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NTDB[®]
NATIONAL TRAUMA DATA BANK

National Trauma Data Bank 2012

Pediatric Report

NTDB PEDIATRIC REPORT 2012

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EDITOR'S NOTE

The Pediatric Report of the National Trauma Data Bank is an updated analysis of the largest aggregation of U.S./Canadian trauma registry data ever assembled. In total, the NTDB now contains more than 5 million records. The 2012 Pediatric Report is based on 148,495 2011 admission year records from 741 facilities.

For the fourth year, we are including an expanded section on facility information. In addition to the usual information on hospital characteristics such as bed size and trauma level, we have now included information on registry inclusion criteria for participating hospitals. This information allows the reader to consider differences in case mix across hospitals while reading the report.

The mission of the American College of Surgeons Committee on Trauma (ACS 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. 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 National Trauma Data Bank Pediatric Report is available on the ACS website as a PowerPoint PDF at www.ntdb.org. In addition, information is available on our website about how to obtain NTDB data for more detailed study.

Many dedicated individuals on the ACS COT, as well as at trauma centers, 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 Pediatric Reports.



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FACILITY INFORMATION



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Table
1

Pediatric-Only Facilities by Trauma Level

LEVEL	NUMBER	PERCENT
I	27	87.10
II	4	12.90
Total	31	100.00

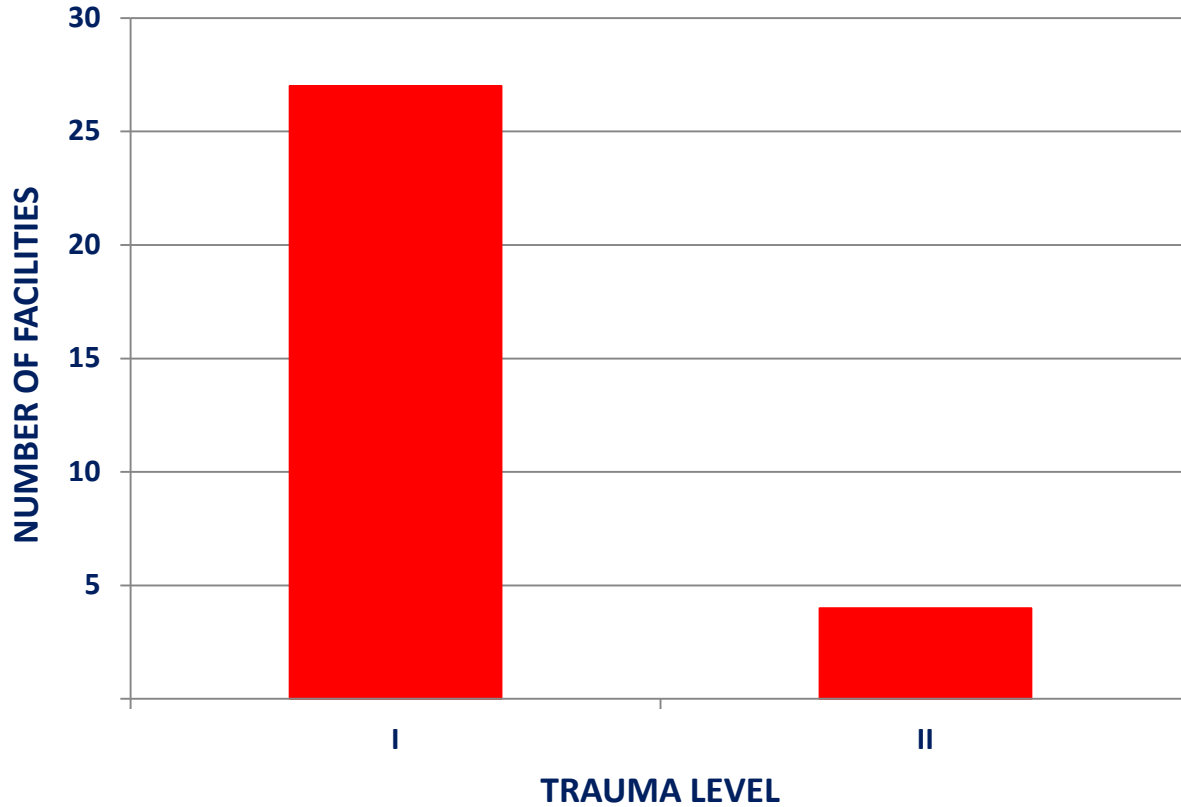


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Figure 1

Pediatric-Only Facilities by Trauma Level



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Table
2

Facilities by Pediatric Hospital Association

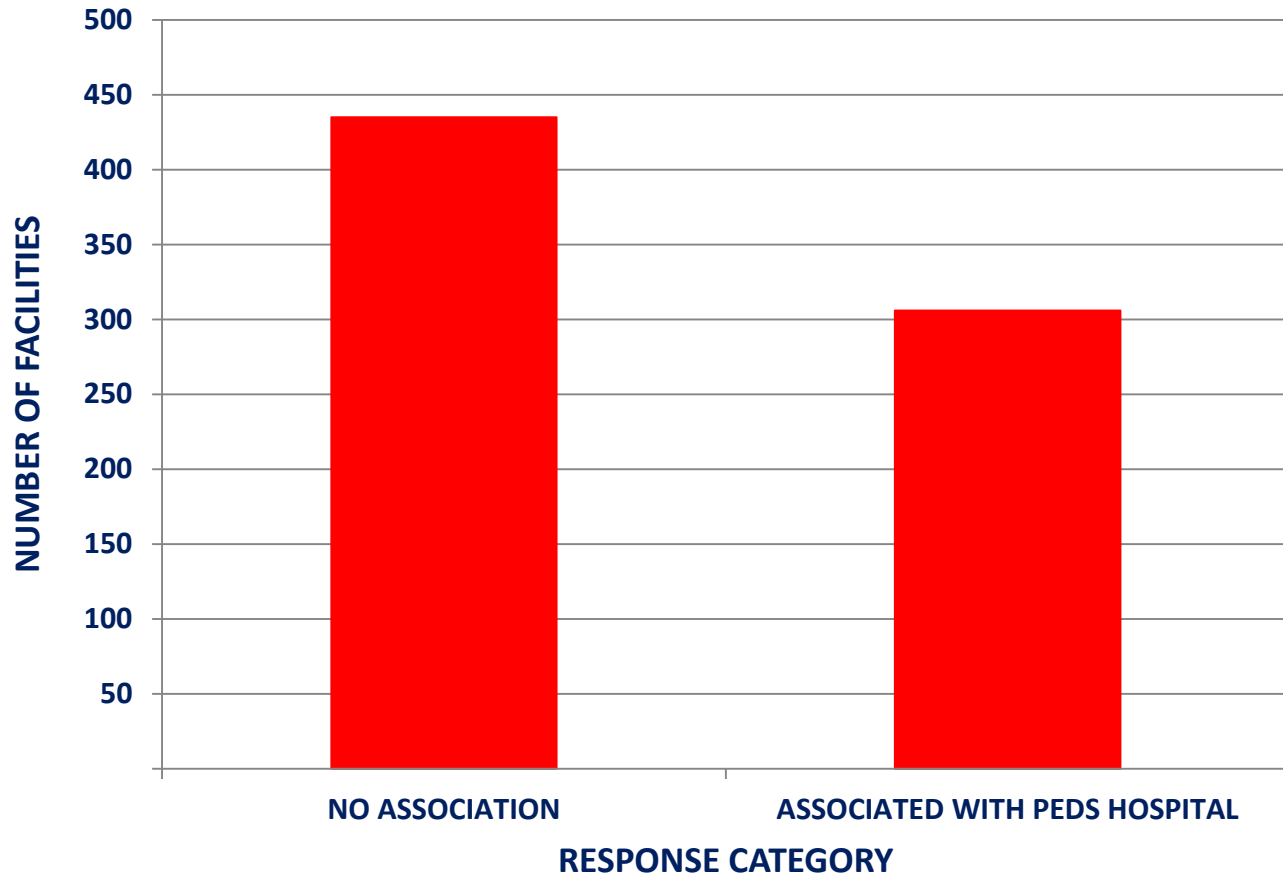
PEDIATRIC ASSOCIATION	NUMBER	PERCENT
NO ASSOCIATION	435	58.70
ASSOCIATED WITH PEDS HOSPITAL	306	41.30
Total	741	100.00



This excludes three facilities with no pediatric patients (patients aged <20).

Figure 2

Facilities by Pediatric Hospital Association



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Table
3

Facilities by Presence of Pediatric Ward

PEDIATRIC WARD	NUMBER	PERCENT
No	253	34.14
Yes	488	65.86
Total	741	100.00

This excludes three facilities with no pediatric patients (patients aged <20).

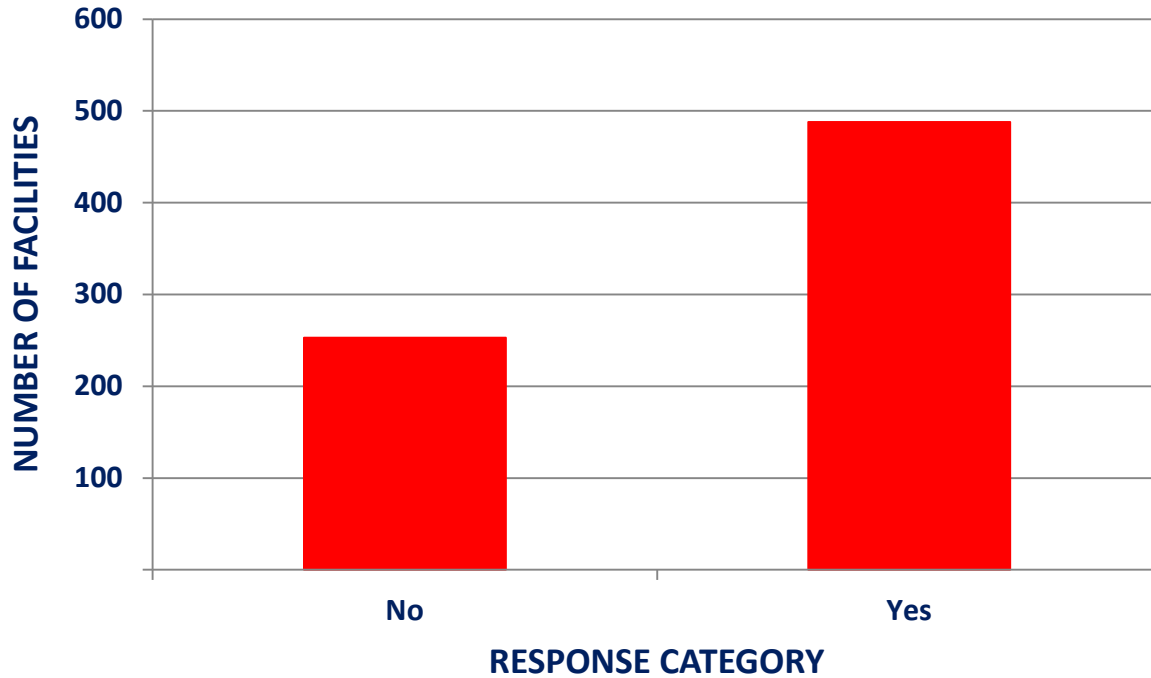


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Figure 3

Facilities by Presence of Pediatric Ward



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Table
4

Facilities by Presence of Pediatric ICU

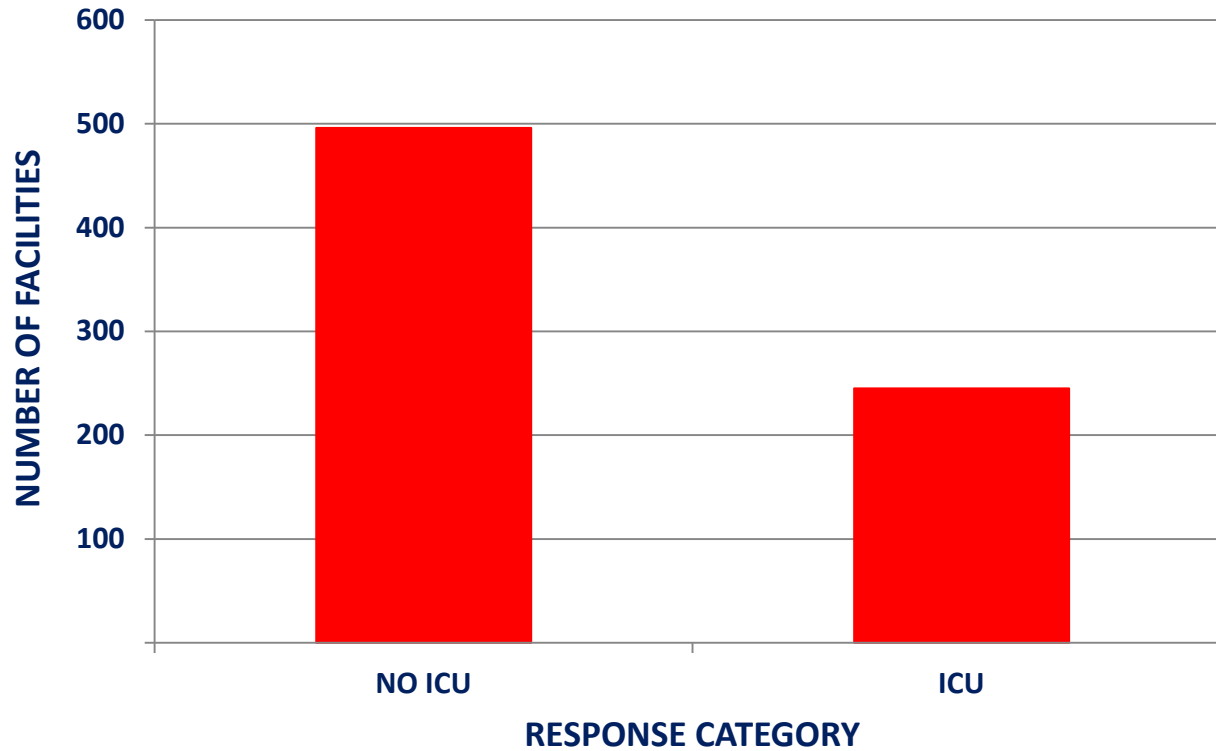
PEDIATRIC ICU	NUMBER	PERCENT
NO ICU	496	66.94
ICU	245	33.06
Total	741	100.00

This excludes three facilities with no pediatric patients (patients aged <20).



Figure 4

Facilities by Presence of Pediatric ICU



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Table
5

Facilities by Pediatric Transfer Status

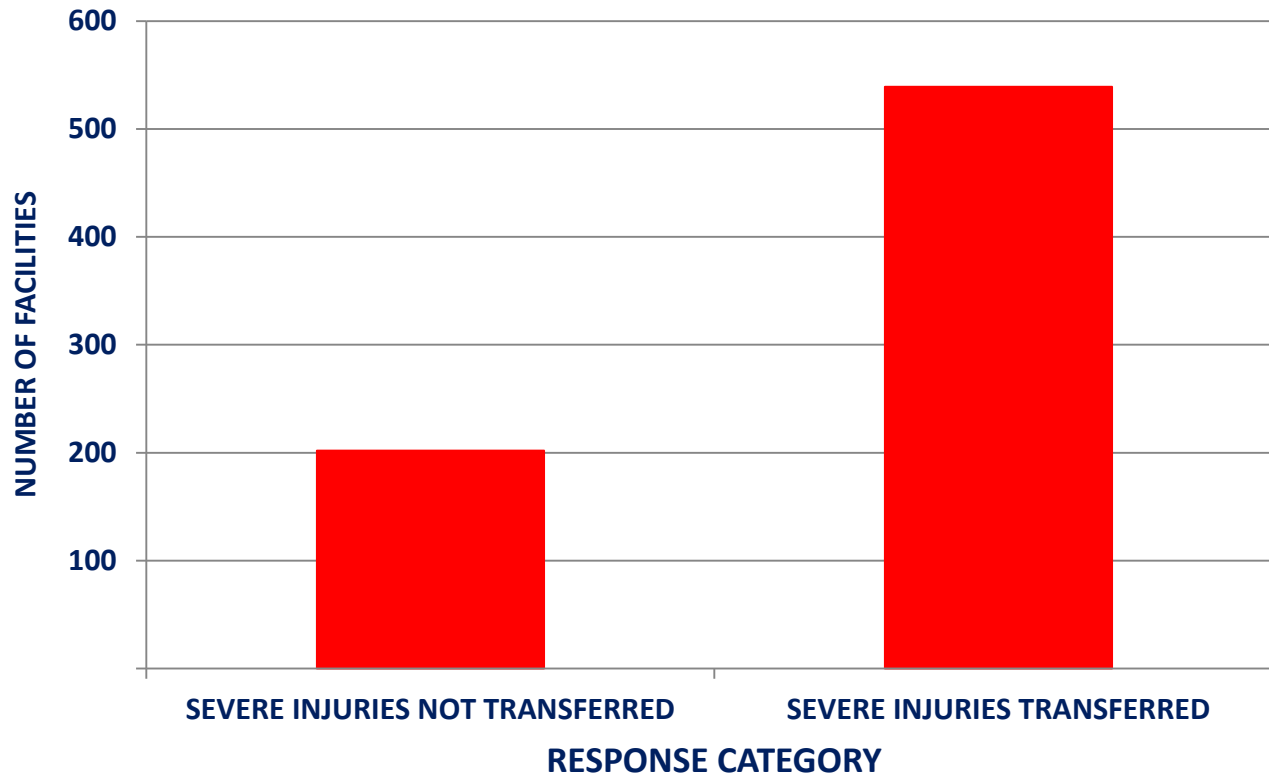
PEDIATRIC TRANSFER	NUMBER	PERCENT
SEVERE INJURIES NOT TRANSFERRED	202	27.26
SEVERE INJURIES TRANSFERRED	539	72.74
Total	741	100.00



This excludes three facilities with no pediatric patients (patients aged <20).

Figure 5

Facilities by Pediatric Transfer Status



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Table
6

Facilities by Pediatric Age Cutoff

AGE	NUMBER	PERCENT
10	1	0.13
12	15	2.02
13	13	1.75
14	140	18.89
15	137	18.49
16	97	13.09
17	128	17.27
18	116	15.65
19	3	0.40
20	3	0.40
21	36	4.86
None	52	7.02
Total	741	100.00

This excludes three facilities with no pediatric patients (patients aged <20).

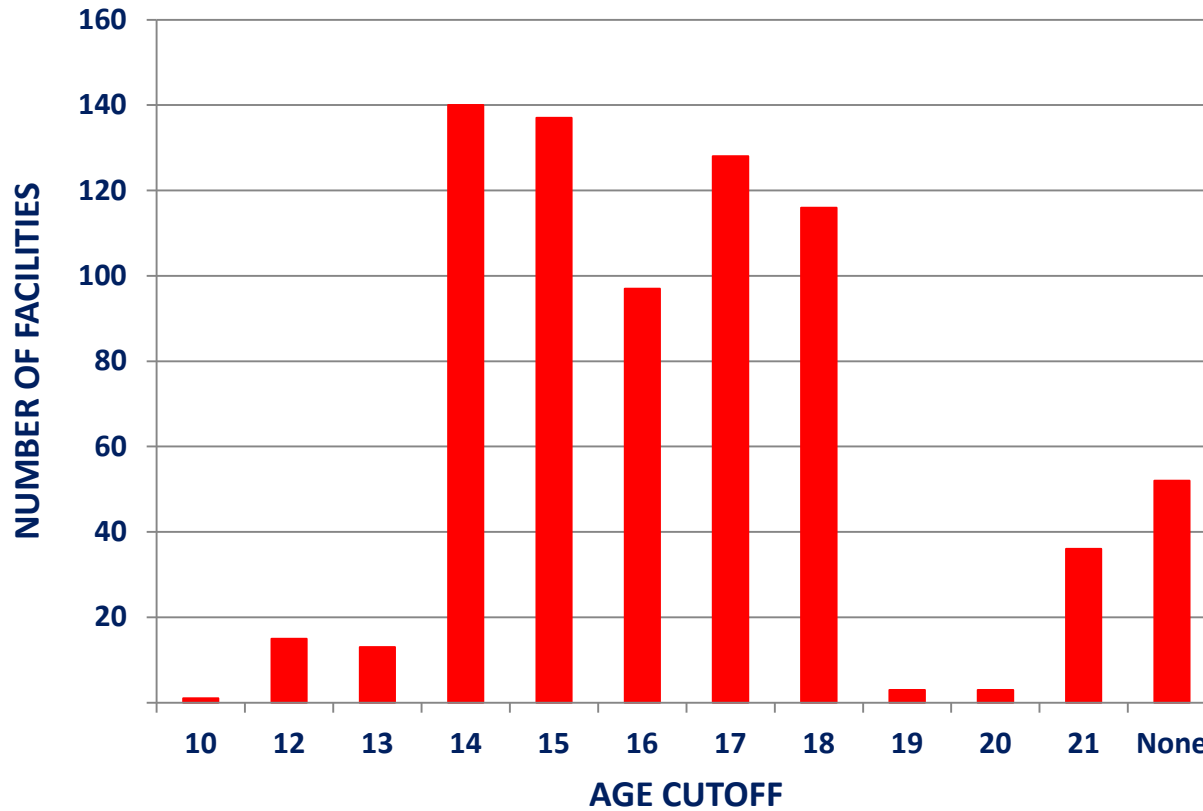


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Figure 6

Facilities by Pediatric Age Cutoff



This excludes three facilities with no pediatric patients (patients aged <20).



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DEMOGRAPHIC INFORMATION



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Table
7

Incidents and Case Fatality Rate by Age

AGE	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
<1 year	9,468	6.38	188	1.99
1	7,341	4.94	155	2.11
2	7,036	4.74	107	1.52
3	6,395	4.31	96	1.50
4	6,018	4.05	73	1.21
5	5,980	4.03	47	0.79
6	5,760	3.88	47	0.82
7	5,189	3.49	42	0.81
8	4,867	3.28	48	0.99
9	4,608	3.10	32	0.69
10	4,579	3.08	32	0.70
11	5,040	3.39	36	0.71
12	5,551	3.74	51	0.92
13	6,614	4.45	65	0.98
14	7,491	5.04	95	1.27
15	8,328	5.61	156	1.87
16	9,914	6.68	257	2.59
17	11,463	7.72	329	2.87
18	12,914	8.70	467	3.62
19	13,939	9.39	512	3.67
Total	148,495	100.00	2,835	1.91

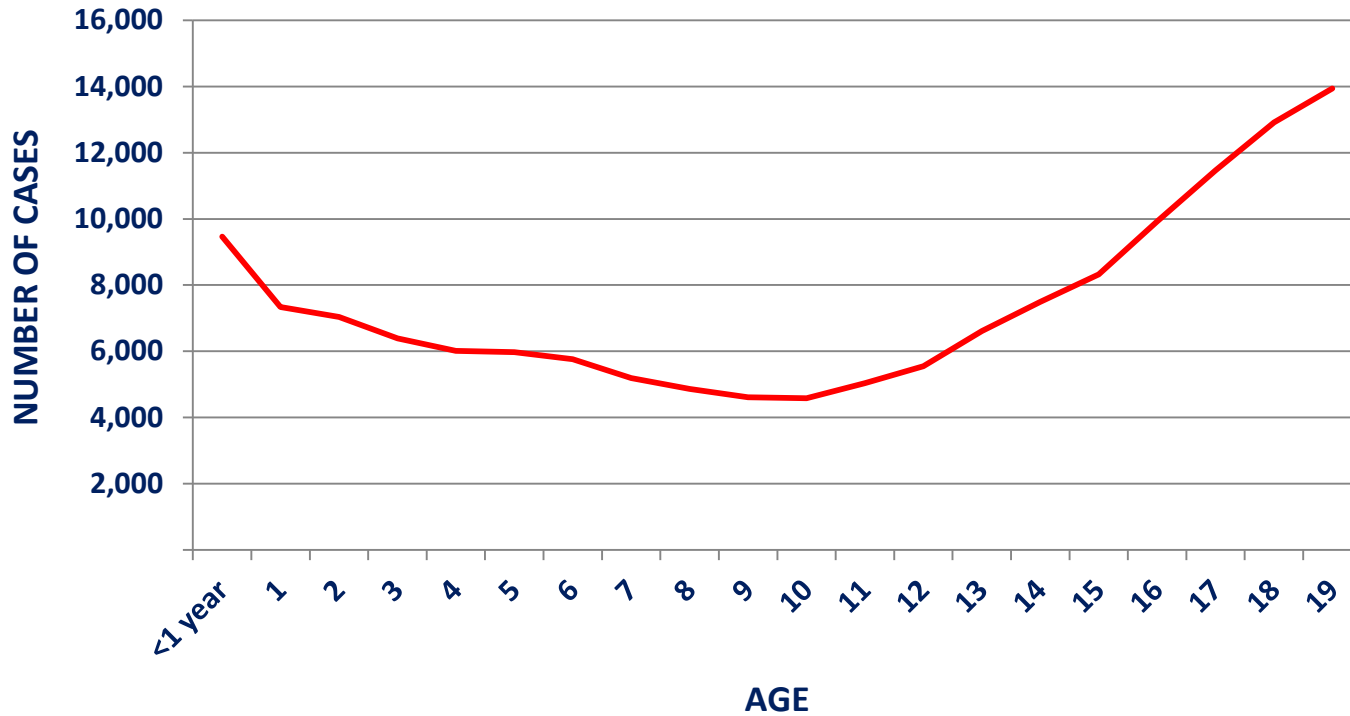


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Figure 7a

Incidents by Age

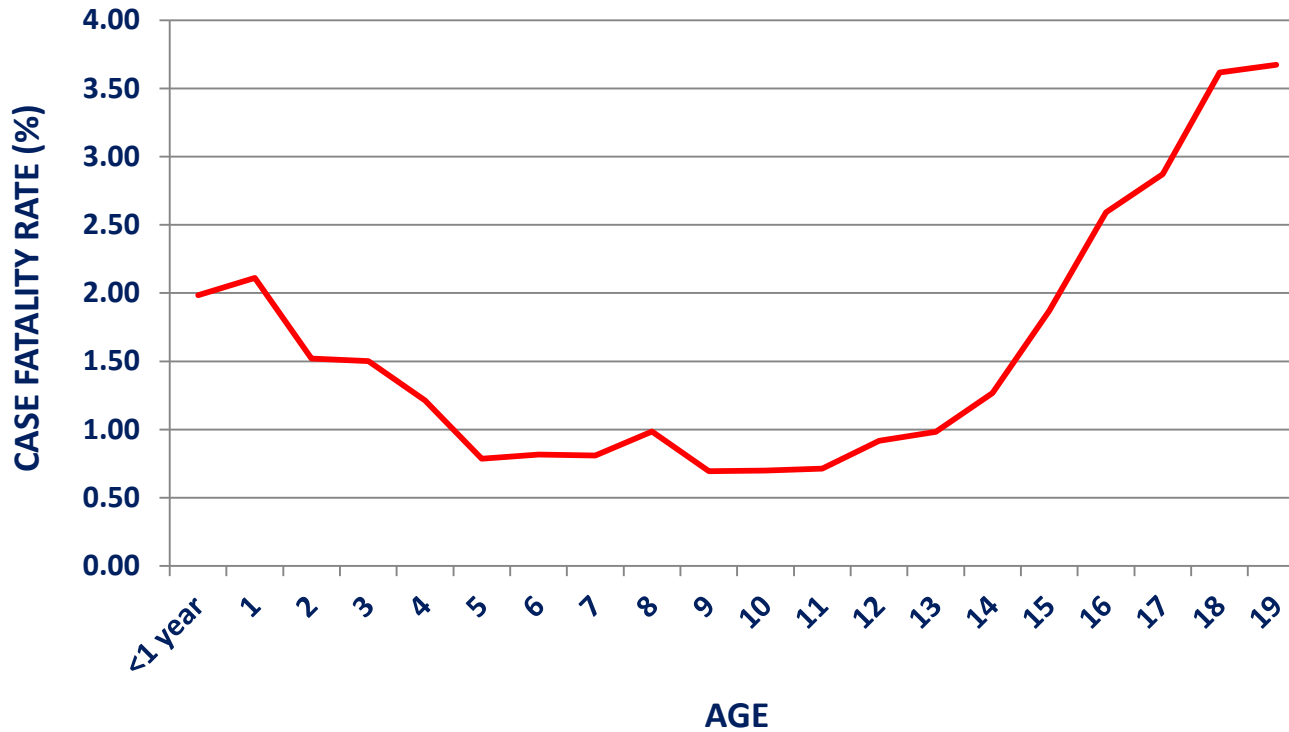


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Figure 7b

Case Fatality Rate by Age



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Table 8

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	4,118	5,342	81	107	1.97	2.00
1	3,080	4,252	76	79	2.47	1.86
2	2,824	4,207	47	60	1.66	1.43
3	2,568	3,822	42	54	1.64	1.41
4	2,480	3,530	30	43	1.21	1.22
5	2,371	3,606	19	28	0.80	0.78
6	2,329	3,431	21	26	0.90	0.76
7	1,998	3,186	17	25	0.85	0.78
8	1,858	3,007	19	29	1.02	0.96
9	1,687	2,920	16	16	0.95	0.55
10	1,563	3,012	13	19	0.83	0.63
11	1,583	3,453	11	25	0.69	0.72
12	1,541	4,003	15	36	0.97	0.90
13	1,739	4,872	21	44	1.21	0.90
14	1,926	5,560	24	70	1.25	1.26
15	2,173	6,149	44	112	2.02	1.82
16	2,857	7,047	69	188	2.42	2.67
17	3,335	8,126	88	241	2.64	2.97
18	3,629	9,281	76	391	2.09	4.21
19	3,708	10,225	74	438	2.00	4.28
Total	49,367	99,031	803	2,031	1.63	2.05

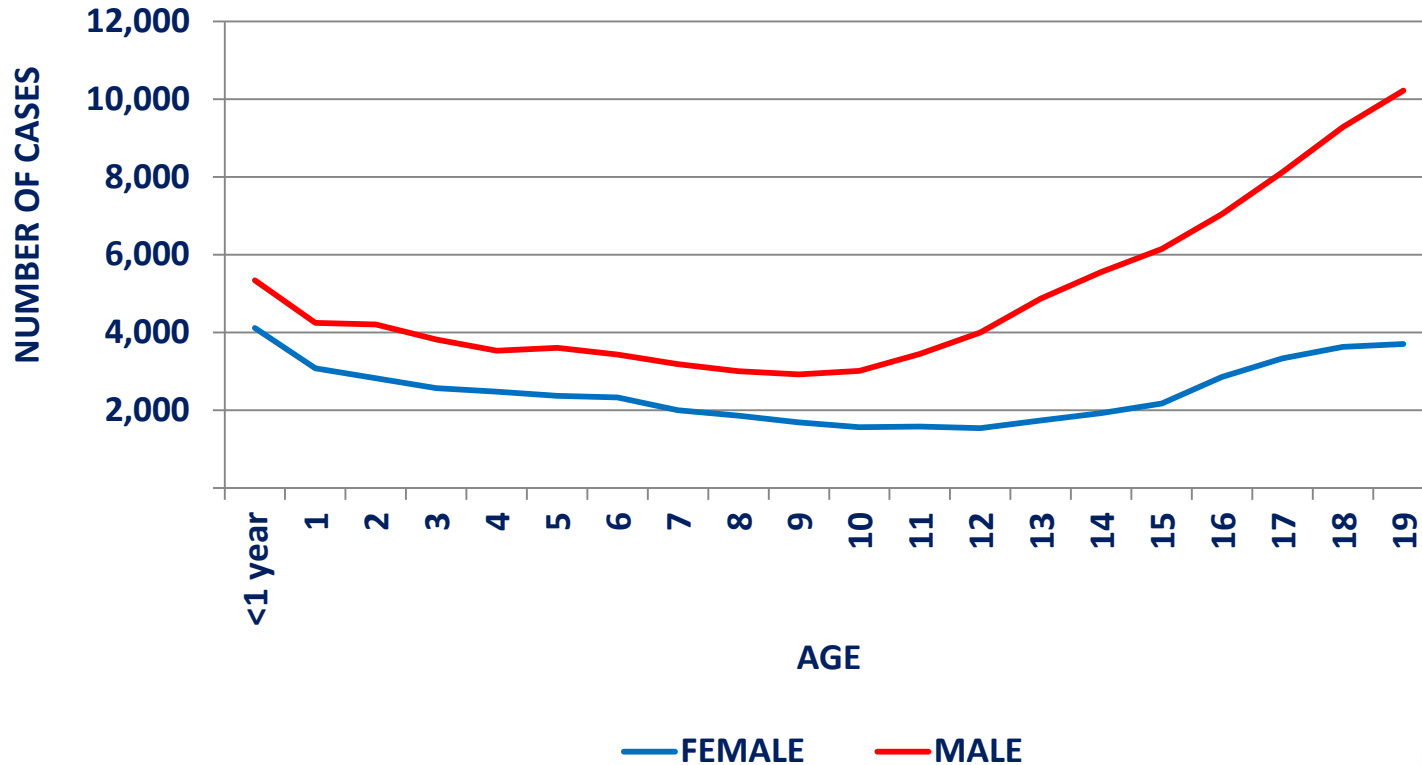


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Figure 8a

Incidents by Age and Gender

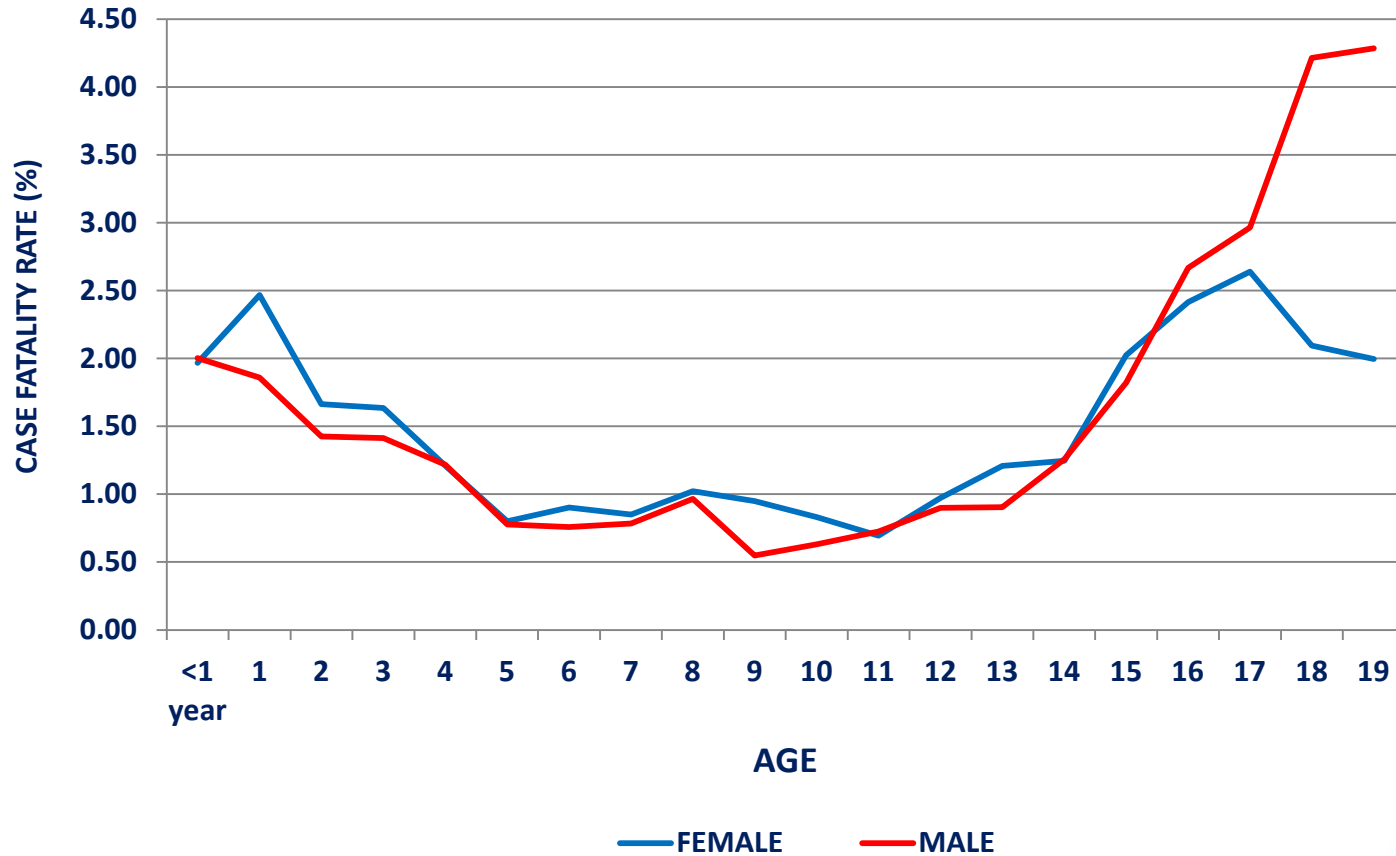


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Figure 8b

Case Fatality Rate by Age and Gender



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Table
9

Alcohol Use

ALCOHOL USE	NUMBER	PERCENT
No (confirmed by test)	24,131	16.25
No (not tested)	93,352	62.87
Yes (confirmed by test - beyond legal limit)	3,993	2.69
Yes (confirmed by test - trace levels)	3,380	2.28
Not applicable	6,236	4.20
NK/NR	17,403	11.72
Total	148,495	100.00

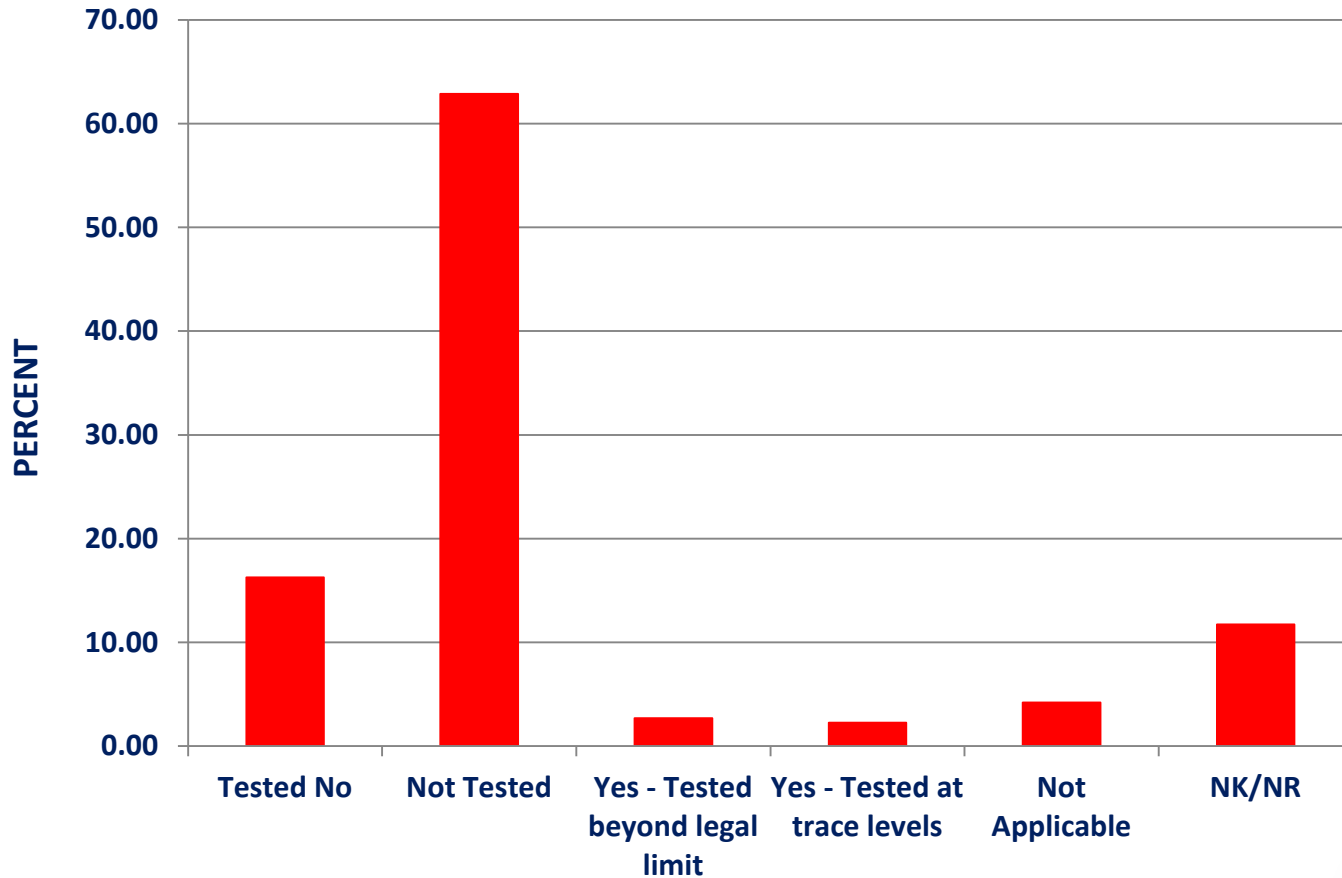


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Figure 9

Alcohol Use



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Table
10

Drug Use

DRUG USE	NUMBER	PERCENT
No (confirmed by test)	9,238	6.22
No (not tested)	87,942	59.22
Yes (confirmed by test - illegal use drug)	7,581	5.11
Yes (confirmed by test - prescription drug)	1,667	1.12
Not applicable	20,912	14.08
NK/NR	21,155	14.25
Total	148,495	100.00

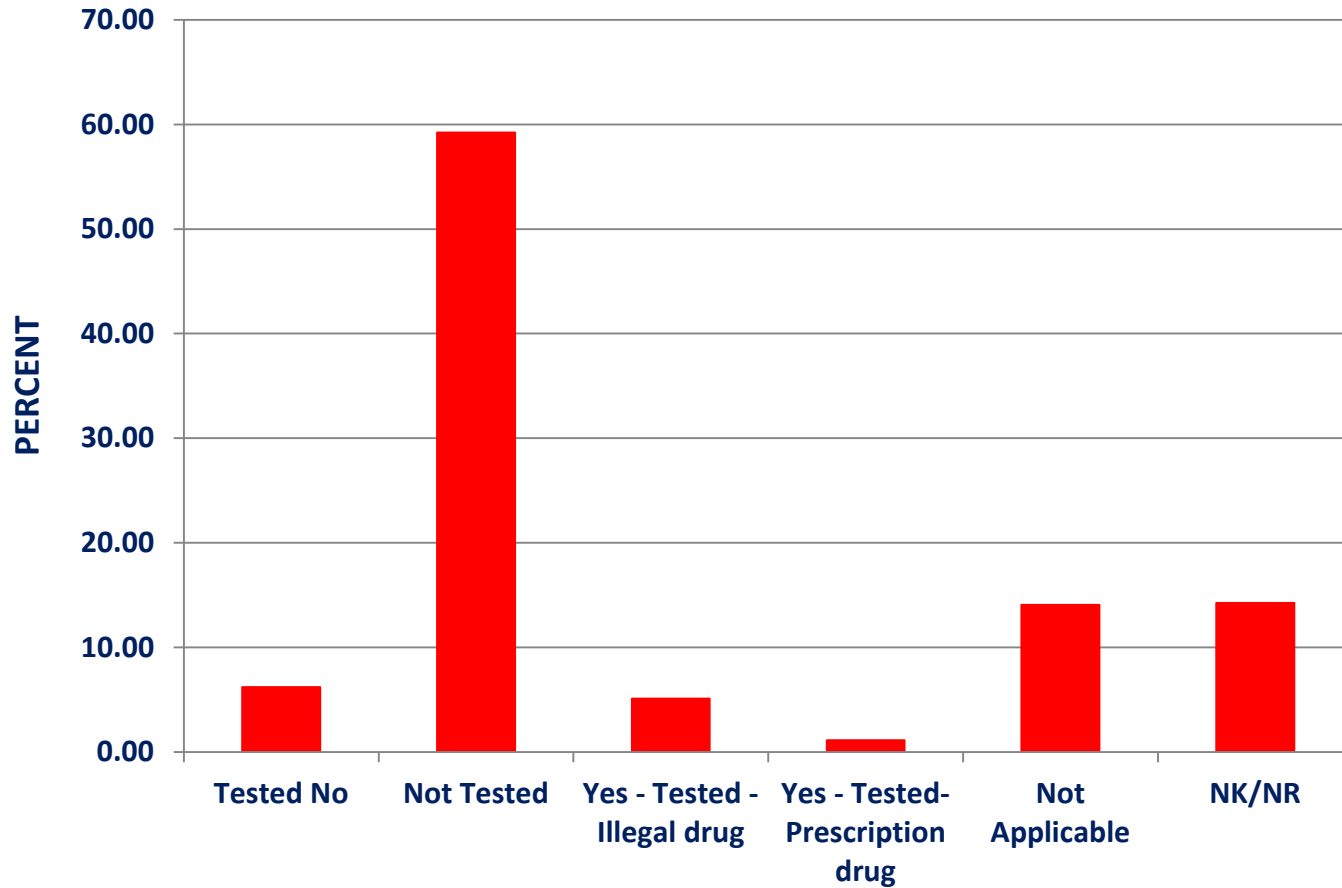


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Figure 10

Drug Use



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Table
11

Primary Payment Source

PRIMARY PAYMENT SOURCE	NUMBER	PERCENT
Medicaid	47,301	31.85
Private/Commercial Insurance	44,891	30.23
Self Pay	13,643	9.19
Blue Cross/Blue Shield	13,559	9.13
No Fault Automobile	7,139	4.81
Other	5,161	3.48
Other Government	4,037	2.72
Not Billed (for any reason)	623	0.42
Workers Compensation	506	0.34
Medicare	445	0.30
Not Applicable	1,135	0.76
NK/NR	10,055	6.77
Total	148,495	100.00

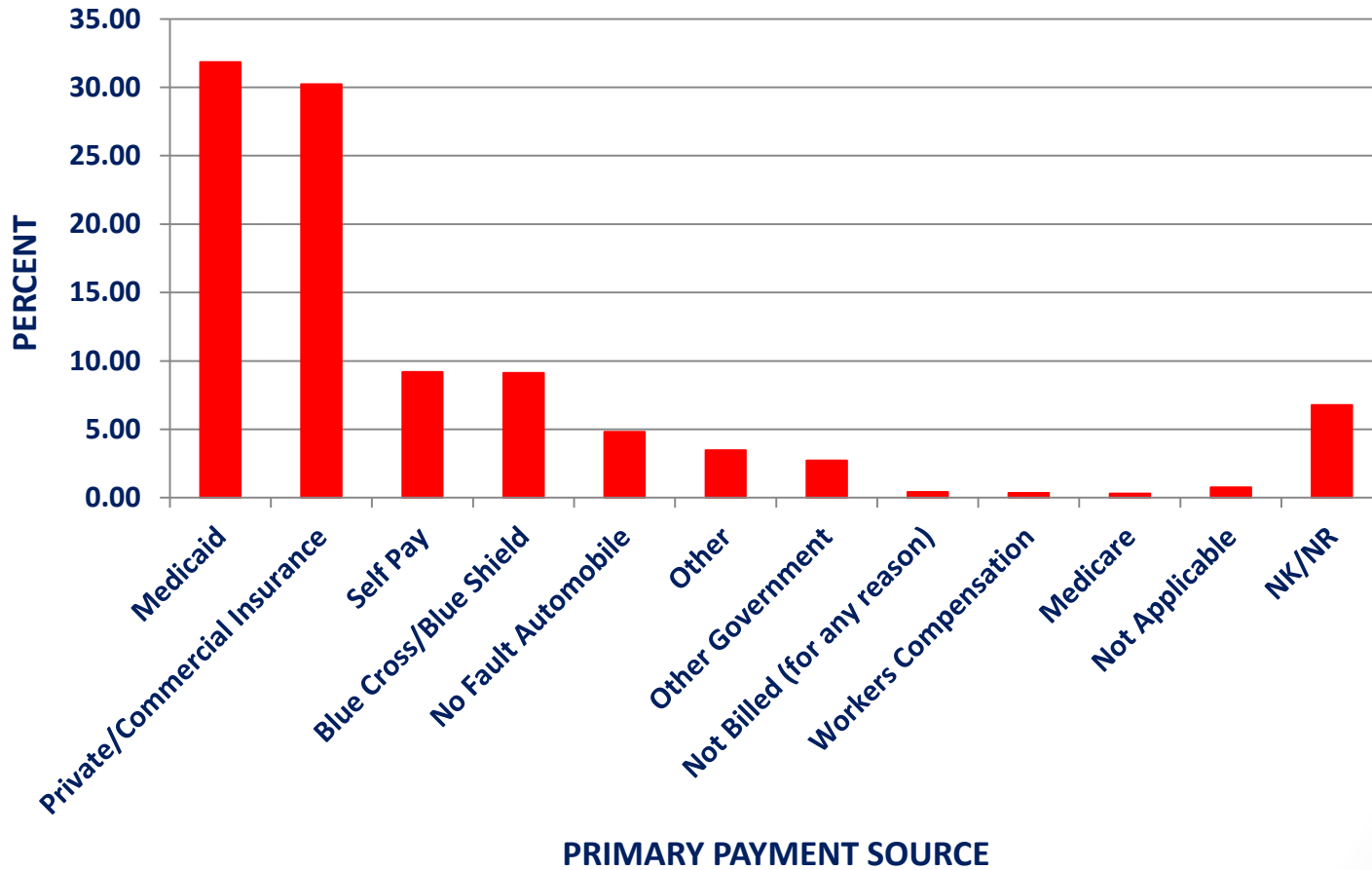


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Figure 11

Primary Payment Source



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INJURY CHARACTERISTICS



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Table 12

Incidents and Case Fatality Rate by Mechanism of Injury

MECHANISM	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Fall	47,875	32.24	147	0.31
Motor vehicle traffic	37,037	24.94	1,142	3.08
Struck by, against	16,303	10.98	80	0.49
Transport, other	10,425	7.02	125	1.20
Firearm	6,729	4.53	808	12.01
Pedal cyclist, other	5,499	3.70	14	0.25
Cut/pierce	5,290	3.56	69	1.30
Other specified and classifiable	4,964	3.34	239	4.81
Hot object/substance	4,508	3.04	1	0.02
Natural/environmental, bites and stings	2,121	1.43	3	0.14
Unspecified	1,573	1.06	35	2.23
Fire/flame	1,531	1.03	31	2.02
Other specified, not elsewhere classifiable	842	0.57	10	1.19
Pedestrian, other	790	0.53	28	3.54
Natural/environmental, other	750	0.51	10	1.33
Overexertion	715	0.48	0	0.00
Machinery	596	0.40	3	0.50
Suffocation	171	0.12	51	29.82
Drowning/submersion	155	0.10	28	18.06
Poisoning	55	0.04	1	1.82
Adverse effects, medical care	16	0.01	0	0.00
Adverse effects, drugs	15	0.01	0	0.00
NK/NR	535	0.36	10	1.87
Total	148,495	100.00	2,835	

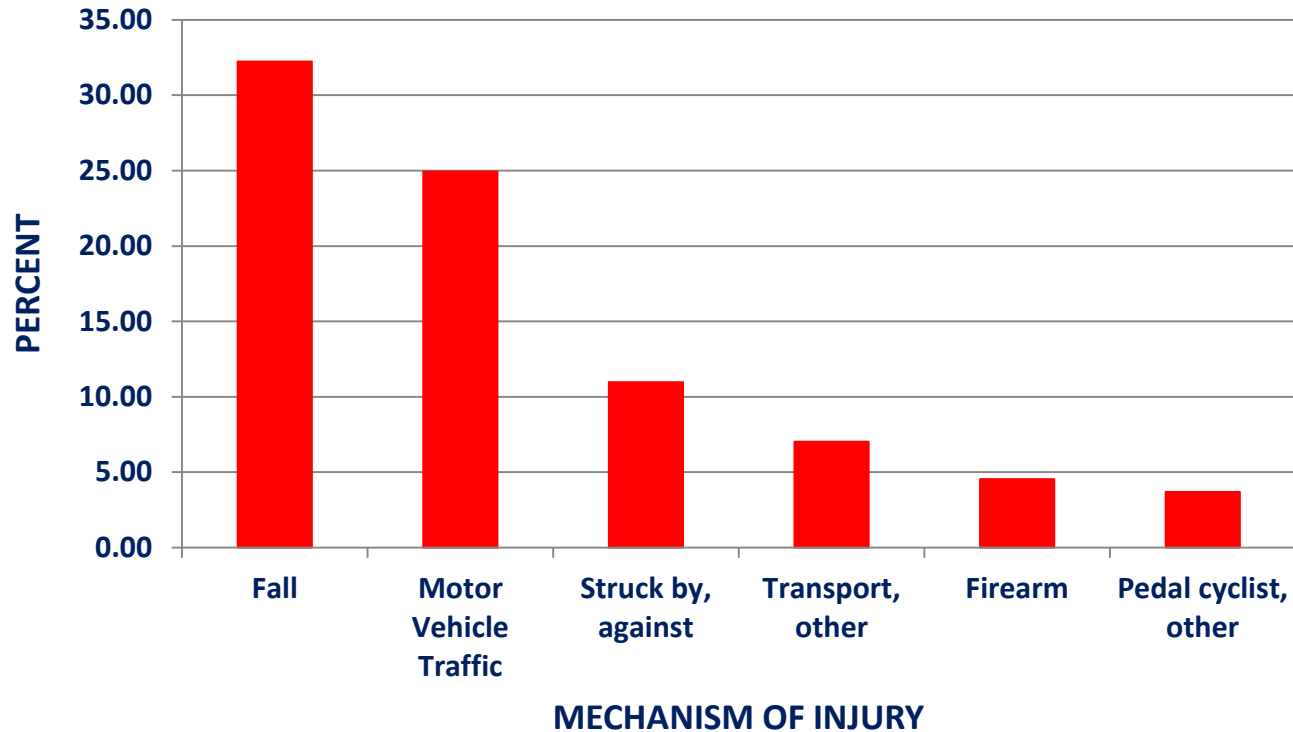


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Figure 12a

Incidents and Case Fatality Rate by Mechanism of Injury

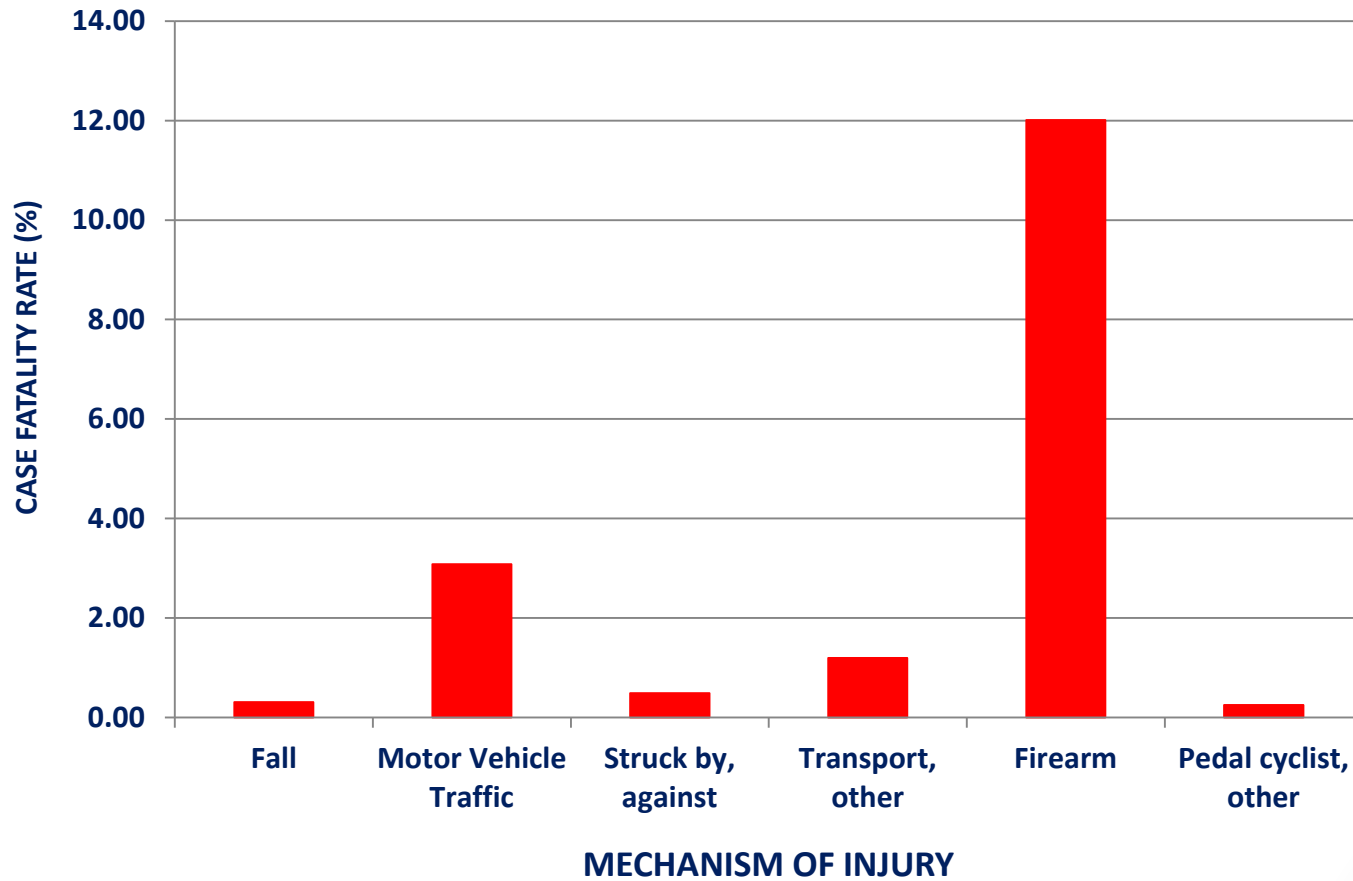


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Figure 12b

Incidents and Case Fatality Rate by Mechanism of Injury



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Table
13

Selected Mechanism of Injury by Age

AGE	FALL	MVT	STRUCK BY, AGAINST	TRANSPORT, OTHER	FIREARM	CUT/PIERCE
<1 year	5,280	454	385	33	19	38
1	3,253	620	492	62	26	104
2	3,683	821	586	94	38	135
3	3,349	934	508	172	31	105
4	3,161	893	429	221	39	123
5	3,292	939	416	248	28	103
6	3,052	911	438	303	26	104
7	2,470	977	395	280	30	70
8	2,037	969	403	358	40	116
9	1,757	972	485	362	45	95
10	1,666	875	521	449	53	96
11	1,691	1,019	684	541	47	100
12	1,703	1,113	829	662	82	133
13	1,933	1,324	1,164	868	125	133
14	1,866	1,664	1,426	960	280	223
15	1,693	2,111	1,539	1,051	528	375
16	1,525	3,763	1,528	915	794	535
17	1,525	4,671	1,547	969	1,134	662
18	1,442	5,725	1,280	933	1,658	929
19	1,497	6,282	1,248	944	1,706	1,111
Total	47,875	37,037	16,303	10,425	6,729	5,290

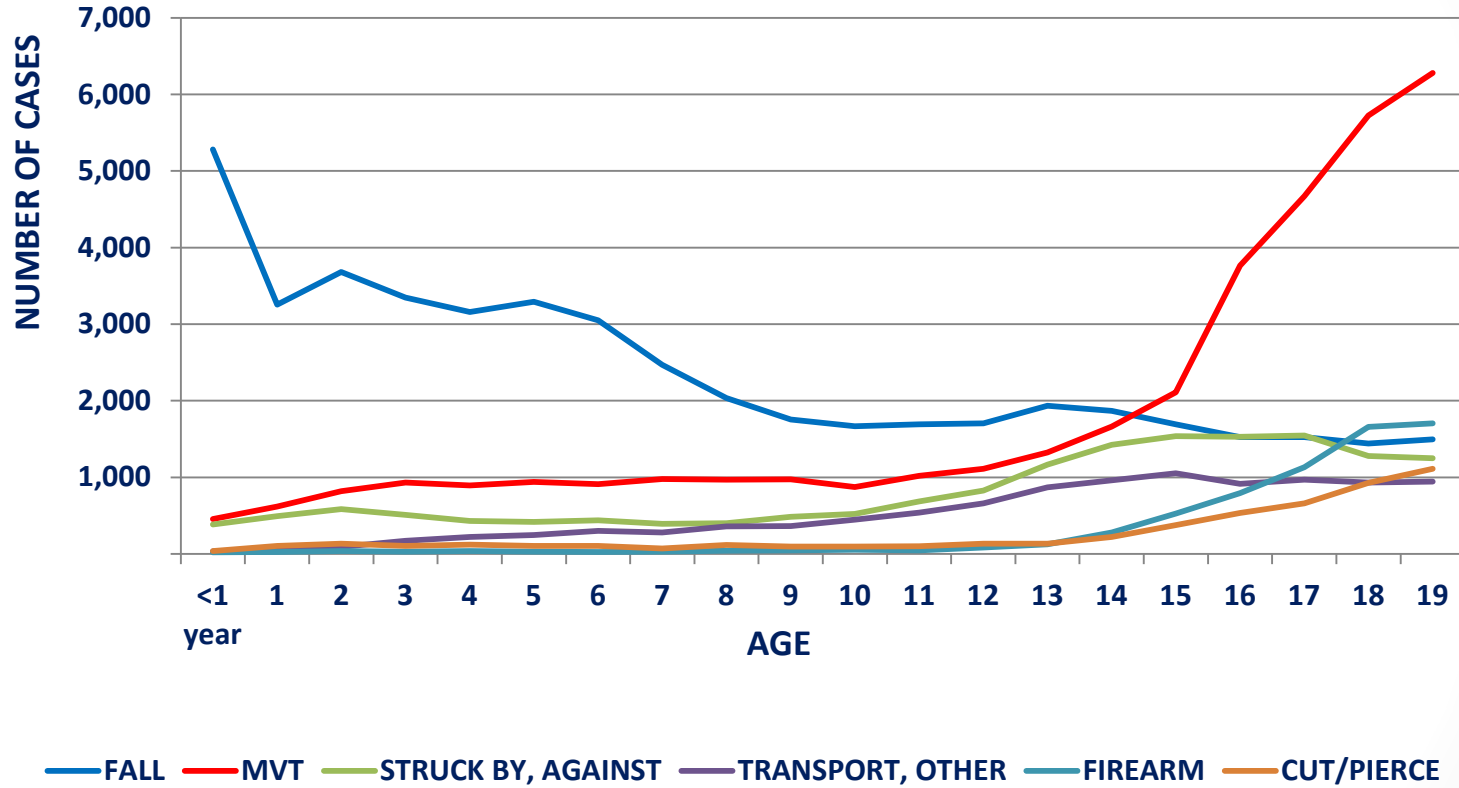


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Figure 13

Selected Mechanism of Injury by Age



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Table 14

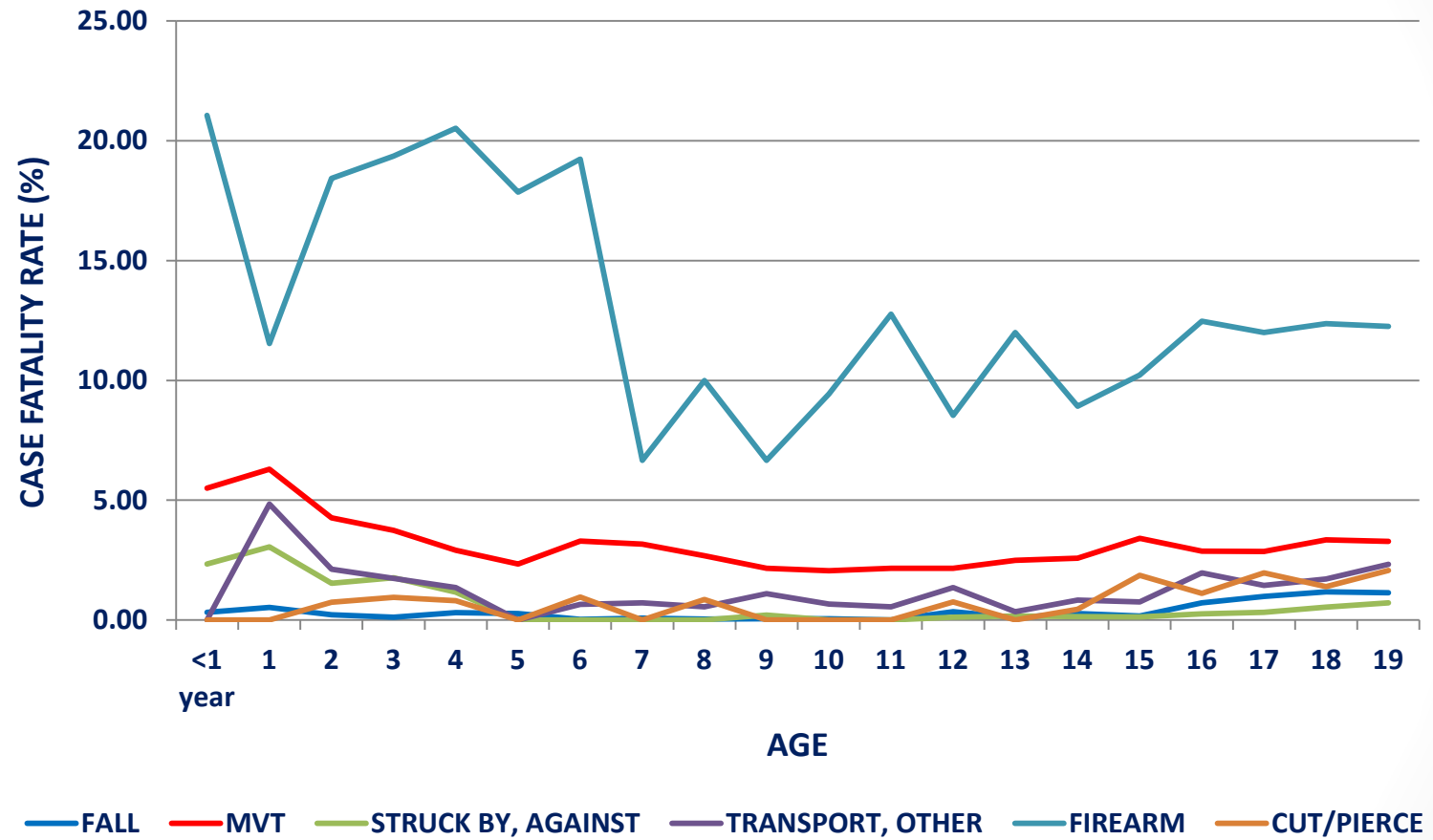
Case Fatality Rate by Mechanism of Injury and Age

AGE	FALL CASE FATALITY RATE	MVT 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	0.32	5.51	2.34	0.00	21.05	0.00
1	0.52	6.29	3.05	4.84	11.54	0.00
2	0.22	4.26	1.54	2.13	18.42	0.74
3	0.12	3.75	1.77	1.74	19.35	0.95
4	0.32	2.91	1.17	1.36	20.51	0.81
5	0.27	2.34	0.00	0.00	17.86	0.00
6	0.03	3.29	0.00	0.66	19.23	0.96
7	0.08	3.17	0.00	0.71	6.67	0.00
8	0.05	2.68	0.00	0.56	10.00	0.86
9	0.06	2.16	0.21	1.10	6.67	0.00
10	0.06	2.06	0.00	0.67	9.43	0.00
11	0.00	2.16	0.00	0.55	12.77	0.00
12	0.35	2.16	0.12	1.36	8.54	0.75
13	0.10	2.49	0.17	0.35	12.00	0.00
14	0.27	2.58	0.14	0.83	8.93	0.45
15	0.18	3.41	0.13	0.76	10.23	1.87
16	0.72	2.87	0.26	1.97	12.47	1.12
17	0.98	2.87	0.32	1.44	11.99	1.96
18	1.18	3.35	0.55	1.71	12.36	1.40
19	1.14	3.28	0.72	2.33	12.25	2.07



Figure 14

Case Fatality Rate by Mechanism of Injury and Age



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Table
15

Incidents and Case Fatality Rate by Mechanism of Injury and Gender

MECHANISM	PERCENT (FEMALE)	PERCENT (MALE)	CASE FATALITY RATE (FEMALE)	CASE FATALITY RATE (MALE)
Fall	35.21	30.76	0.21	0.36
Motor vehicle traffic	30.76	22.06	2.93	3.19
Struck by, against	6.94	13.00	0.61	0.46
Transport, other	6.85	7.10	0.89	1.35
Hot object/substance	3.97	2.56	0.05	.
Other specified and classifiable	3.52	3.26	5.24	4.59
Pedal cyclist, other	2.31	4.40	0.09	0.28
Cut/pierce	2.21	4.24	0.83	1.43
Natural/environmental, bites and stings	1.90	1.20	0.11	0.17
Firearm	1.60	6.00	11.15	12.13
Unspecified	1.08	1.05	3.20	1.73
Fire/flame	0.84	1.12	2.40	1.89
Natural/environmental, other	0.65	0.43	2.17	0.71
Pedestrian, other	0.56	0.52	4.01	3.30
Other specified, not elsewhere classifiable	0.45	0.62	0.89	1.30
Overexertion	0.41	0.52	0.00	.
NK/NR	0.31	0.38	3.29	1.33
Machinery	0.18	0.51	0.00	0.59
Suffocation	0.11	0.12	26.79	31.30
Drowning/submersion	0.11	0.10	22.64	15.69
Poisoning	0.03	0.04	0.00	2.44
Adverse effects, drugs	0.01	0.01	0.00	.
Adverse effects, medical care	0.01	0.01	0.00	.
Total	100.00	100.00	.	.



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Figure 15a Incidents and Case Fatality Rate by Mechanism of Injury and Gender

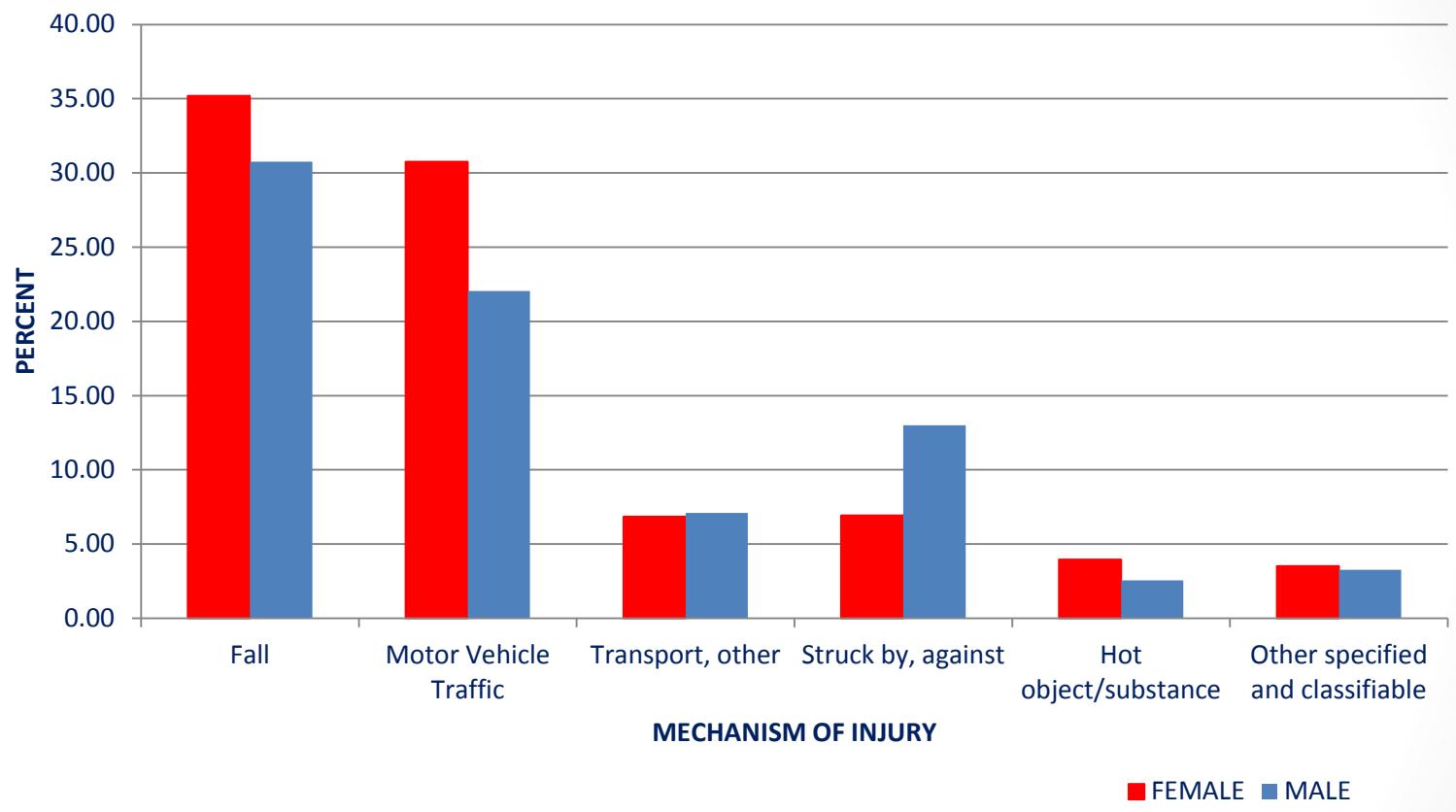


Figure 15b Incidents and Case Fatality Rate by Mechanism of Injury and Gender

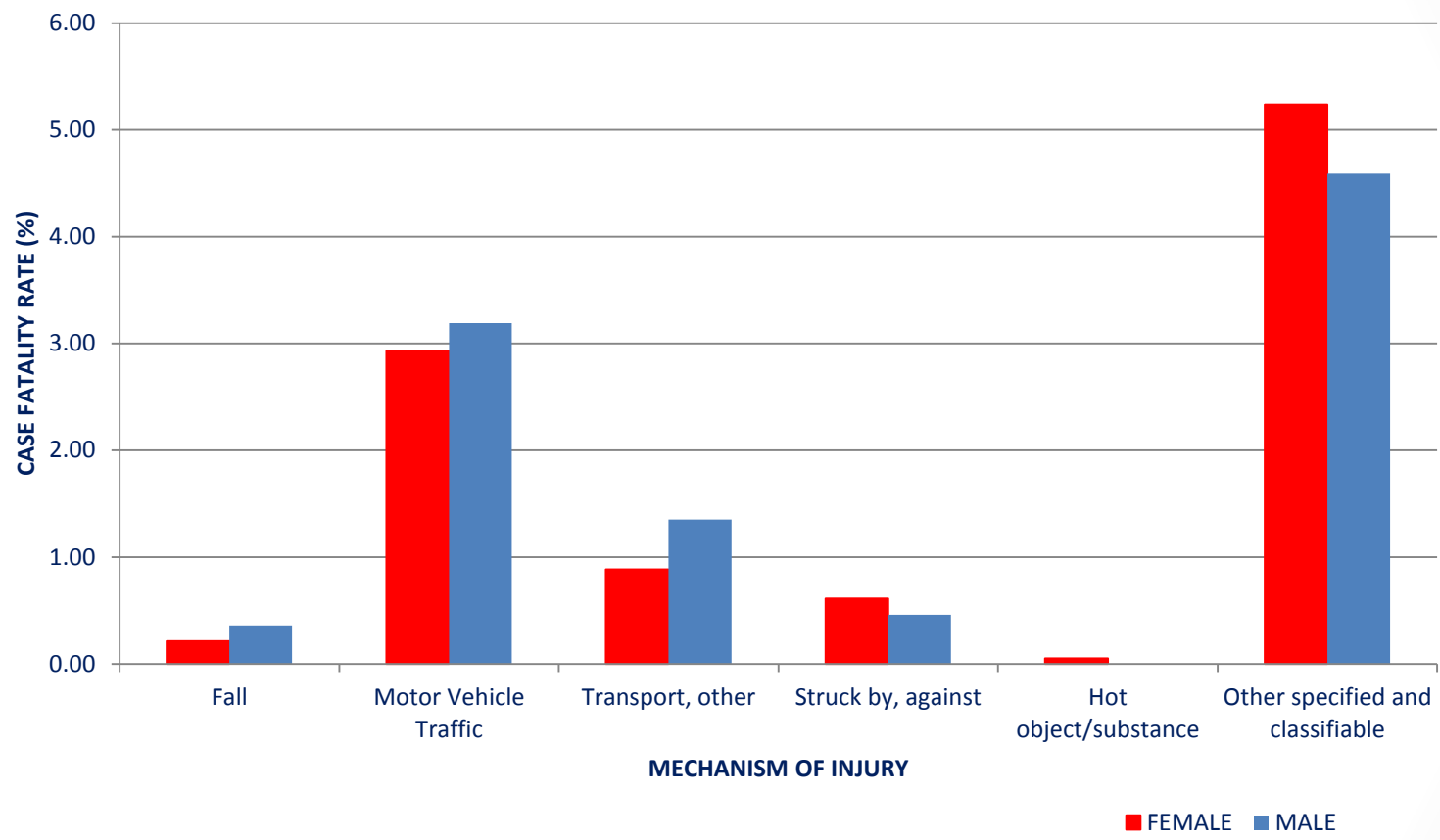


Table 16

Incidents by Comparative Injury Severity Scores

ISS	LOCAL ISS		AIS SUBMITTED		AIS 98 CROSSWALKED		AIS ICDMAP-90	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1-8	87,879	59.18	86,369	58.16	85,582	57.63	92,856	62.53
9-15	36,097	24.31	35,130	23.66	35,347	23.80	23,409	15.76
16-24	11,869	7.99	11,407	7.68	15,383	10.36	16,174	10.89
>24	7,531	5.07	7,005	4.72	8,708	5.86	6,126	4.13
NK/NR	5,119	3.45	8,584	5.78	3,475	2.34	9,930	6.69
Total	148,495	100.00	148,495	100.00	148,495	100.00	148,495	100.00



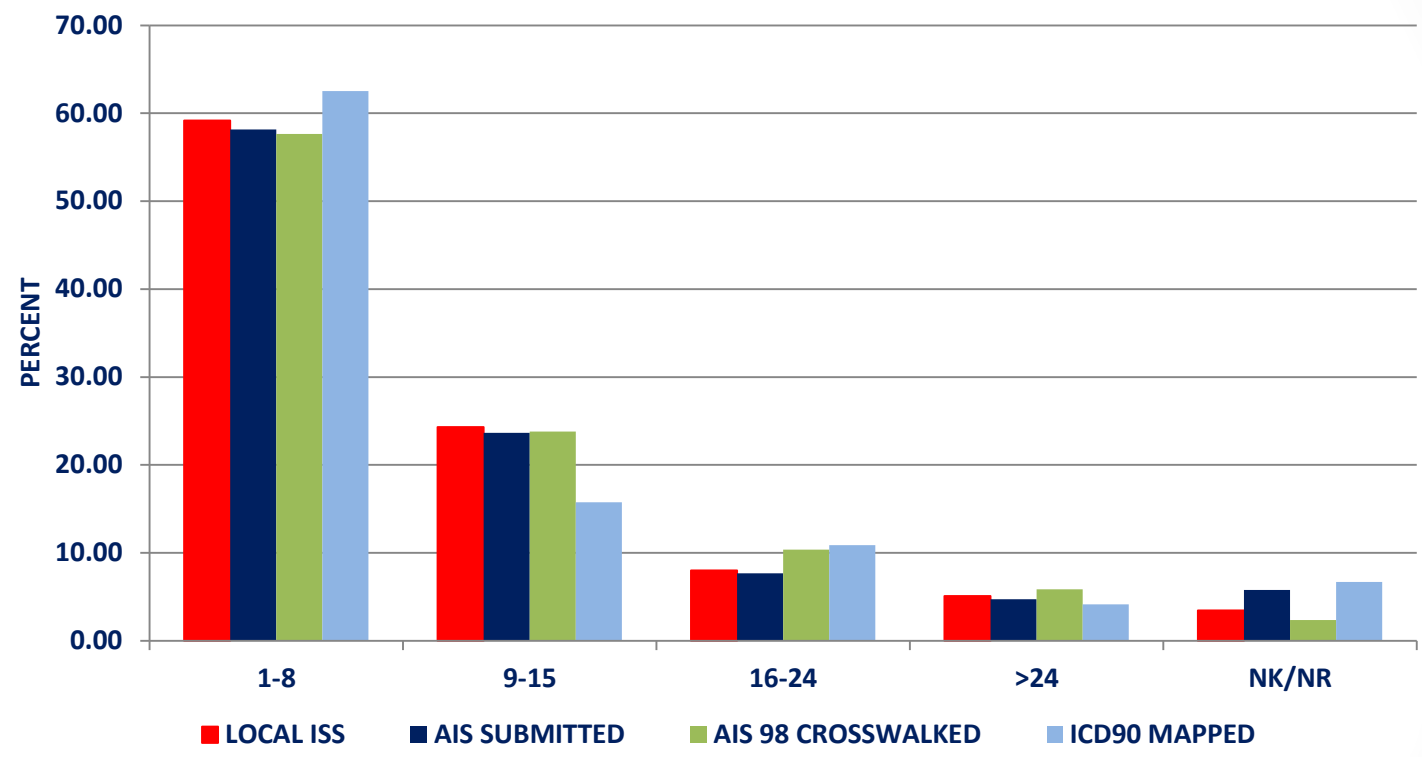
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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Comparative Injury Severity Score definitions can be found in Appendix B.

Figure 16

Incidents by Comparative Injury Severity Scores



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Comparative Injury Severity Score definitions can be found in Appendix B.

Table
17

Incidents and Case Fatality Rate by Injury Severity Score

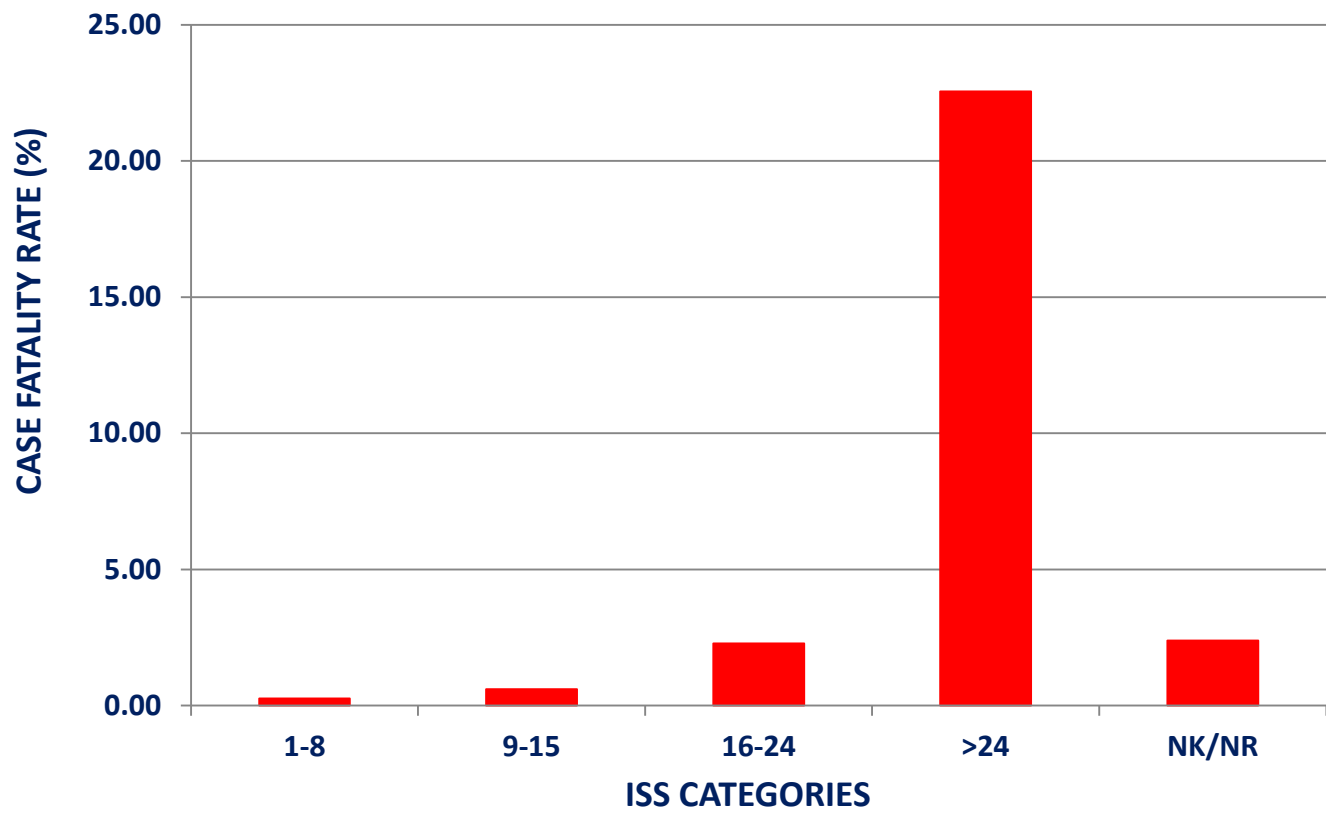
ISS	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
1-8	85,582	57.63	224	0.26
9-15	35,347	23.80	212	0.60
16-24	15,383	10.36	352	2.29
>24	8,708	5.86	1,964	22.55
NK/NR	3,475	2.34	83	2.39
Total	148,495	100.00	2,835	



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 17

Incidents and Case Fatality Rate by Injury Severity Score



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Table 18

Incidents by Injury Severity Score and Age

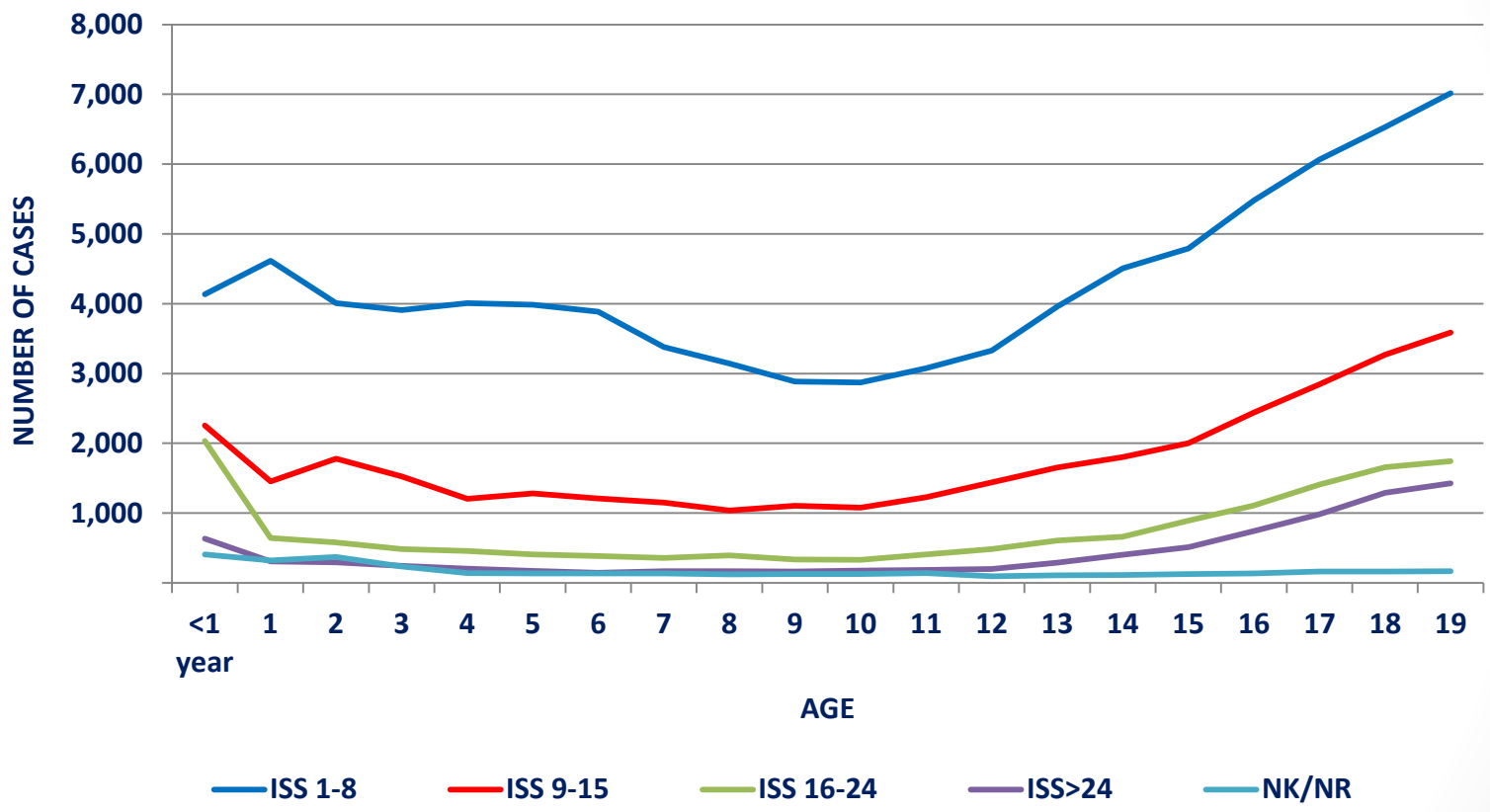
	ISS 1–8	ISS 9–15	ISS 16–24	ISS >24	ISS NK/NR	Total
<1 year	4,137	2,255	2,034	634	408	9,468
1	4,616	1,455	641	306	323	7,341
2	4,010	1,780	579	294	373	7,036
3	3,907	1,526	483	243	236	6,395
4	4,010	1,206	457	206	139	6,018
5	3,984	1,282	409	170	135	5,980
6	3,885	1,208	383	147	137	5,760
7	3,378	1,149	359	166	137	5,189
8	3,145	1,038	395	168	121	4,867
9	2,883	1,103	334	162	126	4,608
10	2,873	1,076	330	175	125	4,579
11	3,077	1,228	409	184	142	5,040
12	3,330	1,439	486	200	96	5,551
13	3,957	1,652	609	289	107	6,614
14	4,508	1,804	662	404	113	7,491
15	4,790	2,003	893	513	129	8,328
16	5,481	2,442	1,110	745	136	9,914
17	6,065	2,843	1,410	984	161	11,463
18	6,529	3,272	1,658	1,290	165	12,914
19	7,017	3,586	1,742	1,428	166	13,939
Total	85,582	35,347	15,383	8,708	3,475	148,495



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 18

Incidents by Injury Severity Score and Age



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98 then ISS is based on AIS derived from ICDMAP-90.

Table
19

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 9-15 CASE FATALITY RATE	ISS 16-24 DEATHS	ISS 16-24 CASE FATALITY RATE	ISS >24 DEATHS	ISS >24 CASE FATALITY RATE	ISS NK/NR DEATHS	ISS NK/NR CASE FATALITY RATE
<1 year	13	0.31	14	0.62	30	1.47	127	20.03	127	0.98
1	8	0.17	5	0.34	22	3.43	110	35.95	110	3.10
2	5	0.12	5	0.28	14	2.42	81	27.55	81	0.54
3	6	0.15	6	0.39	9	1.86	71	29.22	71	1.69
4	4	0.10	3	0.25	14	3.06	47	22.82	47	3.60
5	6	0.15	4	0.31	5	1.22	32	18.82	32	0.00
6	5	0.13	5	0.41	7	1.83	29	19.73	29	0.73
7	4	0.12	2	0.17	3	0.84	31	18.67	31	1.46
8	5	0.16	3	0.29	5	1.27	33	19.64	33	1.65
9	2	0.07	3	0.27	2	0.60	23	14.20	23	1.59
10	3	0.10	3	0.28	4	1.21	22	12.57	22	0.00
11	2	0.06	1	0.08	3	0.73	29	15.76	29	0.70
12	5	0.15	7	0.49	6	1.23	31	15.50	31	2.08
13	5	0.13	7	0.42	6	0.99	44	15.22	44	2.80
14	6	0.13	6	0.33	7	1.06	75	18.56	75	0.88
15	9	0.19	8	0.40	21	2.35	110	21.44	110	6.20
16	21	0.38	20	0.82	26	2.34	183	24.56	183	5.15
17	31	0.51	24	0.84	37	2.62	229	23.27	229	4.97
18	42	0.64	33	1.01	52	3.14	326	25.27	326	8.48
19	42	0.60	53	1.48	79	4.54	331	23.18	331	4.22
Total	224		212		352		1,964		1,964	



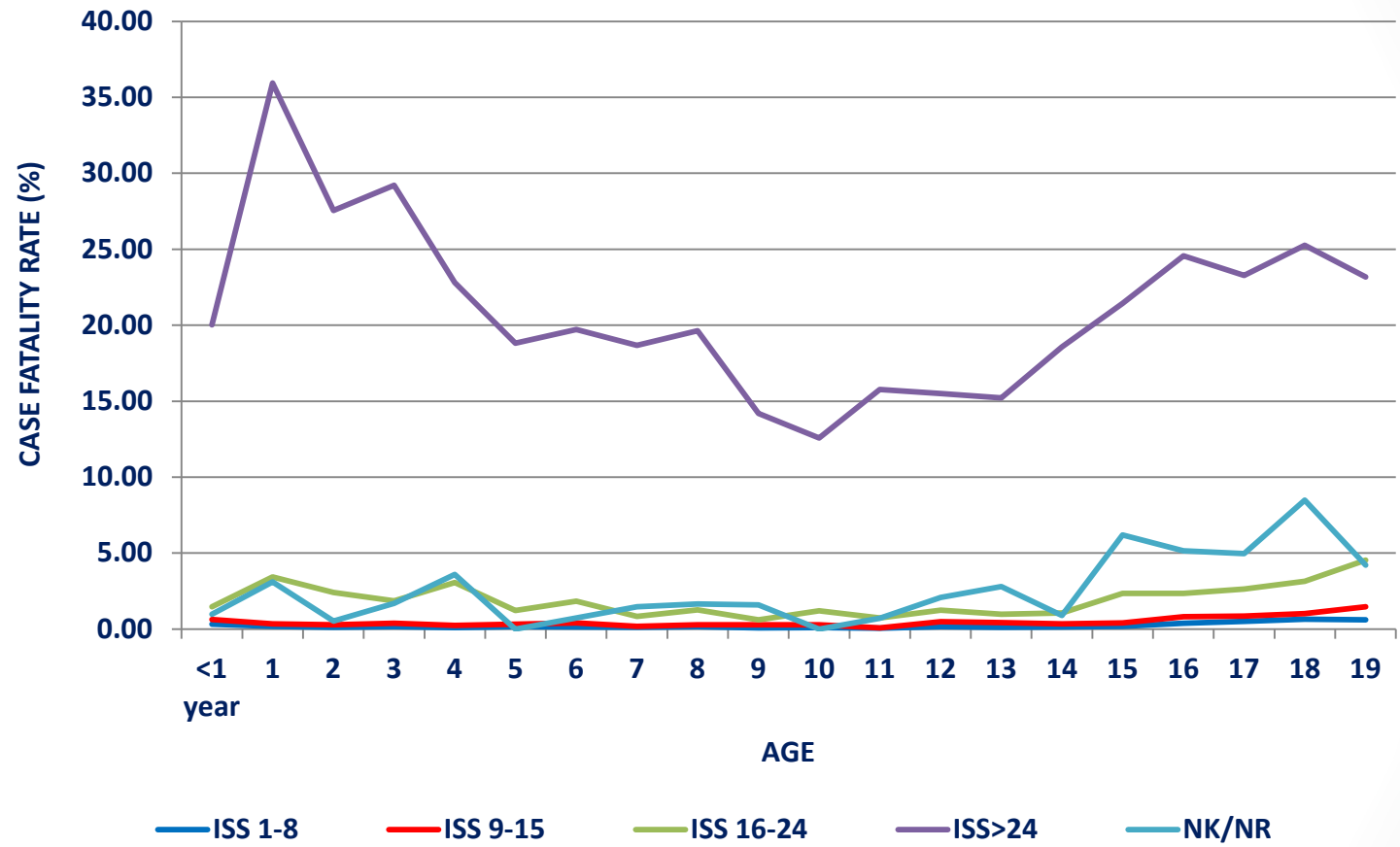
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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98 then ISS is based on AIS derived from ICDMAP-90.

Figure 19

Case Fatality Rate by Injury Severity Score and Age



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98 then ISS is based on AIS derived from ICDMAP-90.

Table
20

Incidents and Case Fatality Rate by Work-Related Injuries

WORK-RELATED	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
No	127,632	85.95	2,426	1.90
Yes	790	0.53	7	0.89
Not Applicable	10,851	7.31	221	2.04
NK/NR	9,222	6.21	181	1.96
Total	148,495	100.00	2,835	

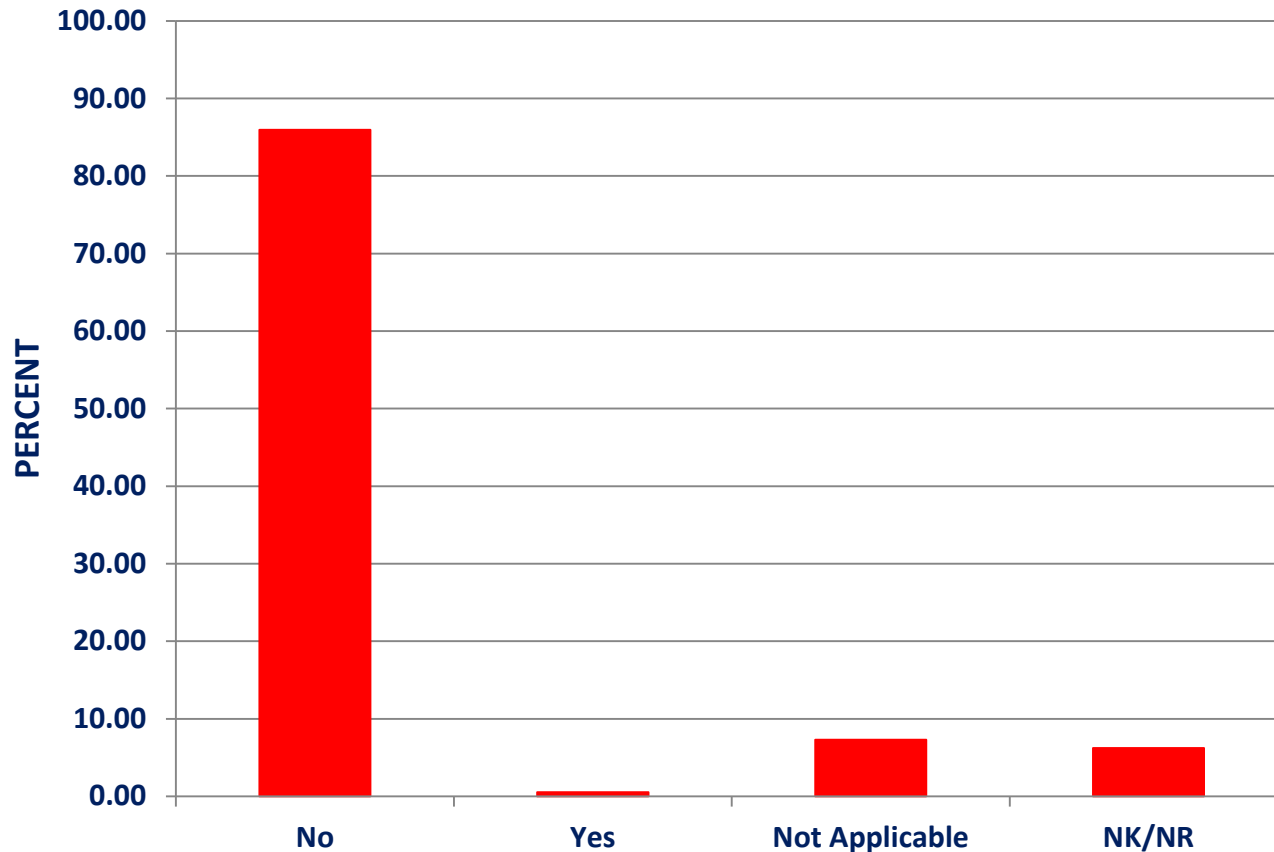


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Figure 20a

Incidents by Work-Related Injuries

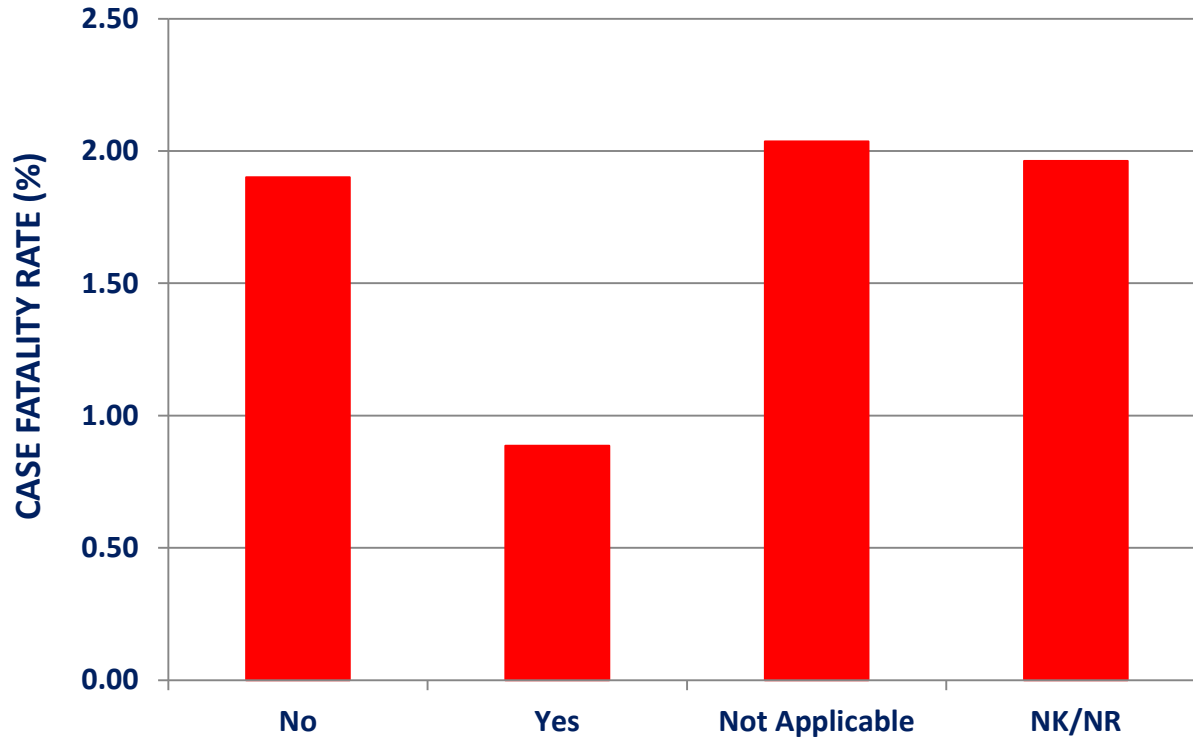


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Figure 20b

Case Fatality Rate by Work-Related Injuries



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Table
21

Incidents and Case Fatality Rate by Intent

INTENT	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Unintentional	131,105	88.29	1,682	1.28
Assault	14,457	9.74	910	6.29
Self-Inflicted	1,232	0.83	167	13.56
Undetermined	1,023	0.69	60	5.87
Other	143	0.10	6	4.20
NK/NR	535	0.36	10	1.87
Total	148,495	100.00	2,835	

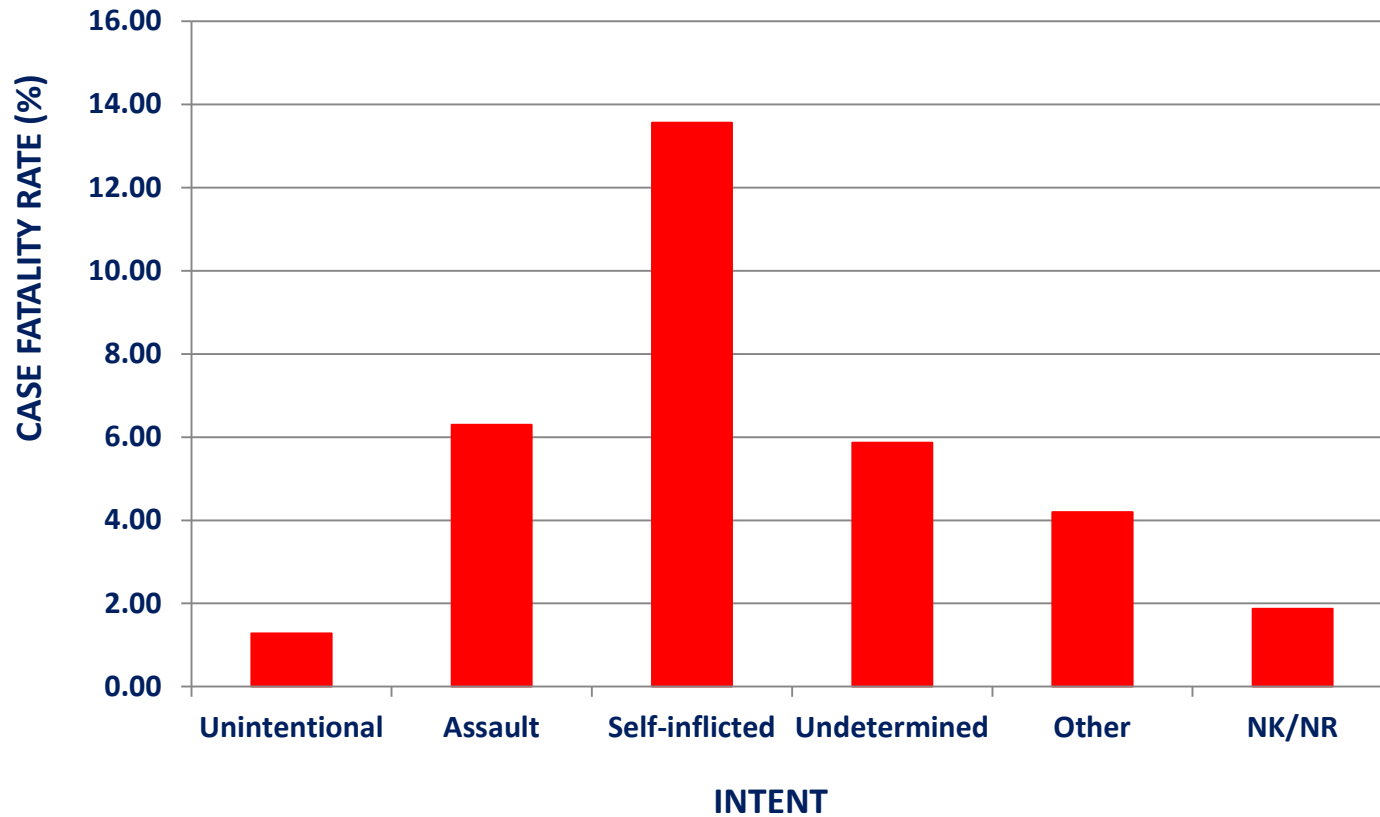


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Figure 21

Case Fatality Rate by Intent



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Table 22

Incidents and Case Fatality Rate by Location E-Code

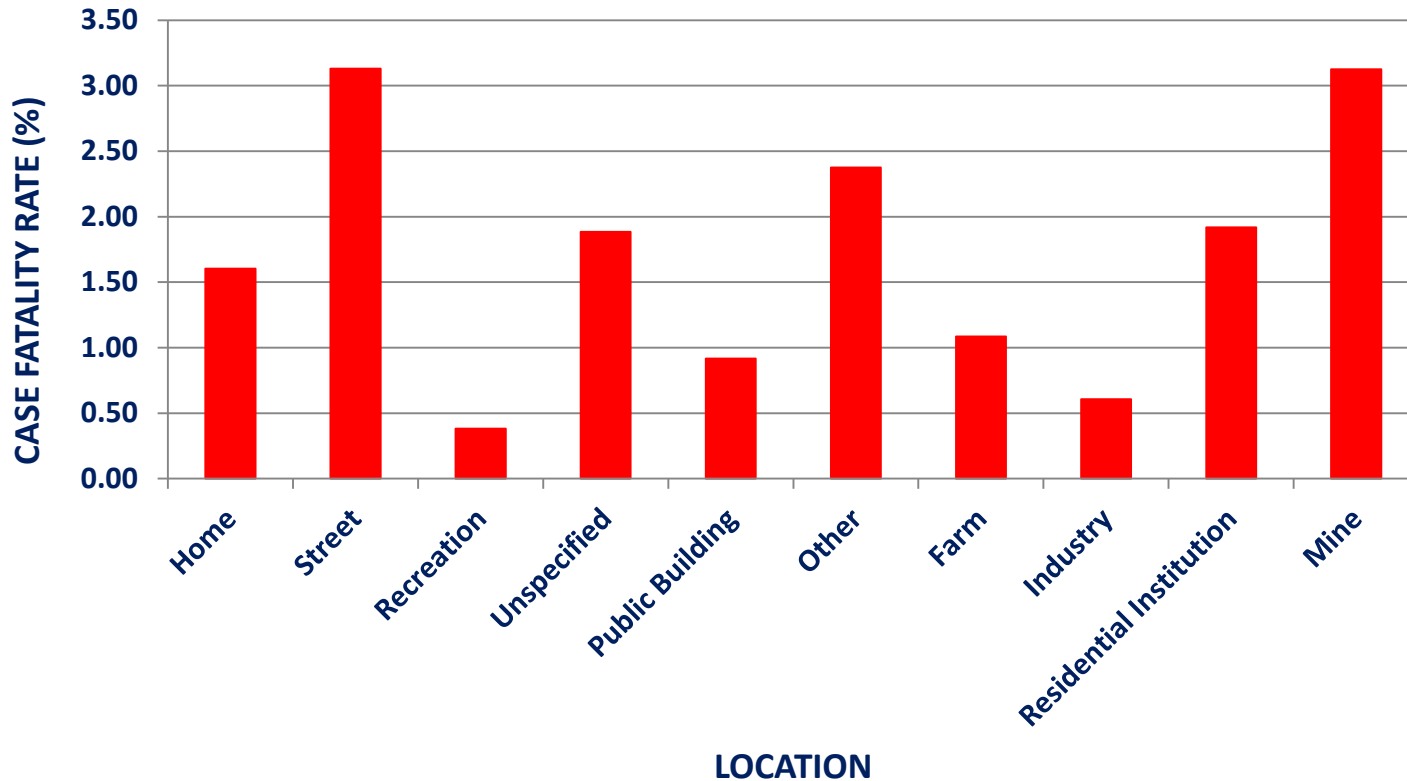
LOCATION E-CODE DESCRIPTION	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Home	48,553	32.70	779	1.60
Street	45,471	30.62	1,423	3.13
Recreation	22,578	15.20	86	0.38
Unspecified	10,564	7.11	199	1.88
Public Building	8,734	5.88	80	0.92
Other	6,401	4.31	152	2.37
Farm	922	0.62	10	1.08
Industry	494	0.33	3	0.61
Residential Institution	469	0.32	9	1.92
Mine	32	0.02	1	3.13
Not Applicable	87	0.06	.	.
NK/NR	4,190	2.82	93	2.22
Total	148,495	100.00	2,835	



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 22

Case Fatality Rate by Location E-Code



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Table
23

Incidents by AIS Body Region

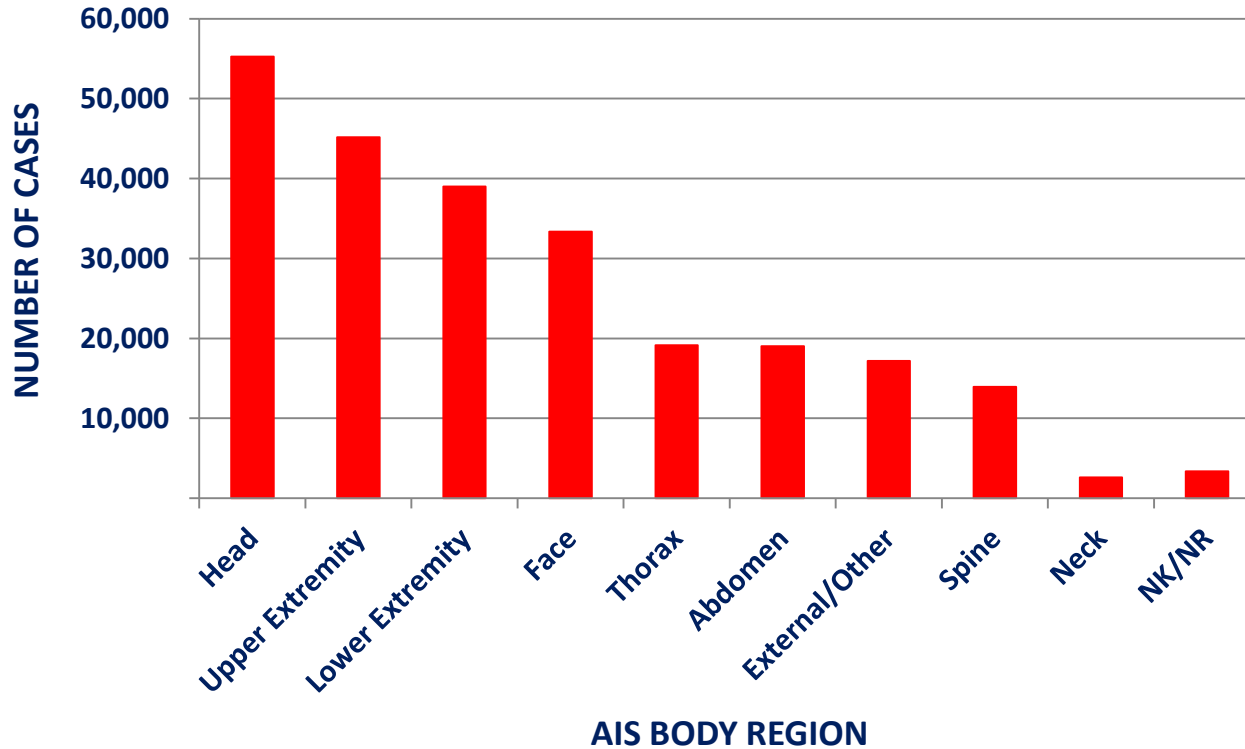
AIS BODY REGION	NUMBER	PERCENT
Head	55,253	37.21
Upper Extremity	45,185	30.43
Lower Extremity	39,017	26.27
Face	33,349	22.46
Thorax	19,141	12.89
Abdomen	19,025	12.81
External/Other	17,180	11.57
Spine	13,927	9.38
Neck	2,603	1.75
NK/NR	3,343	2.25

A patient can have injuries in multiple body regions.



Figure 23

Incidents by AIS Body Region



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Table
24

Incidents and Case Fatality Rate with AIS ≥ 3 by AIS Body Region

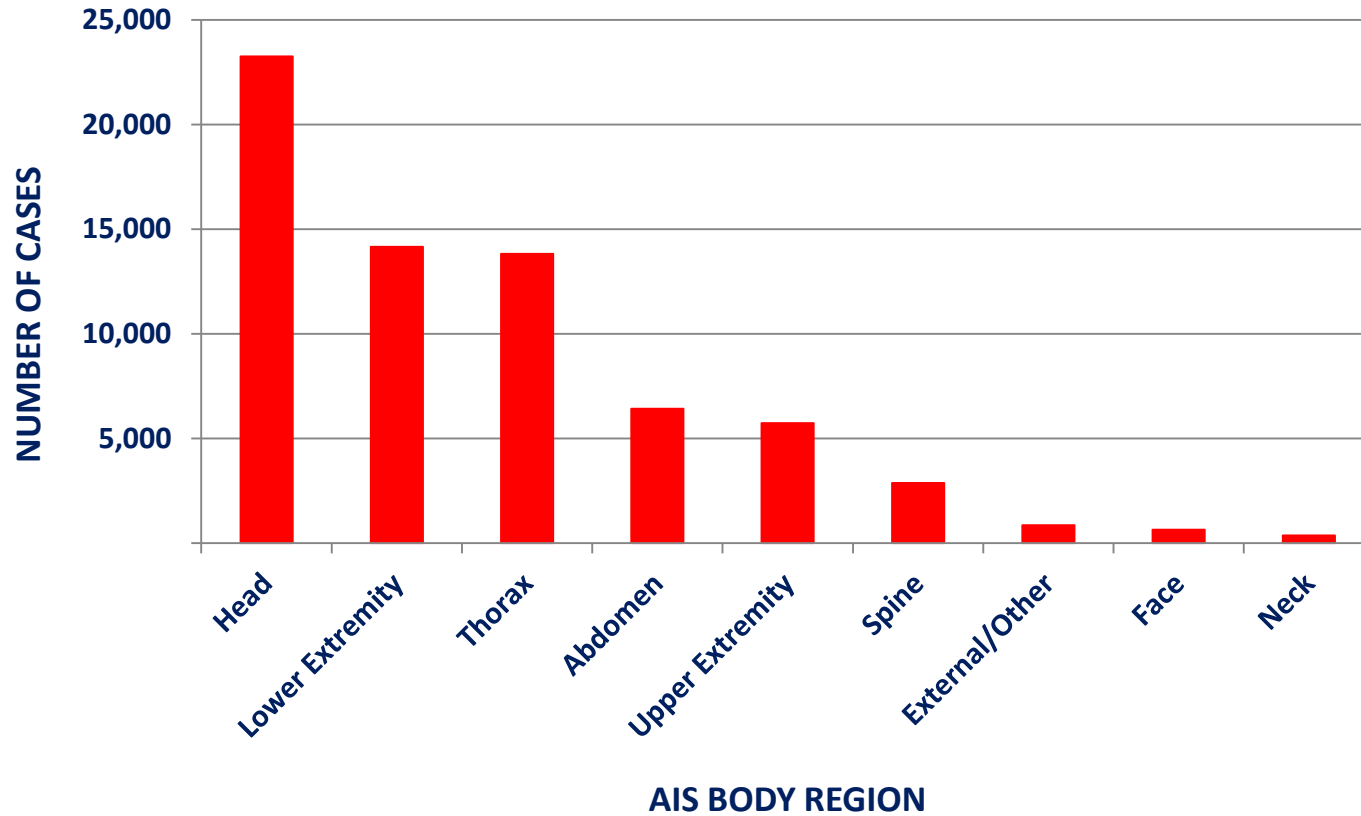
AIS BODY REGION	NUMBER	DEATHS	CASE FATALITY RATE
Head	23,247	1,812	7.79
Lower Extremity	14,153	366	2.59
Thorax	13,822	1,267	9.17
Abdomen	6,419	493	7.68
Upper Extremity	5,742	73	1.27
Spine	2,887	187	6.48
External/Other	865	34	3.93
Face	643	66	10.26
Neck	369	85	23.04

A patient can have injuries in multiple body regions.



Figure 24a

Incidents with AIS ≥ 3 by AIS Body Region

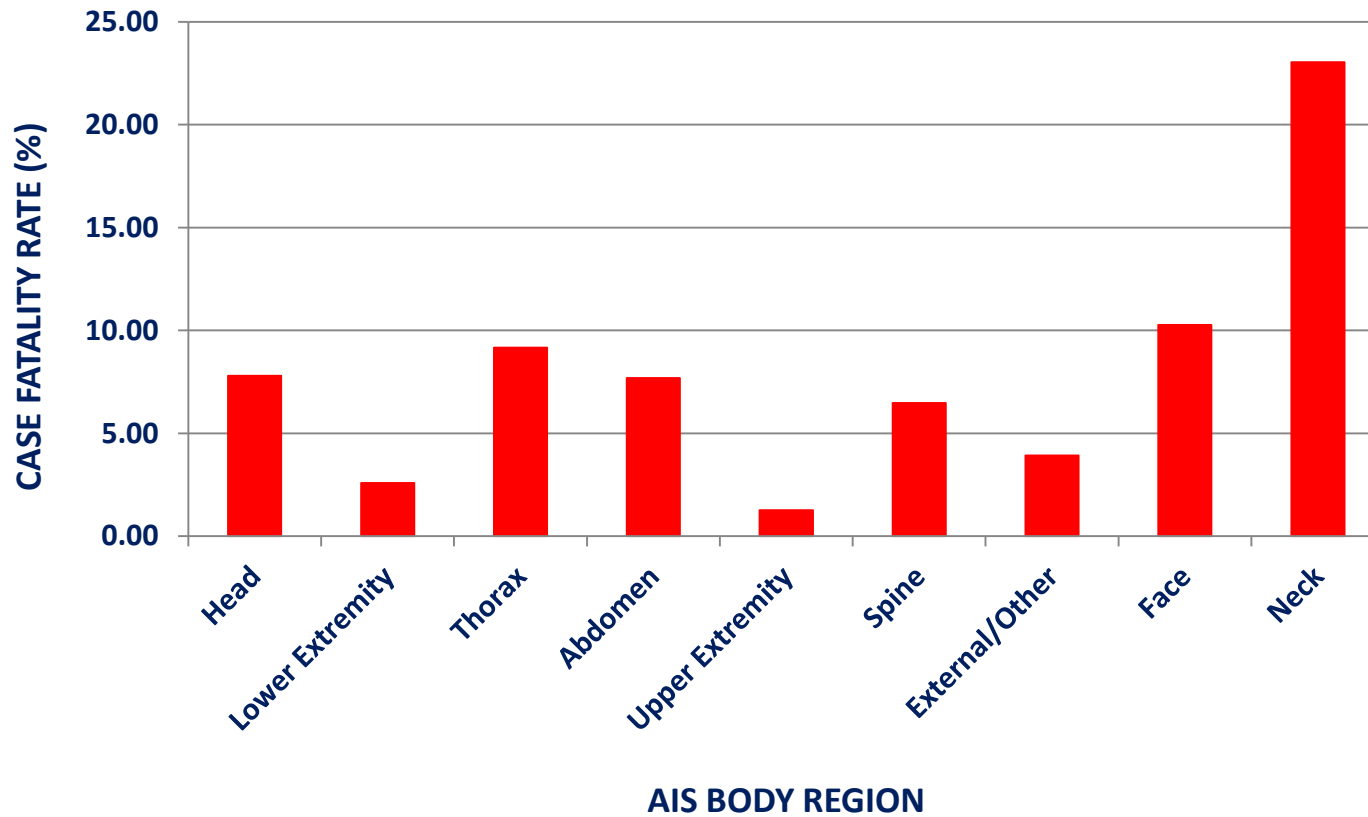


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Figure 24b

Case Fatality Rate with AIS ≥ 3 by AIS Body Region



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Table
25

Incidents and Case Fatality Rate by AIS Body Region

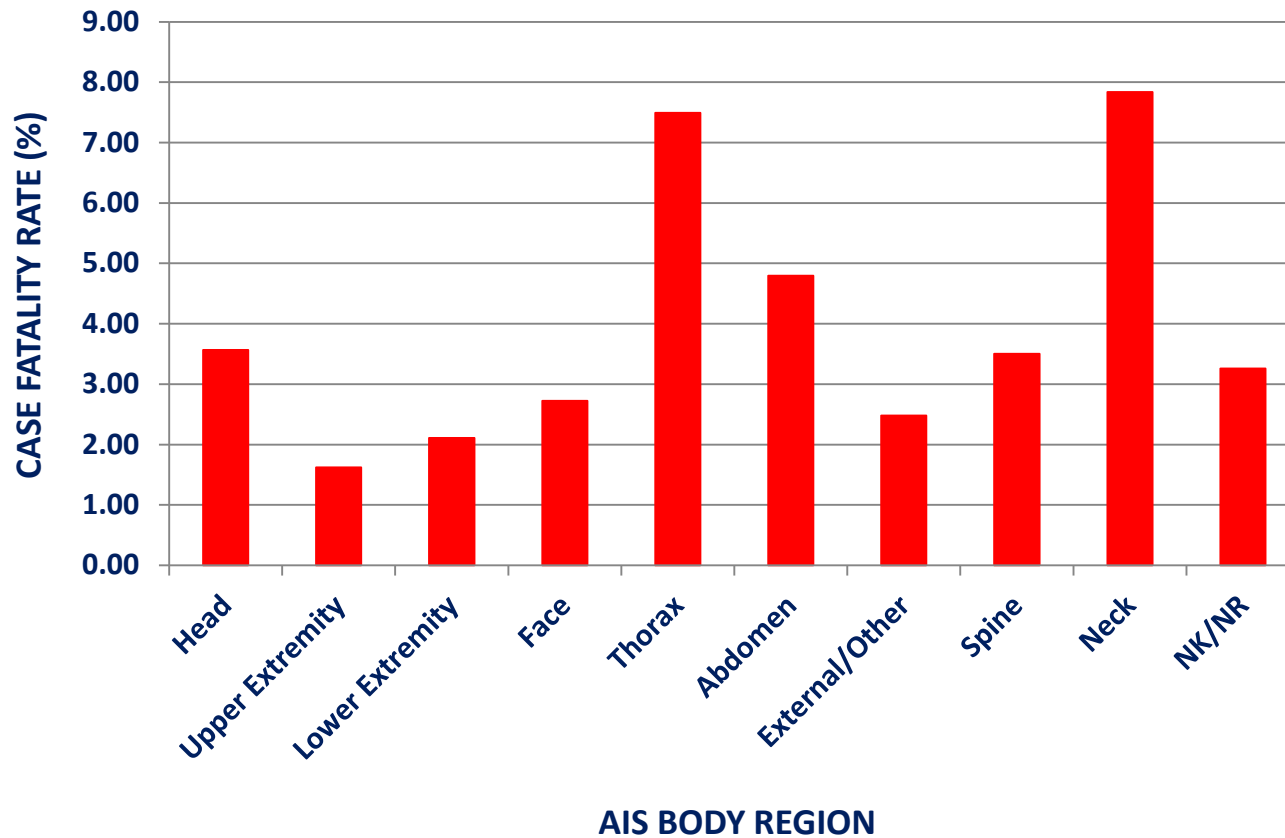
AIS BODY REGION	NUMBER	DEATHS	CASE FATALITY RATE
Head	55,253	1,971	3.57
Upper Extremity	45,185	732	1.62
Lower Extremity	39,017	822	2.11
Face	33,349	909	2.73
Thorax	19,141	1,434	7.49
Abdomen	19,025	912	4.79
External/Other	17,180	426	2.48
Spine	13,927	488	3.50
Neck	2,603	204	7.84
NK/NR	3,343	109	3.26

A patient can have injuries in multiple body regions.



Table
25

Case Fatality Rate by AIS Body Region



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Table
26

Incidents by Protective Devices

PROTECTIVE DEVICES	NUMBER	PERCENT
None	45,808	30.85
Lap Belt	11,593	7.81
Shoulder Belt	10,331	6.96
Helmet (e.g. bicycle, skiing, motorcycle)	8,467	5.70
Airbag Present	7,647	5.15
Child Restraint (booster seat, child car seat)	2,018	1.36
Protective Clothing (e.g., padded leather)	1,738	1.17
Protective Nonclothing Gear (e.g., shin guards)	990	0.67
Other	595	0.40
Eye Protection	57	0.04
Personal Floatation Device	23	0.02
Not Applicable	56,394	37.98
NK/NR	18,770	12.64

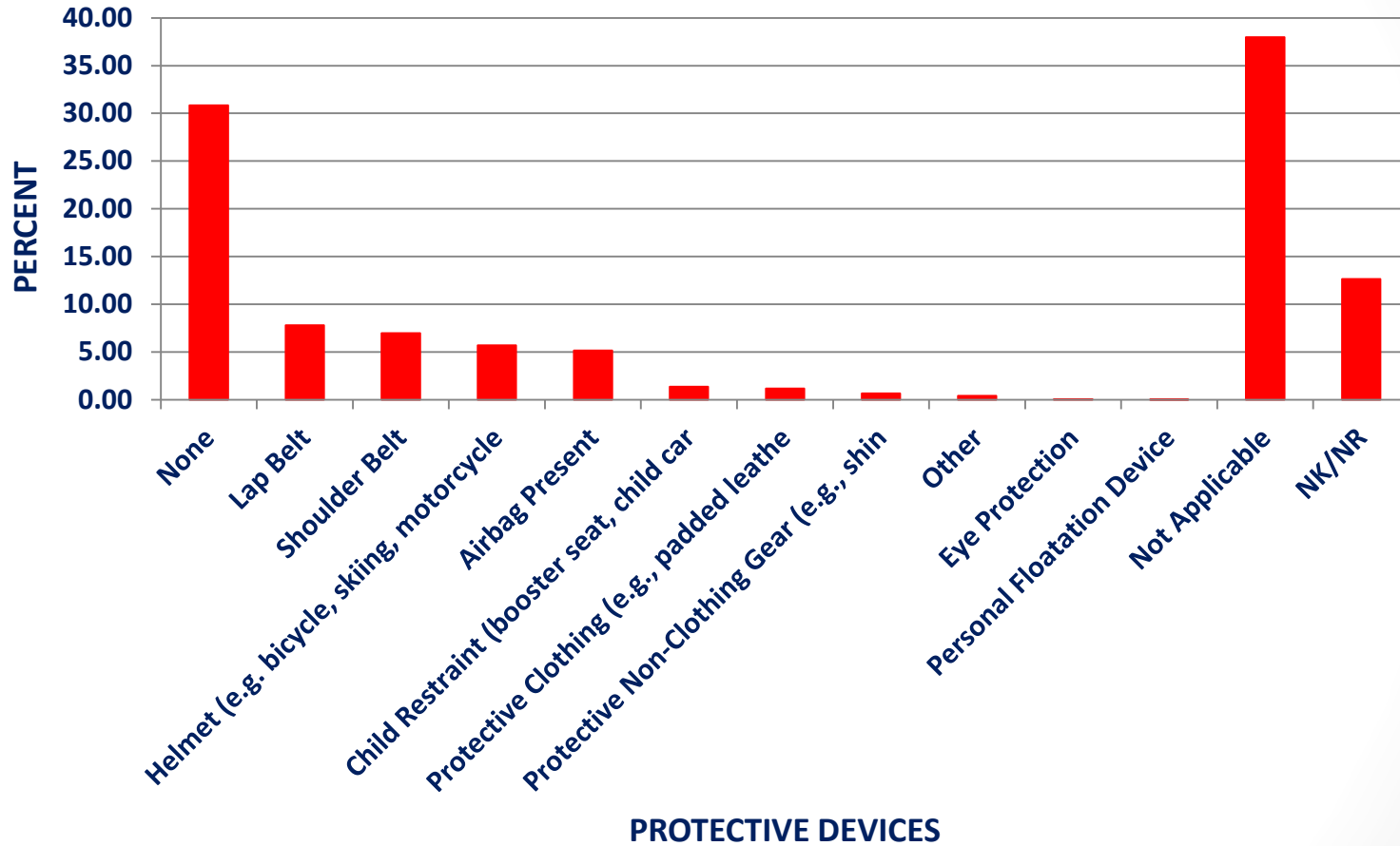


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Figure 26

Incidents by Protective Devices



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OUTCOMES INFORMATION



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Table
27

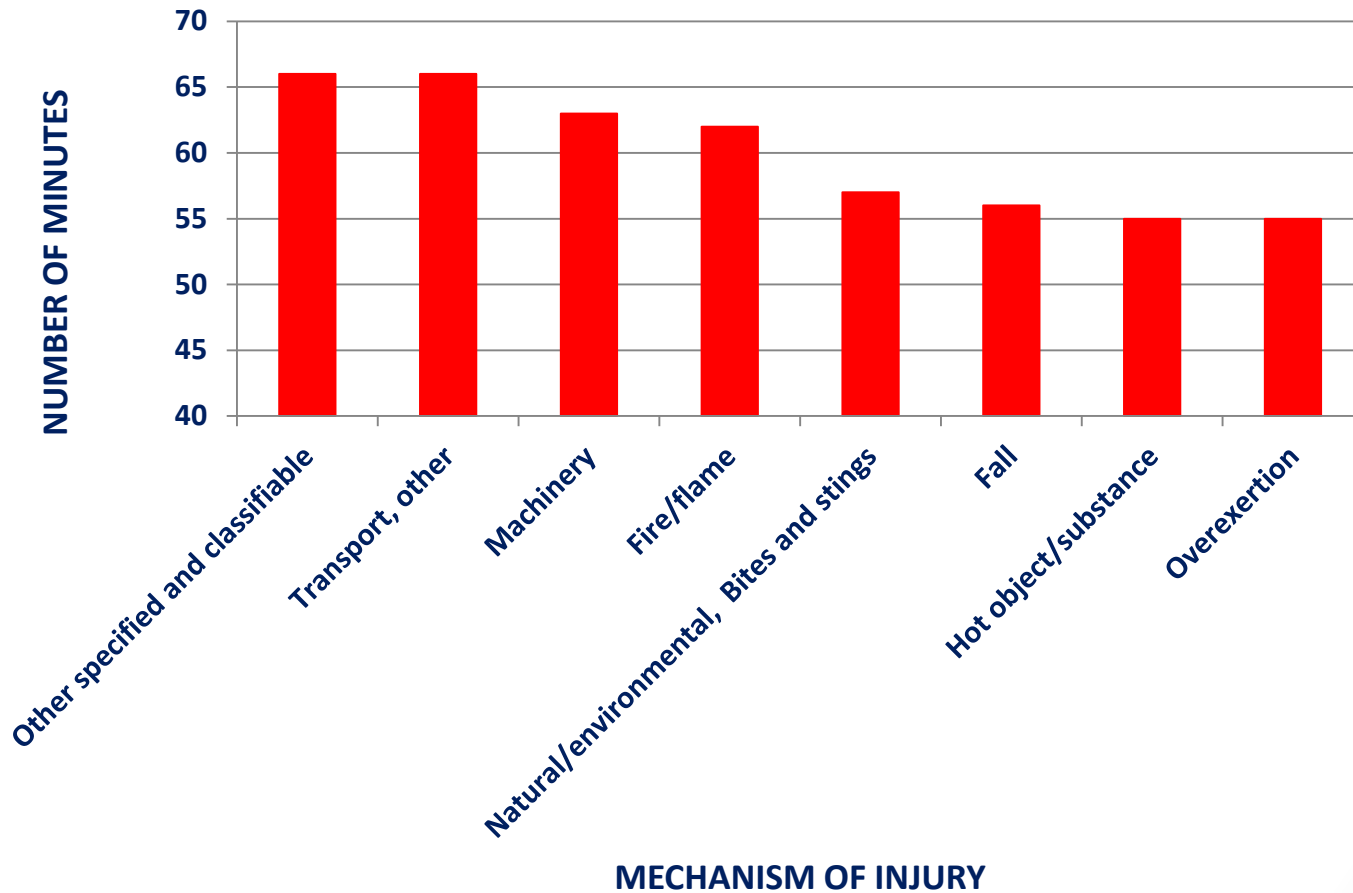
Median Prehospital Time (in Minutes) by Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Adverse effects, medical care	3	116
Natural/environmental, other	271	75
Other specified and classifiable	1,686	66
Transport, other	4,886	66
Machinery	238	63
Fire/flame	543	62
Natural/environmental, bites and stings	641	57
Fall	14,933	56
Hot object/substance	1,157	55
Overexertion	189	55
Pedal cyclist, other	2,044	52
Struck by, against	5,834	51
Unspecified	454	51
Drowning/submersion	95	49
Other specified, not elsewhere classifiable	269	49
Motor vehicle traffic	23,519	47
Pedestrian, other	409	46
Poisoning	15	43
Suffocation	105	43
Cut/pierce	2,380	36
NK/NR	247	36
Adverse effects, drugs	2	34
Firearm	3,956	31



Figure 27

Median Prehospital Time (in Minutes) by Selected Mechanism of Injury



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Table
28

Median Total Prehospital Time (in Minutes) by Injury Severity Score

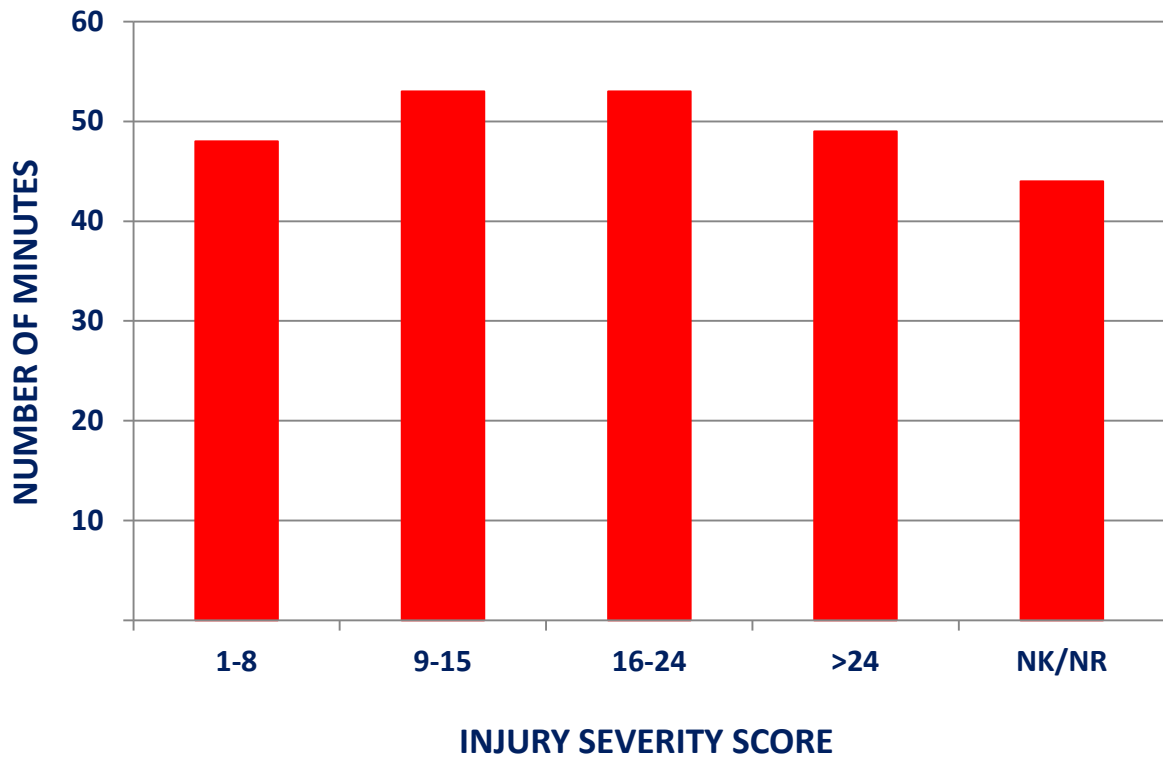
ISS	NUMBER	MEDIAN
1-8	32,608	48
9-15	16,348	53
16-24	7,832	53
>24	5,687	49
NK/NR	1,401	44



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 28

Median Total Prehospital Time (in Minutes) by Injury Severity Score



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Table
29

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

MECHANISM	NUMBER	MEDIAN
Adverse effects, drugs	15	2
Adverse effects, medical care	16	2
Cut/pierce	5,282	2
Drowning/submersion	154	2
Fire/flame	1,527	2
Firearm	6,718	2
Hot object/substance	4,505	2
Machinery	595	2
Motor vehicle traffic	37,011	2
Natural/environmental, other	750	2
Other specified and classifiable	4,956	2
Other specified, not elsewhere classifiable	840	2
Overexertion	715	2
Pedestrian, other	790	2
Poisoning	55	2
Suffocation	171	2
Transport, other	10,410	2
Unspecified	1,571	2
Fall	47,825	1
Natural/environmental, bites and stings	2,120	1
Pedal cyclist, other	5,493	1
Struck by, against	16,277	1
NK/NR	524	1

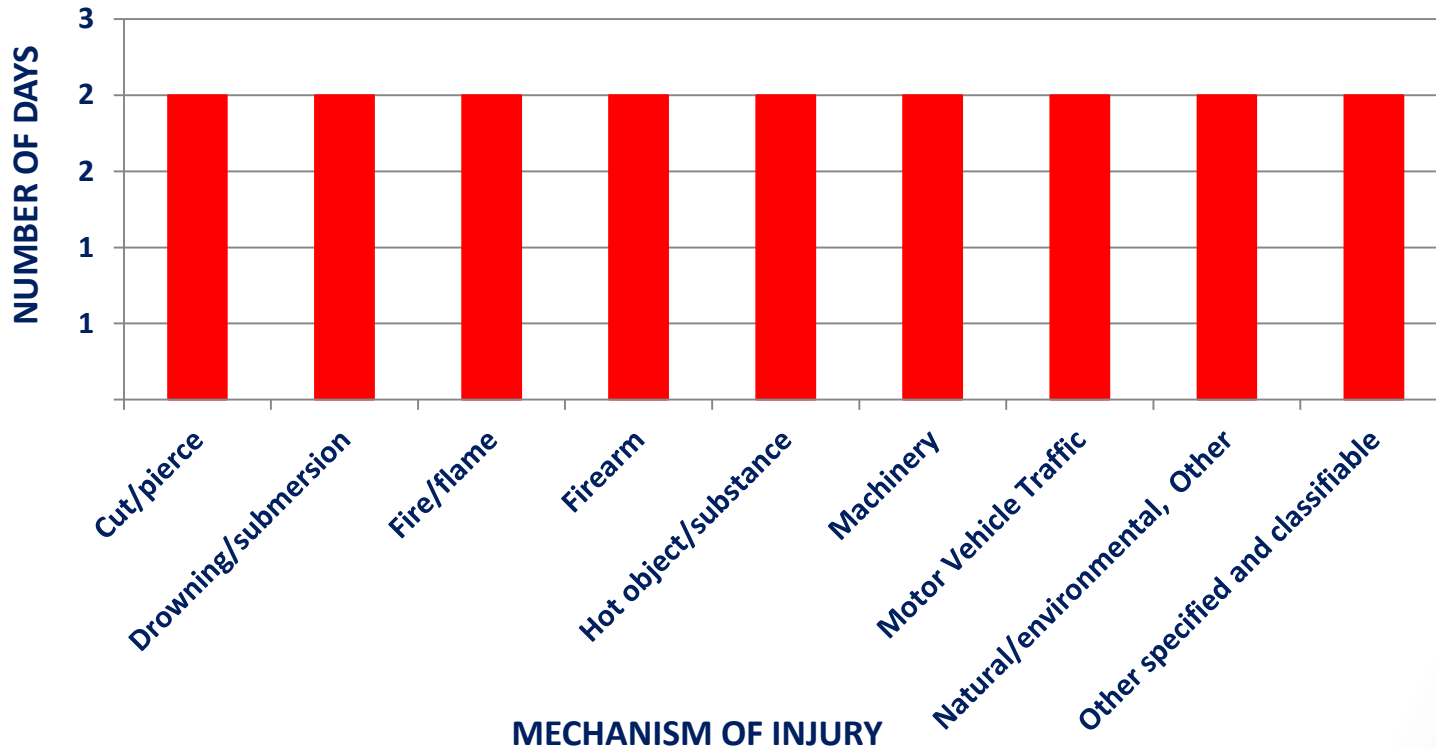


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Figure 29

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



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Table
30

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

ISS	NUMBER	MEDIAN
1-8	85,477	1
9-15	35,320	2
16-24	15,379	3
>24	8,688	6
NK/NR	3,456	1



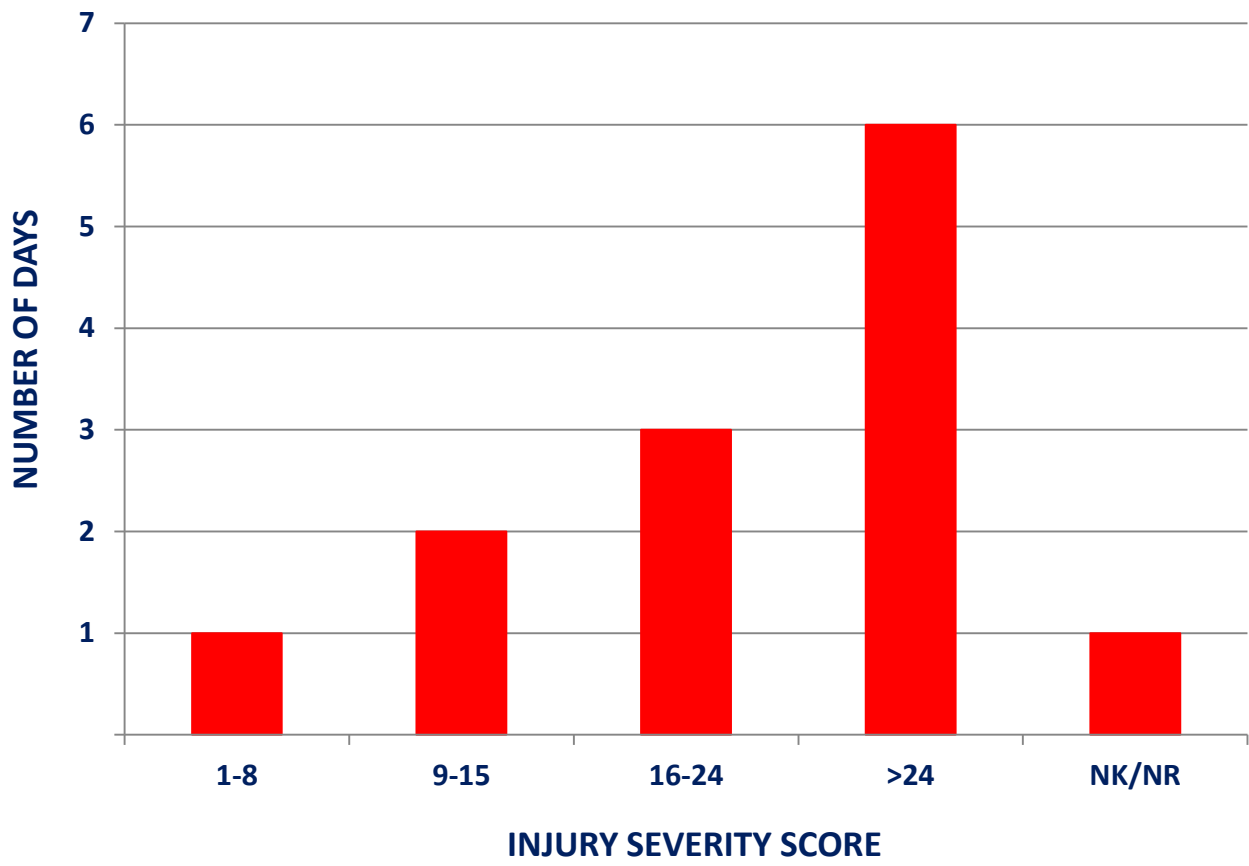
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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 30

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



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure
31

Median Ventilation Days by Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Other specified, not elsewhere classifiable	24	7
Machinery	21	6
Drowning/submersion	41	5
Motor vehicle traffic	3,045	5
Other specified and classifiable	488	5
Overexertion	4	5
NK/NR	177	5
Fire/flame	117	4
Firearm	774	4
Natural/environmental, bites and stings	32	4
Pedestrian, other	45	4
Struck by, against	283	4
Suffocation	49	4
Transport, other	439	4
Unspecified	75	4
Fall	525	3
Natural/environmental, other	44	3
Cut/pierce	134	3
Hot object/substance	103	2
Pedal cyclist, other	82	2
Poisoning	3	2

In patients with ventilator days > 0.

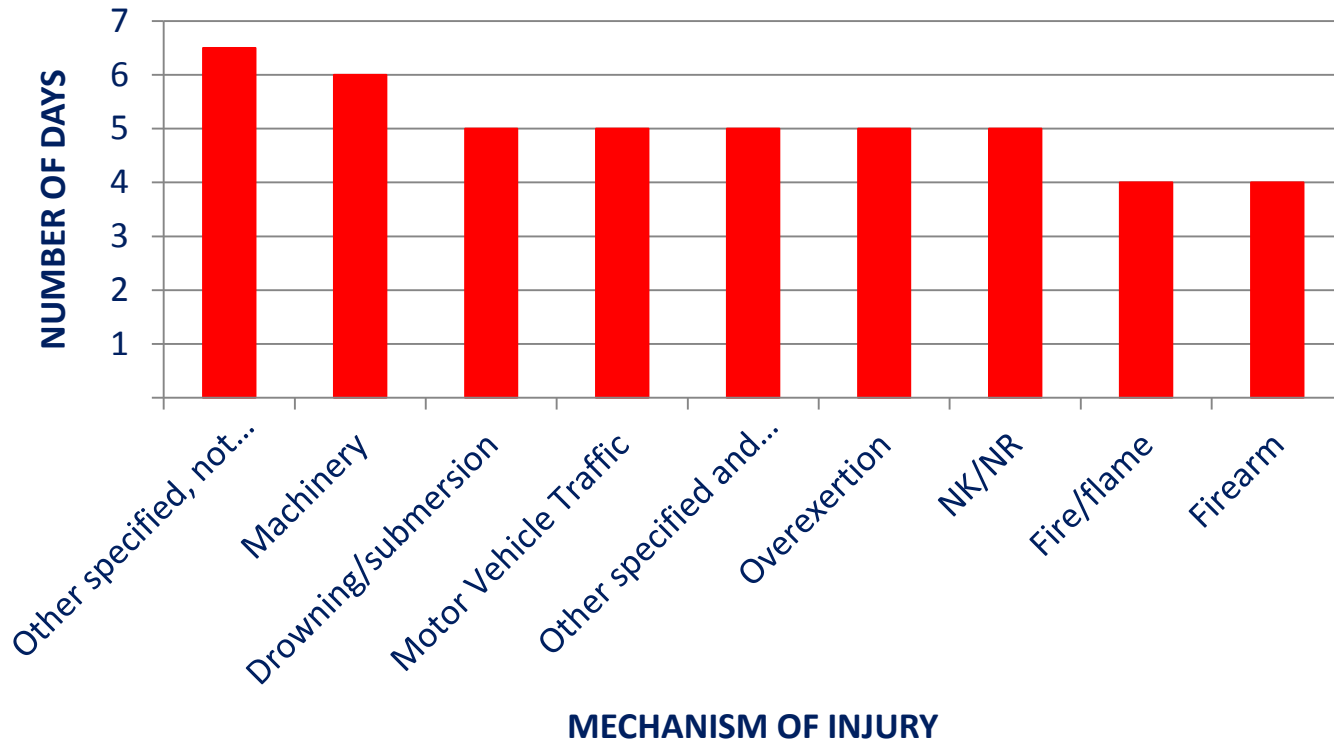


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Figure 31

Median Ventilator Days by Selected Mechanism of Injury



In patients with ventilator days > 0.



Table
32

Median Ventilator Days by Injury Severity Score

ISS	NUMBER	MEDIAN
1-8	611	2
9-15	855	3
16-24	1,692	4
>24	3,296	6
NK/NR	51	5

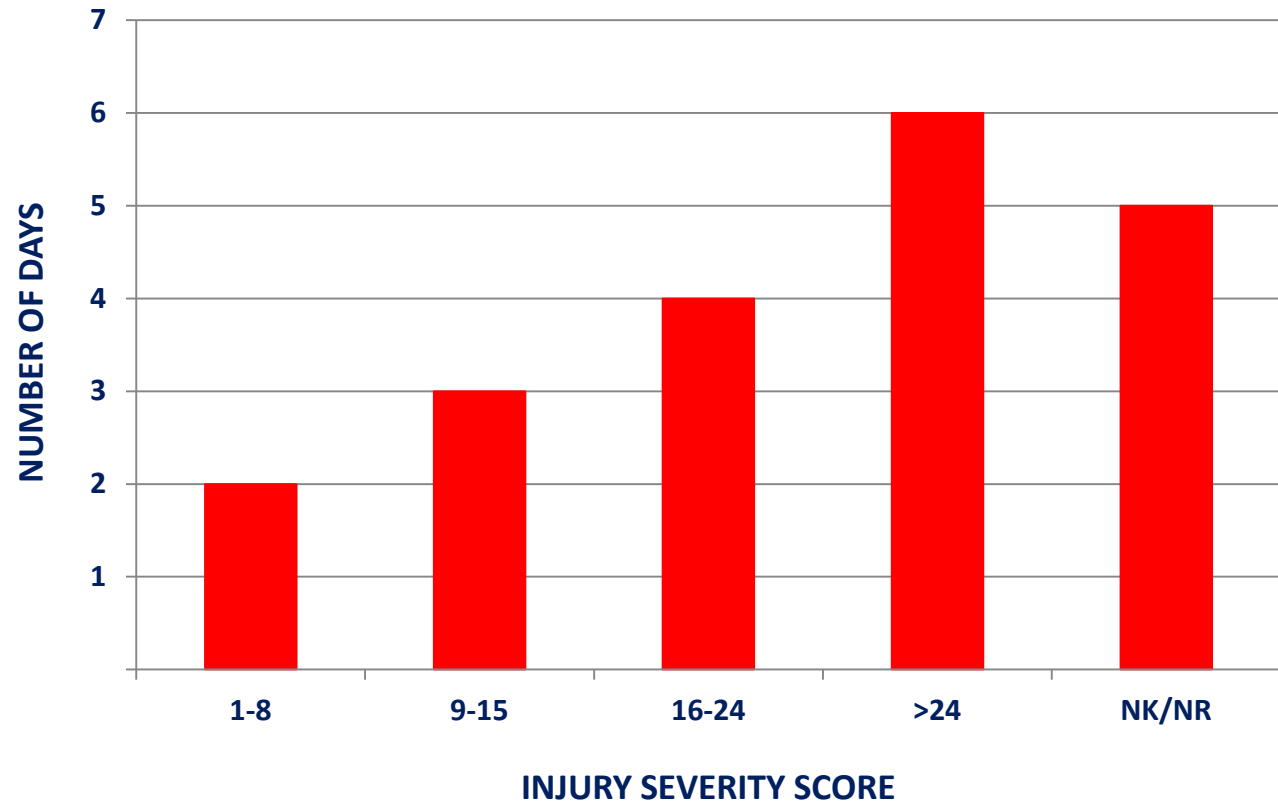


ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

In patients with ventilator days > 0.

Figure 32

Median Ventilator Days by Injury Severity Score



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

In patients with ventilator days > 0.

Table 33

Median ICU Days by Mechanism of Injury

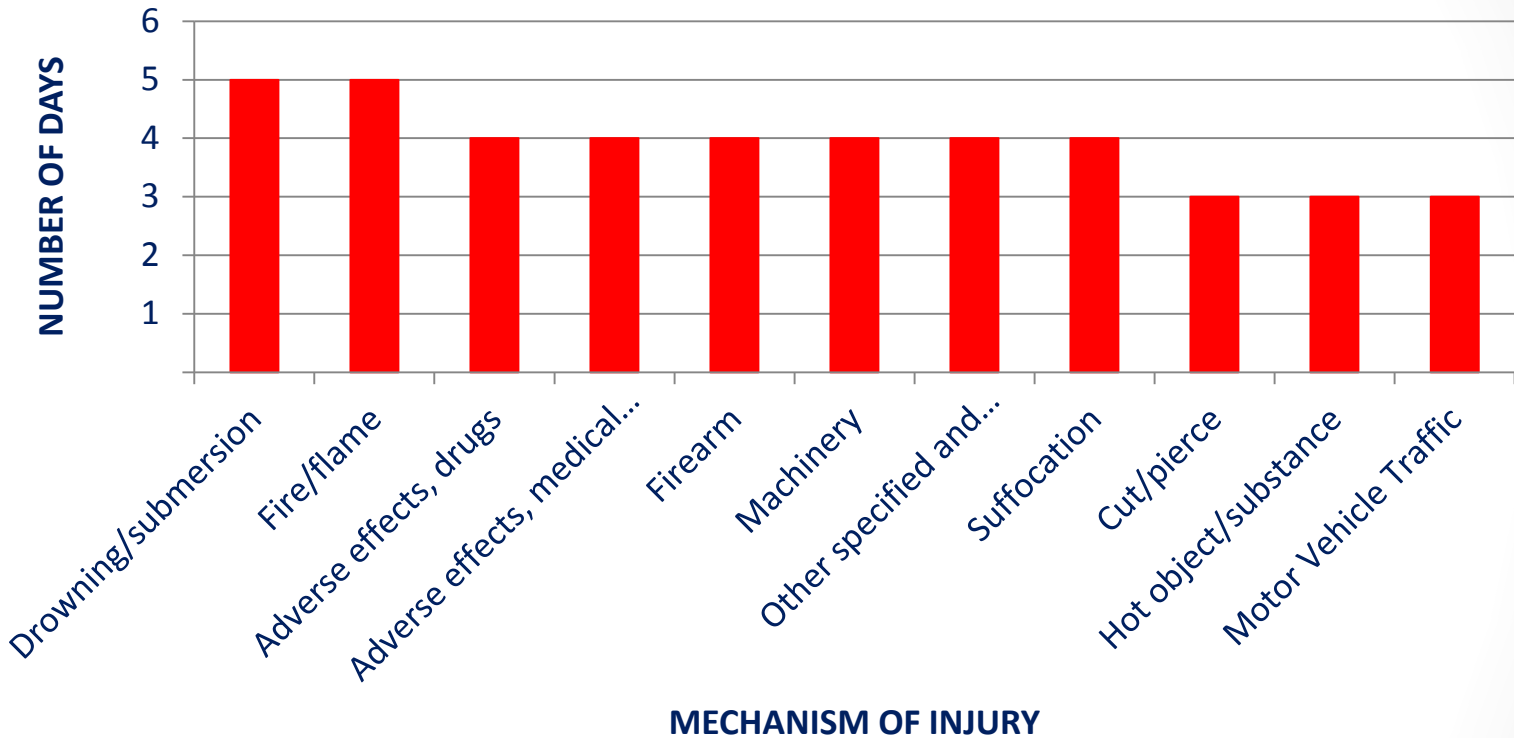
MECHANISM	NUMBER	MEDIAN
Drowning/submersion	61	5
Fire/flame	331	5
Adverse effects, drugs	1	4
Adverse effects, medical care	5	4
Firearm	1,557	4
Machinery	79	4
Other specified and classifiable	1,070	4
Suffocation	69	4
Cut/pierce	477	3
Hot object/substance	490	3
Motor vehicle traffic	7,915	3
Natural/environmental, bites and stings	117	3
Natural/environmental, other	166	3
Other specified, not elsewhere classifiable	99	3
Pedestrian, other	151	3
Transport, other	1,673	3
Unspecified	210	3
Fall	3,364	2
Overexertion	13	2
Pedal cyclist, other	585	2
Poisoning	11	2
Struck by, against	1,485	2
NK/NR	154	2

In patients with ICU days > 0.



Figure 33

Selected Median ICU Days by Mechanism of Injury



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In patients with ICU days > 0.

Table
34

Median ICU Days by Injury Severity Score

ISS	NUMBER	MEDIAN
1-8	3,389	2
9-15	4,547	3
16-24	6,374	3
>24	5,620	5
NK/NR	153	2

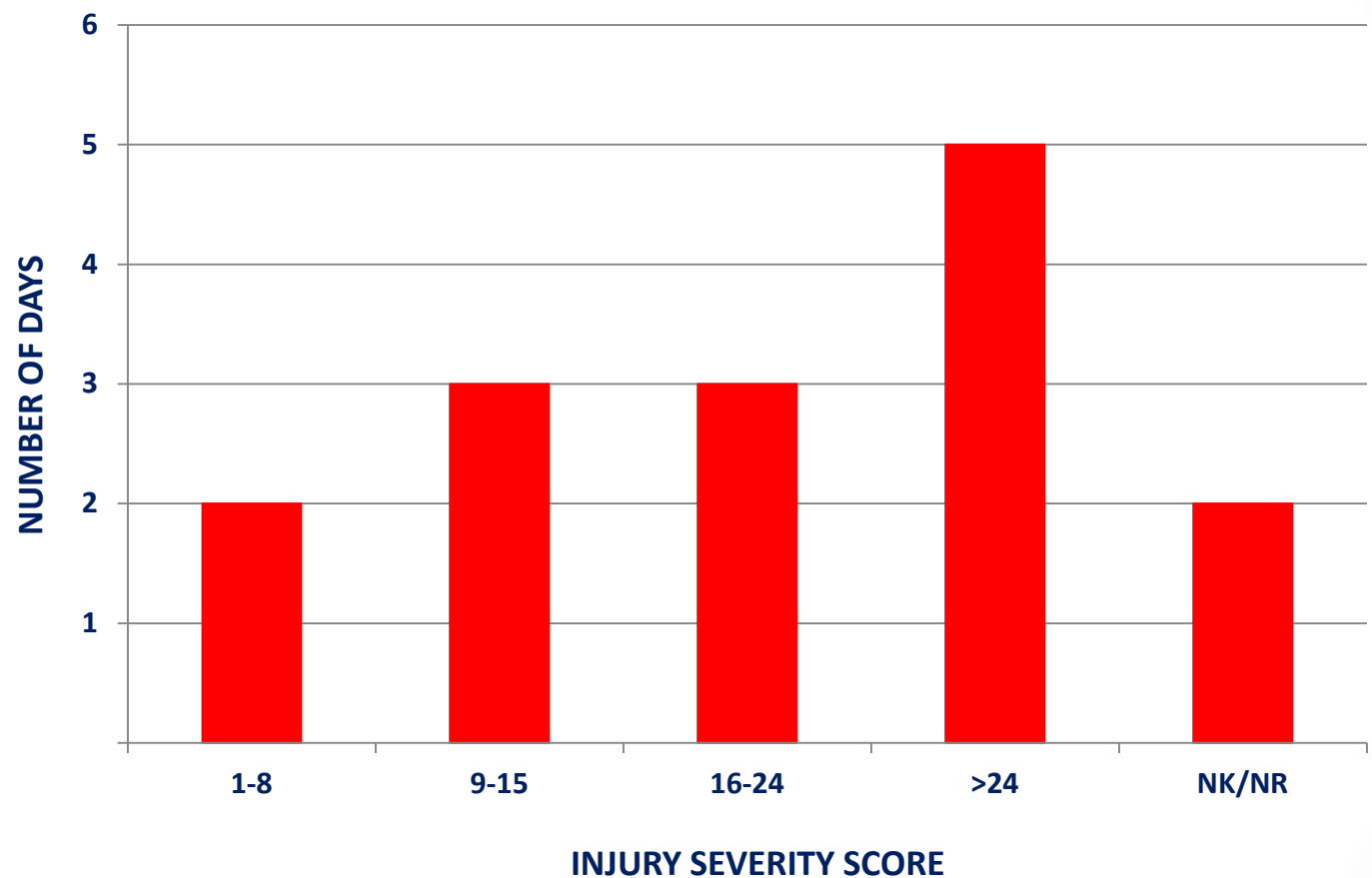


ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90

In patients with ICU days > 0.

Figure 34

Median ICU Days by Injury Severity Score



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90
 In patients with ICU days > 0.

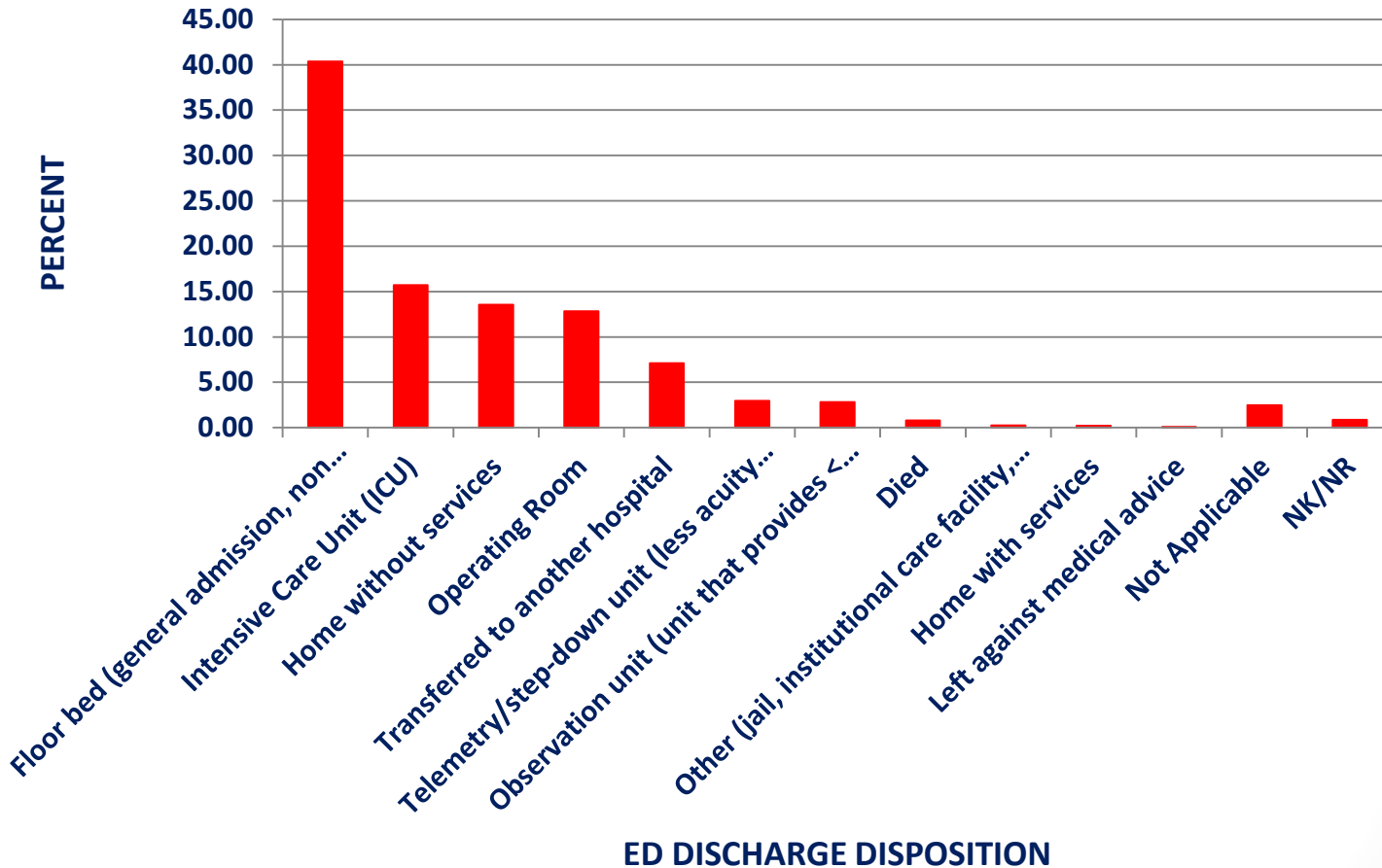
Incidents by ED Discharge Disposition

ED DISCHARGE DISPOSITION	NUMBER	PERCENT
Floor bed (general admission, nonspecialty unit bed)	59,939	40.36
Intensive Care Unit (ICU)	23,350	15.72
Home without services	20,105	13.54
Operating Room	19,030	12.82
Transferred to another hospital	10,545	7.10
Telemetry/step-down unit (less acuity than ICU)	4,391	2.96
Observation unit (unit that provides < 24 hour stays)	4,204	2.83
Died	1,163	0.78
Other (jail, institutional care facility, mental health, etc.)	352	0.24
Home with services	328	0.22
Left against medical advice	137	0.09
Not applicable	3,686	2.48
NK/NR	1,265	0.85
Total	148,495	100.00



Figure 35

Incidents by ED Discharge Disposition



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Table
36

Signs of Life

SIGNS OF LIFE	NUMBER	PERCENT
Arrived with NO signs of life	892	0.60
Arrived with signs of life	117,168	78.90
Not applicable	23,814	16.04
NK/NR	6,621	4.46
Total	148,495	100.00

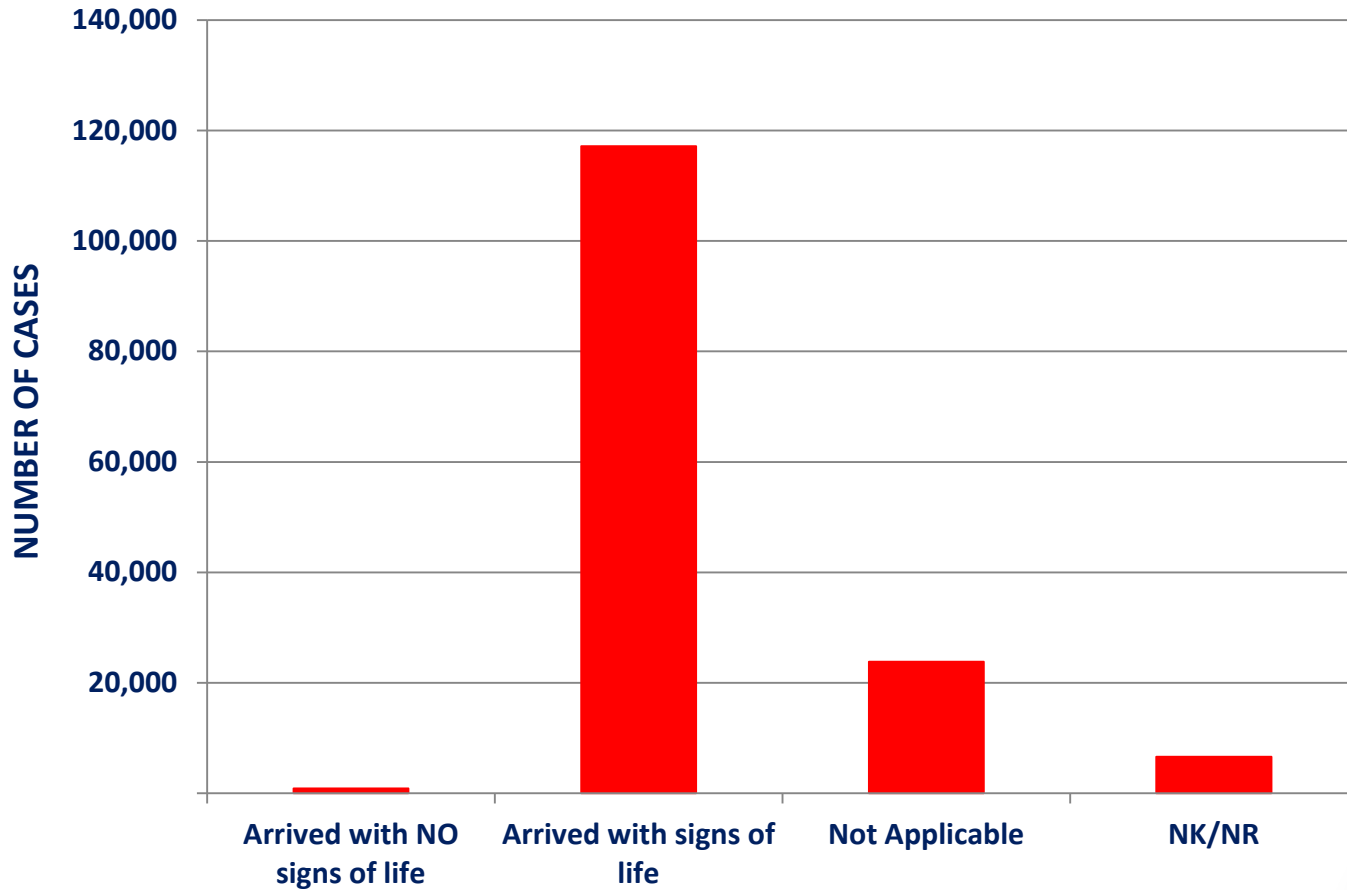


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Figure 36

Signs of Life



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Table
37

Incidents by Hospital Discharge Disposition

HOSPITAL DISCHARGE DISPOSITION	NUMBER	PERCENT
Discharged home with no home services	104,629	70.46
Not applicable	32,630	21.97
Discharged/transferred to another type of rehabilitation or long-term care	3,711	2.50
Discharge/transferred to home under care of organized home health service	2,645	1.78
Expired	1,672	1.13
Discharged/transferred to a short-term general hospital for inpatient care	1,627	1.10
Discharged/transferred to an Intermediate care facility (ICF)	957	0.64
Discharged/transferred to skilled nursing facility	333	0.22
Left against medical advice or discontinued care	252	0.17
Discharged/transferred to hospice care	25	0.02
NK/NR	14	0.01
Total	148,495	100.00

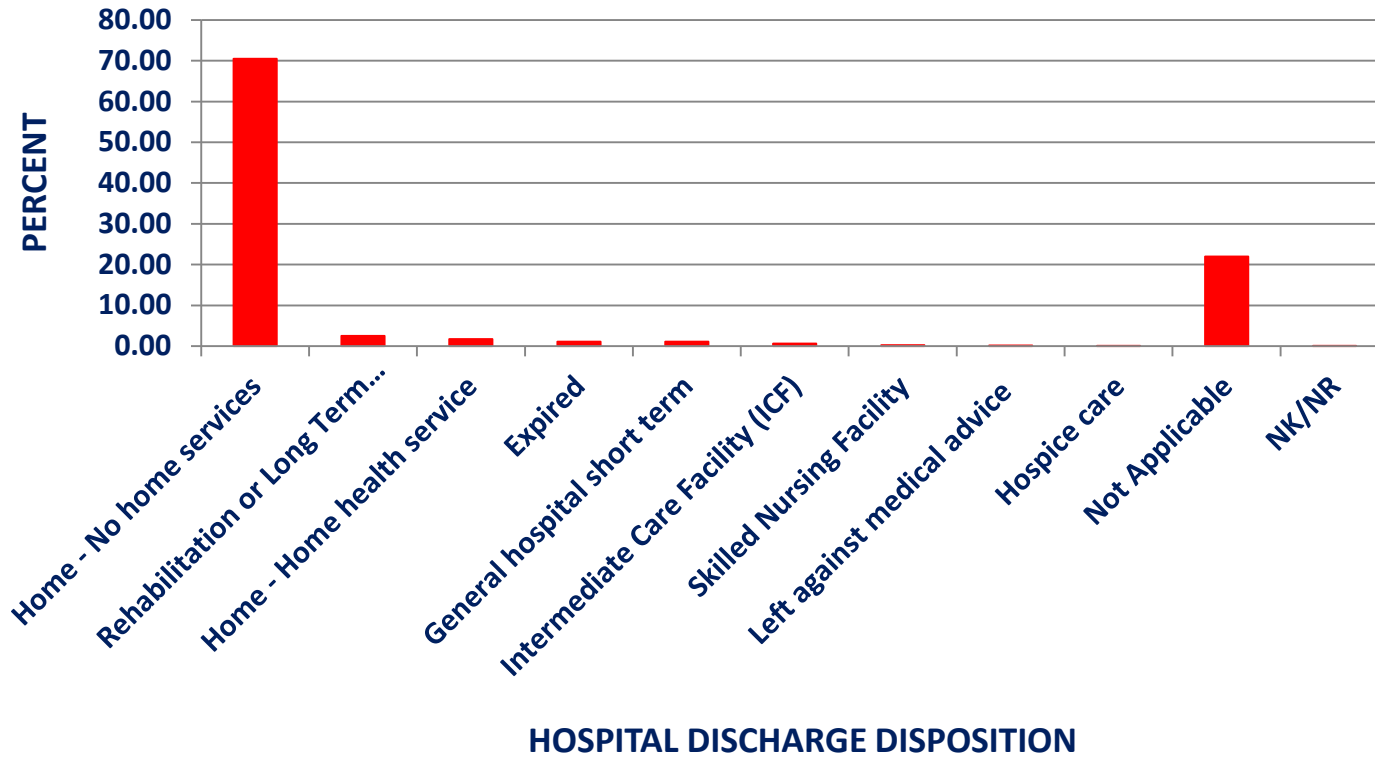


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Figure 37

Incidents by Hospital Discharge Disposition



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REGIONAL ANALYSIS



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Table
38

Incidents by Region

REGION	NUMBER	PERCENT
South	56,488	38.04
Midwest	39,706	26.74
West	29,960	20.18
Northeast	22,013	14.82
Non-U.S.	328	0.22
Total	148,495	100.00

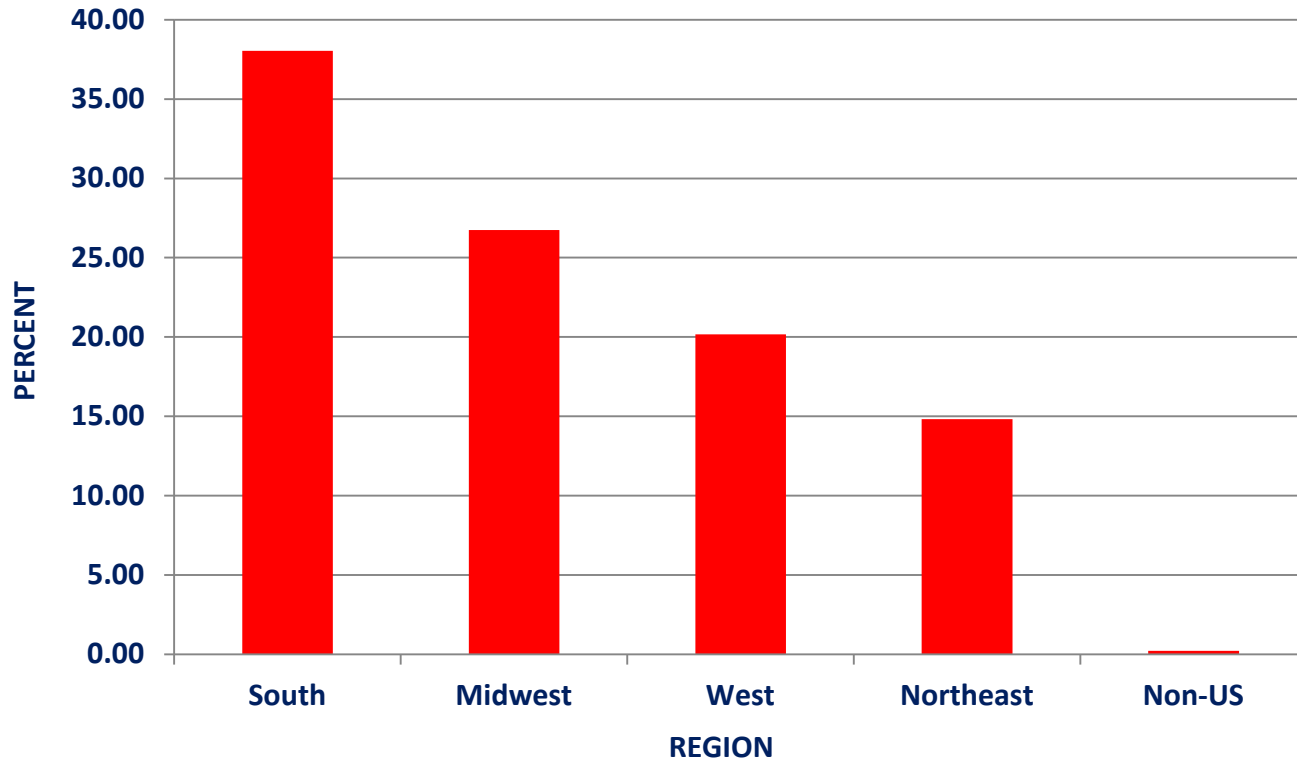


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Figure 38

Incidents by Region



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Table
39

Case Fatality Rate by Region

REGION	NUMBER	DEATHS	CASE FATALITY RATE
South	56,488	1,159	2.05
Midwest	39,706	699	1.76
West	29,960	636	2.12
Northeast	22,013	333	1.51
Non-U.S.	328	8	2.44
Total	148,495	2,835	

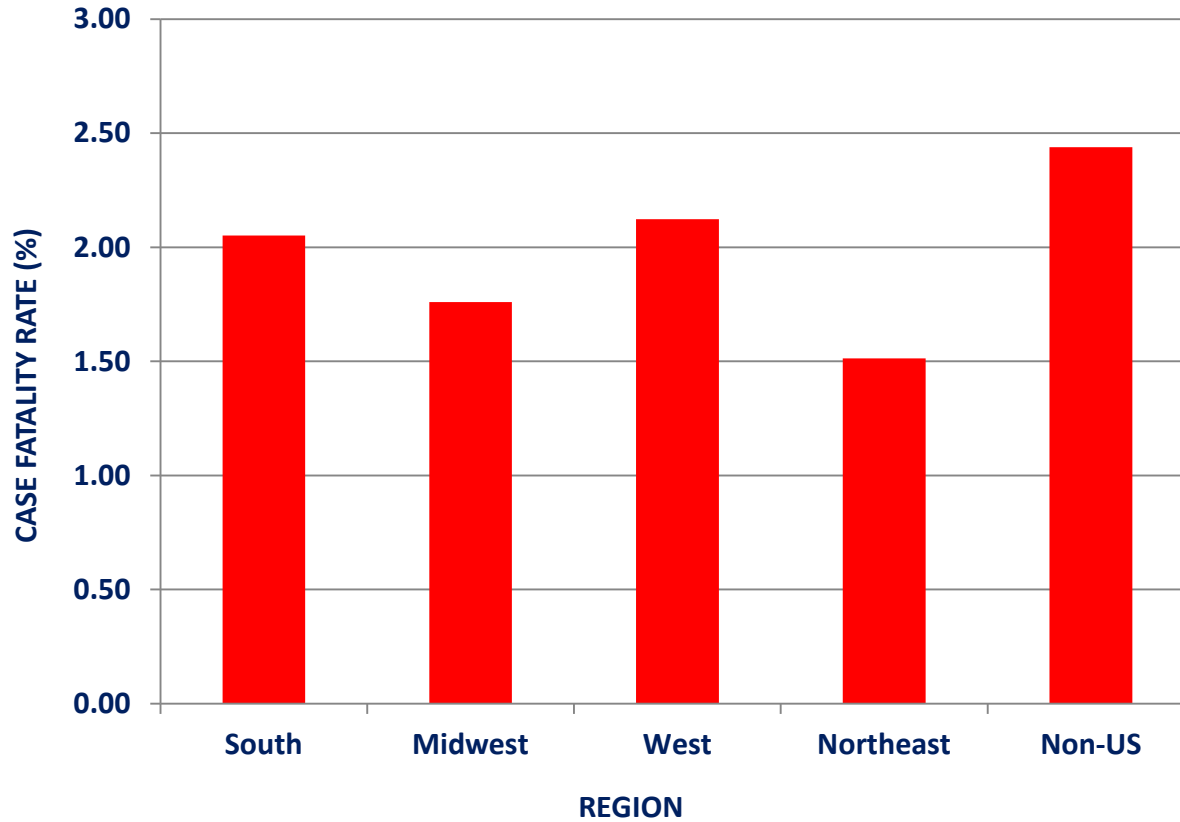


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Figure
39

Case Fatality Rate by Region



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Table
40

Mechanism of Injury by Region

MECHANISM	NUMBER	MIDWEST PERCENT	NORTHEAST PERCENT	SOUTH PERCENT	WEST PERCENT
Fall	47,875	34.29	35.27	30.81	30.02
Motor vehicle traffic	37,037	21.92	21.70	26.58	28.02
Struck by, against	16,303	11.49	13.07	10.46	9.82
Transport, other	10,425	6.31	4.99	7.99	7.61
Firearm	6,729	5.03	4.30	4.04	5.01
Pedal cyclist, other	5,499	3.88	4.49	2.90	4.43
Cut/pierce	5,290	3.17	3.73	3.22	4.64
Other specified and classifiable	4,964	3.38	2.92	3.79	2.78
Hot object/substance	4,508	3.39	3.29	3.26	1.94
Natural/environmental, bites and stings	2,121	1.52	1.05	1.86	0.79
Unspecified	1,573	1.13	1.16	1.11	0.79
Fire/flame	1,531	1.25	0.99	1.11	0.61
Other specified, not elsewhere classifiable	842	0.72	0.63	0.53	0.39
Pedestrian, other	790	0.49	0.60	0.50	0.60
Natural/environmental, other	750	0.51	0.31	0.61	0.45
Overexertion	715	0.49	0.62	0.48	0.37
Machinery	596	0.51	0.42	0.38	0.29
NK/NR	535	0.14	0.22	0.12	1.18
Suffocation	171	0.15	0.09	0.10	0.12
Drowning/submersion	155	0.12	0.10	0.11	0.08
Poisoning	55	0.06	0.03	0.02	0.04
Adverse effects, medical care	16	0.02	0.01	0.01	0.00
Adverse effects, drugs	15	0.02	0.00	0.01	0.00
Total	148,495	100.00	100.00	100.00	100.00



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Figure 40

Selected Mechanism of Injury by Region

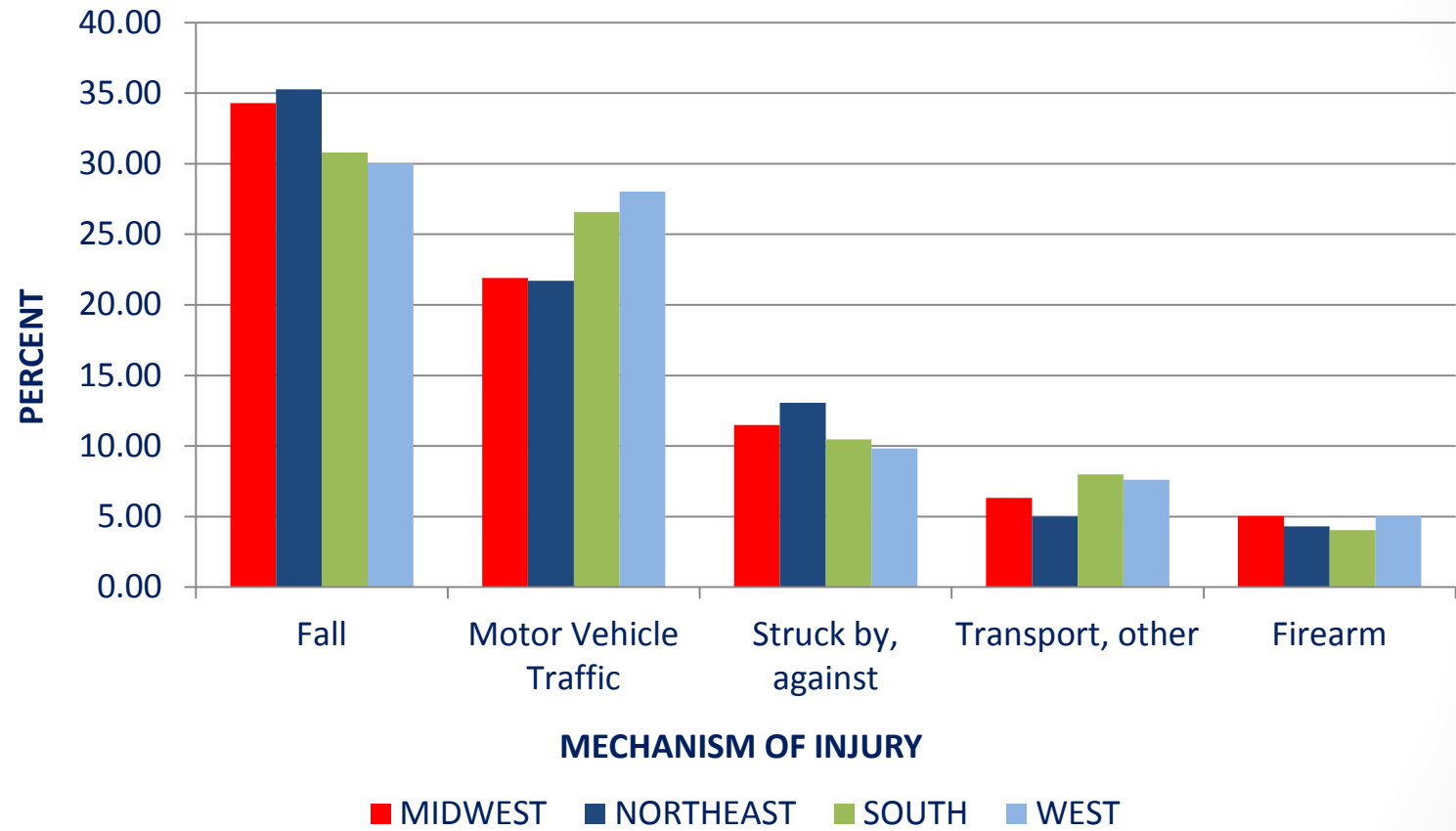


Table
41

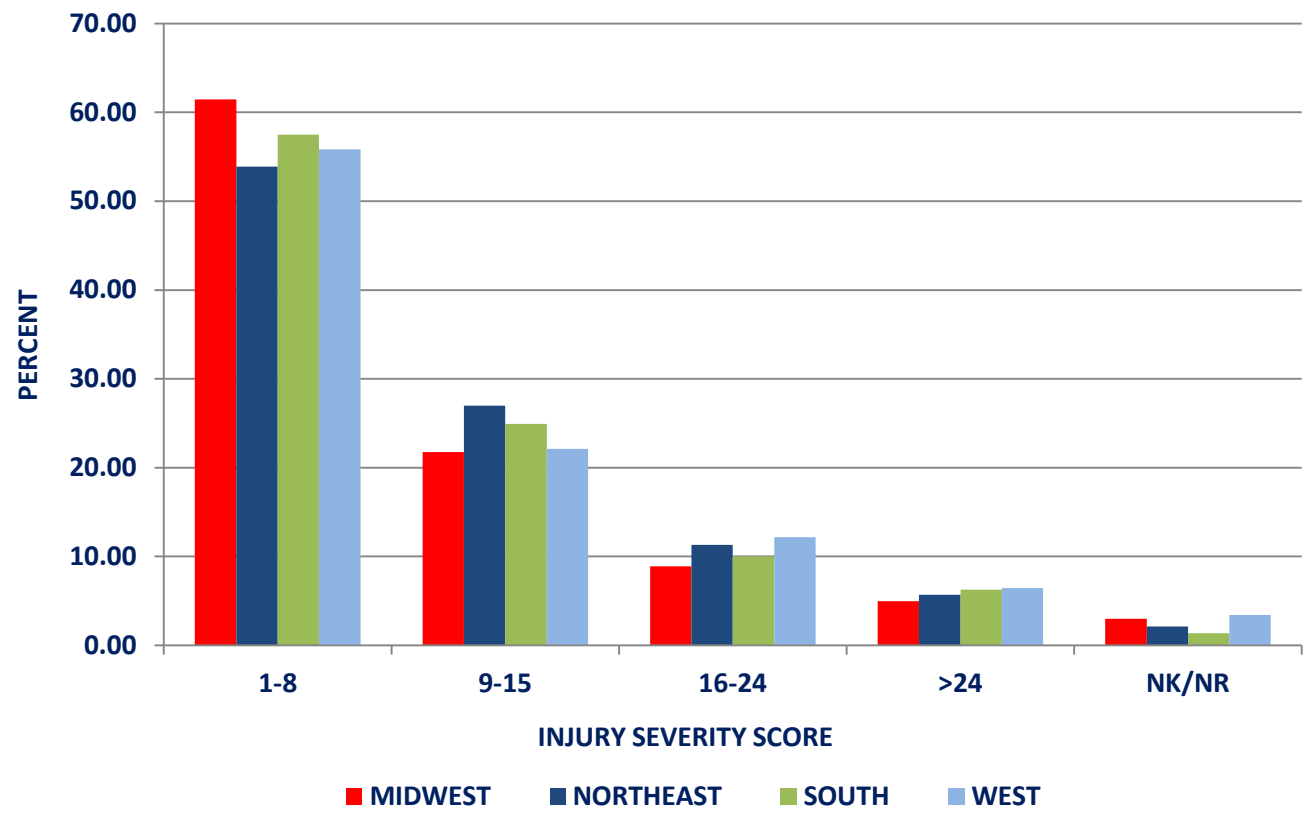
Injury Severity Score by Region

ISS	NUMBER	MIDWEST PERCENT	NORTHEAST PERCENT	SOUTH PERCENT	WEST PERCENT
1-8	85,582	61.44	53.88	57.47	55.83
9-15	35,347	21.74	26.98	24.91	22.12
16-24	15,383	8.88	11.33	10.00	12.19
>24	8,708	4.96	5.69	6.25	6.43
NK/NR	3,475	2.98	2.12	1.36	3.42
Total	148,495	100.00	100.00	100.00	100.00



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 41 Injury Severity Score by Region



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Table
42

Incidents by Rurality

CATEGORY	NUMBER	PERCENT
Urban	65,853	78.24
Rural	6,077	7.22
Suburban	9,703	11.53
Wilderness	2,534	3.01
Total	84,167	100.00

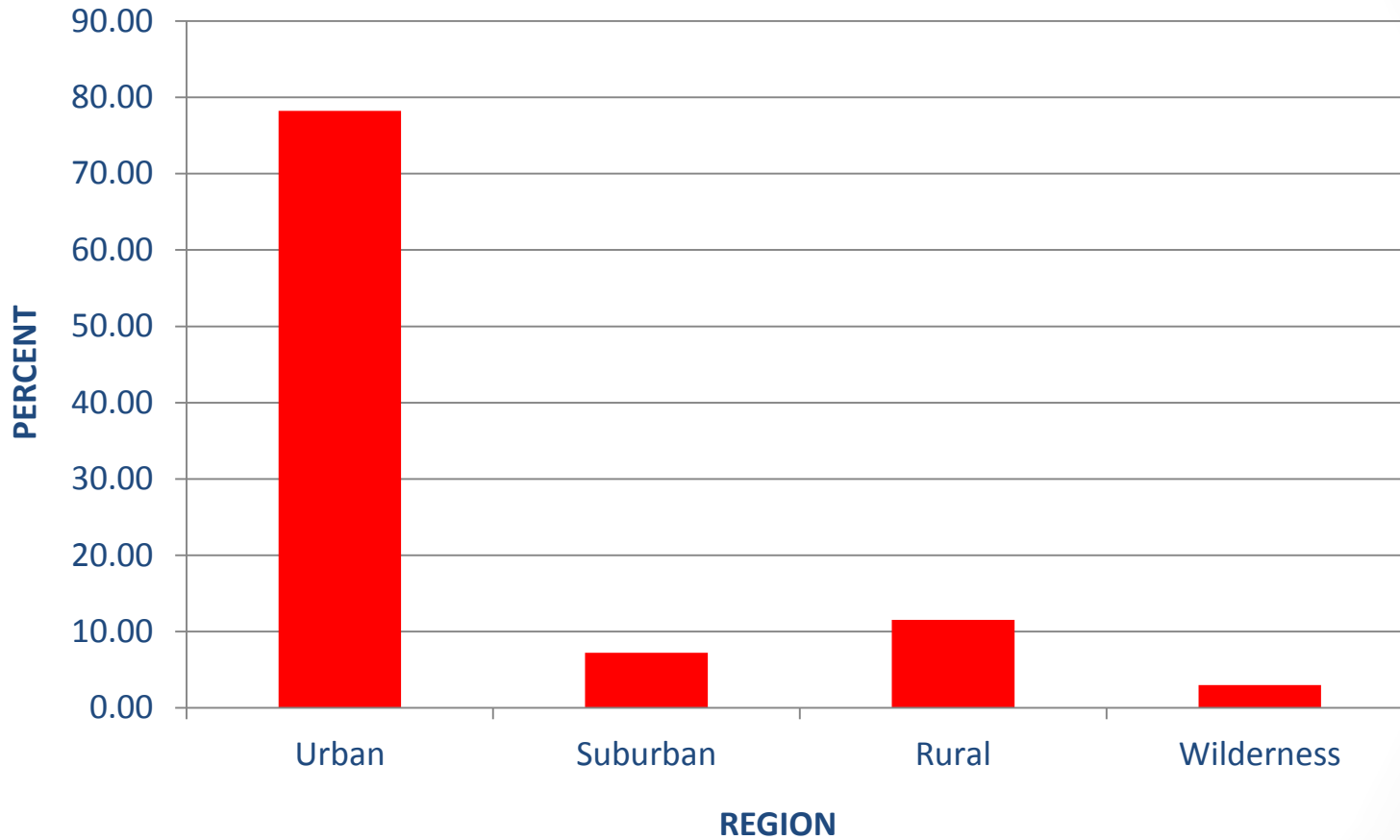


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Figure 42

Incidents by Rurality



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Table
43

Case Fatality Rate by Rurality

CATEGORY	NUMBER	DEATHS	CASE FATALITY RATE
Urban	65,853	1,381	2.10
Rural	6,077	121	1.99
Suburban	9,703	172	1.77
Wilderness	2,534	39	1.54
Total	84,167	2,835	

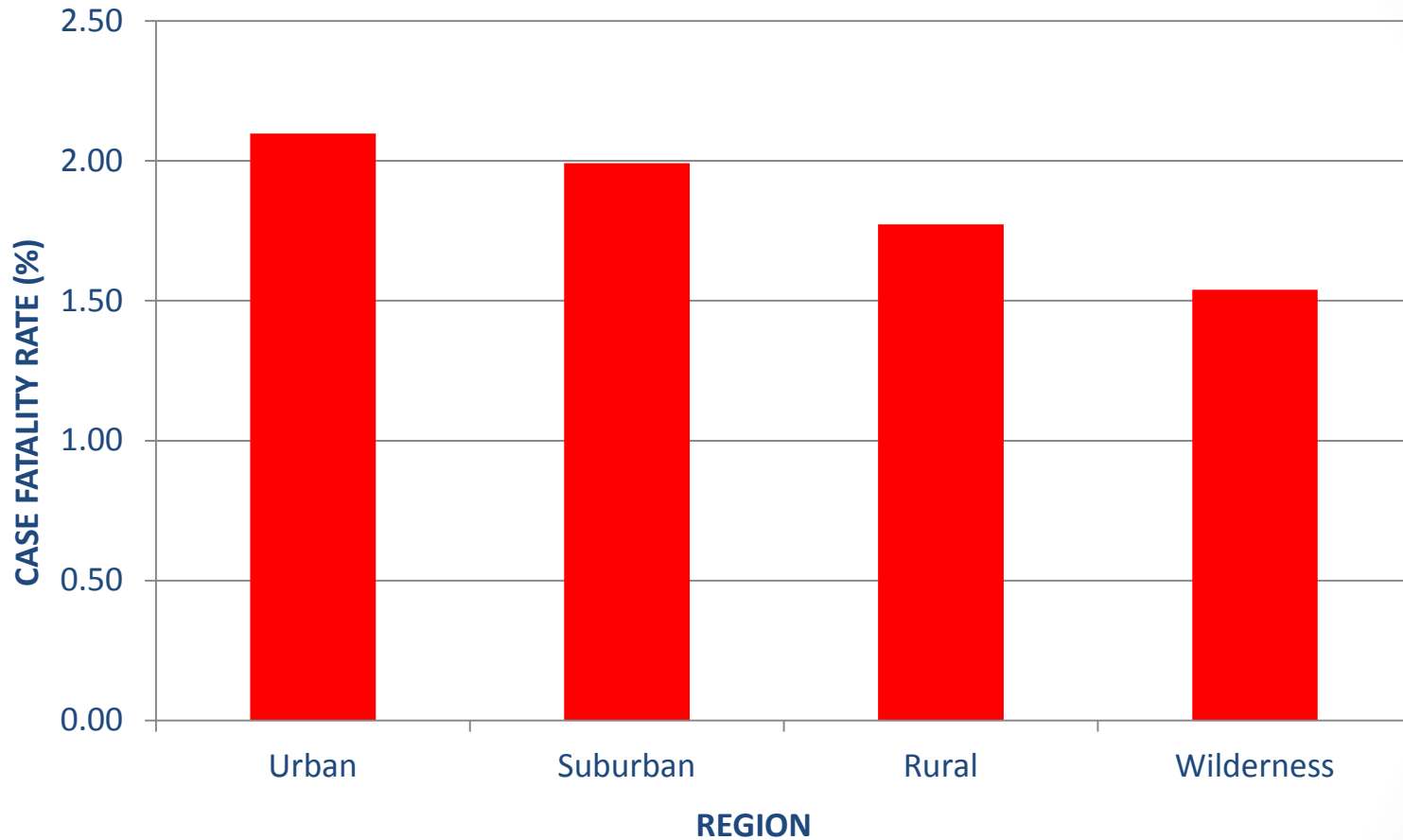


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Figure 43

Case Fatality Rate by Rurality



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Table
44

Mechanism of Injury by Rurality

MECHANISM	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
Fall	21,014	31.91	1,675	27.56	2,640	27.21	629	24.82
Motor vehicle traffic	17,310	26.29	1,776	29.22	2,647	27.28	717	28.30
Struck by, against	7,227	10.97	587	9.66	961	9.90	196	7.73
Transport, other	3,756	5.70	737	12.13	1,328	13.69	437	17.25
Firearm	3,404	5.17	123	2.02	205	2.11	61	2.41
Cut/pierce	2,530	3.84	156	2.57	308	3.17	73	2.88
Pedal cyclist, other	2,279	3.46	181	2.98	274	2.82	58	2.29
Other specified and classifiable	2,207	3.35	237	3.90	383	3.95	91	3.59
Hot object/substance	1,923	2.92	148	2.44	244	2.51	57	2.25
Natural/environmental, bites and stings	914	1.39	127	2.09	174	1.79	54	2.13
Unspecified	632	0.96	56	0.92	67	0.69	20	0.79
Fire/flame	568	0.86	83	1.37	136	1.40	33	1.30
Pedestrian, other	405	0.62	31	0.51	44	0.45	23	0.91
NK/NR	373	0.57	11	0.18	19	0.20	3	0.12
Other specified, not elsewhere classifiable	346	0.53	29	0.48	46	0.47	11	0.43
Overexertion	294	0.45	21	0.35	25	0.26	11	0.43
Natural/environmental, other	278	0.42	46	0.76	111	1.14	30	1.18
Machinery	207	0.31	35	0.58	64	0.66	21	0.83
Suffocation	80	0.12	9	0.15	10	0.10	4	0.16
Drowning/submersion	69	0.10	8	0.13	11	0.11	4	0.16
Poisoning	23	0.03		0.00	4	0.04	1	0.04
Adverse effects, medical care	11	0.02		0.00		0.00		0.00
Adverse effects, drugs	3	0.00	1	0.02	2	0.02		0.00
Total	65,853	100.00	6,077	100.00	9,703	100.00	2,534	100.00



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Figure 44

Selected Mechanism of Injury by Rurality

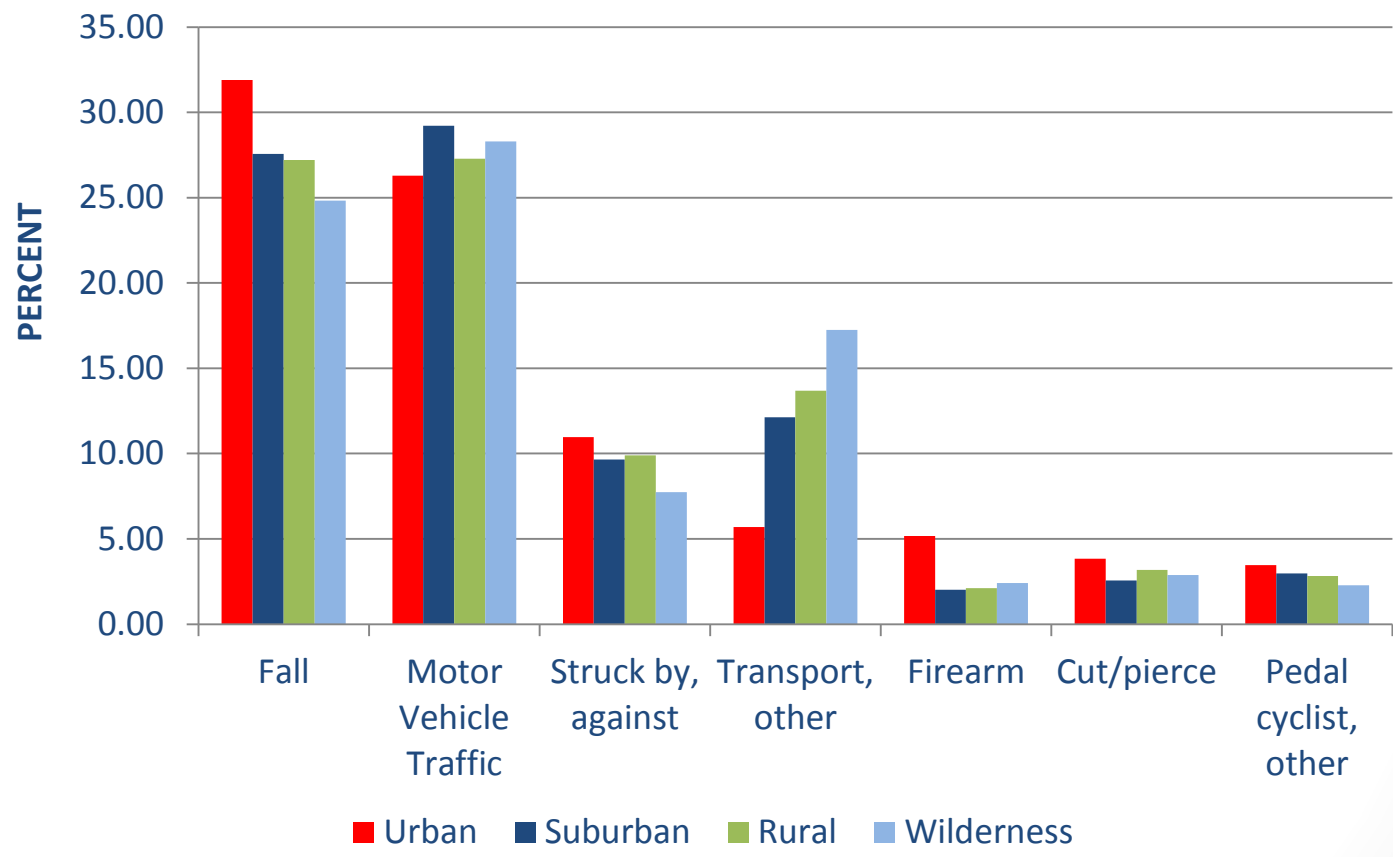


Table 45

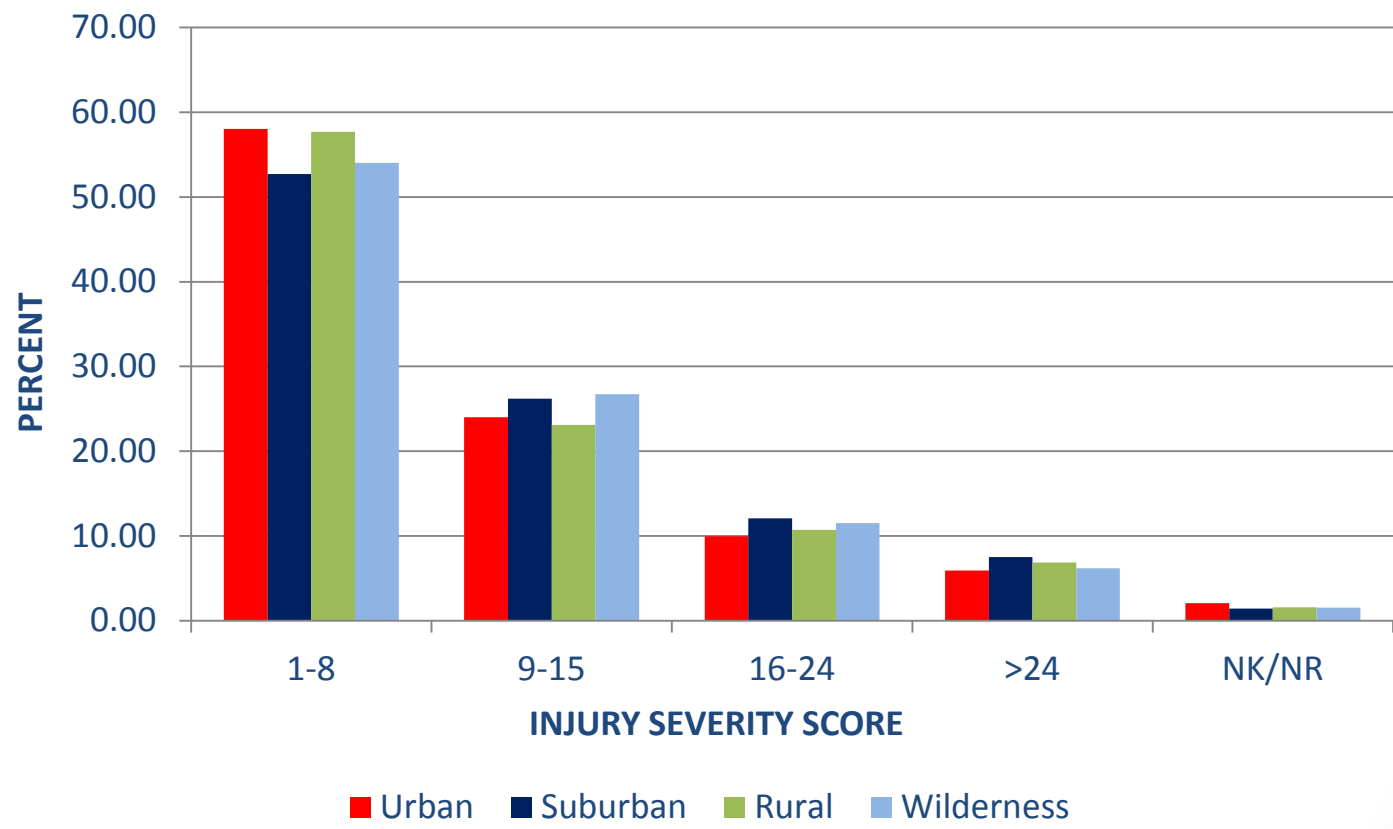
Injury Severity Score by Rurality

ISS	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
1–8	38,213	58.03	3,203	52.71	5,599	57.70	1,369	54.03
9–15	15,815	24.02	1,593	26.21	2,242	23.11	677	26.72
16–24	6,561	9.96	735	12.09	1,042	10.74	292	11.52
>24	3,901	5.92	458	7.54	666	6.86	157	6.20
NK/NR	1,363	2.07	88	1.45	154	1.59	39	1.54
Total	65,853	100.00	6,077	100.00	9,703	100.00	2,534	100.00



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 45 Injury Severity Score by Rurality



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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

COMPARATIVE ANALYSIS

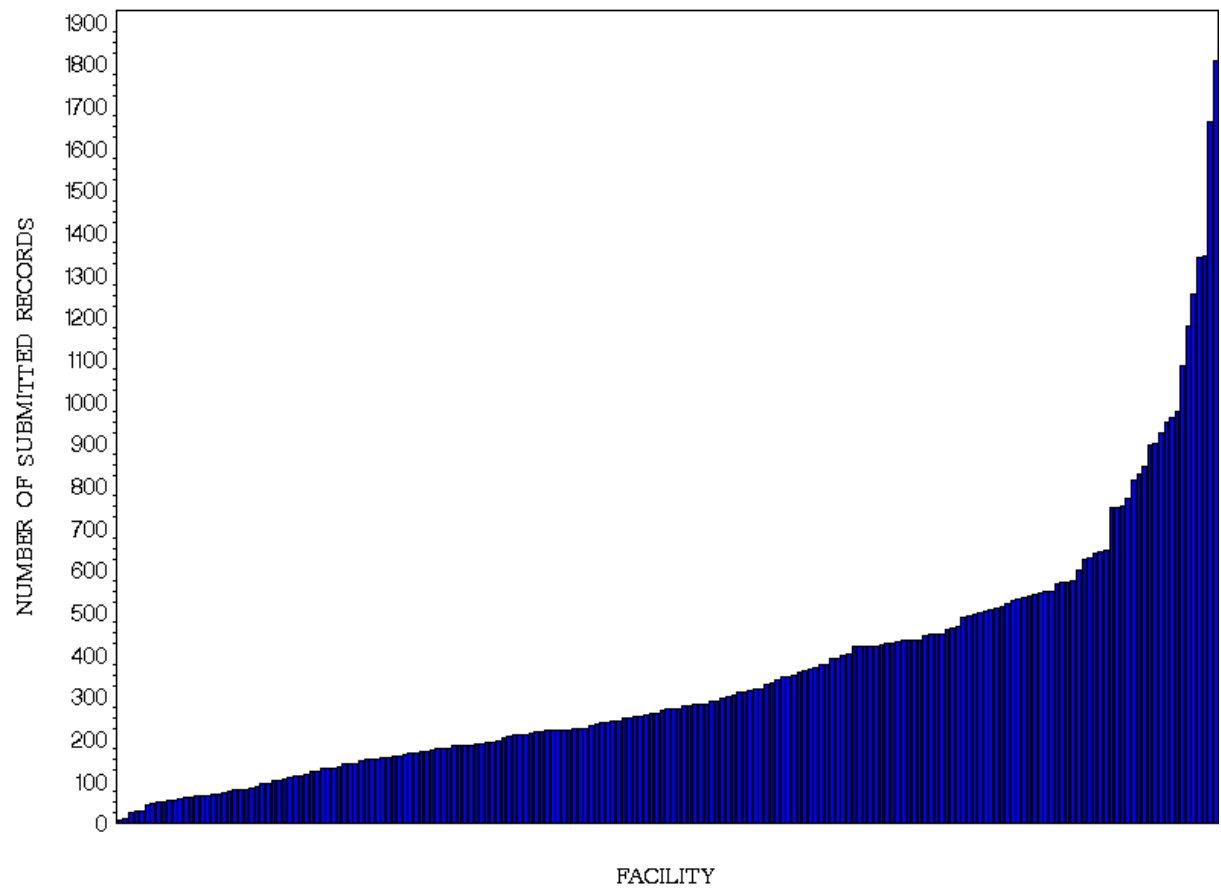


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Figure 46

Number of Cases Submitted per Facility for Level I Facilities with Pediatric Cases (N=201)

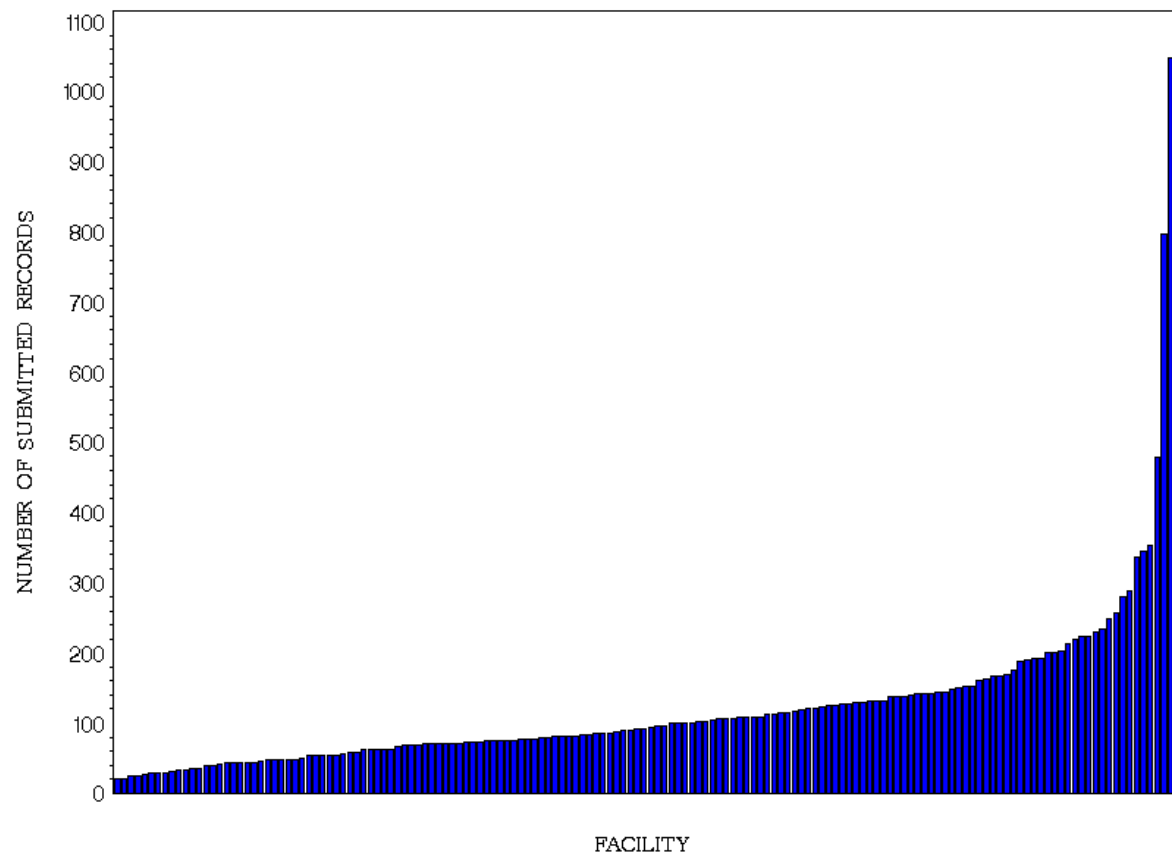


Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.



Figure 47

Number of Cases Submitted per Facility for Level II Facilities with Pediatric Cases (Bedsize \leq 400, N=155)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

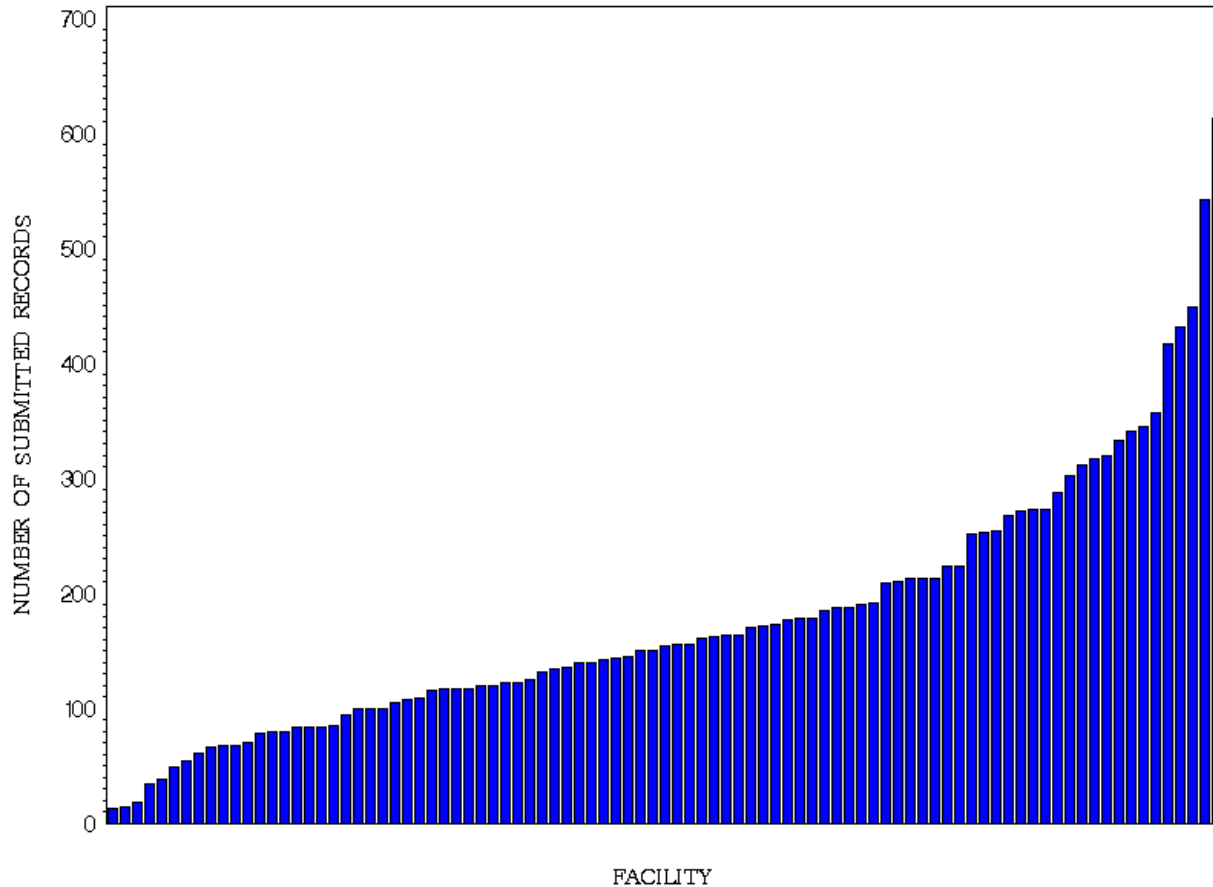


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Figure 48

Number of Cases Submitted per Facility for Level II Facilities with Pediatric Cases (Bedsize > 400, N=143)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

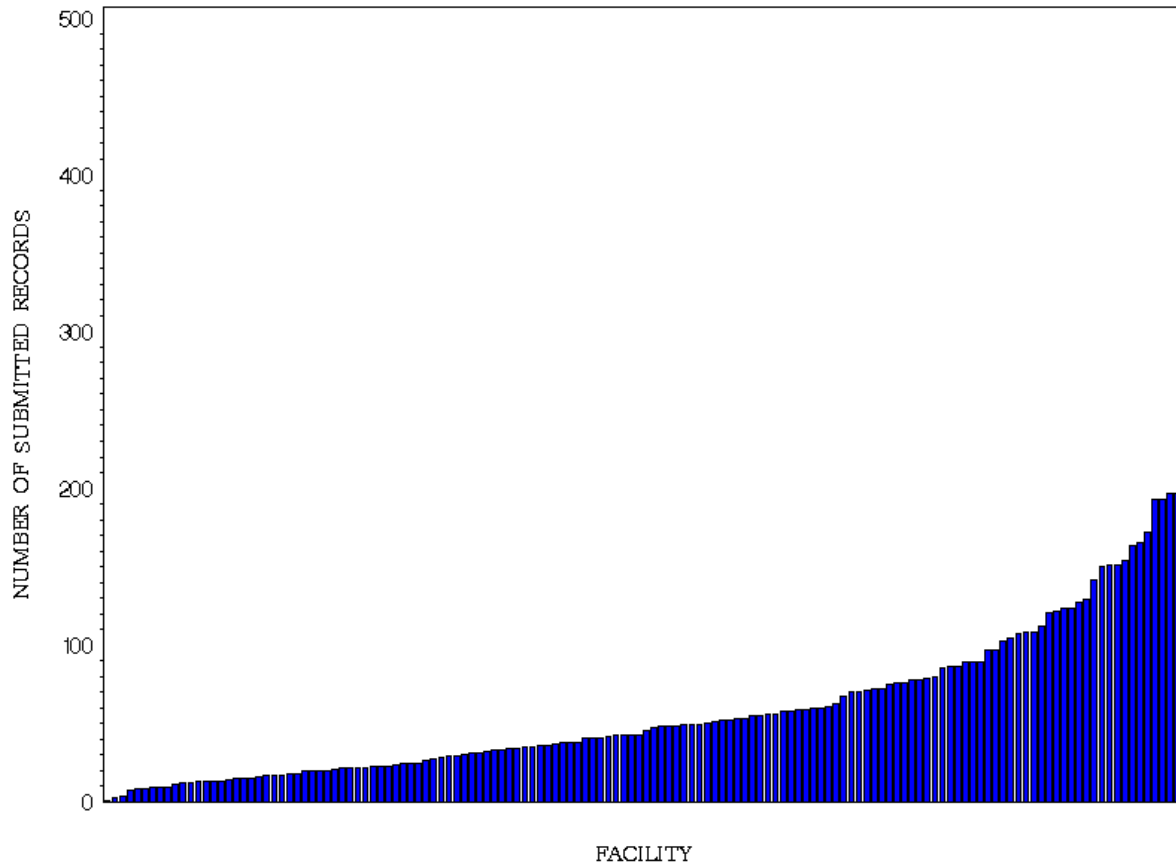


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Figure 49

Number of Cases Submitted per Facility for Level III Facility with Pediatric Cases (N=143)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

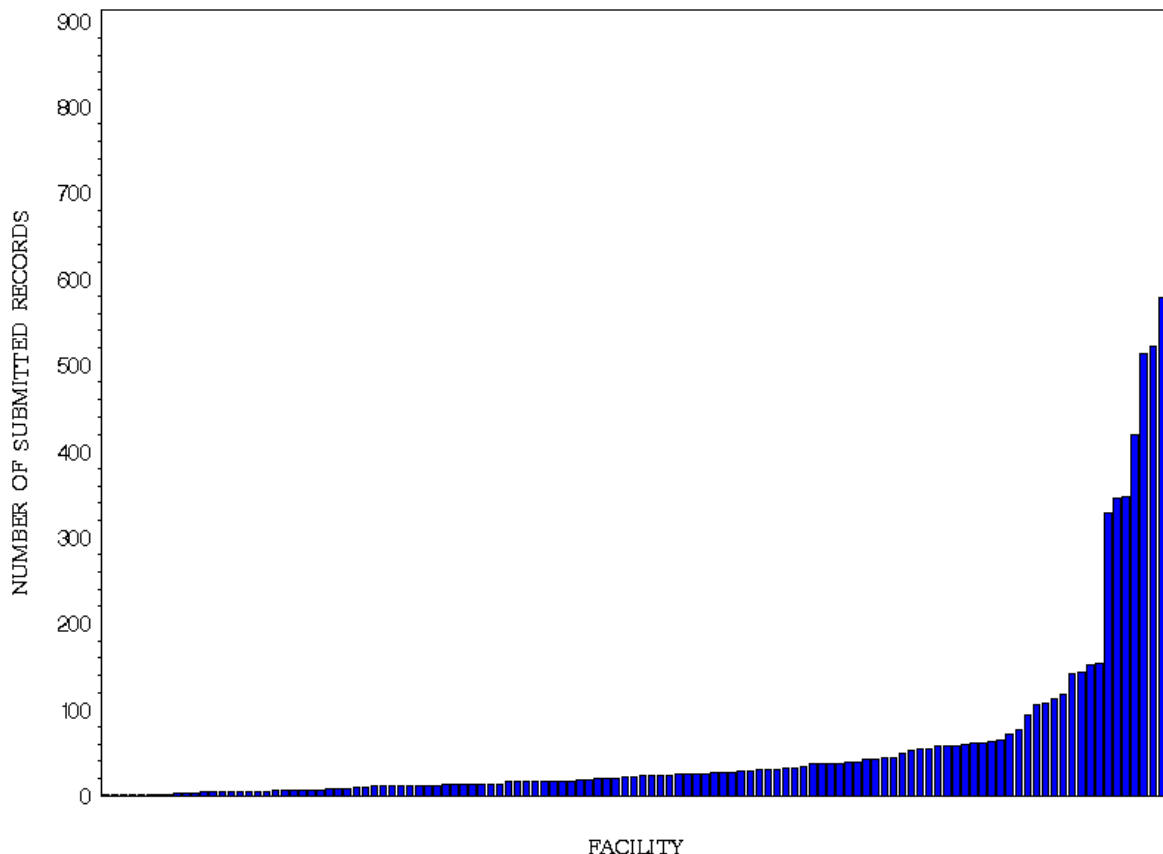


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Figure 50

Number of Cases Submitted per Facility for Level IV, NA, or other Facilities with Pediatric Cases (N=120)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

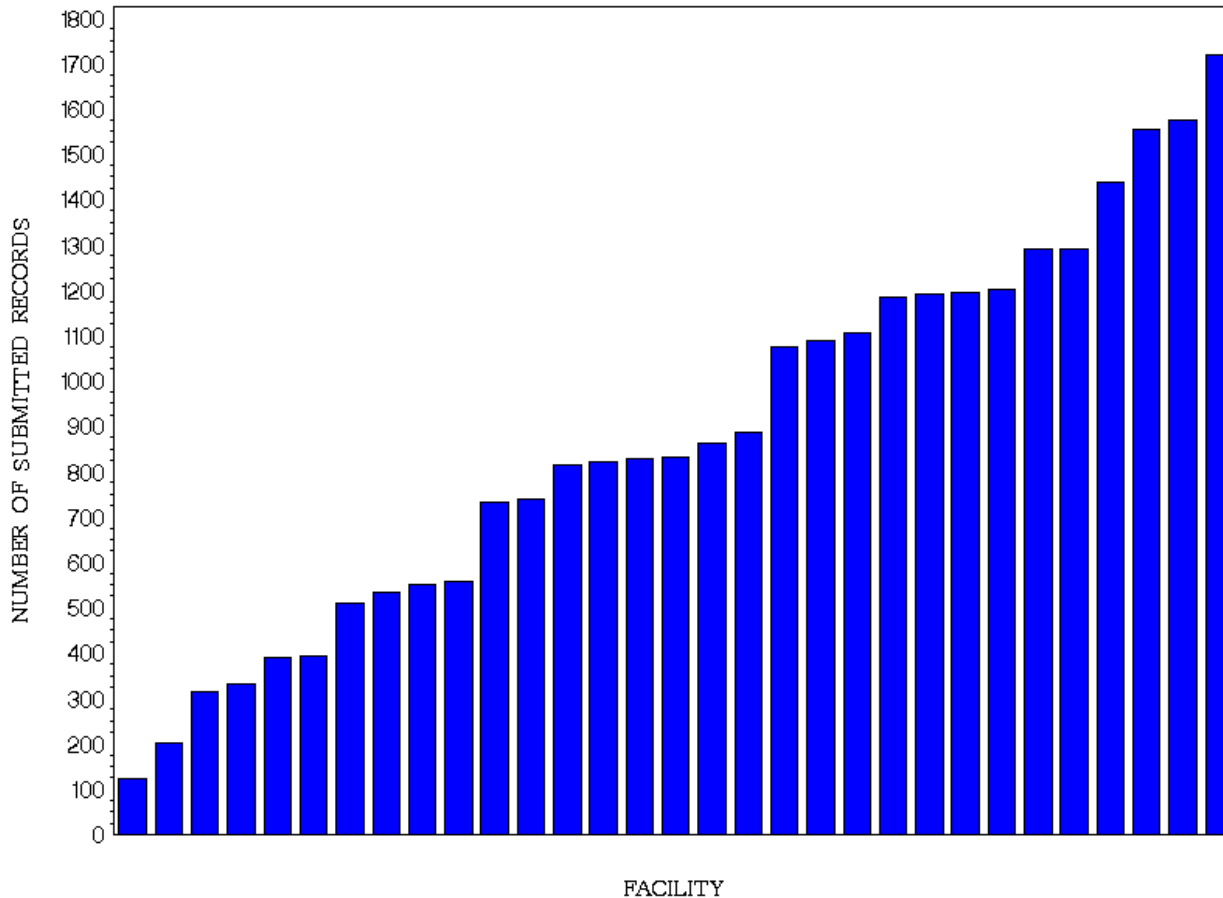


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Figure 51

Number of Cases Submitted per Facility for Pediatric-Only Facilities (N=31)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

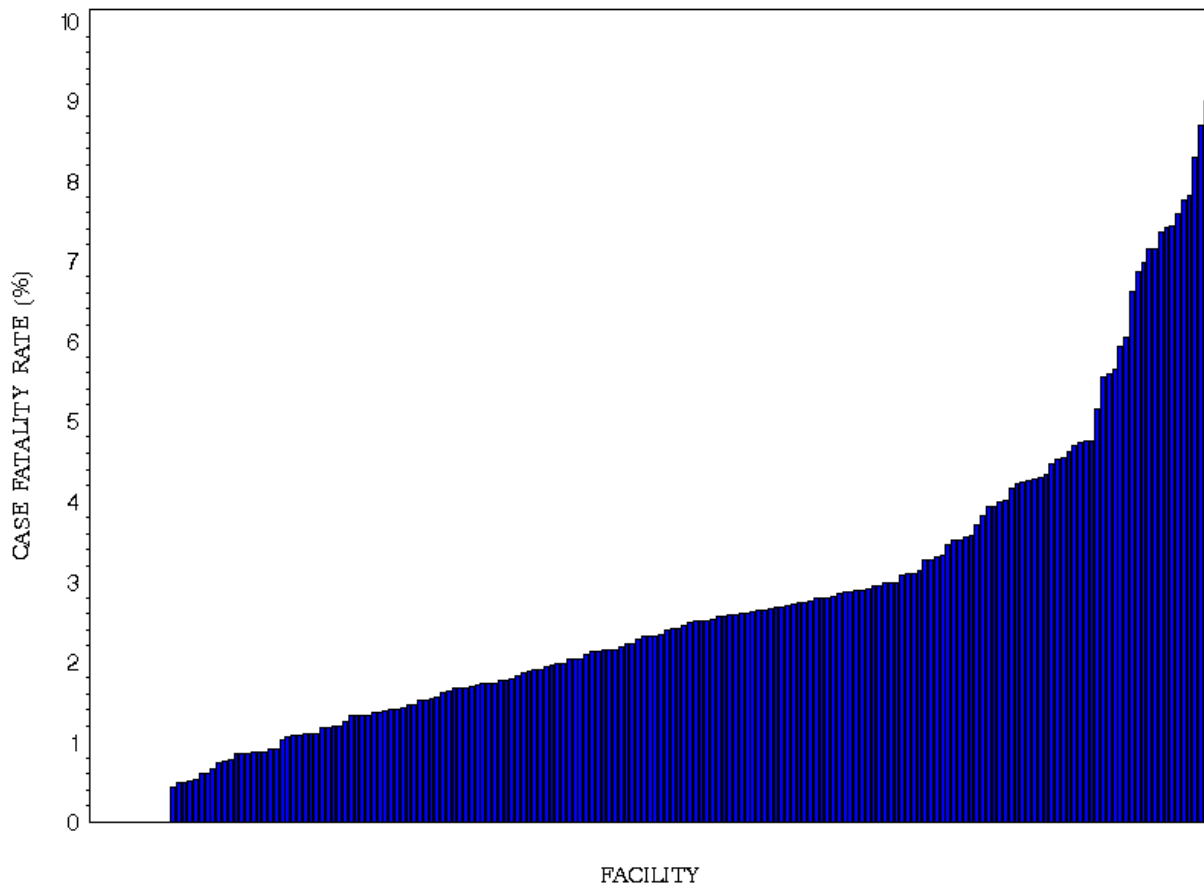


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Figure 52

Case Fatality Rate per Facility for Level I Facilities with Pediatric Cases (N=201)



Ten out of 201 hospitals did not have any pediatric patients who died and are not visible in this graph.

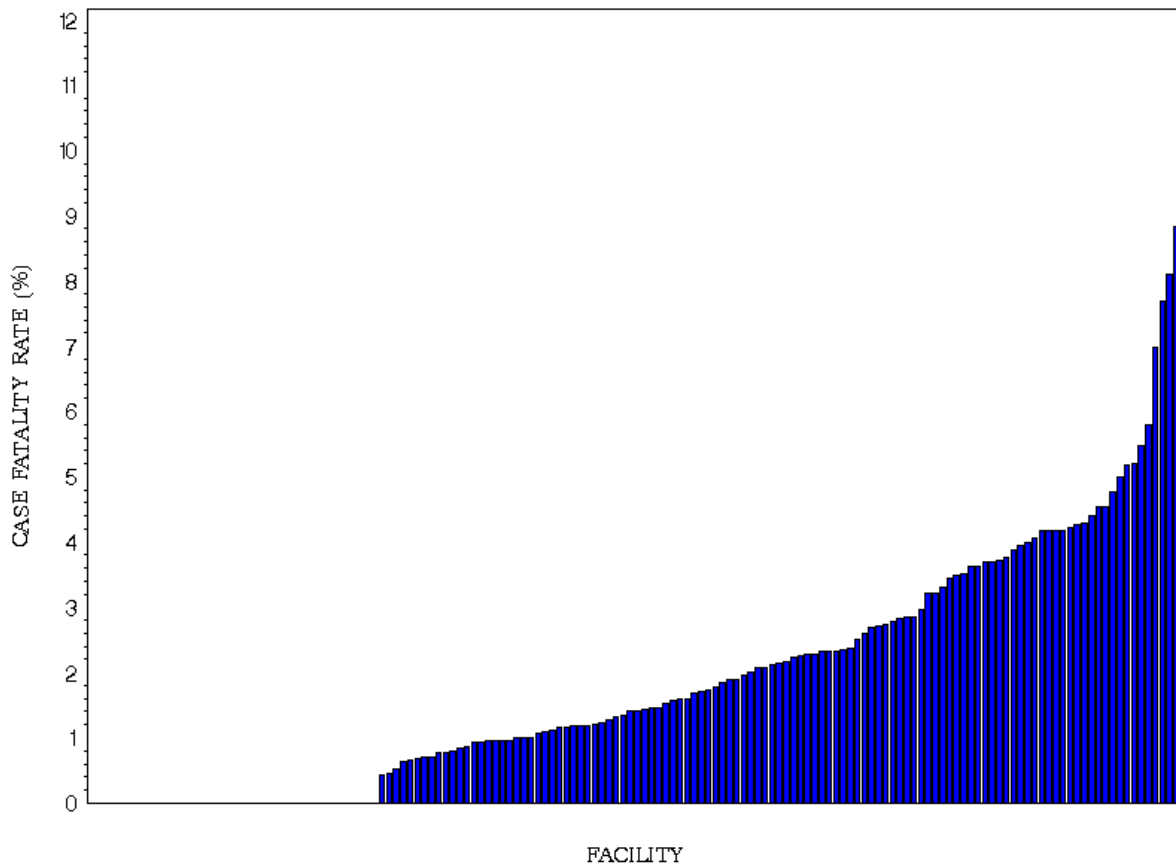


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Figure 53

Case Fatality Rate per Facility for Level II Facilities with Pediatric Cases (Bedsize ≤ 400 , N=155)



Forty-one out of 155 hospitals did not have any pediatric patients who died and are not visible in this graph.

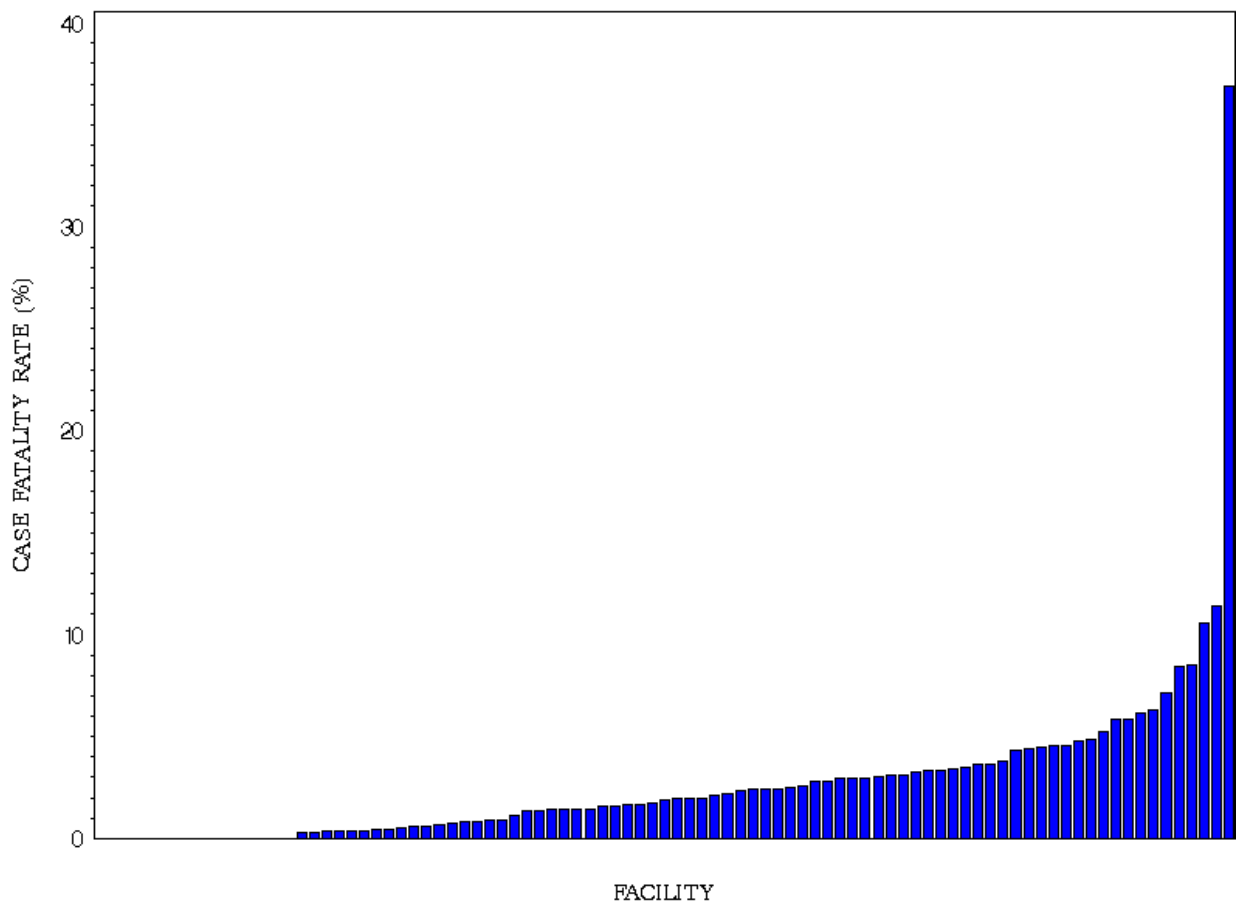


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Figure 54

Case Fatality Rate per Facility for Level II Facilities with Pediatric Cases (Bedsize > 400, N=91)

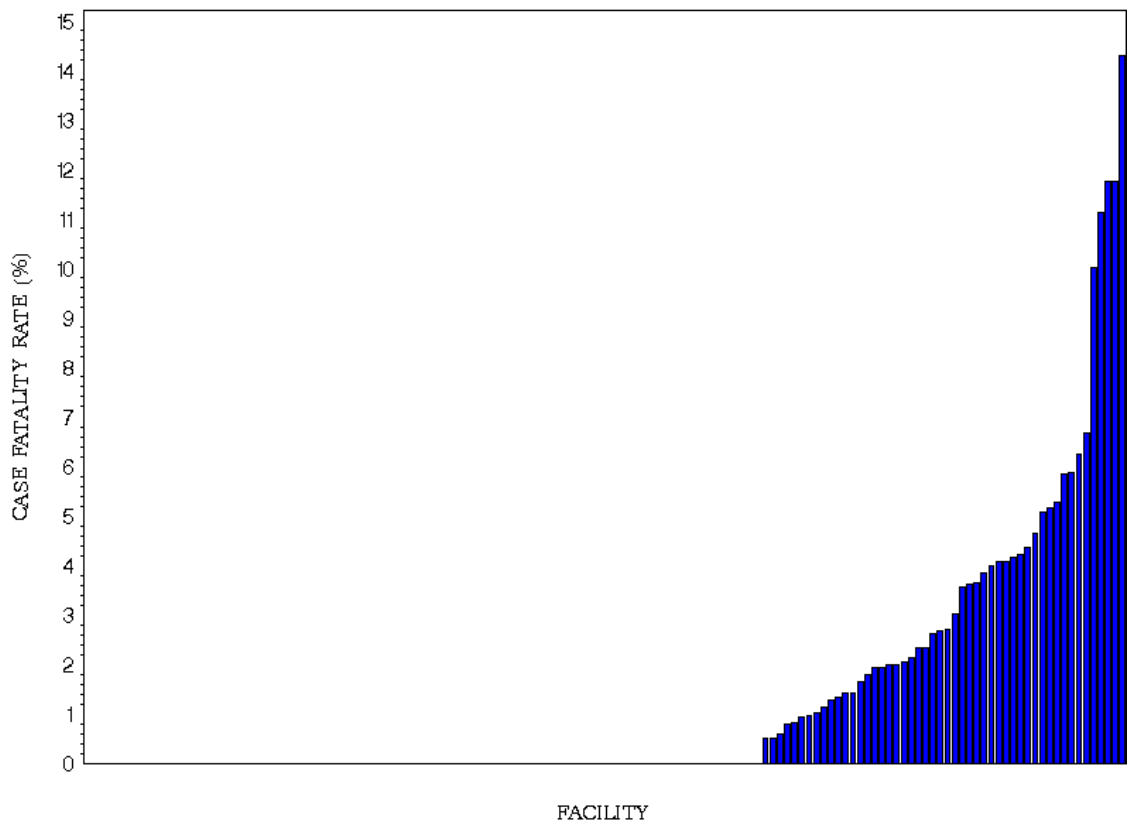


Sixteen out of 91 hospitals did not have any pediatric patients who died and are not visible in this graph.



Figure 55

Case Fatality Rate per Facility for Level III Facilities with Pediatric Cases (N=143)



Ninety-three out of 143 hospitals did not have any pediatric patients who died and are not visible in this graph.

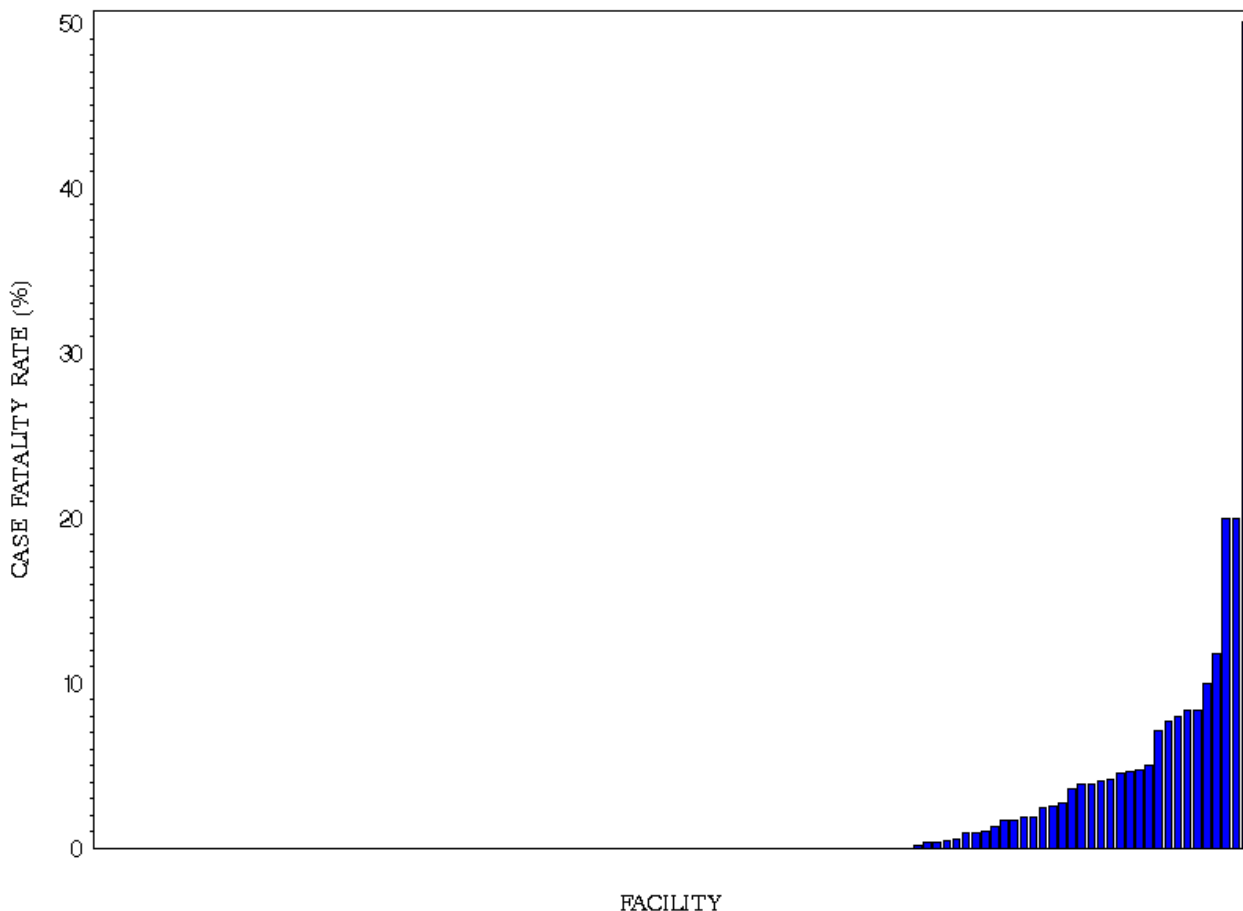


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Figure 56

Case Fatality Rate per Facility for Level IV Facilities, NA, or other Facilities with Pediatric Cases (N=120)

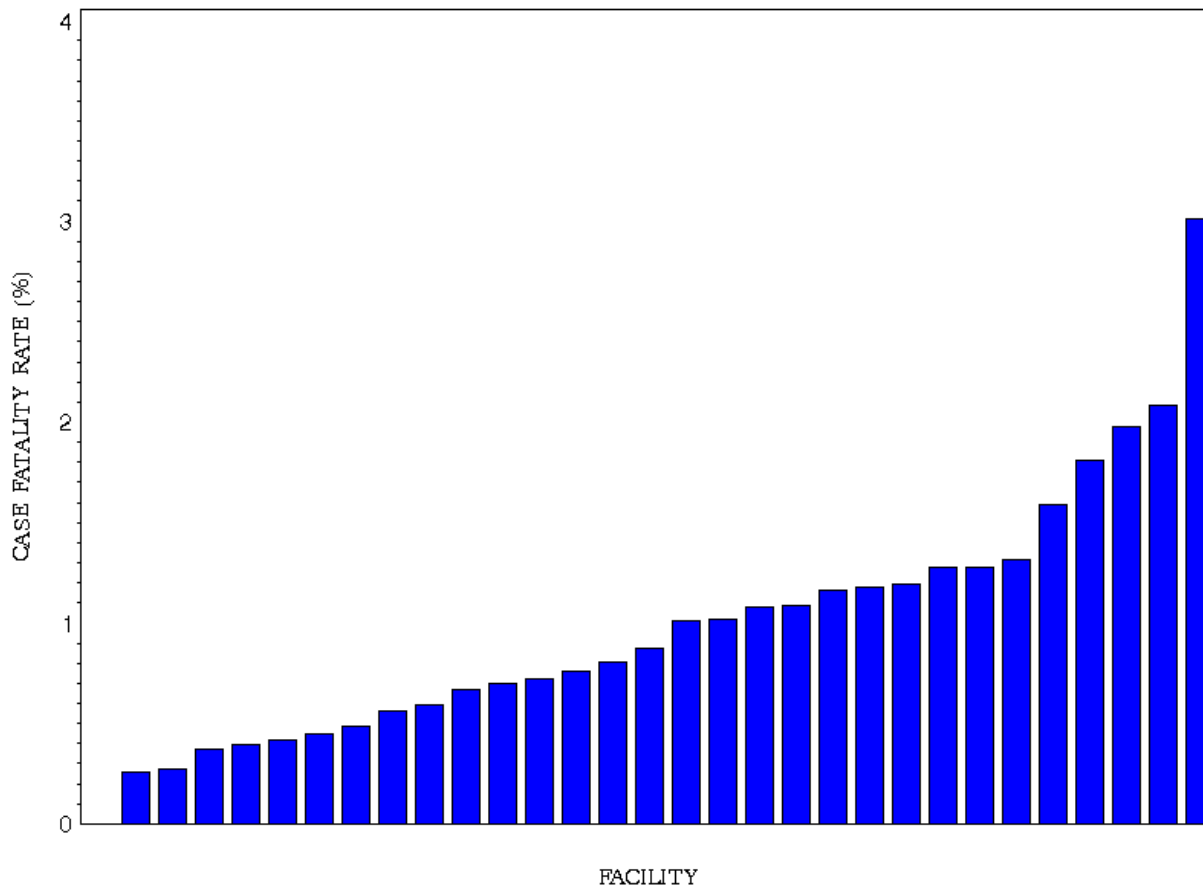


Eighty-five out of 120 hospitals did not have any pediatric patients who died and are not visible in this graph.



Figure 57

Case Fatality Rate per Facility for Pediatric-Only Facilities (N=31)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.

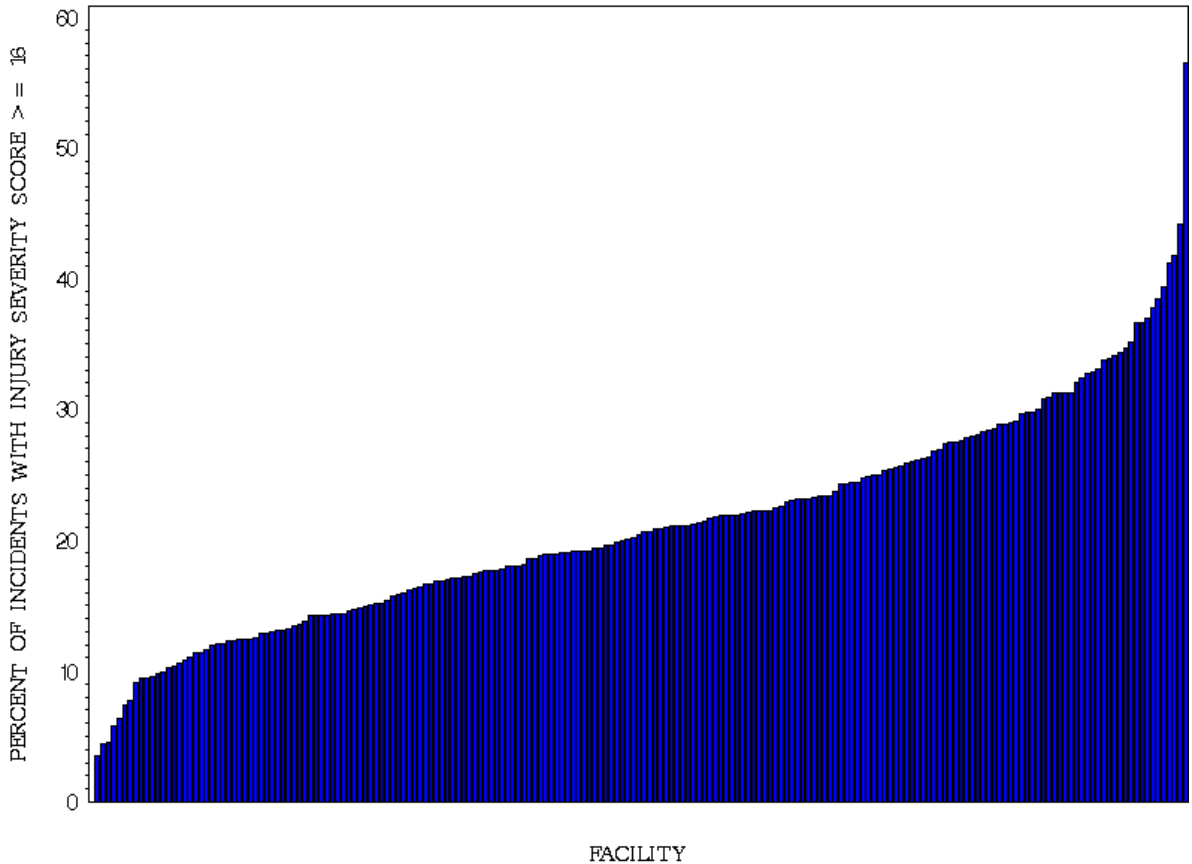


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Figure 58

Percent of Incidents with Injury Severity Score ≥ 16 for Level I Facilities with Pediatric Cases (N=201)



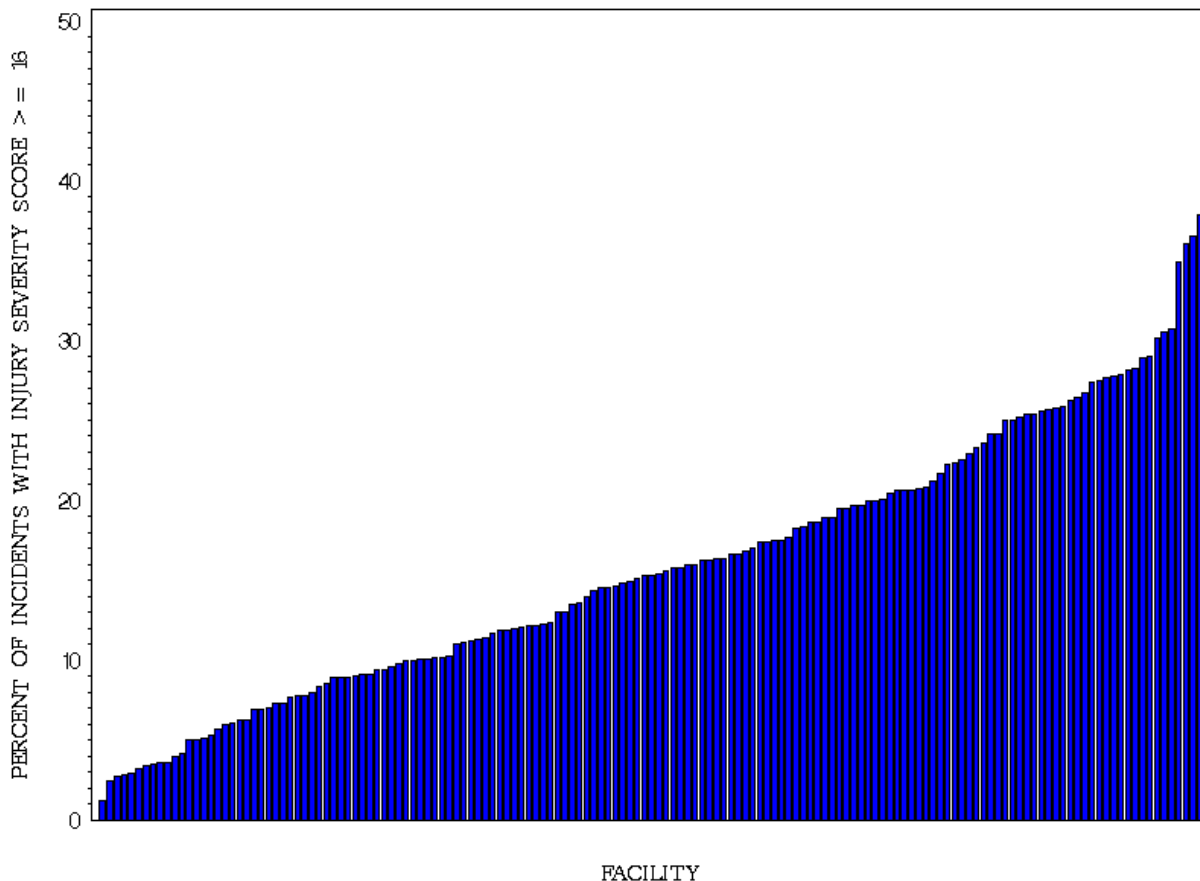
One out of 201 hospitals had no records with ISS ≥ 16 . This facility is omitted from the graph.



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 59

Percent of Incidents with Injury Severity Score ≥ 16 for Level II Facilities with Pediatric Cases (Bedsize ≤ 400 , N=155)

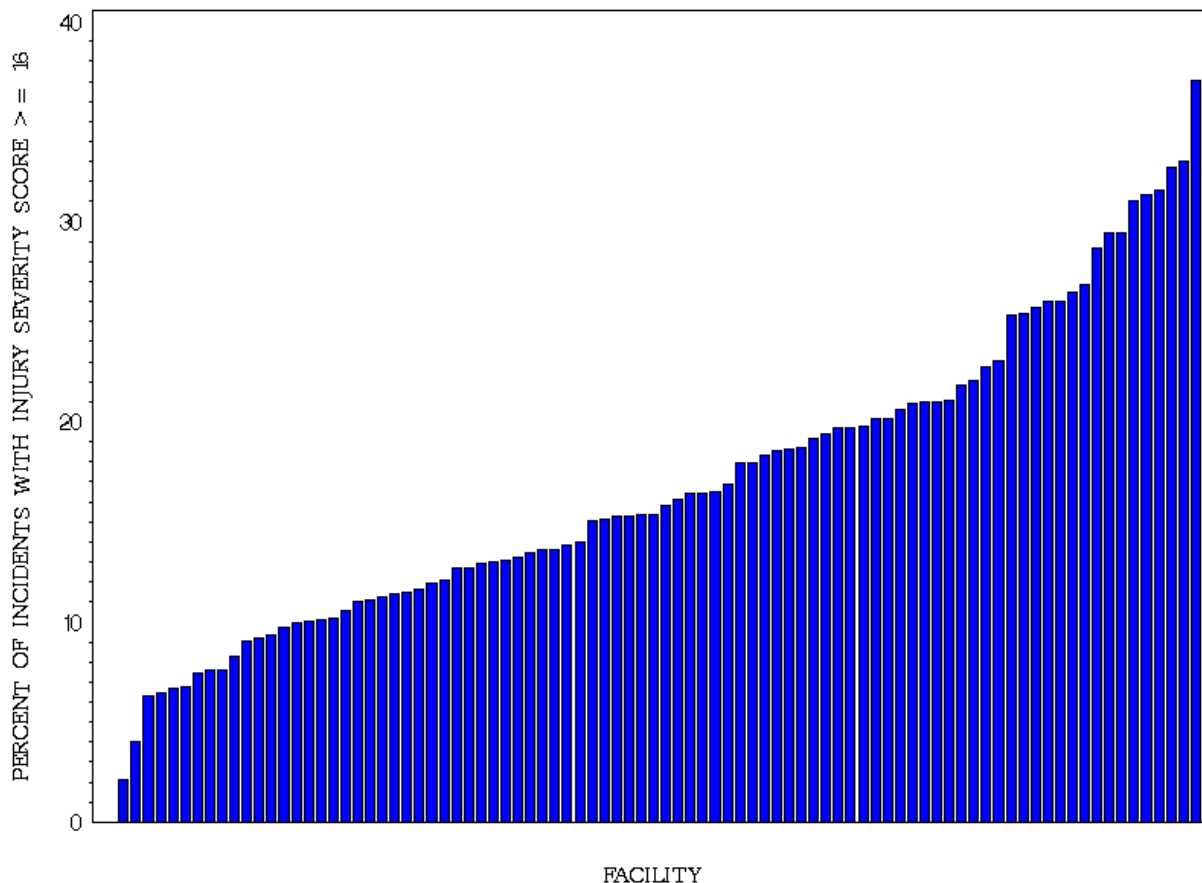


One out of 155 hospitals had no records with ISS ≥ 16 . These facilities are omitted from the graph.



Figure 60

Percent of Incidents with Injury Severity Score ≥ 16 for Level II Facilities with Pediatric Cases (Bedsize > 400, N=91)



Two out of 91 hospitals had no records with ISS ≥ 16 . These facilities are omitted from the graph.



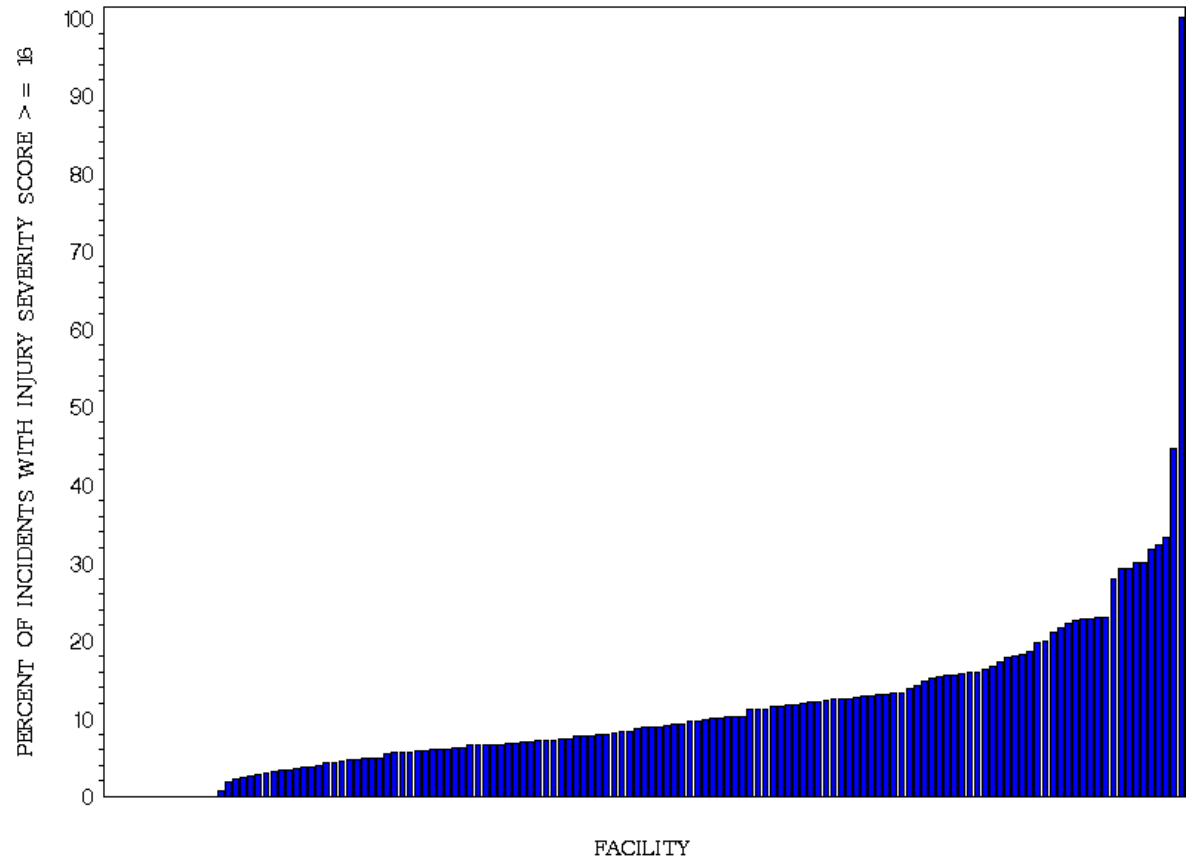
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ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

Figure 61

Percent of Incidents with Injury Severity Score ≥ 16 for Level III Facilities with Pediatric Cases (N=143)

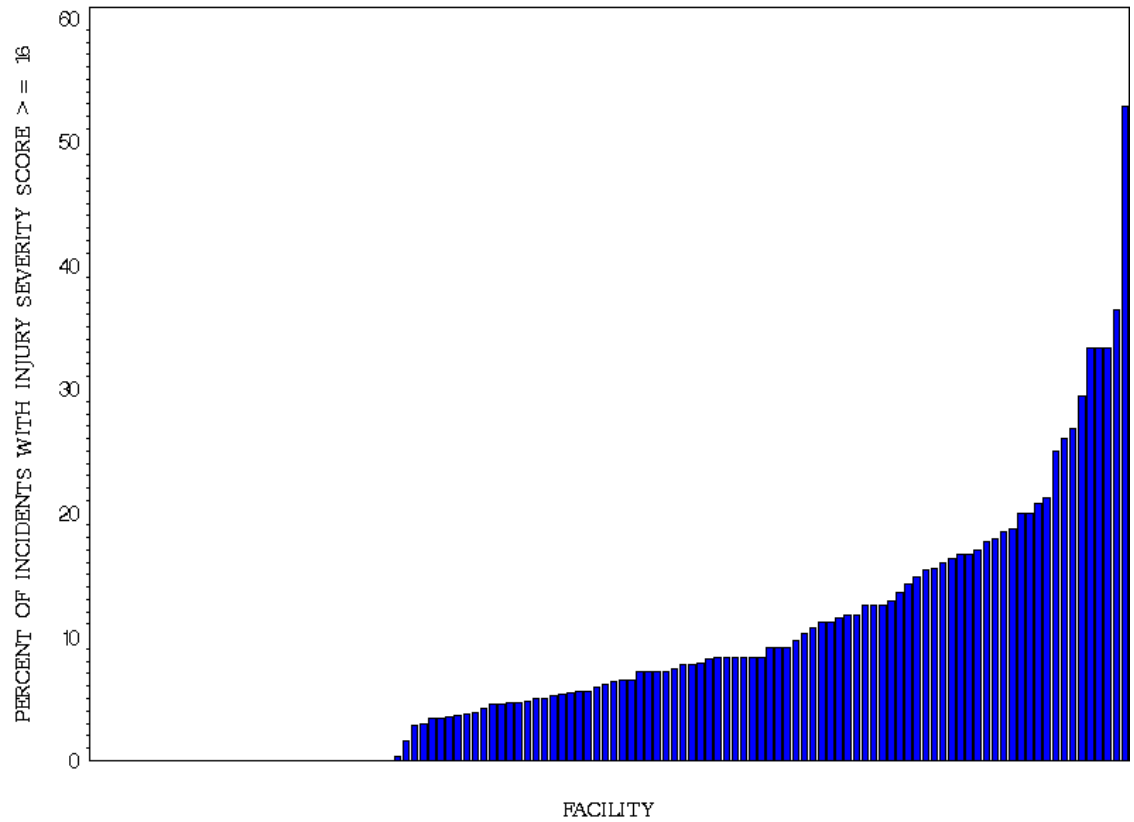


Fifteen out of 143 hospitals had no records with ISS ≥ 16 . These facilities are omitted from the graph.



Figure 62

Percent of Incidents with Injury Severity Score ≥ 16 for Level IV, NA, or other Facilities with Pediatric Cases (N=120)

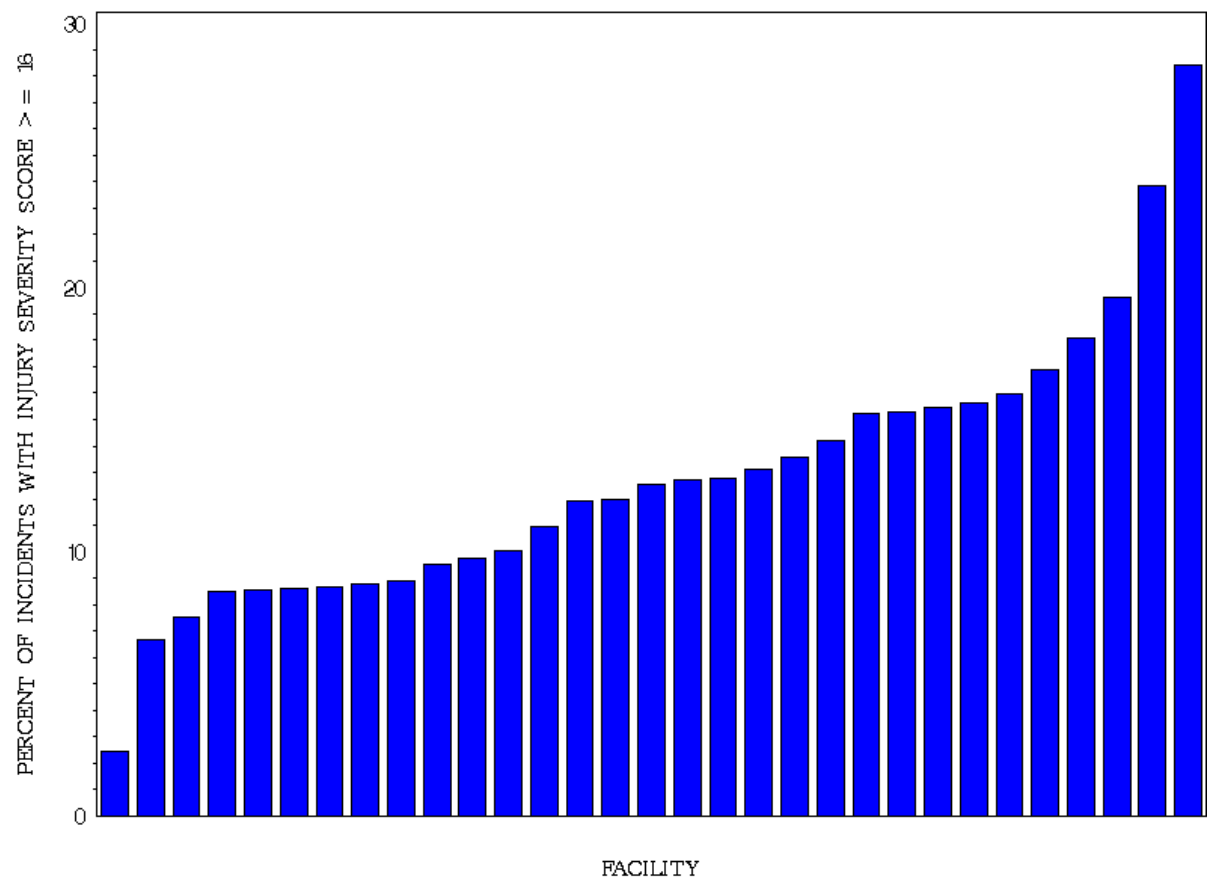


Thirty-five out of 120 hospitals had no records with ISS ≥ 16 . These facilities are omitted from the graph.



Figure 63

Percent of Incidents with Injury Severity Score ≥ 16 for Pediatric-Only Facilities (N=31)



Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation.



ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

APPENDICES



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APPENDIX A

Definition of a Trauma Patient

Definition of a Trauma Patient adopted by NATIONAL TRAUMA DATA BANK

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)



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APPENDIX B

Comparative Injury Severity Score (ISS) Definitions

Local ISS: Injury Severity Scores as submitted by the facility.

AIS Submitted: Injury Severity Scores as calculated by the NTDB from AIS codes submitted by the facility.

AIS98 Crosswalked: Injury Severity Scores as calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98 then ISS is based on AIS derived from ICDMAP-90.

AIS ICDMAP-90: Injury Severity Scores as calculated by the NTDB using ICD-9-CM diagnosis codes that are mapped to AIS90 codes using ICDMAP-90 software.



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APPENDIX C

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

Mechanism/Cause	Manner/Intent				
	Unintentional	Self-Inflicted	Assault	Undetermined	Other
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 ³	E890.0–E899, E924.0–.9	E958.1,.2,.7	E961, E968.0,.3, E979.3	E988.1,.2,.7	
Fire/flame ³	E890.0–E899	E958.1	E968.0, E979.3	E988.1	
Hot object/ substance	E924.0–.9	E958.2,.7	E961,E968.3	E988.2,37	
Firearm ³	E922.0–.3,.8,.9	E955.0–.4	E965.0–4, E979.4	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–E807(.2) E820–E825(.7) E826–E829(.0)				



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Mechanism/Cause	Manner/Intent				
	Unintentional	Self-Inflicted	Assault	Undetermined	Other
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	E900.00–E909, E928.0–.2	E958.3		E958.3	
Bites/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, E979.6,.7	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 ^{3,4}	E846–E848, E914–E915 E918, E921.0–39, E922.4,.5 E923.0–.9, E925.0–E926.9 E928(.3–.5), E929.0–.5	E9555,.6,.7,.9 E958.0,.4	E960.1,E965.5–.9 E967.0–.9, E968.4,.6,.7 E979 (.0–.2,.5,.8,.9)	E985.5,.6,.7 E988.0,.4	E971, E978 E990–E994, E996 E997.0–.2
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All Injury ³	E800–E869, E880–E929	E950–E959	E960–E969, E979, E999.1	E980–E989	E970–E978, E990– E999.0
Adverse effects					E870–E879 E930.0–E949.9
Medical care					E870–E879
Drugs					E930.0–E949.9
All external causes					E800–E999



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E-Code Grouping: Table Notes

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.

³Codes in bold are for morbidity coding only. For details see table 2.

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-CME* E849 code should never be first-listed E-code and should only appear as an additional code to specify the place of occurrence of the injury incident.

Note: ICD-9 E codes for coding underlying cause of death apply to injury-related death data from 1979 through 1998. Then there is a new ICD-10 external cause of injury matrix that applies to death data from 1999 and after. This can be found on the National Center for Health Statistics website at <http://www.cdc.gov/nchs/about/otheract/ice/projects.htm>.

Reference MM WR 1997;46:1–30. Updated last time in 2009.



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Resources

- www.ntdb.org for more information about NTDB
- www.ntdbdatacenter.com to submit data to NTDB
- www.ntdsdictionary.org for information on the data standard



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