AMERICAN COLLEGE OF SURGEONS

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NTDB®
NATIONAL TRAUMA DATA BANK

National Trauma Data Bank 2012

Annual Report

NTDB Annual Report 2012

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EDITOR'S NOTE

The Annual Report of the National Trauma Data Bank (NTDB) 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 Annual Report is based on 773,299 2011 admission year records from 744 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 (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. 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 hopes that this report will attract new participants. The National Trauma Data Bank Annual 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 Annual Reports.

Executive Summary

The National Trauma Data Bank is the largest aggregation of U.S. trauma registry data ever assembled.

It contains more than 5 million records. The 2012 Annual Report reviews 2011 admissions submitted in the 2012 call for data, totaling 773,292 records with valid trauma diagnoses. The goal of the NTDB 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.

This endeavor is in keeping with the mission of the American College of Surgeons Committee on Trauma, which is "To improve the care of the injured through systematic efforts in prevention, care, and rehabilitation."

Injury Severity Score

The Injury Severity Score (ISS) is a system for numerically stratifying injury severity. The ISS system has a range of 1-75 and risk of death increases with a higher score. This report categorizes ISS 1-8 as Minor; 9-15 as Moderate; 16-24 as Severe; and greater than 24 as Very Severe. ISS used in the report analysis is calculated by using the AIS submitted by hospitals and then crosswalked to AIS98. If the hospital does not submit AIS, then ISS is based on AIS derived from ICDMAP-90.

- Almost half (47.31%) of patients suffer minor injuries and just under one-third (30.32%) have moderate injuries.
- Case fatality rates increase with injury severity, with the most severe group experiencing a case fatality rate of 28.05.
- Case fatality for all severity levels is higher for patients age 75 and over.
- Median length of stay (LOS) increases for each consecutive severity grouping.

Payment

- Medicare insurance is the single largest payment source at 21.66%.
- Private/commercial insurance is second at 20.81%.
- Self-pay is the third largest payment category at 15.10%.

Mortality

- The largest number of deaths is caused by fall-related injuries, followed by motor vehicle traffic and struck by/against.
- Firearm, suffocation, and drowning/submersion have the highest case fatality rates.
- Case fatality rates are highest in patients age 75 and over.
- Firearm injuries have the highest case fatality rates in every age group among the selected mechanisms shown in the report.

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Executive Summary (cont'd)

NTDB Hospitals

- 744 hospitals submitted data to the NTDB in 2011.
- 228 are Level I centers.
- 251 are Level II centers.
- 210 are Level III or Level IV centers.
- 31 are Level I or Level II Pediatric–only centers
- 67.20% of participating trauma centers reported using the NTDB ICD–9 inclusion criteria for their registries.
- 54.84% of participating centers reported including all hip fractures (in accordance with NTDB inclusion criteria).
- 89.11% reported including DOAs in their registries.

Age

- The age distribution of patients in NTDB peaks from ages 14 to 29, primarily representing patients injured in MVT–related incidents.
- There is a second peak between the ages of 40 and 50, when falls begin to increase and MVT incidences are still high.
- Fall–related injuries spike in children under 7 and adults over the age of 75.
- Up to age 71, men account for 70% of incidents. After age 70, most patients are women.

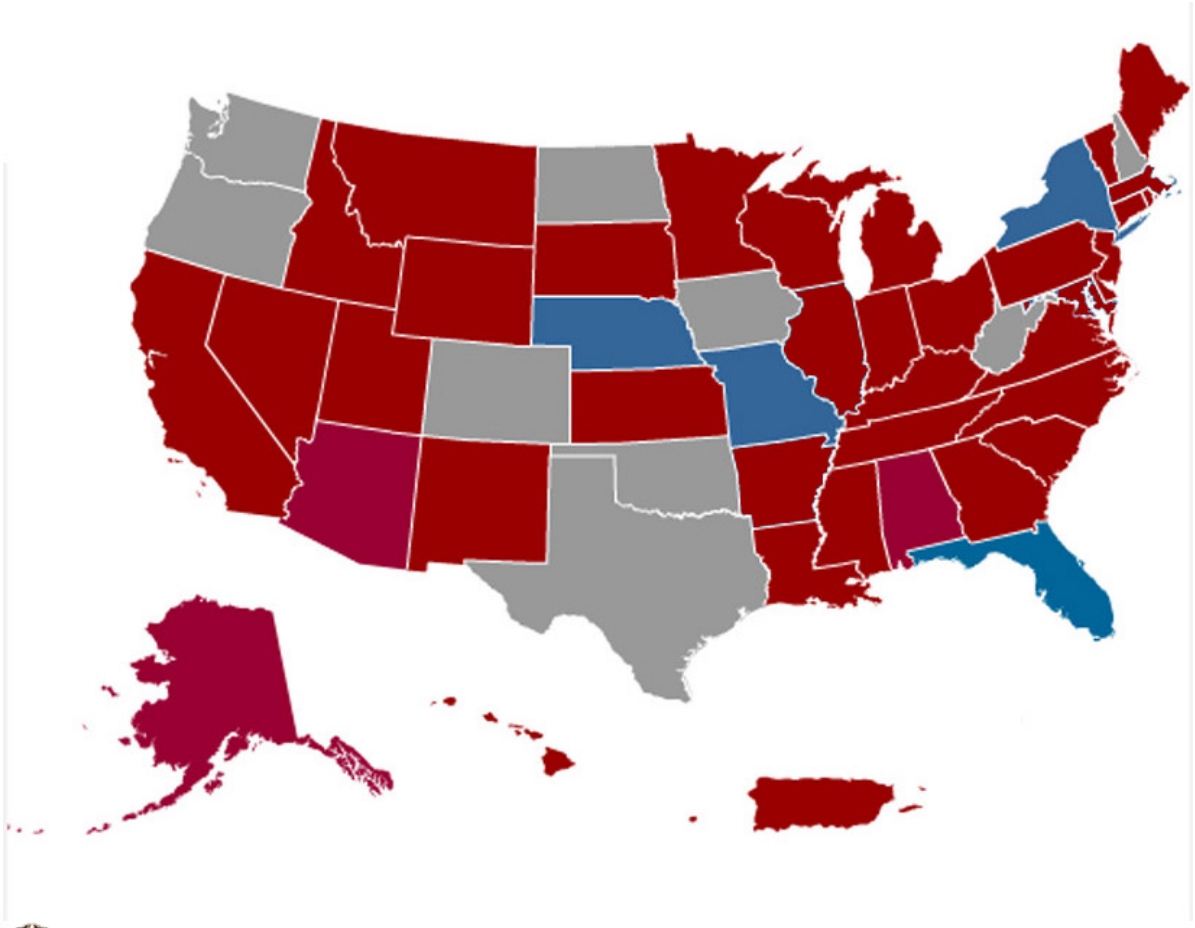
Mechanism of Injury

- Falls account for 40% of cases in the NTDB, with high incident rates for patients under age 10 and age 75 and over.
- Motor vehicle traffic–related injuries account for 28% of cases in the NTDB, with a dramatic rise between age 15 and 33, peaking around age 19.
- Firearm injuries rise from 15-34 years of age, and then steadily decrease.
- Suffocation, firearm, and drowning/submersion injuries have the highest case fatality rates, with suffocation at 25.58%, firearm at 16.12%, and drowning/submersion at 15.79%.

FACILITY INFORMATION

Figure 1

Percent of Hospitals Submitting Data to NTDB by State and U.S. Territory



Percent of hospitals=Number of hospitals in the state that have submitted to the NTDB divided by the number of hospitals identified by the Trauma Exchange Information Program (TIEP) as trauma centers designated by a state of local authority and/or verified by the American College of Surgeons.

- 67% or greater
- 34% to 66%
- 0% to 33%

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Table 2

Facilities by Bed Size

BED SIZE	NUMBER	PERCENT
≤200	218	29.30
201 – 400	253	34.01
401 – 600	147	19.76
≥600	126	16.94
Total	744	100.00

Figure 2

Facilities by Bed Size

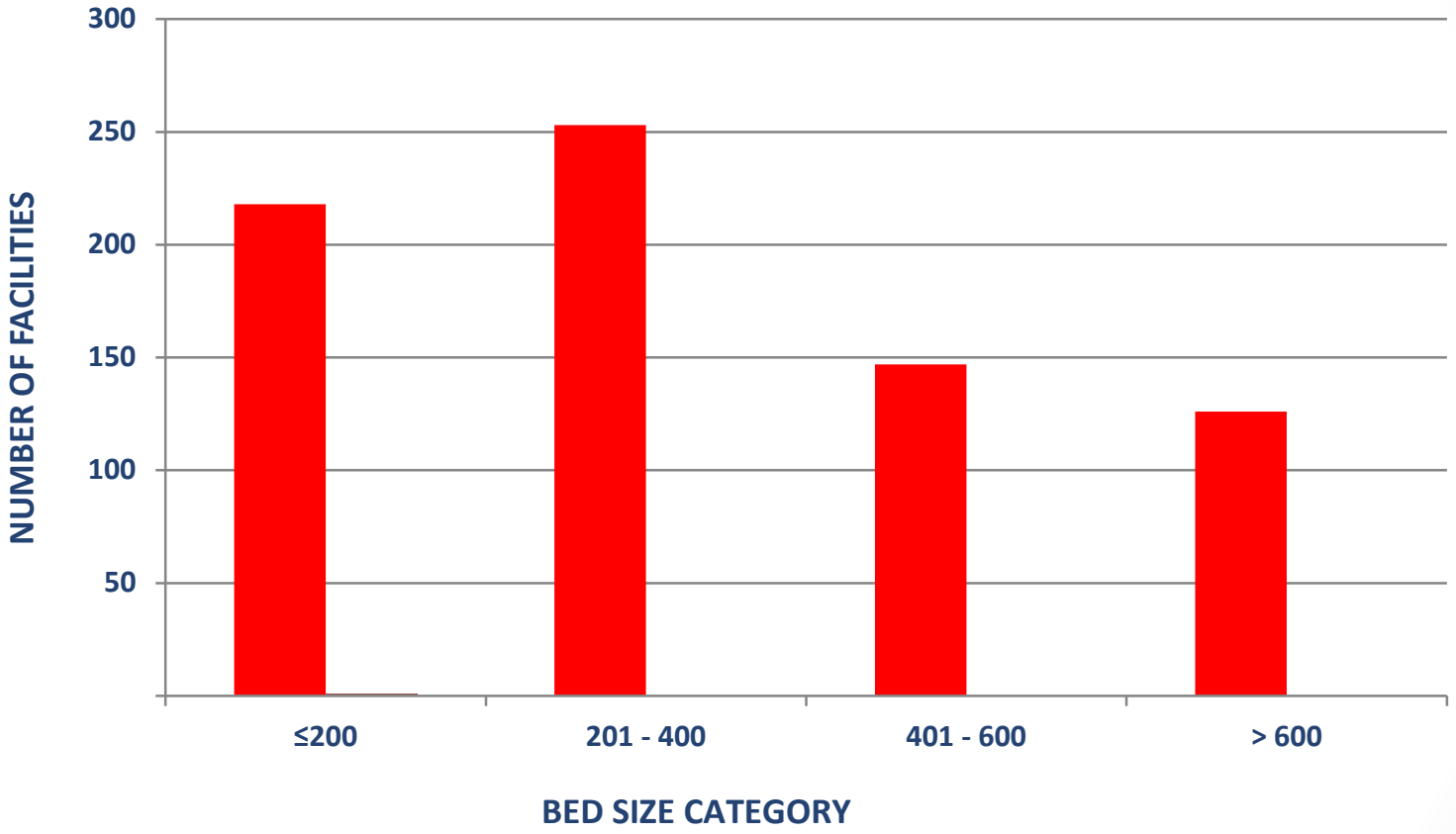


Table 3

Facilities by Trauma Level

LEVEL	NUMBER	PERCENT
I	228	30.65
II	251	33.74
III	143	19.22
IV	67	9.01
Other	11	1.48
NA	44	5.91
Total	744	100.00

This includes 31 pediatric–only centers.
Both ACS-verified and state-designated centers are included.

Figure 3

Facilities by Trauma Level

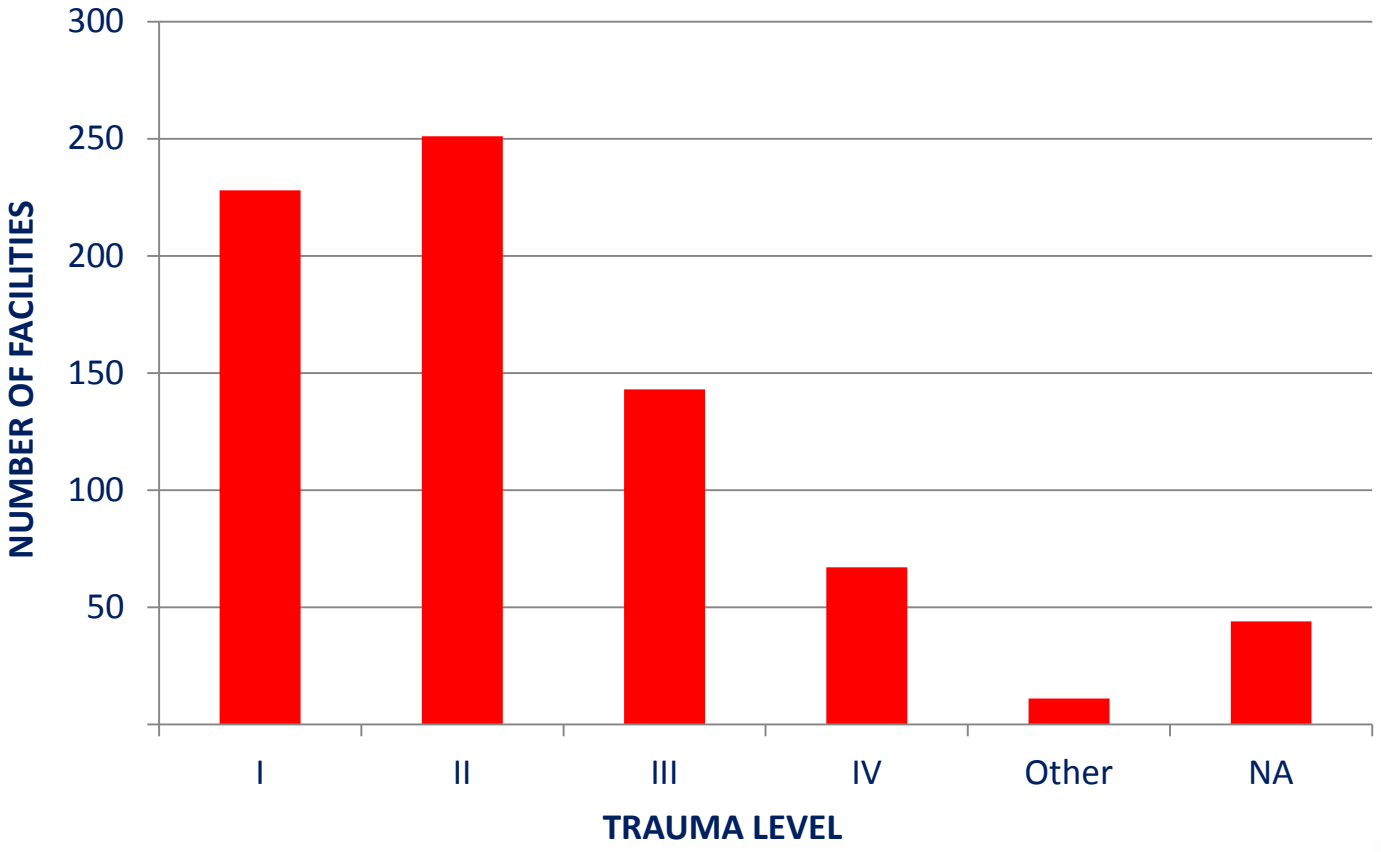


Table 4

Facilities by Region

REGION	NUMBER	PERCENT
MIDWEST	235	31.59
NORTHEAST	102	13.71
SOUTH	240	32.26
WEST	164	22.04
NA	3	0.40
Total	744	100.00

Figure 4

Facilities by Region

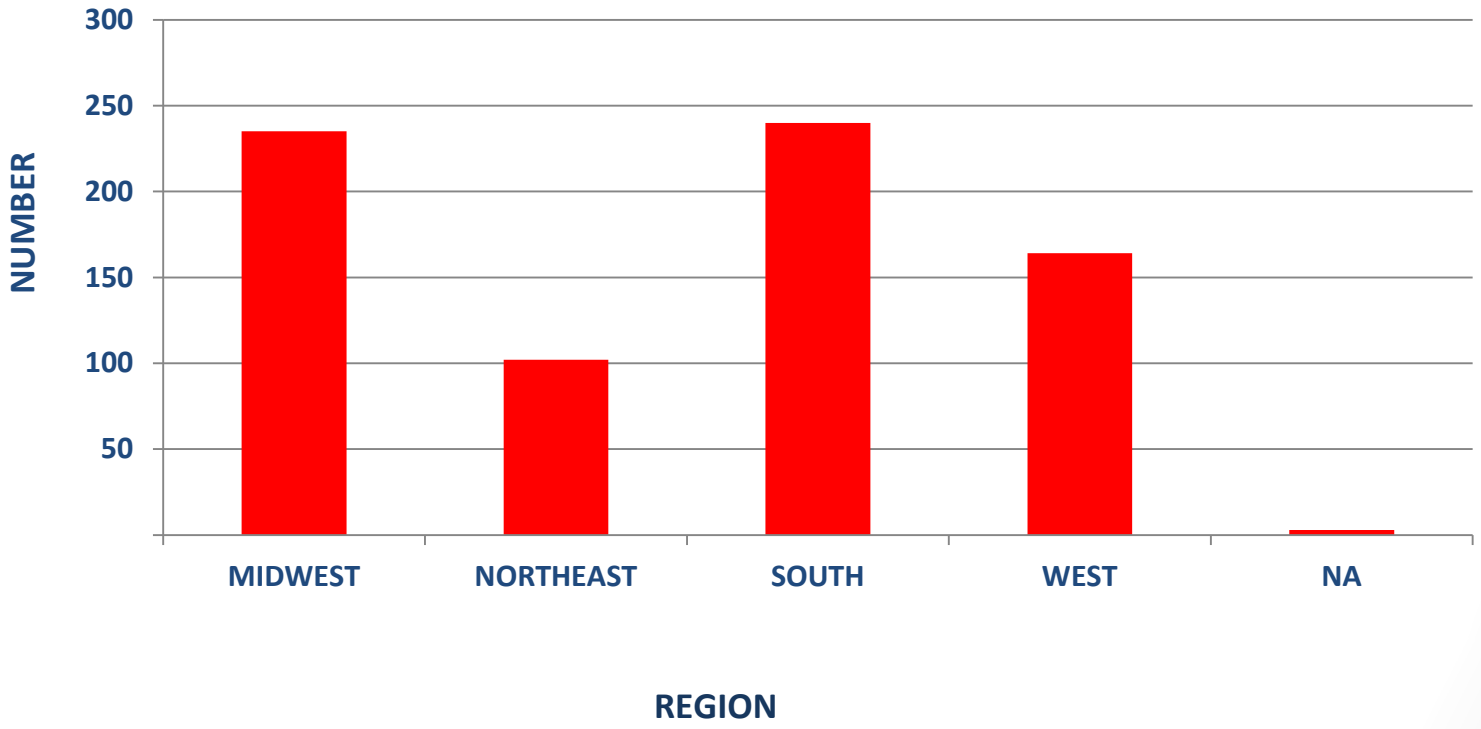


Table 5

Facilities by ICD-9 Inclusion Criteria

ICD-9 INCLUSION SAME AS NTDB	NUMBER	PERCENT
No	244	32.80
Yes	500	67.20
Total	744	100.00

Figure 5

Facilities by ICD-9 Inclusion Criteria

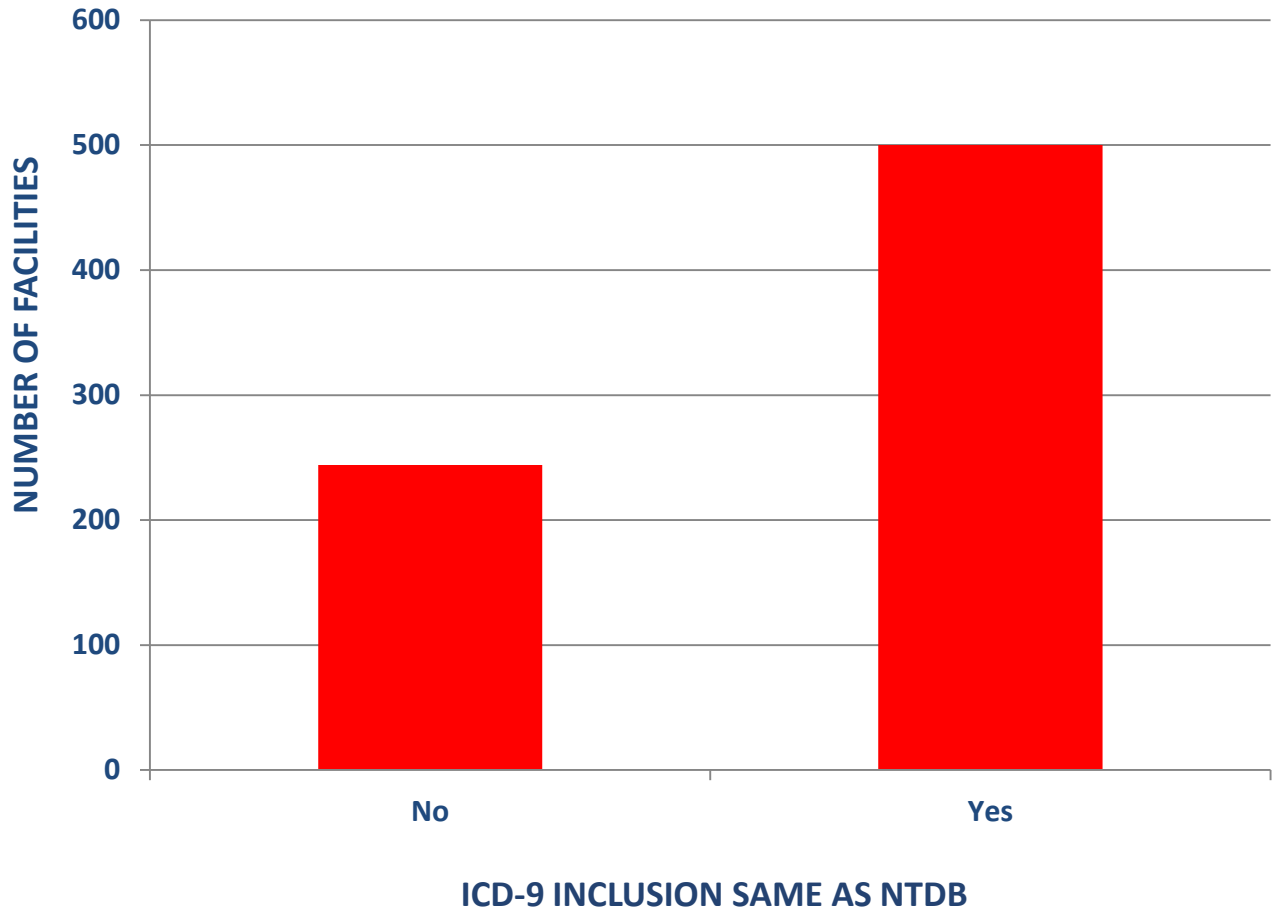


Table 6

Facilities by Length of Stay Inclusion Criteria

LOS	NUMBER	PERCENT
All admissions	524	70.43
23 hour holds	41	5.51
≥ 24 hours	79	10.62
≥ 48 hours	60	8.06
≥ 72 hours	40	5.38
Total	744	100.00

Figure 6

Facilities by Length of Stay Inclusion Criteria

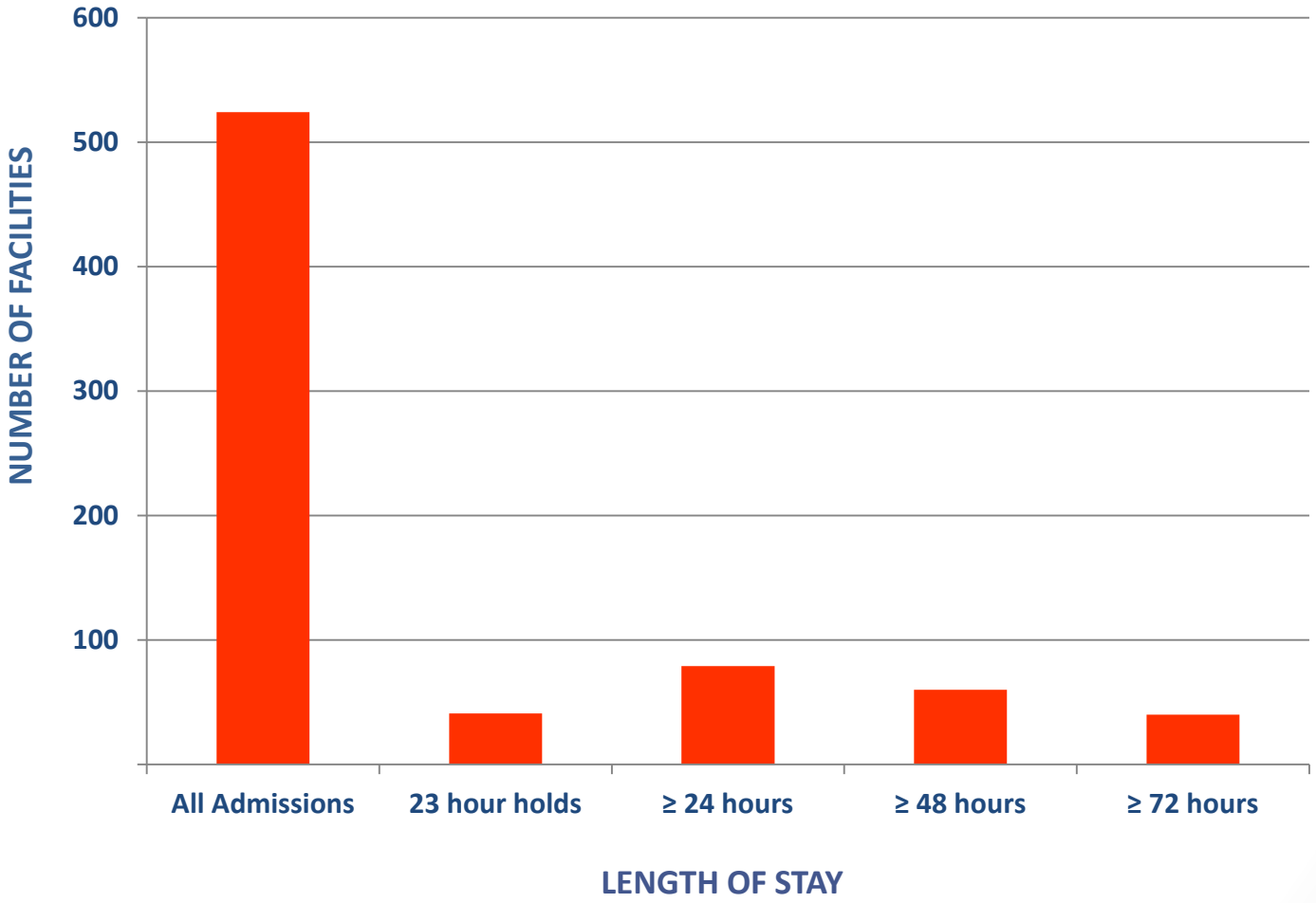


Table 7

Facilities by Isolated Hip Fracture Inclusion Criteria by Age

IHF Inclusion	NUMBER	PERCENT
All	408	54.84
Patients ≤18 years	31	4.17
Patients ≤50 years	2	0.27
Patients ≤55 years	11	1.48
Patients ≤60 years	4	0.54
Patients ≤65 years	117	15.73
Patients ≤70 years	9	1.21
None	162	21.77
Total	744	100.00

Denotes whether a facility includes isolated hip-fractures in its registry .

Figure 7

Facilities by Isolated Hip Fracture Inclusion Criteria by Age

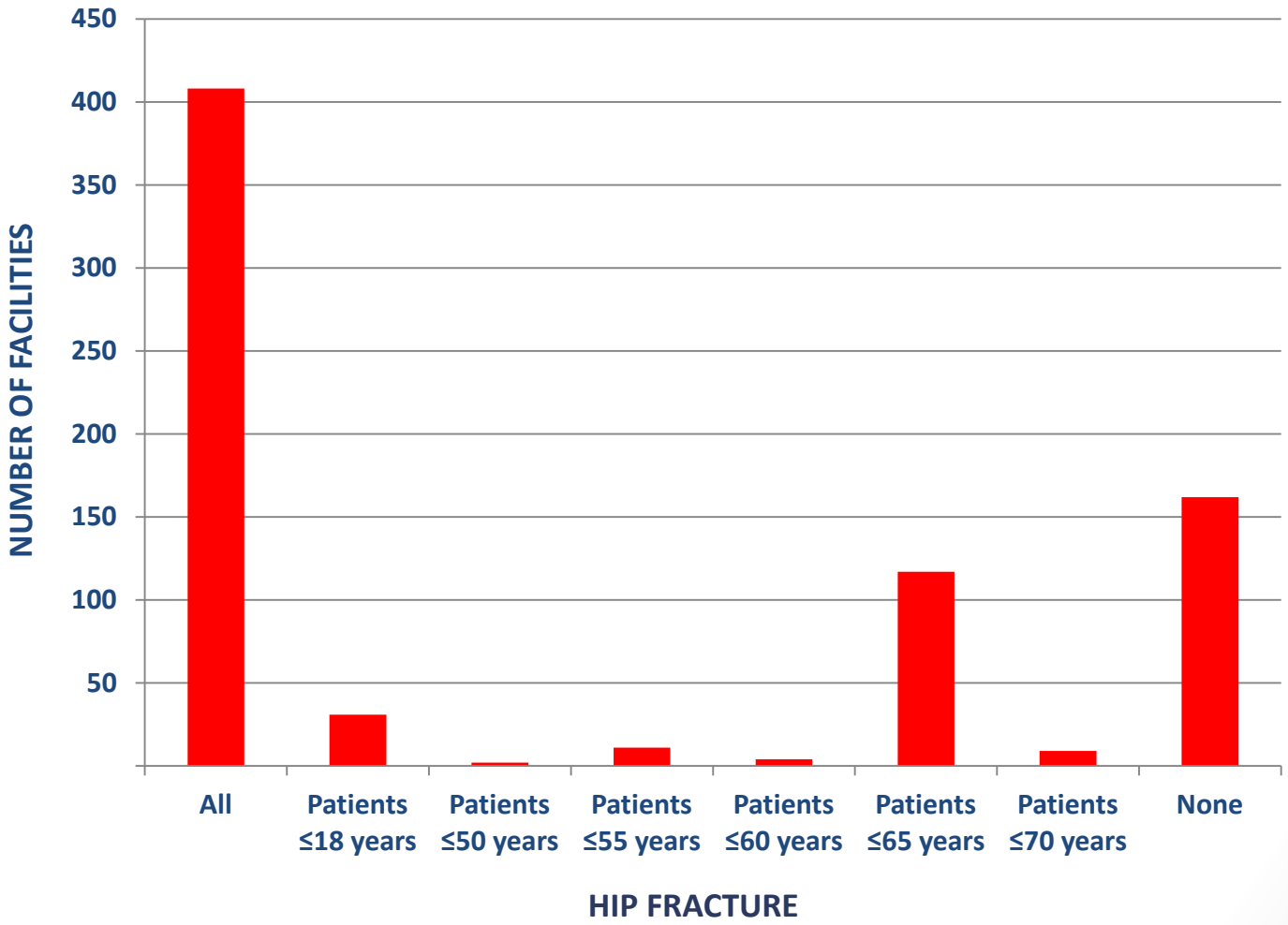


Table 8

Facilities by Death on Arrival (DOA) Inclusion Criteria

DOA INCLUDED	NUMBER	PERCENT
No	81	10.89
Yes	663	89.11
Total	744	100.00

Figure 8

Facilities by Death on Arrival (DOA) Inclusion Criteria

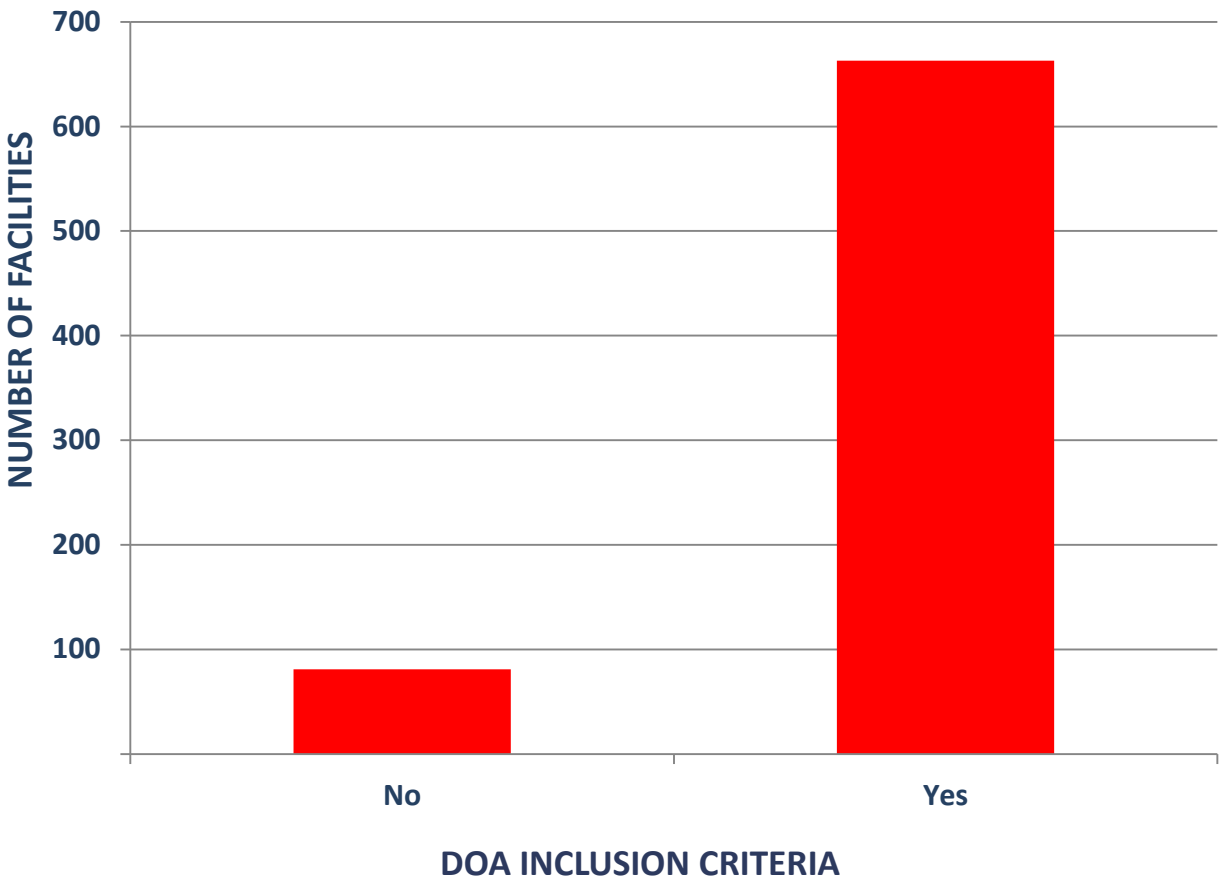


Table 9

Facilities by Transfer-In Criteria

TRANSFERS IN	NUMBER	PERCENT
All transfers	679	91.26
Within 4 hours	1	0.13
Within 8 hours	2	0.27
Within 12 hours	2	0.27
Within 24 hours	7	0.94
Within 48 hours	8	1.08
Within 72 hours	3	0.40
None	42	5.65
Total	744	100.00

Figure 9

Facilities by Transfer-In Criteria

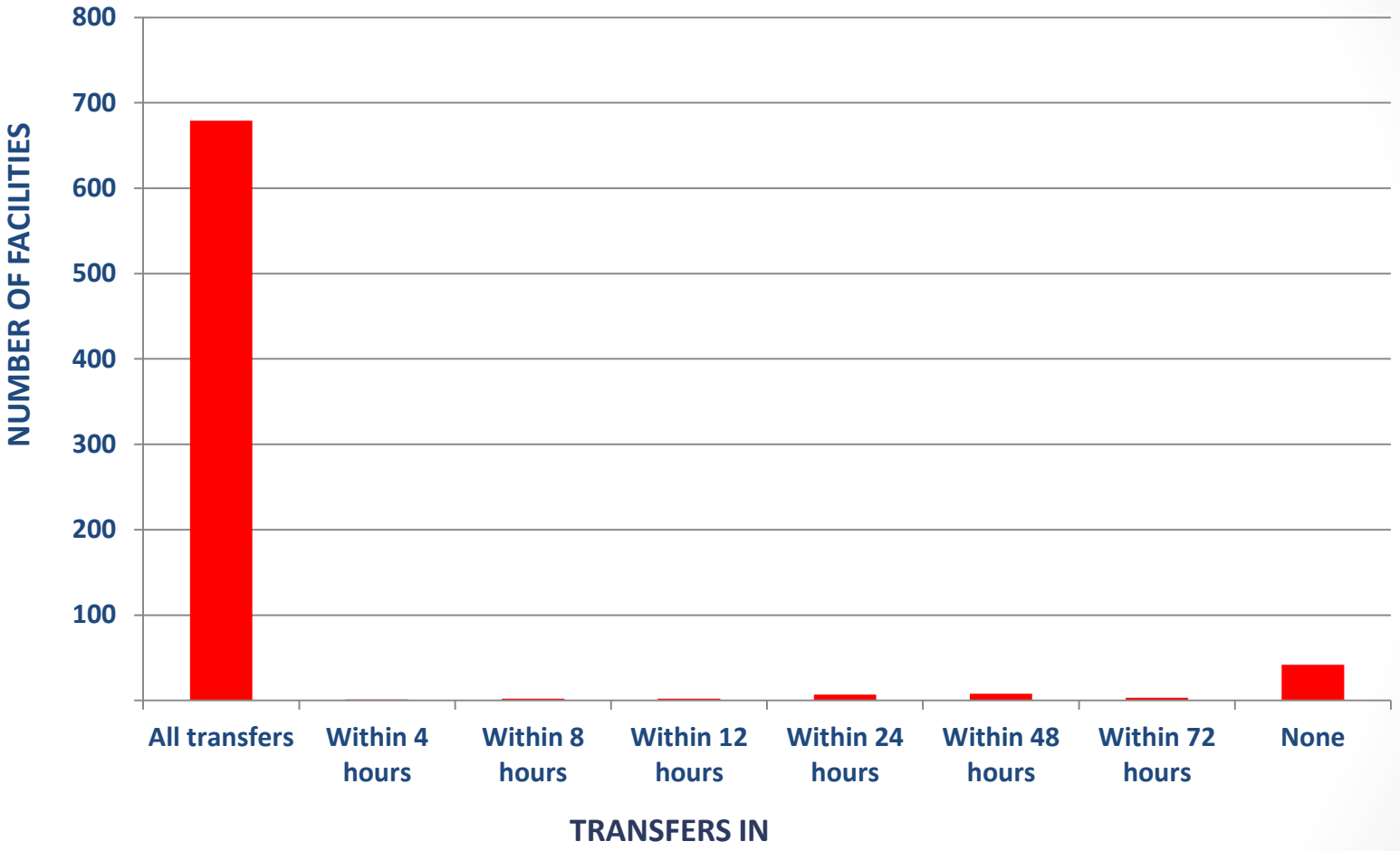


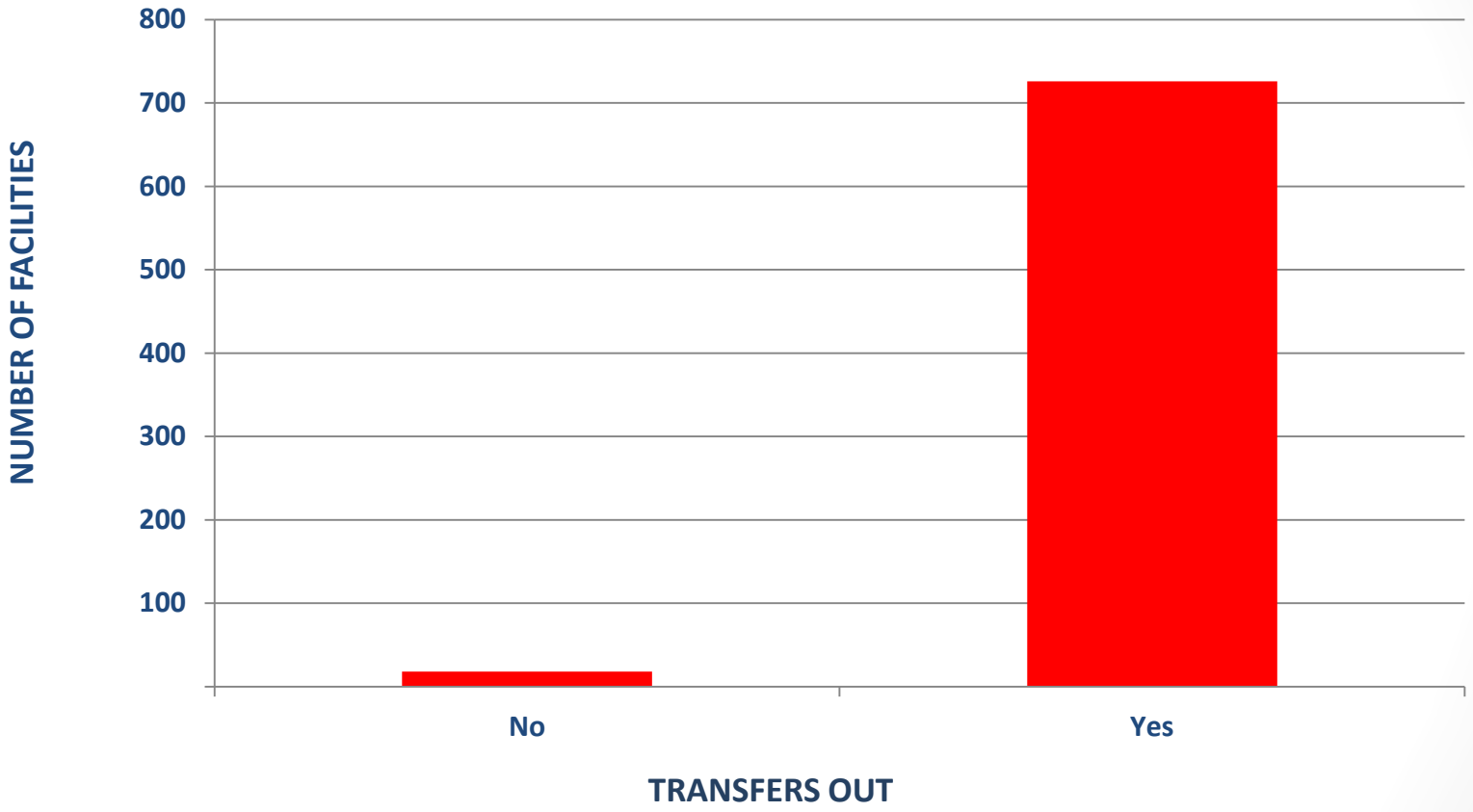
Table 10

Facilities by Transfer-Out Criteria

TRANSFERS OUT	NUMBER	PERCENT
No	18	2.42
Yes	726	97.58
Total	744	100.00

Figure 10

Facilities by Transfer-Out Criteria



DEMOGRAPHIC INFORMATION

Table 11

Incidents by Age

AGE	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
<1 year	9,469	1.22	188	1.99
1-4	26,790	3.46	431	1.61
5-9	26,404	3.41	216	0.82
10-14	29,276	3.79	279	0.95
14-19	56,558	7.31	1,721	3.04
20-24	67,970	8.79	2,512	3.70
25-34	100,576	13.01	3,500	3.48
35-44	81,537	10.54	2,560	3.14
45-54	96,609	12.49	3,355	3.47
55-64	83,375	10.78	3,154	3.78
65-74	60,667	7.85	2,981	4.91
75-84	71,492	9.25	4,322	6.05
>84	62,476	8.08	4,129	6.61
NK/NR	100	0.01	60	60.00
Total	773,299	100.00	29,408	3.80

NK/NR denotes “Not Known/Not Recorded” on all slides.

Figure 11

Incidents by Age

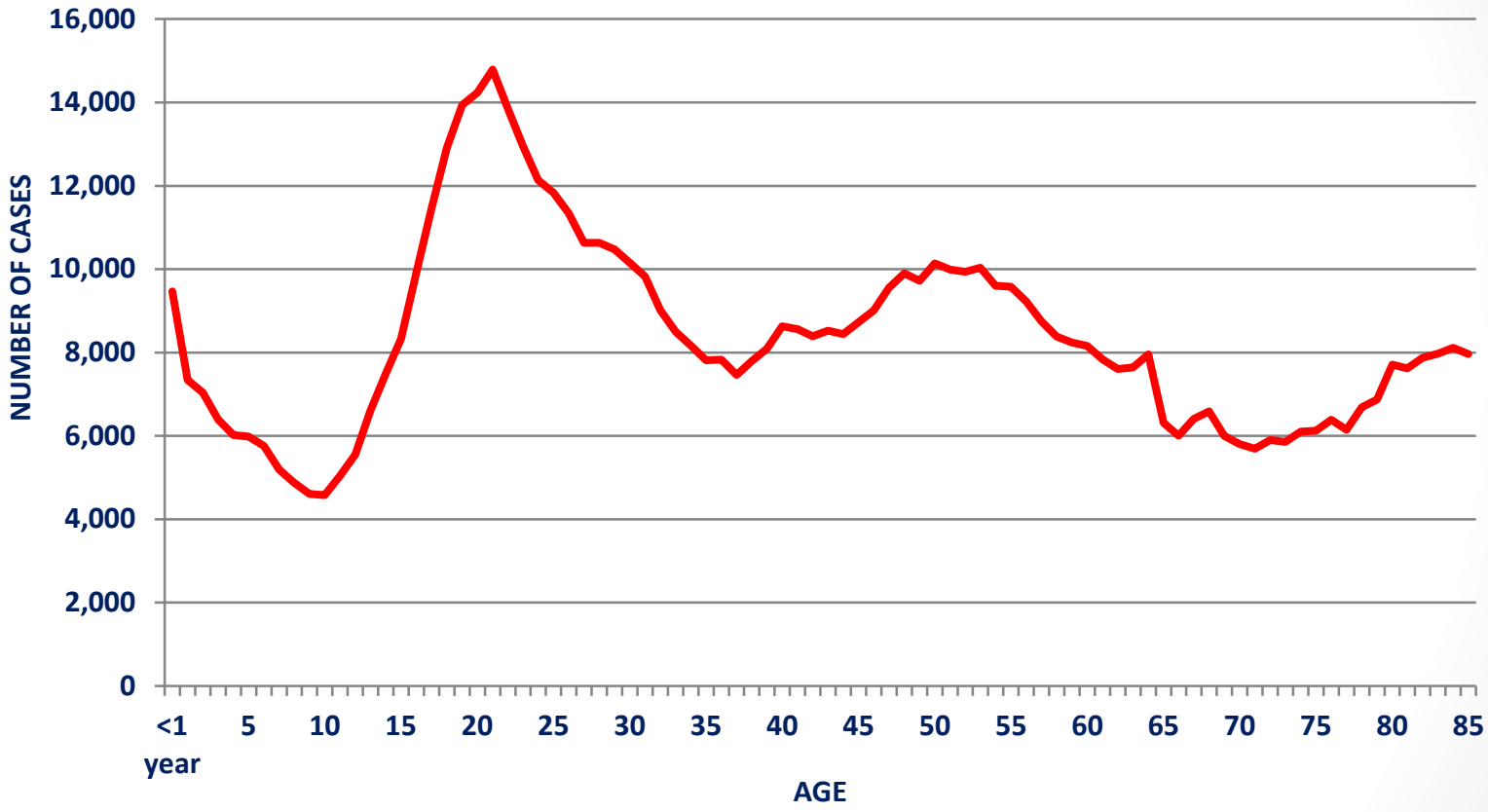


Table 12

Case Fatality Rate by Age

AGE CATEGORY	NUMBER (FEMALE)	NUMBER (MALE)	DEATHS (FEMALE)	DEATHS (MALE)	CASE FATALITY RATE (FEMALE)	CASE FATALITY RATE (MALE)
<1 year	4,118	5,343	81	107	1.97	2.00
1-4	10,952	15,811	195	236	1.78	1.49
5-9	10,243	16,150	92	124	0.90	0.77
10-14	8,352	20,901	84	194	1.01	0.93
14-19	15,702	40,828	351	1,370	2.24	3.36
20-24	16,841	51,104	408	2,103	2.42	4.12
25-34	24,695	75,844	606	2,891	2.45	3.81
35-44	21,830	59,670	518	2,040	2.37	3.42
45-54	28,676	67,884	768	2,586	2.68	3.81
55-64	31,132	52,205	756	2,396	2.43	4.59
65-74	29,362	31,273	1,008	1,972	3.43	6.31
75-84	43,127	28,331	1,761	2,560	4.08	9.04
>84	43,625	18,826	2,206	1,922	5.06	10.21
NK/NR	7	92	4	56	57.14	60.87
Total	288,662	484,262	8,838	20,557	3.06	4.25

Figure 12

Case Fatality Rate by Age

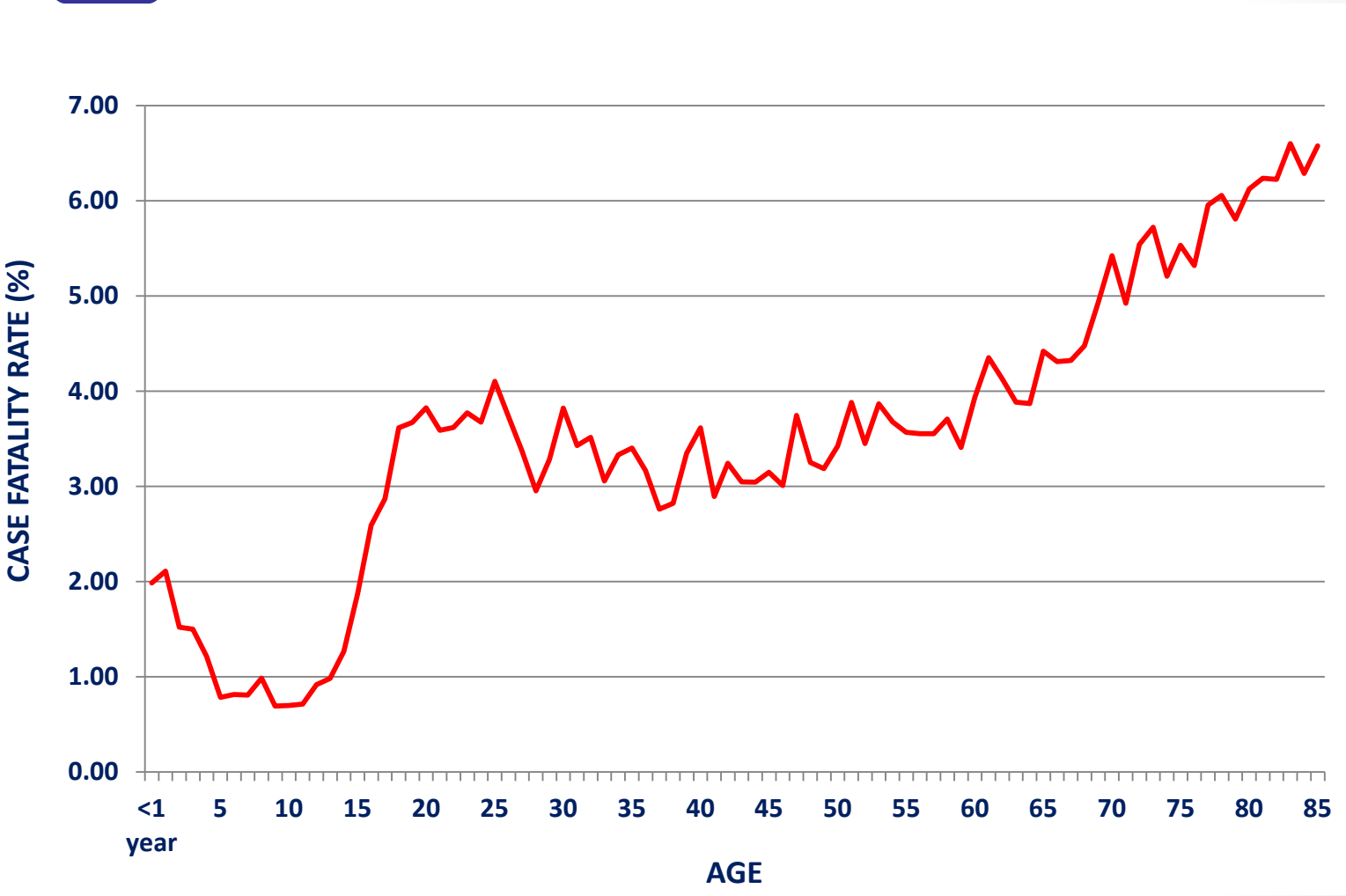


Figure 13

Incidents by Age and Gender

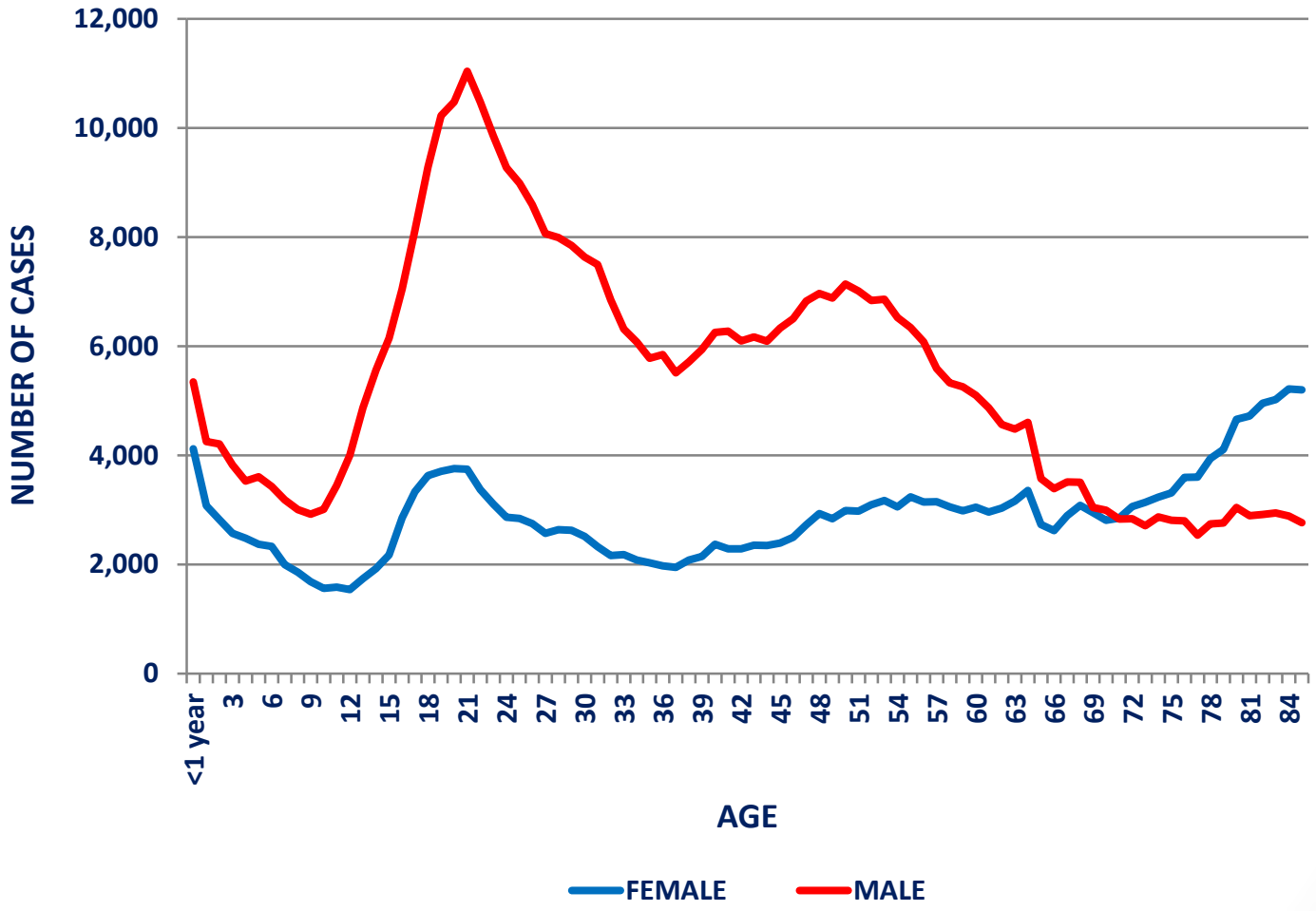


Figure 14

Case Fatality Rate by Age and Gender

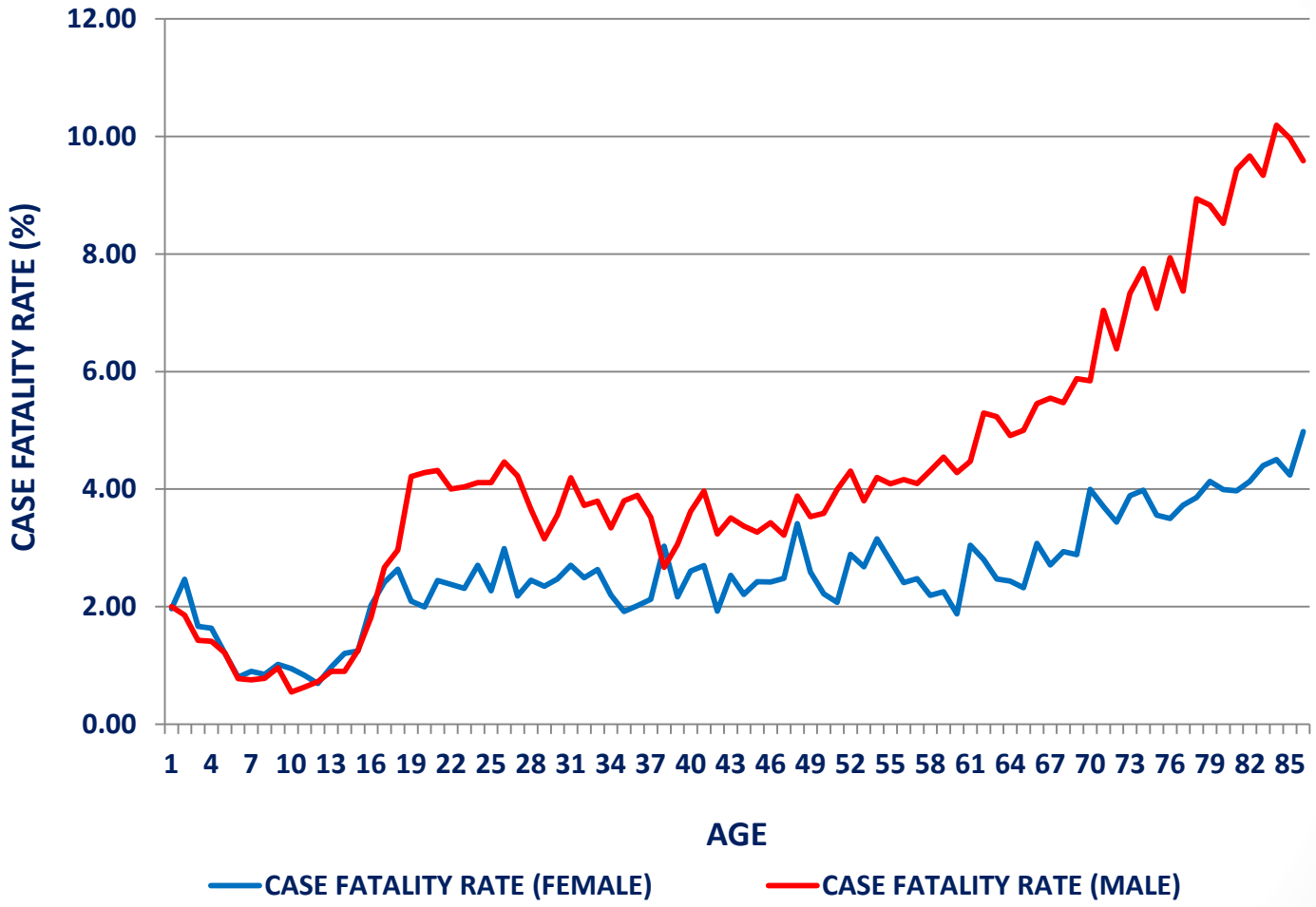


Table 15

Alcohol Use

ALCOHOL USE	NUMBER	PERCENT
No (confirmed by test)	175,556	22.70
No (not tested)	393,654	50.91
Yes (confirmed by test - beyond legal limit)	76,218	9.86
Yes (confirmed by test - trace levels)	32,458	4.20
Not applicable	18,617	2.41
NK/NR	76,796	9.93
Total	773,299	100.00

Figure 15

Alcohol Use

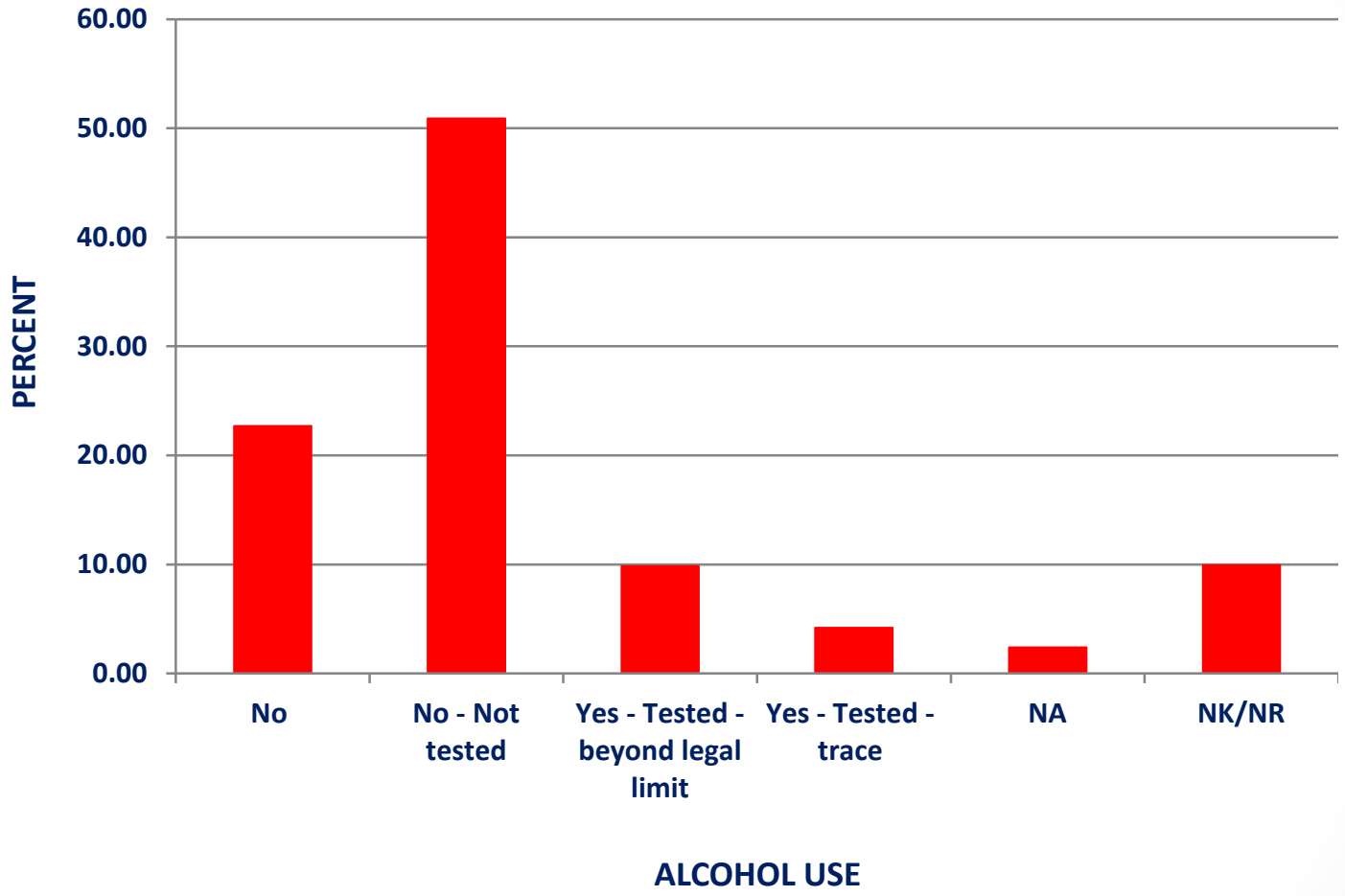


Table 16

Drug Use

DRUG USE	NUMBER	PERCENT
No (not tested)	418,791	54.16
No (confirmed by test)	77,530	10.03
Yes (confirmed by test - illegal use drug)	68,216	8.82
Yes (confirmed by test - prescription drug)	17,206	2.23
Not Applicable	80,325	10.39
NK/NR	111,231	14.38
Total	773,299	100.00

Figure 16

Drug Use

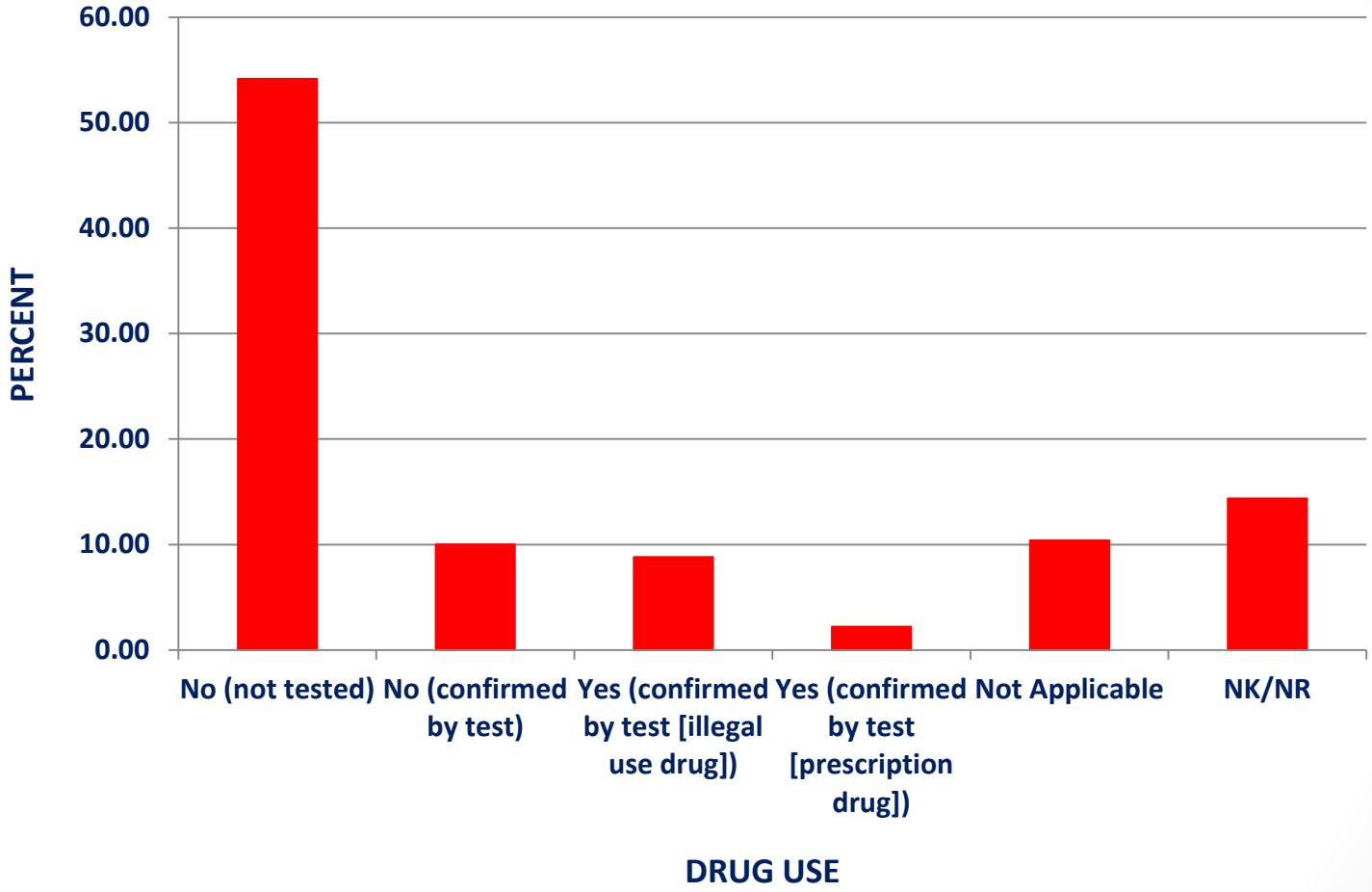


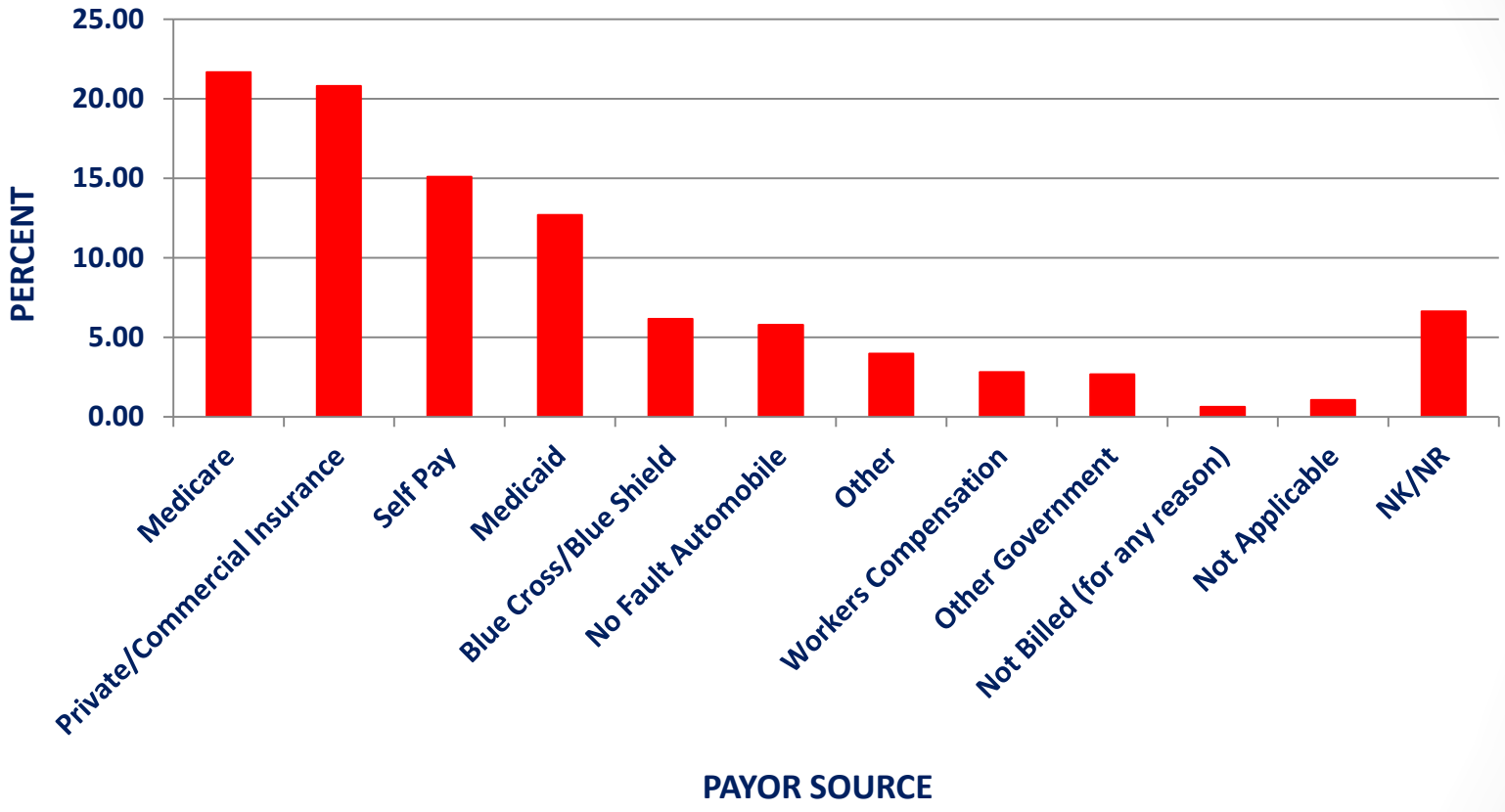
Table 17

Primary Payment Source

PRIMARY PAYMENT SOURCE	NUMBER	PERCENT
Medicare	167,494	21.66
Private/Commercial Insurance	160,944	20.81
Self Pay	116,740	15.10
Medicaid	98,115	12.69
Blue Cross/Blue Shield	47,600	6.16
No Fault Automobile	44,718	5.78
Other	30,727	3.97
Workers Compensation	21,796	2.82
Other Government	20,737	2.68
Not Billed (for any reason)	4,876	0.63
Not Applicable	8,265	1.07
NK/NR	51,287	6.63
Total	773,299	100.00

Figure 17

Primary Payment Source



INJURY CHARACTERISTICS

Table 18

Incidents by Mechanism of Injury

MECHANISM	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Fall	309,543	40.03	10,162	3.28
Motor vehicle traffic	216,787	28.03	9,425	4.35
Struck by, against	57,594	7.45	630	1.09
Transport, other	38,602	4.99	846	2.19
Cut/pierce	35,193	4.55	667	1.90
Firearm	33,649	4.35	5,425	16.12
Pedal cyclist, other	14,342	1.85	163	1.14
Other specified and classifiable	13,070	1.69	496	3.79
Hot object/substance	8,815	1.14	41	0.47
Unspecified	8,540	1.10	319	3.74
Fire/flame	8,457	1.09	467	5.52
Machinery	7,833	1.01	96	1.23
Natural/environmental, bites and stings	4,608	0.60	19	0.41
Other specified, not elsewhere classifiable	3,804	0.49	58	1.52
Natural/environmental, other	2,951	0.38	65	2.20
Overexertion	2,595	0.34	9	0.35
Pedestrian, other	2,563	0.33	148	5.77
Suffocation	735	0.10	188	25.58
Drowning/submersion	399	0.05	63	15.79
Poisoning	294	0.04	12	4.08
Adverse effects, medical care	147	0.02	7	4.76
Adverse effects, drugs	118	0.02	4	3.39
NK/NR	2,660	0.34	98	3.68
Total	773,299	100.00	29,408	3.80

Figure 18A

Incidents by Selected Mechanism of Injury

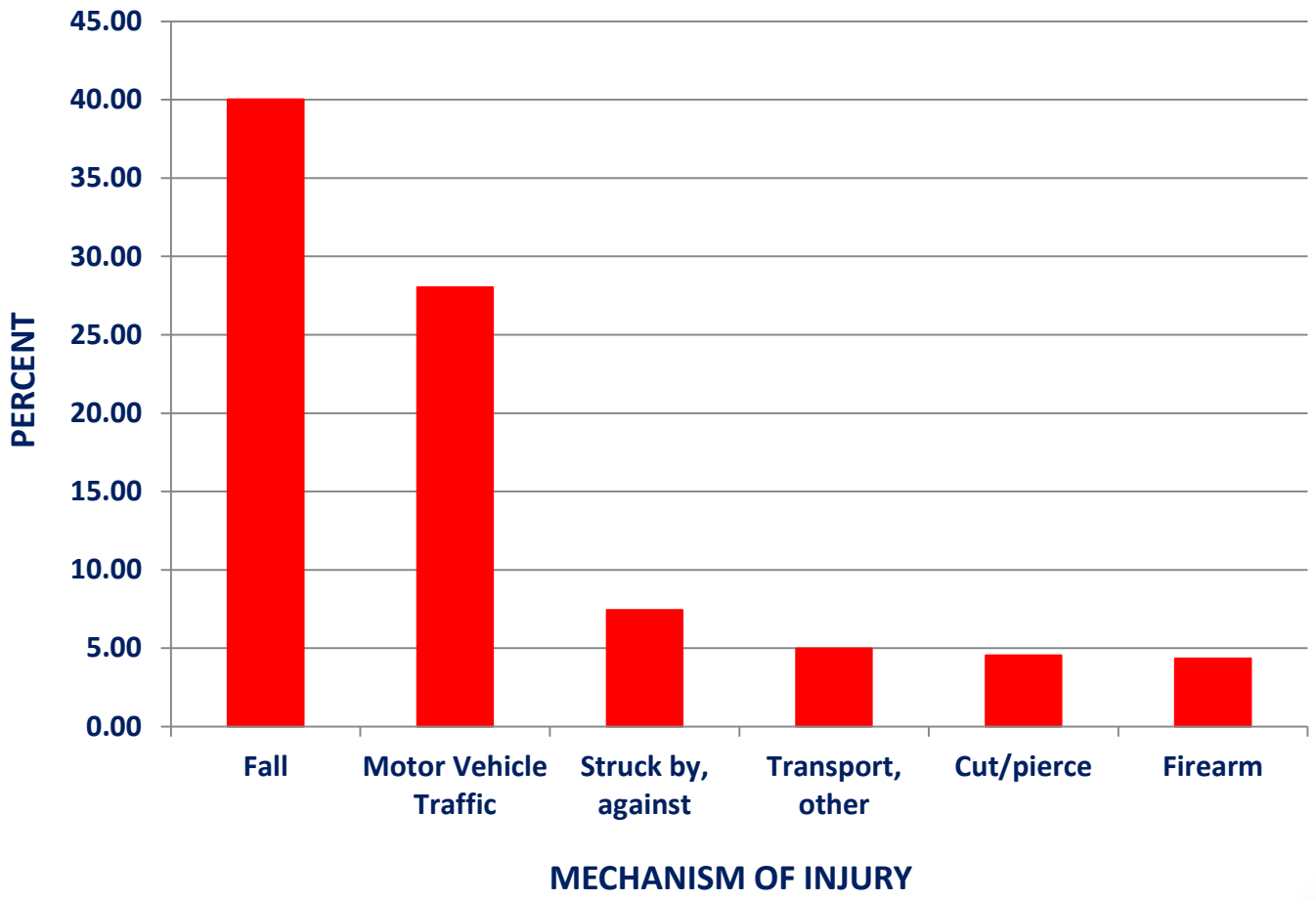


Figure 18B

Case Fatality Rate by Selected Mechanism of Injury

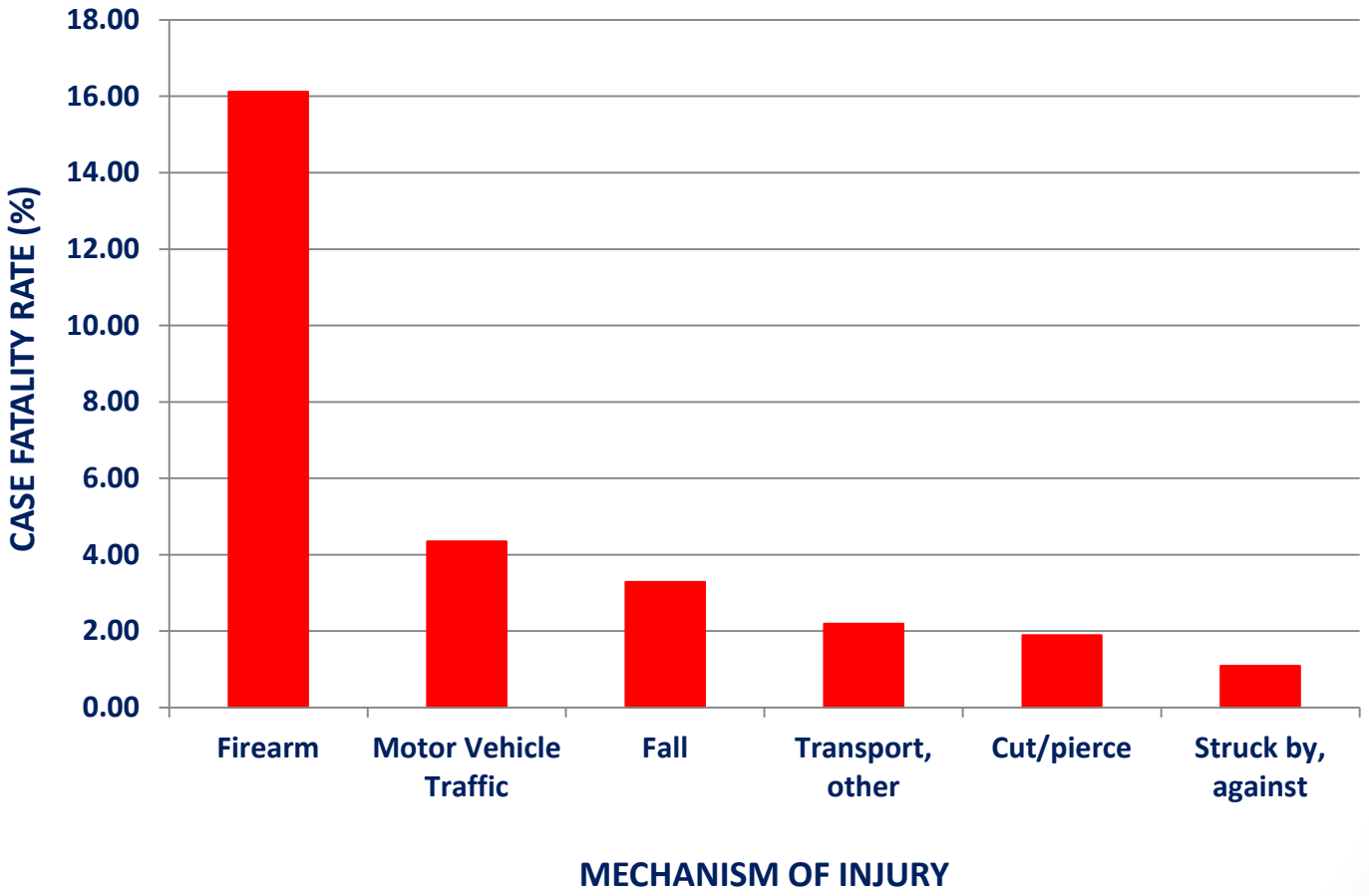


Table 19

Incidents by Selected Mechanism of Injury and Age

Age	Fall	Motor Vehicle Traffic	Struck by, Against	Transport, Other	Firearm	Cut/Pierce
<1 year	5,281	454	385	33	19	38
1-4	13,446	3,268	2,015	549	134	467
5-9	12,608	4,768	2,137	1,551	169	488
10-14	8,860	5,995	4,624	3,480	587	685
14-19	7,682	22,552	7,142	4,812	5,820	3,612
20-24	7,477	29,236	6,970	4,153	7,942	6,004
25-34	15,101	38,652	10,863	5,999	9,137	9,343
35-44	17,343	29,683	8,327	5,249	4,441	6,167
45-54	30,358	32,610	8,049	5,607	2,960	4,970
55-64	38,657	24,113	4,191	3,898	1,375	2,232
65-74	38,563	13,086	1,499	1,927	626	739
75-84	57,622	8,861	881	933	297	319
>84	56,534	3,464	507	410	133	124
NK/NR	11	45	4	1	9	5
Total	309,543	216,787	57,594	38,602	33,649	35,193

Figure 19

Incidents by Selected Mechanism of Injury and Age

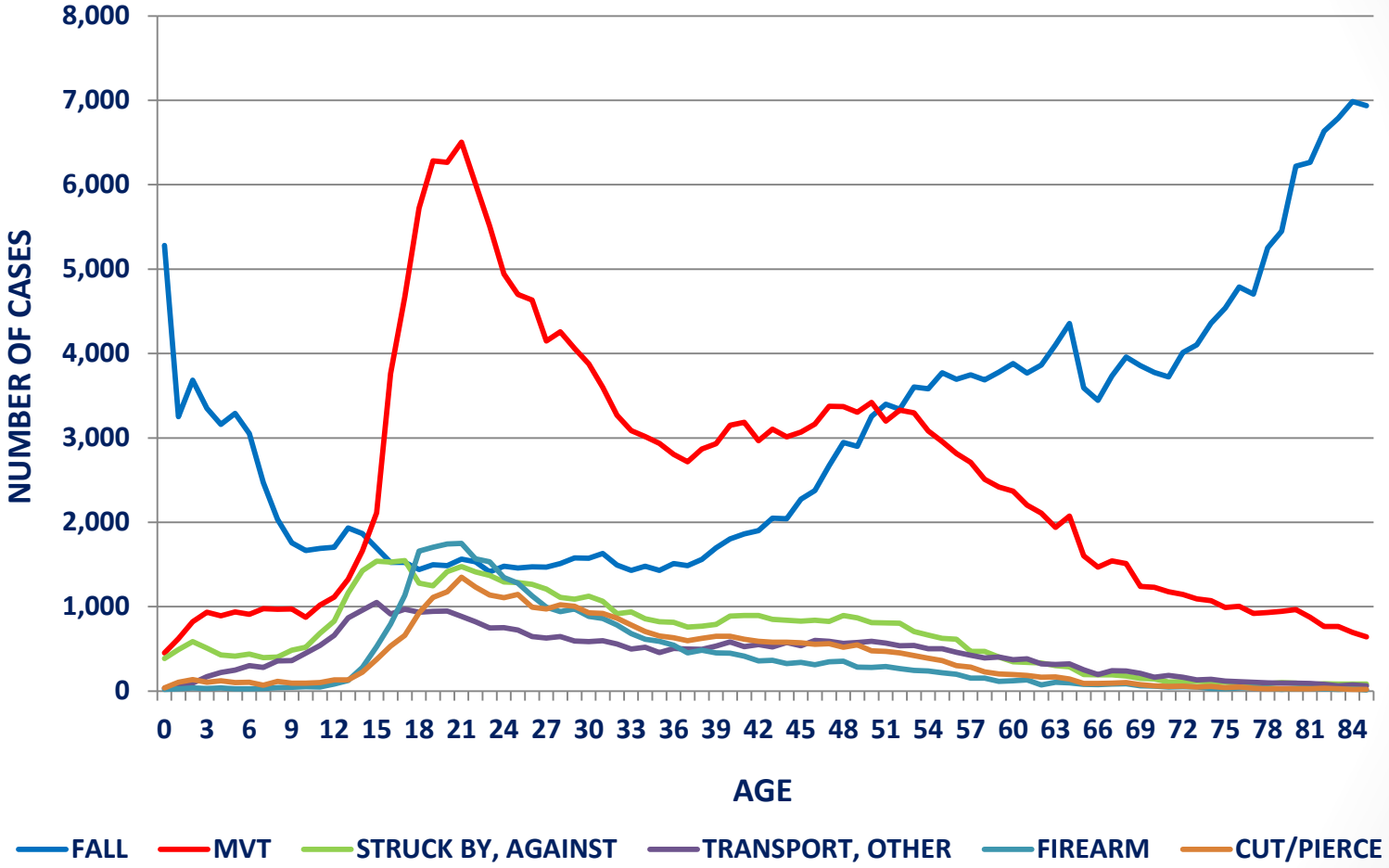


Table 20

Case Fatality Rate by Selected Mechanism of Injury and Age

Age	Fall	Motor Vehicle Transport	Struck by, Against	Transport, Other	Firearm	Cut/Pierce
<1 year	0.32	5.51	2.34	0.00	21.05	0.00
1-4	0.29	4.13	1.89	2.00	17.91	0.64
5-9	0.11	2.73	0.05	0.64	11.24	0.41
10-14	0.16	2.34	0.11	0.75	9.88	0.29
14-19	0.82	3.16	0.38	1.62	12.08	1.72
20-24	1.34	3.22	0.66	1.93	13.55	2.15
25-34	1.02	3.37	0.73	1.65	16.19	1.64
35-44	1.65	3.54	1.03	2.04	16.21	1.61
45-54	2.07	4.28	1.58	2.35	19.90	2.62
55-64	2.62	5.35	2.12	2.62	24.15	1.93
65-74	3.88	6.85	3.94	5.09	31.47	2.84
75-84	5.16	9.92	4.99	6.65	47.14	4.39
>84	5.93	14.29	3.94	9.76	57.14	4.84
NK/NR	45.45	73.33	0.00	100.00	88.89	60.00

Figure 20

Case Fatality Rate by Selected Mechanism of Injury and Age

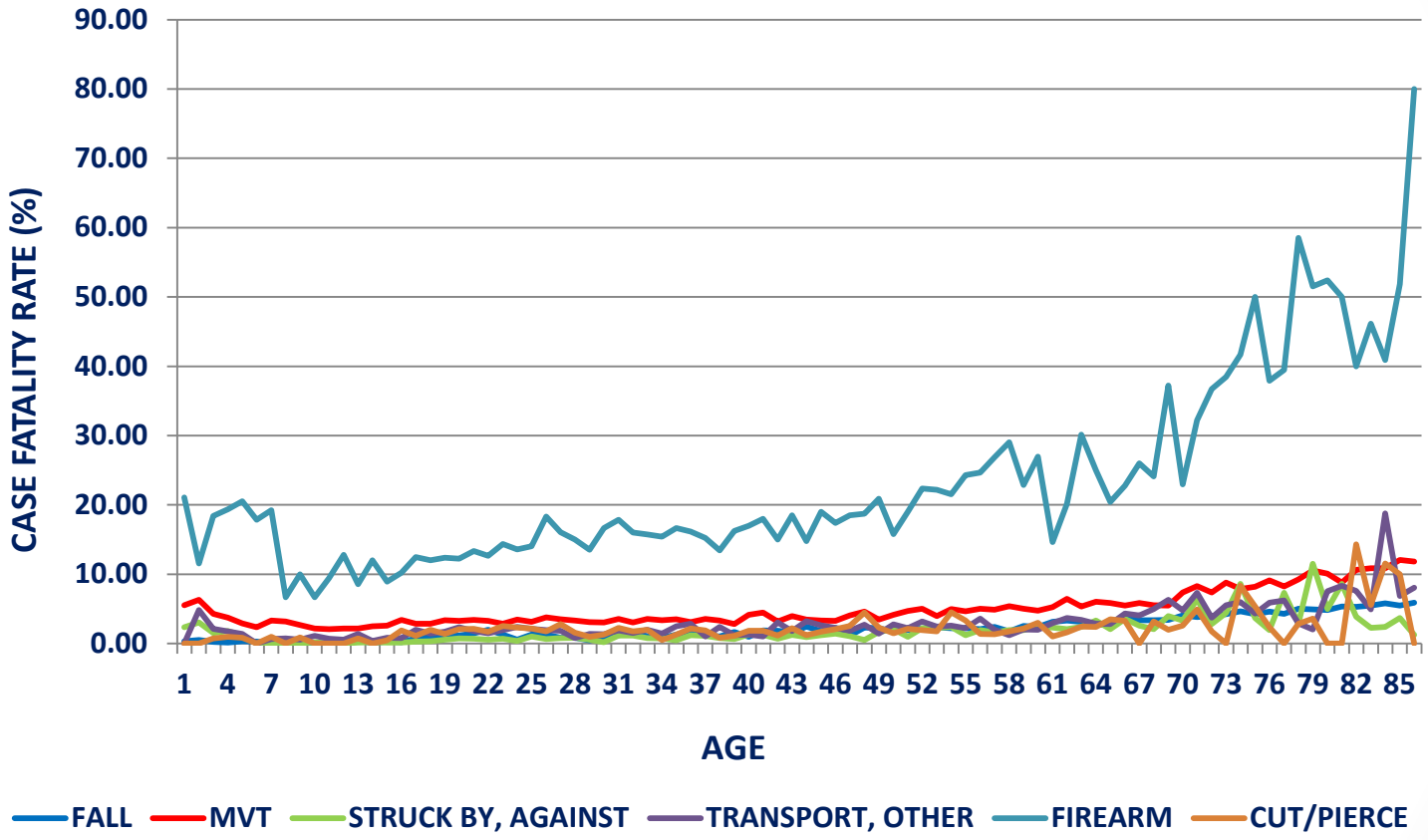


Table 21

Incidents by Selected Mechanism of Injury and Gender

MECHANISM	PERCENT (FEMALE)	PERCENT (MALE)	CASE FATALITY RATE (FEMALE)	CASE FATALITY RATE (MALE)
Fall	53.83	31.80	2.81	3.76
Motor vehicle traffic	27.78	28.20	3.54	4.82
Transport, other	4.10	5.52	1.68	2.42
Struck by, against	3.37	9.88	1.02	1.11
Cut/pierce	1.88	6.15	1.90	1.90
Firearm	1.28	6.18	16.10	16.12
Hot object/substance	1.22	1.09	0.54	0.42
Other specified and classifiable	1.21	1.98	3.70	3.83
Pedal cyclist, other	1.04	2.34	0.70	1.24
Fire/flame	0.78	1.28	7.59	4.76
Natural/environmental, bites and stings	0.71	0.53	0.49	0.35
Unspecified	0.69	1.35	4.32	3.56
Natural/environmental, other	0.40	0.37	2.49	2.02
Overexertion	0.36	0.32	0.49	0.26
Other specified, not elsewhere classifiable	0.33	0.59	1.78	1.44
Pedestrian, other	0.32	0.34	5.83	5.75
NK/NR	0.31	0.35	2.98	4.05
Machinery	0.21	1.49	0.33	1.30
Suffocation	0.06	0.12	27.43	25.00
Poisoning	0.04	0.04	0.00	6.56
Drowning/submersion	0.04	0.06	16.98	15.36
Adverse effects, medical care	0.03	0.01	1.30	8.96
Adverse effects, drugs	0.02	0.01	0.00	6.06
Total	100.00	100.00		

Adverse effects have been removed from all mechanism tables but are included in totals; therefore, percentages do not equal 100.

Figure 21A

Incidents by Selected Mechanism of Injury and Gender

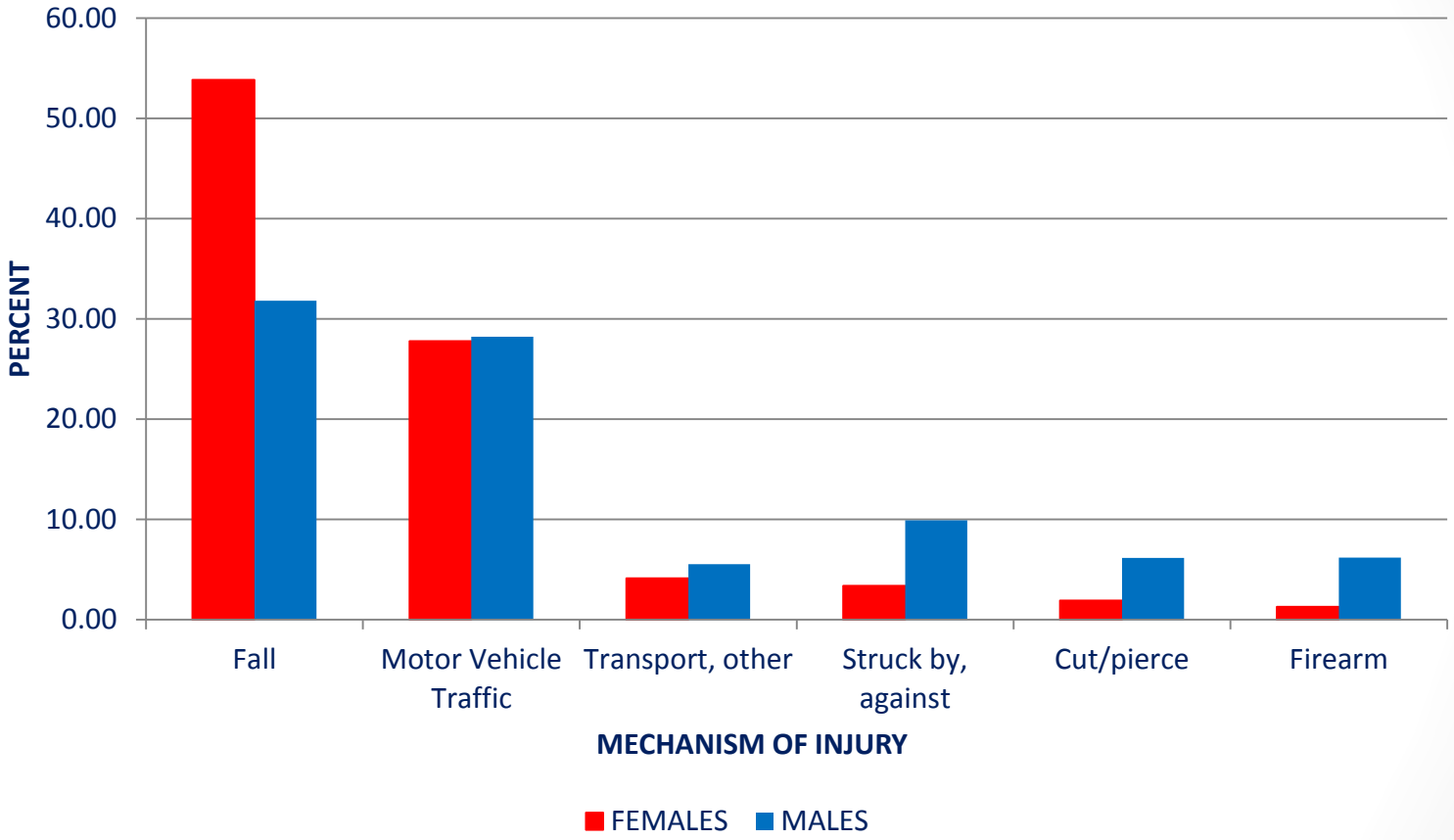


Figure 21B

Case Fatality Rate by Selected Mechanism of Injury and Gender

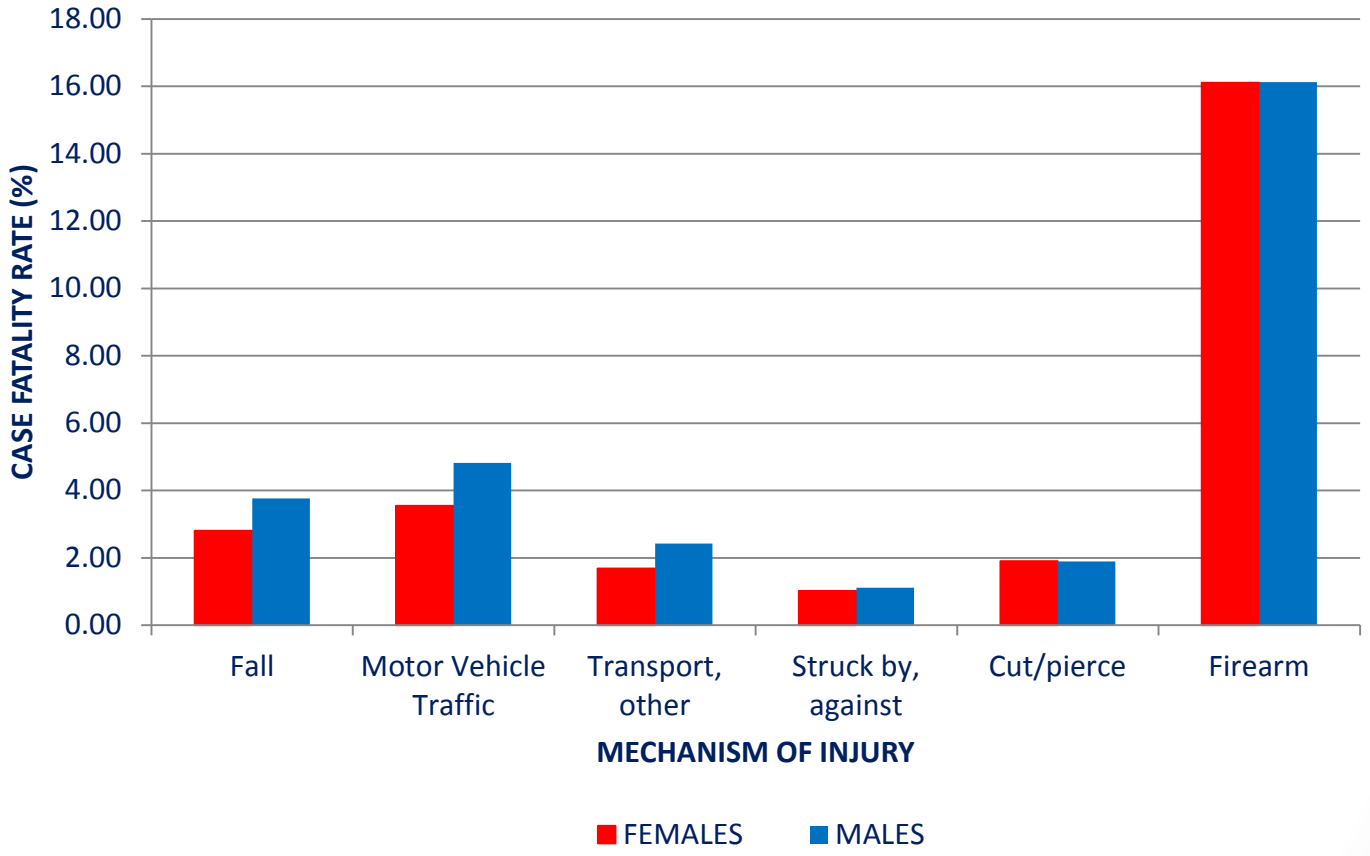


Table 22

Incidents by Comparative Injury Severity Scores

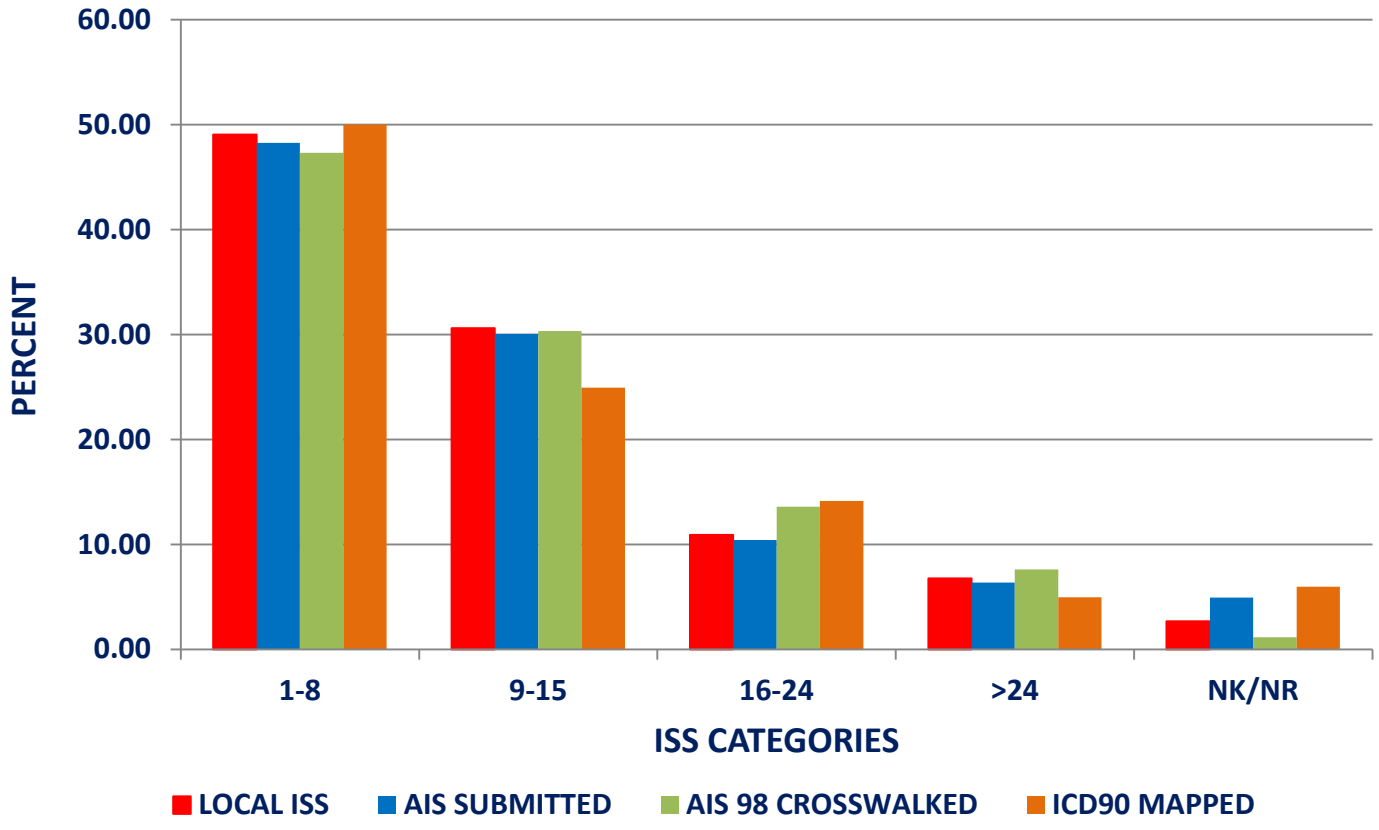
ISS	LOCAL ISS	AIS SUBMITTED	AIS98 CROSSWALKED	AIS ICDMAP-90
1-8	49.06	48.26	47.31	49.99
9-15	30.62	30.04	30.32	24.93
16-24	10.90	10.41	13.59	14.15
>24	6.75	6.35	7.63	4.97
NK/NR	2.67	4.93	1.15	5.96

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 22

Incidents by Comparative Injury Severity Scores



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 23

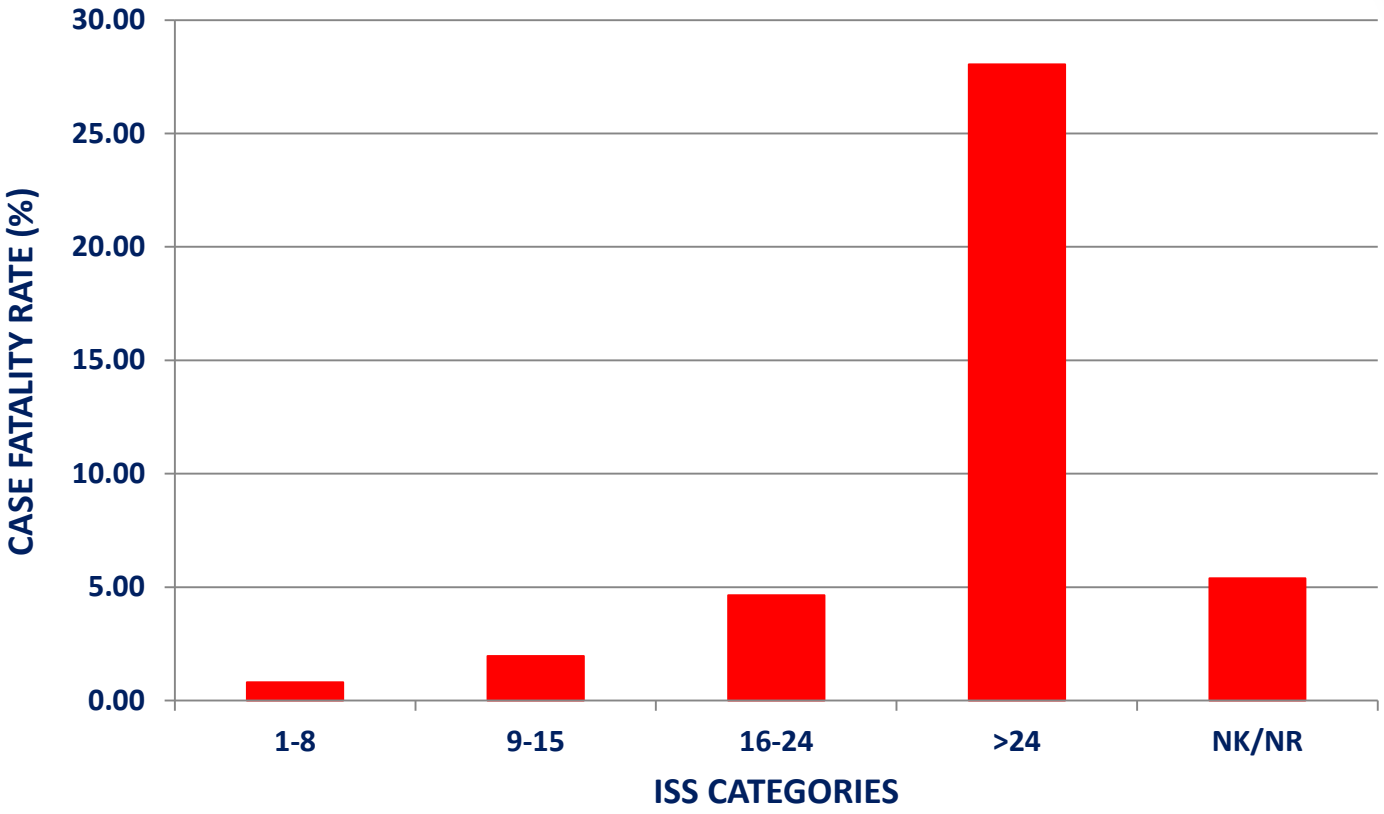
Case Fatality Rate by Injury Severity Score

ISS	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
1-8	365,842	47.31	2,926	0.80
9-15	234,471	30.32	4,584	1.96
16-24	105,114	13.59	4,873	4.64
>24	58,990	7.63	16,547	28.05
NK/NR	8,882	1.15	478	5.38
Total	773,299	100.00	29,408	

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 23

Case Fatality Rate 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 24

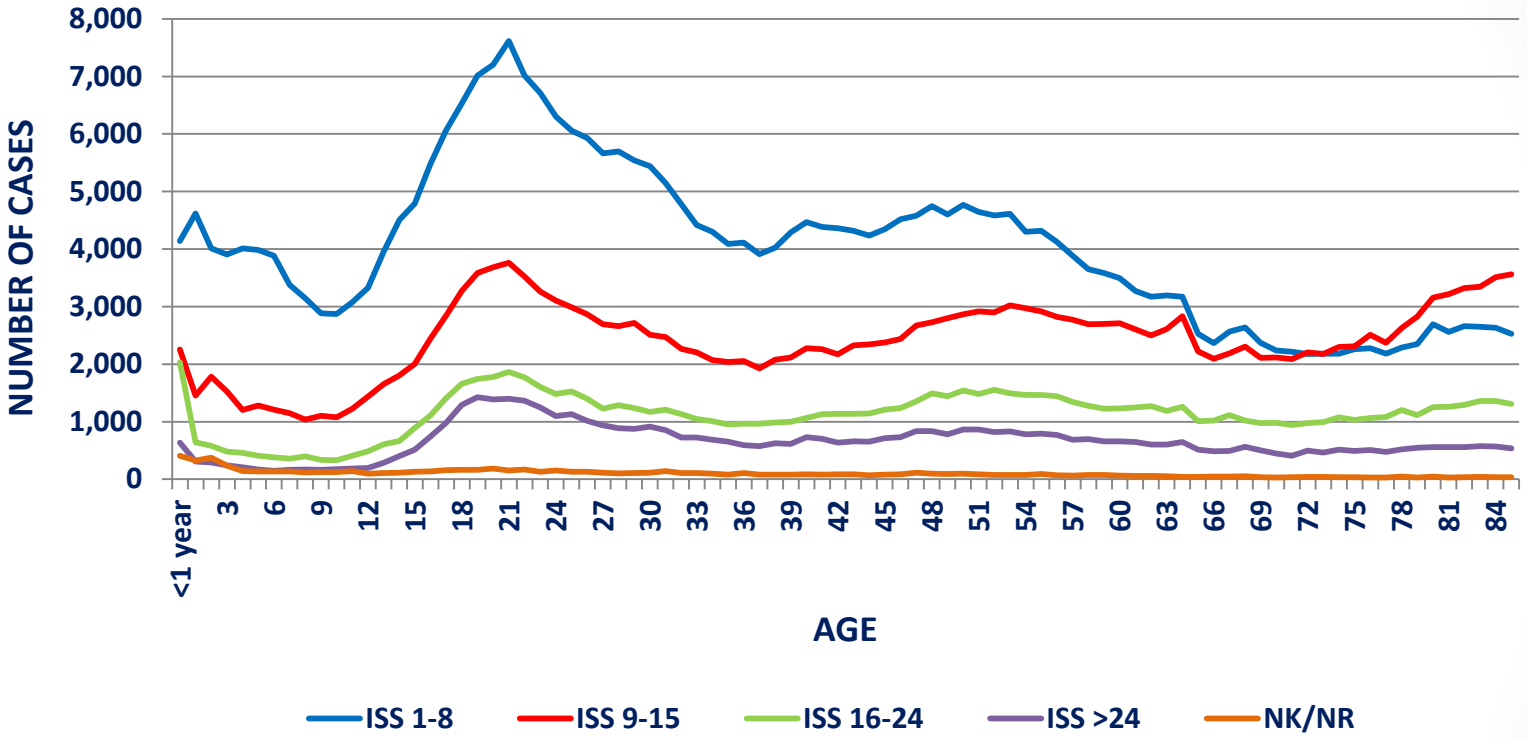
Injury Severity Score by Age

AGE	ISS 1–8 NUMBER	ISS 9–15 NUMBER	ISS 16–24 NUMBER	ISS >24 NUMBER	ISS NK/NR NUMBER
<1 year	4,138	2,255	2,034	634	408
1-4	16,543	5,967	2,160	1,049	1,071
5-9	17,275	5,780	1,880	813	656
10-14	17,745	7,199	2,496	1,252	584
14-19	29,882	14,146	6,813	4,960	757
20-24	34,851	17,332	8,500	6,499	788
25-34	52,971	25,448	12,247	8,750	1,160
35-44	42,199	21,583	10,483	6,437	835
45-54	45,702	27,690	14,273	8,060	884
55-64	35,858	27,157	12,950	6,764	646
65-74	23,474	21,796	10,104	4,883	410
75-84	24,556	29,196	12,010	5,361	369
>84	20,612	28,910	9,149	3,495	310
NK/NR	36	12	15	33	4
Total	365,842	234,471	105,114	58,990	8,882

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 24

Injury Severity Score by Age



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 25

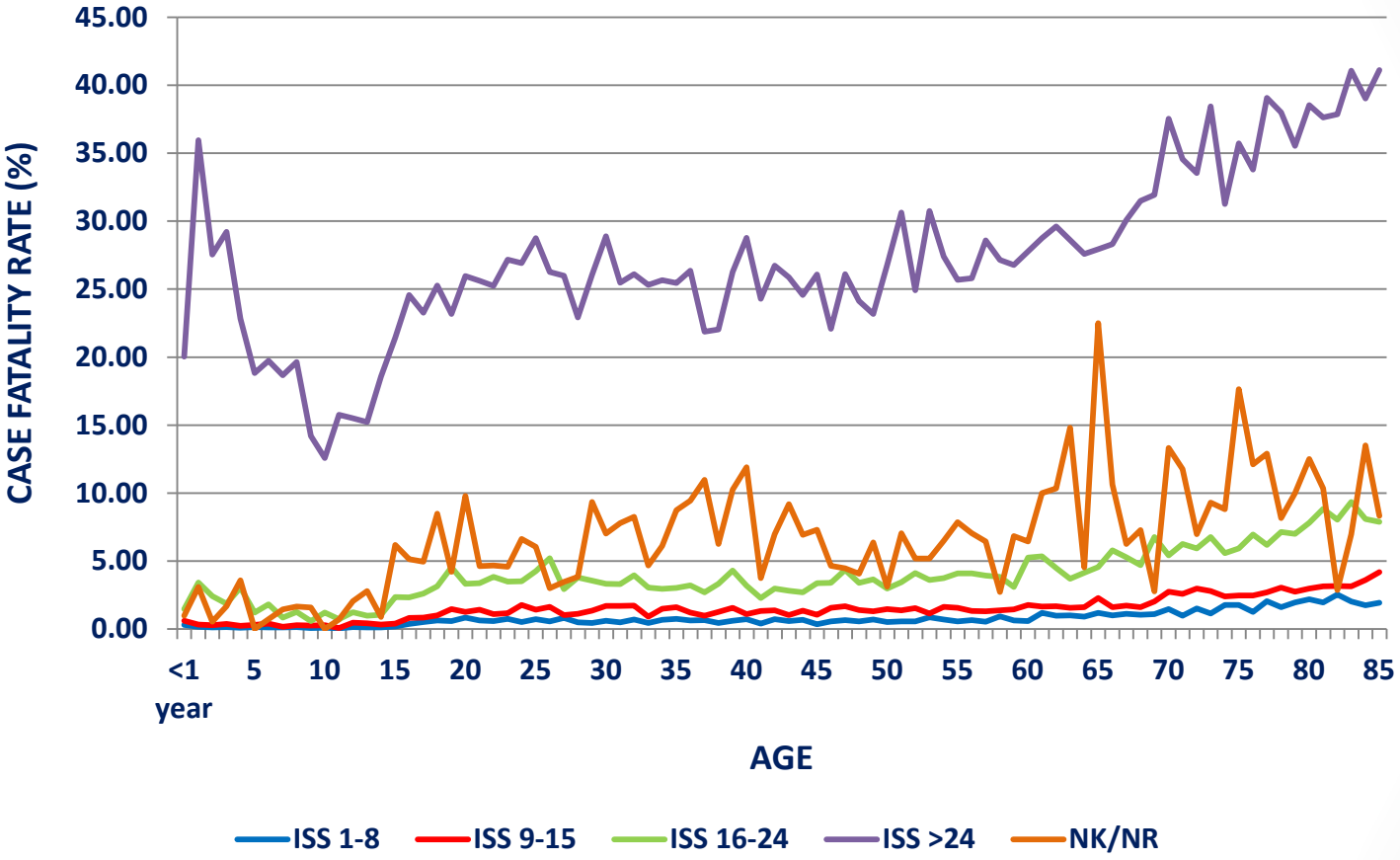
Case Fatality Rate by Injury Severity Score and Age

AGE	ISS 1–8 CASE FATALITY RATE	ISS 9–15 CASE FATALITY RATE	ISS 16–24 CASE FATALITY RATE	ISS >24 CASE FATALITY RATE	ISS NK/NR CASE FATALITY RATE
<1 year	0.31	0.62	1.47	20.03	0.98
1–4	0.14	0.32	2.73	29.46	1.96
5–9	0.13	0.29	1.17	18.20	1.07
10–14	0.12	0.33	1.04	16.05	1.20
15–19	0.49	0.98	3.16	23.77	5.81
20–24	0.67	1.34	3.51	26.13	6.22
25–34	0.61	1.41	3.70	26.25	5.95
35–44	0.63	1.28	3.04	25.29	8.50
45–54	0.61	1.42	3.62	26.29	5.32
55–64	0.79	1.53	4.20	27.54	7.59
65–74	1.23	2.28	5.69	32.36	9.76
75–84	1.93	2.99	7.63	37.68	10.57
≥85	2.64	4.56	9.73	38.60	8.71
NK/NR	36.11	33.33	66.67	87.88	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 25

Case Fatality Rate by Injury Severity Score and Age



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 26

Incidents by Work-Related Injuries

WORK-RELATED INJURY	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
No	662,308	85.65	25,144	3.80
Yes	31,185	4.03	666	2.14
Not Applicable	32,270	4.17	1,614	5.00
NK/NR	47,536	6.15	1,984	4.17
Total	773,299	100.00	29,408	3.80

Figure 26A

Incidents by Work-Related Injuries

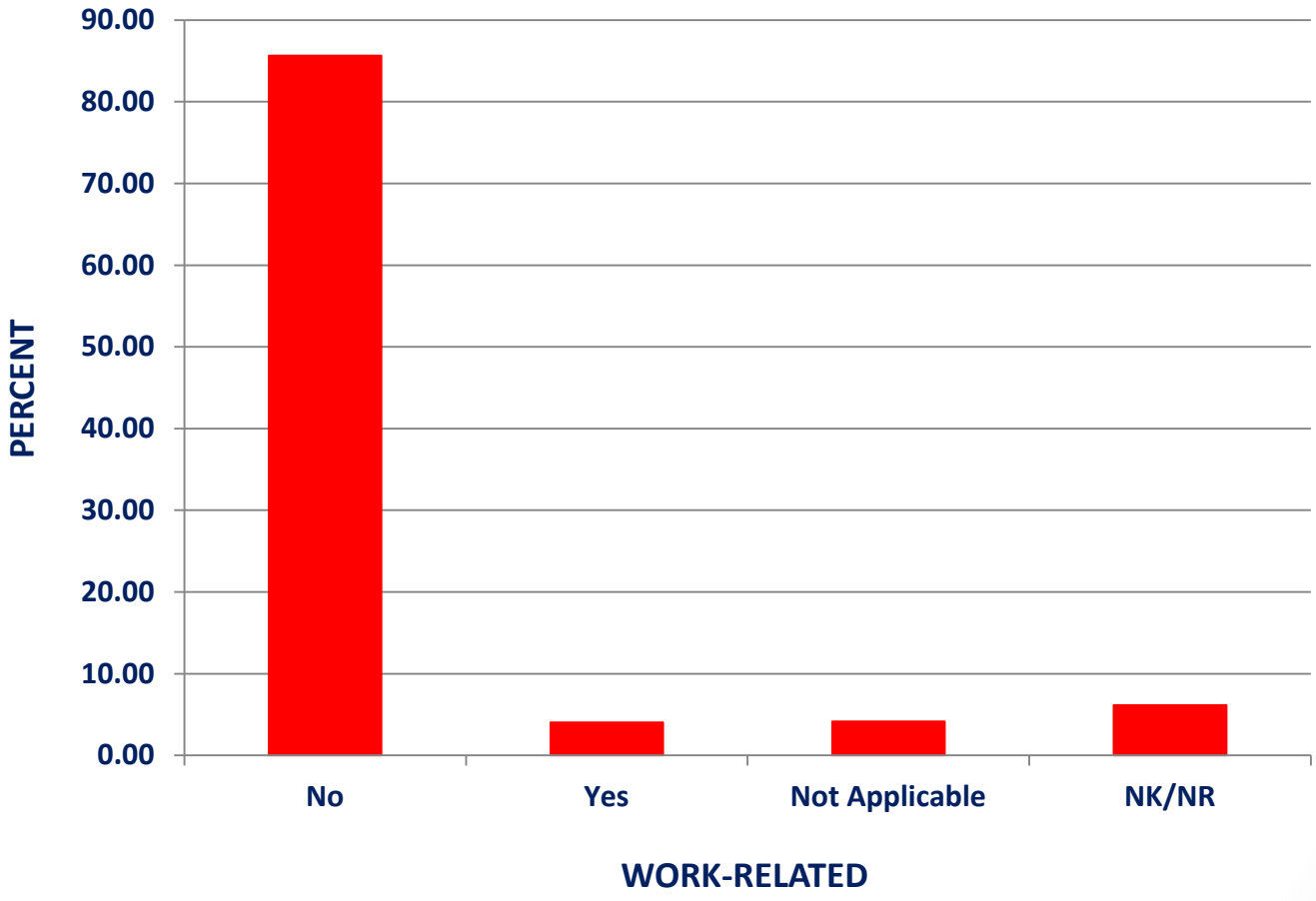


Figure 26B

Case Fatality Rate by Work-Related Injuries

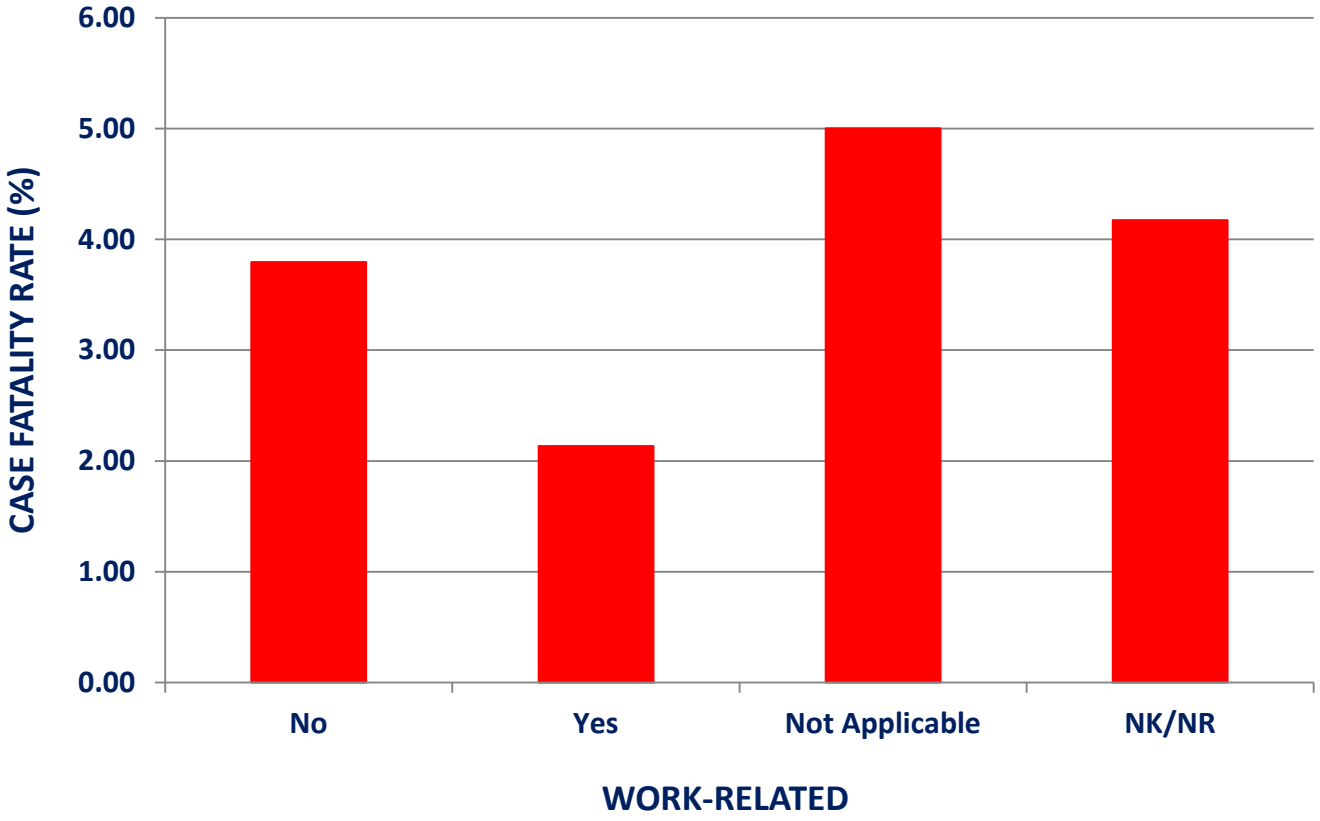


Table 27

Case Fatality Rate by Intent

INTENT	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Unintentional	668,674	86.47	22,153	3.31
Assault	85,366	11.04	4,539	5.32
Self-Inflicted	11,640	1.51	2,105	18.08
Undetermined	3,481	0.45	367	10.54
Other	1,478	0.19	146	9.88
NK/NR	2,660	0.34	98	3.68
Total	773,299	100.00	29,408	3.80

Figure 27

Case Fatality Rate by Intent

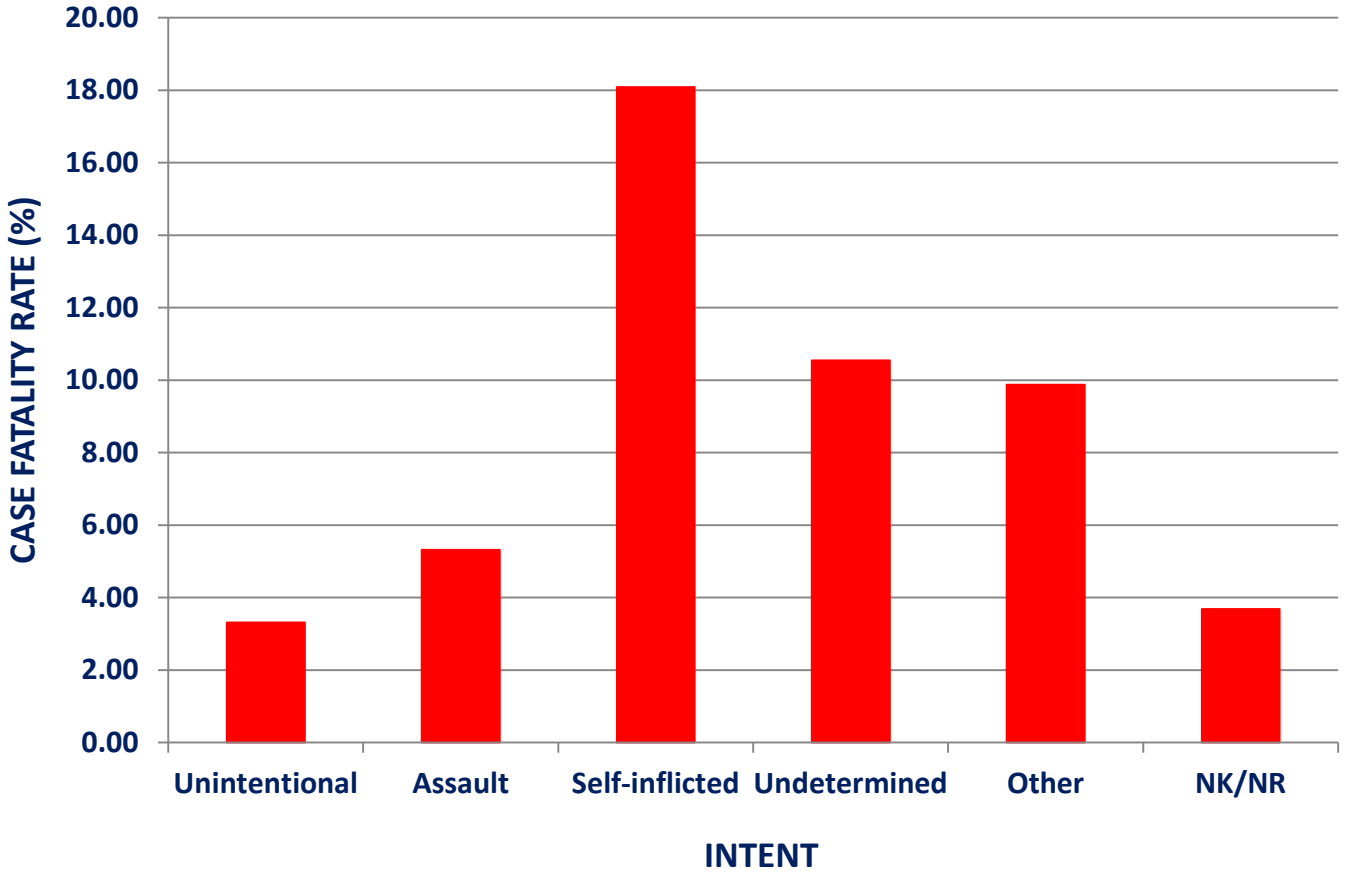


Table 28

Case Fatality Rate by Location E-code

LOCATION OF INJURY	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Street	264,819	34.25	11,597	4.38
Home	261,704	33.84	10,636	4.06
Unspecified	57,289	7.41	1,706	2.98
Recreation	44,957	5.81	424	0.94
Public Building	37,299	4.82	1,112	2.98
Other	34,678	4.48	1,199	3.46
Residential Institution	26,553	3.43	1,249	4.70
Industry	17,951	2.32	349	1.94
Farm	5,185	0.67	138	2.66
Mine	470	0.06	6	1.28
Not Applicable	566	0.07	16	2.83
NK/NR	21,828	2.82	976	4.47
Total	773,299	100.00	29,408	

Figure 28

Case Fatality Rate by Location E-code

Table 29

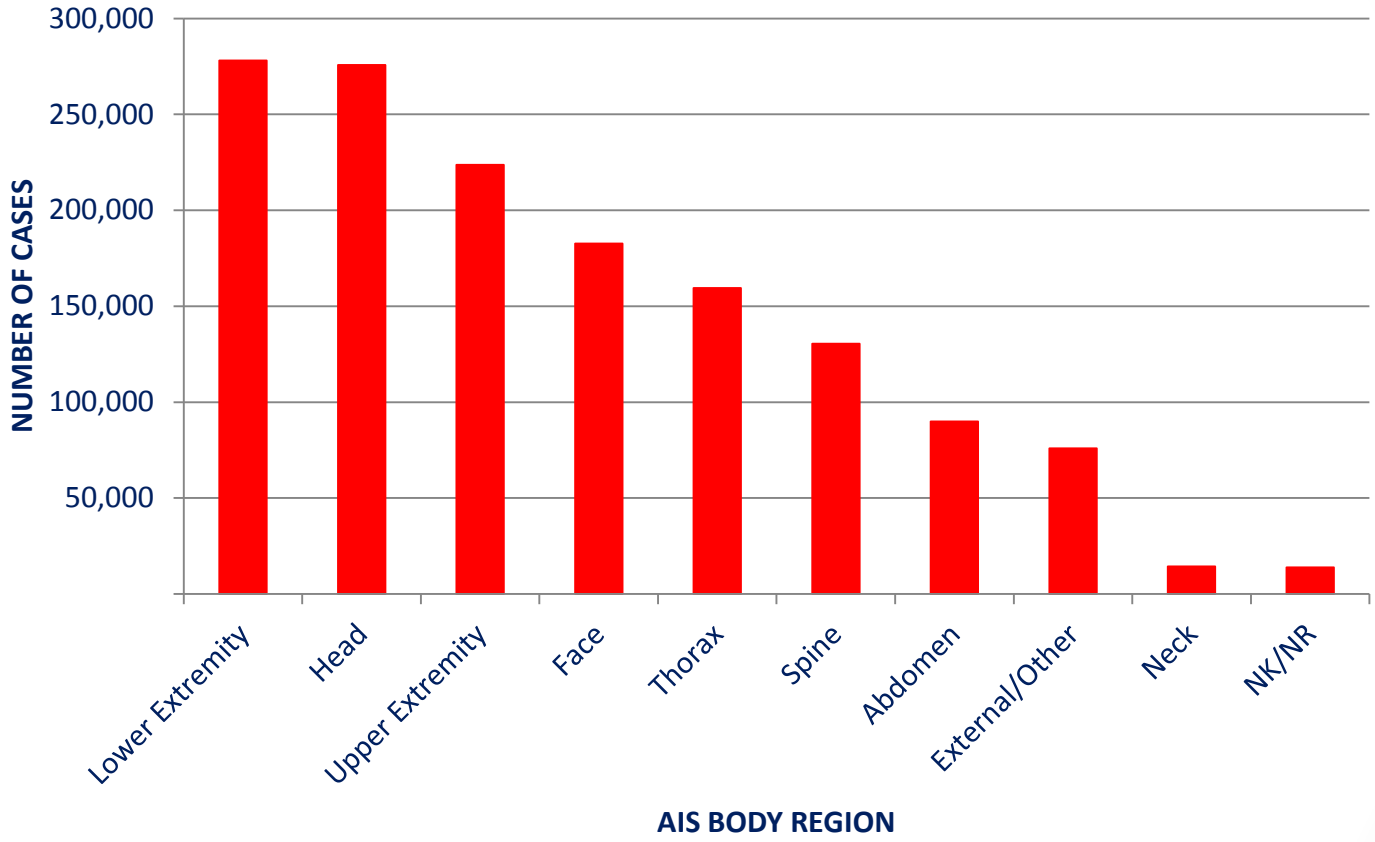
Incidents by AIS Body Region

AIS BODY REGION	NUMBER	PERCENT
Lower Extremity	278,100	35.96
Head	275,831	35.67
Upper Extremity	223,650	28.92
Face	182,671	23.62
Thorax	159,457	20.62
Spine	130,474	16.87
Abdomen	89,862	11.62
External/Other	75,828	9.81
Neck	14,307	1.85
NK/NR	13,859	1.79

A patient can have injuries in multiple body regions.

Figure 29

Incidents by AIS Body Region



An incident may involve multiple organ systems and a patient will then be counted for each of the organ systems in which there is an injury.

Table 30

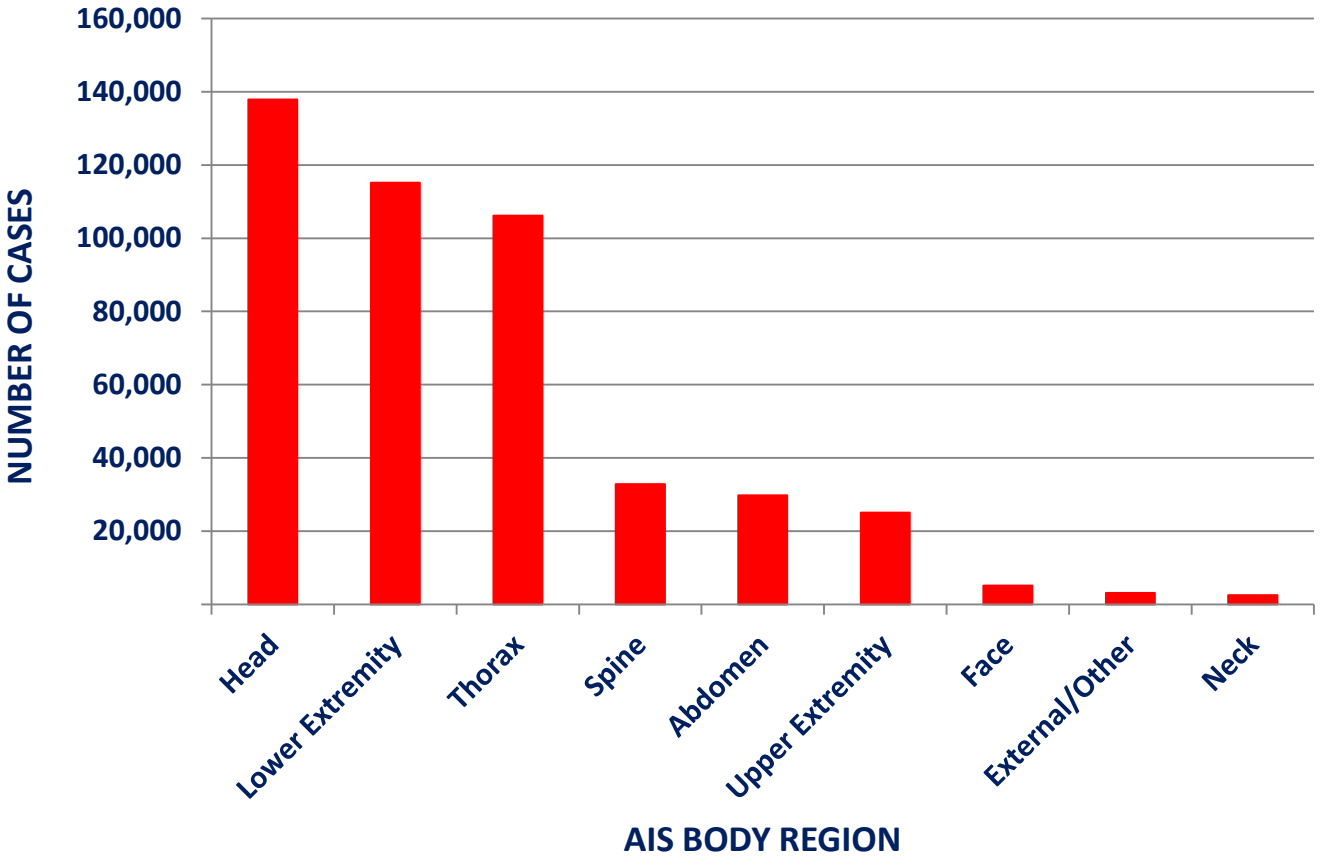
Incidents with AIS ≥ 3 by AIS Body Region

AIS BODY REGION	NUMBER	PERCENT
Head	137,839	17.82
Lower Extremity	115,157	14.89
Thorax	106,124	13.72
Spine	32,890	4.25
Abdomen	29,805	3.85
Upper Extremity	25,083	3.24
Face	5,133	0.66
External/Other	3,178	0.41
Neck	2,557	0.33

An incident may involve multiple organ systems and a patient will then be counted for each of the organ systems in which there is an injury.

Figure 30

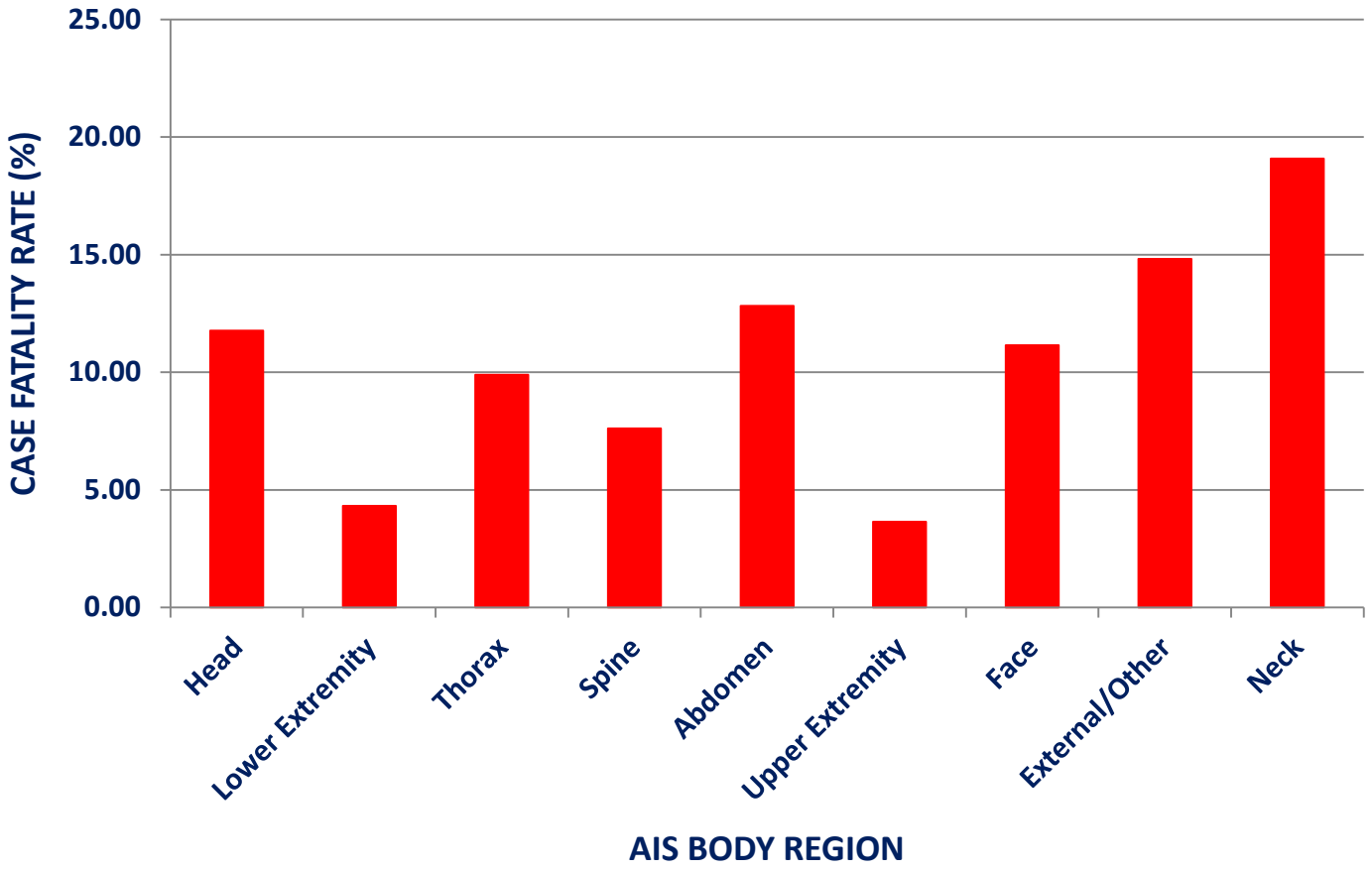
Incidents with AIS ≥ 3 by AIS Body Region



An incident may involve multiple organ systems and a patient will then be counted for each of the organ systems in which there is an injury.

Figure 31

Case Fatality Rate for AIS ≥ 3 AIS Body Region



An incident may involve multiple organ systems and a patient will then be counted for each of the organ systems in which there is an injury.

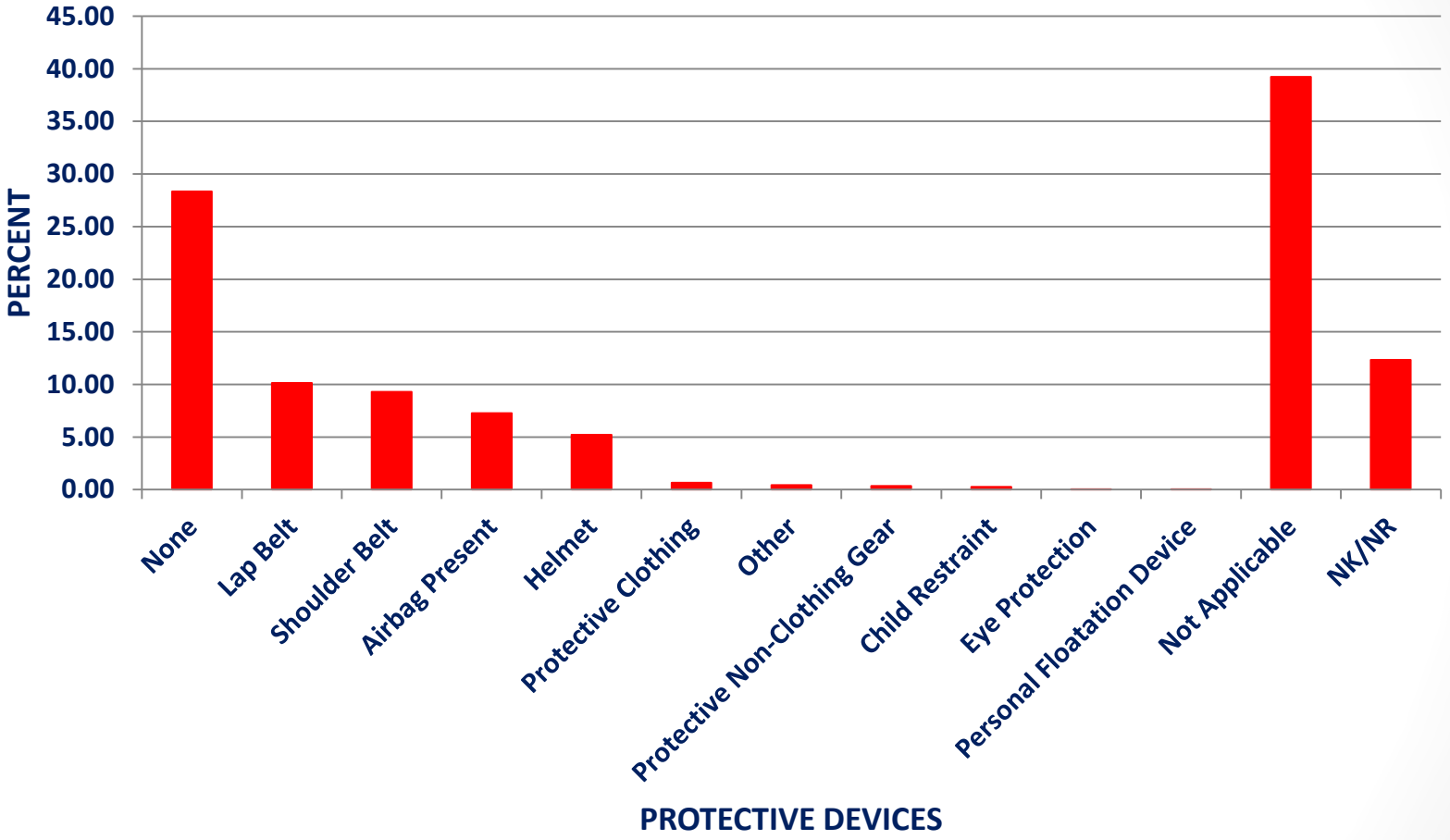
Table 32

Incidents by Protective Devices

PROTECTIVE DEVICES	NUMBER	PERCENT
None	219,123	28.34
Lap Belt	78,484	10.15
Shoulder Belt	71,924	9.30
Airbag Present	56,315	7.28
Helmet	40,339	5.22
Protective Clothing	4,997	0.65
Other	3,341	0.43
Protective Nonclothing Gear	2,663	0.34
Child Restraint	2,115	0.27
Eye Protection	348	0.05
Personal Floatation Device	88	0.01
Not Applicable	303,397	39.23
NK/NR	95,373	12.33

Figure 32

Incidents by Protective Devices



OUTCOMES INFORMATION

Table 33

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

MECHANISM	NUMBER	MEDIAN
Natural/environmental, other	1,198	70
Transport, other	19,630	61
Machinery	3,358	55
Drowning/submersion	217	54
Hot object/substance	2,200	54
Natural/environmental, bites and stings	1,340	53
Other specified and classifiable	5,179	53
Fire/flame	3,307	52
Fall	151,952	49
Overexertion	824	49
Adverse effects, medical care	42	47
Motor vehicle traffic	141,752	46
Struck by, against	25,581	45
Pedal cyclist, other	6,955	44
Suffocation	480	43
Adverse effects, drugs	53	42
Other specified, not elsewhere classifiable	1,652	41
Pedestrian, other	1,522	41
Unspecified	4,118	41
Poisoning	145	40
NK/NR	1,301	36
Cut/pierce	18,164	35
Firearm	20,512	32

Figure 33

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

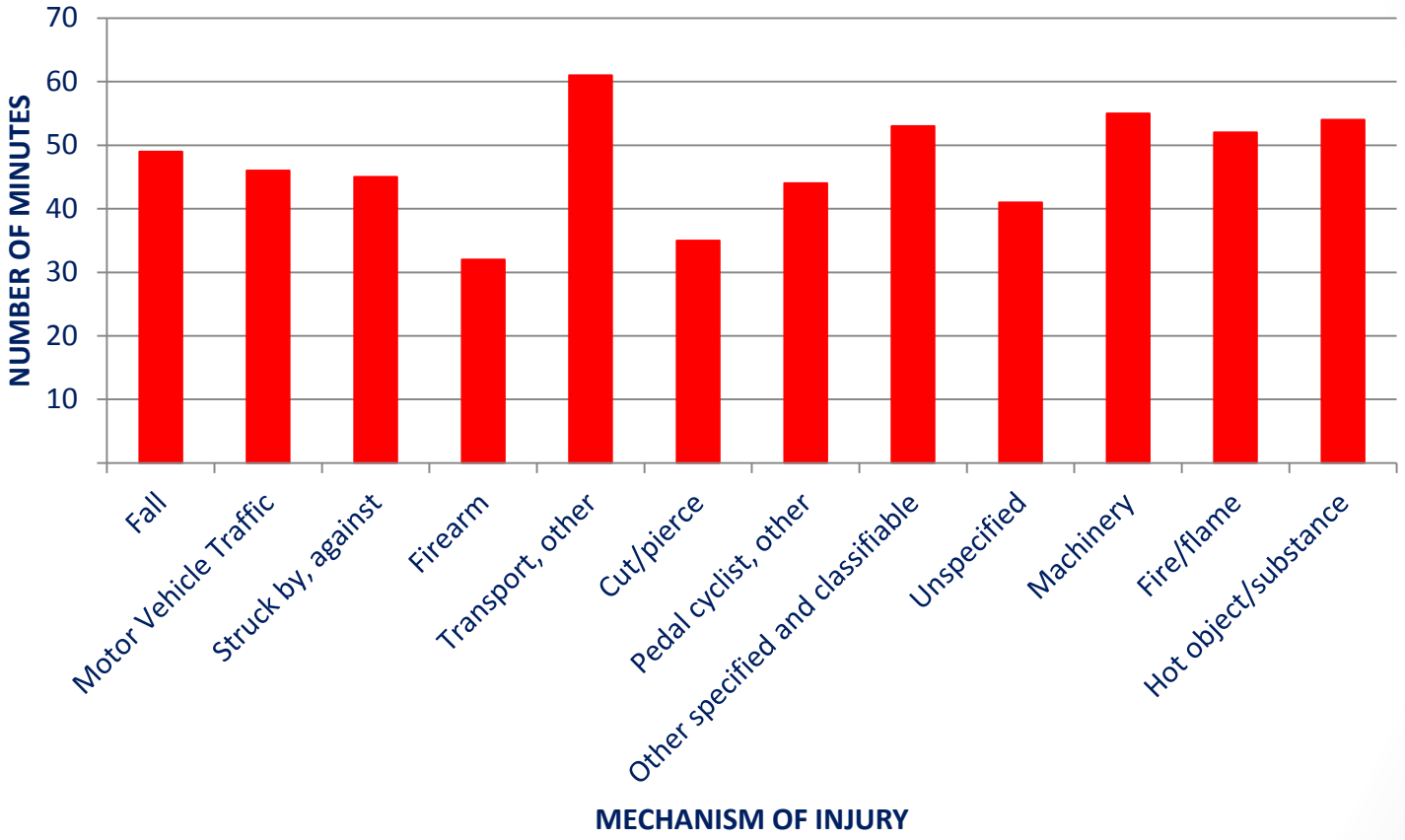


Table 34

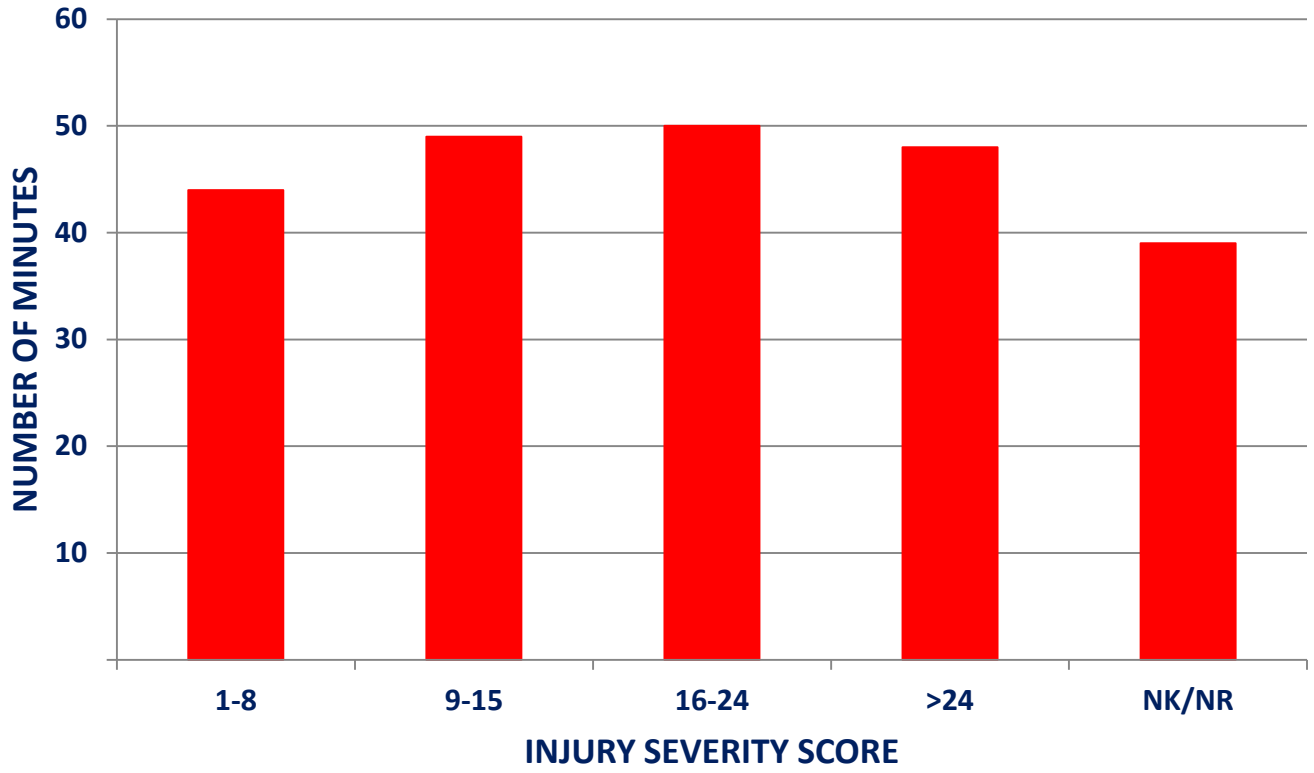
Median Total Prehospital Time (in Minutes) by Injury Severity Score

ISS	NUMBER	MEDIAN
1-8	176,518	44
9-15	130,251	49
16-24	60,991	50
>24	39,039	48
NK/NR	4,683	39

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 34

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 35

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

MECHANISM	NUMBER	MEDIAN
Adverse effects, drugs	118	6
Adverse effects, medical care	147	5
Cut/pierce	35,158	2
Drowning/submersion	397	3
Fall	309,209	4
Fire/flame	8,440	2
Firearm	33,561	3
Hot object/substance	8,807	2
Machinery	7,827	2
Motor vehicle traffic	216,641	3
Natural/environmental, bites and stings	4,606	2
Natural/environmental, other	2,951	3
Other specified and classifiable	13,055	2
Other specified, not elsewhere classifiable	3,802	2
Overexertion	2,587	2
Pedal cyclist, other	14,328	2
Pedestrian, other	2,562	3
Poisoning	294	2
Struck by, against	57,526	2
Suffocation	734	3
Transport, other	38,558	3
Unspecified	8,527	2
NK/NR	2,601	2

Figure 35

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

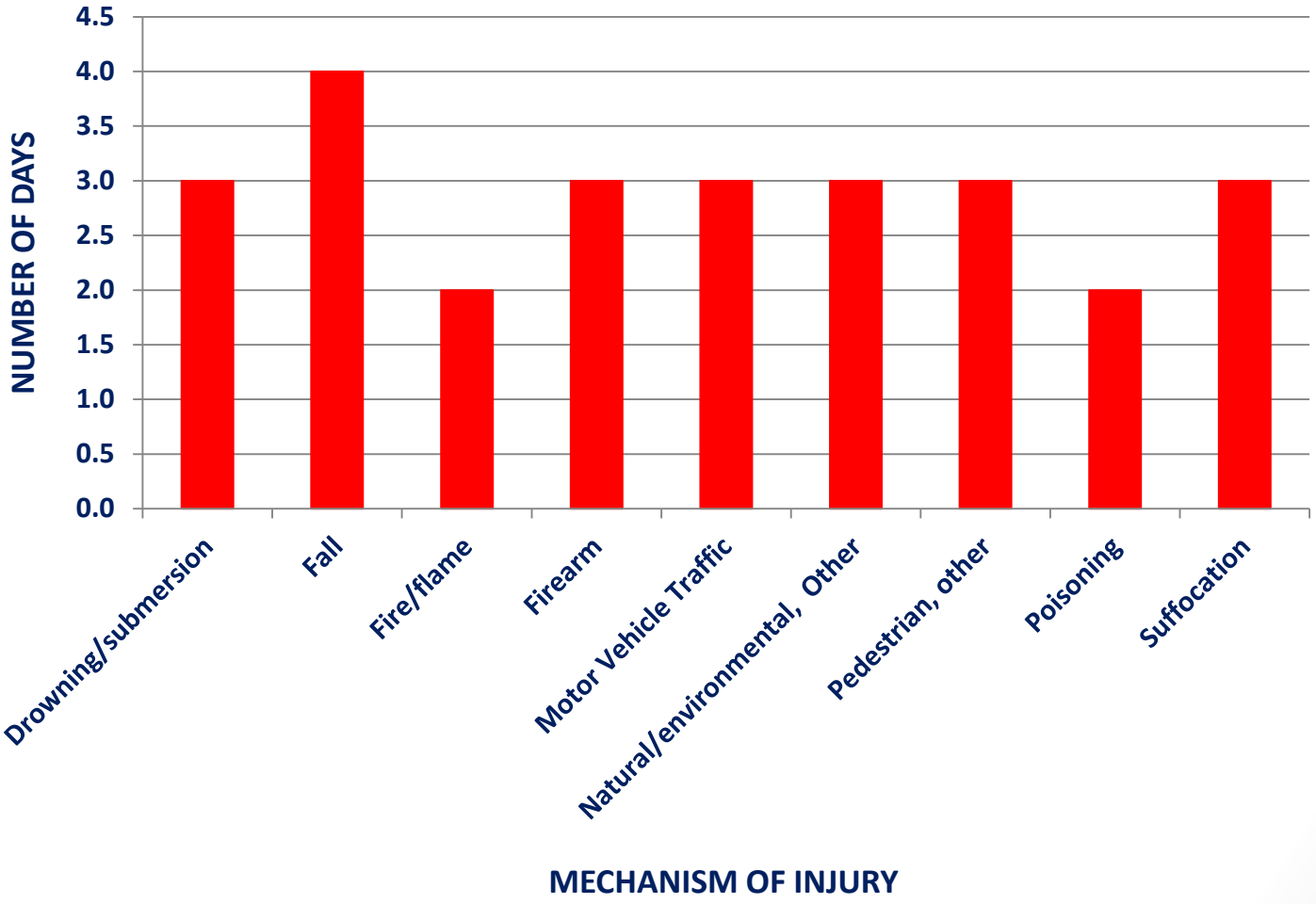


Table 36

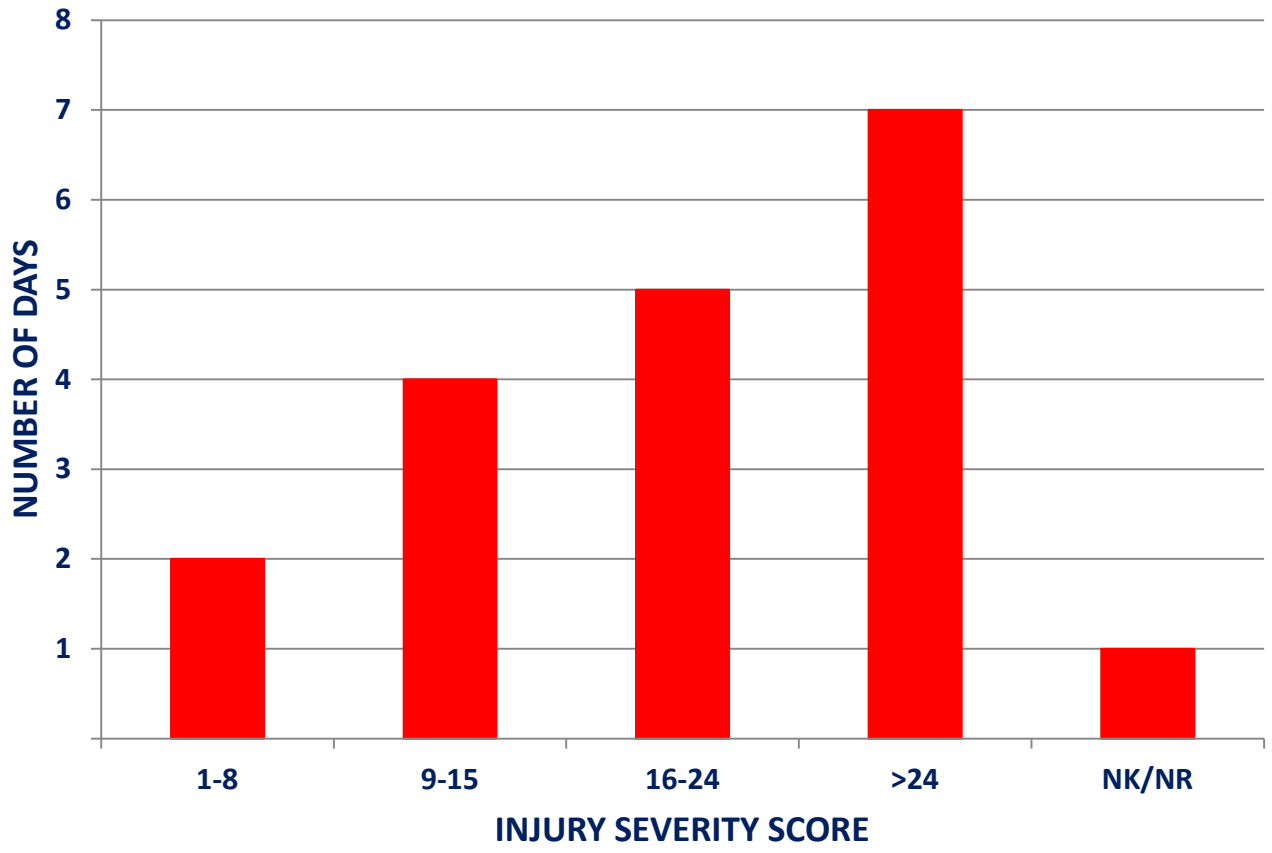
Median Length of Stay (in Days) by Injury Severity Score

ISS	NUMBER	MEDIAN
1-8	365,382	2
9-15	234,253	4
16-24	105,050	5
>24	58,911	7
NK/NR	8,840	1

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 36

Median Length of Stay (in Days) 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 37

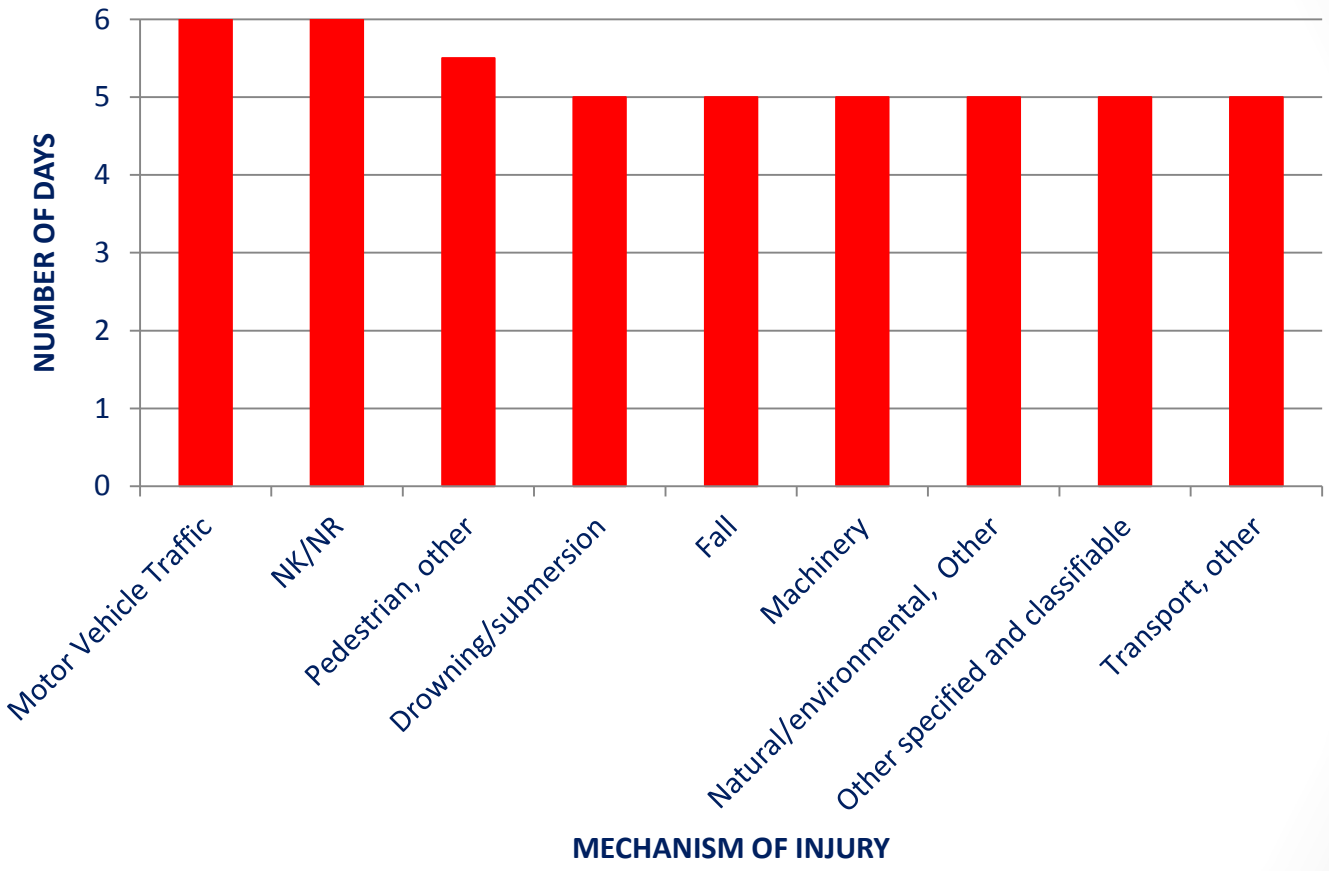
Median Ventilator Days by Selected Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Adverse effects, medical care	15	6
Fire/flame	1,182	6
Motor vehicle traffic	22,523	6
NK/NR	1,101	6
Pedestrian, other	280	6
Drowning/submersion	85	5
Fall	13,239	5
Machinery	296	5
Natural/environmental, other	215	5
Other specified and classifiable	1,065	5
Transport, other	2,503	5
Natural/environmental, bites and stings	62	5
Firearm	4,749	4
Other specified, not elsewhere classifiable	179	4
Overexertion	19	4
Pedal cyclist, other	462	4
Struck by, against	2,295	4
Unspecified	794	4
Adverse effects, drugs	11	3
Cut/pierce	1,447	3
Poisoning	31	3
Suffocation	244	3
Hot object/substance	273	2

In patients with ventilator days > 0.

Figure 37

Median Ventilator Days by Selected Mechanism of Injury



In patients with ventilator days > 0.

Table 38

Median Ventilator Days by Injury Severity Score

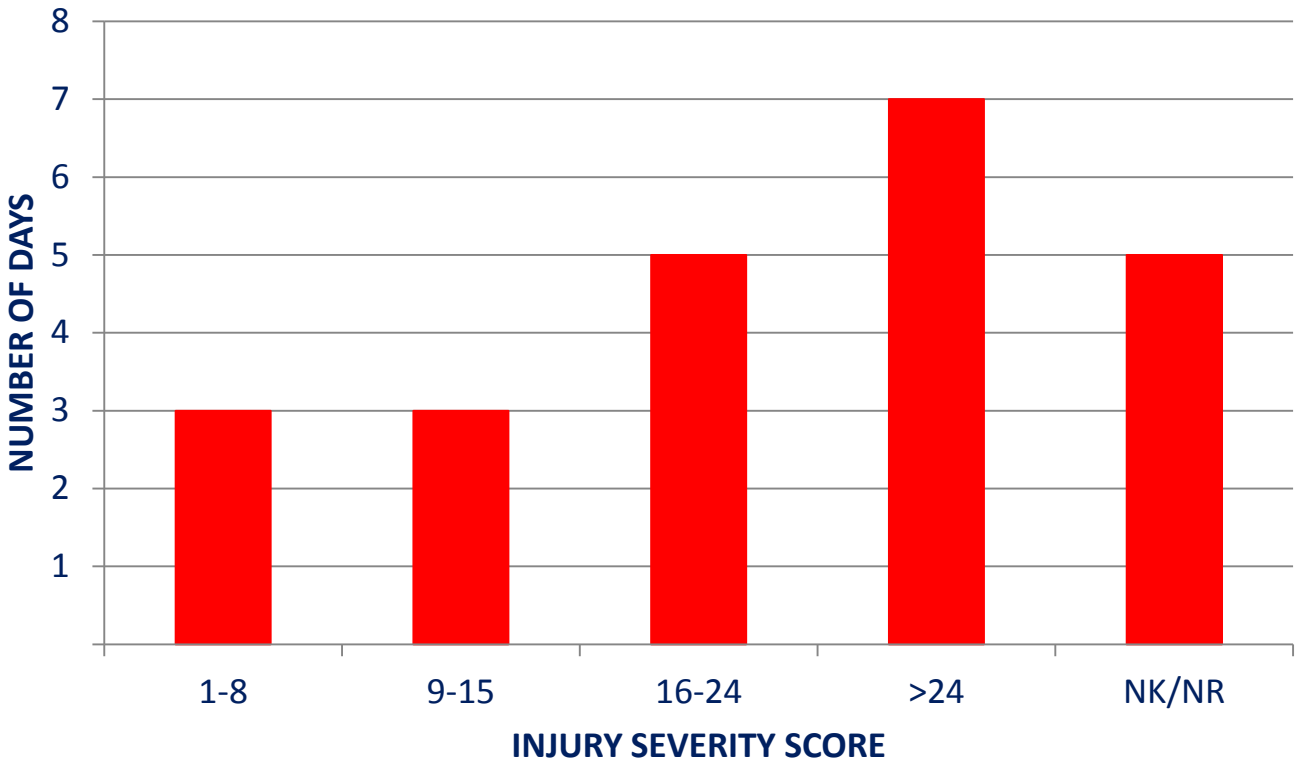
ISS	NUMBER	MEDIAN
1-8	5,667	3
9-15	9,563	3
16-24	14,504	5
>24	22,917	7
NK/NR	419	5

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 38

Median Ventilator Days 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.

In patients with ventilator days > 0.

Table 39

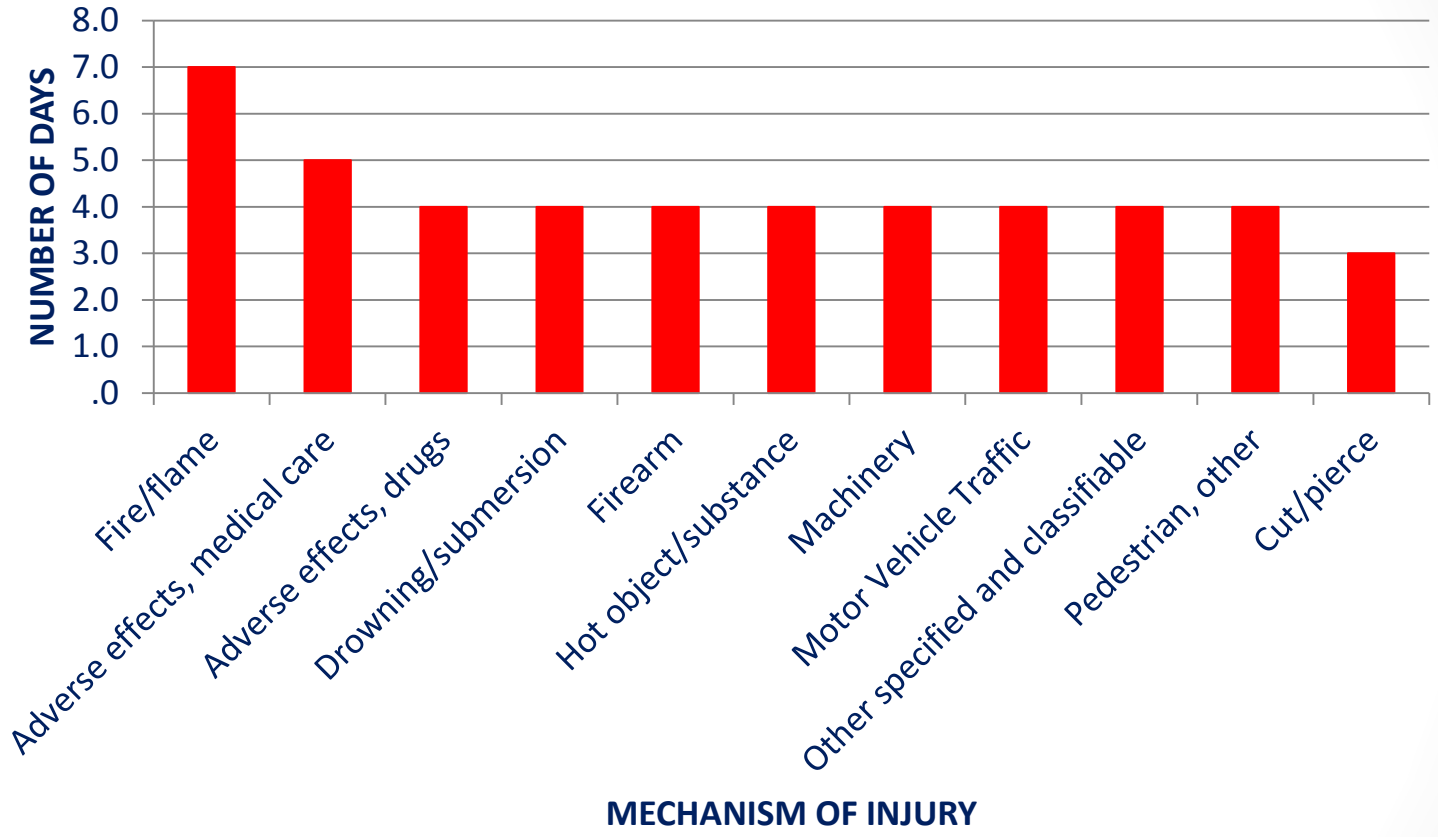
Median ICU Days by Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Fire/flame	2,516	7
Adverse effects, medical care	43	5
Adverse effects, drugs	32	4
Drowning/submersion	146	4
Firearm	8,730	4
Hot object/substance	1,168	4
Machinery	869	4
Motor vehicle traffic	52,594	4
Other specified and classifiable	2,470	4
Pedestrian, other	630	4
Cut/pierce	4,136	3
Fall	50,632	3
Natural/environmental, bites and stings	276	3
Natural/environmental, other	649	3
Other specified, not elsewhere classifiable	605	3
Overexertion	80	3
Pedal cyclist, other	2,045	3
Poisoning	76	3
Struck by, against	7,786	3
Suffocation	342	3
Transport, other	7,586	3
Unspecified	1,887	3
NK/NR	629	3

In patients with ICU days > 0.

Figure 39

Median ICU Days by Mechanism of Injury



In patients with ICU days > 0.

Table 40

Median ICU Days by Injury Severity Score

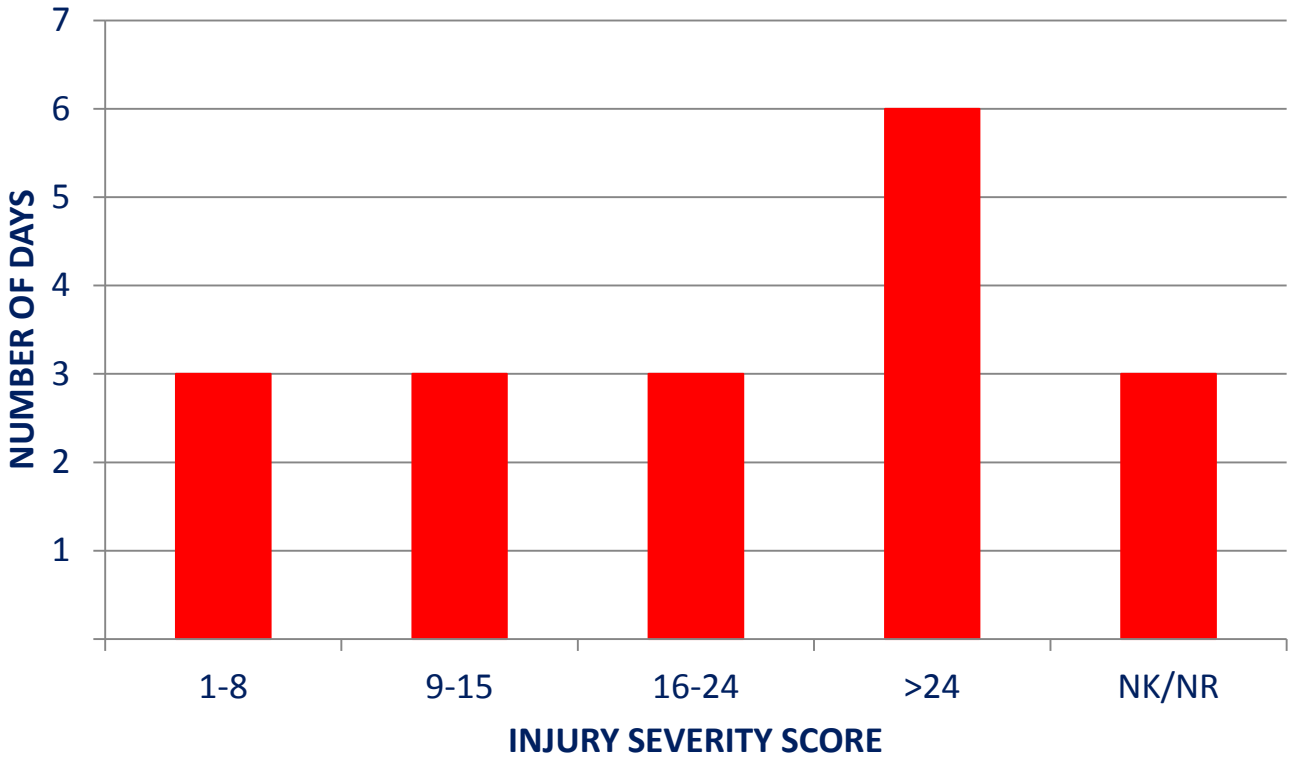
ISS	NUMBER	MEDIAN
1-8	21,411	3
9-15	38,492	3
16-24	47,336	3
>24	37,945	6
NK/NR	743	3

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 40

Median ICU Days 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.

In patients with ICU days > 0.

Table 41

Incidents by ED Discharge Disposition

ED DISCHARGE DISPOSITION	NUMBER	PERCENT
Floor bed (general admission, nonspecialty unit bed)	331,296	42.84
Intensive Care Unit (ICU)	145,912	18.87
Operating Room	88,647	11.46
Home without services	72,568	9.38
Telemetry/step-down unit (less acuity than ICU)	50,274	6.50
Transferred to another hospital	29,760	3.85
Observation unit (unit that provides < 24 hour stays)	15,475	2.00
Died	8,719	1.13
Other (jail, institutional care facility, mental health, etc.)	2,598	0.34
Left against medical advice	1,914	0.25
Home with services	1,677	0.22
Not Applicable	17,337	2.24
NK/NR	7,116	0.92
Total	773,293	100.00

Figure 41

Incidents by ED Discharge Disposition

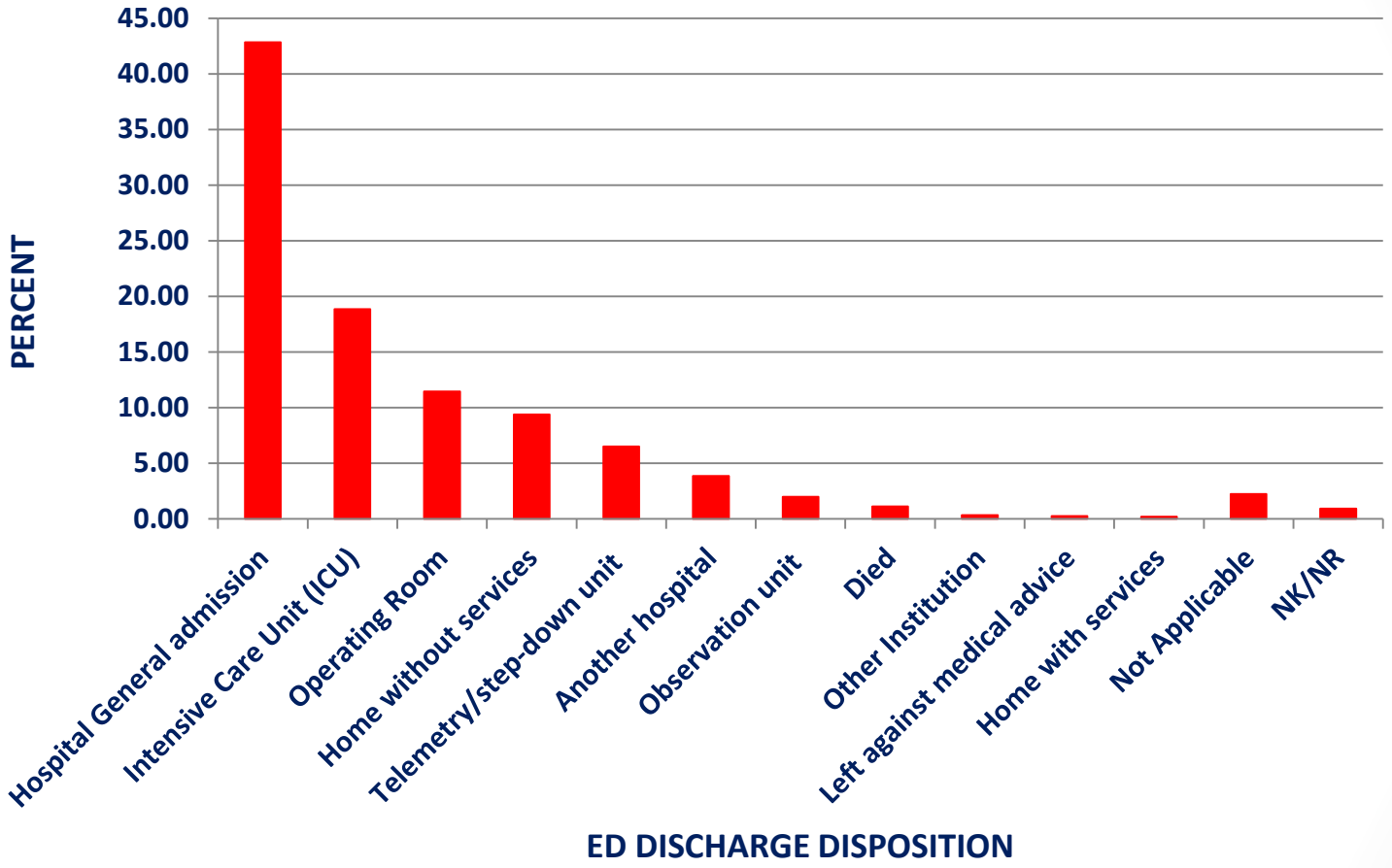


Table 42

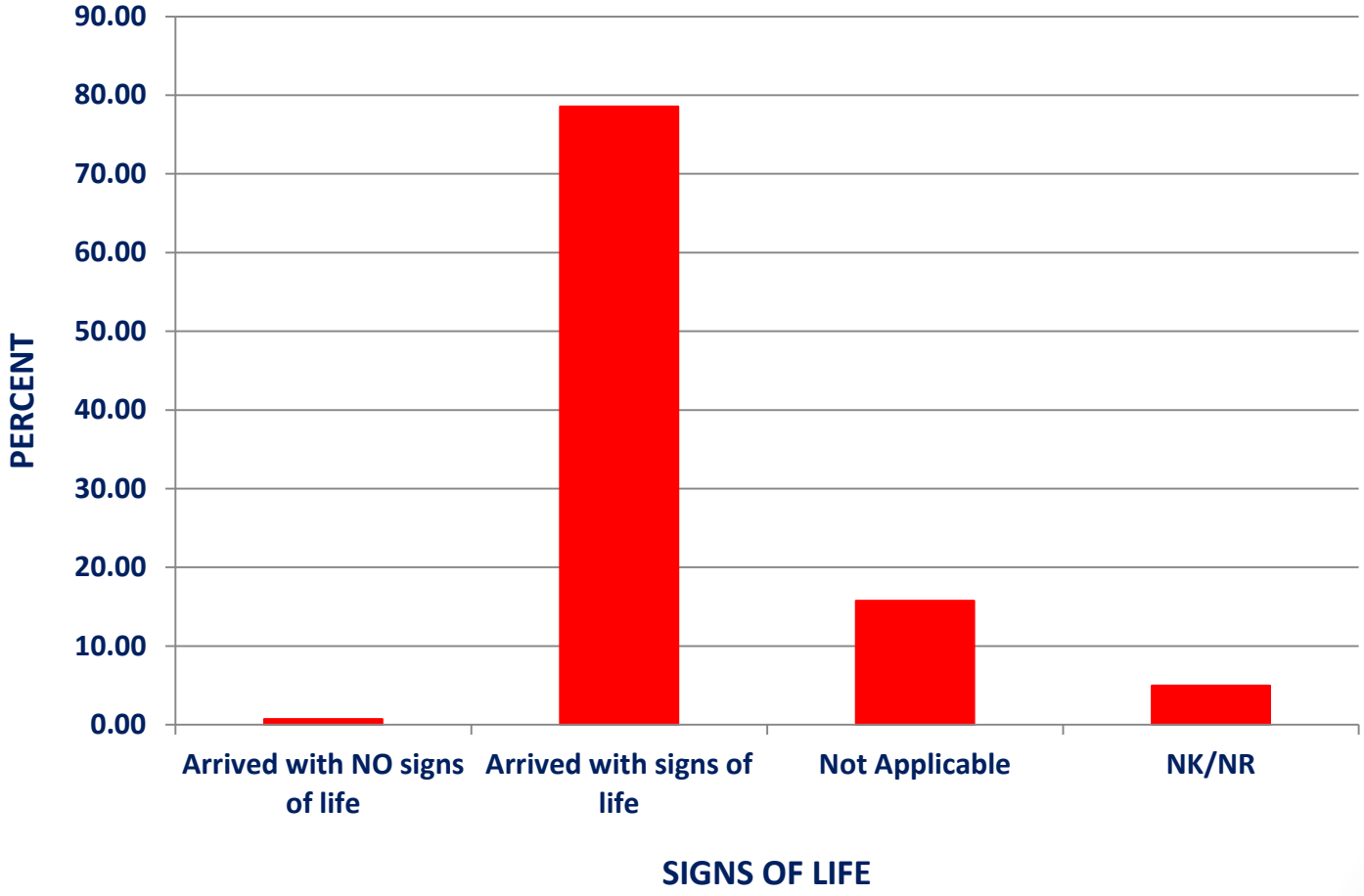
Signs of Life

SIGNS OF LIFE	NUMBER	PERCENT
Arrived with NO signs of life	5,450	0.70
Arrived with signs of life	607,524	78.56
Not applicable	121,813	15.75
NK/NR	38,506	4.98
Total	773,293	100.00

Indication of whether patient arrived at ED/Hospital with signs of life.

Figure 42

Signs of Life



Indication of whether patient arrived at ED/Hospital with signs of life.

Table 43

Incidents by Hospital Discharge Disposition

HOSPITAL DISCHARGE DISPOSITION	NUMBER	PERCENT
Discharged home with no home services	431,887	55.85
Discharged/transferred to skilled nursing facility	77,676	10.04
Discharged/transferred to another type of rehabilitation or long term care	57,885	7.49
Discharge/transferred to home under care of organized home health service	32,821	4.24
Expired	20,687	2.68
Discharged/transferred to an intermediate care facility (ICF)	15,799	2.04
Discharged/transferred to a short-term general hospital for inpatient care	11,227	1.45
Left against medical advice or discontinued care	5,030	0.65
Discharged/transferred to hospice care	2,804	0.36
Not applicable	117,236	15.16
NK/NR	241	0.03
Total	773,293	100.00

Figure 43

Incidents by Hospital Discharge Disposition

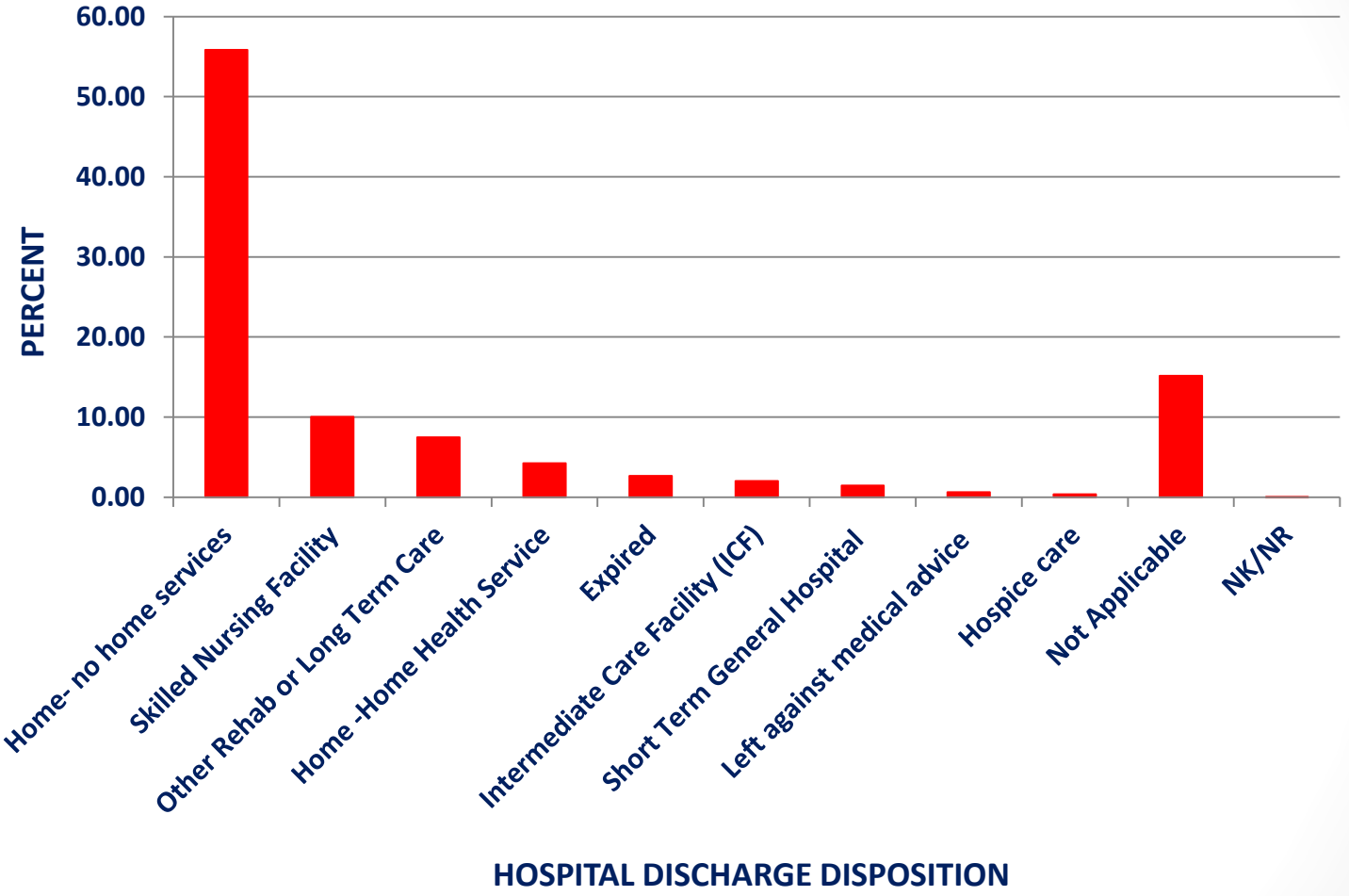


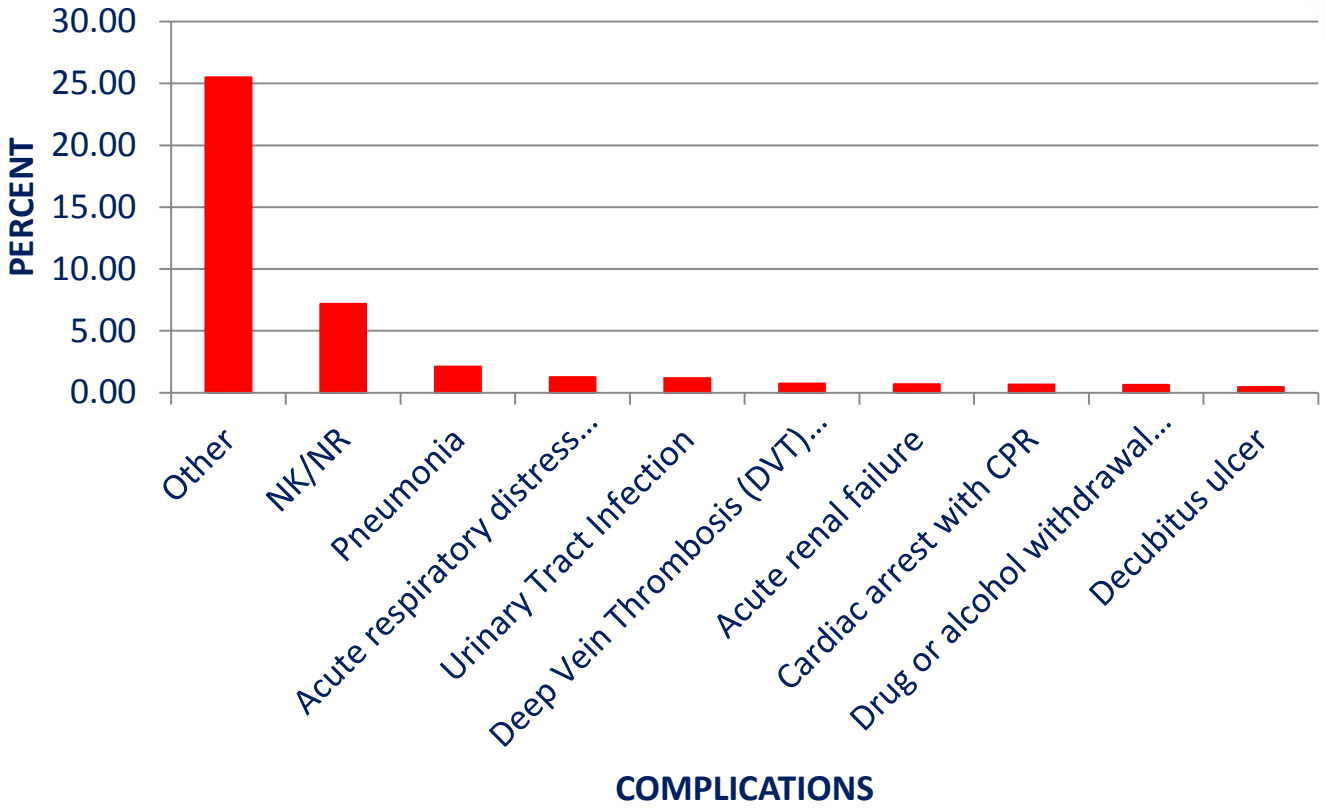
Table 44

Hospital Complications

COMPLICATIONS	NUMBER	PERCENT
Not applicable	485,662	62.80
Other	197,169	25.50
NK/NR	55,587	7.19
Pneumonia	16,279	2.11
Acute respiratory distress syndrome (ARDS)	9,673	1.25
Urinary tract infection	9,254	1.20
Deep vein thrombosis (DVT) / thrombophlebitis	5,740	0.74
Acute renal failure	5,411	0.70
Cardiac arrest with CPR	5,091	0.66
Drug or alcohol withdrawal syndrome	5,002	0.65
Decubitus ulcer	3,547	0.46
Unplanned intubation	3,432	0.44
Pulmonary embolism	2,175	0.28
Myocardial infarction	1,855	0.24
Organ/space surgical site infection	1,687	0.22
Unplanned return to the ICU	1,669	0.22
Severe sepsis	1,412	0.18
Extremity compartment syndrome	1,335	0.17
Superficial surgical site infection	1,166	0.15
Stroke / CVA	1,033	0.13
Unplanned return to the OR	917	0.12
Deep surgical site infection	642	0.08
Catheter-related blood stream infection	385	0.05
Graft/prosthesis/flap failure	323	0.04
Osteomyelitis	109	0.01

Figure 44

Top Ten Complications



REGIONAL ANALYSIS

Table 45

Incidents by Region

REGION	NUMBER	PERCENT
Midwest	208,145	26.92
Northeast	125,772	16.26
South	275,368	35.61
West	159,893	20.68
Non-U.S.	4,115	0.53
Total	773,293	100.00

Figure 45

Incidents by Region

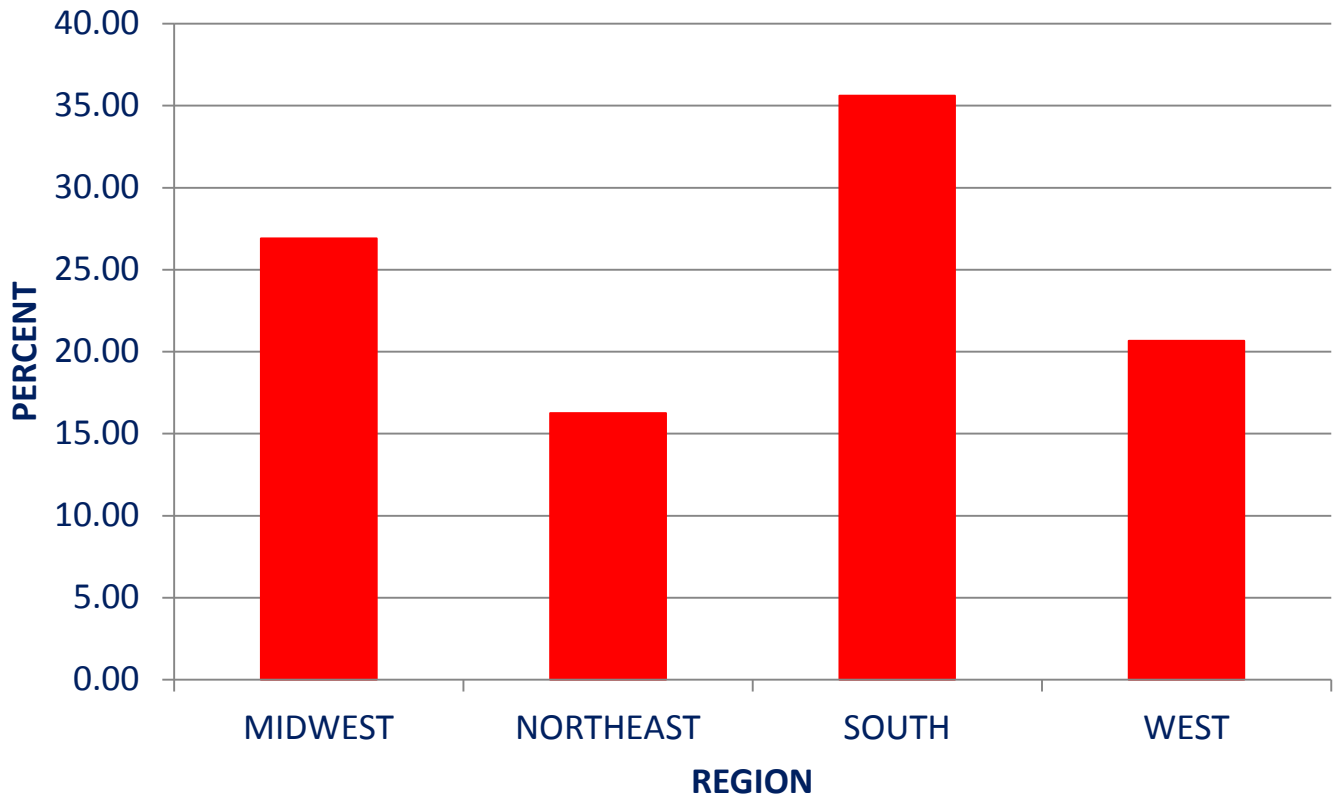


Table 46

Case Fatality Rate by Region

REGION	NUMBER	DEATHS	CASE FATALITY RATE
South	275,368	10,838	3.94
Midwest	208,145	6,976	3.35
West	159,893	6,288	3.93
Northeast	125,772	4,962	3.95
Non-U.S.	4,115	342	8.31
Total	773,293	29,406	

Figure 46

Case Fatality Rate by Region

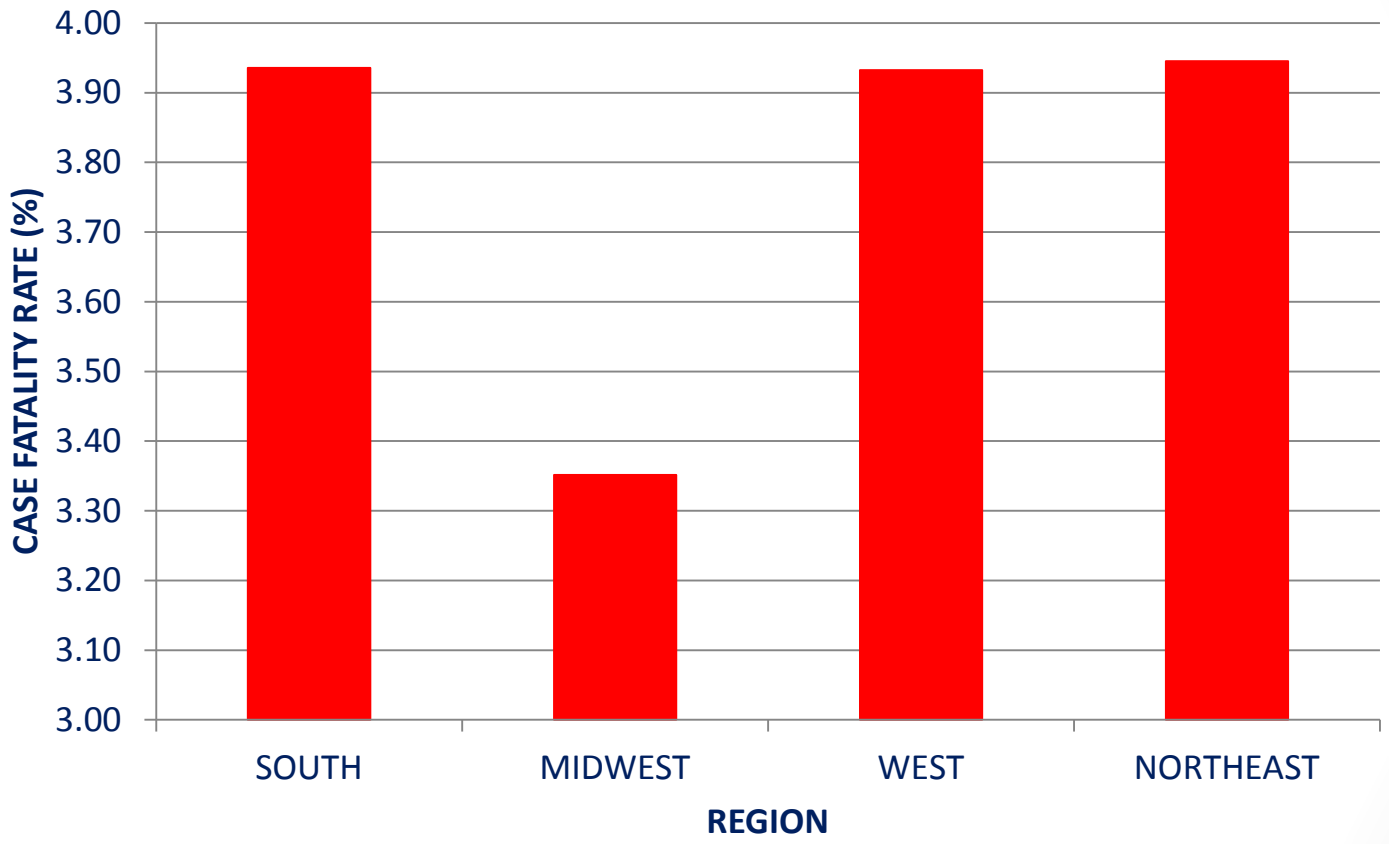


Table 47

Mechanism of Injury by Region

MECHANISM	NUMBER	PERCENT (MIDWEST)	PERCENT (NORTHEAST)	PERCENT (SOUTH)	PERCENT (WEST)
Adverse effects, drugs	118	0.02	0.01	0.01	0.01
Adverse effects, medical care	147	0.02	0.03	0.02	0.01
Cut/pierce	35,193	3.59	4.24	4.83	5.50
Drowning/submersion	399	0.04	0.06	0.06	0.05
Fall	309,541	46.54	47.37	35.05	34.71
Fire/flame	8,457	1.23	1.09	1.25	0.66
Firearm	33,649	4.11	3.57	4.82	4.32
Hot object/substance	8,815	1.17	1.17	1.38	0.69
Machinery	7,833	1.20	0.87	1.12	0.70
Motor vehicle traffic	216,786	23.54	24.02	31.57	30.66
NK/NR	2,660	0.15	0.14	0.11	1.14
Natural/environmental, bites and stings	4,608	0.61	0.39	0.81	0.40
Natural/environmental, other	2,951	0.42	0.19	0.49	0.29
Other specified and classifiable	13,069	1.68	1.35	2.02	1.40
Other specified, not elsewhere classifiable	3,804	0.47	0.53	0.54	0.40
Overexertion	2,595	0.34	0.36	0.37	0.27
Pedal cyclist, other	14,341	1.65	1.83	1.32	3.07
Pedestrian, other	2,563	0.26	0.40	0.34	0.36
Poisoning	294	0.05	0.03	0.03	0.04
Struck by, against	57,594	7.33	7.27	7.48	7.77
Suffocation	734	0.11	0.08	0.09	0.10
Transport, other	38,602	4.41	3.67	5.38	6.14
Unspecified	8,540	1.05	1.34	0.93	1.29
Total	773,293	100.00	100.00	100.00	100.00

Figure 47

Selected Mechanism of Injury by Region

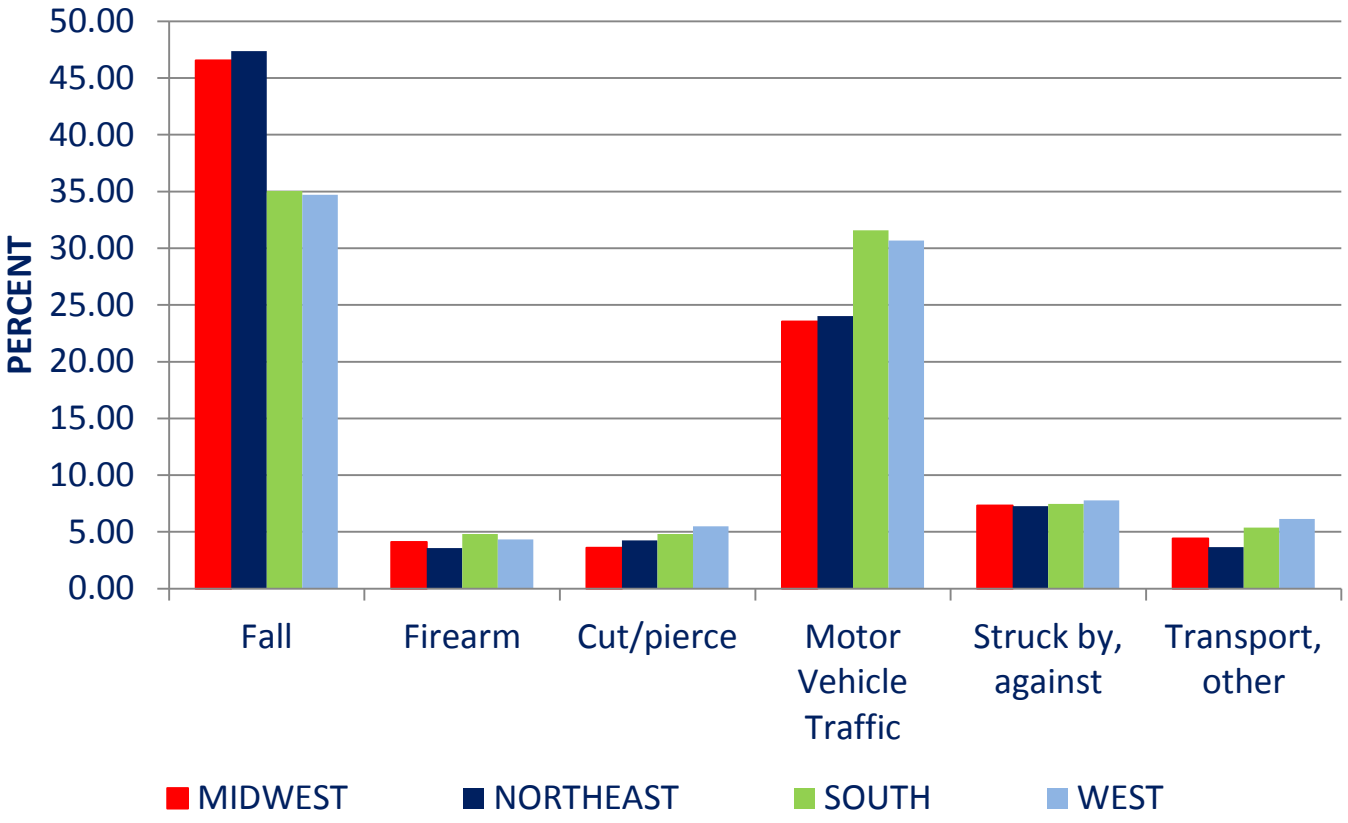


Table 48

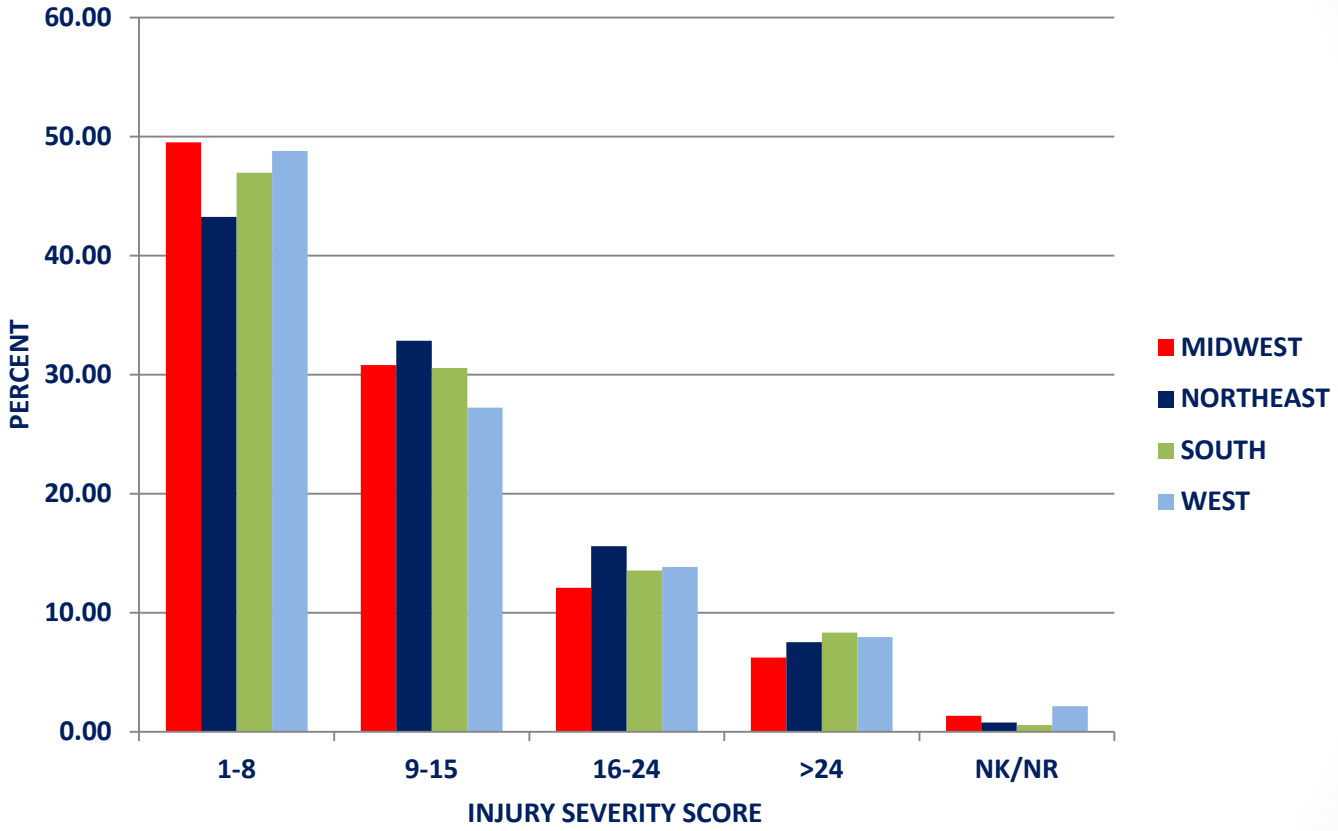
Injury Severity Score by Region

ISS	NUMBER	MIDWEST	NORTHEAST	SOUTH	WEST
1–8	365,838	49.50	43.25	46.95	48.79
9–15	234,470	30.82	32.86	30.57	27.24
16–24	105,114	12.09	15.59	13.55	13.85
>24	58,990	6.24	7.52	8.35	7.97
NK/NR	8,881	1.35	0.78	0.57	2.15
Total	773,293	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 48

Injury Severity Score by Region



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 49

Incidents by Rurality

REGION	NUMBER	PERCENT
Urban	359,120	79.48
Rural	32,869	7.27
Suburban	46,154	10.21
Wilderness	13,704	3.03
Total	451,847	100.00

Figure 49

Incidents by Rurality

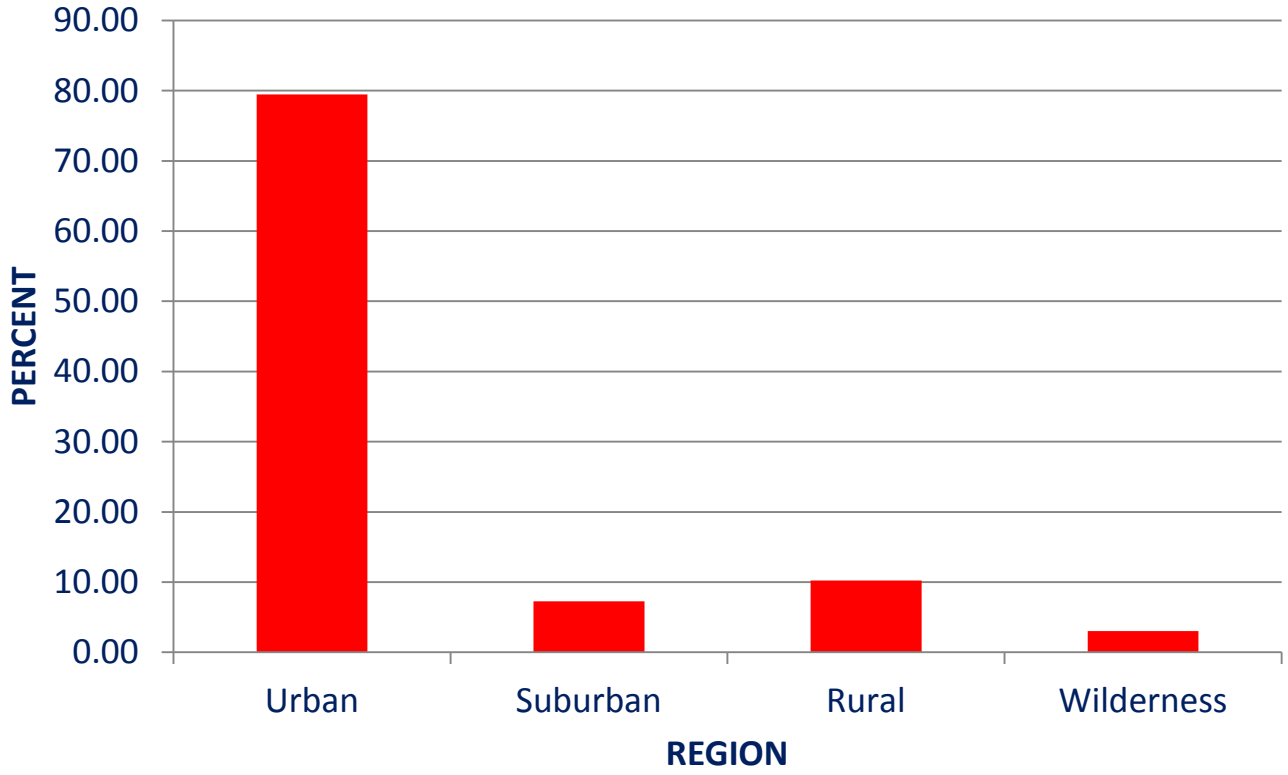


Table 50

Case Fatality Rate by Rurality

REGION	NUMBER	DEATHS	CASE FATALITY RATE
Urban	359,120	14,170	3.95
Rural	32,869	1,387	4.22
Suburban	46,154	1,632	3.54
Wilderness	13,704	487	3.55
Total	451,847	29,406	

Figure 50

Case Fatality Rate by Rurality

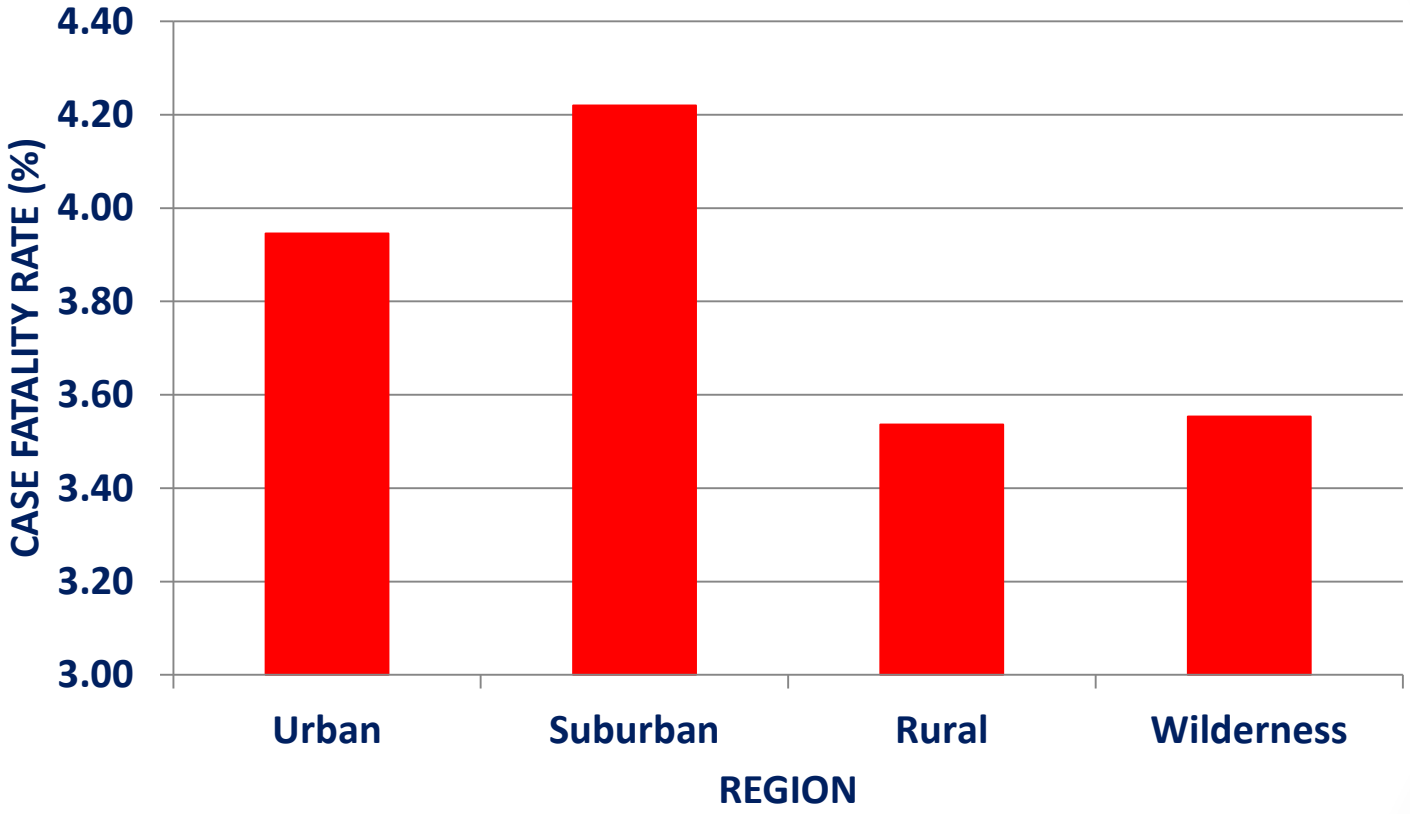


Figure 51

Mechanism of Injury by Rurality

MECHANISM	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
Fall	141,080	39.28	12,406	37.74	16,550	35.86	5,046	36.82
Motor vehicle traffic	104,688	29.15	10,263	31.22	13,738	29.77	3,897	28.44
Struck by, against	26,922	7.50	2,207	6.71	3,226	6.99	846	6.17
Cut/pierce	18,000	5.01	1,044	3.18	1,752	3.80	435	3.17
Firearm	17,411	4.85	958	2.91	1,350	2.92	357	2.61
Transport, other	14,308	3.98	2,526	7.69	4,258	9.23	1,592	11.62
Pedal cyclist, other	6,296	1.75	368	1.12	524	1.14	118	0.86
Other specified and classifiable	5,696	1.59	648	1.97	1,056	2.29	282	2.06
Unspecified	3,960	1.10	290	0.88	355	0.77	98	0.72
Hot object/substance	3,929	1.09	372	1.13	500	1.08	133	0.97
Fire/flame	3,618	1.01	495	1.51	619	1.34	195	1.42
Machinery	2,936	0.82	472	1.44	774	1.68	257	1.88
Natural/environmental, bites and stings	2,074	0.58	237	0.72	351	0.76	106	0.77
NK/NR	1,948	0.54	43	0.13	68	0.15	14	0.10
Other specified, not elsewhere classifiable	1,782	0.50	107	0.33	203	0.44	48	0.35
Pedestrian, other	1,418	0.39	99	0.30	155	0.34	60	0.44
Natural/environmental, other	1,192	0.33	175	0.53	423	0.92	149	1.09
Overexertion	1,130	0.31	77	0.23	131	0.28	44	0.32
Suffocation	329	0.09	37	0.11	55	0.12	11	0.08
Drowning/submersion	183	0.05	27	0.08	36	0.08	10	0.07
Poisoning	121	0.03	6	0.02	15	0.03	3	0.02
Adverse effects, medical care	67	0.02	7	0.02	5	0.01	1	0.01
Adverse effects, drugs	32	0.01	5	0.02	10	0.02	2	0.01
Total	359,120	100.00	32,869	100.00	46,154	100.00	13,704	100.00

Figure 51

Selected Mechanism of Injury by Rurality

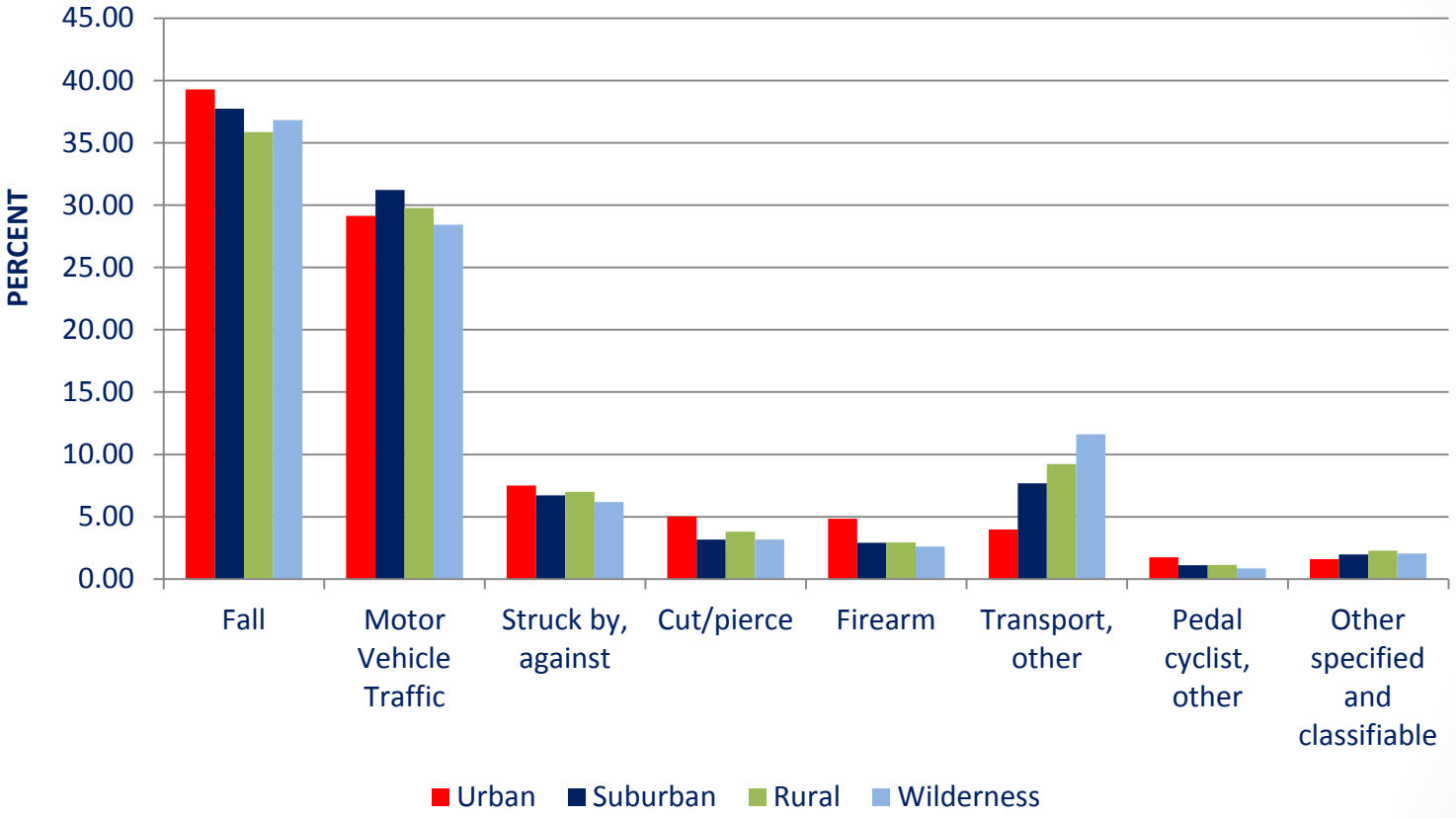


Table 52

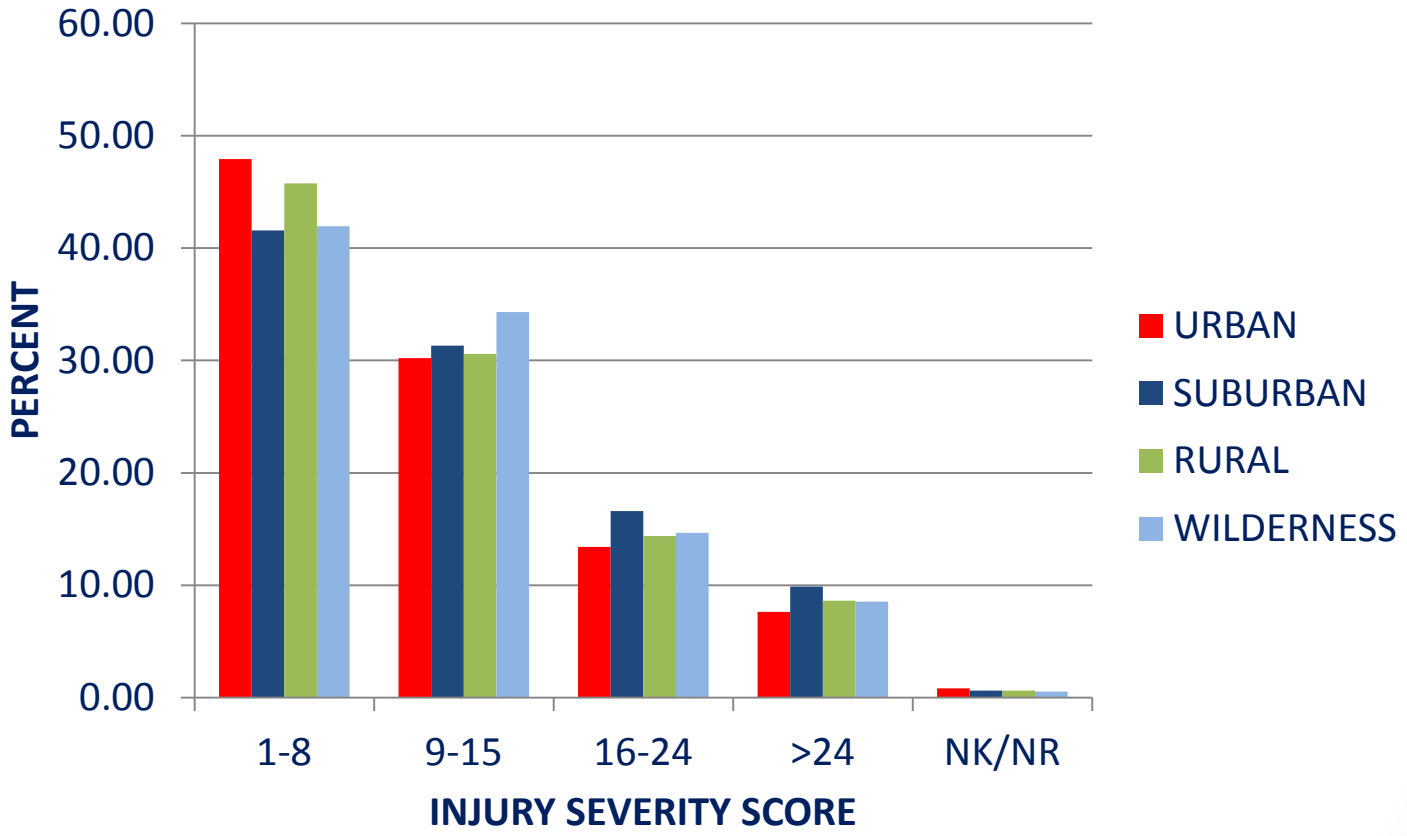
Injury Severity Score by Rurality

ISS	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
1–8	172,125	47.93	13,669	41.59	21,121	45.76	5,748	41.94
9–15	108,549	30.23	10,294	31.32	14,120	30.59	4,702	34.31
16–24	48,118	13.40	5,455	16.60	6,637	14.38	2,009	14.66
> 24	27,350	7.62	3,248	9.88	3,985	8.63	1,172	8.55
NK/NR	2,978	0.83	203	0.62	291	0.63	73	0.53
Total	359,120	100.00	32,869	100.00	46,154	100.00	13,704	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 52

Injury Severity Score by Rurality

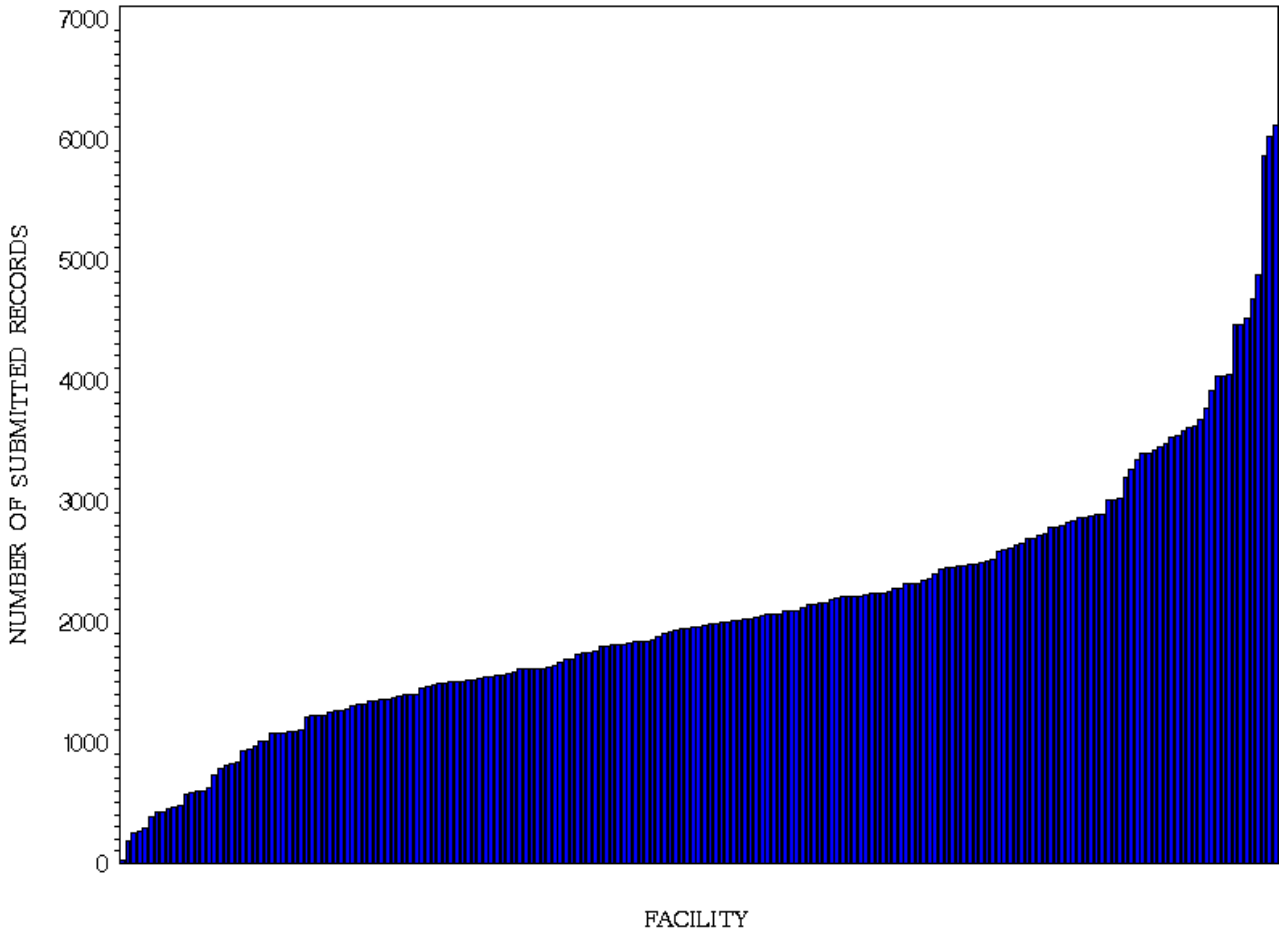


ISS is calculated using AIS submitted by hospitals and then crosswalked to AIS98. If hospital does not submit AIS98, then ISS is based on AIS derived from ICDMAP-90.

COMPARATIVE ANALYSIS

Figure 53

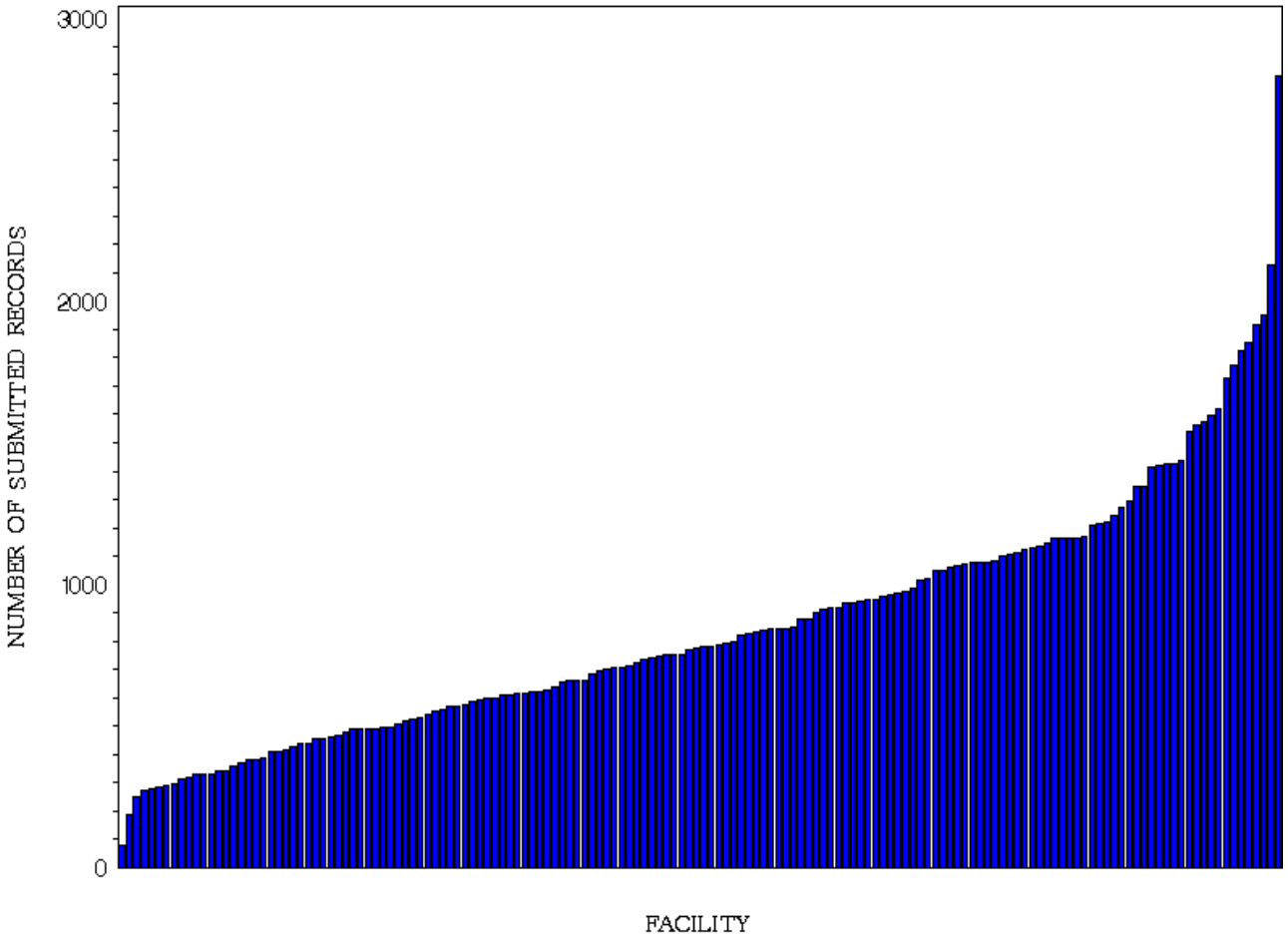
Number of Cases Submitted per Facility for Level I Facilities



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; however, pediatric hospitals are not included in the analysis.

Figure 54

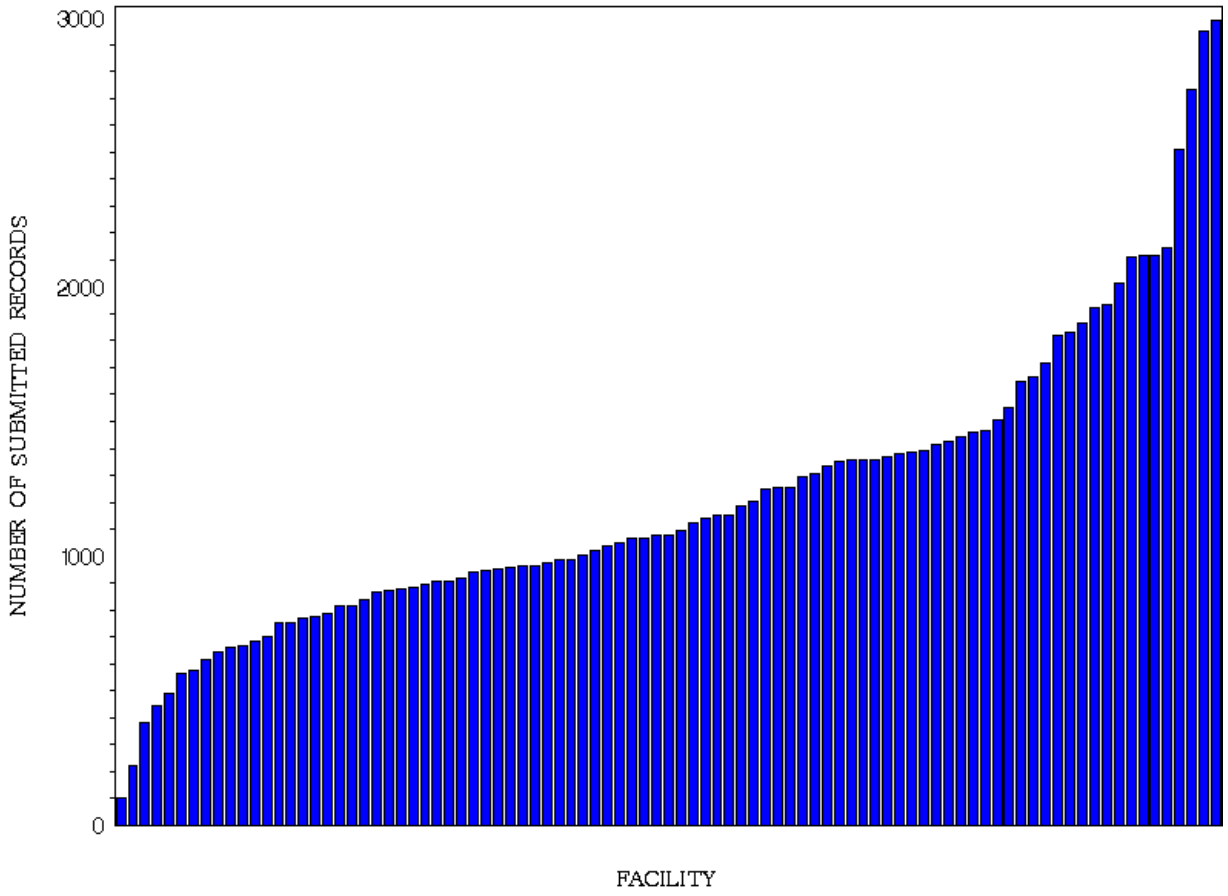
Number of Cases Submitted per Facility for Level II Facilities with Bed Size ≤ 400 Beds



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; however, pediatric hospitals are not included in the analysis.

Figure 55

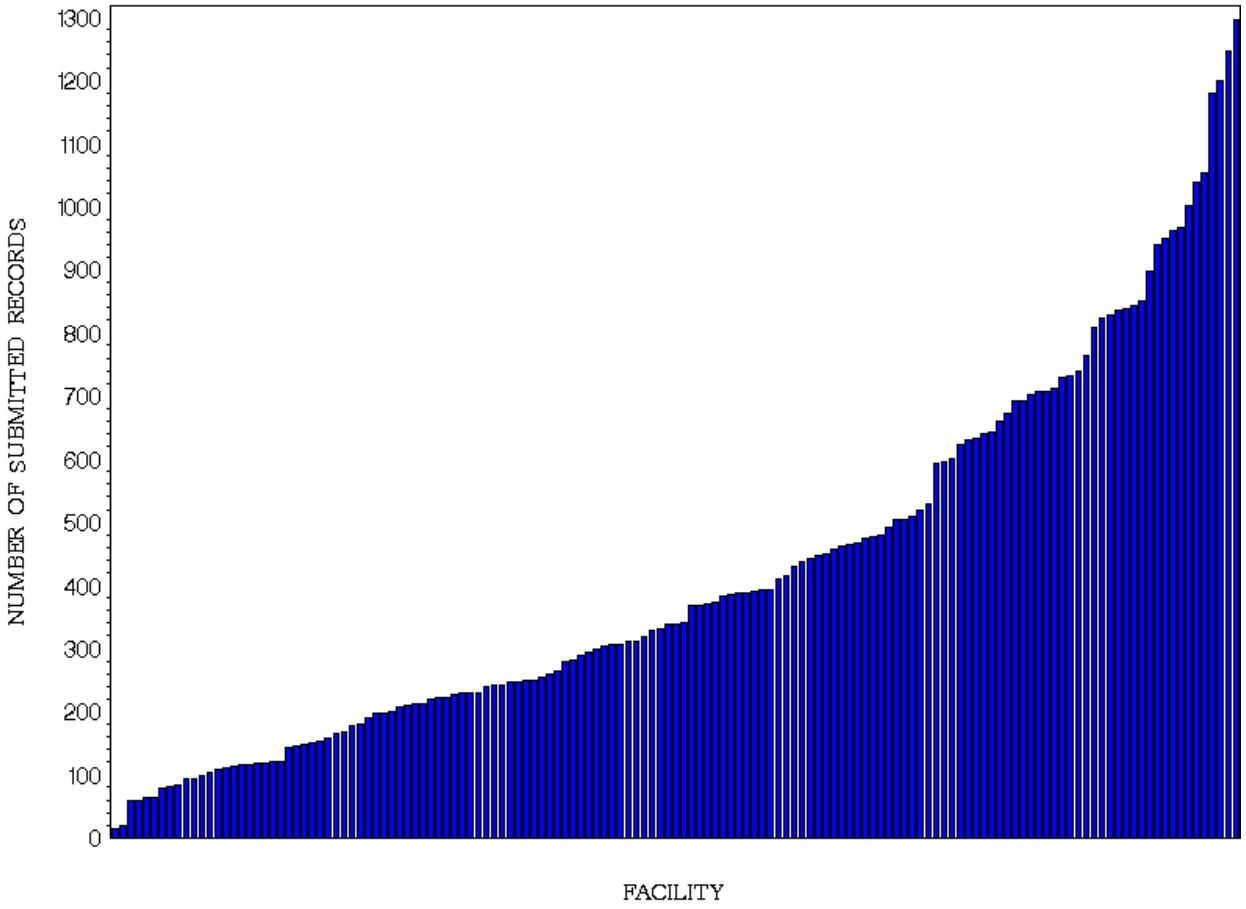
Number of Cases Submitted per Facility for Level II Facilities with Bed Size > 400 Beds



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; however, pediatric hospitals are not included in the analysis.

Figure 56

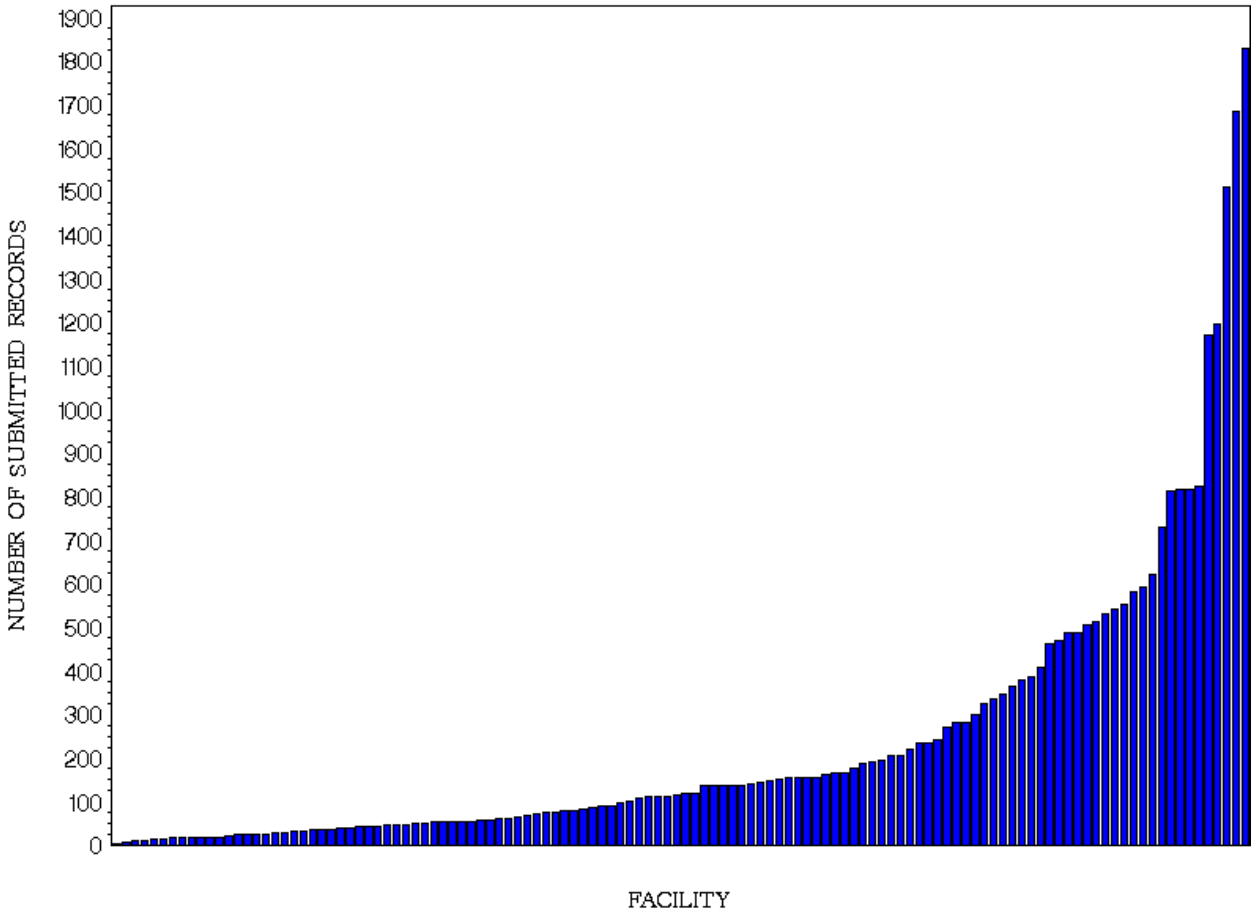
Number of Cases Submitted per Facility for Level III Facilities



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 57

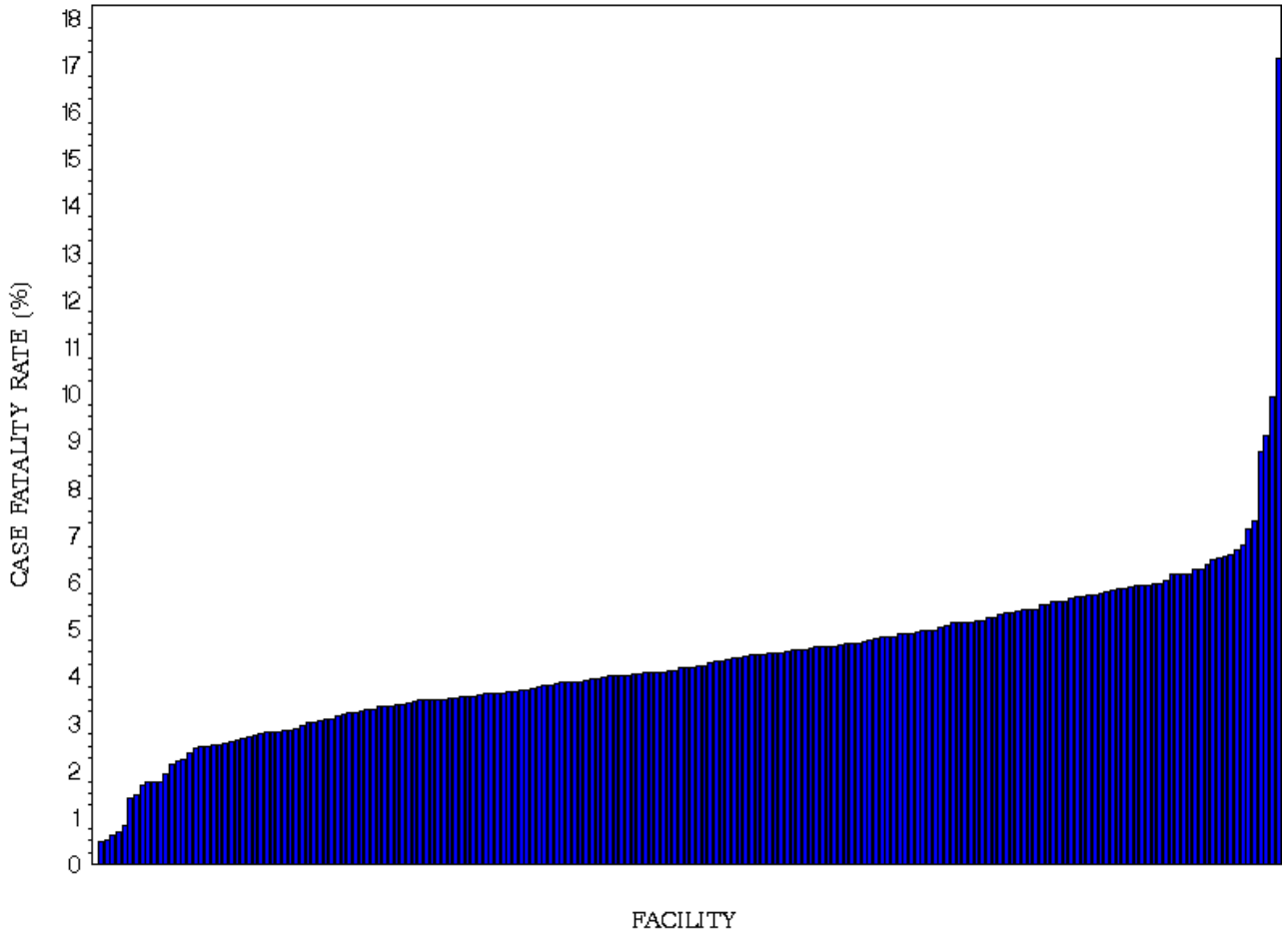
Number of Cases Submitted per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



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 58

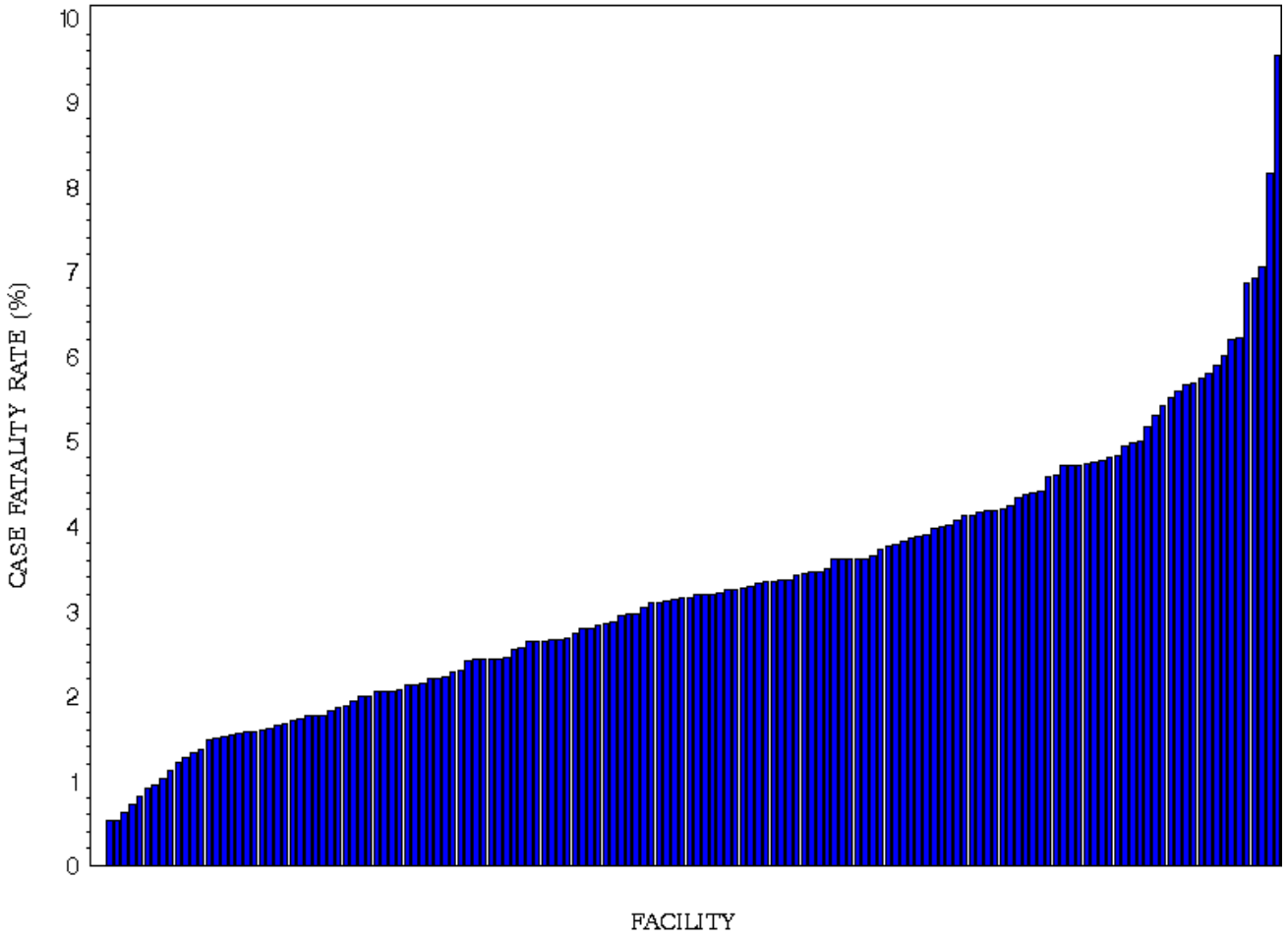
Case Fatality Rate per Facility for Level I Facilities



One out of 201 hospitals did not have any patients who died and are therefore not visible on the graph. All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 59

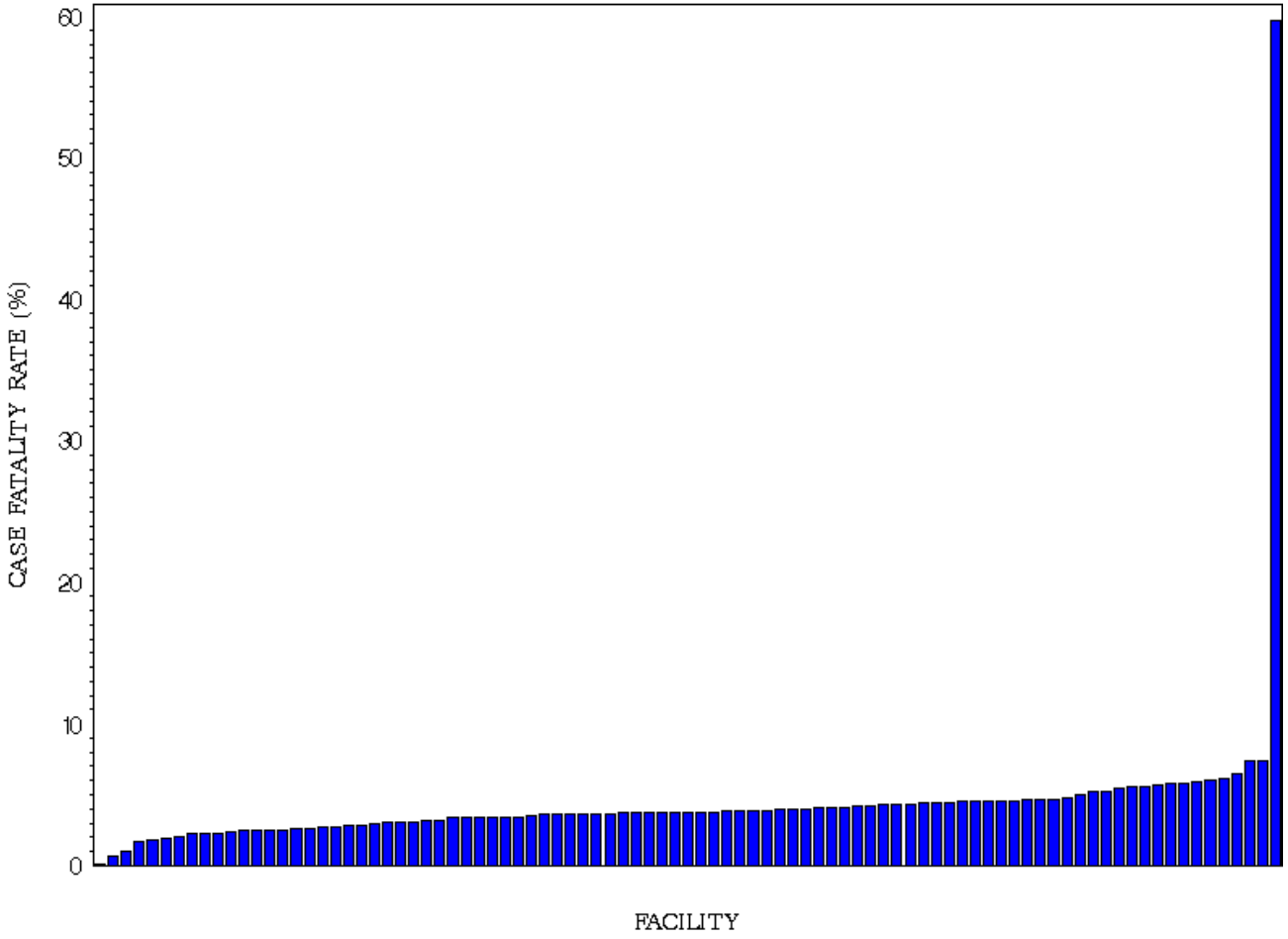
Case Fatality Rate per Facility for Level II Facilities with Bed Size ≤ 400 Beds



Two out of the 156 facilities had a case fatality rate of 0% reported and are therefore not visible on the graph. All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 60

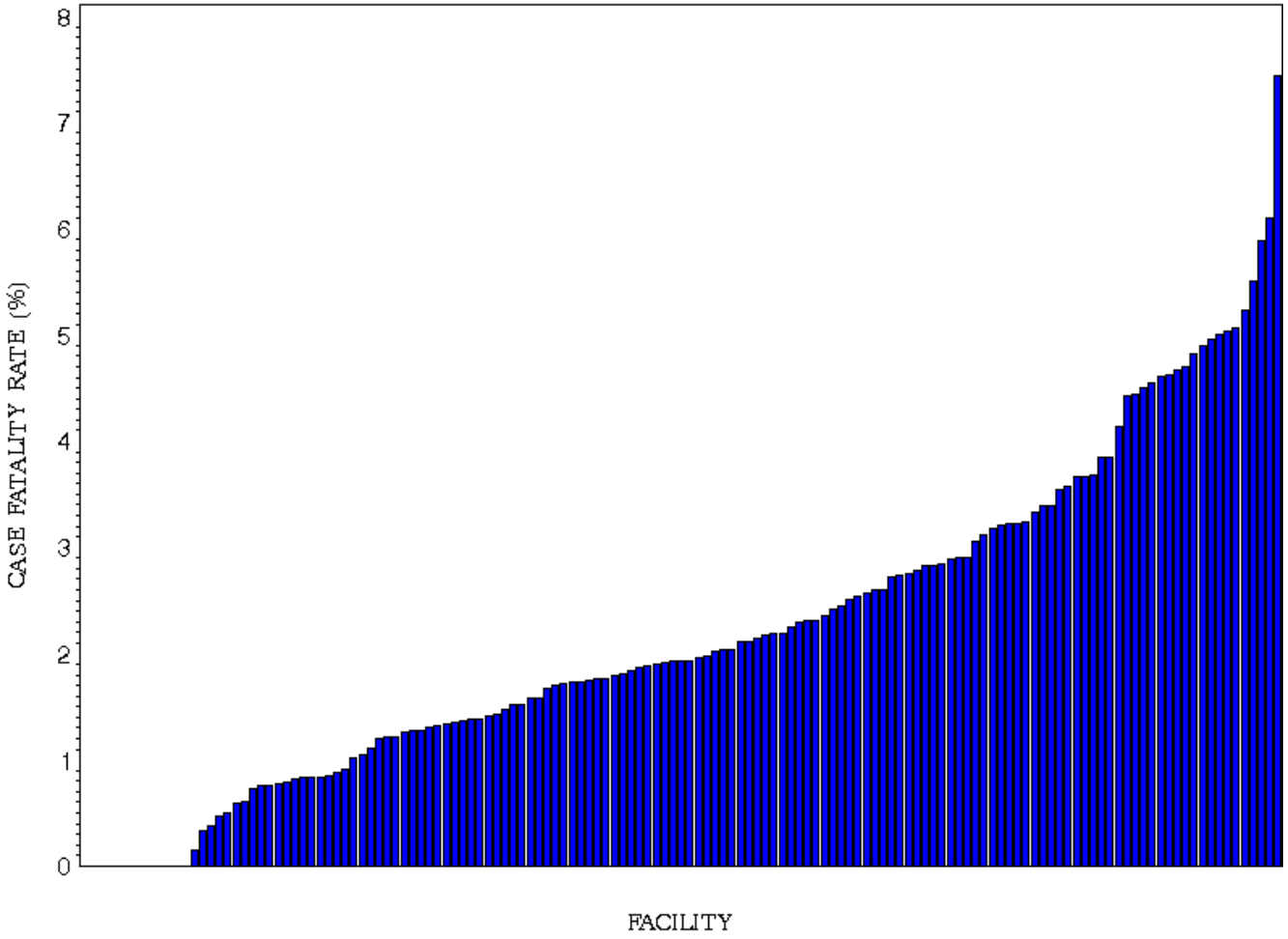
Case Fatality Rate per Facility for Level II Facilities with Bed Size > 400 Beds



All deaths, including dead on arrival are included in the analysis. Trauma level is based on ACS verification and state designation.

Figure 61

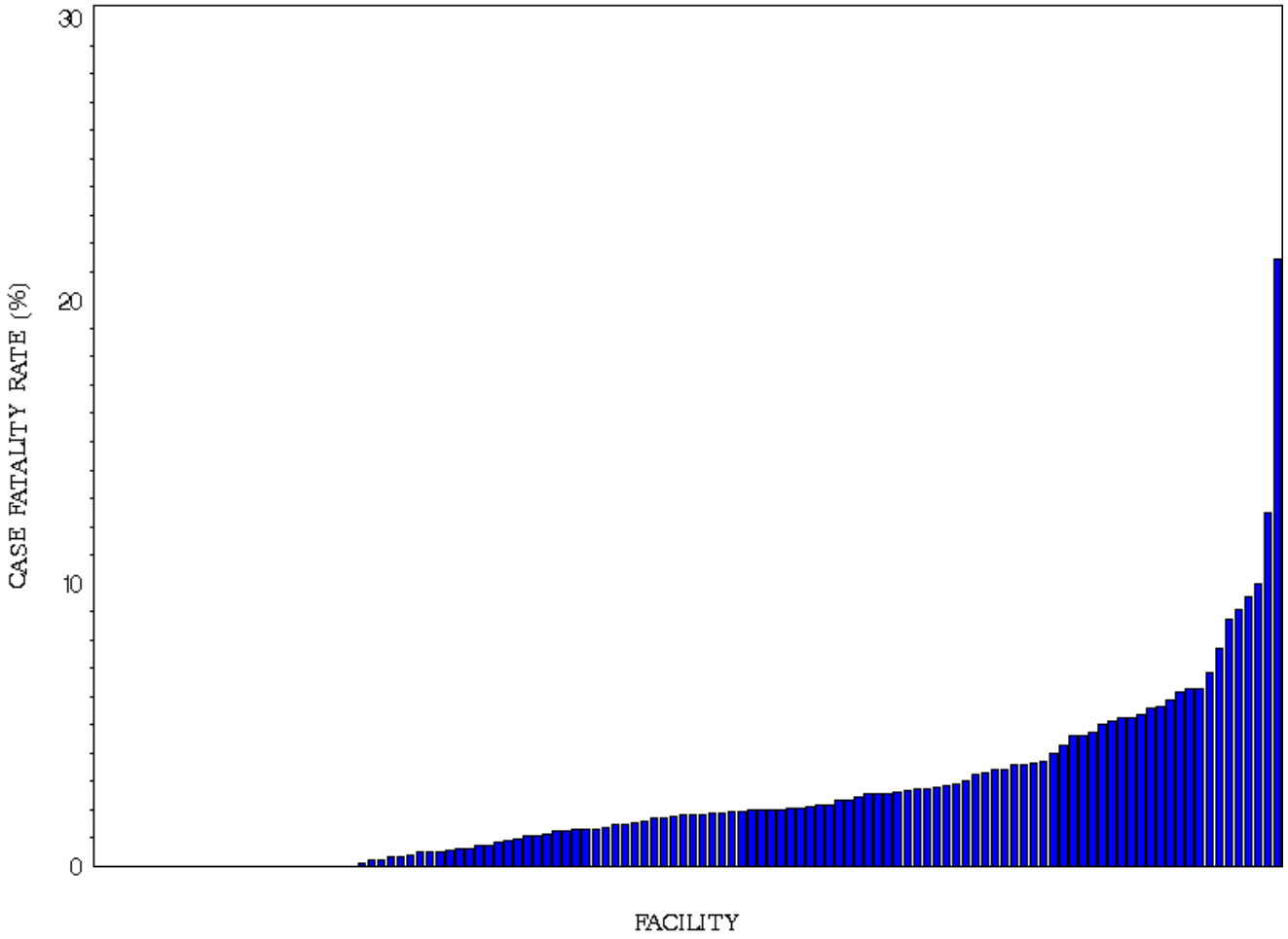
Case Fatality Rate per Facility for Level III Facilities



Thirteen facilities out of the 143 Level III facilities had a case fatality rate of 0% reported and are therefore not visible on the graph. All deaths, including dead on arrival are included in the analysis. Trauma level is based on ACS verification and state designation.

Figure 62

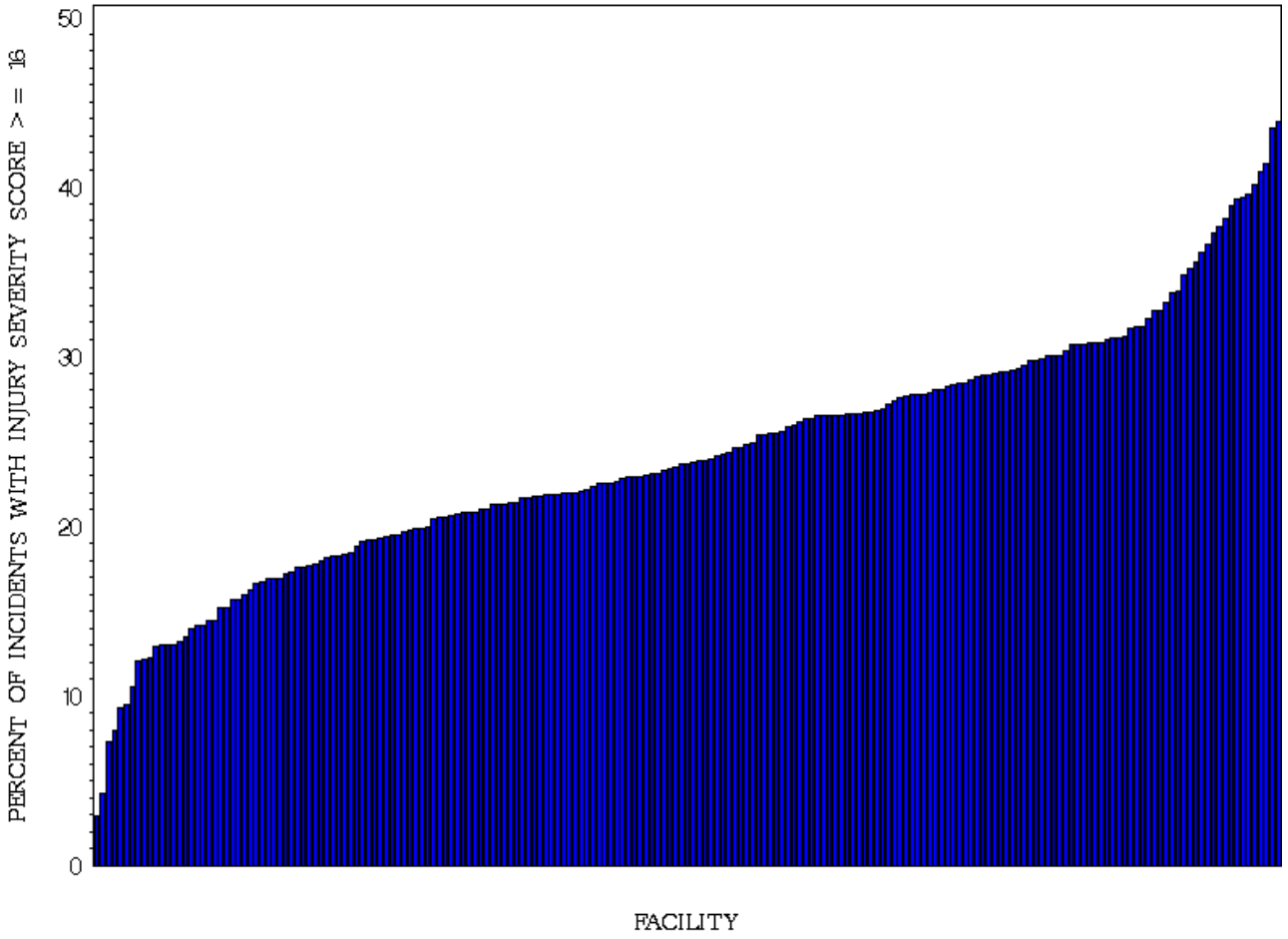
Case Fatality Rate per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



Twenty-seven facilities out of the 122 facilities had a case fatality rate of 0% reported and are therefore not visible on the graph. All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation.

Figure 63

Percentage of Cases with ISS ≥ 16 per Facility for Level I Facilities

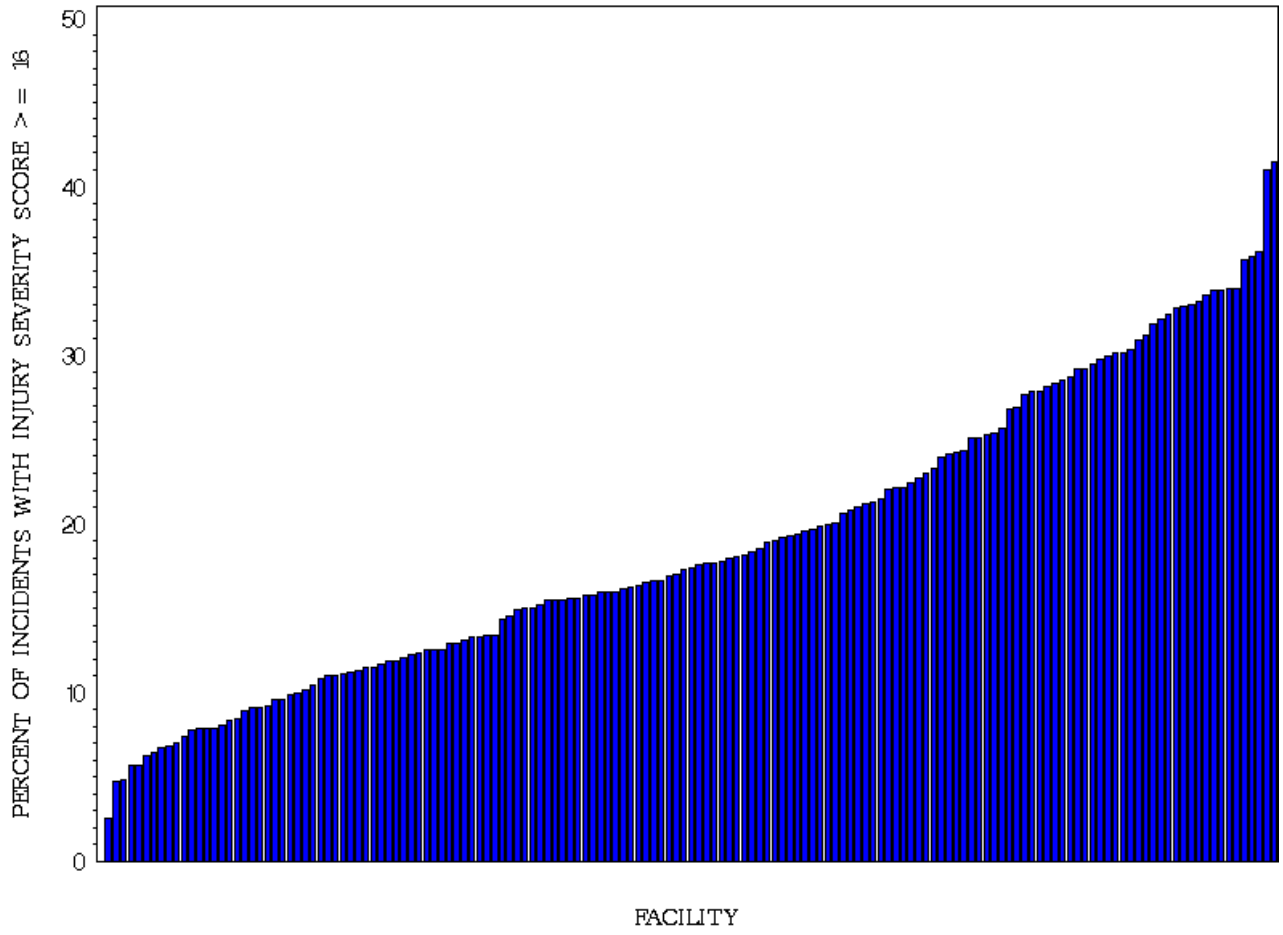


The ISS score calculated for all records are based on the ICD–90 map. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

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 64

Percentage of Cases with ISS ≥ 16 per Facility for Level II Facilities with Bed Size ≤ 400 Beds

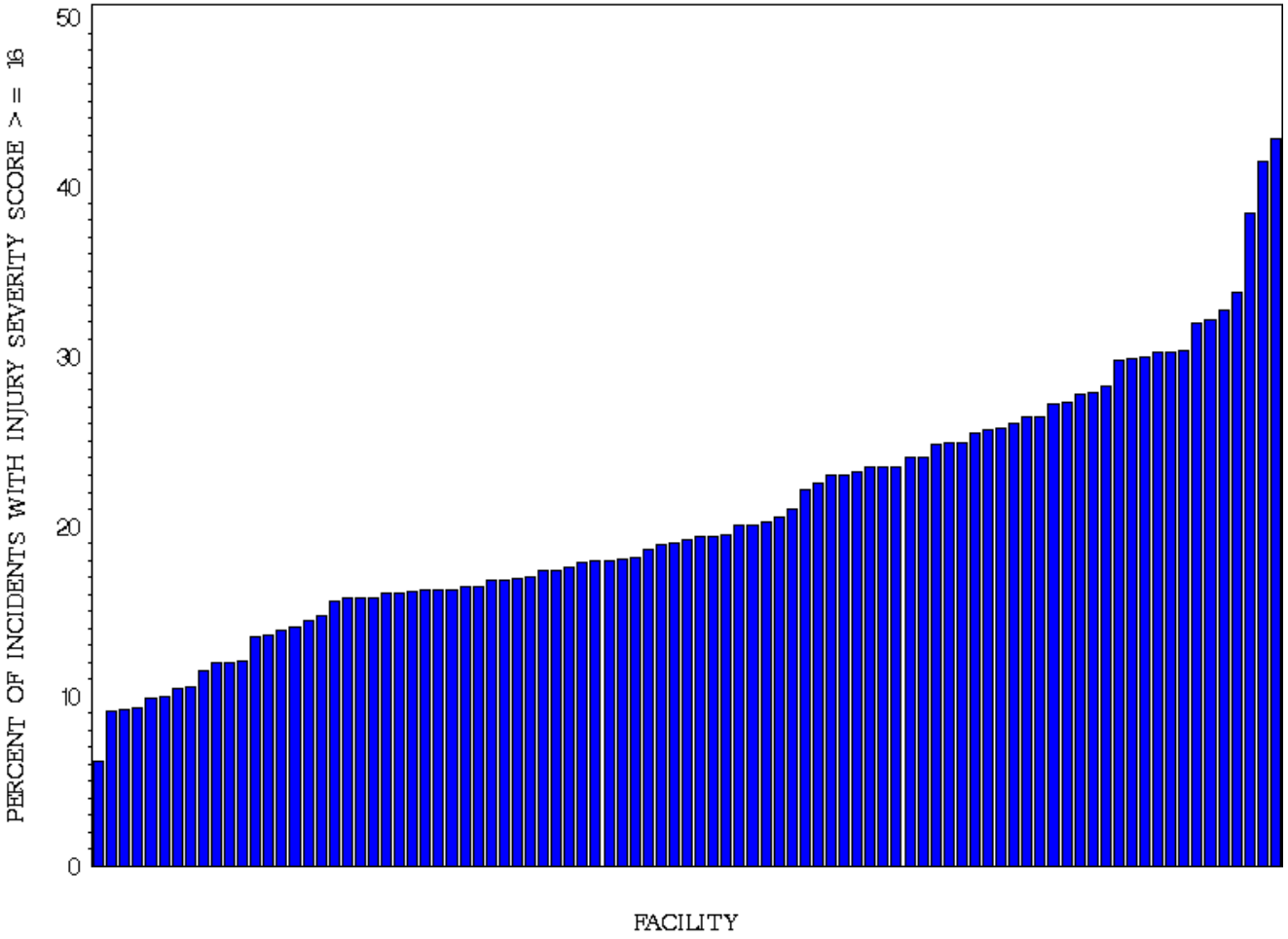


One out of 156 hospitals had no records with ISS ≥ 16 and is therefore not visible on the graph. The ISS score calculated for all records is based on the AIS98 Crosswalk. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

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 65

Percentage of Cases with ISS ≥ 16 per Facility for Level II Facilities with Bed Size > 400 Beds

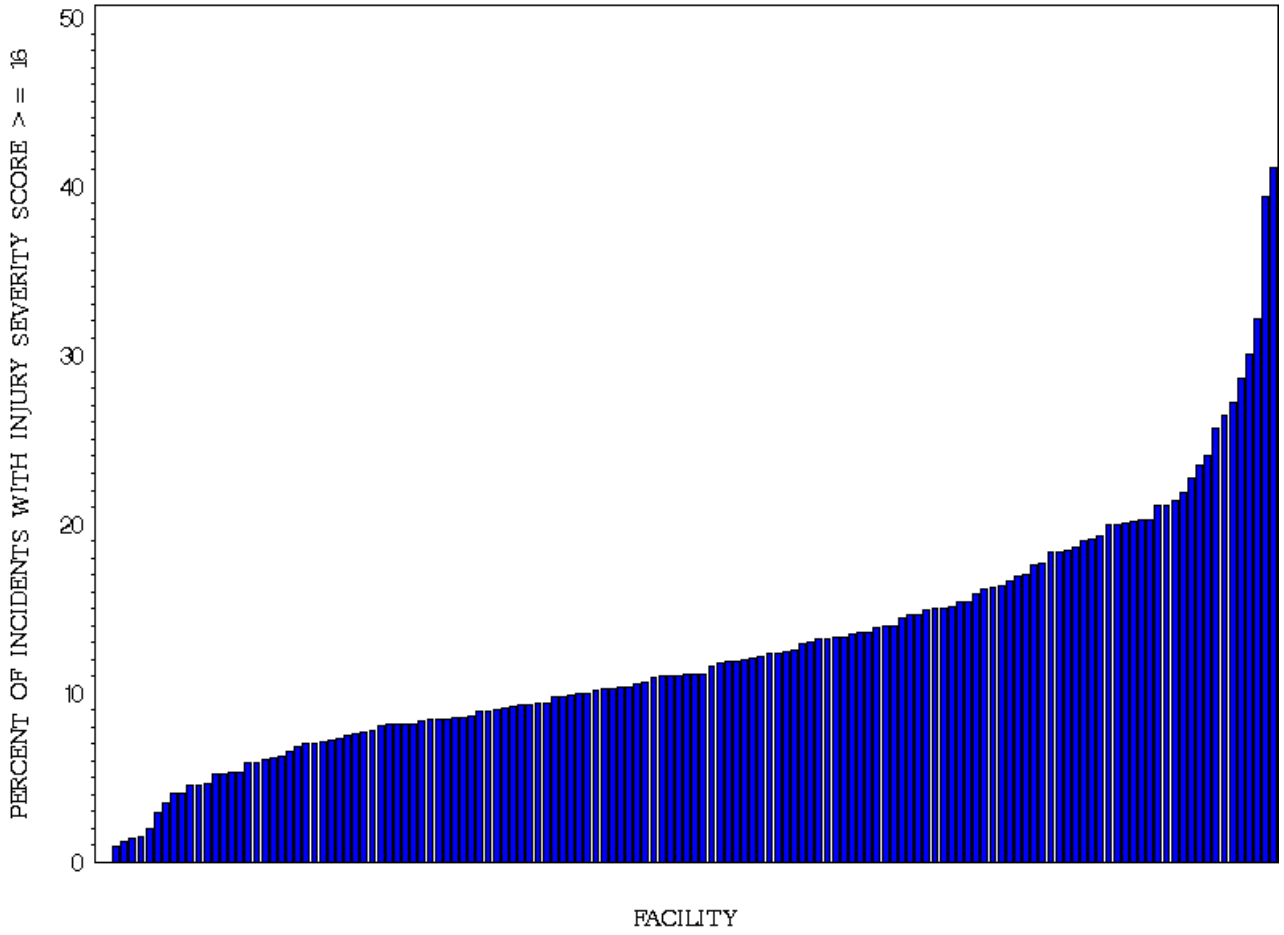


The ISS score calculated for all records is based on the AIS98 Crosswalk. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

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 66

Percentage of Cases with ISS ≥ 16 per Facility for Level III Facilities

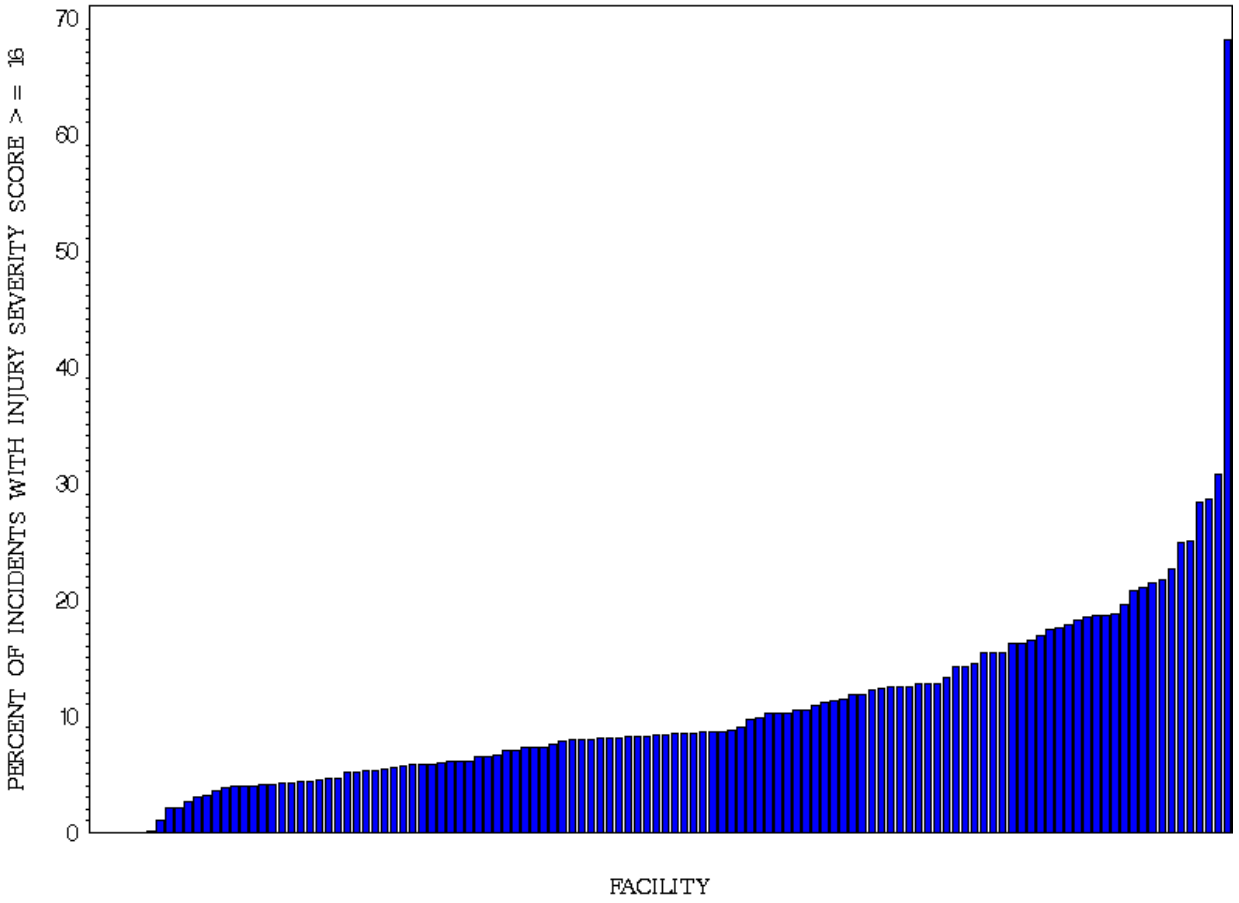


Two out of 143 had no records with ISS ≥ 16 and are therefore not visible on the graph. The ISS score calculated for all records is based on the AIS98 Crosswalk. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

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 67

Percentage of Cases with ISS ≥ 16 per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



Six out of 122 facilities had no incidents with ISS ≥16 and are therefore not visible on the graph. The ISS score calculated for all records is based on the AIS98 Crosswalk. 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.

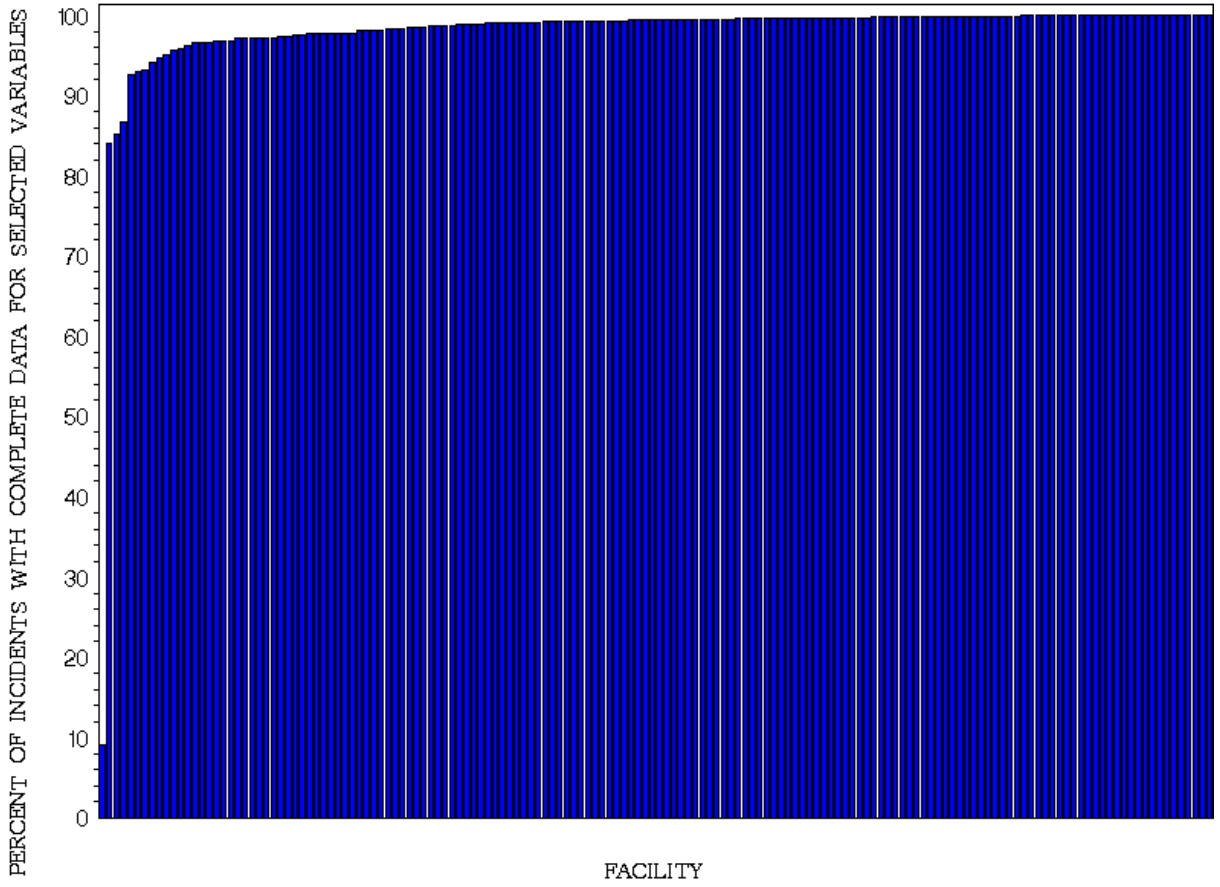
Figure 68

Data Completeness per Facility for Level I Facilities

One out of 201 facilities had 0% of the incidents complete and is therefore not visible on the graph. An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E–Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 69

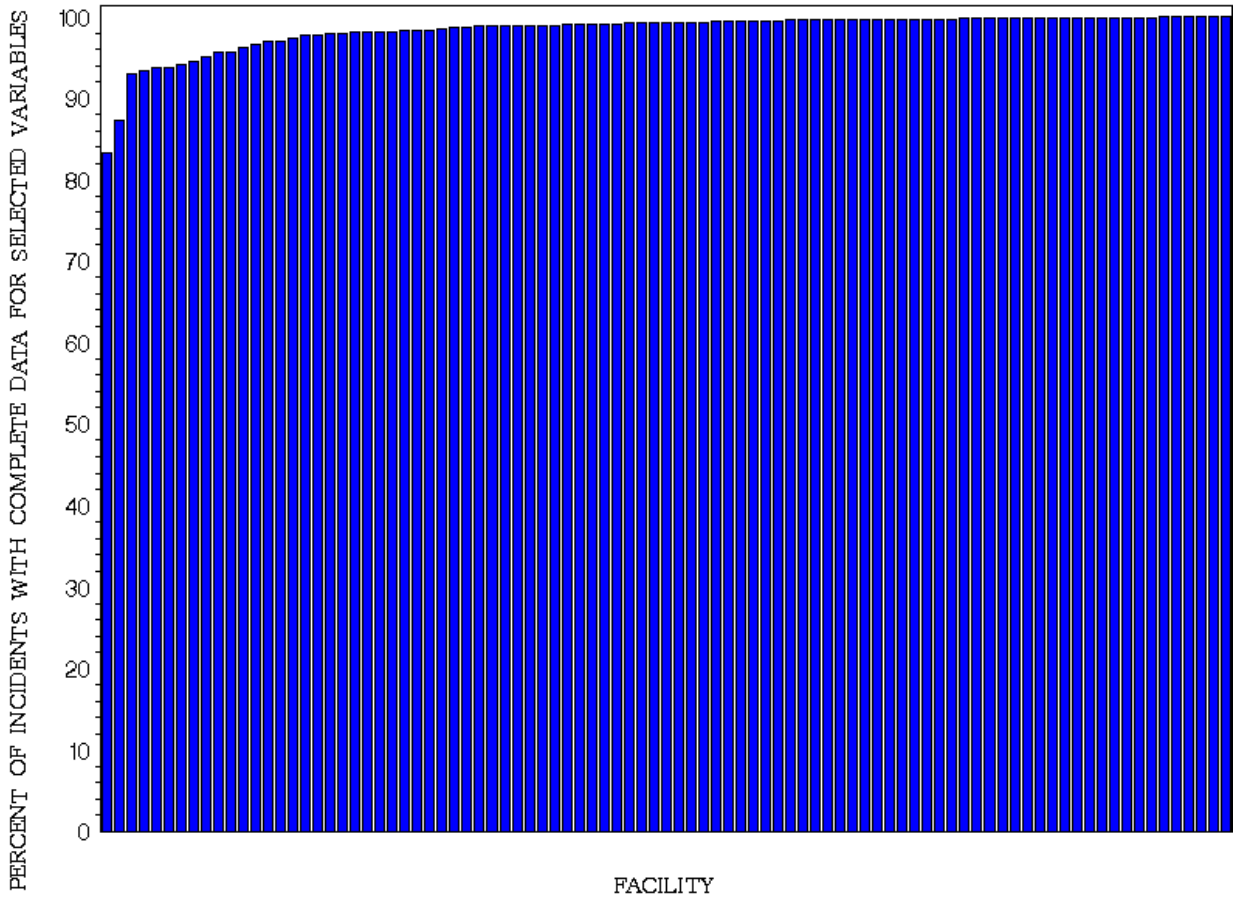
Data Completeness per Facility for Level II Facilities with Bed Size ≤ 400 Beds



An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E–Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation, however, pediatric hospitals are not included in the analysis.

Figure 70

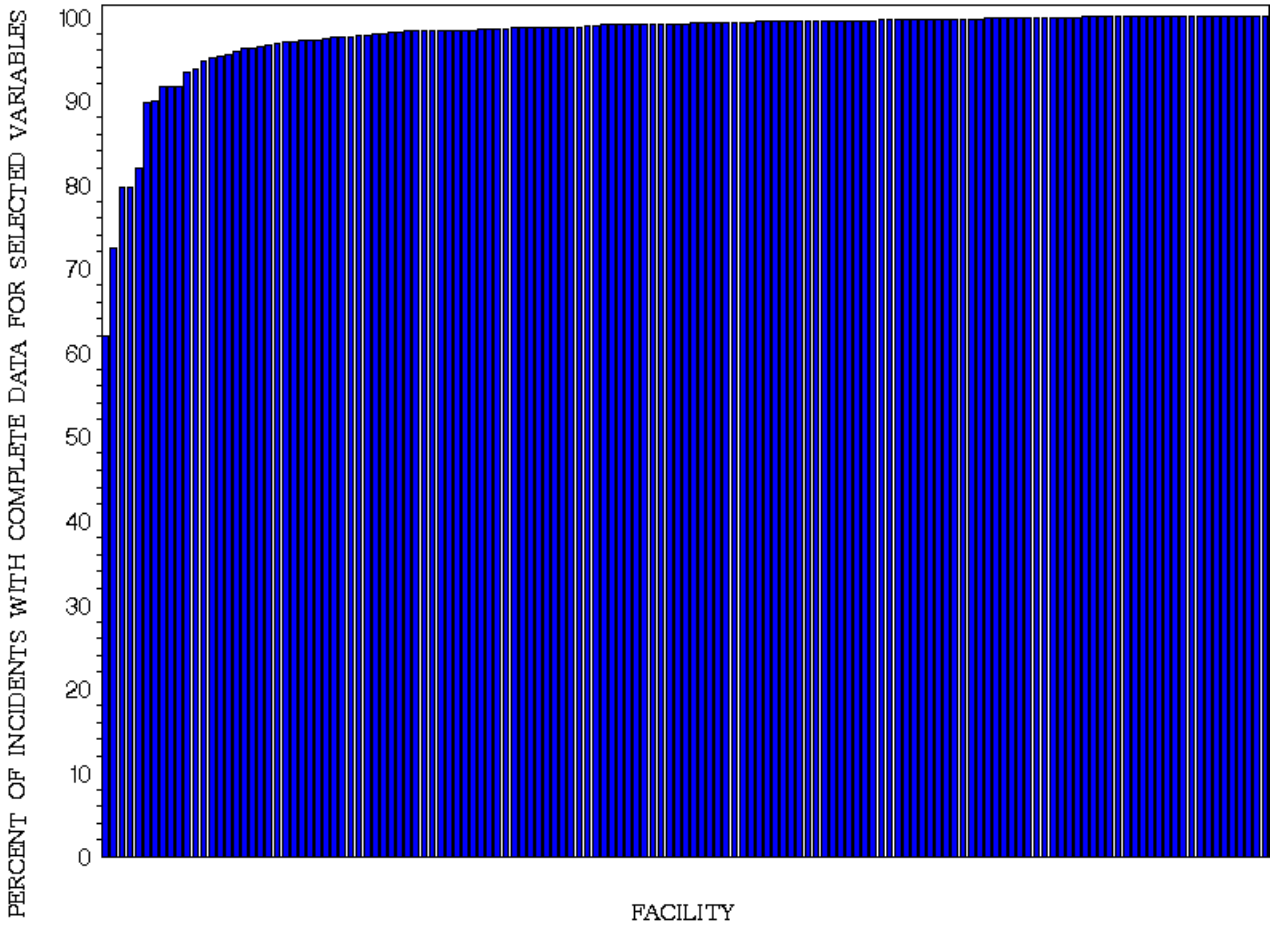
Data Completeness per Facility for Level II Facilities with Bed Size > 400 Beds



An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E–Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 71

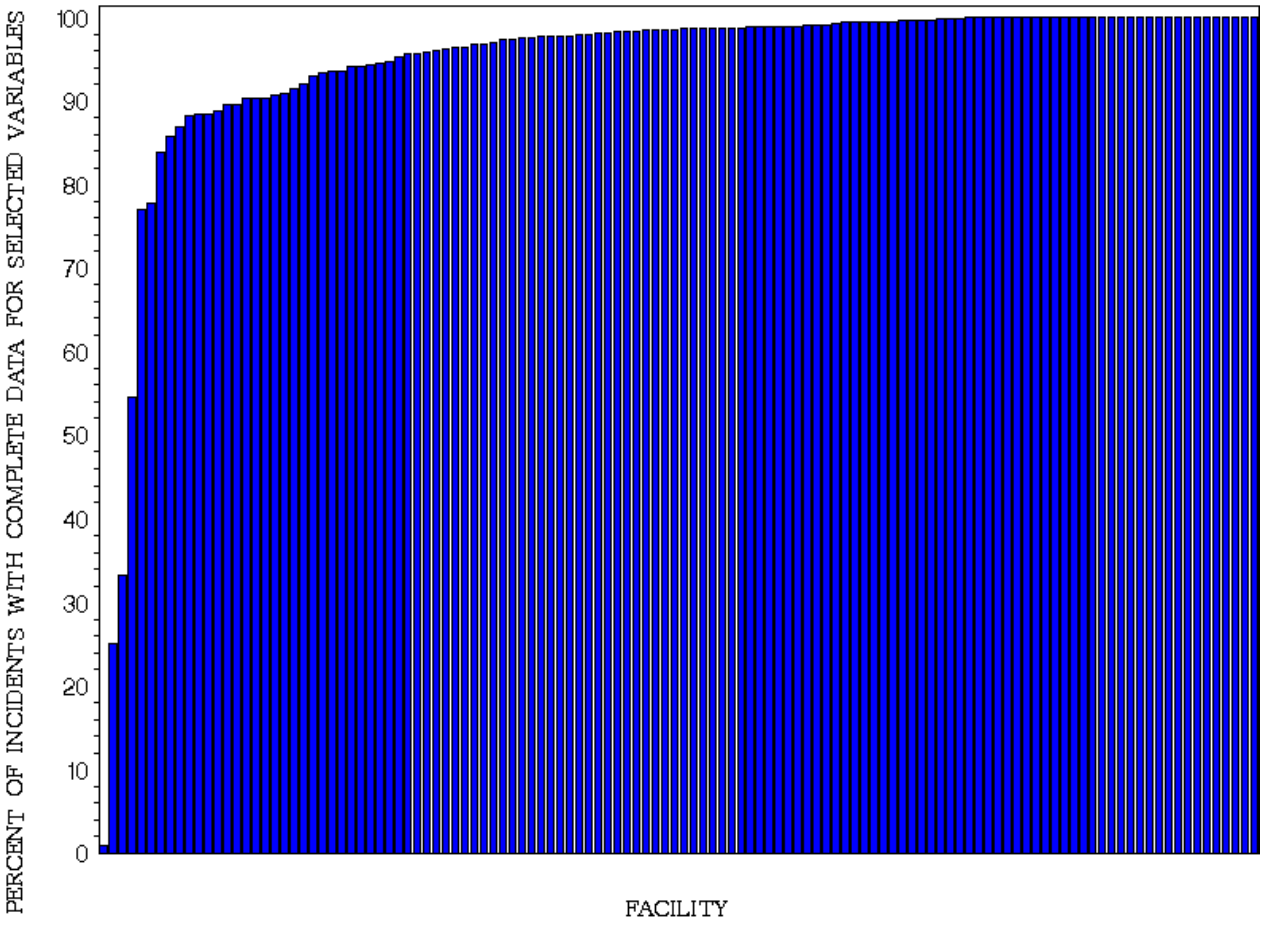
Data Completeness per Facility for Level III Facilities



An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E–Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation.

Figure 72

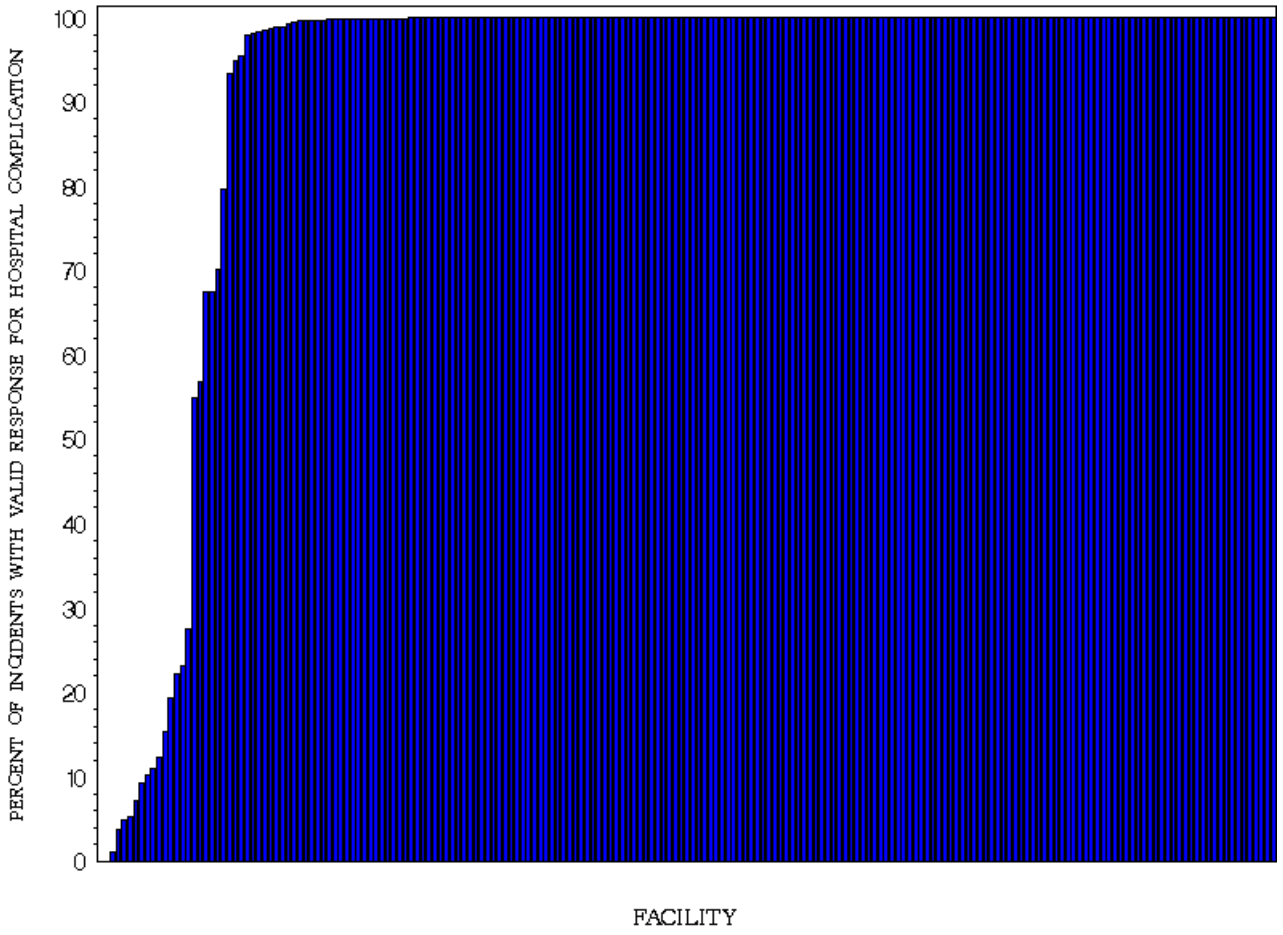
Data Completeness per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E–Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation.

Figure 73

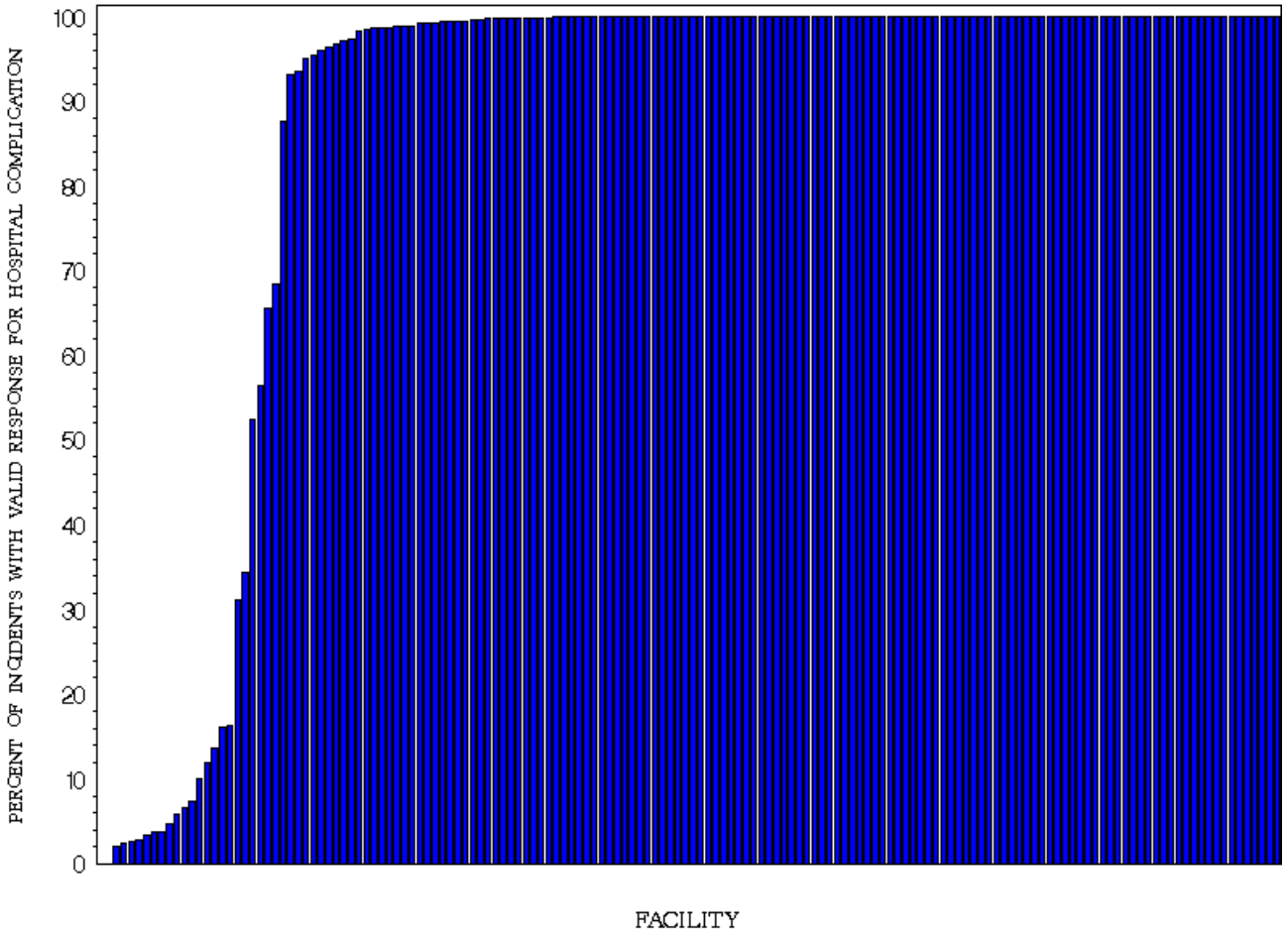
Complications Reported per Facility for Level I Facilities



Two out of 201 facilities had 0% of the incidents with valid response for hospital complications, including not applicable, and are therefore not visible on the graph. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 74

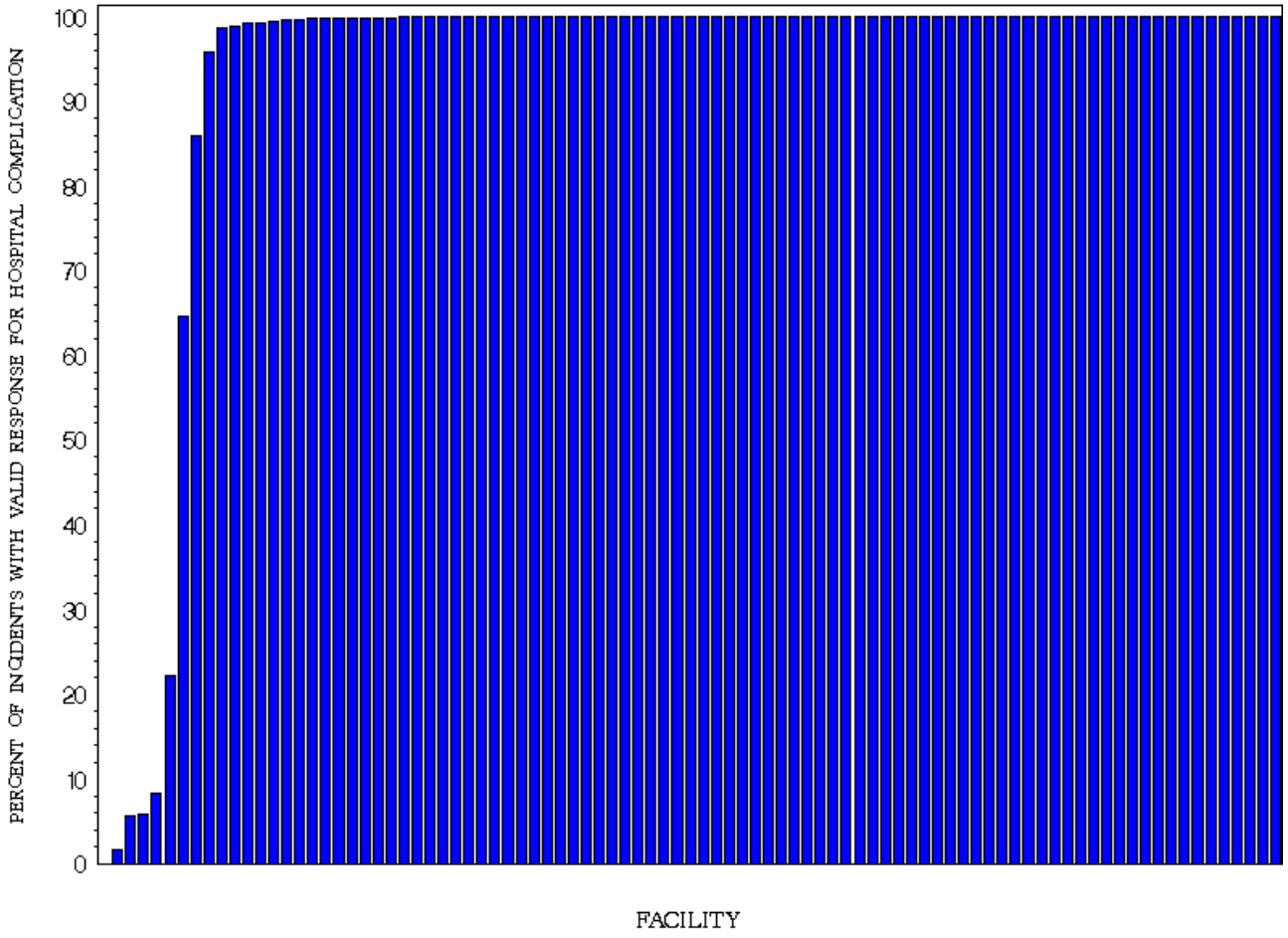
Complications Reported per Facility for Level II Facilities with Bed Size ≤ 400 Beds



Two out of 156 facilities had 0% of the incidents with valid response for hospital complications, including not applicable, and are therefore not visible on the graph. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 75

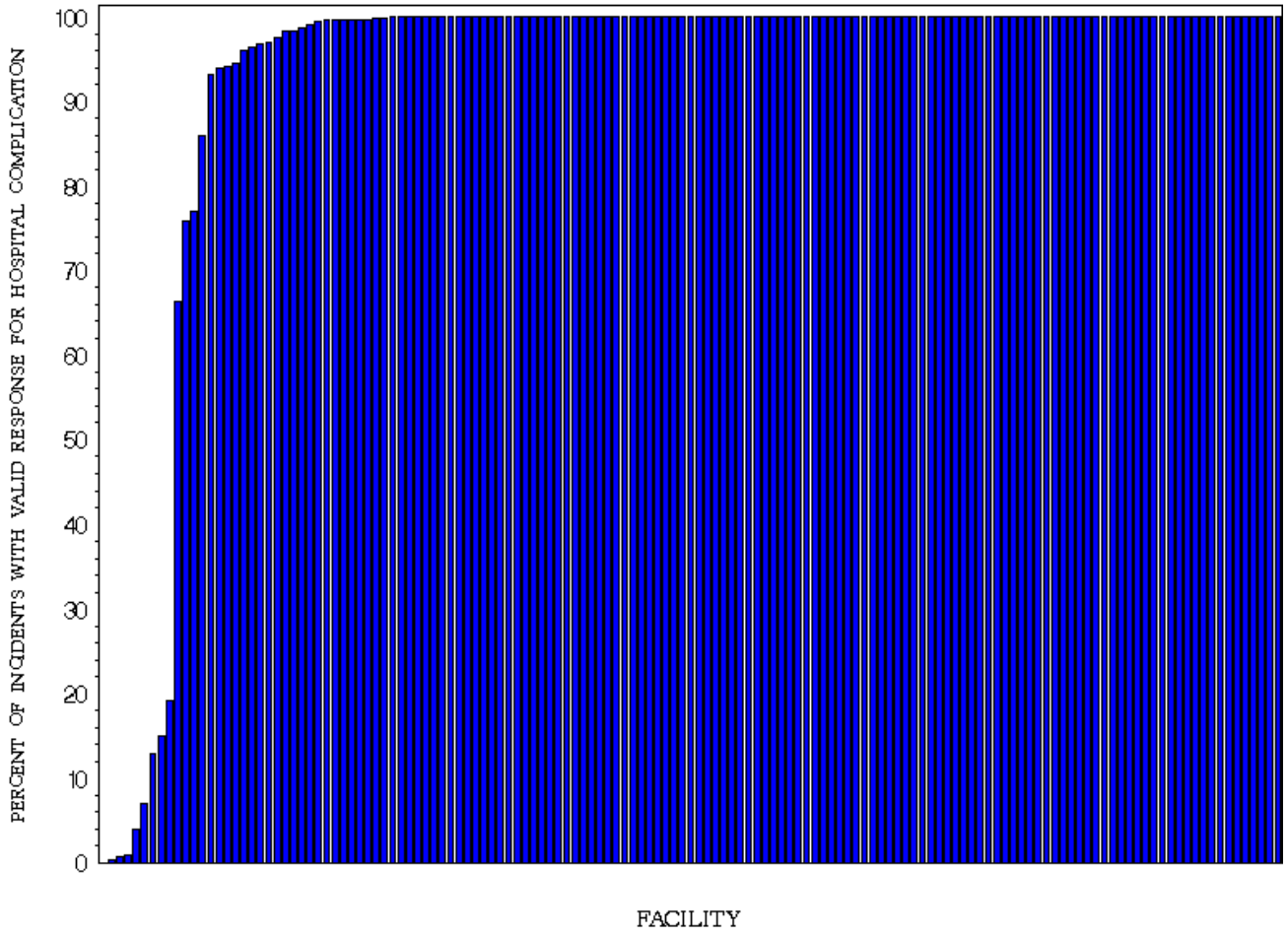
Complications Reported per Facility for Level II Facilities with Bed Size > 400 Beds



One out of 91 facilities had 0% of the incidents with valid response for hospital complications, including not applicable, and is therefore not visible on the graph. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 76

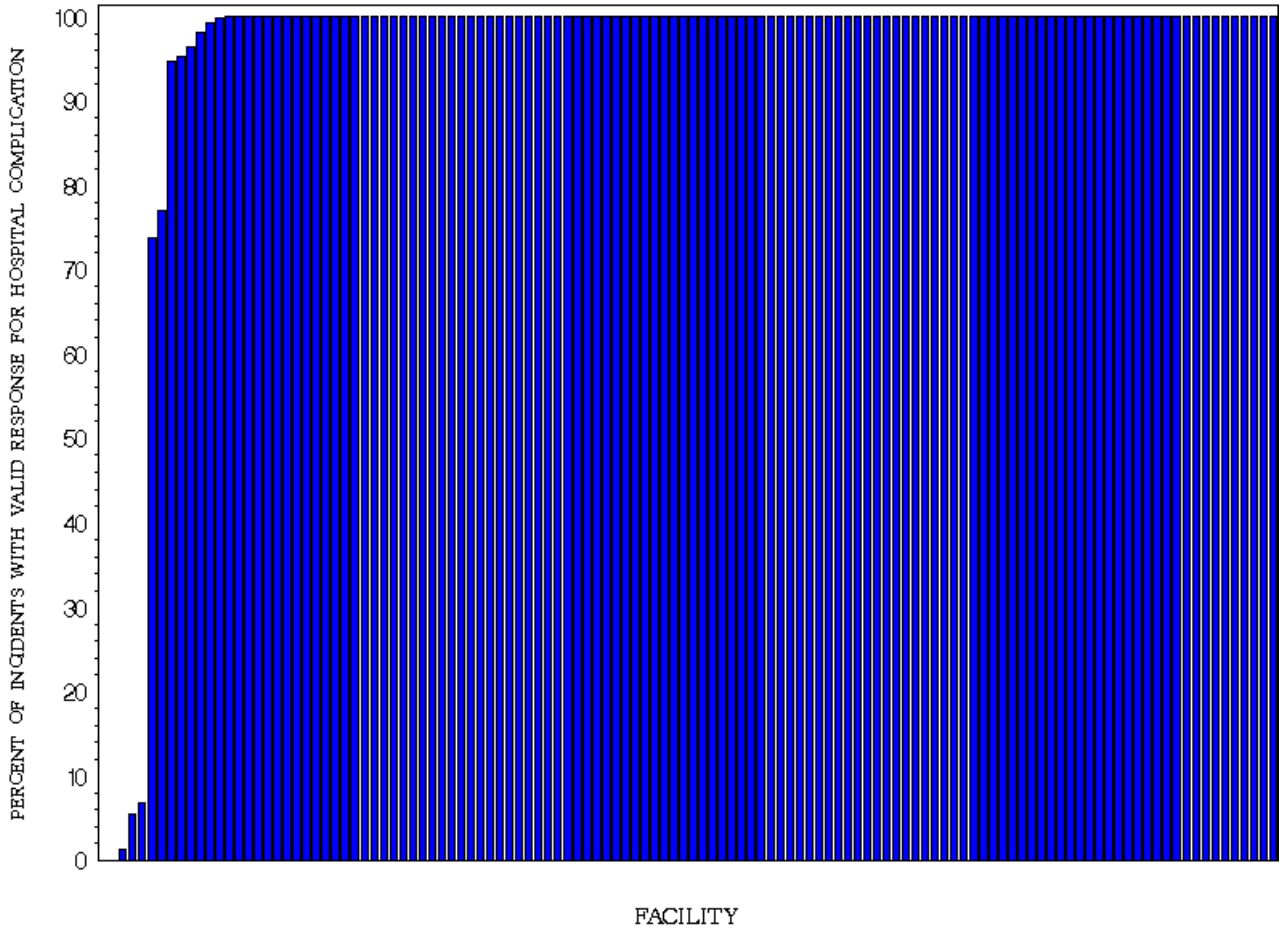
Complications Reported per Facility for Level III Facilities



One out of 143 facilities had 0% of the incidents with valid response for hospital complications, including not applicable, and is therefore not visible on the graph. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 77

Complications Reported per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



Two out of 122 facilities had 0% of the incidents with valid response for hospital complications, including not applicable, and are therefore not visible on the graph. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

APPENDICES

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)

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.

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)				

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
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

E-Code Grouping: Table Notes

[1]Includes legal intervention (E970–E978) and operations of war (E990–E999).
[2]Three 4th-digit codes (.4 [occupant of streetcar], .5 [rider of animal], .8 [other specified person]) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle traffic category, the sum of these categories can be derived by subtraction.
[3]Codes in bold are for morbidity coding only. For details see table 2.
[4]E849 (place of occurrence) has been excluded from the matrix. For mortality coding, an *ICD–9* E849 code does not exist. For morbidity coding, an *ICD–9–CM* E849 code should never be first–listed E-code and should only appear as an additional code to specify the place of occurrence of the injury incident.
Note: ICD–9 E-codes for coding underlying cause of death apply to injury–related death data from 1979 through 1998. Then there is a new ICD–10 external cause of injury matrix that applies to death data from 1999 and after. This can be found on the National Center for Health Statistics website at http://www.cdc.gov/nchs/about/otheract/ice/projects.htm.

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

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