

Japan Trauma Data Bank Report 2014 (2009-2013)

Japan Trauma Care and Research

**The Japanese Association for the Surgery of Trauma
(Trauma Registry Committee)**



**The Japanese Association for Acute Medicine
(Committee for Clinical Care Evaluation)**



Figure
1A**Names of All Hospitals Submitting Data to the JTDB (N=234, Part 1)**

Teine Keijinkai Hospital	Kuki General Hospital	Tokyo Medical and Dental University Hospital
Hokkaido University Hospital	Kawaguchi Municipal Medical Center	Tokyo Metropolitan Bokutoh Hospital
Hokuto Hospital	Dokkyo Medical University Koshigaya Hospital	Showa University Northern Yokohama Hospital
Hokkaido Medical Center	National Defense Medical College Hospital	Yokohama Medical Center
Sapporo City General Hospital	Saitama Medical University Medical Center	Nippon Medical School Musashikosugi Hospital
Nikko Memorial Hospital	Funabashi Municipal Medical Center	Saiseikai Yokohama-city East Hospital
Sapporo Medical University Hospital	Juntendo University Urayasu Hospital	St. Marianna University School of Medicine Hospital
Asahikawa Red Cross Hospital	Asahi Central Hospital	Shonan Kamakura General Hospital
Hirosaki University School of Medicine & Hospital	Nippon Medical School Chiba Hokusoh Hospital	Yokohama Municipal Citizens Hospital
Aomori Prefectural Central Hospital	Chiba University Hospital	Odawara Municipal Hospital
Hachinohe City Hospital	Chiba Emergency Medical Center	Yokosuka Kyosai Hospital
Iwate Medical University Hospital	Matsudo City Hospital	Hiratsuka City Hospital
Kuji Prefectural Hospital	Kameda General Hospital	Fujisawa City Hospital
Osaki Citizen Hospital	Kimitsu Chuou Hospital	Kanto Rosai Hospital
Tohoku University Hospital	Jikei University Kashiwa Hospital	Yokohama Rosai Hospital
Sendai City Hospital	Showa University Hospital	Yokohama City University Medical Center
Ishinomaki Red Cross Hospital	Tokyo Medical Center	Tokai University Hospital
Sendai Medical Center	Department of Social Medicine, School of Medicine, Nihon University	Showa University Fujigaoka Hospital
Akita Red Cross Hospital	National Disaster Medical Center	Kitasato University Hospital
Fukushima Medical University Hospital	Tokyo Metropolitan Hiroo Hospital	Yokosuka General Hospital Uwamachi
Ohta Nishinouchi Hospital	Musashino Red Cross Hospital	Yokohama City Minato Red Cross Hospital
Aizu Central Hospital	Nippon Medical School Tama Nagayama Hospital	Yokohama Sakae Kyosai Hospital
Niigata City General Hospital	Tokyo Medical University Hospital	Niigata University Medical & Dental Hospital
Niigata University Medical & Dental Hospital	Tokyo Medical University Hachioji Medical Center	Niigata City General Hospital
Ibaraki Seinan Medical Hospital	Keio University Hospital	Kouseiren Takaoaka Hospital
Mito Medical Center	St. Luke's International Hospital	Tonami General Hospital
University of Tsukuba Hospital	Teikyo University Hospital	Toyama Prefectural Central Hospital
Tsukuba Medical Center Hospital	Toho University Omori Medical Center	Toyama University Hospital
Ibaraki Prefectural Central Hospital	National Center for Global Health and Medicine	Kanazawa University Hospital
Dokkyo Medical University Hospital	University of Tokyo Hospital	Fukui Prefectural Hospital
Jichi Medical University Hospital	Showa General Hospital	Yamanashi Prefectural Central Hospital
Saiseikai Utunomiya Hospital	Tokyo Women's Medical University Medical Center East	Aizawa Hospital
Gunma University Hospital	Nippon Medical School Hospital	Suwa Red Cross Hospital
Maebashi Red Cross Hospital	Kyorin University Hospital	Iida Municipal Hospital
Takasaki General Medical Center	Surugadai Nihon University Hospital	Ina Central Hospital
Ota Memorial Hospital	Tokyo Women's Medical University Hospital	Saku Central Hospital
Saitama Red Cross Hospital	Ohme Municipal General Hospital	Shinshu University Hospital
Saitama Medical University International Medical Center	Nihon University Itabashi Hospital	Nagano Red Cross Hospital

Figure
1B**Names of All Hospitals Submitting Data to the JTDB (N=234, Part 2)**

Takayama Red Cross Hospital	Kinki University Hospital	Ehime Prefectural Central Hospital
Ogaki Municipal Hospital	Kishiwada Tokushukai Hospital	Ehime University Hospital
Gero City Kanayama Hospital	Osaka University Hospital	Kochi Medical Center
Chuno Kosei Hospital	Osaka City General Hospital	Chikamori Hospital
Gifu University Hospital	Osaka City University Hospital	Kochi Red Cross Hospital
Numazu City Hospital	Kansai Medical University Takii Hospital	Kurume University Hospital
Shizuoka Red Cross Hospital	Osaka City University Hospital	Iizuka Hospital
Shizuoka Children's Hospital	Kansai Medical University Hirakata Hospital	Ohtemachi Hospital
Shizuoka Saiseikai General Hospital	Hyogo Prefectural Nishinomiya Hospital	Kitakyushu Municipal Yahata Hospital
Juntendo University Shizuoka Hospital	Hyogo Prefectural Kakogawa Medical Center	Kyushu University Hospital
Seirei Mikatahara General Hospital	Hyogo Prefectural Awaji Hospital	Kitakyushu General Hospital
Shizuoka General Hospital	Hospital of Hyogo College of Medicine	Kokura Memorial Hospital
Shizuoka Tokushukai Hospital	Kobe City Medical Center General Hospital	Fukuoka Wajiro Hospital
Toyohashi Municipal Hospital	Kobe University Hospital	Fukuoka Red Cross Hospital
Daiyukai General Hospital	Hyogo Emergency Medical Center	Fukuoka Higashi Medical Center
Fujita Health University Hospital	Toyooka Hospital Tajima Emergency & Critical Care Medical Center	Saiseikai Fukuoka General Hospital
Nagoya City University Hospital	Public Muraoka Hospital	Fukuoka University Hospital
Handa City Hospital	Kansai Rosai Hospital	St. Maria's Hospital
Aichi Medical University Hospital	Steel Memorial Hirohata Hospital Himeji Emergency, Trauma and Critical Center	Saga University Hospital
Nagoya Ekisaikai Hospital	Nara Prefectural Nara Hospital	Saga Prefectural Hospital Koseikan
Social Insurance Chukyo Hospital	Nara Medical University Hospital	Ureshino Medical Center
Okazaki City Hospital	Wakayama Medical University Hospital	Nagasaki University Hospital
Mie University Hospital	Tottori University Hospital	Nagasaki Medical Center
Omihachiman Community Medical Center	Tsuyama Chuo Hospital	Arao Municipal Hospital
Saiseikai Shigaken Hospital	Kawasaki Medical School Hospital	Kumamoto Red Cross Hospital
Kyoto Daini Red Cross Hospital	Kurashiki Central Hospital	Kumamoto Medical Center
Kyoto Medical Center	Okayama University Hospital	Saiseikai Kumamoto Hospital
Rakuwakai Otowa Hospital	Hiroshima University Hospital	Oita University Hospital
Fukuchiyama City Hospital	Kure Medical Center	Almeida Memorial Hospital
Kyoto Daiichi Red Cross Hospital	Fukuyama City Hospital	Miyazaki Prefectural Miyazaki Hospital
Uji-Tokushukai Medical Center	Hiroshima Prefectural Hospital	Miyazaki University Hospital
Kyoto Prefectural University of Medicine	Chugoku Rosai Hospital	Miyazaki Zenjinkai Hospital
Osaka Prefectural Senshu Critical Medical Care Center	Kanmon Medical Center	Miyakonojo Regional Medical Center
Saiseikai Senri Hospital	Tokuyama Central Hospital	Osumikanoya Hospital
Osaka General Medical Center	Yamaguchi Grand Medical Center	Kagoshima City Hospital
Hanwa Memorial Hospital	Yamaguchi University Hospital	Okinawa Prefectural Chubu Hospital
Osaka Medical Center	Tokushima Prefectural Kaifu Hospital	Okinawa Prefectural Hokubu Hospital
Nakakawachi Medical Center of Acute Medicine	Tokushima Prefectural Central Hospital	Ryukyu University Hospital
Osaka Mishima Emergency Medical Center	Tokushima Prefectural Miyoshi Hospital	Urasoe General Hospital
	Taoka Hospital	Nakagami Hospital
	Kagawa University Hospital	
	Kagawa Prefectural Central Hospital	

Figure
2

Number of Hospitals Submitting to the JTDB by Region

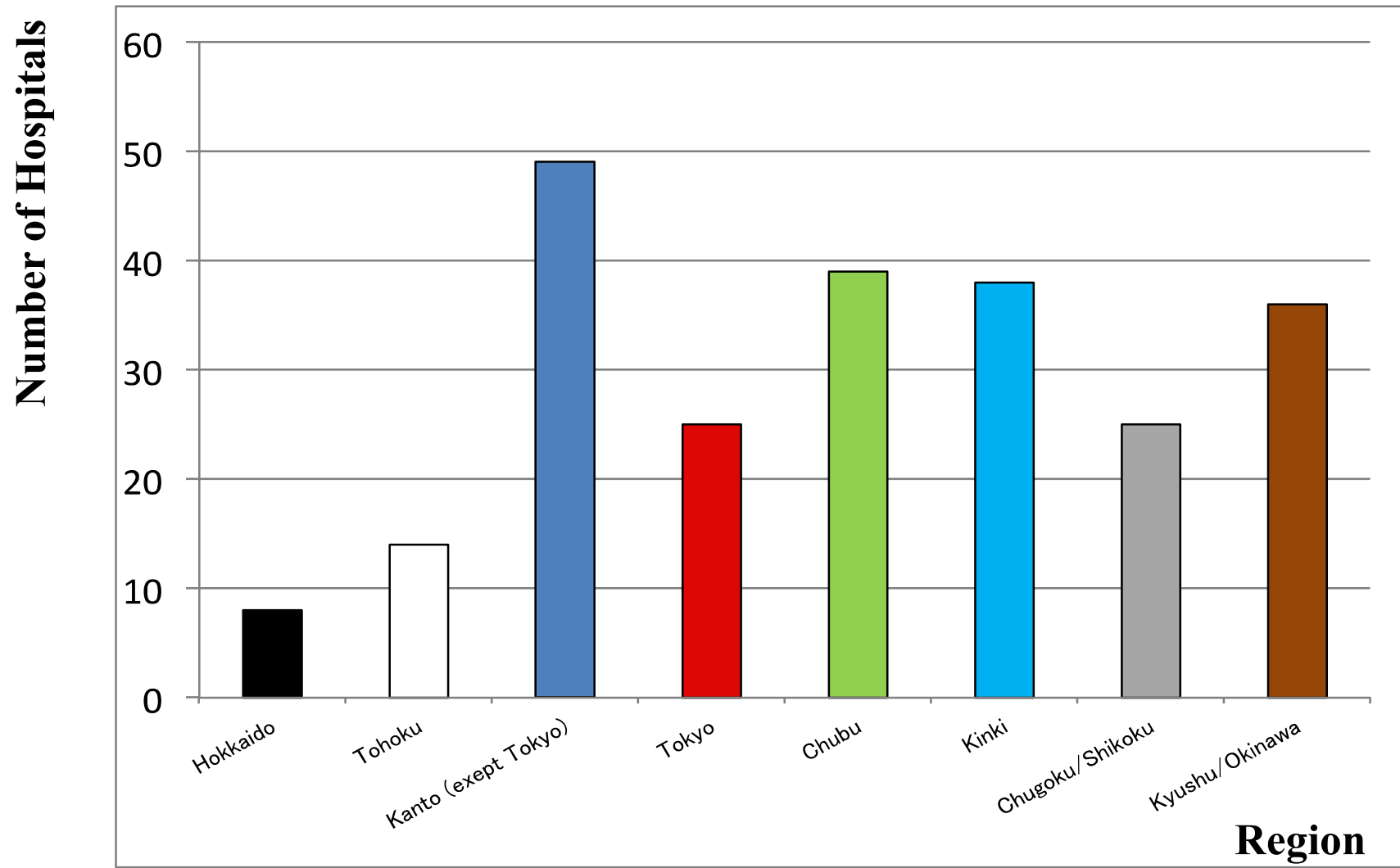


Figure 3

Number of Patients by Age

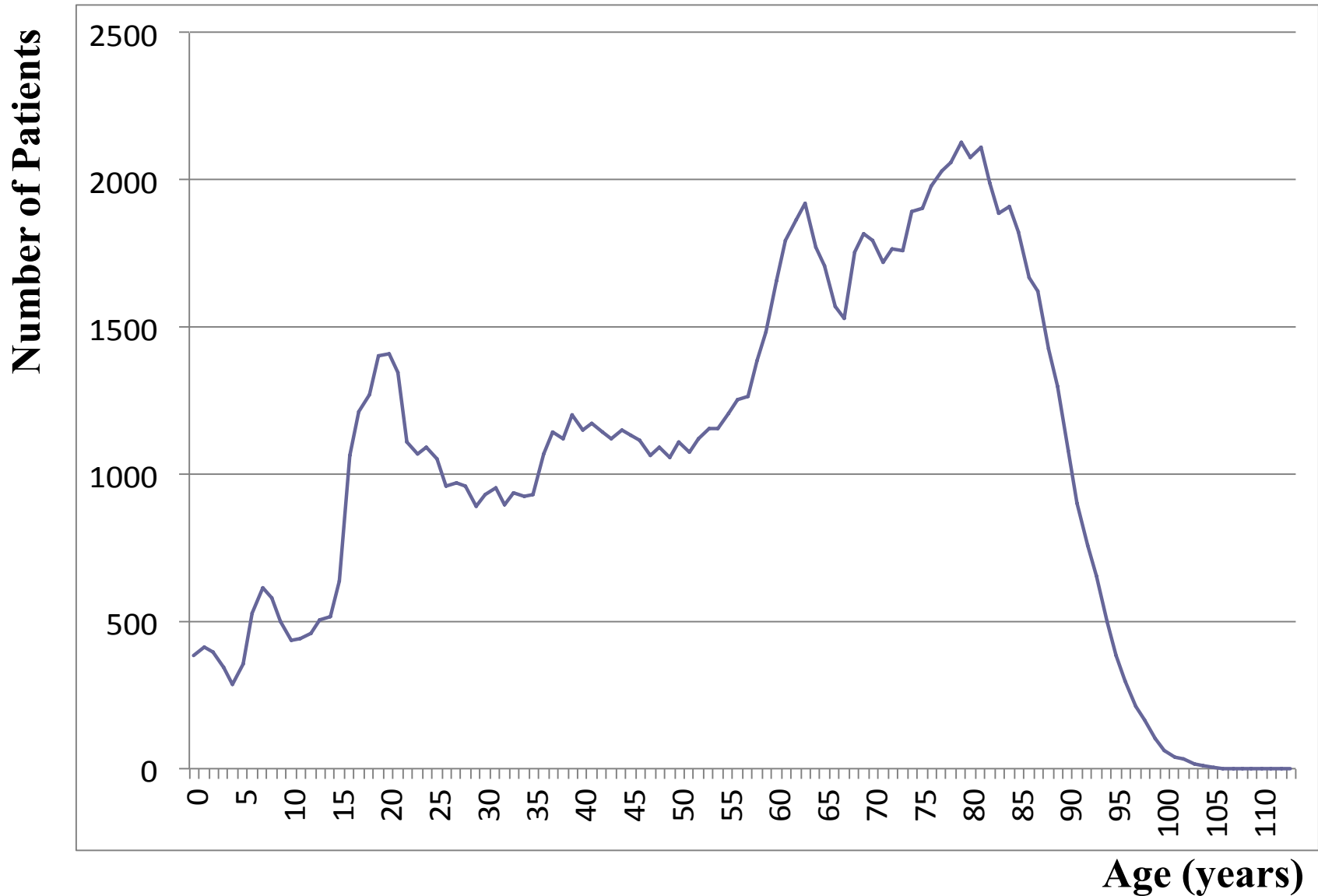


Figure 4

Patients by Age and Gender

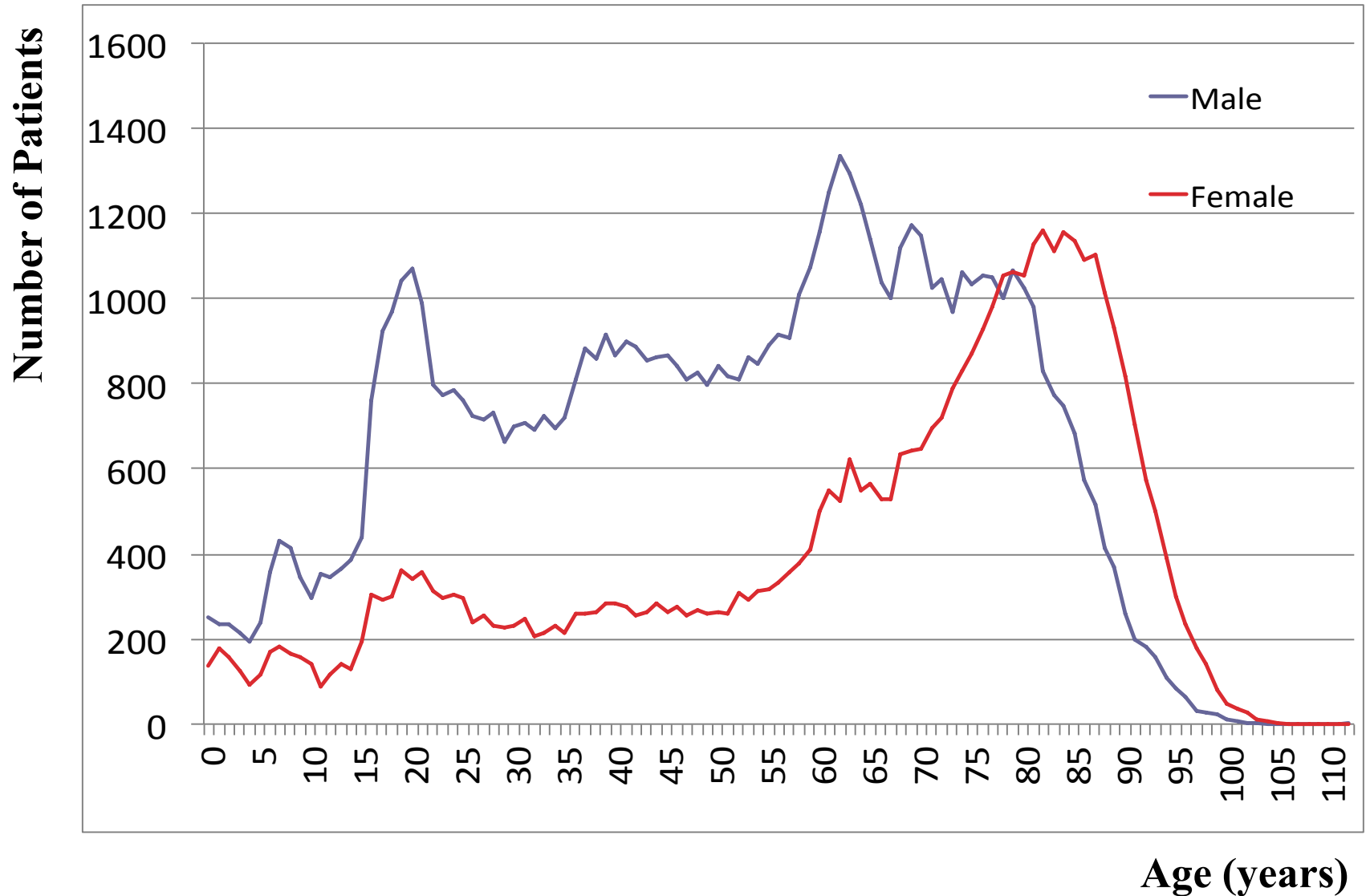


Figure 5

Patients by mechanism of injury

Motor vehicle traffic includes pedal cyclist and pedestrian victims.

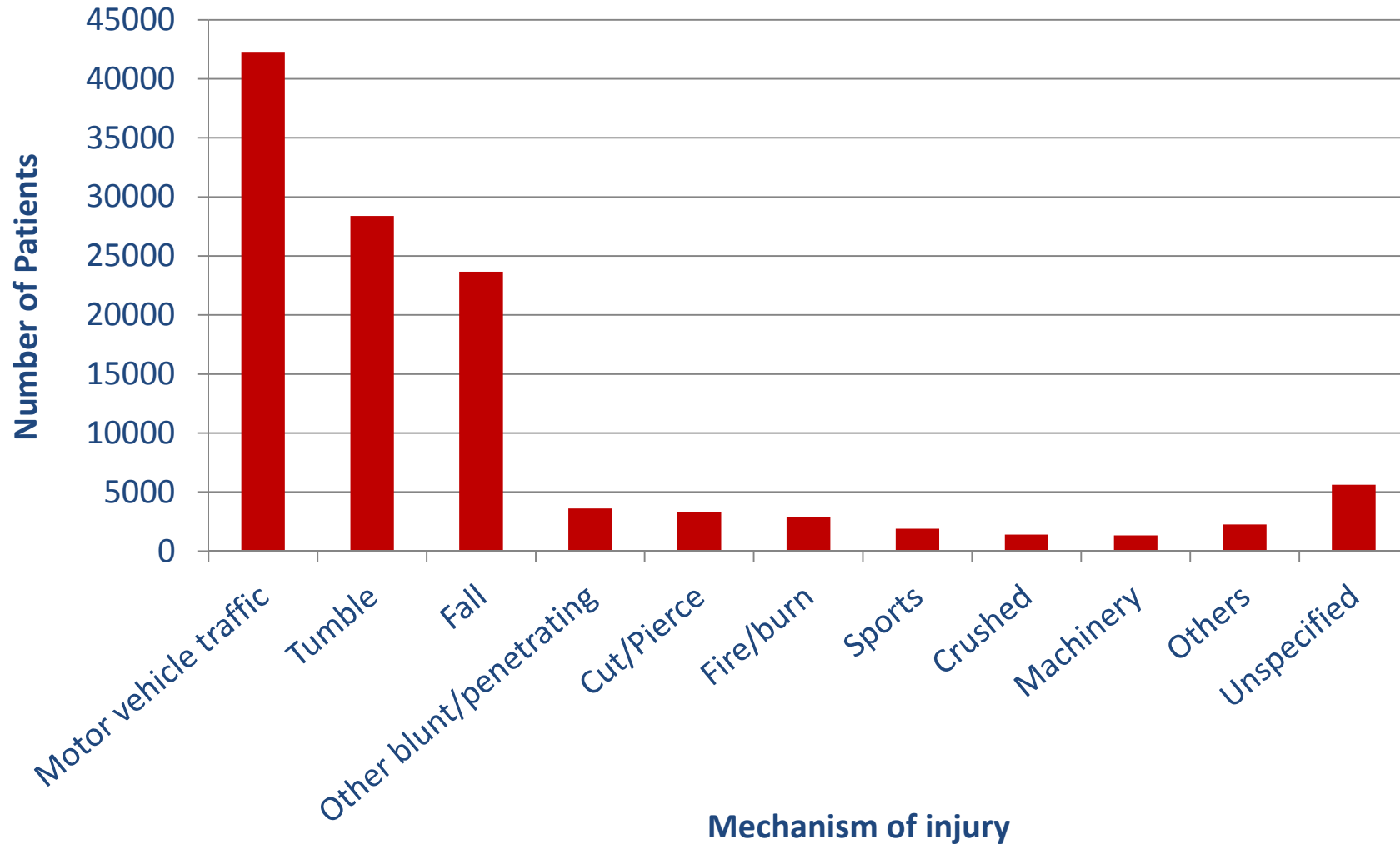


Table
5**Patients by mechanism of injury**

Mechanism of injury	Patients (n)	Patients by mechanism of injury
Motor vehicle traffic	42207	36.24 %
Tumble	28381	24.37 %
Fall	23669	20.32 %
Other blunt/penetrating	3614	3.10 %
Cut/Pierce	3280	2.82 %
Fire/burn	2860	2.46 %
Sports	1881	7.95 %
Crushed	1395	1.20 %
Machinery	1325	1.14 %
Transport, others	1052	0.90 %
Falling objects	847	0.73 %
Explosion	212	0.18 %
Stake	98	0.08 %
Firearm	36	0.03 %
Unspecified	5609	4.82 %
Total	116466	100.00 %

Figure 6

Mechanism of injury by age

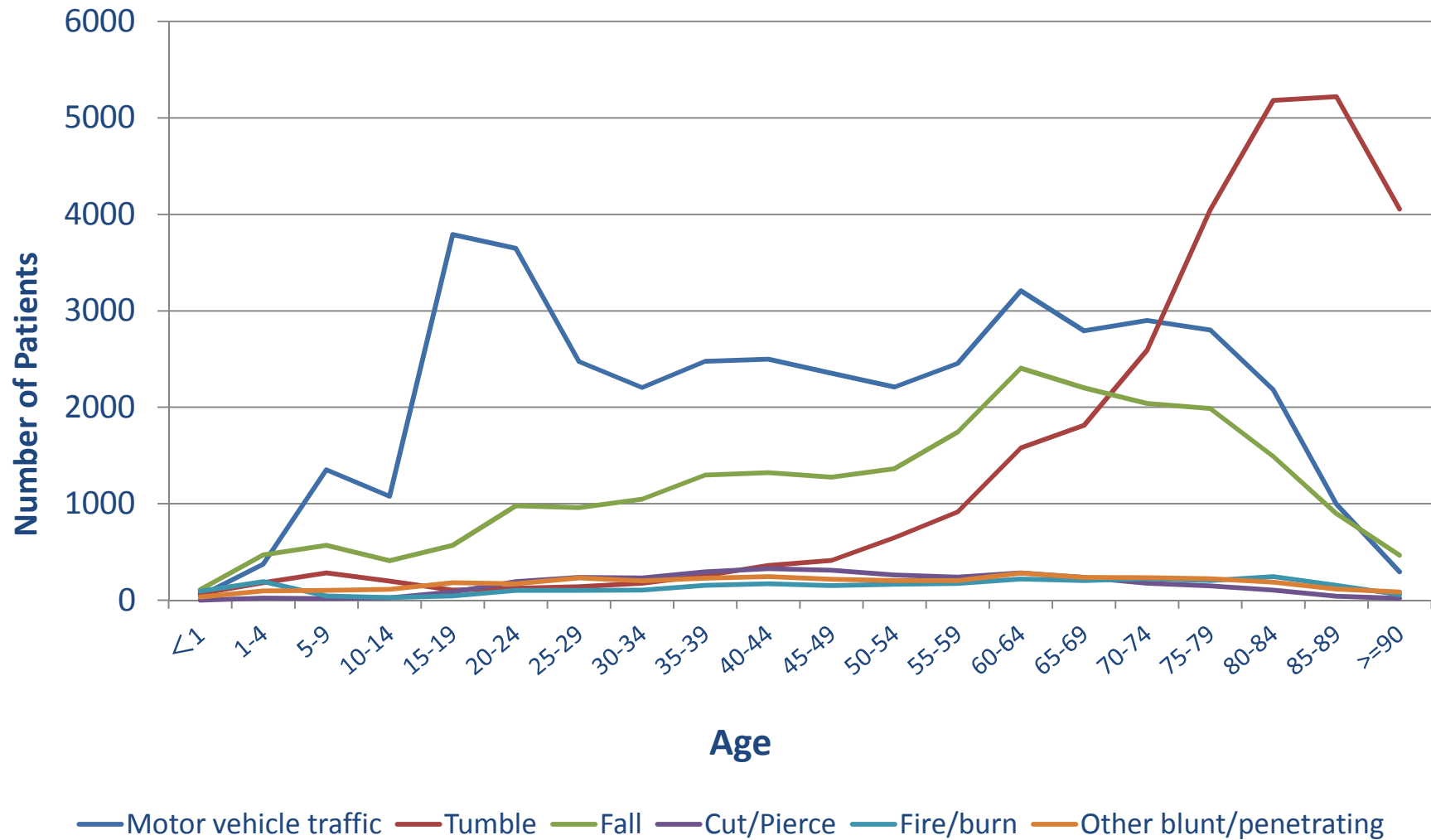


Table
6

Mechanism of injury by range of age

Range of Age (yr)	Motor vehicle traffic(n)	% of total range of age (%)	Fall (n)	% of total range of age (%)	Tumble (n)	% of total range of age (%)	Cut/Pierce (n)	% of total range of age (%)	Fire/Burn (n)	% of total range of age (%)	Other blunt /penetrating (n)	% of total range of age (%)
<1	45	0.11	69	0.24	112	0.47	2	0.06	95	3.32	34	0.94
1-4	376	0.89	182	0.64	471	1.99	23	0.70	192	6.71	97	2.68
5-9	1352	3.20	285	1.00	570	2.41	18	0.55	44	1.54	104	2.88
10-14	1077	2.55	198	0.70	410	1.73	26	0.79	29	1.01	115	3.18
15-19	3791	8.98	105	0.37	569	2.40	85	2.59	46	1.61	181	5.01
20-24	3646	8.64	124	0.44	979	4.14	193	5.88	102	3.57	170	4.70
25-29	2474	5.86	141	0.50	960	4.06	237	7.23	104	3.64	233	6.45
30-34	2206	5.23	178	0.63	1049	4.43	231	7.04	105	3.67	201	5.56
35-39	2476	5.87	256	0.90	1299	5.49	294	8.96	156	5.45	230	6.36
40-44	2498	5.92	360	1.27	1323	5.59	329	10.03	170	5.94	245	6.78
45-49	2354	5.58	413	1.46	1277	5.40	311	9.48	153	5.35	219	6.06
50-54	2209	5.23	650	2.29	1364	5.76	262	7.99	167	5.84	205	5.67
55-59	2454	5.81	916	3.23	1743	7.36	241	7.35	173	6.05	203	5.62
60-64	3207	7.60	1577	5.56	2404	10.16	285	8.69	220	7.69	281	7.78
65-69	2792	6.62	1811	6.38	2203	9.31	237	7.23	205	7.17	238	6.59
70-74	2901	6.87	2592	9.13	2041	8.62	176	5.37	224	7.83	234	6.47
75-79	2802	6.64	4047	14.26	1987	8.39	150	4.57	205	7.17	224	6.20
80-84	2179	5.16	5181	18.26	1489	6.29	106	3.23	245	8.57	189	5.23
85-89	997	2.36	5220	18.39	896	3.79	41	1.25	154	5.38	117	3.24
>=90	296	0.70	4054	14.28	465	1.96	20	0.61	59	2.06	85	2.35
Unspecified	75	0.18	22	0.08	58	0.25	13	0.40	12	0.42	9	0.25
Total	42207	100	28381	100	23669	100	3280	100	2860	100	3614	100

Figure 7

Deaths by mechanism of injury

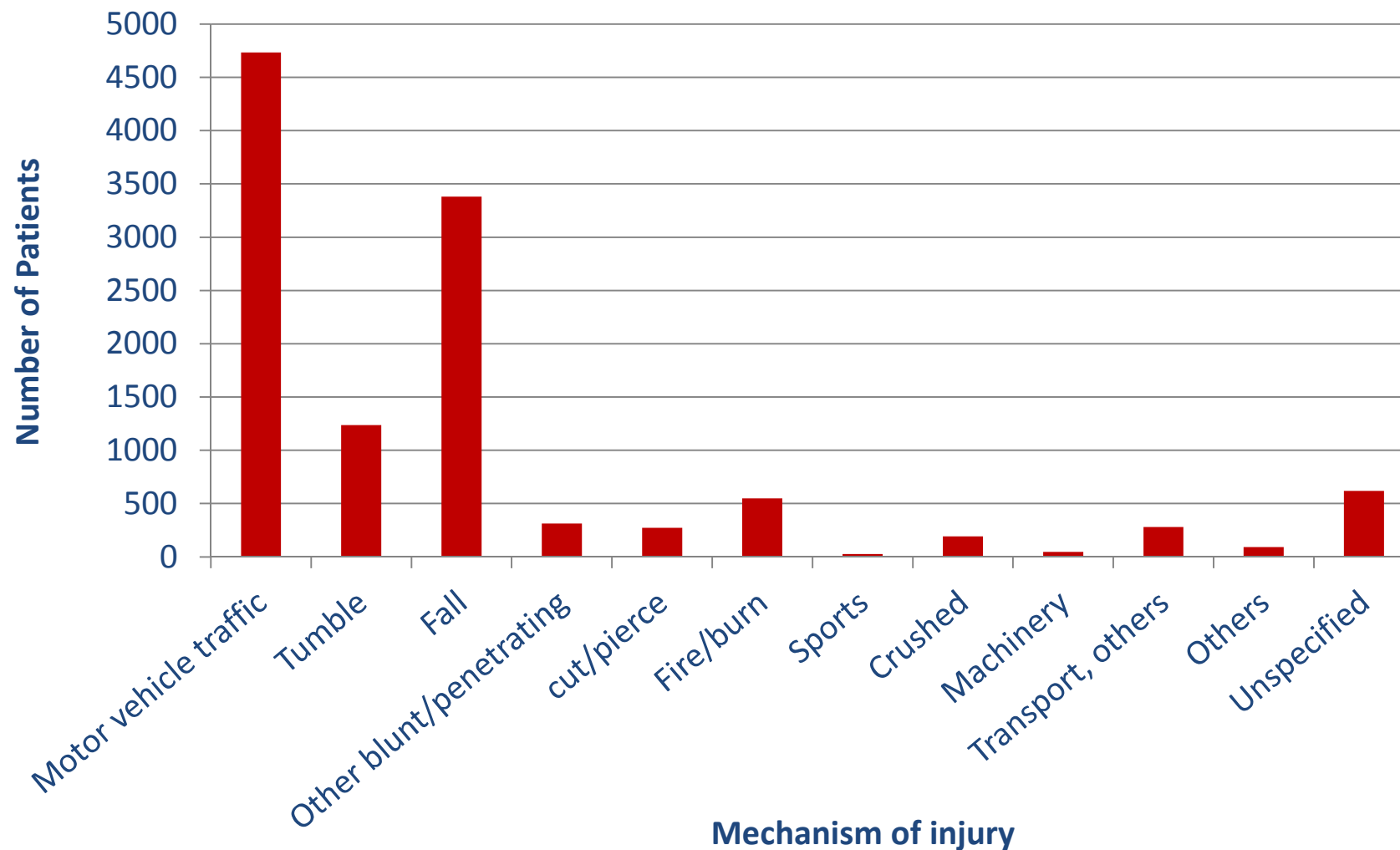
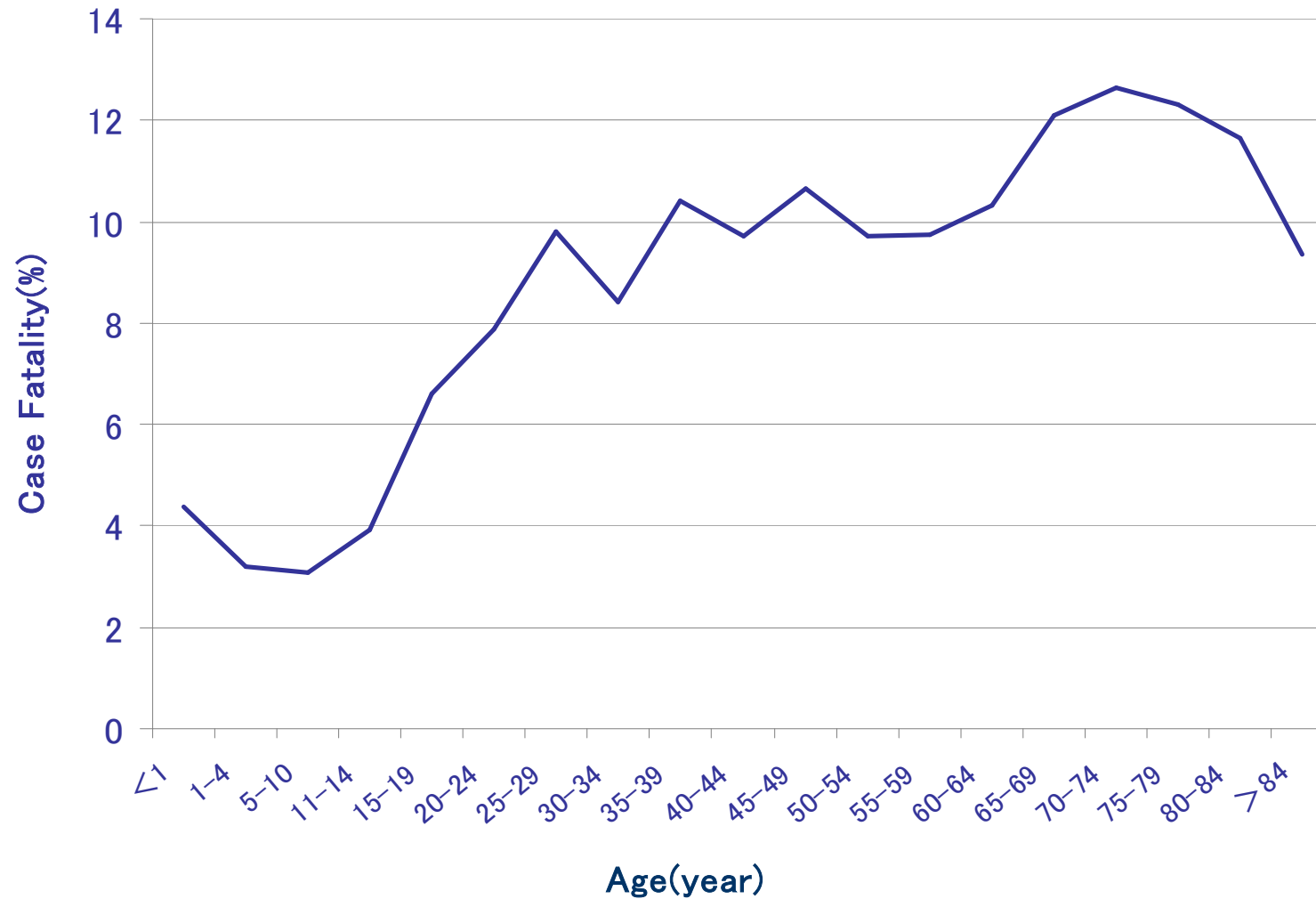


Figure
8**Case Fatality by age**

Case fatality at each age category (Case Fatality=number of deaths divided by the number of patients at each category x 100 by age)

Figure 9

Case Fatality by age and Gender

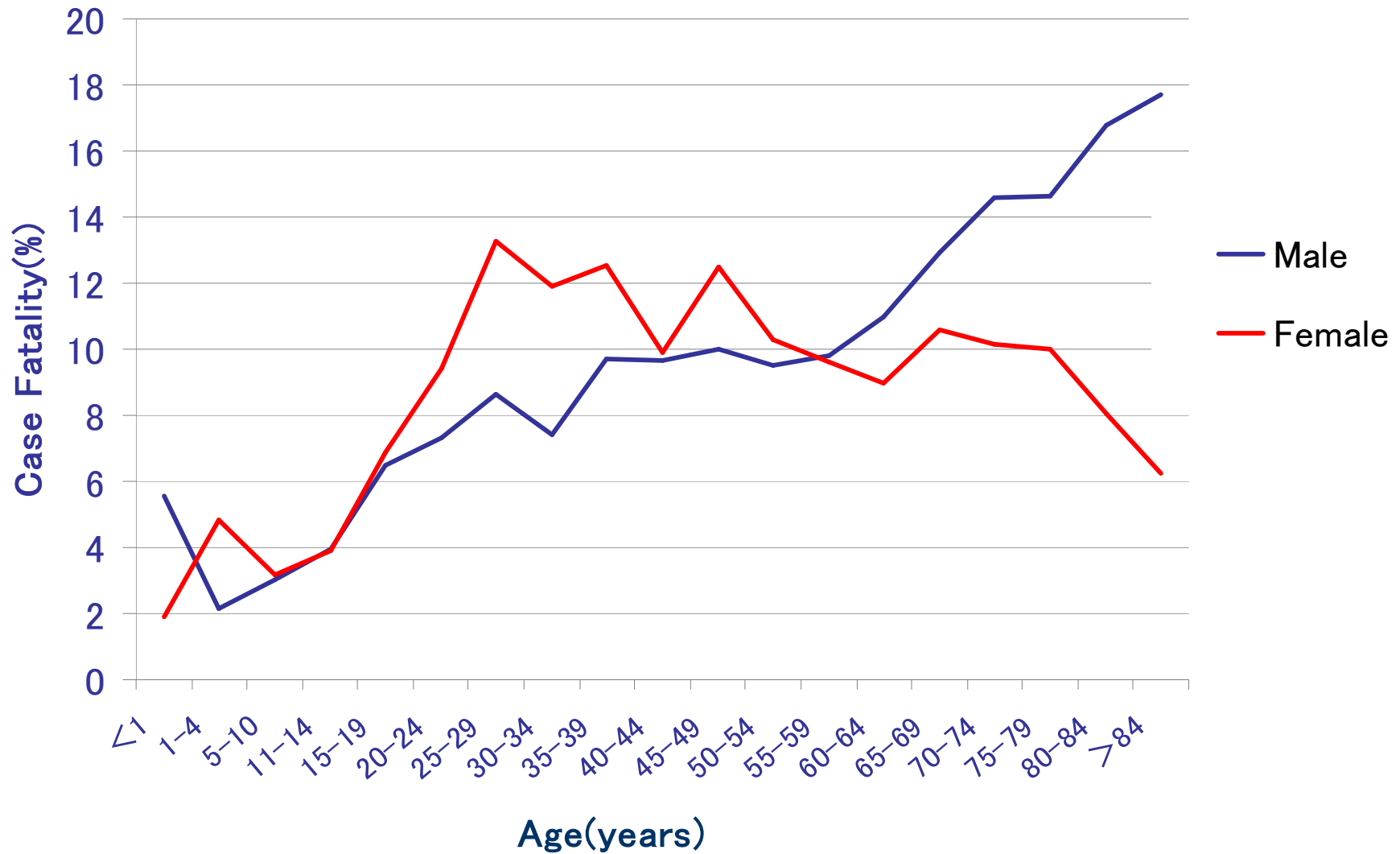


Figure 10

Case Fatality by Age

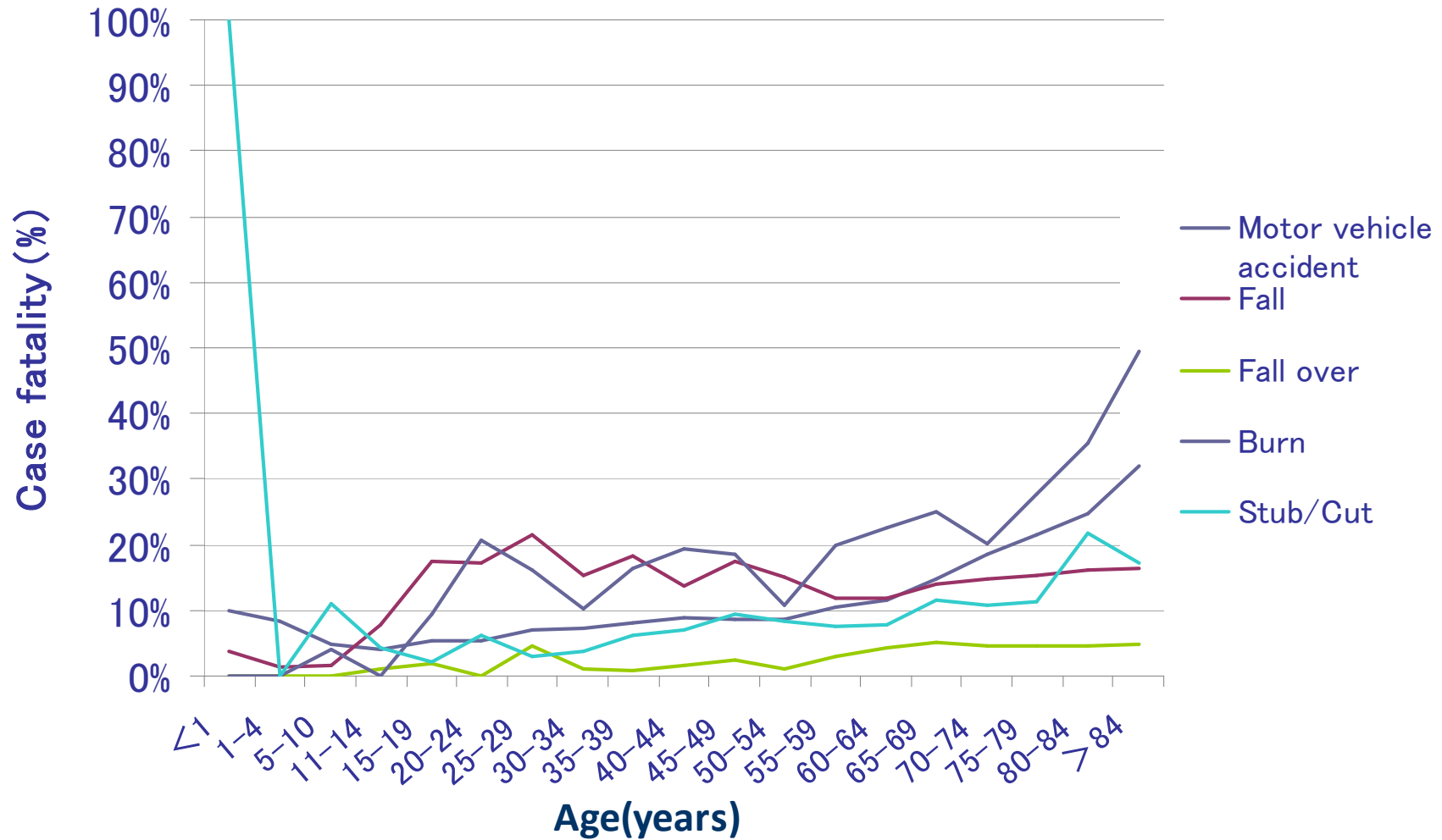
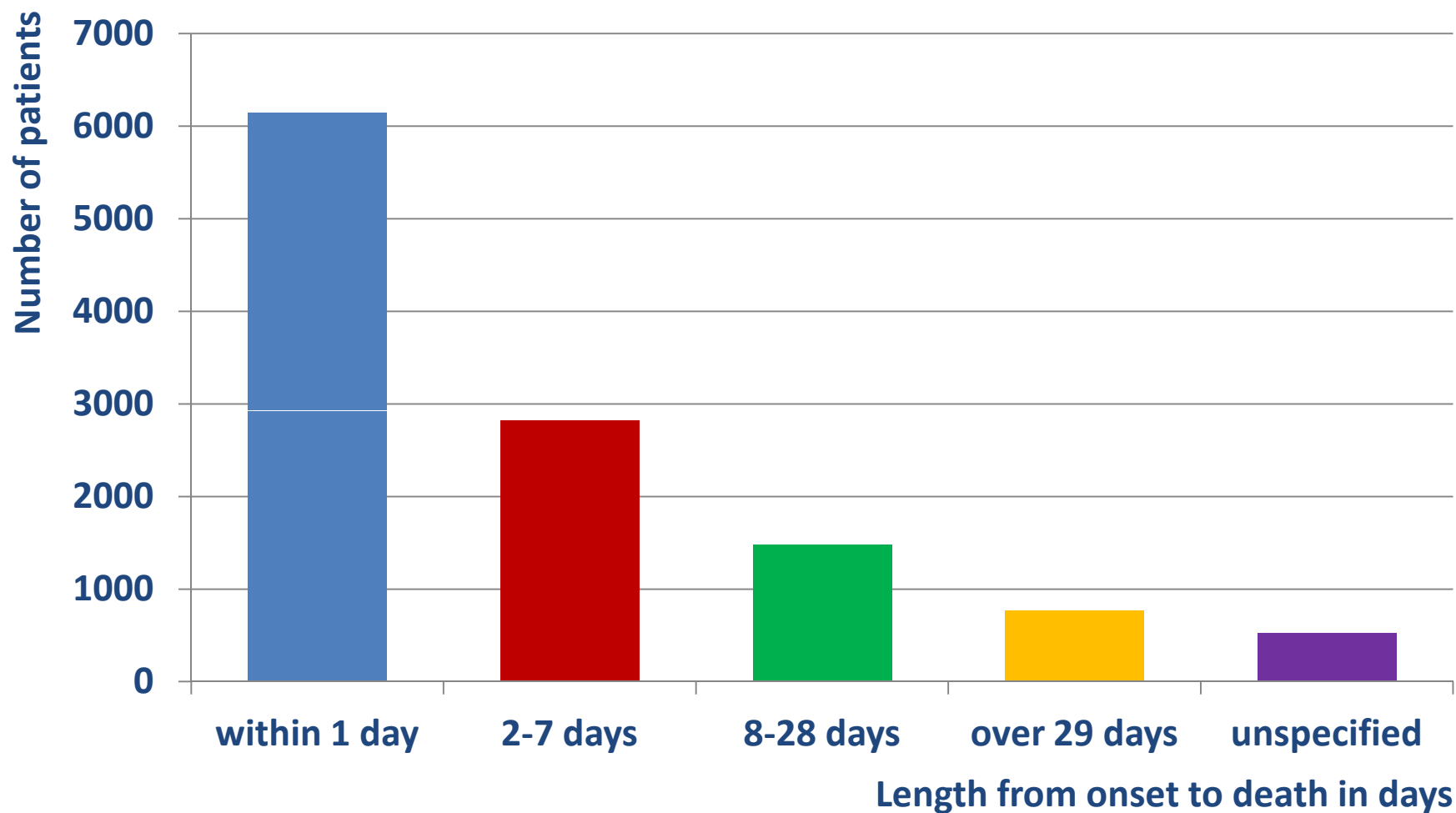
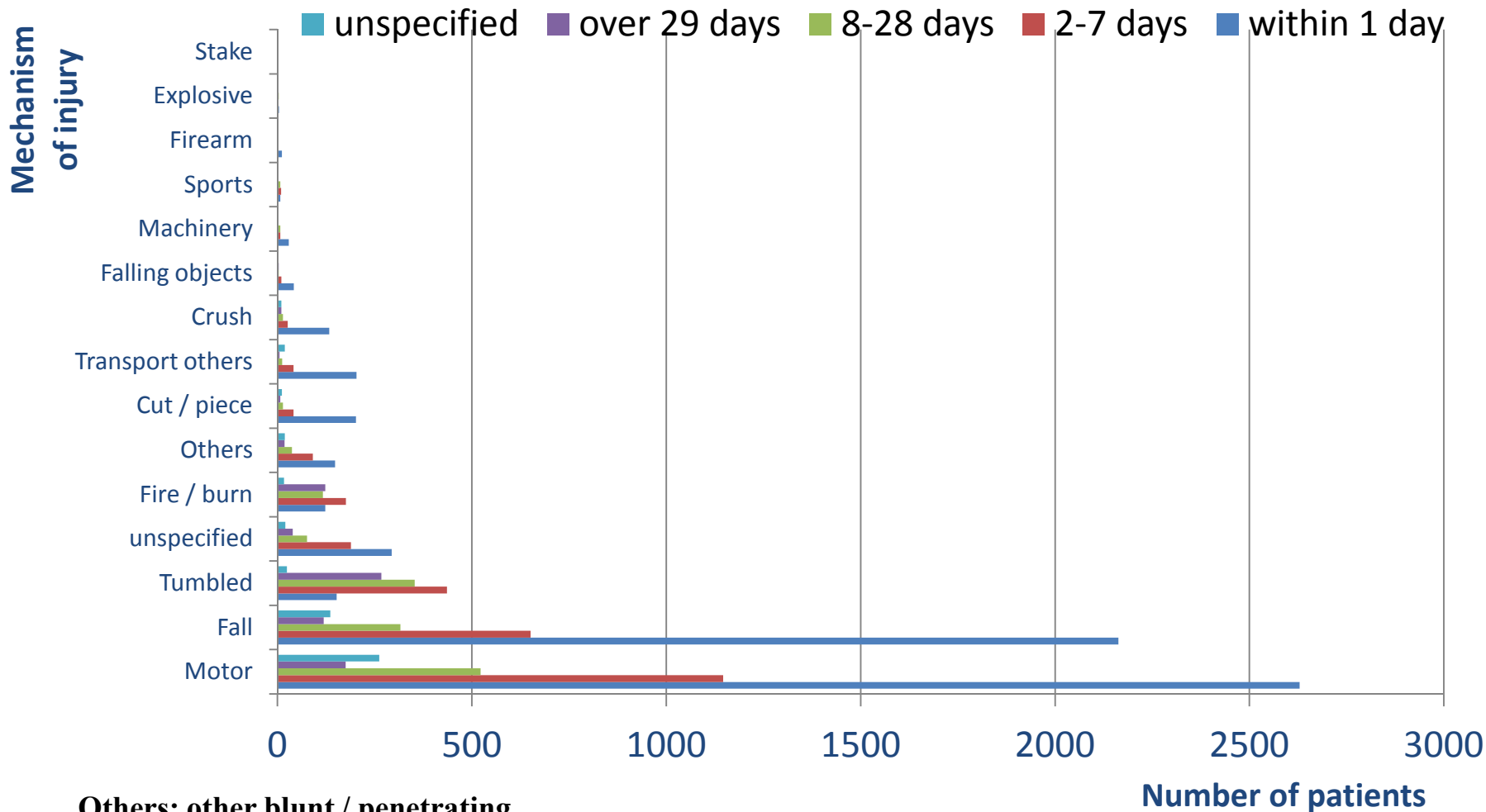


Figure
11A**Proportional distribution of length from onset to facility N = 11,745**

The category within 1 day after onset includes CPAOA patients.

Figure 11B

Proportional distribution of length from onset to fatality, grouped by mechanism of injury N = 11,745



Others; other blunt / penetrating

Motor; Motor vehicle traffic includes pedal cyclist and pedestrian victims.

Table
11B

**Proportional distribution of length from onset to fatality,
grouped by mechanism of injury N = 11,745**

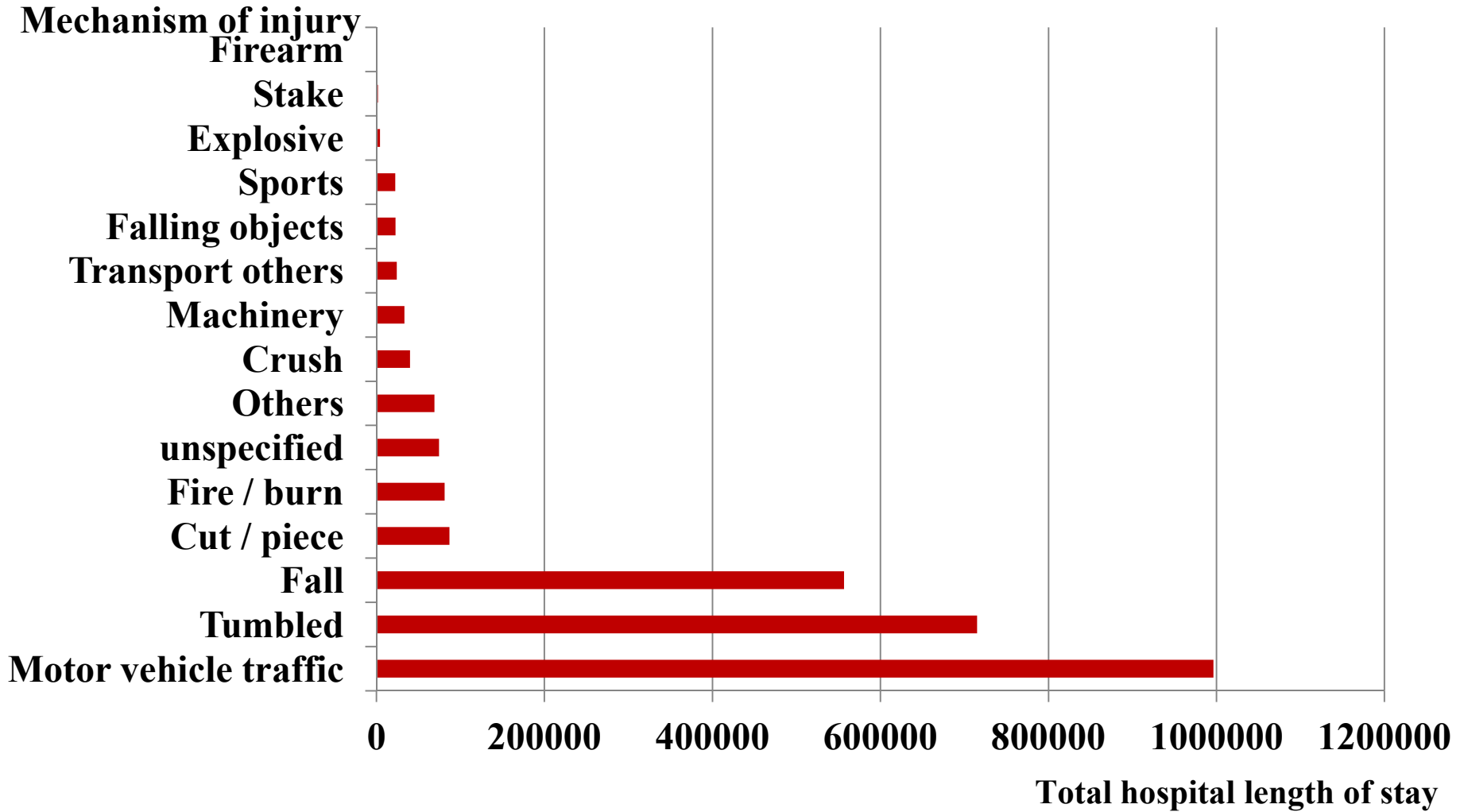
Mechanism Length of hospital days	Motor vehicle traffic	Fall	Tumbled	unspecified	Fire / burn	Other blunt/penet rating	Transport others	Cut / piece
within 1 day	2629	2163	152	294	123	148	203	202
2 - 7 days	1146	651	436	189	176	91	41	41
8 - 28 days	522	316	353	76	117	37	12	14
over 29 days	175	119	267	39	123	18	5	7
unspecified	262	136	24	20	17	19	19	11
Total	4734	3385	1232	618	556	313	280	275

Motor vehicle traffic includes pedal cyclist and pedestrian victims.

Mechanism Length of hospital days	重要物 による狭圧	落下物・ 飛来物	機械による 外傷	スポーツ 中の事故	銃創	爆発	刺創(刺抗創)	Total
within 1 day	133	42	29	7	11	4	1	6141
2 - 7 days	26	10	7	9	2	1	1	2827
8 - 28 days	14	3	7	7	0	3	0	1481
over 29 days	10	3	2	2	0	2	0	772
unspecified	10	1	2	1	1	0	1	524
Total	193	59	47	26	14	10	3	11745

Figure 12

Total hospital length of stay by mechanism of Injury N = 104,098



Total hospital length of stay of patients are 2,729,053 days.

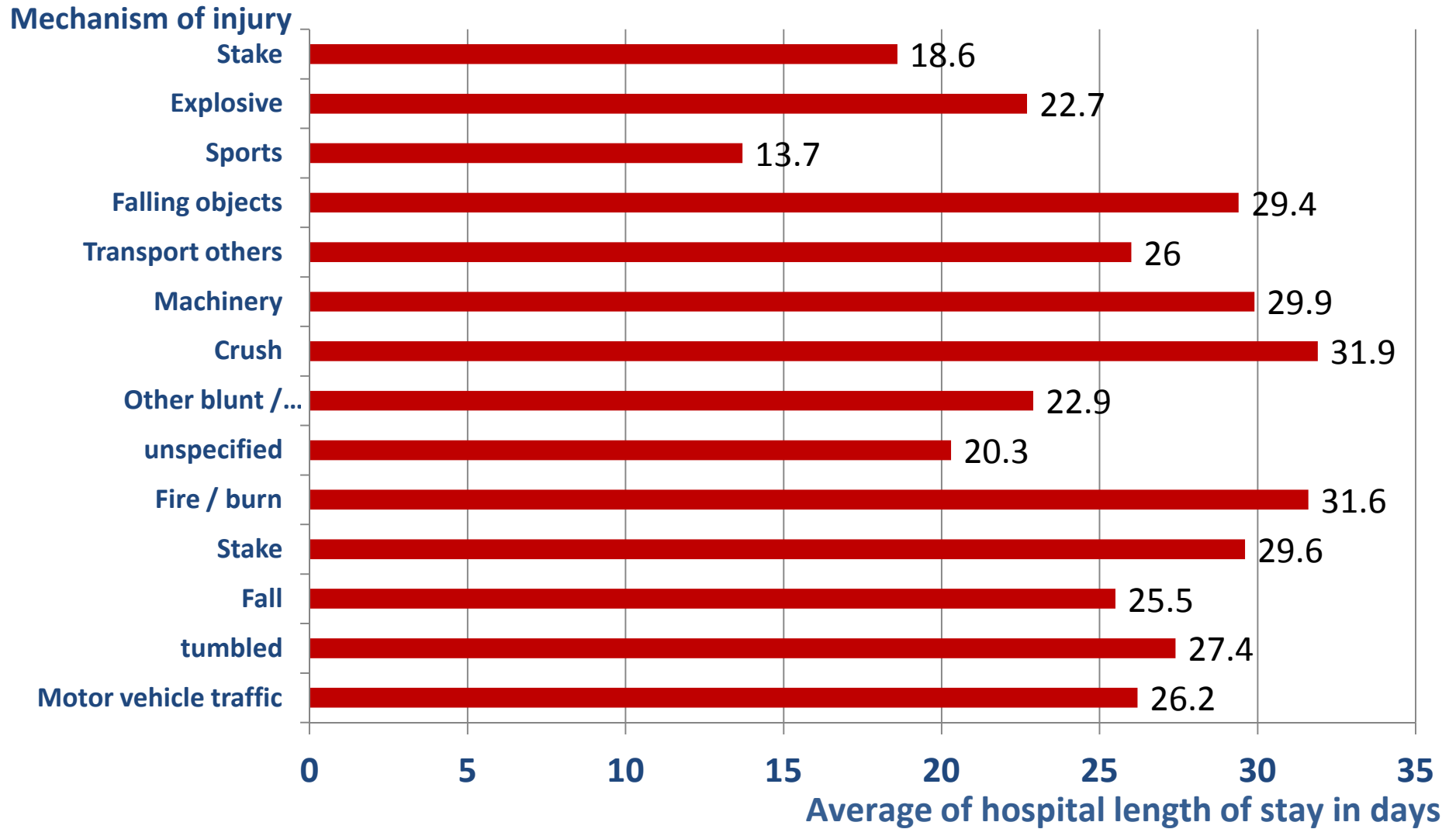
Table
12**Total and average hospital length of stay by mechanism of injury N = 104,098**

	Number of patients / %		Total hospital LOS in days	Average of hospital LOS in days
Motor vehicle traffic	38,003	36.51%	996,492	26.2
Tumbled	26,094	25.07%	714,951	27.4
Fall	21,791	20.93%	556,589	25.5
unspecified	3,672	3.53%	81,152	20.3
Other blunt / penetrating	3,009	2.89%	68,921	22.9
Cut / piece	2,934	2.82%	86,786	29.6
Fire / burn	2,568	2.47%	81,152	31.6
Sports	1,634	1.57%	22,308	13.7
Crush	1,250	1.20%	39,916	31.9
Machinery	1,119	1.07%	33,415	29.9
Transport others	938	0.90%	24,348	26.0
Falling objects	775	0.74%	22,765	29.4
Explosive	190	0.18%	4,311	22.7
Stake	90	0.09%	1,673	18.6
Firearm	31	0.03%	997	32.2
Total	104,098	100%	2,729,053	26.2

LOS; length of stay Motor vehicle traffic includes pedal cyclist and pedestrian victims

Figure 13

Average hospital length of stay by mechanism of injury N = 104,098

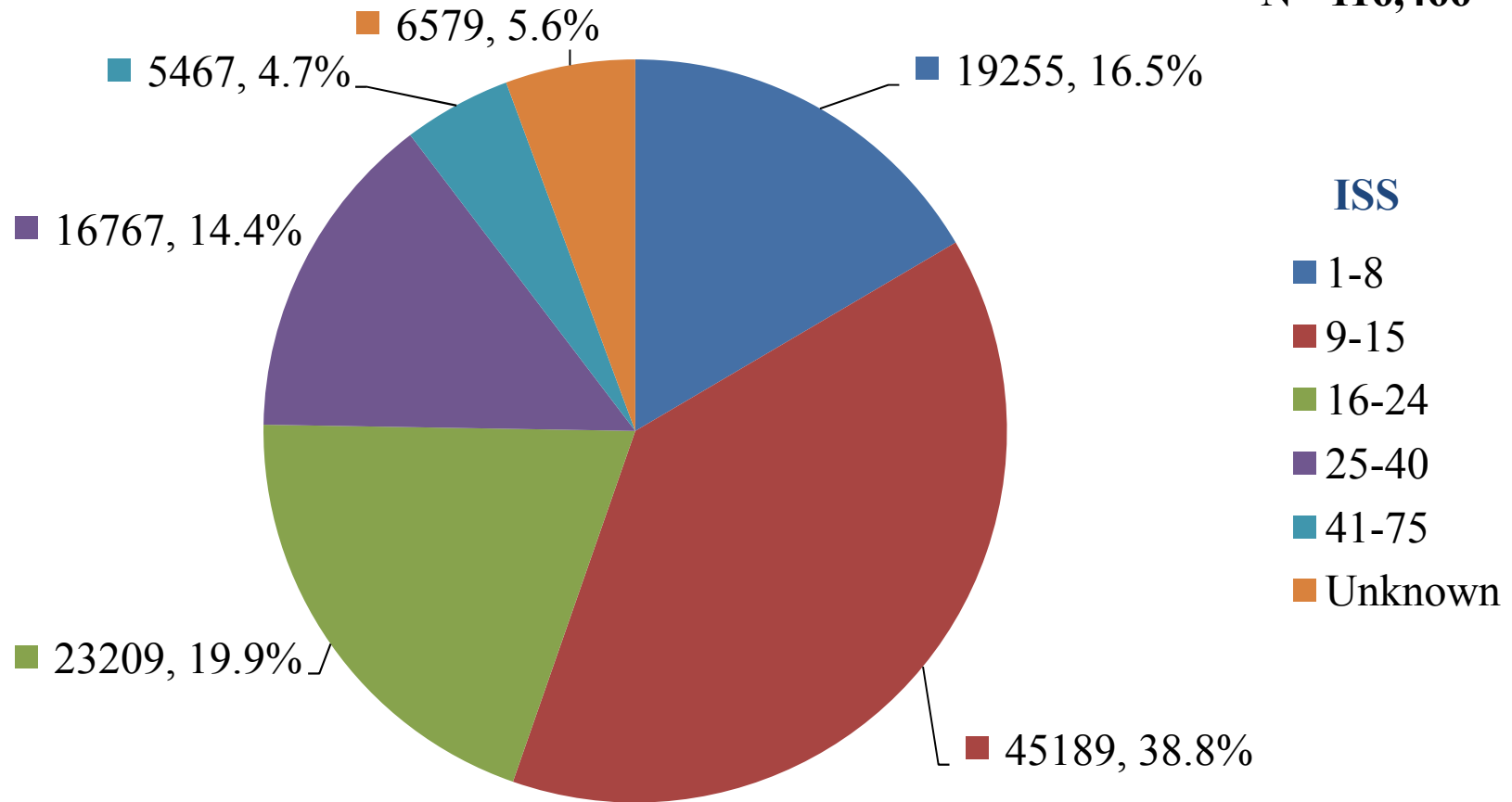


Motor vehicle traffic includes pedal cyclist and pedestrian victims.

Figure 14

Patients and Injury Severity Score (ISS)

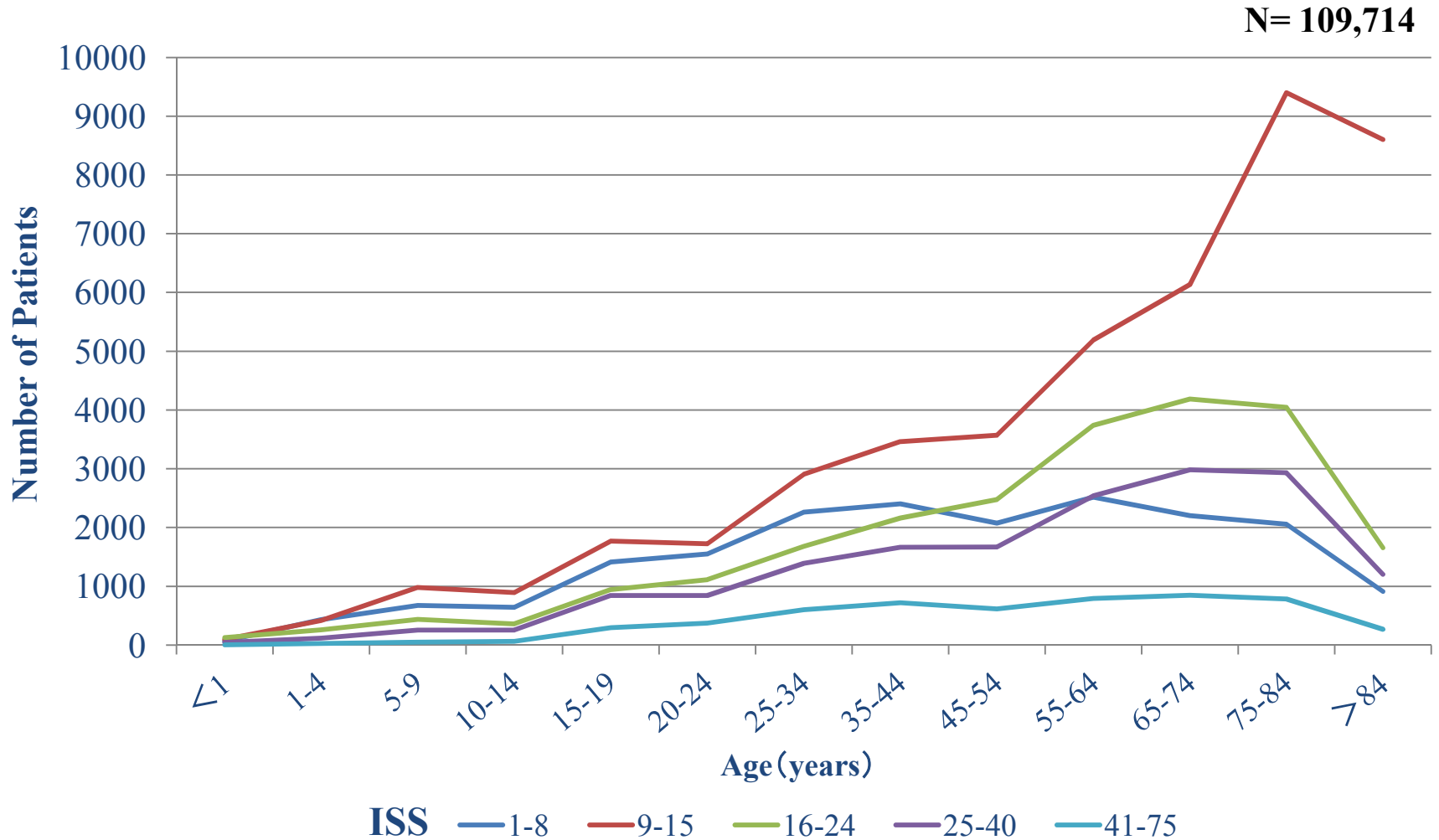
N= 116,466



Proportional distribution of patients grouped by categories of the ISS range. The number of patients of ISS 9-15 category was the most of all categories.

Figure 15

Patients by ISS and Age



Number of injured patients grouped by ISS range, at each age from 0 to 112.
 The peaks of the number of patients based on age distribution were seen at 25-44 and 55-84 ages of any ISS categories, and at 75-84 ages of ISS 9-15 .

Table
15

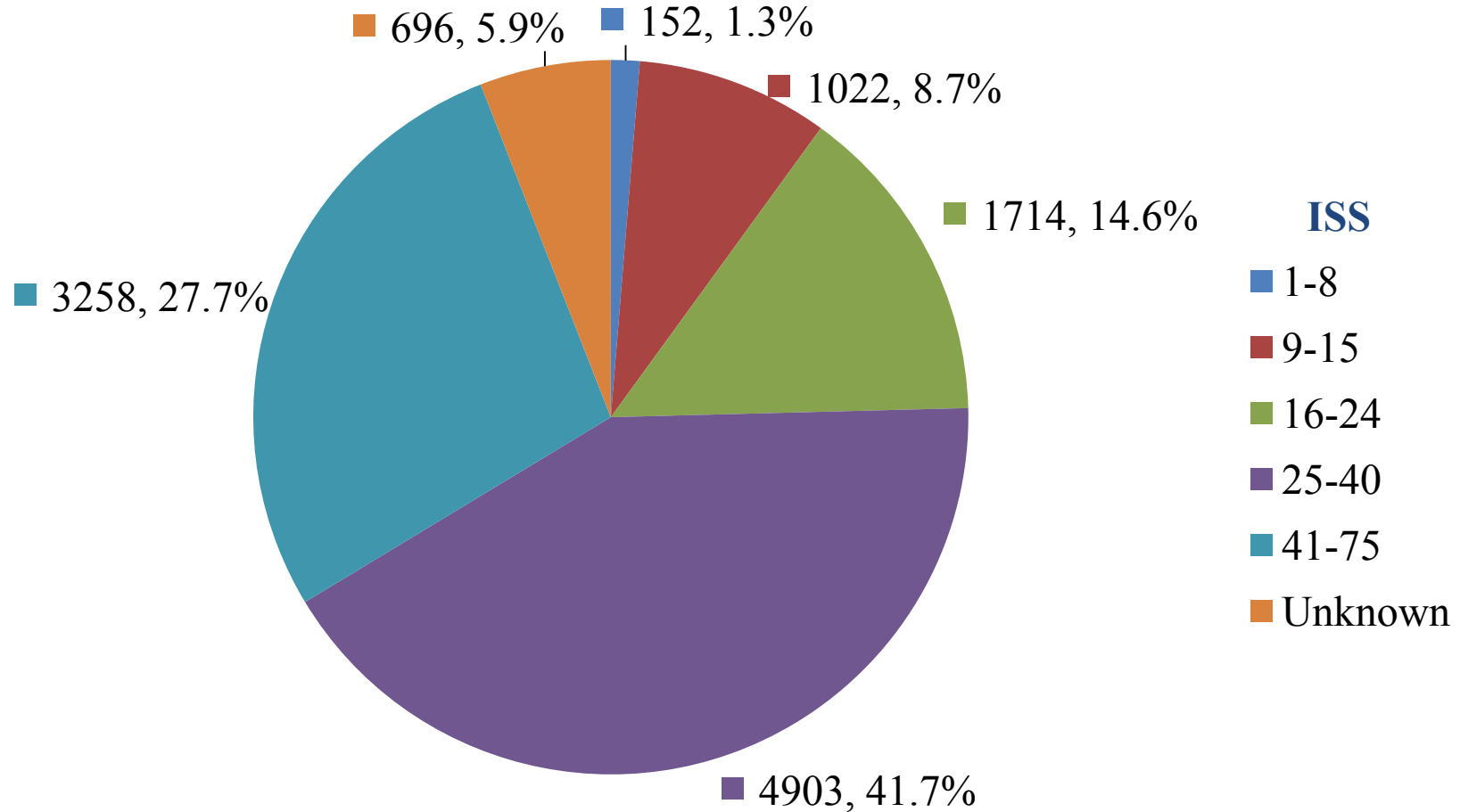
Patients by ISS and Age

Age ISS	0	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85-	Unknown	Total
1-8	66	434	677	641	1413	1552	2263	2404	2077	2516	2203	2057	910	42	19255
9-15	94	420	979	895	1768	1722	2906	3462	3570	5189	6136	9401	8600	47	45189
16-24	128	259	436	361	943	1112	1679	2162	2475	3739	4188	4045	1655	27	23209
25-40	47	118	253	253	842	845	1391	1665	1667	2540	2982	2932	1203	29	16767
41-75	3	28	48	64	297	374	602	720	614	792	848	782	267	28	5467
Unknown	49	173	186	150	325	420	645	787	679	819	955	855	407	129	6579
Total	387	1432	2579	2364	5588	6025	9486	11200	11082	15595	17312	20072	13042	302	116466

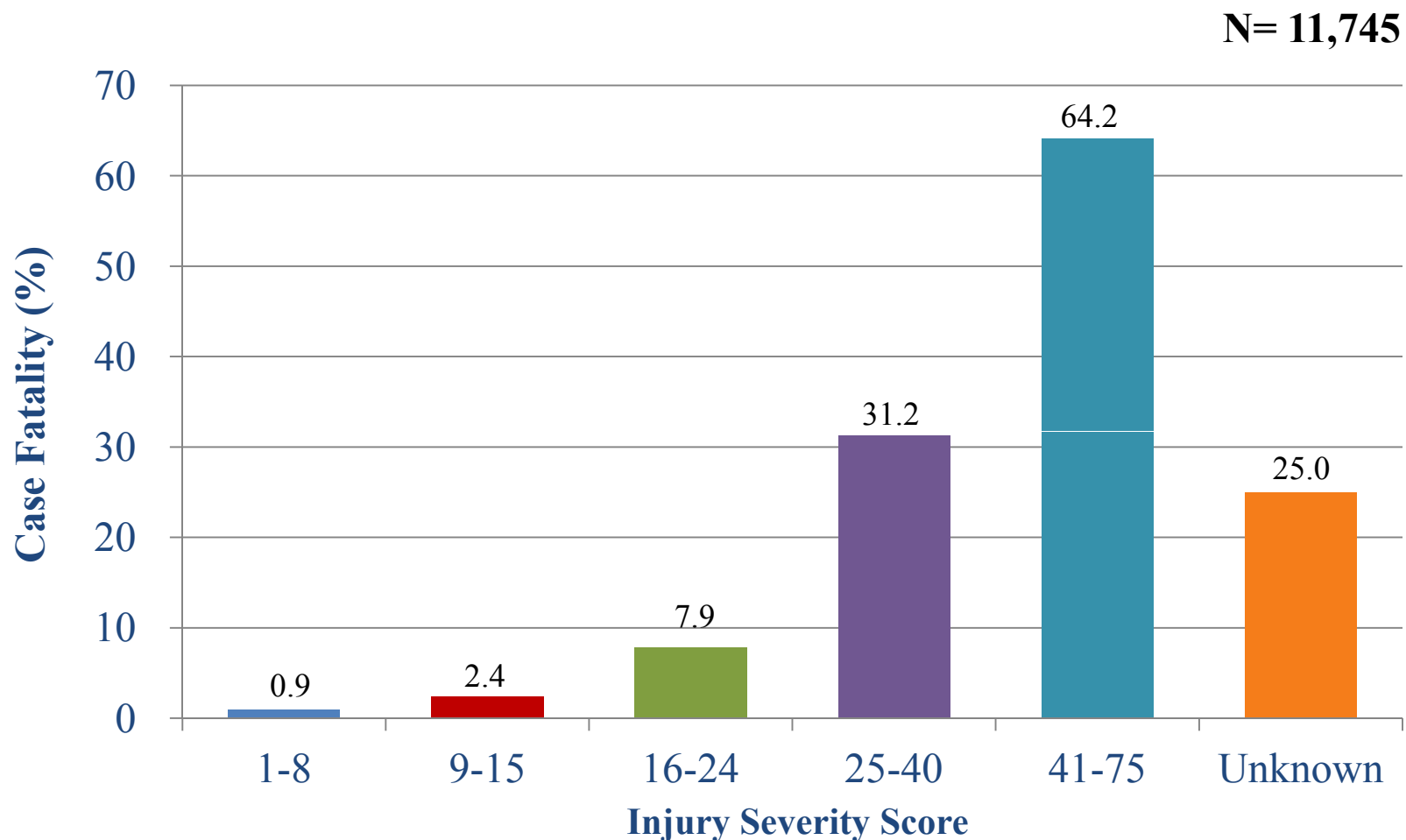
Figure 16A

Deaths and Injury Severity Score (ISS)

N= 11,745



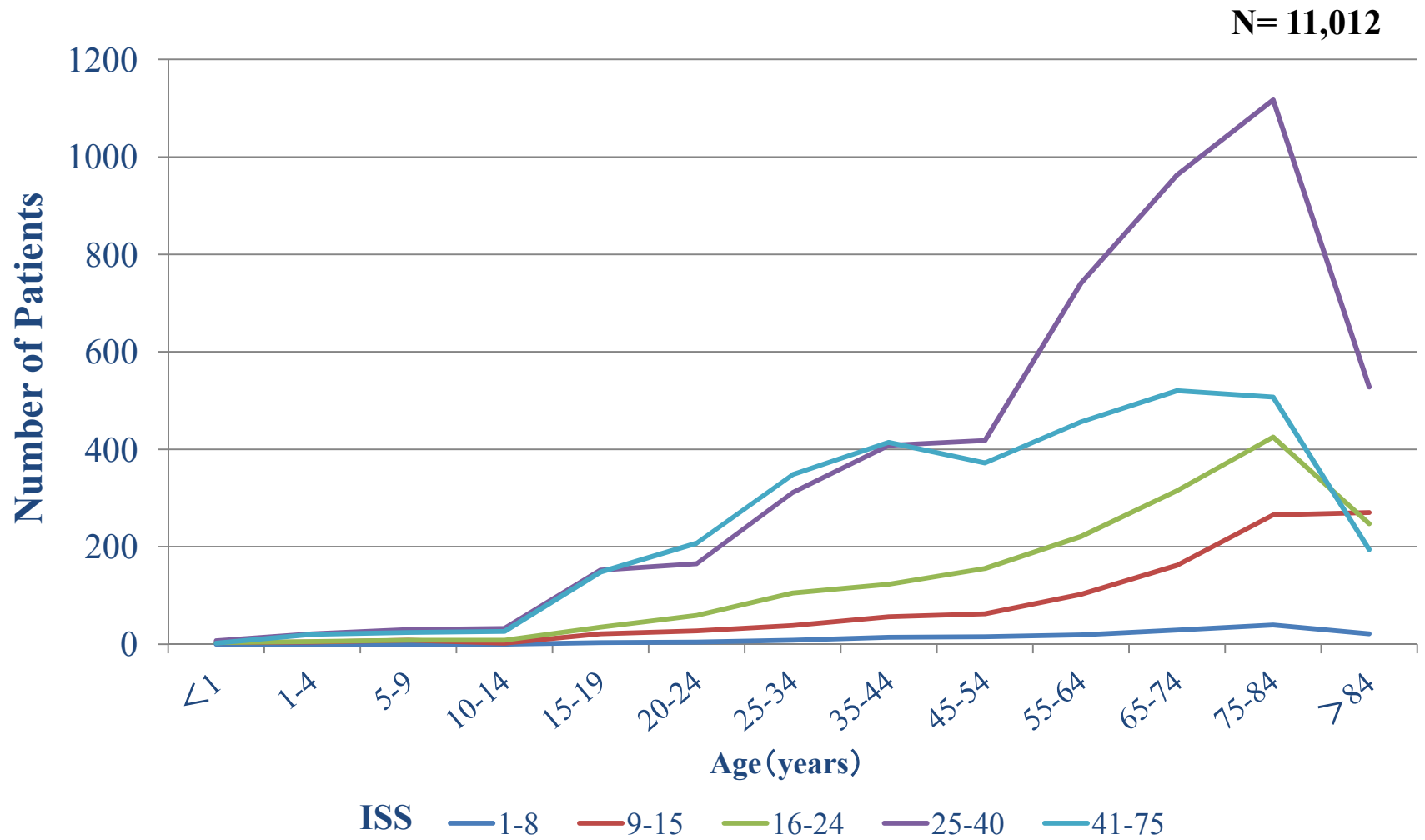
Proportional distribution of deaths grouped by categories of ISS range. Deaths in ISS 25-40 category were the highest.

Figure
16B**Case Fatality by Injury Severity Score (ISS) Range**

Case fatality grouped by ISS range was higher in severe trauma category.
(Case fatality = number of deaths divided by the number of patients \times 100 by ISS range).

Figure 17

Deaths by ISS and Age

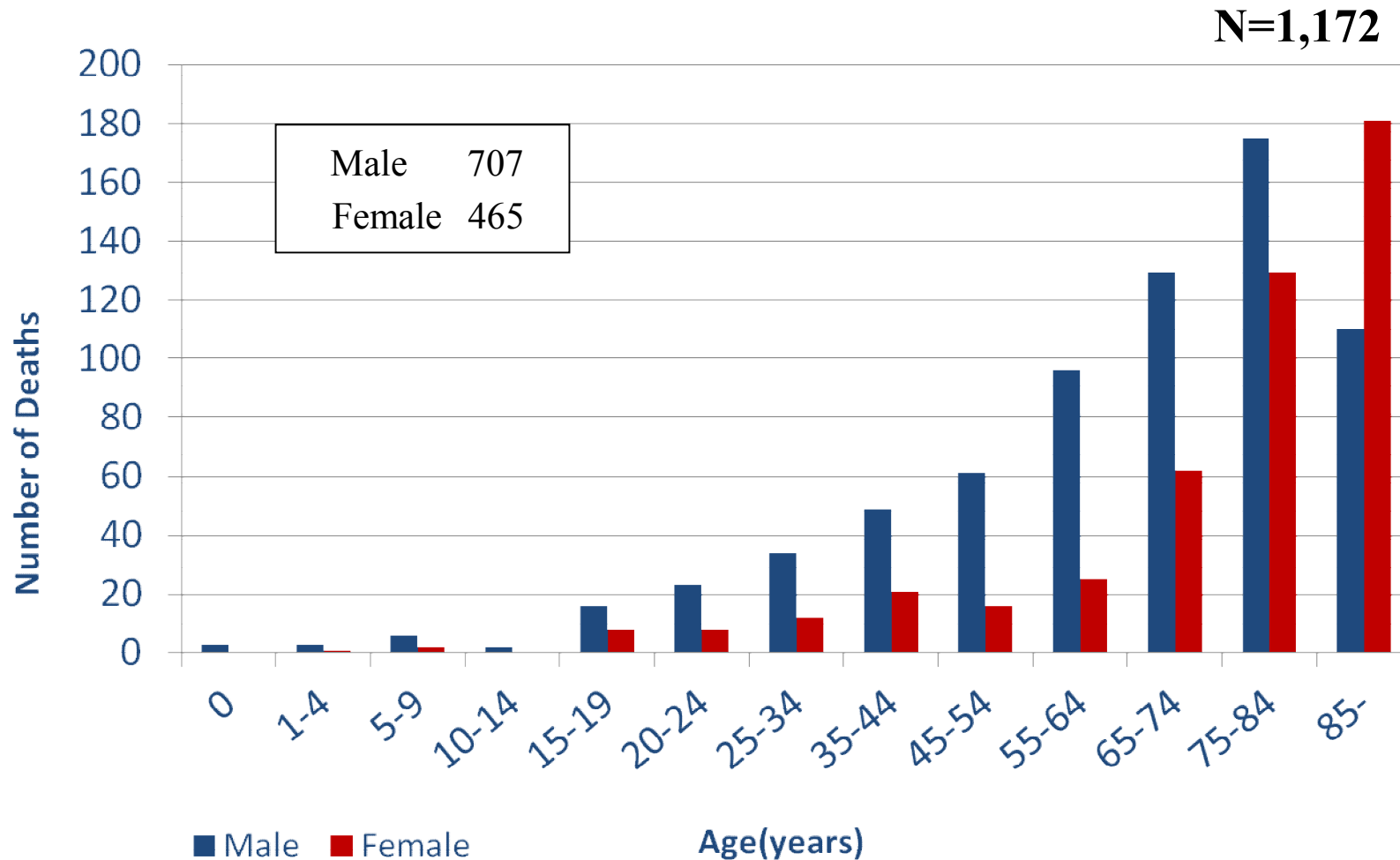


The peak was seen at elderly ages in ISS 16-24, and the category ISS 25-40 and ISS 41-75 has two peaks at young and elderly ages.

Table
17

Deaths by ISS and Age

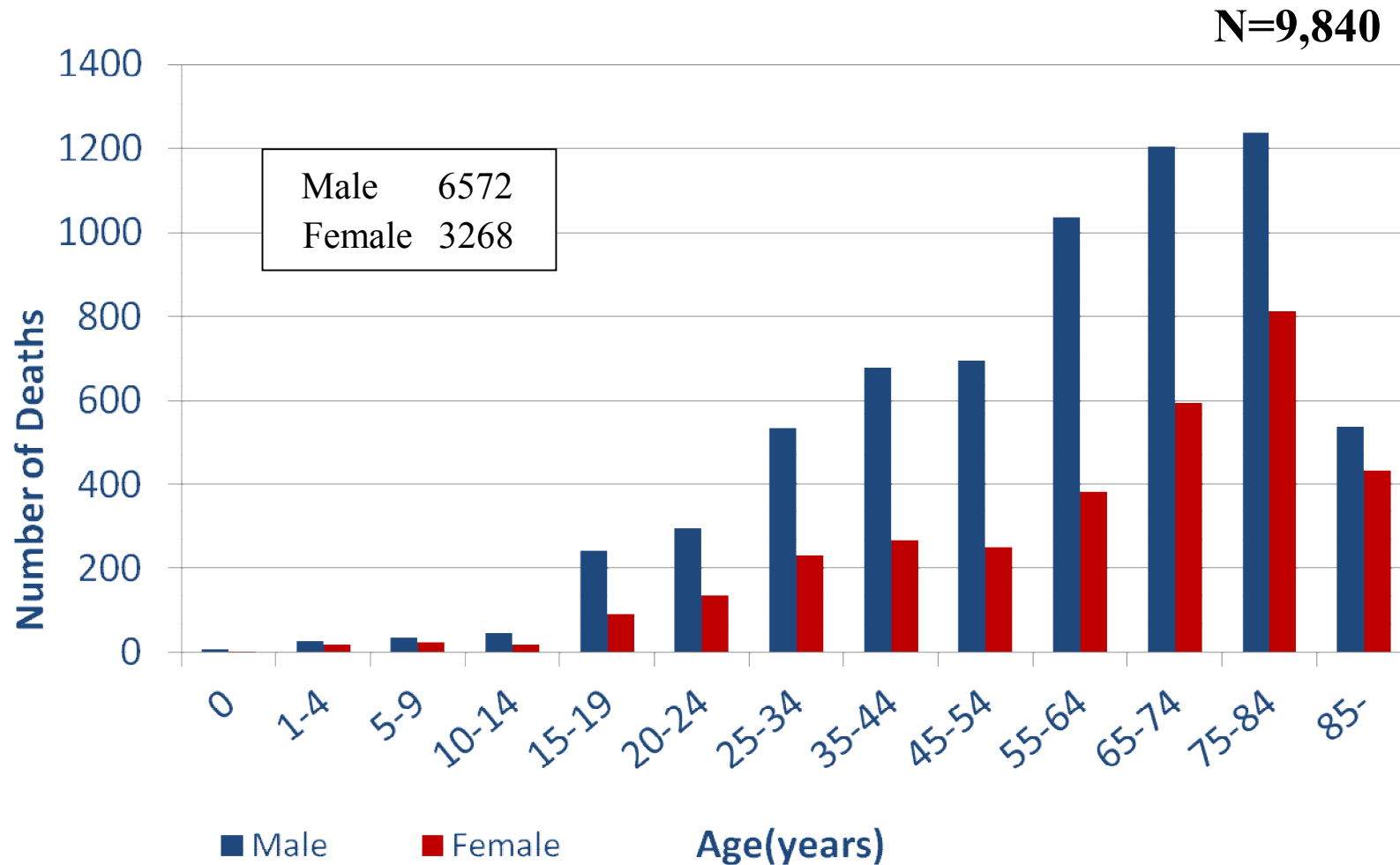
Age ISS	0	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85-	Unknown	Total
1-8	0	0	0	0	3	4	8	14	15	19	29	39	21	0	152
9-15	3	4	8	2	21	27	38	56	62	102	162	265	270	2	1022
16-24	3	5	8	8	35	59	105	123	155	221	315	425	247	5	1714
25-40	7	21	30	32	152	165	311	408	418	741	963	1117	528	10	4903
41-75	2	20	24	26	148	207	348	414	372	456	520	507	194	20	3258
Unknown	1	3	3	12	29	41	70	78	83	101	128	99	37	11	696
Total	16	53	73	80	388	503	880	1093	1105	1640	2117	2452	1297	48	11745

Figure
18**Deaths by Age and Gender (ISS≤15)**

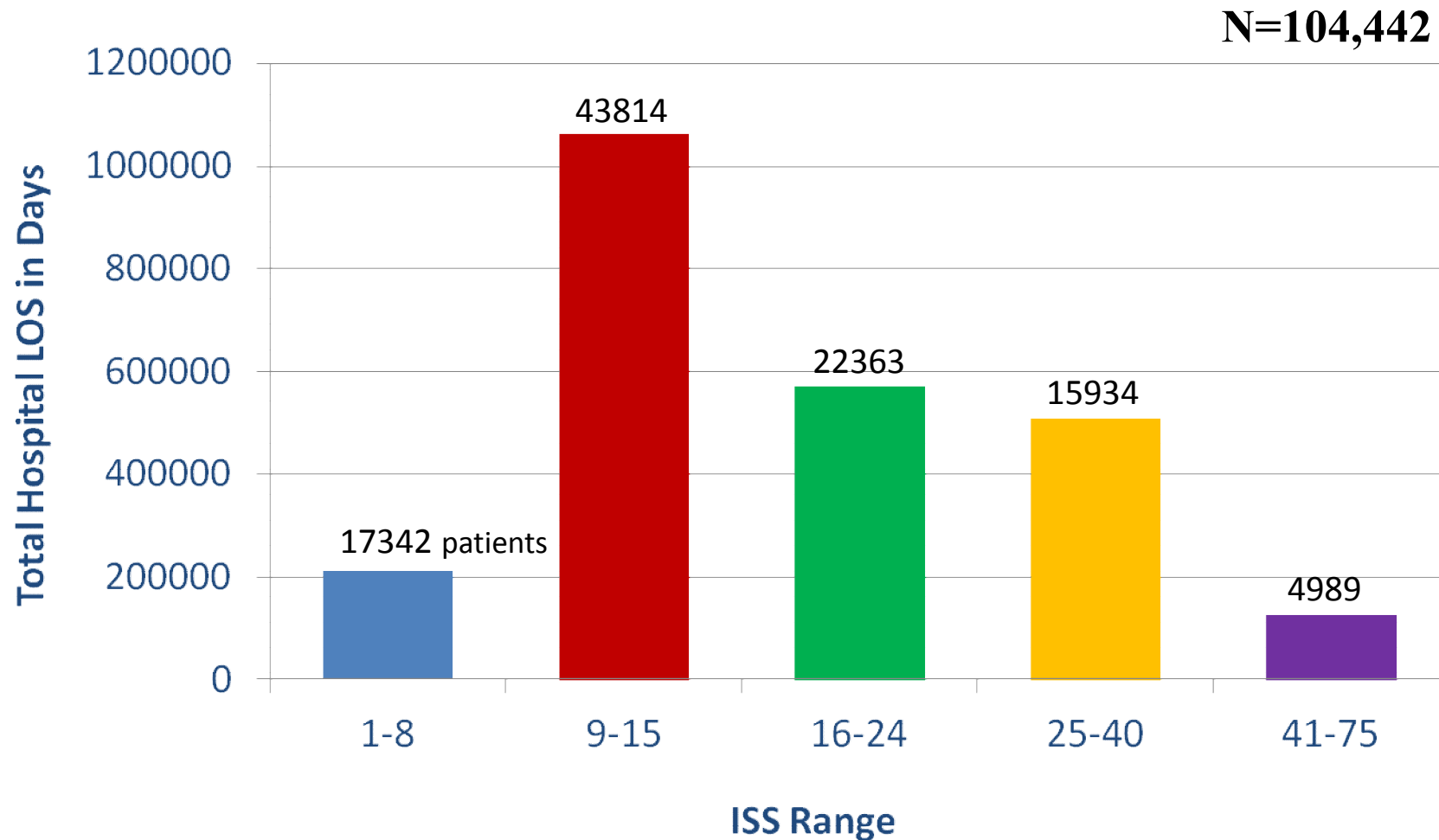
Deaths for patients with ISS≤15 for males and females at each age category.

Figure 19

Deaths by Age and Gender (ISS>15)



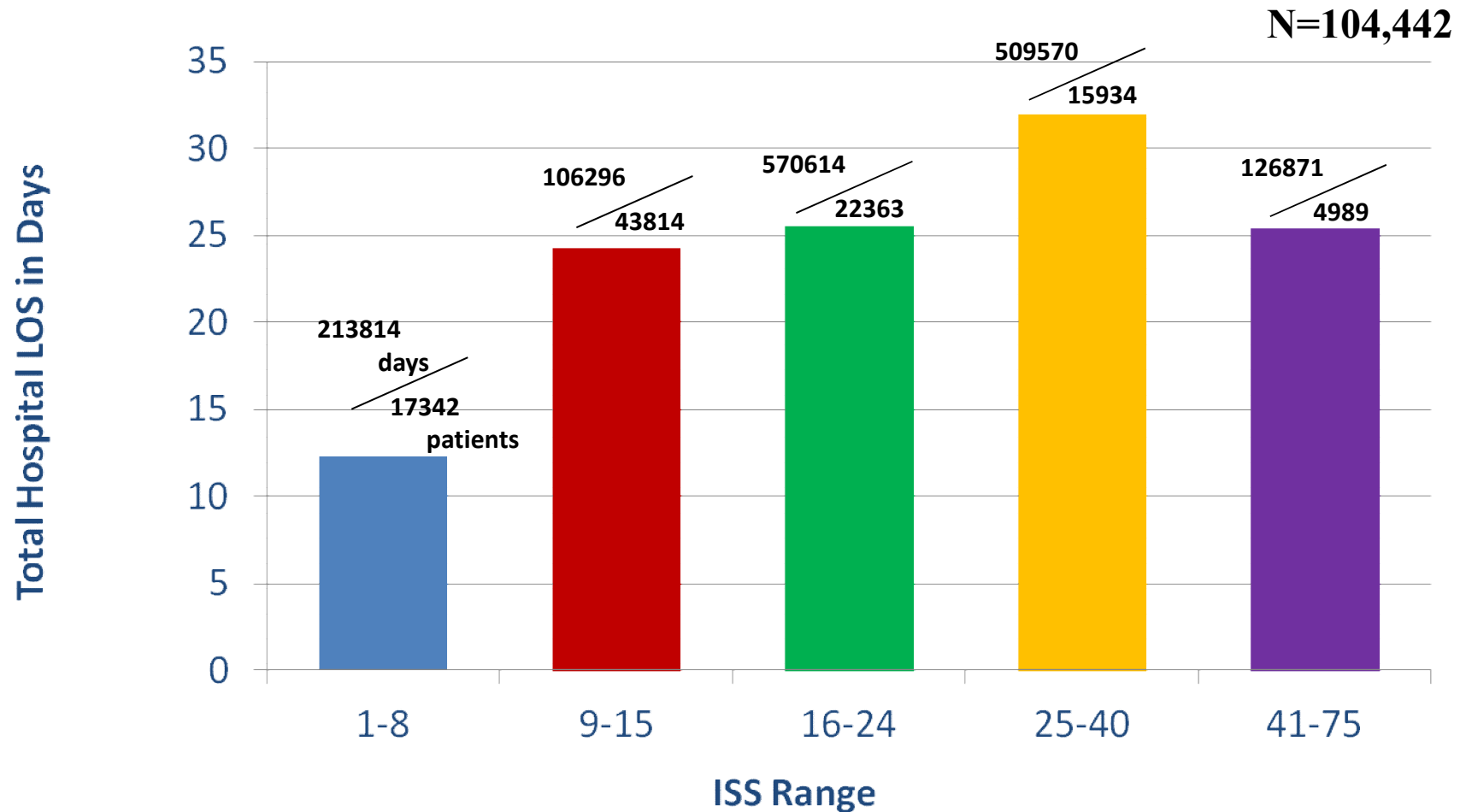
Deaths for patients with ISS>15 for males and females at each age category.

Figure
20A**Total Hospital LOS and Injury Severity Score (ISS)**

Proportional distribution of total hospital length of stay for patients, grouped by ISS range.

Figure 20B

Average Hospital LOS and Injury Severity Score



Average hospital length of stay for each category of ISS range. (Average hospital length of stay = total hospital length of stay for each ISS range divided by the total number of patients).

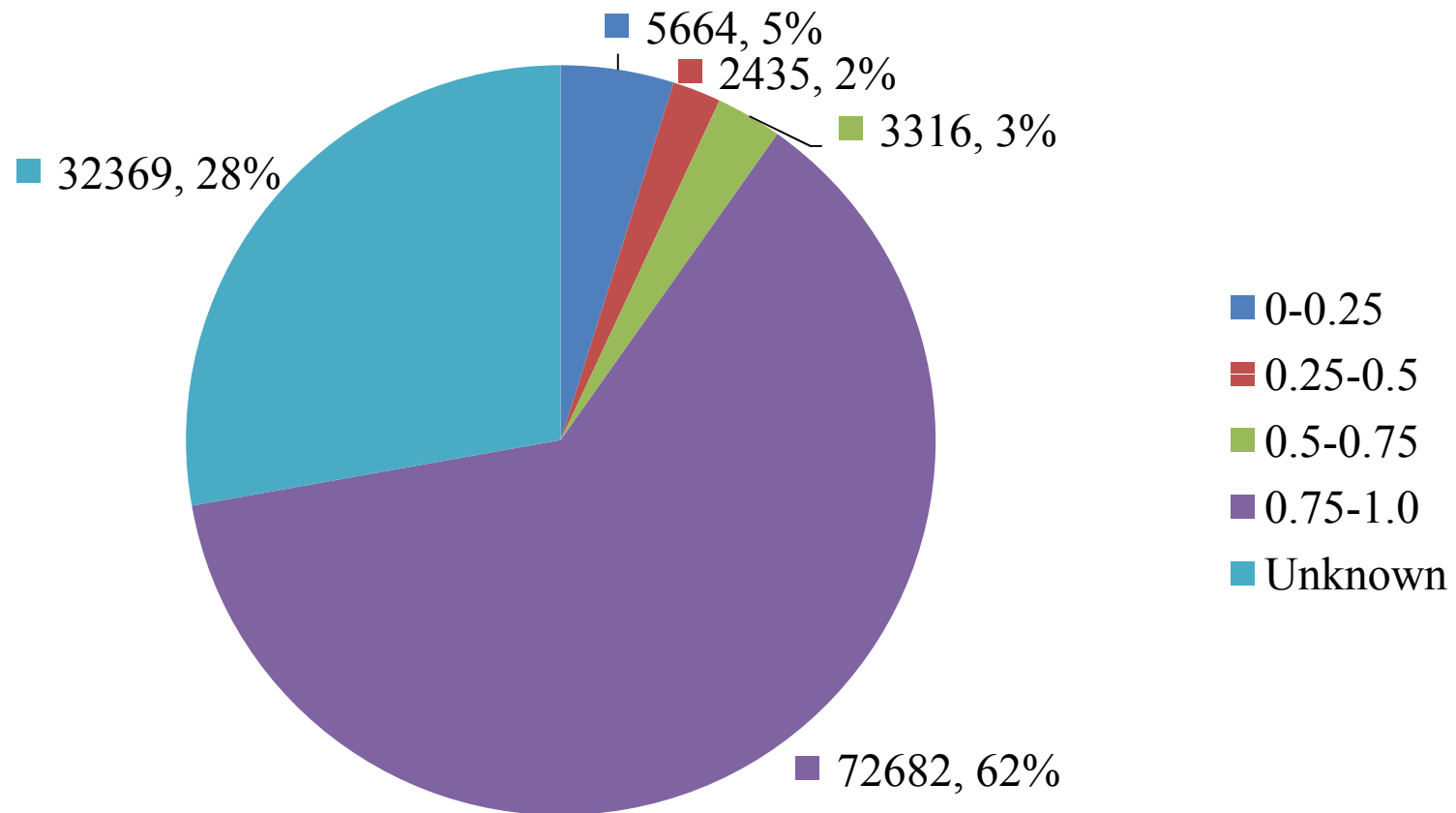
Figure
21**Distribution of patients by probability of survival (Ps)**

Figure 22A

Distribution of deaths by probability of survival (Ps)

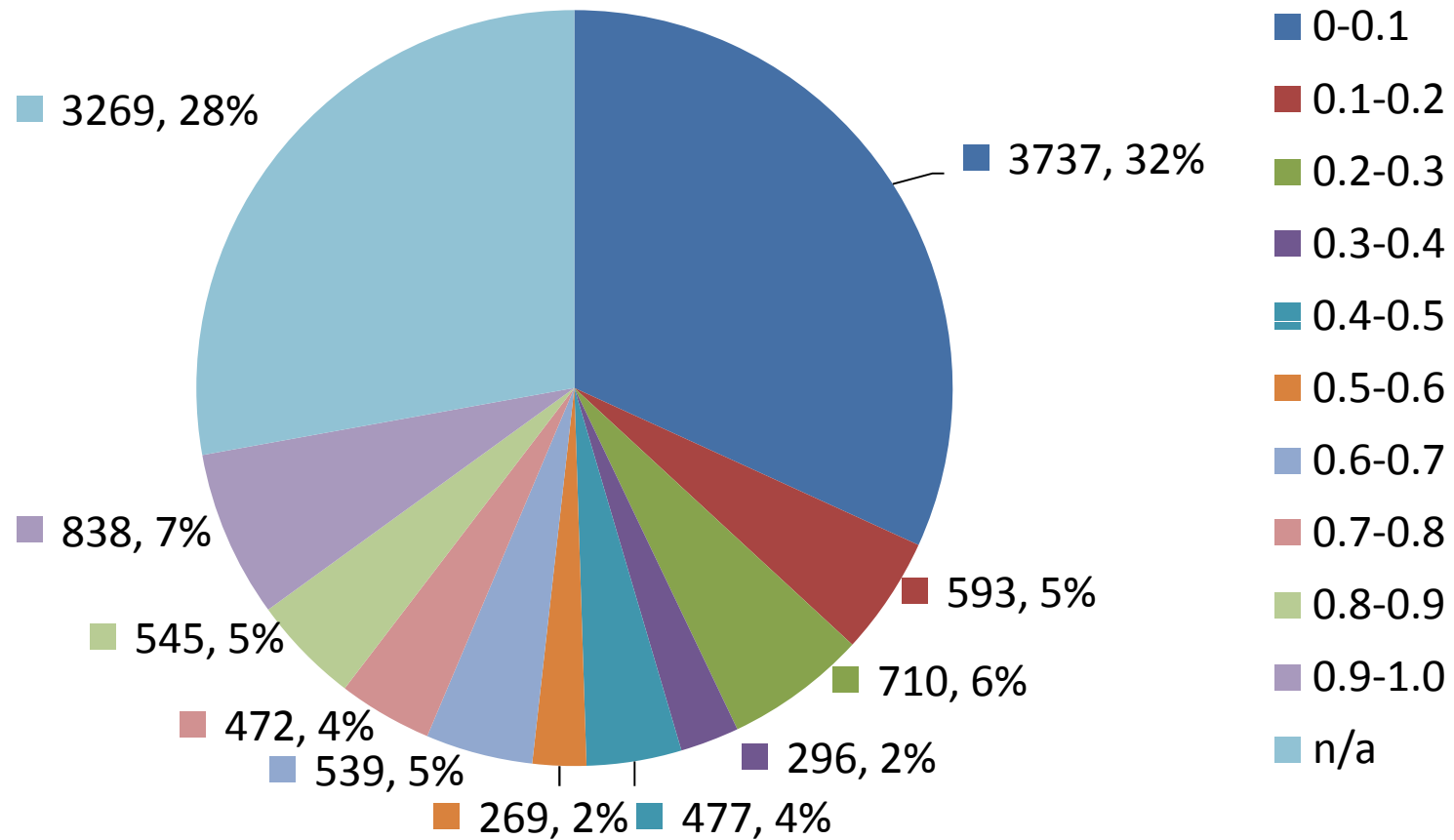


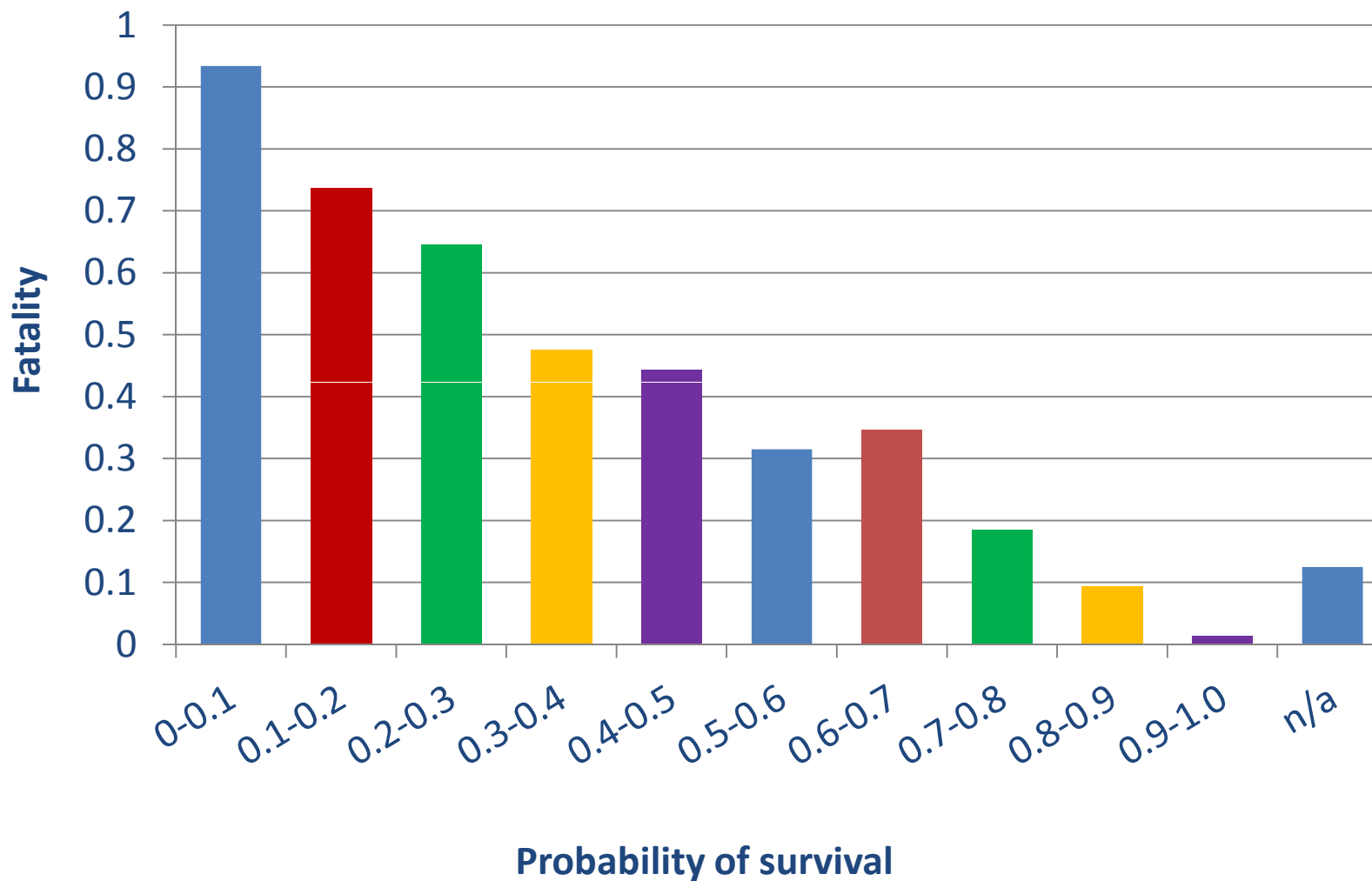
Figure
22B**Case fatality by probability of survival (Ps)**

Figure 23

The number of patients in traffic accidents by types of vehicle and age (N = 42,025)

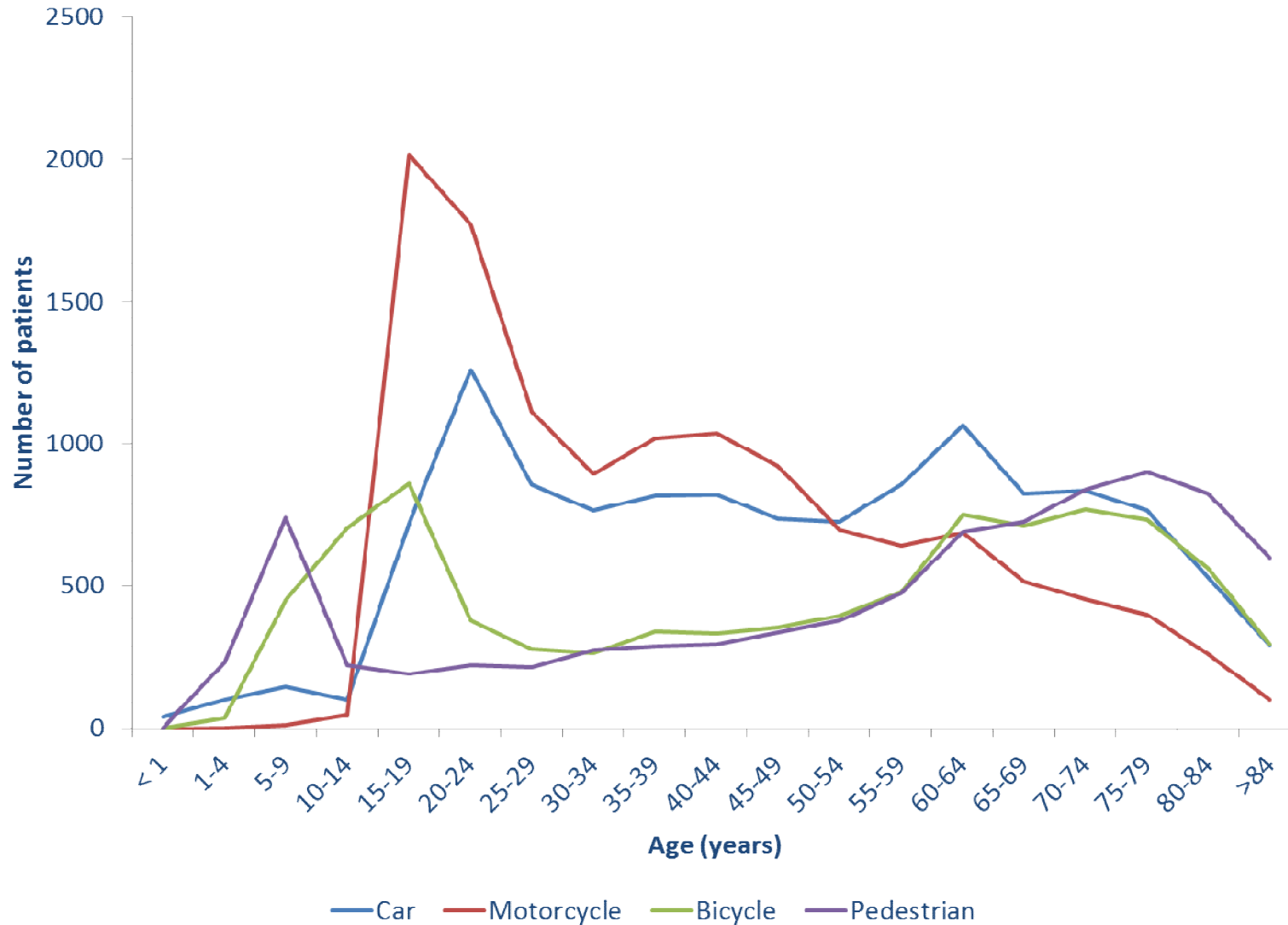


Figure 24

The number of patients in car accident by drivers and passengers and age (N = 12,259)

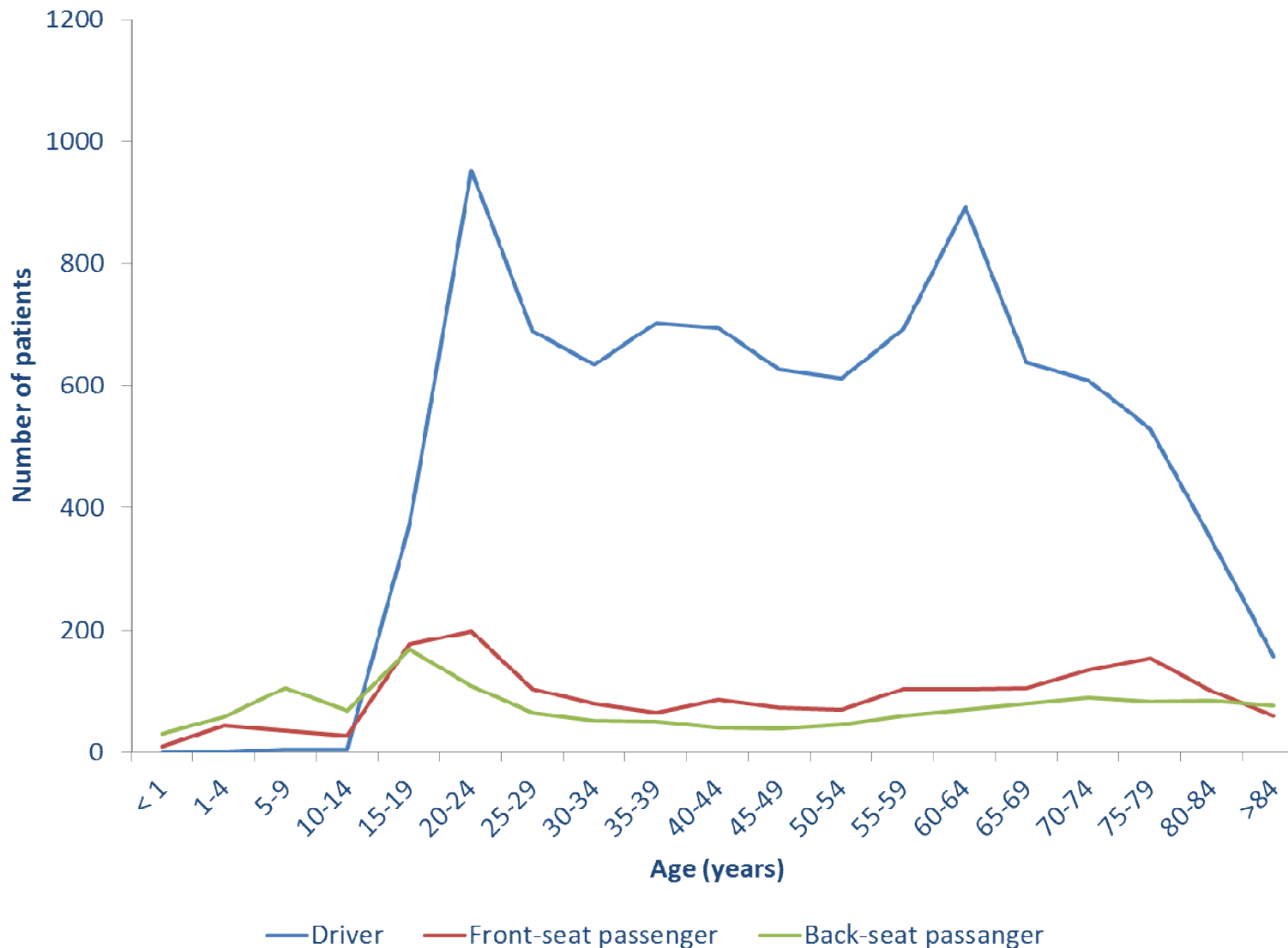


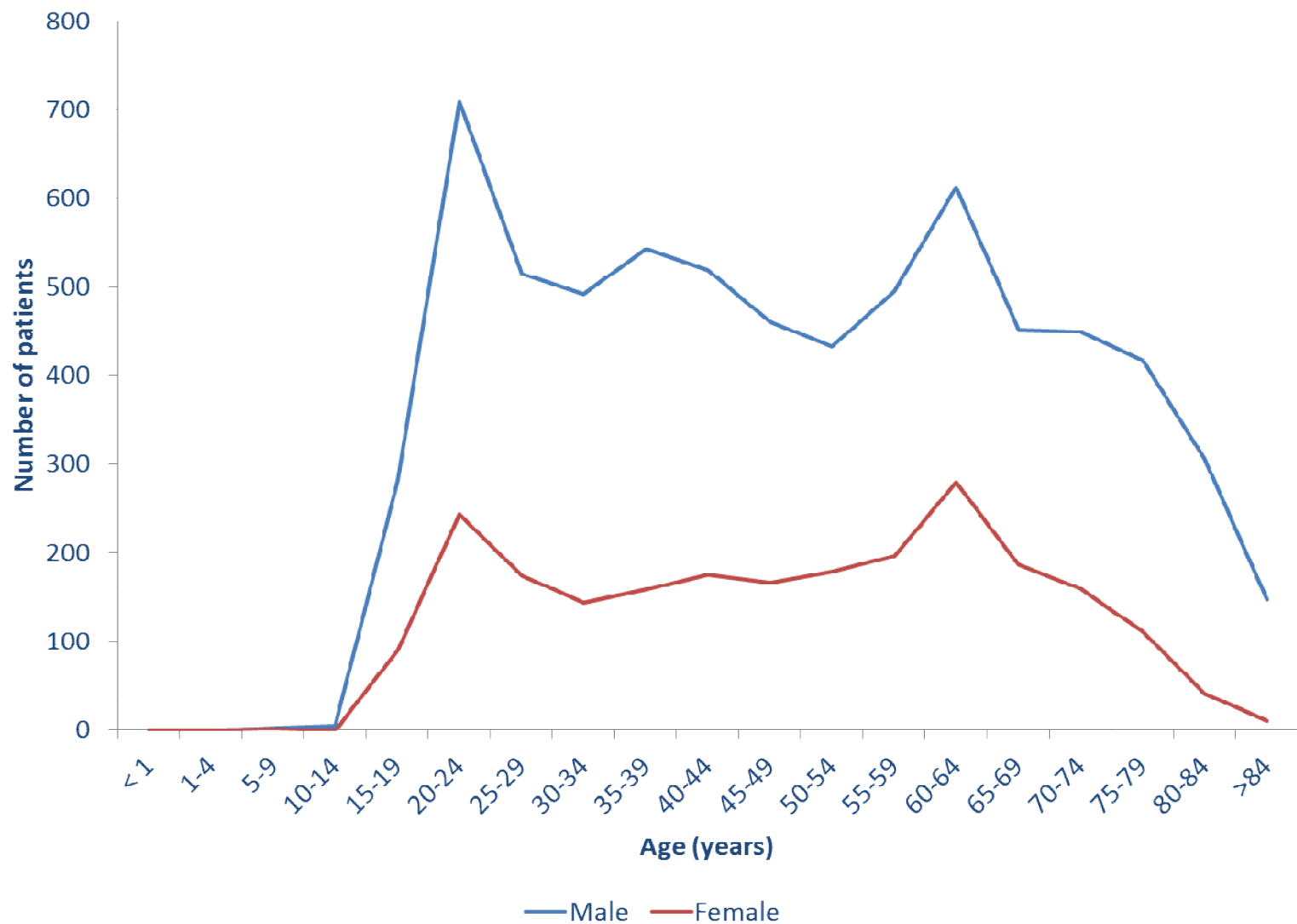
Figure
25**The number of patients in car accident (driver) by gender and age
(N = 9,165)**

Figure 26

The number of patients in car accident (passenger) by gender and age (N = 1,728)

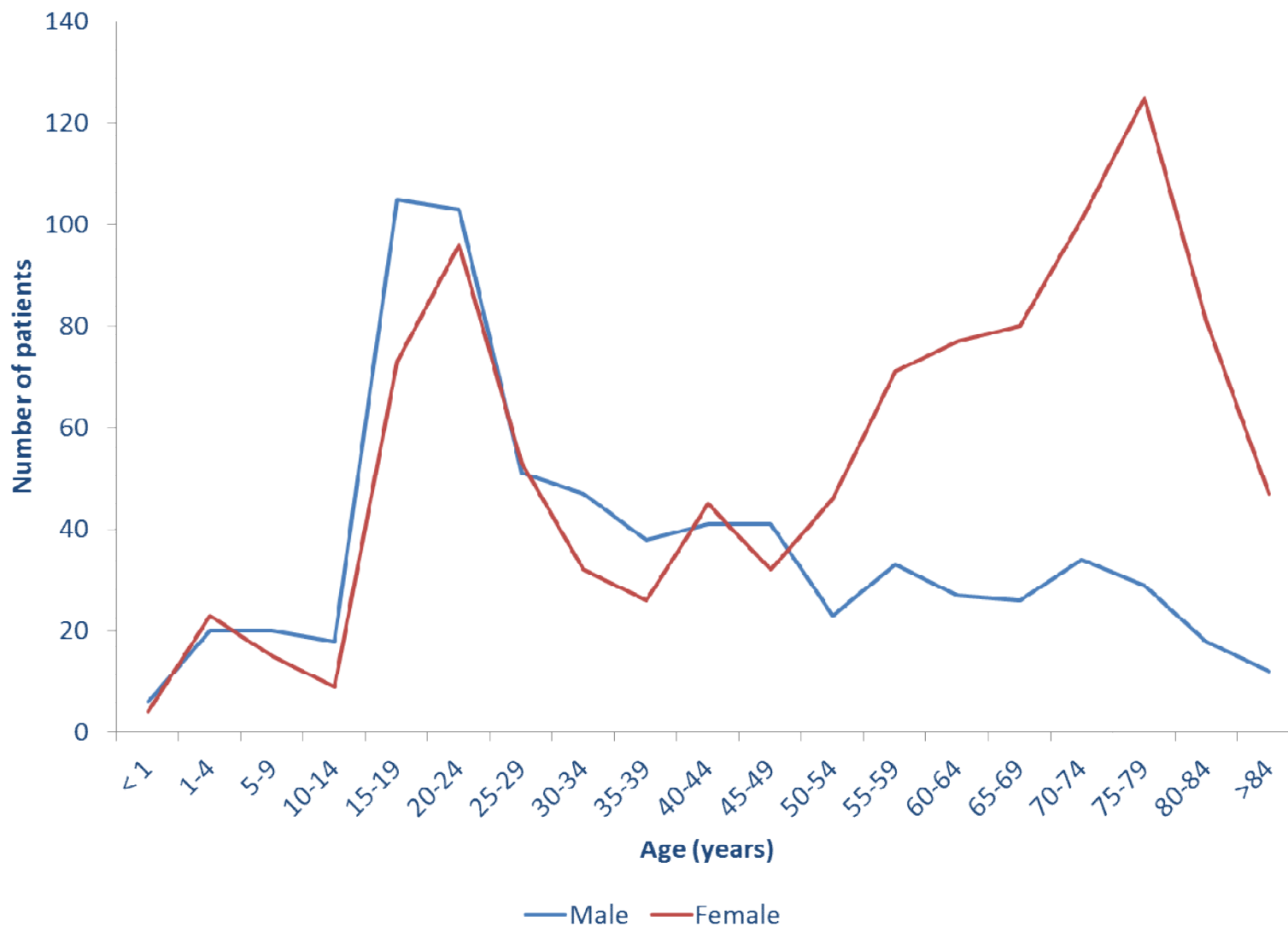


Figure 27

Number of Deaths and Fatalities of Motor Vehicular Drivers by Age

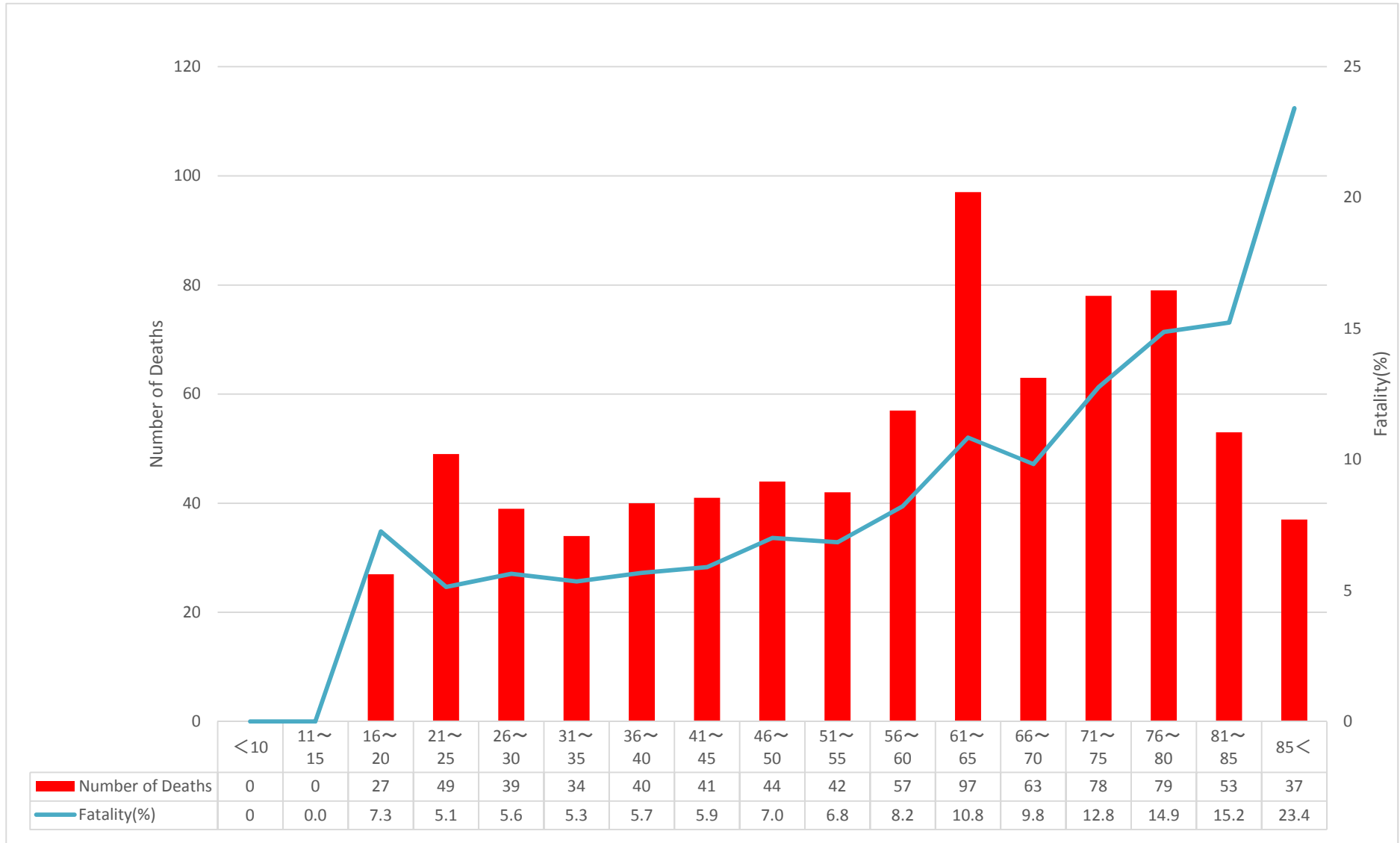


Figure 28

Number of Deaths of Motor Vehicular Drivers by Age and Genders

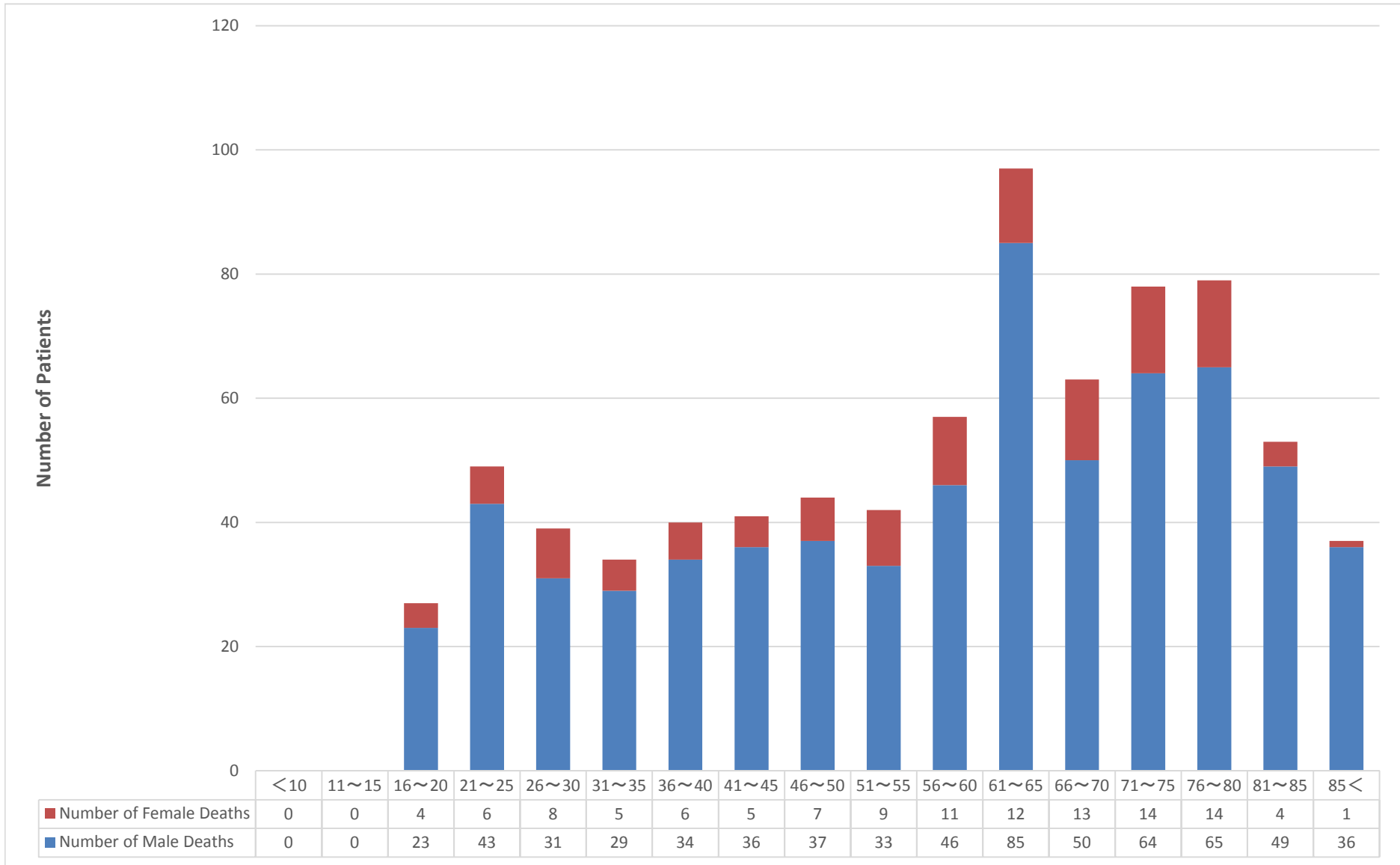


Figure
29

Proportional distribution of registered patients, grouped by intent

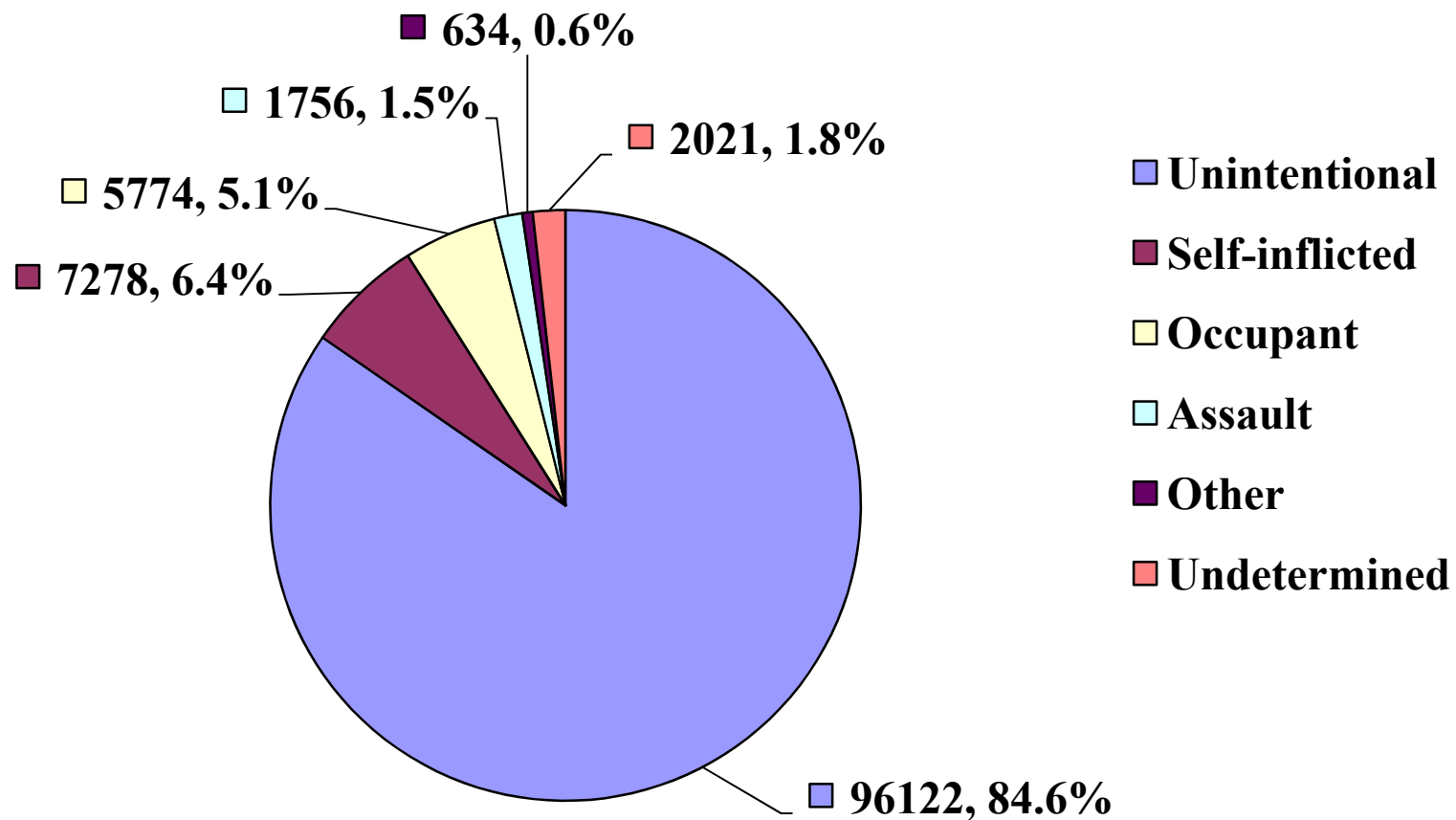


Figure
30

Proportional distribution of deaths, grouped by intent

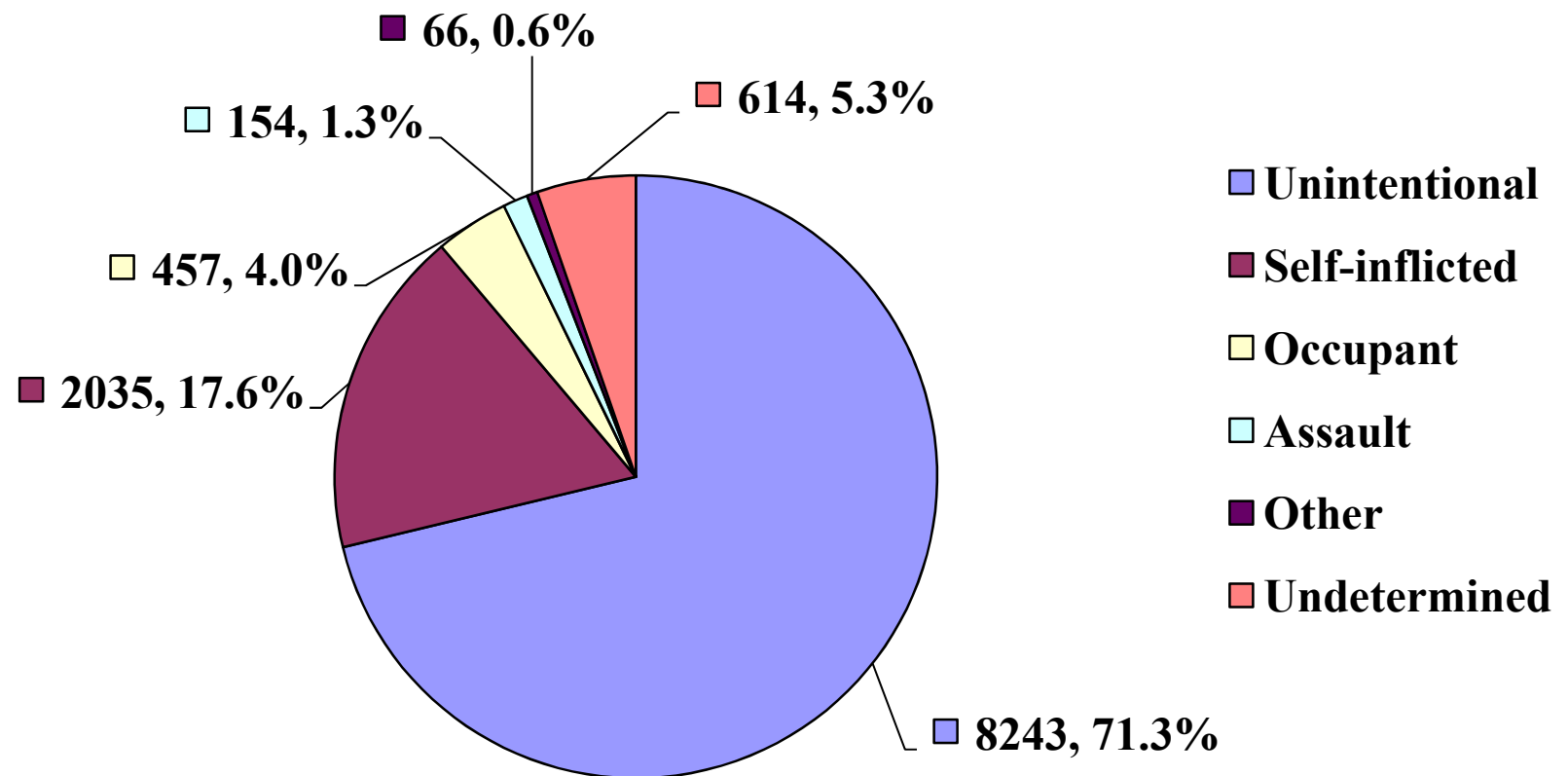


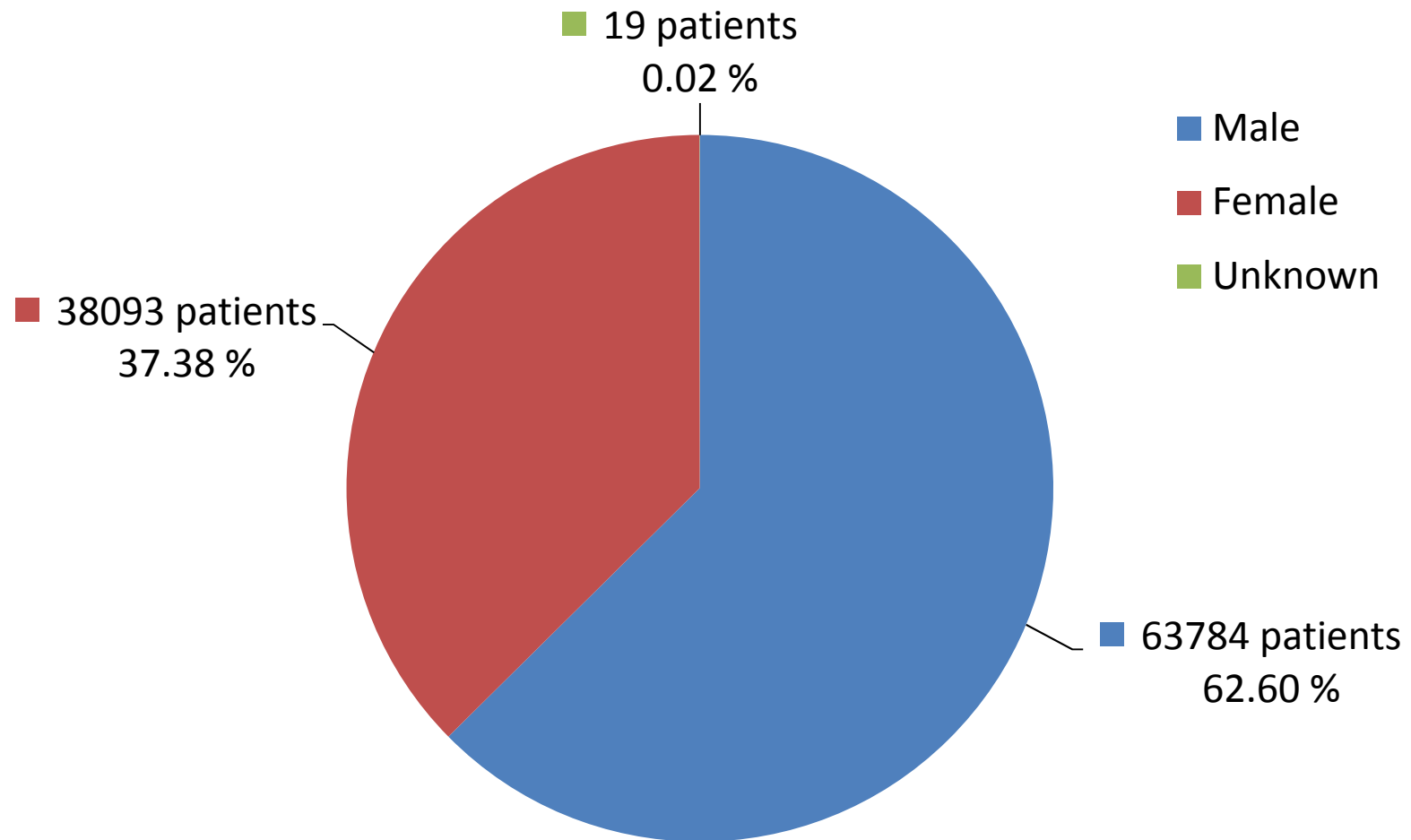
Figure
31**Gender proportion of Unintentional and Occupant**

Figure 32

Unintentional and Occupant by Age and Gender

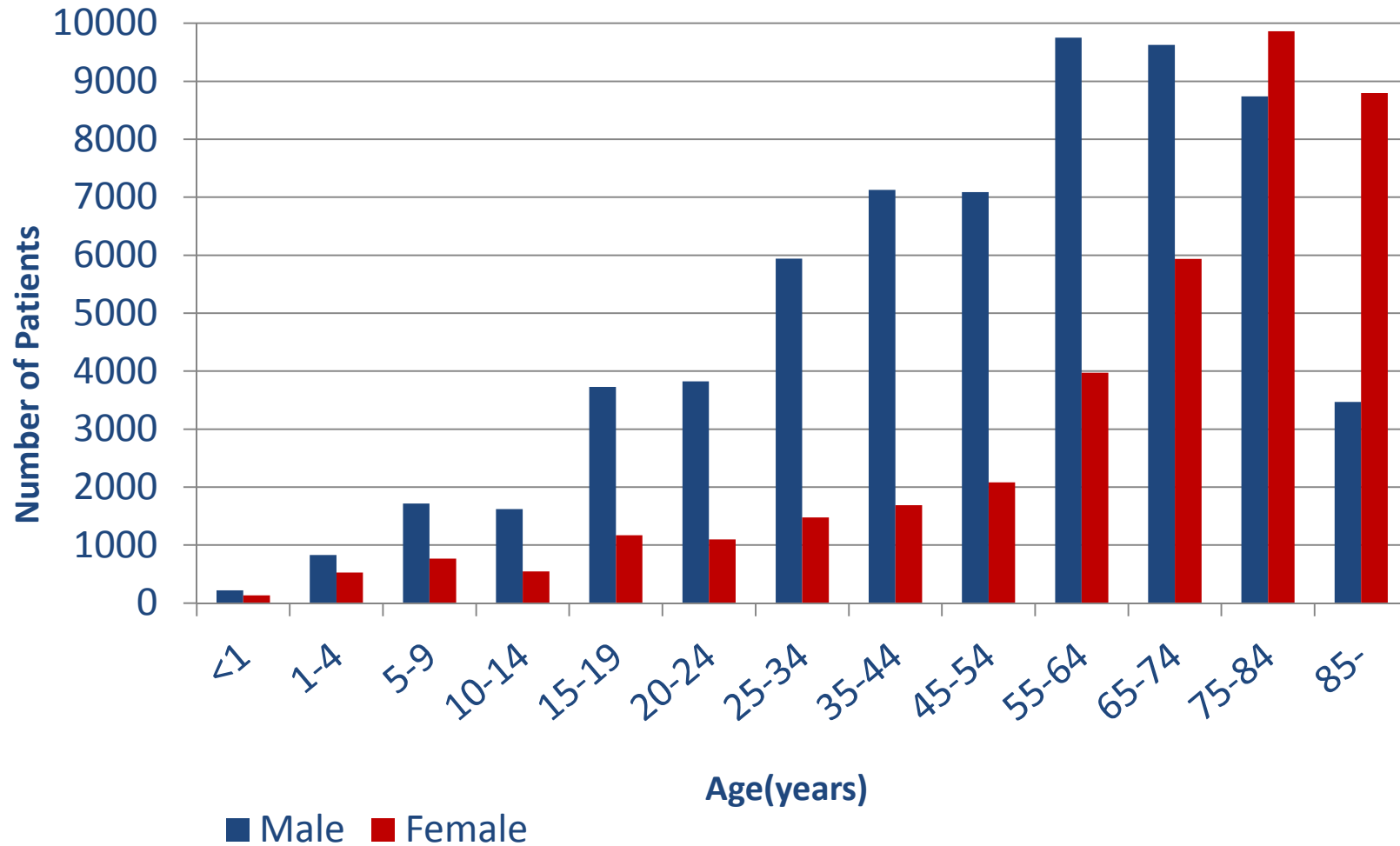


Table
32

Unintentional and Occupant by Age and Gender

Age	Male	Female	Total
< 1	222	131	353
1- 4	829	526	1355
5- 9	1716	765	2481
10-14	1622	547	2169
15-19	3727	1170	4897
20-24	3822	1100	4922
25-34	5940	1477	7417
35-44	7124	1689	8813
45-54	7087	2084	9171
55-64	9750	3972	13722
65-74	9627	5934	15561
75-84	8739	9860	18599
85-	3471	8796	12267
Unknown	108	42	150
Total	63784	38093	101877

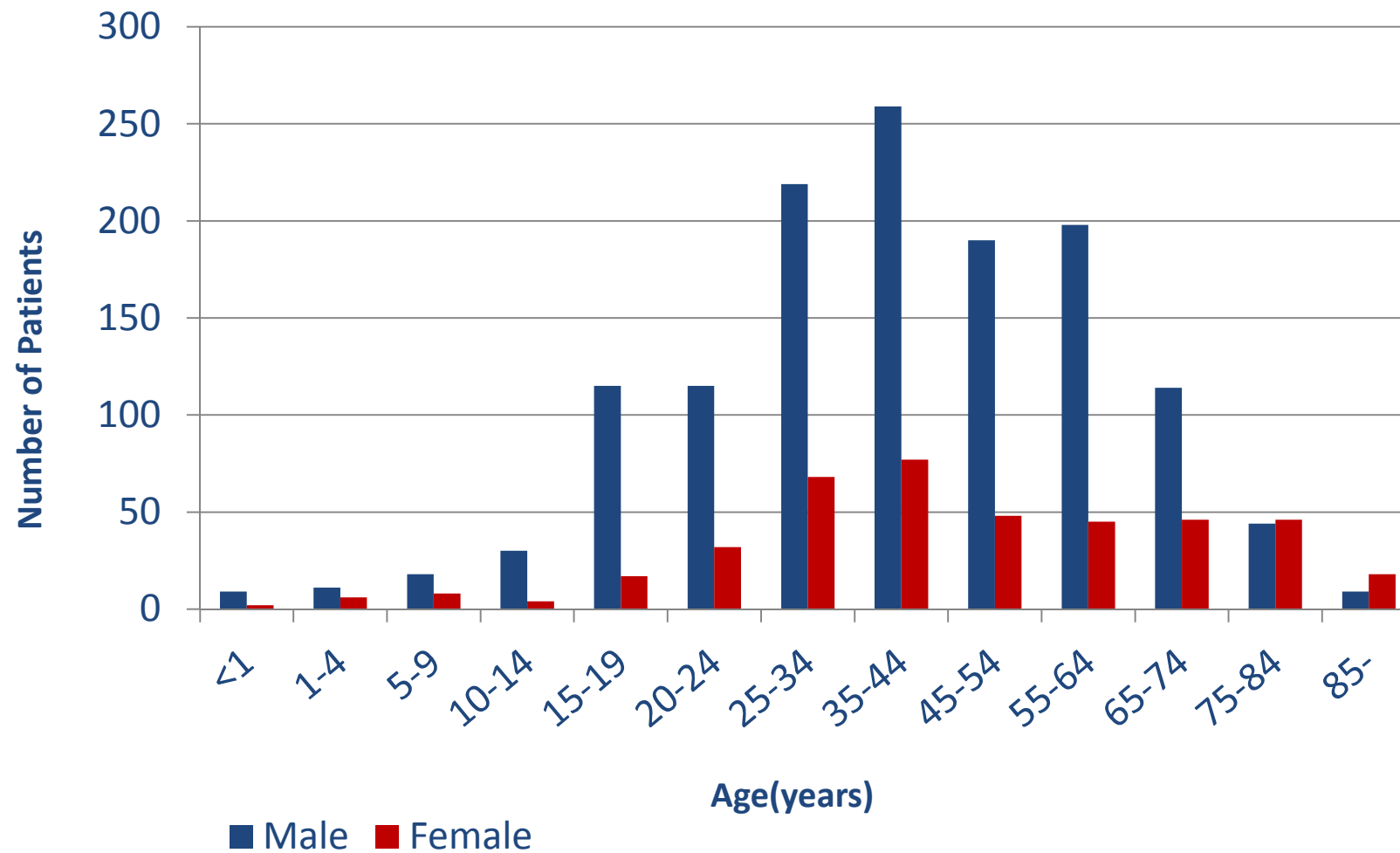
Figure
33**Assault by Age and Gender**

Table
33

Assault by Age and Gender

Age	Male	Female	Total
< 1	9	2	11
1- 4	11	6	17
5- 9	18	8	26
10-14	30	4	34
15-19	115	17	132
20-24	115	32	147
25-34	219	68	287
35-44	259	77	336
45-54	190	48	238
55-64	198	45	243
65-74	114	46	160
75-84	44	46	90
85-	9	18	27
Unknown	7	1	8
Total	1338	418	1756

Figure 34

Self-inflicted by Age and Gender

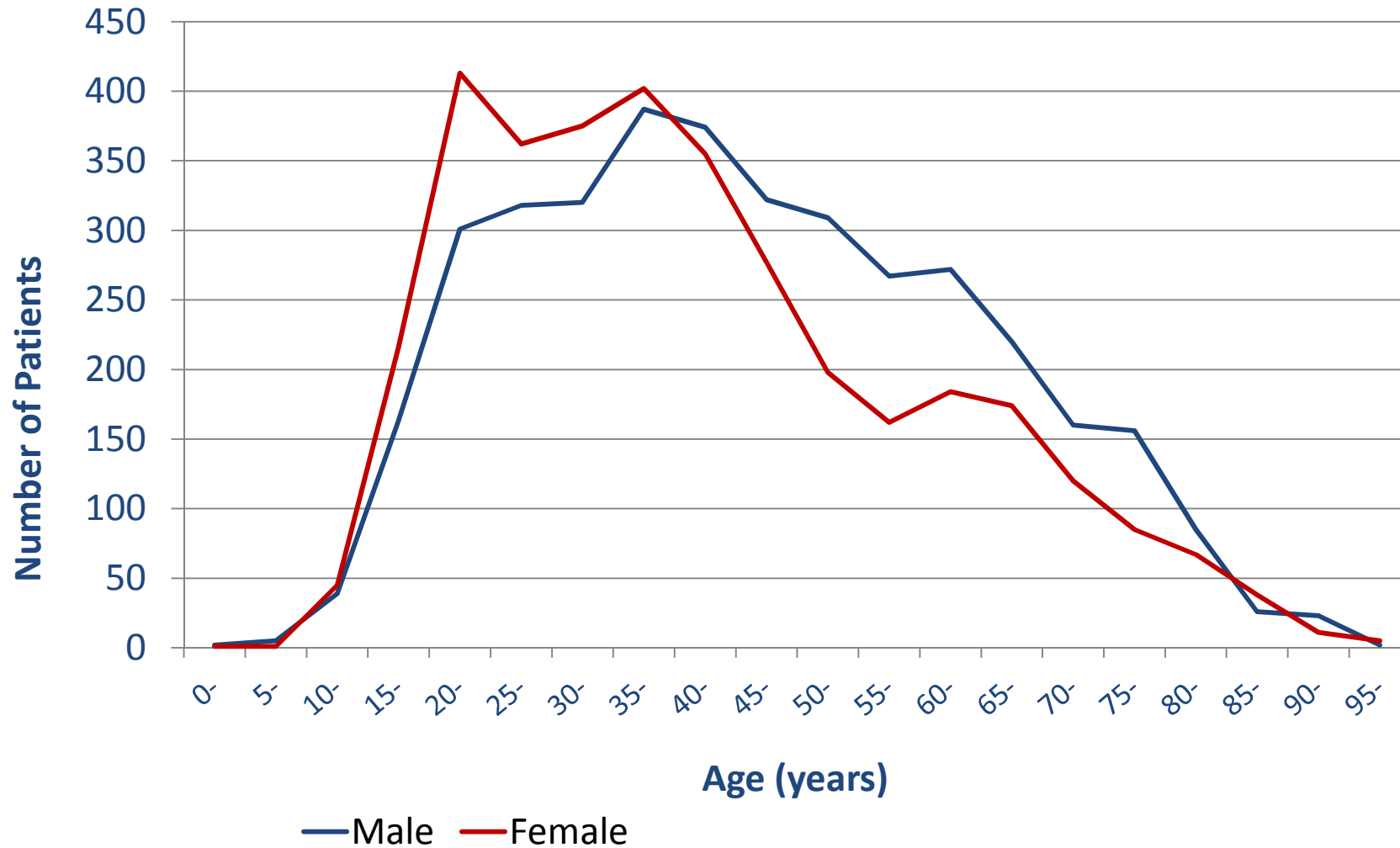
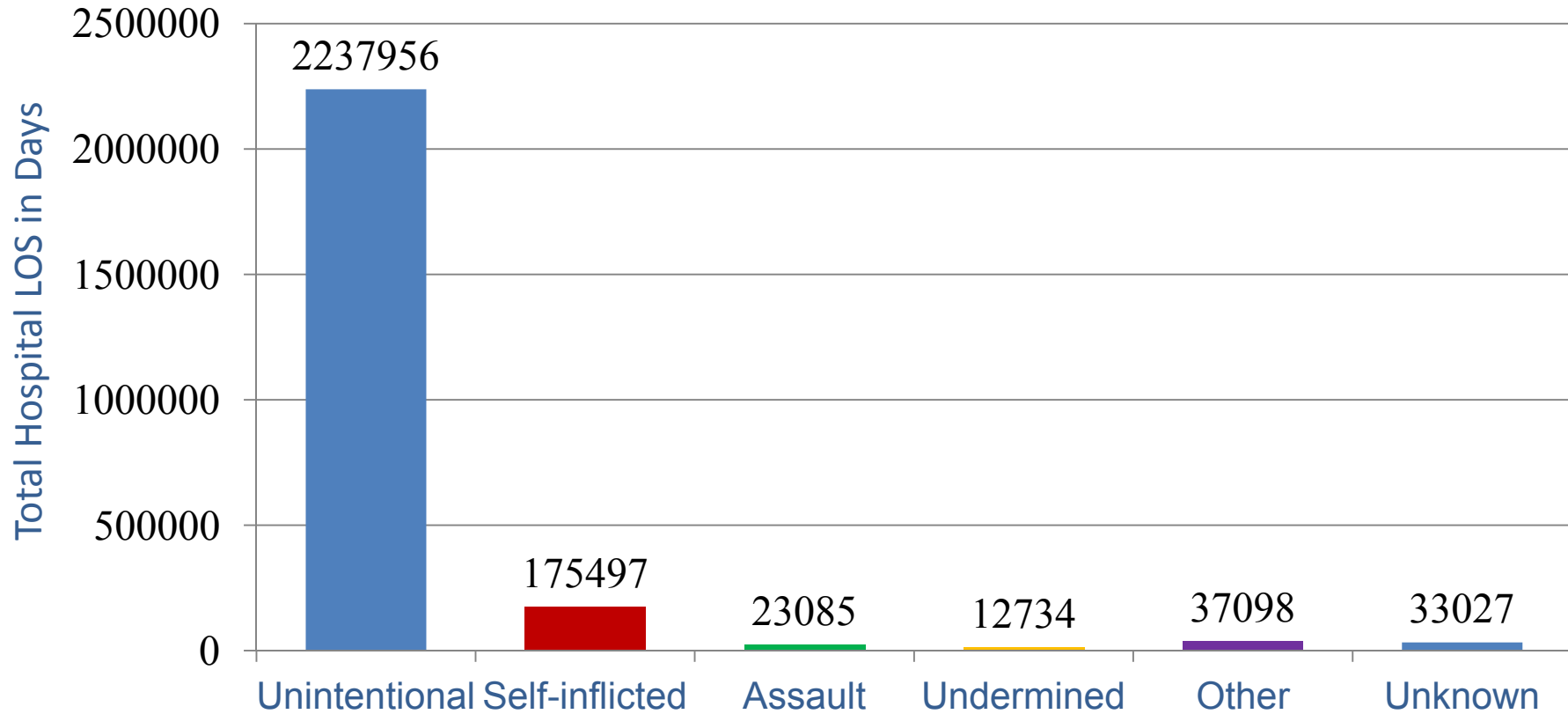


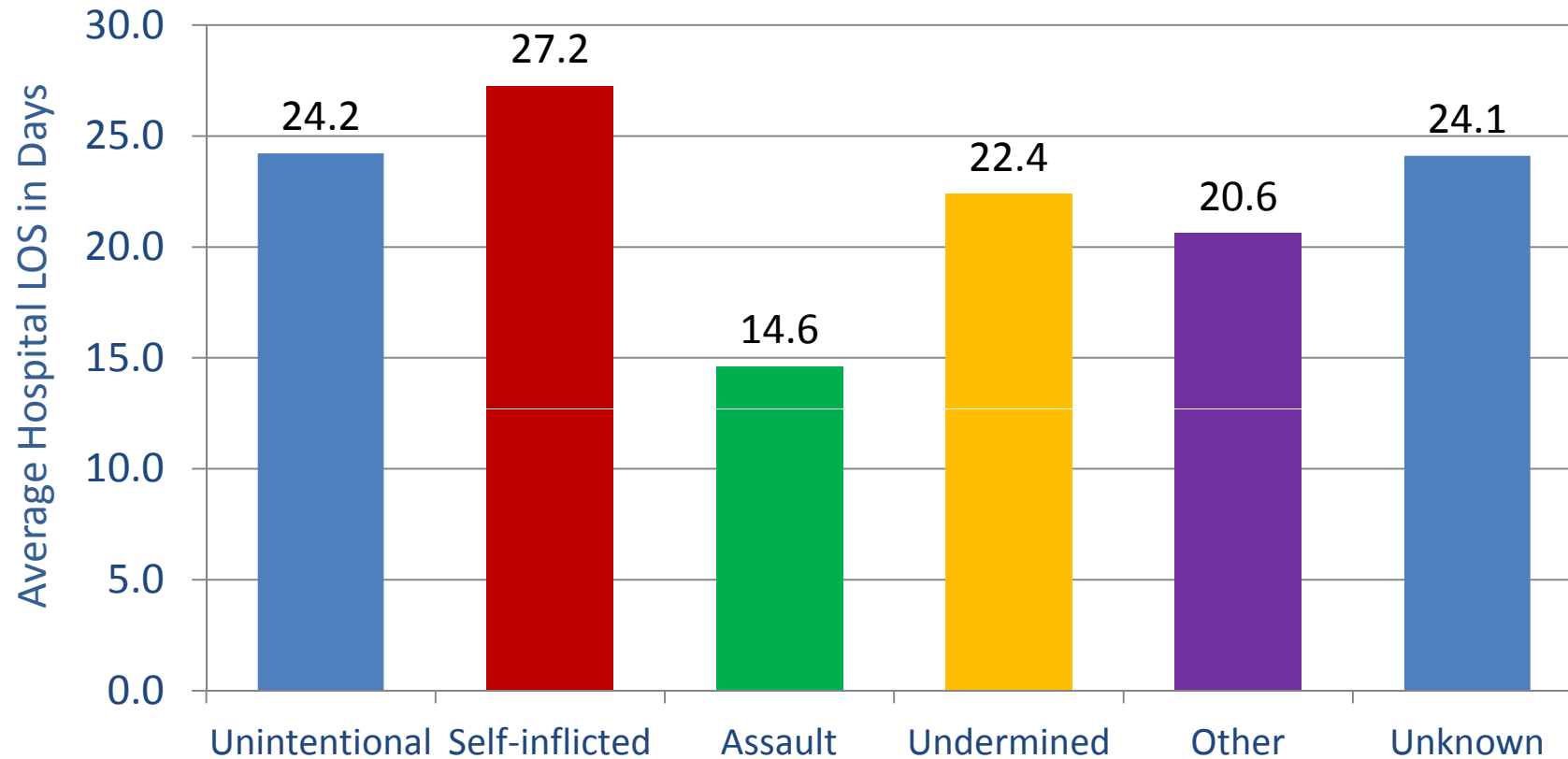
Table
34

Self-inflicted by Age and Gender

Age Sex	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-	Unkno wn	Total
Female	1	1	45	216	413	362	375	402	355	277	198	162	184	174	120	85	67	38	11	5	17	3508
Male	2	5	39	163	301	318	320	387	374	322	309	267	272	220	160	156	85	26	23	2	17	3768
Total	3	6	84	379	714	680	695	789	729	599	507	429	456	394	280	241	152	64	34	7	34	7276

Figure
35A**Total Hospital LOS by Intent**

Industrial accident was included in the category of “Unintentional”.

Figure
35B**Average Hospital LOS by Intent**

Average hospital length of stay in days = total hospital length of stay divided by the number of patients by intent.

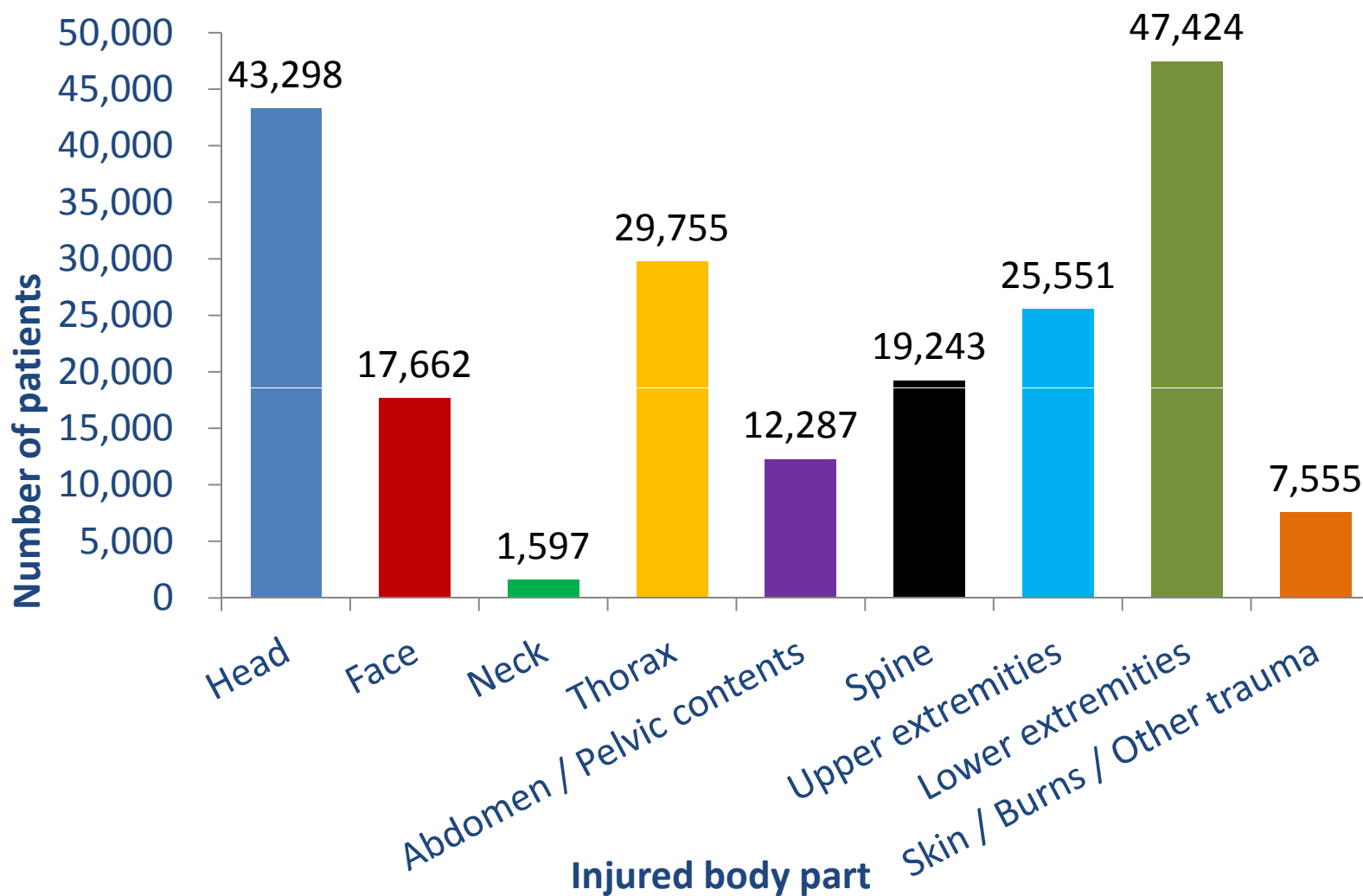
Figure
36**Number of patients with Injured Body Parts based on AIS**

Figure 37A

Head Injury and maxAIS Score

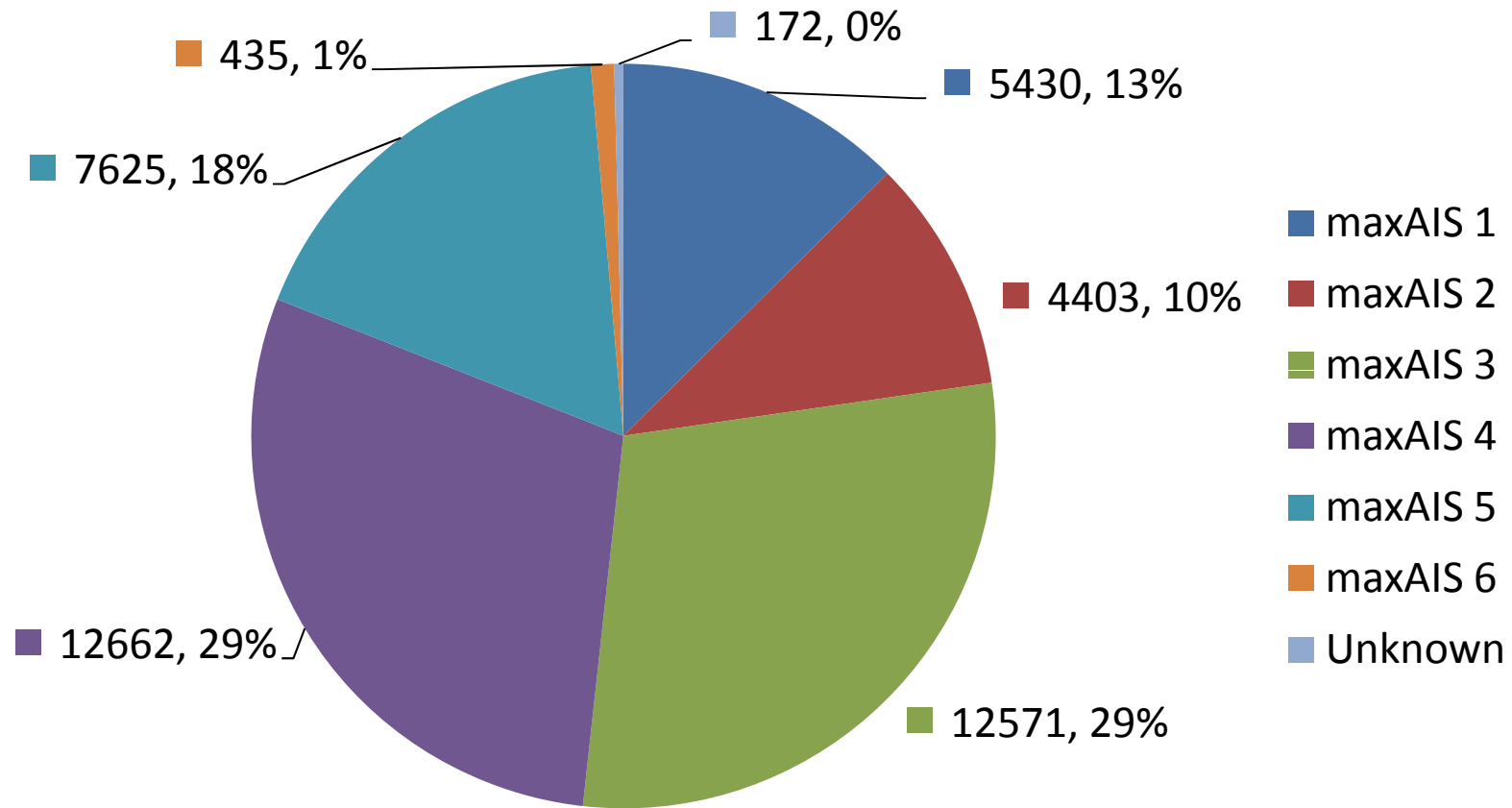


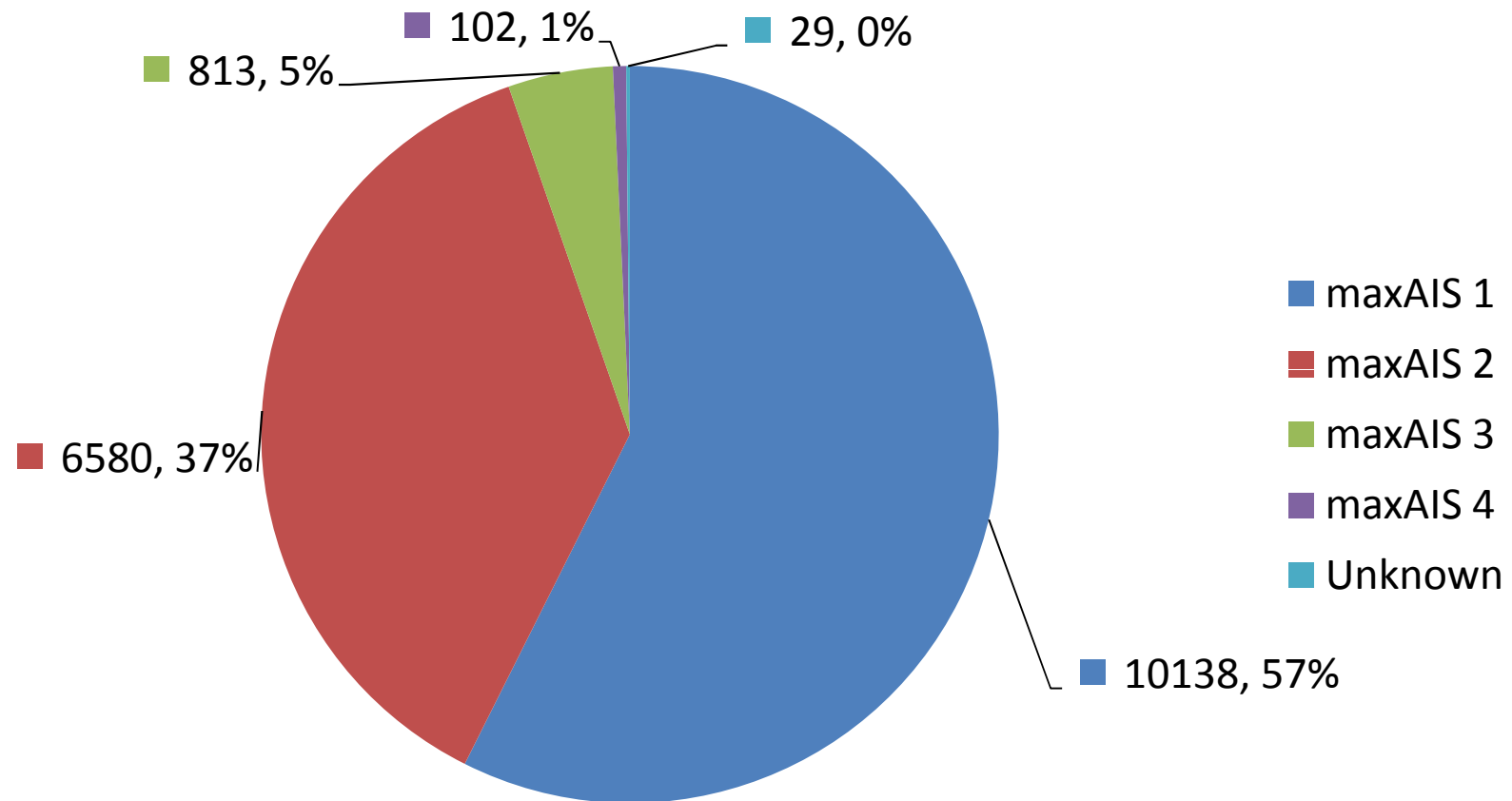
Figure
37B**Facial Injury and maxAIS Score**

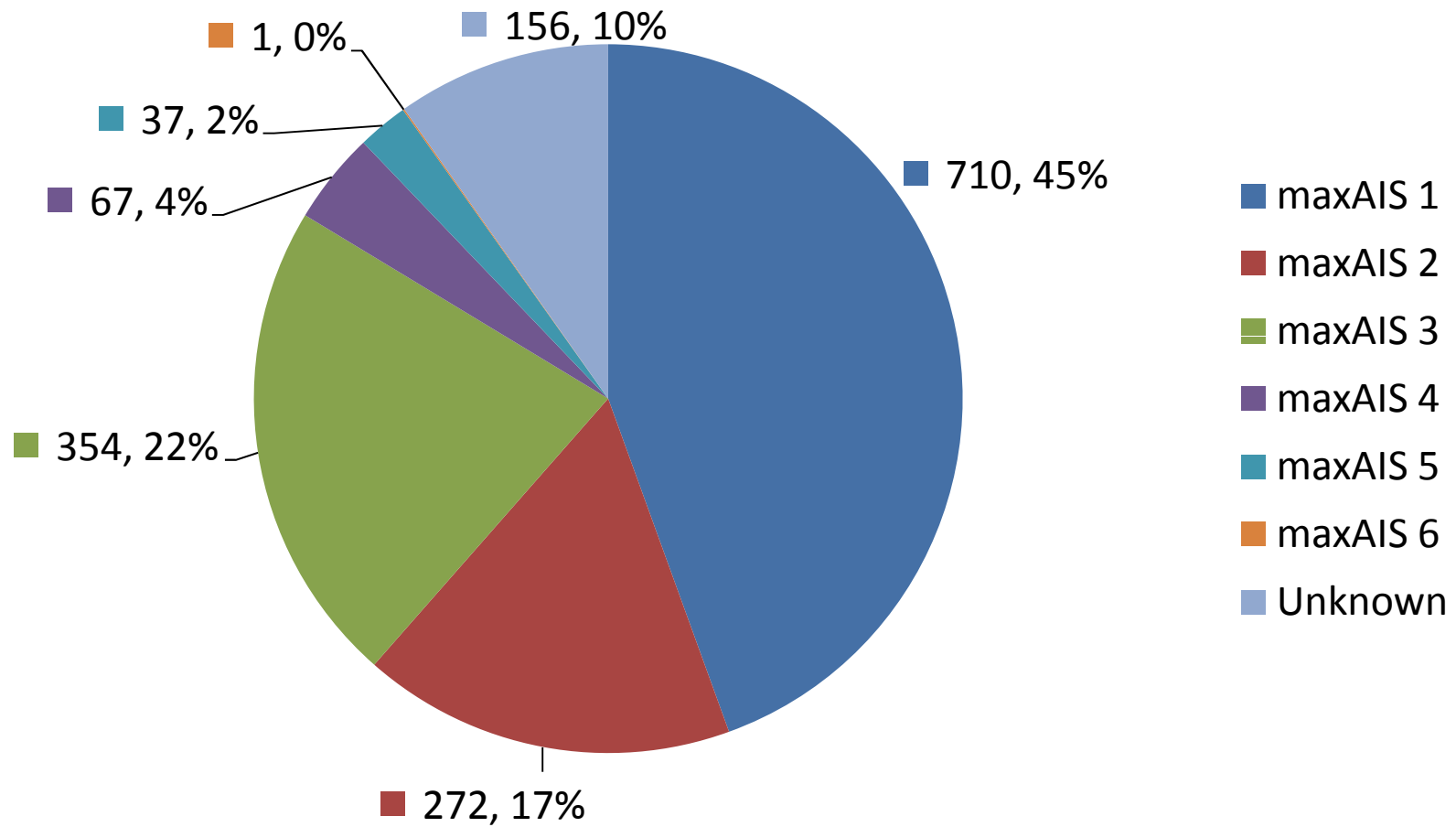
Figure
37C**Neck Injury and maxAIS Score**

Figure 37D

Thoracic Injury and maxAIS Score

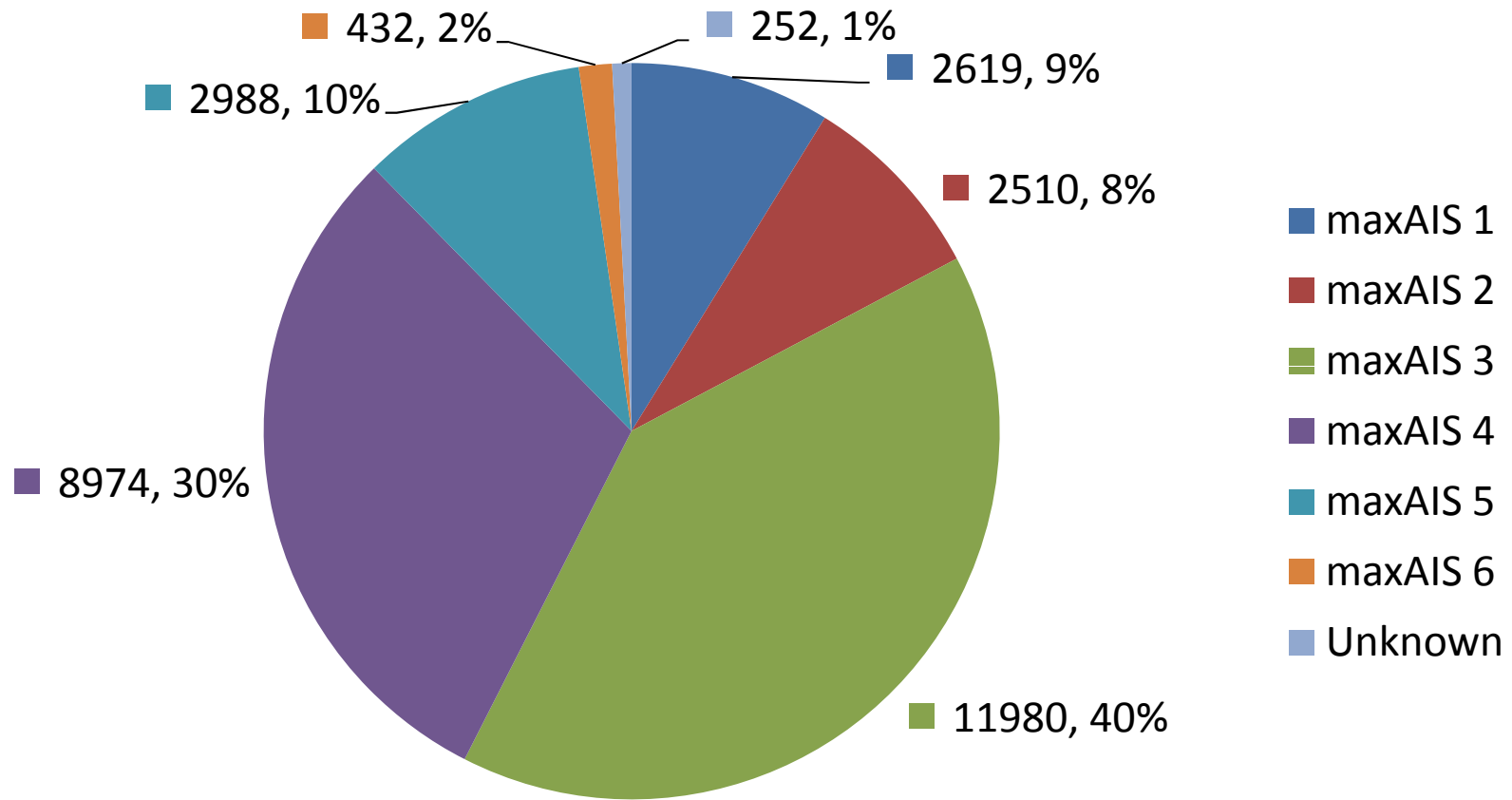


Figure 37E

Injury of Abdomen/Pelvic Contents and max AIS Score

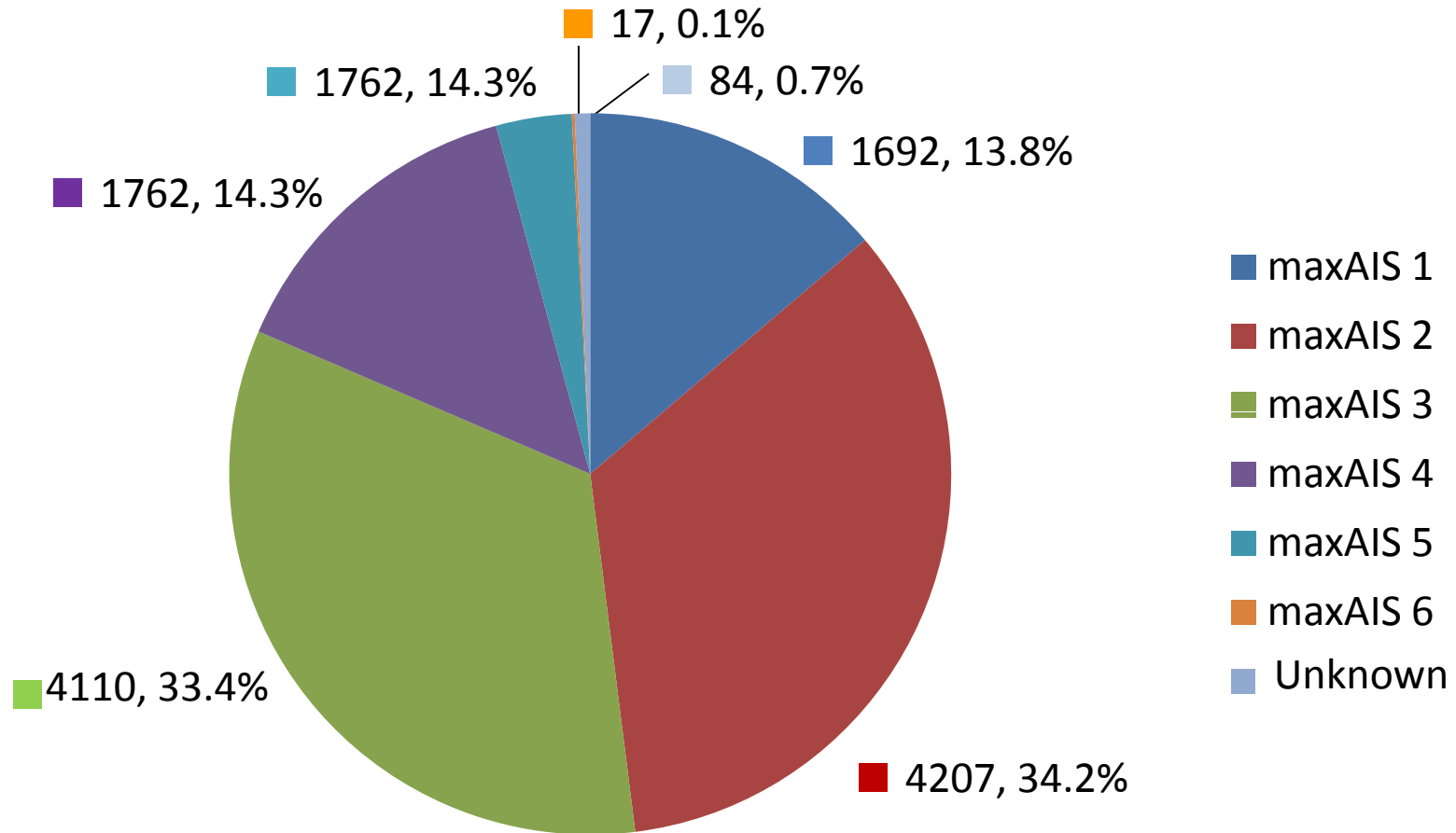


Figure 37F

Spinal Injury and max AIS Score

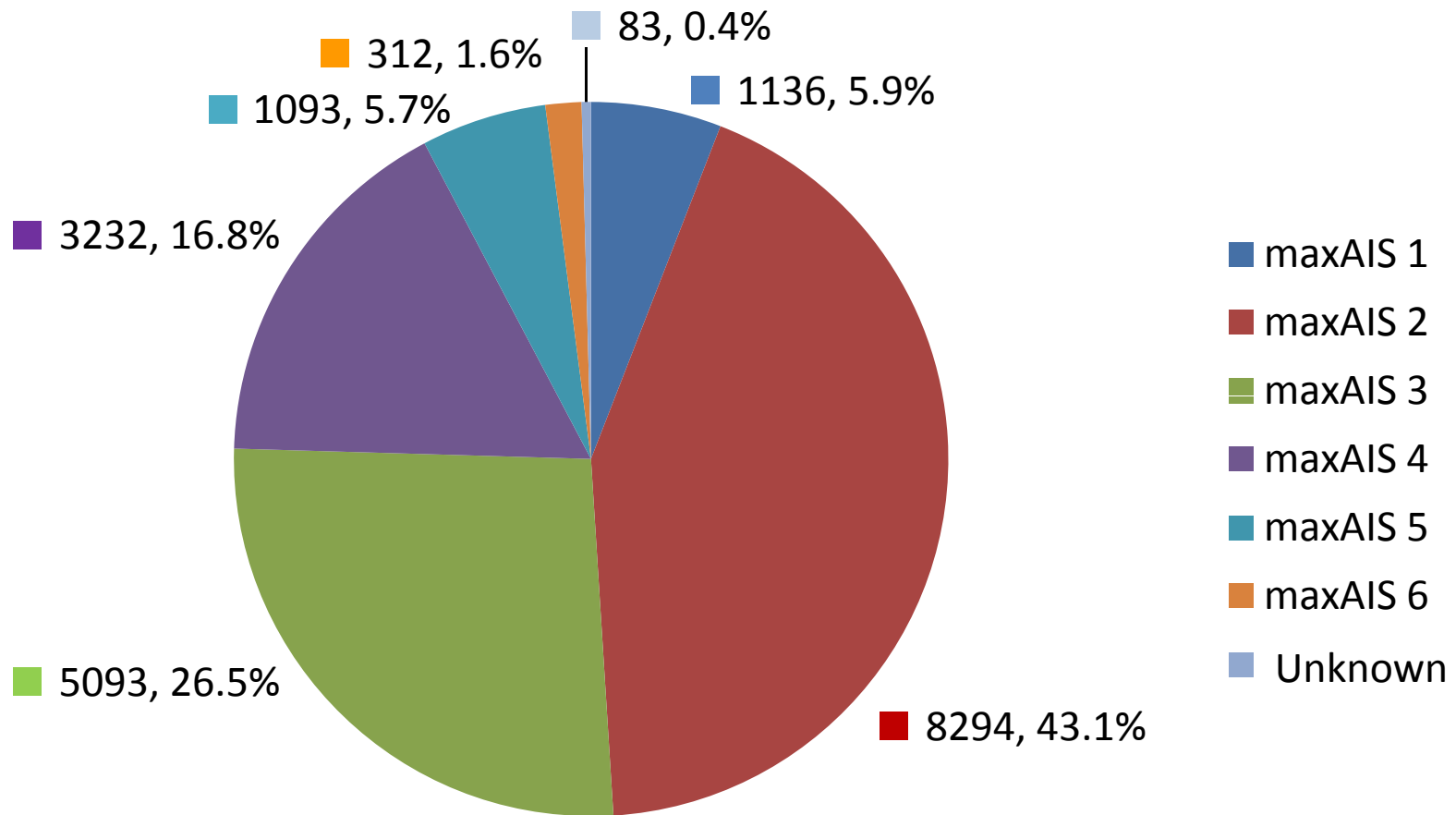


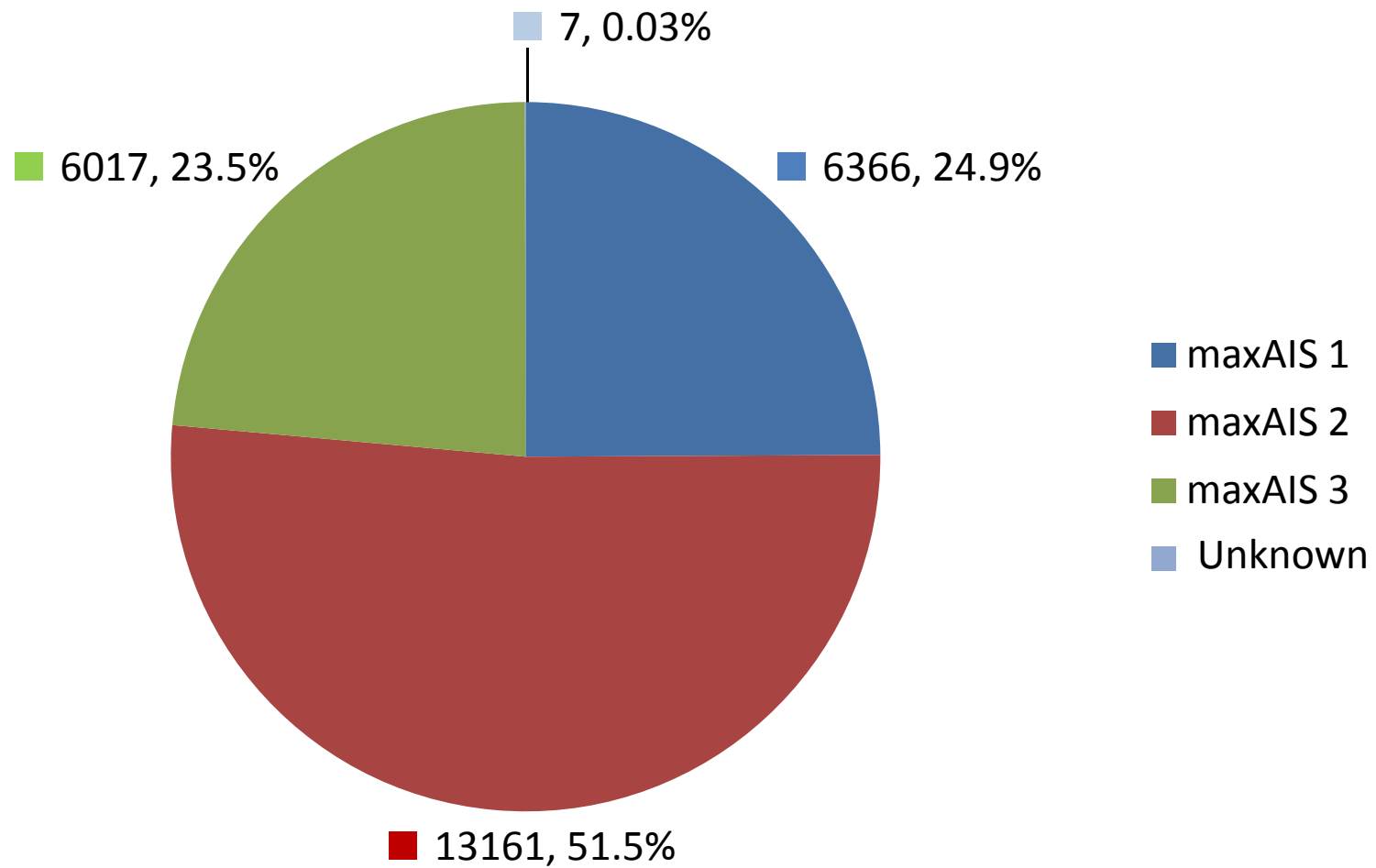
Figure
37G**Injury of Upper Extremities and max AIS Score**

Figure 37H

Injury of Lower Extremities and max AIS Score

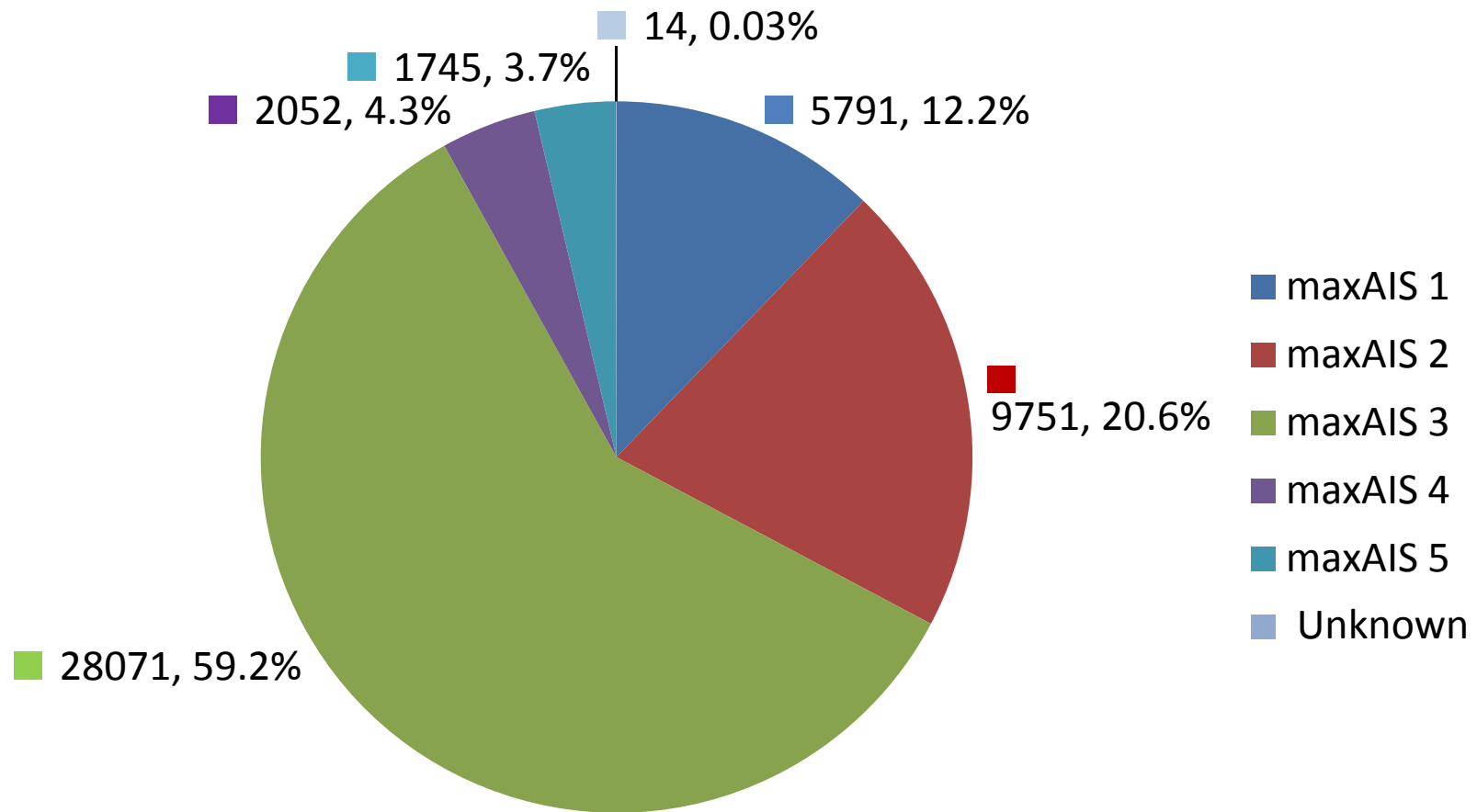


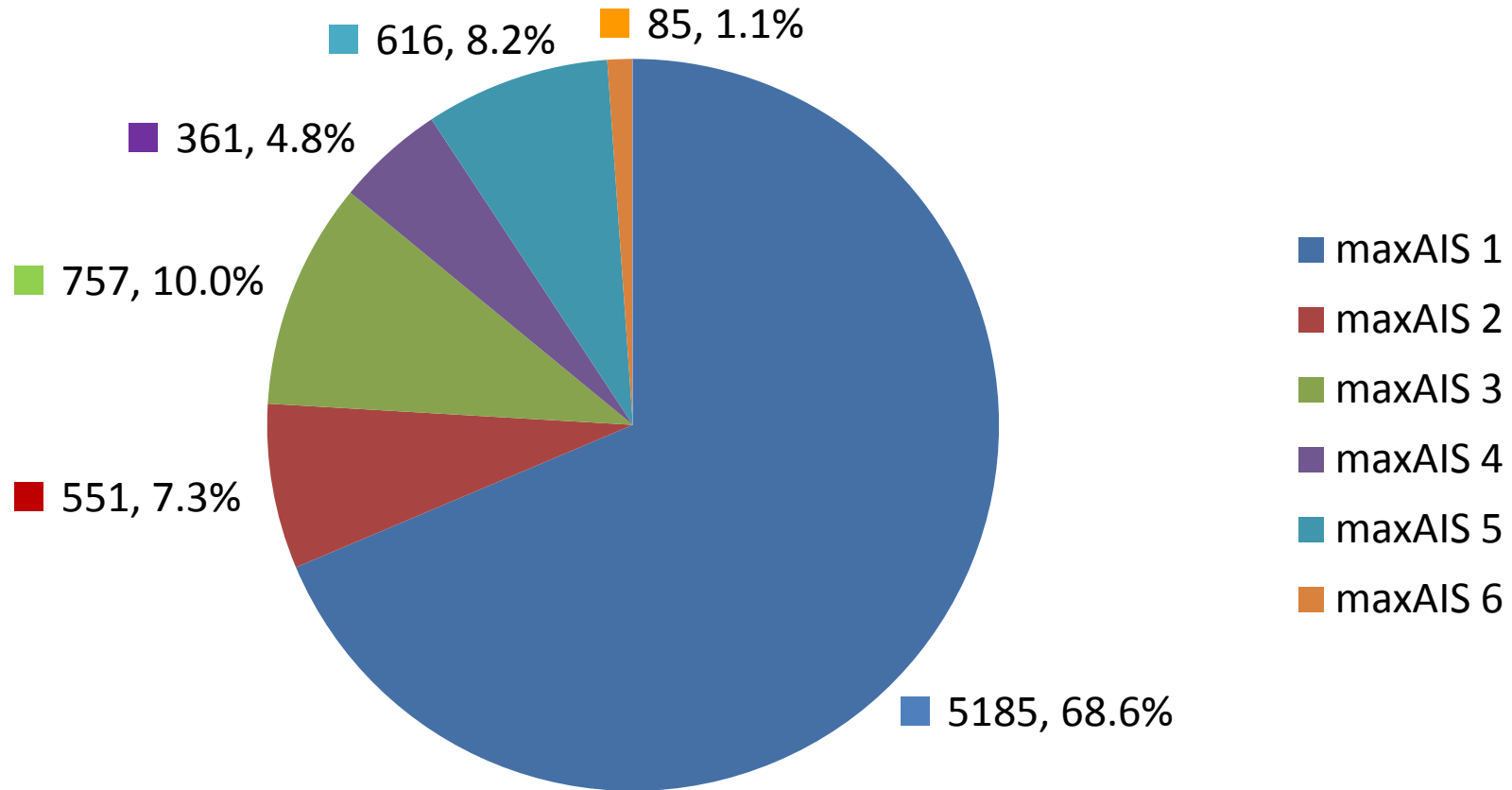
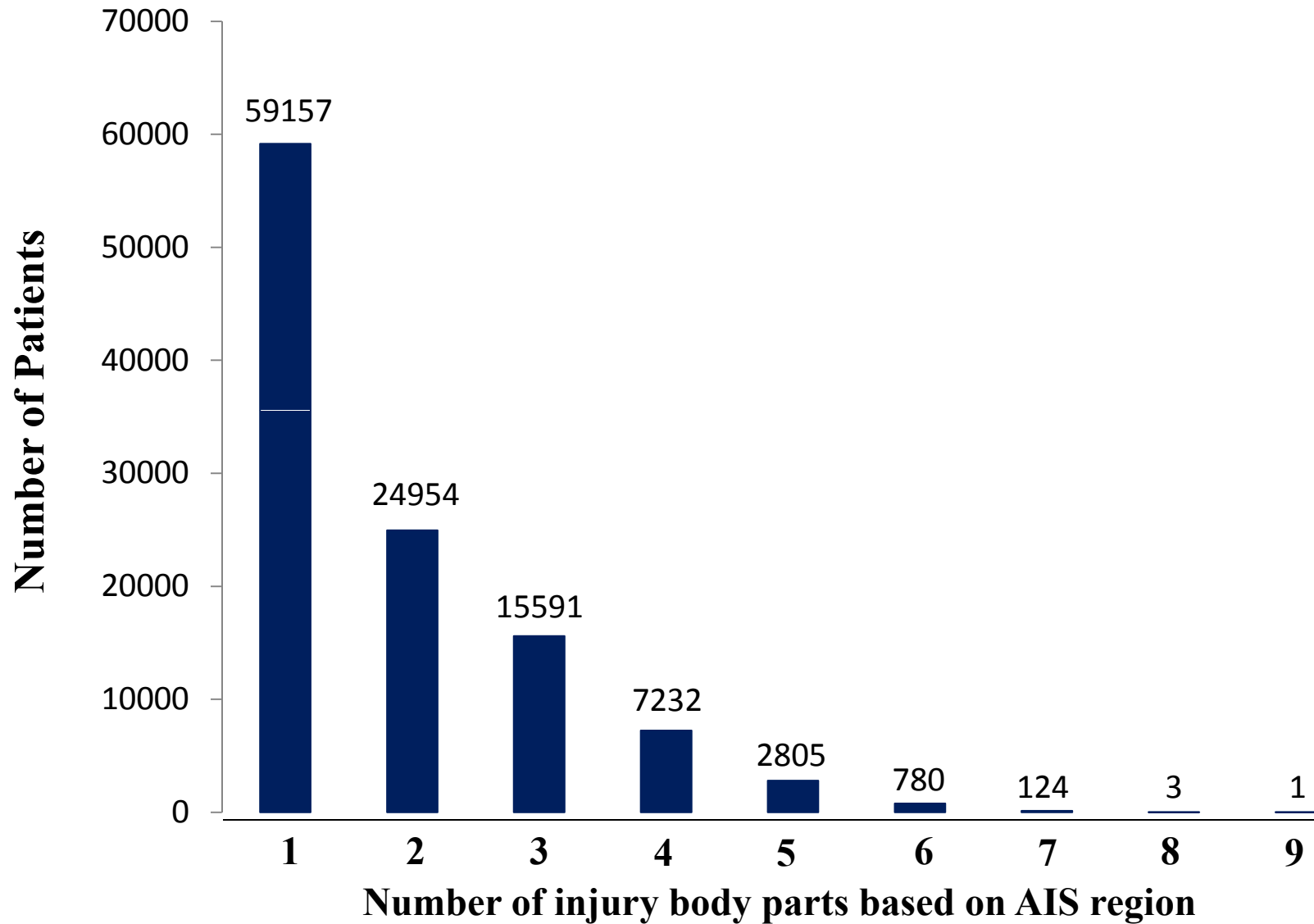
Figure
371**Skin/Burns/Other Trauma and max AIS Score**

Figure 38

Number of Patients and Injured Body Parts based on AIS



December 15, 2014

**JAPAN TRAUMA DATA BANK
REPORT 2014 (2009-2013)**



The Japanese Association for Acute Medicine

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Chairman: Yasushi Asari, MD



The Japanese Association for the Surgery of Trauma

Trustee: Tetsuya Sakamoto, MD

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