

Japan Trauma Data Bank Report 2016 (2011-2015)

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=256, Part 1)

Teine Keijinkai Hospital

Hokkaido University Hospital

Hokuto Hospital

Hokkaido Medical Center

Sapporo City General Hospital

Nikko Memorial Hospital

Sapporo Medical University Hospital

Asahikawa Red Cross Hospital

Hirosaki University School of Medicine & Hospital

Aomori Prefectural Central Hospital

Hachinohe City Hospital

Iwate Medical University Hospital

Kuji Prefectural Hospital

Osaki Citizen Hospital

Tohoku University Hospital

Sendai City Hospital

Ishinomaki Red Cross Hospital

Sendai Medical Center

South Miyagi Medical Center

Akita Red Cross Hospital

Fukushima Medical University Hospital

Ohta Nishinouchi Hospital Aizu Central Hospital

Ibaraki Seinan Medical Hospital

Mito Medical Center

University of Tsukuba Hospital

Tsukuba Medical Center Hospital Ibaraki Prefectural Central Hospital

Dokkyo Medical University Hospital

Jichi Medical University Hospital

Saiseikai Utunomiya Hospital

Gunma University Hospital

Maebashi Red Cross Hospital

Takasaki General Medical Center

Ota Memorial Hospital

Saitama Red Cross Hospital

Saitama Medical University International Medical Center

Kuki General Hospital

Kawaguchi Municipal Medical Center

Dokkyo Medical University Koshigaya Hospital

National Defense Medical College Hospital

Saitama Medical University Medical Center

Fukaya Red Cross Hospital

Funabashi Municipal Medical Center

Juntendo University Urayasu Hospital Asahi General Hospital

Nippon Medical School Chiba Hokusoh Hospital

Chiba University Hospital

Chiba Emergency Medical Center

Matsudo City Hospital Kameda General Hospital

Kimitsu Chuou Hospital

Jikei University Kashiwa Hospital

Tokyo Women's Medical University Yachiyo Medical Center

Tokyobay UrayasuIchikawa Medical Center

Chiba Rosai Hospital

Showa University Hospital

Tokyo Medical Center

Department of Social Medicine, School of Medicine, Nihon University

National Disaster Medical Center Tokyo Metropolitan Hiroo Hospital

Musashino Red Cross Hospital

Nippon Medical School Tama Nagayama Hospital

Tokyo Medical University Hospital

Tokyo Medical University Hachioji Medical Center

Keio University Hospital

St. Luke's International Hospital

Teikyo University Hospital

Toho University Omori Medical Center

National Center for Global Health and Medicine

University of Tokyo Hospital Showa General Hospital

Tokyo Women's Medical University Medical Center East

Nippon Medical School Hospital

Kyorin University Hospital

Surugadai Nihon University Hospital

Tokyo Women's Medical University Hospital

Ohme Municipal General Hospital Nihon University Itabashi Hospital

Tokyo Medical and Dental University Hospital

National Center for Child Health and Development Tokyo Metropolitan Bokutoh Hospital

Tokyo Saiseikai Central Hospital

Showa University Northern Yokohama Hospital

Yokohama Medical Center

Nippon Medical School Musashikosugi Hospital

Saiseikai Yokohama-city East Hospital

St. Marianna University School of Medicine Hospital

Shonan Kamakura General Hospital Yokohama Municipal Citizens Hospital

Odawara Municipal Hospital Yokosuka Kyosai Hospital Hiratsuka City Hospital Fujisawa City Hospital Kanto Rosai Hospital

Yokohama Rosai Hospital

Yokohama City University Medical Center

Tokai University Hospital

Showa University Fujigaoka Hospital

Kitasato University Hospital

Yokosuka General Hospital Uwamachi

Yokohama City Minato Red Cross Hospital

Yokohama Sakae Kyosai Hospital

Niigata University Medical & Dental Hospital

Niigata City General Hospital

Niigata Prefectural Shibata Hospital

Kouseiren Takaoaka Hospital

Tonami General Hospital

Toyama Prefectural Central Hospital

Toyama University Hospital

Kanazawa University Hospital

Ishikawa Prefectural Central Hospital

Fukui Prefectural Hospital

University of Fukui Hospital

Yamanashi Prefectural Central Hospital

Aizawa Hospital

Suwa Red Cross Hospital

Iida Municipal Hospital

Ina Central Hospital

Saku Central Hospital Advanced Care Center

Shinshu University Hospital Nagano Red Cross Hospital

Nagano Municipal Hospital

Takayama Red Cross Hospital

Ogaki Municipal Hospital

Gero City Kanayama Hospital

Chuno Kosei Hospital

Gifu University Hospital Numazu City Hospital

Shizuoka Red Cross Hospital

Shizuoka Red Cross Hospital Shizuoka Children's Hospital

Shizuoka Saiseikai General Hospital

Juntendo University Shizuoka Hospital Seirei Mikatahara General Hospital

Shizuoka General Hospital

Shizuoka Tokushukai Hospital

Chutoen General Medical Center





Names of All Hospitals Submitting Data to the JTDB. (N=256, Part 2)

Tovohashi Municipal Hospital

Daiyukai General Hospital

Fujita Health University Hospital

Nagoya City University Hospital

Handa City Hospital

Aichi Medical University Hospital

Nagoya Ekisaikai Hospital

Social Insurance Chukvo Hospital

Okazaki City Hospital

Kasugai Municipal Hospital

Komaki City Hospital

Mie University Hospital

Omihachiman Community Medical Center

Saiseikai Shigaken Hospital

Kyoto Daini Red Cross Hospital

Kyoto Medical Center

Rakuwakai Otowa Hospital

Fukuchiyama City Hospital

Kyoto Daiichi Red Cross Hospital

Uji-Tokushukai Medical Center

Kvoto Prefectural University of Medicine

Osaka Prefectural Senshu Critical Medical Care Center

Saiseikai Senri Hospital

Osaka General Medical Center

Hanwa Memorial Hospital

Osaka Medical Center

Nakakawachi Medical Center of Acute Medicine

Osaka Mishima Emergency Medical Center

Kinki University Hospital

Kishiwada Tokushukai Hospital

Osaka University Hospital

Osaka City General Hospital

Kansai Medical University Takii Hospital

Osaka City University Hospital

Kansai Medical University Hirakata Hospital

Sakai City Medical Center

Hyogo Prefectural Nishinomiya Hospital

Hyogo Prefectural Kakogawa Medical Center

Hyogo Prefectural Awaji Hospital

Hospital of Hyogo College of Medicine

Kobe City Medical Center General Hospital

Kobe University Hospital

Hyogo Emergency Medical Center

Toyooka Hospital Tajima Emergency & Critical Care Medical Center

Public Muraoka Hospital

Kansai Rosai Hospital

Steel Memorial Hirohata Hospital Himeji Emergency, Trauma and Critical Center Shinyukuhashi Hospital

Nara Prefectural Nara Hospital

Nara Medical University Hospital

Wakayama Medical University Hospital

Tottori University Hospital

Shimane University Hospital

Tsuyama Chuo Hospital

Kawasaki Medical School Hospital

Kurashiki Central Hospital

Okayama University Hospital

Hiroshima University Hospital

Kure Medical Center

Fukuyama City Hospital

Hiroshima Prefectural Hospital

Chugoku Rosai Hospital

Kanmon Medical Center

Tokuyama Central Hospital

Yamaguchi Grand Medical Center

Yamaguchi University Hospital

Tokushima Prefectural Kaifu Hospital

Tokushima Prefectural Central Hospital

Tokushima Prefectural Miyoshi Hospital

Taoka Hospital

Kagawa University Hospital

Kagawa Prefectural Central Hospital

Ehime Prefectural Central Hospital

Ehime University Hospital

Kochi Medical Center

Chikamori Hospital

Kochi Red Cross Hospital

Kurume University Hospital

Iizuka Hospital

Ohtemachi Hospital

Kitakyushu Municipal Yahata Hospital

Kyushu University Hospital

Kitakyushu General Hospital

Kokura Memorial Hospital

Fukuoka Wajiro Hospital

Fukuoka Red Cross Hospital

Fukuoka Higashi Medical Center

Saiseikai Fukuoka General Hospital

Fukuoka University Hospital

St. Maria's Hospital

Saga University Hospital

Saga-ken Medical Center Koseikan

Ureshino Medical Center

Nagasaki University Hospital

Nagasaki Medical Center

Arao Municipal Hospital

Kumamoto Red Cross Hospital

Kumamoto Medical Center

Saiseikai Kumamoto Hospital

Oita University Hospital

Almeida Memorial Hospital

Miyazaki Prefectural Miyazaki Hospital

Miyazaki University Hospital

Miyazaki Zenjinkai Hospital

Miyakonojo Regional Medical Center

Osumikanoya Hospital

Kagoshima City Hospital

Yonemori Hospital

Okinawa Prefectural Chubu Hospital

Okinawa Prefectural Hokubu Hospital

Okinawa Prefectural Hokubu Hospital

Ryukyu University Hospital

Urasoe General Hospital

Nakagami Hospital

Tomishiro Central Hospital



Number of Hospitals Submitting to the JTDB by Region.

Number of Hospitals

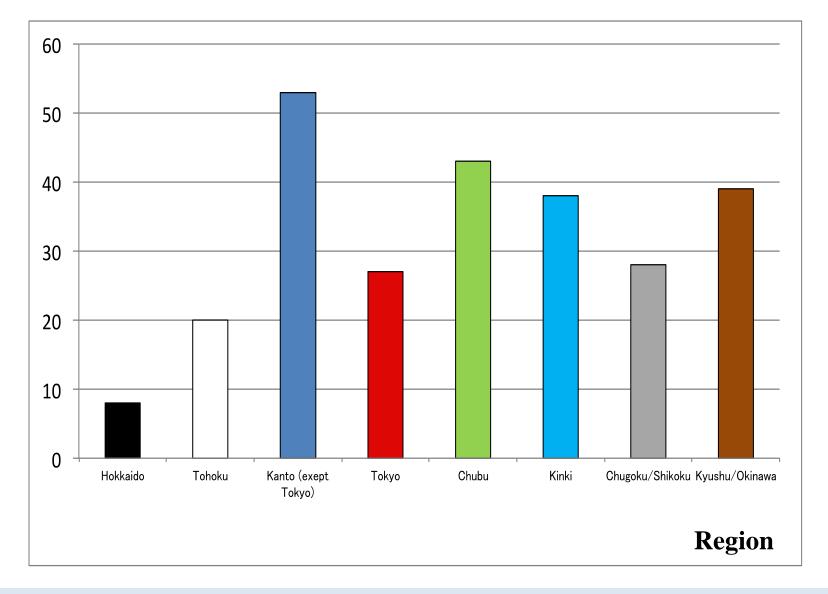
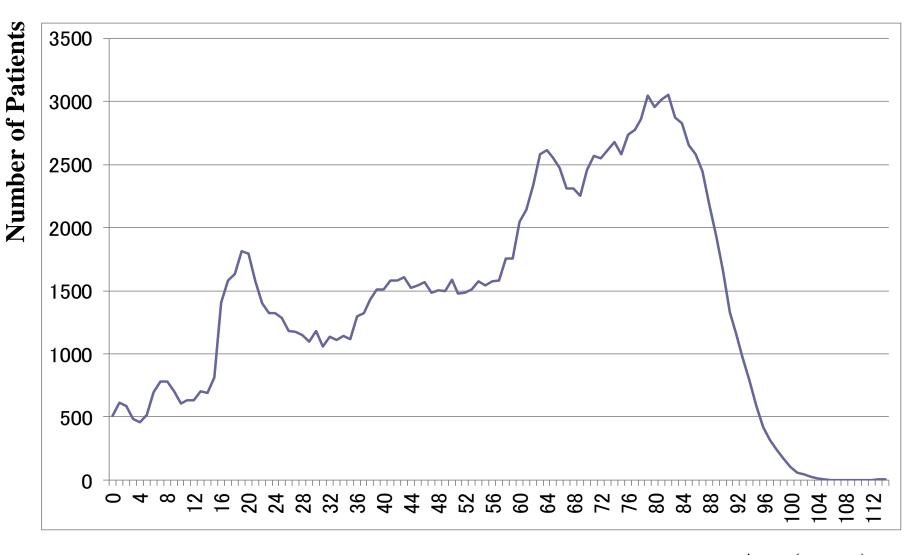




Figure 3

Number of Patients by Age.



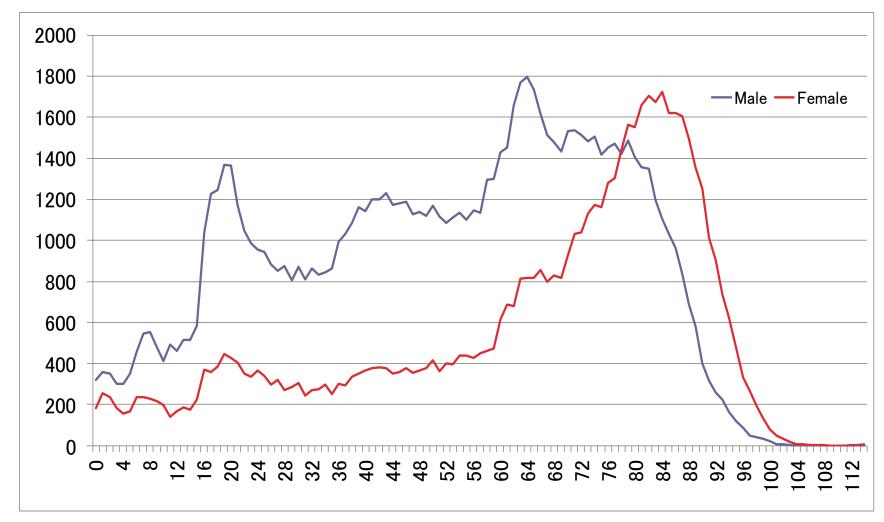
Age (years)





Patients by Age and Gender.



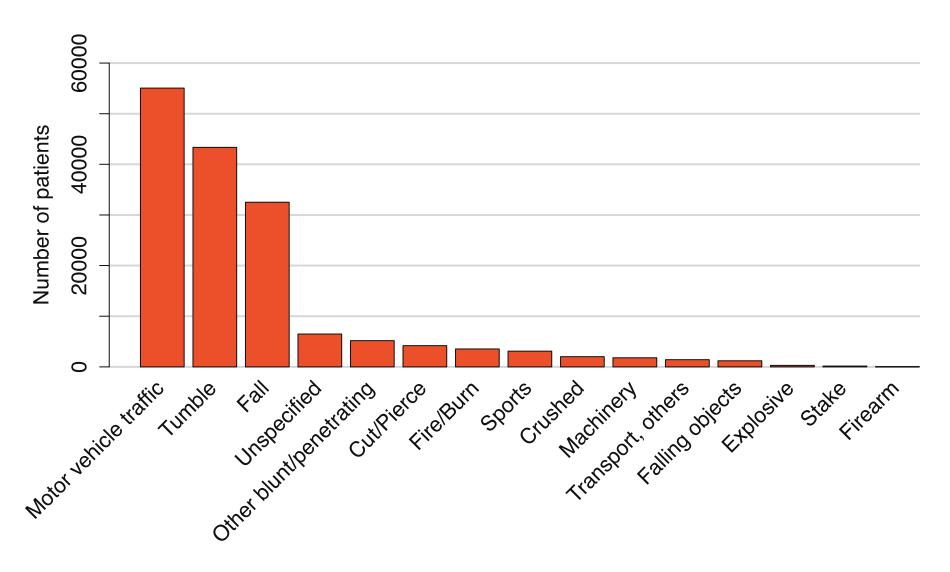


Age (years)



Figure 5

Patients by mechanism of injury







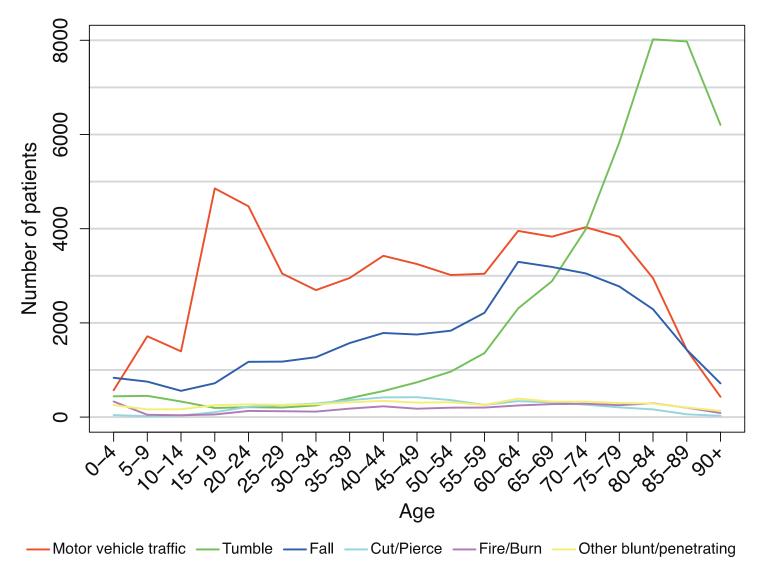
Patients by mechanism of injury

Mechanism of injury	Patients (n)	Patients by mechanism of injury (%)
Motor vehicle traffic	55047	34.3
Tumble	43355	27.0
Fall	32515	20.3
Unspecified	6486	4.0
Others	5172	3.2
Cut/Pierce	4179	2.6
Fire/Burn	3526	2.2
Sports	3105	1.9
Crushed	2013	1.3
Machinery	1789	1.1
Transport, others	1425	0.9
Falling objects	1205	0.8
Explosive	294	0.2
Stake	150	0.1
Firearm	33	0.0





Mechanism of injury by age







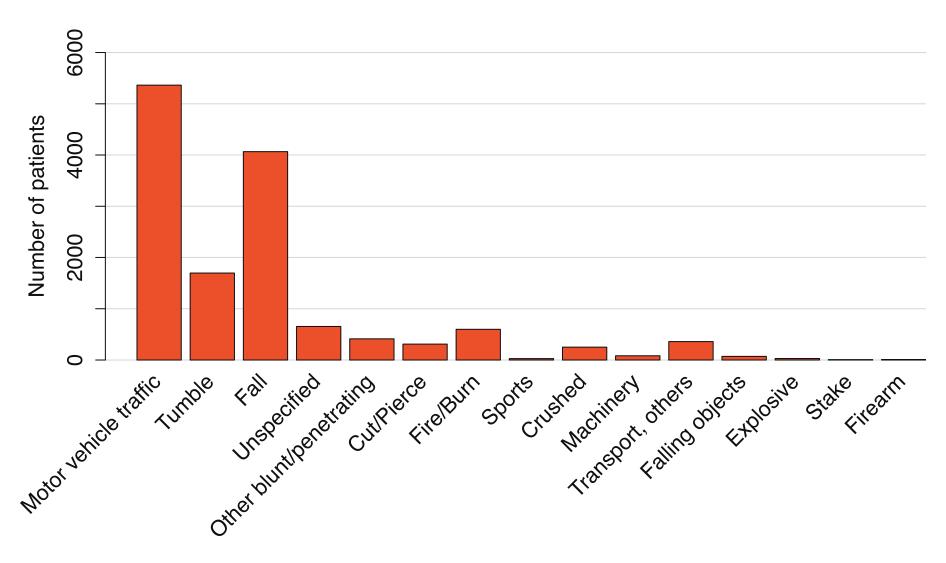
Mechanism of injury by age

Range of age, yr	Motor vehicle traffic, n (%)	Tumble, n (%)	Fall, n (%)	Cut/Pierce, n (%)	Fire/Burn, n (%)	Others, n (%)
0-4	571 (1.0)	442 (1.0)	835 (2.6)	43 (1.0)	332 (9.4)	256 (4.9)
5-9	1717 (3.1)	451 (1.0)	753 (2.3)	19 (0.5)	49 (1.4)	164 (3.2)
10-14	1396 (2.5)	331 (0.8)	558 (1.7)	33 (0.8)	40 (1.1)	169 (3.3)
15-19	4856 (8.8)	194 (0.4)	720 (2.2)	105 (2.5)	55 (1.6)	251 (4.9)
20-24	4477 (8.1)	210 (0.5)	1174 (3.6)	220 (5.3)	132 (3.7)	270 (5.2)
25-29	3048 (5.5)	202 (0.5)	1178 (3.6)	256 (6.1)	126 (3.6)	261 (5.0)
30-34	2696 (4.9)	247 (0.6)	1273 (3.9)	289 (6.9)	117 (3.3)	272 (5.3)
35-39	2954 (5.4)	402 (0.9)	1572 (4.8)	360 (8.6)	180 (5.1)	316 (6.1)
40-44	3425 (6.2)	554 (1.3)	1787 (5.5)	419 (10.0)	230 (6.5)	346 (6.7)
45-49	3249 (5.9)	740 (1.7)	1753 (5.4)	423 (10.1)	179 (5.1)	307 (5.9)
50-54	3018 (5.5)	966 (2.2)	1836 (5.6)	363 (8.7)	201 (5.7)	316 (6.1)
55-59	3044 (5.5)	1360 (3.1)	2215 (6.8)	259 (6.2)	203 (5.8)	261 (5.0)
60-64	3954 (7.2)	2309 (5.3)	3297 (10.1)	340 (8.1)	248 (7.0)	392 (7.6)
65-69	3831 (7.0)	2887 (6.7)	3189 (9.8)	314 (7.5)	277 (7.9)	329 (6.4)
70-74	4032 (7.3)	3984 (9.2)	3051 (9.4)	265 (6.3)	285 (8.1)	330 (6.4)
75-79	3829 (7.0)	5836 (13.5)	2775 (8.5)	206 (4.9)	254 (7.2)	298 (5.8)
80-84	2951 (5.4)	8021 (18.5)	2291 (7.0)	164 (3.9)	293 (8.3)	286 (5.5)
85-89	1428 (2.6)	7977 (18.4)	1429 (4.4)	61 (1.5)	201 (5.7)	204 (3.9)
90+	432 (0.8)	6204 (14.3)	717 (2.2)	28 (0.7)	86 (2.4)	131 (2.5)
Unspecified	139 (0.3)	38 (0.1)	112 (0.3)	12 (0.3)	38 (1.1)	13 (0.3)
Total	55047 (100.0)	43355 (100.0)	32515 (100.0)	4179 (100.0)	3526 (100.0)	5172 (100.0)





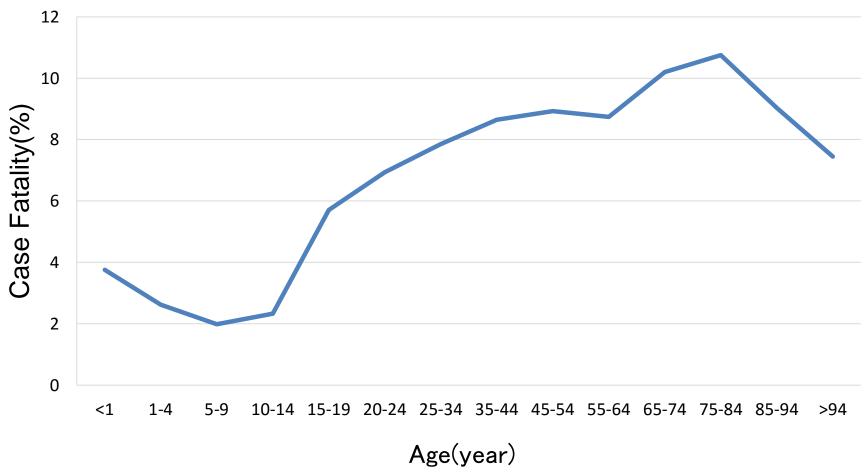
Death by mechanism of injury







Case Fatality by age

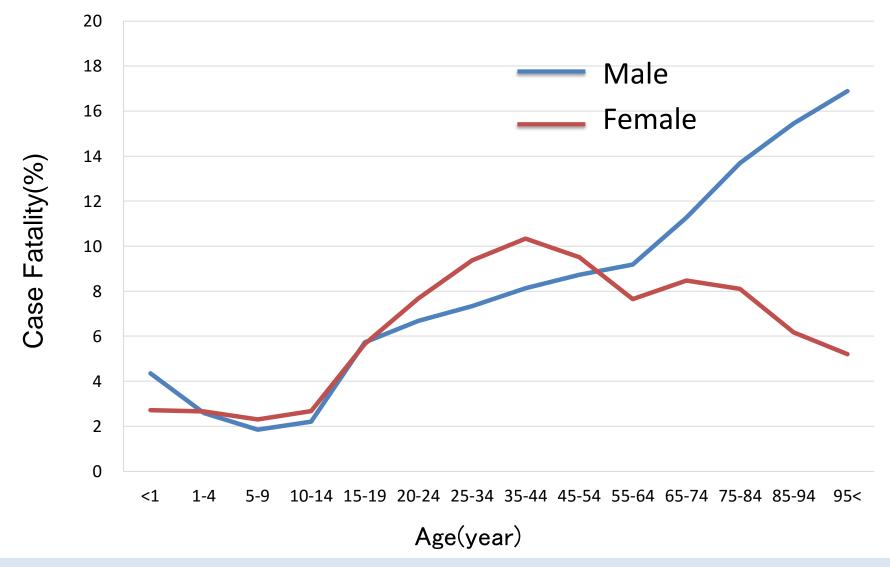


Case fatality at each age category (Case Fatality=number of deaths divided by the number of patients at each category x 100 by age)





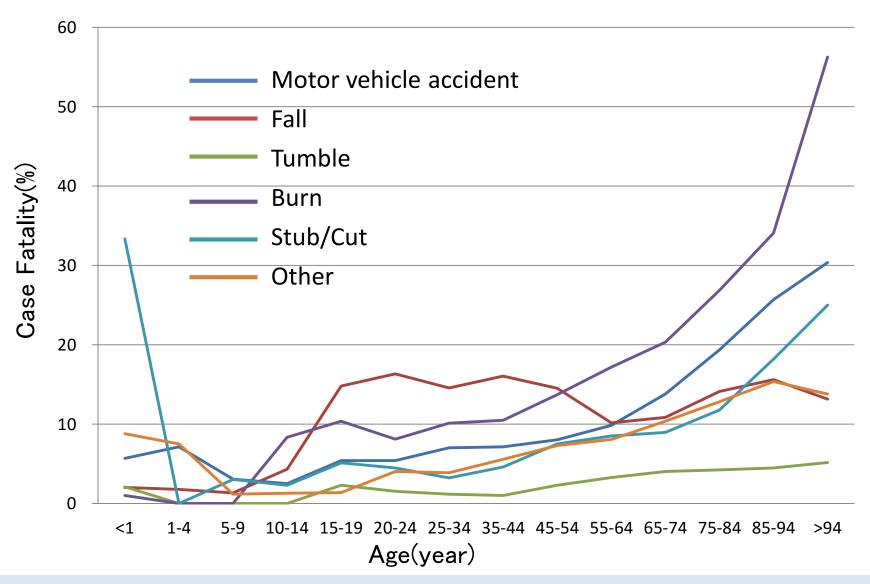
Case Fatality by age and gender







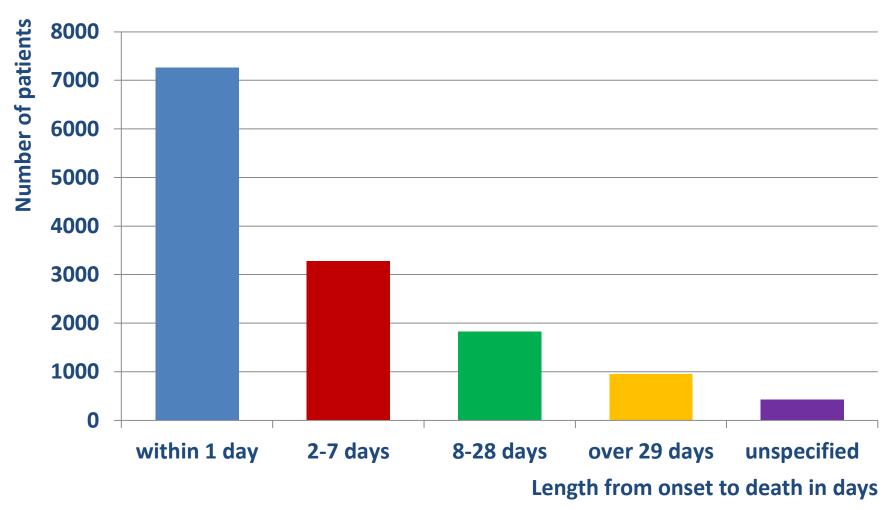
Case Fatality by mechanism of injury and age







Proportional distribution of length from onset to facility n = 13,741

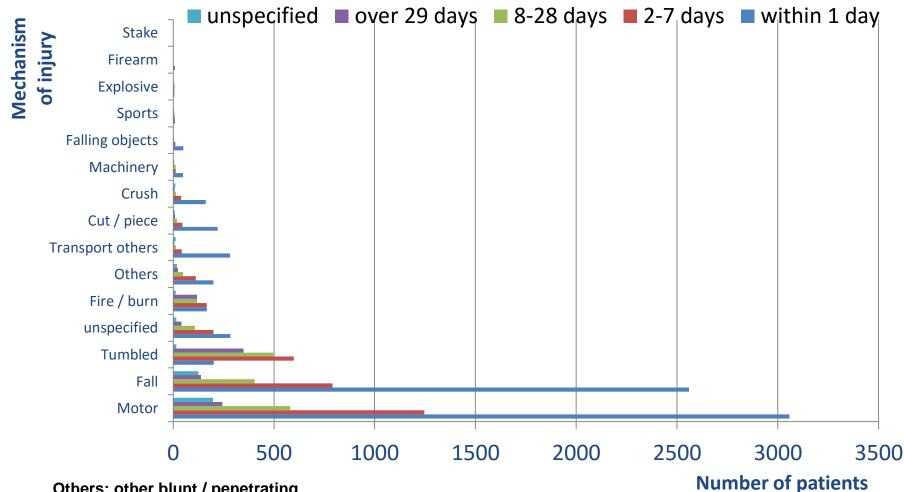


The category within 1 day after onset includes CPAOA patients.





Proportional distribution of length from onset to fatality, grouped by mechanism of injury. n = 13,741



Others; other blunt / penetrating

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





Proportional distribution of length from onset to fatality, grouped by mechanism of injury. n = 13,741

Mechanism Length of hospital	Motor vehicle traffic	Fall	Tumbled	Unspecified	Fire / burn	Other blunt/penet rating	Transport others	Cut / piece
within 1 day	3058	2560	202	284	167	199	283	220
2 - 7 days	1246	791	599	200	166	113	42	45
8 – 28 days	581	404	497	108	119	49	14	18
over 29 days	245	138	349	41	119	23	6	9
unspecified	198	125	16	15	12	18	12	8
Total	5328	4018	1663	648	583	402	357	300

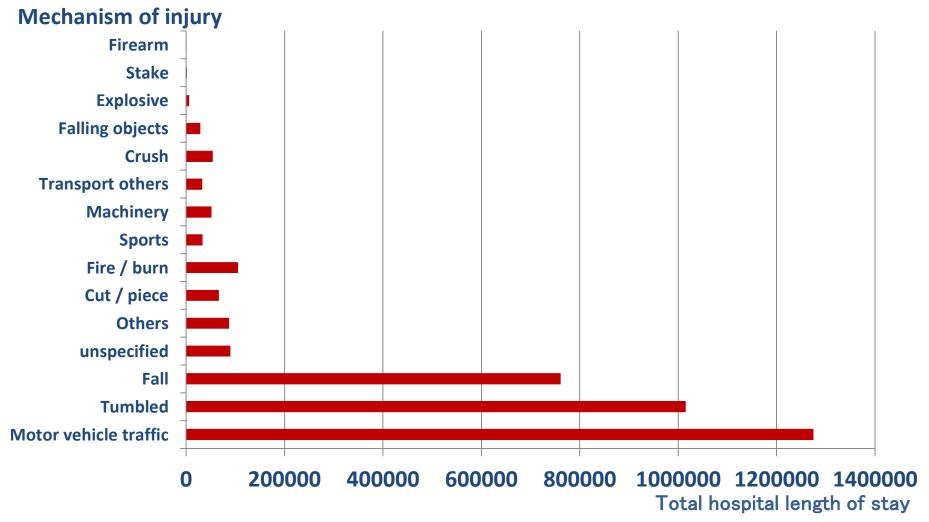
Motor vehicle traffic includes pedal cyclist and pedestrian victims.

Mechanism Length of hospital days	Crush	Machinery	Falling objects	Sports	Explosive	Firearm	Stake	Total
within 1 day	161	49	51	9	6	9	2	7260
2 - 7 days	39	12	11	7	6	0	1	3278
8 – 28 days	14	12	4	6	7	0	0	1833
over 29 days	7	4	3	3	3	0	0	950
unspecified	11	0	2	1	2	0	0	420
Total	232	77	71	26	24	9	3	13741





Total hospital length of stay by mechanism of Injury n = 143,255



Total hospital length of stay of patients are 3,609,255 days.



Table 12

Total and average hospital length of stay by mechanism of injury n = 143,211

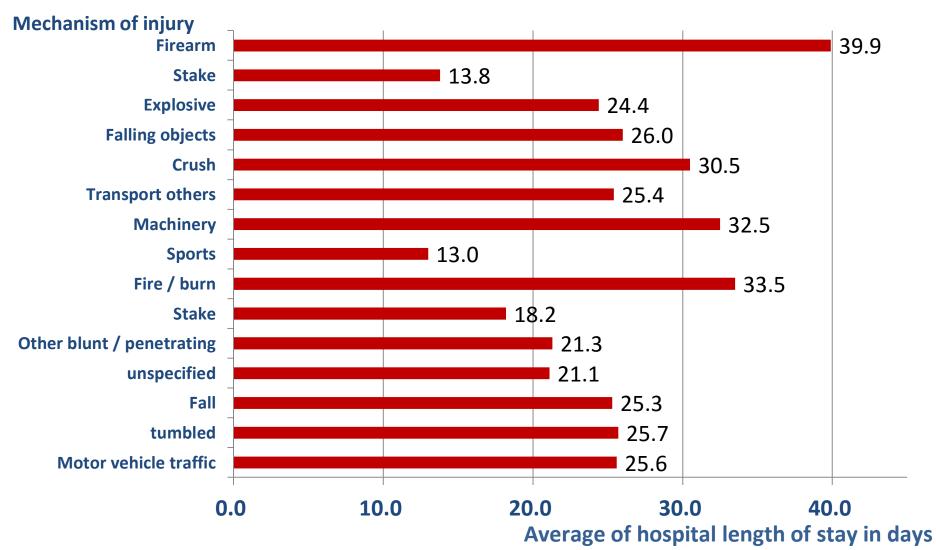
	Number of	patients / %	Total hospital LOS in days	Average of hospital LOS in days		
Motor vehicle traffic	49,832	34.80%	1,274,738	25.6		
Tumbled	39,442	27.54%	1,015,236	25.7		
Fall	30,058	20.99%	760,838	25.3		
unspecified	4,234	2.96%	89,633	21.1		
Other blunt / penetrating	3,104	2.87%	87,445	21.3		
Cut / piece	3,663	2.56%	66,665	18.2		
Fire / burn	3146	2.20%	105,355	33.5		
Sports	2,586	1.81%	33,574	13.0		
Machinery	1,580	1.10%	51,323	32.5		
Transport others	1,288	0.90%	32,680	25.4		
Crush	1,783	0.77%	54,365	30.5		
Falling objects	1,097	1.25%	28,549	26.0		
Explosive	249	0.17%	6,073	24.4		
Stake	121	0.08%	1,664	13.8		
Firearm	28	0.02%	1,117	39.9		
Total	143,211	_	3,609,255	25.2		

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





Average hospital length of stay by mechanism of injury n = 143,211

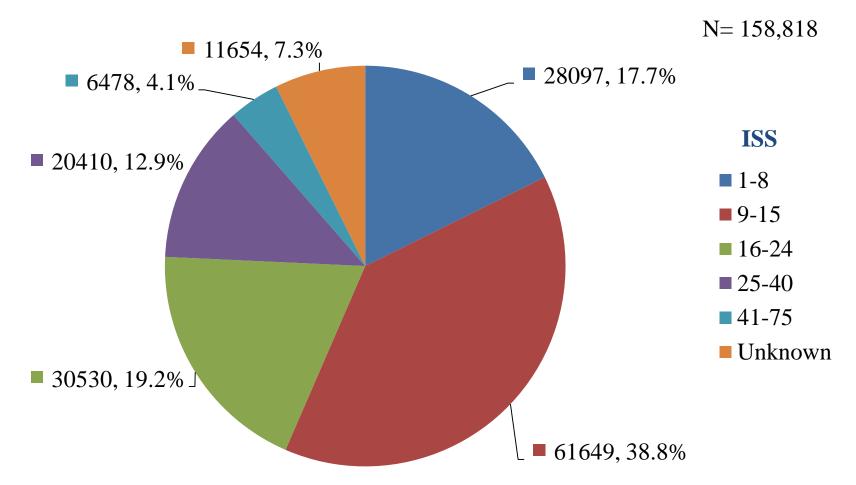


Motor vehicle traffic includes pedal cyclist and pedestrian victims.





Patients and Injury Severity Score (ISS)

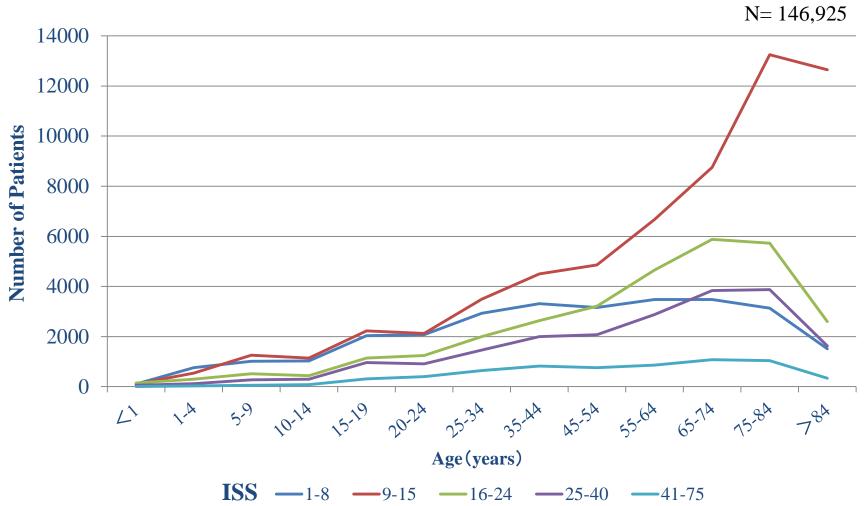


Proportional distribution of patients grouped by categories of the ISS range. The number of patients of ISS 9-15 category was the most of all categories.





Patients by ISS and Age



Number of injured patients grouped by ISS range, at each age from 0 to 114. The peaks of the number of patients based on age distribution were seen at 35-44 and 55-74 ages of ISS 1-8, and at 65-84 ages of another ISS categories.





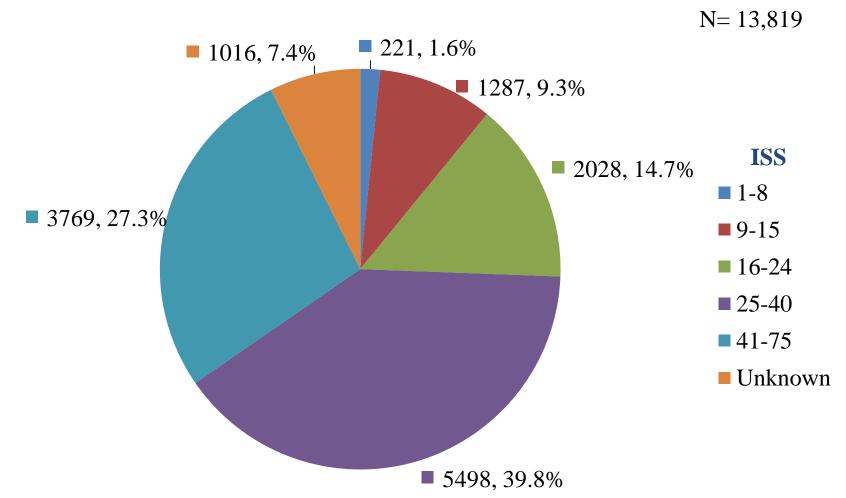
Patients by ISS and Age

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
1-8	107	765	1014	1030	2038	2070	2927	3310	3165	3484	3480	3140	1513	54	28097
9-15	111	537	1252	1143	2222	2129	3498	4496	4859	6674	8753	13256	12645	74	61649
16-24	148	304	511	436	1143	1247	1993	2641	3211	4650	5879	5733	2595	39	30530
25-40	61	122	268	298	969	912	1458	1999	2071	2881	3834	3879	1626	32	20410
41-75	3	34	55	79	317	399	642	825	757	866	1080	1043	338	40	6478
Unknown	76	380	373	278	563	658	976	1191	1160	1402	1753	1682	961	201	11654
Total	506	2142	3473	3264	7252	7415	11494	14462	15223	19957	24779	28733	19678	440	158818





Deaths and Injury Severity Score (ISS)

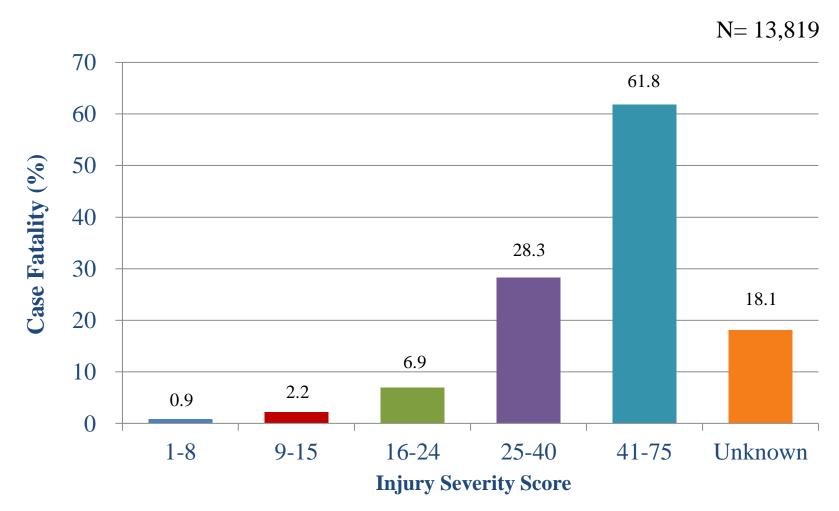


Proportional distribution of deaths grouped by categories of ISS range. Deaths in ISS 25-40 category were the highest.





Case Fatality by Injury Severity Score (ISS) Range

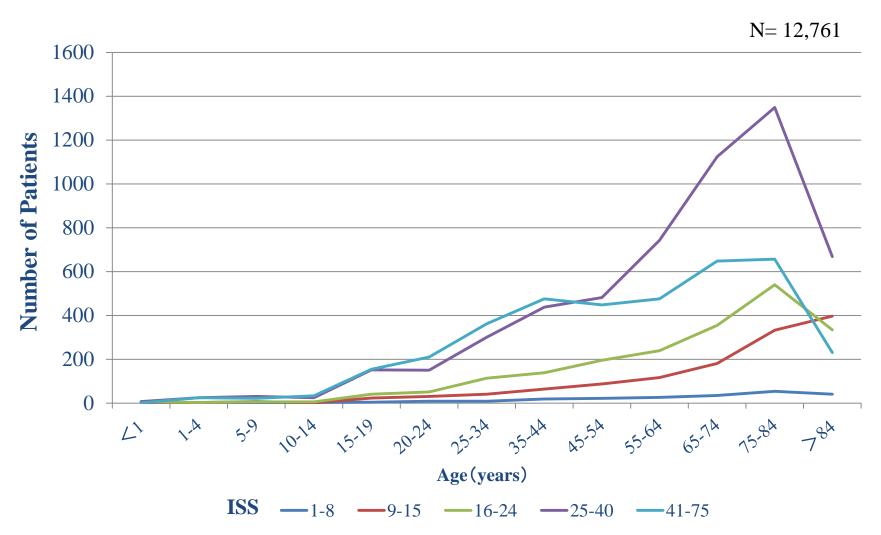


Case fatality grouped by ISS range was higher in severe trauma category. (Case fatality = number of deaths divided by the number of patients × 100 by ISS range).





Deaths by ISS and Age



The peak was seen at elderly ages in ISS 9-40, and the category ISS 41-75 has two peaks at young and elderly ages.





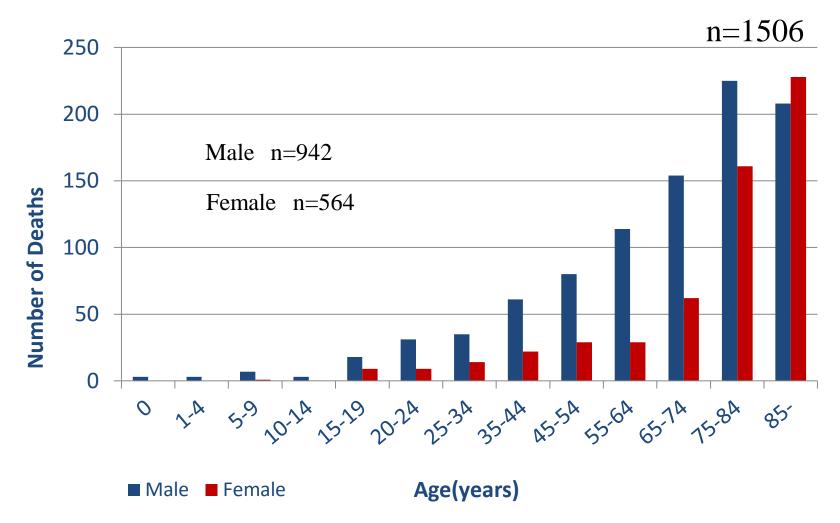
Deaths by ISS and Age

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	1	0	1	2	4	9	8	19	22	26	35	54	40	0	221
9-15	2	3	7	1	23	31	41	64	87	117	181	332	396	2	1287
16-24	5	2	6	6	40	51	114	139	195	239	355	539	334	3	2028
25-40	7	24	31	25	152	150	300	437	481	743	1124	1349	668	7	5498
41-75	1	24	22	33	154	210	361	476	448	476	647	657	230	30	3769
Unknown	3	3	2	9	41	63	79	115	126	143	186	159	78	9	1016
Total	19	56	69	76	414	514	903	1250	1359	1744	2528	3090	1746	51	13819





Deaths by Age and Gender (ISS<=15)

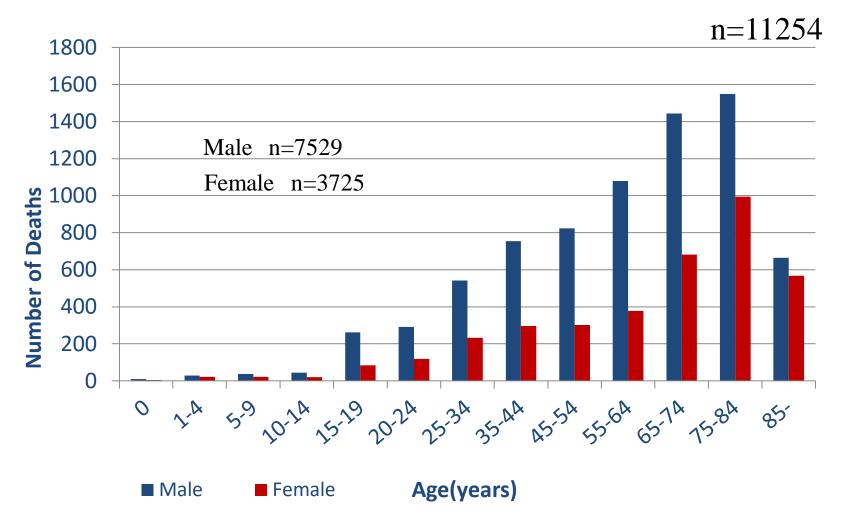


Deaths for patients with ISS<=15 for males and females at each age category.





Deaths by Age and Gender (ISS>15)

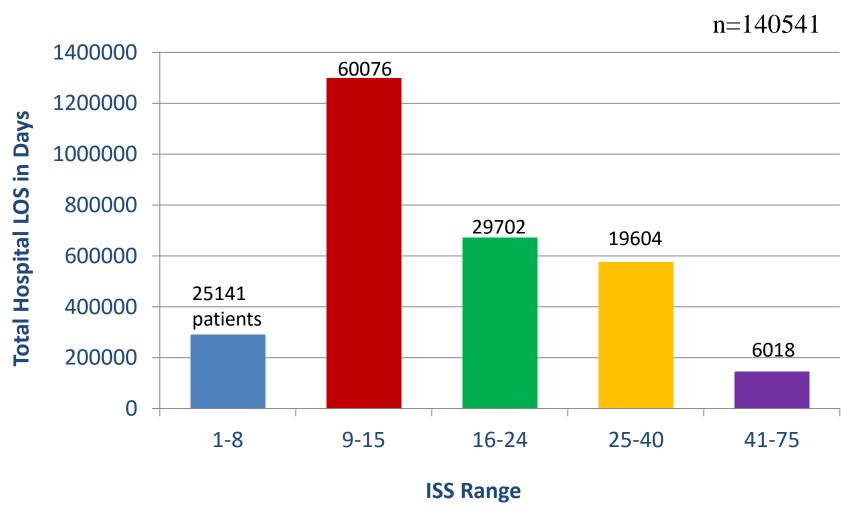


Deaths for patients with ISS>15 for males and females at each age category.





Total Hospital LOS and Injury Severity Score (ISS)

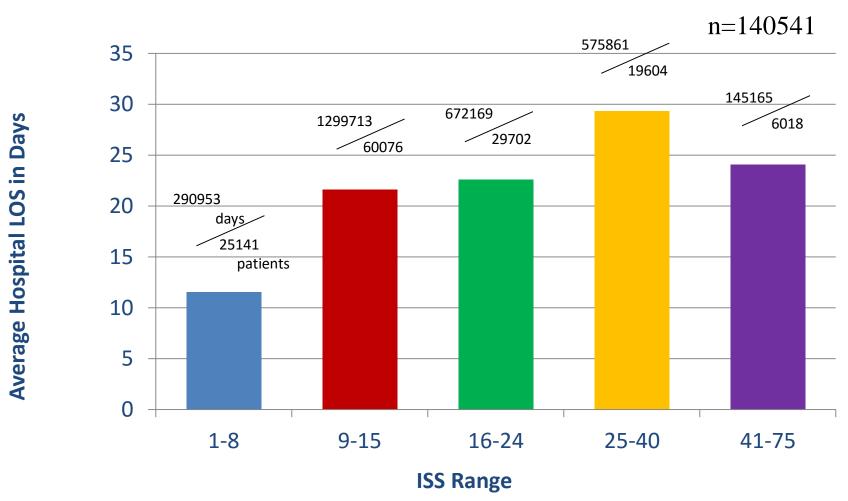


Proportional distribution of total hospital length of stay for patients, grouped by ISS range.





Average Hospital LOS and Injury Severity Score

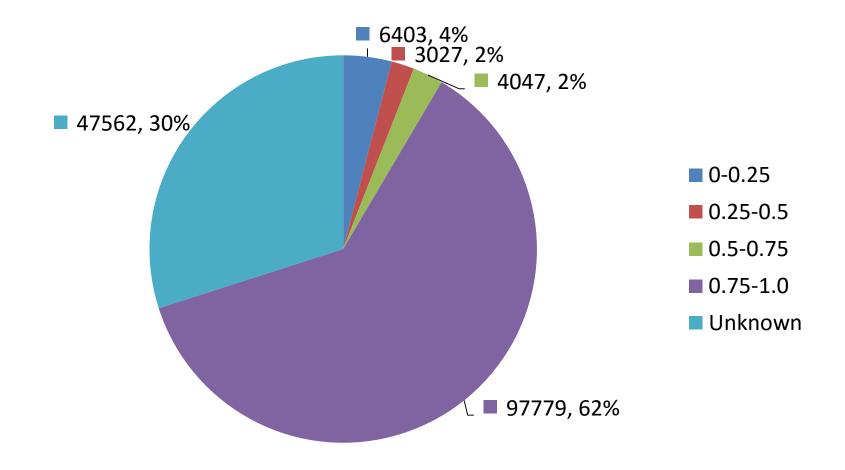


Average hospital length of stay for each category of ISS range. (Average hospital length of stay = total hospital length of stay for each ISS range divided by the total number of patients).





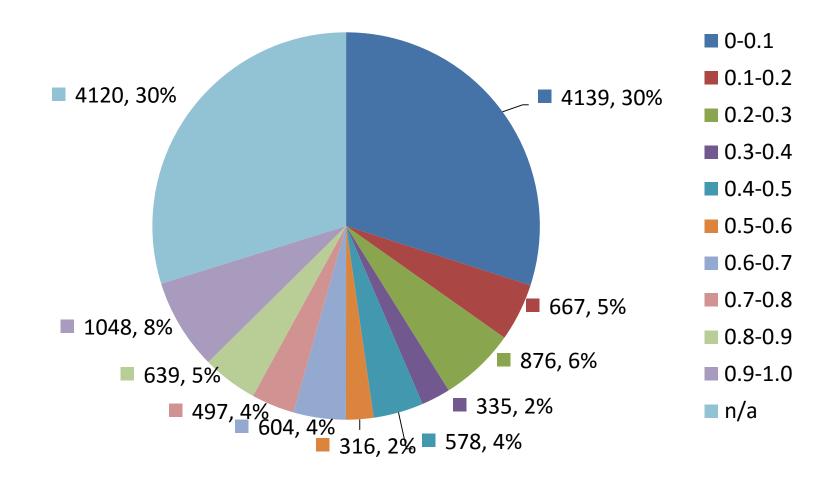
Distribution of patients by probability of survival (Ps)







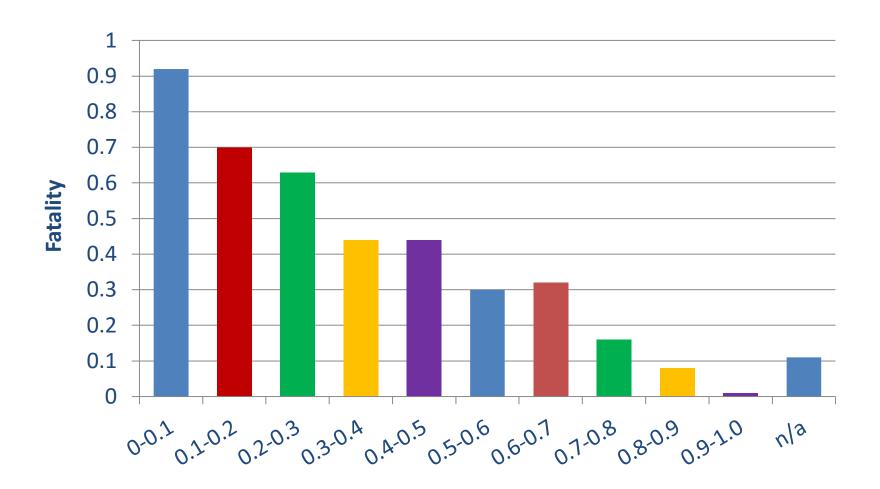
Distribution of deaths by probability of survival (Ps)







Case fatality by probability of survival (Ps)

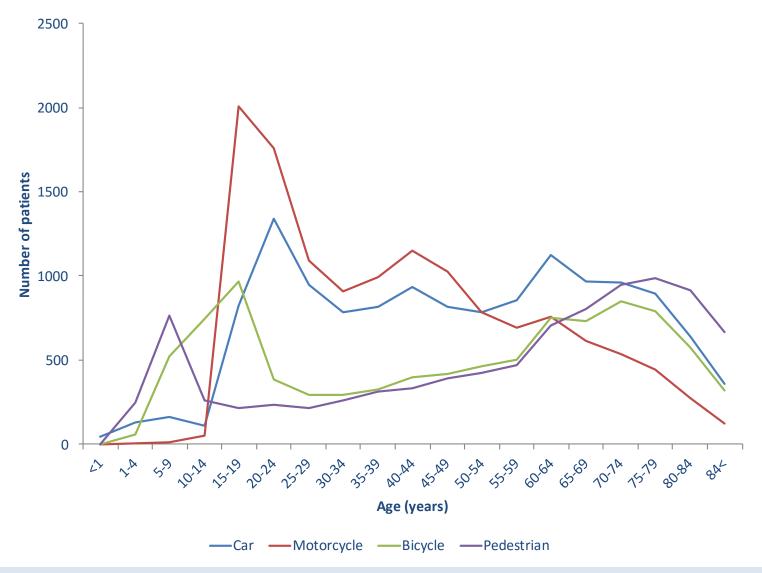


Probability of survival





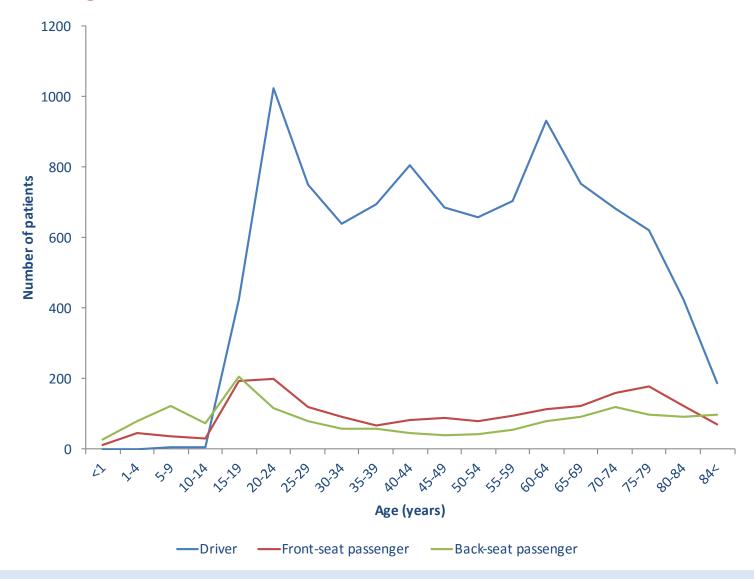
The number of patients in traffic accidents by types of vehicle and age (n = 45,896)







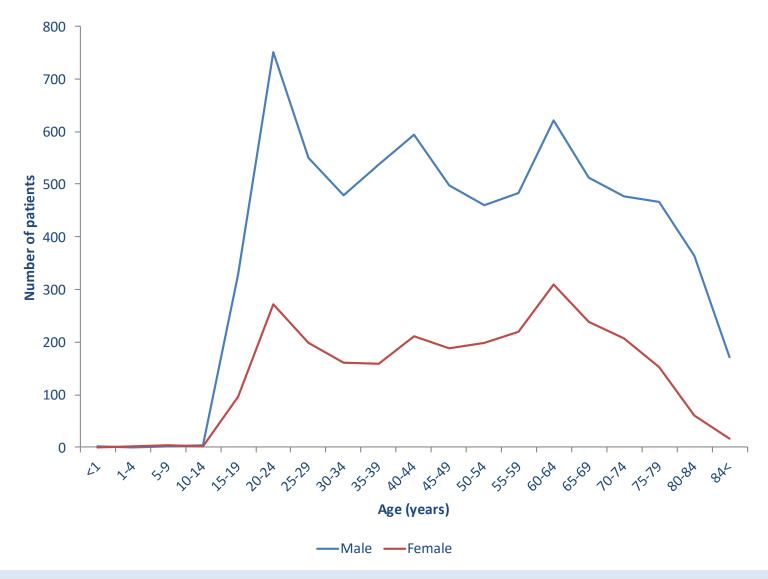
The number of patients in car accident by drivers and passengers and age (n = 13,489)







The number of patients in car accident (driver) by gender and age (n = 9,993)







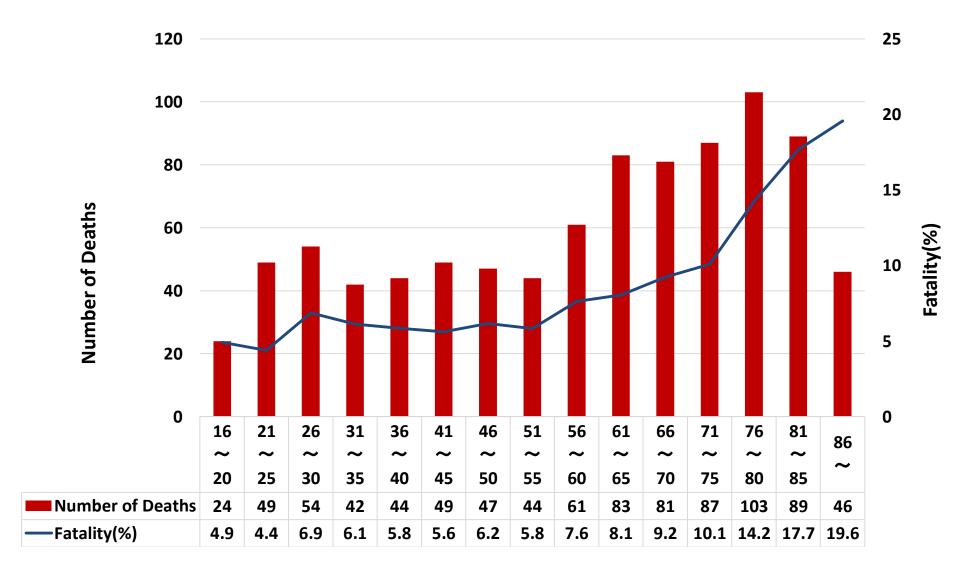
The number of patients in car accident (passenger) by gender and age (n=1,910)







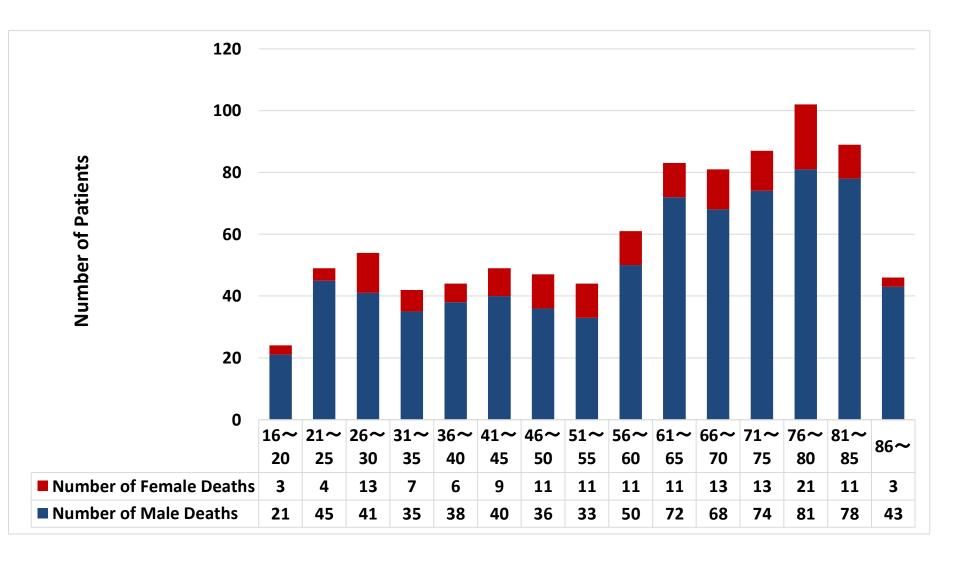
Number of Deaths and Fatalities of Motor Vehicular Drivers by Age







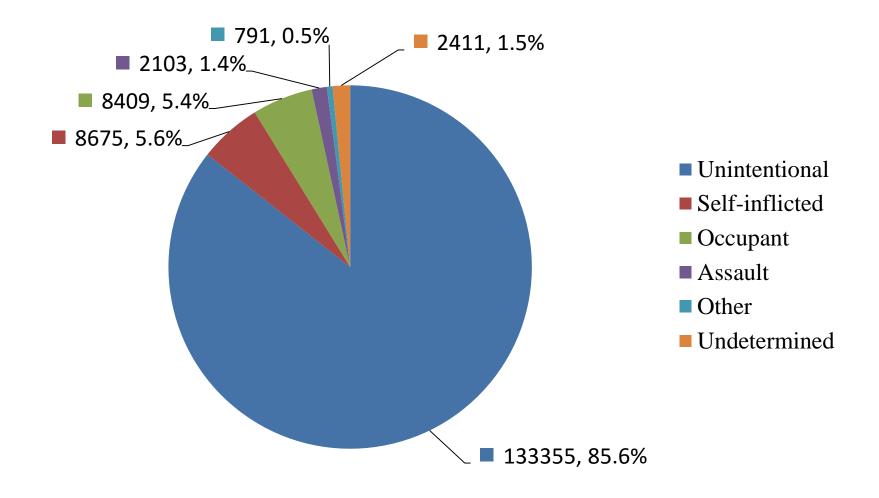
Number of Deaths of Motor Vehicular Drivers by Age and Genders







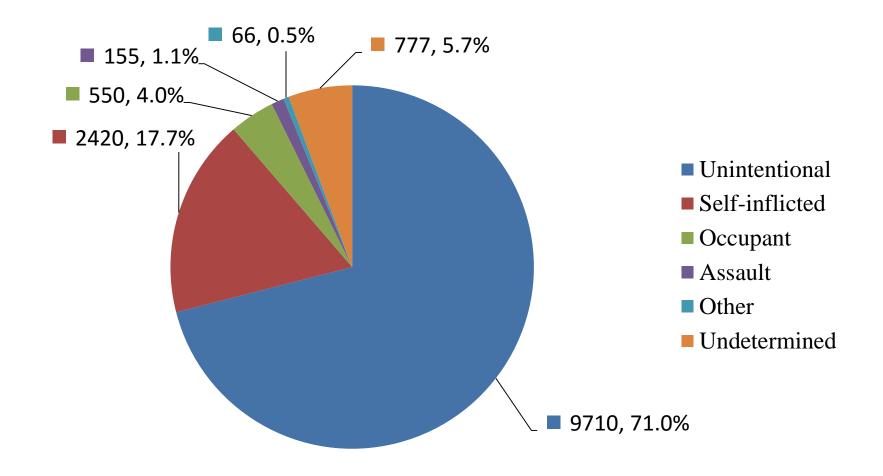
Proportional distribution of registered patients, groped by intent







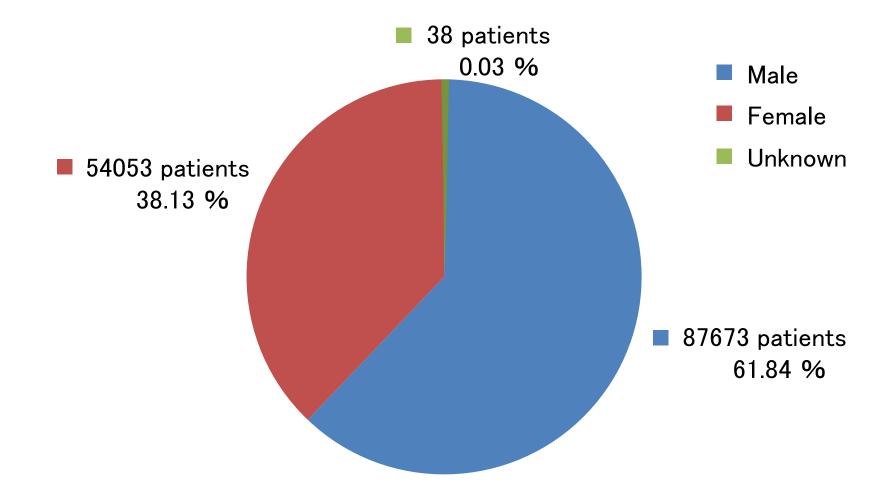
Proportional distribution of deaths, grouped by intent







Gender proportion of Unintentional and Occupant







Unintentional and Occupant by Age and Gender

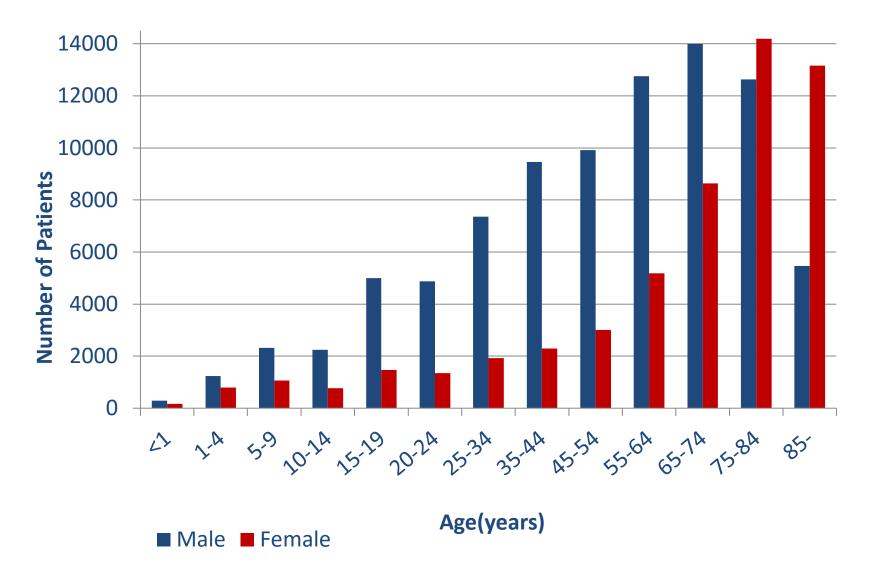




Table 32

Unintentional and Occupant by Age and Gender

Age	Male	Female	Total
< 1	286	164	450
1- 4	1237	793	2030
5- 9	2311	1060	3371
10-14	2240	771	3011
15-19	5000	1474	6474
20-24	4868	1350	6218
25-34	7362	1928	9290
35-44	9461	2290	11751
45-54	9913	3000	12913
55-64	12754	5179	17933
65-74	14001	8641	22642
75-84	12633	14189	26822
85-	5462	13163	18625
Unknown	145	51	196
Total	87673	54053	141726





Assault by Age and Gender

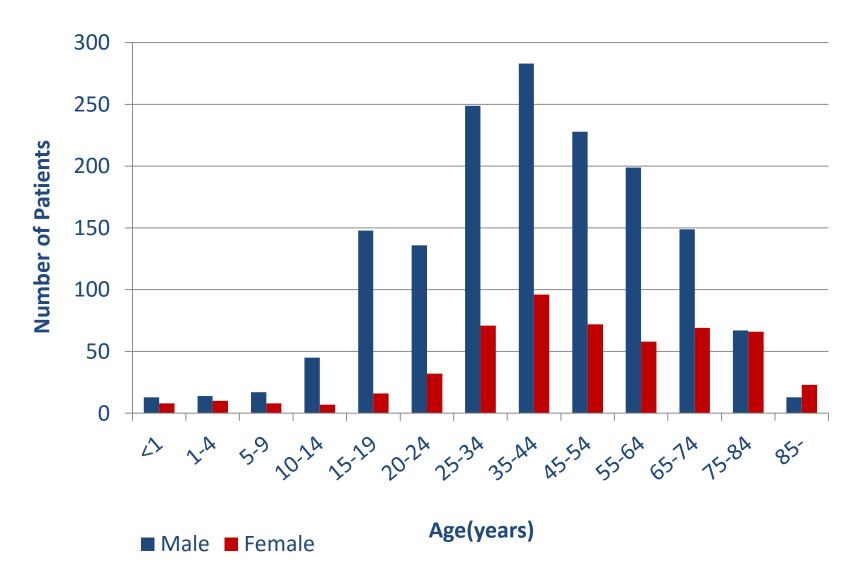




Table 33

Assault by Age and Gender

Age	Male	Female	Total
< 1	13	8	21
1- 4	14	10	24
5- 9	17	8	25
10-14	45	7	52
15-19	148	16	164
20-24	136	32	168
25-34	249	71	320
35-44	283	96	379
45-54	228	72	300
55-64	199	58	257
65-74	149	69	218
75-84	67	66	133
85-	13	23	36
Unknown	6	0	6
Total	1567	536	2103





Self-inflicted by Age and Gender







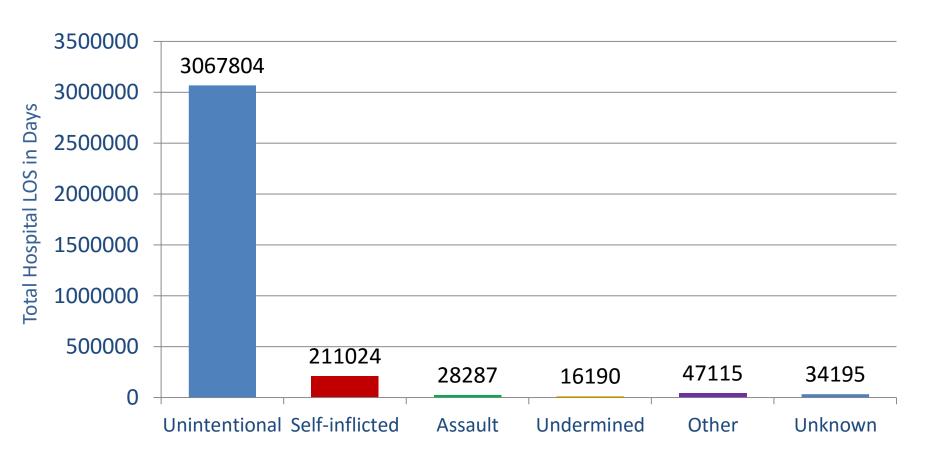
Self-inflicted by Age and Gender

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																						
Male	13	5	51	198	350	369	323	442	479	402	398	261	300	284	232	186	125	53	28	10	20	4529
Total	17	11	111	444	783	784	730	859	922	757	640	473	524	492	397	325	216	102	40	14	32	8673





Total Hospital LOS by Intent

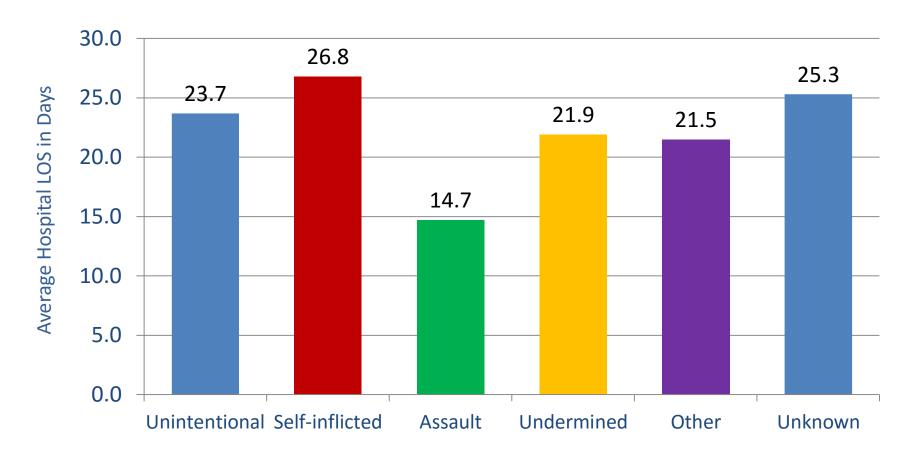


Industrial accident was included in the category of "Unintentional".





Average Hospital LOS by Intent

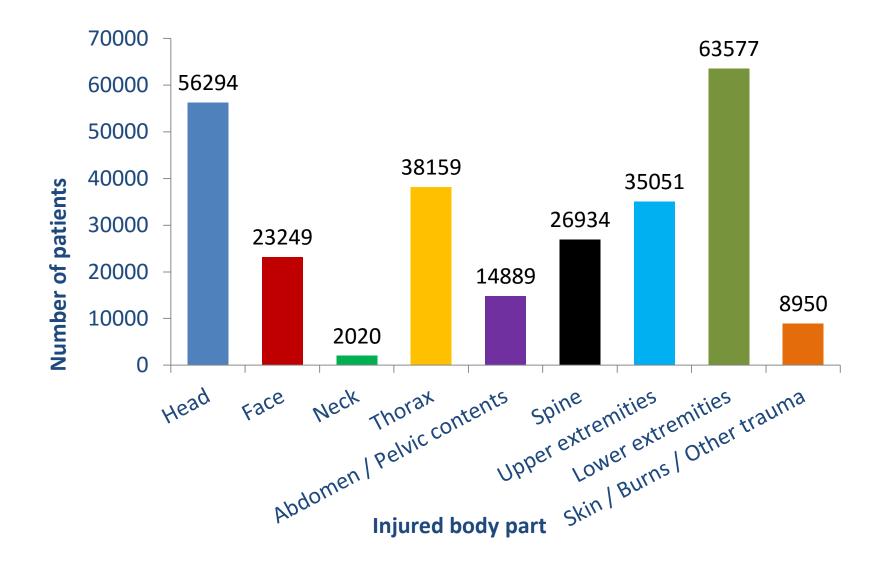


Average hospital length of stay in days = total hospital length of stay divided by the number of patients by intent.





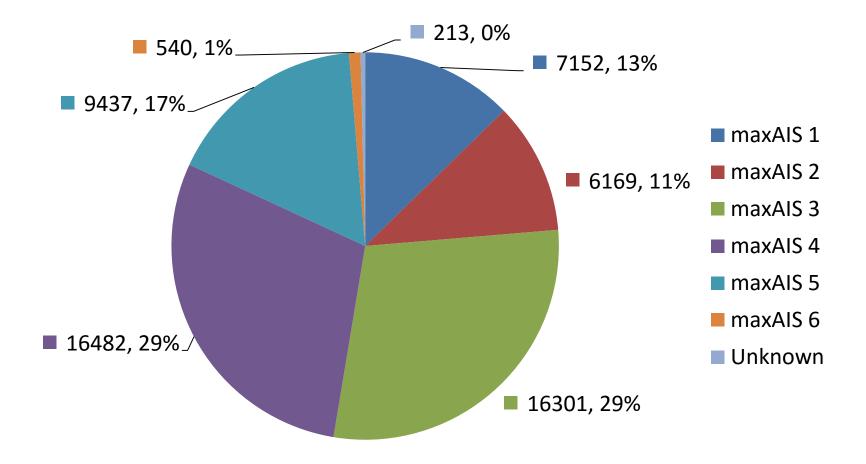
Number of patients with Injured Body Parts based on AIS







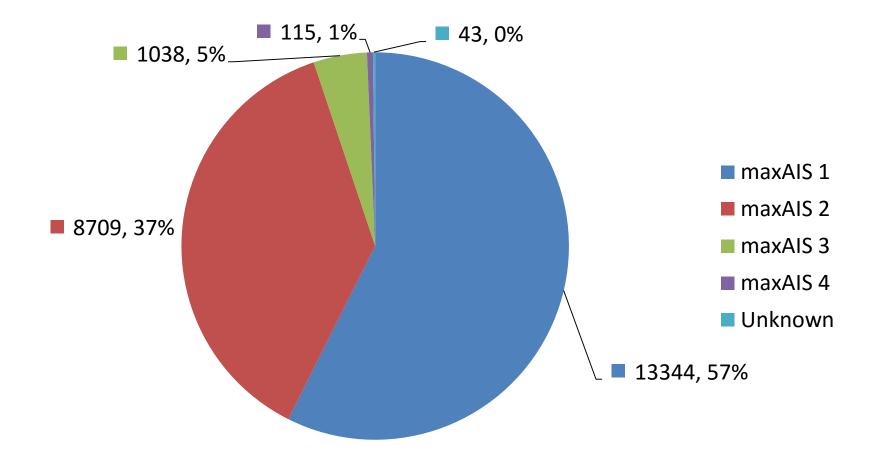
Head Injury and max AIS Score







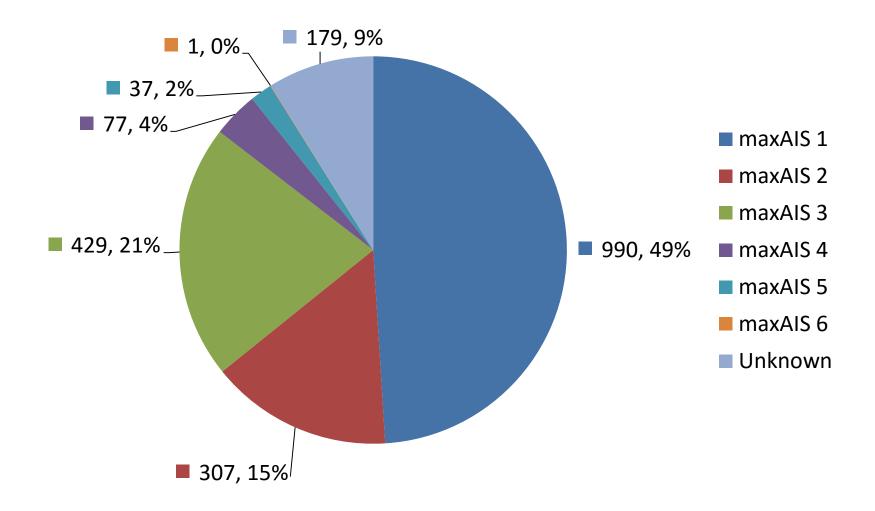
Facial Injury and max AIS Score







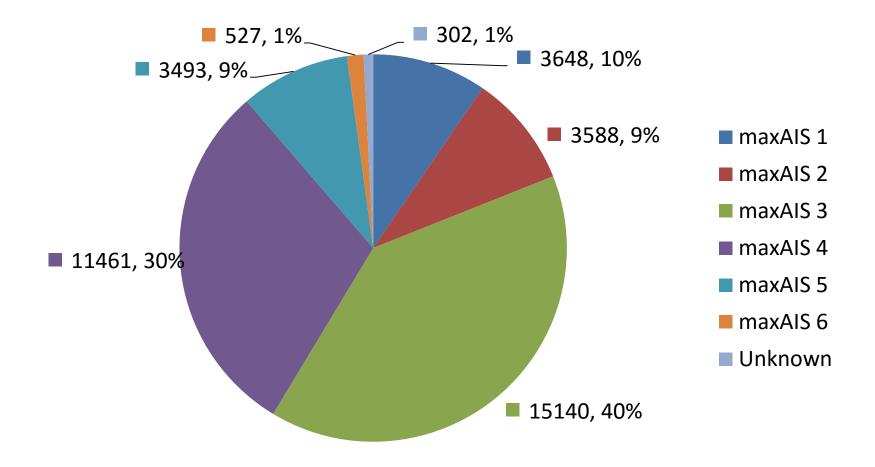
Neck Injury and max AIS Score







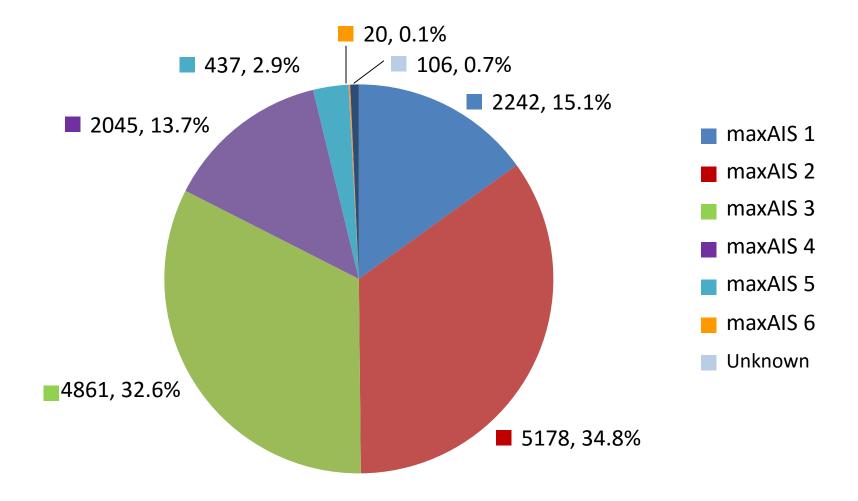
Thoracic Injury and max AIS Score







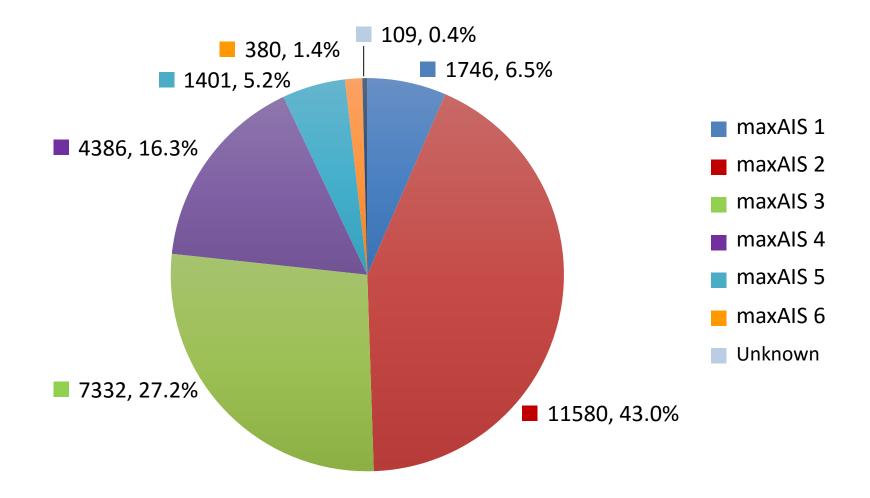
Injury of Abdomen/Pelvic Contents and max AIS Score







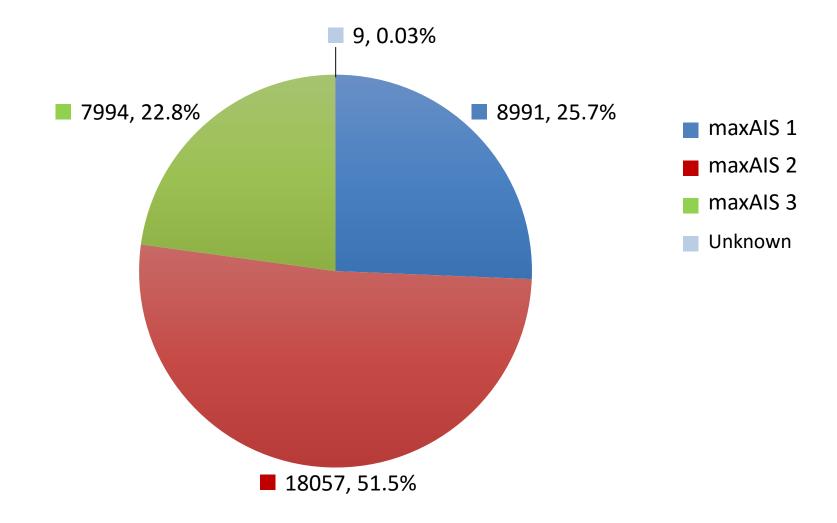
Spinal Injury and max AIS Score







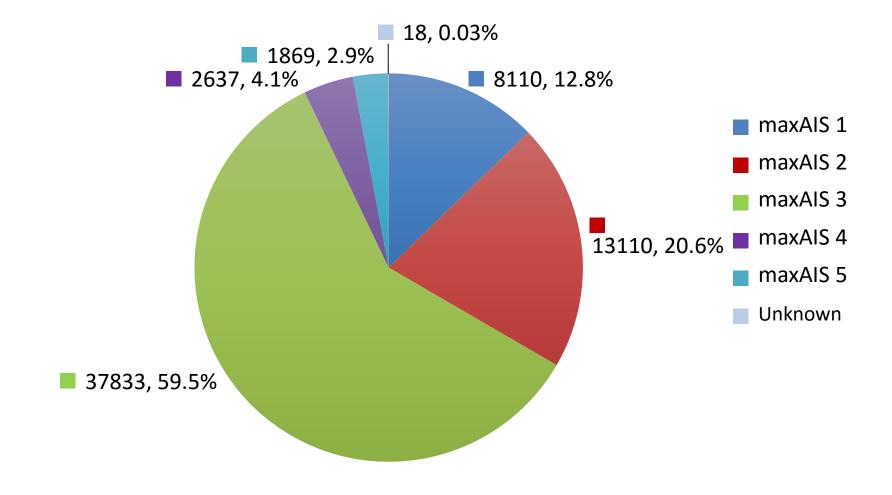
Injury of Upper Extremities and max AIS Score







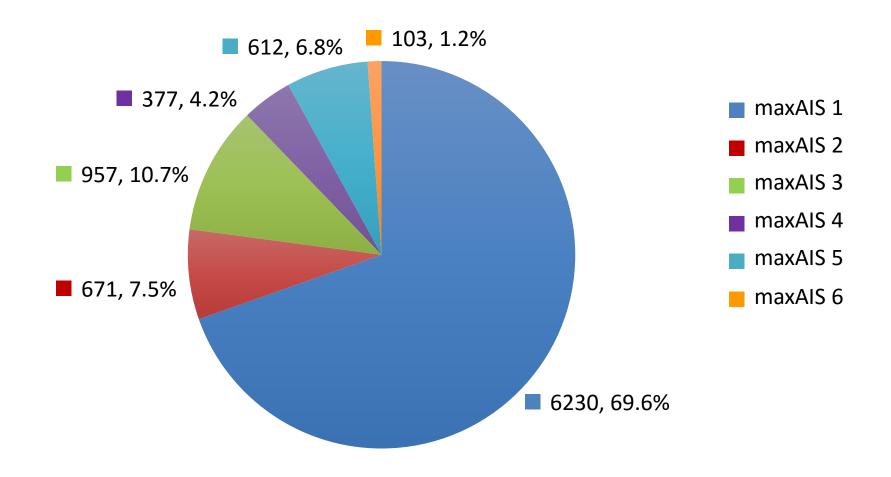
Injury of Lower Extremities and max AIS Score







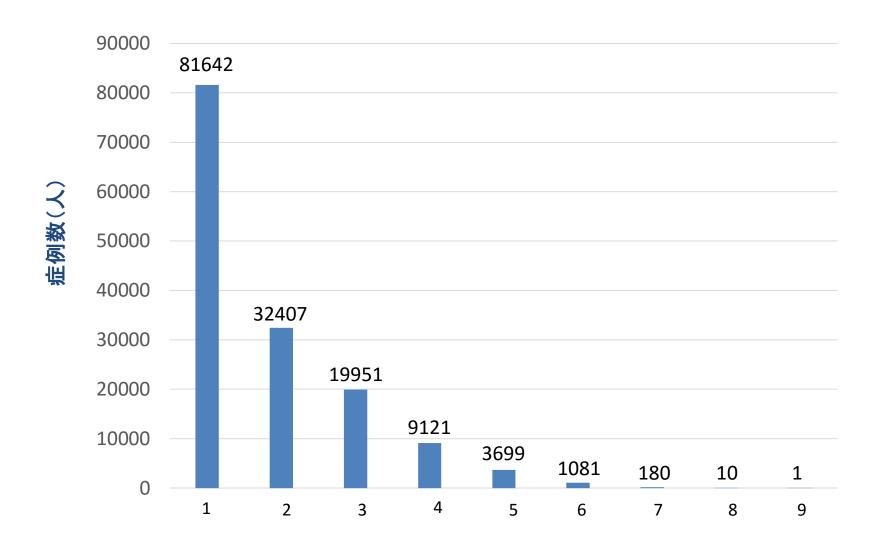
Skin/Burns/Other Trauma and max AIS Score







Number of Patients and Injured Body Parts based on AIS





JAPAN TRAUMA DATA BANK REPORT 2016 (2011-2015)

December 30, 2016



The Japanese Association for Acute Medicine

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Chairman: Yasushi Asari, MD

The Japanese Association for the Surgery of Trauma

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