

Japan Trauma Data Bank Report 2015 (2010-2014)

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)







Names of All Hospitals Submitting Data to the JTDB. (N=244, 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 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 Uravasu 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 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 **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 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 Children's Hospital Shizuoka Saiseikai General Hospital Juntendo University Shizuoka Hospital Seirei Mikatahara General Hospital Shizuoka General Hospital Shizuoka Tokushukai Hospital



Figure 1B Names of All Hospitals Submitting Data to the JTDB. (N=244, Part 2)

Chutoen General Medical Center Toyohashi Municipal Hospital Daiyukai General Hospital Fujita Health University Hospital Nagova City University Hospital Handa City Hospital Aichi Medical University Hospital Nagoya Ekisaikai Hospital Social Insurance Chukyo Hospital Okazaki 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 Kyoto 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 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

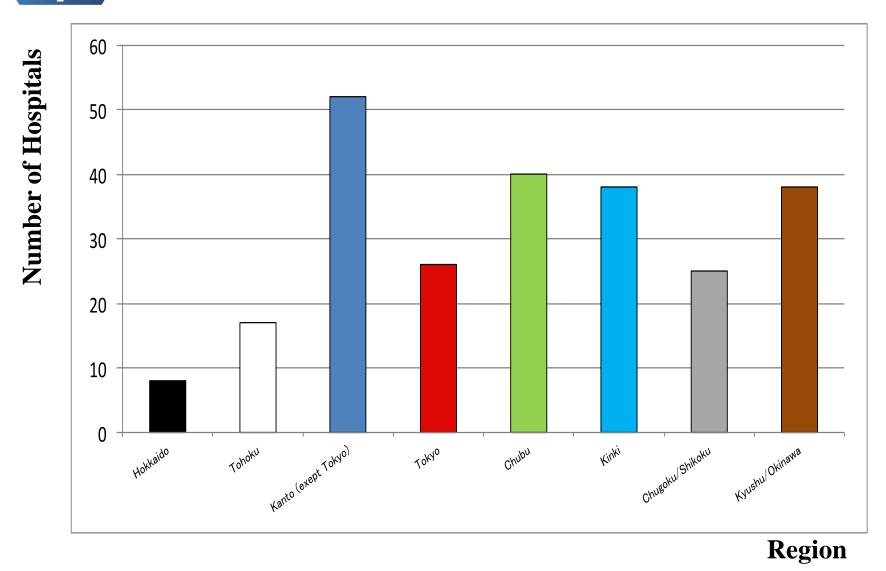
Steel Memorial Hirohata Hospital Himeji Emergency, Trauma and Critical Center Nara Prefectural Nara Hospital Nara Medical University Hospital Wakayama Medical University Hospital **Tottori University Hospital Tsuyama Chuo Hospital** Kawasaki Medical School Hospital Kurashiki Central Hospital **Okayama 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 **Tokushima Red Cross 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 Shinyukuhashi Hospital Saga University Hospital Saga Prefectural Hospital 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** Ryukyu University Hospital Urasoe General Hospital Nakagami Hospital **Tomishiro Central Hospital**



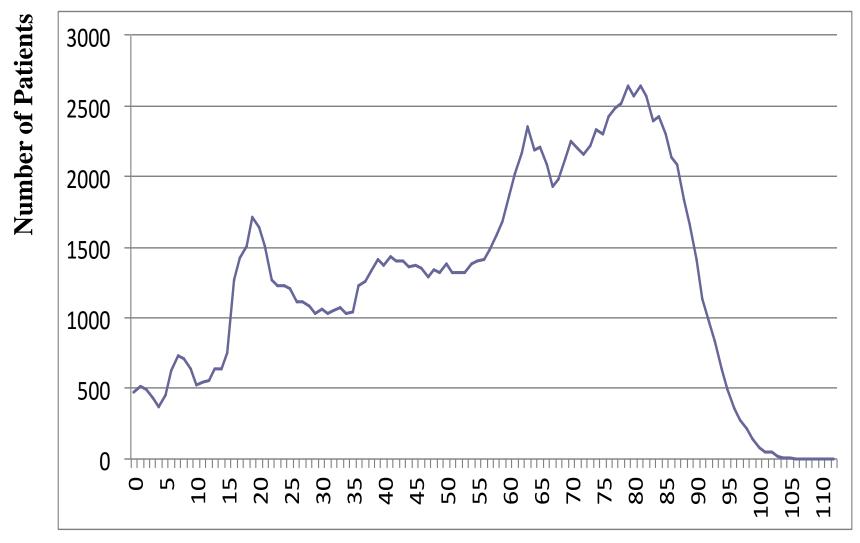
2

Figure Number of Hospitals Submitting to the JTDB by Region.





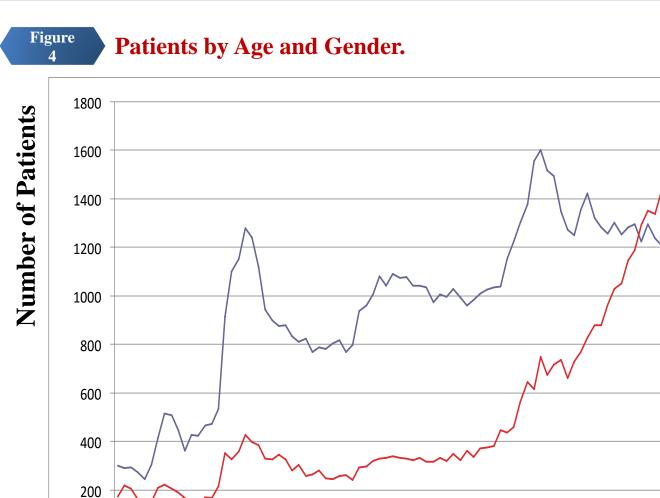




Age (years)

0

0 3



Age (years)

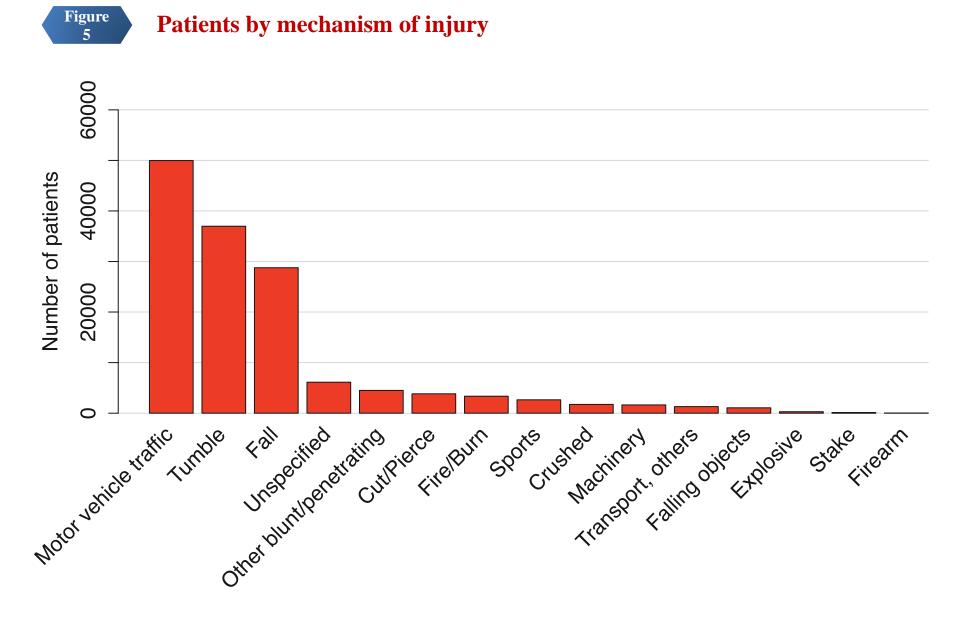
-Male

—Female

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6 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 102105108111







Table

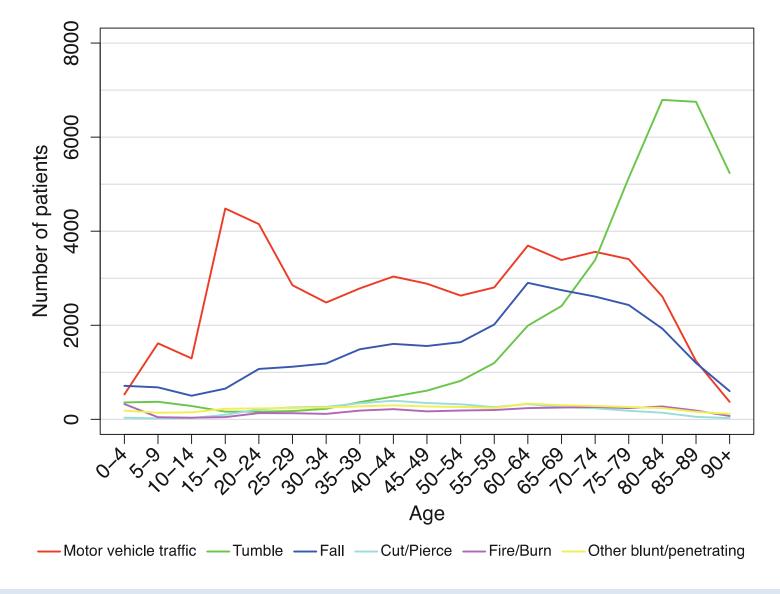
5

Patients by mechanism of injury

Mechanism of injury	Patients (n)	Patients by mechanism of injury (%)
Motor vehicle traffic	49971	35.4
Tumble	36971	26.2
Fall	28775	20.4
Unspecified	6130	4.3
Others	4502	3.2
Cut/Pierce	3828	2.7
Fire/Burn	3359	2.4
Sports	2636	1.9
Crushed	1728	1.2
Machinery	1626	1.2
Transport, others	1297	0.9
Falling objects	1059	0.8
Explosive	290	0.2
Stake	136	0.1
Firearm	34	0.0





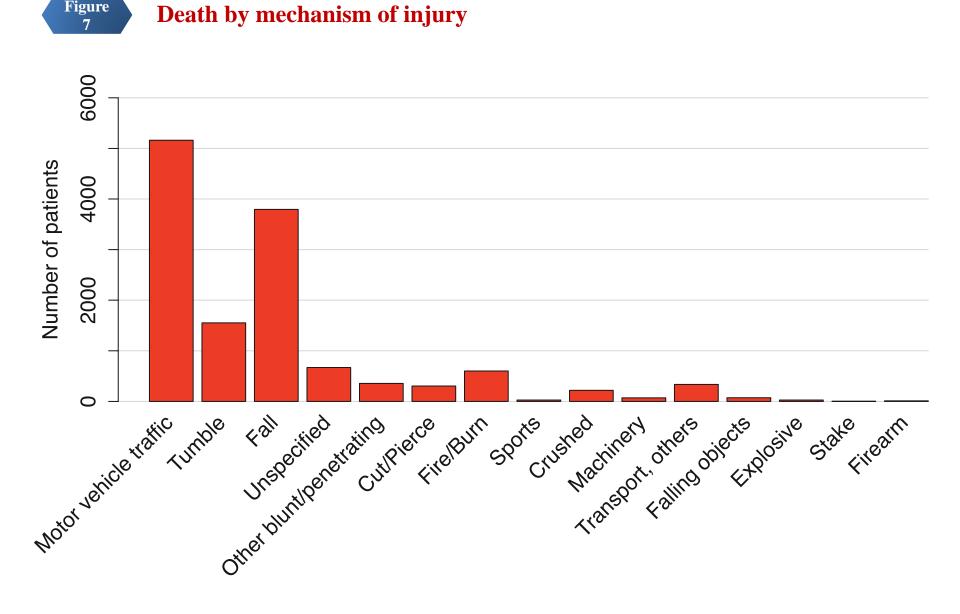




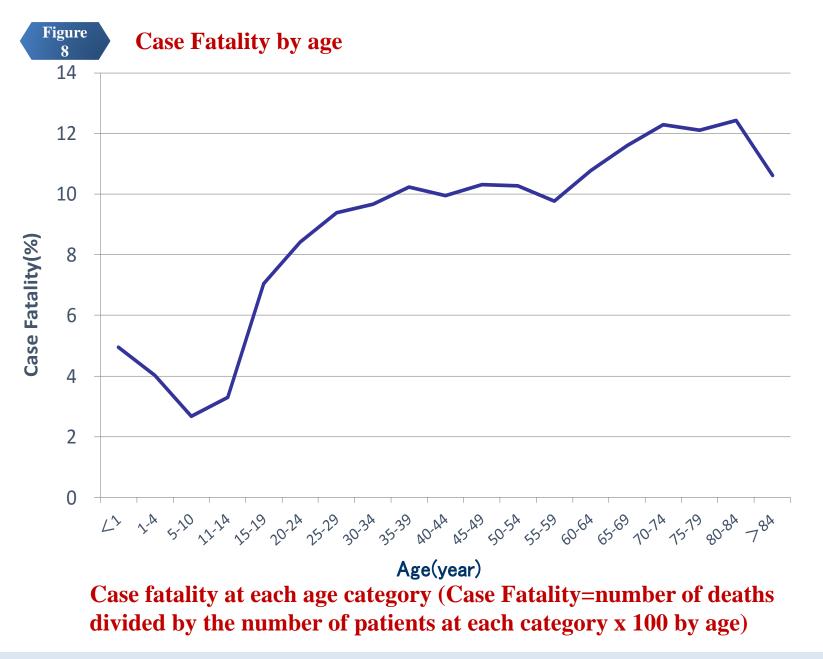
Mechanism of injury by age

Range of age, yr	Motor vehicle traffic, n (%)	Fall, n (%)	Tumble, n (%)	Cut/Pierce, n (%)	Fire/Burn, n (%)	Others, n (%)
0-4	532 (1.1)	360 (1.0)	714 (2.5)	36 (0.9)	325 (9.7)	187 (4.2)
5-9	1617 (3.2)	374 (1.0)	680 (2.4)	21 (0.5)	45 (1.3)	141 (3.1)
10-14	1297 (2.6)	285 (0.8)	503 (1.7)	30 (0.8)	36 (1.1)	149 (3.3)
15-19	4483 (9.0)	164 (0.4)	654 (2.3)	96 (2.5)	48 (1.4)	225 (5.0)
20-24	4152 (8.3)	165 (0.4)	1073 (3.7)	214 (5.6)	133 (4.0)	234 (5.2)
25-29	2852 (5.7)	176 (0.5)	1119 (3.9)	256 (6.7)	132 (3.9)	242 (5.4)
30-34	2484 (5.0)	225 (0.6)	1188 (4.1)	267 (7.0)	117 (3.5)	254 (5.6)
35-39	2785 (5.6)	367 (1.0)	1491 (5.2)	343 (9.0)	187 (5.6)	276 (6.1)
40-44	3038 (6.1)	484 (1.3)	1604 (5.6)	396 (10.3)	217 (6.5)	298 (6.6)
45-49	2885 (5.8)	611 (1.7)	1560 (5.4)	348 (9.1)	171 (5.1)	275 (6.1)
50-54	2632 (5.3)	820 (2.2)	1641 (5.7)	321 (8.4)	189 (5.6)	263 (5.8)
55-59	2805 (5.6)	1199 (3.2)	2018 (7.0)	259 (6.8)	198 (5.9)	244 (5.4)
60-64	3695 (7.4)	1993 (5.4)	2903 (10.1)	325 (8.5)	240 (7.1)	335 (7.4)
65-69	3388 (6.8)	2411 (6.5)	2747 (9.5)	258 (6.7)	251 (7.5)	301 (6.7)
70-74	3561 (7.1)	3389 (9.2)	2612 (9.1)	238 (6.2)	264 (7.9)	284 (6.3)
75-79	3406 (6.8)	5135 (13.9)	2431 (8.4)	182 (4.8)	239 (7.1)	262 (5.8)
80-84	2611 (5.2)	6792 (18.4)	1930 (6.7)	141 (3.7)	274 (8.2)	242 (5.4)
85-89	1239 (2.5)	6751 (18.3)	1199 (4.2)	53 (1.4)	187 (5.6)	160 (3.6)
90+	372 (0.7)	5237 (14.2)	601 (2.1)	27 (0.7)	73 (2.2)	118 (2.6)
Unspecified	137 (0.3)	33 (0.1)	107 (0.4)	17 (0.4)	33 (1.0)	12 (0.3)
Total	49971 (100.0)	36971 (100.0)	28775 (100.0)	3828 (100.0)	3359 (100.0)	4502 (100.0)

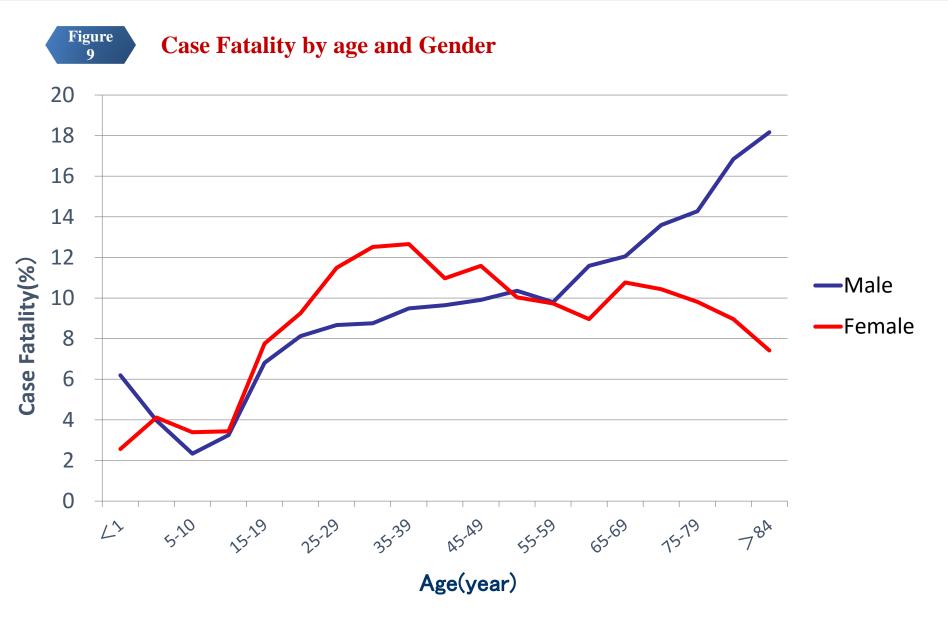




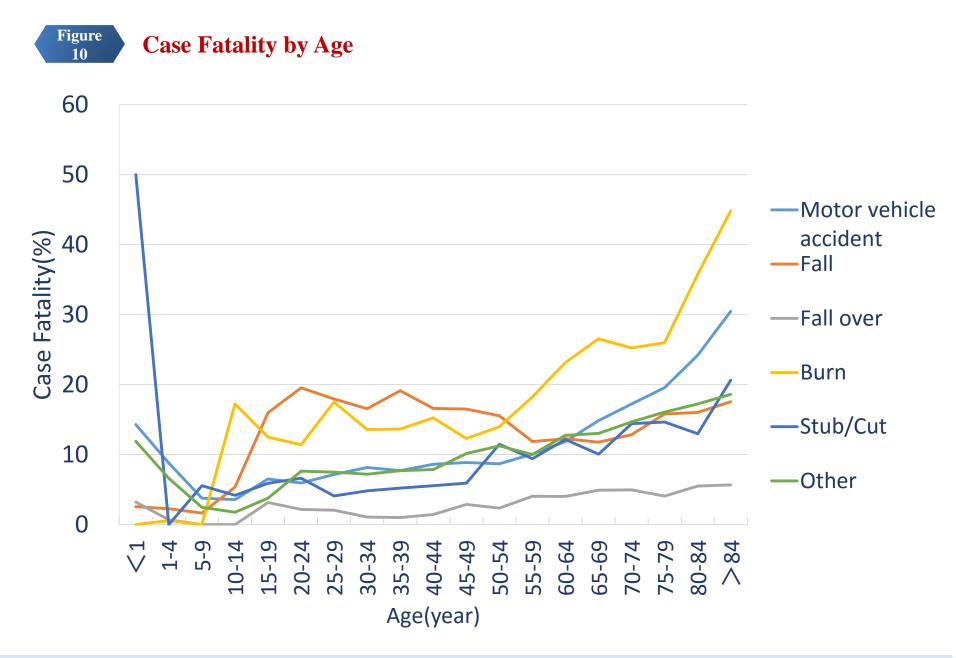








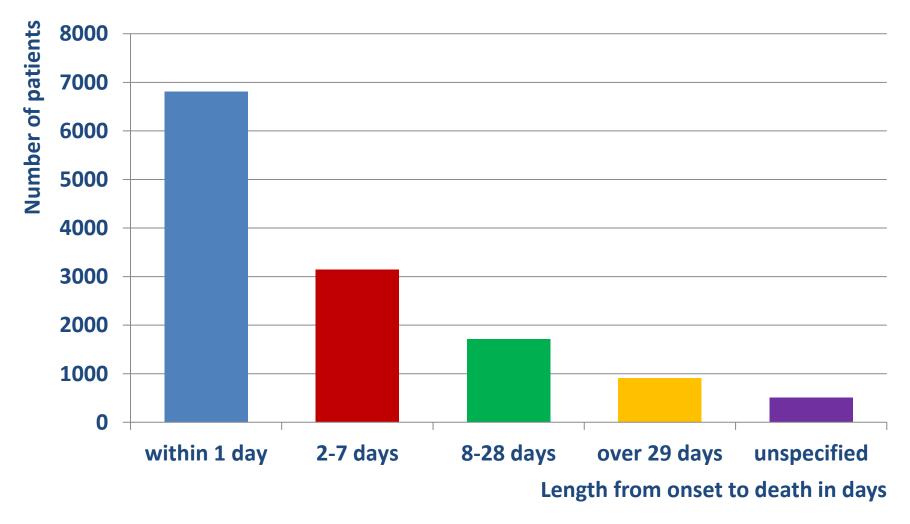






11A

Figure **Proportional distribution of length from onset to facility** n = 13,099

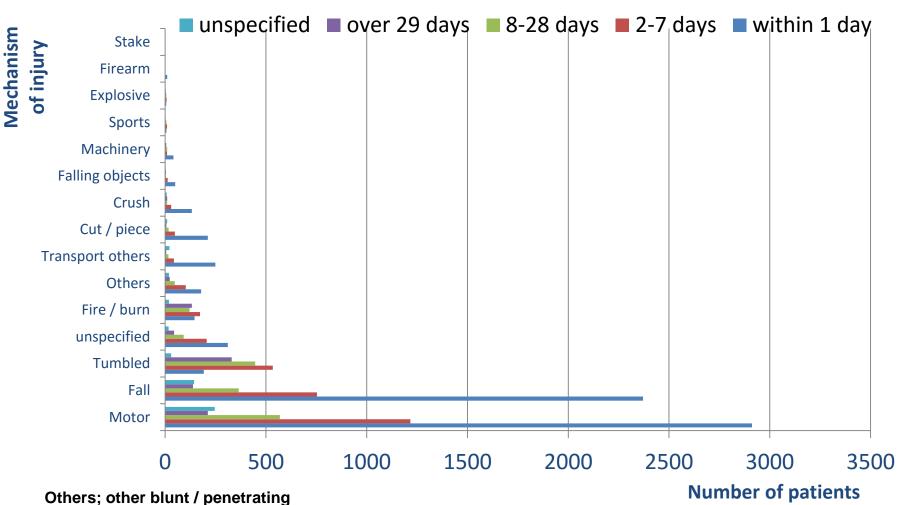


The category within 1 day after onset includes CPAOA patients.

🚍 JT DB

Figure 11B

Proportional distribution of length from onset to fatality, grouped by mechanism of injury. n = 13,099



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



Table 11B

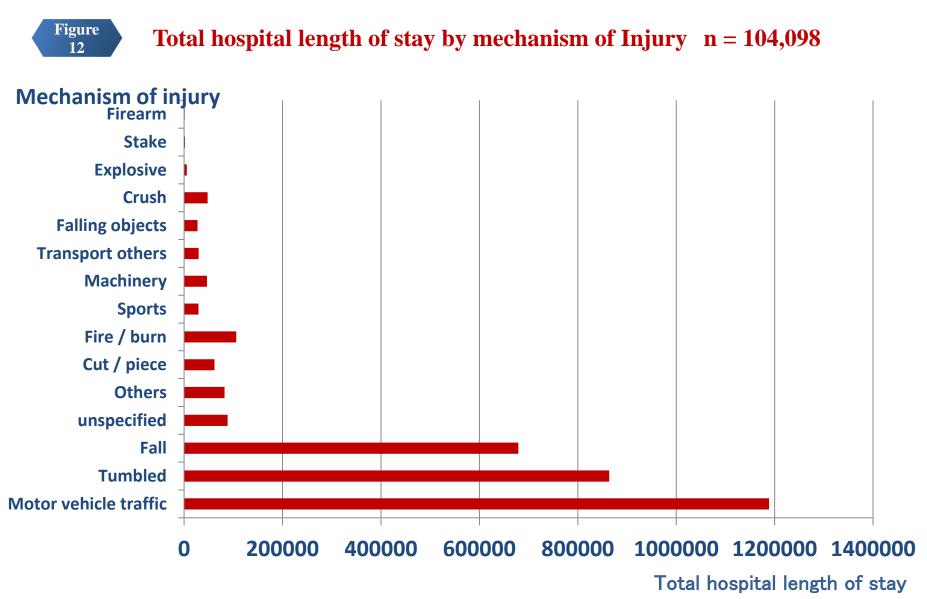
Proportional distribution of length from onset to fatality, grouped by mechanism of injury. n = 11,745

Mechanism Length of hospital	Motor vehicle traffic	Fall	Tumbled	unspecified	Fire / burn	Other blunt/penet rating	Transport others	Cut / piece
within 1 day	2912	2371	192	311	146	178	249	212
2 - 7 days	1217	753	534	206	173	102	43	48
8 – 28 days	569	365	447	92	121	47	16	17
over 29 days	212	138	330	44	132	23	5	6
unspecified	246	143	30	17	15	19	21	10
Total	5156	3770	1533	670	587	369	334	293

Motor vehicle traffic includes pedal cyclist and pedestrian victims.

Mechanism Length of hospital days	Crush	Falling objects	Machinery	Sports	Explosive	Firearm	Stake	Total
within 1 day	132	50	41	6	5	10	1	6816
2 - 7 days	30	12	9	9	7	0	1	3144
8 – 28 days	10	4	10	6	6	0	0	1710
over 29 days	10	4	5	2	3	0	0	914
unspecified	8	2	1	1	1	1	0	515
Total	190	72	66	24	22	11	2	13099





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



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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	45,099	35.78%	1,188,604	26.3		
Tumbled	33,603	26.66%	863,876	25.7		
Fall	26,538	21.06%	679,104	25.6		
unspecified	4,132	3.20%	88,311	21.4		
Other blunt / penetrating	3,702	2.94%	82,102	22.2		
Cut / piece	3,341	2.65%	61,661	18.5		
Fire / burn	2,980	2.36%	105,980	35.6		
Sports	2,220	1.76%	28,968	13.0		
Machinery	1,384	1.10%	46,480	33.6		
Transport others	1,152	0.91%	29,393	25.5		
Falling objects	966	0.77%	27,273	28.2		
Crush	547	0.43%	27,273	87.3		
Explosive	237	0.19%	5,466	23.1		
Stake	110	0.09%	1,885	17.1		
Firearm	28	0.02%	1,046	37.4		
Total	106,099	100%	3,257,913 traffic includes pedal cycl	25.8		

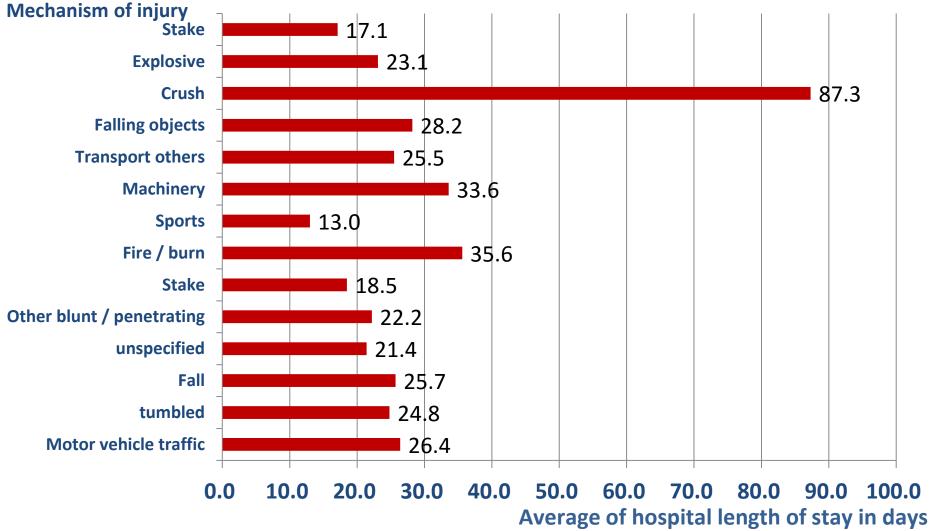
LOS; length of stay Motor vehicle traffic includes pedal cyclist and pedestrian victims



Figure

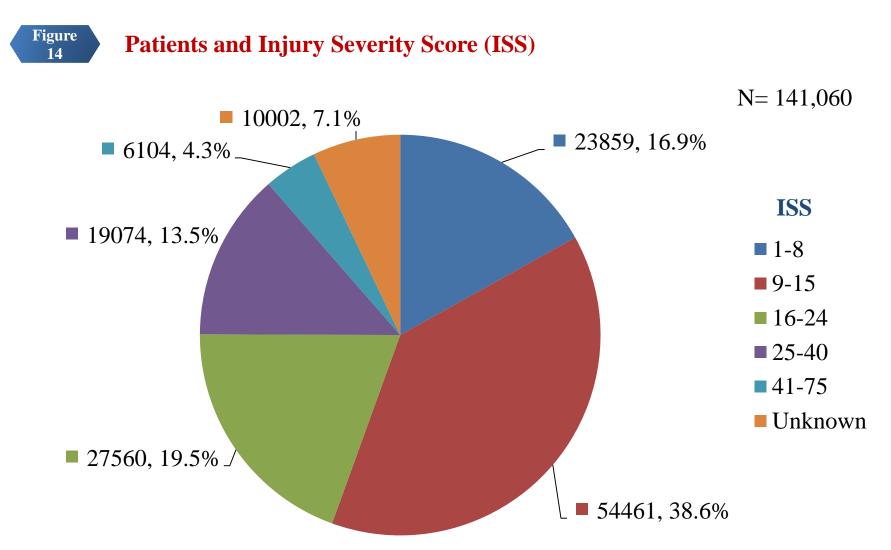
13

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



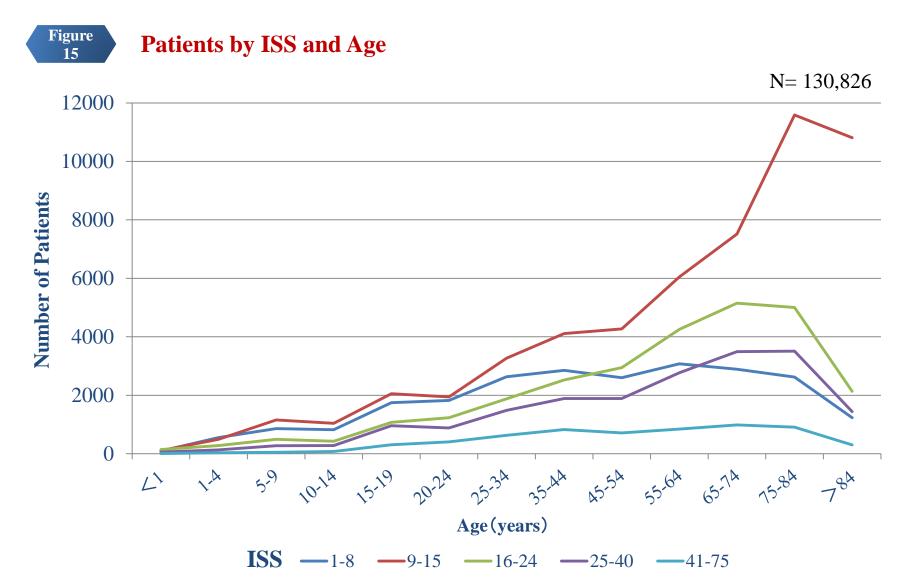
Motor vehicle traffic includes pedal cyclist and pedestrian victims.





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.





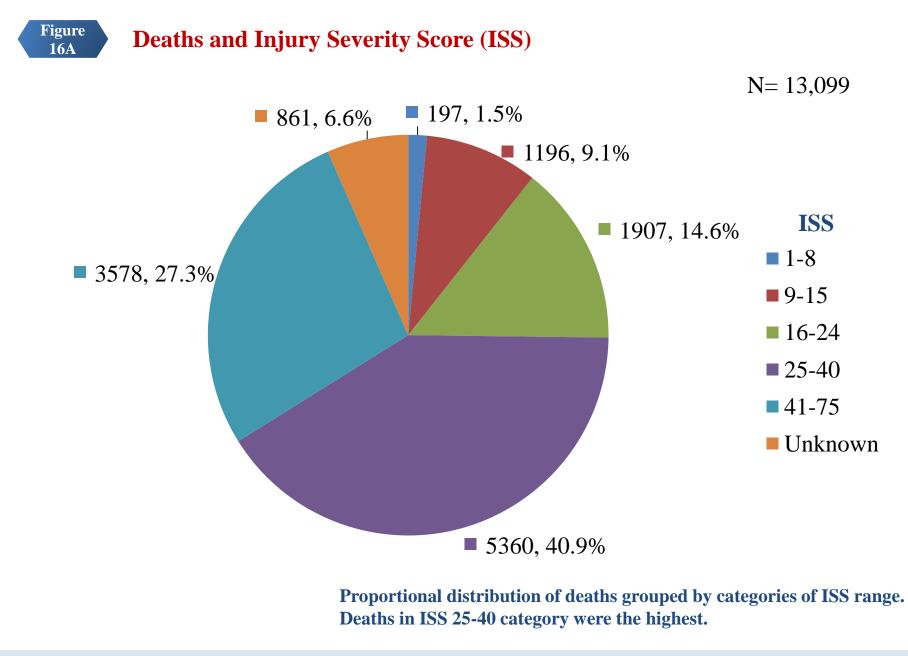
Number of injured patients grouped by ISS range, at each age from 0 to 112. The peaks of the number of patients based on age distribution were seen at 25-44 and 55-84 ages of any ISS categories, and at 75-84 ages of ISS 9-15.





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	91	554	857	821	1747	1825	2635	2854	2602	3076	2889	2620	1230	58	23859
9-15	109	490	1153	1038	2053	1941	3269	4111	4267	6048	7517	11585	10808	72	54461
16-24	142	278	494	427	1071	1230	1875	2525	2942	4251	5148	5003	2135	39	27560
25-40	57	131	272	278	957	879	1485	1890	1886	2767	3493	3506	1440	33	19074
41-75	3	31	50	79	306	402	628	824	709	845	985	911	301	30	6104
Unknown	70	333	333	265	530	589	906	1049	991	1193	1470	1377	786	110	10002
Total	472	1817	3159	2908	6664	6866	10798	13253	13397	18180	21502	25002	16700	342	141060







Figure

16B

Case Fatality (%)

Case Fatality by Injury Severity Score (ISS) Range

N=13,099 70 62.4 60 50 40 29.6 30 20.2 20 7.2 10 2.3 0.9 0 1-8 9-15 16-24 25-40 41-75 Unknown **Injury Severity Score**

> 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).







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.

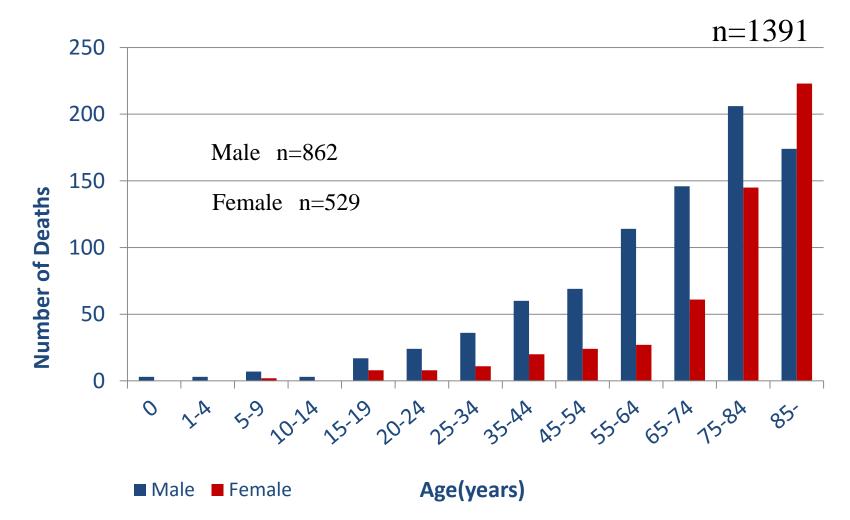




Age ISS	0	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75-84	85-	Unknown	Total
1-8	0	0	1	1	3	5	9	16	19	26	33	52	32	0	197
9-15	3	3	8	2	22	27	38	64	74	115	174	299	365	2	1196
16-24	3	2	7	7	41	58	105	131	176	234	337	496	305	5	1907
25-40	10	23	30	31	165	153	324	437	449	765	1074	1265	624	10	5360
41-75	2	23	22	31	155	216	365	465	418	466	602	576	214	23	3578
Unknown	2	4	2	11	38	52	75	95	111	128	158	123	55	7	861
Total	20	55	70	83	424	511	916	1208	1247	1734	2378	2811	1595	47	13099



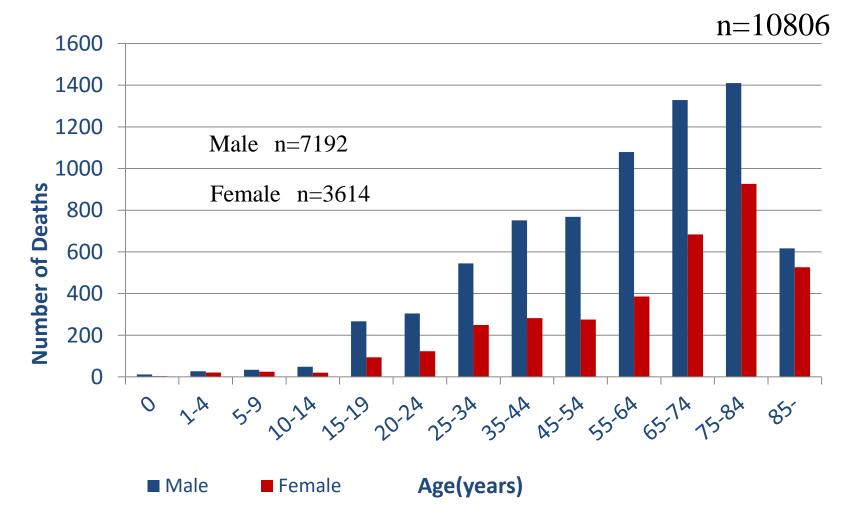




Deaths for patients with ISS<=15 for males and females at each age category.





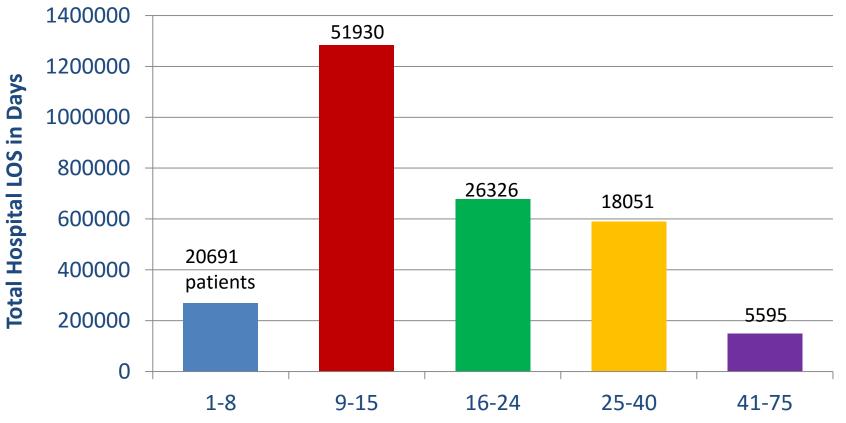


Deaths for patients with ISS>15 for males and females at each age category.





n=122593



ISS Range

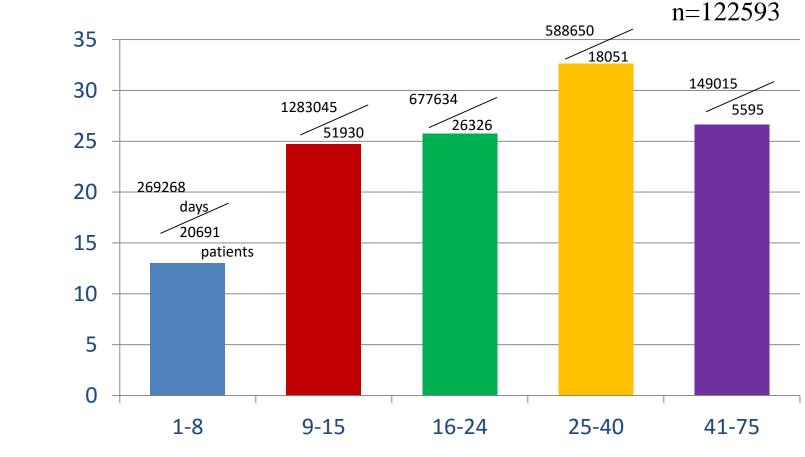
Proportional distribution of total hospital length of stay for patients, grouped by ISS range.



Average Hospital LOS in Days

Figure Ave

Average Hospital LOS and Injury Severity Score

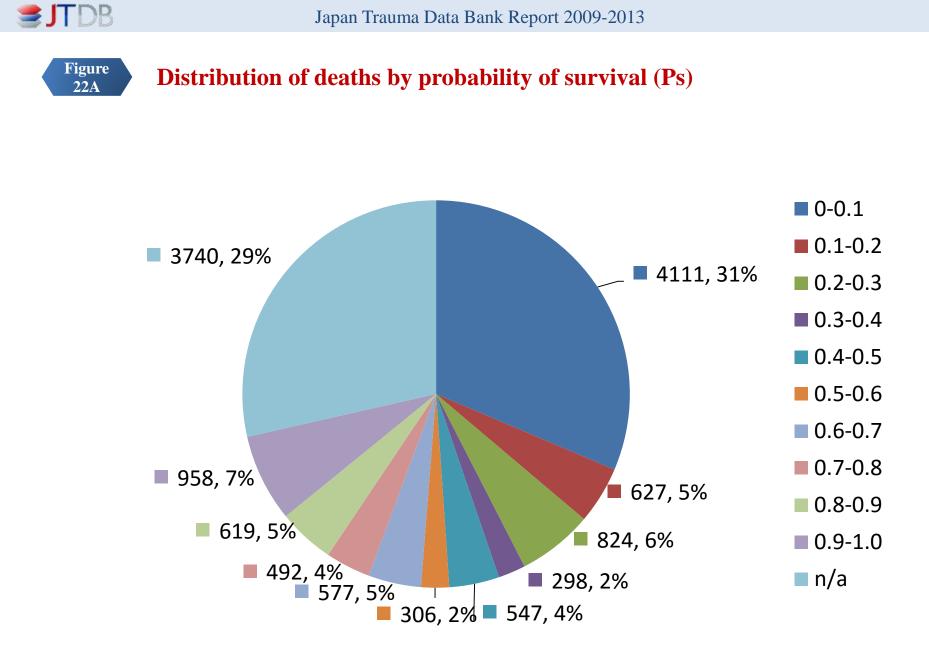


ISS Range

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).

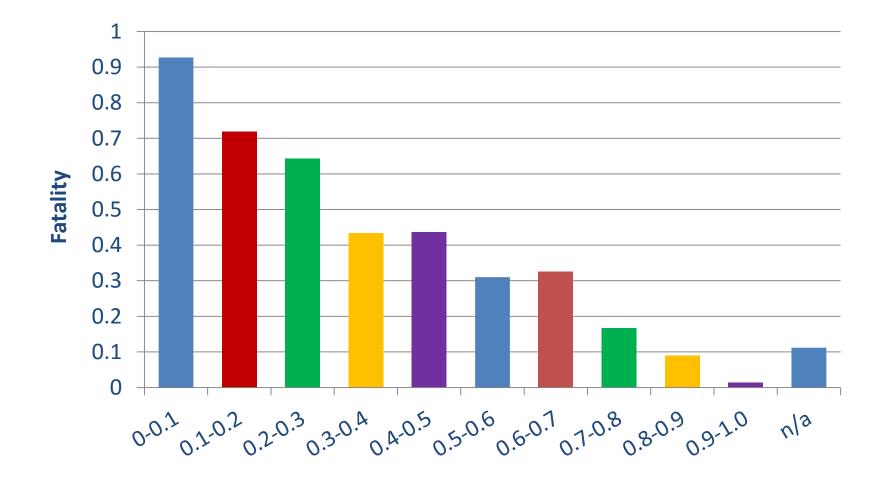


Figure 21 **Distribution of patients by probability of survival (Ps) 6223, 4%** 3794, 3% 41293, 29% 0-0.25 0.25-0.5 0.5-0.75 0.75-1.0 Unknown **86953, 62%**



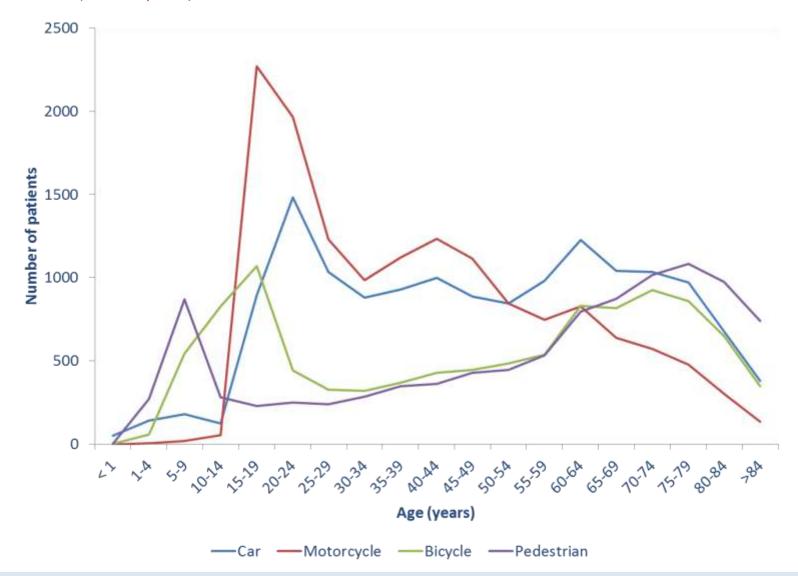




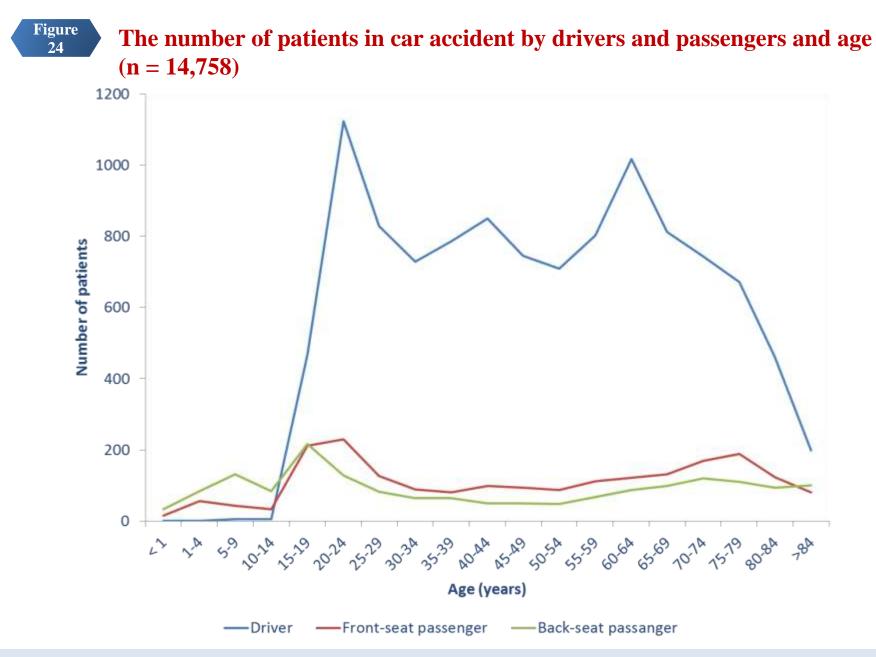


Probability of survival

Figure 23 The number of patients in traffic accidents by types of vehicle and age (n = 49,642)

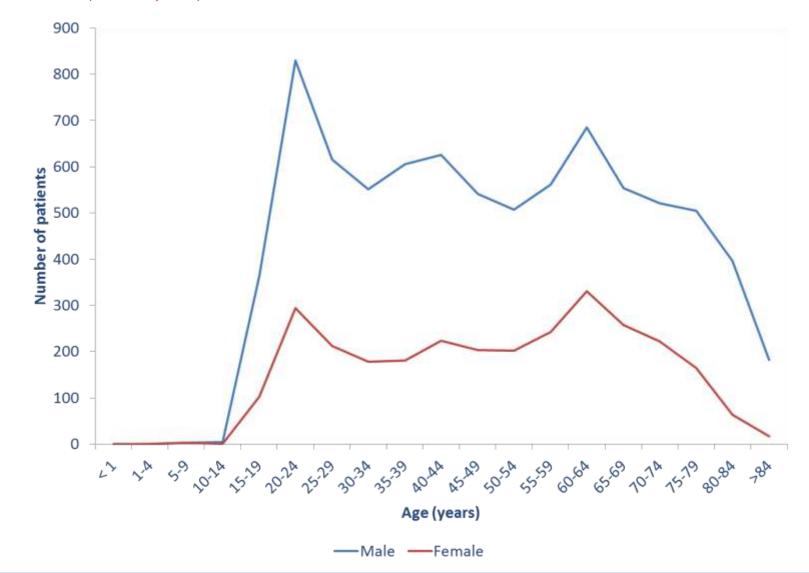


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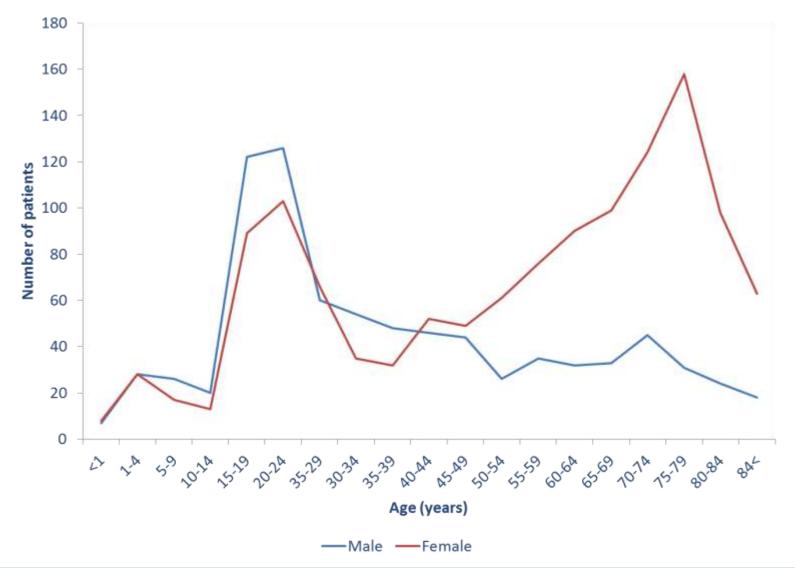
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Figure 25 The number of patients in car accident (driver) by gender and age (n = 10,956)



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Figure 26 The number of patients in car accident (passenger) by gender and age (n = 2,086)



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Figure Number of Deaths and Fatalities of Motor Vehicular Drivers by Age 27 100 30 90 25 80 70 20 **Number of Deaths** 60 Fatality(%) 15 50 40 10 30 20 5 10 0 0 **56~** 21~ 26~ 41~ 46~ 66**~** 71~ 16~ 31~ 36~ 51~ 61~ 76~ 81~ 86~ 25 85 20 30 35 45 50 55 60 65 70 75 80 40 Number of Deaths 27 56 46 45 44 87 89 92 77 45 43 43 43 63 69 Fatality(%) 5.0 5.5 6.2 5.5 5.1 5.9 6.0 8.5 8.5 11.9 13.7 16.7 28.5 5.8 7.8



Figure

28

Number of Deaths of Motor Vehicular Drivers by Age and Genders

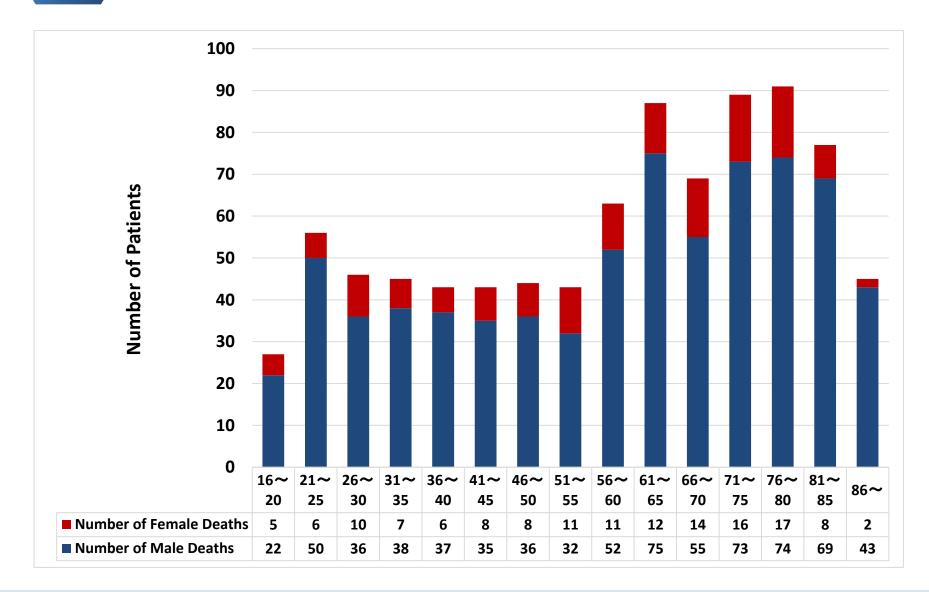
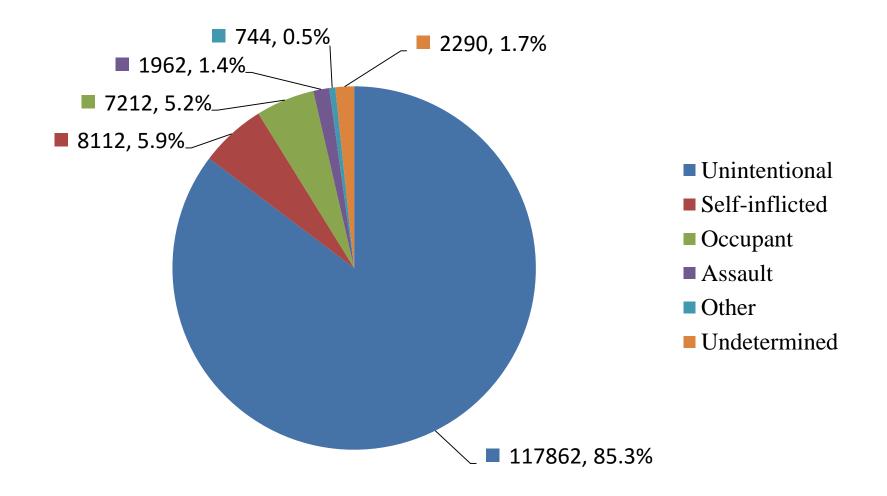




Figure 29 **Proportional distribution of registered patients, groped by intent**

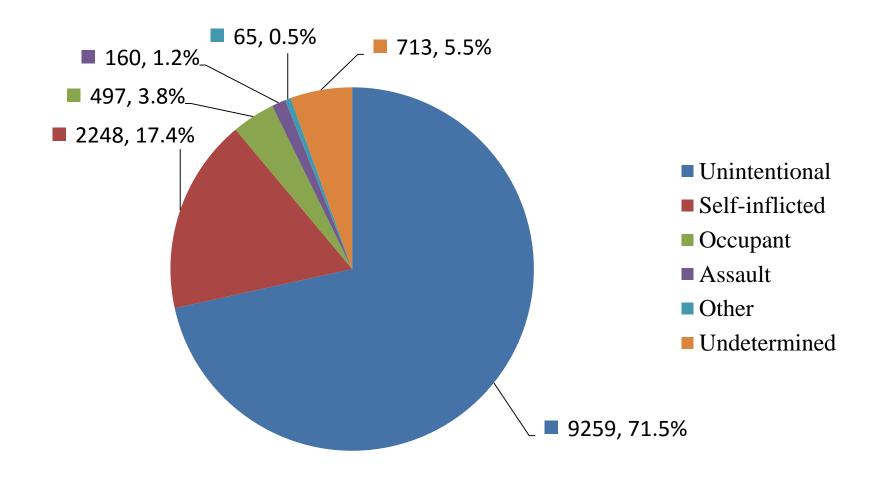




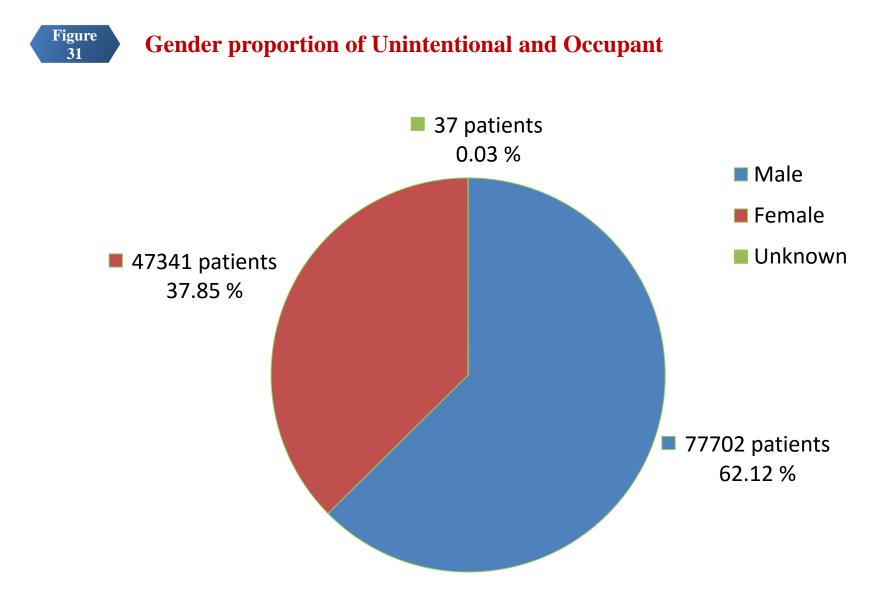
Figure

30

Proportional distribution of deaths, grouped by intent





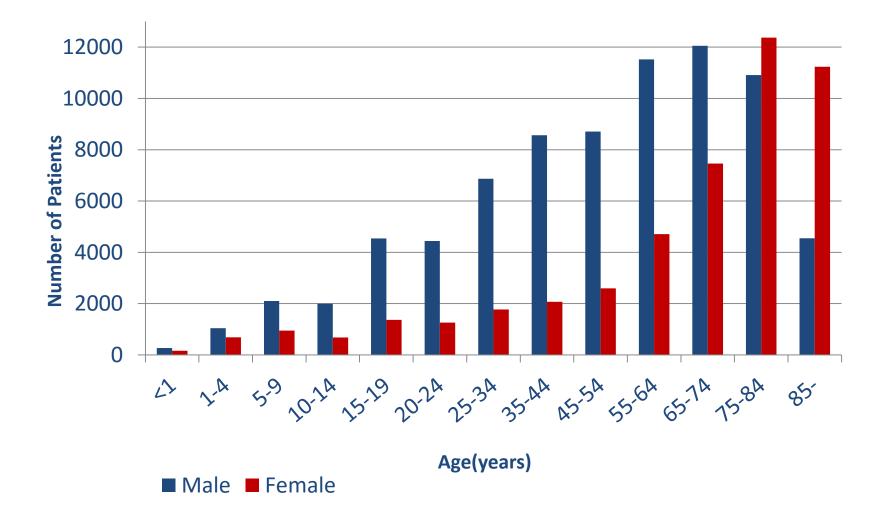




Figure

32

Unintentional and Occupant by Age and Gender





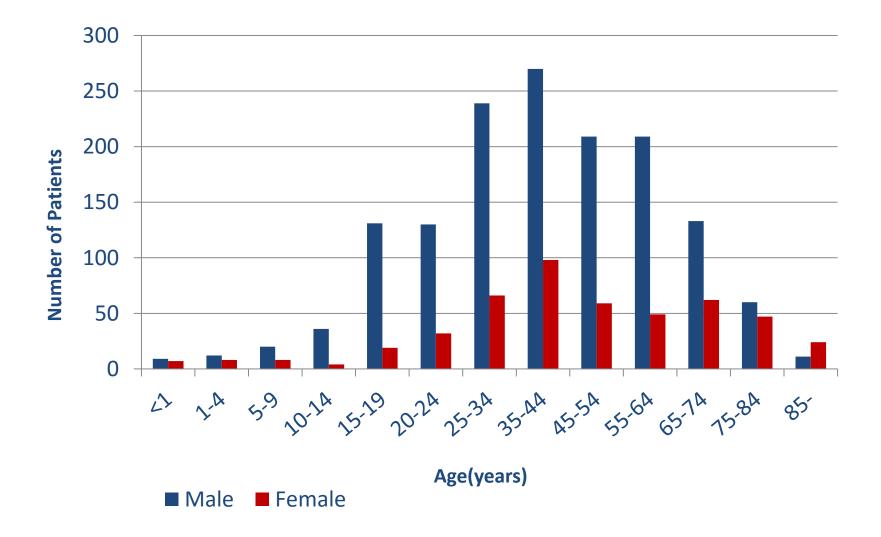


Unintentional and Occupant by Age and Gender

Age	Male	Female	Total				
< 1	266	159	425				
1-4	1042	684	1726				
5-9	2103	947	3050				
10-14	1997	678	2675				
15-19	4543	1368	5911				
20-24	4441	1258	5699				
25-34	6869	1770	8639				
35-44	8566	2067	10633				
45-54	8708	2591	11299				
55-64	11524	4707	16231				
65-74	12054	7458	19512				
75-84	10910	12369	23279				
85-	4544	11237	15781				
Unknown	135	48	183				
Total	77702	47341	125043				









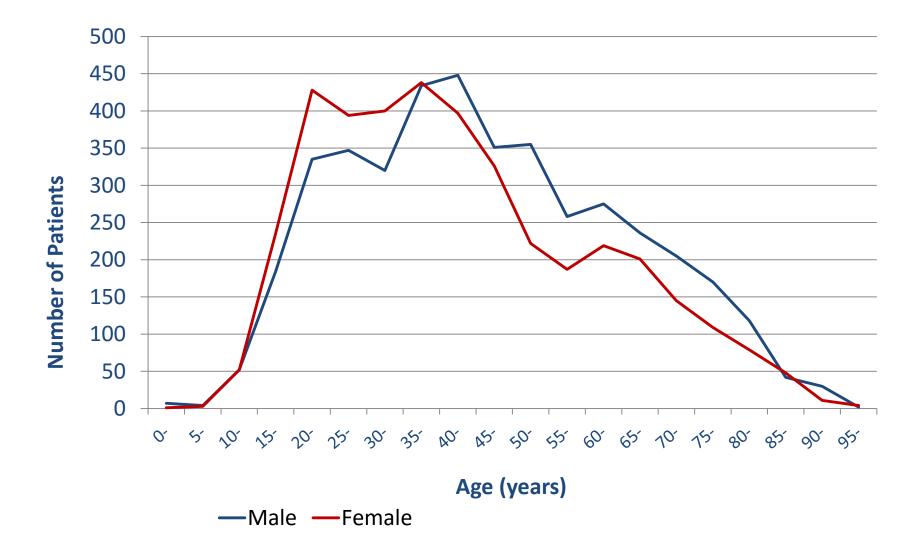


Assault by Age and Gender

Age	Male	Female	Total
< 1	9	7	16
1-4	12	8	20
5-9	20	8	28
10-14	36	4	40
15-19	131	19	150
20-24	130	32	162
25-34	239	66	305
35-44	270	98	368
45-54	209	59	268
55-64	209	49	258
65-74	133	62	195
75-84	60	47	107
85-	11	24	35
Unknown	9	1	10
Total	1478	484	1962







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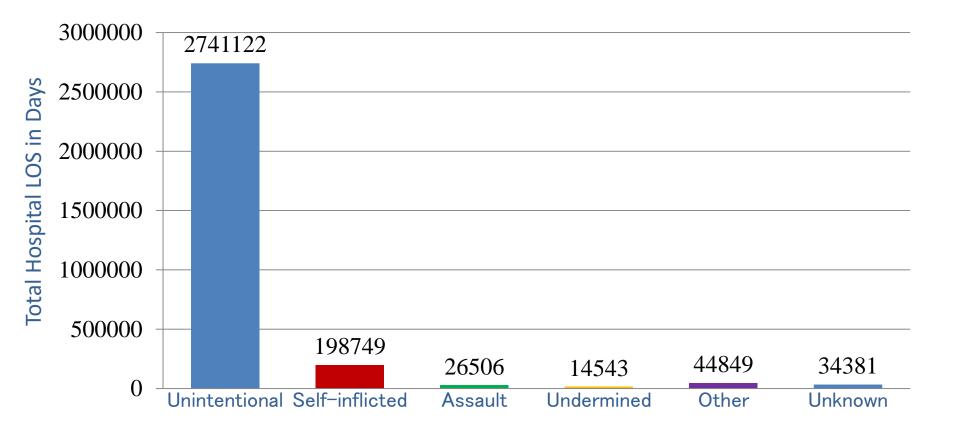




\sim	Age	0_1	5_0	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85-	90-	95-	Unkno	Total				
Se	x	0-4 5-9	5-9	5-5	3-9	3-9	5-5	14	19	24	29	34	39	44	49	54	59	64	69	74	79	84	89	94	33-	wn	TULAT
Fei	male	1	3	52	235	428	394	400	438	397	326	222	187	219	201	145	109	79	48	11	4	19	3918				
M	lale	7	4	52	184	335	347	320	434	448	351	355	258	275	236	205	170	118	42	30	2	21	4194				
Тс	otal	8	7	104	419	763	741	720	872	845	677	577	445	494	437	350	279	197	90	41	6	40	8112				



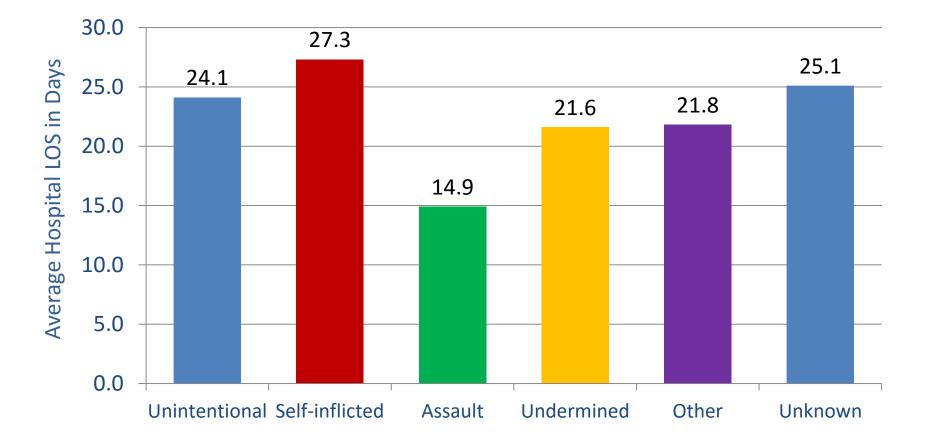




Industrial accident was included in the category of "Unintentional".







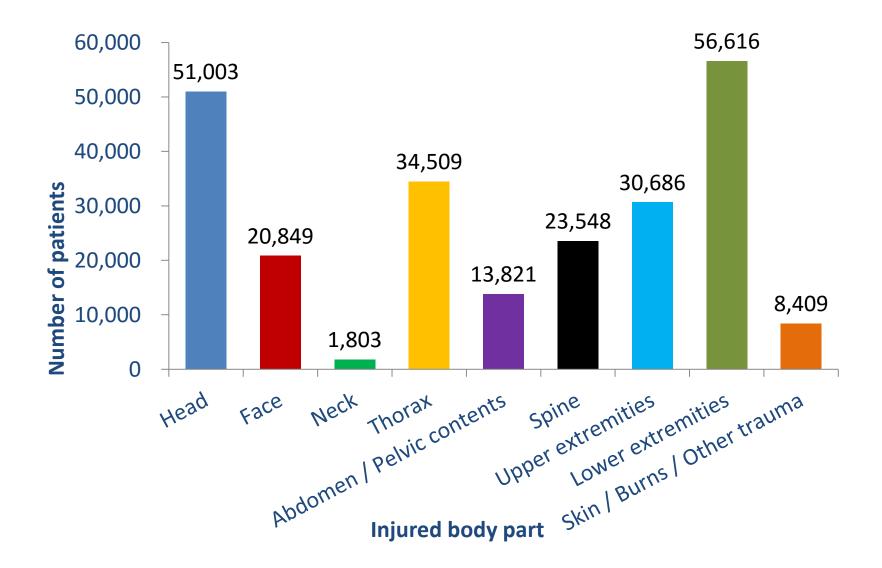
Average hospital length of stay in days = total hospital length of stay divided by the number of patients by intent.



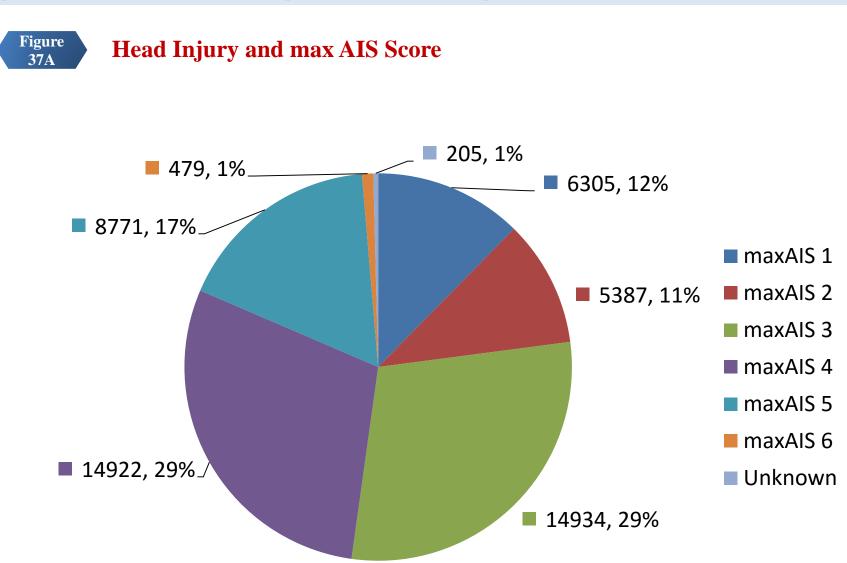
Figure

36

Number of patients with Injured Body Parts based on AIS

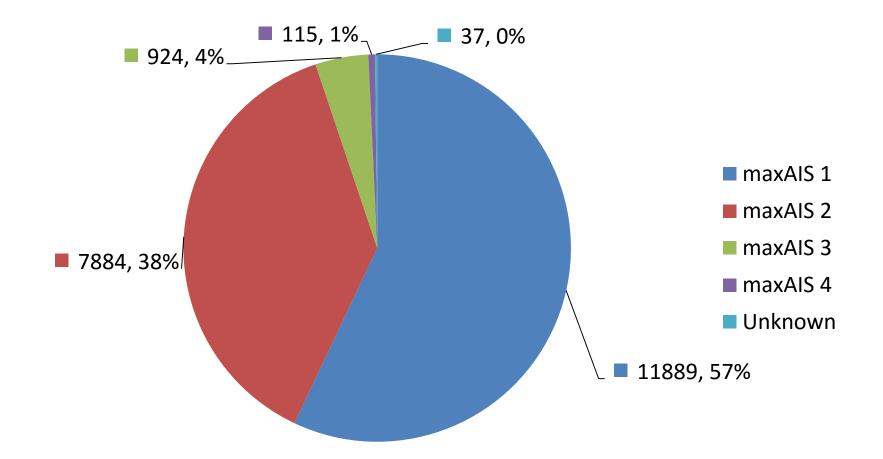






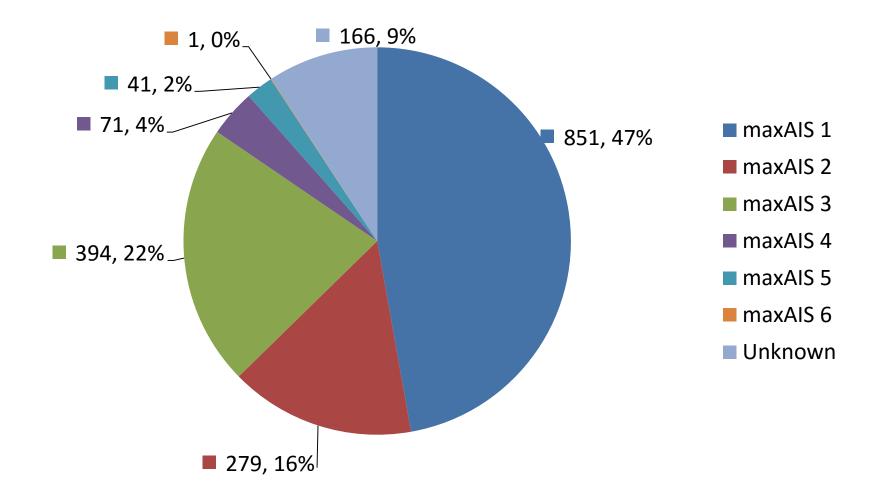






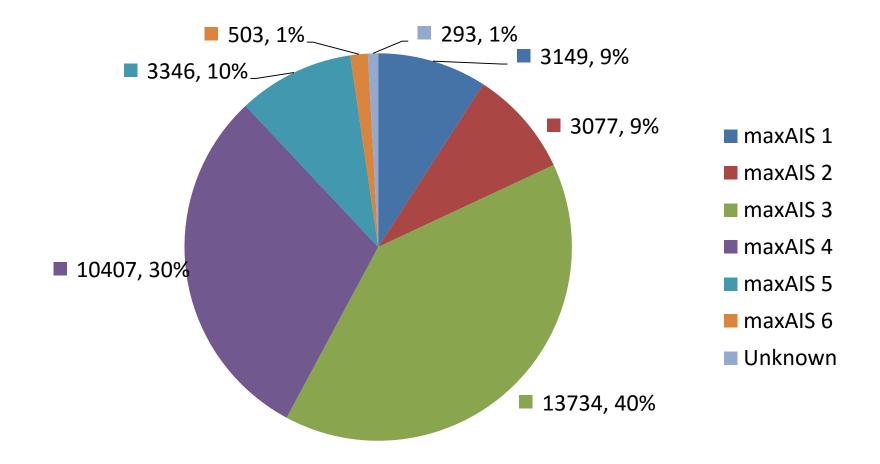














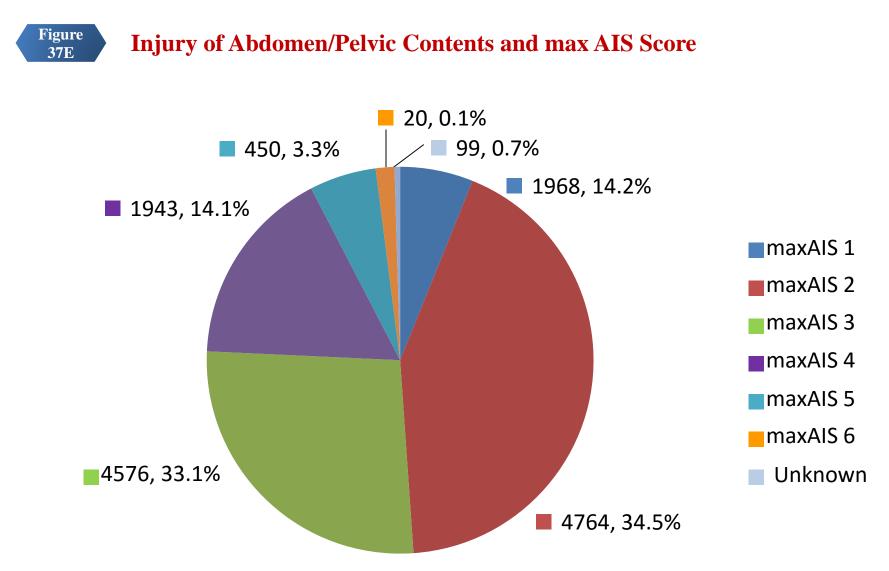
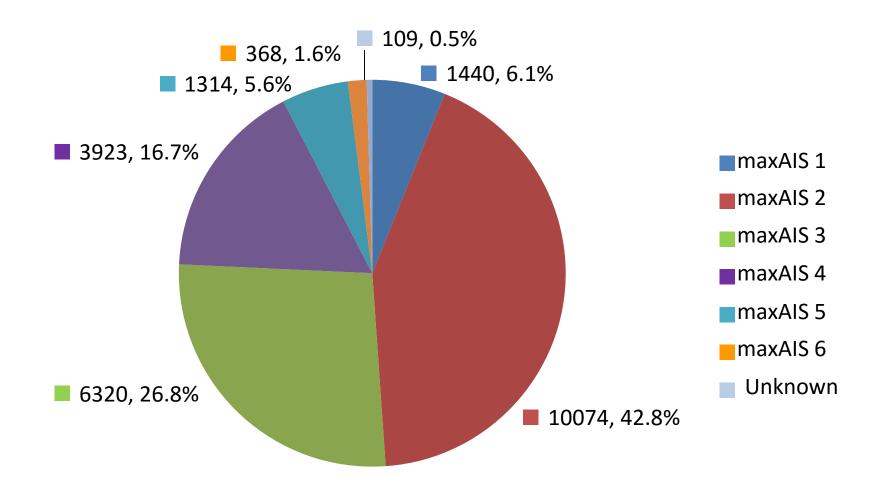




Figure Spinal Injury and max AIS Score





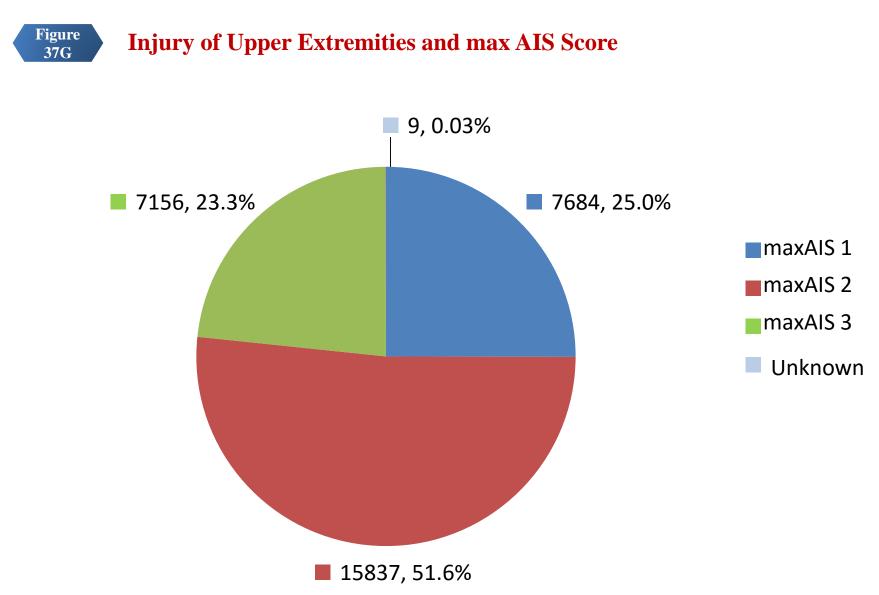
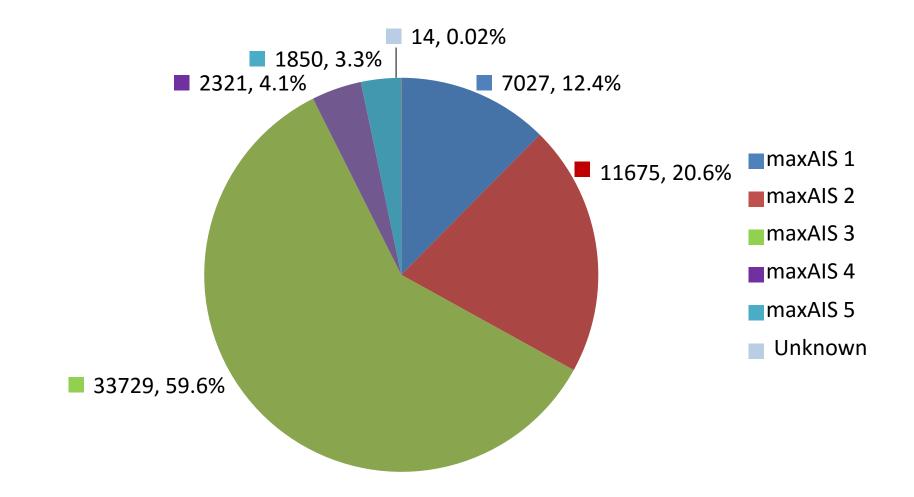


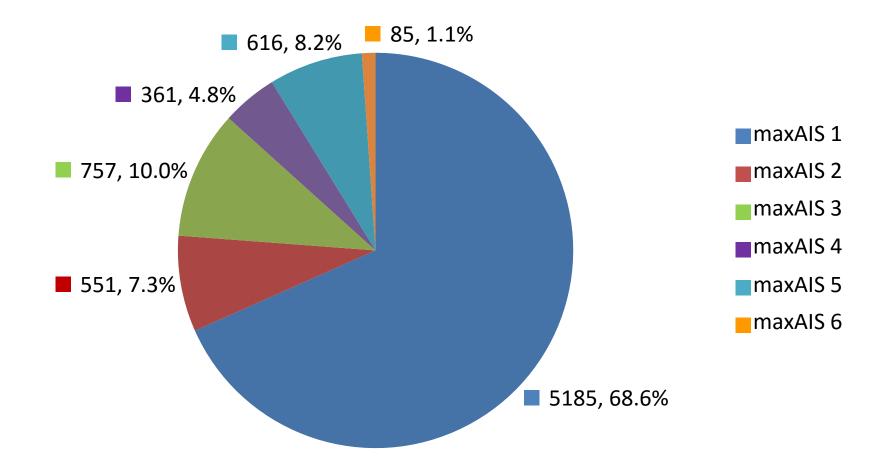


Figure 37H Injury of Lower Extremities and max AIS Score

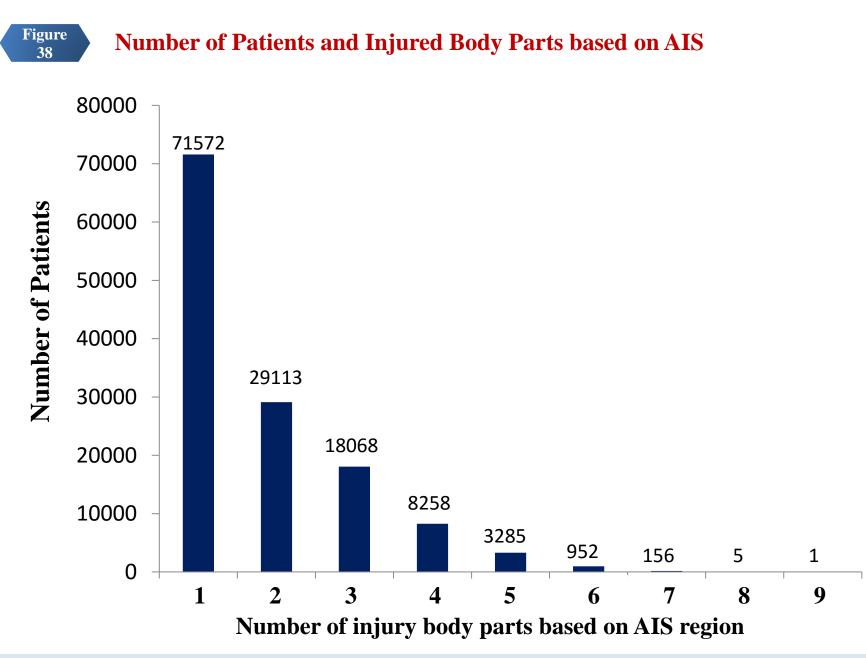














JAPAN TRAUMA DATA BANK REPORT 2015 (2010-2014)

December 10, 2015



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