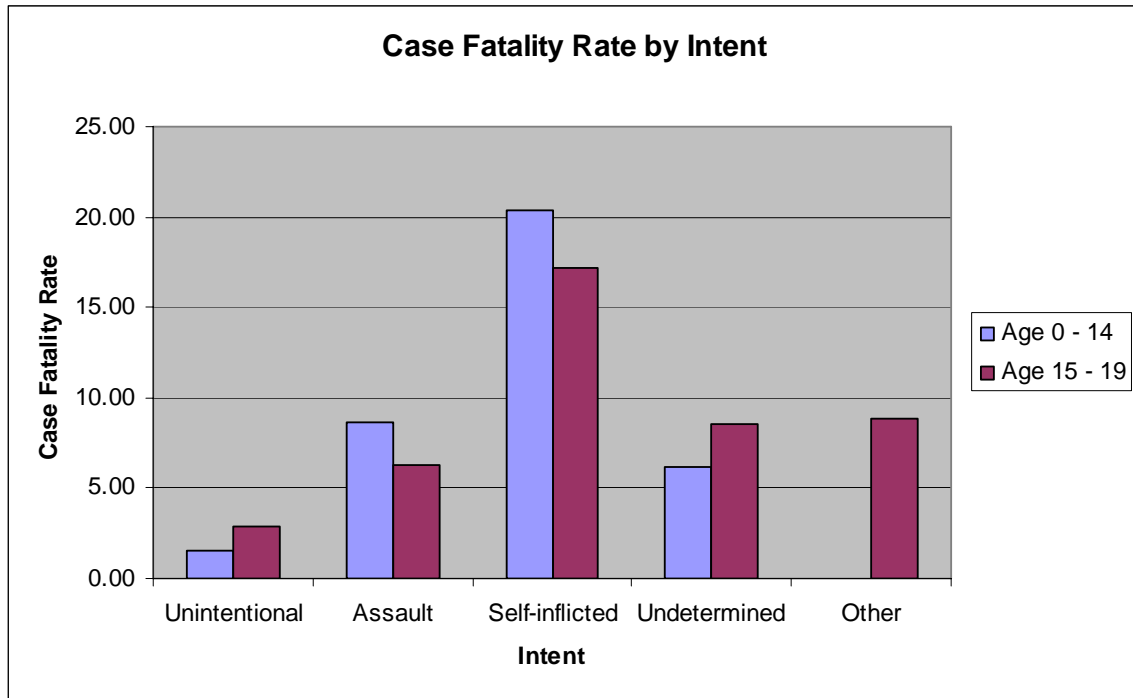


Table 17B Number and percent of deaths and case fatality rate by intent

Intent	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	126,332	1,908	1.51	84,343	2,431	2.88
Assault	5,275	455	8.63	16,946	1,061	6.26
Self-inflicted	246	50	20.33	1,291	222	17.20
Undetermined	696	43	6.18	565	48	8.50
Other	62	0	0.00	158	14	8.86
<i>Missing</i>	3,940	15	0.38	1,603	7	0.44
Total	136,551	2,471		104,906	3,783	

Figure 18A Number of incidents by organ system

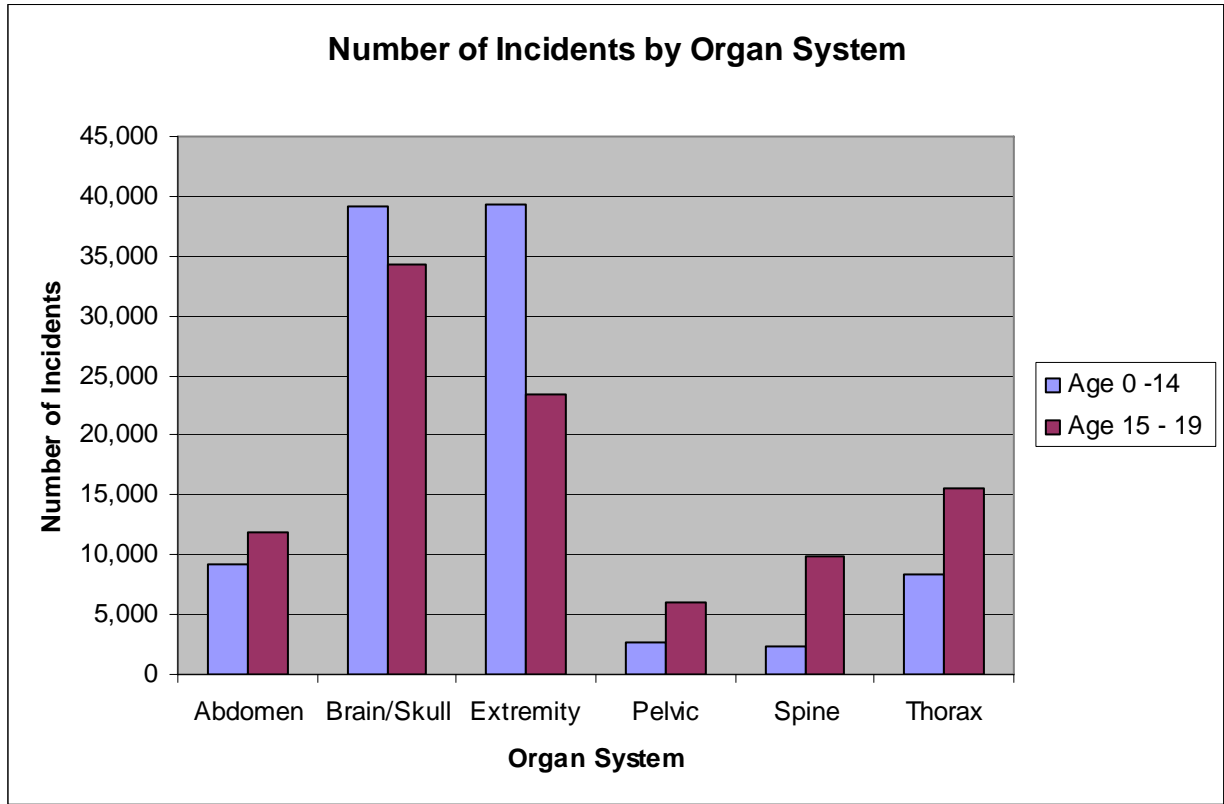


Table 18B Number and percent of incidents by organ system

Organ System	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Abdomen	20,989	8.69	9,179	6.72	11,810	11.26
Brain/skull	73,428	30.41	39,090	28.63	34,338	32.73
Extremity	62,745	25.99	39,291	28.77	23,454	22.36
Pelvic	8,717	3.61	2,669	1.95	6,048	5.77
Spine	12,284	5.09	2,345	1.72	9,939	9.47
Thorax	23,926	9.91	8,316	6.09	15,610	14.88
Other	175,679	72.76	92,865	68.01	82,814	78.94
Total incidents	241,457		136,551		104,906	

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 percent is calculated as the number of incidents in each organ system divided by the total number of incidents (241,457). The Age 0-14 percent is calculated as the number of incidents in each organ system divided by the total number of incidents for Age 0-14 (136,551). The Age 15-19 percent is calculated as the number of incidents in each organ system divided by the total number of incidents for Age 15-19 (104,906).

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 Number of incidents by organ system in patients who died.

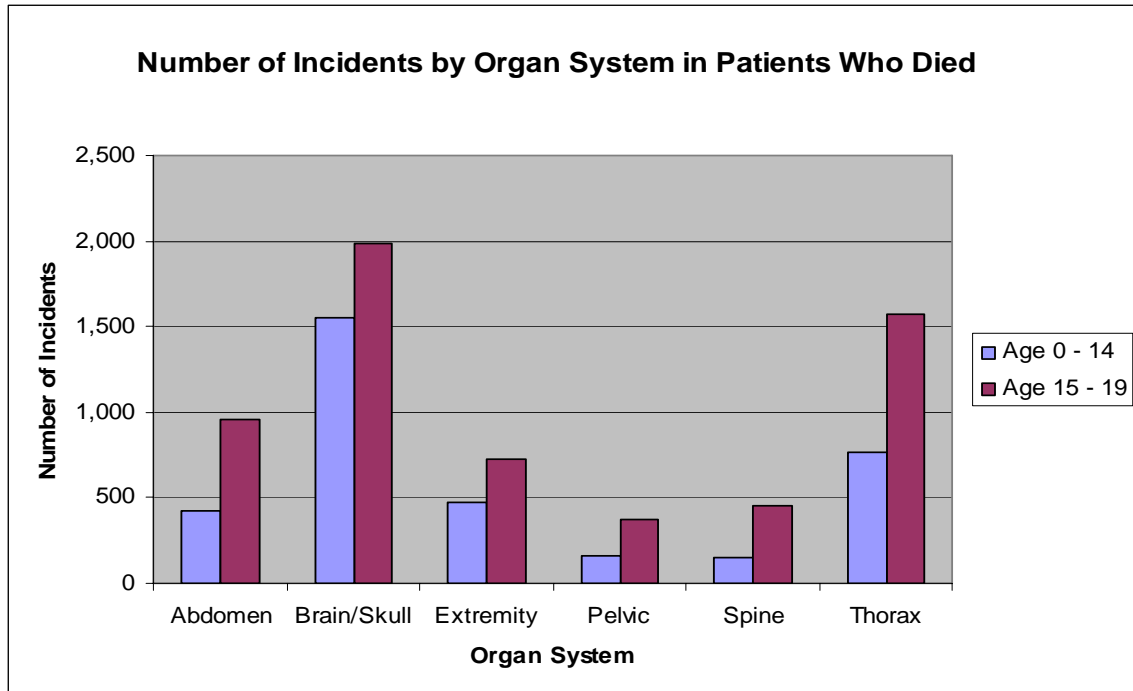


Table 19B Number and percent of incidents by organ system in patients who died

Organ System	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Abdomen	1,384	22.13	428	17.32	956	25.27
Brain/Skull	3,532	56.48	1,549	62.69	1,983	52.42
Extremity	1,191	19.04	469	18.98	722	19.09
Pelvic	532	8.51	159	6.43	373	9.86
Spine	606	9.69	154	6.23	452	11.95
Thorax	2,341	37.43	771	31.20	1,570	41.50
Other	4,973	79.52	1,962	79.40	3,011	79.59
Total deaths	6,254		2,471		3,783	

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 percent is calculated as the number of incidents in each organ system divided by the total number of incidents in patients who died (6,254). The Age 0-14 percent is calculated as the number of incidents in each organ system divided by the total number of incidents in patients who died among Age 0-14 (2,471). The Age 15-19 percent is calculated as the number of incidents in each organ system divided by the total number of incidents in patients who died among Age 15-19 (3,783).

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 Number of incidents with brain/skull injuries

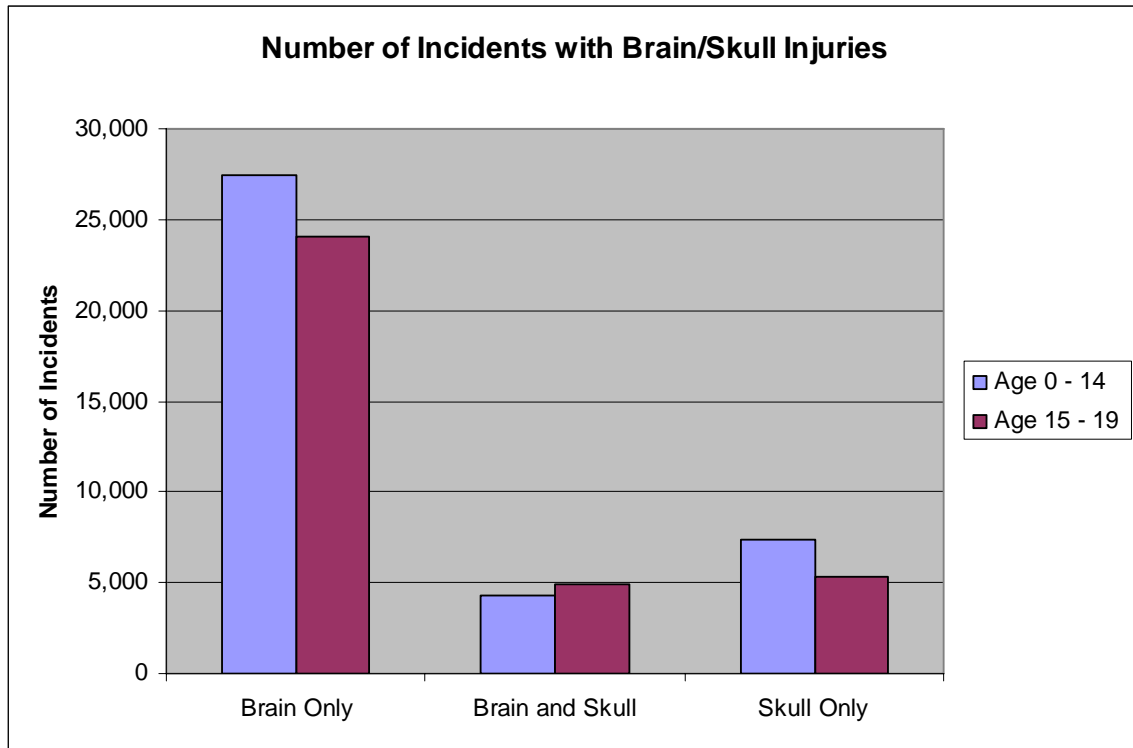


Table 20B Number and percent of incidents with brain/skull injuries

Head Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Brain-only	51,485	17.98	27,433	16.68	24,052	19.67
Brain and skull	9,254	2.01	4,324	2.19	4,930	1.78
Skull only	12,689	1.33	7,333	1.22	5,356	1.48
Total head injuries	73,428	21.32	39,090	20.09	34,338	22.93
X						
Total incidents	241,457		136,551		104,906	

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 percent is calculated as the number of incidents in each head injury category divided by the total number of incidents (241,457). The Age 0-14 percent is calculated as the number of incidents in each head injury category divided by the total number of incidents for Age 0-14 (136,551). The Age 15-19 percent is calculated as the number of incidents in each head injury category divided by the total number of incidents for Age 15-19 (104,906).

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 Number of patients with brain/skull injuries among those who died

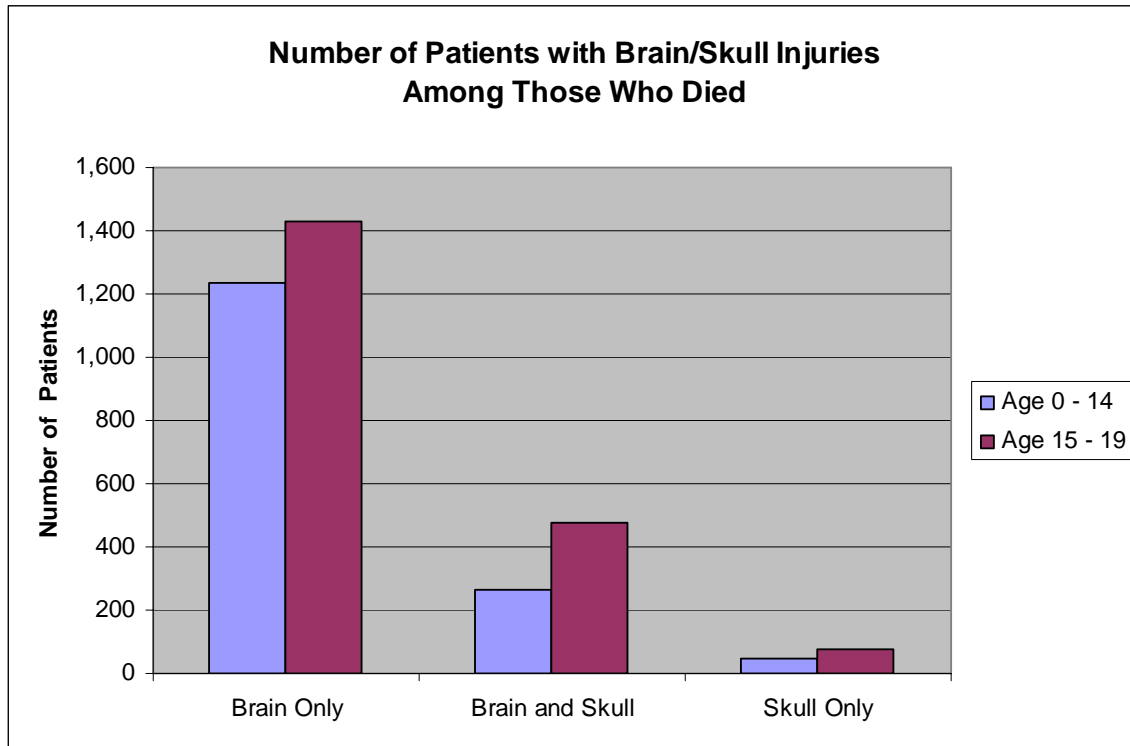


Table 21B Number and percent of patients with brain/skull injuries among those who died

Head Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Brain-only	2,668	42.66	1,236	50.02	1,432	37.85
Brain and Skull	739	11.82	264	10.68	475	12.56
Skull Only	125	2.00	49	1.98	76	2.01
Total Brain/Skull	3,532	56.48	1,549	62.69	1,983	52.42
Total Deaths	6,254		2,471		3,783	

Note: The percent is calculated as the number of patients in each head injury category divided by the total number of deaths (6,254). The Age 0-14 percent is calculated as the number patients in each head injury category divided by the total deaths among Age 0-14 (2,471). The Age 15-19 percent is calculated as the number patients in each head injury category divided by the total deaths among Age 15-19 (3,783).

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 Number of incidents with brain-only injuries by subdural/extradural hemorrhage and other

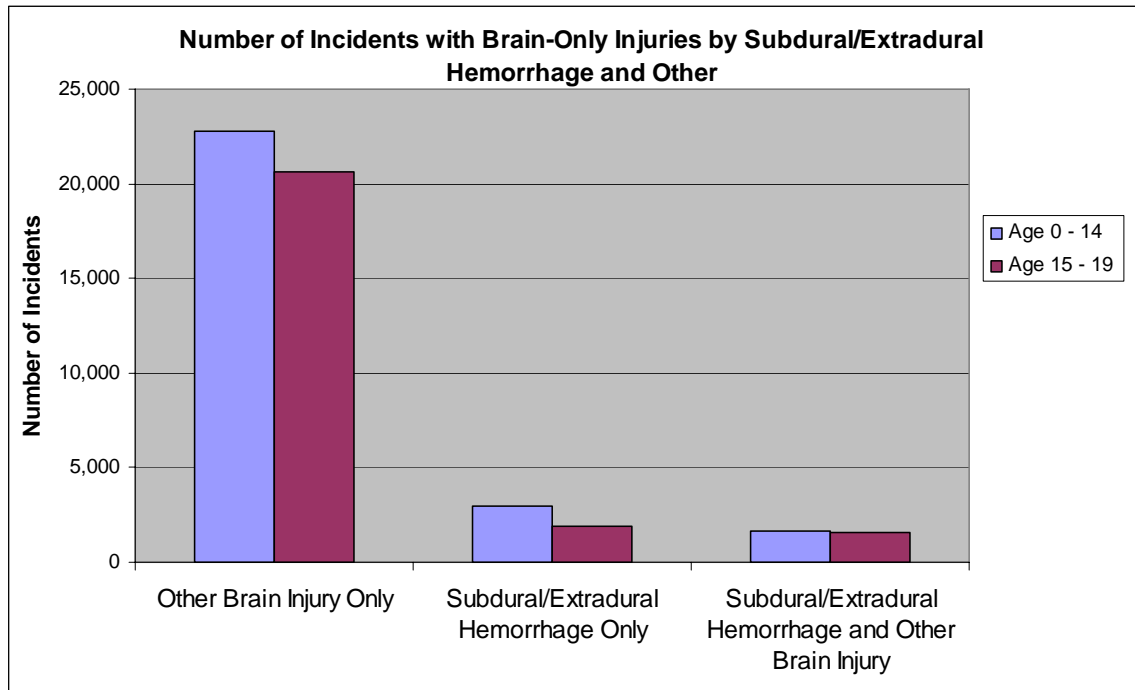


Table 22B Number and percent of incidents with brain-only injuries by subdural/extradural hemorrhage and other

Brain Only-Incident	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Other brain injury only	43,412	17.98	22,773	16.68	20,639	19.67
Subdural/extradural hemorrhage Only	4,859	2.01	2,995	2.19	1,864	1.78
Subdural/extradural hemorrhage and other brain injury	3,214	1.33	1,665	1.22	1,549	1.48
Total brain-only incidents	51,485	21.32	27,433	20.09	24,052	22.93
Total incidents	241,457		136,551		104,906	

Note: The percent is calculated as the number of incidents in each brain only injury category divided by the total number of incidents (241,457). The Age 0-14 percent is calculated as the number of incidents in each brain only injury category divided by the total number of incidents for Age 0-14 (136,551). The Age 15-19 percent is calculated as the number of incidents in each brain only injury category divided by the total number of incidents for Age 15-19 (104,906).

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

Figure 23A Number of patients with brain-only injuries by subdural/extradural hemorrhage and other among those who died

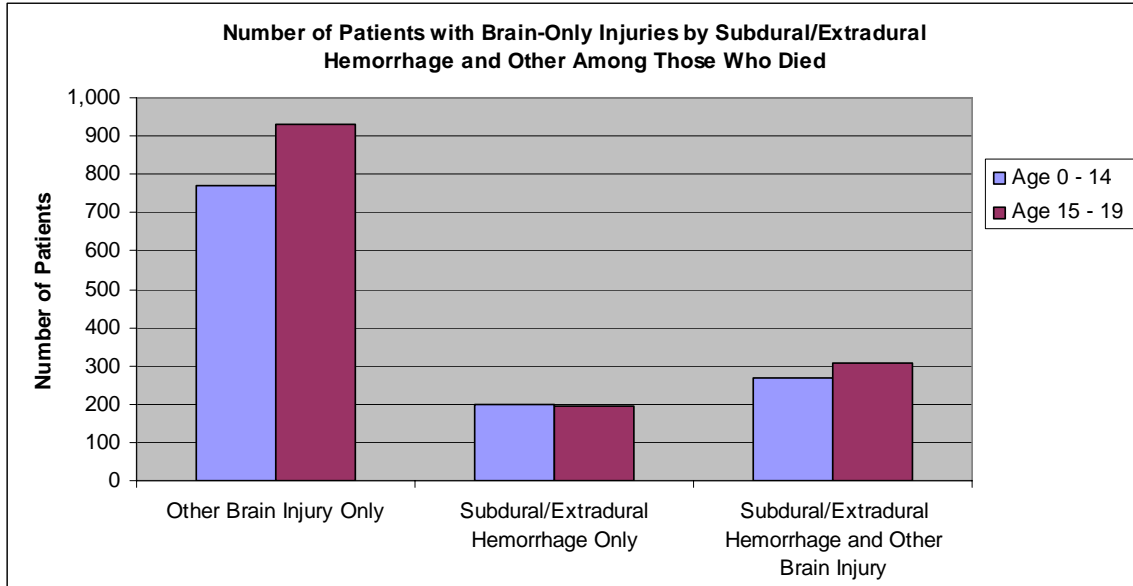


Table 23B Number and percent of patients with brain-only injuries by subdural/extradural hemorrhage and other among those who died

Brain-only Incident	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Other brain injury only	1,698	27.18	769	31.12	929	24.56
Subdural/Extradural hemorrhage only	395	6.32	200	8.09	195	5.15
Subdural/Extradural hemorrhage and other brain injury	575	9.20	267	10.81	308	8.14
Total brain-only deaths	2,668	42.71	1,236	50.02	1,432	37.85
X						
Total deaths	6,254		2,471		3,783	

Note: The percent is calculated as the number of patients in each brain-only category divided by the total number of deaths (6,254). The Age 0-14 percent is calculated as the number patients in each brain-only category divided by the total number of deaths among Age 0-14 (2,471). The Age 15-19 percent is calculated as the number patients in each brain-only category divided by the total number of deaths among Age 15-19 (3,783).

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

Figure 24A Number of incidents with thoracic injuries

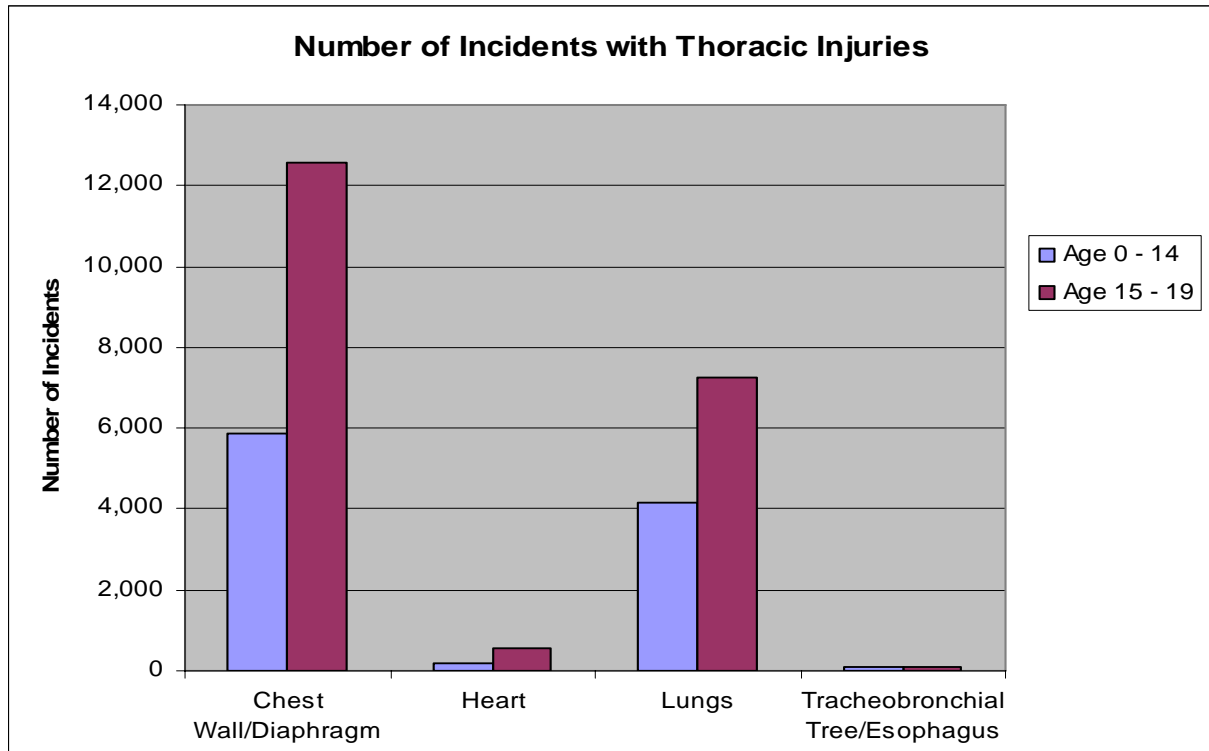


Table 24B Number and percent of incidents with thoracic injuries

Thoracic Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
Chest wall/diaphragm	18,466	7.65	5,890	4.31	12,576	11.99
Heart	753	0.31	194	0.14	559	0.53
Lungs	11,416	4.73	4,141	3.03	7,275	6.93
Tracheobronchial tree/esophagus	176	0.07	86	0.06	90	0.09
Other thoracic	537	0.22	163	0.12	374	0.36
Total Incidents	241,457		136,551		104,906	

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 percent is the number of incidents in each thoracic injury category divided by the total number of incidents (241,457). The Age 0-14 percent is calculated as the number of incidents in each thoracic injury category divided by the total number of incidents for Age 0-14 (136,551). The Age 15-19 percent is calculated as the number of incidents in each thoracic injury category divided by the total number of incidents for Age 0-14 (104,906).

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 Number of patients with thoracic injuries among those who died

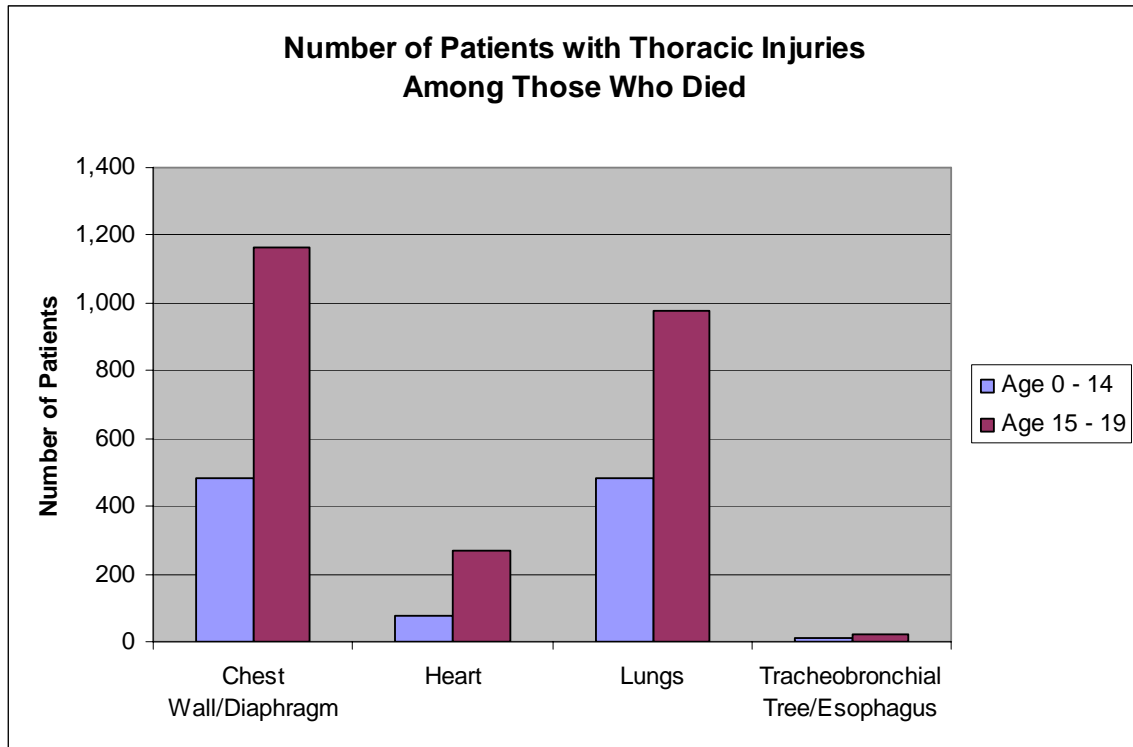


Table 25B Number and percent of patients with thoracic injuries among those who died

Thoracic Injury	Number	Percent	Age 0–14 Number	Age 0–14 Percent	Age 15–19 Number	Age 15–19 Percent
Chest wall/diaphragm	1,646	26.35	483	19.55	1,163	30.74
Heart	346	5.54	76	3.08	270	7.14
Lungs	1,464	23.44	484	19.59	980	25.91
Tracheobronchial tree/esophagus	32	0.51	9	0.36	23	0.61
Other thoracic	143	2.29	43	1.74	100	2.64
Total deaths	6,247		2,471		3,783	

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 percent is calculated as the number of incidents in each thoracic injury category divided by the deaths (6,254). The Age 0–14 percent is calculated as the number of incidents in each thoracic injury category divided by the total deaths among Age 0–14 (2,471). The Age 15–19 percent is calculated as the number of incidents in each thoracic injury category divided by the total deaths among Age 15–19 (3,783).

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 Number of incidents with abdominal injuries

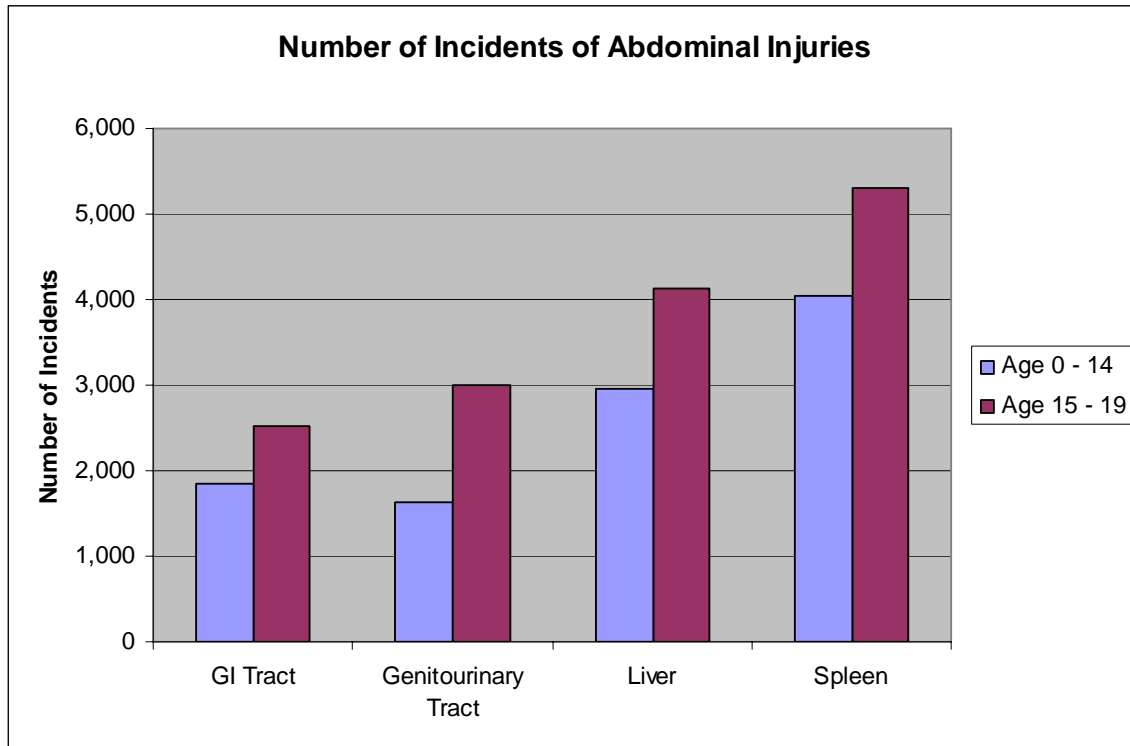


Table 26B Number and percent of incidents with abdominal injuries

Abdominal Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
GI tract	4,367	1.81	1,851	1.36	2,516	2.40
Genitourinary tract	4,639	1.92	1,631	1.19	3,008	2.87
Liver	7,087	2.94	2,967	2.17	4,120	3.93
Spleen	9,355	3.87	4,054	2.97	5,301	5.05
Other abdominal	2,651	1.10	966	0.71	1,685	1.61
Total incidents	241,457		136,551		104,906	

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 percent is the number of incidents in each abdominal injury category divided by the total number of incidents (241,457). The Age 0-14 percent is calculated as the number of incidents in each abdominal injury category divided by the total number of incidents for Age 0-14 (136,551). The Age 15-19 percent is calculated as the number of incidents in each abdominal injury category divided by the total number of incidents for Age 15-19 (104,906).

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 Number of patients with abdominal injuries among those who died

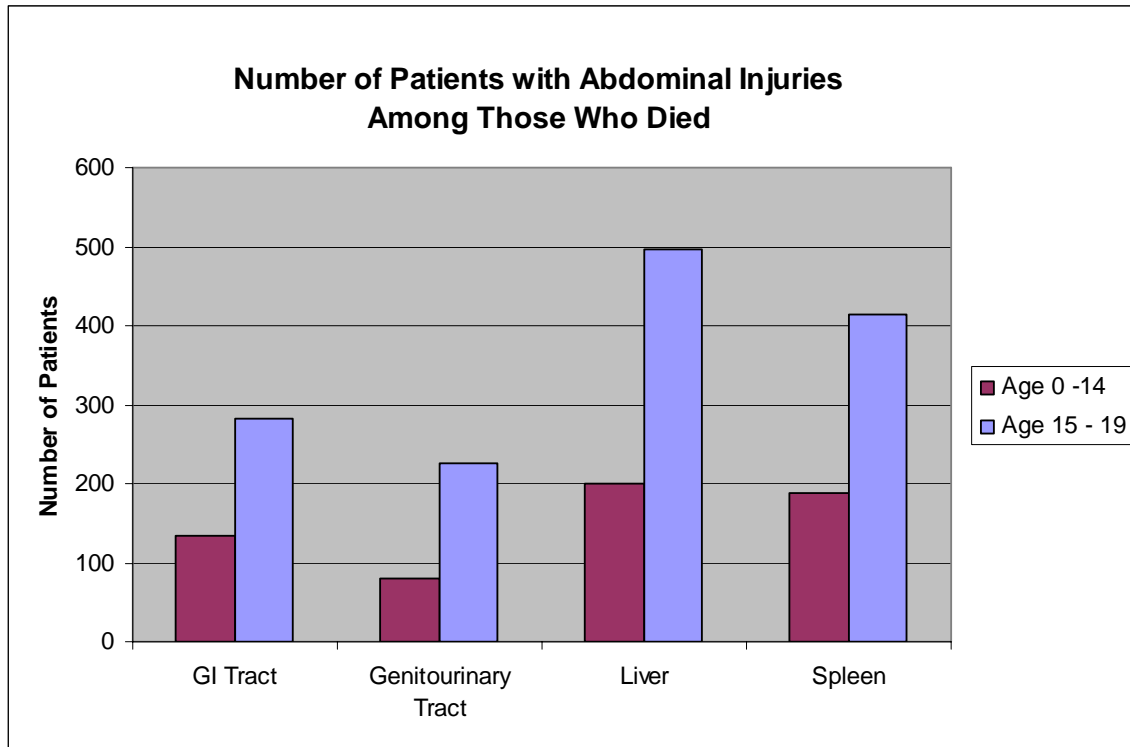


Table 27B Number and percent of patients with abdominal injuries among those who died

Abdominal Injury	Number	Percent	Age 0-14 Number	Age 0-14 Percent	Age 15-19 Number	Age 15-19 Percent
GI tract	416	6.66	134	5.42	282	7.45
Genitourinary tract	305	4.88	80	3.24	225	5.95
Liver	696	11.14	200	8.09	496	13.11
Spleen	602	9.64	188	7.61	414	10.94
Other abdominal	371	5.94	104	4.21	267	7.06
Total deaths	6,247		2,471		3,783	

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 percent is calculated as the number of patients in each abdominal injury category divided by the deaths (6,254). The Age 0-14 percent is calculated as the number of patients in each abdominal injury category divided by the total deaths among Age 0-14 (2,471). The Age 15-19 percent is calculated as the number of patients in each abdominal injury category divided by the total deaths among Age 15-19 (3,783).

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:

- 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 (Variable name)	Edit Check
Date of Birth (YOBIRTH, AGE)	Year of Birth must be less than or equal to Year of Admission and Year of Birth plus 120 must not be greater than Year of Admission. Missing values are not flagged.
Gender (Gender)	Gender must be Male or Female. Missing values are flagged.
E-Code (primary) (ECODE)	The first (primary) E-code record must not be E849.x
Injury Severity Score (ISS)	ISS must be an integer between 0 and 75, and must be the sum of three squares. Missing values are not flagged.
Length of Stay (LOS)	Length of Stay must be an integer between 0 and 364. Missing values are not flagged.
Discharge Disposition/Discharge Status (DISCHDISP, DISSTATUS)	Must be consistent (lived/died). Records with Discharge Disposition of "Other" or "Unknown" are not flagged. Missing values are also not flagged.
LOS < ICU days (LOS, ICUDAYS)	The number of ICU days must be less than or equal to the LOS days. Missing values are not flagged.
Year of Admission (YOADMIT)	Year of Admission must be greater than or equal to 1993. Missing values are not flagged.
Year of Injury (YOINJ)	Year of Injury must be less than or equal to Year of Admission. Missing values are not flagged.
ED Arrival Time (ED_ARRTIME)	ED Arrival Time must be based on 24-hour clock from 00:00 to 23:59 with valid entries for hour and minute. Missing values are not flagged.
Initial ED systolic blood pressure (FSBP)	Initial ED systolic blood pressure must be an integer between 0 and 299. Missing values are not flagged.

Data Field (Variable name)	Edit Check
Initial ED respiratory rate (FURR)	Initial ED Respiratory Rate must be between 0 and 59. Missing values are not flagged.
ED Disposition (EDDISP)	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. Missing values are not flagged.
Discharge Date (YODISCH, YOADMIT)	Year of Admission must be less than or equal to Year of Death. Missing values are not flagged.
Lowest Glasgow Coma Scale Eye component in ED (EDEYE)	Glasgow Coma Scale Eye component must be an integer between 1 and 4. Missing values are not flagged.
Lowest Glasgow Coma Scale Verbal component in ED. (EDVERBAL)	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. Otherwise, missing values are not flagged.
Lowest Glasgow Coma Scale Motor component in ED (EDMOTOR)	Glasgow Coma Scale Motor component must be an integer between 1 and 6. Missing values are not flagged.
Glasgow Coma Scale Qualifier (EDGCSAQ)	Glasgow Coma Scale qualifier must be equal to T, TP, S, or L. Missing values are not flagged.
Number of Days to Admission (DAYTOADMIT)	Number of Days to admission must be an integer between 0 and 30. Missing values are not flagged.
Probability of Survival (PROBOFSURF)	Probability of Survival must be a value between 0 and 1. Missing values are not flagged.
Ventilator Days (VENTDAYS)	Ventilator Days must be less than or equal to the Length of Stay. Missing values are not flagged.
FIM locomotion score at discharge (FIMLOCOMOT)	FIM locomotion score must be an integer between 0 and 4. Missing values are not flagged.
FIM expression score at discharge (FIMEXPRESS)	FIM expression score must be an integer between 0 and 4. Missing values are not flagged.
FIM Score Total at discharge (FIMSCORE)	Total FIM must be an integer between 1 and 12. Missing values are not flagged.
FIM self-feeding score at discharge (FIMFEED)	FIM self-feeding score must be and integer between 0 and 4. Missing values are not flagged.
Glasgow Coma Scale Total (EDGCSTOTAL)	Must be sum of Glasgow Coma Scale Eye, Verbal, and Motor component. Missing values are not flagged.

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](#).