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National Trauma Data Bank 2015

Annual Report

NTDB ANNUAL REPORT 2015

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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 6 million records. The 2015 Annual Report is based on 860,964 2014 admission year records from 746 facilities.

In the interest of capturing a better picture of deaths in the NTDB, any patients that have been recorded as “Discharged to Hospice” have now been counted as deaths.

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.



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EDITOR'S NOTE, CONT'D

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.

To cite figures used from the NTDB Annual Report, please specify the title of the report, the year, and the name of the figure used in the following format of the following:

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EXECUTIVE SUMMARY

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

It contains more than 6 million records. The 2015 Annual Report reviews 2014 admissions submitted in the 2015 Call for Data, totaling 860,694 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 (46.11%) of patients suffer minor injuries and just under one-third (31.72%) have moderate injuries.
- Case fatality rates increase with injury severity, with the most severe group experiencing a case fatality rate of almost 30.
- 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 25.88%.
- Private/commercial insurance is second at 19.91%.
- Medicaid is the third largest payment category at 14.93%.

Mortality

- The overall mortality rate is 4.31%.
- The largest number of deaths is caused by fall-related injuries, followed by Motor vehicle traffic and firearm.
- 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

- 746 hospitals submitted data to the NTDB in 2014.
- 237 are Level I centers.
- 259 are Level II centers.
- 189 are Level III or Level IV centers.
- 36 are Level I or Level II pediatric-only centers.
- 61.13% of participating centers reported including all hip fractures (in accordance with NTDB inclusion criteria).
- 91.69% reported including DOAs in their registries.

Age

- Injuries initially peak in ages 14 to 29 , primarily from MVT-related incidents, and peak again between the ages of 40 and 50, when falls begin to increase.
- Fall-related injuries spike in children under 7 and adults over the age of 75.
- Males account for 70% of all incidents up to age 70, after age 71, most patients are female.

Mechanism of Injury

- Falls account for 43.41% of cases in the NTDB, with injuries increasing in children under age 7 and adults over the age of 75.
- Motor vehicle traffic-related injuries account for 25.95% of cases in the NTDB, with a dramatic rise between ages 15 and 33, peaking around age 21.
- Firearm injuries steadily increase from 15 to 25 and decrease afterwards.
- Suffocation, drowning/submersion injuries, and firearm injuries have the highest case fatality rates, with suffocation at 27.71%, firearm at 15.37%, and drowning/submersion at 14.62%.



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FACILITY INFORMATION



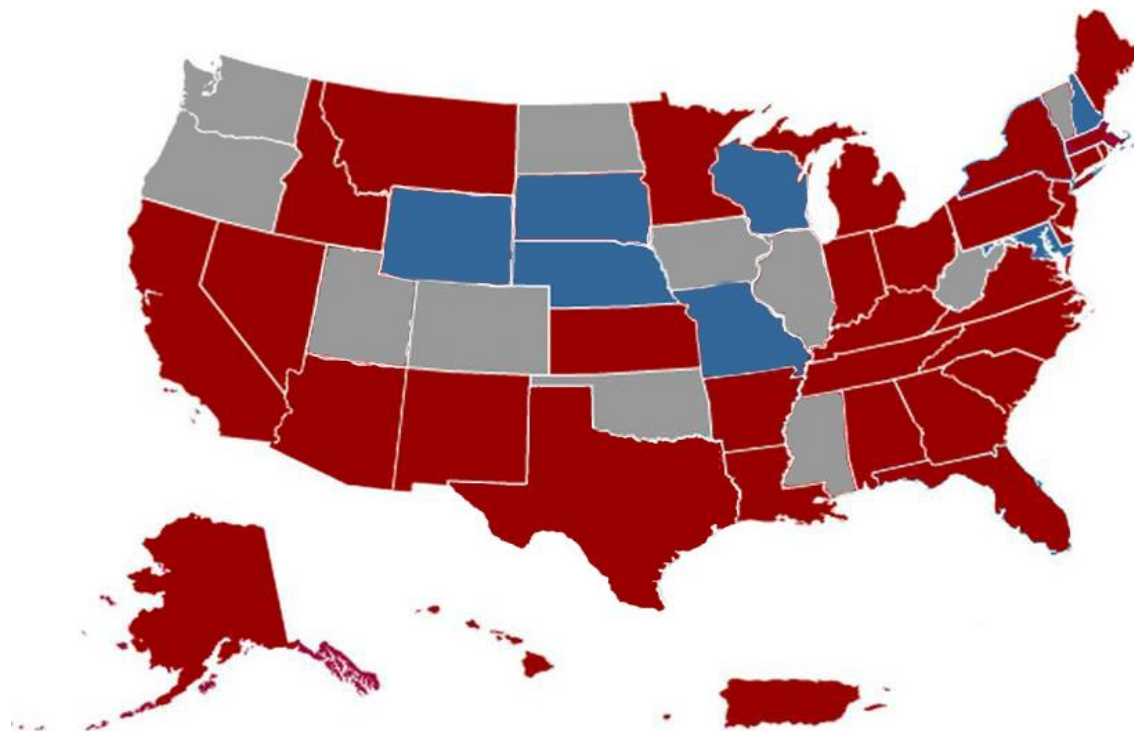
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Figure 1

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.

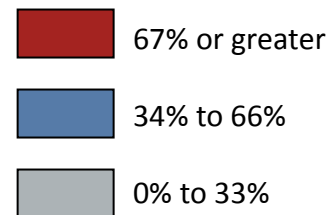


Table
2

Facilities by Bed Size

BED SIZE	NUMBER	PERCENT
≤200	156	20.91
201 - 400	289	38.74
401 - 600	171	22.92
≥600	130	17.43
Total	746	100



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Figure 2

Facilities by Bed Size

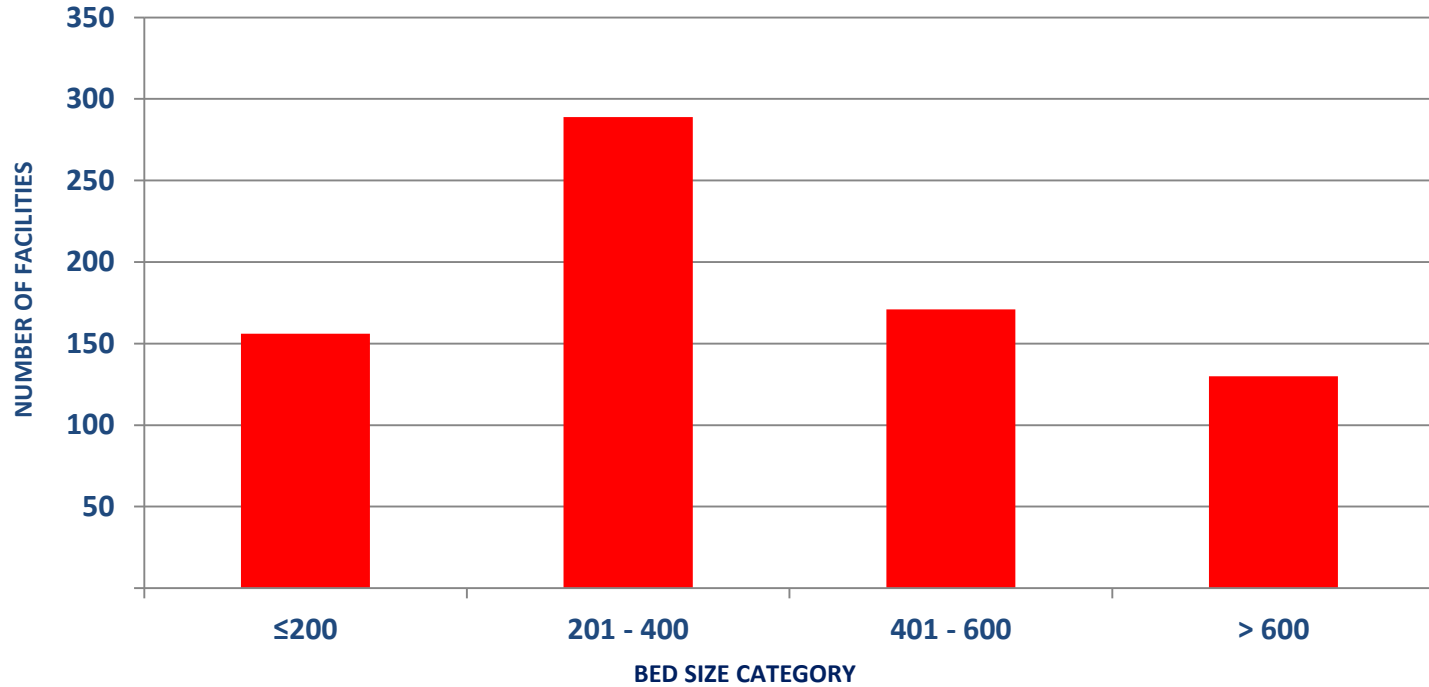


Table
3

Facilities by Trauma Level

LEVEL	NUMBER	PERCENT
I	237	31.77
II	259	34.72
III	166	22.25
IV	23	3.08
Other	20	3
NA	41	5.50
Total	746	100

This table includes 36 pediatric-only centers.
Both ACS-verified and state-designated centers are included.
NK/NR denotes “Not Known/Not Recorded” on all slides.



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Figure 3

Facilities by Trauma Level

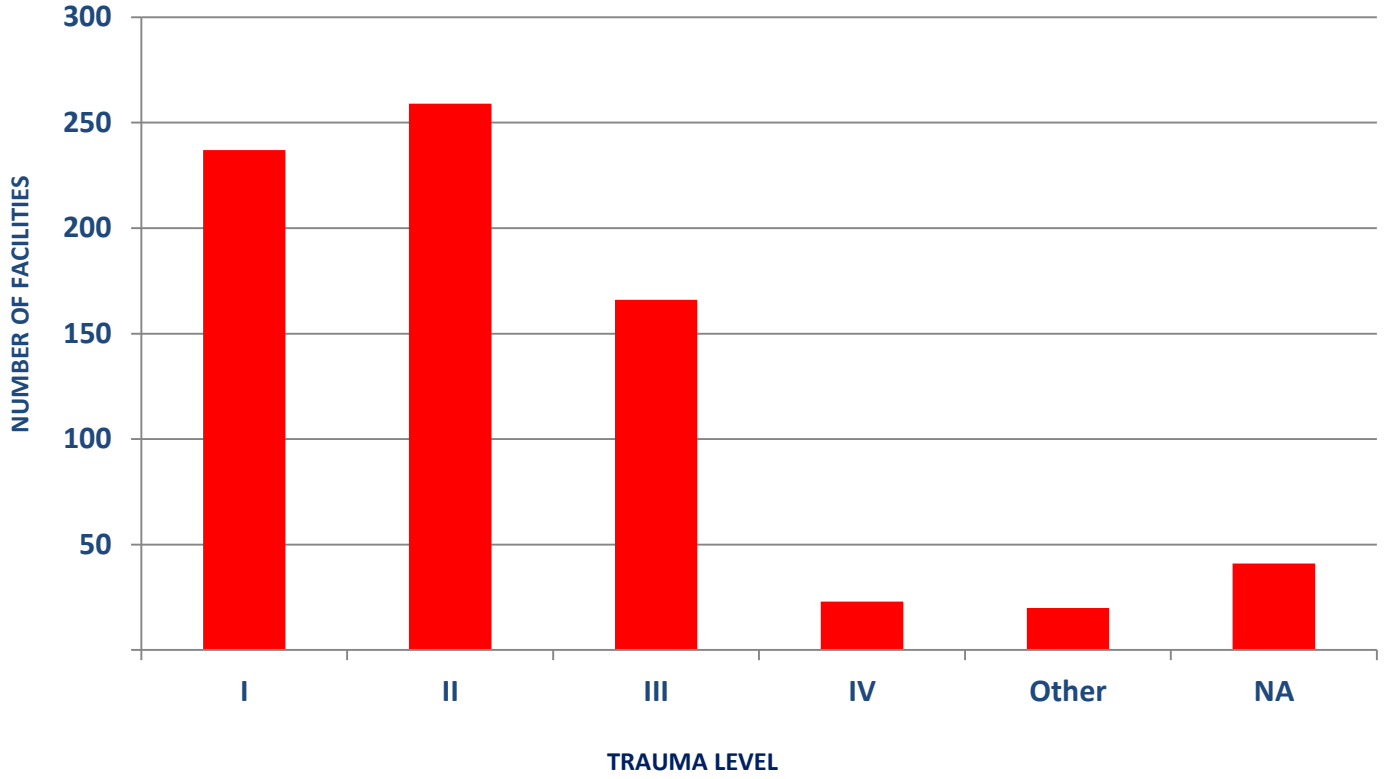


Table
4

Facilities by Region

REGION	NUMBER	PERCENT
South	248	33.24
Midwest	218	29.22
West	159	21.31
Northeast	118	15.82
Non-U.S.	3	0.40
Total	746	100



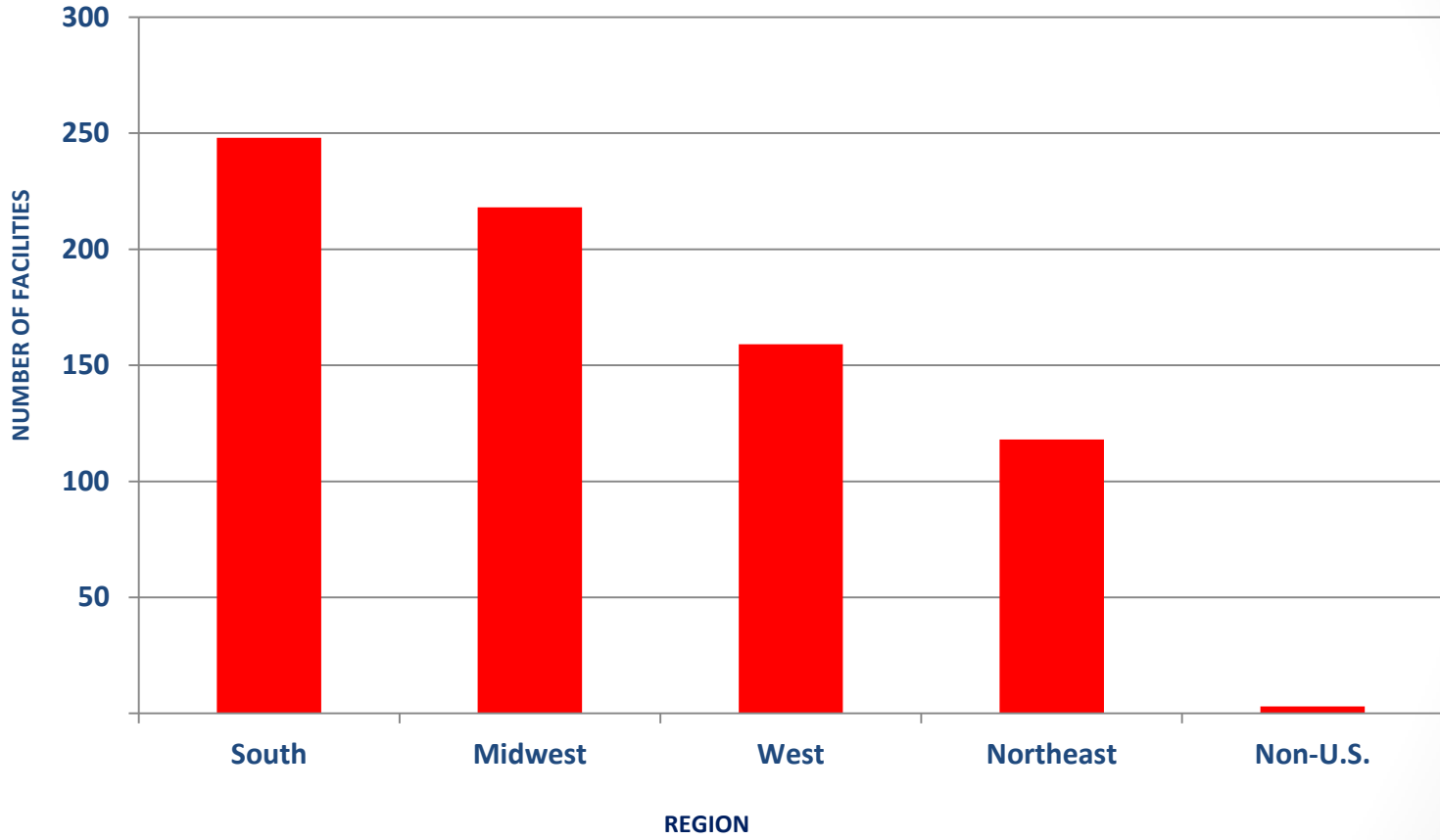
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Figure 4

Facilities by Region



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Table
5

Facilities by Length of Stay (LOS) Inclusion Criteria

LOS	NUMBER	PERCENT
All admissions	563	75.47
23 hour holds	52	6.97
≥ 24 hours	86	11.53
≥ 48 hours	41	5.50
≥ 72 hours	4	0.54
Total	746	100



Figure 5

Facilities by Length of Stay (LOS) Inclusion Criteria

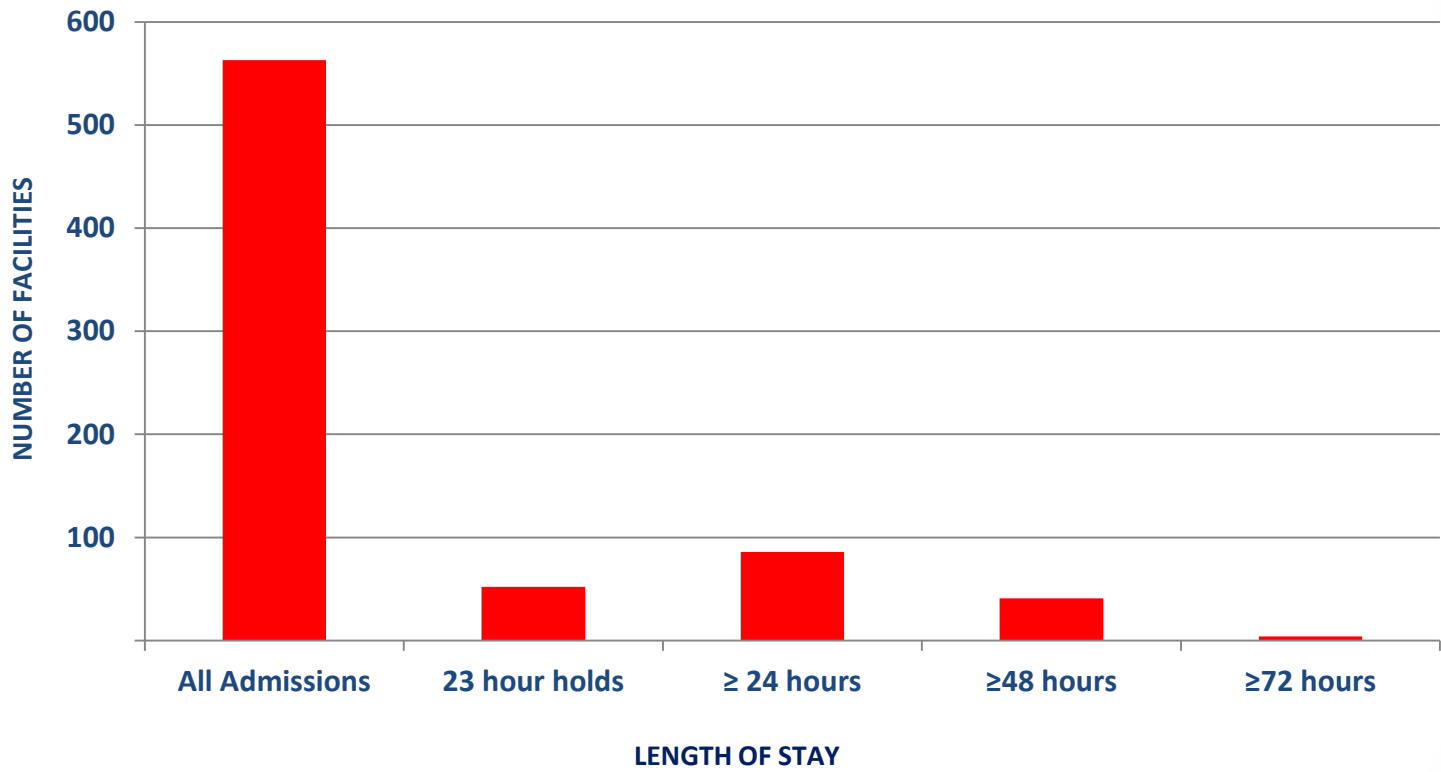


Table
6

Facilities by Isolated Hip Fracture Inclusion Criteria by Age

IHF INCLUSION	NUMBER	PERCENT
All	456	61.13
Patients ≤18 years	29	3.89
Patients ≤50 years	3	0.40
Patients ≤55 years	5	0.67
Patients ≤60 years	2	0.27
Patients ≤65 years	84	11.26
Patients ≤70 years	27	3.62
None	140	18.77
Total	746	100

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



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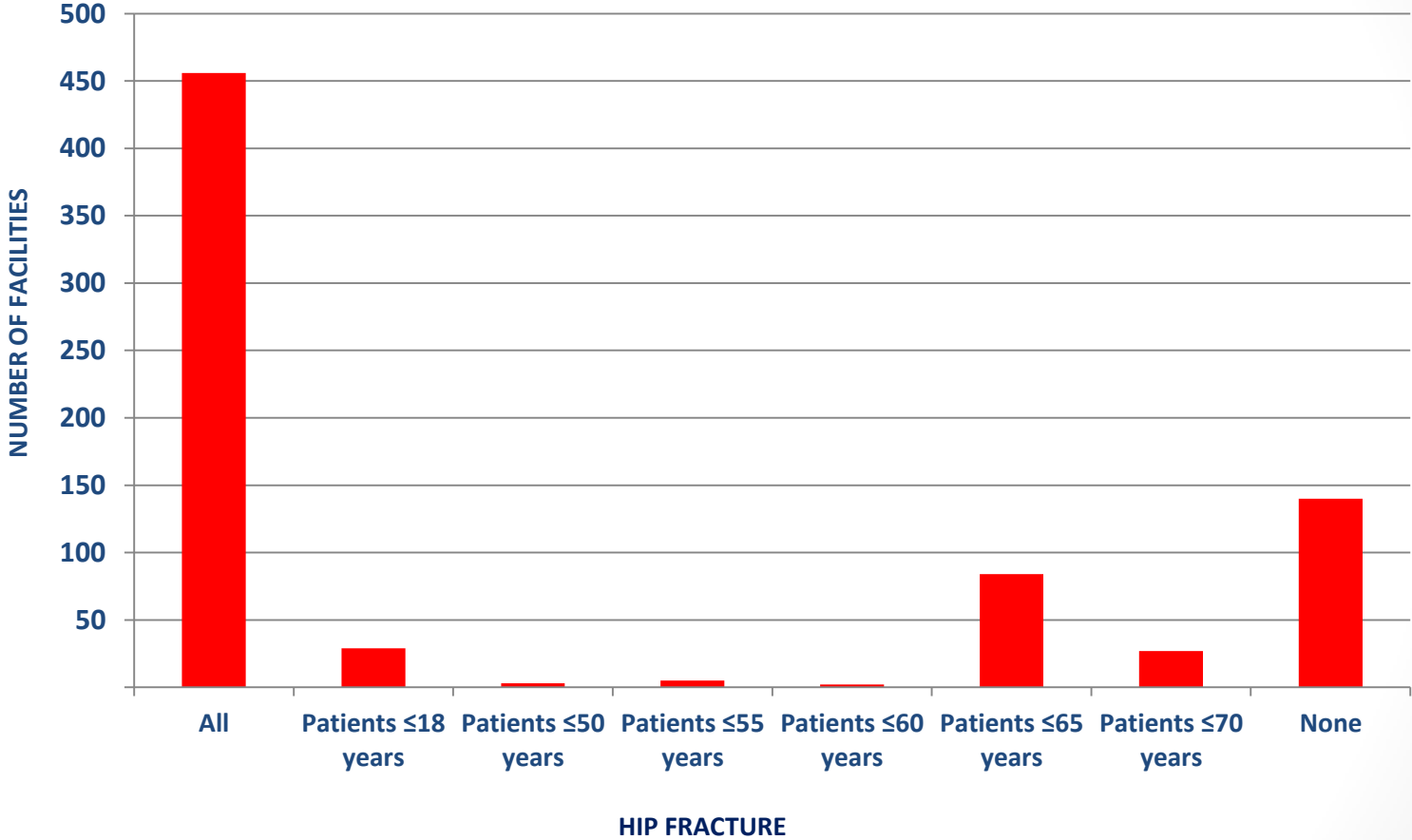
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Figure 6

Facilities by Isolated Hip Fracture Inclusion Criteria by Age



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Table
7

Facilities by Death on Arrival (DOA) Inclusion Criteria

DOA INCLUDED	NUMBER	PERCENT
No	62	8.31
Yes	684	91.69
Total	746	100



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Figure 7

Facilities by Death on Arrival (DOA) Inclusion Criteria

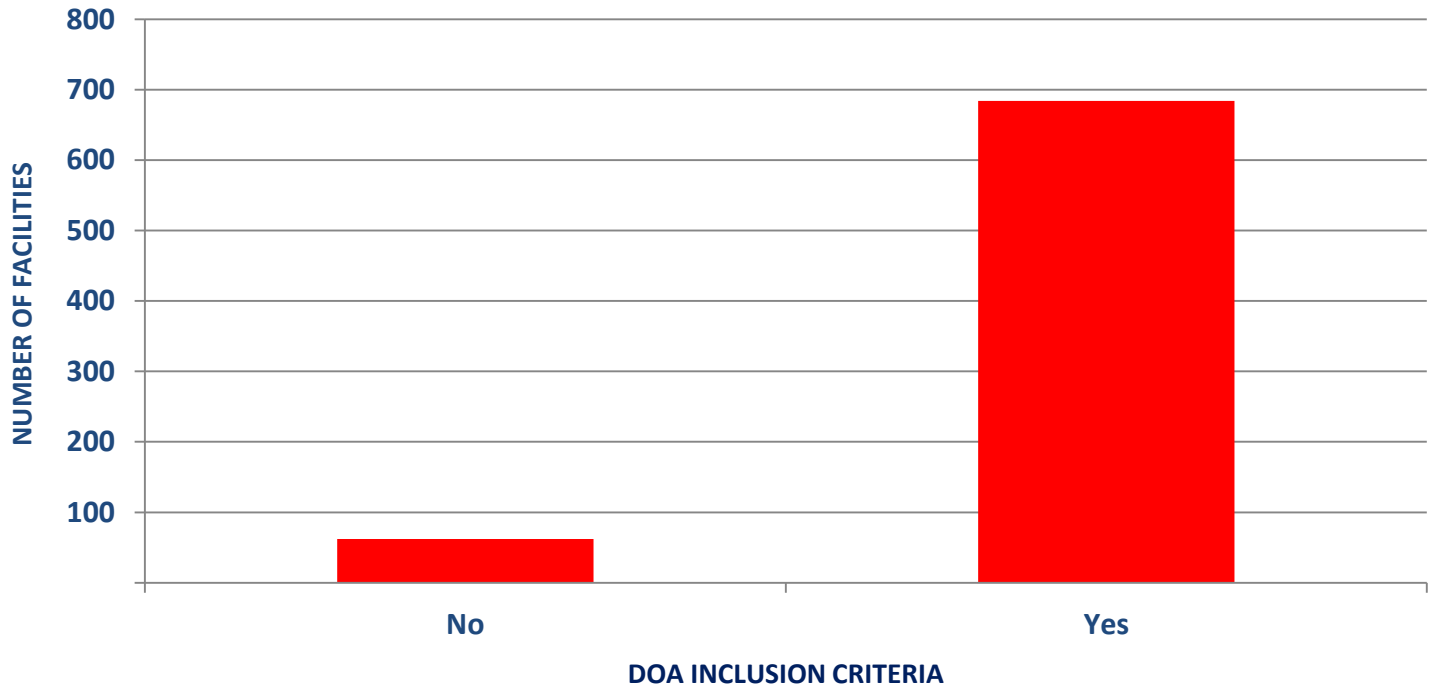


Table
8

Facilities by Transfer-In Criteria

TRANSFERS IN	NUMBER	PERCENT
All transfers	710	95.17
Within 4 hours	1	0.13
Within 8 hours	2	0.27
Within 12 hours	1	0.13
Within 24 hours	4	0.54
Within 48 hours	7	0.94
Within 72 hours	6	0.80
None	15	2.01
Total	746	100



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Figure 8

Facilities by Transfer-In Criteria

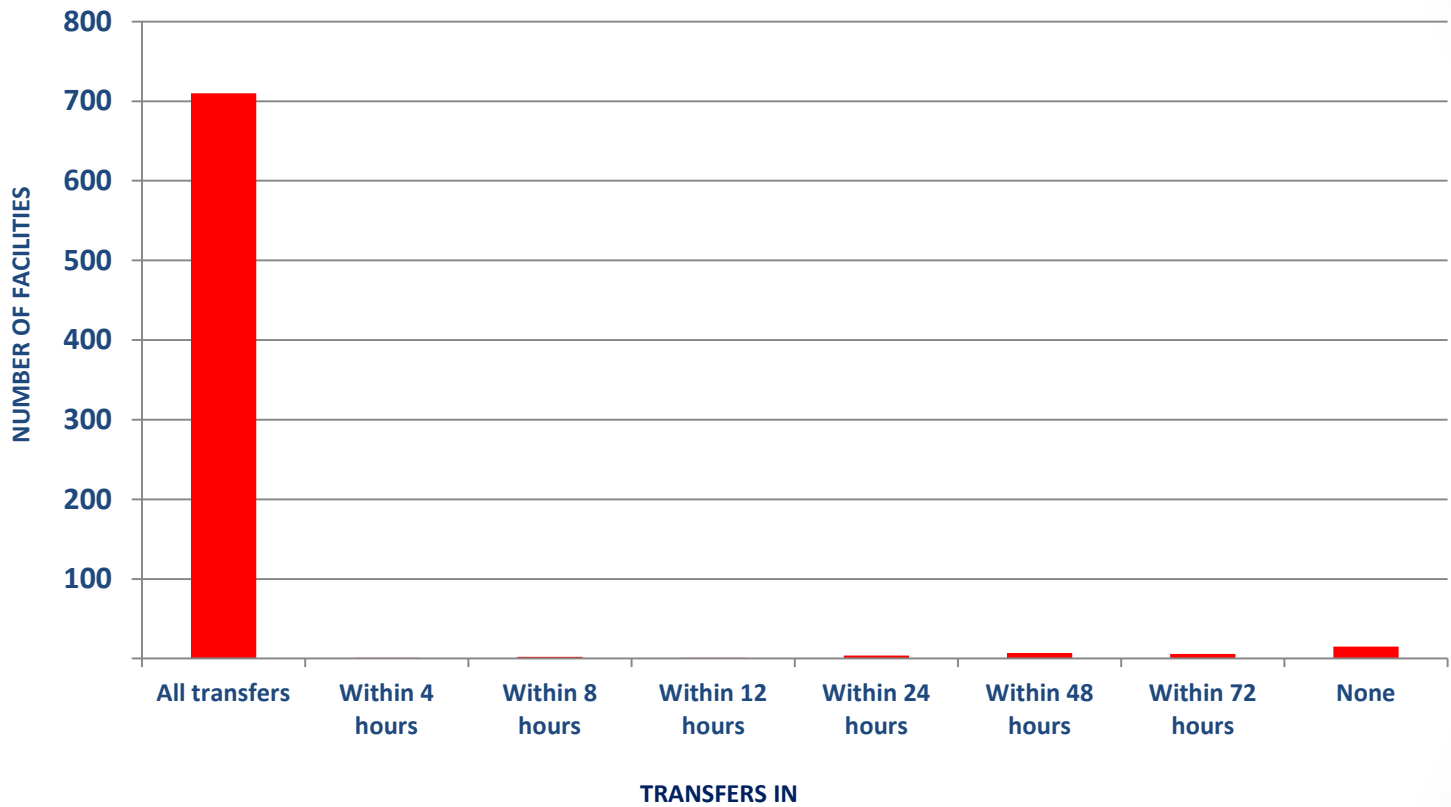


Table
9

Facilities by Transfer-Out Criteria

TRANSFERS OUT	NUMBER	PERCENT
No	16	2.14
Yes	730	97.86
Total	746	100



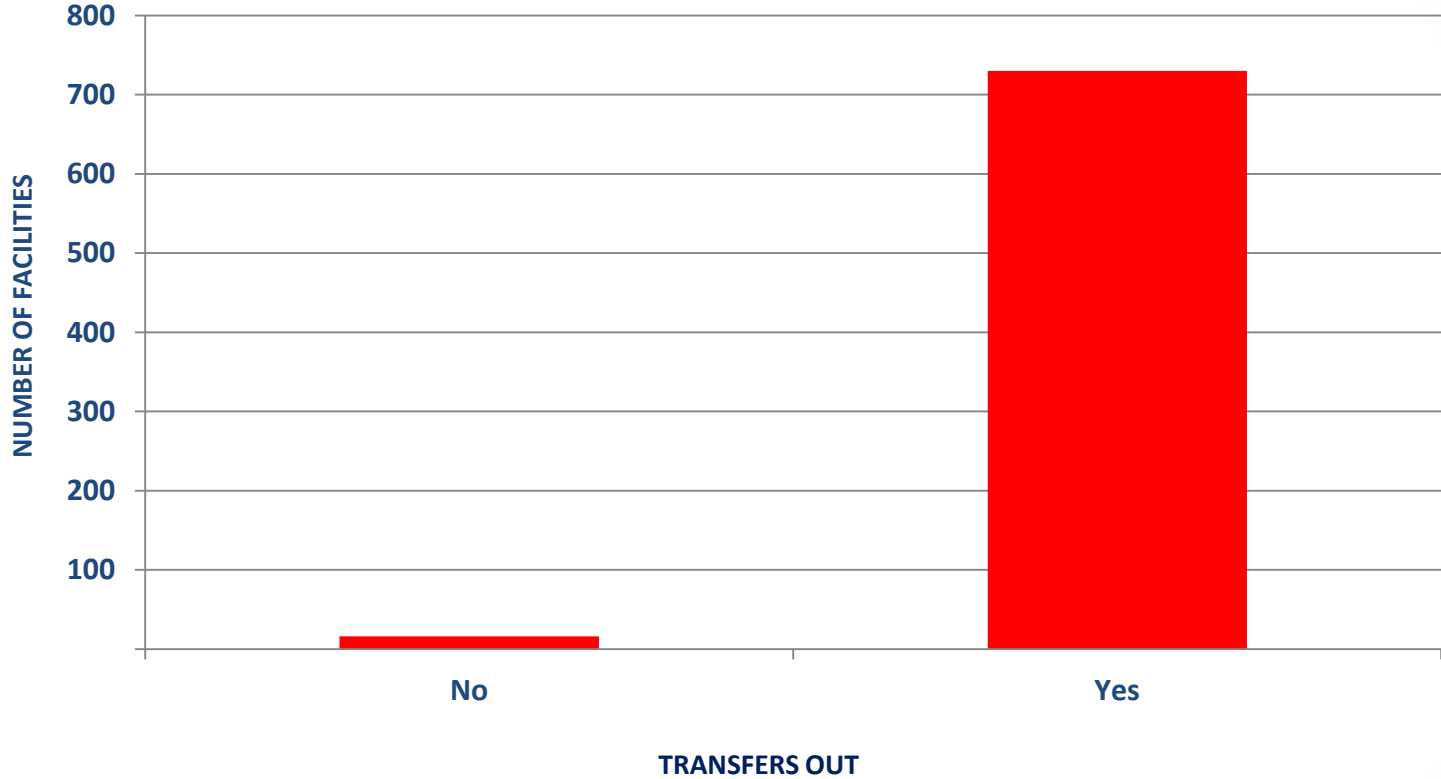
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Figure 9

Facilities by Transfer-Out Criteria



DEMOGRAPHIC INFORMATION



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Table
10

Incidents by Age

AGE	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
<1 year	9,334	1.08	222	2.38
1-4	25,695	2.99	428	1.67
5-9	28,837	3.35	280	0.97
10-14	28,783	3.34	317	1.10
15-19	51,347	5.97	1,572	3.06
20-24	68,429	7.95	2,451	3.58
25-34	107,451	12.48	3,720	3.46
35-44	84,135	9.78	2,824	3.36
45-54	99,892	11.61	3,590	3.59
55-64	100,831	11.72	4,137	4.10
65-74	84,168	9.78	4,238	5.04
75-84	88,671	10.30	6,043	6.82
>84	83,041	9.65	7,246	8.73
NK/NR	80	0.01	51	63.75
Total	860,694	100	37,119	4.31



Figure 10A

Incidents by Age

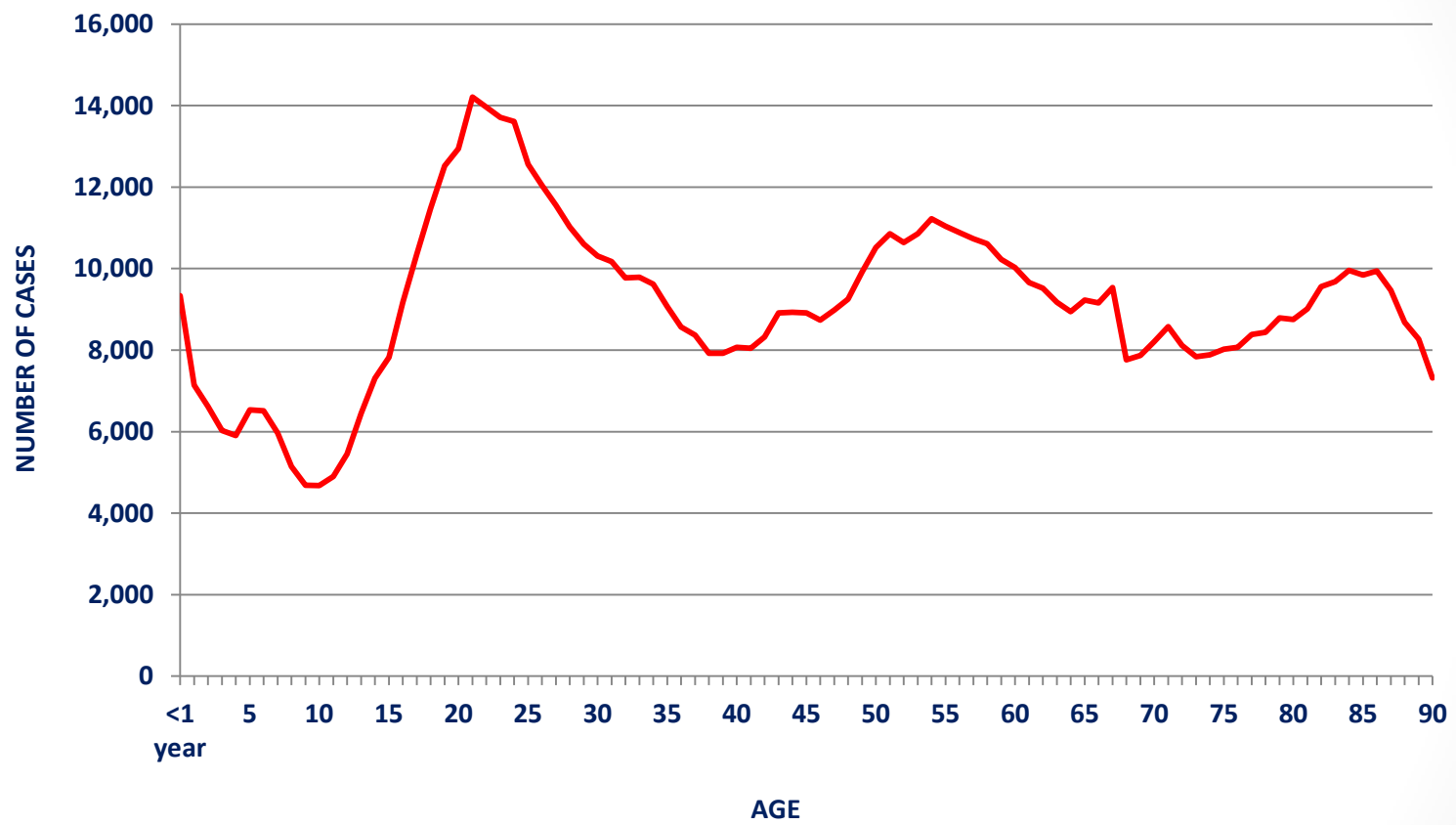


Figure 10B

Case Fatality Rate by Age

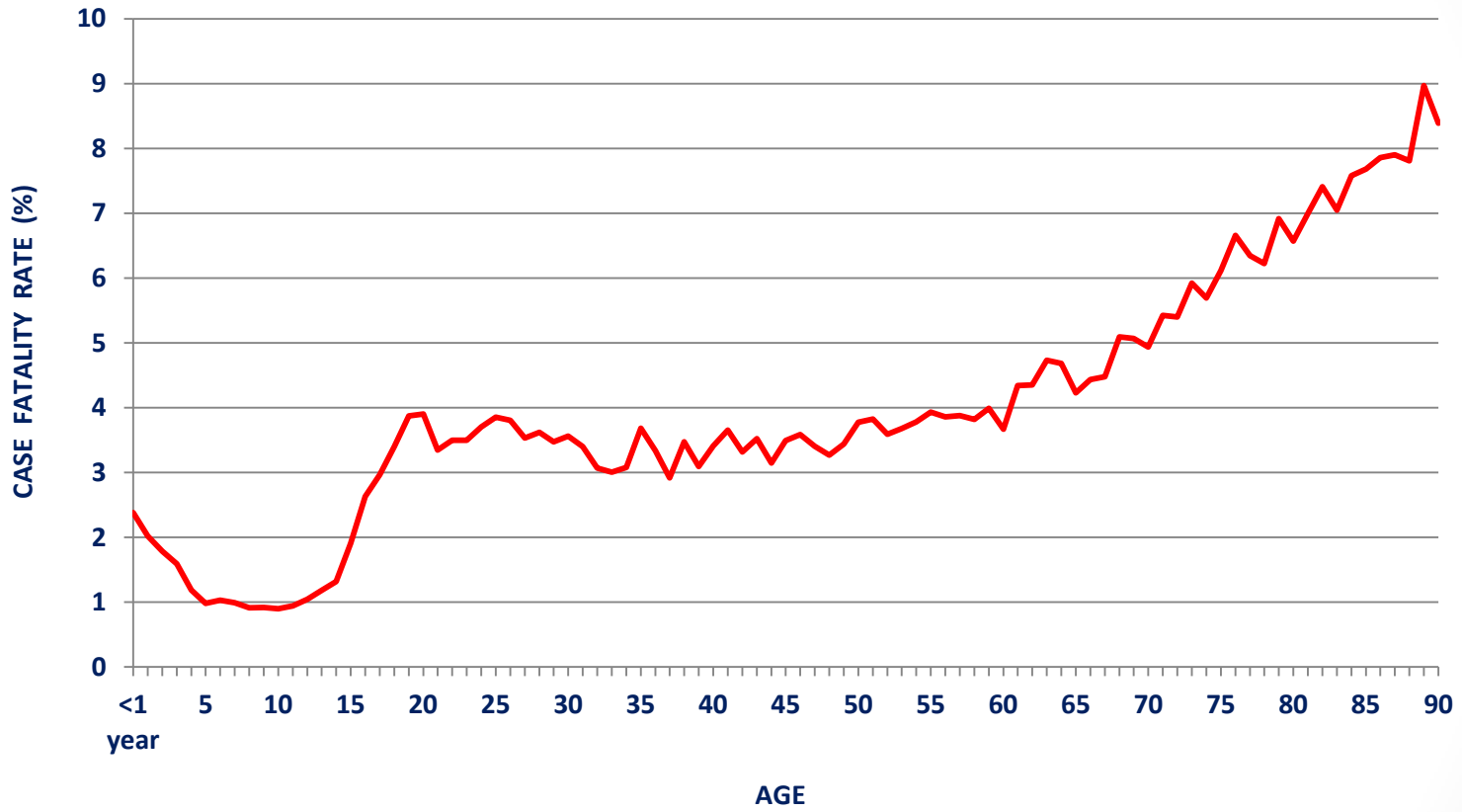


Table
11

Incidents and Case Fatality Rate by Age and Gender

AGE CATEGORY	NUMBER (FEMALE)	NUMBER (MALE)	DEATHS (FEMALE)	DEATHS (MALE)	CASE FATALITY RATE (FEMALE)	CASE FATALITY RATE (MALE)
<1 year	4,076	5,258	90	132	2.21	2.51
1-4	10,615	15,073	183	245	1.72	1.63
5-9	11,551	17,281	102	178	0.88	1.03
10-14	8,727	20,052	105	212	1.20	1.06
15-19	14,546	36,782	353	1,219	2.43	3.31
20-24	17,346	51,063	426	2,024	2.46	3.96
25-34	26,673	80,741	683	3,034	2.56	3.76
35-44	22,582	61,522	612	2,211	2.71	3.59
45-54	29,976	69,881	877	2,711	2.93	3.88
55-64	37,557	63,242	1,077	3,059	2.87	4.84
65-74	40,717	43,431	1,480	2,757	3.63	6.35
75-84	52,651	36,002	2,594	3,446	4.93	9.57
>84	57,108	25,916	3,966	3,280	6.94	12.66
NK/NR	9	68	4	46	44.44	67.65
Total	334,134	526,312	12,552	24,554	3.76	4.67



Figure 11A

Incidents by Age and Gender

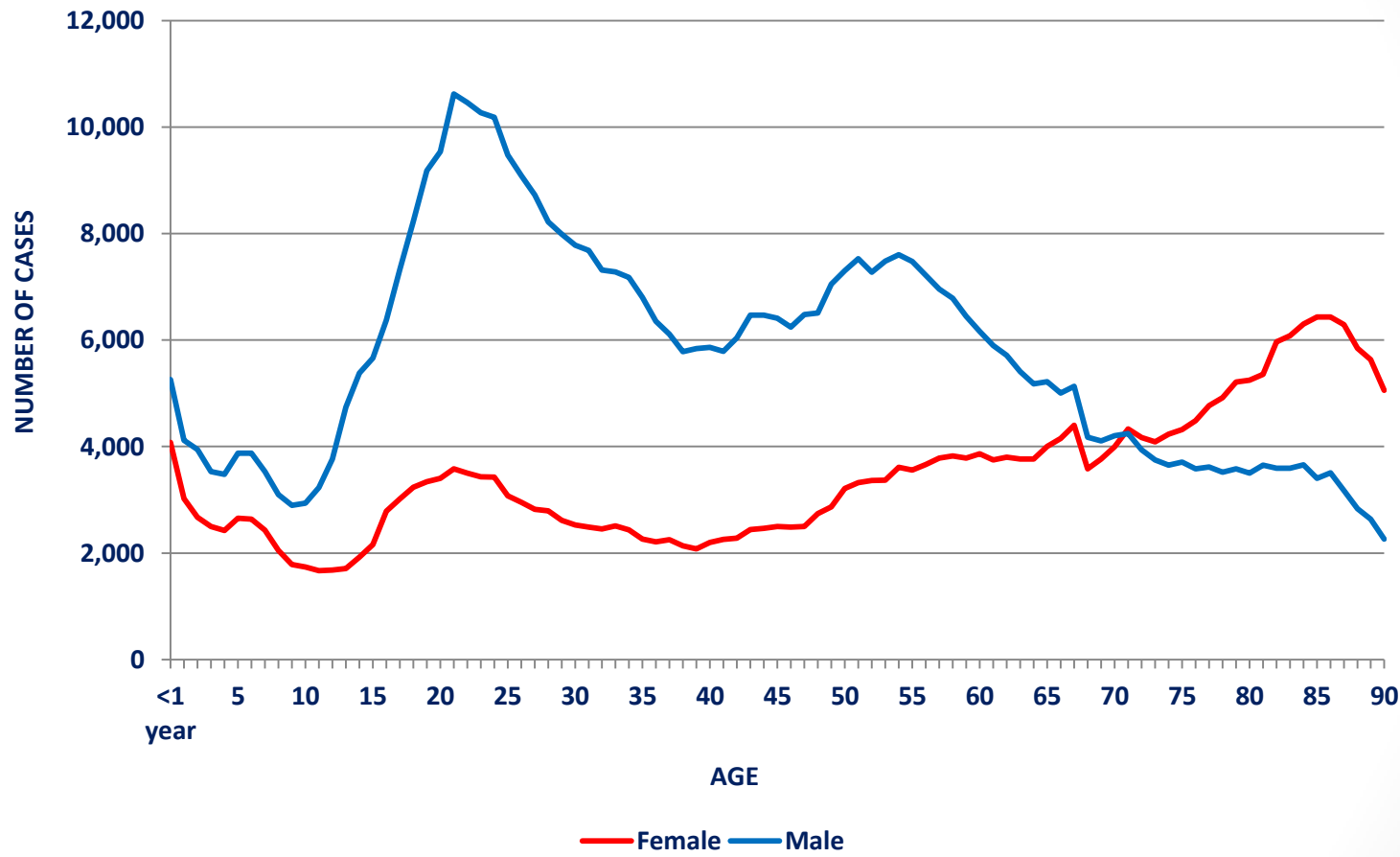
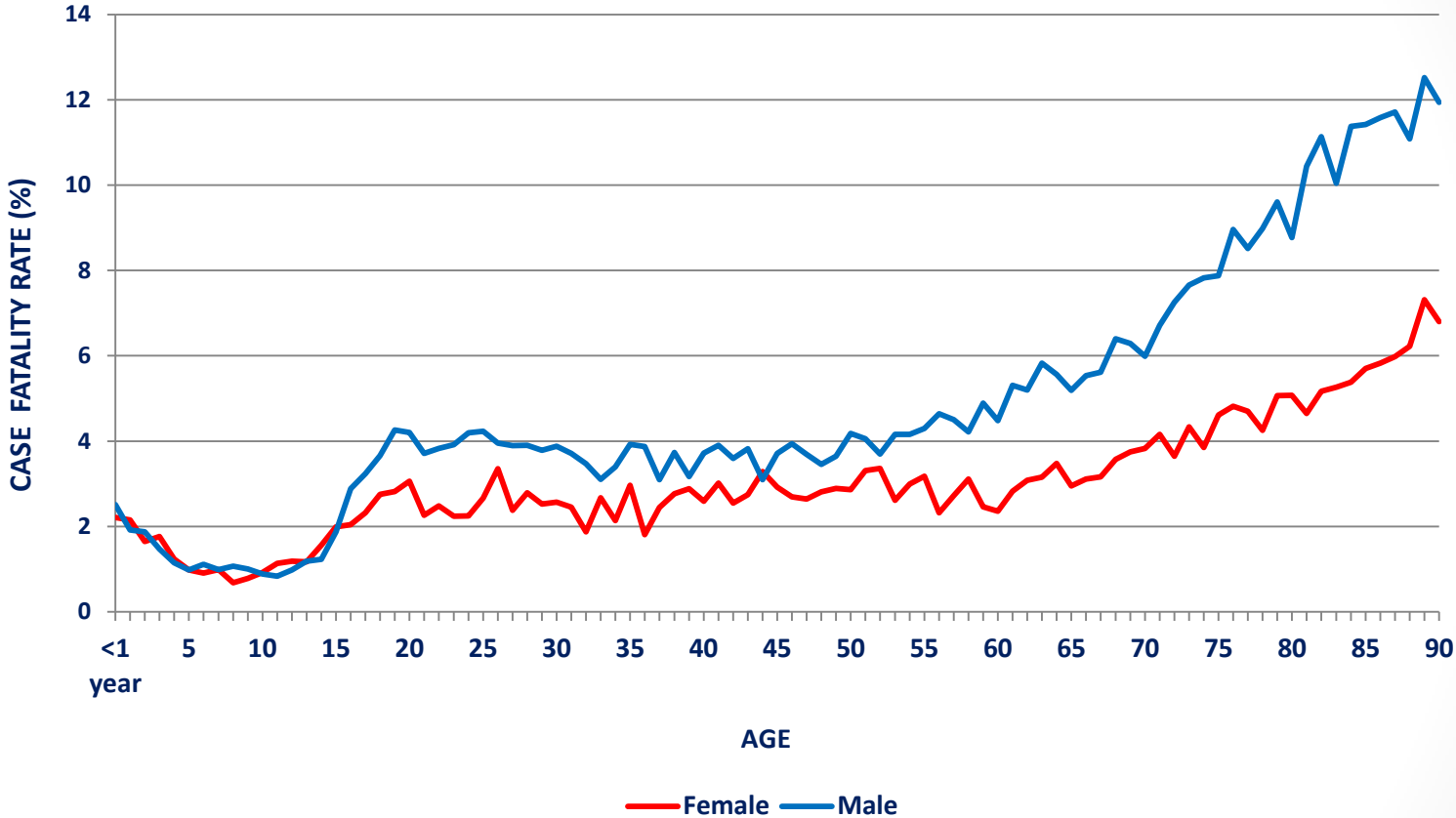


Figure 11B

Case Fatality Rate by Age and Gender



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Table
12

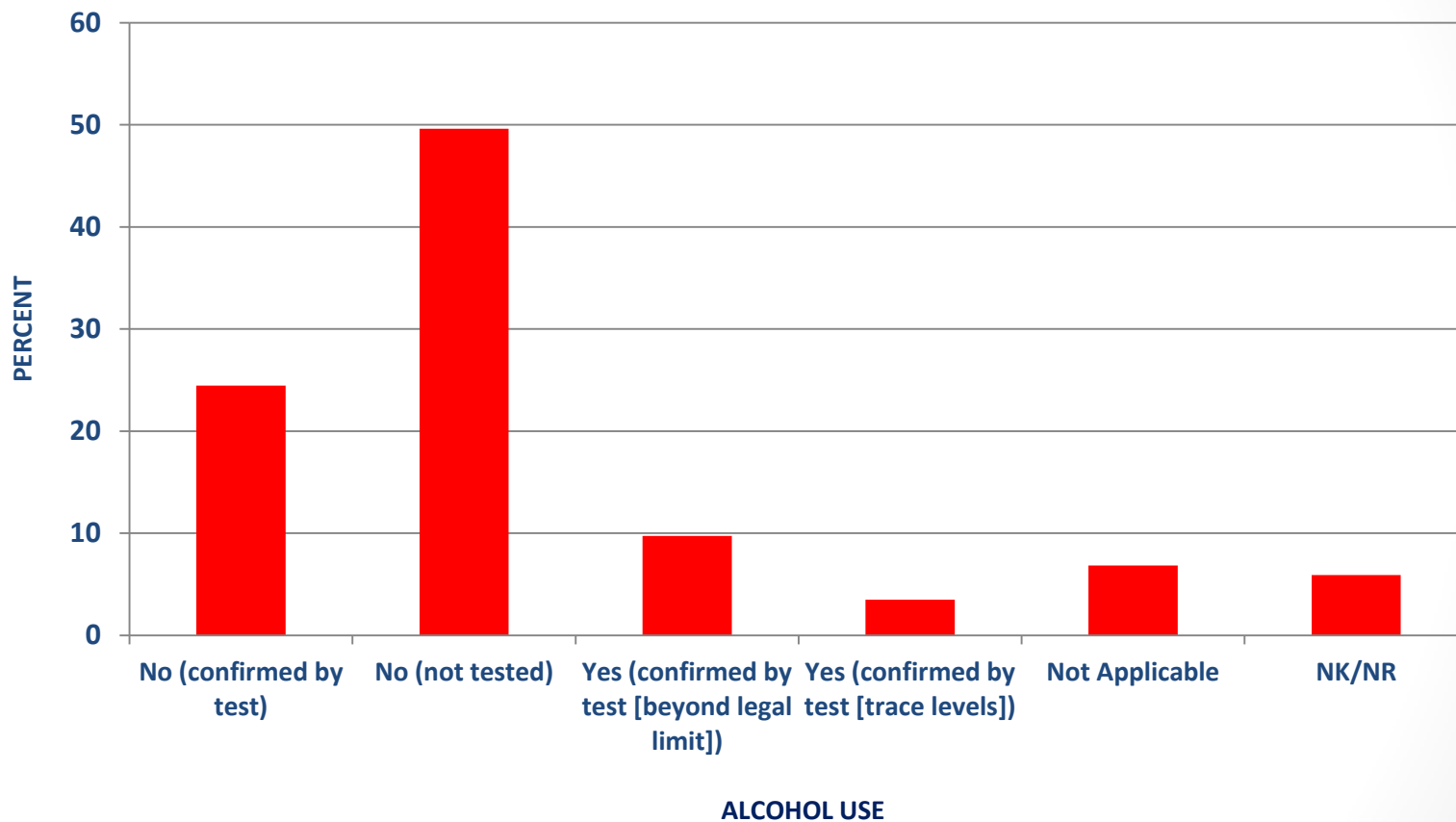
Alcohol Use

ALCOHOL USE	NUMBER	PERCENT
No (confirmed by test)	210,378	24.44
No (not tested)	427,143	49.63
Yes (confirmed by test [beyond legal limit])	83,672	9.72
Yes (confirmed by test [trace levels])	29,986	3.48
Not Applicable	58,761	6.83
NK/NR	50,754	5.90
Total	860,694	100



Figure 12

Alcohol Use



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Table
13

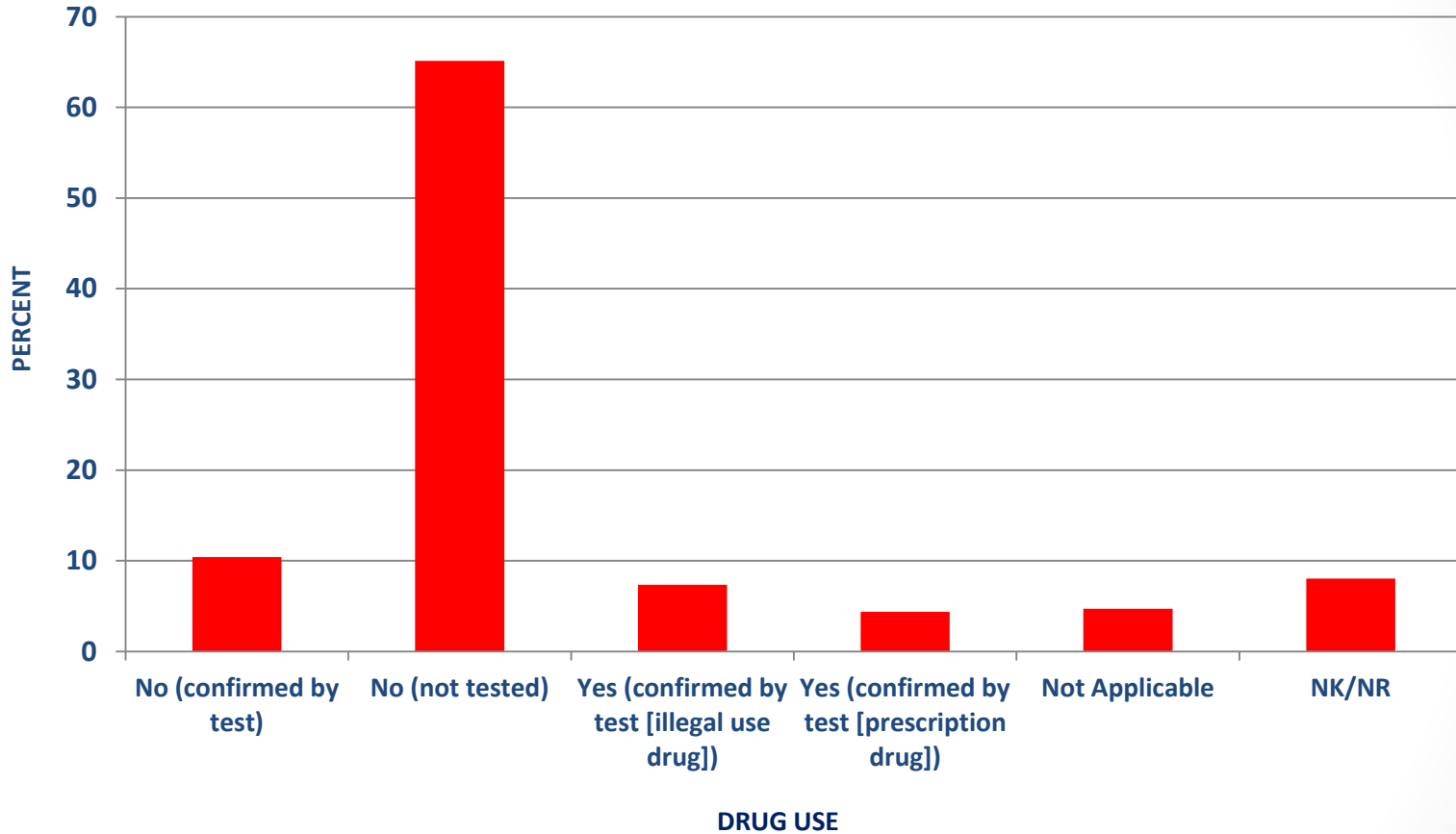
Drug Use

DRUG USE	NUMBER	PERCENT
No (confirmed by test)	89,746	10.43
No (not tested)	560,743	65.15
Yes (confirmed by test [illegal use drug])	63,319	7.36
Yes (confirmed by test [prescription drug])	37,469	4.35
Not Applicable	40,398	4.69
NK/NR	69,019	8.02
Total	860,694	100



Figure 13

Drug Use



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Table
14

Primary Payment Source

PRIMARY PAYMENT SOURCE	NUMBER	PERCENT
Medicare	222,759	25.88
Private/Commercial Insurance	171,361	19.91
Medicaid	128,544	14.93
Self Pay	107,554	12.50
Blue Cross/Blue Shield	55,342	6.43
No Fault Automobile	54,702	6.36
Other	27,199	3.16
Workers Compensation	23,260	2.70
Other Government	21,306	2.48
Not Billed (for any reason)	4,196	0.49
Not Applicable	8,861	1.03
NK/NR	35,610	4.14
Total	860,694	100



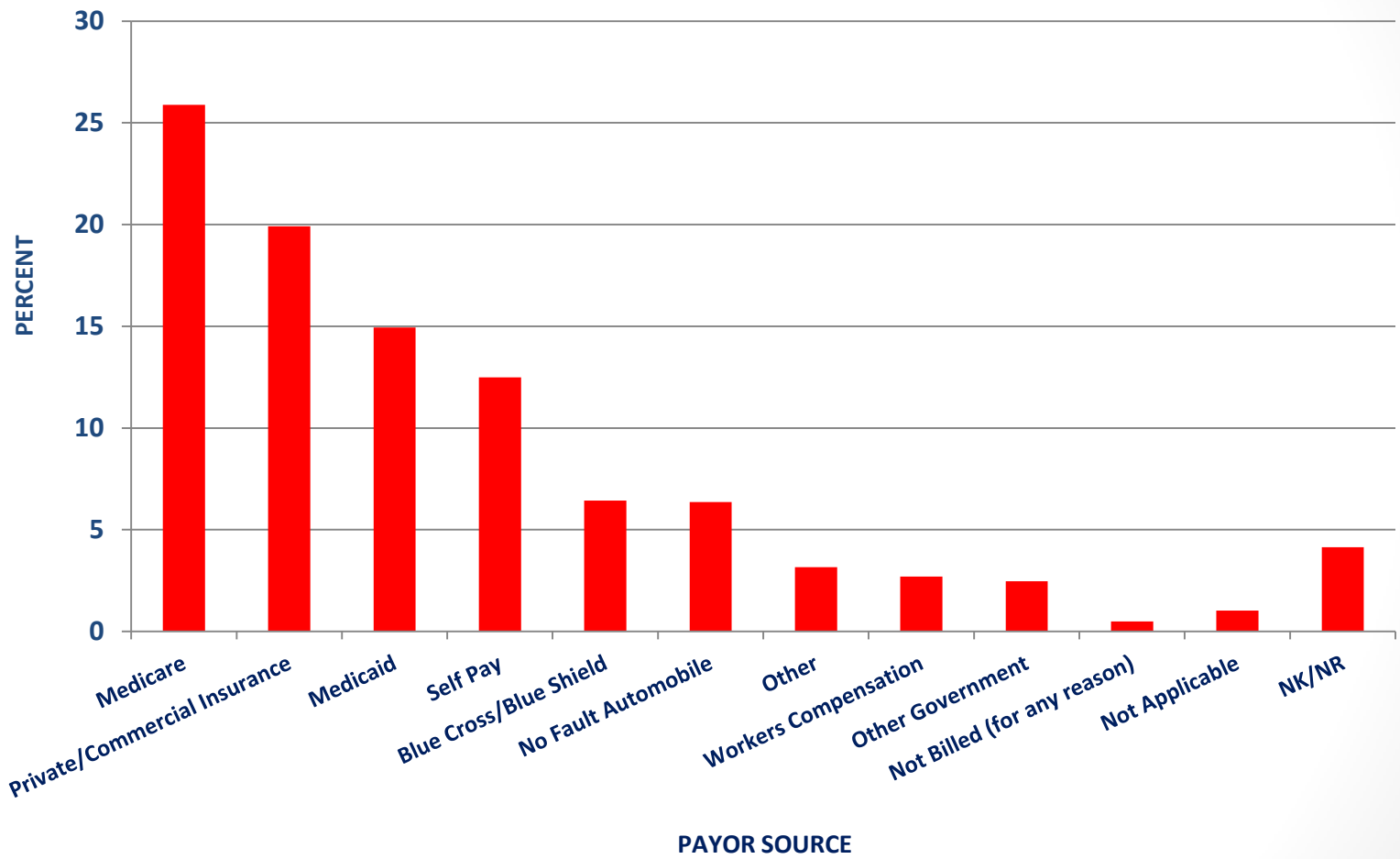
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Figure 14

Primary Payment Source



INJURY CHARACTERISTICS



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Table
15

Incidents by Mechanism of Injury

MECHANISM	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Fall	373,618	43.41	16,250	4.35
Motor Vehicle Traffic	223,390	25.95	10,303	4.61
Struck by, against	57,598	6.69	782	1.36
Transport, other	38,680	4.49	922	2.38
Cut/pierce	36,707	4.26	742	2.02
Firearm	34,385	4.00	5,286	15.37
Pedal cyclist, other	15,379	1.79	187	1.22
Other specified and classifiable	13,840	1.61	481	3.48
Hot object/substance	9,216	1.07	45	0.49
Fire/flame	8,550	0.99	451	5.27
Unspecified	8,474	0.98	442	5.22
Machinery	8,355	0.97	109	1.30
Natural/environmental, Bites and stings	5,708	0.66	24	0.42
Other specified, not elsewhere classifiable	4,067	0.47	82	2.02
Overexertion	2,820	0.33	19	0.67
Pedestrian, other	2,625	0.30	174	6.63
Natural/environmental, Other	2,556	0.30	43	1.68
Suffocation	895	0.10	248	27.71
Poisoning	515	0.06	20	3.88
Drowning/submersion	424	0.05	62	14.62
Adverse effects, medical care	271	0.03	15	5.54
Adverse effects, drugs	173	0.02	7	4.05
NK/NR	12,448	1.45	425	3.41
Total	860,694	100	37,119	4.31



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Figure 15A

Incidents by Selected Mechanism of Injury

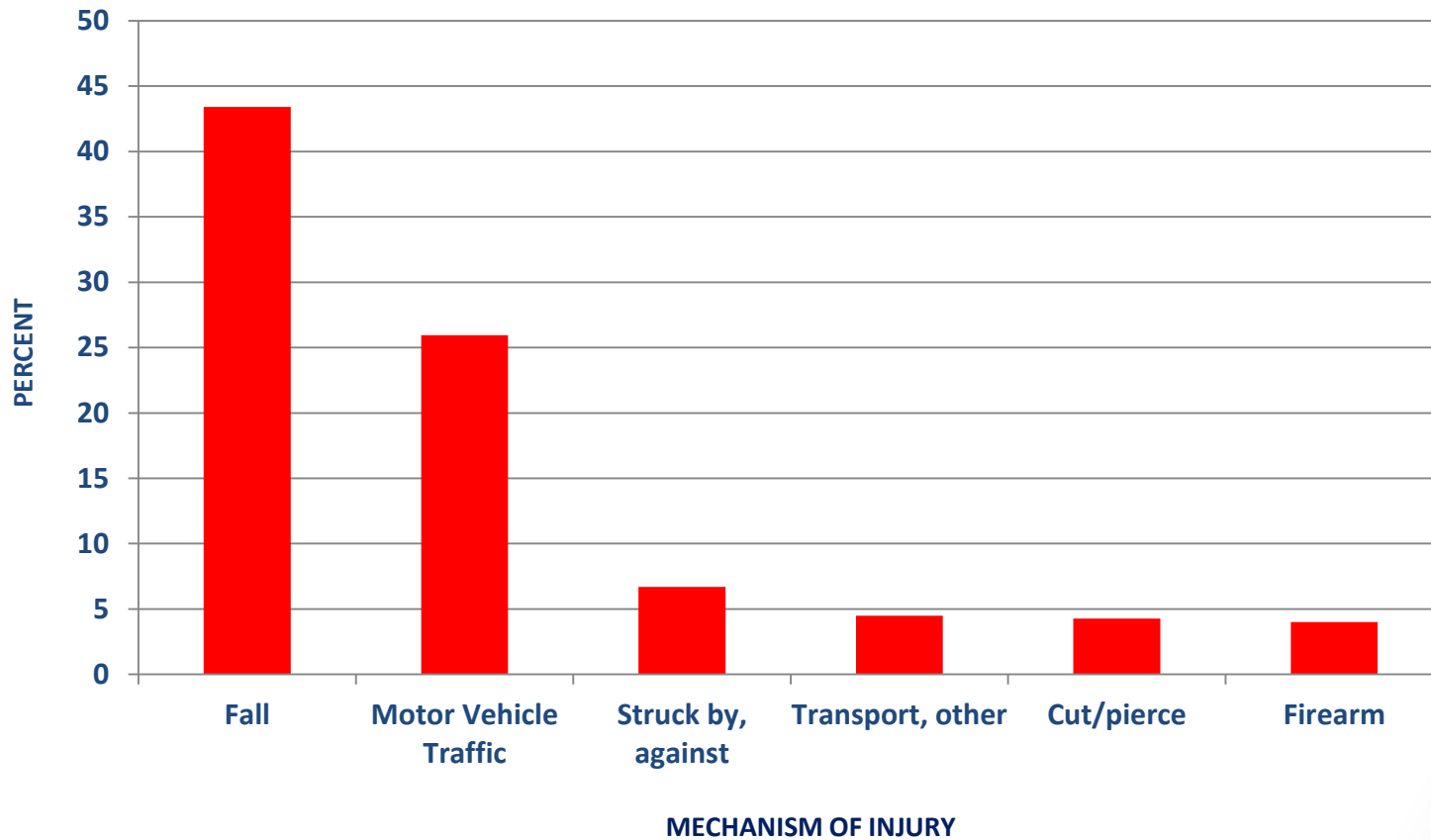
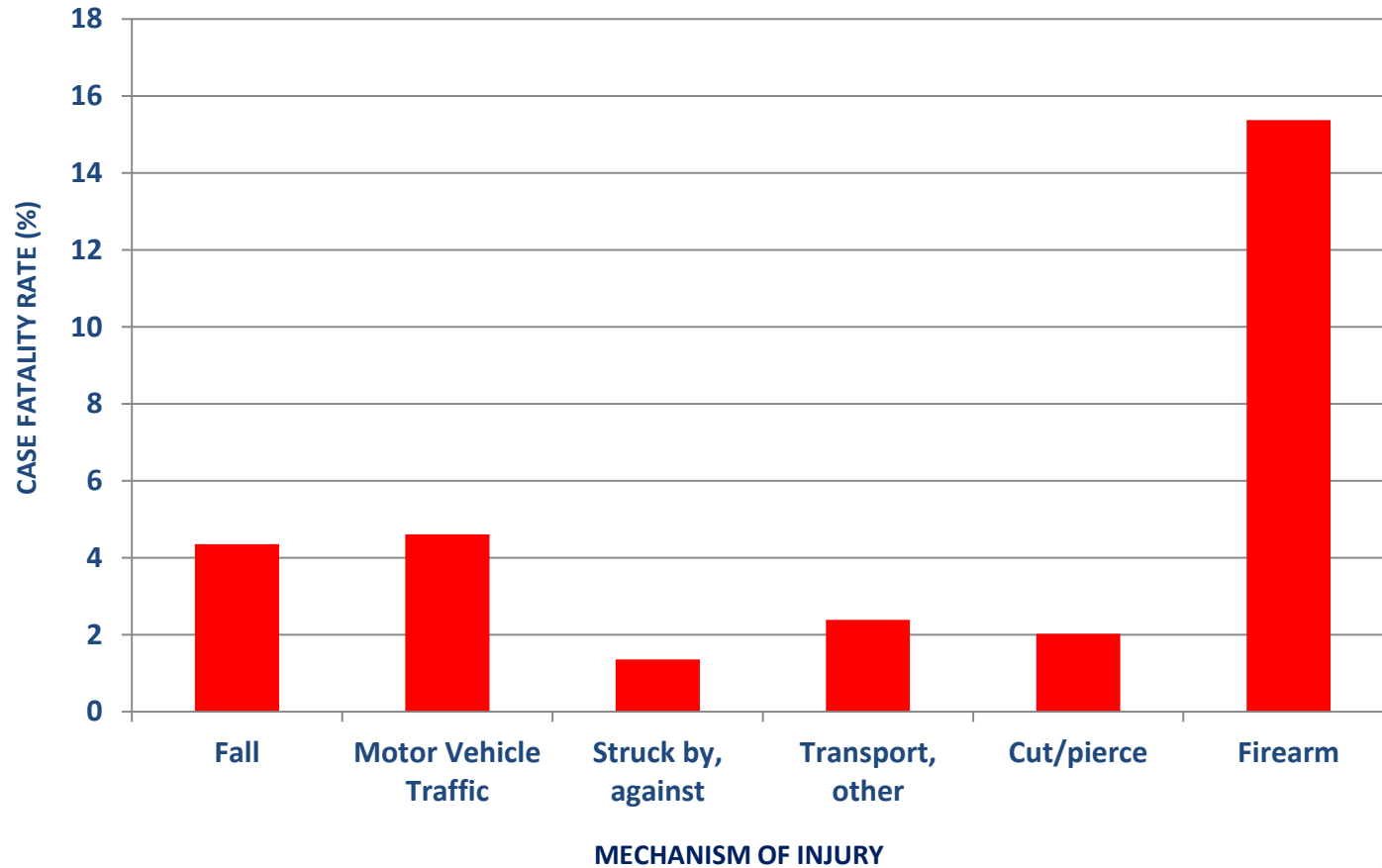


Figure 15B

Case Fatality Rate by Selected Mechanism of Injury



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Table
16

Incidents by Selected Mechanism of Injury and Age

AGE	FALL	MOTOR VEHICLE TRAFFIC	STRUCK BY, AGAINST	TRANSPORT, OTHER	FIREARM	CUT/PIERCE
<1 year	4,916	430	356	41	36	38
1-4	12,517	2,885	1,744	493	147	437
5-9	14,159	4,507	2,130	1,534	188	545
10-14	9,269	5,357	4,172	3,127	564	746
15-19	7,353	19,851	6,078	4,511	4,953	2,911
20-24	7,807	29,475	6,380	4,306	8,015	5,664
25-34	16,298	41,234	11,214	6,137	9,802	10,021
35-44	18,763	29,343	8,359	4,978	4,886	6,616
45-54	32,393	32,251	8,285	5,449	3,026	5,342
55-64	48,470	27,302	5,230	4,095	1,583	2,822
65-74	55,167	16,599	2,033	2,286	701	1,013
75-84	71,827	9,893	973	1,213	327	381
>84	74,668	4,225	641	509	149	163
NK/NR	11	38	3	1	8	8
Total	373,618	223,390	57,598	38,680	34,385	36,707



Figure 16

Incidents by Selected Mechanism of Injury and Age

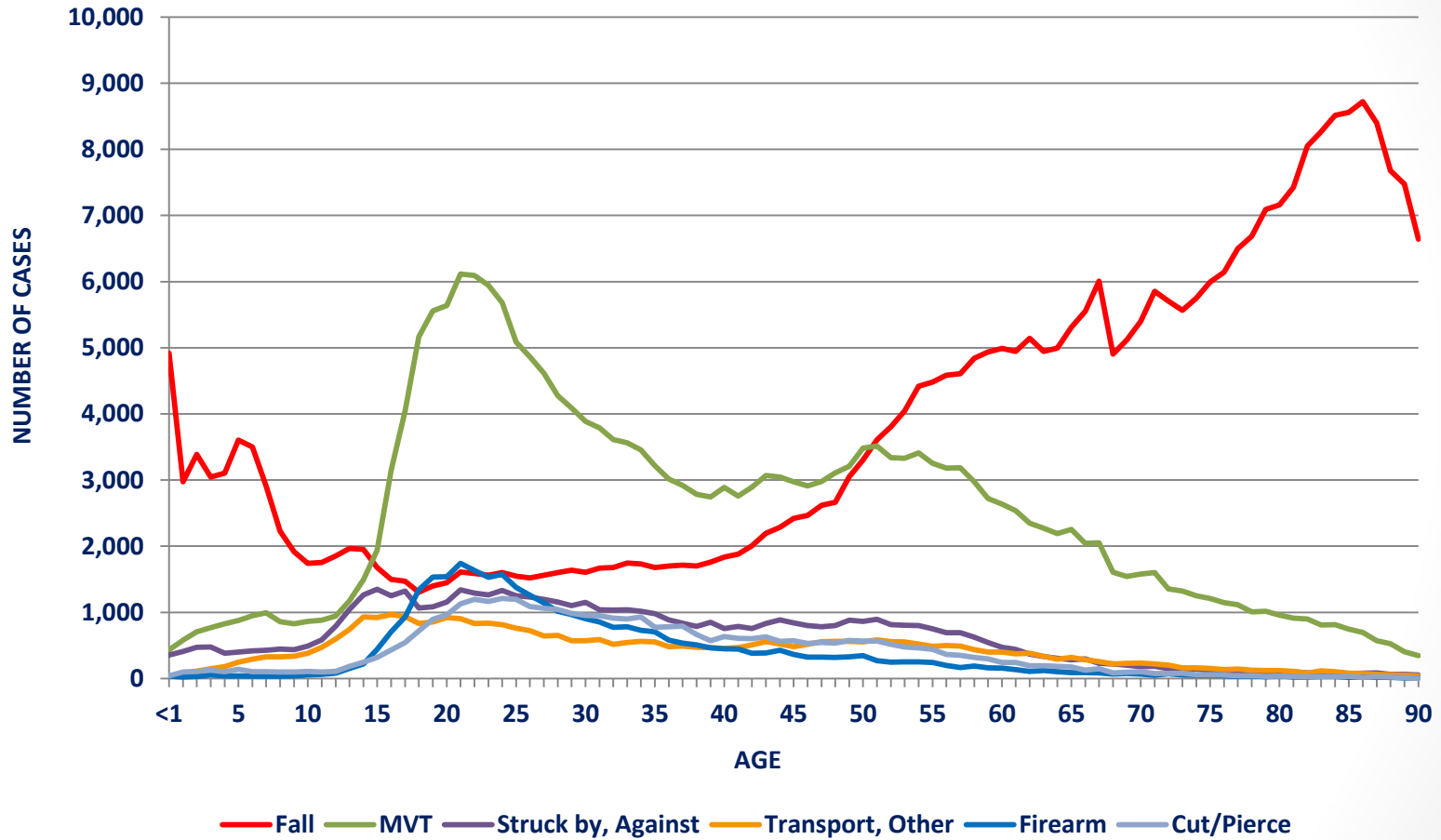


Table
17

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	0.65	6.98	1.40	0.00	30.56	2.63
1-4	0.46	5.30	1.32	1.62	19.05	0.92
5-9	0.21	3.26	0.66	1.37	14.36	0.92
10-14	0.28	2.20	0.41	0.86	13.48	0.80
15-19	0.80	3.43	0.74	1.46	11.33	1.75
20-24	1.45	3.23	0.50	2.16	12.75	1.71
25-34	1.40	3.51	0.84	2.18	13.91	1.86
35-44	1.93	3.68	1.10	1.81	16.60	2.10
45-54	2.56	4.41	1.68	2.42	18.97	2.06
55-64	3.25	5.42	2.68	2.52	22.49	2.59
65-74	4.29	6.76	4.03	4.59	30.10	3.36
75-84	6.17	10.00	5.24	6.92	42.51	4.72
>84	8.20	15.48	7.33	11.39	68.46	9.20
NK/NR	81.82	73.68	33.33	100.00	62.50	37.50



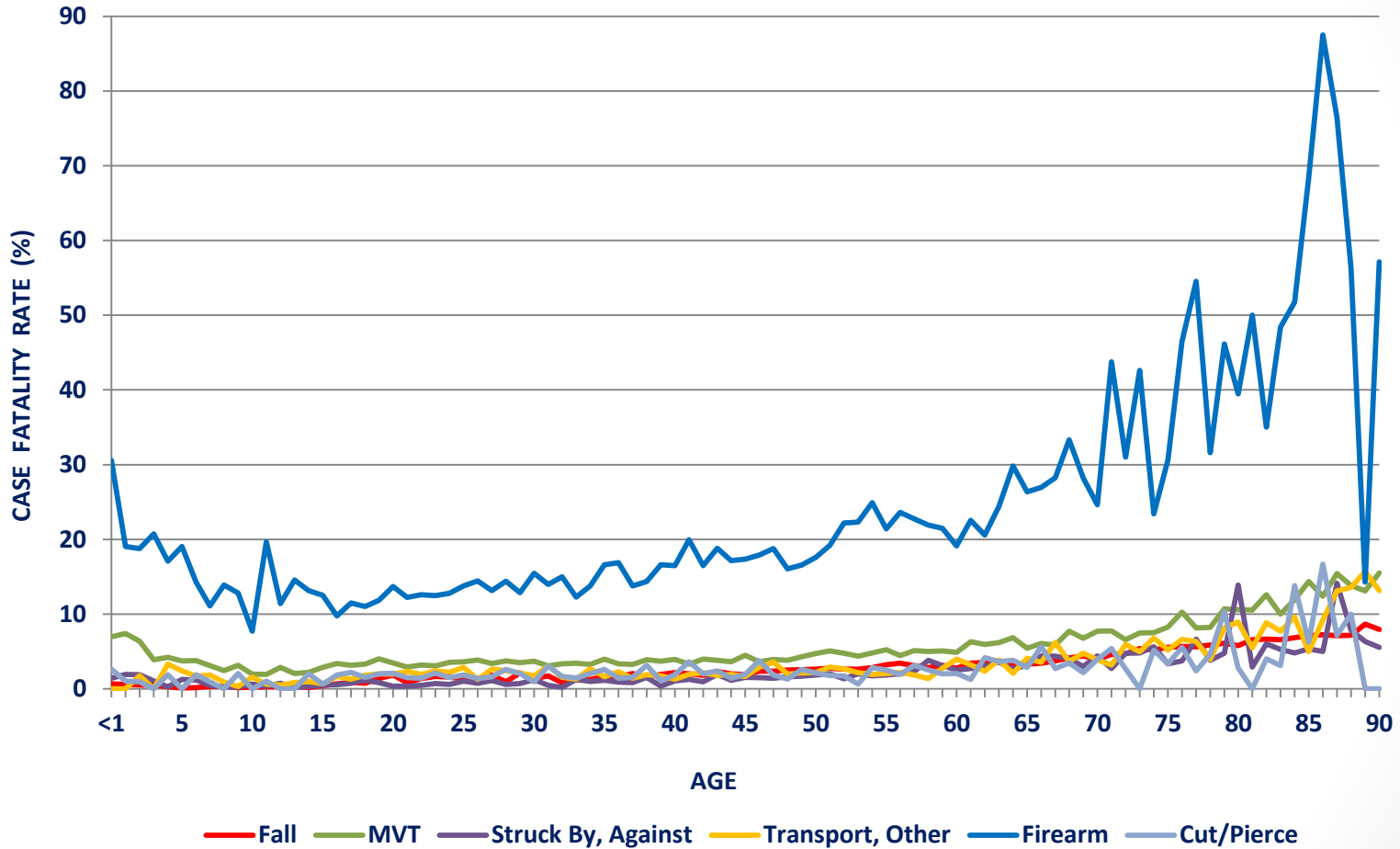
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Figure 17

Case Fatality Rate by Selected Mechanism of Injury and Age



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Table
18

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	57.34	34.57	3.85	4.88
Motor Vehicle Traffic	24.44	26.91	3.88	5.03
Struck by, against	3.02	9.02	1.29	1.37
Transport, other	3.61	5.06	2.10	2.51
Cut/pierce	1.77	5.85	1.75	2.07
Firearm	1.23	5.75	16.12	15.27
Pedal cyclist, other	1.03	2.27	0.64	1.38
Other specified and classifiable	1.11	1.92	3.76	3.37
Hot object/substance	1.13	1.03	0.45	0.52
Fire/flame	0.66	1.20	7.98	4.30
Unspecified	0.62	1.22	6.52	4.80
Machinery	0.18	1.47	1.32	1.30
Natural/environmental, Bites and stings	0.79	0.58	0.68	0.20
Other specified, not elsewhere classifiable	0.34	0.56	1.67	2.15
Overexertion	0.34	0.32	1.07	0.41
Pedestrian, other	0.27	0.32	5.79	7.08
Natural/environmental, Other	0.29	0.30	1.46	1.81
Suffocation	0.07	0.13	31.28	26.50
Poisoning	0.08	0.05	3.53	4.23
Drowning/submersion	0.04	0.06	17.80	13.40
Adverse effects, medical care	0.04	0.02	6.80	4.03
Adverse effects, drugs	0.03	0.01	2.94	5.63
NK/NR	1.58	1.36	2.57	4.04
Total	100	100		



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Figure 18A

Incidents by Selected Mechanism of Injury and Gender

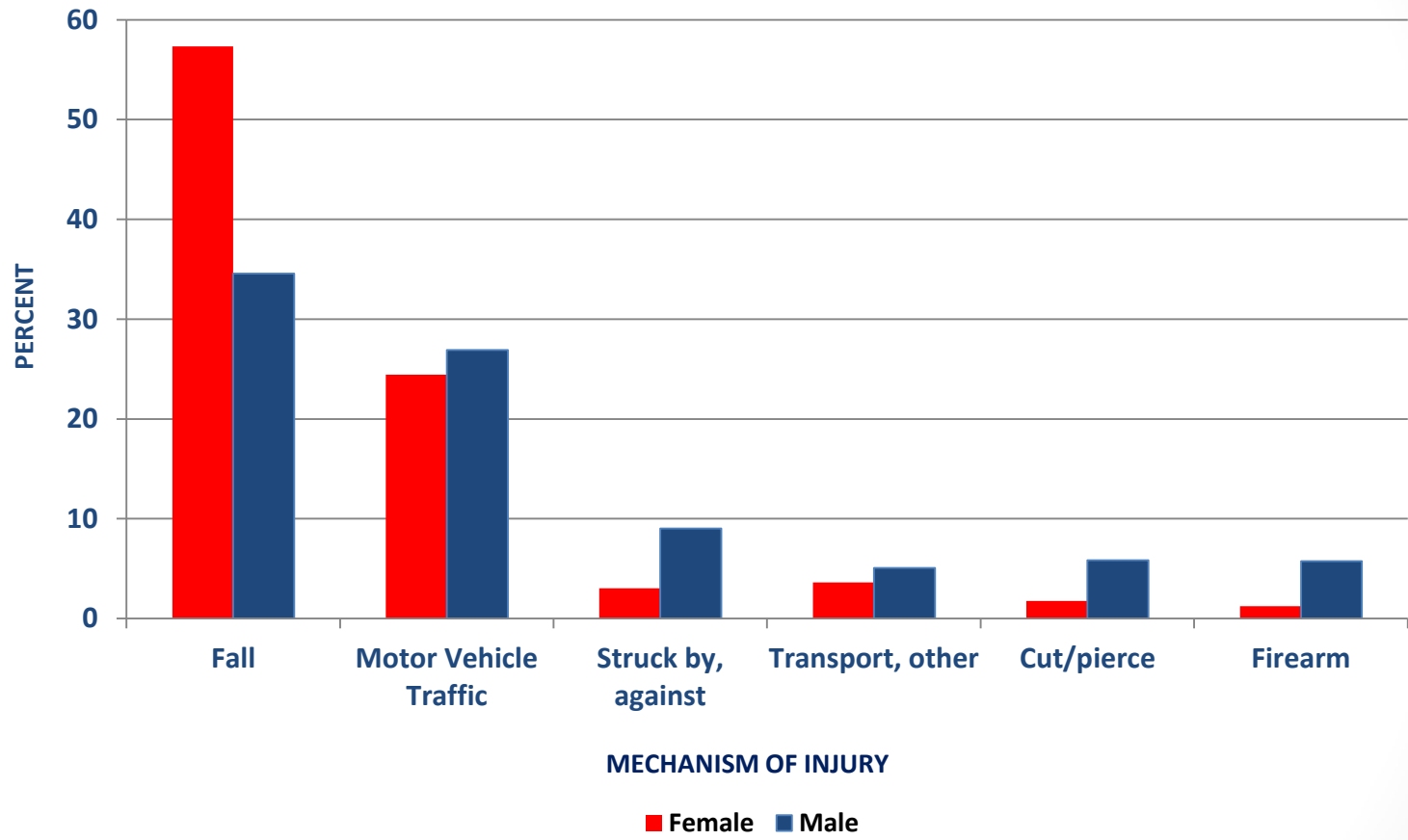


Figure 18B

Case Fatality Rate by Selected Mechanism of Injury and Gender

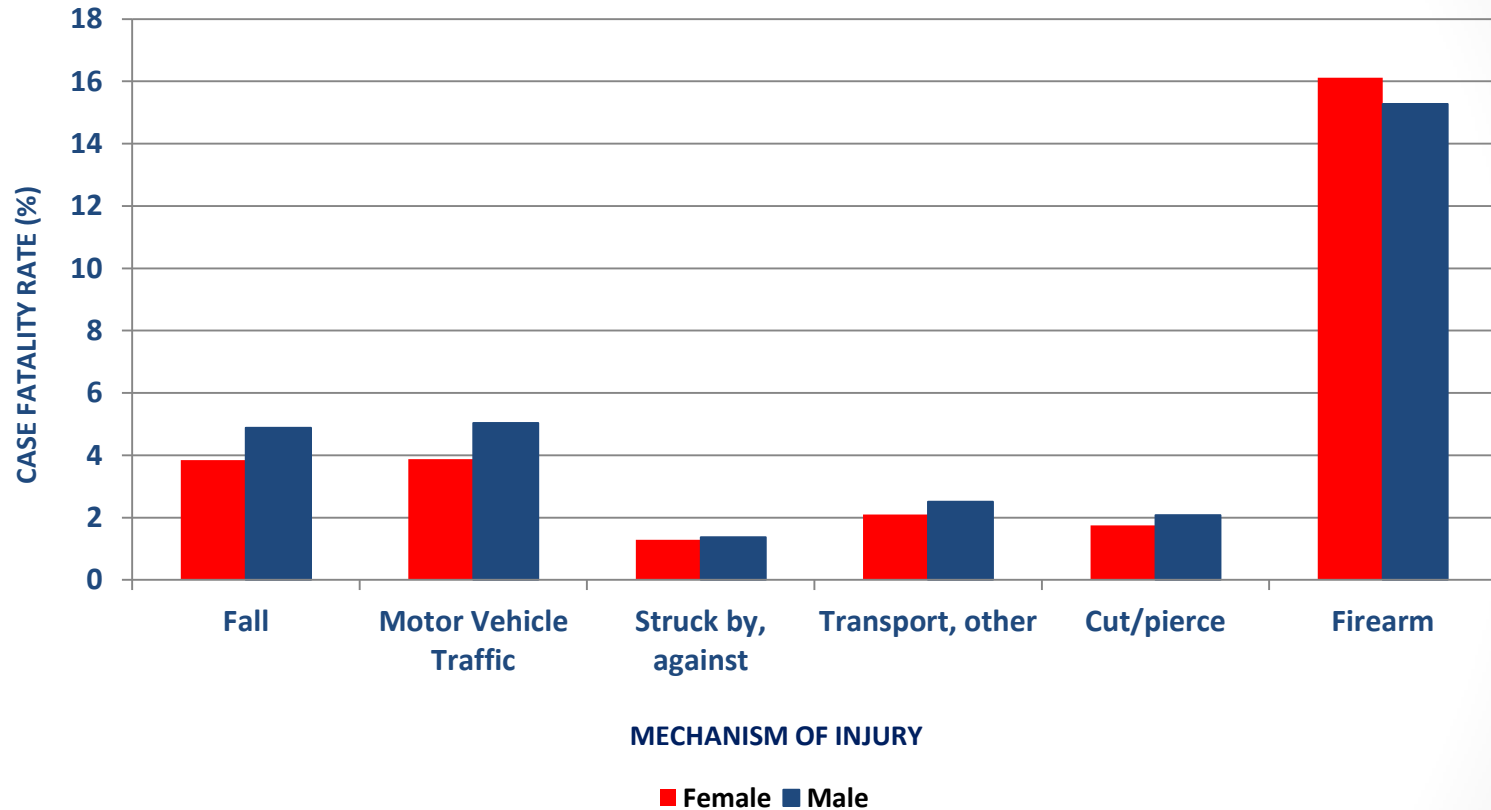


Table
19

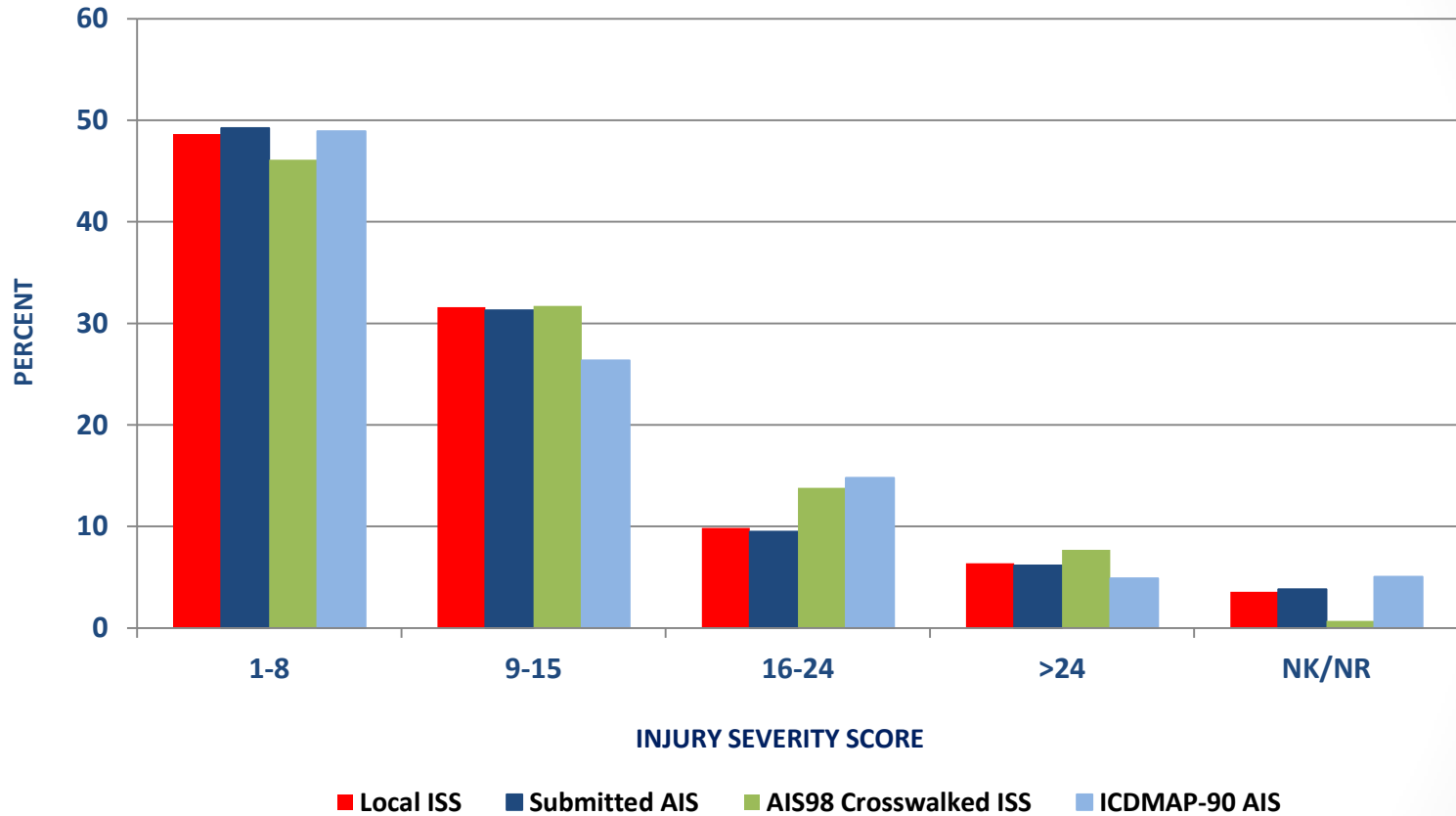
Incidents by Comparative Injury Severity Scores (ISS)

ISS	LOCAL ISS		SUBMITTED ISS		AIS98 CROSSWALKED ISS		ICDMAP-90 ISS	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1-8	418,692	48.65	423,794	49.24	396,861	46.11	421,053	48.92
9-15	271,809	31.58	269,382	31.30	273,004	31.72	226,797	26.35
16-24	84,713	9.84	81,694	9.49	118,686	13.79	127,331	14.79
>24	54,820	6.37	53,063	6.17	66,165	7.69	42,041	4.88
NK/NR	30,660	3.56	32,761	3.81	5,978	0.69	43,472	5.05
Total	860,694	100.00	860,694	100.00	860,694	100.00	860,694	100.00

Injury Severity Score definitions can be found in Appendix B.

Figure 19

Incidents by Comparative Injury Severity Scores (ISS)



Injury Severity Score definitions can be found in Appendix B.

Table
20

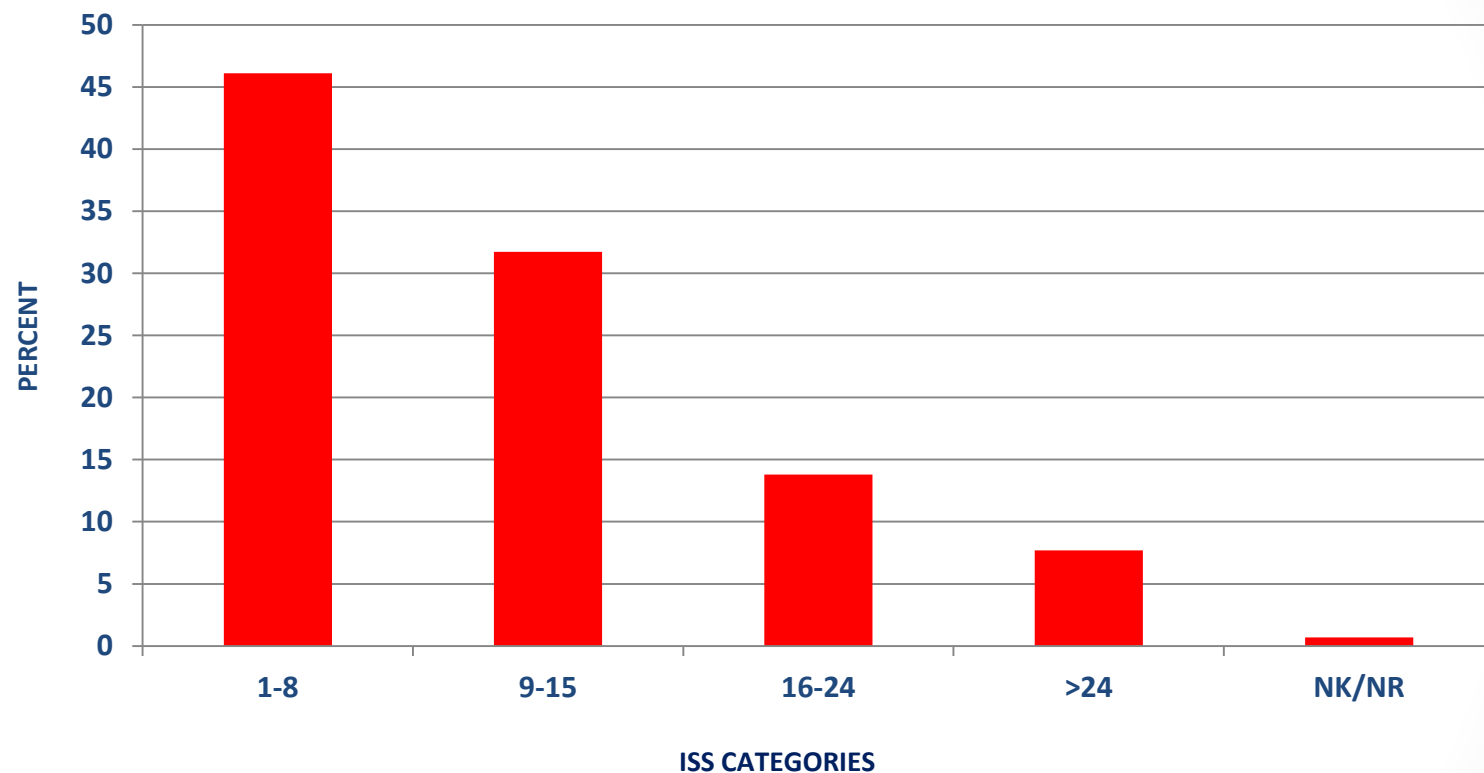
Incidents and Case Fatality Rate by Injury Severity Score (ISS)

ISS	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
1-8	396,861	46.11	4,403	1.11
9-15	273,004	31.72	7,323	2.68
16-24	118,686	13.79	6,569	5.53
>24	66,165	7.69	18,412	27.83
NK/NR	5,978	0.69	412	6.89
Total	860,694	100.00	37,119	4.31



Figure 20A

Incidents by Injury Severity Score (ISS)



Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Figure 20B

Case Fatality Rate by Injury Severity Score (ISS)

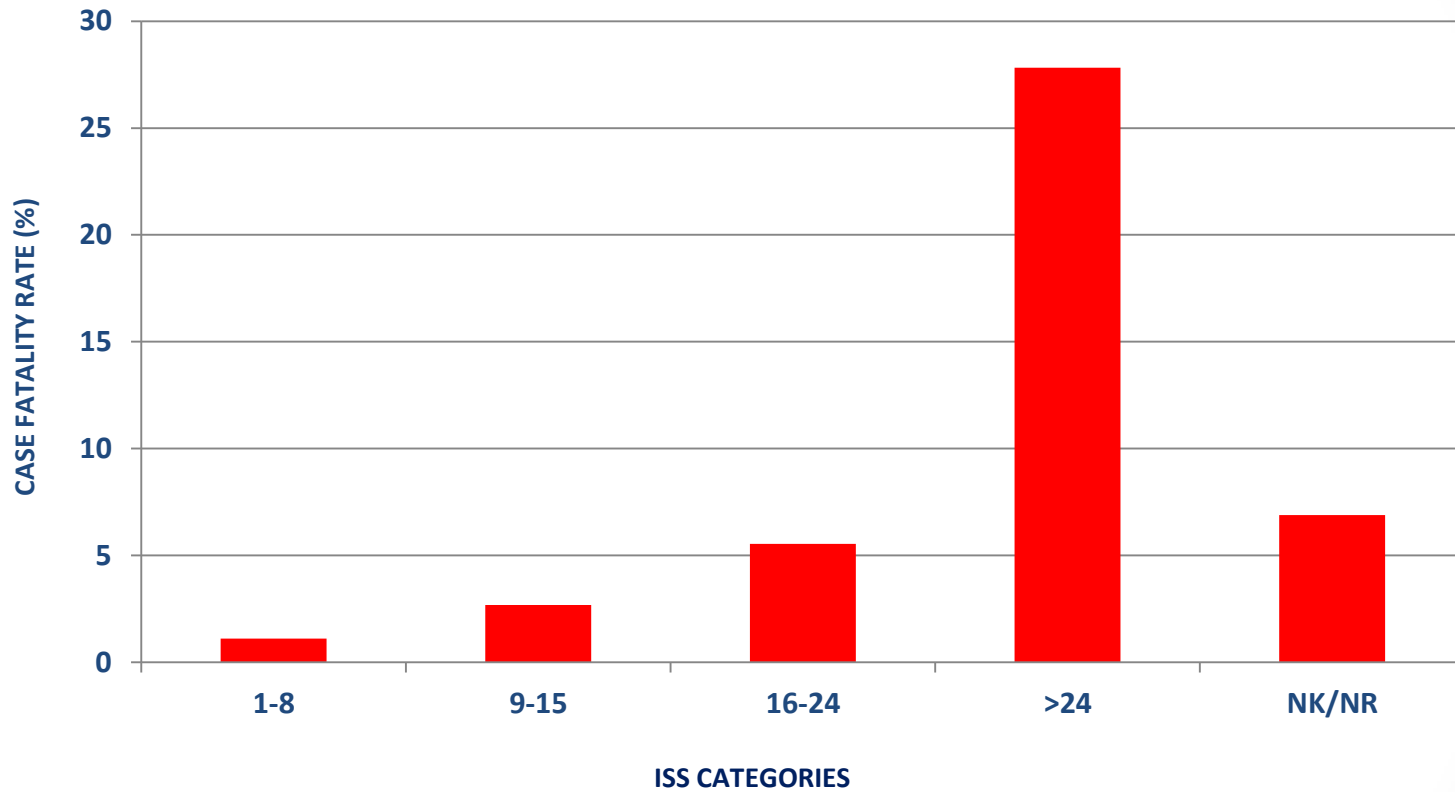


Table
21

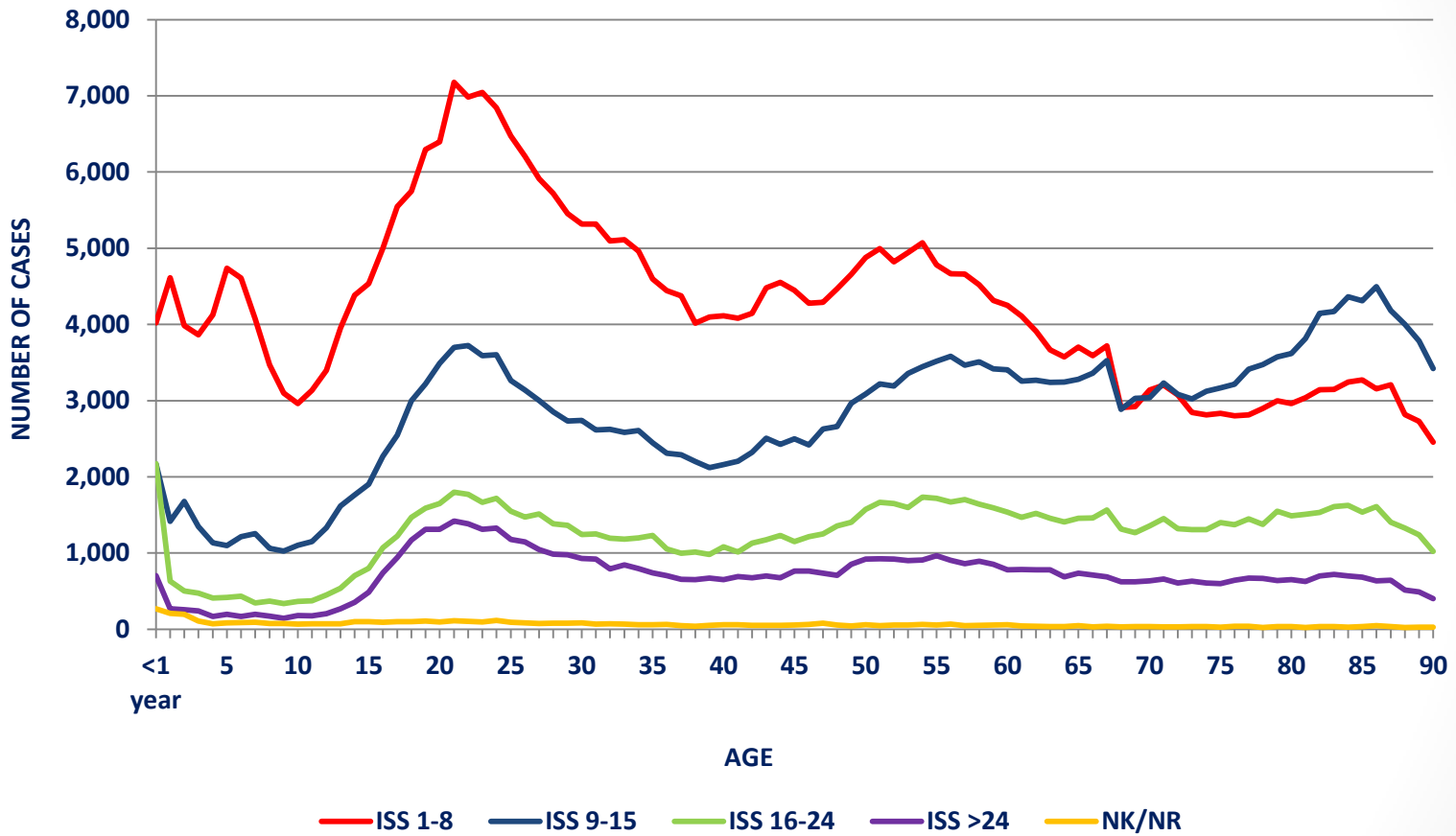
Injury Severity Score (ISS) by Age

AGE	ISS 1-8 NUMBER	ISS 9-15 NUMBER	ISS 16-24 NUMBER	ISS >24 NUMBER	ISS NK/NR NUMBER
<1 year	4,020	2,170	2,172	705	267
1-4	16,586	5,577	2,016	934	582
5-9	19,987	5,655	1,905	874	416
10-14	17,828	6,964	2,431	1,182	378
15-19	27,125	12,934	6,149	4,645	494
20-24	34,443	18,109	8,600	6,756	521
25-34	55,570	28,165	13,347	9,612	757
35-44	42,898	22,985	10,905	6,814	533
45-54	46,853	29,469	14,597	8,398	575
55-64	42,449	33,897	15,715	8,284	486
65-74	31,920	31,576	13,809	6,515	348
75-84	29,874	36,955	14,909	6,614	319
>84	27,286	38,526	12,125	4,813	291
NK/NR	22	22	6	19	11
Total	396,861	273,004	118,686	66,165	5,978

Injury Severity Score tables are generated using AIS98 Crosswalked ISS.
Injury Severity Score definitions can be found in Appendix B.

Figure 21

Injury Severity Score (ISS) by Age



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Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Table
22

Case Fatality Rate by Injury Severity Score (ISS) 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	0.55	1.24	2.07	17.59	1.50
1-4	0.35	0.70	2.98	27.30	2.75
5-9	0.21	0.58	1.47	19.68	1.44
10-14	0.25	0.65	1.19	16.16	1.85
15-19	0.55	1.48	2.63	22.28	6.88
20-24	0.63	1.62	3.62	23.59	6.72
25-34	0.76	1.50	3.78	23.91	9.64
35-44	0.71	1.37	3.66	25.95	6.94
45-54	0.77	1.62	3.76	25.65	8.35
55-64	1.13	1.96	4.60	26.82	10.29
65-74	1.50	2.66	6.13	31.19	11.21
75-84	2.39	4.02	9.01	37.42	7.52
>84	4.03	6.43	12.90	43.11	9.62
NK/NR	45.45	40.91	66.67	89.47	100



Table
23

Incidents by Work-Related Injuries

WORK-RELATED INJURY	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
No	769,370	89.39	34,362	4.47
Yes	36,098	4.19	800	2.22
Not Applicable	32,457	3.77	973	3.00
NK/NR	22,769	2.65	984	4.32
Total	860,694	100	37,119	4.31



Figure 23A

Incidents by Work-Related Injuries

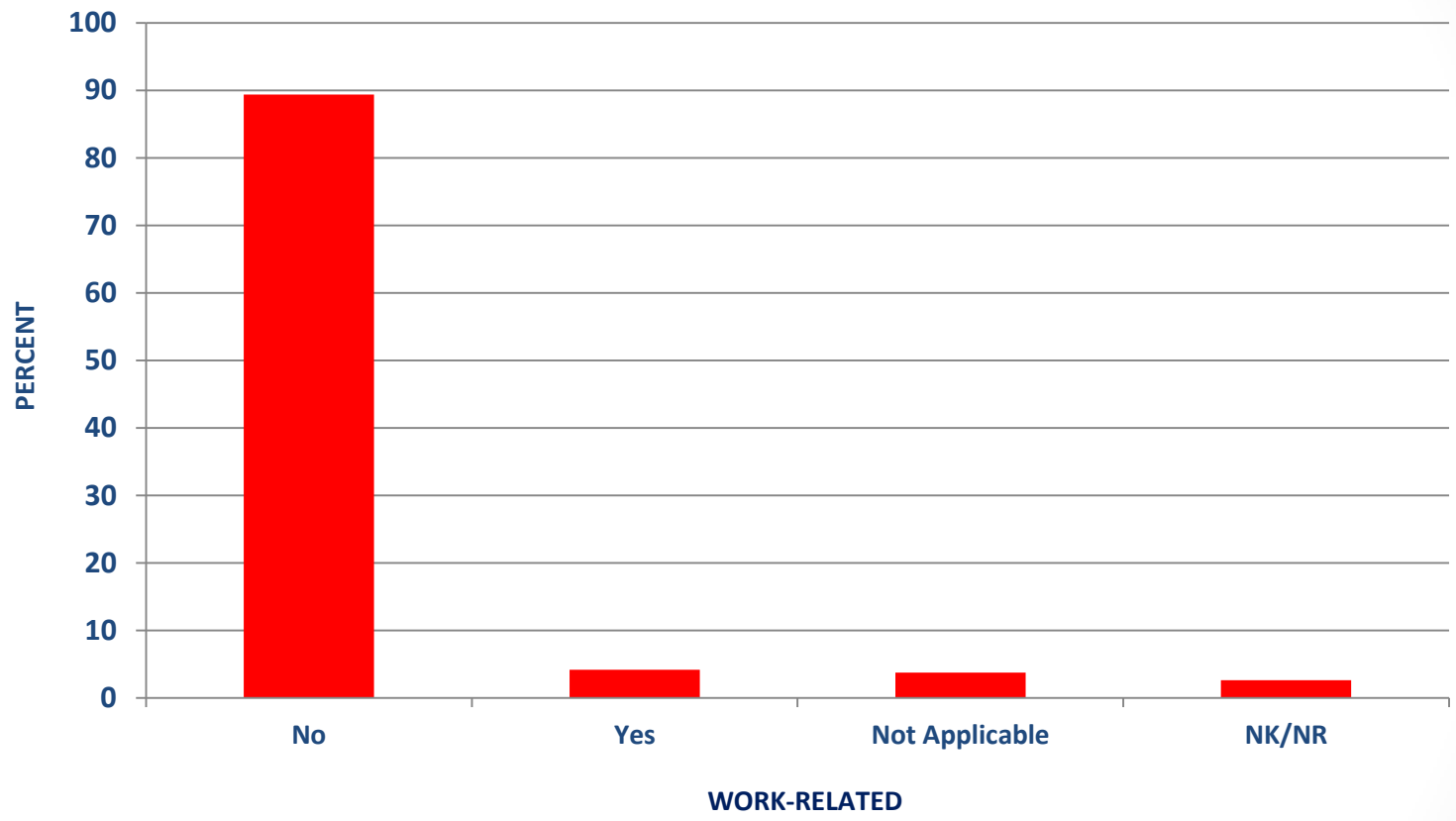
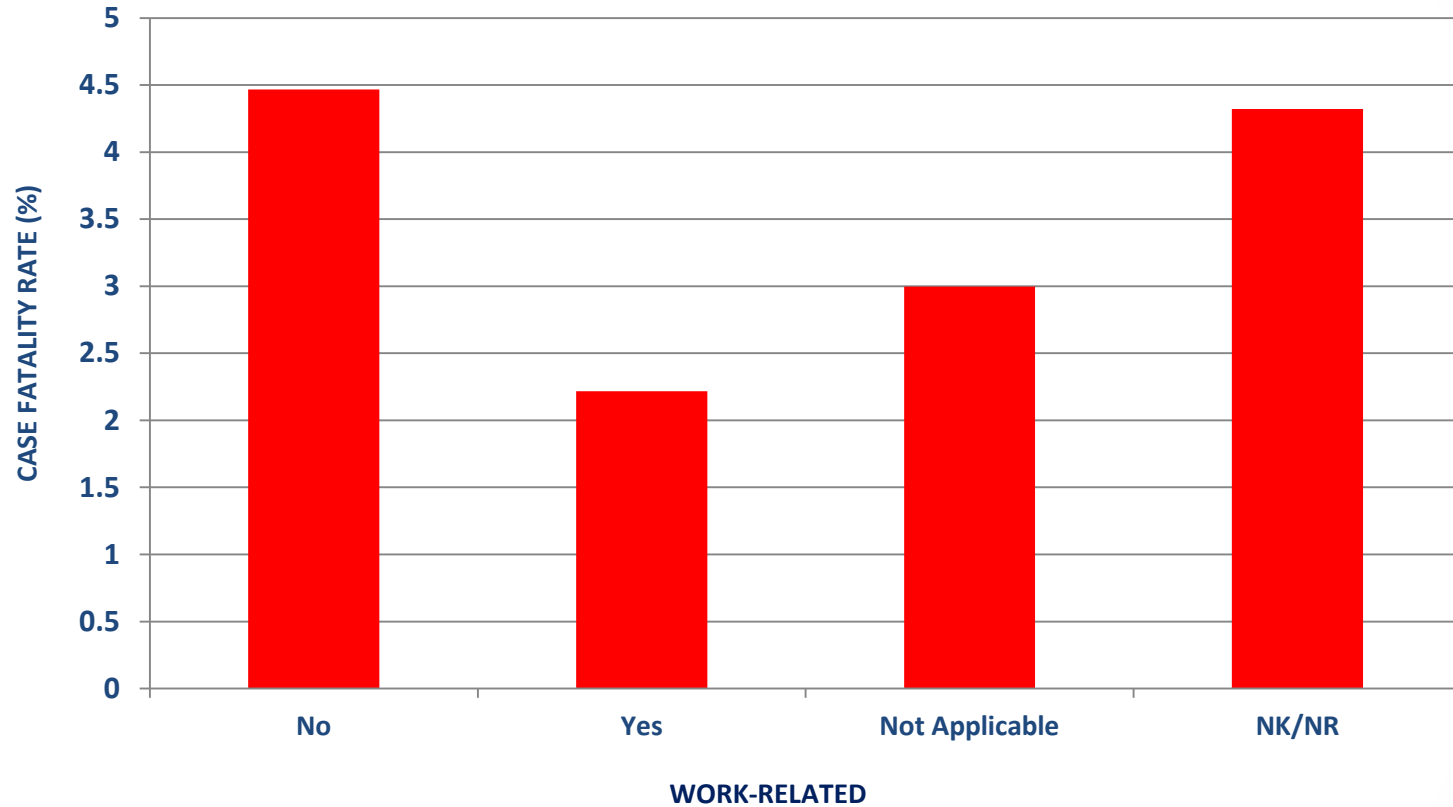


Figure
23B

Case Fatality Rate by Work-Related Injuries



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Table
24

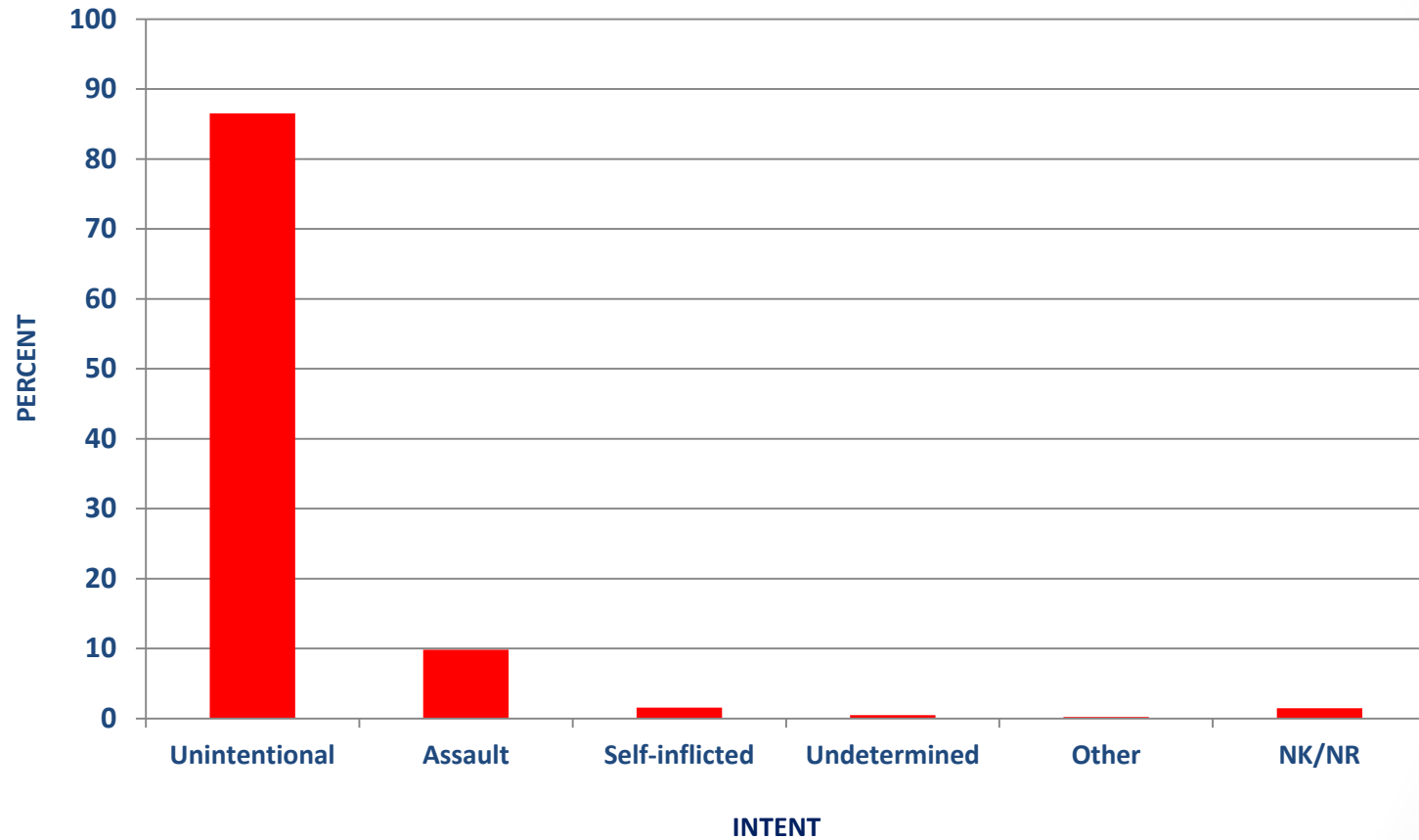
Incidents and Case Fatality Rate by Intent

INTENT	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Unintentional	744,513	86.50	29,454	3.96
Assault	84,709	9.84	4,329	5.11
Self-inflicted	13,271	1.54	2,322	17.50
Undetermined	4,094	0.48	410	10.01
Other	1,659	0.19	179	10.79
NK/NR	12,448	1.45	425	3.41
Total	860,694	100.00	37,119	4.31



Figure 24A

Incidents by Intent



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Figure 24B

Case Fatality Rate by Intent

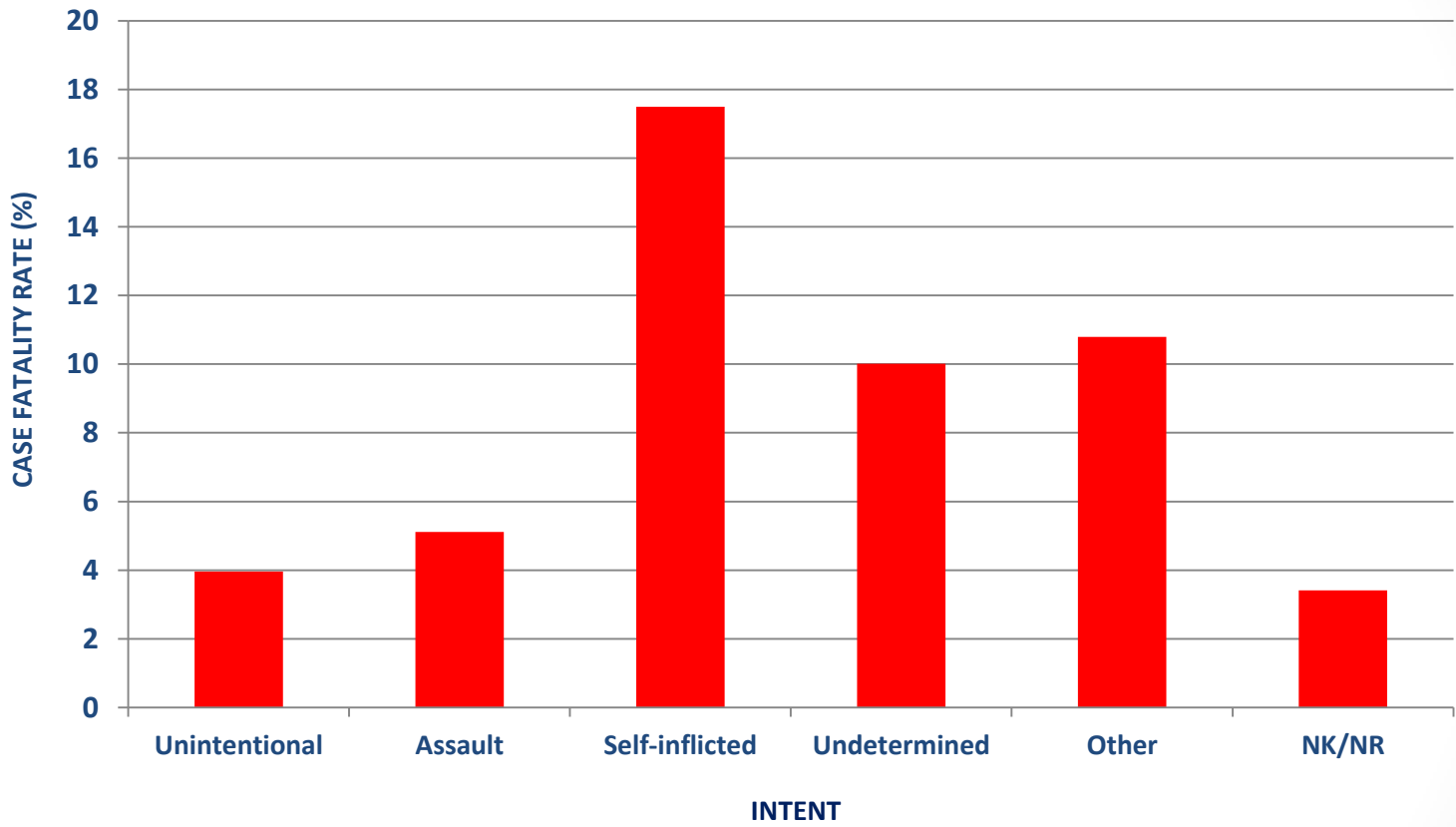


Table
25

Incidents and Case Fatality Rate by Location E-Code

LOCATION OF INJURY	NUMBER	PERCENT	DEATHS	CASE FATALITY RATE
Home	316,901	36.82	15,422	4.87
Street	278,499	32.36	12,796	4.59
Unspecified	57,957	6.73	1,761	3.04
Recreation	47,256	5.49	512	1.08
Public Building	45,131	5.24	1,552	3.44
Other	35,379	4.11	1,263	3.57
Residential Institution	32,897	3.82	2,536	7.71
Industry	20,744	2.41	432	2.08
Farm	5,358	0.62	138	2.58
Mine	329	0.04	9	2.74
Not Applicable	671	0.08	34	5.07
NK/NR	19,572	2.27	664	3.39
Total	860,694	100.00	37,119	4.31



Figure 25A

Incidents by Location E-Code

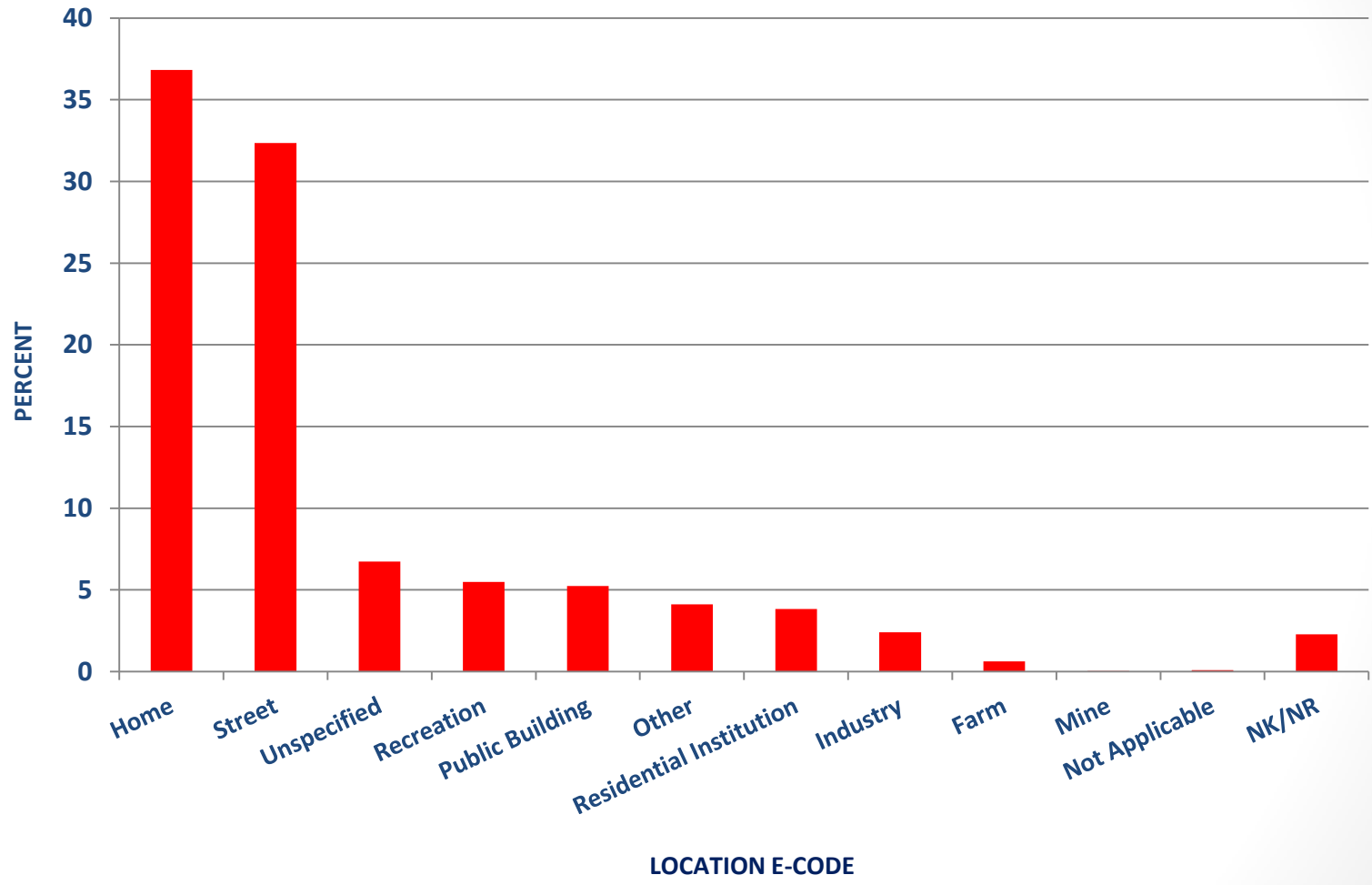


Figure 25B

Case Fatality Rate by Location E-Code

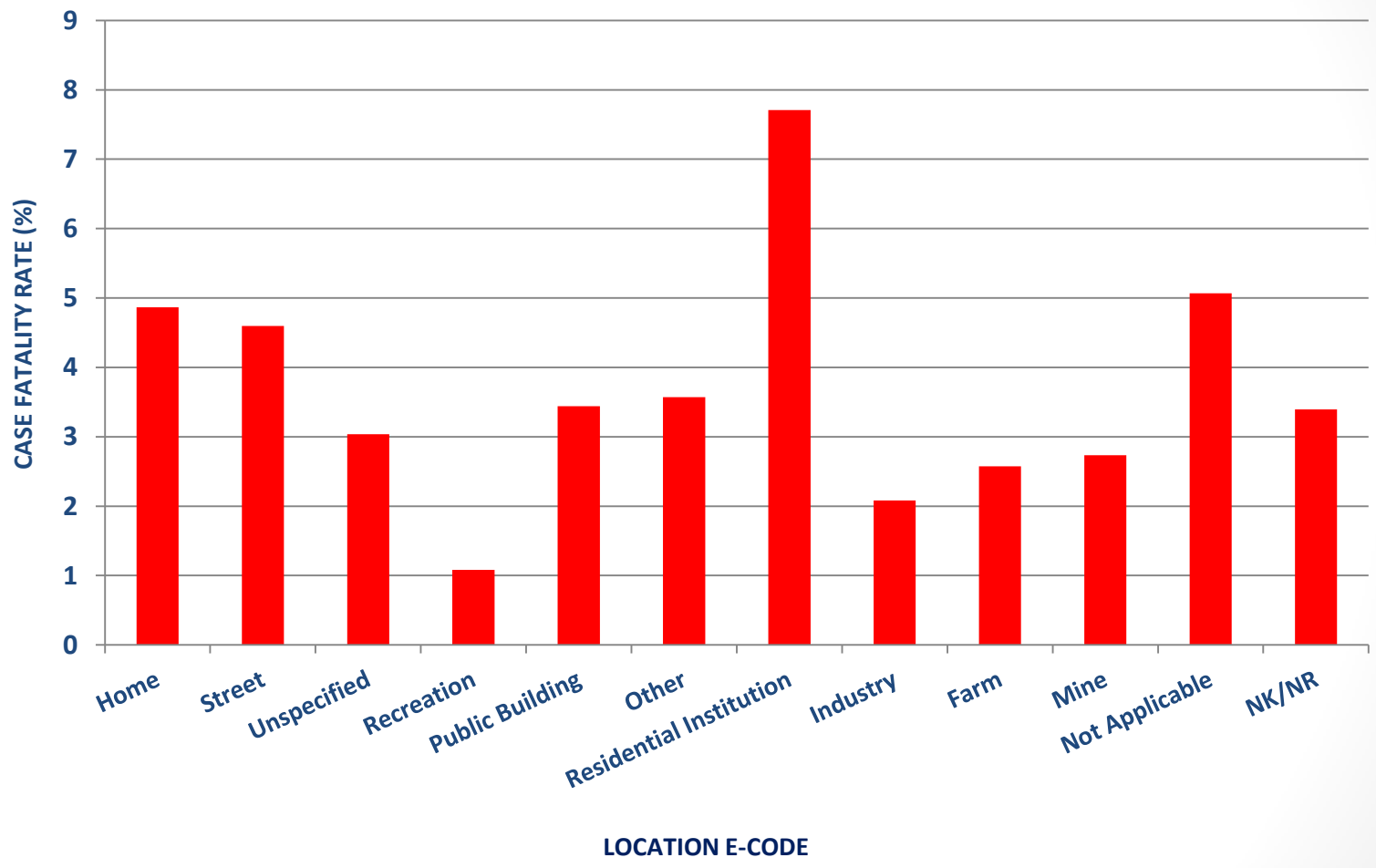


Table
26

Incidents by AIS Body Region

AIS BODY REGION	NUMBER	PERCENT
Lower Extremity	328,229	38.14
Head	307,341	35.71
Upper Extremity	259,244	30.12
Face	207,039	24.05
Thorax	183,813	21.36
Spine	144,926	16.84
Abdomen	94,988	11.04
External/Other	86,449	10.04
Neck	17,485	2.03
NK/NR	9,056	1.05

A patient can have injuries in multiple body regions.



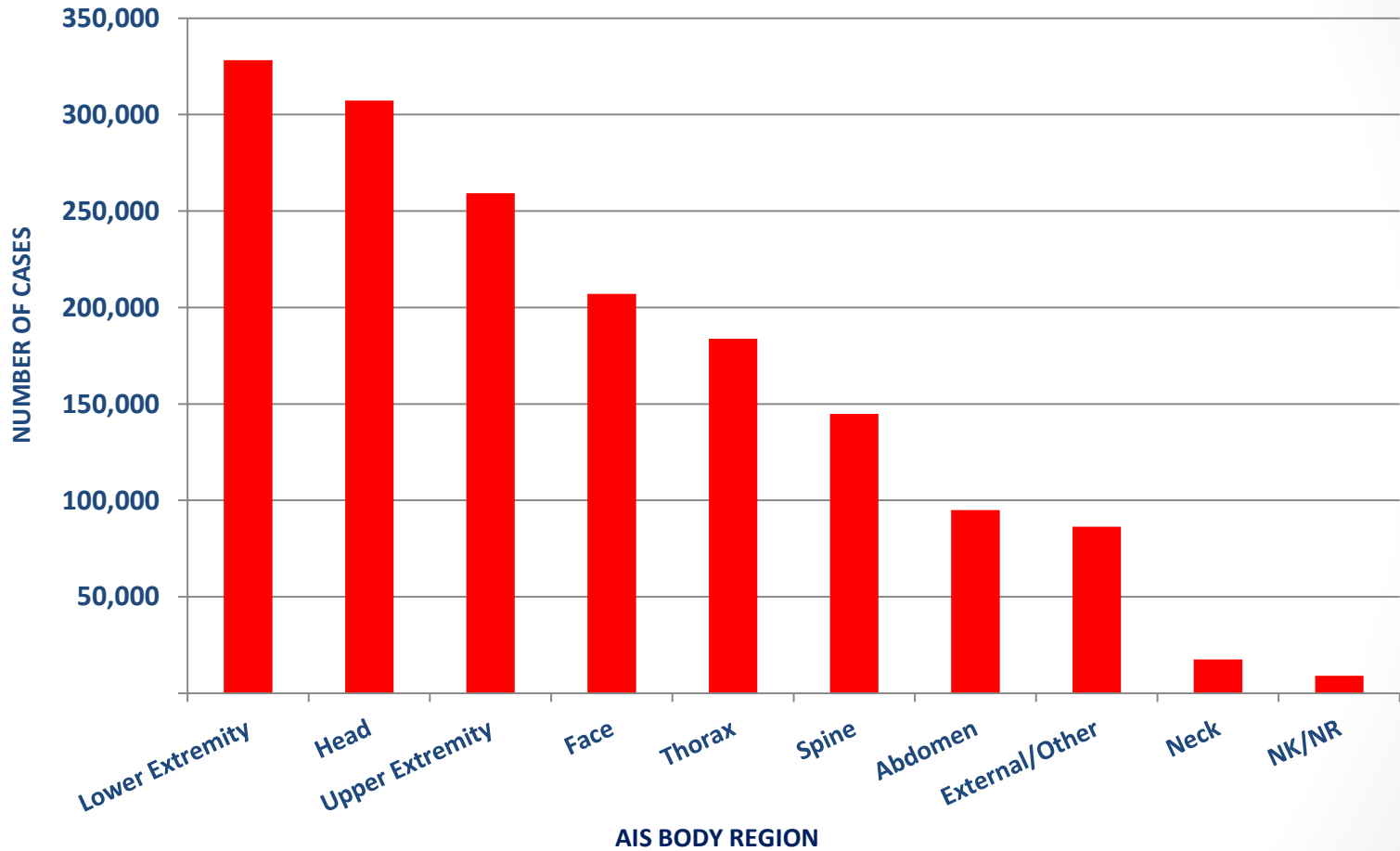
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Figure 26

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.



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Table
27

Incidents and Case Fatality Rate with AIS \geq 3 by AIS Body Region

AIS BODY REGION	NUMBER	PERCENT	CASE FATALITY RATE
Head	154,343	17.93	12.88
Lower Extremity	136,068	15.81	4.89
Thorax	122,953	14.29	9.67
Spine	39,563	4.60	8.16
Abdomen	32,306	3.75	12.72
Upper Extremity	25,123	2.92	3.81
Face	4,575	0.53	12.24
Neck	3,115	0.36	19.23
External/Other	2,956	0.34	14.92

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.



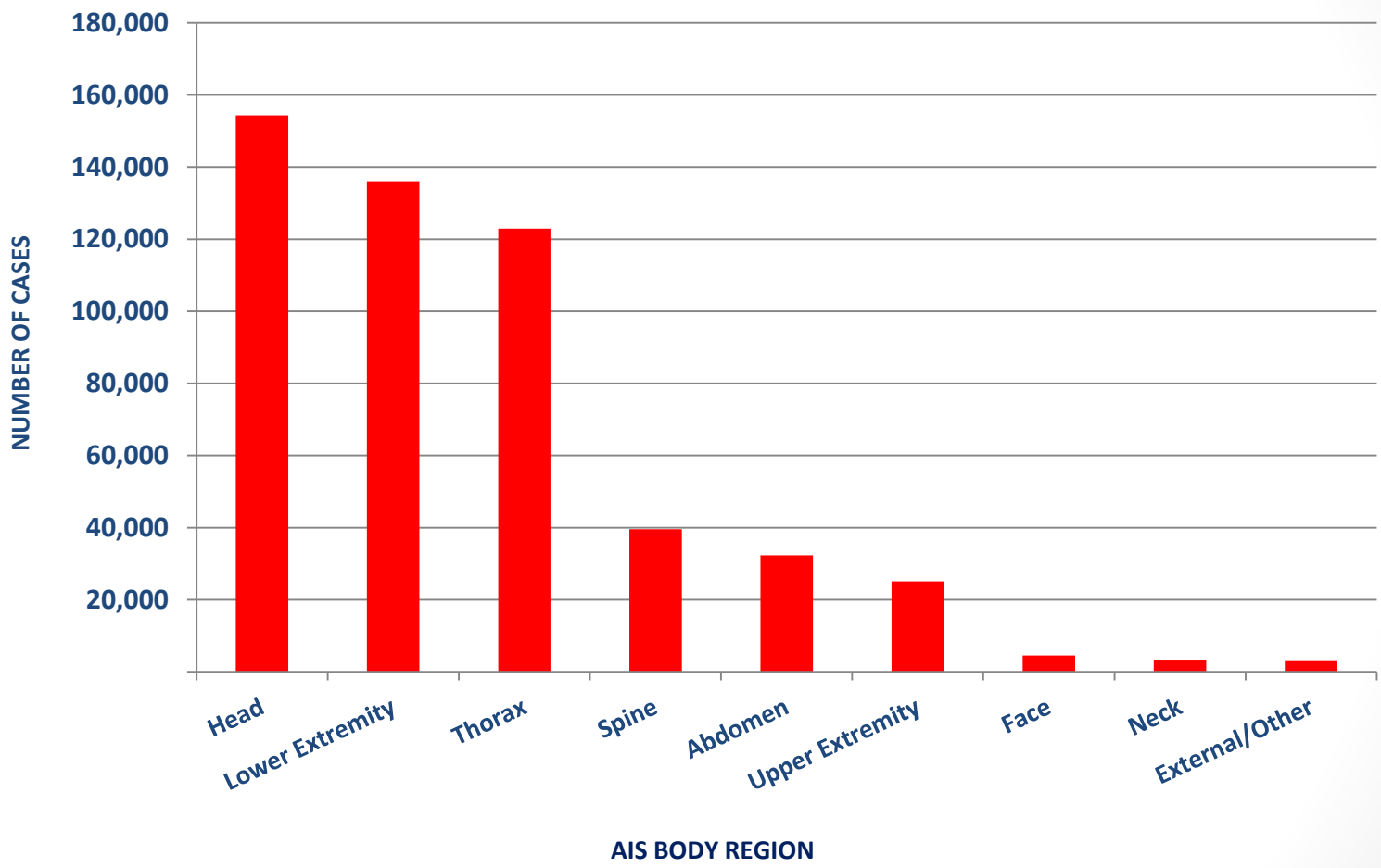
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Figure 27A

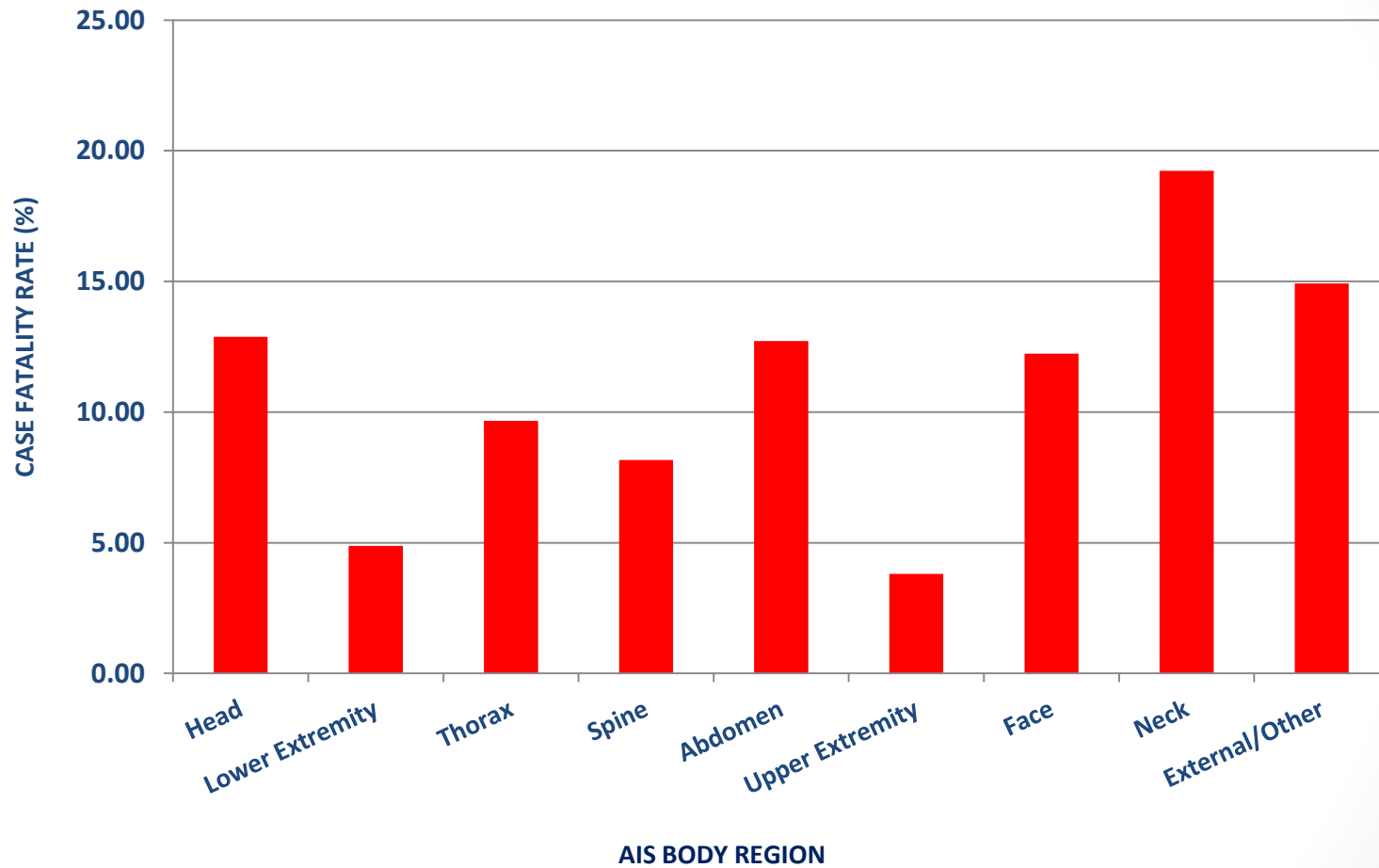
Incidents with AIS ≥ 3 by AIS Body Region



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 27B

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.



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Table
28

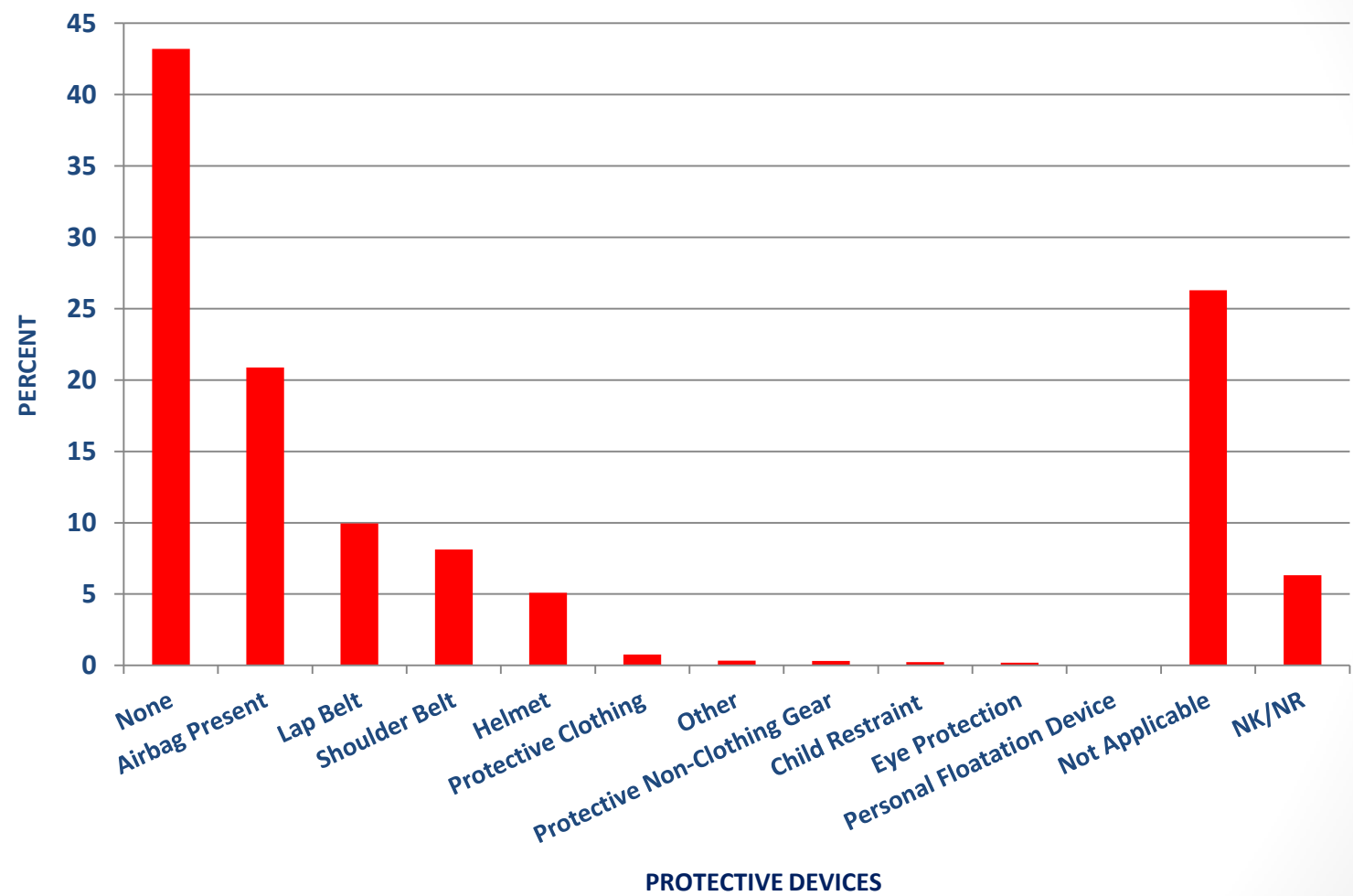
Incidents by Protective Devices

PROTECTIVE DEVICES	NUMBER	PERCENT
None	371,789	43.20
Airbag Present	179,712	20.88
Lap Belt	85,646	9.95
Shoulder Belt	69,932	8.13
Helmet (e.g. bicycle, skiing, motorcycle)	43,819	5.09
Protective Clothing (e.g., padded leather pants)	6,530	0.76
Other	2,837	0.33
Protective Non-Clothing Gear (e.g., shin guards)	2,634	0.31
Child Restraint (booster seat or child car seat)	2,047	0.24
Eye Protection	1,584	0.18
Personal Floatation Device	296	0.03
Not Applicable	226,319	26.29
NK/NR	54,428	6.32



Figure 28

Incidents by Protective Devices



OUTCOMES INFORMATION



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Table
29

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

MECHANISM	NUMBER	MEDIAN
Fall	255,565	57
Motor Vehicle Traffic	188,348	52
Struck by, against	36,317	57
Transport, other	27,495	74
Firearm	26,277	36
Cut/pierce	25,394	41
Pedal cyclist, other	10,283	53
NK/NR	8,739	67
Other specified and classifiable	8,021	73
Unspecified	5,531	49
Machinery	5,235	68
Fire/flame	5,057	77
Hot object/substance	4,175	92
Natural/environmental, Bites and stings	2,759	72
Other specified, not elsewhere classifiable	2,446	54
Pedestrian, other	2,105	49
Natural/environmental, Other	1,642	82
Overexertion	1,376	63
Suffocation	709	50
Poisoning	365	64
Drowning/submersion	325	63
Adverse effects, medical care	127	51
Adverse effects, drugs	114	48



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Figure 29

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

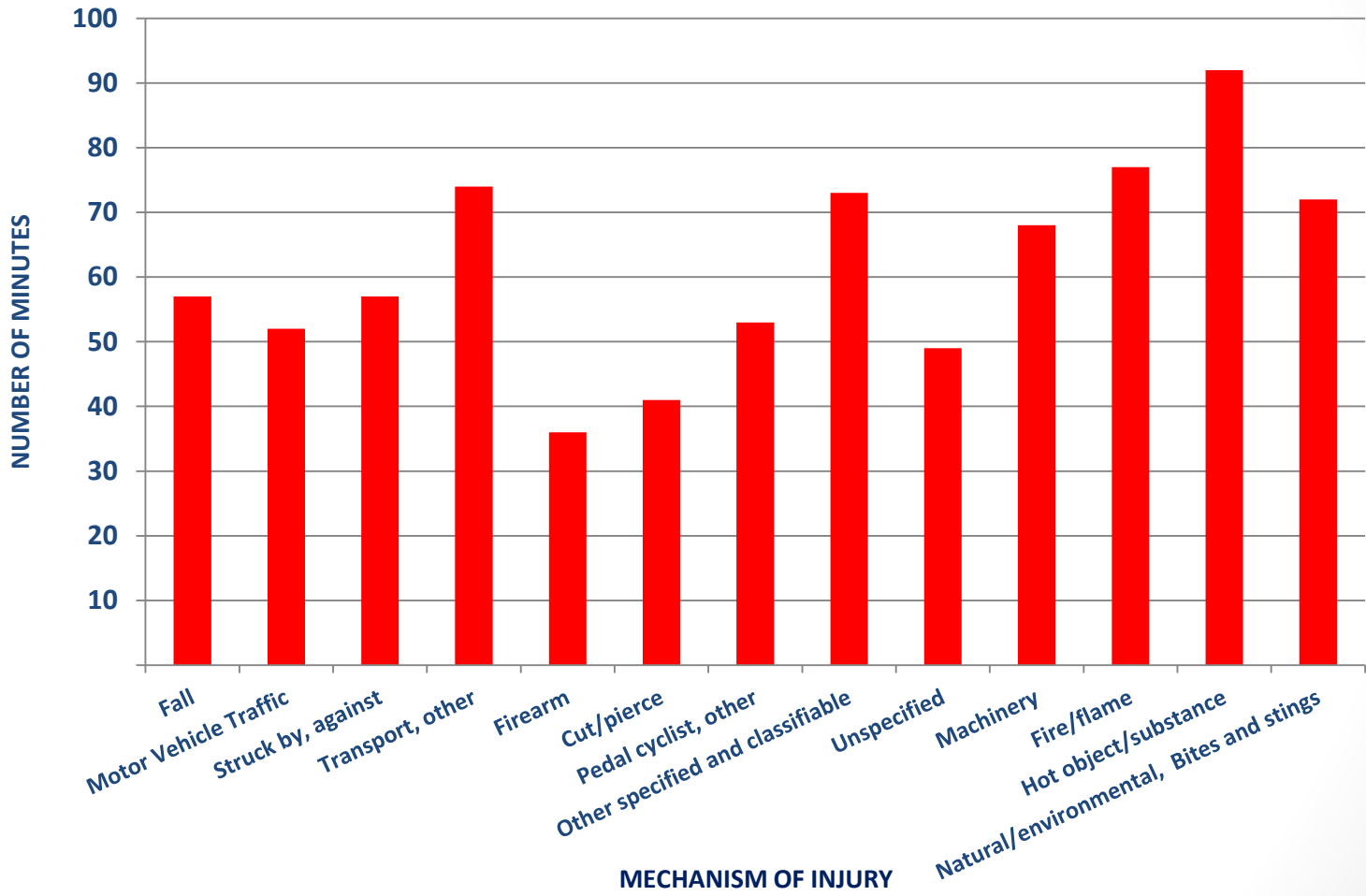


Table
30

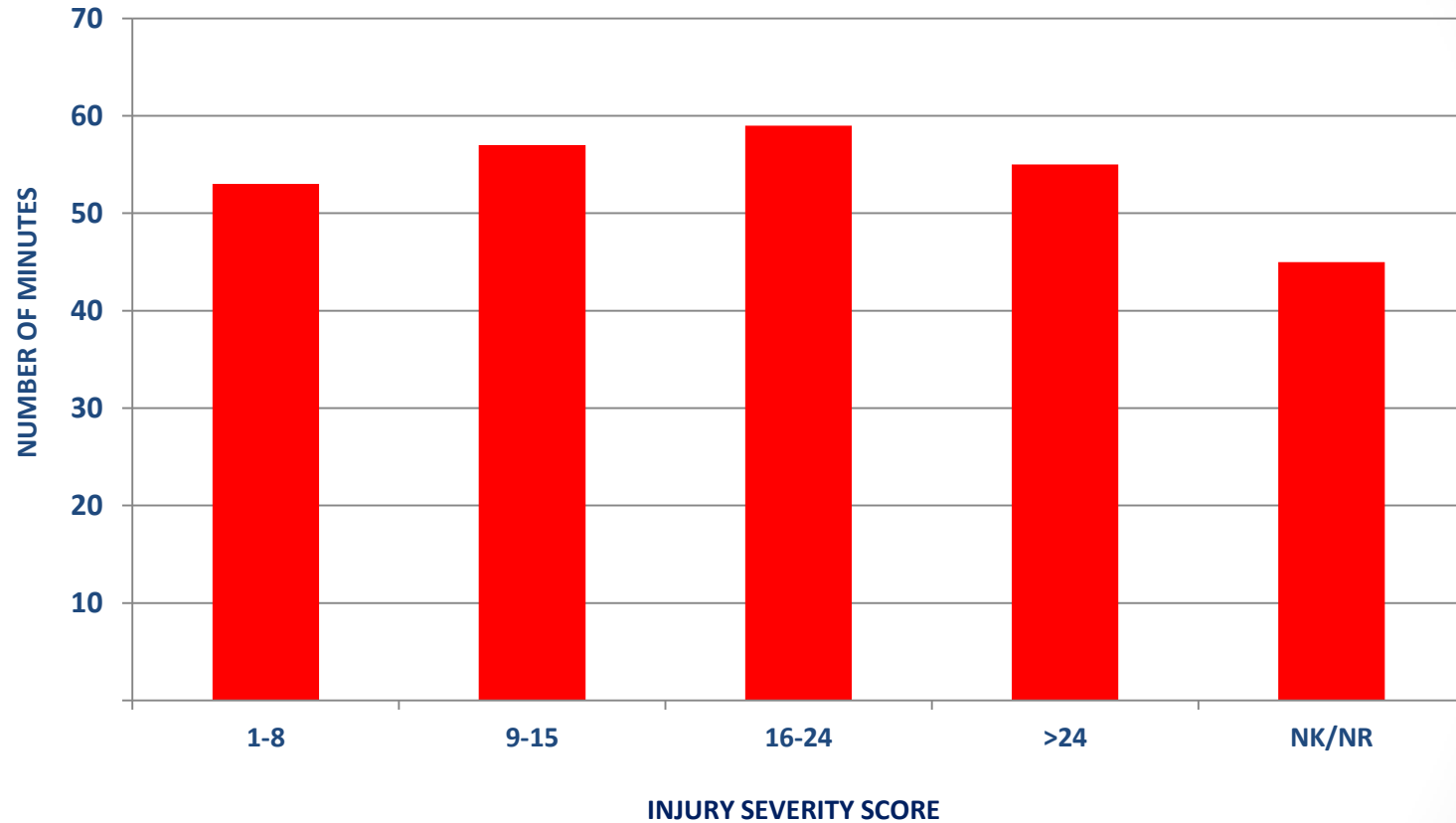
Median Total Prehospital Time (in Minutes) by Injury Severity Score (ISS)

ISS	NUMBER	MEDIAN
1-8	257,670	53
9-15	207,144	57
16-24	93,461	59
>24	56,347	55
NK/NR	3,783	45



Figure 30

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



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Injury Severity Score tables are generated using AIS98 Crosswalked ISS.
Injury Severity Score definitions can be found in Appendix B.

Table
31

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

MECHANISM	NUMBER	MEDIAN
Fall	372,208	4
Motor Vehicle Traffic	223,124	3
Struck by, against	57,496	2
Transport, other	38,580	3
Cut/pierce	36,650	2
Firearm	34,341	3
Pedal cyclist, other	15,347	3
Other specified and classifiable	13,813	3
NK/NR	12,404	3
Hot object/substance	9,196	2
Fire/flame	8,535	2
Unspecified	8,462	3
Machinery	8,337	2
Natural/environmental, Bites and stings	5,691	2
Other specified, not elsewhere classifiable	4,058	3
Overexertion	2,817	3
Pedestrian, other	2,614	4
Natural/environmental, Other	2,552	3
Suffocation	892	3
Poisoning	514	2
Drowning/submersion	424	3
Adverse effects, medical care	271	6
Adverse effects, drugs	173	6



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Figure 31

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

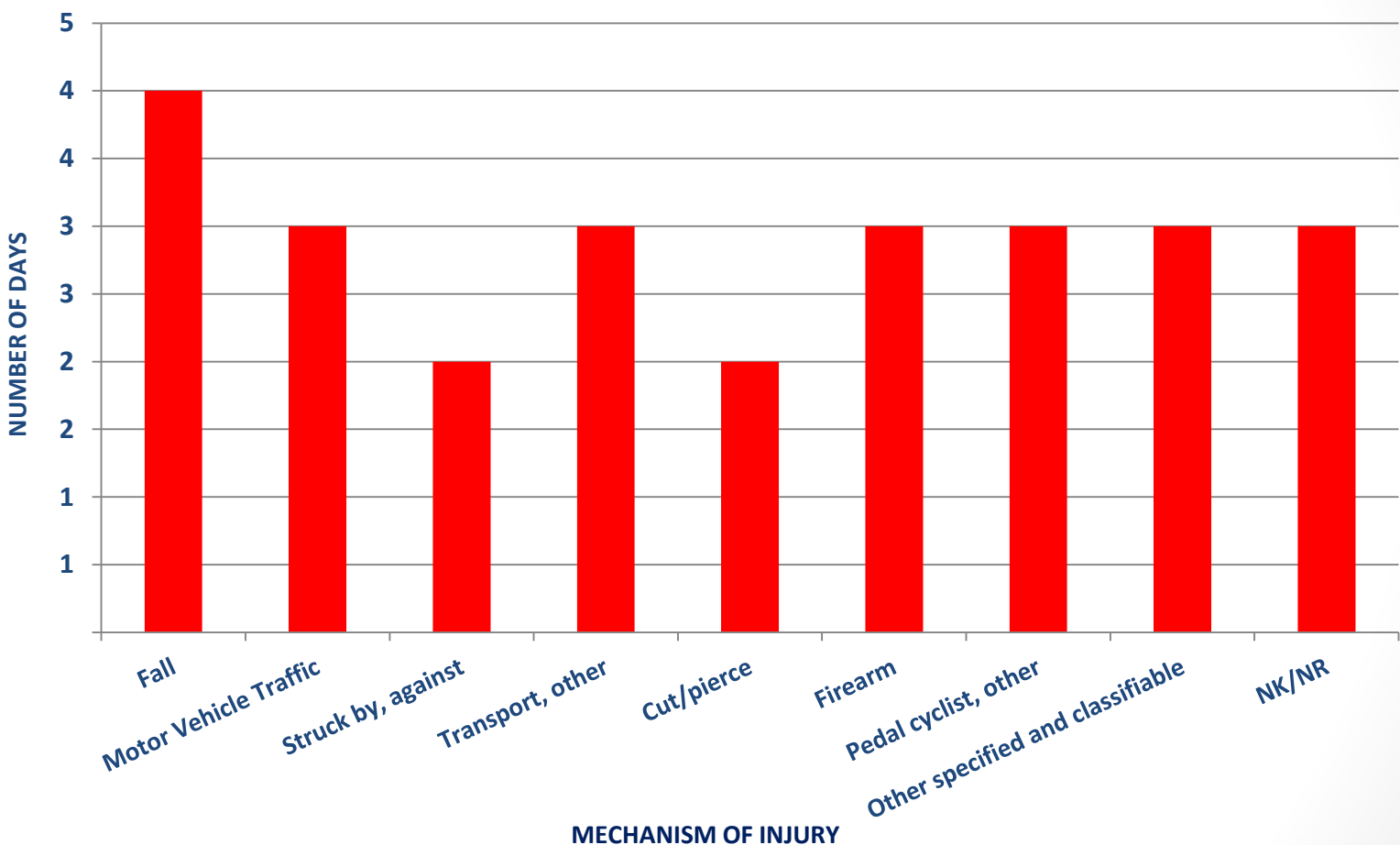


Table
32

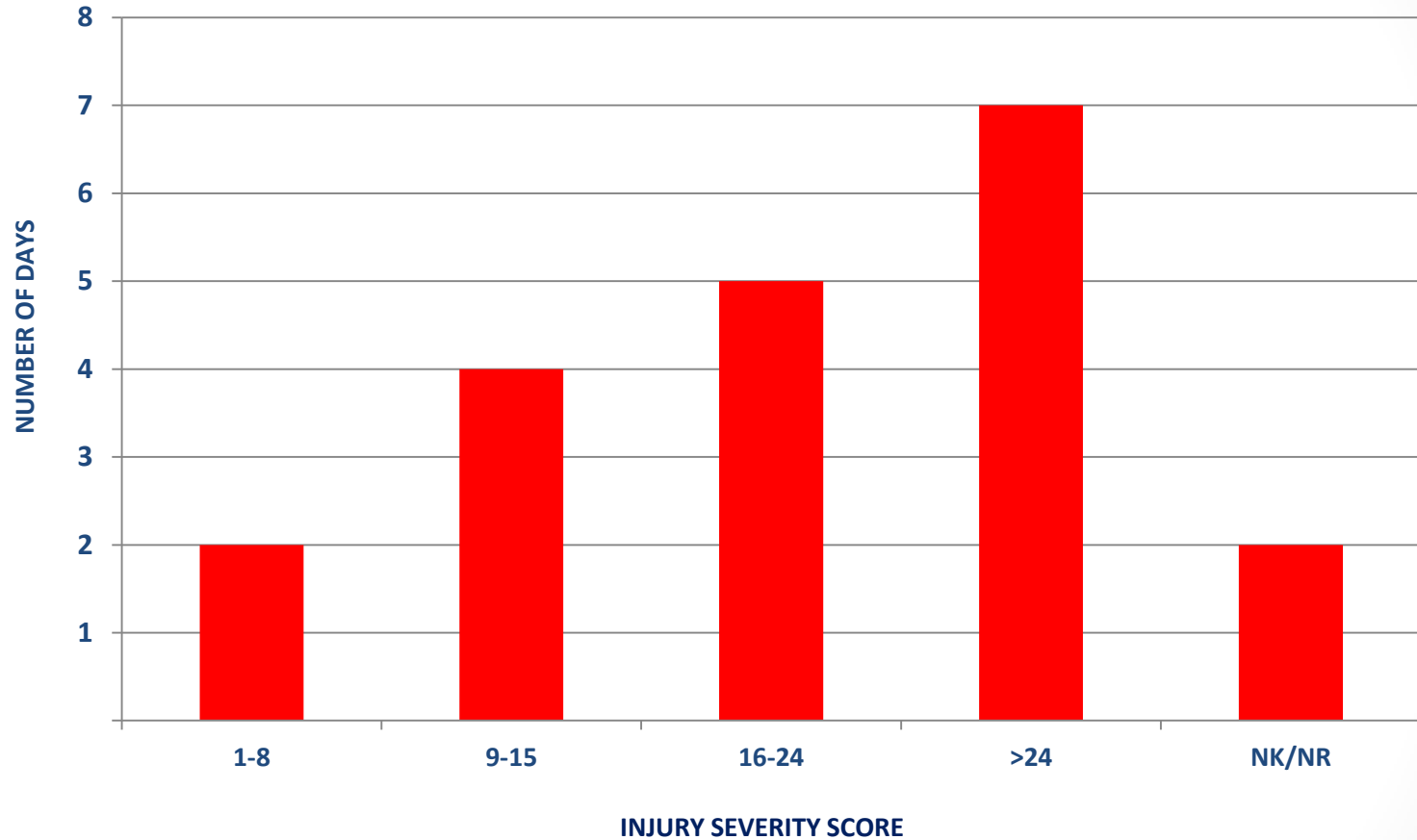
Median Length of Stay (in Days) by Injury Severity Score (ISS)

ISS	NUMBER	MEDIAN
1-8	395,759	2
9-15	272,179	4
16-24	118,509	5
>24	66,079	7
NK/NR	5,973	2



Figure 32

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



Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.



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Table
33

Median Ventilator Days by Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Motor Vehicle Traffic	24,465	5
Fall	17,305	4
Firearm	5,064	4
Transport, other	2,638	5
Struck by, against	2,509	4
Cut/pierce	1,824	2
Fire/flame	1,107	5
Other specified and classifiable	1,103	5
Unspecified	1,088	4
NK/NR	884	4
Pedal cyclist, other	541	4
Suffocation	334	3
Pedestrian, other	310	5
Machinery	285	4
Other specified, not elsewhere classifiable	258	4
Natural/environmental, Other	138	4
Hot object/substance	132	4
Drowning/submersion	96	4
Natural/environmental, Bites and stings	78	3
Poisoning	45	5
Adverse effects, medical care	34	4
Overexertion	11	3
Adverse effects, drugs	8	6

In patients with ventilator days > 0.



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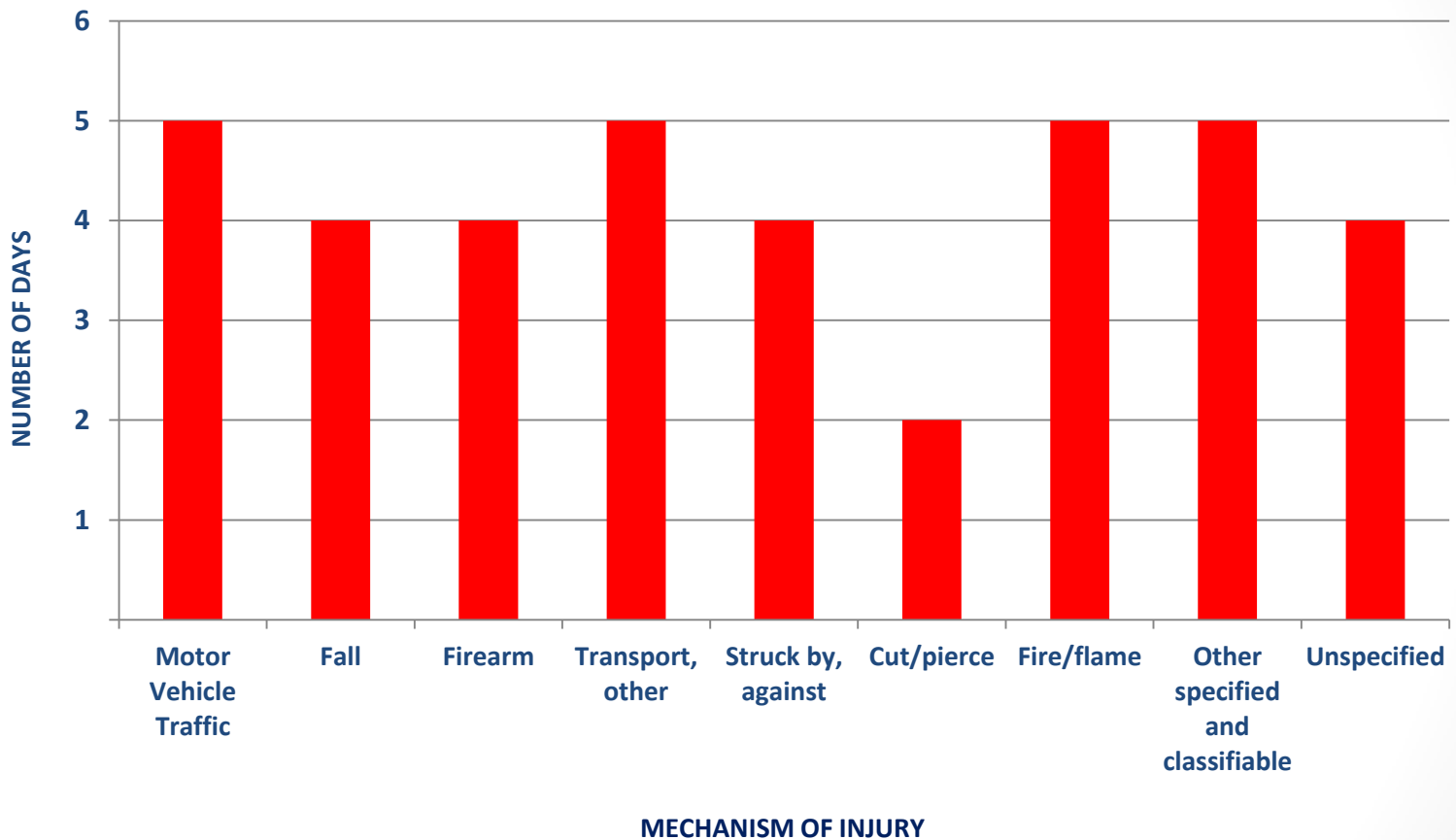
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Figure 33

Median Ventilator Days by Selected Mechanism of Injury



In patients with ventilator days > 0.

Table
34

Median Ventilator Days by Injury Severity Score (ISS)

ISS	NUMBER	MEDIAN
1-8	6,288	3
9-15	10,946	3
16-24	15,915	4
>24	26,840	6
NK/NR	268	4

Injury Severity Score tables are generated using AIS98 Crosswalked ISS.
Injury Severity Score definitions can be found in Appendix B.

In patients with ventilator days > 0.



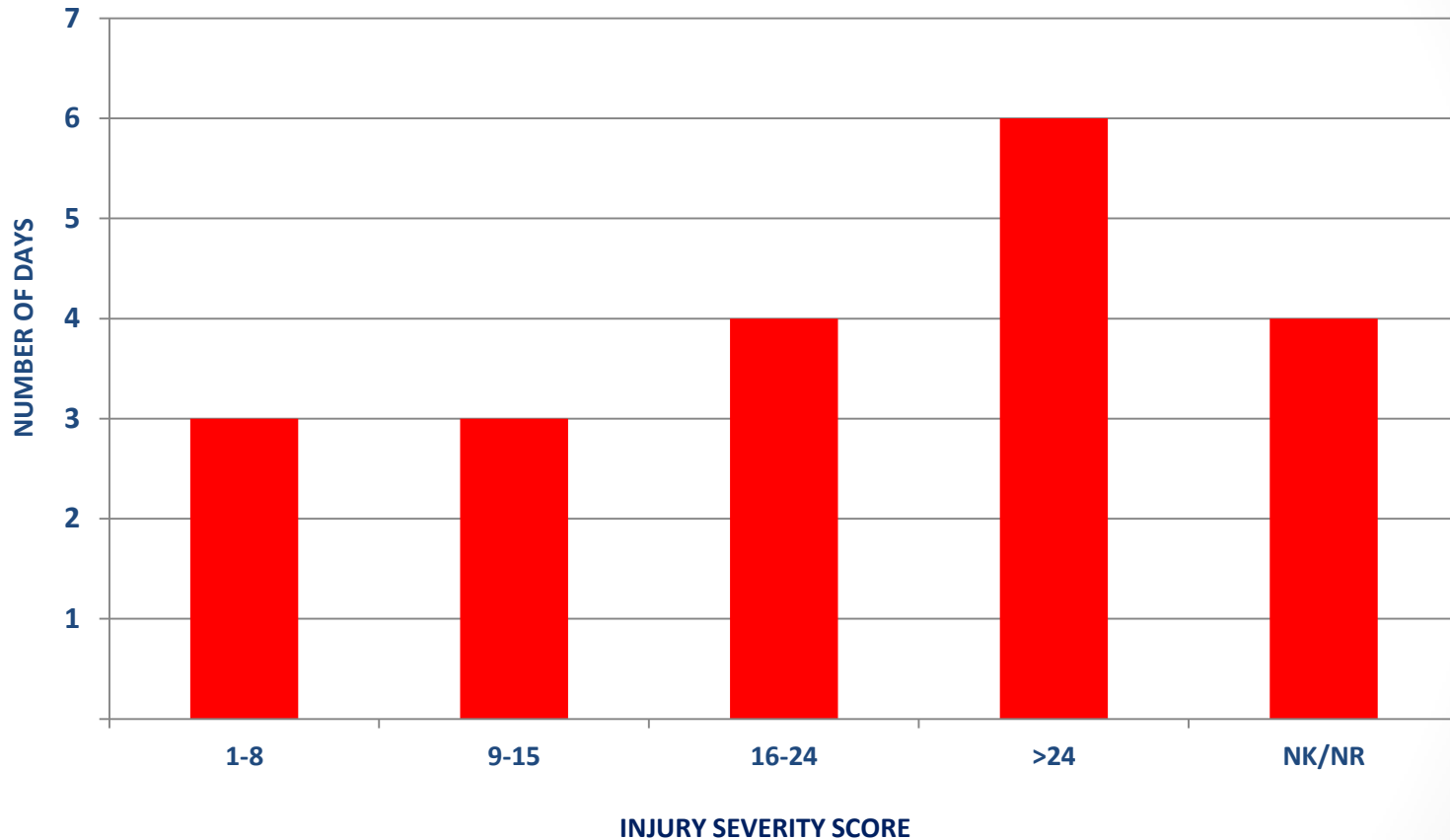
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Figure 34

Median Ventilator Days by Injury Severity Score (ISS)



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Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B. In patients with ventilator days > 0.

Table
35

Median ICU Days by Mechanism of Injury

MECHANISM	NUMBER	MEDIAN
Fall	70,310	3
Motor Vehicle Traffic	59,125	4
Firearm	9,335	4
Struck by, against	8,943	3
Transport, other	8,110	3
Cut/pierce	4,973	3
Other specified and classifiable	2,671	4
Pedal cyclist, other	2,454	3
Unspecified	2,289	4
Fire/flame	2,198	6
NK/NR	2,136	4
Hot object/substance	1,053	4
Machinery	922	4
Pedestrian, other	719	4
Other specified, not elsewhere classifiable	659	3
Natural/environmental, Other	519	3
Suffocation	409	4
Natural/environmental, Bites and stings	400	3
Drowning/submersion	159	4
Overexertion	119	3
Poisoning	102	3
Adverse effects, medical care	86	5
Adverse effects, drugs	38	5

In patients with ICU days > 0.



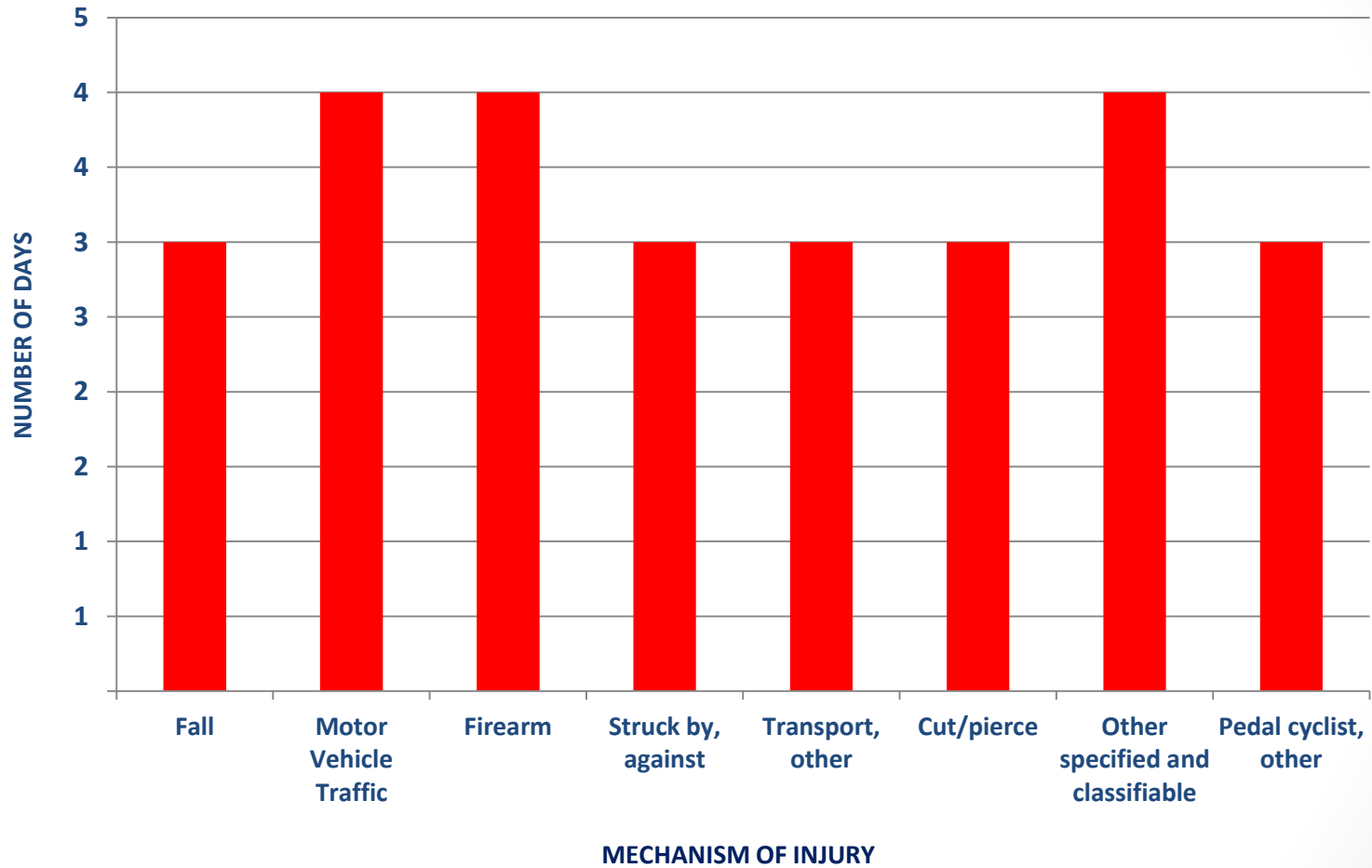
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Figure 35

Median ICU Days by Selected Mechanism of Injury



In patients with ICU days > 0.



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Table
36

Median ICU Days by Injury Severity Score (ISS)

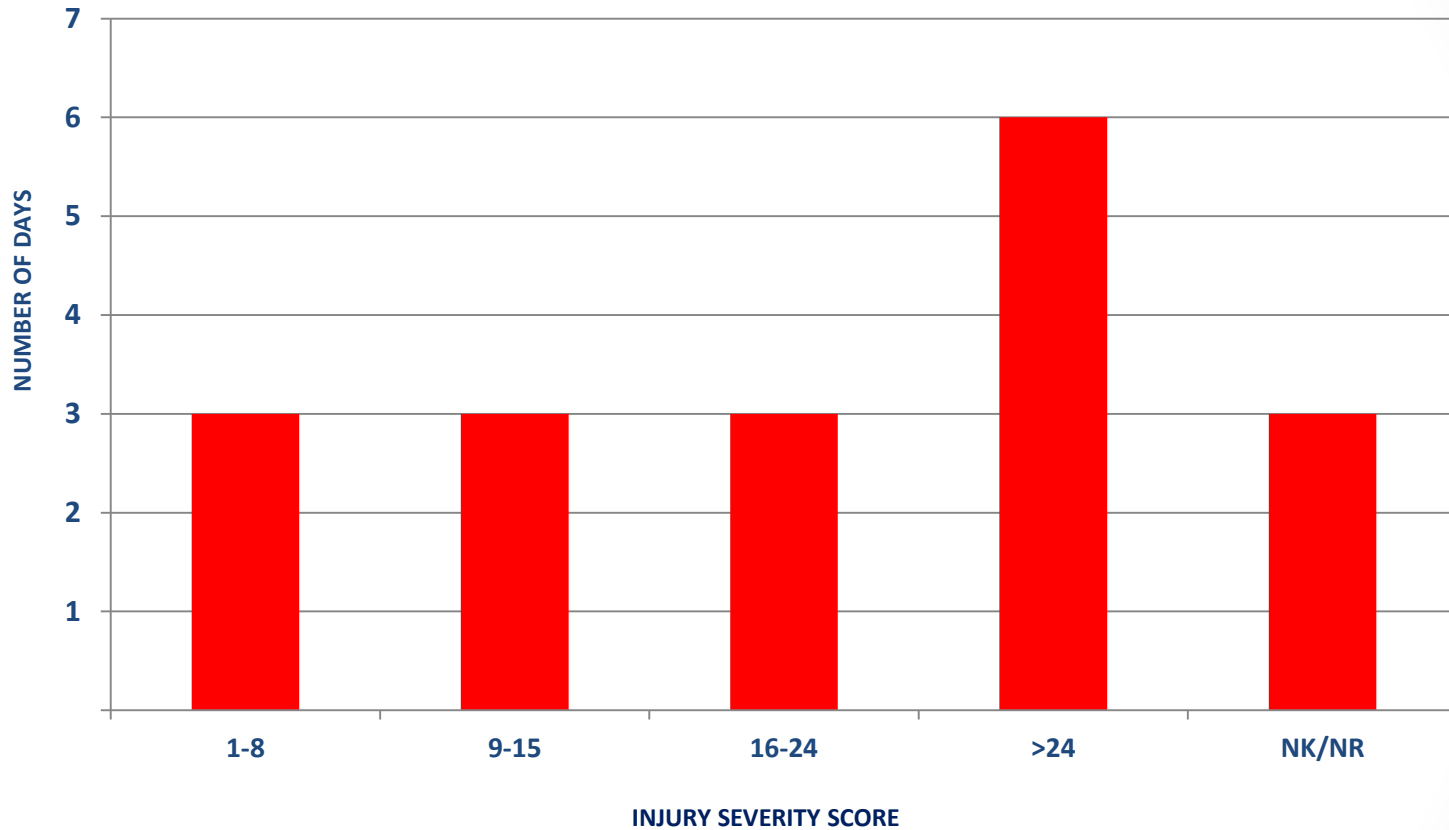
ISS	NUMBER	MEDIAN
1-8	26,601	3
9-15	49,080	3
16-24	56,507	3
>24	44,897	6
NK/NR	644	3

Injury Severity Score tables are generated using AIS98 Crosswalked ISS.
 Injury Severity Score definitions can be found in Appendix B.
 In patients with ICU days > 0.



Figure 36

Median ICU Days by Injury Severity Score (ISS)



Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B. In patients with ICU days > 0.



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Table
37

Incidents by ED Discharge Disposition

ED DISCHARGE DISPOSITION	NUMBER	PERCENT
Floor bed (general admission, non-specialty unit bed)	370,985	43.10
Intensive Care Unit (ICU)	161,204	18.73
Operating Room	92,881	10.79
Home without services	72,902	8.47
Telemetry/step-down unit (less acuity than ICU)	58,176	6.76
Transferred to another hospital	33,738	3.92
Observation unit (unit that provides < 24 hour stays)	24,644	2.86
Died/Expired	9,461	1.10
Other (jail, institutional care facility, mental health, etc.)	2,893	0.34
Left against medical advice	1,508	0.18
Home with services	520	0.06
Not Applicable	21,606	2.51
NK/NR	10,176	1.18
Total	860,694	100



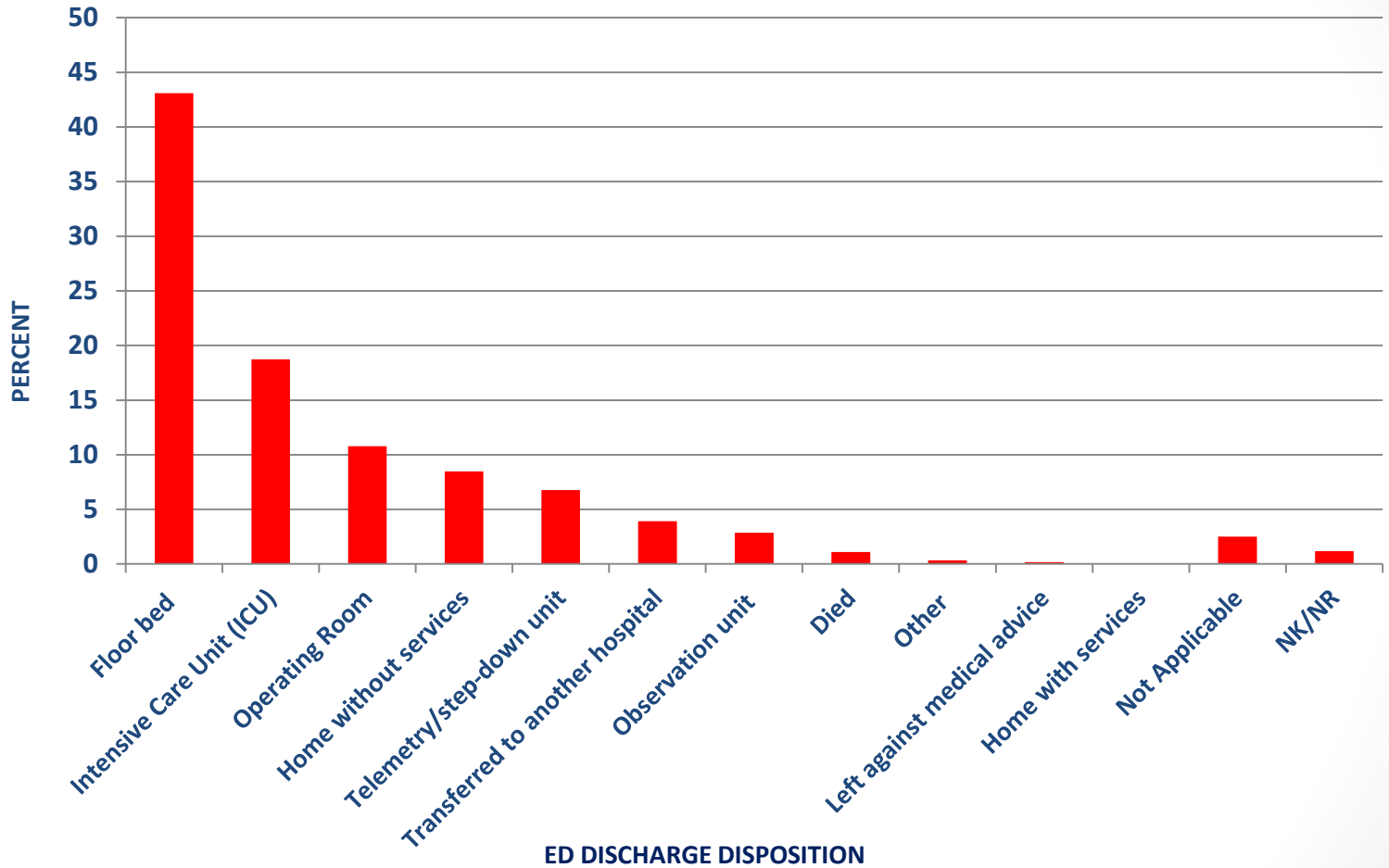
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Figure 37

Incidents by ED Discharge Disposition



Signs of Life

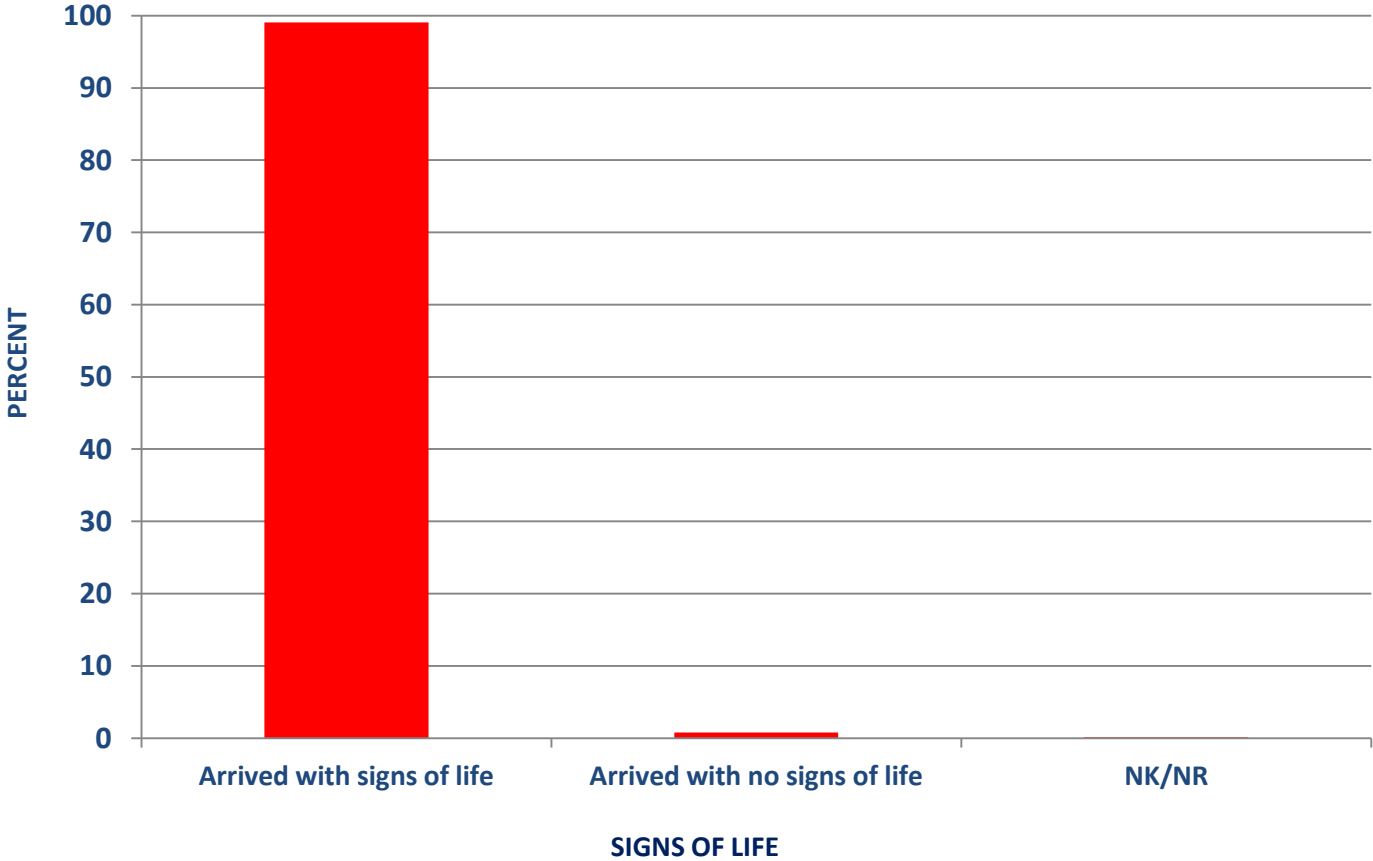
SIGNS OF LIFE	NUMBER	PERCENT
Arrived with signs of life	852,661	99.07
Arrived with no signs of life	6,880	0.80
NK/NR	1,153	0.13
Total	860,694	100

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



Figure 38

Signs of Life



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

Table
39

Incidents by Hospital Discharge Disposition

HOSPITAL DISCHARGE DISPOSITION	NUMBER	PERCENT
Discharged to home or self-care (routine discharge)	453,555	52.70
Discharged/transferred to skilled nursing facility	103,425	12.02
Discharged/transferred to inpatient rehab or designated unit	65,526	7.61
Discharge/transferred to home under care of organized home health service	45,324	5.27
Deceased/expired	22,907	2.66
Discharged/transferred to a short-term general hospital for inpatient care	11,352	1.32
Discharged/transferred to another type of institution not defined elsewhere	10,773	1.25
Left against medical advice or discontinued care	6,584	0.76
Discharged/transferred to hospice care	4,751	0.55
Discharged/transferred to a psychiatric hospital or psychiatric distinct part unit of a hospital	4,637	0.54
Discharged/transferred to long term care hospital	3,749	0.44
Discharged/transferred to court/law enforcement	3,674	0.43
Discharged/transferred to an intermediate care facility (ICF)	3,307	0.38
Not Applicable	121,022	14.06
NK/NR	108	0.01
Total	860,694	100



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Figure 39

Incidents by Hospital Discharge Disposition

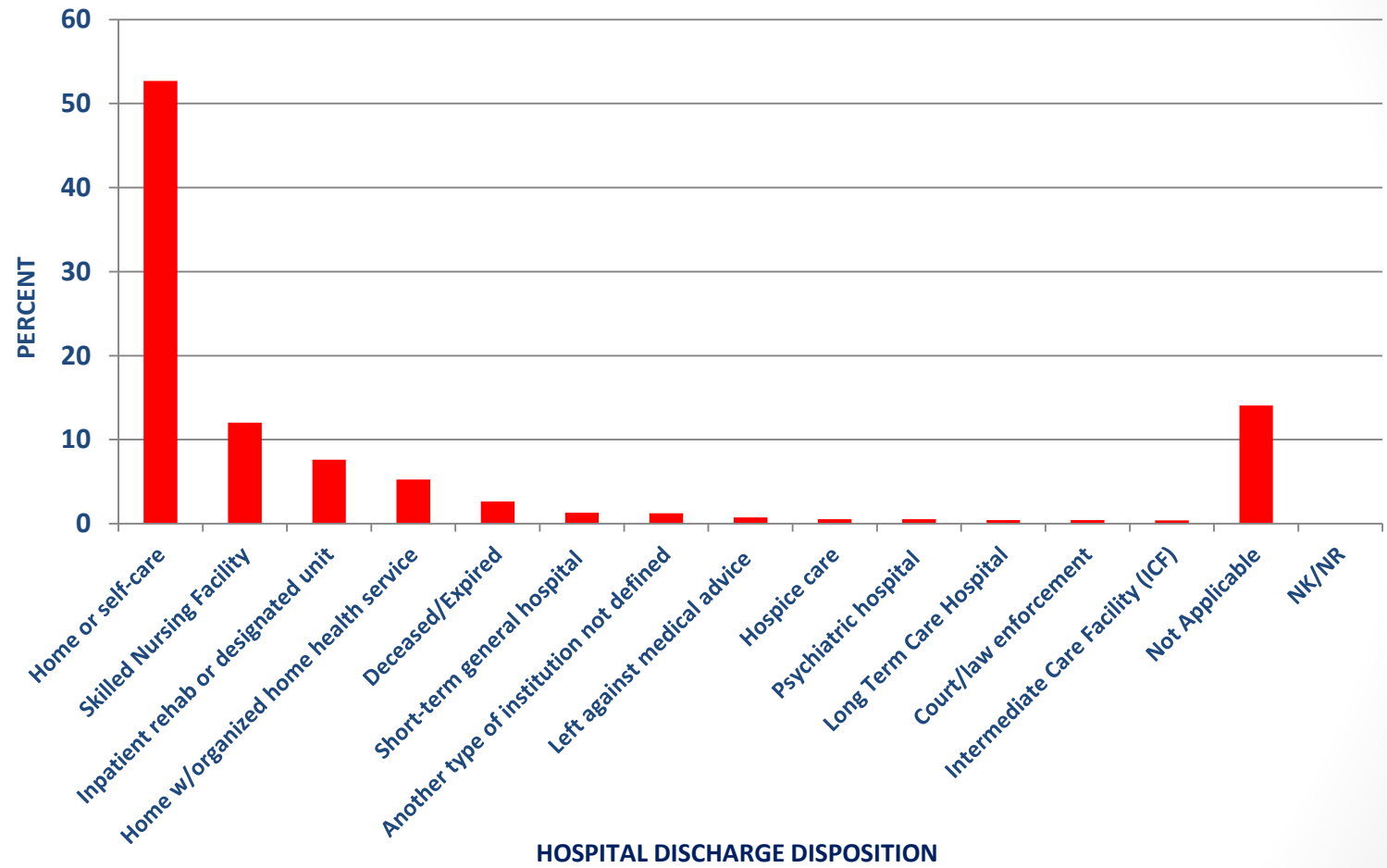


Table
40

Hospital Complications

COMPLICATIONS	NUMBER	PERCENT
Pneumonia	14,826	1.72
Urinary tract infection	10,989	1.28
Drug or alcohol withdrawal syndrome	5,696	0.66
Deep vein thrombosis (DVT) / thrombophlebitis	5,542	0.64
Unplanned intubation	5,354	0.62
Cardiac arrest with resuscitative efforts by healthcare provider	5,154	0.60
Unplanned return to the ICU	4,417	0.51
Acute kidney injury	4,256	0.49
Acute lung injury/Acute respiratory distress syndrome (ARDS)	4,161	0.48
Decubitus ulcer	3,093	0.36
Severe sepsis	2,808	0.33
Unplanned return to the OR	2,491	0.29
Pulmonary embolism	2,355	0.27
Stroke / CVA	1,779	0.21
Myocardial infarction	1,668	0.19
Superficial surgical site infection	1,144	0.13
Extremity compartment syndrome	1,141	0.13
Organ/space surgical site infection	1,042	0.12
Deep surgical site infection	902	0.10
Catheter-related blood stream infection	544	0.06
Graft/prosthesis/flap failure	222	0.03
Osteomyelitis	198	0.02



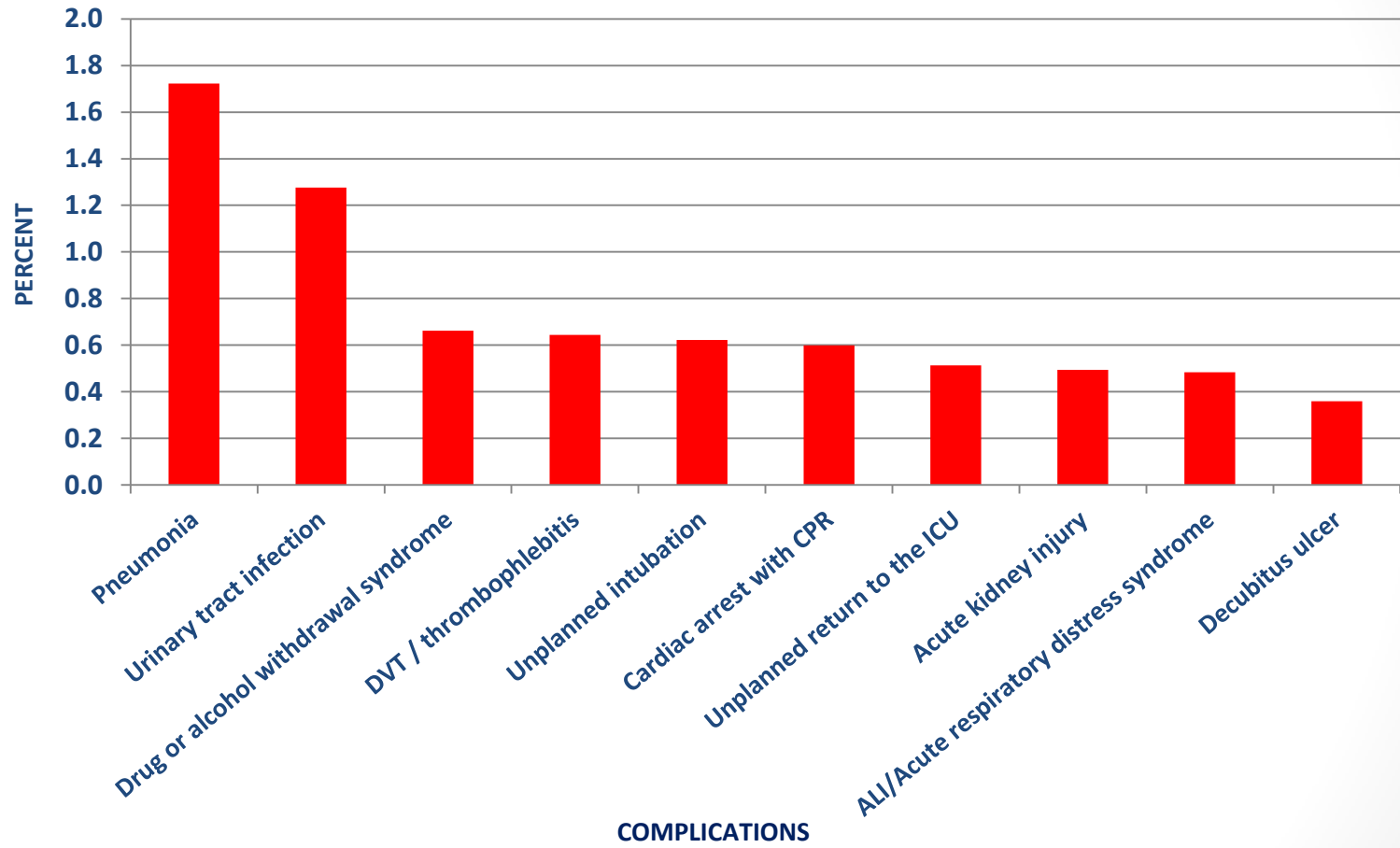
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Figure 40

Top 10 Complications



REGIONAL ANALYSIS



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Table
41

Incidents by Region

REGION	NUMBER	PERCENT
South	332,600	38.64
Midwest	209,839	24.38
West	168,441	19.57
Northeast	145,979	16.96
Non-U.S.	3,835	0.45
Total	860,694	100



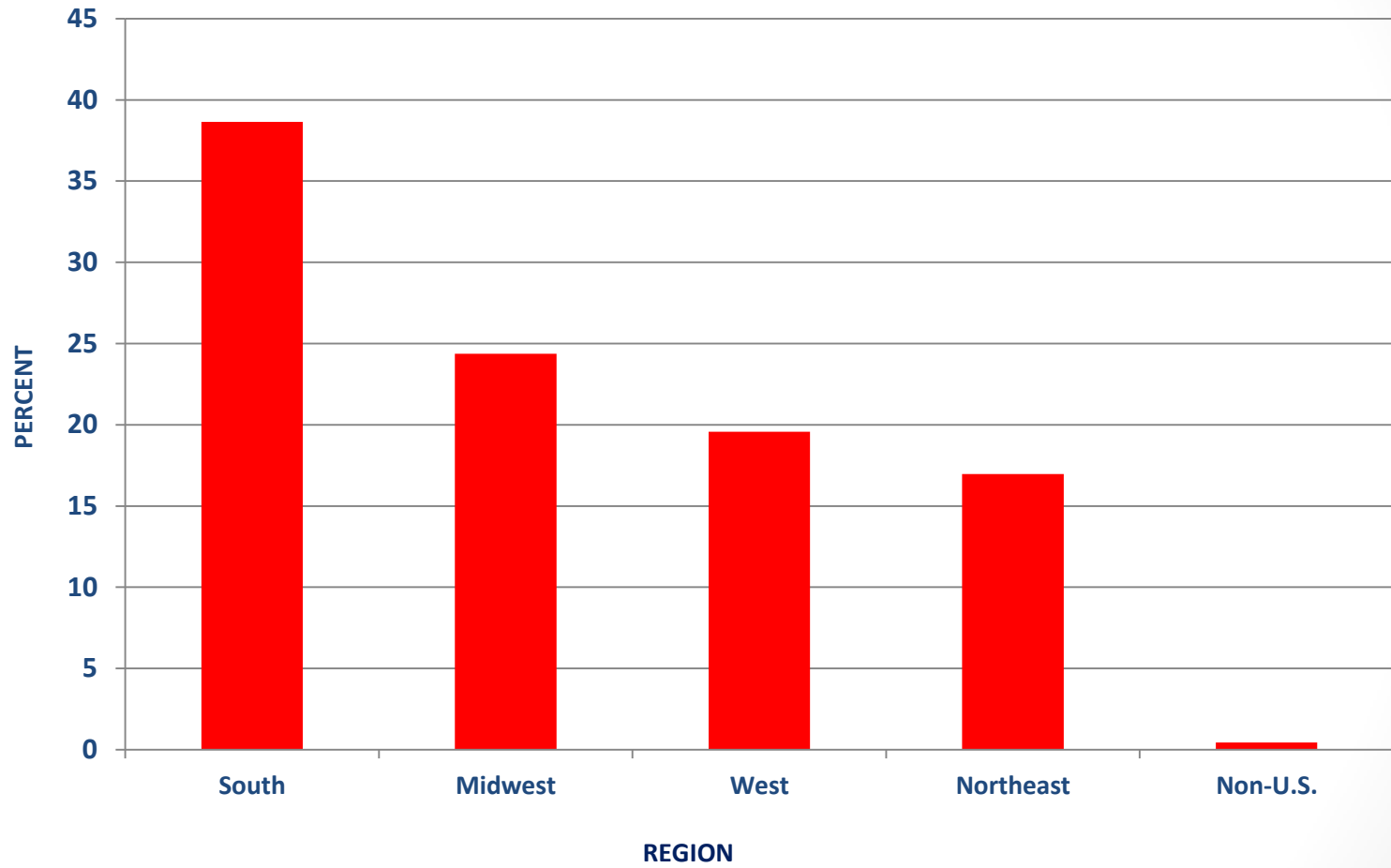
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Figure 41

Incidents by Region



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Table
42

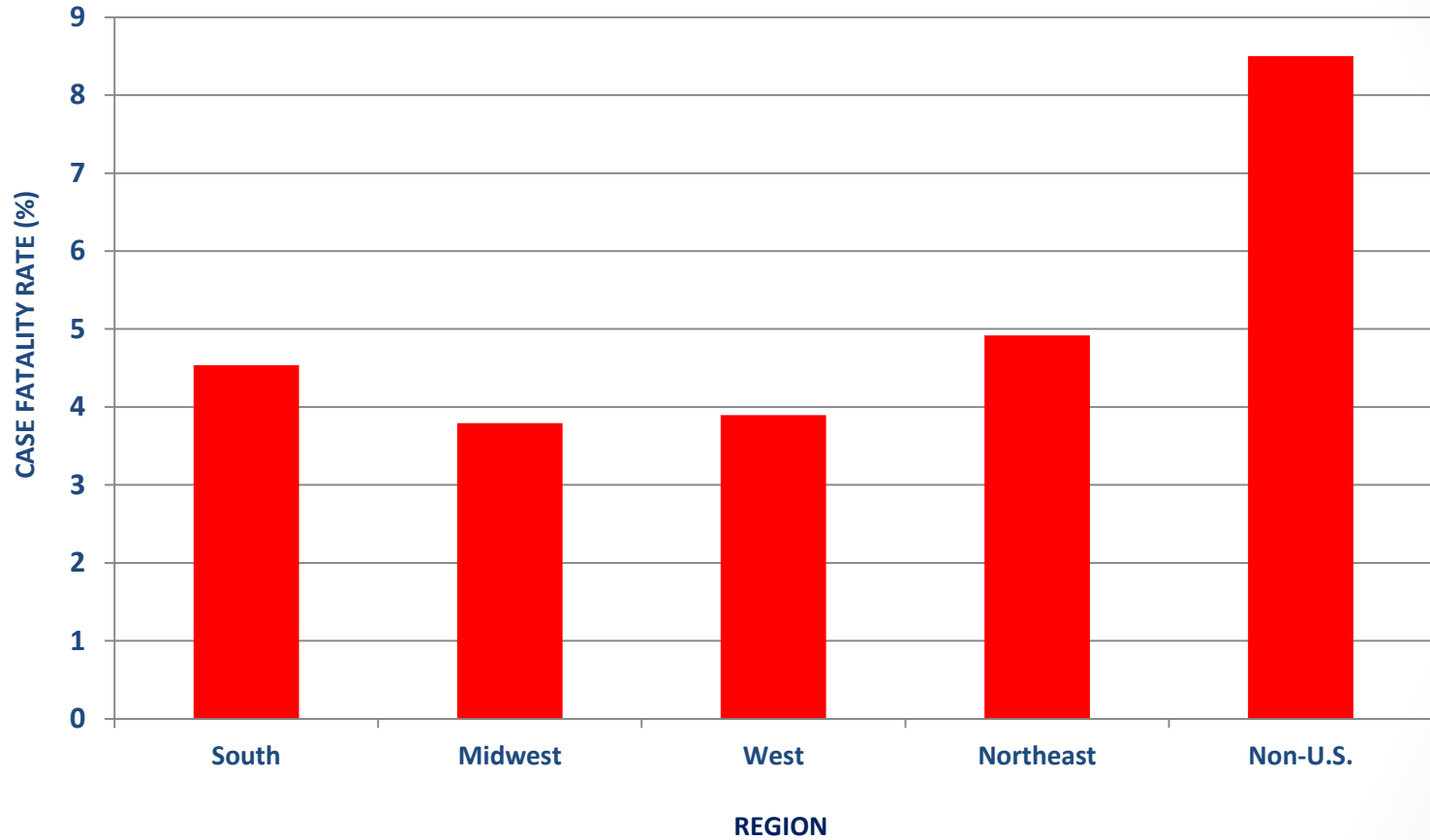
Case Fatality Rate by Region

REGION	NUMBER	DEATHS	CASE FATALITY RATE
South	332,600	15,093	4.54
Midwest	209,839	7,959	3.79
West	168,441	6,562	3.90
Northeast	145,979	7,179	4.92
Non-U.S.	3,835	326	8.50
Total	860,694	37,119	4.31



Figure
42

Case Fatality Rate by Region



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Table
43

Mechanism of Injury by Region

MECHANISM	NUMBER	PERCENT (MIDWEST)	PERCENT (NORTHEAST)	PERCENT (SOUTH)	PERCENT (WEST)	PERCENT (NON-U.S.)
Fall	373,618	47.33	52.31	39.60	38.52	34.92
Motor Vehicle Traffic	223,390	20.83	21.64	28.84	30.13	37.03
Struck by, against	57,598	6.29	6.37	6.87	7.12	6.26
Transport, other	38,680	4.12	3.41	4.69	5.50	5.06
Cut/pierce	36,707	3.28	4.00	4.57	5.04	7.38
Firearm	34,385	3.35	3.00	5.02	3.72	1.30
Pedal cyclist, other	15,379	1.50	1.68	1.31	3.18	1.59
Other specified and classifiable	13,840	1.57	1.26	1.85	1.49	1.36
NK/NR	12,448	5.49	0.16	0.11	0.19	0.05
Hot object/substance	9,216	1.00	1.18	1.35	0.53	0.08
Fire/flame	8,550	1.06	0.88	1.20	0.60	0.50
Machinery	8,355	1.18	0.78	1.03	0.75	0.94
Unspecified	8,474	0.82	1.15	0.93	1.15	1.04
Natural/environmental, Bites and stings	5,708	0.58	0.48	0.88	0.50	0.16
Other specified, not elsewhere classifiable	4,067	0.40	0.64	0.47	0.43	0.42
Overexertion	2,820	0.32	0.38	0.36	0.23	0.00
Pedestrian, other	2,625	0.24	0.30	0.32	0.34	0.96
Natural/environmental, Other	2,556	0.32	0.16	0.33	0.31	0.60
Suffocation	895	0.13	0.07	0.10	0.11	0.29
Poisoning	515	0.11	0.03	0.05	0.05	0.00
Drowning/submersion	424	0.03	0.04	0.06	0.06	0.08
Adverse effects, medical care	271	0.02	0.06	0.03	0.02	0.00
Adverse effects, drugs	173	0.03	0.03	0.01	0.02	0.00
Total	860,694	100	100	100	100	100



Figure 43

Selected Mechanism of Injury by Region

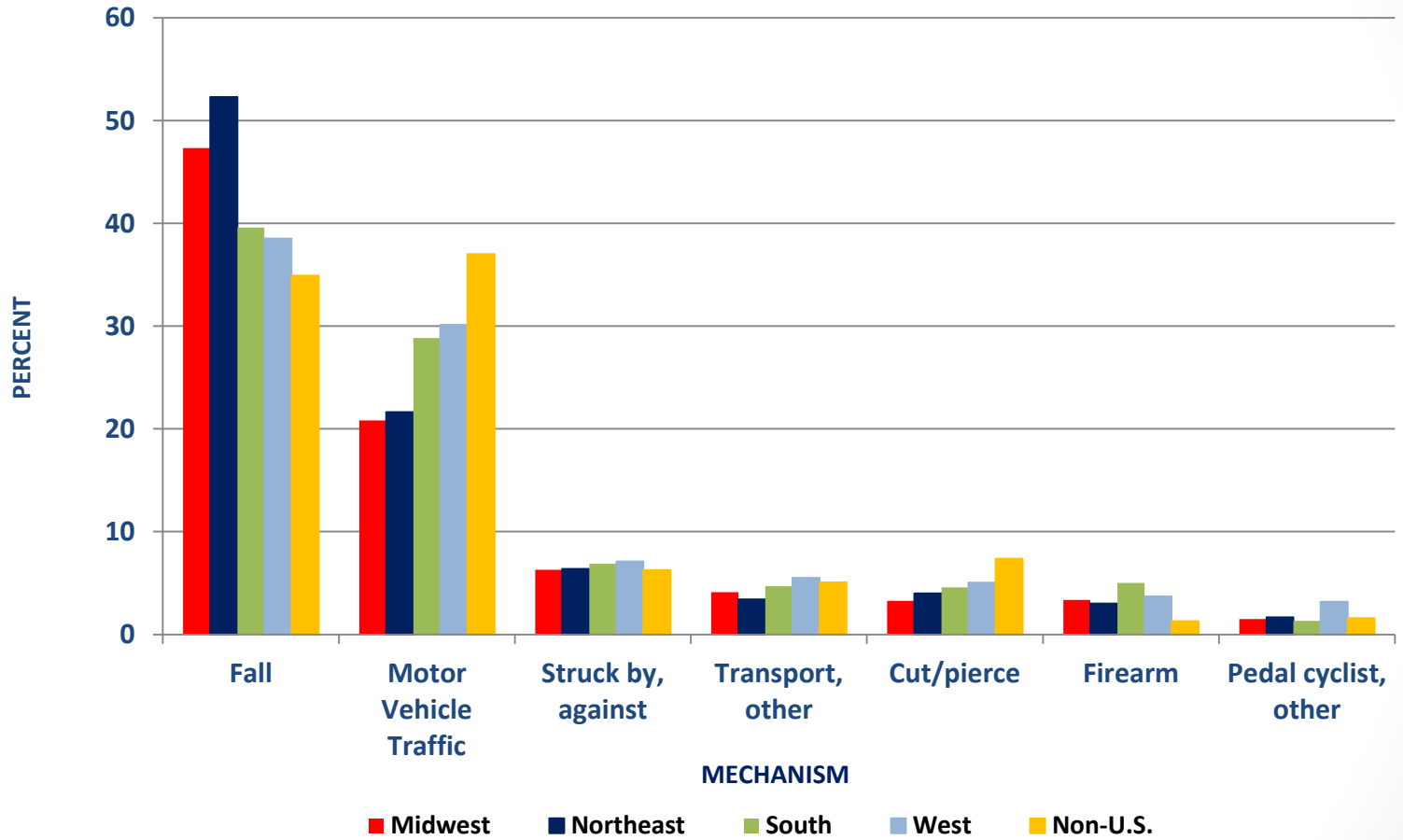


Table
44

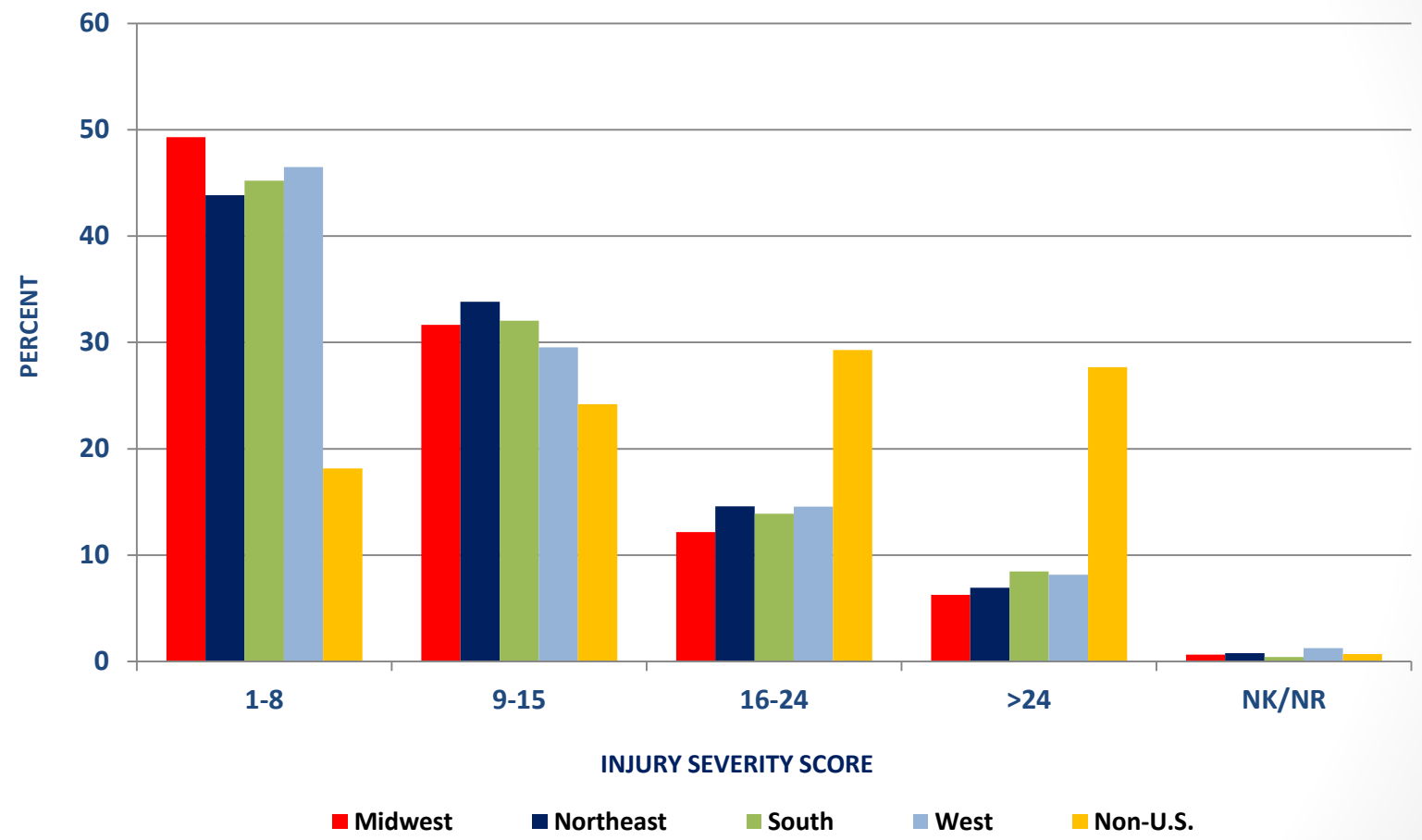
Injury Severity Score (ISS) by Region

ISS	NUMBER	MIDWEST	NORTHEAST	SOUTH	WEST	NON-U.S.
1-8	396,861	49.31	43.86	45.21	46.49	18.15
9-15	273,004	31.64	33.83	32.04	29.54	24.20
16-24	118,686	12.16	14.59	13.89	14.57	29.28
>24	66,165	6.25	6.94	8.45	8.17	27.67
NK/NR	5,978	0.64	0.79	0.41	1.24	0.70
Total	860,694	100	100	100	100	100



Figure 44

Injury Severity Score (ISS) by Region



Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Table
45

Incidents by Rurality

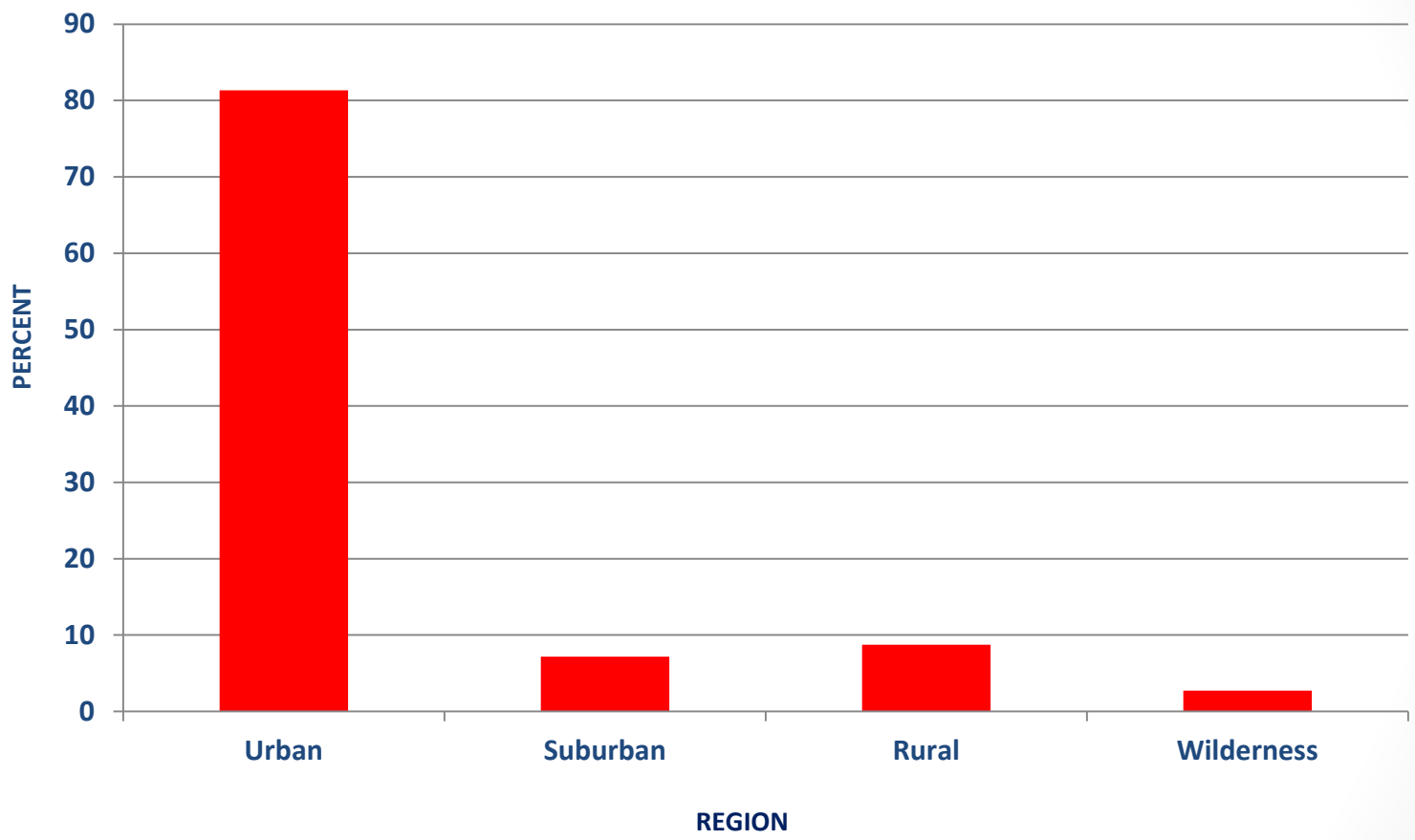
REGION	NUMBER	PERCENT
Urban	405,980	81.34
Suburban	35,879	7.19
Rural	43,667	8.75
Wilderness	13,584	2.72
Total	499,110	100.00



All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.

Figure 45

Incidents by Rurality



All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.

Table
46

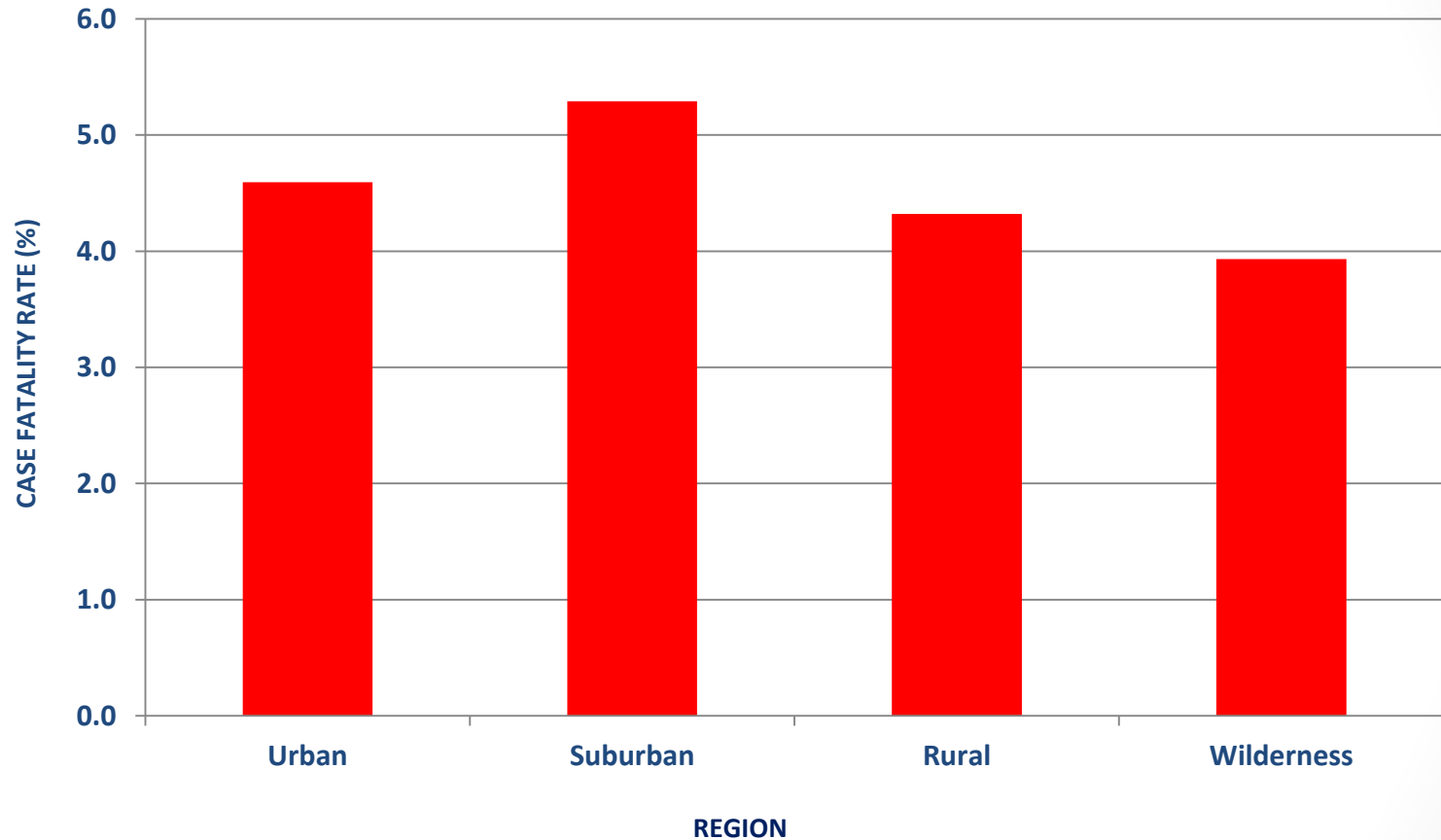
Case Fatality Rate by Rurality

REGION	NUMBER	DEATHS	CASE FATALITY RATE
Urban	405,980	18,650	4.59
Suburban	35,879	1,898	5.29
Rural	43,667	1,887	4.32
Wilderness	13,584	534	3.93
Total	499,110	37,119	7.44

All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.

Figure 46

Case Fatality Rate by Rurality



All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.



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Table
47

Mechanism of Injury by Rurality

MECHANISM	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
Fall	175,111	43.13	15,058	41.97	17,143	39.26	5,493	40.44
Motor Vehicle Traffic	106,717	26.29	10,070	28.07	11,439	26.20	3,281	24.15
Struck by, against	26,925	6.63	2,217	6.18	2,612	5.98	864	6.36
Firearm	18,477	4.55	1,005	2.80	1,312	3.00	301	2.22
Cut/pierce	18,449	4.54	1,094	3.05	1,492	3.42	394	2.90
Transport, other	15,005	3.70	2,386	6.65	3,572	8.18	1,459	10.74
NK/NR	7,632	1.88	527	1.47	1,697	3.89	323	2.38
Pedal cyclist, other	6,825	1.68	411	1.15	436	1.00	143	1.05
Other specified and classifiable	6,124	1.51	670	1.87	912	2.09	320	2.36
Hot object/substance	4,492	1.11	352	0.98	393	0.90	126	0.93
Drowning/submersion	212	0.05	27	0.08	27	0.06	14	0.10
Unspecified	3,943	0.97	222	0.62	296	0.68	76	0.56
Fire/flame	3,937	0.97	502	1.40	574	1.31	175	1.29
Machinery	3,202	0.79	478	1.33	639	1.46	226	1.66
Natural/environmental, Bites and stings	2,570	0.63	249	0.69	331	0.76	100	0.74
Other specified, not elsewhere classifiable	1,974	0.49	143	0.40	179	0.41	55	0.40
Pedestrian, other	1,332	0.33	140	0.39	151	0.35	35	0.26
Overexertion	1,236	0.30	104	0.29	110	0.25	46	0.34
Natural/environmental, Other	906	0.22	164	0.46	265	0.61	124	0.91
Suffocation	421	0.10	39	0.11	42	0.10	23	0.17
Poisoning	303	0.07	10	0.03	27	0.06	3	0.02
Adverse effects, medical care	128	0.03	8	0.02	12	0.03	3	0.02
Adverse effects, drugs	59	0.01	3	0.01	6	0.01	0	0.00
Total	405,980	100	35,879	100	43,667	100	13,584	100

All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.



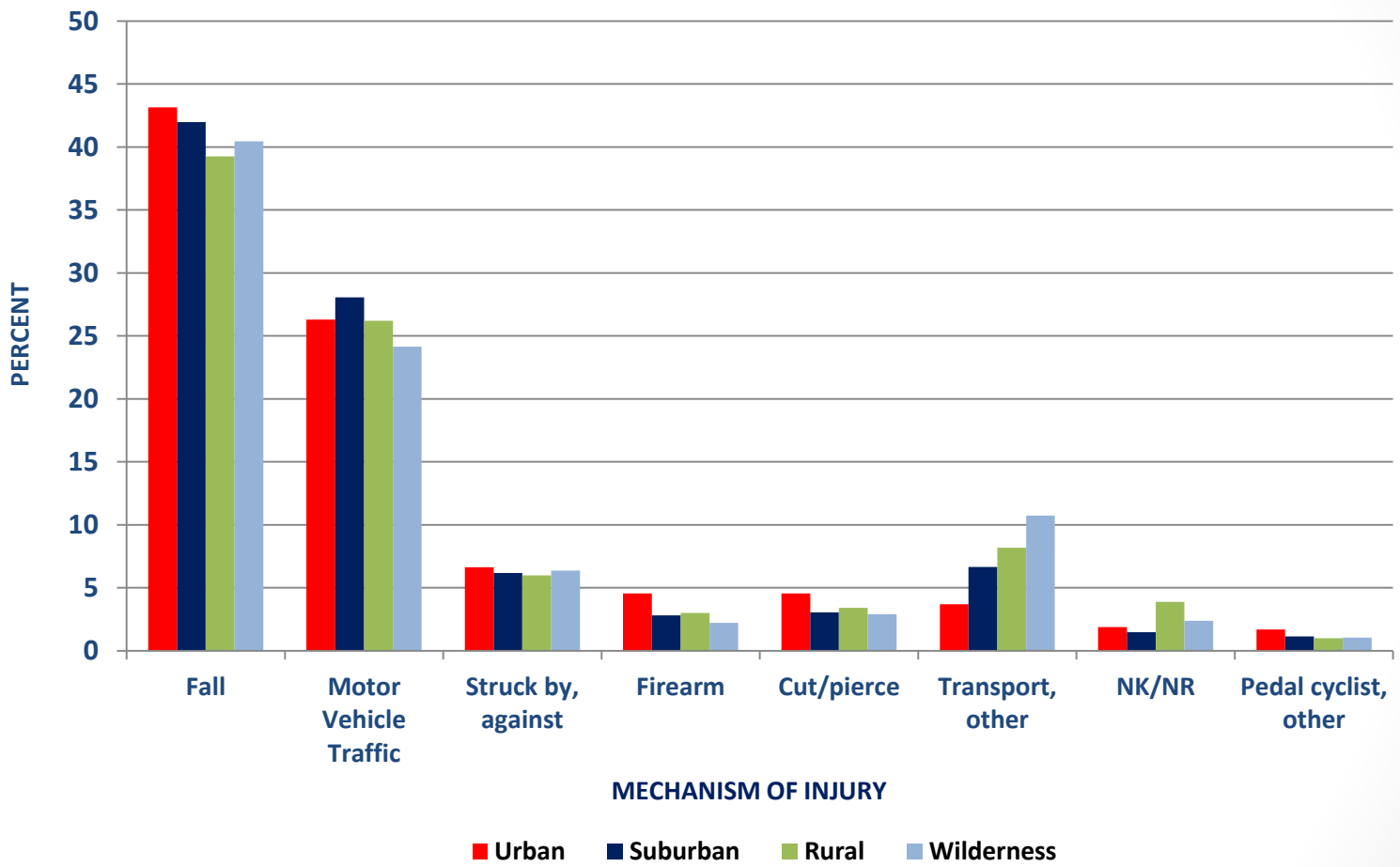
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Figure 47

Selected Mechanism of Injury by Rurality



All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.

Table
48

Injury Severity Score (ISS) by Rurality

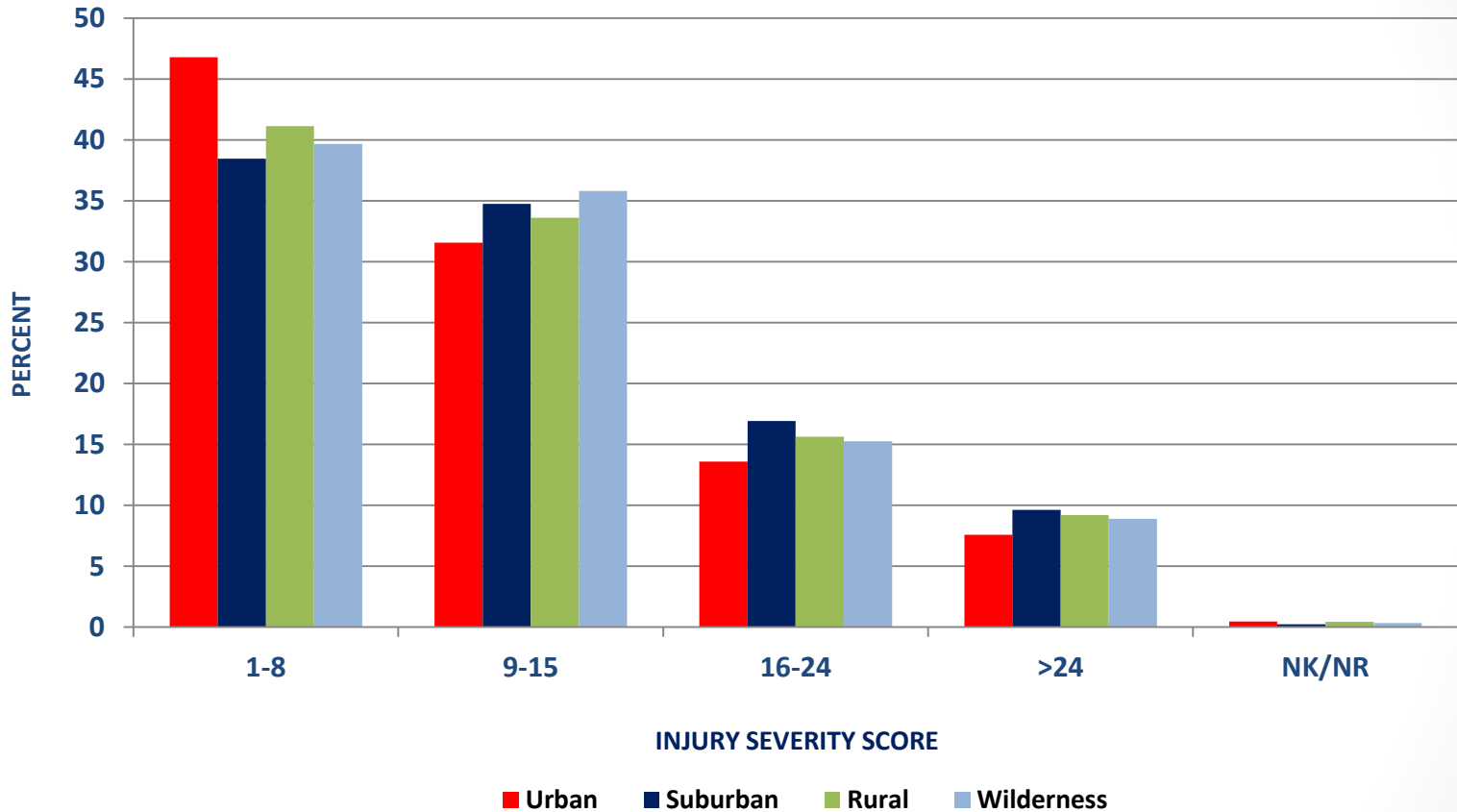
ISS	NUMBER (URBAN)	PERCENT (URBAN)	NUMBER (SUBURBAN)	PERCENT (SUBURBAN)	NUMBER (RURAL)	PERCENT (RURAL)	NUMBER (WILDERNESS)	PERCENT (WILDERNESS)
1-8	189,974	46.79	13,799	38.46	17,961	41.13	5,389	39.67
9-15	128,190	31.58	12,465	34.74	14,675	33.61	4,864	35.81
16-24	55,160	13.59	6,069	16.92	6,829	15.64	2,074	15.27
>24	30,775	7.58	3,458	9.64	4,013	9.19	1,210	8.91
NK/NR	1,881	0.46	88	0.25	189	0.43	47	0.35
Total	405,980	100	35,879	100	43,667	100	13,584	100

Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.

Figure 48

Injury Severity Score (ISS) by Rurality



Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

All rurality tables are determined by Urban Influence Codes that are developed by the Office of Management and Budget. Urban Influence Codes only apply to incidents and are not available for every record in the NTDB.



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COMPARATIVE ANALYSIS



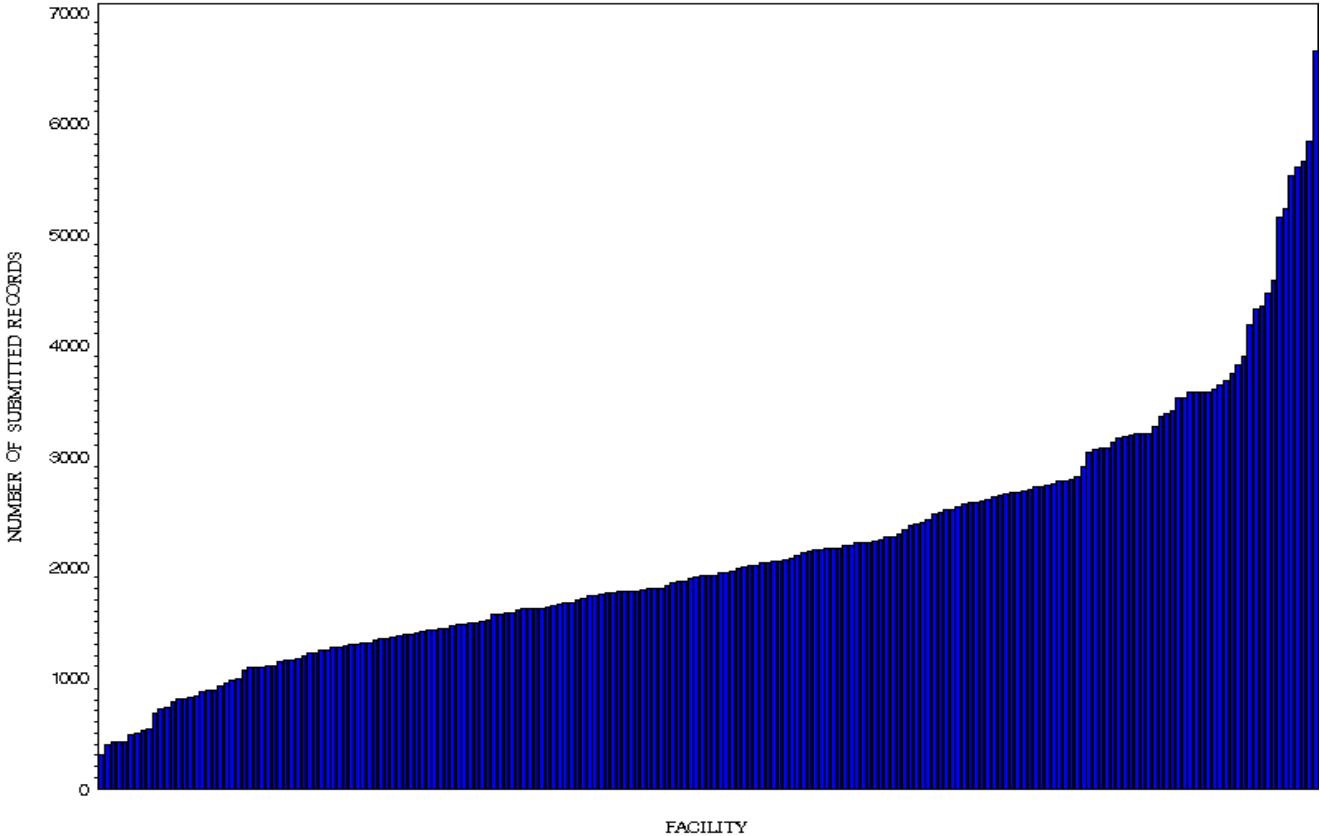
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Figure 49

Number of Cases Submitted per Facility for Level I Facilities

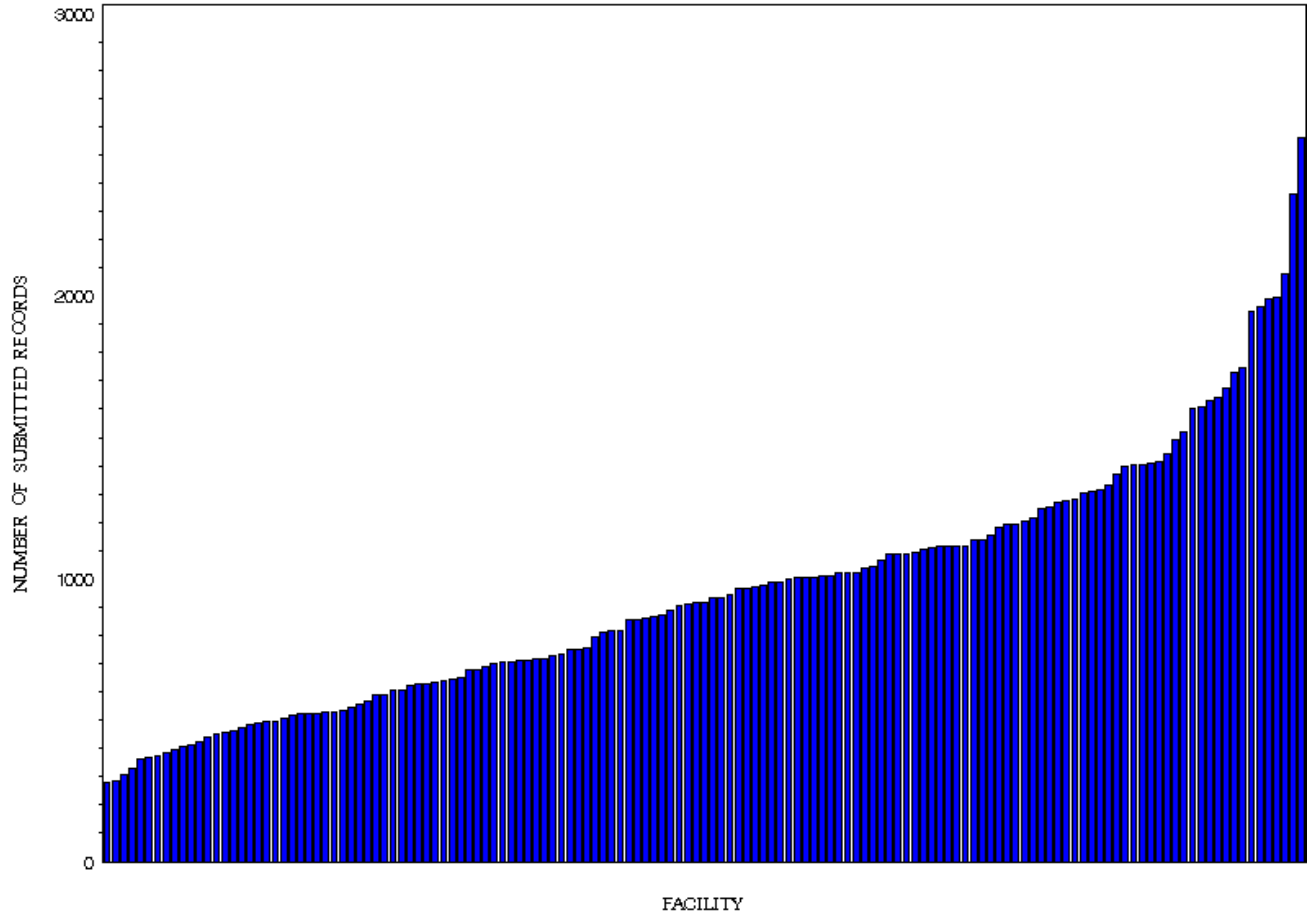


Only cases with valid trauma diagnosis code per the NTDB criteria are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.



Figure 50

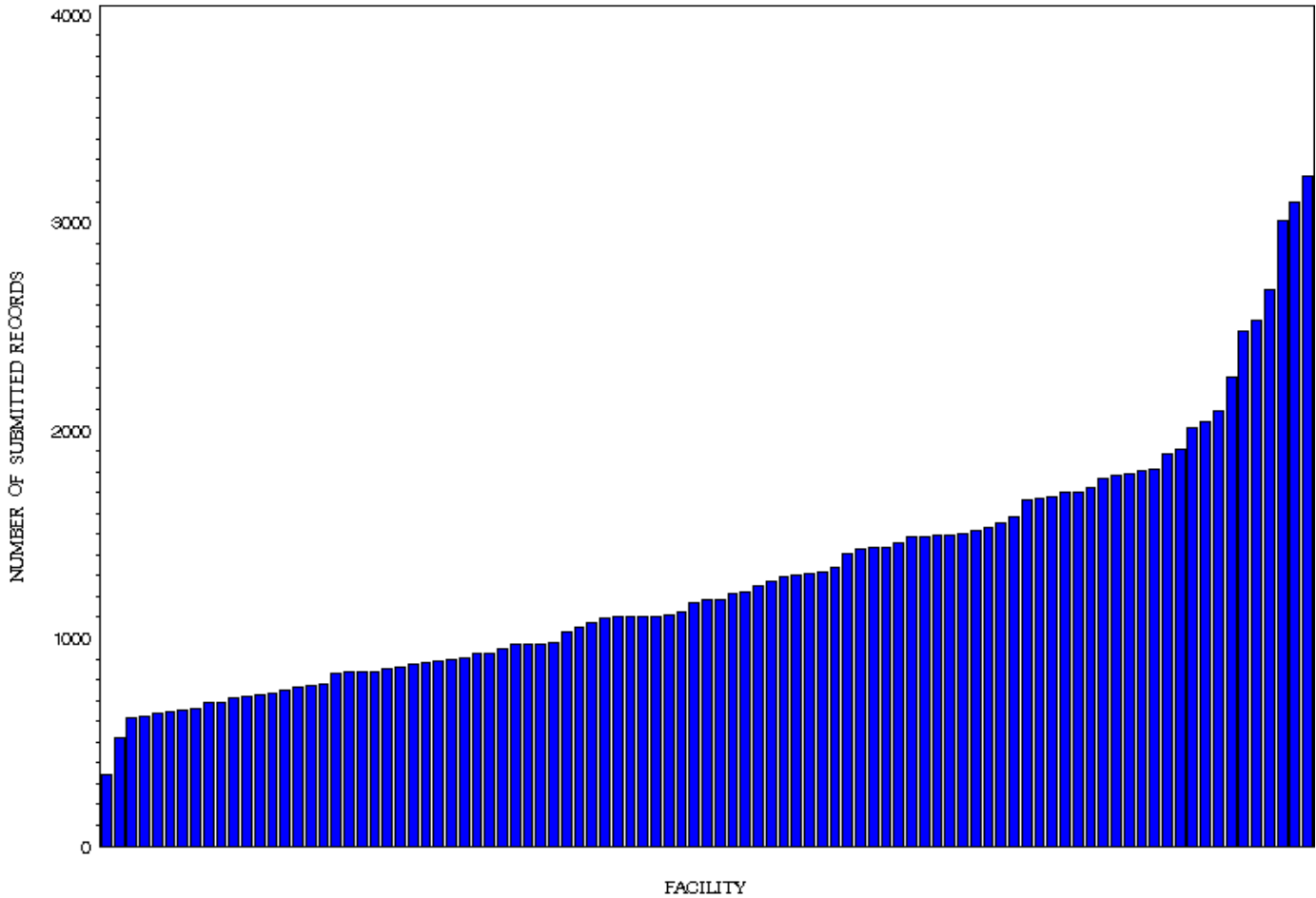
Number of Cases Submitted per Facility for Level II Facilities with Bed Size ≤ 400 Beds



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 51

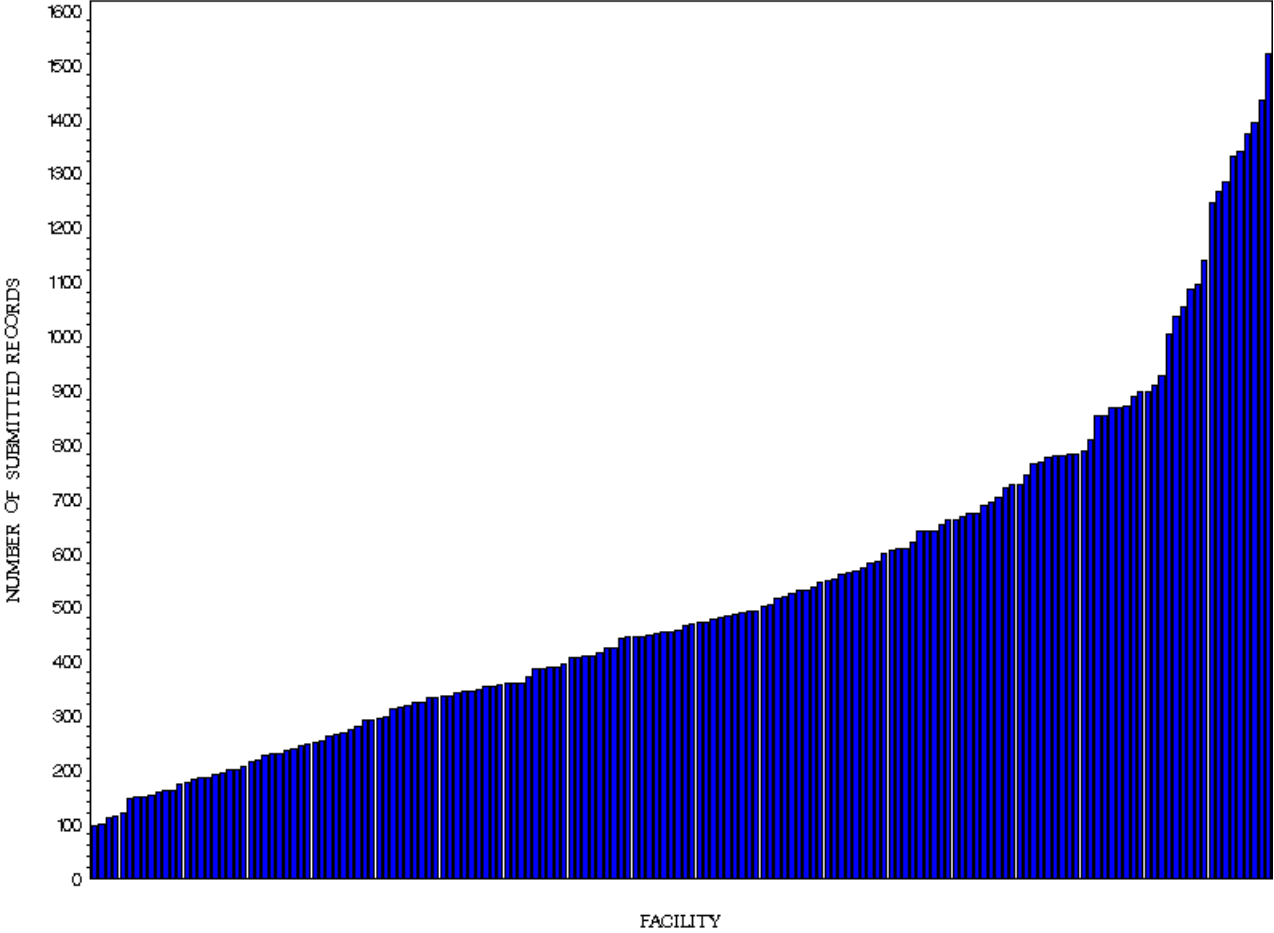
Number of Cases Submitted per Facility for Level II Facilities with Bed Size > 400 Beds



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 52

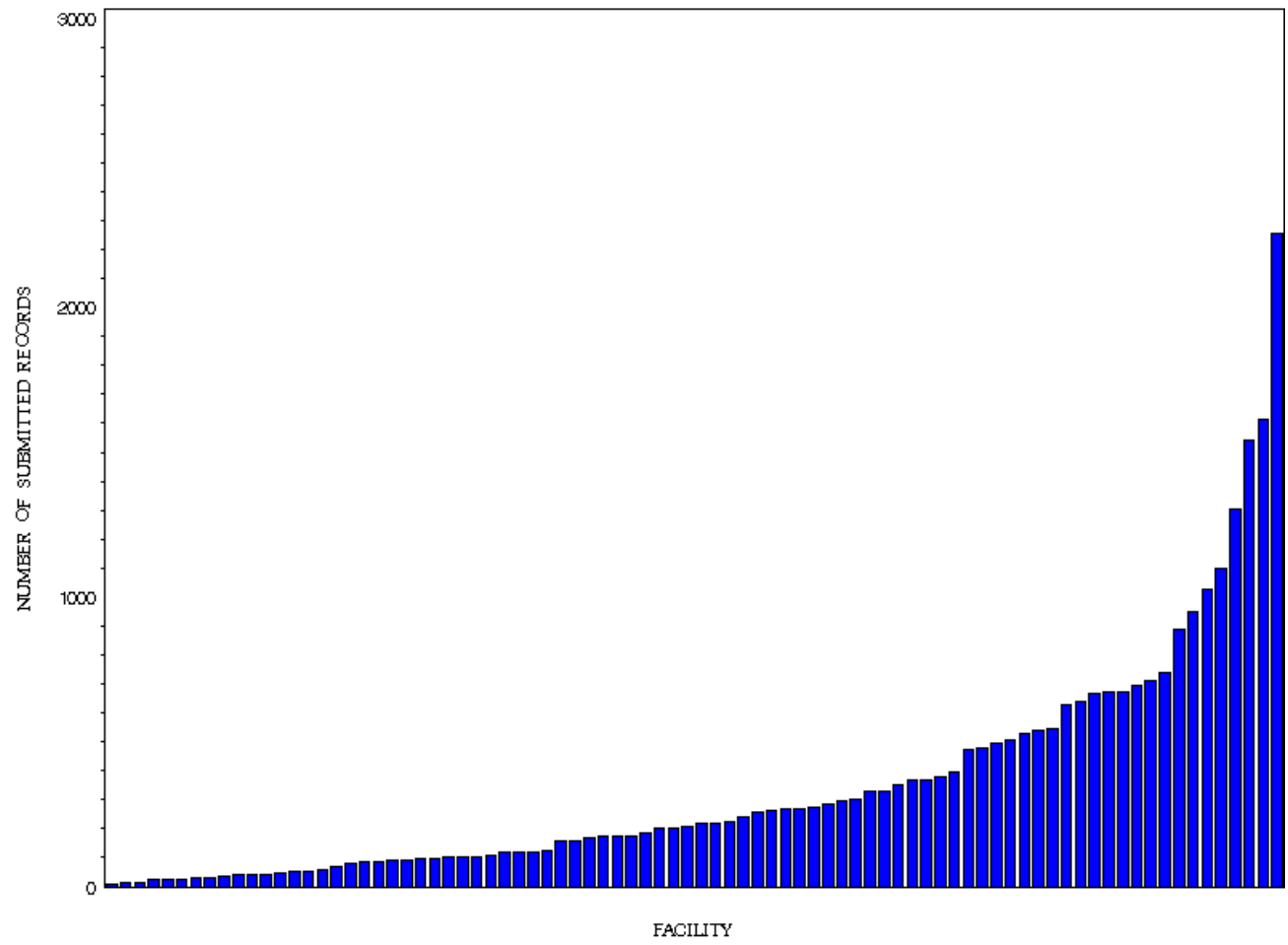
Number of Cases Submitted per Facility for Level III Facilities



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

Figure 53

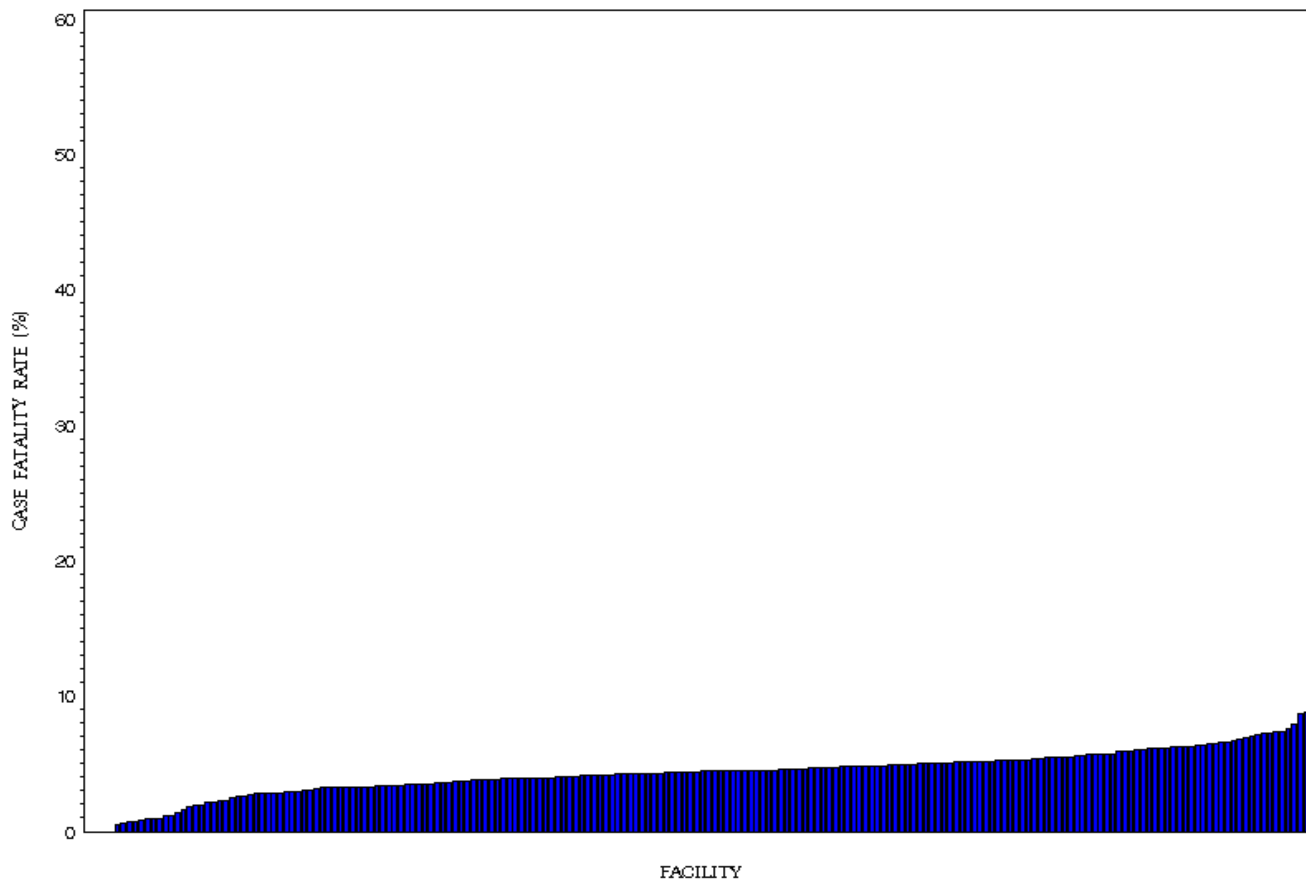
Number of Cases Submitted per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



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

Figure 54

Case Fatality Rate per Facility for Level I Facilities

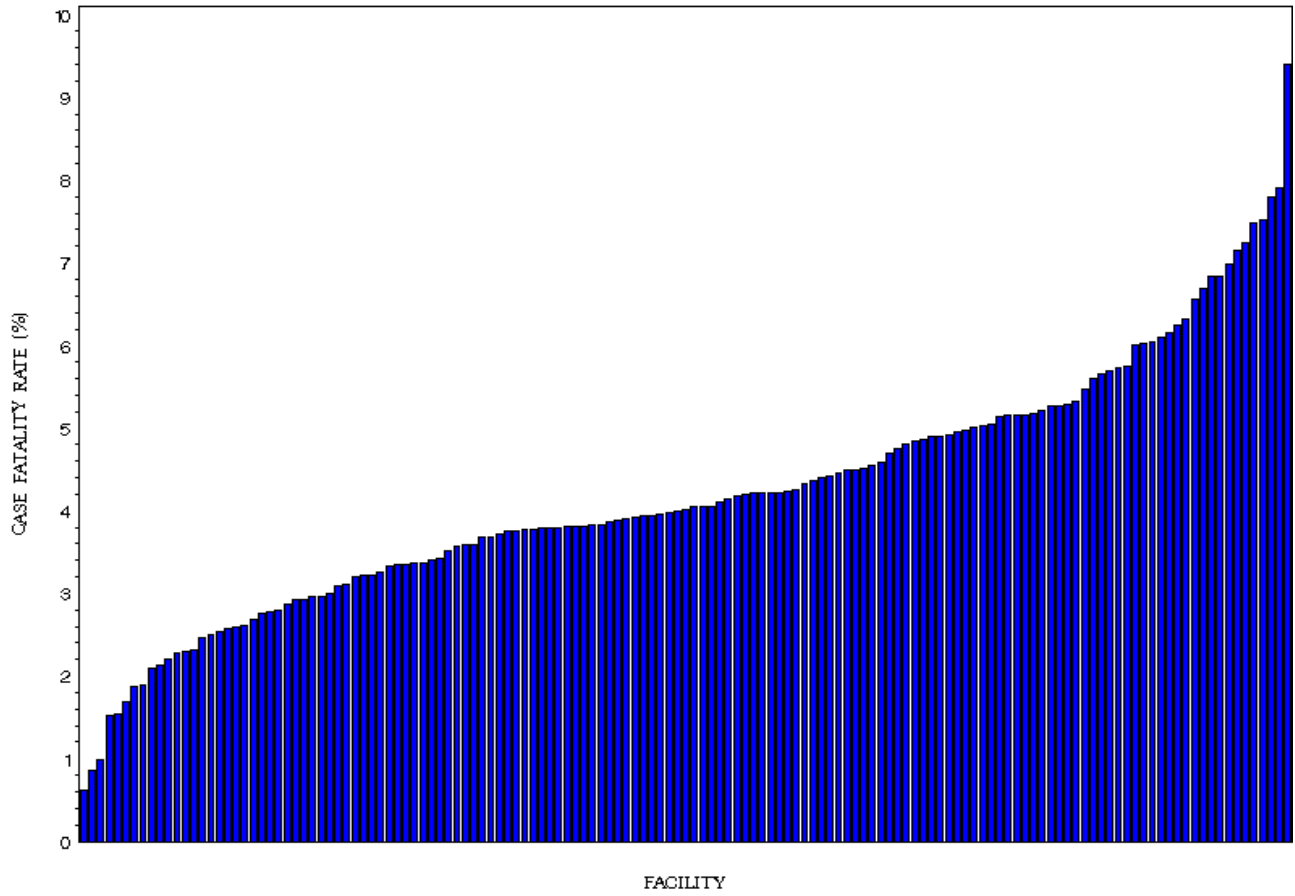


Five facilities out of the 205 Level I facilities had a case fatality rate of 0% reported and are therefore not visible on the graph. All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.



Figure 55

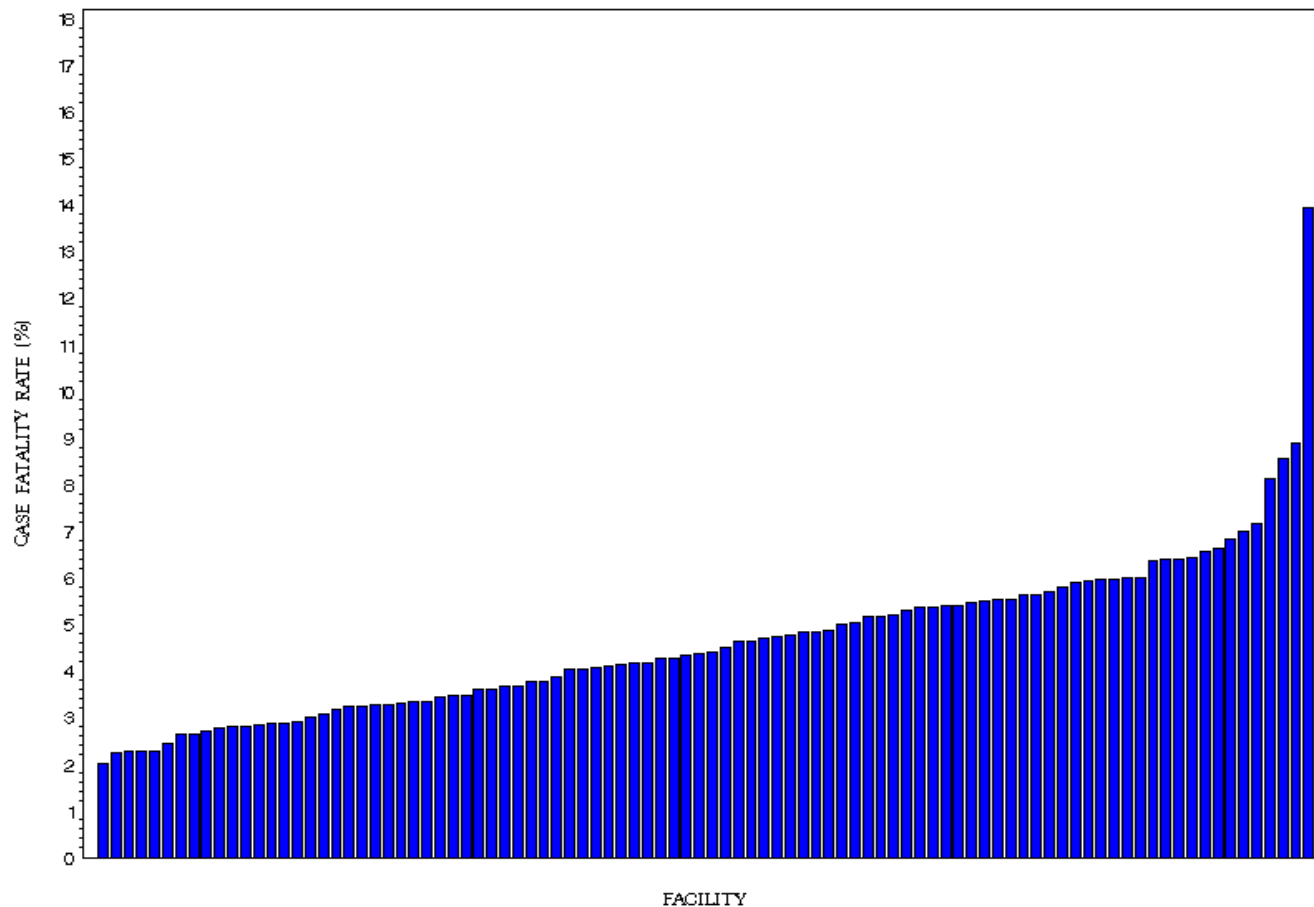
Case Fatality Rate per Facility for Level II Facilities with Bed Size ≤ 400 Beds



All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 56

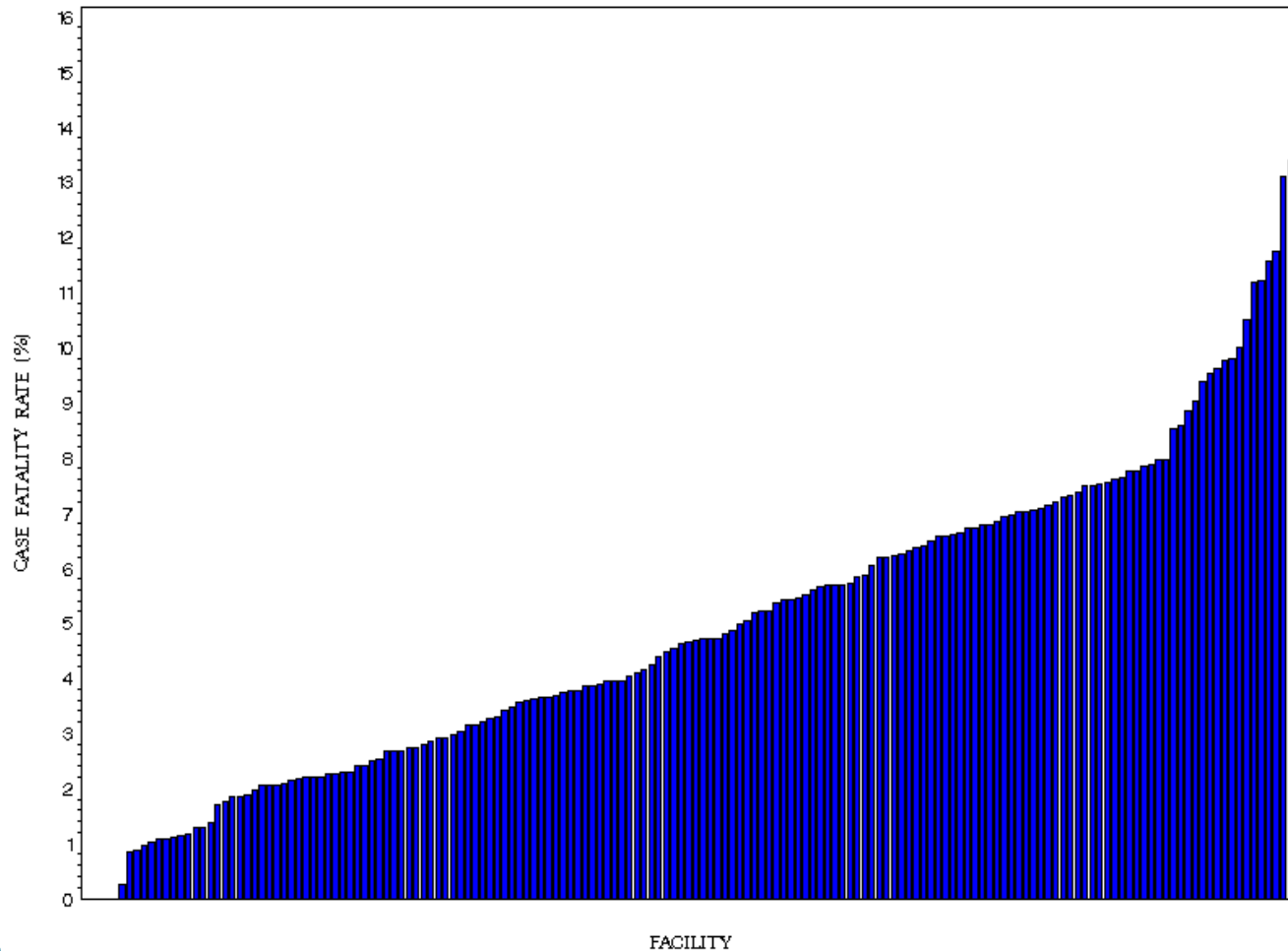
Case Fatality Rate per Facility for Level II Facilities with Bed Size > 400 Beds



One facility out of the 96 Level II 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 57

Case Fatality Rate per Facility for Level III Facilities

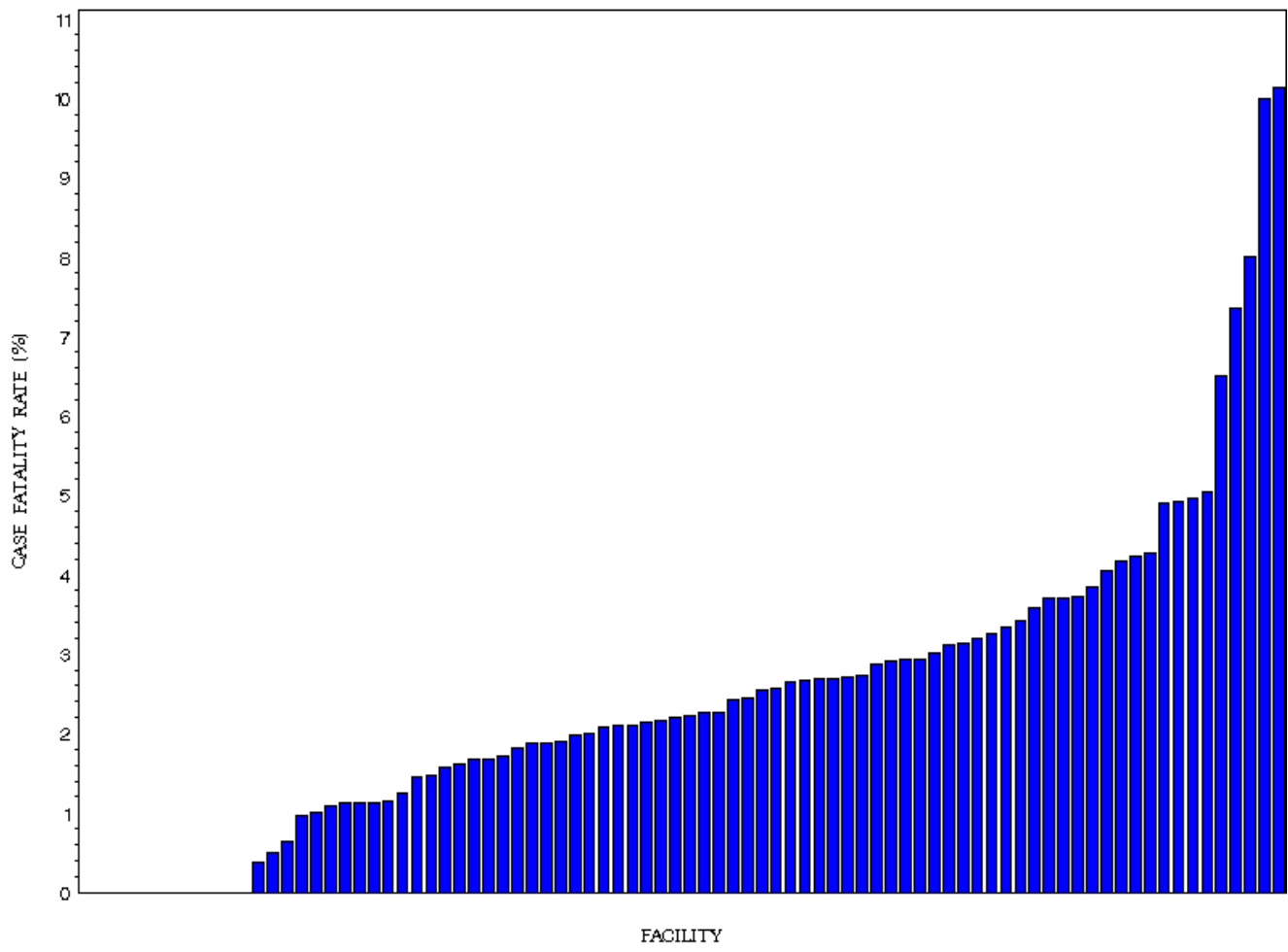


Five facilities out of the 166 Level III facilities had a case fatality rate of 0% reported and are therefore not visible on the graph. All deaths, including dead on arrival, are included in the analysis. Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.



Figure 58

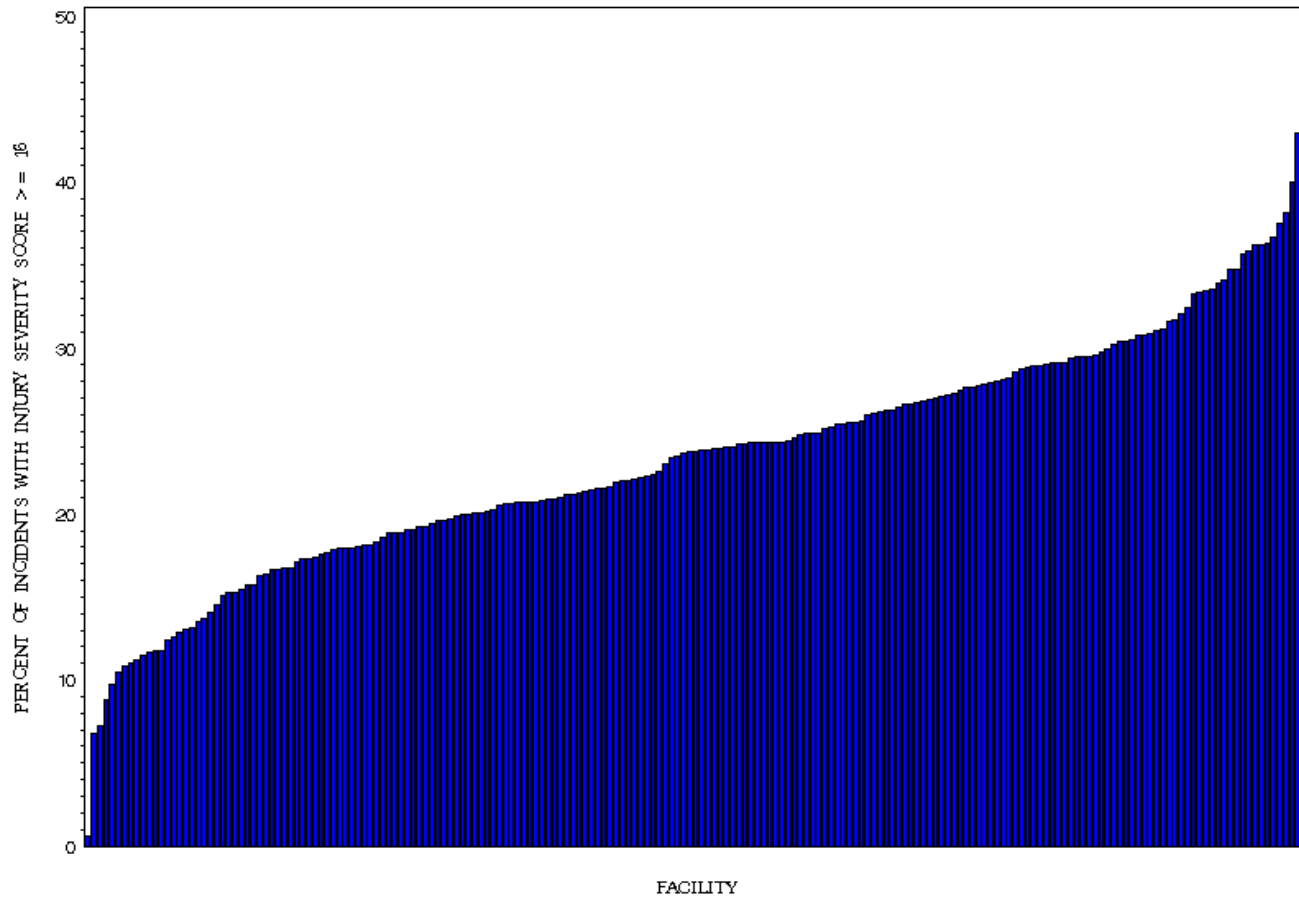
Case Fatality Rate per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



Twelve facilities out of the 84 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 59

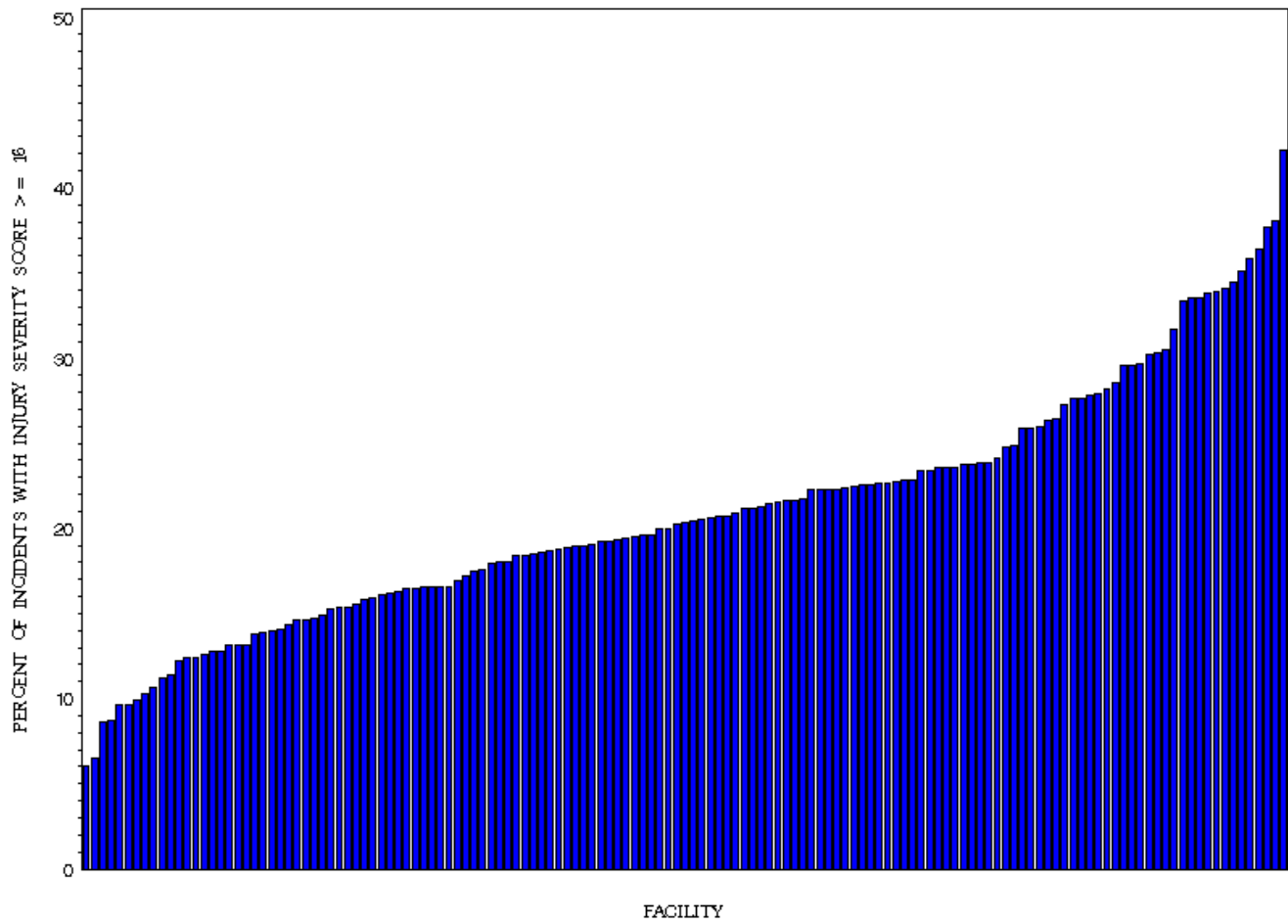
Percentage of Cases with ISS ≥ 16 per Facility for Level I Facilities



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.

Figure 60

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

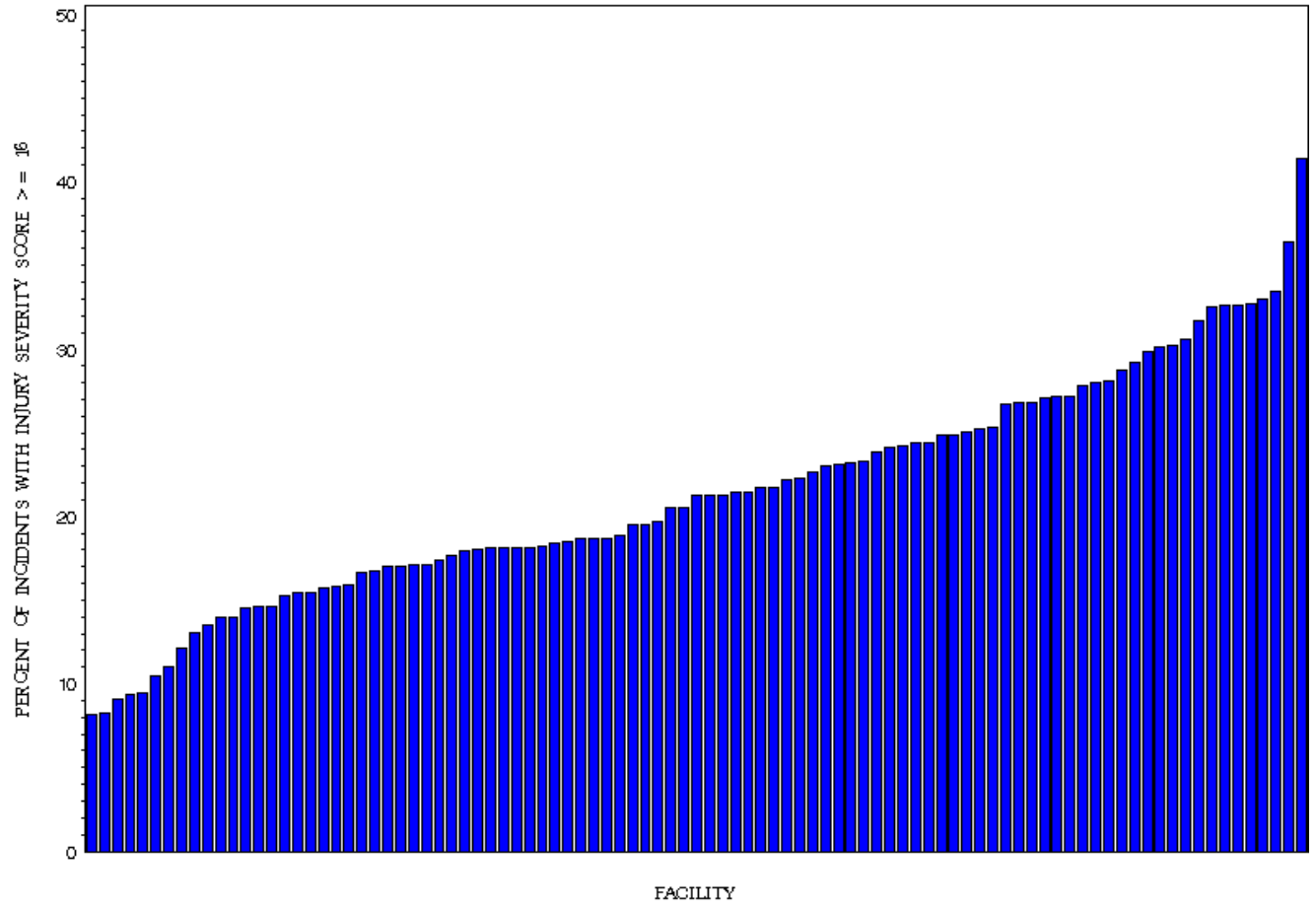


Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Figure 61

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

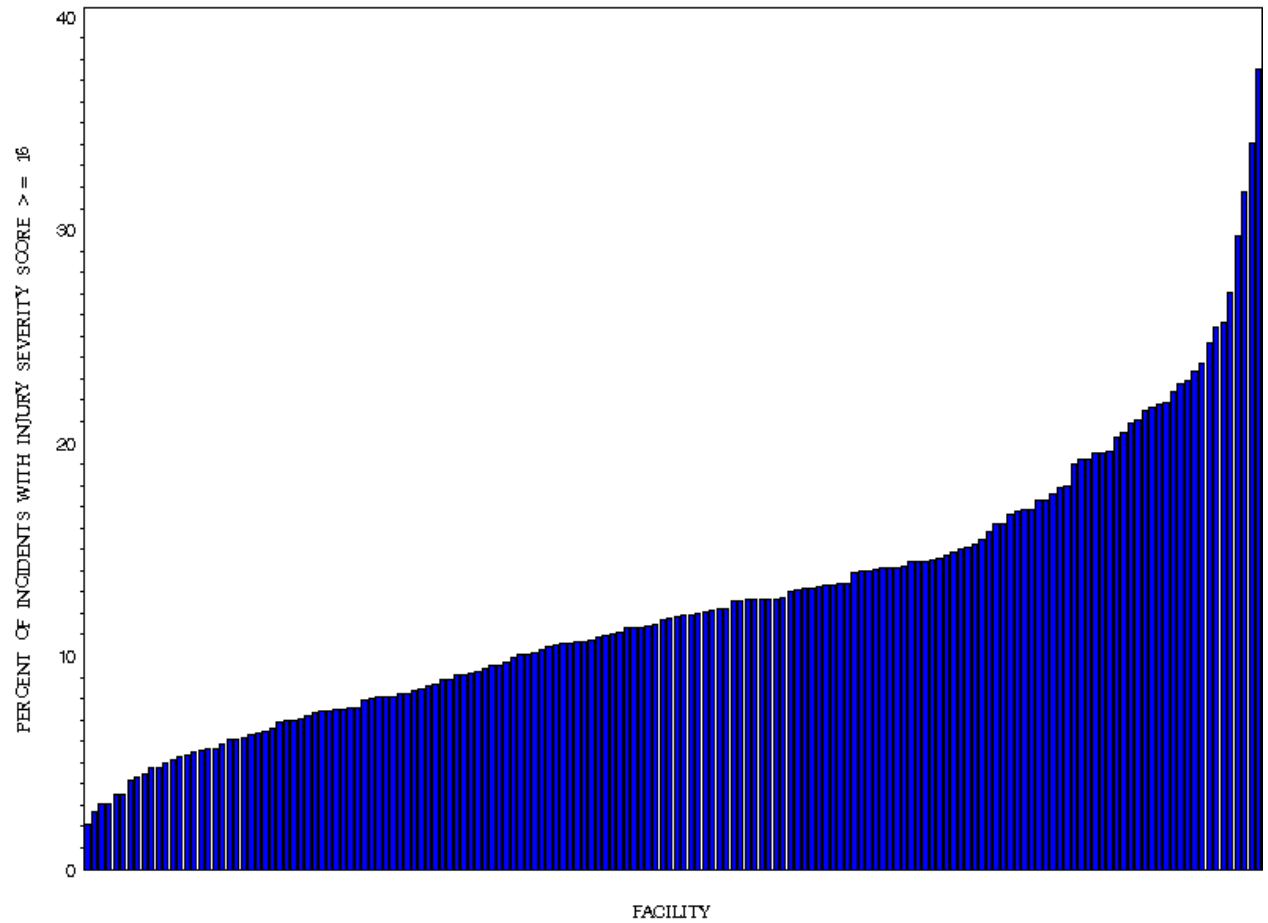


Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Figure 62

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

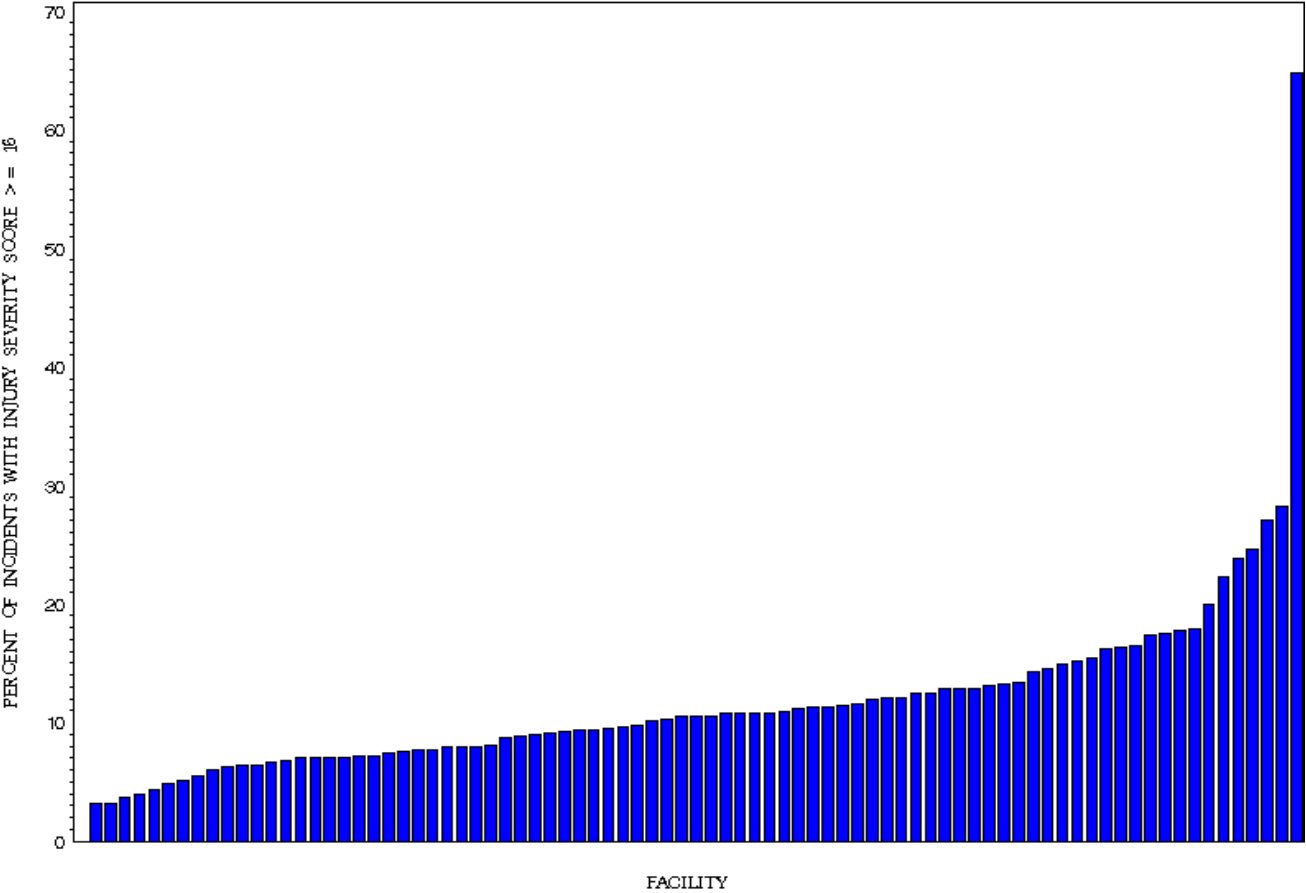


Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Injury Severity Score tables are generated using AIS98 Crosswalked ISS. Injury Severity Score definitions can be found in Appendix B.

Figure 63

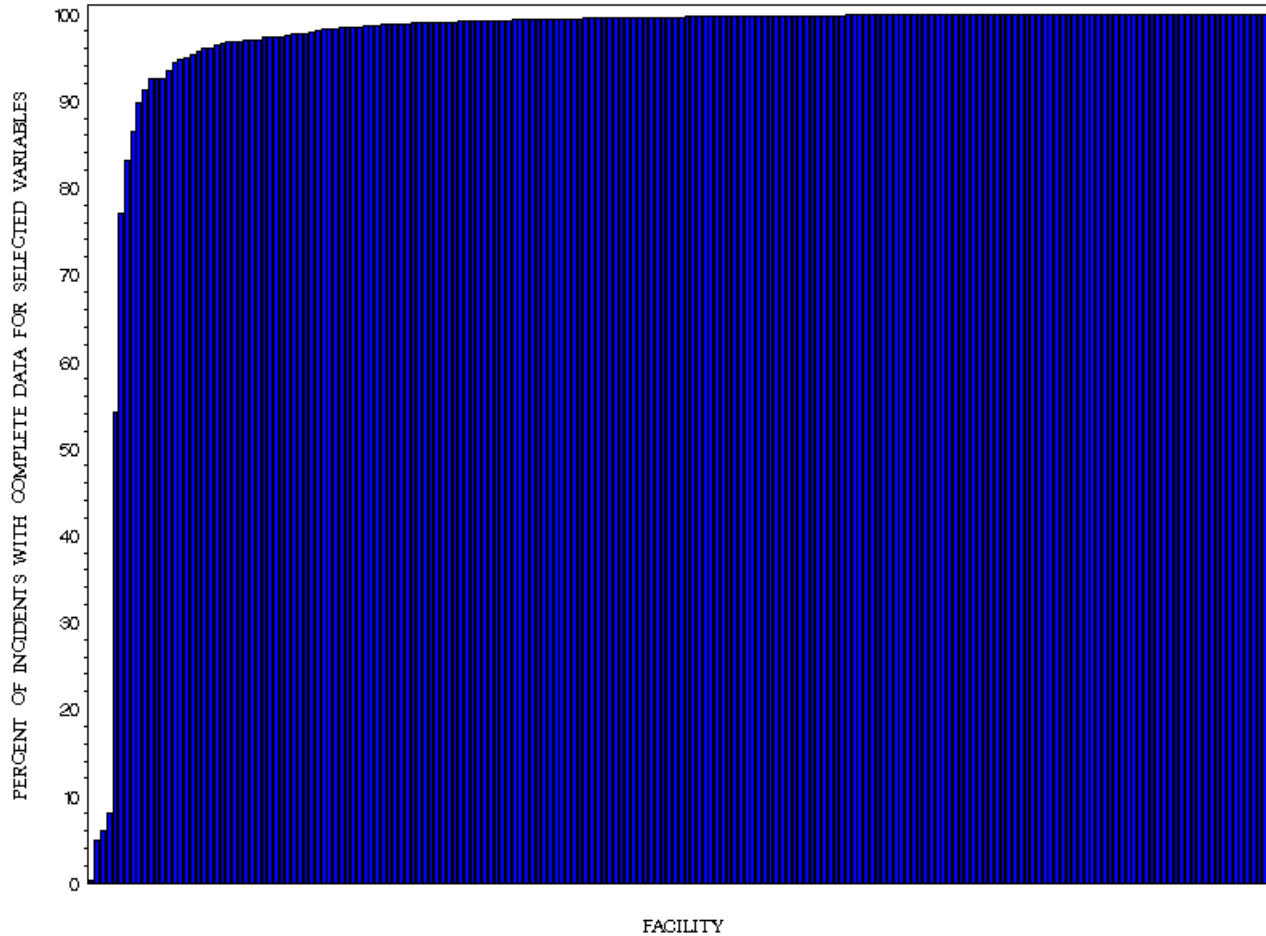
Percentage of Cases with ISS ≥ 16 per Facility for Level IV Facilities and Facilities with Designation Other or Not Applicable



One out of 84 facilities had no incidents with ISS ≥ 16 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 64

Data Completeness per Facility for Level I Facilities

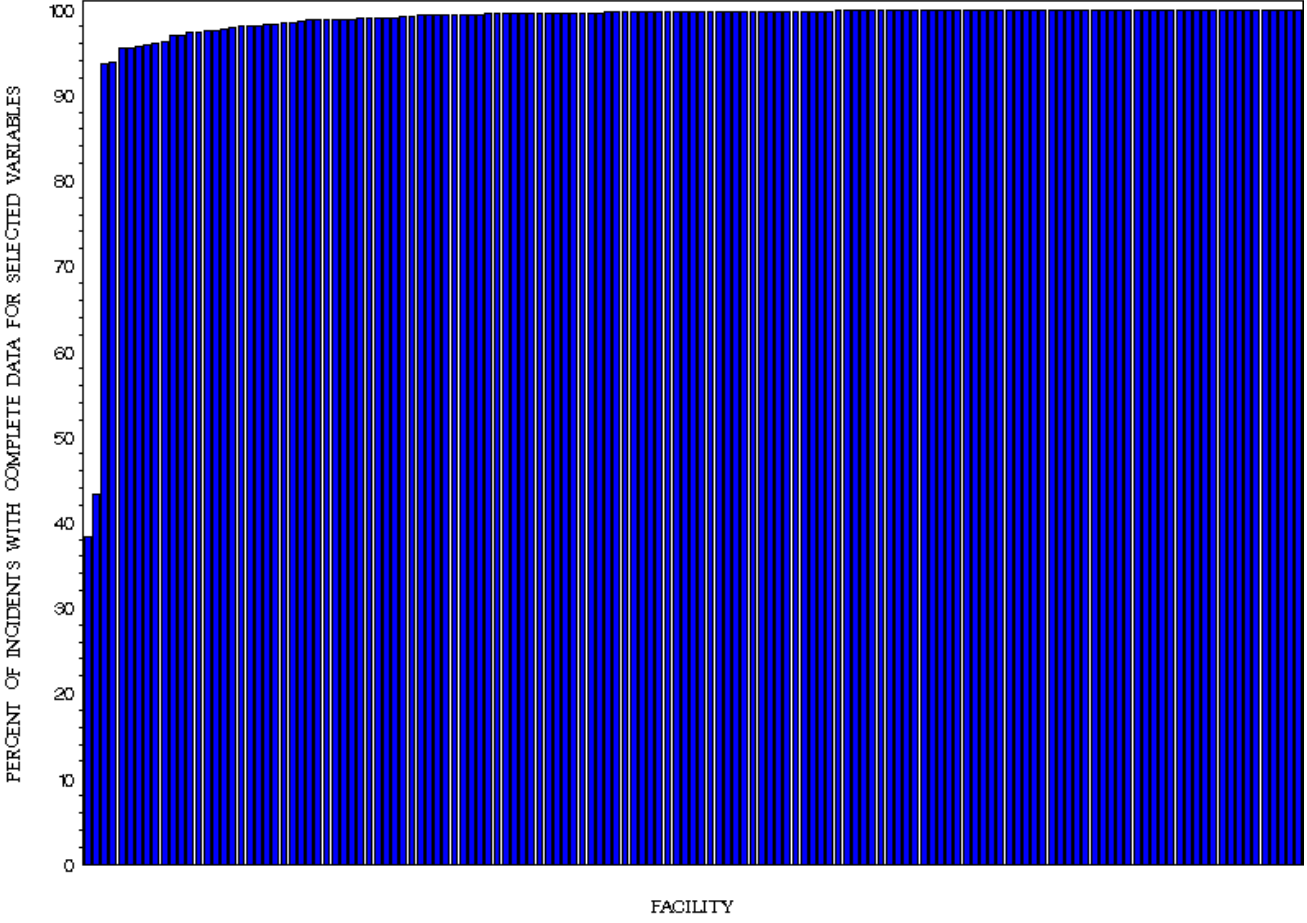


An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E-Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation;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



Figure 65

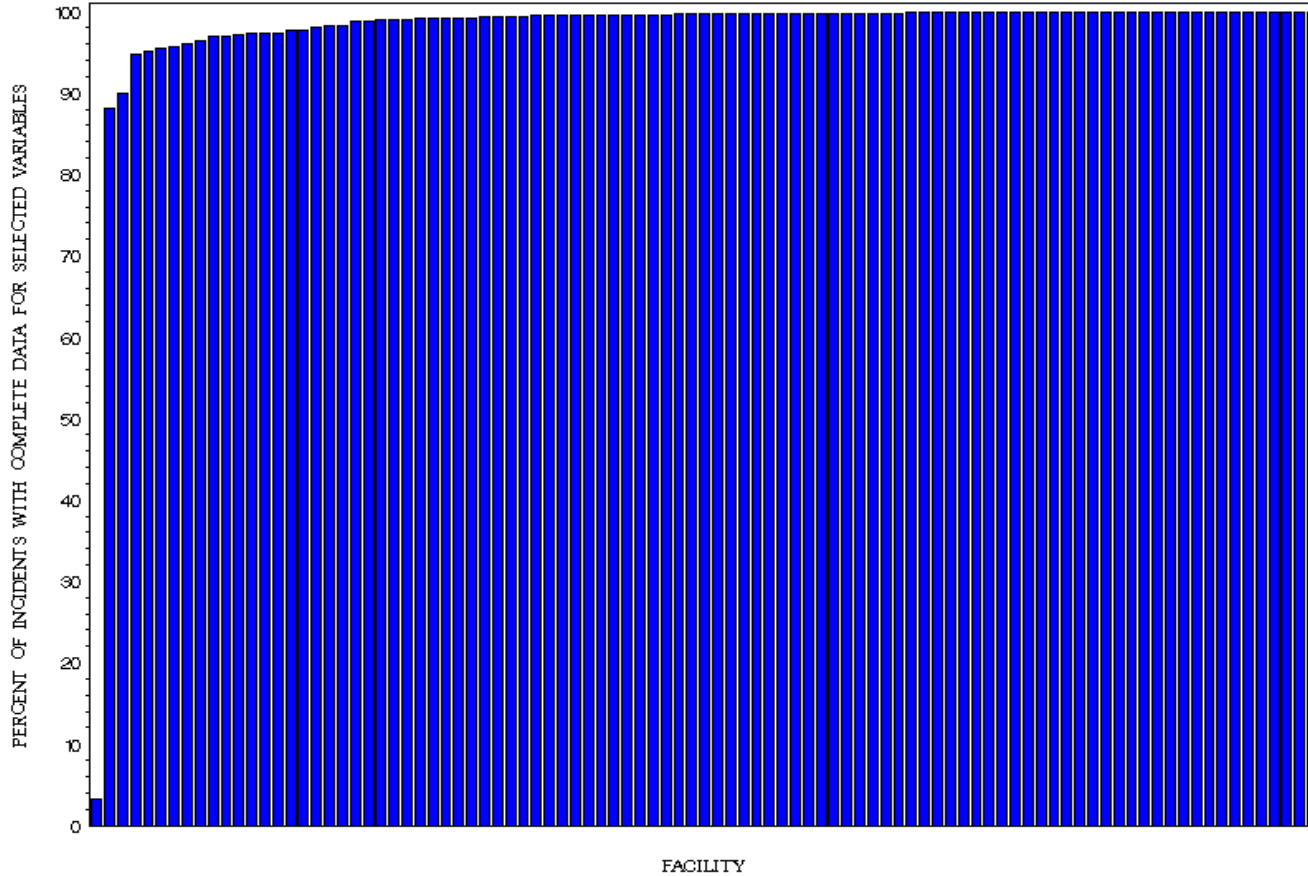
Data Completeness per Facility for Level II Facilities with Bed Size \leq 400 Beds



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 66

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

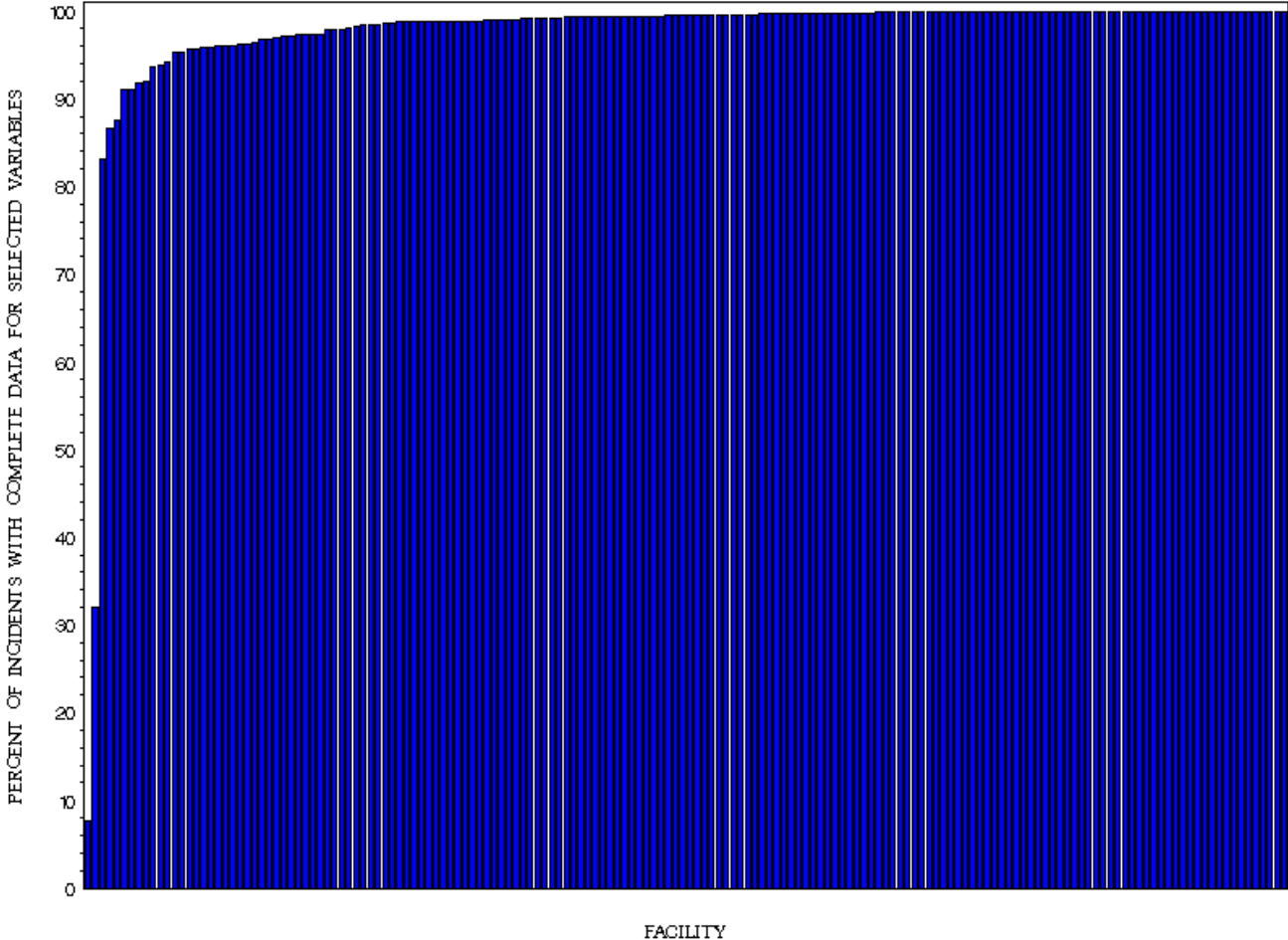


An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E-Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation;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



Figure 67

Data Completeness per Facility for Level III Facilities

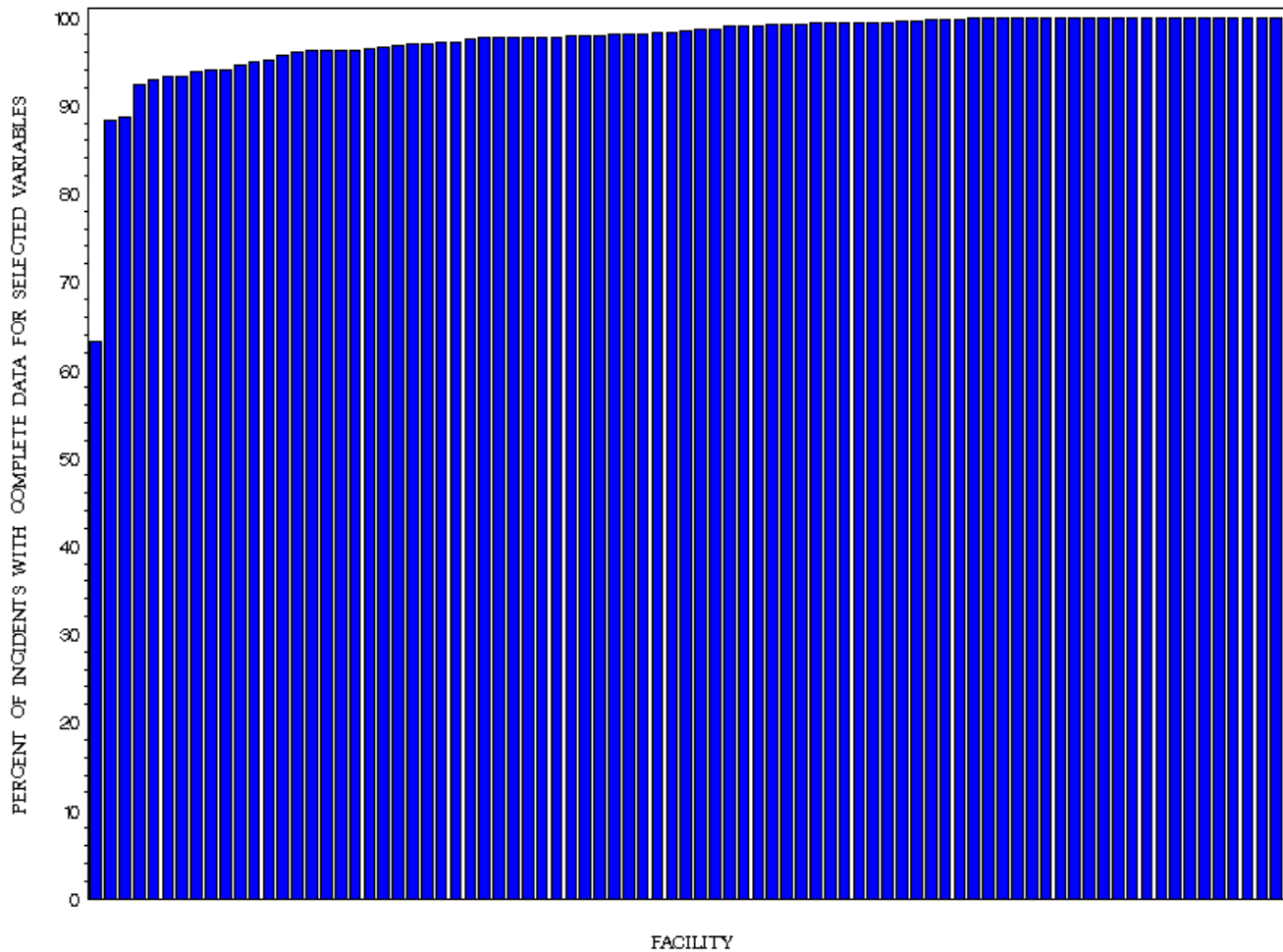


An incident was classified as not complete if any of the following key variables were not known/not documented: Age, Gender, Primary E-Code, Locally Submitted Injury Severity Score, ED/Hospital Discharge Disposition, and Length of Stay. Trauma level is based on ACS verification and state designation;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



Figure 68

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



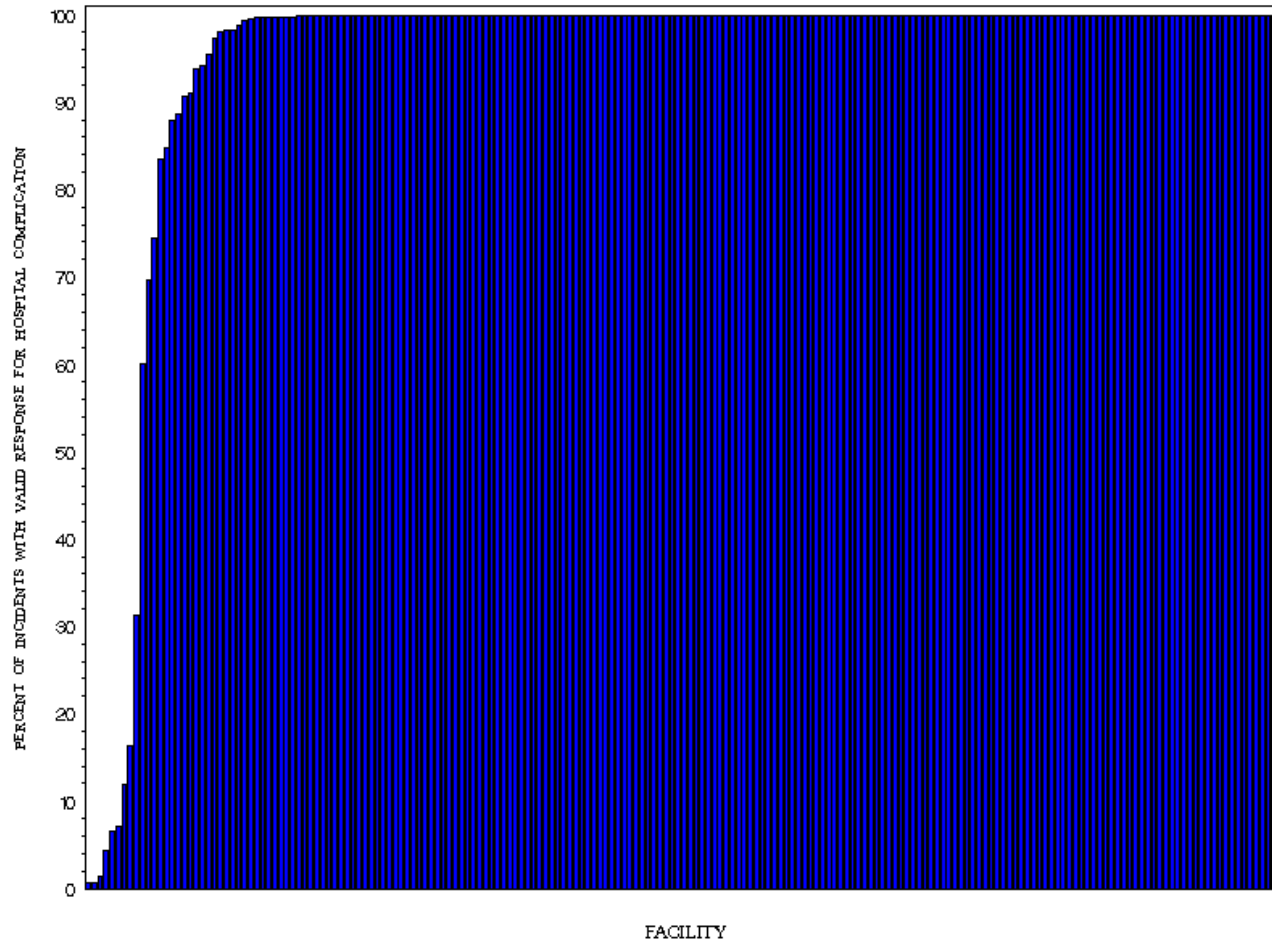
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Figure 69

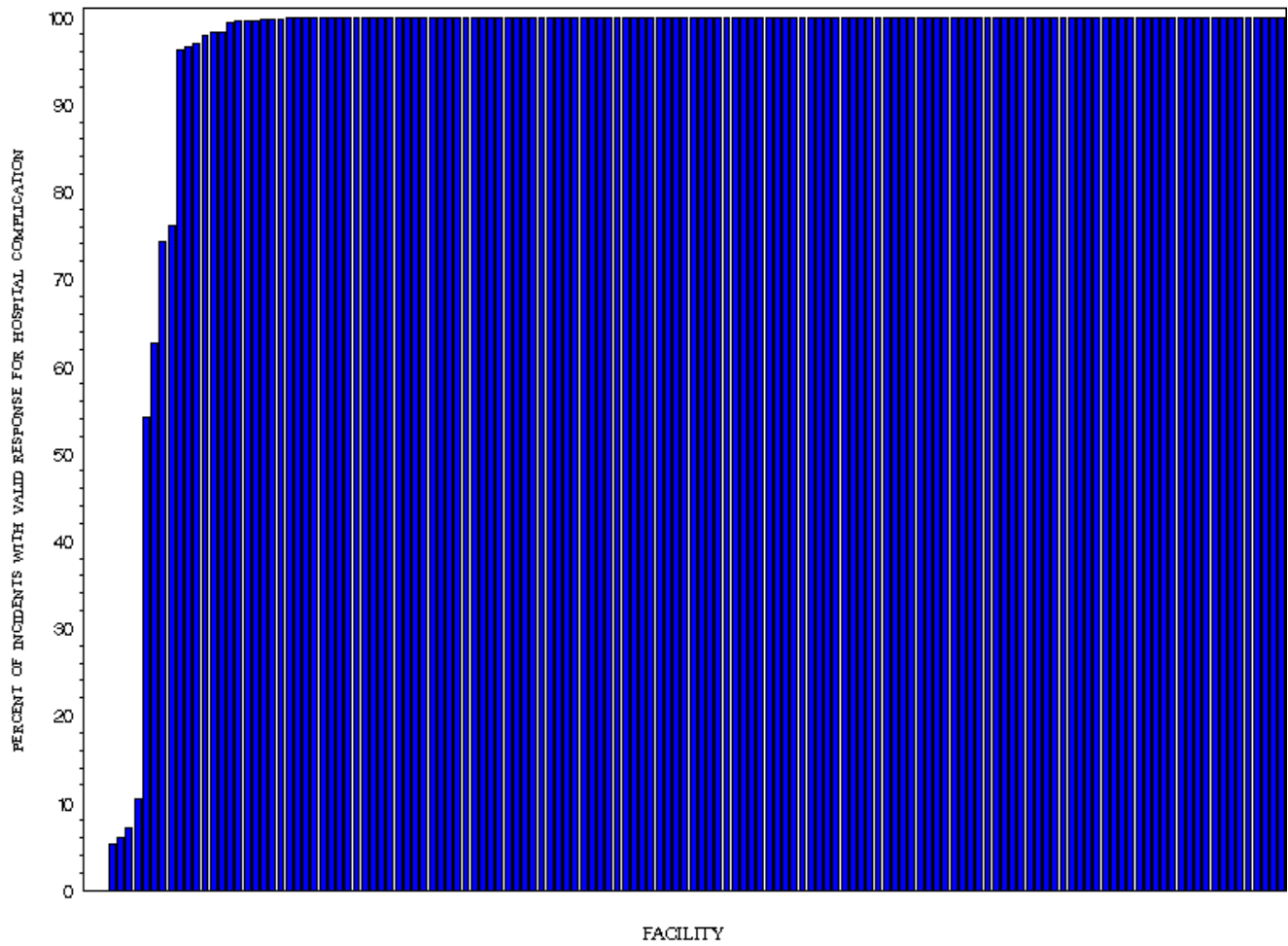
Complications Reported per Facility for Level I Facilities



Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 70

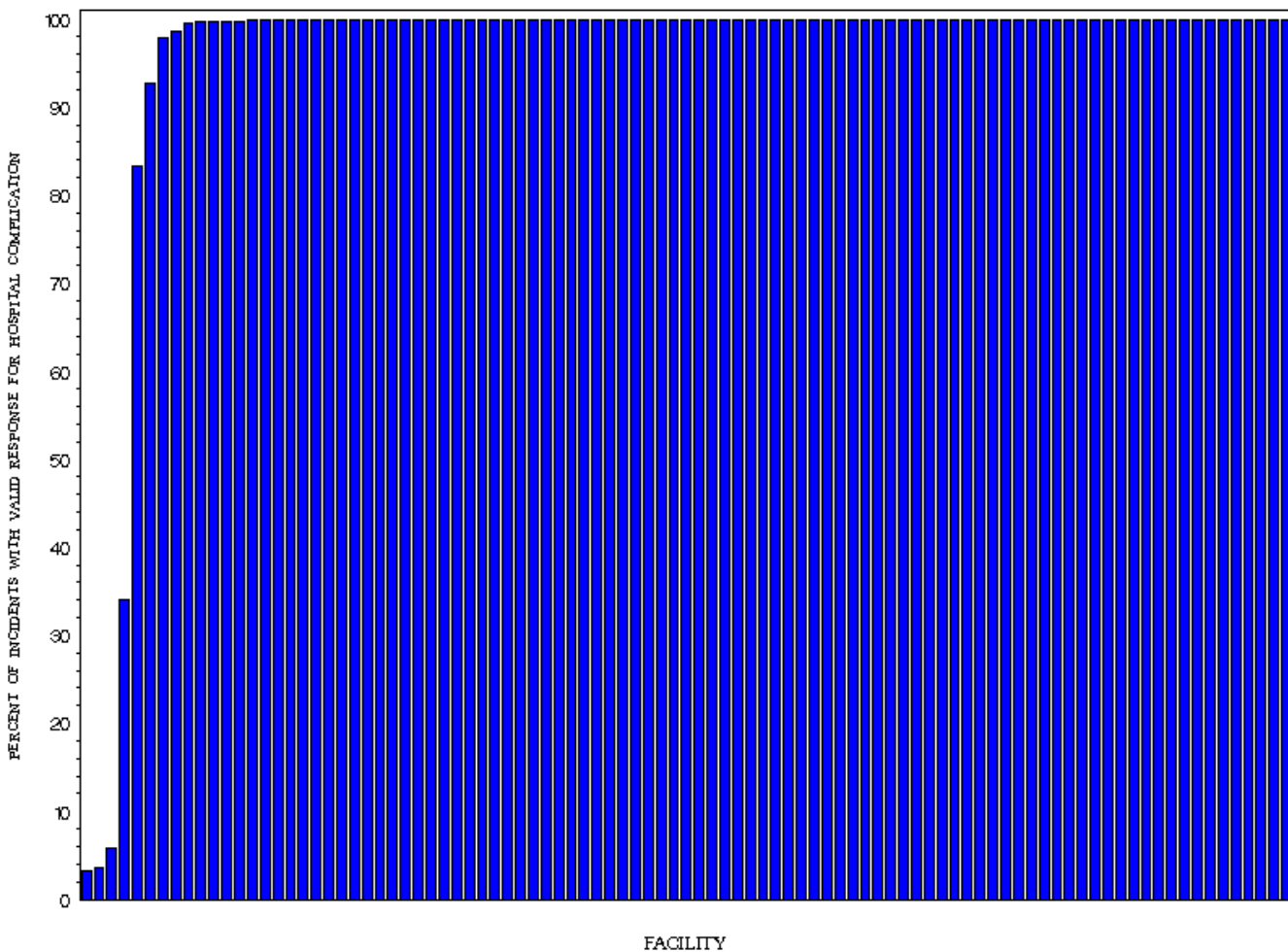
Complications Reported per Facility for Level II Facilities with Bed Size ≤ 400 Beds



Three out of 143 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 71

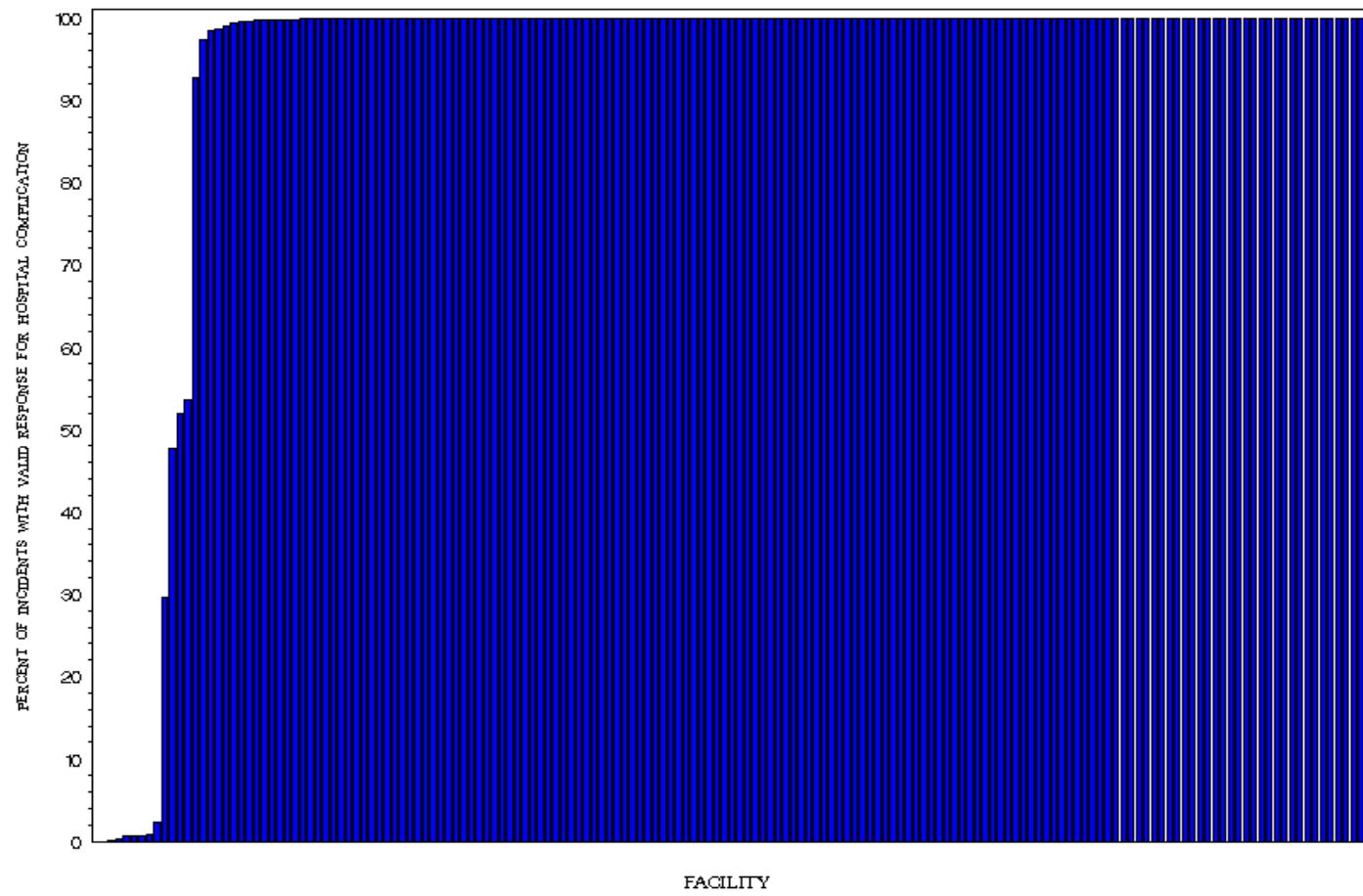
Complications Reported per Facility for Level II Facilities with Bed Size > 400 Beds



Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

Figure 72

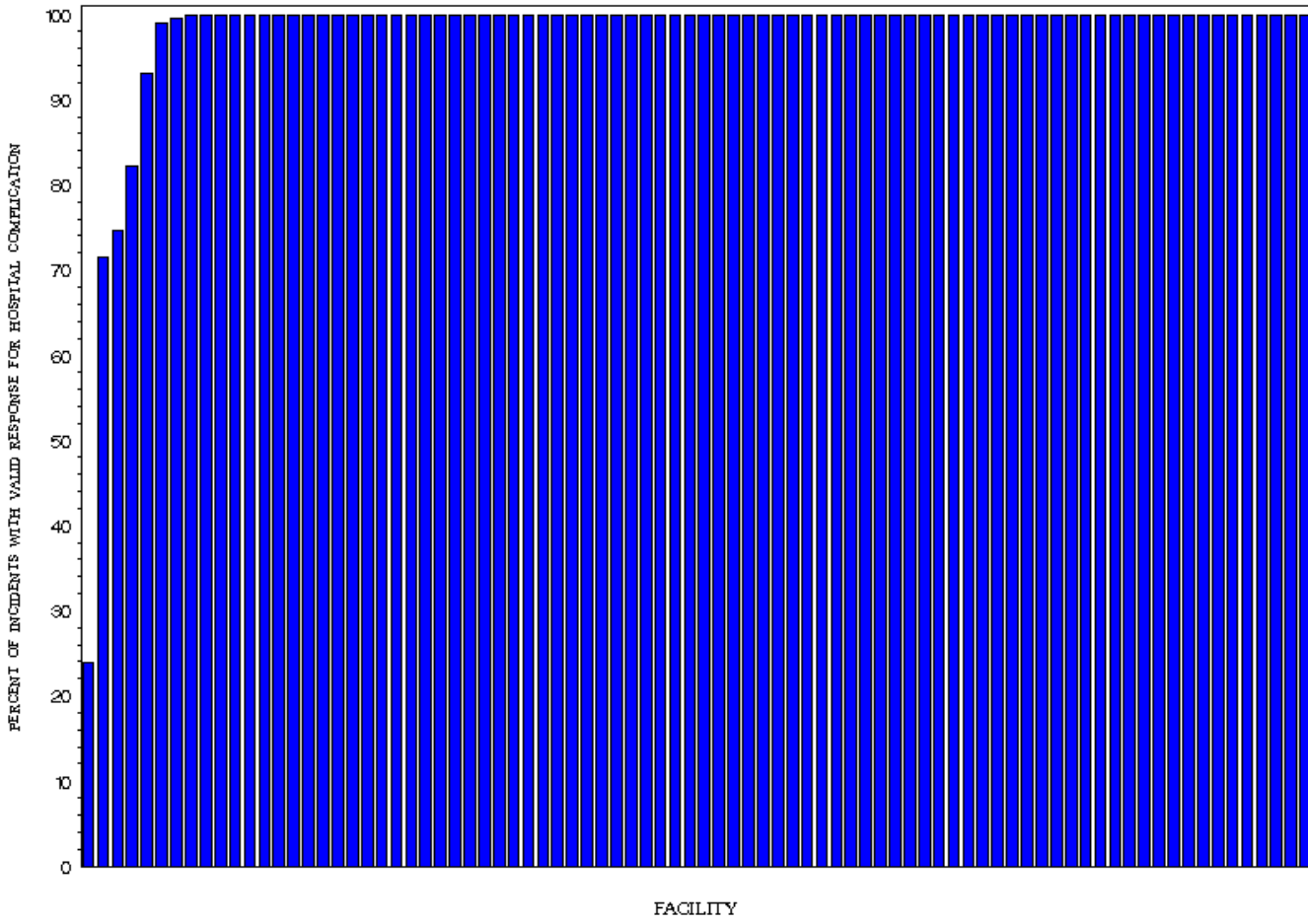
Complications Reported per Facility for Level III Facilities



Two out of 166 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 73

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



Trauma level is based on ACS verification and state designation; however, pediatric hospitals are not included in the analysis.

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)				



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

APPENDIX C

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-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.



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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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