



NTDB[®]
NATIONAL TRAUMA DATA BANK

National Trauma Data Bank 2008

Pediatric Report

Version 8.0

Acknowledgments

The American College of Surgeons Committee on Trauma wishes to thank the Centers for Disease Control and Prevention (CDC) for their support of the NTDB.

NTDB Annual Report 2008

Editors

Avery B. Nathens, MD, PhD, FACS Chair
National Trauma Data Bank Subcommittee

Richard J. Fantus, MD, FACS Chair
Trauma Registry Advisory Ad Hoc
Committee

American College of Surgeons Committee on Trauma Leadership

John J. Fildes, MD, FACS
Chair, Committee on Trauma

J. Wayne Meredith, MD, FACS
Medical Director, Trauma Office
Division of Research and Optimal Patient Care

National Trauma Data Bank Subcommittee

Palmer Q. Bessey, MD, FACS
Karen J. Brasel, MD, FACS
David E. Clark, MD, FACS
Arthur Cooper, MD, FACS
Joseph Cuschieri, MD, FACS
Richard J. Fantus, MD, FACS
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Allen F. Morey, MD, FACS
Charles E. Morrow, Jr., MD, FACS
Michael L. Nance, MD, FACS
Avery B. Nathens, MD, PhD, FACS
Manoj R. Shah, MD, FACS
Glen H. Tinkoff, MD, FACS

N. Clay Mann, PhD, MS, Consultant

Pediatric Surgery Subspecialty Group

Arthur Cooper, MD, FACS, Chair
Guy Brisseau, MD, FACS
Charles S. Cox, MD, FACS
Mary E. Fallat, MD, FACS
Henri R. Ford, MD, FACS
William D. Hardin, MD, FACS
Richard J. Jackson, MD, FACS
David P. Mooney, MD, FACS
Michael L. Nance, MD, FACS
Kenneth H. Sartorelli, MD, FACS
L. R. Scherer, MD, FACS
Perry W. Stafford, MD, FACS

National Trauma Data Bank Staff

Melanie Neal, Manager
Sandra Goble, Statistician
Chrystal Price, Coordinator

Editors' Note

The 2008 Annual Pediatric Report of the National Trauma Data Bank (NTDB), Version 8.0, is an updated analysis of the largest aggregation of trauma registry data ever assembled. This year marks the first data collection under the new NTDB data set, also known as the National Trauma Data Standard (NTDS). From 2004 through 2006, NTDB Committee was supported by the U.S. Health Resources and Services Administration (HRSA) to devise a uniform set of trauma registry variables and associated variable definitions. This work resulted in the NTDS, the new data dictionary for NTDB. Trauma centers are encouraged to provide a yearly download of these uniform variables to the NTDB for all patients satisfying the inclusion criteria.

In total, the NTDB now contains over 3 million records. The 2008 Annual Pediatric Report is based on 108,863 records for patients aged 19 and under with a valid trauma diagnosis, from the 2007 admission year submitted in the new NTDS format.

This report differs from previous annual reports because it is based on the new dataset. New features include analyses by AIS body region and geographic region, and the addition of tables on drug and alcohol use, and protective devices.

The mission of the American College of Surgeons (ACS) Committee on Trauma (COT) is to develop and implement meaningful programs for trauma care. In keeping with this mission, the NTDB is committed to being the principal national repository for trauma center registry data. The purpose of this report is to inform the medical community, the public, and decision makers about a wide variety of issues that characterize the current state of care for injured persons in our country. It has implications in many areas including epidemiology, injury control, research, education, acute care, and resource allocation.

The NTDB Committee would like to thank all of the trauma centers that contributed data and hope that this report will attract new participants. The full National Trauma Data Bank Report Version 8.0 is available on the ACS Web site as a PDF file and a PowerPoint presentation at <http://www.ntdb.org>. In addition, information is available on our website about how to obtain actual NTDB data for more detailed study.

Many dedicated individuals on the ACS COT, as well as at trauma centers around the country, have contributed to the early development of the NTDB and its rapid growth in recent years. Building on these achievements, our goals in the coming years include improving data quality, updating analytic methods, and enabling more useful inter-hospital comparisons. These efforts will be reflected in future NTDB reports to participating hospitals as well as in the Annual Reports.

Avery B. Nathens, PhD, MD, FACS, Chair
National Trauma Data Bank Subcommittee

Richard J. Fantus, MD, FACS, Chair
Trauma Registry Advisory Ad Hoc Committee

Please note:

The abbreviation NK/NR used on many tables denotes Not Known, Not Recorded, or Blank. If Not Applicable is *not* shown as a separate row on the table, then it is also included in the NK/NR category.

“Local ISS” denotes ISS scores submitted directly by hospitals regardless of the method of calculation. “ICD90 Derived” are scores derived by converting ICD9 codes to AIS using the ICD 90 Mapping program and then calculating ISS with the resulting AIS severity scores. “AIS Derived” are calculated from AIS submitted directly by hospitals. Analyses in this report use the ICD90 Derived ISS.

	TABLE OF CONTENTS	Page
	Editors' Note	3

Figure/Table			Page
		Demographic Information	
1A 1B		Incidents by Age, Case Fatality Rate by Age	7
	1	Case Fatality Rate by Age	8
2A 2B		Incidents by Age and Gender, Case Fatality Rate by Age and Gender	9
	2	Incidents and Case Fatality Rate by Age and Gender	10
3	3	Alcohol Use	11
4	4	Drug Use	12
5	5	Primary Payment Source	13
		Injury Characteristics	
6A 6B		Incidents by Mechanism of Injury, Case Fatality Rate by Mechanism of Injury	14
	6	Incidents and Case Fatality Rate by Mechanism of Injury	15
7	7	Incidents by Mechanism of Injury and Age	16
8	8	Case Fatality Rate by Mechanism of Injury and Age	17
9A 9B		Incidents by Mechanism of Injury and Gender, Case Fatality Rate by Mechanism of Injury and Gender	18
	9	Incidents and Case Fatality Rate by Mechanism of Injury and Gender	19
10	10	Incidents by Comparative Injury Severity Scores	20
11	11	Case Fatality Rate by Injury Severity Score	21
12	12	Incidents by Injury Severity Score and Age	22
13	13	Case Fatality Rate by Injury Severity Score and Age	23
14A 14B		Incidents by Work-Related Injuries, Case Fatality Rate by Work-Related Injuries	24
	14	Case Fatality Rate by Work-Related Injuries	25
15	15	Case Fatality Rate by Intent	26
16	16	Case Fatality Rate by Location E-code	27
17	17	Incidents by AIS Body Region	28
18	18	Incidents with AIS ≥ 3 by AIS Body Region	29
19	19	Case Fatality Rate by AIS Body Region	30
20	20	Incidents by Protective Devices	31
		Outcomes	
21	21	Median Total EMS Length (in Mins) by Mechanism of Injury	32
22	22	Median Total EMS Length (in Mins) by Injury Severity Score	33
23	23	Median Length of Stay (in Days) by Mechanism of Injury	34
24	24	Median Length of Stay (in Days) by Injury Severity Score	35
25	25	Median Ventilator Days by Mechanism of Injury	36
26	26	Median Ventilator Days by Injury Severity Score	37
27	27	Median ICU Days by Mechanism of Injury	38

28	28	Median ICU Days by Injury Severity Score	39
29	29	Incidents by ED Discharge Disposition	40
30	30	Reasons for Death in ED	41
31	31	Incidents by Hospital Discharge Disposition	42
32		Incidents by Hospital Complications	43
	32	Incidents by Hospital Complications	44
		Regional Analyses	
33	33	Incidents by Region	45
34	34	Case Fatality Rate by Region	46
35	35	Mechanism of Injury by Region	47
36	36	Injury Severity Score by Region	48
		Appendix A: Definition of Trauma Patient	49
		Appendix B: E-Code Grouping	50

Demographic Information

Figure 1A

Incidents by Age

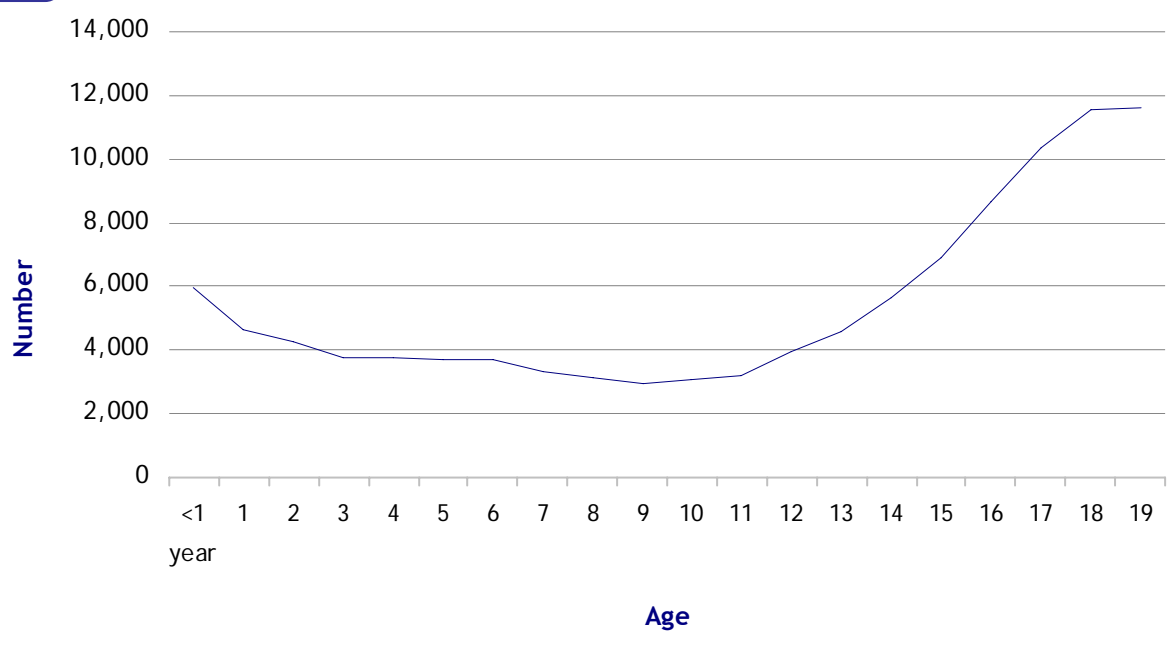
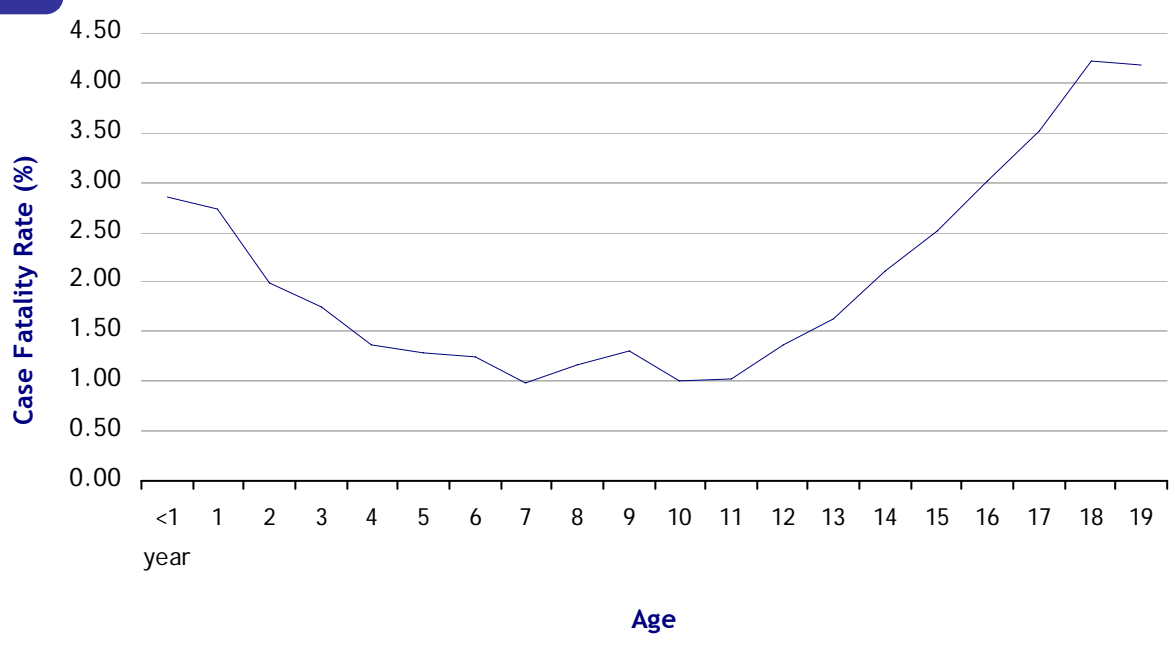


Figure 1B

Case Fatality Rate by Age



Demographic Information

**Table
1**

Case Fatality Rate by Age

Age	Number	Percent	Deaths	Case Fatality Rate
<1 year	5,975	5.49	171	2.86
1	4,670	4.29	128	2.74
2	4,273	3.93	85	1.99
3	3,797	3.49	66	1.74
4	3,753	3.45	51	1.36
5	3,709	3.41	48	1.29
6	3,685	3.38	46	1.25
7	3,328	3.06	33	0.99
8	3,113	2.86	36	1.16
9	2,964	2.72	39	1.32
10	3,076	2.83	31	1.01
11	3,190	2.93	33	1.03
12	3,946	3.62	54	1.37
13	4,607	4.23	75	1.63
14	5,665	5.2	119	2.10
15	6,894	6.33	173	2.51
16	8,652	7.95	261	3.02
17	10,378	9.53	365	3.52
18	11,569	10.63	487	4.21
19	11,619	10.67	486	4.18
Total	108,863	100.00	2,787	

Demographic Information

Table 2A

Incidents by Age and Gender

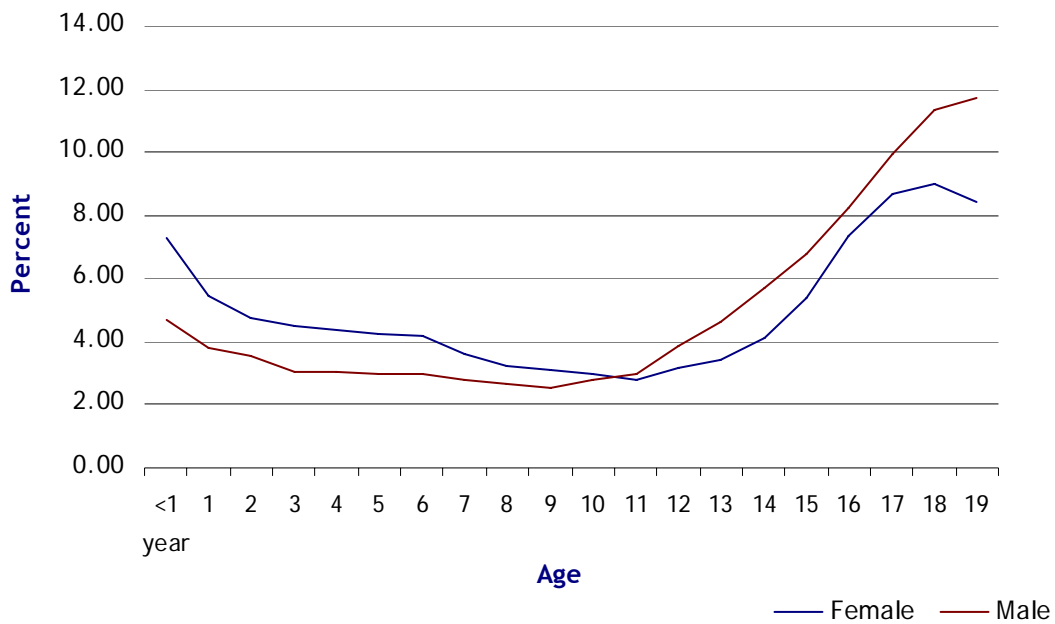
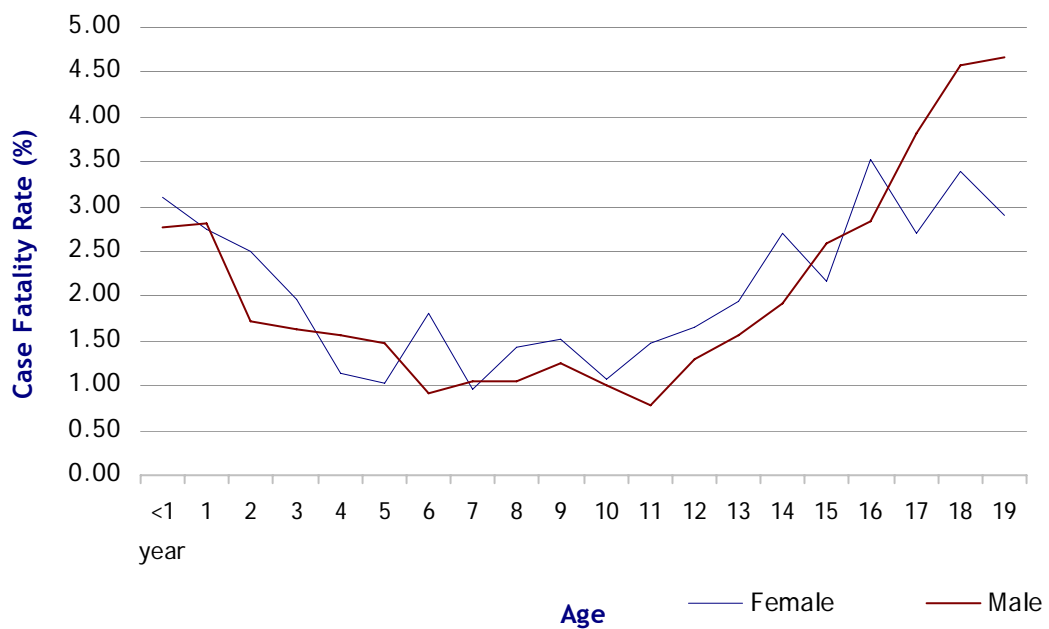


Table 2B

Case Fatality Rate by Age and Gender



Demographic Information

Table
2

Incidents and Case Fatality Rate by Age and Gender

Age	Number (Female)	Number (Male)	Deaths (Female)	Deaths (Male)	Case Fatality Rate (Female)	Case Fatality Rate (Male)
<1 year	2,490	3,384	77	94	3.09	2.78
1	1,864	2,730	51	77	2.74	2.82
2	1,640	2,558	41	44	2.50	1.72
3	1,534	2,205	30	36	1.96	1.63
4	1,502	2,176	17	34	1.13	1.56
5	1,463	2,163	15	32	1.03	1.48
6	1,435	2,161	26	20	1.81	0.93
7	1,239	2,019	12	21	0.97	1.04
8	1,119	1,914	16	20	1.43	1.04
9	1,061	1,841	16	23	1.51	1.25
10	1,017	1,996	11	20	1.08	1.00
11	951	2,159	14	17	1.47	0.79
12	1,090	2,775	18	36	1.65	1.30
13	1,181	3,333	23	52	1.95	1.56
14	1,412	4,129	38	79	2.69	1.91
15	1,856	4,876	40	126	2.16	2.58
16	2,526	5,946	89	169	3.52	2.84
17	2,971	7,166	80	273	2.69	3.81
18	3,089	8,185	105	375	3.40	4.58
19	2,886	8,438	84	394	2.91	4.67
Total	34,326	72,154	803	1,942		

Demographic Information

Figure 3

Alcohol Use

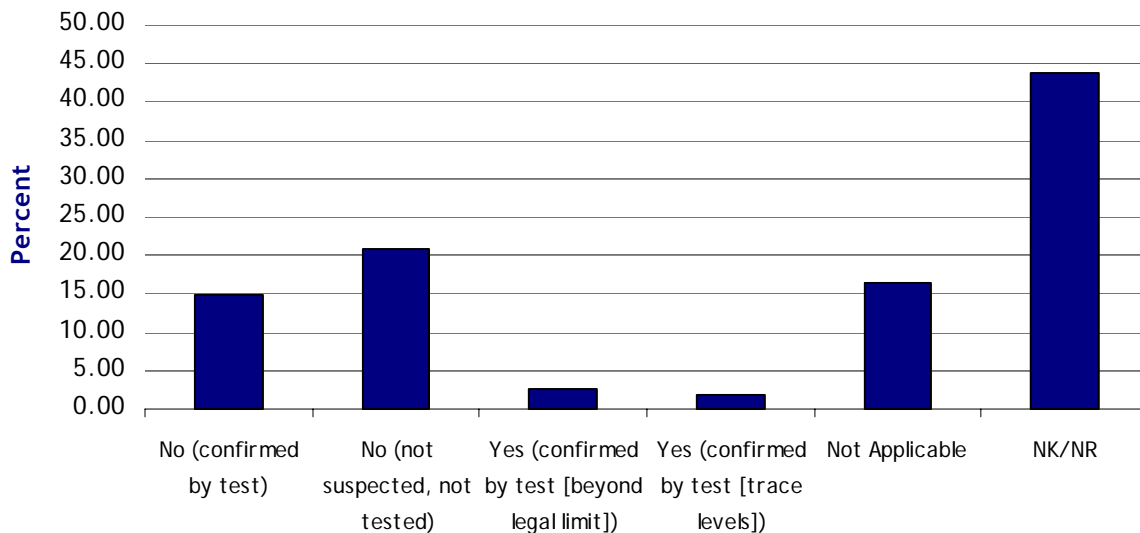


Table 3

Alcohol Use

Alcohol Use	Number	Percent
No (confirmed by test)	16,024	14.72
No (not suspected, not tested)	22,644	20.80
Yes (confirmed by test [beyond legal limit])	2,776	2.55
Yes (confirmed by test [trace levels])	1,920	1.76
Not Applicable	17,976	16.51
NK/NR	47,523	44
Total	108,863	100.00

Demographic Information

Figure 4

Drug Use

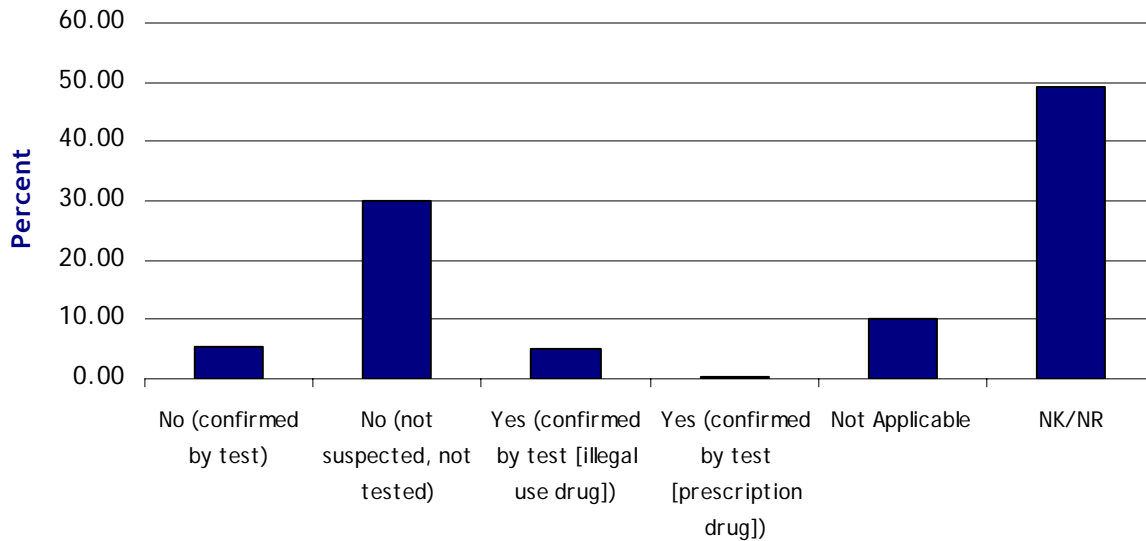


Table 4

Drug Use

Drug Use	Number	Percent
No (confirmed by test)	5,717	5.25
No (not suspected, not tested)	32,615	29.96
Yes (confirmed by test [illegal use drug])	5,384	4.95
Yes (confirmed by test [prescription drug])	527	0.48
Not Applicable	11,026	10.13
NK/NR	53,594	49.23
Total	108,863	100.00

Figure 5

Primary Payment Source

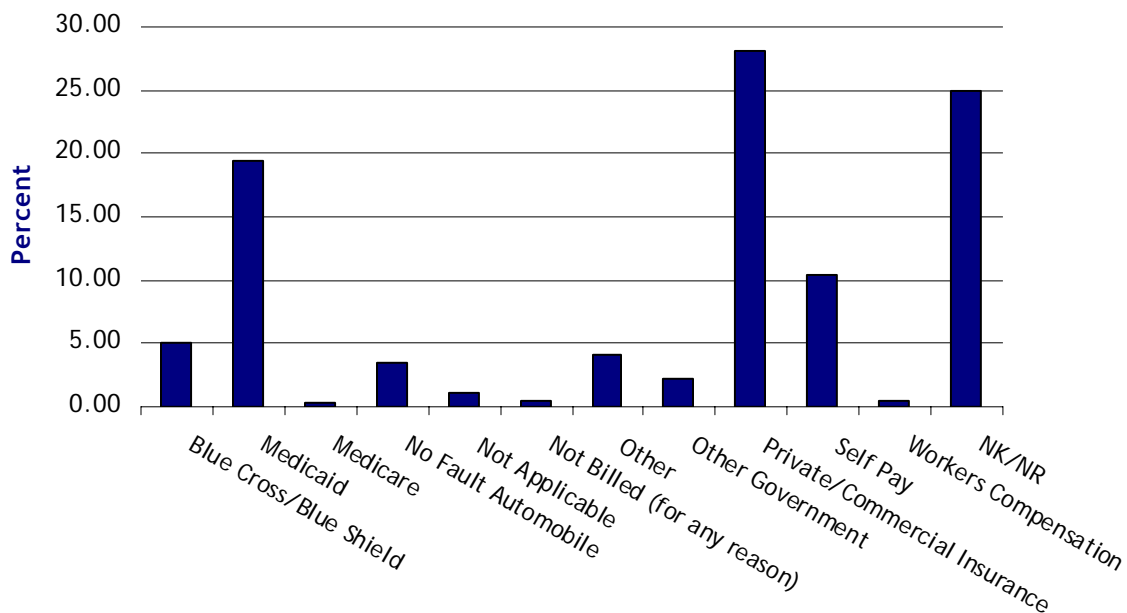


Table 5

Primary Payment Source

Primary Payment Source	Number	Percent
Blue Cross/Blue Shield	5,561	5.11
Medicaid	21,060	19.35
Medicare	260	0.24
No Fault Automobile	3,736	3.43
Not Applicable	1,257	1.15
Not Billed (for any reason)	592	0.54
Other	4,507	4.14
Other Government	2,356	2.16
Private/Commercial Insurance	30,560	28.07
Self Pay	11,424	10.49
Workers Compensation	473	0.43
NK/NR	27,077	24.87
Total	108,863	100.00

Injury Information

Figure 6A

Incidents by Mechanism of Injury

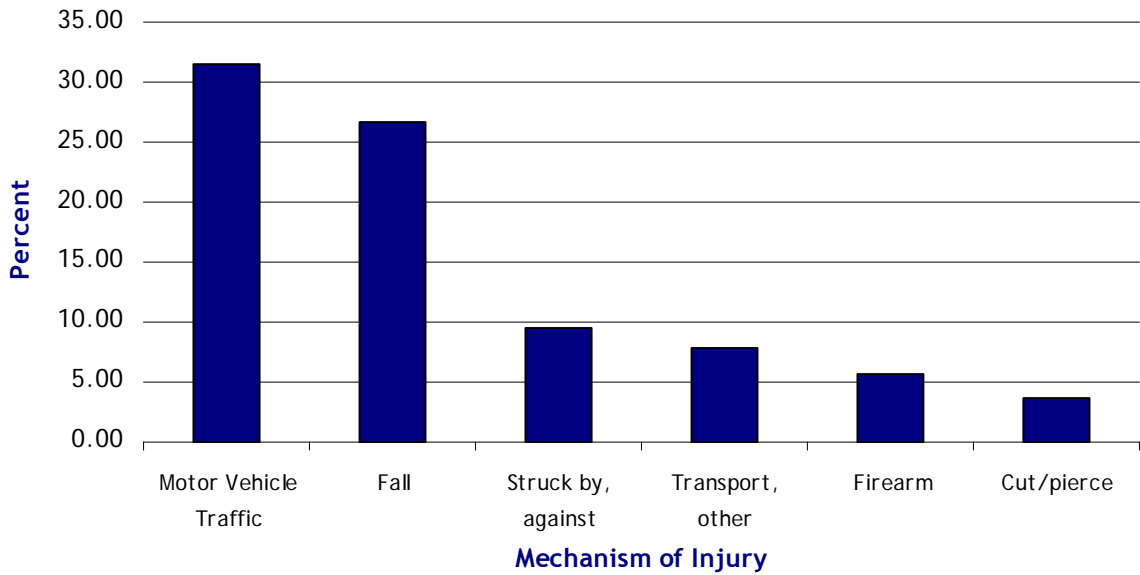
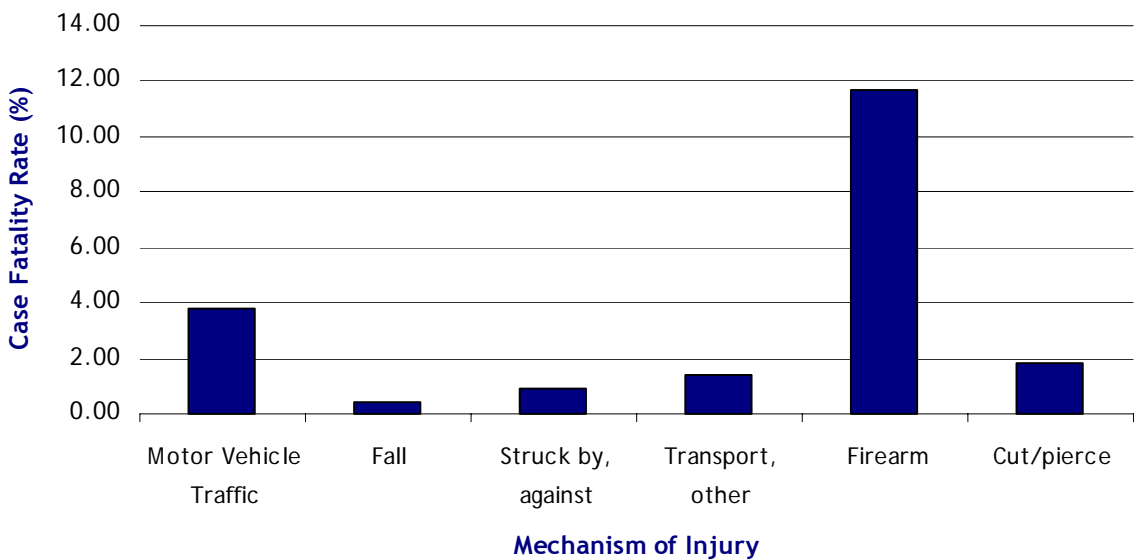


Figure 6B

Case Fatality Rate by Mechanism of Injury



Injury Information

**Table
6**

Incidents and Case Fatality Rate by Mechanism of Injury

Mechanism of Injury	Number	Percent	Deaths	Case Fatality Rate
Motor Vehicle Traffic	34,326	31.53	1,308	3.81
Fall	28,961	26.60	119	0.41
Struck by, against	10,305	9.47	91	0.88
Transport, other	8,447	7.76	121	1.43
Firearm	6,189	5.69	723	11.68
Cut/pierce	4,027	3.70	73	1.81
Pedal cyclist, other	3,745	3.44	17	0.45
Hot object/substance	3,136	2.88	5	0.16
Other specified and classifiable	2,950	2.71	157	5.32
Fire/flame	1,270	1.17	40	3.15
Unspecified	1,097	1.01	23	2.10
Natural/environmental, Bites and stings	1,028	0.94	8	0.78
Pedestrian, other	545	0.50	22	4.04
Other specified, not elsewhere classifiable	543	0.50	9	1.66
Machinery	500	0.46	4	0.80
Natural/environmental, Other	427	0.39	5	1.17
Overexertion	393	0.36	0	0.00
Drowning/submersion	128	0.12	16	12.50
Suffocation	99	0.09	30	30.30
Poisoning	54	0.05	0	0.00
Adverse effects, medical care	13	0.01	0	0.00
Adverse effects, drugs	8	0.01	1	12.50
NK/NR	672	0.62	15	2.23
Total	108,863	100.00	2,787	

Figure 7

Incidents by Mechanism of Injury and Age

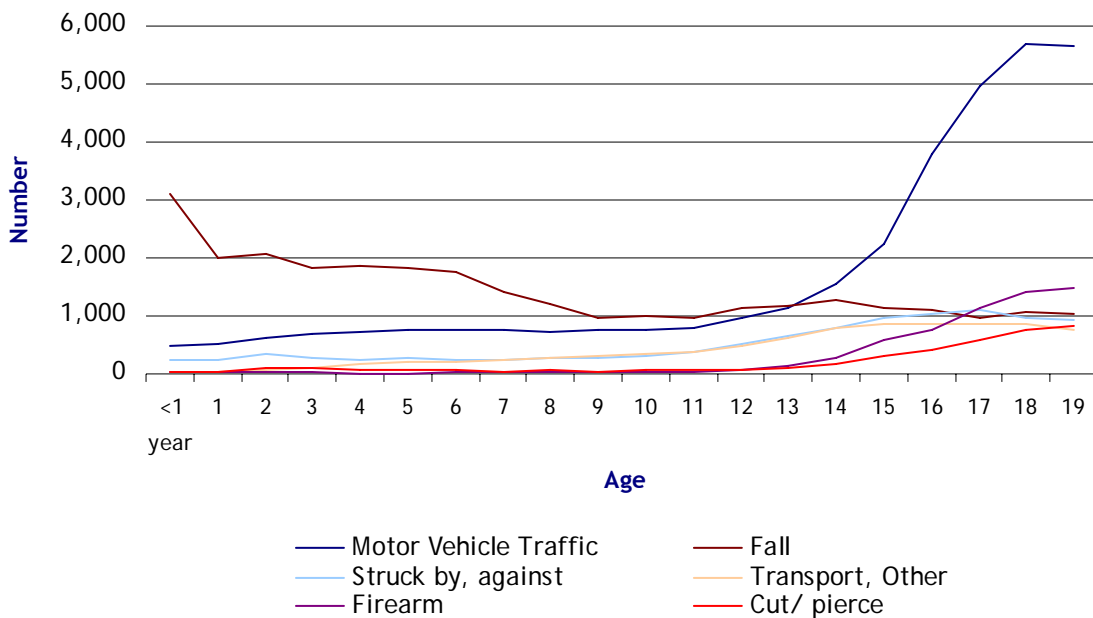


Table 7

Incidents by Mechanism of Injury and Age

Age	Motor Vehicle Traffic	Fall	Struck by, against	Transport, Other	Firearm	Cut/pierce
<1 year	488	3,113	253	39	42	30
1	509	1,995	251	31	23	48
2	636	2,064	351	81	21	88
3	704	1,834	288	114	34	92
4	728	1,874	258	158	12	74
5	743	1,827	260	204	15	82
6	767	1,765	246	202	19	54
7	753	1,423	251	242	25	50
8	714	1,218	277	259	25	54
9	744	979	292	304	29	48
10	761	991	326	344	23	57
11	779	979	371	365	27	72
12	975	1,138	504	491	69	78
13	1,128	1,183	644	635	154	107
14	1,561	1,267	794	796	266	183
15	2,255	1,153	956	855	597	309
16	3,782	1,092	1,026	850	765	412
17	4,982	981	1,087	867	1,132	593
18	5,677	1,053	954	866	1,418	752
19	5,640	1,032	916	744	1,493	844
Total	34,326	28,961	10,305	8,447	6,189	4,027

Figure 8

Case Fatality Rate by Mechanism of Injury and Age

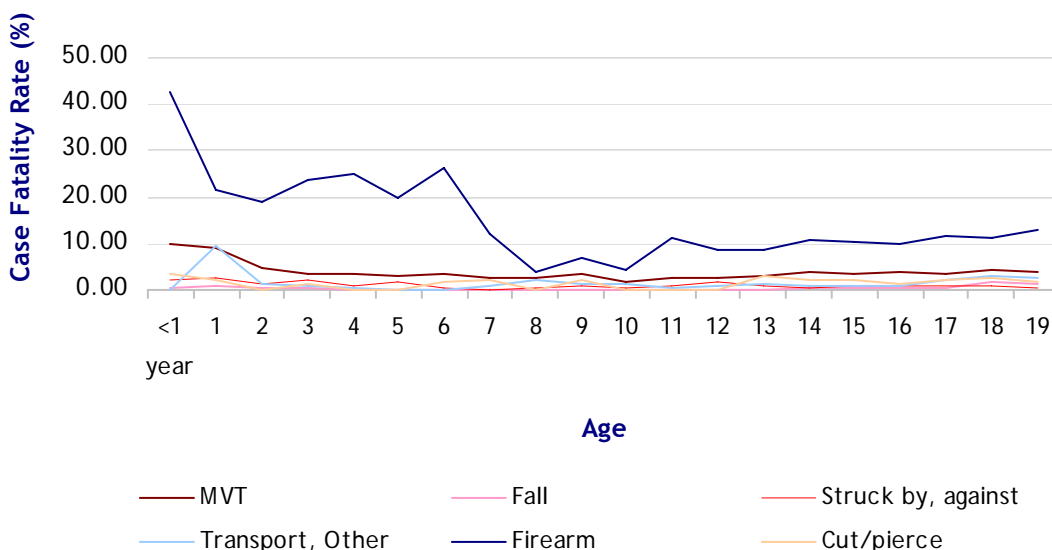


Table 8

Case Fatality Rate by Mechanism of Injury and Age

Age	MVT Case Fatality Rate	Fall Case Fatality Rate	Struck by, against Case Fatality Rate	Transport, Other Case Fatality Rate	Firearm Case Fatality Rate	Cut/pierce Case Fatality Rate
<1 year	9.84	0.55	1.98	0.00	42.86	3.33
1	9.23	0.85	2.39	9.68	21.74	2.08
2	4.72	0.44	1.14	1.23	19.05	0.00
3	3.55	0.27	2.08	0.88	23.53	1.09
4	3.57	0.16	0.78	0.63	25.00	0.00
5	3.10	0.16	1.92	0.00	20.00	0.00
6	3.65	0.00	0.41	0.00	26.32	1.85
7	2.79	0.00	0.00	0.83	12.00	2.00
8	2.80	0.16	0.36	2.32	4.00	0.00
9	3.36	0.10	1.03	1.32	6.90	2.08
10	1.84	0.20	0.31	1.16	4.35	0.00
11	2.57	0.20	0.81	0.55	11.11	0.00
12	2.46	0.09	1.59	1.02	8.70	0.00
13	2.93	0.17	0.78	1.26	8.44	2.80
14	3.84	0.24	0.50	1.01	10.90	2.19
15	3.37	0.43	0.73	0.70	10.22	1.94
16	3.73	0.55	0.97	0.94	10.07	1.46
17	3.63	0.61	0.83	1.96	11.48	2.19
18	4.26	1.90	0.84	2.89	11.35	2.66
19	3.97	1.45	0.33	2.69	12.73	1.78

Figure 9A

Incidents by Mechanism of Injury and Gender

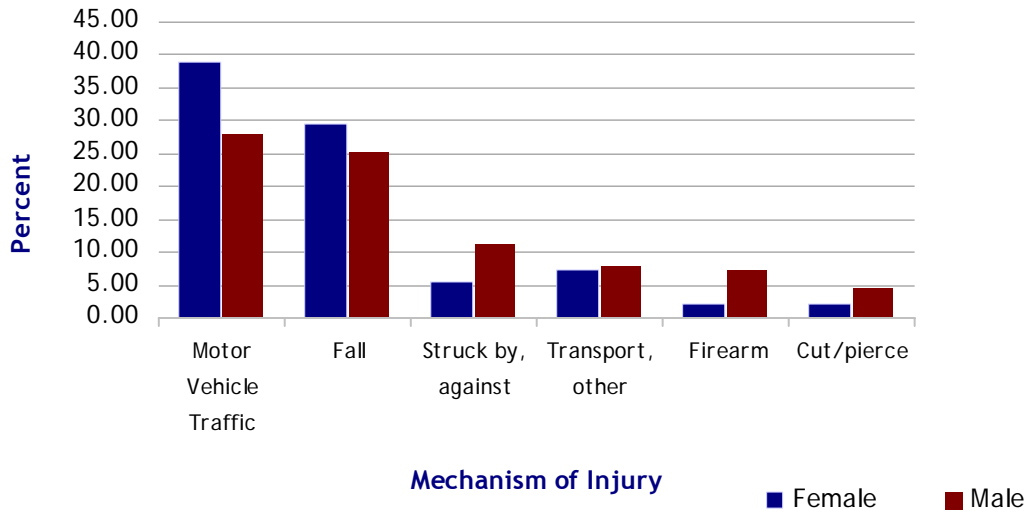
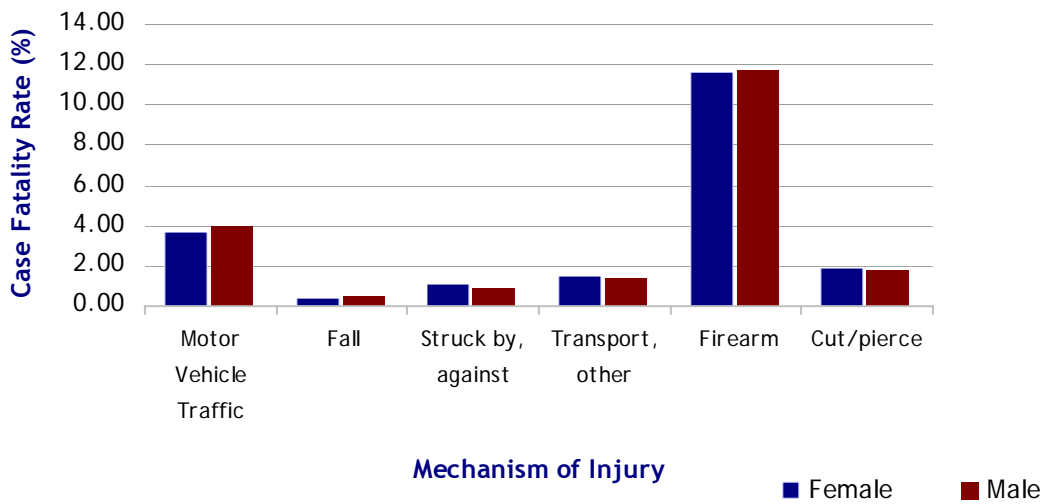


Figure 9B

Case Fatality Rate by Mechanism of Injury and Gender



Injury Information

**Table
9**

Incidents and Case Fatality Rate by Mechanism of Injury and Gender

Mechanism of Injury	Percent (Female)	Percent (Male)	Case Fatality Rate (Female)	Case Fatality Rate (Male)
Motor Vehicle Traffic	39.03	27.93	3.68	3.94
Fall	29.37	25.24	0.36	0.45
Struck by, against	5.60	11.28	1.09	0.86
Transport, other	7.25	8.05	1.53	1.43
Firearm	1.98	7.44	11.62	11.68
Cut/pierce	2.13	4.45	1.92	1.81
Pedal cyclist, other	2.42	3.93	0.48	0.42
Hot object/substance	3.59	2.58	0.32	0.05
Other specified and classifiable	2.65	2.74	5.71	5.32
Fire/flame	0.85	1.32	7.90	1.79
Unspecified	0.87	1.09	2.34	2.04
Natural/environmental, Bites and stings	1.21	0.80	0.48	1.04
Pedestrian, other	0.56	0.48	3.65	4.36
Other specified, not elsewhere classifiable	0.44	0.53	2.00	1.57
Machinery	0.24	0.57	1.23	0.74
Natural/environmental, Other	0.57	0.30	0.51	1.83
Overexertion	0.28	0.40	0.00	0.00
Drowning/submersion	0.11	0.12	12.82	12.36
Suffocation	0.12	0.08	27.50	31.58
Poisoning	0.08	0.04	0.00	0.00
Adverse effects, medical care	0.01	0.01	0.00	0.00
Adverse effects, drugs	0.01	0.01	0.00	25.00
NK/NR	0.63	0.62	0.93	2.90
Total	100.00	100.00		

Figure 10

Incidents by Comparative Injury Severity Scores

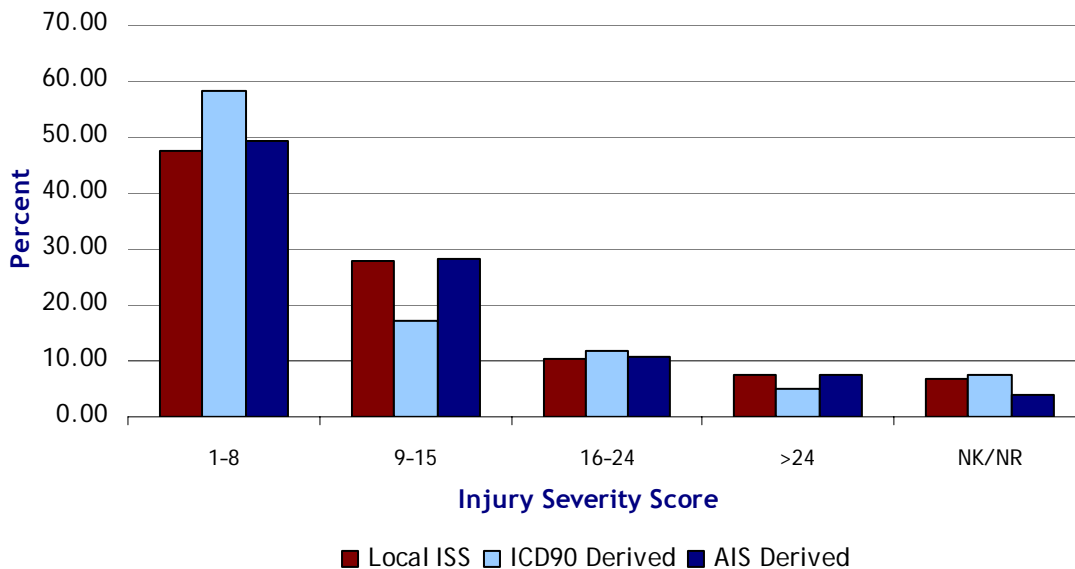


Table 10

Incidents by Comparative Injury Severity Scores

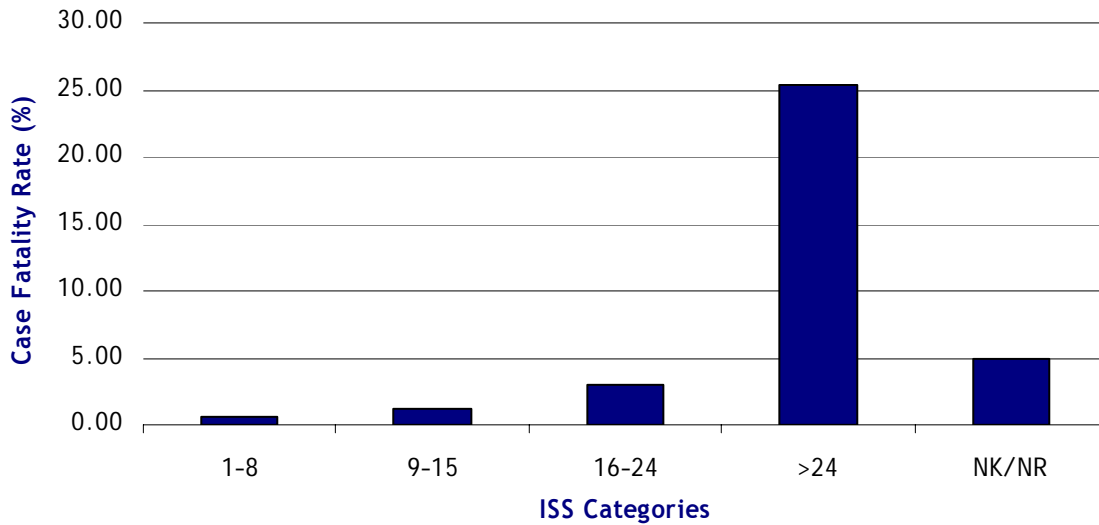
ISS	Local ISS		ICD90 Derived		AIS Derived	
	Number	Percent	Number	Percent	Number	Percent
1-8	51,518	47.32	63,563	58.39	53,792	49.41
9-15	30,353	27.88	18,815	17.28	30,772	28.27
16-24	11,451	10.52	12,832	11.79	11,690	10.74
>24	8,101	7.44	5,620	5.16	8,259	7.59
NK/NR	7,440	6.83	8,033	7.38	4,350	4.00
Total	108,863		108,863		108,863	

“Local ISS” denotes ISS scores submitted directly by hospitals regardless of the method of calculation. “ICD90 Derived” are scores derived by converting ICD-9 codes to AIS using the ICD90 Mapping program and then calculating ISS with the resulting AIS severity scores. “AIS Derived” are calculated from AIS submitted directly by hospitals. Analyses in this report use the ICD90 Derived ISS.

Injury Information

**Figure
11**

Case Fatality Rate by Injury Severity Score



**Table
11**

Case Fatality Rate by Injury Severity Score

ISS	Number	Percent	Deaths	Case Fatality Rate
1-8	63,563	58.39	342	0.54
9-15	18,815	17.28	238	1.26
16-24	12,832	11.79	380	2.96
>24	5,620	5.16	1,430	25.44
NK/NR	8,033	7.38	397	4.94
Total	108,863	100.00	2,787	

Figure 12

Incidents by Injury Severity Score and Age

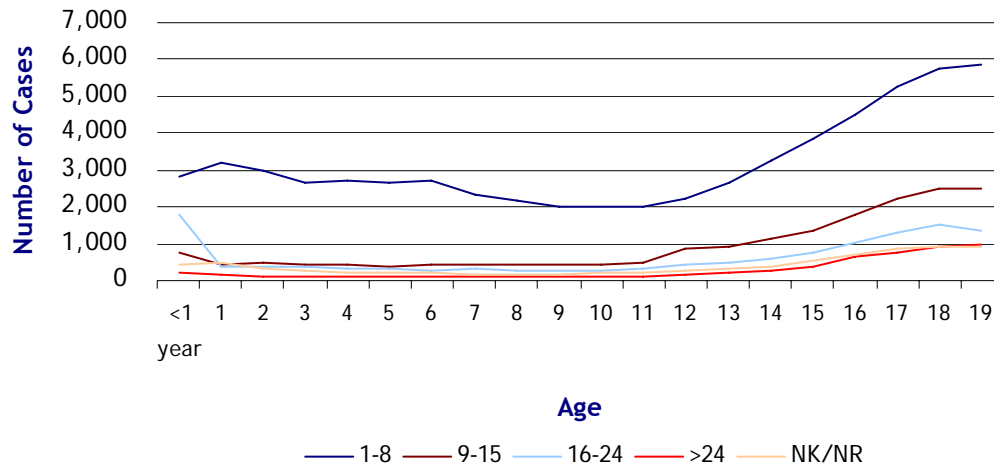


Table 12

Incidents by Injury Severity Score and Age

Age	ISS 1-8 Number	ISS 9-15 Number	ISS 16-24 Number	ISS >24 Number	NK/NR Number
<1 year	2,801	763	1,768	217	426
1	3,190	458	405	142	475
2	2,988	478	369	119	319
3	2,651	418	359	96	273
4	2,693	431	312	92	225
5	2,681	406	318	85	219
6	2,690	423	293	88	191
7	2,322	416	324	99	167
8	2,144	413	284	92	180
9	1,998	409	279	94	184
10	2,025	437	278	96	240
11	2,031	491	342	107	219
12	2,237	856	418	159	276
13	2,666	925	473	196	347
14	3,248	1,132	624	258	403
15	3,841	1,379	765	391	518
16	4,506	1,777	1,056	632	681
17	5,261	2,207	1,302	763	845
18	5,726	2,479	1,503	919	942
19	5,864	2,517	1,360	975	903
Total	63,563	18,815	12,832	5,620	8,033

Injury Information

Figure 13

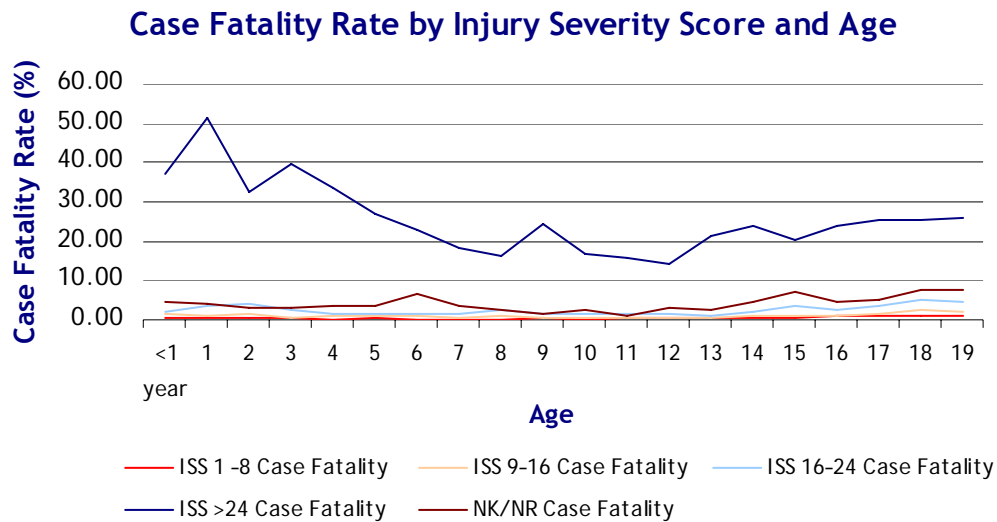


Table 13

Case Fatality Rate by Injury Severity Score and Age

Age	ISS 1-8 Deaths	ISS 1-8 Case Fatality Rate	ISS 9-15 Deaths	ISS 9-16 Case Fatality Rate	ISS 16-24 Deaths	ISS 16-24 Case Fatality Rate	ISS >24 Deaths	ISS >24 Case Fatality Rate	NK/NR Deaths	NK/NR Case Fatality Rate
<1 year	21	0.75	11	1.44	38	2.15	81	37.33	20	4.69
1	16	0.50	5	1.09	15	3.70	73	51.41	19	4.00
2	14	0.47	7	1.46	15	4.07	39	32.77	10	3.13
3	8	0.30	3	0.72	9	2.51	38	39.58	8	2.93
4	4	0.15	4	0.93	4	1.28	31	33.70	8	3.56
5	8	0.30	4	0.99	5	1.57	23	27.06	8	3.65
6	4	0.15	4	0.95	5	1.71	20	22.73	13	6.81
7	2	0.09	2	0.48	5	1.54	18	18.18	6	3.59
8	5	0.23	4	0.97	7	2.46	15	16.30	5	2.78
9	7	0.35	2	0.49	4	1.43	23	24.47	3	1.63
10	3	0.15	2	0.46	4	1.44	16	16.67	6	2.50
11	6	0.30	2	0.41	6	1.75	17	15.89	2	0.91
12	12	0.54	5	0.58	6	1.44	23	14.47	8	2.90
13	15	0.56	3	0.32	6	1.27	42	21.43	9	2.59
14	16	0.49	10	0.88	13	2.08	62	24.03	18	4.47
15	19	0.49	13	0.94	26	3.40	79	20.20	36	6.95
16	36	0.80	16	0.90	26	2.46	151	23.89	32	4.70
17	45	0.86	35	1.59	47	3.61	193	25.29	45	5.33
18	47	0.82	58	2.34	75	4.99	233	25.35	74	7.86
19	54	0.92	48	1.91	64	4.71	253	25.95	67	7.42
Total	342		238		380		1,430		397	

Figure 14A

Incidents by Work-Related Injuries

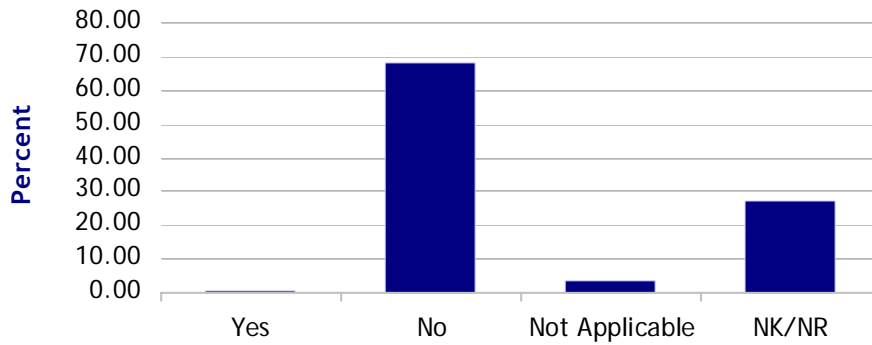
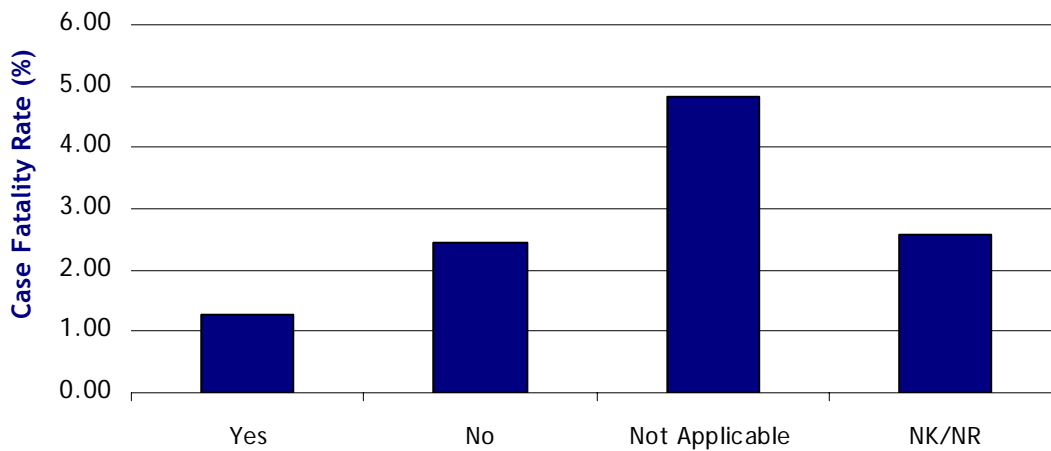


Figure 14B

Case Fatality Rate by Work-Related Injuries



Injury Information

Table
14

Incidents and Case Fatality Rate by Work-Related Injuries

Work-Related Injury	Number	Percent	Deaths	Case Fatality Rate
Yes	867	0.80	11	1.27
No	74,114	68.08	1,815	2.45
Not Applicable	3,979	3.66	192	4.83
NK/NR	29,903	27.47	769	2.57
Total	108,863	100.00	2,787	

Figure 15

Case Fatality Rate by Intent

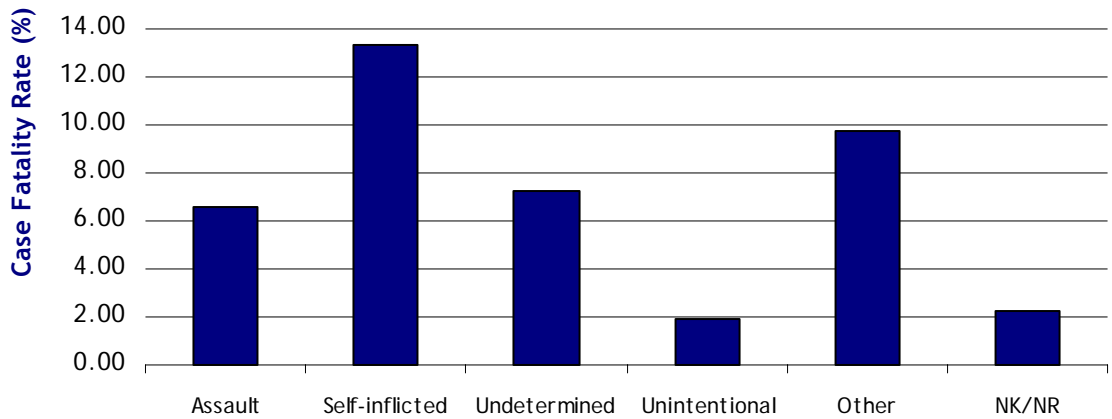


Table 15

Case Fatality Rate by Intent

Intent	Number	Percent	Deaths	Case Fatality Rate
Assault	12,215	12.67	804	6.58
Self-inflicted	781	1.40	104	13.32
Undetermined	693	0.51	50	7.22
Unintentional	94,389	84.54	1,803	1.91
Other	113	0.20	11	9.73
NK/NR	672	0.69	15	2.23
Total	108,863	100.00	2,787	

Figure 16

Case Fatality Rate by Location E-code

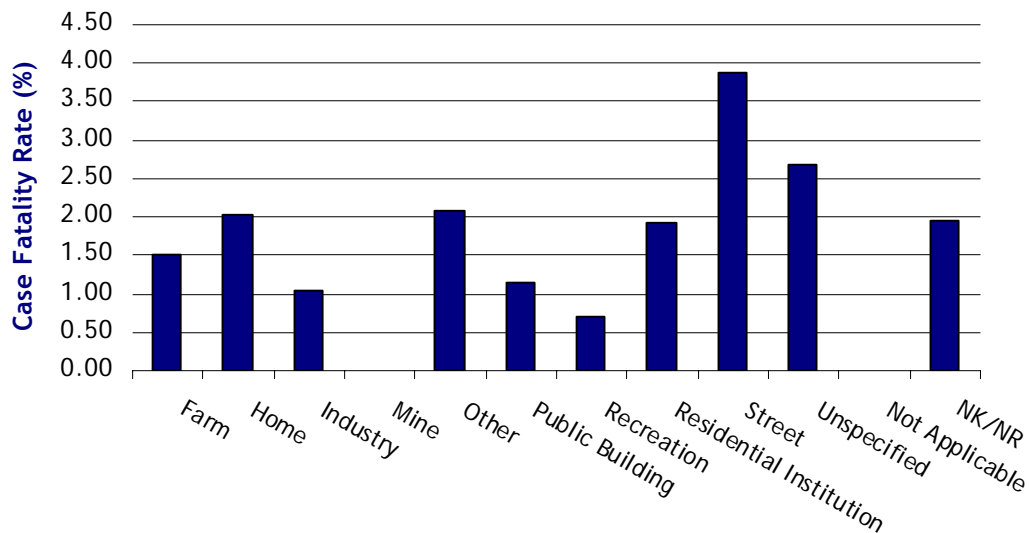


Table 16

Case Fatality Rate by Location E-code

Location of Injury	Number	Percent	Deaths	Case Fatality Rate
Farm	659	0.61	10	1.52
Home	26,364	24.22	535	2.03
Industry	576	0.53	6	1.04
Mine	14	0.01	0	0.00
Other	4,326	3.97	90	2.08
Public Building	4,798	4.41	55	1.15
Recreation	13,761	12.64	97	0.70
Residential Institution	466	0.43	9	1.93
Street	40,168	36.90	1,557	3.88
Unspecified	11,292	10.37	303	2.68
Not Applicable	18	0.02	0	0.00
NK/NR	6,421	5.90	125	1.95
Total	108,863	100.00	2,787	

Figure 17

Incidents by AIS Body Region

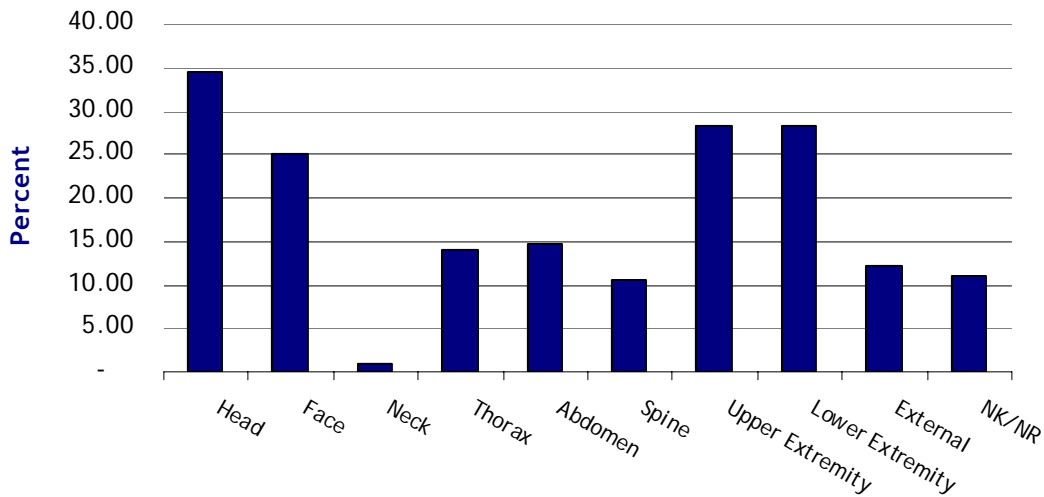


Table 17

Incidents by AIS Body Region

AIS Body Region	Number	Percent
Head	37,518	34.46
Face	27,215	25.00
Neck	960	0.88
Thorax	15,216	13.98
Abdomen	16,030	14.72
Spine	11,526	10.59
Upper Extremity	30,881	28.37
Lower Extremity	30,704	28.20
External	13,202	12.13
NK/NR	11,968	10.99
Total Incidents	108,863	100.00

Please note that an incident may involve multiple body regions, and, if so, the patient will be counted in each of the categories in which there is an injury.

Figure 18

Incidents with AIS ≥ 3 by AIS Body Region

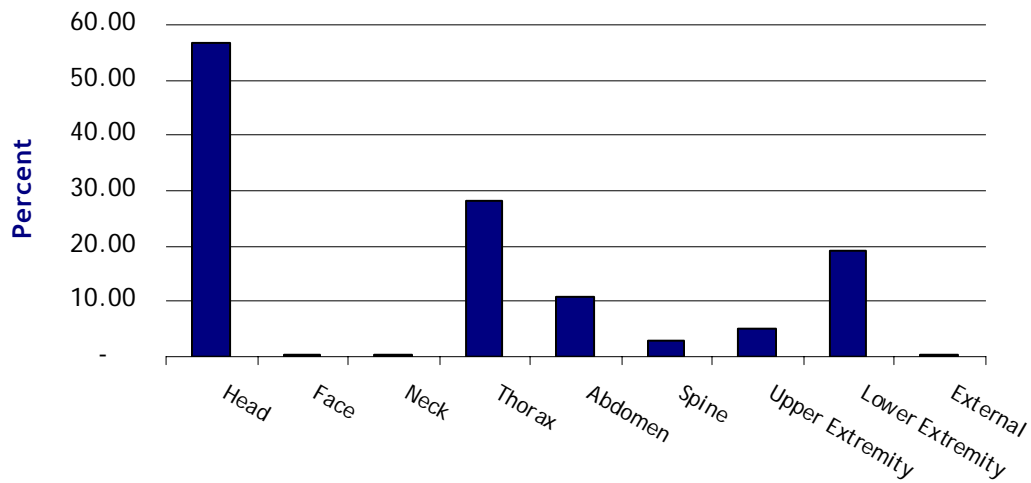


Table 17

Incidents with AIS ≥ 3 by AIS Body Region

AIS Body Region	Number	Percent
Head	23,743	56.86
Face	103	0.25
Neck	149	0.36
Thorax	11,698	28.01
Abdomen	4,477	10.72
Spine	1,191	2.85
Upper Extremity	2,108	5.05
Lower Extremity	7,947	19.03
External	196	0.47
Total	41,760	100.00

Please note that an incident may involve multiple body regions, and, if so, the patient will be counted in each of the categories in which there is an injury.

Figure 19

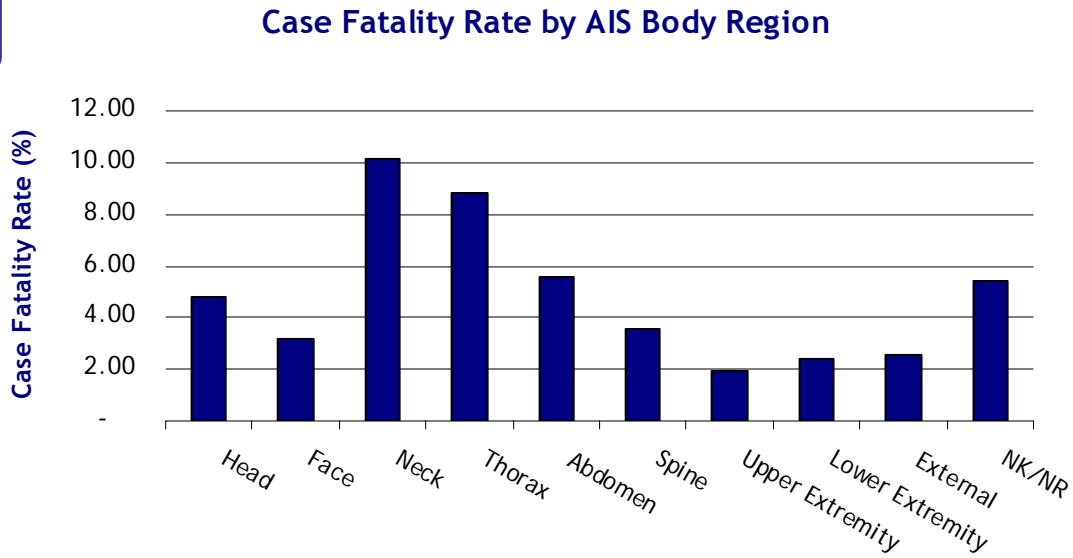


Table 19

Case Fatality Rate by AIS Body Region

AIS Body Region	Number	Deaths	Case Fatality Rate
Head	37,518	1,809	4.82
Face	27,215	866	3.18
Neck	960	97	10.10
Thorax	15,216	1,346	8.85
Abdomen	16,030	888	5.54
Spine	11,526	413	3.58
Upper Extremity	30,881	602	1.95
Lower Extremity	30,704	731	2.38
External	13,202	338	2.56
NK/NR	11,968	650	5.43
Total Incidents	108,863	2,787	

Please note that an incident may involve multiple body regions, and, if so, the patient will be counted in each of the categories in which there is an injury.

Figure 20

Incidents by Protective Devices

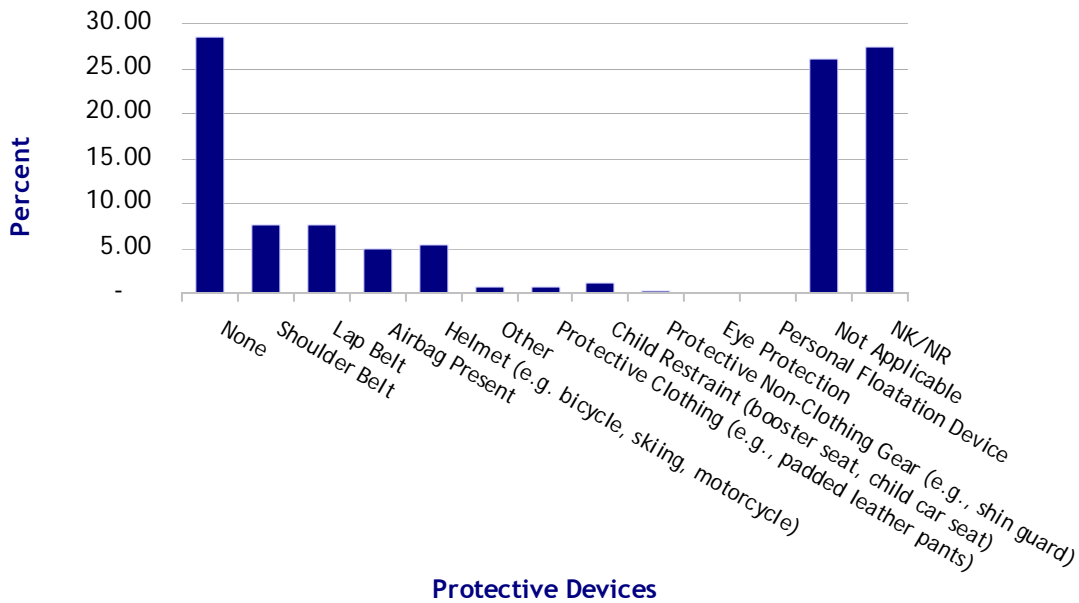


Table 20

Incidents by Protective Devices

Protective Devices	Number	Percent
None	30,982	28.46
Shoulder Belt	8,280	7.61
Lap Belt	8,116	7.46
Airbag Present	5,235	4.81
Helmet (e.g. bicycle, skiing, motorcycle)	5,767	5.30
Other	676	0.62
Protective Clothing (e.g., padded leather pants)	748	0.69
Child Restraint (booster seat, child car seat)	1,200	1.10
Protective Non-Clothing Gear (e.g., shin guard)	252	0.23
Eye Protection	44	0.04
Personal Floatation Device	64	0.06
Not Applicable	28,187	25.89
NK/NR	29,730	27.31
Total Incidents	108,863	100.00

Outcomes

Figure
21

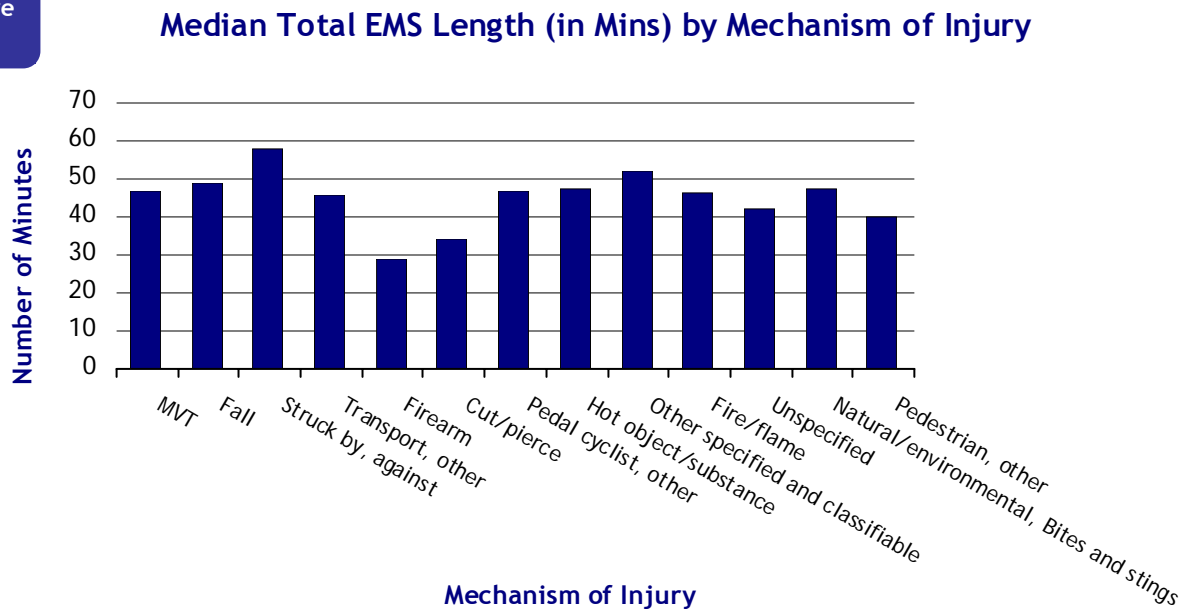
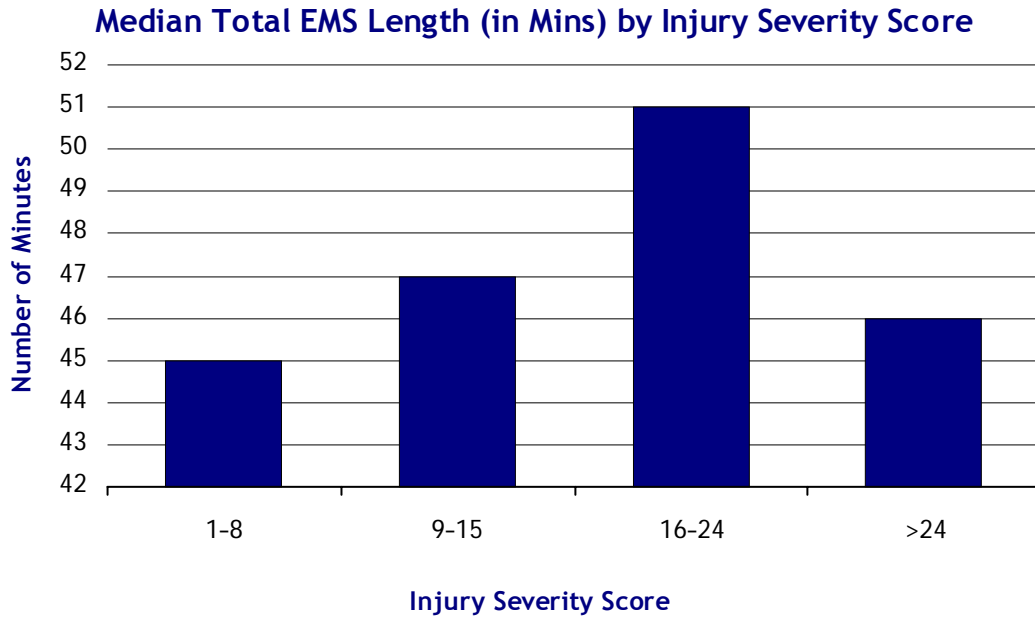


Table
21

Median Total EMS Length (in Mins) by Mechanism of Injury

Mechanism	Number	Median
Motor Vehicle Traffic	14,399	47
Fall	5,205	49
Struck by, against	2,363	58
Transport, other	2,485	46
Firearm	2,185	29
Cut/pierce	1,109	34
Pedal cyclist, other	838	47
Hot object/substance	422	48
Other specified and classifiable	607	52
Fire/flame	268	47
Unspecified	188	42
Natural/environmental, Bites and stings	170	48
Pedestrian, other	183	40
Other specified, not elsewhere classifiable	112	44
Machinery	140	57
Natural/environmental, Other	102	59
Overexertion	82	50
Drowning/submersion	58	48
Suffocation	36	40
Poisoning	18	47
Adverse effects, medical care	6	72
Adverse effects, drugs	0	0
NK/NR	163	46

**Figure
22**



**Table
22**

Median Total EMS Length (in Mins) by Injury Severity Score

ISS	Number	Median
1-8	15,477	45
9-15	6,242	47
16-24	4,181	51
>24	2,472	46
NK/NR	2,767	44

Figure 23

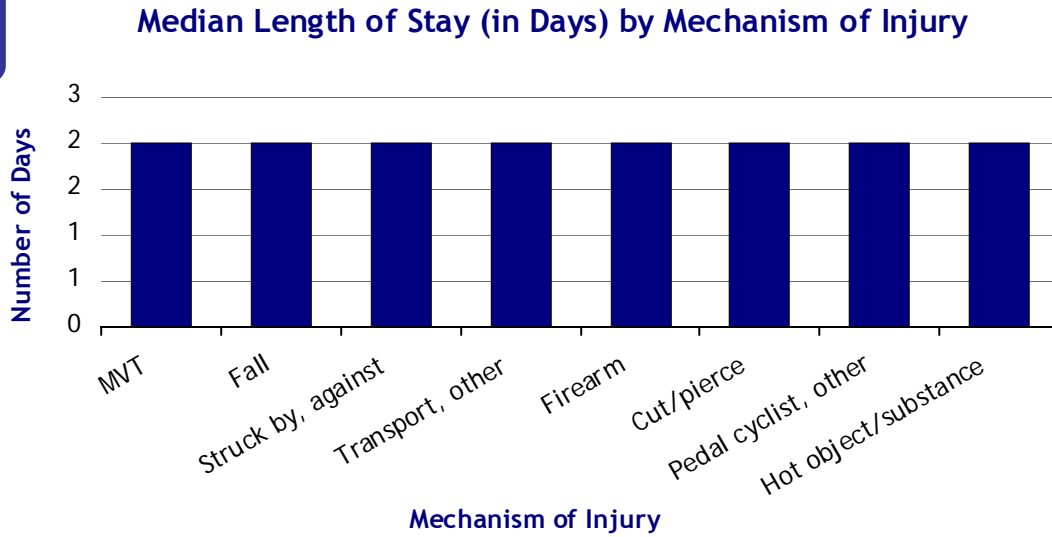


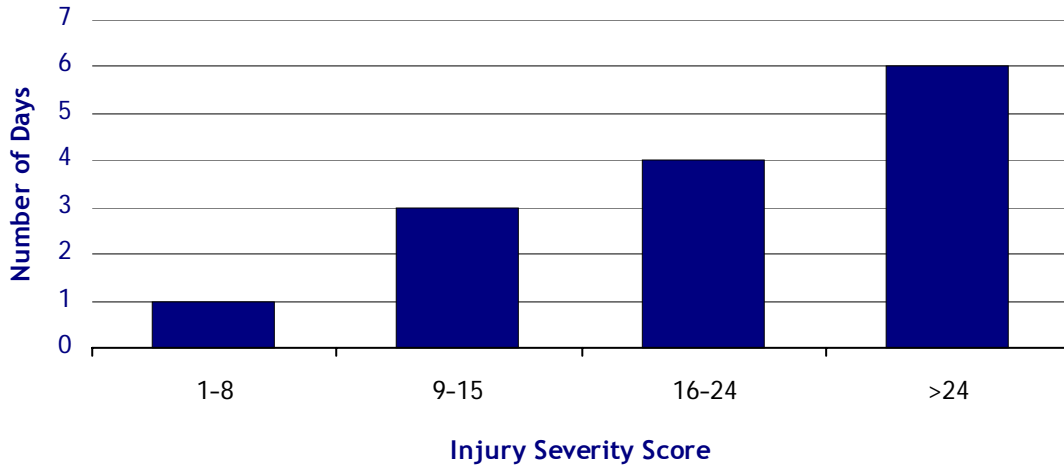
Table 23

Median Length of Stay (in Days) by Mechanism of Injury

Mechanism	Number	Median
Motor Vehicle Traffic	34,256	2
Fall	28,890	2
Struck by, against	10,283	2
Transport, other	8,424	2
Firearm	6,166	2
Cut/pierce	4,021	2
Pedal cyclist, other	3,739	2
Hot object/substance	3,130	2
Other specified and classifiable	2,943	2
Fire/flame	1,267	2
Unspecified	1,093	2
Natural/environmental, bites and stings	1,027	2
Pedestrian, other	543	3
Other specified, not elsewhere classifiable	540	2
Machinery	500	2.5
Natural/environmental, Other	427	2
Overexertion	391	2
Drowning/submersion	127	2
Suffocation	99	2
Poisoning	54	2
Adverse effects, medical care	13	5
Adverse effects, drugs	8	4
NK/NR	624	2

**Figure
24**

Median Length of Stay (in Days) by Injury Severity Score



**Table
24**

Median Length of Stay (in Days) by Injury Severity Score

ISS	Number	Median
1-8	63,354	1
9-15	18,788	3
16-24	12,808	4
>24	5,613	6
NK/NR	8,002	2

Figure 25

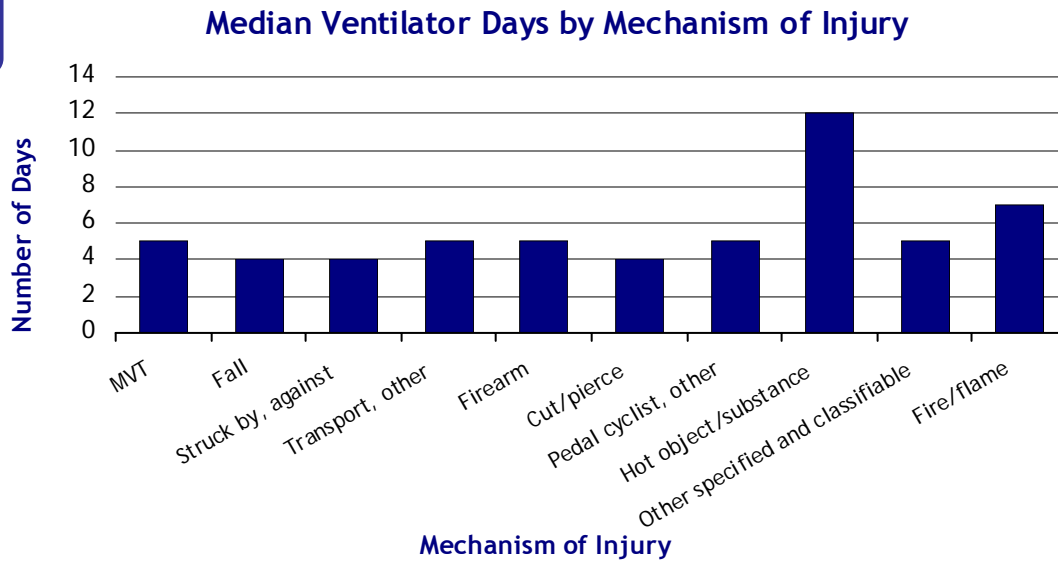
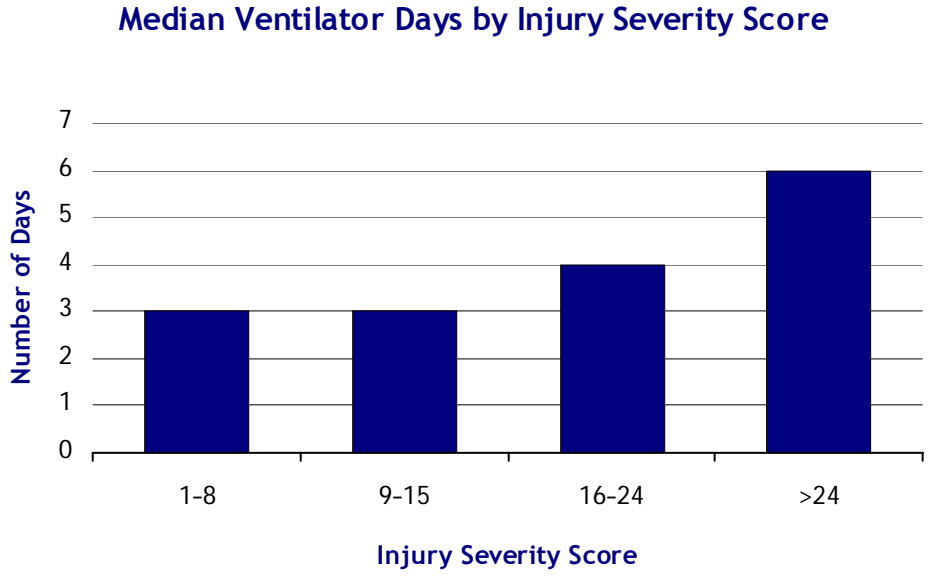


Table 25

Median Ventilator Days by Mechanism of Injury

Mechanism	Number	Median
Motor Vehicle Traffic	2,452	5
Fall	265	4
Struck by, against	126	4
Transport, other	295	5
Firearm	393	5
Cut/pierce	89	4
Pedal cyclist, other	55	5
Hot object/substance	30	12
Other specified and classifiable	187	6
Fire/flame	63	8
Unspecified	42	5
Natural/environmental, Bites and stings	11	7
Pedestrian, other	24	4
Other specified, not elsewhere classifiable	14	3.5
Machinery	16	3
Natural/environmental, Other	14	2.5
Overexertion	3	4
Drowning/submersion	18	3.5
Suffocation	23	3
Poisoning	3	3
Adverse effects, medical care	3	2
Adverse effects, drugs	1	4
NK/NR	25	5

**Figure
26**



**Table
26**

Median Ventilator Days by Injury Severity Score

ISS	Number	Median
1-8	256	3
9-15	440	3
16-24	1,125	4
>24	1,539	6
NK/NR	792	5

Figure 27

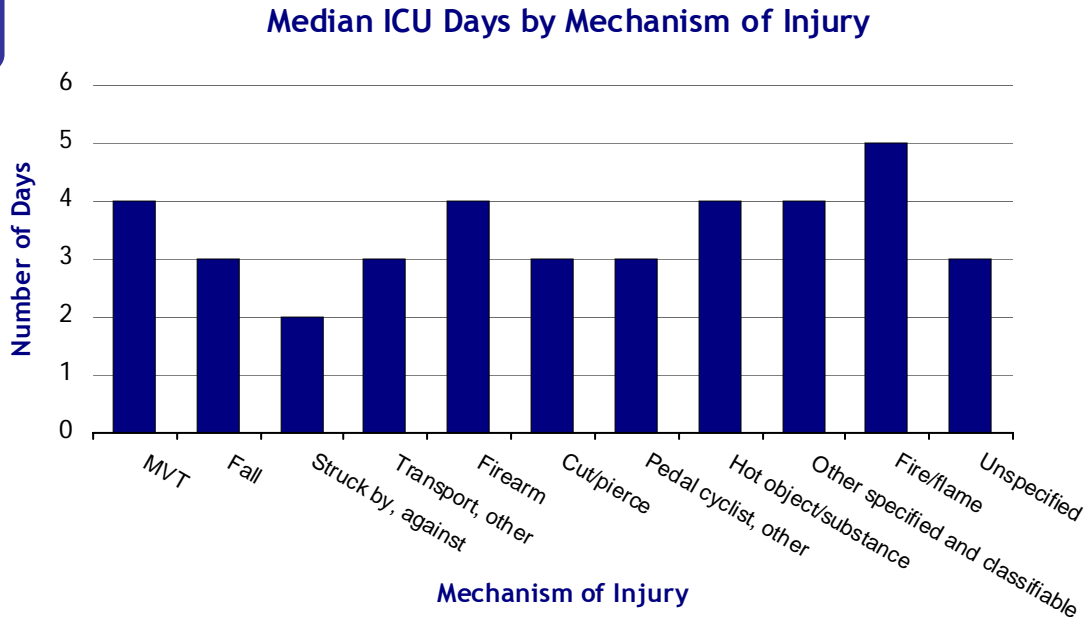


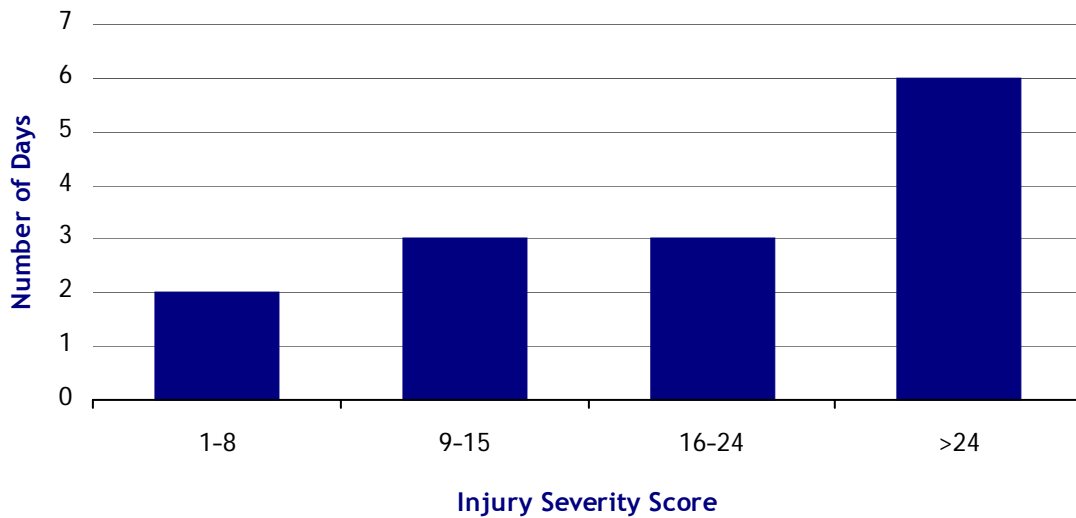
Table 27

Median ICU Days by Mechanism of Injury

Mechanism	Number	Median
Motor Vehicle Traffic	6,752	4
Fall	1,632	3
Struck by, against	764	2
Transport, other	1,177	3
Firearm	1,183	4
Cut/pierce	317	3
Pedal cyclist, other	339	3
Hot object/substance	257	4
Other specified and classifiable	564	4
Fire/flame	227	5
Unspecified	131	3
Natural/environmental, bites and stings	59	2
Pedestrian, other	114	3
Other specified, not elsewhere classifiable	44	4.5
Machinery	55	4
Natural/environmental, other	58	3
Overexertion	6	5.5
Drowning/submersion	37	4
Suffocation	38	3
Poisoning	6	2.5
Adverse effects, medical care	4	5
Adverse effects, drugs	2	4
NK/NR	76	3

**Figure
28**

Median ICU Days by Injury Severity Score



**Table
28**

Median ICU Days by Injury Severity Score

ISS	Number	Median
1-8	2,076	2
9-15	2,428	3
16-24	4,414	3
>24	3,146	6
NK/NR	1,778	4

Figure 29

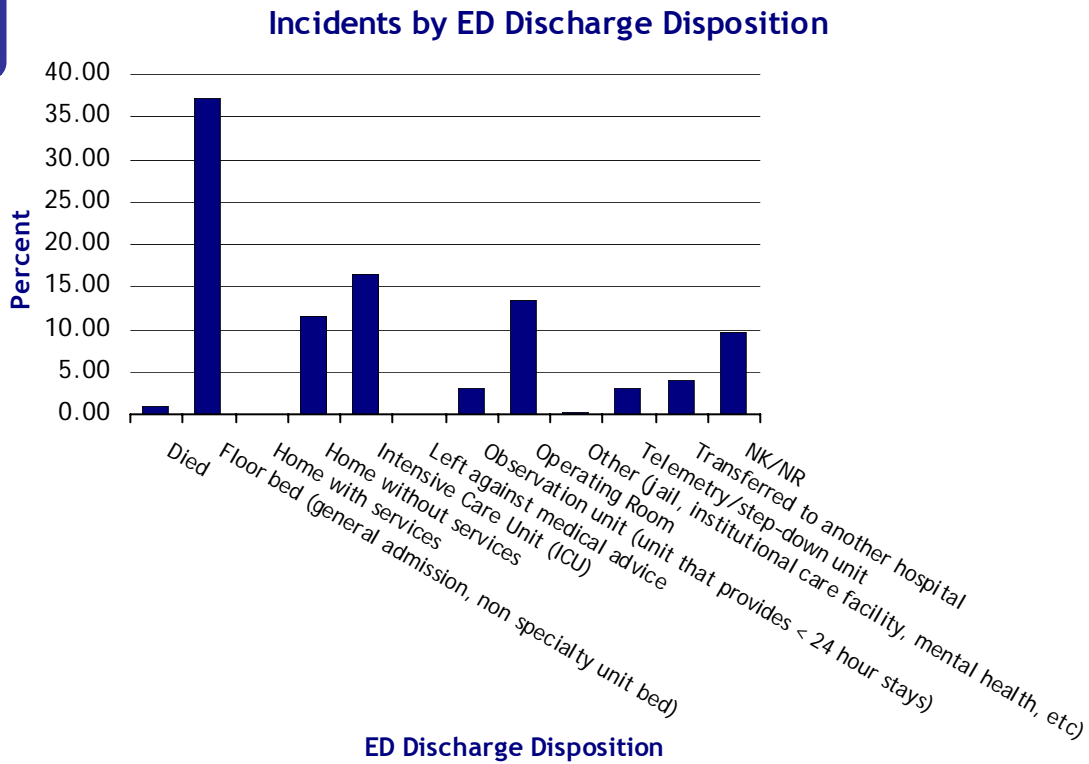


Table 29

Incidents by ED Discharge Disposition

ED Discharge Disposition	Number	Percent
Died	1,103	1.01
Floor bed (general admission, non specialty unit bed)	40,578	37.27
Home with services	81	0.07
Home without services	12,625	11.60
Intensive Care Unit (ICU)	17,919	16.46
Left against medical advice	109	0.10
Observation unit (unit that provides < 24 hour stays)	3,331	3.06
Operating Room	14,515	13.33
Other (jail, institutional care facility, mental health, etc)	348	0.32
Telemetry/step-down unit	3,389	3.11
Transferred to another hospital	4,362	4.01
NK/NR	10,503	9.65
Total	108,863	100.00

Figure 30

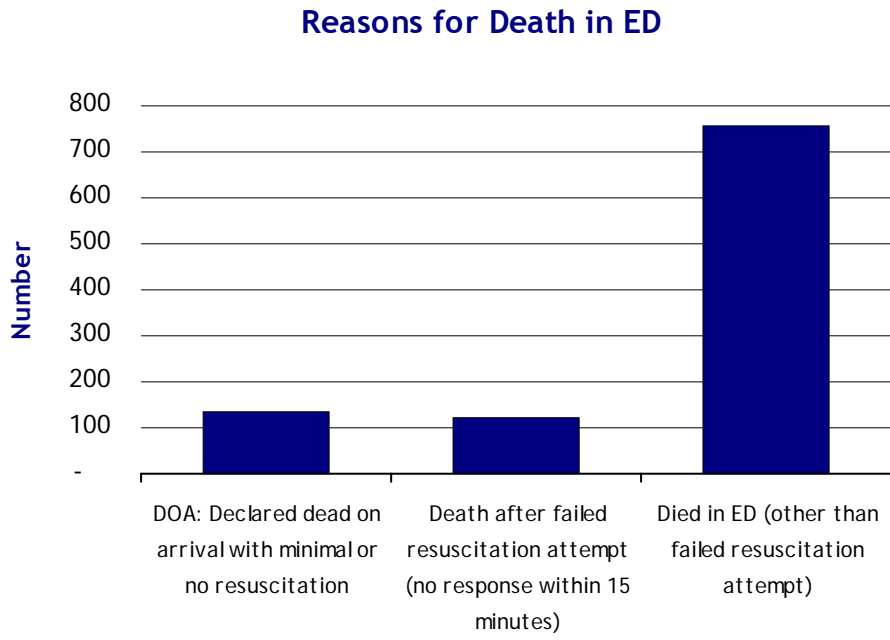


Table 30

Reasons for Death in ED

Died in ED	Number	Percent
DOA: Declared dead on arrival with minimal or no resuscitation	136	4.88
Death after failed resuscitation attempt (no response within 15 minutes)	122	4.38
Died in ED (other than failed resuscitation attempt)	756	27.13
Total Deaths	2,787	36.38

Figure 31

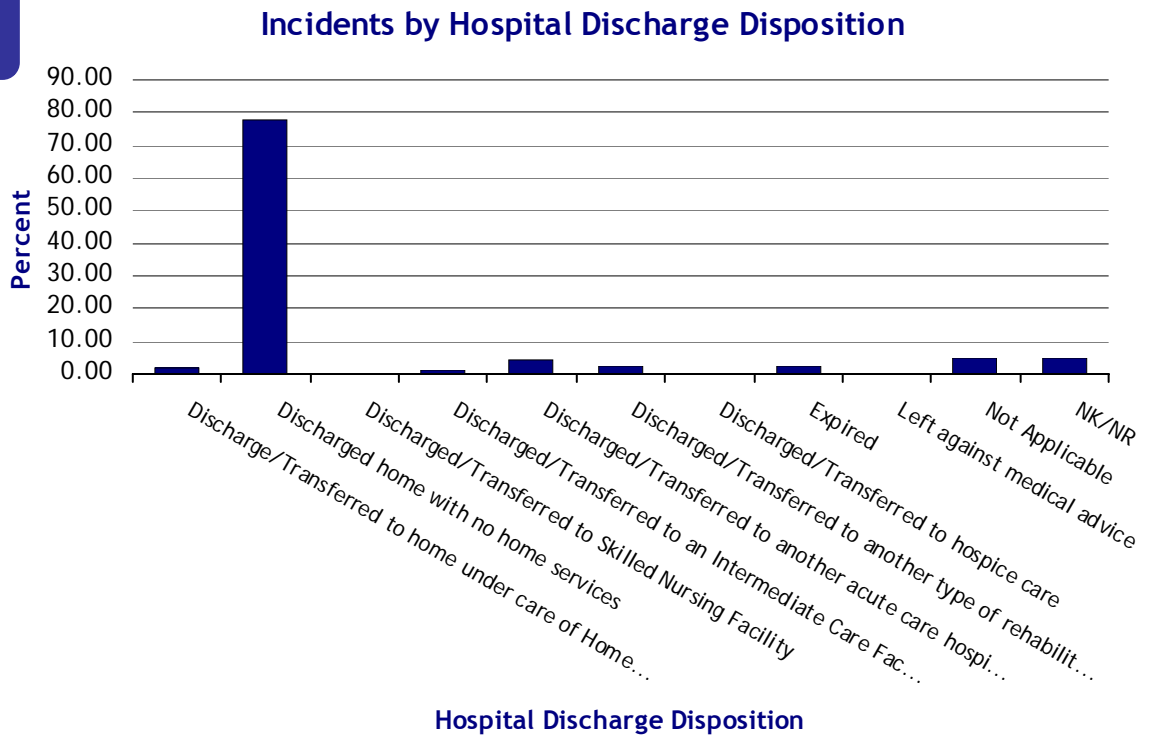
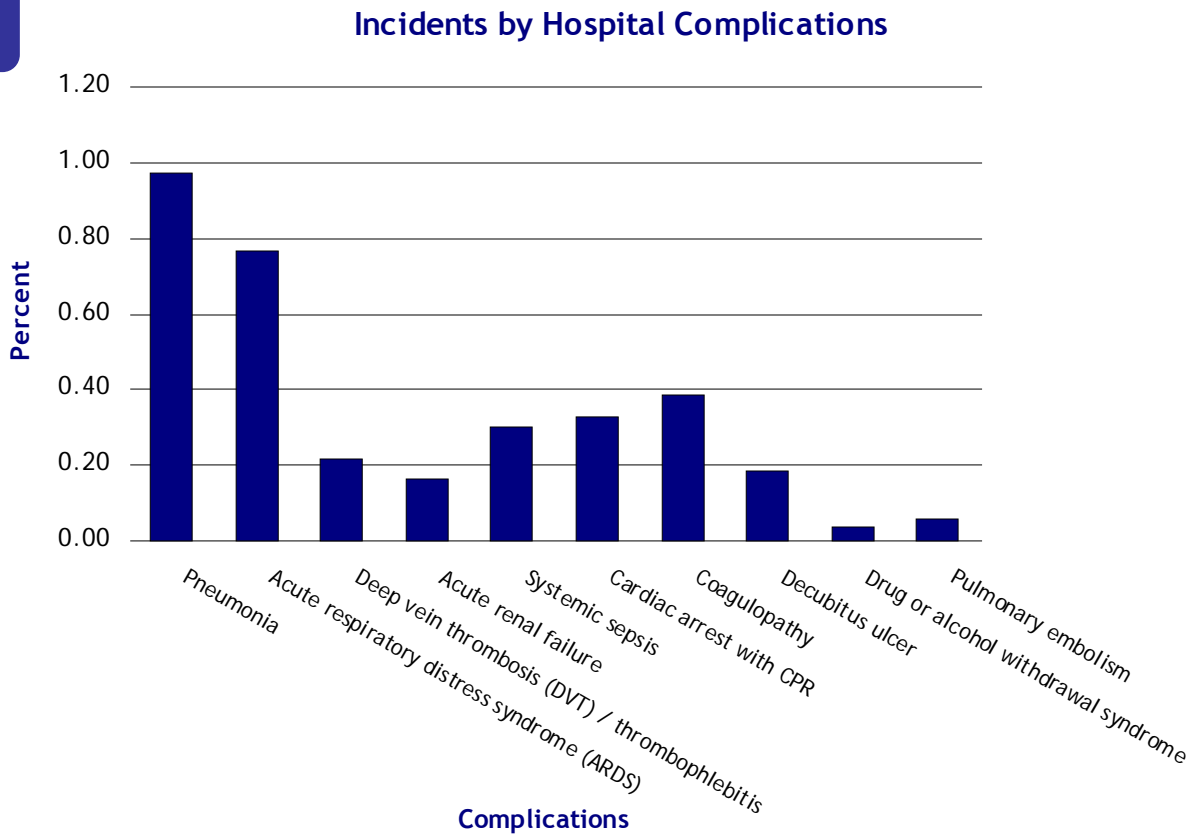


Table 31

Incidents by Hospital Discharge Disposition

Hospital Discharge Disposition	Number	Percent
Discharge/Transferred to home under care of Home Health Agency	2,114	1.94
Discharged home with no home services	84,738	77.84
Discharged/Transferred to Skilled Nursing Facility	273	0.25
Discharged/Transferred to an Intermediate Care Facility	1,247	1.15
Discharged/Transferred to another acute care hospital using EMS	4,678	4.30
Discharged/Transferred to another type of rehabilitation or long term care	2,585	2.37
Discharged/Transferred to hospice care	4	0.00
Expired	2,532	2.33
Left against medical advice	296	0.27
Not Applicable	5,348	4.91
NK/NR	5,048	4.64
Total	108,863	100.00

Figure 32



Outcomes

**Figure
32**

Incidents by Hospital Complications

Complications	Number	Percent
Pneumonia	1,061	0.97
Acute respiratory distress syndrome (ARDS)	833	0.77
Deep vein thrombosis (DVT) / thrombophlebitis	238	0.22
Acute renal failure	180	0.17
Systemic sepsis	330	0.30
Cardiac arrest with CPR	357	0.33
Coagulopathy	420	0.39
Decubitus ulcer	200	0.18
Drug or alcohol withdrawal syndrome	43	0.04
Pulmonary embolism	66	0.06
Myocardial infarction	18	0.02
Extremity compartment syndrome	174	0.16
Organ/space surgical site infection	106	0.10
Bleeding	50	0.05
Superficial surgical site infection	65	0.06
Base deficit	85	0.08
Wound disruption	52	0.05
Abdominal compartment syndrome	93	0.09
Unplanned intubation	50	0.05
Stroke / CVA	38	0.03
Intracranial pressure	73	0.07
Graft/prosthesis/flap failure	33	0.03
Deep surgical site infection	11	0.01
Coma	26	0.02
Abdominal fascia left open	1	0.00
NK/NR	63,710	58.52
No NTDS Complications Reported	35,852	32.93
Not Applicable/No Complications Reported	6,773	6.22
Total Incidents	108,863	100.00

Regional Analyses

Figure
33

Incidents by Region

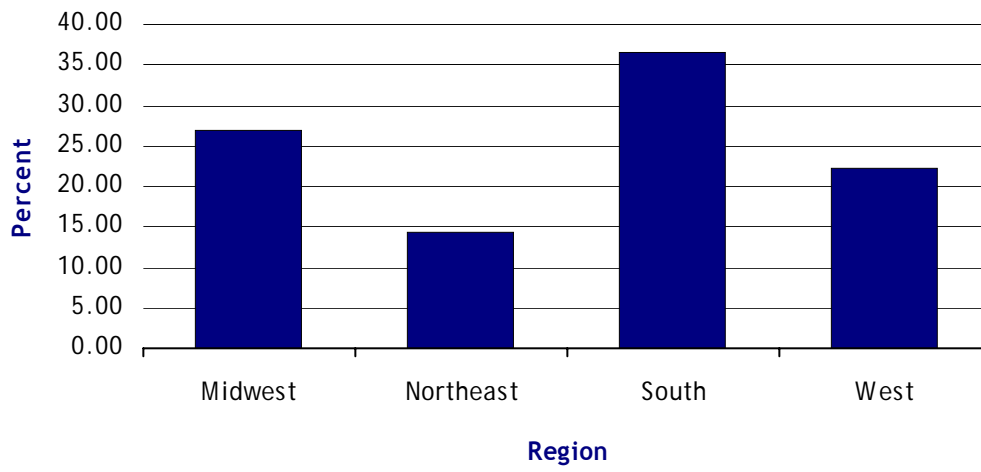


Table
33

Incidents by Region

Region	Number	Percent
Midwest	29,372	26.98
Northeast	15,514	14.25
South	39,808	36.57
West	24,169	22.20
Total	108,863	100.00

Regional Analyses

Figure
34

Case Fatality Rate by Region

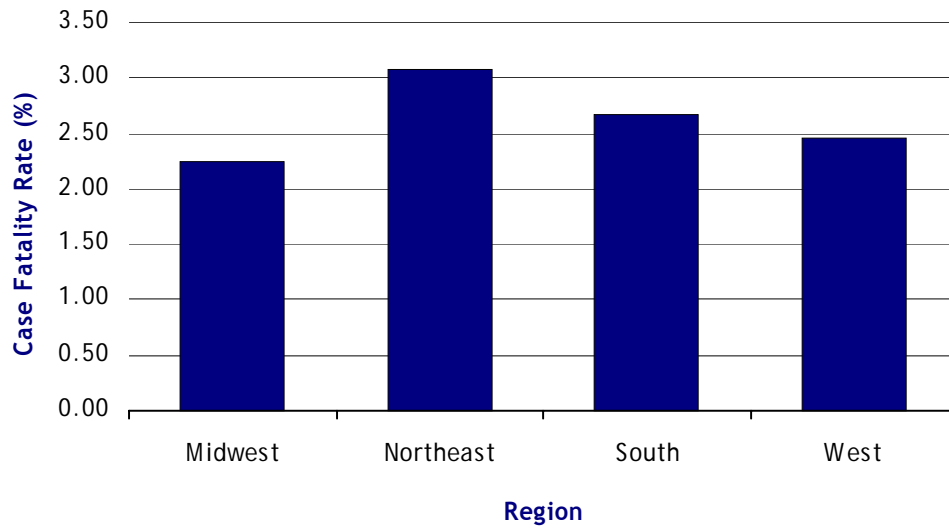


Table
34

Case Fatality Rate by Region

Region	Number	Deaths	Case Fatality Rate
Midwest	29,372	657	2.24
Northeast	15,514	477	3.07
South	39,808	1,060	2.66
West	24,169	593	2.45
Total	108,863	2,787	

Figure 35

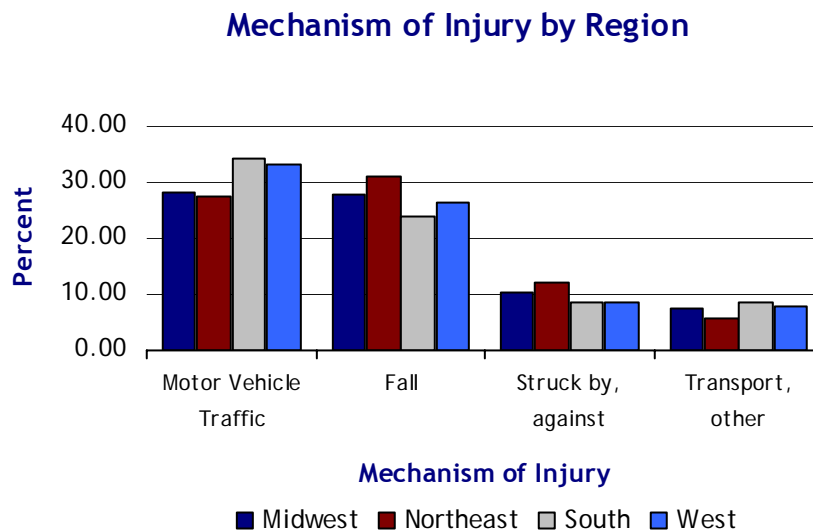


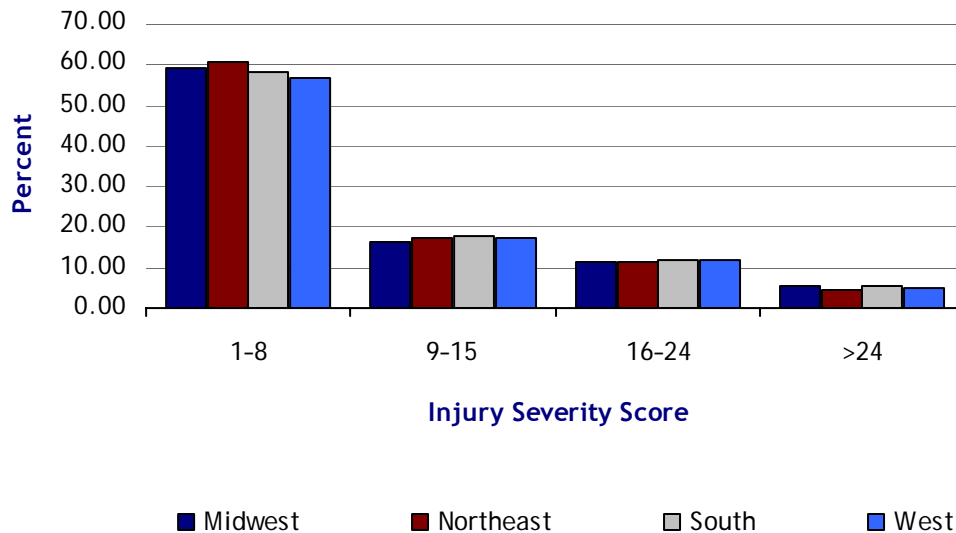
Table 35

Mechanism of Injury by Region

Mechanism of Injury	Number	Midwest	Northeast	South	West
Motor Vehicle Traffic	34,326	8,331	4,293	13,639	8,063
Fall	28,961	8,202	4,811	9,524	6,424
Struck by, against	10,305	3,025	1,876	3,367	2,037
Transport, other	8,447	2,178	897	3,451	1,921
Firearm	6,189	1,571	713	2,138	1,767
Cut/pierce	4,027	973	632	1,342	1,080
Pedal cyclist, other	3,745	1,089	648	1,111	897
Hot object/substance	3,136	1,060	433	1,319	324
Other specified and classifiable	2,950	860	392	1,161	537
Fire/flame	1,270	422	162	519	167
Unspecified	1,097	333	140	460	164
Natural/environmental, Bites and stings	1,028	333	86	479	130
NK/NR	672	157	34	294	187
Pedestrian, other	545	142	72	201	130
Other specified, not elsewhere classifiable	543	161	65	224	93
Machinery	500	175	77	184	64
Natural/environmental, Other	427	124	53	154	96
Overexertion	393	125	94	132	42
Drowning/submersion	128	43	22	45	18
Suffocation	99	31	11	40	17
Poisoning	54	32	1	13	8
Adverse effects, medical care	13	0	2	8	3
Adverse effects, drugs	8	5	0	3	0
Total	108,863	29,372	15,514	39,808	24,169

Figure 36

Injury Severity Score by Region



ISS	Number	Midwest	Midwest Percent	Northeast	Northeast Percent	South	South Percent	West	West Percent
1-8	63,563	17,405	59.26	9,412	60.67	23,077	57.97	13,669	56.56
9-15	18,815	4,795	16.33	2,674	17.24	7,144	17.95	4,202	17.39
16-24	12,832	3,387	11.53	1,787	11.52	4,774	11.99	2,884	11.93
>24	5,620	1,537	5.23	677	4.36	2,195	5.51	1,211	5.01
NK/NR	8,033	2,248	7.65	964	6.21	2,618	6.58	2,203	9.11
Total	108,863	29,372	100.00	15,514	100.00	39,808	100.00	24,169	100.00

Appendix A Definition of Trauma Patient

Definition of Trauma Patient adopted by NATIONAL TRAUMA DATA BANK (NTDB)*

At least one of the following injury diagnostic codes defined in the *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM): 800–959.9*

Excluding the following isolated injuries:

- 905–909.9 (late effects of injury)
- 910–924.9 (superficial injuries, including blisters, contusions, abrasions, and insect bites)
- 930–939.9 (foreign bodies)

AND MUST INCLUDE ONE OF THE FOLLOWING IN ADDITION TO (ICD-9-CM 800–959.9):

- Hospital admission as defined by your trauma registry inclusion criteria;
OR
- Patient transfer via EMS transport (including air ambulance) from one hospital to another hospital; OR
- Death resulting from the traumatic injury (independent of hospital admission or hospital transfer status)

*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 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
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9

Appendices

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other ¹
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:

<http://www.cdc.gov/nchs/about/otheract/ice/projects.htm>.