Japan Trauma Data Bank
Report 2005-2009

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)

Sapporo Medical University Hospital
Nikko Memorial Hospital
Sapporo City General Hospital
Hokkaido University Hospital
Hachinohe City Hospital
Kuji Prefectural Hospital
Iwate Medical University Hospital
Sendai City Hospital
Aizu Central Hospital
Ishinomaki Red Cross Hospital
Ohta Nishinouchi Hospital
Tsukuba Medical Center Hospital
Dokkyo Medical University Hospital
Gunma University Hospital
Maebashi Red Cross Hospital
Critical Care Center, Saitama Medical University
National Defense Medical College Hospital
Koshigaya Hospital, Dokkyo University School Medicine
Kawaguchi Municipal Medical Center
Saitama Red Cross Hospital
Kimitsu Chuou Hospital
Kameda General Hospital
Chiba Emergency Medical Center
Nippon Medical School Chiba Hokusoh Hospital
Asahi Central Hospital
Funabashi Municipal Medical Center
Metropolitan Bokutoh Hospital
Tokyo Medical and Dental University Hospital
Nihon University Itabashi Hospital
Numazu City Hospital
Aishinkai Ohsumi Kanoya Hospital
Teineyama Keijinnkai Hospital
Osaki Citizen Hospital
Jichi Medical School Hospital

Ohme Municipal General Hospital
Tokyo Women's Medical University Hospital
Surugadai Nihon University Hospital
Kyorin University Hospital
Nippon Medical School Tama Nagayama Hospital
Nippon Medical School Hospital
National Hospital Organization National Disaster Medical Center
Tokyo Women's Medical University Medical Center East
Tokyo Medical University Hospital
International Medical Center of Japan
Teikyo University Hospital
Musashino Red Cross Hospital
Metropolitan Hiroo Hospital
National Hospital Organization Tokyo Medical Center
Showa General Hospital
Tokyo Medical University Hachioji Medical Center
Keio University Hospital
Yokohama City Minato Red Cross Hospital
Yokosuka General Hospital Uwamachi
Kitasato University Hospital
Showa University Fujigaoka Hospital
Saiseikai Yokohama-city East Hospital
Tokai University Hospital
Yokohama City University Medical Center
Yokohama Municipal Citizens Hospital
Kanto Rosai Hospital
Nippon Medical School Musashikosugi Hospital
St. Marianna University School of Medicine Hospital
Aizawa Hospital
Takayama Red Cross Hospital
Shizuoka Saiseikai General Hospital
Wakayama Medical University Hospital
Ehime Prefectural Central Hospital
Juntendo University Urayasu Hospital
Shizuoka Children's Hospital
Hukui Prefectural Hospital

Figure 1A Names of All Hospitals Submitting Data to the JTDB (N=144, part 1)

National Hospital organization Yokohama Medical Center
Showa University Northern Yokohama Hospital
Toyama University Hospital
Toyama Prefectural Central Hospital
Yamanashi Prefectural Central Hospital
Shinshu University Hospital
Saku Central Hospital
Gifu University Hospital
JA Gifu Koseren Chunou Hospital
Seirei Mikatahara General Hospital
Okazaki City Hospital
Social Insurance Chukyo Hospital
Nagoya Ekiseikai Hospital
Aichi Medical University Hospital
Osaka City University Hospital
Kansai Medical University Hospital
Osaka General Medical Center
Osaka University Hospital
Saiseikai Senri Hospital
Kansai Medical University Takii Hospital
Kishiwada Tokushukai Hospital
Kinki University Hospital
Osaka Mishima Emergency Medical Center
Hanwa Memorial Hospital
Osaka Prefectural Senshu Critical Medical Care Center
Osaka National Hospital
Hyogo Prefectual Nishinomiya Hospital
Kochi Medical Center
Okinawa Prefectural Chubu Hospital
Kurume University Hospital
Iizuka Hospital
Shonan Kamakura General Hospital
Ibaragi Seinan Medical Center Hospital
Hiroshima University Hospital
Tokushima Prefectural General Hospital

Kansai Rosai Hospital
Public Muraoka Hospital
Toyooka Public Hospital
Hyogo Emergency Medical Center
Kobe University Hospital
Nara Medical University Hospital
Nara Prefectural Nara Hospital
Okayama University Hospital
Kawasaki Medical School Hospital
Chugoku Rosai Hospital
Hiroshima Prefectural Hospital
Yamaguchi University Hospital
Tokushima Prefectural Miyoshi Hospital
Taoka Hospital
Kagawa University Hospital
St. Maria's Hospital
Fukuoka University Hospital
Saiseikai Fukuoka General Hospital
Kokura Memorial Hospital
Kitakyushu General Hospital
Saga Prefectural Hospital Koseikan
Nagasaki Hospital Organization Nagasaki Medical Center
Keiaikai Nagasaki Hospital
Urasoe General Hospital
Shizuoka Red Cross Hospital
Toyohashi Municipal Hospital
Kenwakai-Ohtemachi Hospital
Kyushu University Hospital
Kitakyushu City Yahata Hospital
Ohita University Hospital
Prefectural Miyazaki Hospital
Saitama Medical University International Medical Center
Tokushima Prefectural Kaihu Hospital
Tohoku University Hospital
Arao Municipal Hospital
Kumamoto Red Cross Hospital

Figure 1B Names of All Hospitals Submitting Data to the JTDB (N=144, part 2)

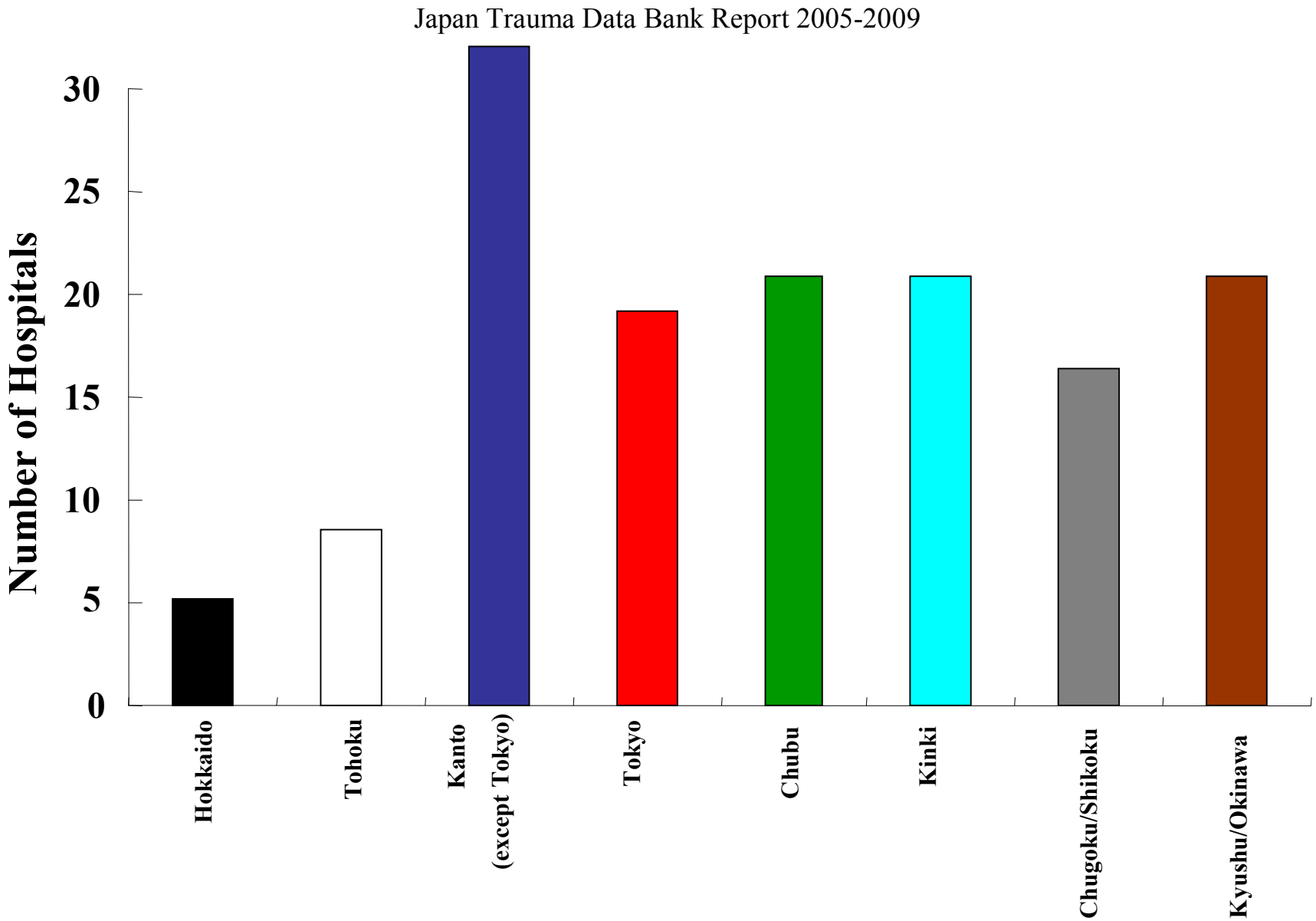

Figure 2 Number of Hospitals Submitting to the JTDB by Region

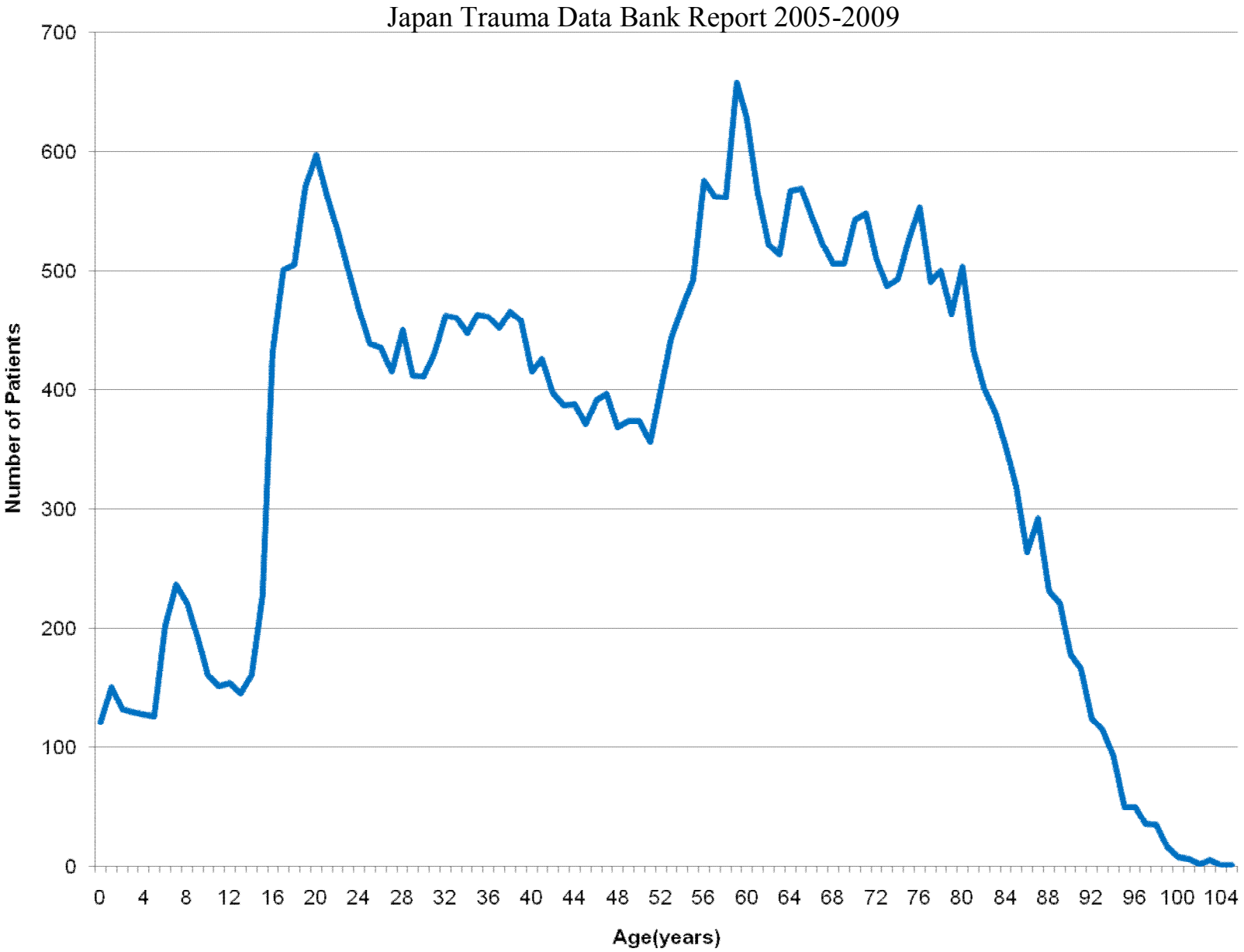

Figure 3 Number of tatients by Age

Two peaks were seen in the 20's and 50's.

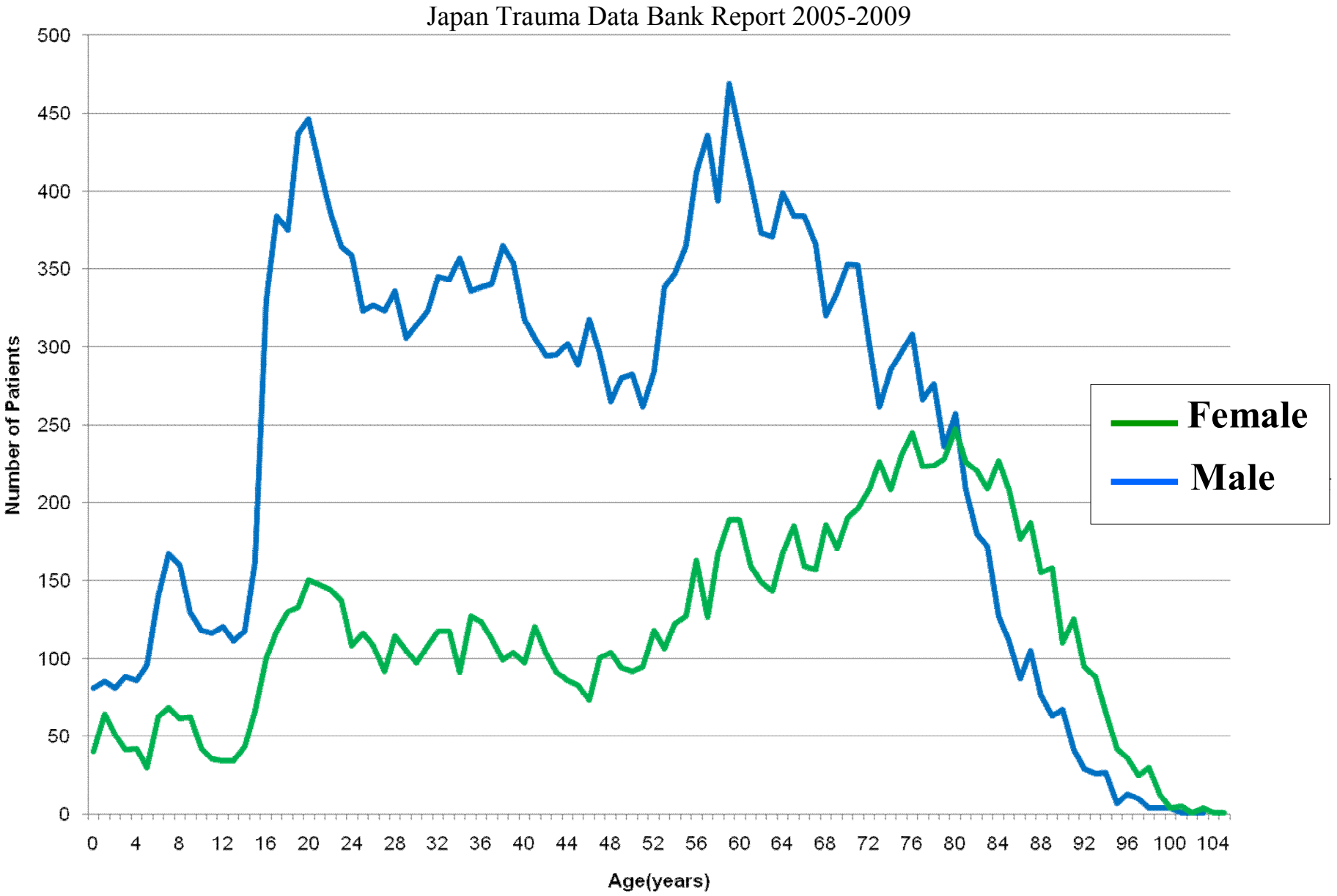

Figure 4 Patients by Age and gender

The peak pattern was the same as in Figure 3 in male patients

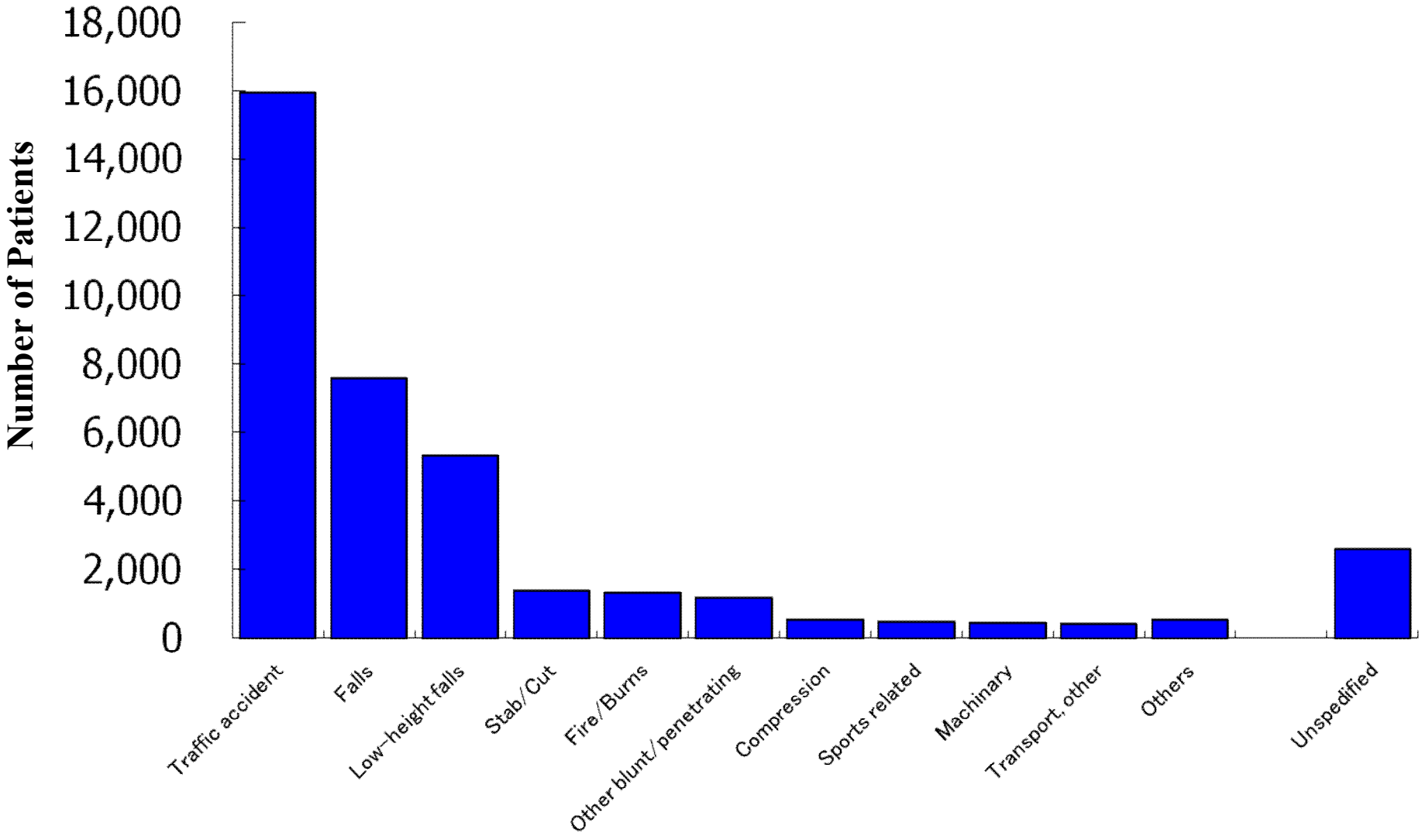

Figure 5 Patients by Mechanism of Injury

Traffic accident includes pedestrian victims.

Mechanism of injury	Patients (n)	Patients by mechanism of injury (n)
Traffic accident	15961	53.99
Falls	7587	20.07
Low-height falls	5321	14.08
Stab/Cut	1389	3.67
Fire/Burns	1332	3.52
Other blunt/penetrating	1188	3.14
Compression	549	1.45
Sports related	482	1.28
Machinary	462	1.22
Transport, other	410	1.08
Falling object	324	0.86
Impalement injury	43	0.11
Gunshot	35	0.09
House collapse/Landslide	19	0.05
Explosion	108	0.29
Unspecified	2586	6.84
Total	**37796**	**100.00**

Table 5 Patients by Mechanism of Injury

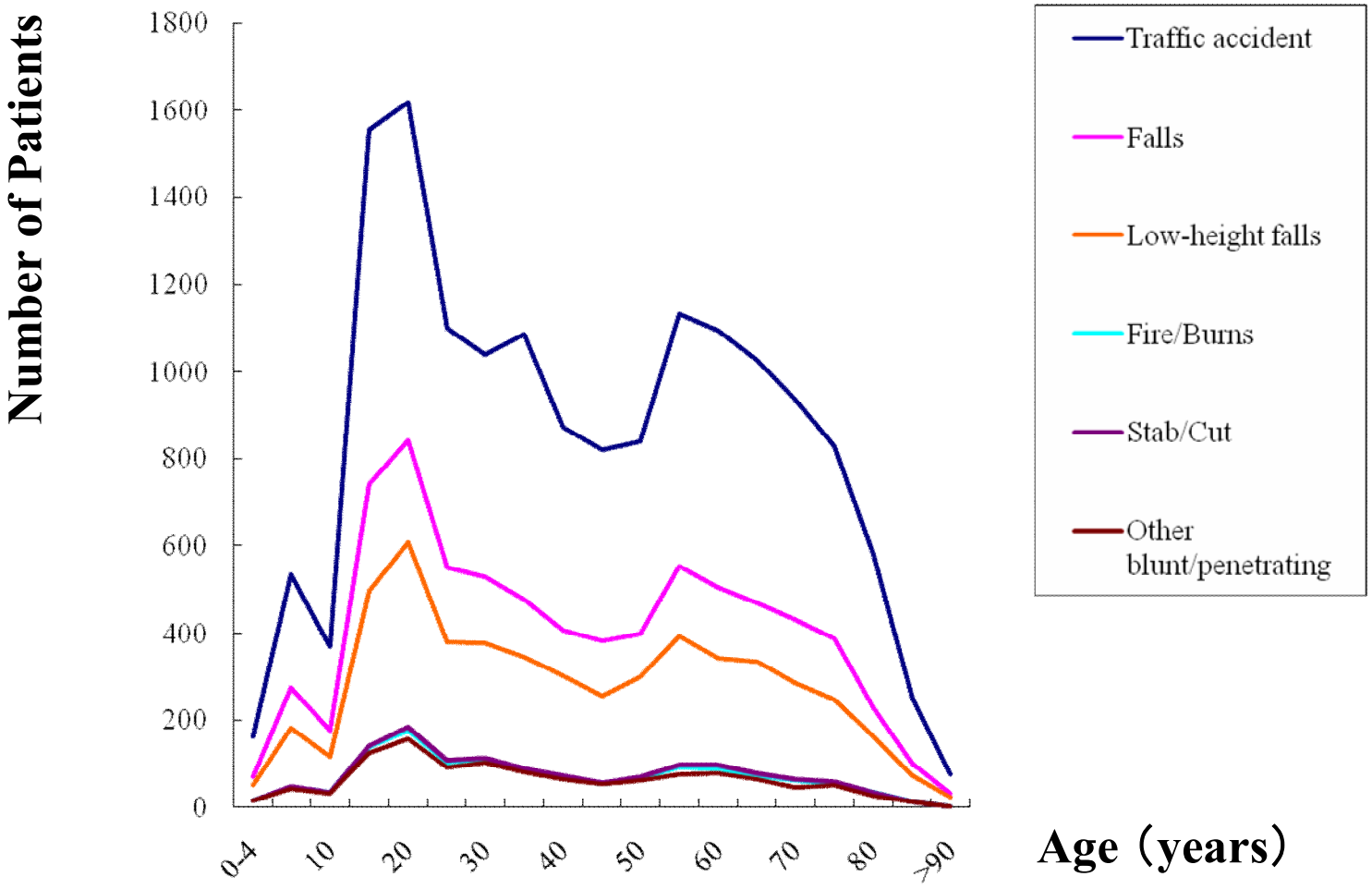

Figure 6　Mechanism of Injury by Age

Range of Age (yr)	Traffic accident (n)	% of total range of age (%)	Falls (n)	% of total range of age (%)	Low-heght falls (n)	% of total range of age (%)	Stab/Cut (n)	% of total range of age (%)	Fire/Burns (n)	% of total range of age (%)	Other blunt/pnet rating (n)	% of total range of age (%)
0-4	162	1.01	70	0.92	51	0.96	17	1.22	17	1.28	16	1.35
5-9	535	3.35	275	3.62	181	3.40	49	3.53	46	3.45	42	3.54
10-14	370	2.32	176	2.32	116	2.18	36	2.59	34	2.55	31	2.61
15-19	1557	9.76	740	9.75	498	9.36	140	10.08	138	10.36	124	10.44
20-24	1620	10.15	842	11.10	607	11.41	185	13.32	176	13.21	157	13.22
25-29	1100	6.89	550	7.25	381	7.16	109	7.85	104	7.81	92	7.74
30-34	1041	6.52	528	6.96	376	7.07	114	8.21	111	8.33	102	8.59
35-39	1085	6.80	477	6.29	344	6.46	89	6.41	85	6.38	80	6.73
40-44	872	5.46	407	5.36	301	5.66	74	5.33	71	5.33	65	5.47
45-49	820	5.14	383	5.05	254	4.77	56	4.03	55	4.13	53	4.46
50-54	839	5.26	400	5.27	297	5.58	71	5.11	68	5.11	62	5.22
55-59	1133	7.10	554	7.30	393	7.39	98	7.06	92	6.91	75	6.31
60-64	1095	6.86	506	6.67	342	6.43	96	6.91	90	6.76	77	6.48
65-69	1027	6.43	470	6.19	333	6.26	78	5.62	72	5.41	65	5.47
70-74	937	5.87	431	5.68	286	5.37	65	4.68	62	4.65	46	3.87
75-79	827	5.18	387	5.10	246	4.62	59	4.25	55	4.13	52	4.38
80-84	581	3.64	227	2.99	163	3.06	34	2.45	34	2.55	28	2.36
85-89	249	1.56	99	1.30	73	1.37	14	1.01	14	1.05	13	1.09
>=90	76	0.48	33	0.43	24	0.45	3	0.22	3	0.23	3	0.25
Unspecified	35	0.22	32	0.42	55	1.03	2	0.14	5	0.38	5	0.42
Total	**15961**		**7587**		**5321**		**1389**		**1332**		**1188**	

Table 6 Mechanism of injury by range of age

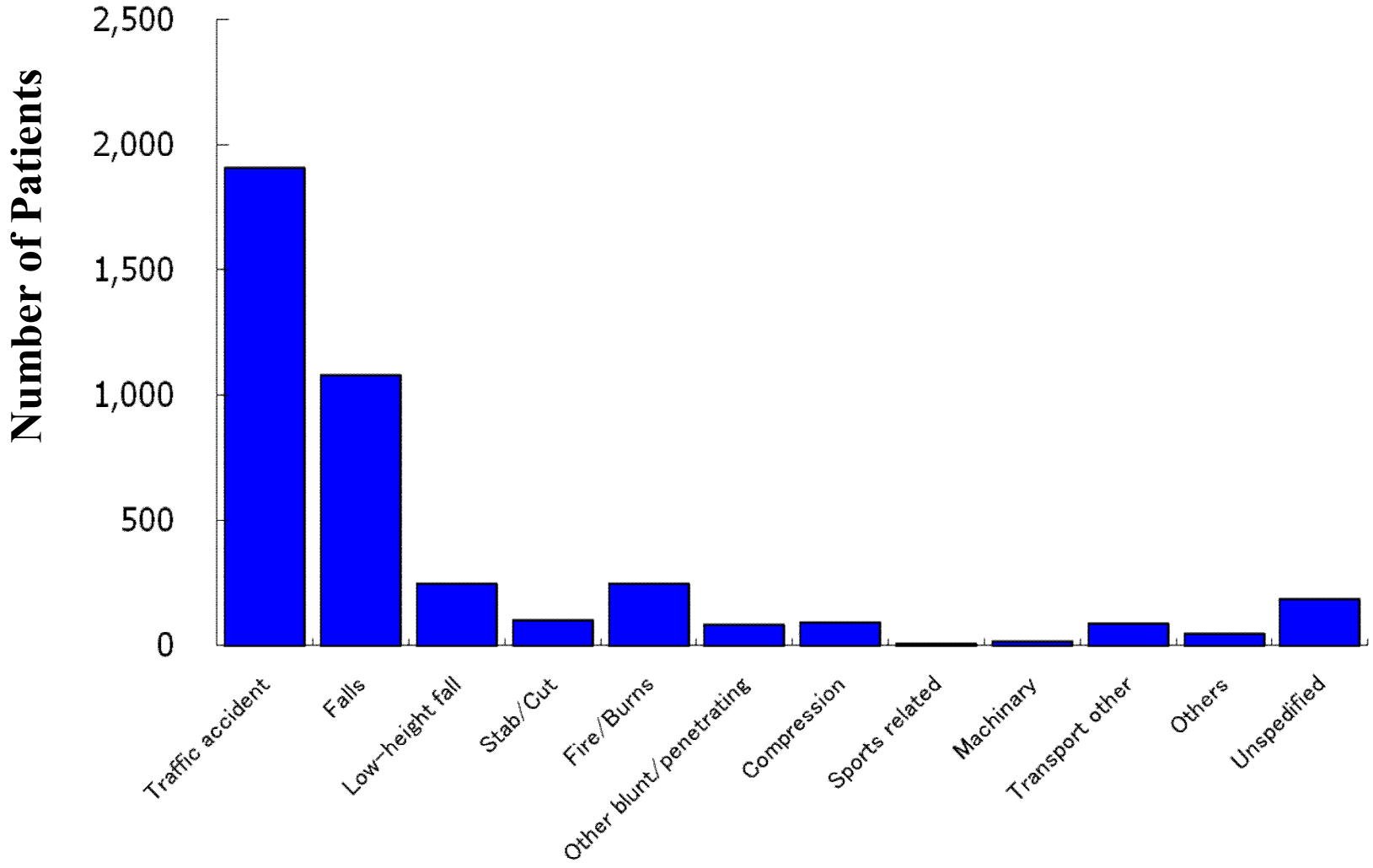

Figure 7 Deaths by Mechanism of Injury

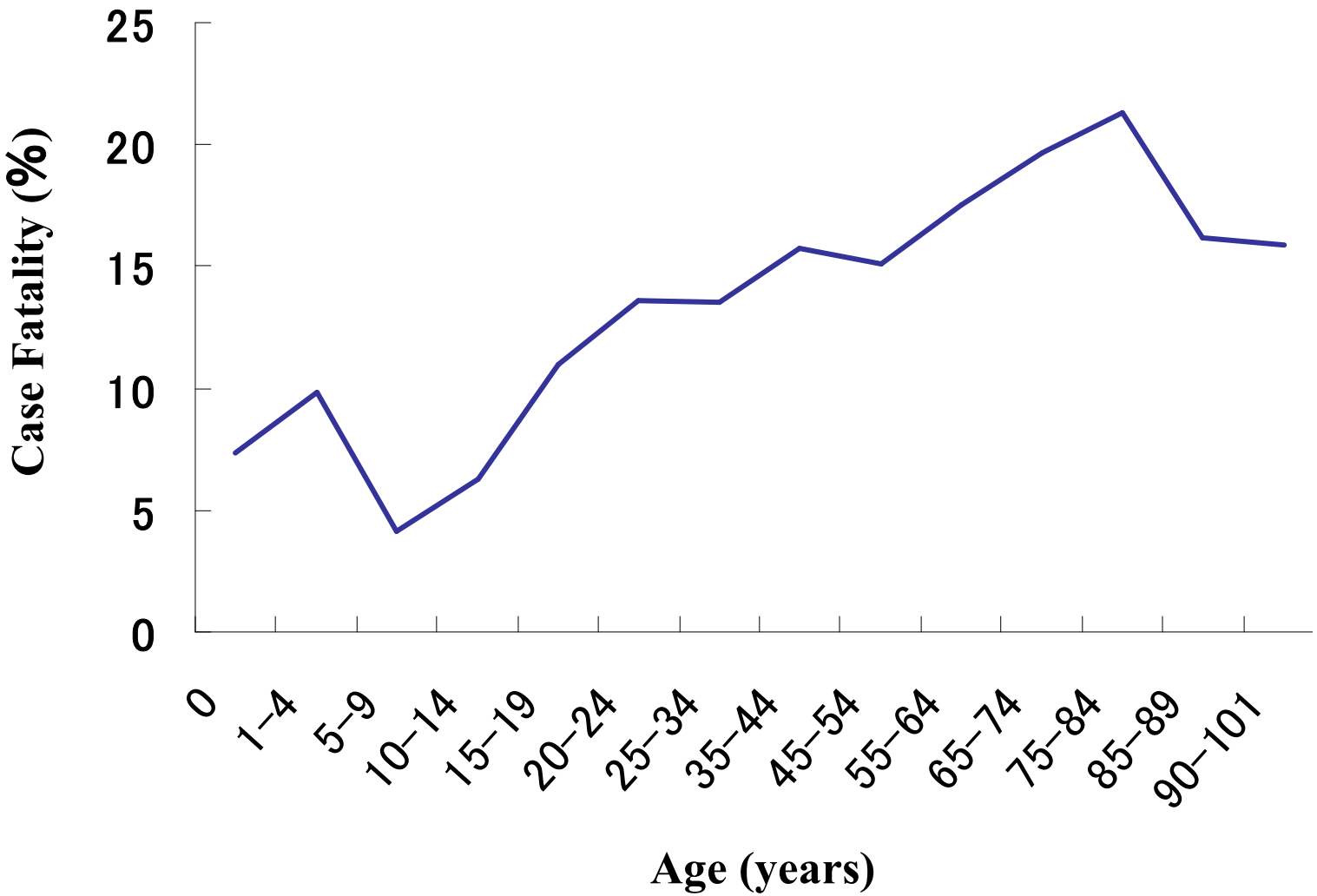

Figure 8 Case Fatality by Age

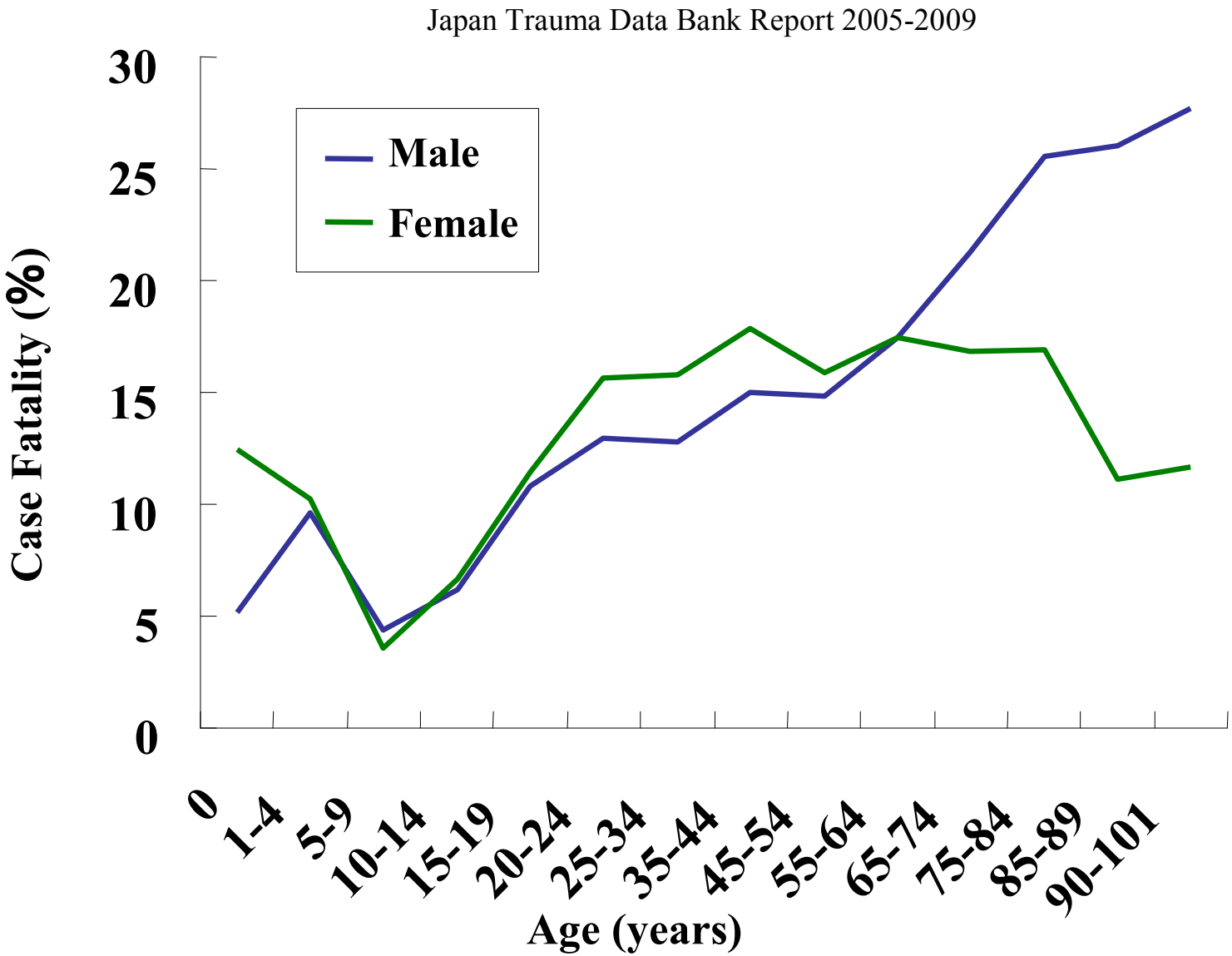

Figure 9 Case Fatality by Age

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

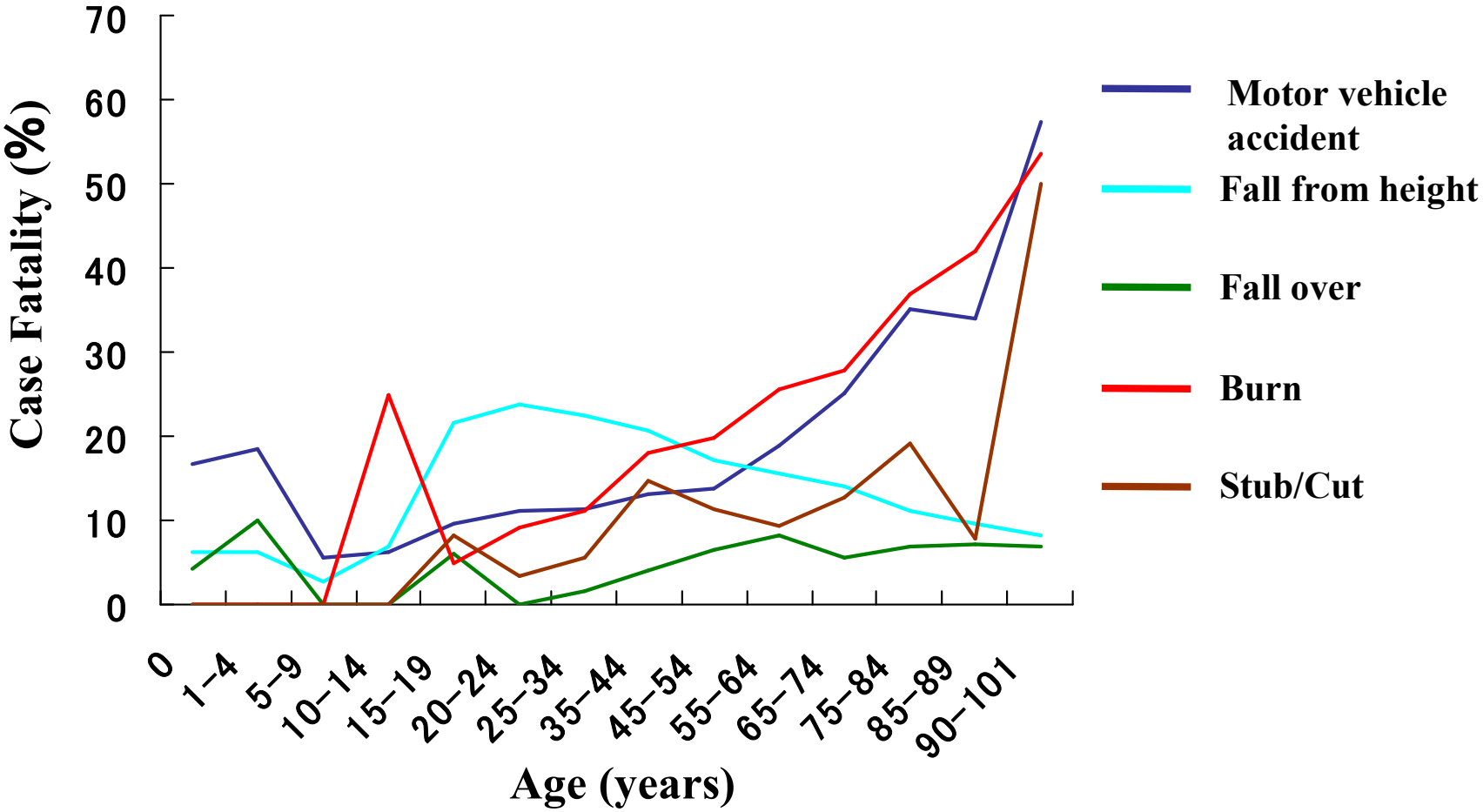

Figure 10 Case Fatality by Injury Mechanism and Age

Case fatality due to motor vehicle accidents and burns increased with age.

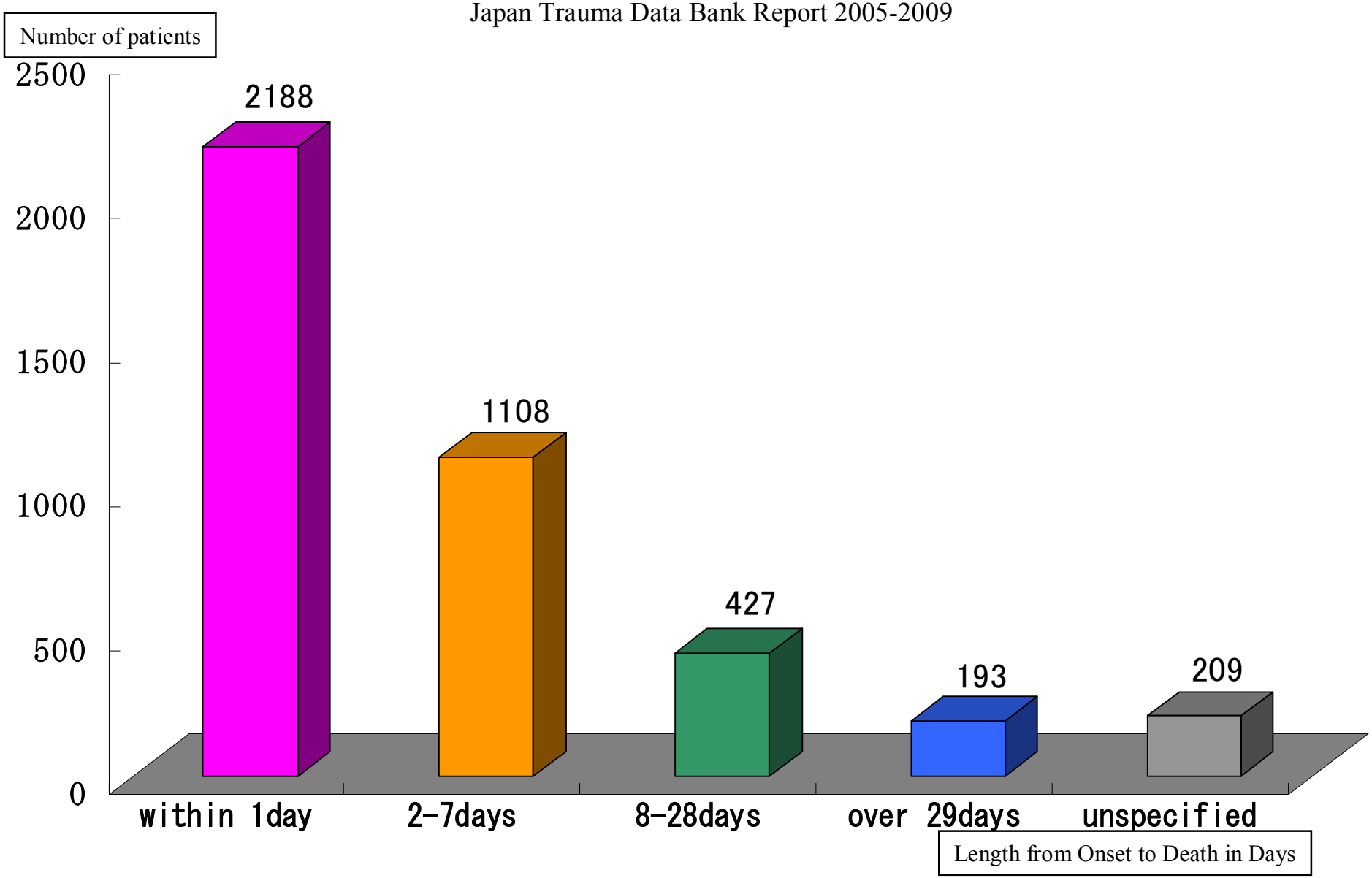

Figure 11A Proportional distribution of length from onset to fatality

The category within 1 day after onset includes CPAOA patients. Total number = 4,125

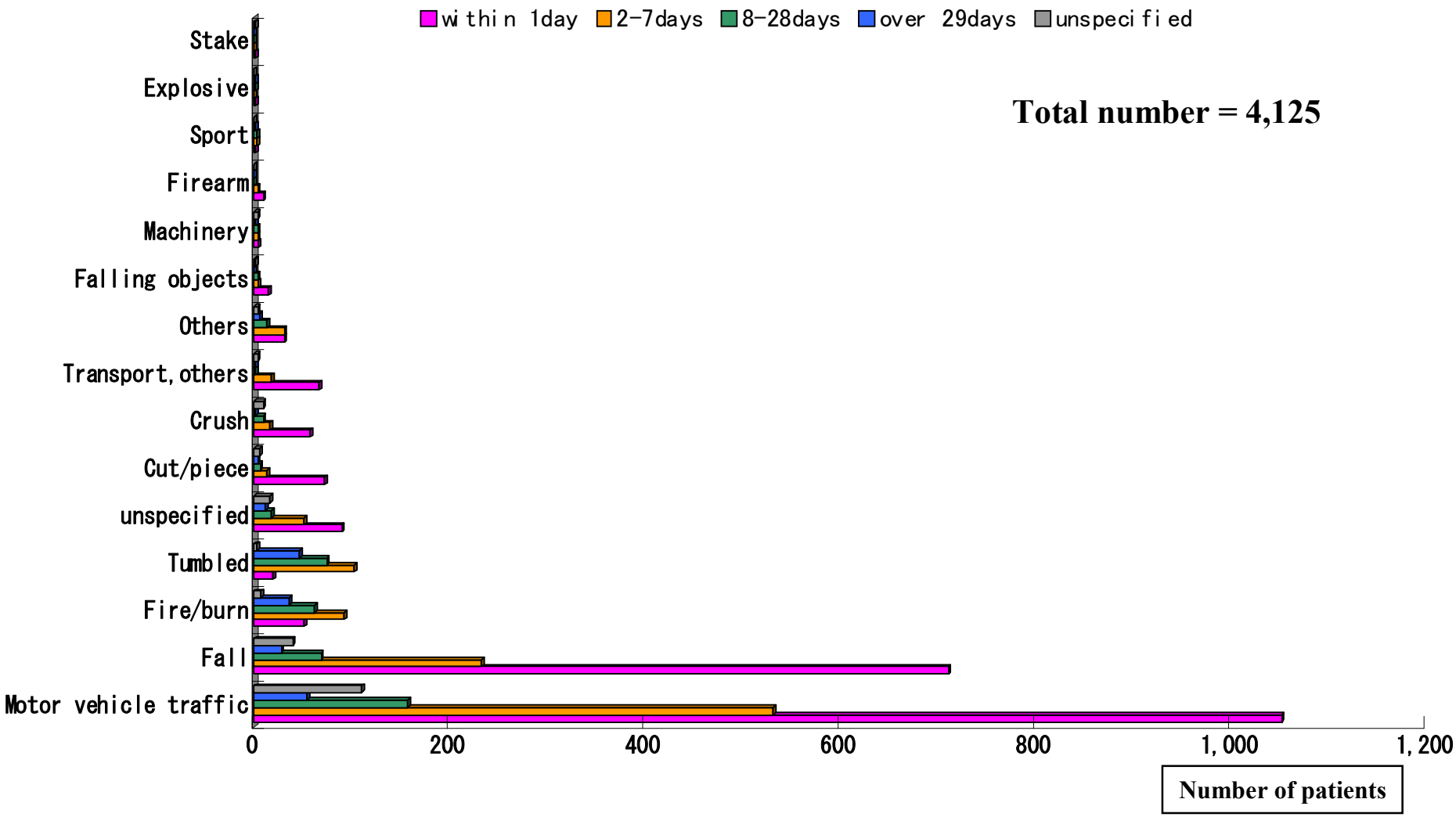

Figure 11B Proportional distribution of length from onset to fatality, grouped by mechanism of injury

	Motor vehicle traffic	Fall	Fire/burn	Tumbled	unspecified	Cut/piece	Crush	Transport, others
within 1day	1,052	711	52	20	90	73	58	67
2-7days	532	233	92	103	52	14	17	18
8-28days	158	69	62	75	18	7	10	1
over 29days	54	28	36	47	12	4	1	1
unspecified	111	40	8	3	17	6	10	4
計	1907	1081	250	248	189	104	96	91

	Others	Falling objects	Machinery	Firearm	Sports	Explosive	Stake	Total
within 1day	31	15	5	10	2	1	1	2188
2-7days	31	5	4	4	3	0	0	1108
8-28days	14	4	4	0	3	2	0	427
over 29days	6	0	1	0	1	2	0	193
unspecified	4	1	4	0	0	0	1	209
計	86	25	18	14	9	5	2	4125

Others; Other specified and classifiable

Table 11B Proportional distribution of length from onset to fatality, grouped by mechanism of injury Total number = 4,125

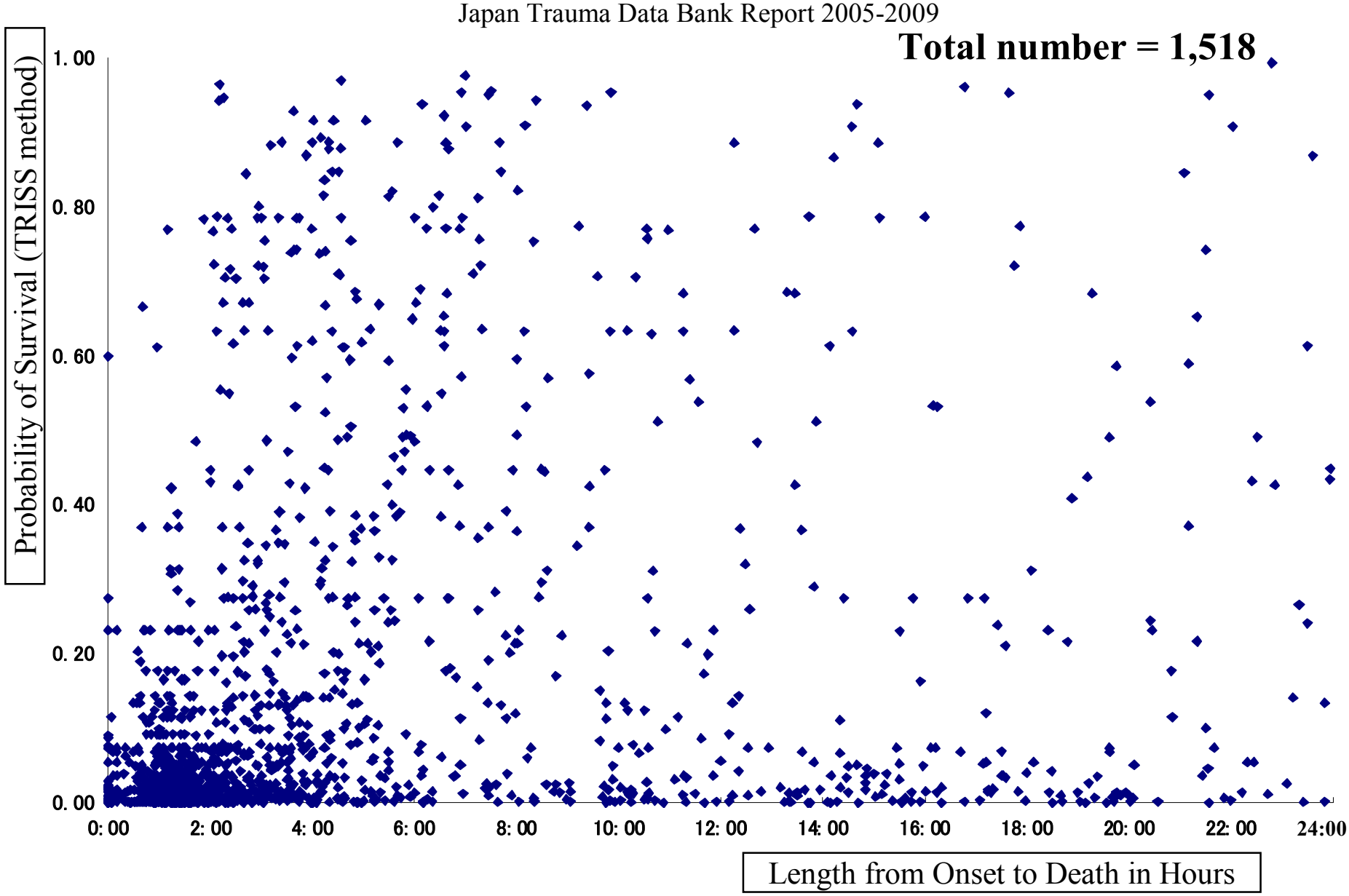

Figure 11C Probability of Survival and Length from Onset to Death in Hours

This figure includes trauma-induced CPAOA cases.

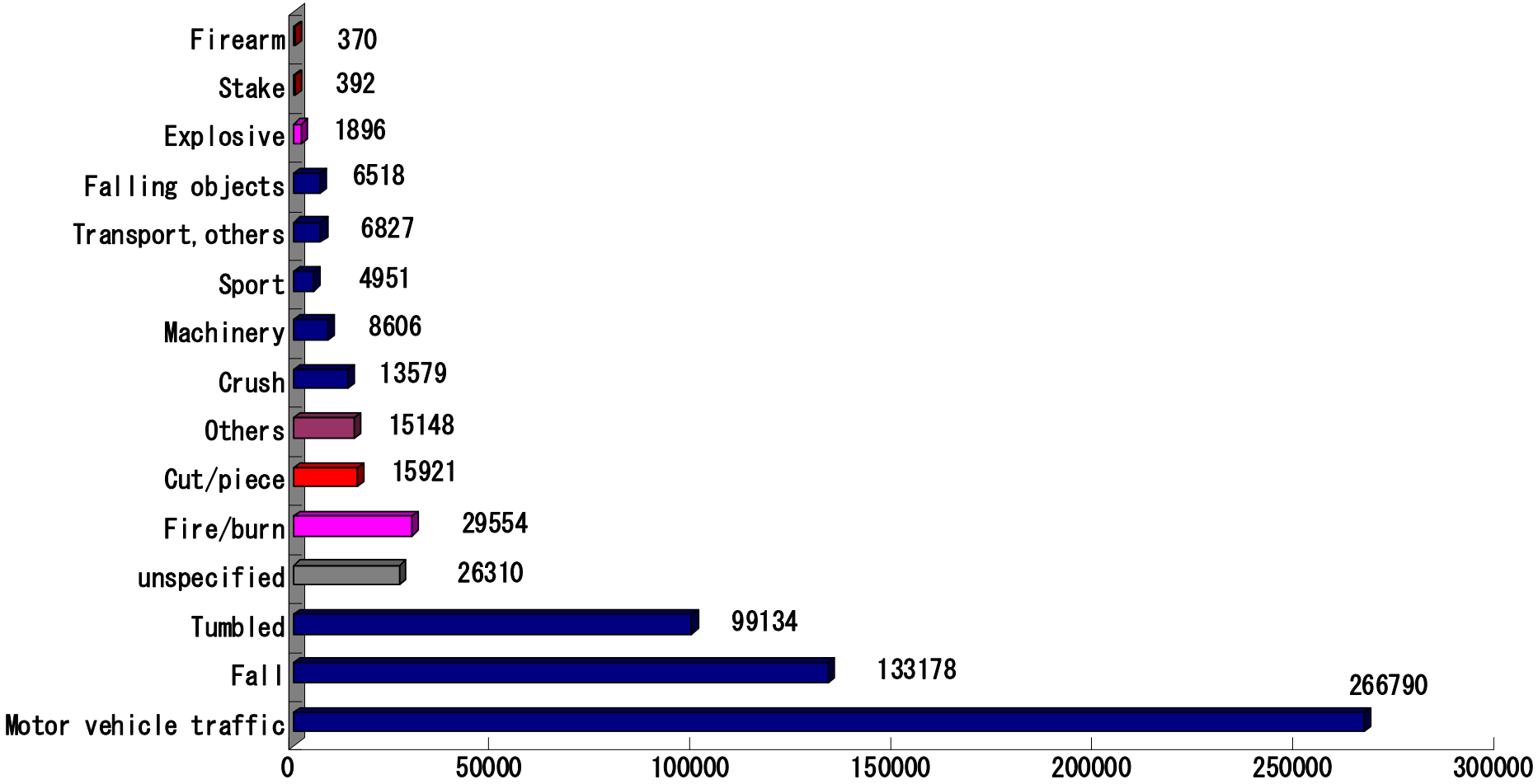

Figure 12 Total hospital length of stay by Mechanism of Injury

Proportional distribution of total hospital length of stay, grouped by mechanism.
Total number of patients are 27,779. Total hospital length of stay of all patients are 629,124 days.

Mechanism of Injury	Number of patients	% of total patients	Total hospital LOS in days	Average of hospital LOS in days
Motor vehicle traffic	12120	43.6%	266790	22.0
Fall	5781	20.8%	133178	23.0
Tumbled	3960	14.3%	99134	25.0
unspecified	1234	4.4%	26310	21.3
Fire/burn	1053	3.8%	29554	28.1
Cut/piece	1032	3.7%	15921	15.4
Others	822	3.0%	15148	18.4
Crush	436	1.6%	13579	31.1
Machinery	343	1.2%	8606	25.1
Sport	330	1.2%	4951	15.0
Transport,others	290	1.0%	6827	23.5
Falling objects	245	0.9%	6518	26.6
Explosive	80	0.3%	1896	23.7
Stake	28	0.1%	392	14.0
Firearm	25	0.1%	370	14.8
Total	27779		629174	

LOS; length of stay Others; Other specified and classifiable

Table12 Total and average hospital length of stay by mechanism of injury

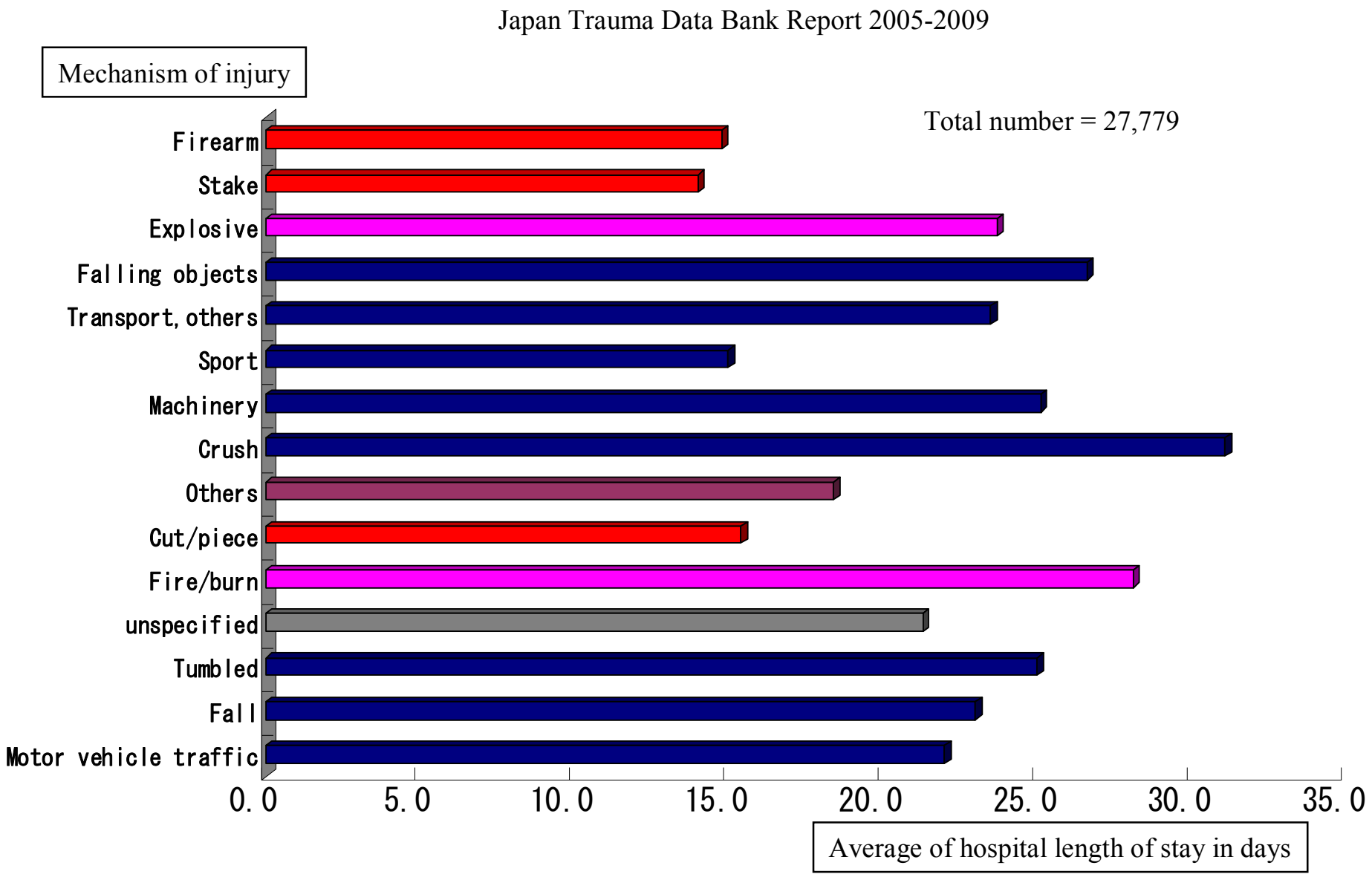

Figure 13 Average hospital length of stay by mechanism of injyury

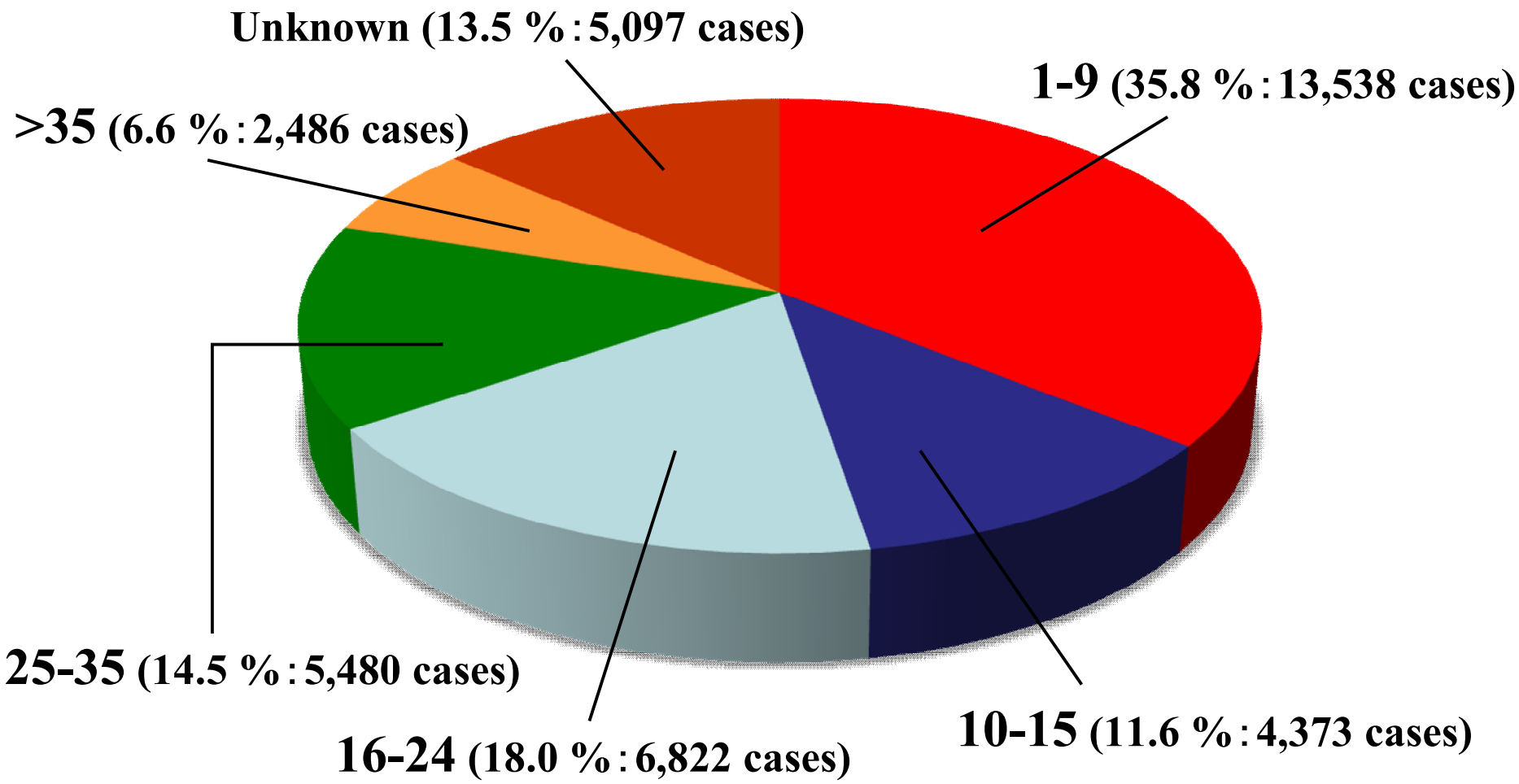

Figure 14 Patients and Injury Severity Score (ISS)

Proportional distribution of patients grouped by categories of the ISS range. Total N=37,796. The number of patients of ISS 1-9 category was the most of all categories.

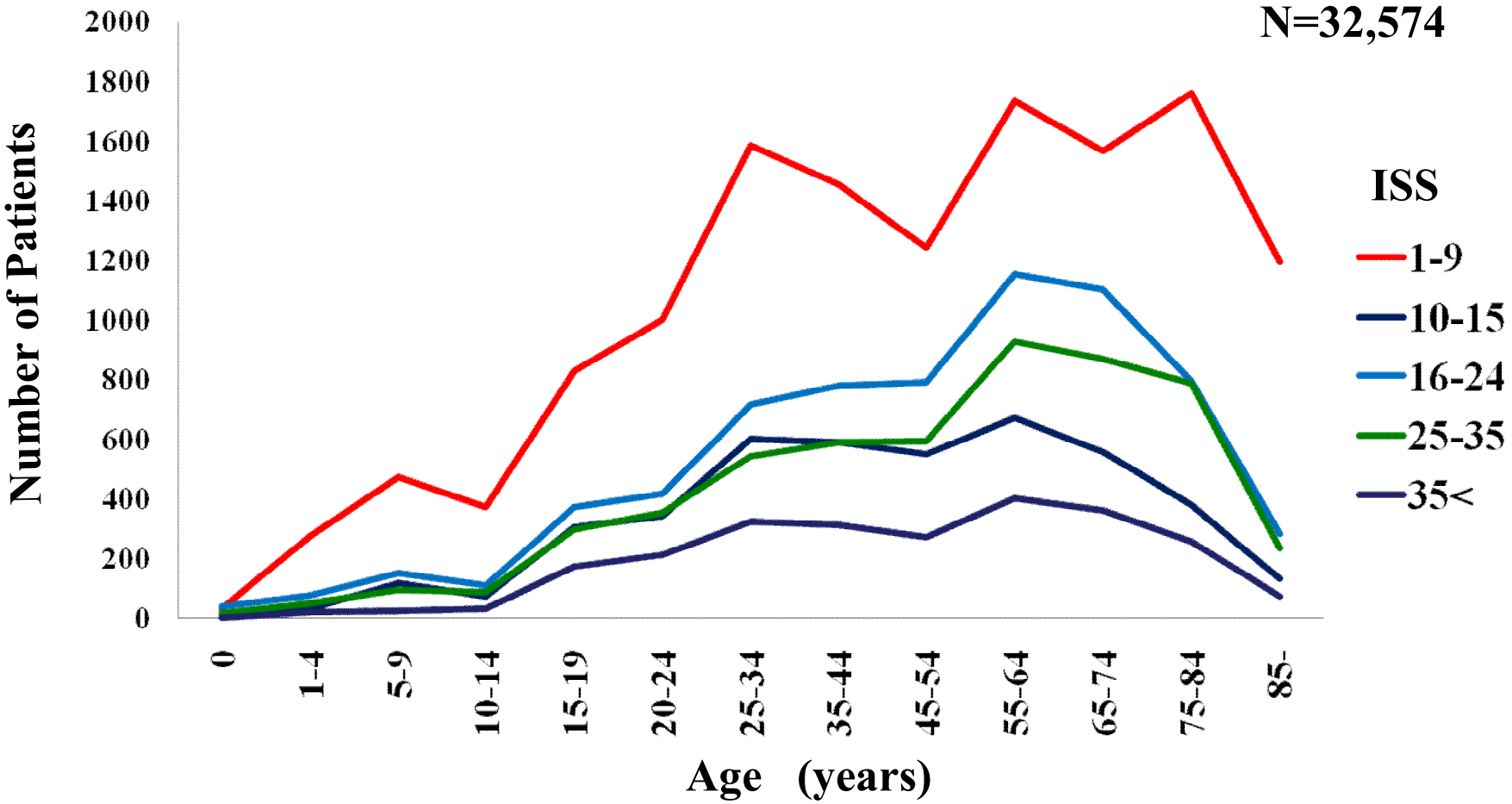

Figure 15 Patients by ISS and Age

Number of injured patients grouped by ISS range, at each age from 0 to 105. The peaks of the number of patients based on age distribution were seen at 25-34 and 55-64 ages of any ISS categories, and at 75-84 ages of ISS 1-9 . Total N=32,574.

ISS \ Age	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
1-9	34	278	472	372	829	1000	1586	1452	1242	1732	1566	1761	1194	20	13538
10-15	5	34	116	72	306	343	602	589	551	671	557	381	131	15	4373
16-24	38	78	149	110	373	418	715	778	792	1153	1103	794	284	37	6822
25-35	19	52	94	87	300	354	543	592	594	926	867	785	236	31	5480
35<	1	21	23	31	173	213	324	313	272	401	363	256	73	22	2486
Unknown	24	76	122	98	254	331	593	588	495	761	776	629	288	62	5097
Total	121	539	976	770	2235	2659	4363	4312	3946	5644	5232	4606	2206	187	37796

Table 15 Patients by ISS and Age

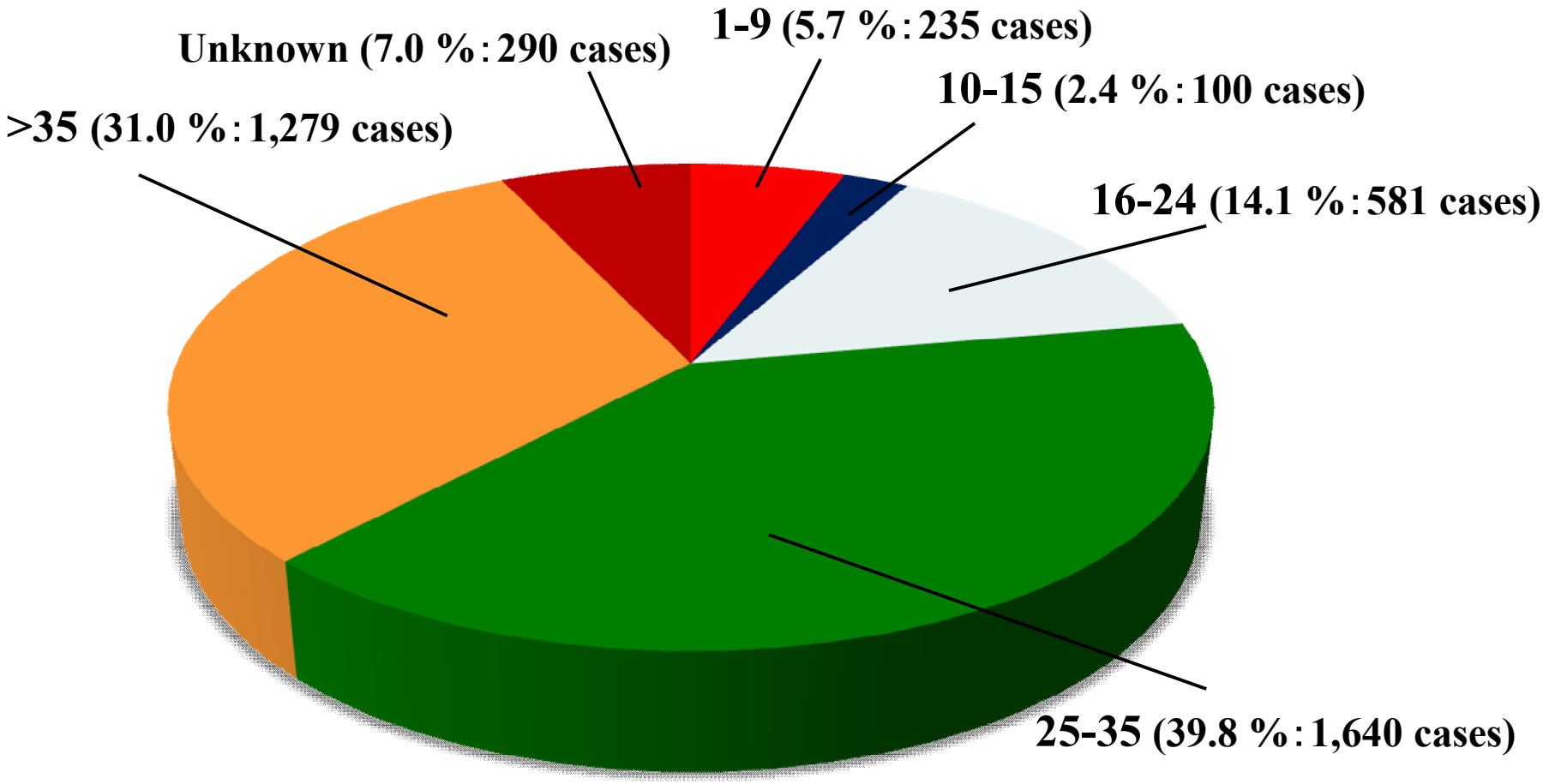

Figure 16A　Deaths and Injury Severity Score (ISS)

Proportional distribution of deaths grouped by categories of ISS range. Total N=4,125. Deaths in ISS 25-35 category were the highest (1,640 cases: 39.8% of all deaths).

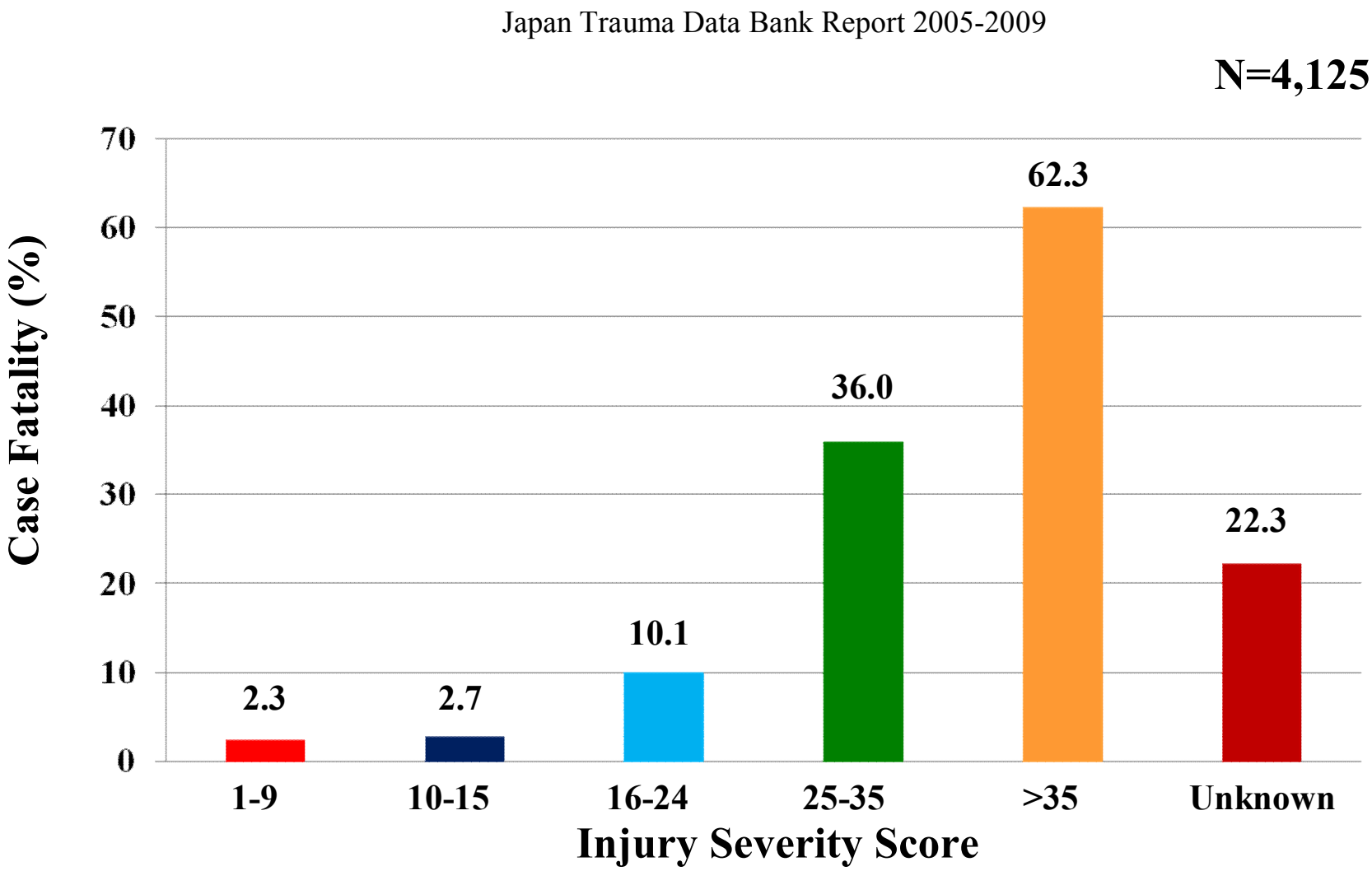

Figure 16B Case Fatality by Injury Severity Score (ISS) Range

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

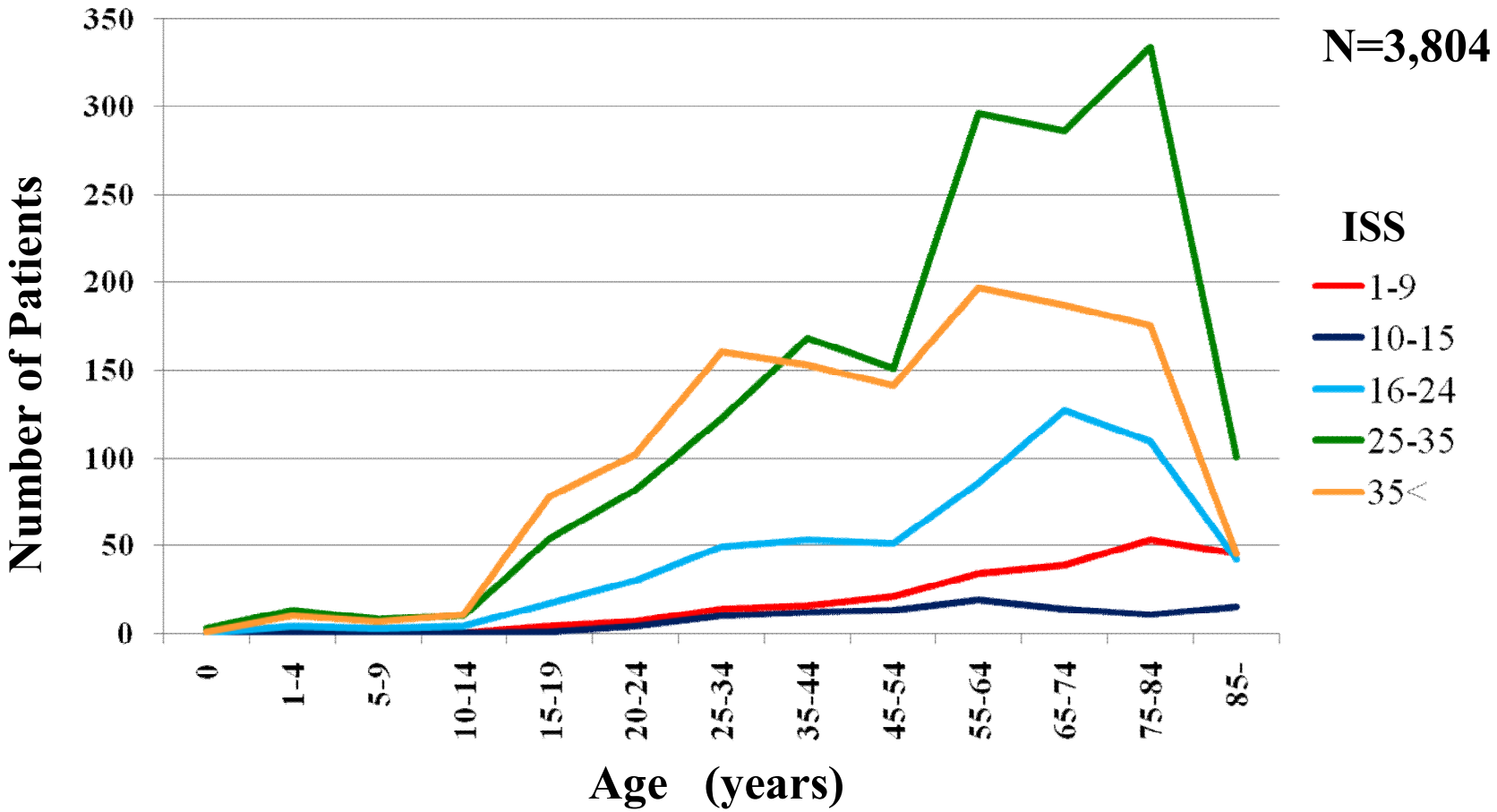

Figure 17 Deaths by ISS and Age

The peak was seen at elderly ages in each ISS 16-24 and ISS 25-35, and the category beyond ISS 35 has two peaks at young and elderly ages.

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
1-9	0	1	1	0	4	7	14	16	21	34	39	53	45	0	235
10-15	0	0	0	0	1	4	10	12	13	19	14	11	15	1	100
16-24	0	4	3	4	17	30	49	53	51	86	127	109	42	6	581
25-35	3	13	8	10	54	82	122	168	151	296	286	334	101	12	1640
35<	1	10	7	11	78	102	160	153	141	197	187	175	45	12	1279
Unknown	1	0	2	3	10	16	34	41	28	41	52	40	16	6	290
Total	5	28	21	28	164	241	389	443	405	673	705	722	264	37	4125

Table 17 Deaths by ISS and Age

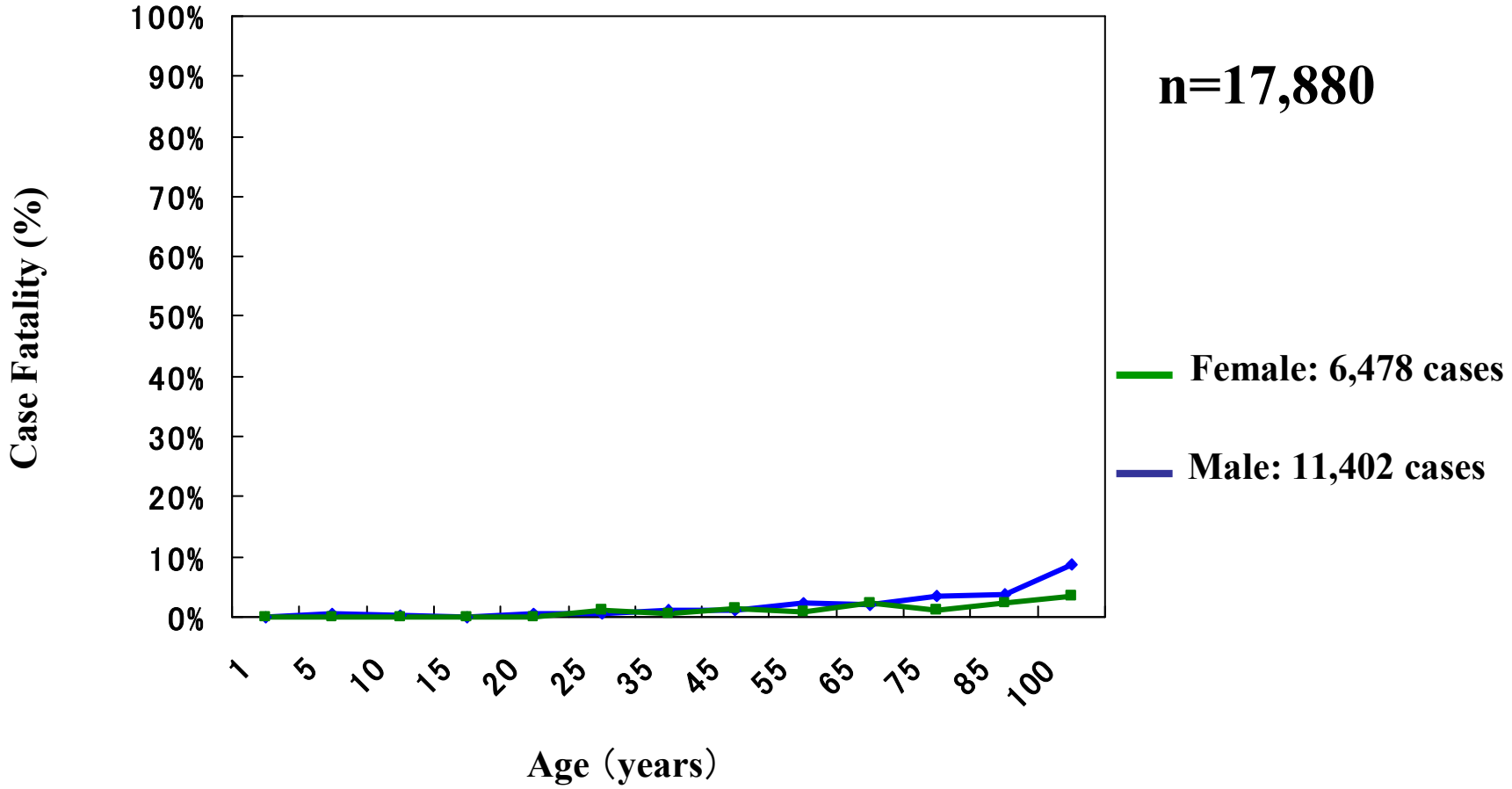

Figure18 Case Fatality by Age and Gender (ISS<=15)

Case fatality for patients with ISS<=15 for males and females at each age category. (Case fatality = number of deaths divided by the number of patients × 100 by age and gender). Total N = 17,880.

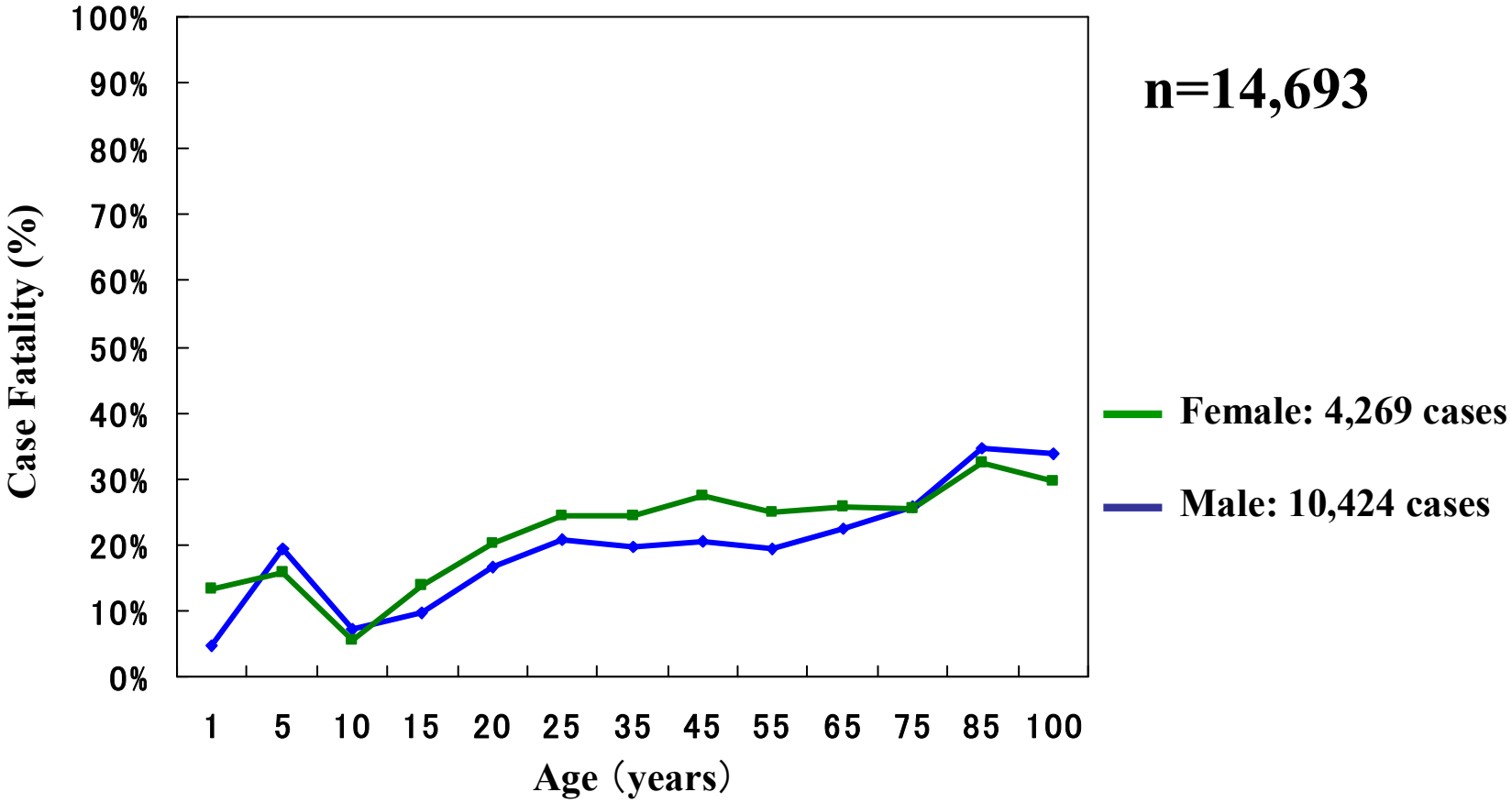

Figure 19 Case Fatality by Age and Gender (ISS>15)

Case fatality for patients with ISS>15 for males and females at each age category. (Case fatality = number of deaths divided by the number of patients × 100 by age and gender). Total N = 14,693.

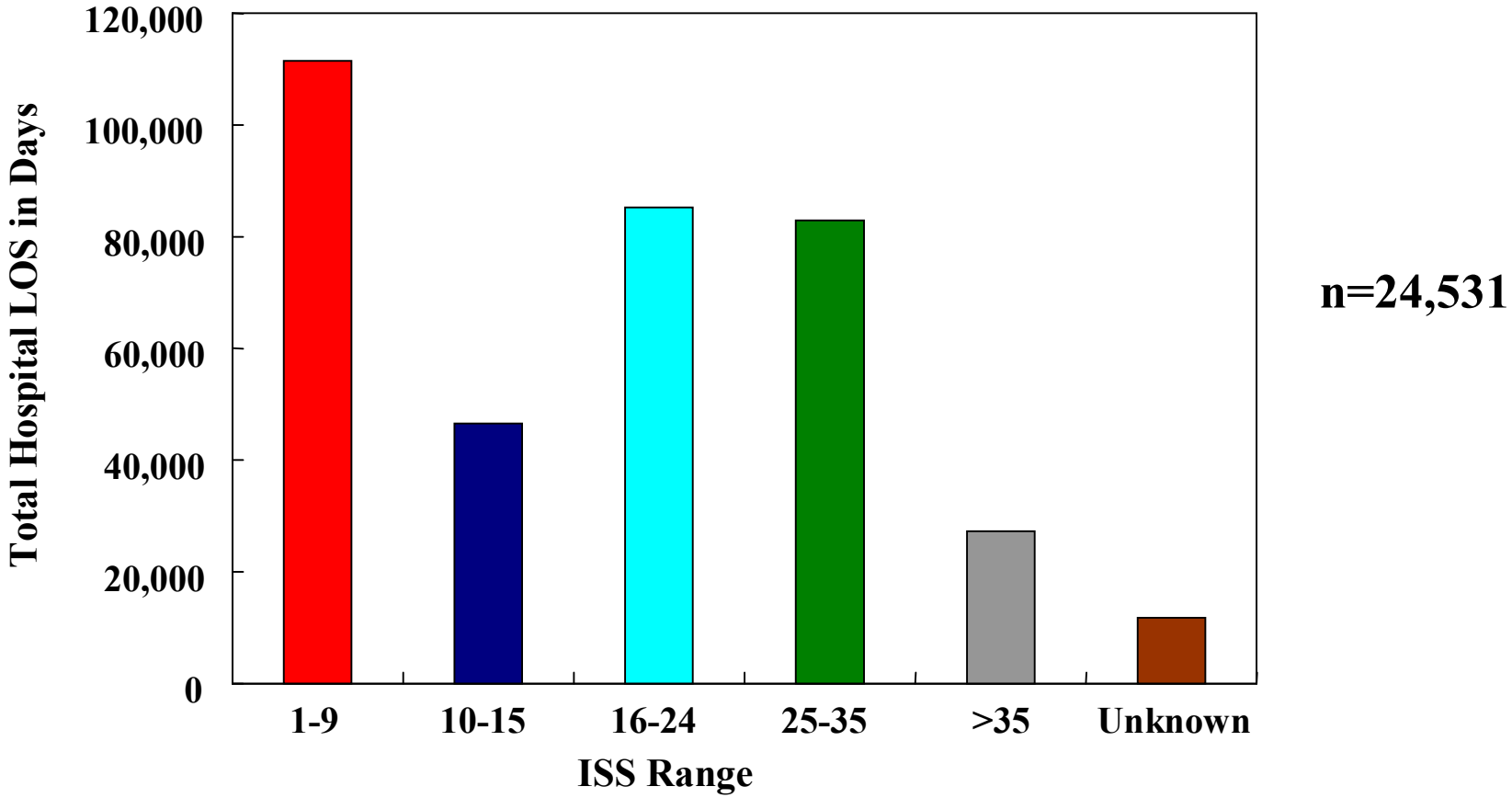

Figure 20A Total Hospital LOS and Injury Severity Score (ISS)
Proportional distribution of total hospital length of stay for patients, grouped by ISS range.
Total N = 24,531.

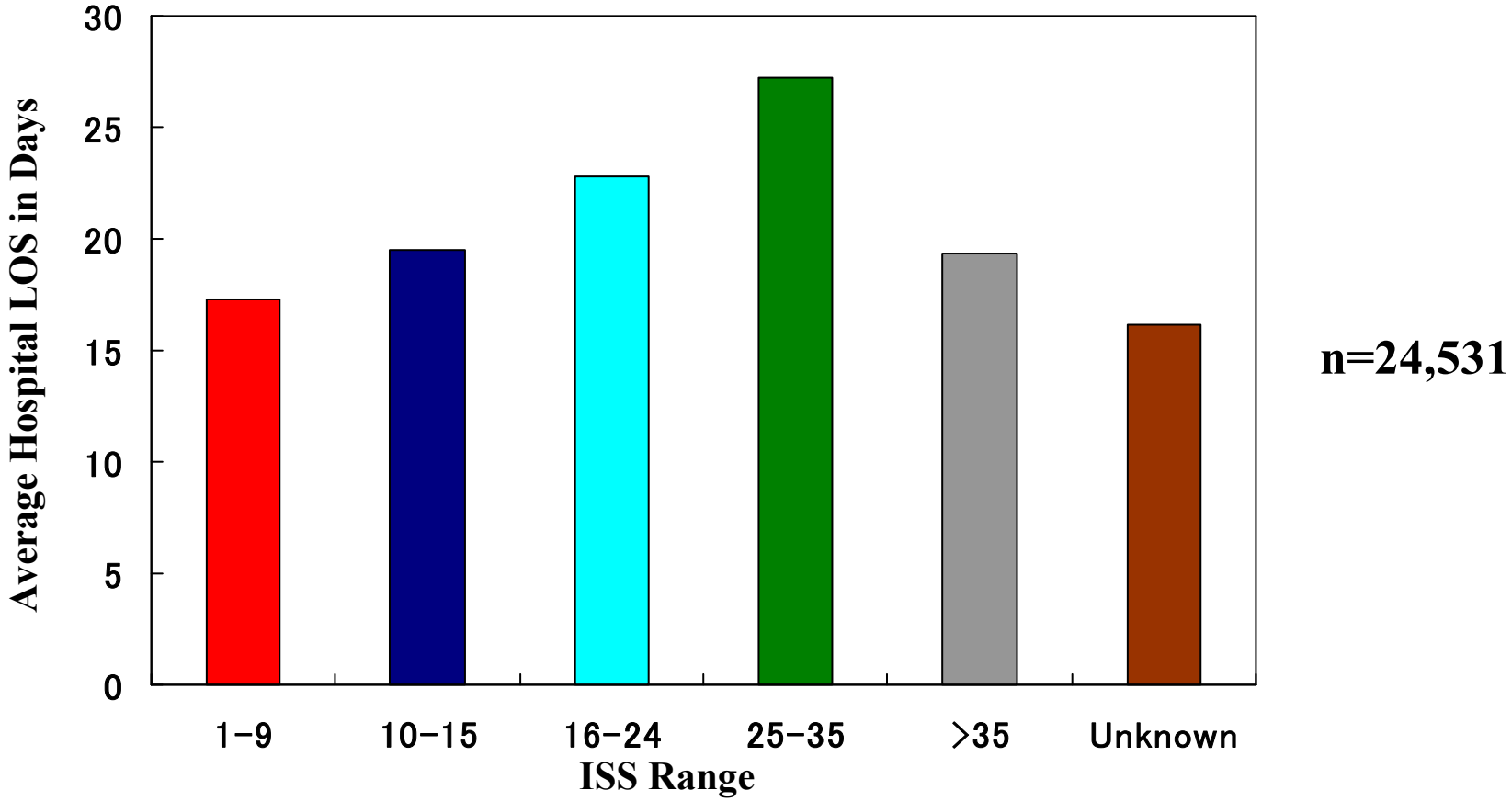

Figure 20B Average Hospital LOS and Injury Severity Score
Average hospital length of stay for each category of ISS range. (Average hospital length of stay = total hospital length of stay for each ISS range divided by the total number of patients). Total N = 24,531.

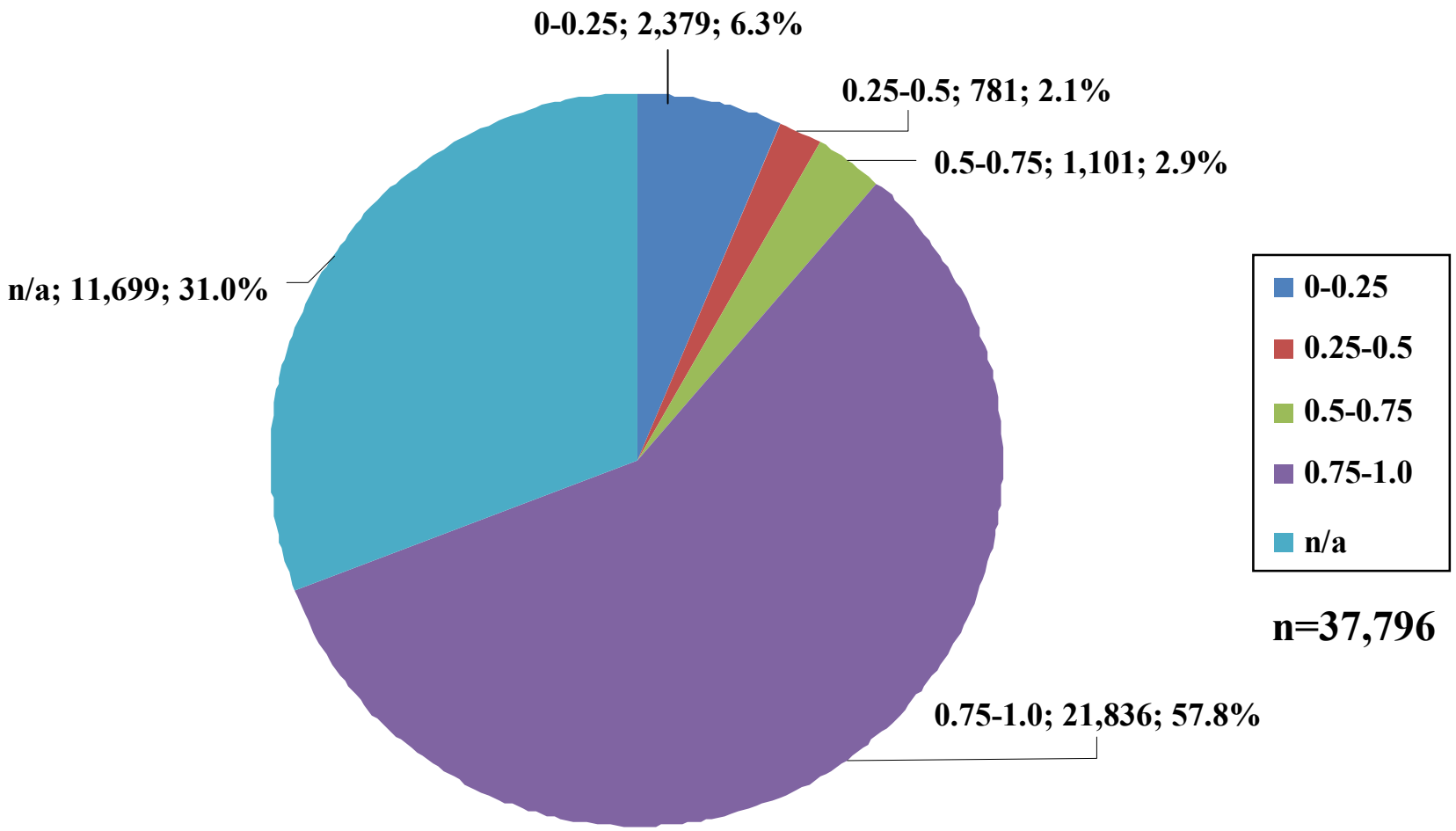

Figure 21 Patients by Probability of Survival (Ps)

Proportional distribution of patients, grouped by each category of Ps. The Ps category(0.75-1.0) accounted for 57.8% of all cases. Thirty-one percent of cases were missing at least one variable required to calculate Ps. n/a: not assessed due to missing values

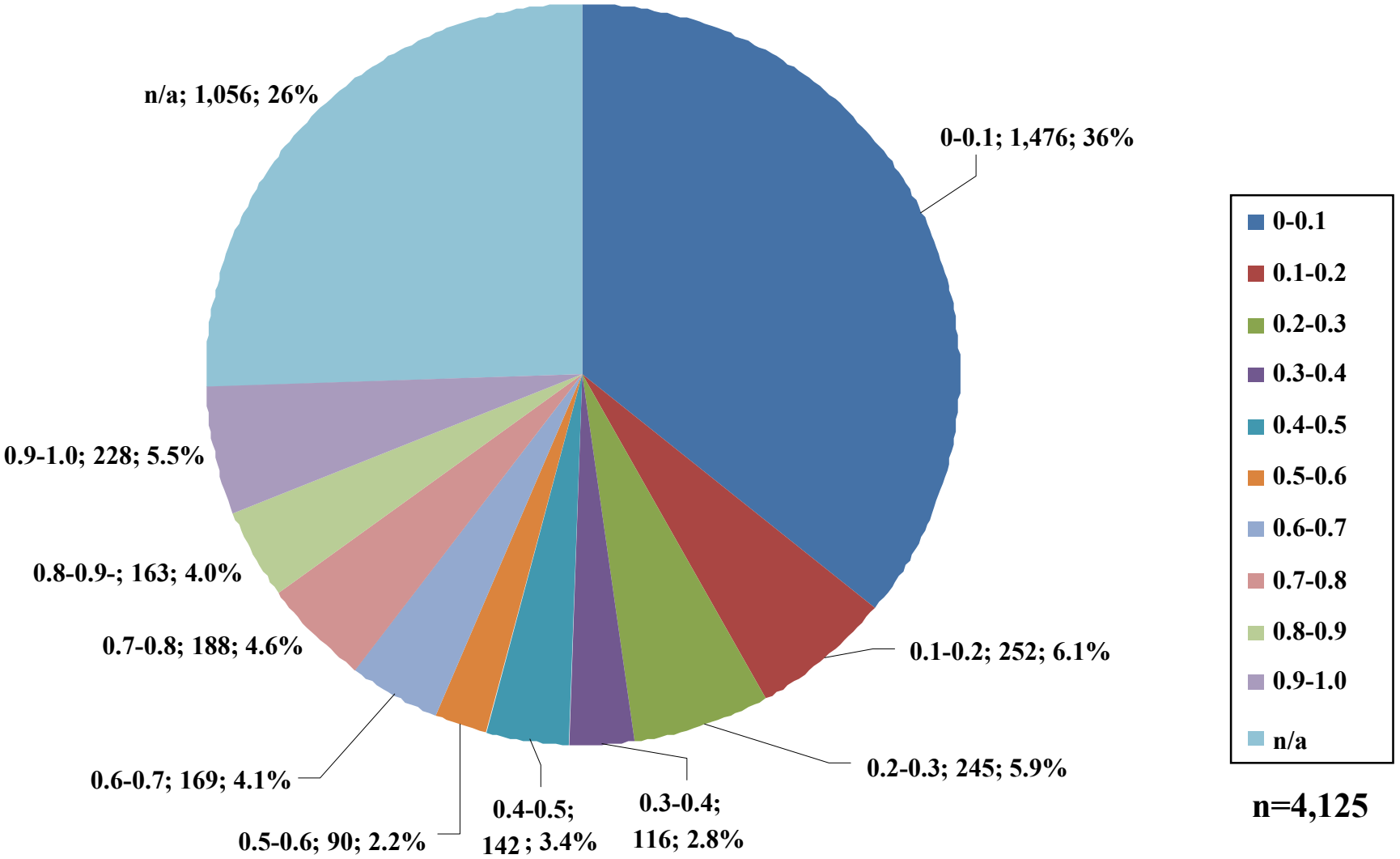

Figure 22A Deaths by Probability of survival (Ps)

Proportional distribution of deaths, grouped by each category of Ps. The lowest Ps category (0-0.1) accounted for 36% of all death cases. n/a: not assessed due to missing values

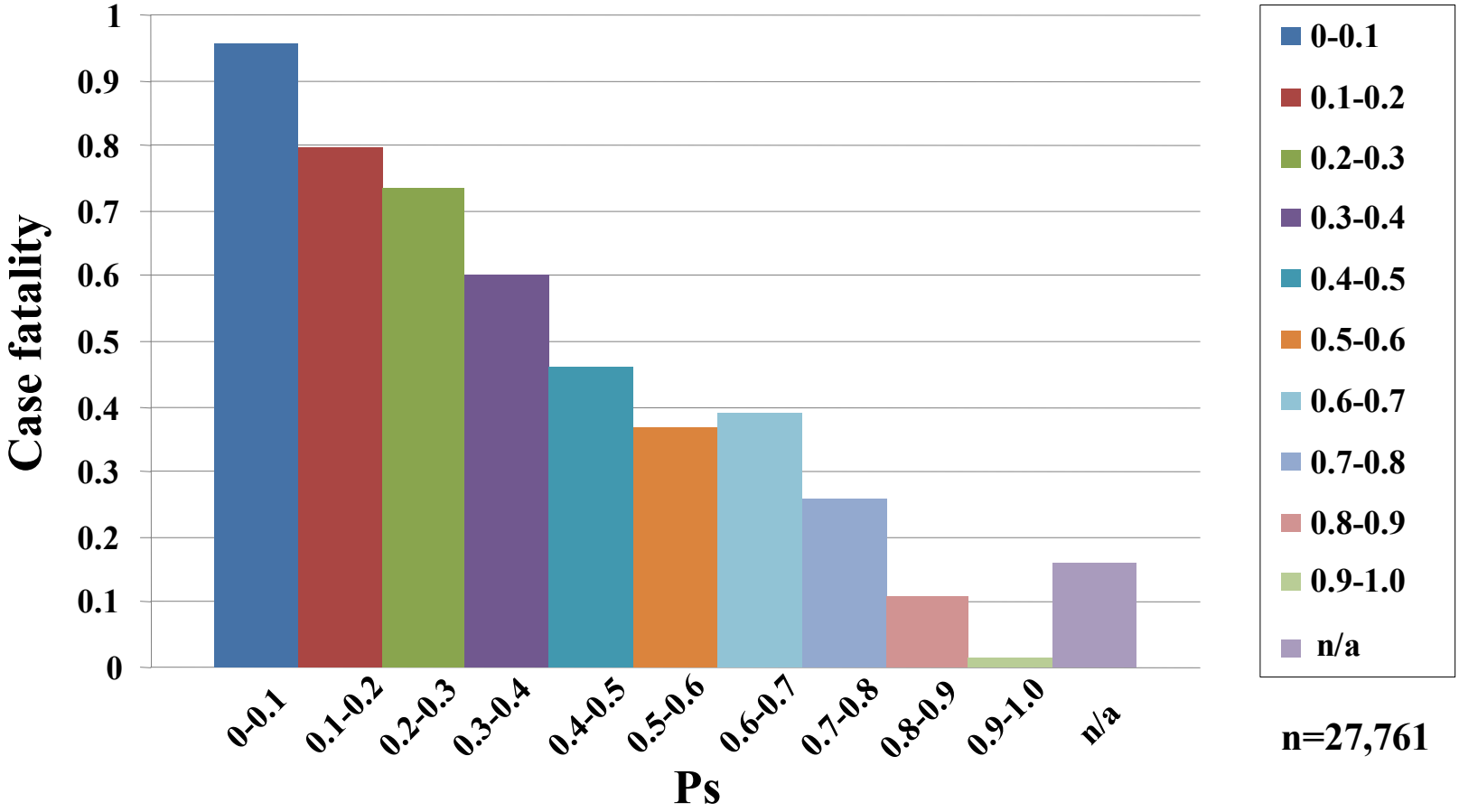

Figure 22B Case Fatality by Probability of Survival (Ps)

Case fatality for each Ps category (Case fatality = the number of deaths divided by the number of patients x 100 for each Ps category). The lowest Ps category (0-0.1) and the highest Ps category (0.9-1.0) had the highest fatality 98.5% and the lowest fatality 4.3%, respectively. The trend that the fatality would decrease as Ps increased was observed. n/a: not assessed due to missing values.

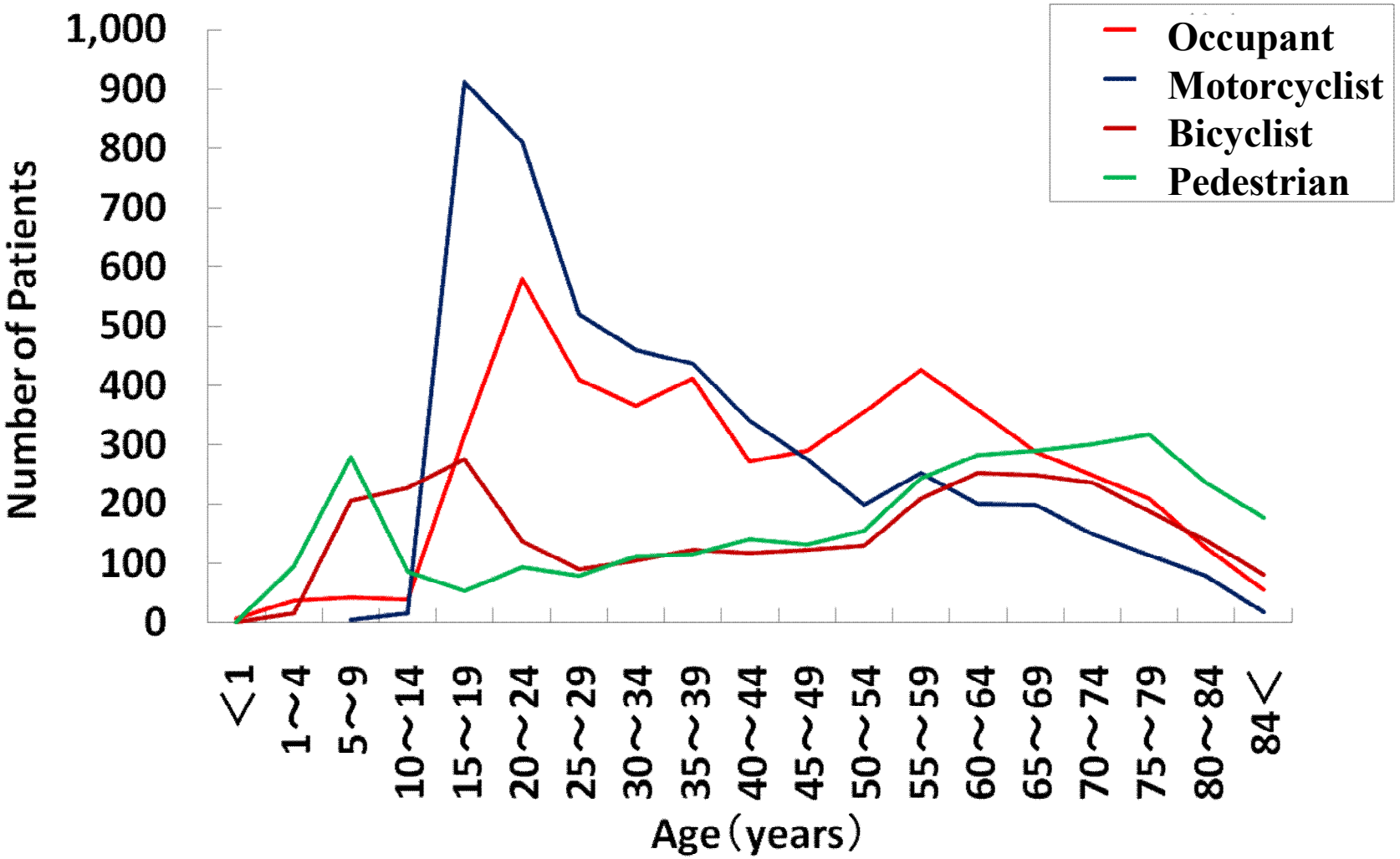

Figure 23 Motor Vehicle Traffic Related Injuries

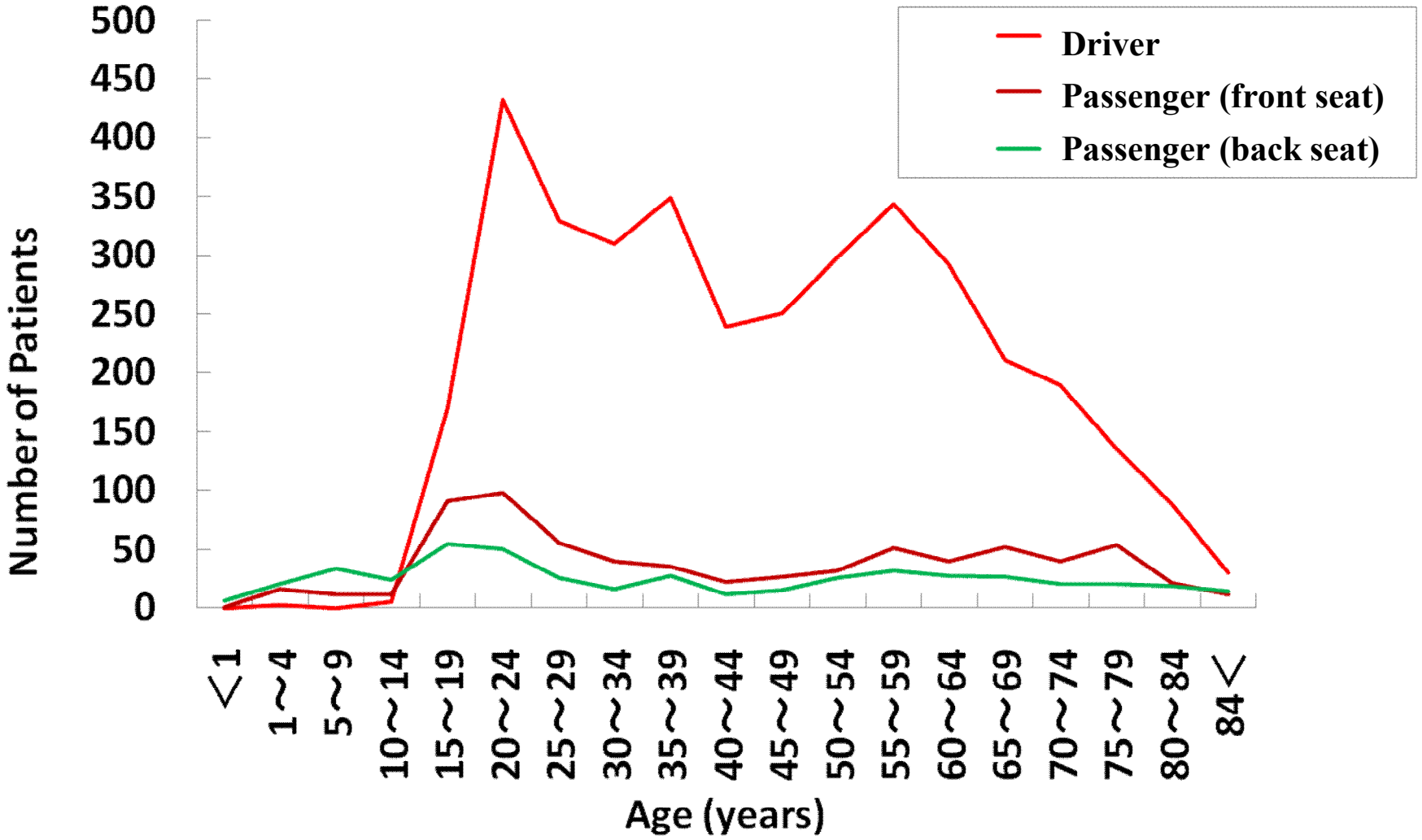

Figure 24 Motor Vehicle Related Injuries – Driver and Passenger by Age

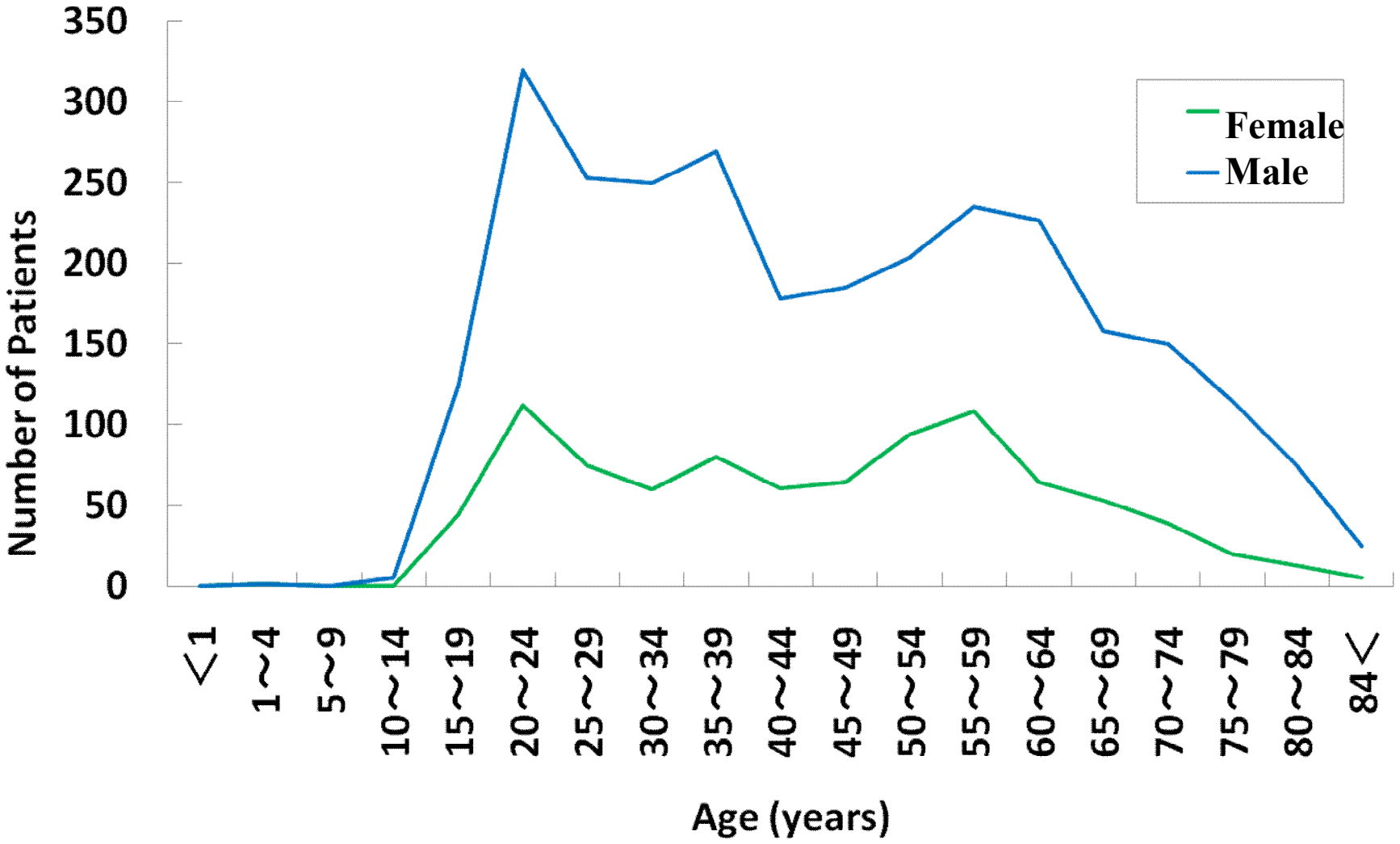

Figure 25 Motor Vehicle Related Injuries – Driver and Passenger by Age

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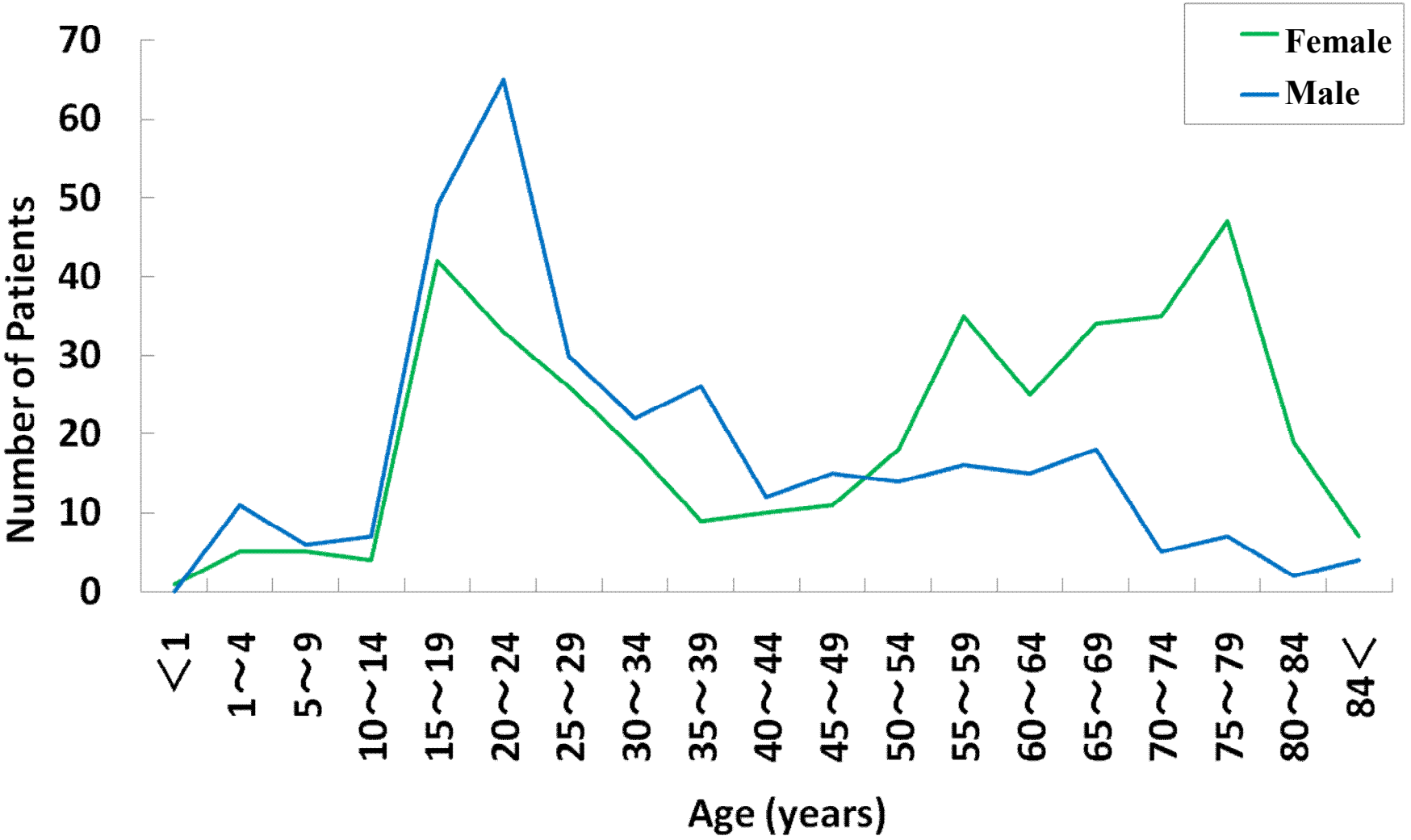
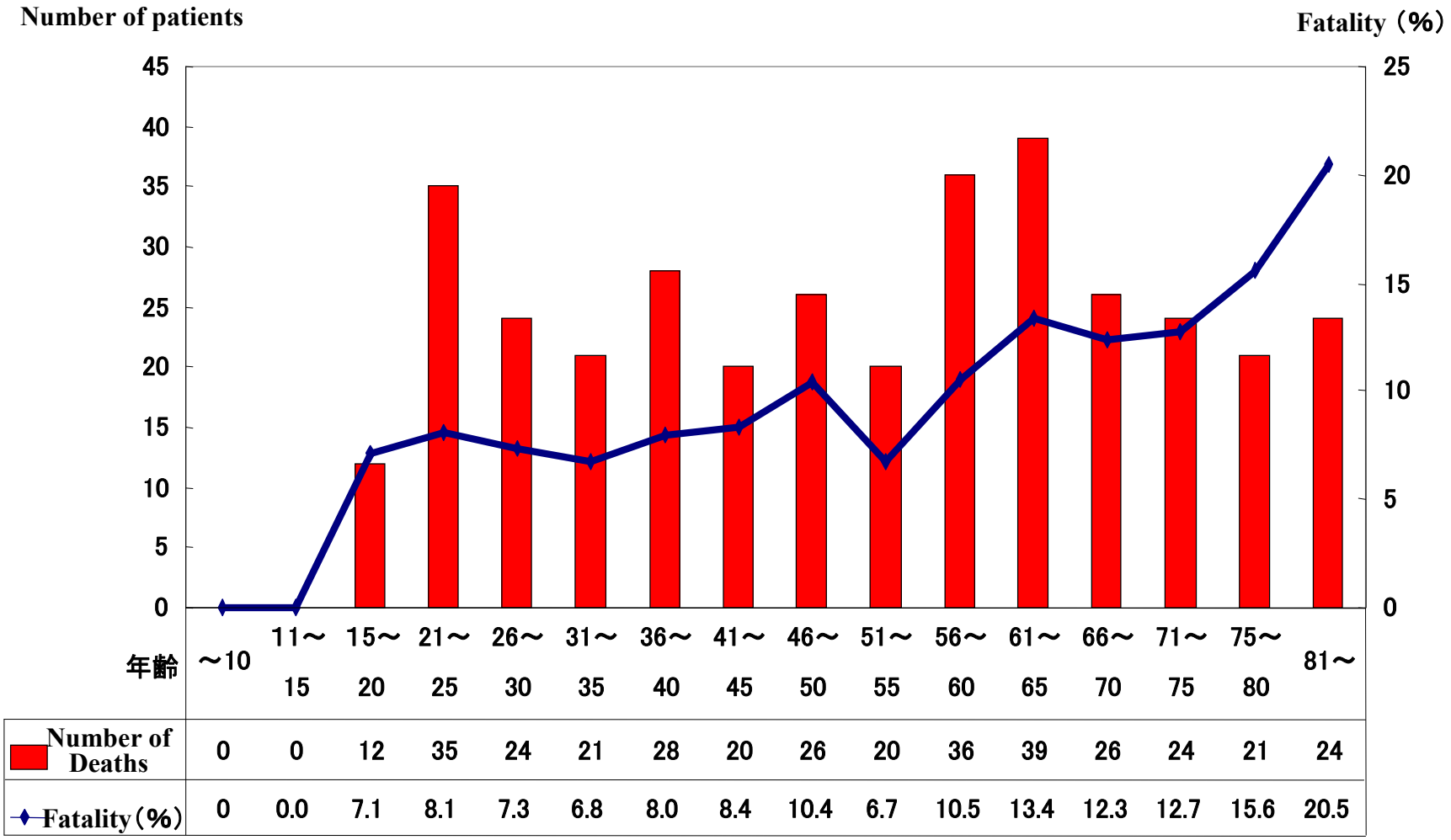


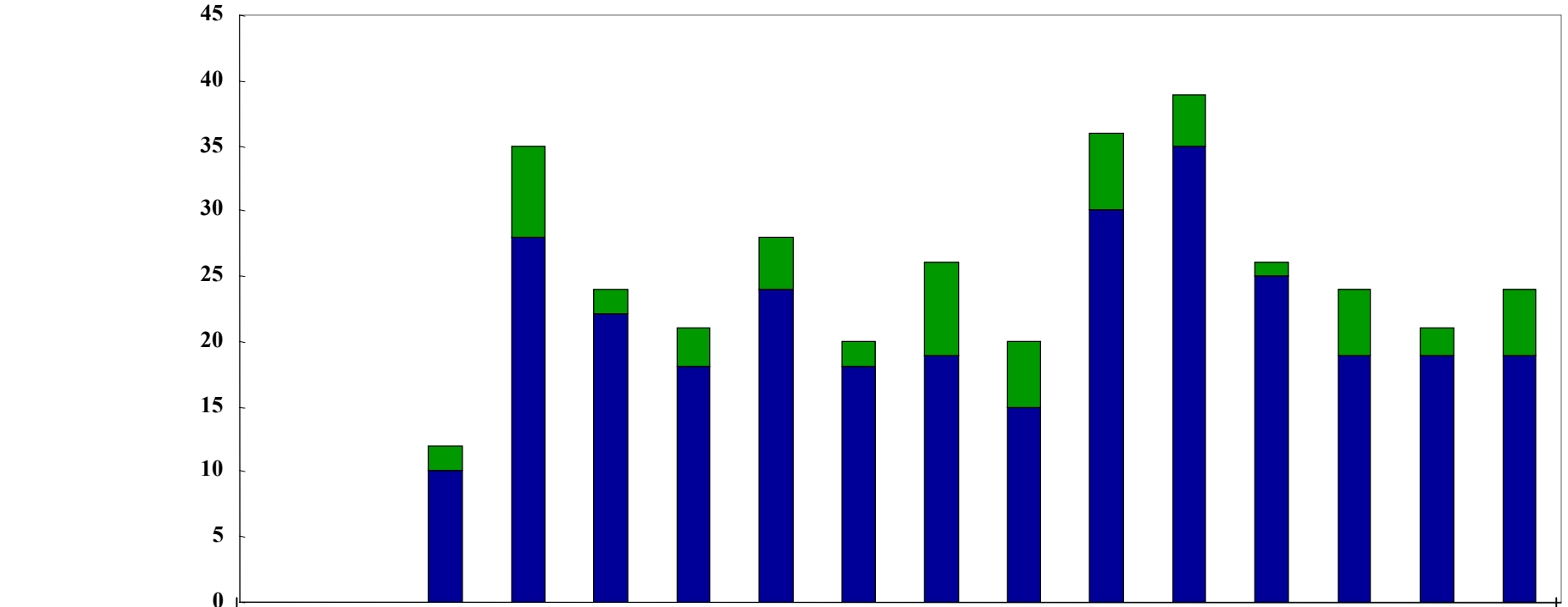
Figure 26 Motor Vehicle Related Injuries – Passenger by Gender and Age



年齢	～10	11～15	15～20	21～25	26～30	31～35	36～40	41～45	46～50	51～55	56～60	61～65	66～70	71～75	75～80	81～
Number of Deaths	0	0	12	35	24	21	28	20	26	20	36	39	26	24	21	24
Fatality（%）	0	0.0	7.1	8.1	7.3	6.8	8.0	8.4	10.4	6.7	10.5	13.4	12.3	12.7	15.6	20.5

Figure 27 Number of Deaths and Fatalities of Motor Vehicular Drivers by Age

Number of patients



年齢	～10	11～15	15～20	21～25	26～30	31～35	36～40	41～45	46～50	51～55	56～60	61～65	66～70	71～75	75～80	81～
Number of Female Deaths	0	0	2	7	2	3	4	2	7	5	6	4	1	5	2	5
Number of Male Deaths	0	0	10	28	22	18	24	18	19	15	30	35	25	19	19	19

Figure 28 Deaths of Motor Vehicular Drivers by Age and Genders

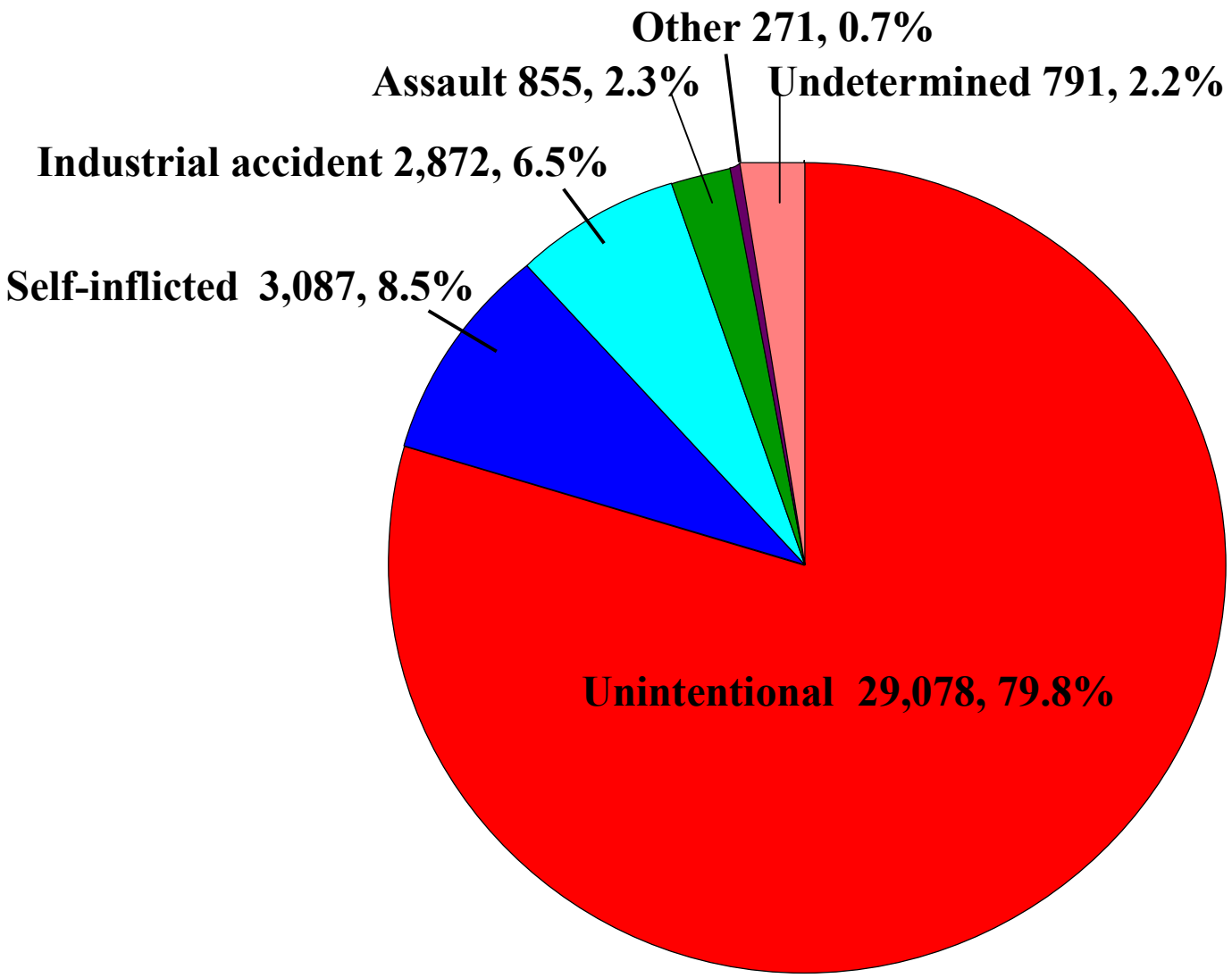


Figure 29 Proportional Distribution of Registered Patients, Grouped by Intent

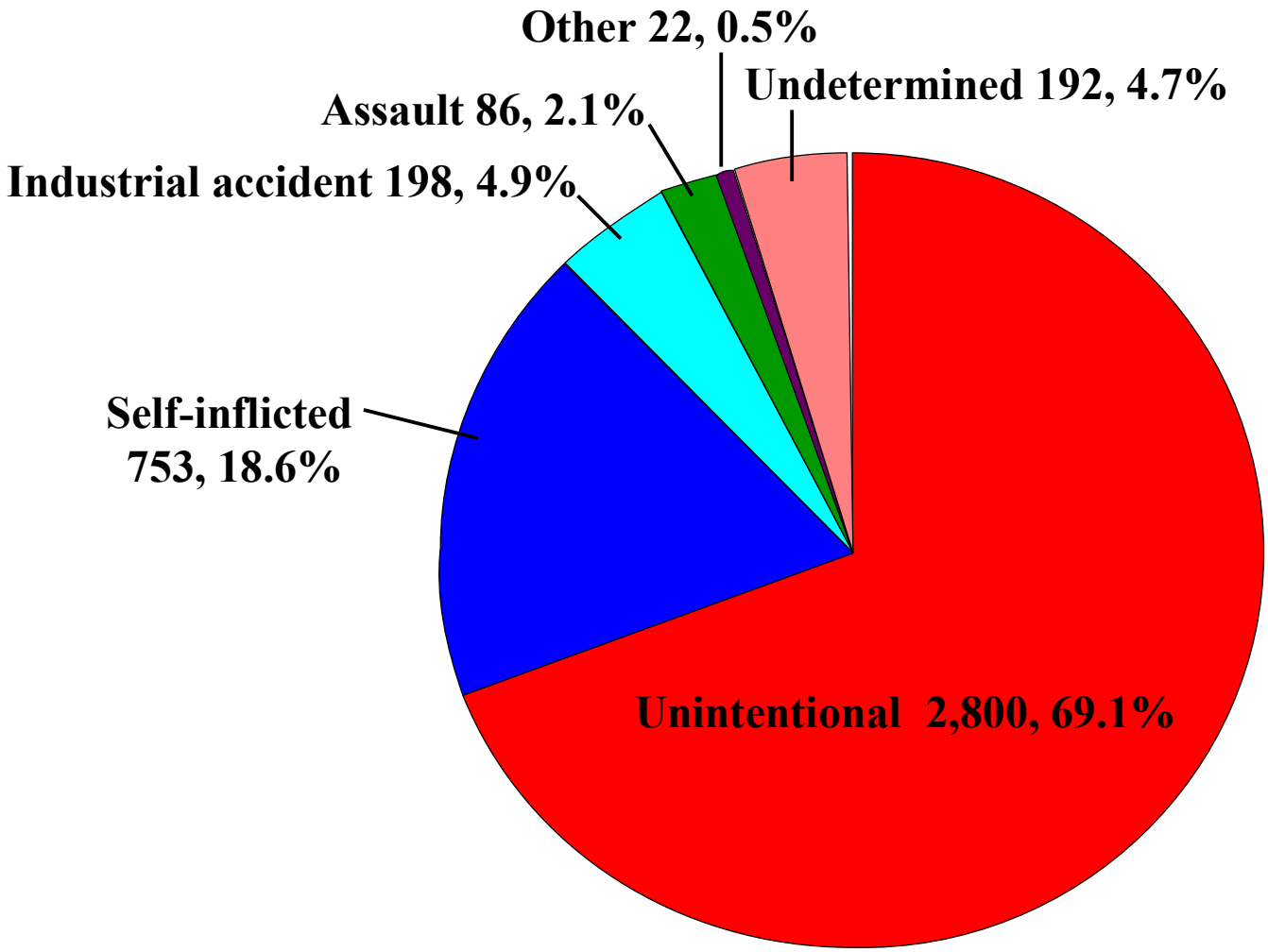
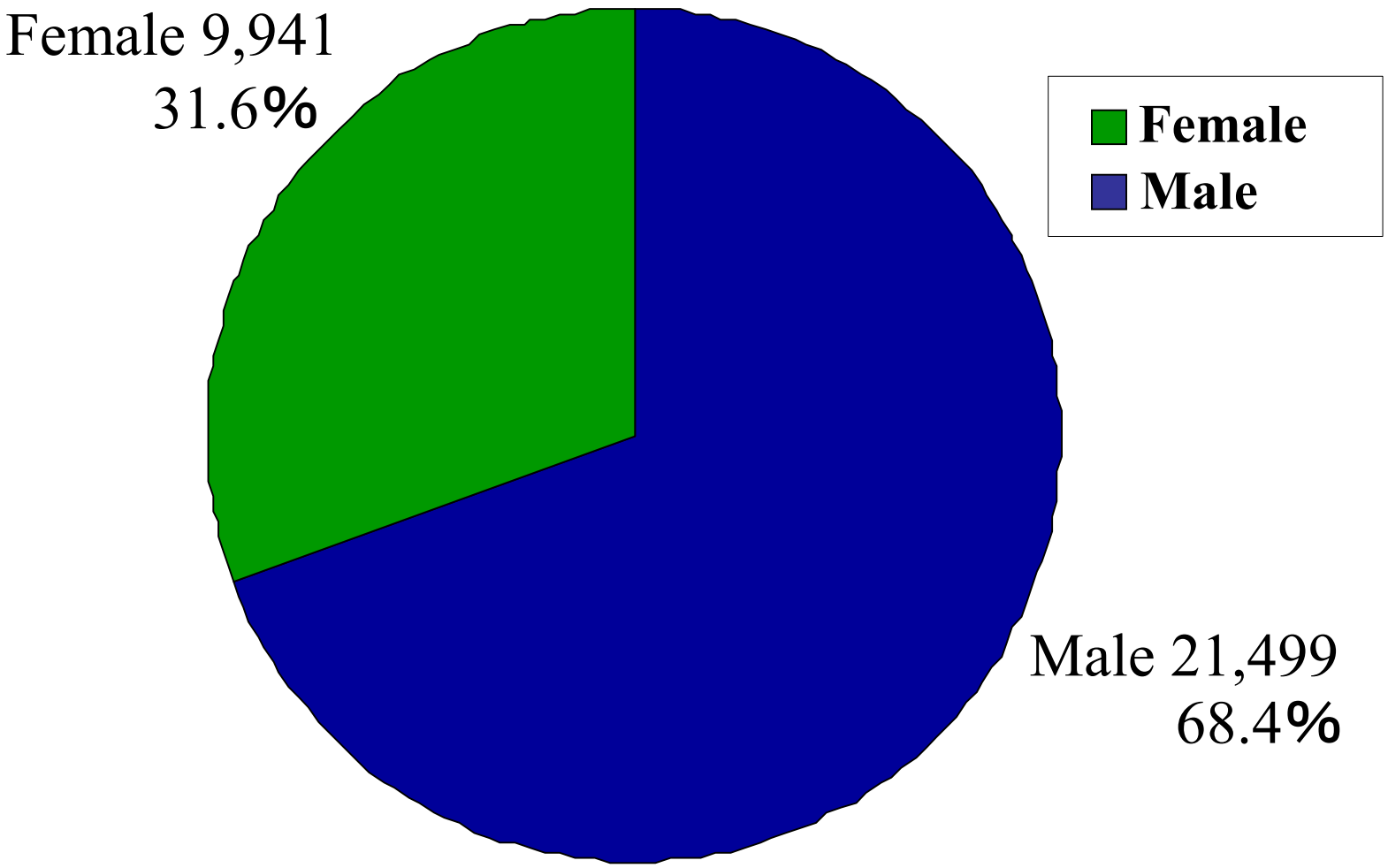


Figure 30 Proportional Distribution of Deaths, Grouped by Intent



Do not include cases where age is unknown. Includes cases of industrial accidents.

Figure 31 Unintentional Injury and Gender

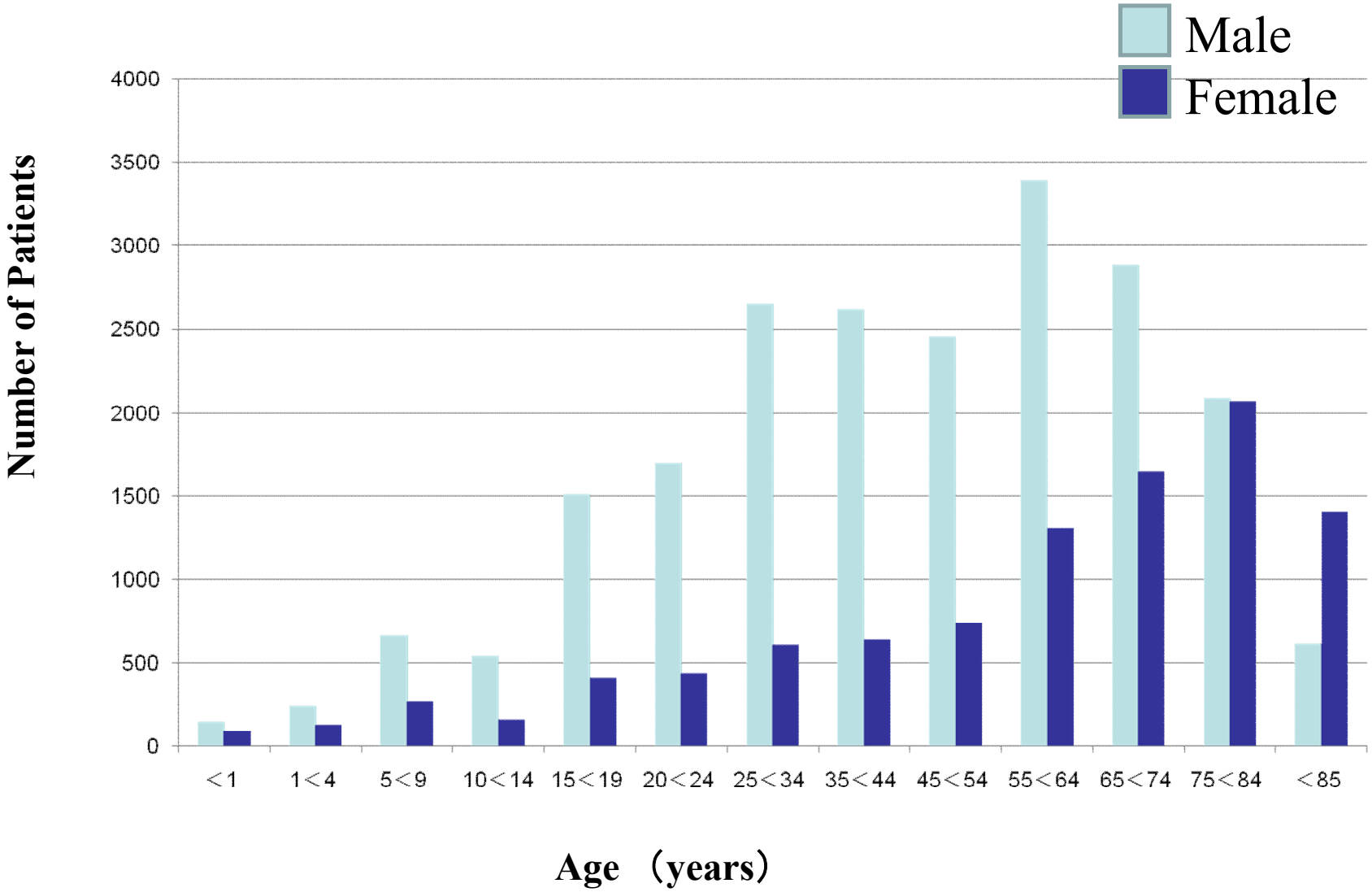


Figure 32 Unintentional Injury by Age and Gender

	Male	Female	Total
＜1	145	90	235
1＜4	235	129	364
5＜9	663	274	937
10＜14	534	161	695
15＜19	1503	411	1914
20＜24	1694	440	2134
25＜34	2646	608	3254
35＜44	2616	638	3254
45＜54	2454	737	3191
55＜64	3393	1310	4703
65＜74	2885	1643	4528
75＜84	2082	2072	4154
＜85	611	1408	2019
Total	21461	9921	31382

Table 32 Unintentional Injury by Age and Gender

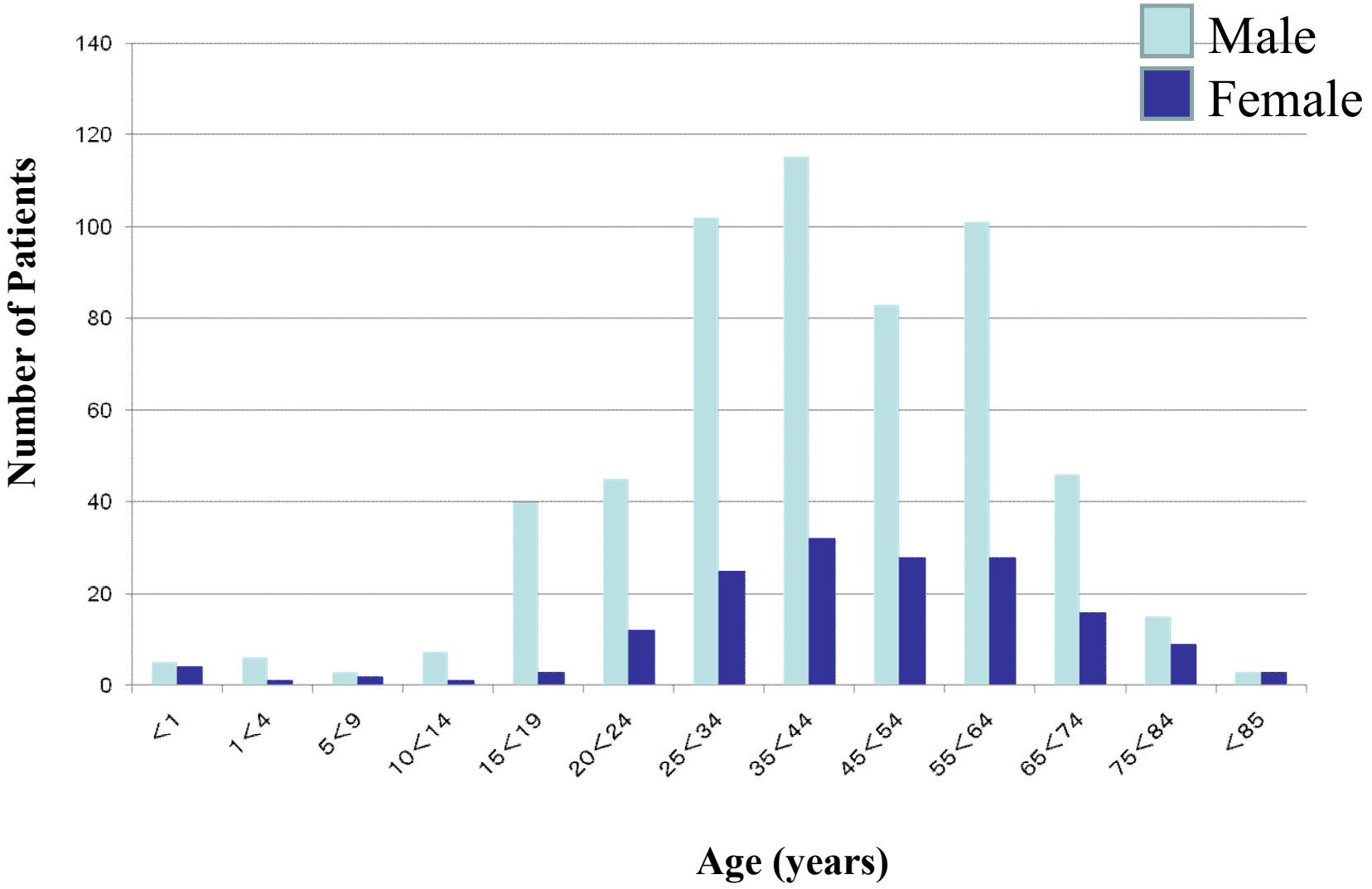


Figure 33 Intentional Injury by Age and Gender

	Male	Female	Total
＜1	5	4	9
1＜4	6	1	7
5＜9	3	2	5
10＜14	7	1	8
15＜19	40	3	43
20＜24	45	12	57
25＜34	102	25	127
35＜44	115	32	147
45＜54	83	28	111
55＜64	101	28	129
65＜74	46	16	62
75＜84	15	9	24
＜85	3	3	6
Total	571	164	735

Table 33 Intentional Injury by Age and Gender

Figure 34 Self-inflicted by Age and Gender

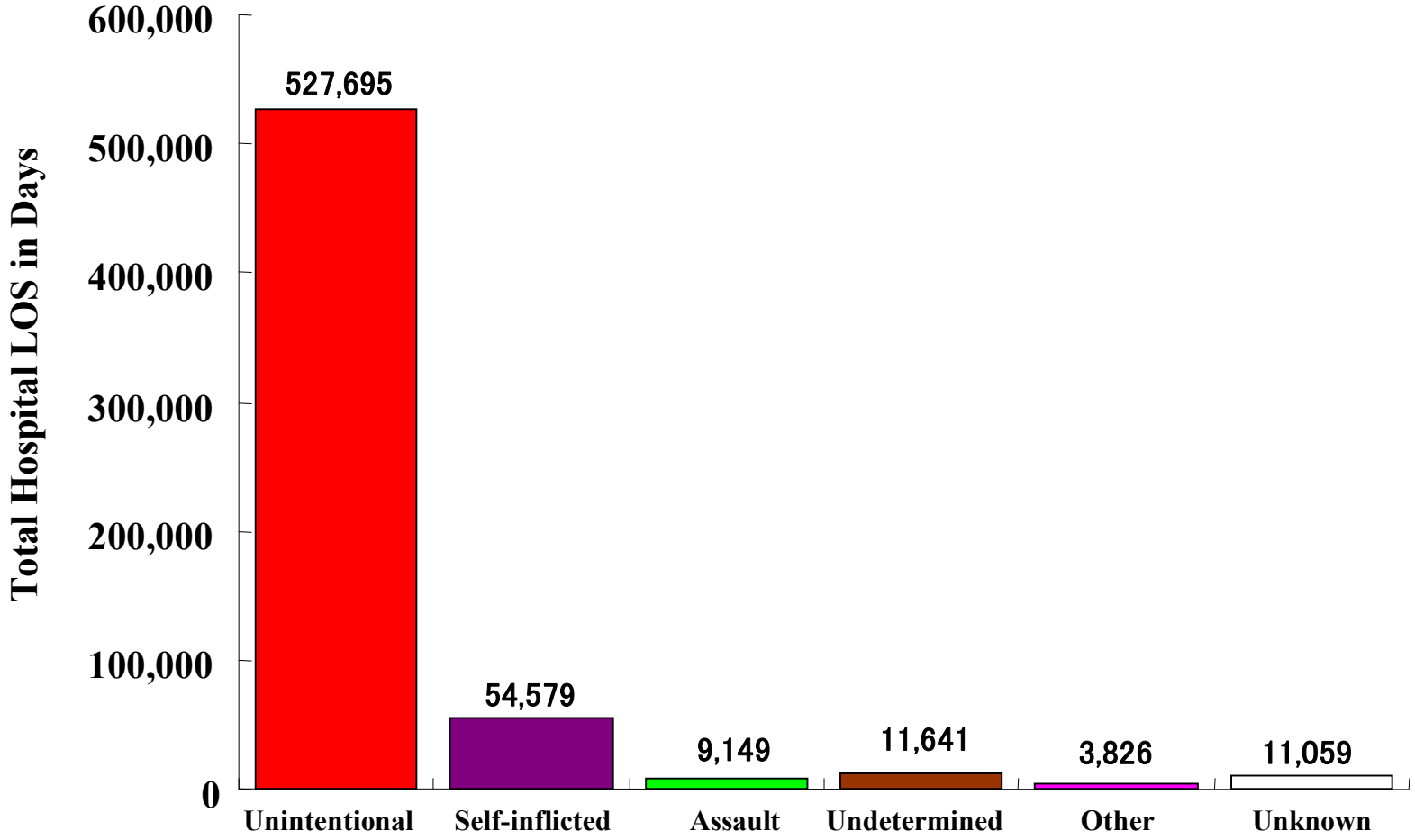


Figure 35A Total Hospital LOS by Intent
Industrial accident was included in the category of "Unintentional".

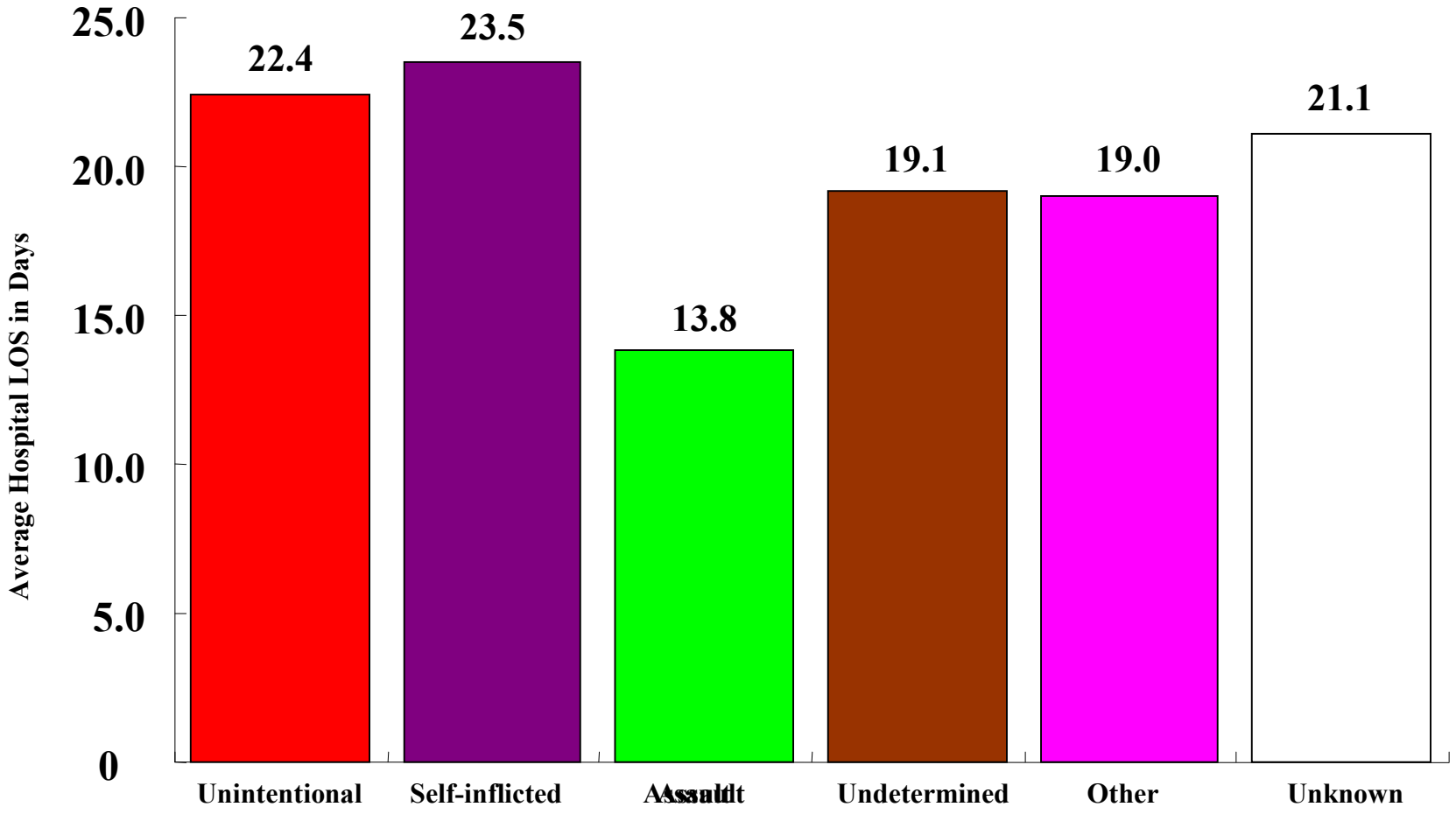


Figure 35B Average Hospital LOS by Intent

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

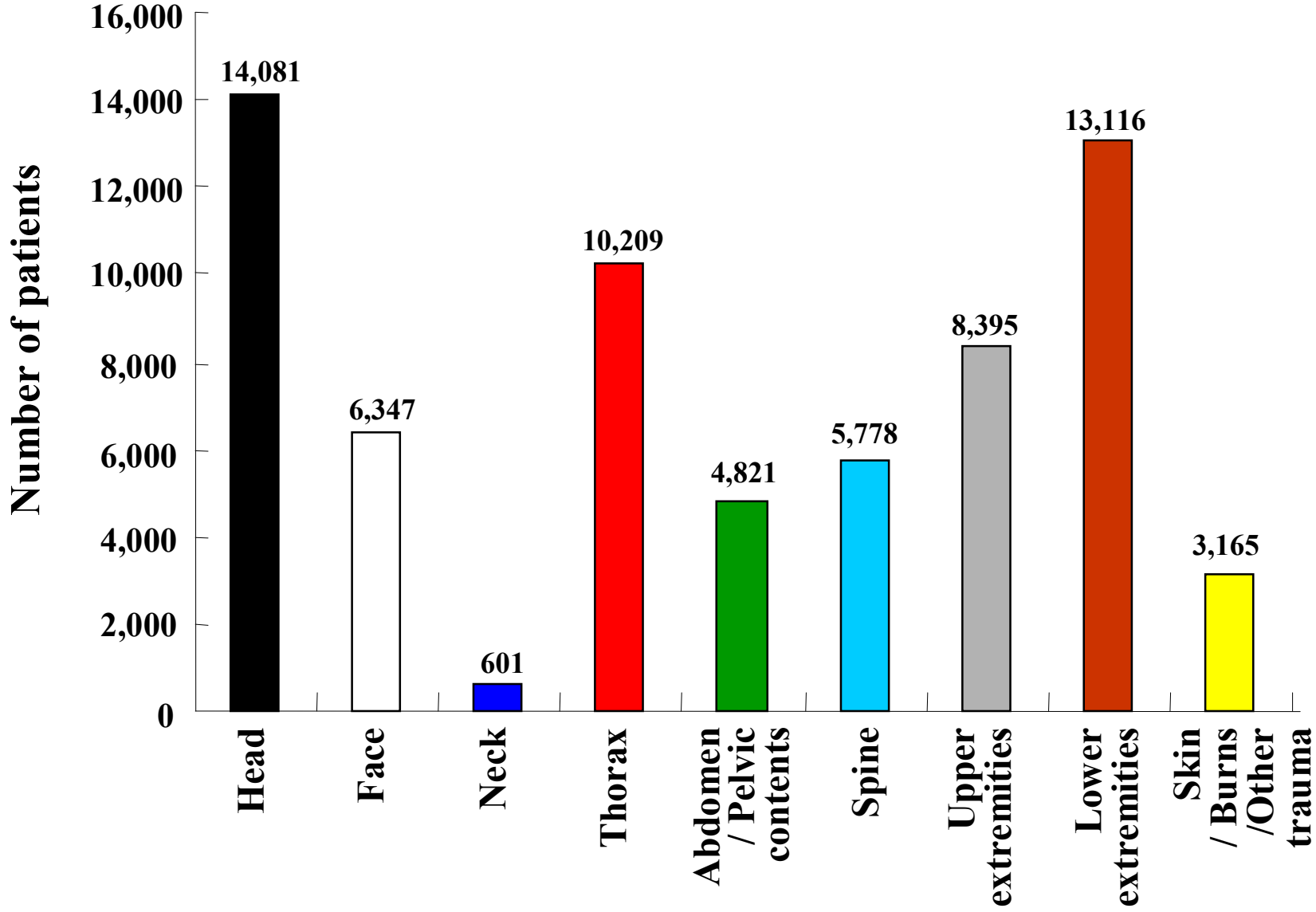


Figure 36 Number of Patients with Injured Body Parts based on AIS

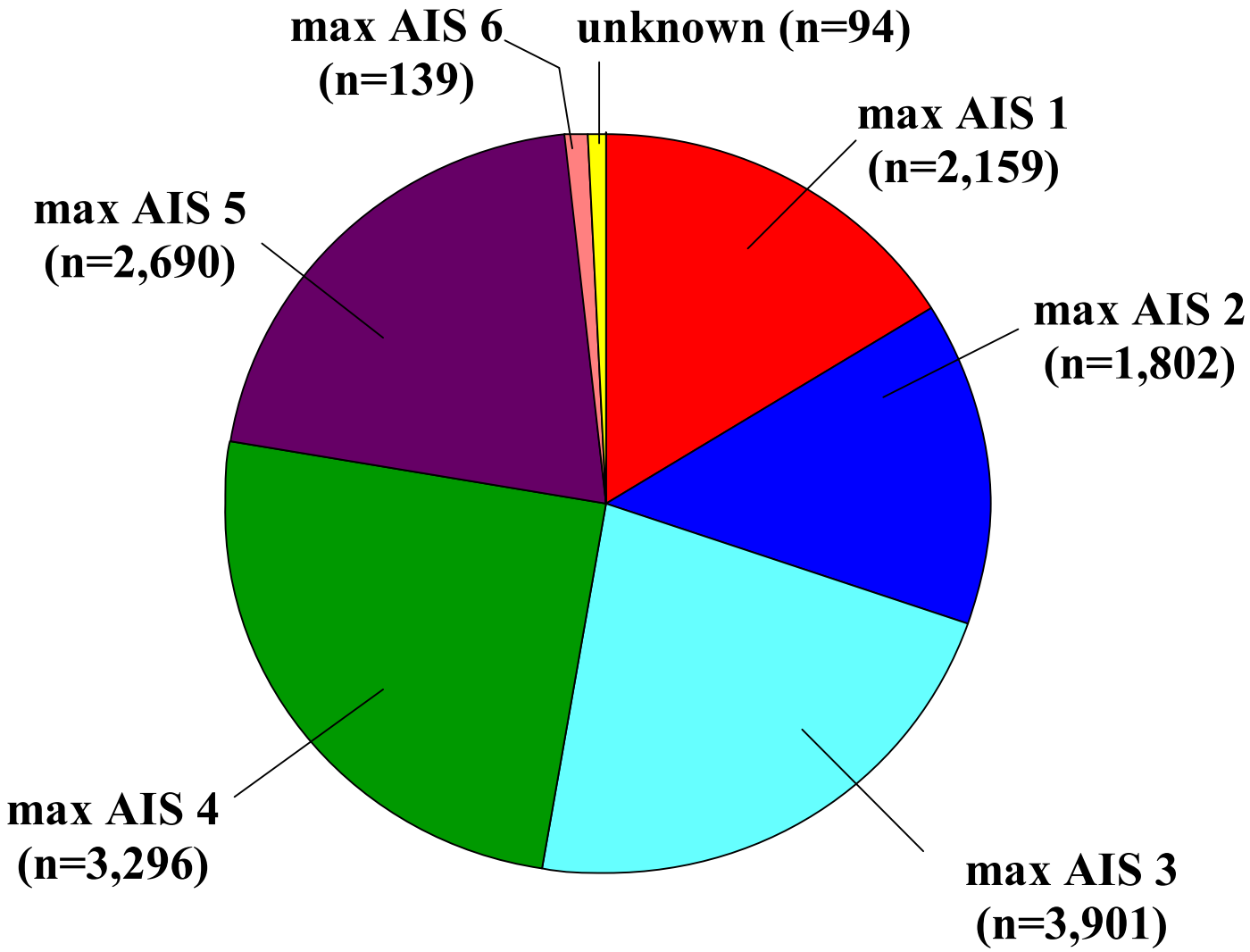


Figure 37A Head Injury and max AIS Score

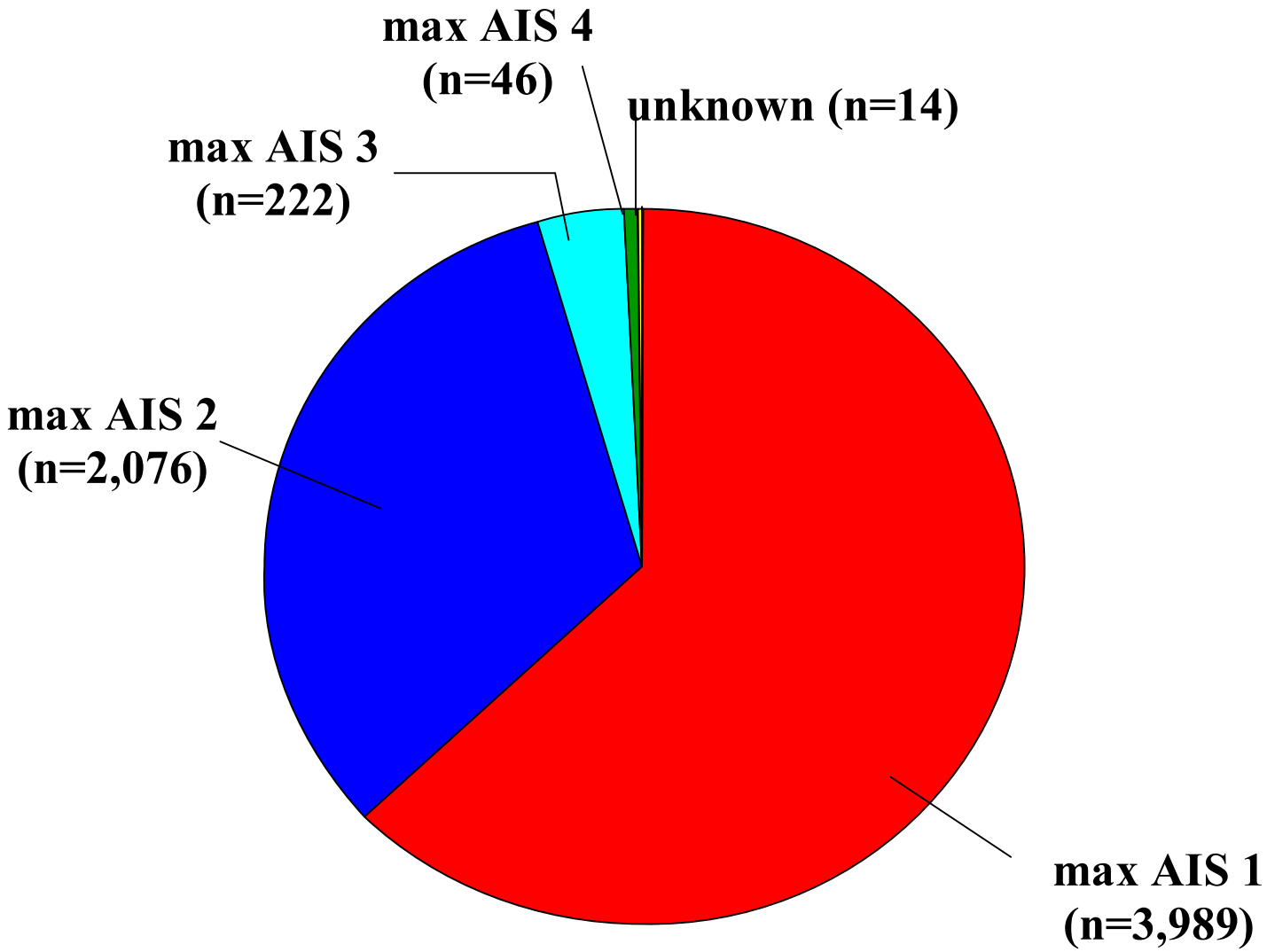


Figure 37B Facial Injury and max AIS Score

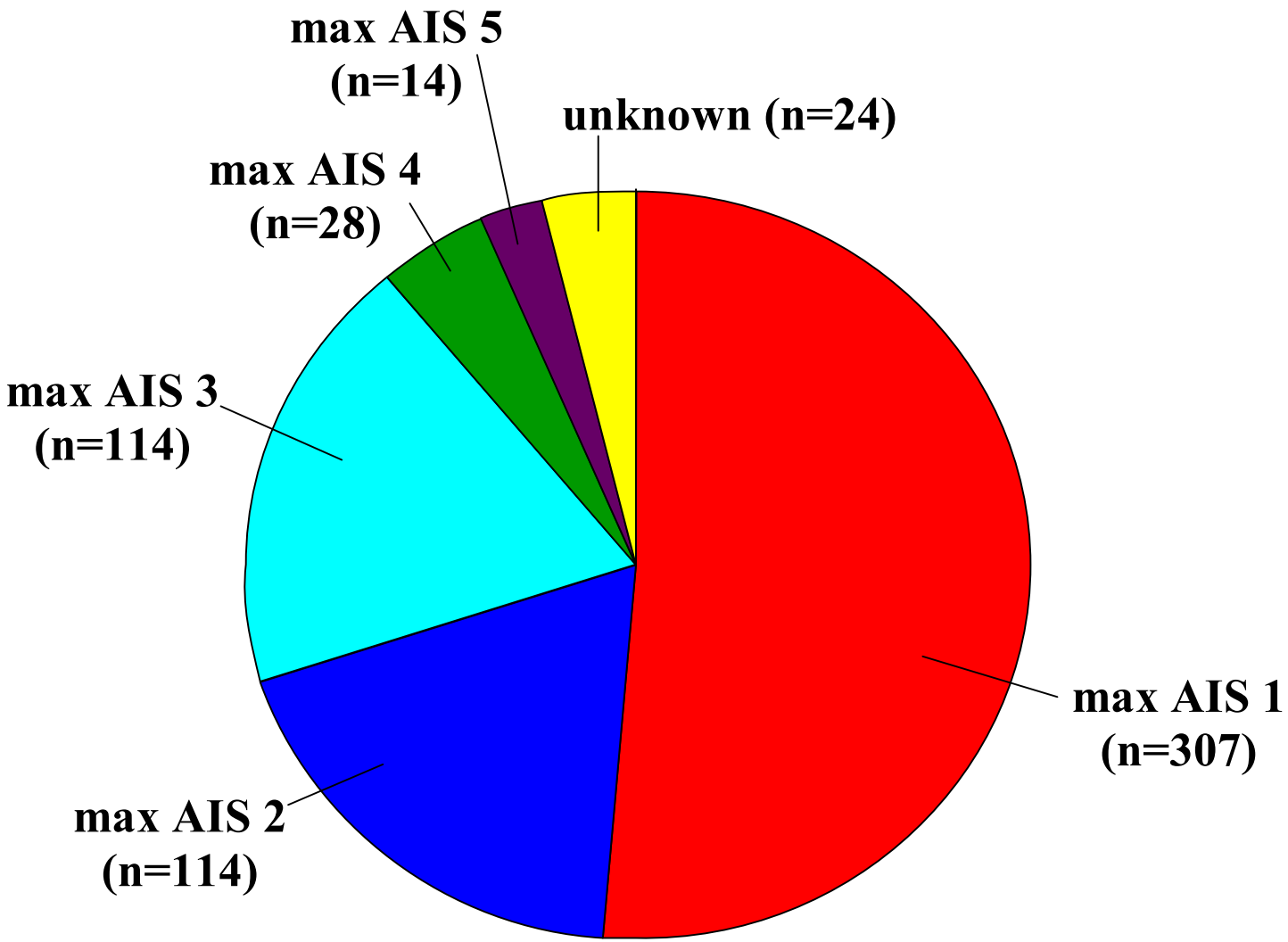


Figure 37C Neck Injury and max AIS Score

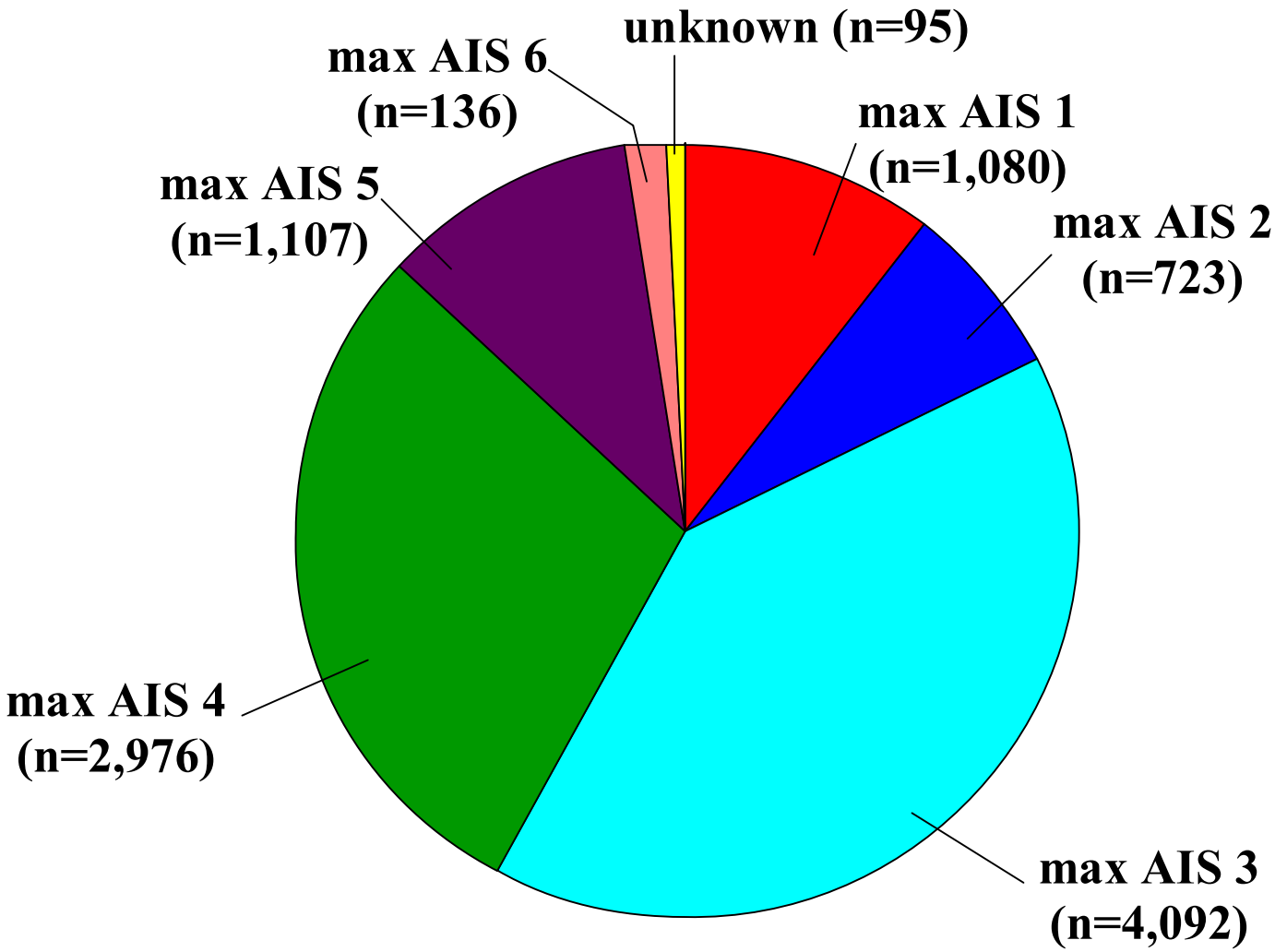


Figure 37D Thoracic Injury and max AIS Score

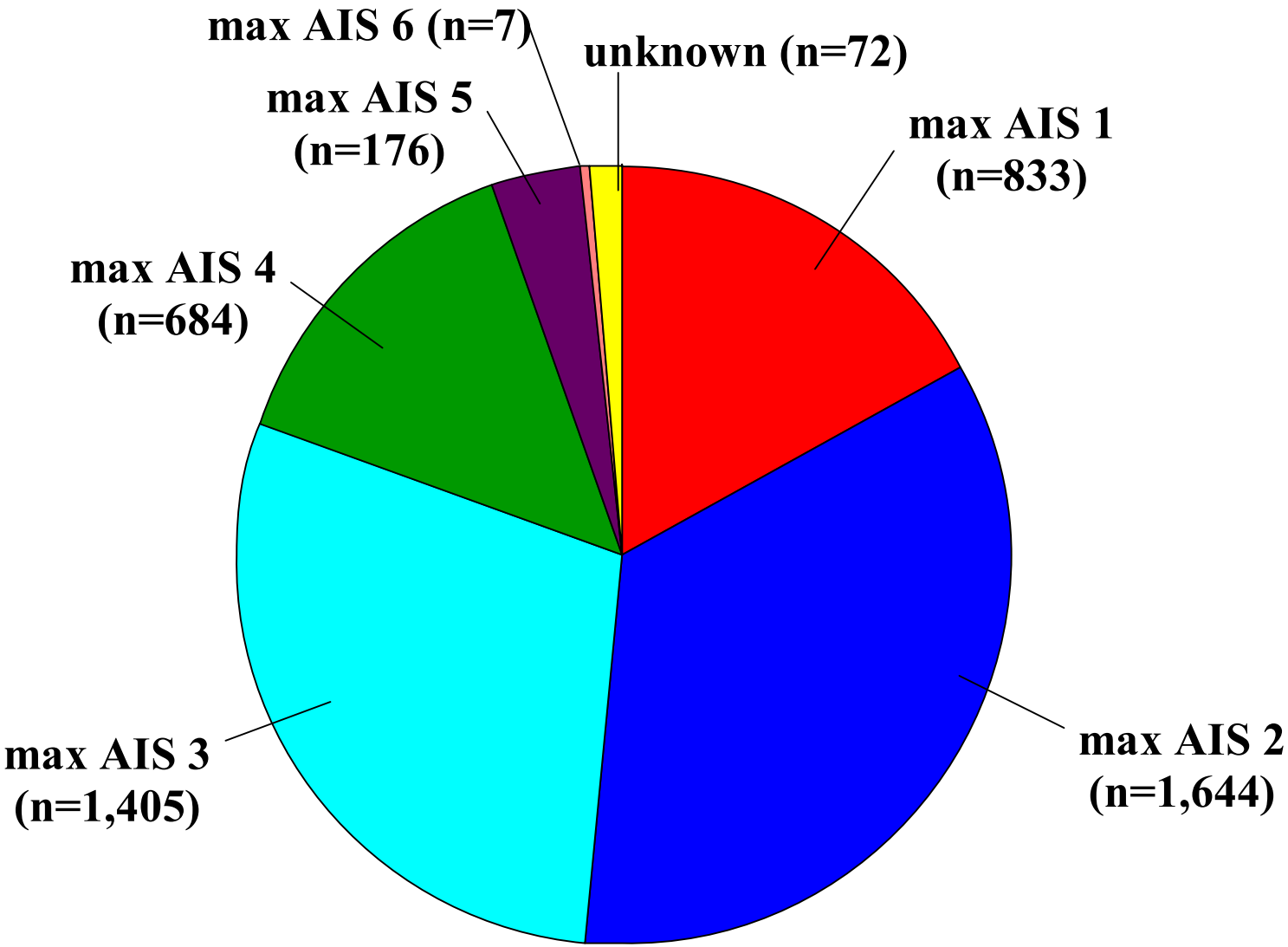


Figure 37E Injury of Abdomen/Pelvic Contents and max AIS Score

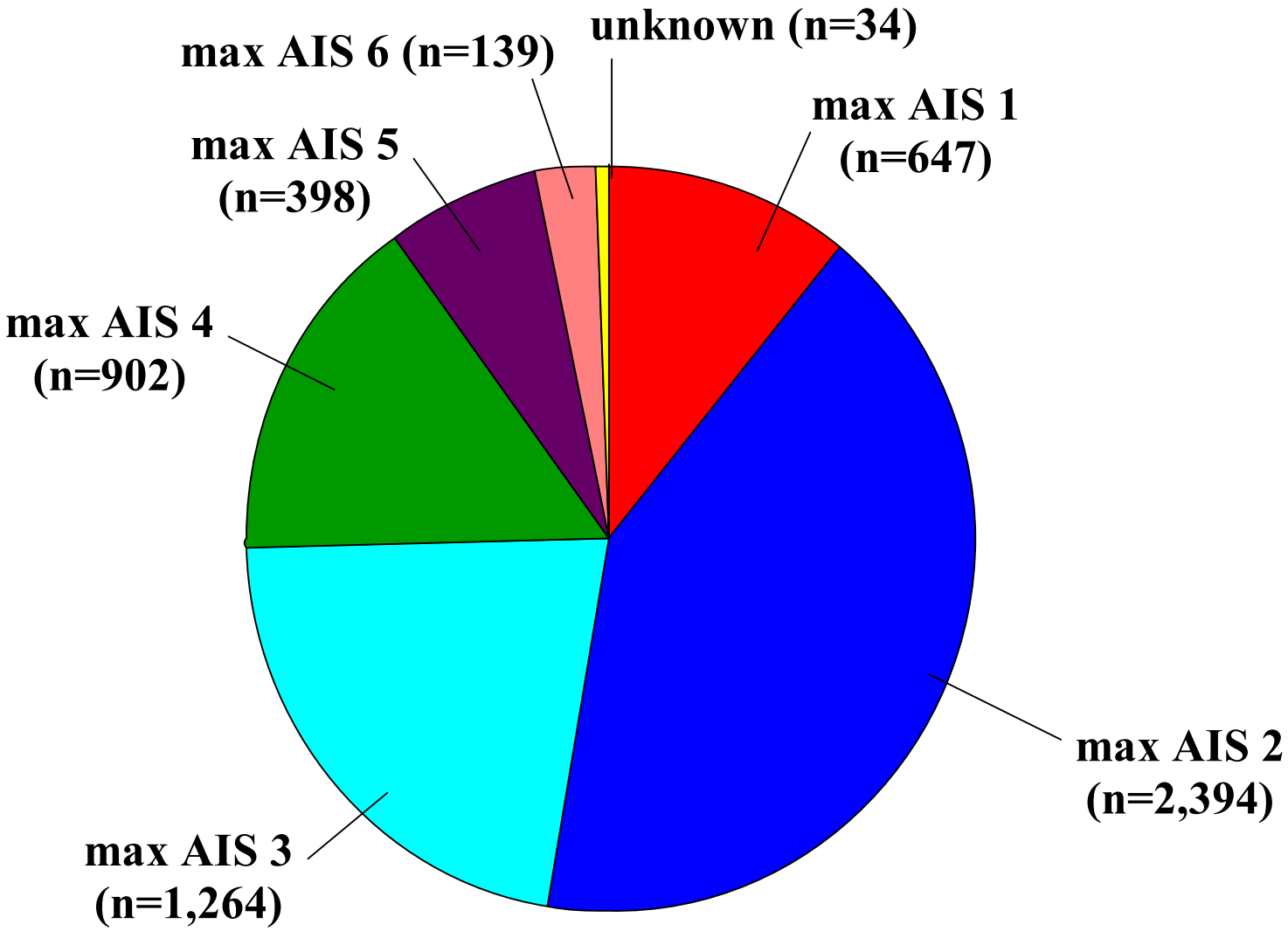


Figure 37F Spine Injury and max AIS Score

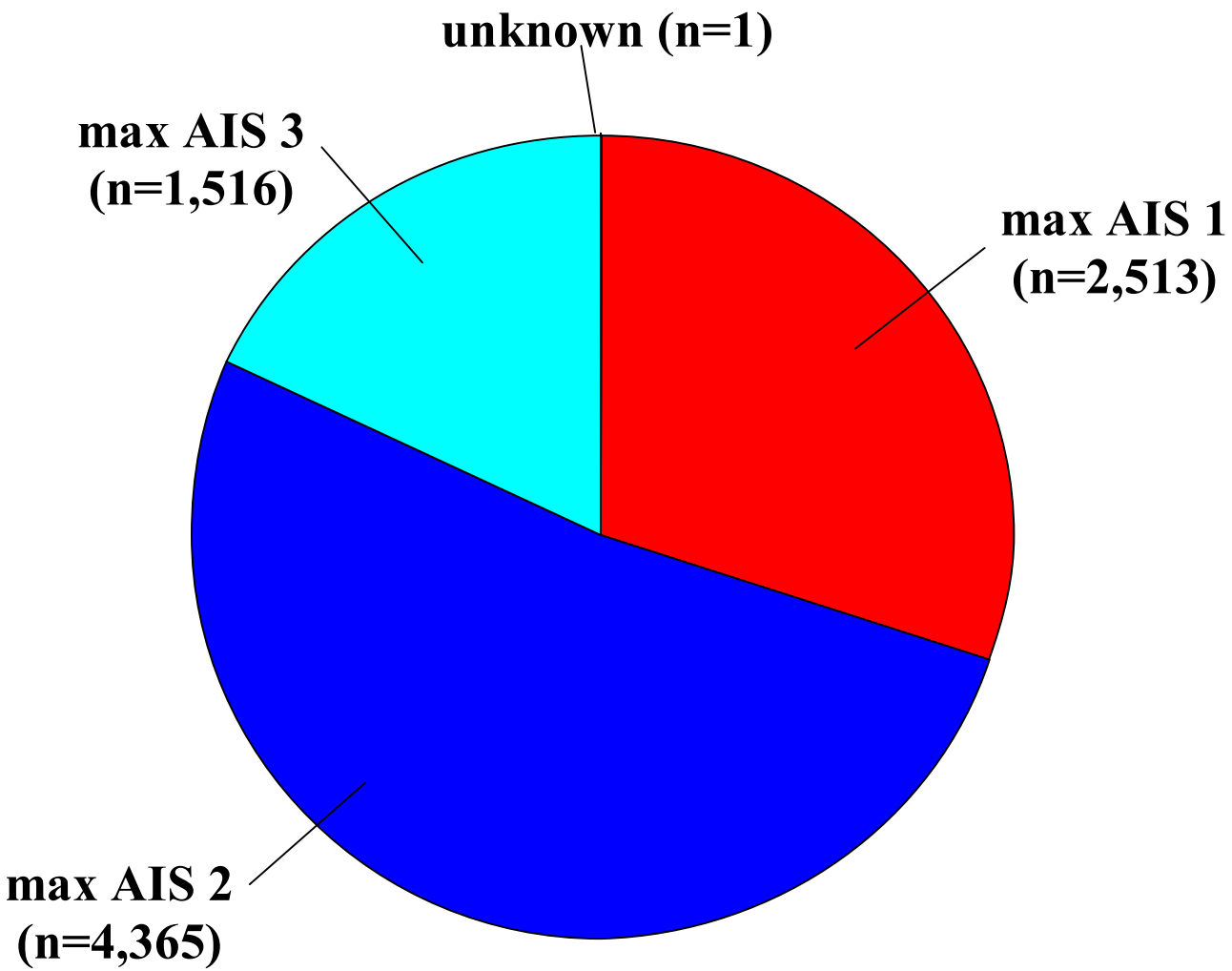


Figure 37G Injury of Upper Extremities and max AIS Score

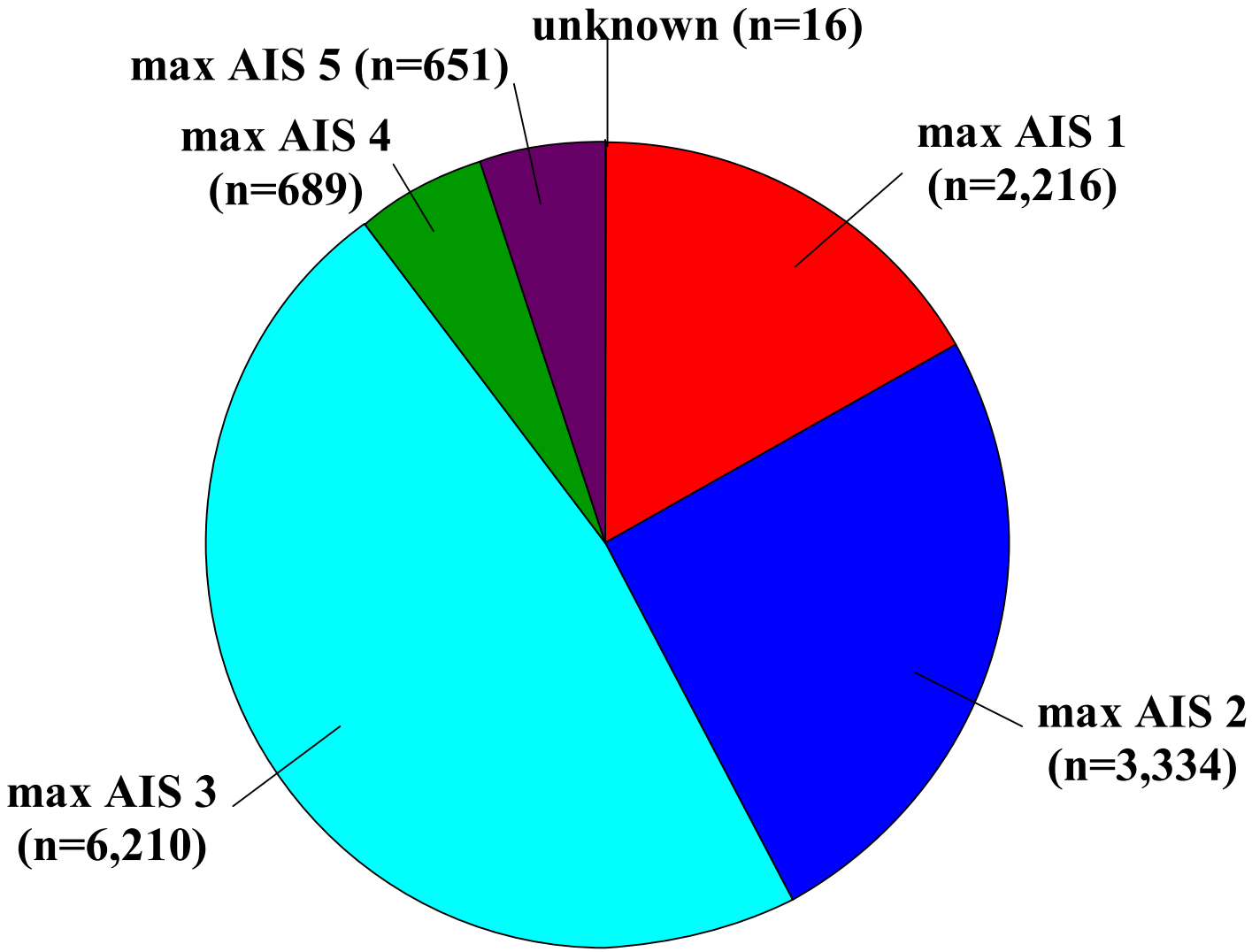


Figure 37H Injury of Lower Extremities and max AIS Score

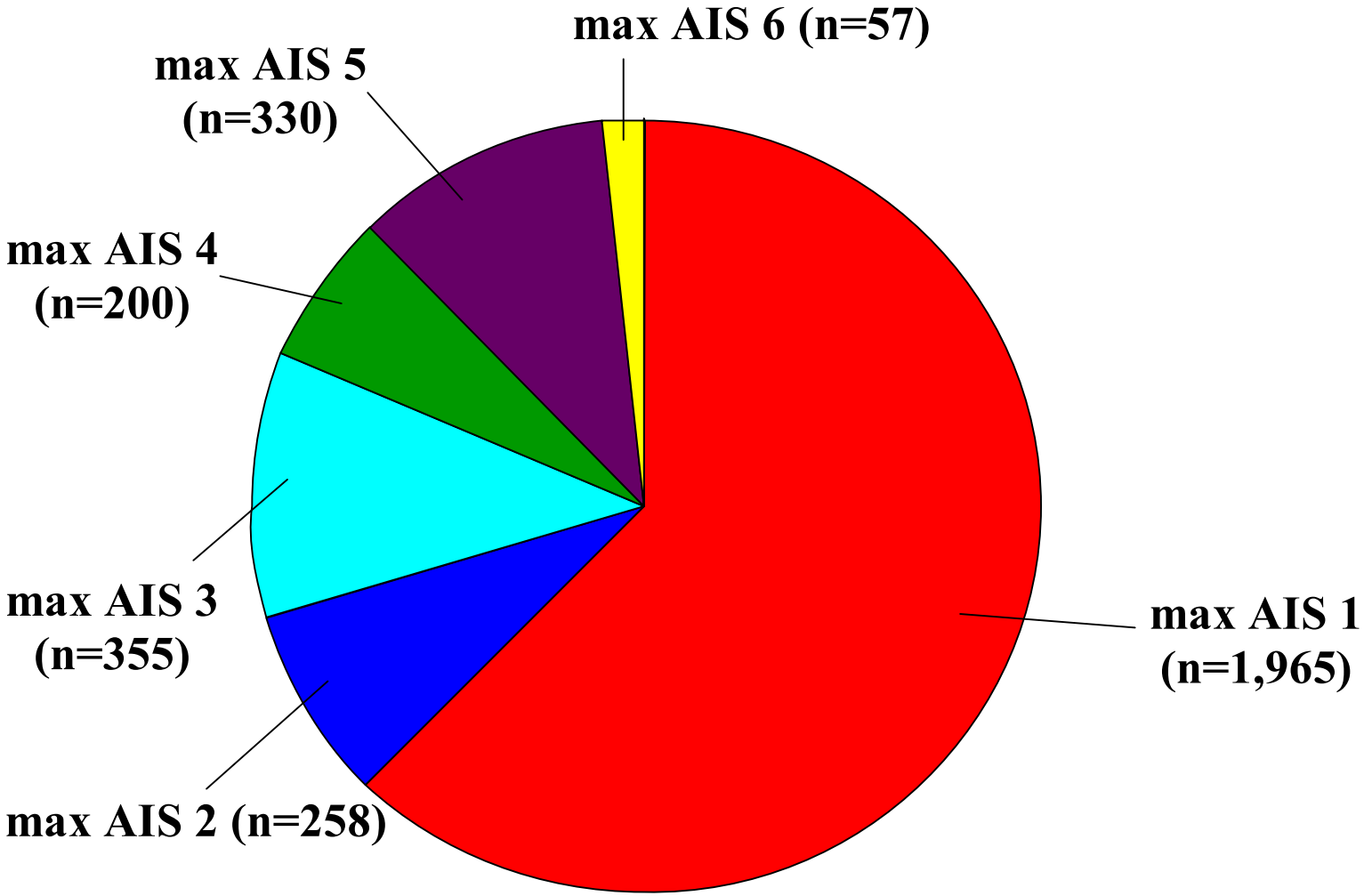


Figure 37I Skin/Burns/Other Trauma and max AIS Score

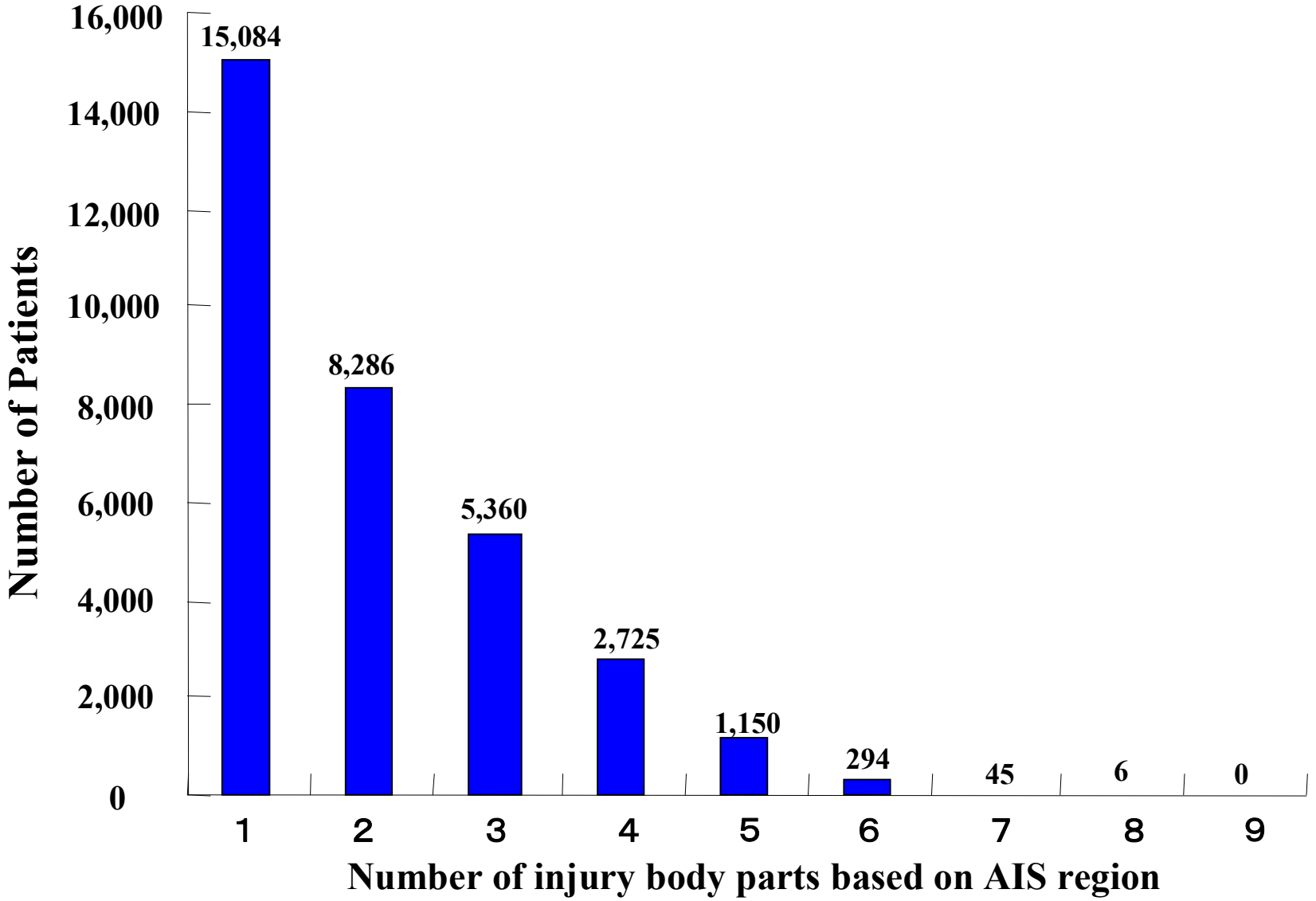


Figure 38 Number of Patients and Injured Body Parts based on AIS

JAPAN TRAUMA DATA BANK REPORT 2005-2009

December 1, 2010

The Japanese Association for Acute Medicine

The Japanese Association for the Surgery of Trauma

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