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Injury Research Institute

VISU
Victorian Injury Surveillance Unit

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UNINTENTIONAL (ACCIDENTAL) HOSPITAL-TREATED INJURY

VICTORIA

2011

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Unintentional (accidental) hospital-treated injury in Victoria 2011

Summary results

This is the ninth of a series of regular E-bulletins that provide an overview of the injury profile for Victoria. This edition provides an overview of unintentional ('accidental') hospital-treated injury in 2011 utilising two injury surveillance datasets that separately record hospital admissions and Emergency Department (ED) presentations for injury.

The Victorian Emergency Minimum Dataset (VEMD) held by VISU for the period July 1999-June 2011 was replaced in April 2012 to include some useful variables not previously released to VISU by the Department of Health. The current VISU-VEMD dataset now contains consolidated data for the period July 1999 to June 2012 rather than the provisional data previously supplied to VISU earlier in the revision cycle. Consequently, data are more complete and reliable but less timely (VISU will now receive data annually rather than quarterly) and data outputs may be different from those reported previously.

Overall there were 421,358 hospital-treated injury cases in Victoria in 2011 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 81.5% of which were unintentional (n=343,200).

All ages

- More than 340,000 Victorians (6 in every 100) were treated in hospital for unintentional injury during 2011 (112,530 admissions and 230,670 ED presentations).

- Hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 2000 to 2011. The frequency of admissions increased by 54% and the admission rate by 21% if same day admissions were included in the analysis, reducing to 47% and 14% if same day admissions were excluded (the latter method produces a more stable indicator of trend). The frequency of ED presentations increased by 22% over the same period.

- Males were overrepresented accounting for 59% of all hospital-treated injury cases (56% of admissions and 60% of ED presentations).

- Falls were the leading cause of injury admissions and ED presentations accounting for more 37% of all hospital-treated injury cases, followed by hit/struck/crush (17%), cutting and piercing (9%) and transport (8%).

- The home was the most common location of injury (23% of hospital admissions and 39% of ED presentations). Persons were also commonly injured on roads, streets and highways (10% of admissions and 8% of ED presentations), sports and athletics areas (5% of admissions and 9% of ED presentations) and schools and public buildings (6% of admissions and 6% of ED presentations).

- Coding of hospital admissions for activity was poor with most cases coded to unspecified activity (64%). Sport was recorded as the activity being undertaken at the time of injury in 10% of hospital admissions. ED presentations were better coded for activity. Leisure was the most common activity recorded for ED presentations (39%), followed by sports (11%) and working for income (9%).

Children (0-14 years)

- 81,950 Victorian children (approximately 8 in every 100) were treated in hospital for unintentional injury during 2011 (14,301 admissions and 67,649 ED presentations).

- The frequency of child ED presentations increased by 21% over the 12-year period 2000 to 2011. The frequency of admissions increased by 10% and the admission rate did not change significantly if same day admissions were included in the analysis. However if same-day admissions were excluded the frequency of admissions decreased by 11% and the admission rate by 16%.

- Males were overrepresented accounting for 59% of all hospital-treated injury cases (62% of admissions and 58% of ED presentations).

- Falls were the leading cause of hospital-treated injury (45%) followed by hit/struck/crush incidents (21%).

- Twenty percent of hospital admissions and almost half of ED presentations (47%) were for injuries that occurred in the home. Children were also commonly injured in schools and other public buildings (14% of admissions and 15% of ED presentations) and sports and athletics areas (7% of admissions and 8% of ED presentations).

- The activity engaged in at the time of injury was unspecified for 59% of all child injury admissions and recorded as 'other specified' for a further 5% of admissions. Sport was the most common specified activity for hospital admissions (17%). Leisure was recorded as the activity engaged in at the time of injury for 51% of child ED presentations, followed by sports (11%).

Adolescents and young adults (15-24 years)

- More than 60,000 Victorian adolescents and young adults (around 8 in every 100) were treated in hospital for unintentional injury during 2011 (14,844 admissions and 47,070 ED presentations).

- The frequency of adolescent and young adult ED presentations increased by 23% over the 12-year period 2000 to 2011. The frequency of admissions increased by 42% and the admission rate by 11% if same day admissions were included in the analysis. However if same-day admissions were excluded the frequency of admissions increased by 26% and the admission rate was fairly stable (non-significant decrease by just 2%).

- Males were overrepresented accounting for 69% of all hospital-treated injury cases (73% of admissions and 67% of ED presentations).

- Falls accounted for 19% of admissions and 26% of ED presentations. Hit/struck/crush was the leading cause of ED presentations (26%) and accounted for 16% of hospital admissions. Transport accounted for 21% of admissions but only 9% of ED presentations.

- Sports and athletics areas (16%) and the road, street and highway (14%) were the most common places of occurrence of adolescent and young adult injuries resulting in hospital admission whereas the home was the leading place of occurrence for injuries resulting in ED presentation (24%).

- The activity engaged in at the time of injury was unspecified for more than half of adolescent and young adult injury admissions (53%) and recorded as 'other specified' for a further 4% of injuries. Sports (27%) and working for income (9%) were the activities recorded for a substantial proportion of admissions. Leisure was recorded as the activity engaged in at the time of injury for 34% of ED presentations, followed by sports (22%) and working for income (11%).

Adults (25-64 years)

- Around 140,000 Victorian adults (around 5 in every 100) were treated in hospital for unintentional injury during 2011 (44,828 admissions and 95,628 ED presentations).

- Adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 2000 to 2011. The frequency of admissions increased by 58% and the admission rate by 29% if same day admissions were included in the analysis, reducing to 52% and 22% if same day admissions were excluded. The frequency of ED presentations increased by 19%.

- Males were overrepresented accounting for 62% of all hospital-treated injury cases (63% of admissions and 61% of ED presentations).

- The leading cause of adult hospital-treated injury was falls: 28% of hospital admissions and 27% of ED presentations. Other major causes were transport (17% of admissions and 8% of ED presentations),

hit/struck/crush (9% of admissions and 19% of ED presentations) and cutting and piercing (9% of admissions and 13% of ED presentations).

- Seventeen percent of hospital admissions and 37% of ED presentations were for injuries that occurred in the home. Other major locations for injury were: roads, streets and highways (14% of admissions and 10% of ED presentations); trade and service areas (3% of admissions and 9% of ED presentations) and sports and athletics areas (5% of admissions and 6% of ED presentations).

- The activity engaged in at the time of injury was unspecified for 62% of adult injury hospital admissions and recorded as 'other specified' for a further 5% of injuries. Sports (11%) and working for income (11%) were the activities recorded for a substantial number of older adult admissions. Leisure was recorded as the activity engaged in at the time of injury for 34% of adult ED presentations, followed by working for income (16%) and sports (7%).

Older adults (65 years and older)

- More than 58,000 Victorian older adults (almost 8 in every 100) were treated in hospital for unintentional injury during 2011 (38,557 admissions and 20,323 ED presentations).

- Older adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 2000 to 2011. The frequency of admissions increased by 81% and the admission rate by 29% if same day admissions were included in the analysis, reducing to 75% and 24% if same day admissions were excluded. The frequency of ED presentations increased by 35%.

- Females were overrepresented accounting for 60% of all hospital-treated injury cases (63% of admissions and 56% of ED presentations).

- Falls accounted for almost three-quarters of hospital admissions (72%) and more than half of ED presentations (54%) in this age group.

- Almost 40% of hospital admissions and more than half of ED presentations were for injuries that occurred in the home (37% and 55%).

- The activity engaged in at the time of injury was unspecified for almost three-quarters of older adult injury admissions (73%) and recorded as 'other specified' for a further 6% of injuries. Vital activities such as resting, eating and sleeping were the activities recorded for a substantial number of older adult admissions (13%). Leisure was recorded as the activity engaged in at the time of injury for 42% of older adult ED presentations, followed by vital activities such as resting, eating and sleeping (9%).

Introduction

This E-bulletin provides information on unintentional hospital-treated injury in 2011. Overall there were 421,358 hospital-treated injury cases in Victoria in 2011 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 81.5% of which were unintentional (n=343,200). The remaining injury cases were either intentional i.e. self harm or assault (5%, n=22,251) or of other or undetermined intent (13%, n=55,907).

The Victorian Emergency Minimum Dataset (VEMD) held by VISU was replaced in April 2012 to include some useful variables not previously released to VISU by the Department of Health. The new VISU VEMD dataset now contains consolidated data for the period July 1999 to June 2012 rather than the provisional data previously supplied to VISU earlier in the revision cycle. Consequently, data are more complete and reliable but less timely (VISU will now receive data annually rather than quarterly) and data outputs may be different from those reported previously.

Method

Hospital admissions data was extracted from the Victorian Admitted Episodes Dataset (VAED) and ED presentations from the Victorian Emergency Minimum Dataset (VEMD). The VAED records all hospital admissions in public and private hospitals in the state of Victoria and the VEMD records all presentations to Victorian public hospitals with 24-hour emergency departments (currently 39 hospitals as Bass Coast Regional Health was added in July 2011). Deaths were excluded from the hospital admissions and ED presentations datasets as injury deaths are covered in separate E-Bulletins and ED presentations that resulted in admission have been excluded from the ED presentations dataset to avoid double counting with the hospital admissions data provided in this edition. Data were selected if the admission (VAED) or presentation (VEMD) date occurred in 2011 and if the injury was unintentional (VAED external cause code in the range V00-X59, VEMD human intent=1). Transfers within and between hospitals were excluded from the hospital admissions data and injuries that occur in the context of medical and surgical care (often referred to as complications) were excluded from both datasets. For ease of comparison VEMD causes, where possible, were recoded to match VAED cause groups.

The age groups (0-14, 15-24, 25-64, 65+) have been selected to match those in the *National Injury Prevention and Safety Promotion Plan: 2004 - 2014* (NIPSPP Plan).

Data issues

Hospital admissions activity and place of occurrence information should be interpreted with caution due to the high proportion of unspecified data.

Rates per 100,000 population have been calculated for all years for hospital admissions data (VAED) and for 2011 for ED presentations data (VEMD). ED presentation rates were also calculated for 2005 to 2010 in previous E-bulletins but not calculated for other years covered in the trend analysis as all public hospitals with 24-hour emergency departments have not contributed to the data collection over that time. The denominators used for calculating rates were mid-year population estimates from the Australian Bureau of Statistics. Rates for trends sections have been age-standardised using 5-year age groups and the direct method. The standard population used was the Victorian resident population at 30 June, 2001.

Trend data are reported for all admissions (including same-day admissions) and for admissions excluding same-day admissions. The exclusion of same-day admissions minimises the influence of admission policy changes across time and between hospitals. Frequencies and rates for 2011 hospital admissions reported in the trend sections differ slightly from those reported elsewhere in the report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations. Frequencies for hospital admissions reported in trend sections differ from those reported elsewhere in the report because only hospitals that contributed data to VEMD over the whole 12-year period were included in the trend analysis of ED presentations frequency data (29 of the current 39 hospitals contributing to the surveillance system).

Trends were determined using a log-linear regression model of the rate data assuming a Poisson distribution of injuries. The statistics relating to the trend curves, slope and intercept, estimated annual percentage change, estimated overall change, 95% confidence intervals around these estimated changes and the p-value, were calculated using the regression model in SAS® 9.2 . A trend was considered to be statistically significant if the p-value of the slope of the regression model was less than 0.05.

For further discussion of data sources and issues refer to Appendix 1 (page 41).

All ages

Table 1 provides an overview of unintentional hospital-treated injury in Victoria during 2011. Overall, there were more than 340,000 hospital treated injuries recorded in this period (112,530 admissions and 230,670 ED presentations) giving a rate of 6,201 hospital-treated injury cases per 100,000 Victorians.

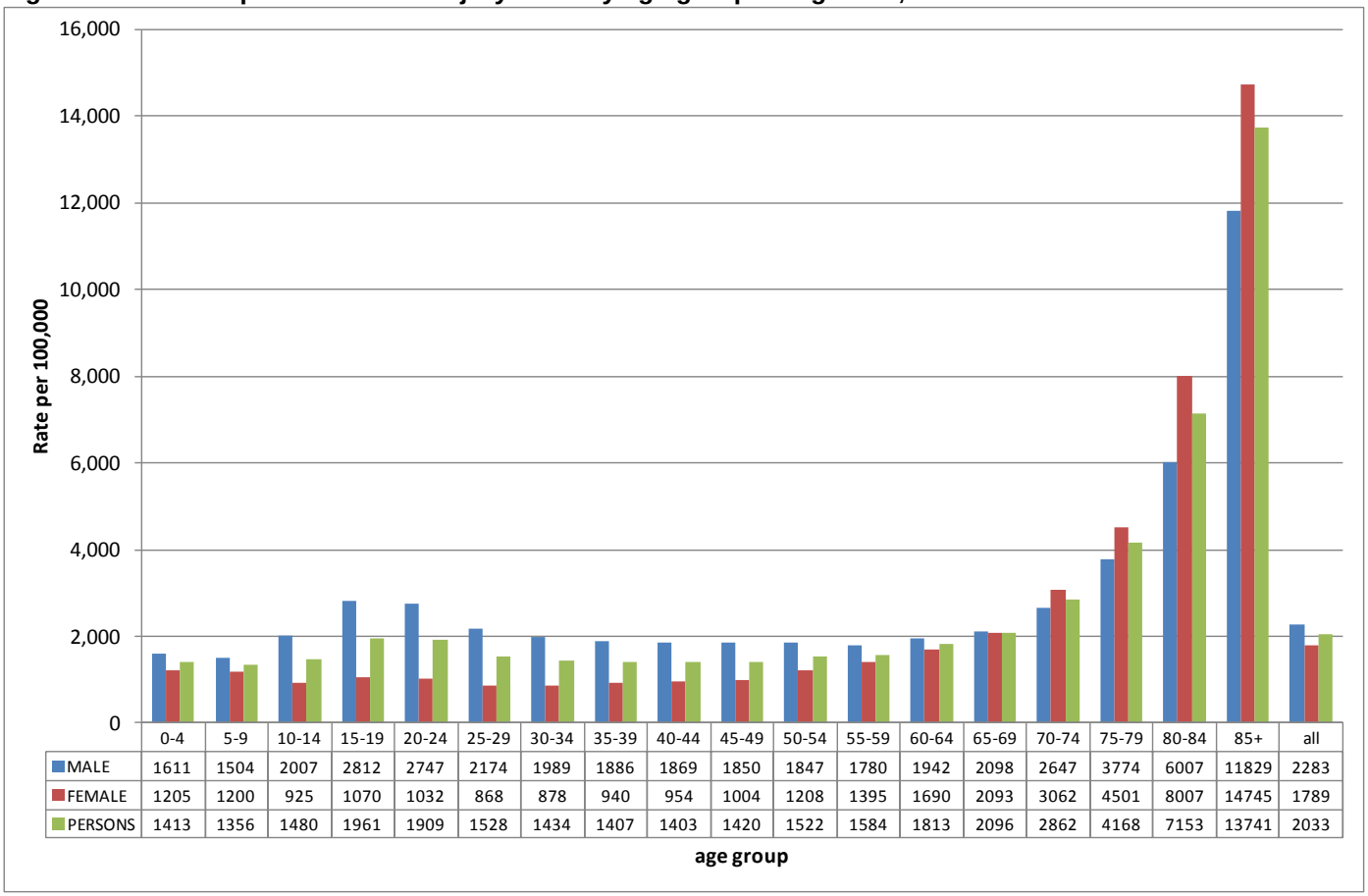
- The hospital admission rate was highest in older adults (4,975.6 per 100,000 persons) and lowest in children (1,416.3 per 100,000 persons)
- The ED presentation rate was highest in children (6,699.8/100,000) and lowest in older adults (2,622.6/100,000).
- Children aged 0-14 years have the highest overall hospital-treated injury rate (admissions and presentations combined, 8,116.1/100,000), followed by adolescents and young adults (8,062.8/100,000) and older adults (7598.2/100,000). Adults aged 25-64 years have the lowest hospital-treated injury rate (4,710.2/100,000).

Table 1 Hospital treated injury frequency and rates by broad age group, Victoria 2011

	Children 0-14 years		Adolescents and young adults 15-24 yrs		Adults 25-64 yrs		Older adults 65+ yrs		ALL	
	Freq.	*Rate / 100,000*	Freq.	*Rate / 100,000*	Freq.	*Rate / 100,000*	Freq.	*Rate / 100,000*	Freq.	*Rate / 100,000*
Admissions	14,301	1,416.3	14,844	1,933.1	44,828	1,503.3	38,557	4,975.6	112,530	2,033.2
ED presentations	67,649	6,699.8	47,070	6,129.7	95,628	3,206.9	20,323	2,622.6	230,670	4,167.8
Hospital-treated	81,950	8,116.1	61,914	8,062.8	140,456	4,710.2	58,880	7,598.2	343,200	6,201.0

Figure 1 shows hospital admission injury rates by age and gender for Victoria in 2011. Age-specific injury hospital admission rates rose after childhood, were higher in adolescents and young adults than in adults and peaked in older adults. The overall male age-specific injury hospital admission rate was higher than the female rate in all 5-year age groups to age 70 years.

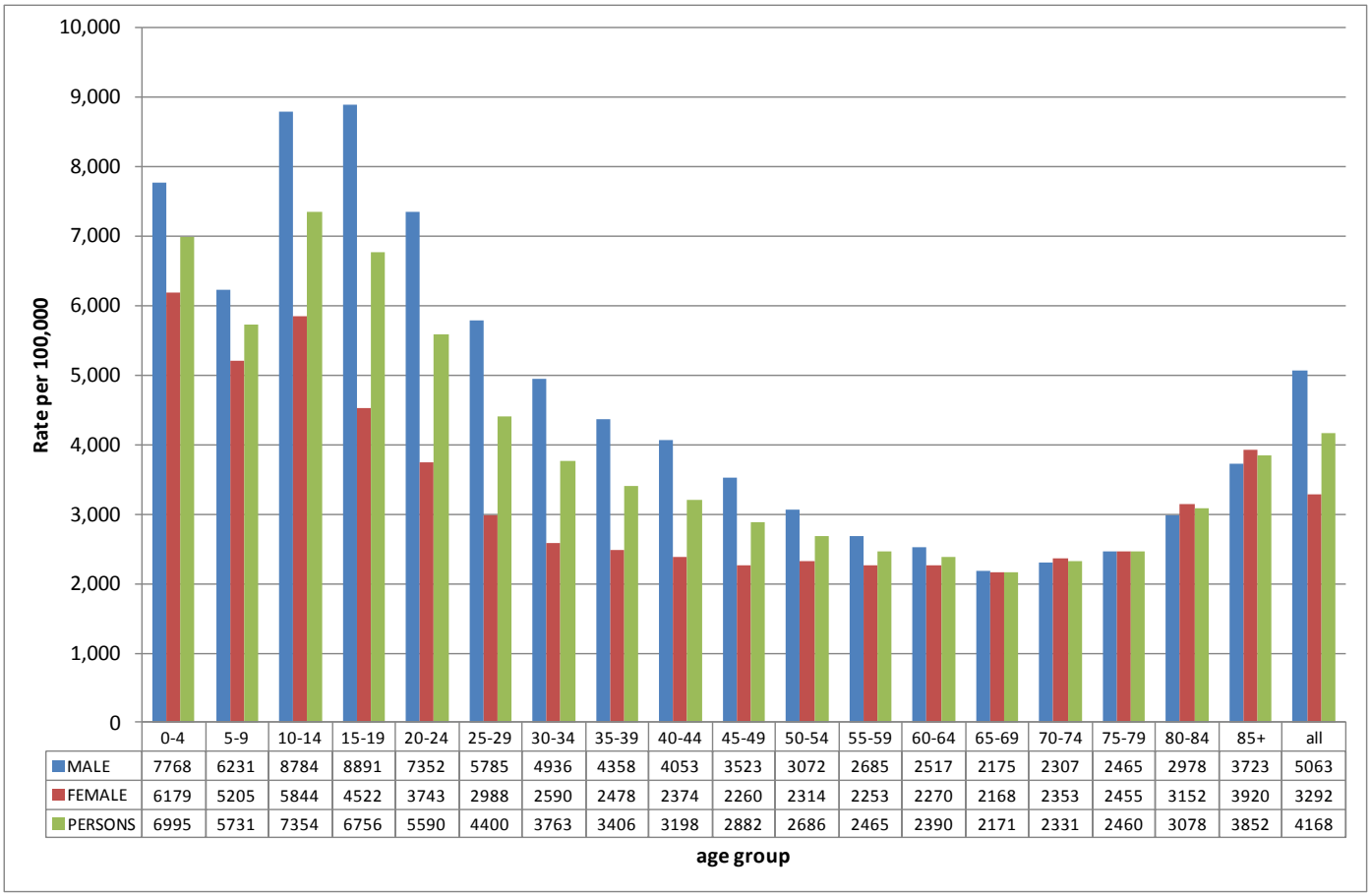
Figure 1 Hospital admission injury rates by age group and gender, Victoria 2011



	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+	all
MALE	1611	1504	2007	2812	2747	2174	1989	1886	1869	1850	1847	1780	1942	2098	2647	3774	6007	11829	2283
FEMALE	1205	1200	925	1070	1032	868	878	940	954	1004	1208	1395	1690	2093	3062	4501	8007	14745	1789
PERSONS	1413	1356	1480	1961	1909	1528	1434	1407	1403	1420	1522	1584	1813	2096	2862	4168	7153	13741	2033

Figure 2 shows ED presentation rates by age and gender for Victoria in 2011. Age-specific injury ED presentation rates were high among children (0-9 years) and highest among older children (10-14 years) and then decreased throughout the adolescent and adult age groups until age 75 when rates showed a slight increase. The overall male age-specific injury hospital ED presentations rate was higher than the female rate in all 5-year age groups to age 70 years.

Figure 2 ED presentation injury rates by age group and gender, Victoria 2011



	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+	all
MALE	7768	6231	8784	8891	7352	5785	4936	4358	4053	3523	3072	2685	2517	2175	2307	2465	2978	3723	5063
FEMALE	6179	5205	5844	4522	3743	2988	2590	2478	2374	2260	2314	2253	2270	2168	2353	2455	3152	3920	3292
PERSONS	6995	5731	7354	6756	5590	4400	3763	3406	3198	2882	2686	2465	2390	2171	2331	2460	3078	3852	4168

Trend

FREQUENCY

Frequency and rate data for 2011 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) were used for the trend calculations.

- The frequency of ALL AGES unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 12-year period from 69,217 in 2000 to 106,748 in 2011, representing an estimated annual change of 3.6% (95% confidence interval 3.2% to 4.0%) and an overall increase of 54% (46% to 60%) based on the trend line (figure 3).
- The frequency of ALL AGES unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 46,168 in 2000 to 65,978 in 2011, representing an estimated annual change of 3.2% (2.7% to 3.7%) and an overall increase of 47% (38% to 54%) based on the trend line (figure 3).
- The frequency of ALL AGES unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 155,164 in 2000 to 184,432 in 2011, representing an estimated annual change of 1.7% (1.2% to 2.1%) and an overall increase of 22% (16% to 28%) based on the trend line (figure 4).

Figure 3 Trend in the frequency of injury hospital admissions, Victoria 2000-2011

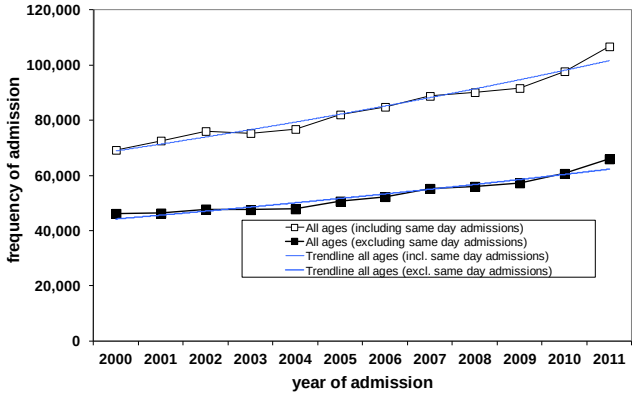
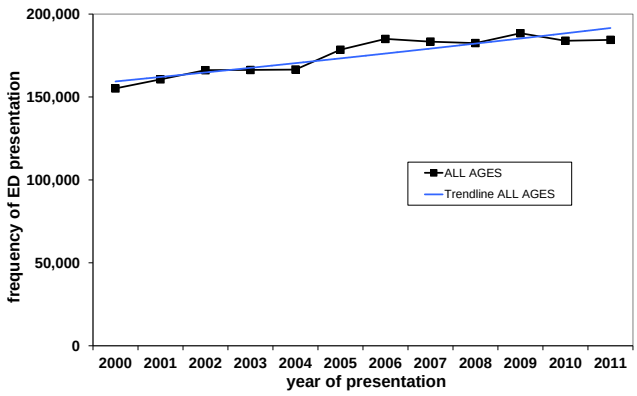


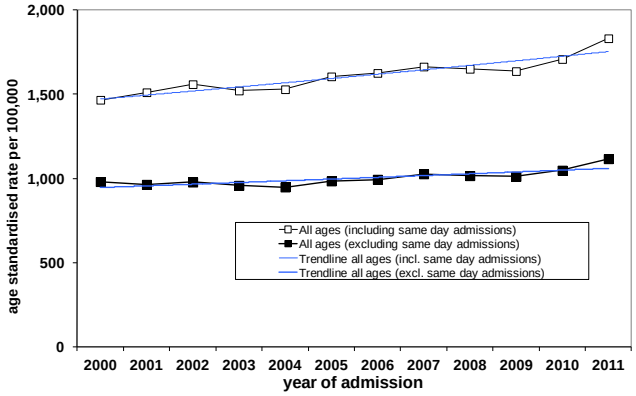
Figure 4 Trend in the frequency of injury ED presentations, Victoria 2000-2011



RATE

- The ALL AGES unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,466.4/100,000 in 2000 to 1,832.1/100,000 in 2011, representing an estimated annual change of 1.6% (1.2% to 2.0%) and an overall increase of 21% (16% to 26%) based on the trend line (figure 5).
- The ALL AGES unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 980.2/100,000 in 2000 to 1,116.3/100,000 in 2011, representing an estimated annual change of 1.1% (0.6% to 1.5%) and an overall increase of 14% (8% to 19%) based on the trend line (figure 5).
- The trend in the ED presentation rate cannot be determined because numerator data were not complete.

Figure 5 Trend in the hospital admission rates per 100,000 population, Victoria 2000-2011



Rates cannot be calculated for ED presentations because numerator data were not complete for the 12-year period.

Gender

- Males were overrepresented accounting for 56% of hospital admissions (n=62,477) and 60% of ED presentations (n=138,559) in Victoria in 2011 (figures 6 & 7).

Figure 6 Hospital injury admissions by gender, Victoria 2011

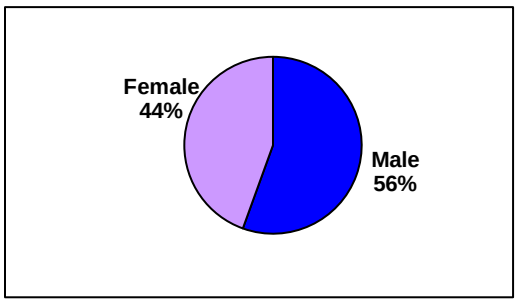
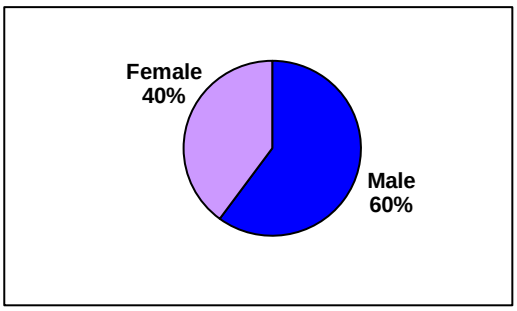


Figure 7 ED injury presentations by gender, Victoria 2011



- The rate of hospital admission and ED presentation was also higher for males than females (2,282.9 & 5,062.9/100,000 vs. 1,789.0 & 3,292.3/100,000). (Table 2)

Table 2 Frequency and rate of hospital admission and ED presentation, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	62,477	2,282.9	138,559	5,062.9
Female	50,053	1,789.0	92,111	3,292.3
All	112,530	2,033.2	230,670	4,167.8

Age

- Persons aged 65 years and older have the highest rate of hospital admissions (4,975.6/100,000) and children aged 0-14 years have the lowest (1,416.3/100,000) (Table 3).
- Young persons aged 0-14 and 15-24 have the highest ED presentation (non-admission) rates, 6,699.8 and 6,129.7/100,000 respectively (Table 3).

Table 3 Frequency and rate of hospital admission and ED presentation, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-14 years	14,301	1,416.3	67,649	6,699.8
15-24 years	14,844	1,933.1	47,070	6,129.7
25-64 years	44,828	1,503.3	95,628	3,206.9
65+ years	38,557	4,975.6	20,323	2,622.6
ALL	112,530	2,033.2	230,670	4,167.8

Leading causes of injury

- Four of the five major causes of hospital admissions and ED presentations were the same although the ranking on frequency of cases is different (figures 8 & 9).
- The leading cause of both hospital admissions and ED presentations was falls. Falls accounted for 44% (n=49,721) of hospital admissions and 34% (n=78,758) of ED presentations.
- Transport accounted for 12% of admissions (n=13,792) but just 6% of presentations (n=14,307) which indicates that transport injuries were more severe than injuries from other causes.
- Hit/struck/crush injuries accounted for 8.5% of admissions (n=9,563) but a higher proportion of ED presentations (21%, n=47,525).
- Cutting and piercing injuries accounted for 6% of admissions (n=6,837) and 10% of ED presentations (n=23,427).
- The fifth ranking cause of hospital admissions was natural/environmental/animal related injury (3%, n=3,314) whereas for ED presentations it was injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (5%, n=11,286).

Figure 8 Hospital admissions by cause, Victoria 2011

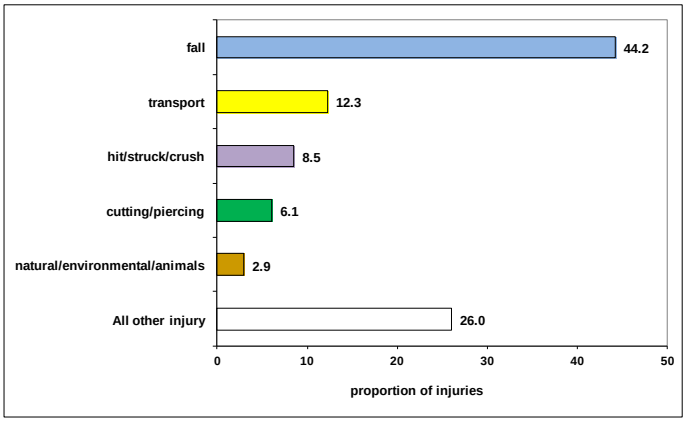
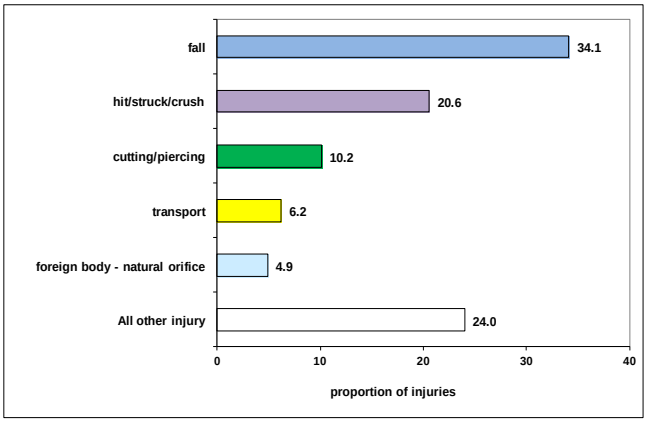


Figure 9 ED presentations by cause, Victoria 2011



Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

Major injury type (body site and nature of injury)

Figures 10 & 11 show the five most common specific injury types for hospital admissions and ED presentations.

- Fracture to the upper limb accounted for 17% of hospital injury admissions and 10% of ED presentations.
- Fracture to the lower limb was the second most common type of injury requiring hospital admission (12%).
- Dislocations/sprains and strains to the lower limb (10%) and upper limb (10%) were common among ED presentations.
- Open wounds to the head/face/neck accounted for 7% of hospital injury admissions and 8% of ED presentations.
- Open wounds to the upper limb accounted for 6% of hospital injury admissions and 8% of ED presentations.

Figure 10 Major injury type, hospital admissions, Victoria 2011

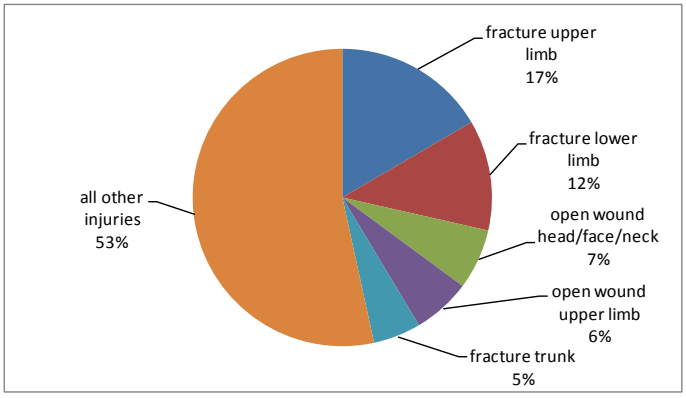
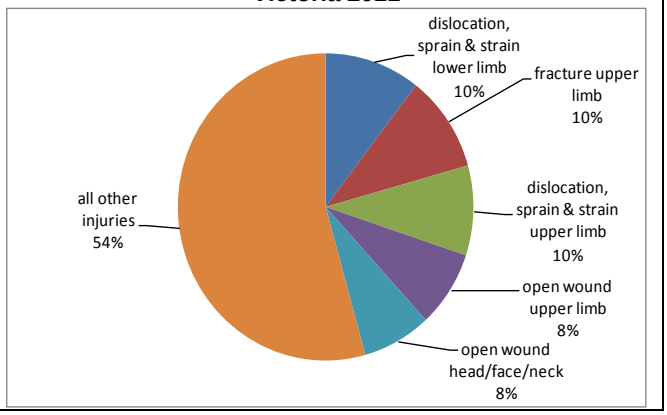


Figure 11 Major injury type, ED presentations Victoria 2011



Place of injury occurrence

- At least 23% of all injuries requiring hospital admission and 38% of injuries resulting in ED presentation occurred in the home (figures 12 & 13).
- Persons were also commonly injured on roads, streets and highways (10% of admissions and 8% of ED presentations), sports and athletics areas (5% of admissions and 9% of ED presentations) and schools and public buildings (6% of admissions and 6% of ED presentations).

Figure 12 Hospital admissions by place of occurrence, Victoria 2011

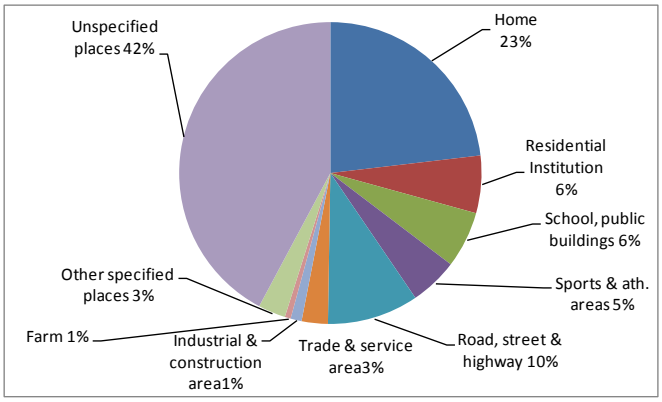
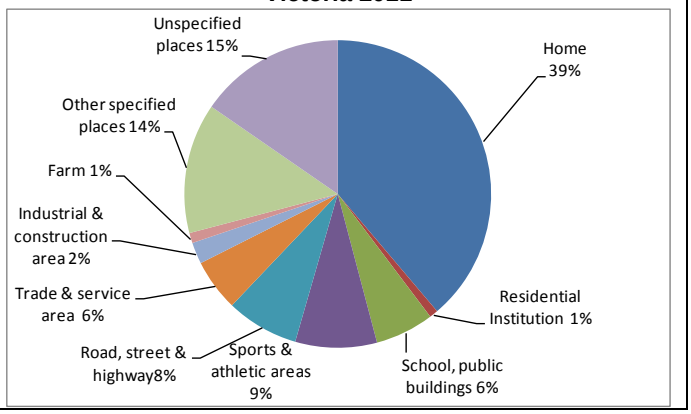


Figure 13 ED presentations by place of occurrence, Victoria 2011



Activity when injured

- Hospital admissions were mostly coded to unspecified activity (64%). Sport was recorded as the activity at the time of injury for 10% of hospital admissions (figure 14).
- Leisure was the most common activity recorded for ED presentations (39%), followed by sports (11%) and working for income (9%) (figure 15).

Figure 14 Hospital admissions by activity when injured, Victoria 2011

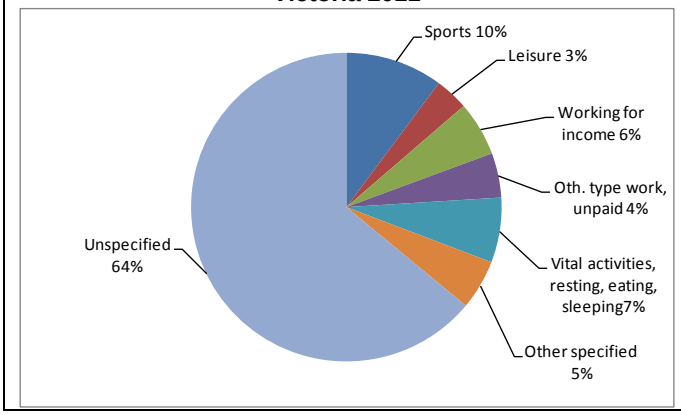


Figure 15 ED presentations by activity when injured, Victoria 2011

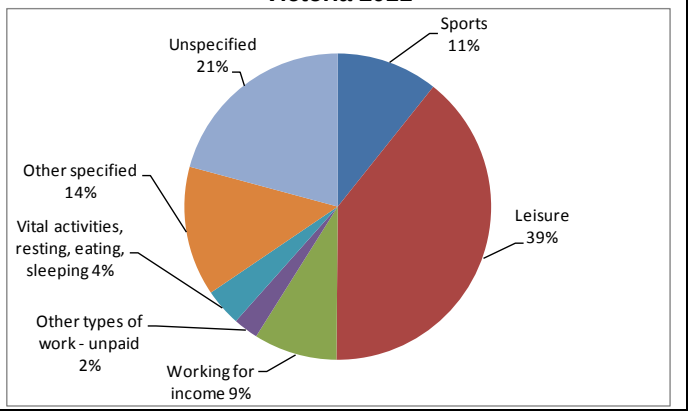


Table 4 Ranking of causes for hospital admissions and ED presentations, all ages, 2011

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
0-14 years	1	fall	6,570	*45.9*	fall	30,147	*44.6*
	2	hit/struck/crush	2,164	*15.1*	hit/struck/crush	15,366	*22.7*
	3	unspecified unintentional	1,344	*9.4*	other specified unintentional	6,524	*9.6*
	4	transport	1,237	*8.6*	unspecified unintentional	3,890	*5.8*
	5	cutting/piercing	684	*4.8*	cutting/piercing	3,753	*5.5*
	6	foreign body - natural orifice	602	*4.2*	foreign body - natural orifice	2,476	*3.7*
	7	natural/environmental/animals	453	*3.2*	transport	2,021	*3.0*
	8	other specified unintentional	315	*2.2*	fires/burns/scalds	1,394	*2.1*
	9	fires/burns/scalds	312	*2.2*	natural/environmental/animals	1,381	*2.0*
	10	poisoning	299	*2.1*	poisoning	561	*<1*
	11	overexertion &/or strenuous movements	155	*<1*	machinery	53	*<1*
	12	choking/suffocate	91	*<1*	choking/suffocate	49	*<1*
	13	machinery	48	*<1*	near drowning	27	*<1*
	14	near drowning	19	*<1*	explosions/firearms	7	*<1*
	15	explosions/firearms	8	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,301	*100*	ALL	67,649	*100*
15-24 years	1	transport	3,176	*21.4*	hit/struck/crush	12,389	*26.3*
	2	fall	2,797	*18.8*	fall	12,146	*25.8*
	3	unspecified unintentional	2,419	*16.3*	cutting/piercing	5,387	*11.4*
	4	hit/struck/crush	2,340	*15.8*	other specified unintentional	4,885	*10.4*
	5	cutting/piercing	1,495	*10.1*	transport	4,243	*9.0*
	6	other specified unintentional	496	*3.3*	unspecified unintentional	3,503	*7.4*
	7	overexertion & strenuous movements	482	*3.2*	foreign body - natural orifice	1,616	*3.4*
	8	poisoning	462	*3.1*	fires/burns/scalds	1,061	*2.3*
	9	natural/environmental/animals	380	*2.6*	natural/environmental/animals	1,054	*2.2*
	10	foreign body - natural orifice	290	*2.0*	poisoning	431	*<1*
	11	machinery	221	*1.5*	machinery	294	*<1*
	12	fires/burns/scalds	205	*1.4*	choking/suffocate	43	*<1*
	13	choking/suffocate	42	*<1*	near drowning	11	*<1*
	14	explosions/firearms	33	*<1*	explosions/firearms	7	*<1*
	15	near drowning	6	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,844	*100*	ALL	47,070	*100*
25-64 years	1	fall	12,619	*28.1*	fall	25,423	*26.6*
	2	transport	7,732	*17.2*	hit/struck/crush	17,821	*18.6*
	3	unspecified unintentional	6,695	*14.9*	cutting/piercing	12,746	*13.3*
	4	cutting/piercing	4,051	*9.0*	other specified unintentional	11,072	*11.6*
	5	hit/struck/crush	3,990	*8.9*	unspecified unintentional	7,643	*8.0*
	6	natural/environmental/animals	1,911	*4.3*	transport	7,358	*7.7*
	7	overexertion & strenuous movements	1,586	*3.5*	foreign body - natural orifice	6,387	*6.7*
	8	other specified unintentional	1,456	*3.2*	natural/environmental/animals	3,015	*3.2*
	9	foreign body - natural orifice	1,377	*3.1*	fires/burns/scalds	2,310	*2.4*
	10	poisoning	1,258	*2.8*	machinery	960	*1.0*
	11	machinery	1,034	*2.3*	poisoning	746	*<1*
	12	fires/burns/scalds	613	*1.4*	choking/suffocate	109	*<1*
	13	choking/suffocate	404	*<1*	near drowning	31	*<1*
	14	explosions/firearms	80	*<1*	explosions/firearms	7	*<1*
	15	near drowning	22	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	44,828	*100*	ALL	95,628	*100*
65+ years	1	fall	27,735	*71.9*	fall	11,042	*54.3*
	2	unspecified unintentional	3,313	*8.6*	hit/struck/crush	1,949	*9.6*
	3	transport	1,647	*4.3*	other specified unintentional	1,784	*8.8*
	4	choking/suffocate	1,121	*2.9*	unspecified unintentional	1,556	*7.7*
	5	hit/struck/crush	1,069	*2.8*	cutting/piercing	1,541	*7.6*
	6	overexertion & strenuous movements	678	*1.8*	foreign body - natural orifice	807	*4.0*
	7	cutting/piercing	607	*1.6*	transport	685	*3.4*
	8	poisoning	584	*1.5*	natural/environmental/animals	524	*2.6*
	9	natural/environmental/animals	570	*1.5*	fires/burns/scalds	197	*1.0*
	10	foreign body - natural orifice	524	*1.4*	poisoning	125	*<1*
	11	other specified unintentional	376	*1.0*	machinery	88	*<1*
	12	fires/burns/scalds	166	*<1*	choking/suffocate	20	*<1*
	13	machinery	155	*<1*	near drowning	5	*<1*
	14	explosions/firearms	7	*<1*	explosions/firearms	0	*0.0*
	15	near drowning	5	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	38,557	*100*	ALL	20,323	*100*
ALL AGES	1	fall	49,721	*44.2*	fall	78,758	*34.1*
	2	transport	13,792	*12.3*	hit/struck/crush	47,525	*20.6*
	3	unspecified unintentional	13,771	*12.2*	other specified unintentional	24,265	*10.5*
	4	hit/struck/crush	9,563	*8.5*	cutting/piercing	23,427	*10.2*
	5	cutting/piercing	6,837	*6.1*	unspecified unintentional	16,592	*7.2*
	6	natural/environmental/animals	3,314	*2.9*	transport	14,307	*6.2*
	7	overexertion & strenuous movements	2,901	*2.6*	foreign body - natural orifice	11,286	*4.9*
	8	foreign body - natural orifice	2,793	*2.5*	natural/environmental/animals	5,974	*2.6*
	9	other specified unintentional	2,643	*2.3*	fires/burns/scalds	4,962	*2.2*
	10	poisoning	2,603	*2.3*	poisoning	1,863	*<1*
	11	choking/suffocate	1,658	*1.5*	machinery	1,395	*<1*
	12	machinery	1,458	*1.3*	choking/suffocate	221	*<1*
	13	fires/burns/scalds	1,296	*1.2*	near drowning	74	*<1*
	14	explosions/firearms	128	*<1*	explosions/firearms	21	*<1*
	15	near drowning	52	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	112,530	*100*	ALL	230,670	*100*

Children (0-14 years)

Trend

FREQUENCY

Frequency and rate data for 2011 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) were used for the trend calculations.

- The frequency of CHILD unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 12-year period from 12,391 in 2000 to 14,041 in 2011, representing an estimated annual change of 0.8% (95% confidence interval 0.4% to 1.2%) and an overall increase of 10% (5% to 15%) based on the trend line (figure 16).
- The frequency of CHILD unintentional injury and poisoning admissions (EXCLUDING same-day admissions) decreased significantly over the 12-year period from 7,301 in 2000 to 6,601 in 2011, representing an estimated annual decrease of 0.9% (-1.5% to -0.47%) and an overall reduction of 11% (-17% to -4%) based on the trend line (figure 16).
- The frequency of CHILD unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 44,841 in 2000 to 53,238 in 2011, representing an estimated annual change of 1.6% (1.2% to 1.9 %) and an overall increase of 21% (16% to 26%) based on the trend line (figure 17).

Figure 16 Trend in the frequency of hospital admissions, Victoria 2000-2011

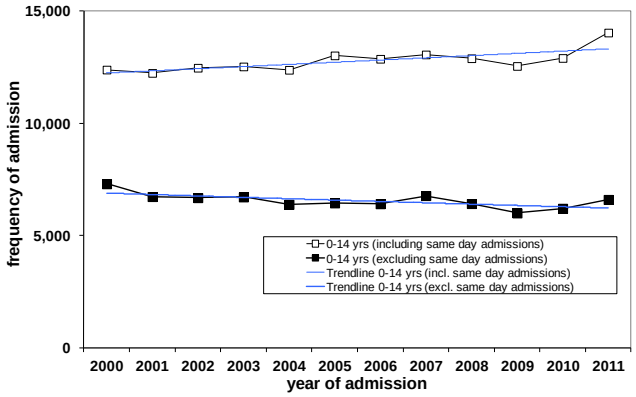
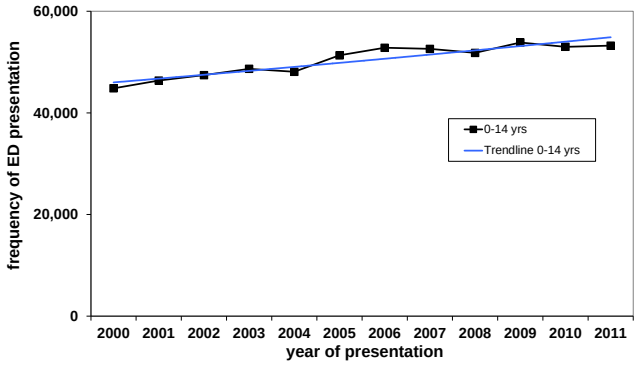


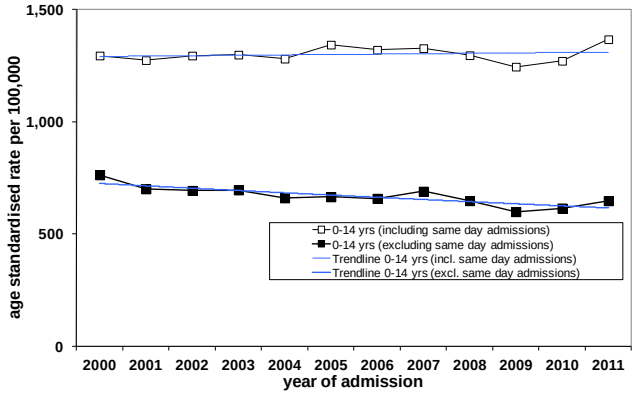
Figure 17 Trend in the frequency of injury ED presentations, Victoria 2000-2011



RATE

- The CHILD unintentional injury and poisoning admission rate (INCLUDING same-day admissions) did not change significantly over the 12-year period. In 2000 it was 1,294.9/100,000 and in 2011 it was 1,367.4/100,000, representing an estimated annual change of just 0.1% (-0.3% to 0.5%) and an overall increase of 2% (-3% to 7%) based on the trend line (figure 18).
- The CHILD unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) decreased significantly over the 12-year period from 763.1/100,000 in 2000 to 647.5/100,000 in 2011, representing an estimated annual decrease of 1.5% (-2.1% to -0.9%) and an overall reduction of 16% (-22% to -11%) based on the trend line (figure 18).
- The trend in the ED presentation rate cannot be determined because numerator data were not complete.

Figure 18 Trend in hospital admission rates per 100,000 population, Victoria 2000-2011



Rates cannot be calculated for ED presentations because numerator data were not complete for the 12-year period.

Gender

- Males were overrepresented in child hospital-treated injury cases, accounting for 62% of hospital admissions (n=8,834) and 58% of ED presentations (n=39,370 in Victoria in 2011 (figures 19 & 20).

Figure 19 Child hospital injury admissions by gender, Victoria 2011

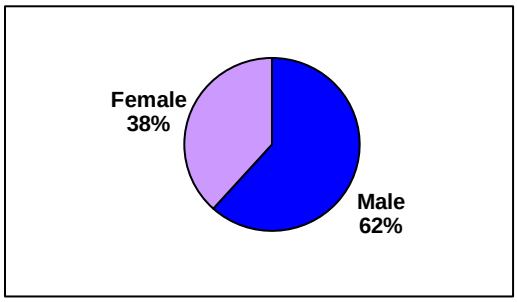
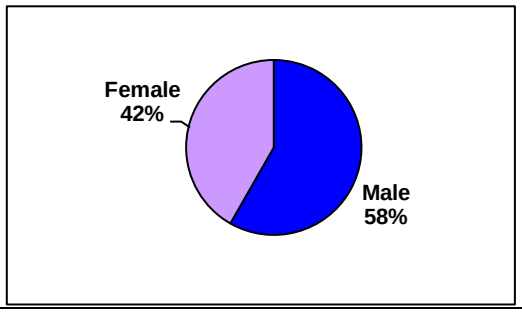


Figure 20 Child ED injury presentations by gender, Victoria 2011



- The child hospital admission and ED presentation rates were also higher for males than females (1,705.1 & 7,599.1/100,000 vs. 1,112.0 & 5,752.1.1/100,000). (Table 5)

Table 5 Frequency and rate of hospital admission and ED presentation in children, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	8,834	1,705.1	39,370	7,599.1
Female	5,467	1,112.0	28,279	5,752.1
All	14,301	1,416.3	67,649	6,699.8

Age

Child injury hospital admissions and ED presentations were fairly evenly distributed across the 5-year age groups (figures 21 & 22).

- Children aged 0-4 years accounted for 35% of child admissions and 36% of child ED presentations.
- Children aged 5-9 years accounted for 31% of child hospital admissions and 28% of child ED presentations.
- Children aged 10-14 years accounted for 34% of child admissions and 36% of child ED presentations.

Figure 21 Child hospital admissions by age group, Victoria 2011

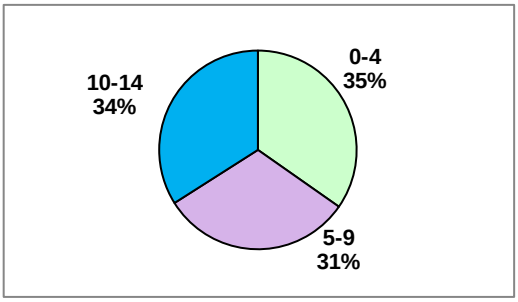
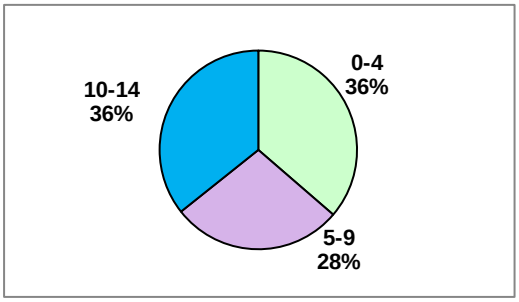


Figure 22 Child ED presentations by age group, Victoria 2011



- Hospital admission and ED presentation rates were slightly higher in 10-14 and 0-4 year olds than 5-9 year olds. (Table 6)

Table 6 Frequency and rate of hospital admission and ED presentation in children, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-4 years	4,971	1,413.1	24,607	6,995.0
5-9 years	4,461	1,355.7	18,858	5,730.9
10-14 years	4,869	1,480.5	24,184	7,353.5
All	14,301	1,416.3	67,649	6,699.8

Leading causes of injury

- The five leading causes of child hospital admissions and ED presentations were the same although the ranking on frequency of cases is different (figures 23 & 24).
- The leading cause of child hospital admissions and ED presentations was falls accounting for 46% (n=6,570) of child hospital admissions and 45% (n=30,147) of ED presentations.
- Hit/struck/crush injuries were the next major cause of injury accounting for 15% of admissions (n=2,164) and 23% of ED presentations (n=15,366).
- Transport accounted for 9% of admissions (n=1,237) and only 3% of ED presentations (n=2,021).
- Cutting and piercing injuries accounted for 5% of admissions (n=684) and 5.5% of ED presentations (n=3,753).
- Injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye, accounted for 4% of admissions (n=602) and 3% of presentations (n=2,476).

Figure 23 Child hospital admissions by cause, Victoria 2011

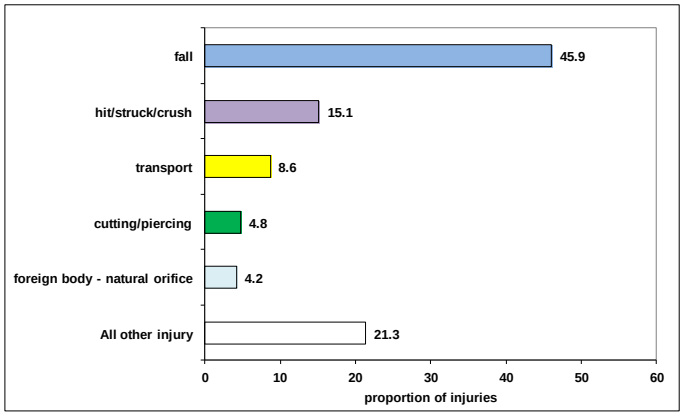
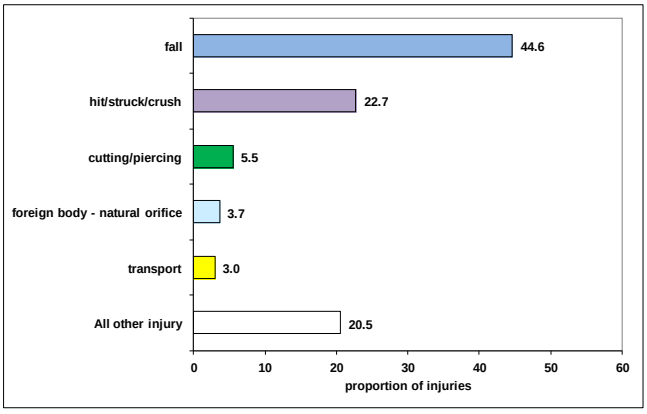


Figure 24 Child ED presentations by cause, Victoria 2011



Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

Major injury type (body site and nature of injury)

Figures 25 & 26 show the five major injury types for child hospital admissions and presentations.

- Fracture to the upper limb accounted for one-third of child hospital injury admissions (33%) and 15% of ED presentations.
- Open wounds to the head/face/neck accounted for 14% of both child hospital injury admissions and ED presentations.

Figure 25 Major injury type, child hospital admissions, Victoria 2011

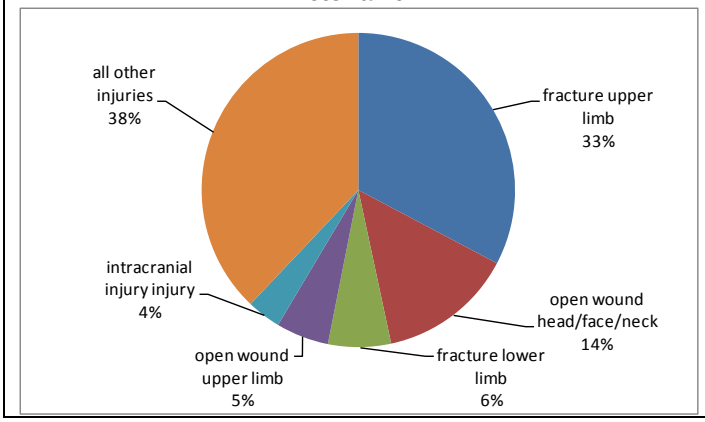
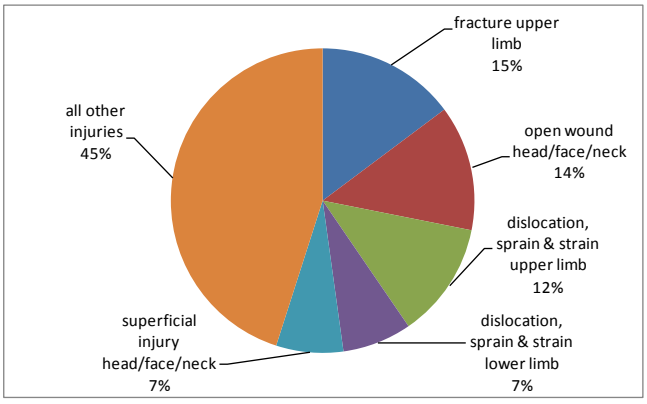


Figure 26 Major injury type, child ED presentations, Victoria 2011



Place of injury occurrence

- The major place of occurrence (location) of injury was the home (20% of hospital admissions and 47% of ED presentations) (figures 27 & 28).
- Children were also commonly injured in schools and other public buildings (14% of admissions and 15% of ED presentations) and sports and athletics areas (7% of admissions and 8% of ED presentations).

Figure 27 Child hospital admissions by place of occurrence, Victoria 2011

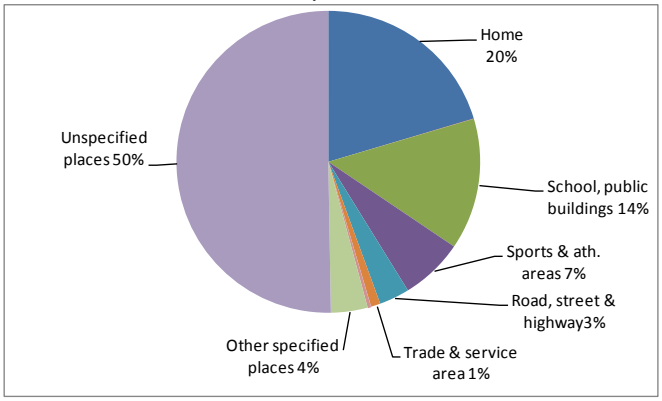
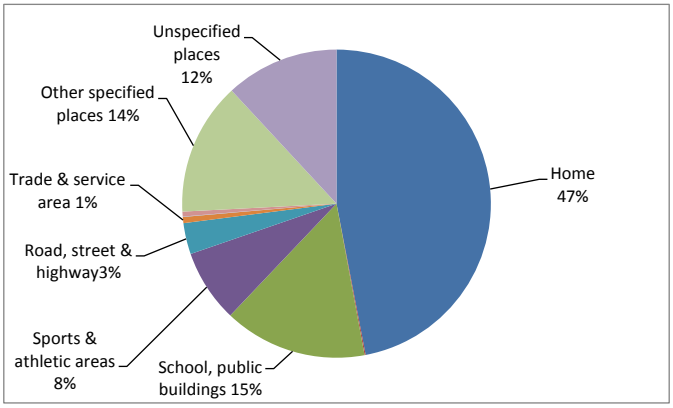


Figure 28 Child ED presentations by place of occurrence, Victoria 2011



Activity when injured

- The activity engaged in at the time of injury was unspecified for 59% of all child injury admissions and recorded as 'other specified' for a further 5% of injuries (figure 29).
- Sport and leisure were the only activities recorded for a significant number of child injury admissions (17% and 15%, respectively) (figure 29). The same activities were commonly reported among injury ED presentations (11% and 51%, respectively) (figure 30).

Figure 29 Child hospital admissions by activity when injured, Victoria 2011

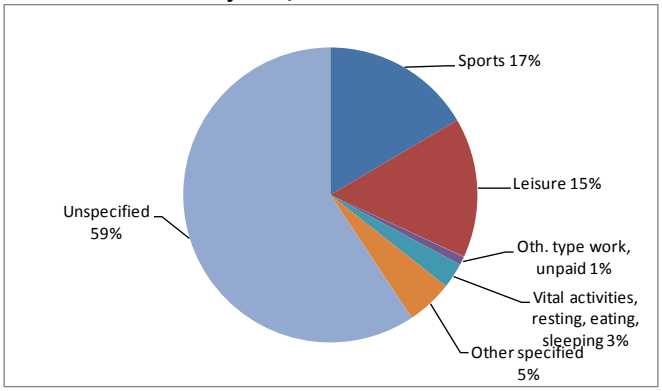


Figure 30 Child ED presentations by activity when injured, Victoria 2011

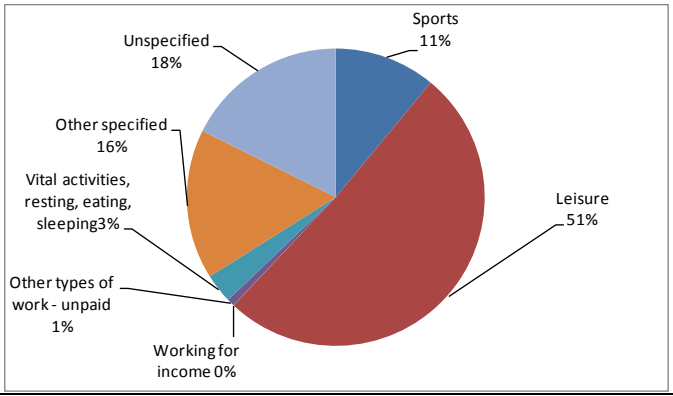


Table 7 Ranking of causes for hospital admissions and ED presentations, children aged 0-14 years, 2011

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	**%**	**CAUSE**	**FREQ**	**%**
0-4 years	1	fall	2,071	*41.7*	fall	10,549	*42.9*
	2	hit/struck/crush	811	*16.3*	hit/struck/crush	4,661	*18.9*
	3	unspecified unintentional	456	*9.2*	other specified unintentional	2,796	*11.4*
	4	foreign body - natural orifice	341	*6.9*	unspecified unintentional	1,556	*6.3*
	5	poisoning	237	*4.8*	foreign body - natural orifice	1,507	*6.1*
	6	fires/burns/scalds	217	*4.4*	cutting/piercing	1,279	*5.2*
	7	cutting/piercing	209	*4.2*	fires/burns/scalds	867	*3.5*
	8	natural/environmental/animals	203	*4.1*	natural/environmental/animals	618	*2.5*
	9	transport	192	*3.9*	poisoning	448	*1.8*
	10	other specified unintentional	101	*2.0*	transport	269	*1.1*
	11	choking/suffocate	65	*1.3*	choking/suffocate	29	*<1*
	12	overexertion & strenuous movements	37	*<1*	machinery	18	*<1*
	13	near drowning	18	*<1*	near drowning	9	*<1*
	14	machinery	13	*<1*	explosions/firearms	*	*
	15	explosions/firearms	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,971	*100.0*	ALL	24,607	*100.0*
5-9 years	1	fall	2,521	*56.5*	fall	9,248	*49.0*
	2	hit/struck/crush	528	*11.8*	hit/struck/crush	3,939	*20.9*
	3	transport	345	*7.7*	other specified unintentional	1,518	*8.0*
	4	unspecified unintentional	341	*7.6*	cutting/piercing	1,240	*6.6*
	5	cutting/piercing	211	*4.7*	unspecified unintentional	936	*5.0*
	6	foreign body - natural orifice	168	*3.8*	foreign body - natural orifice	652	*3.5*
	7	natural/environmental/animals	126	*2.8*	transport	557	*3.0*
	8	other specified unintentional	90	*2.0*	natural/environmental/animals	407	*2.2*
	9	fires/burns/scalds	47	*1.1*	fires/burns/scalds	266	*1.4*
	10	poisoning	30	*<1*	poisoning	69	*<1*
	11	overexertion & strenuous movements	28	*<1*	machinery	10	*<1*
	12	choking/suffocate	14	*<1*	choking/suffocate	7	*<1*
	13	machinery	10	*<1*	near drowning	6	*<1*
	14	explosions/firearms	*	*	explosions/firearms	*	*
	15	near drowning	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,461	*100.0*	ALL	18,858	*100.0*
10-14 years	1	fall	1,978	*40.6*	fall	10,350	*42.8*
	2	hit/struck/crush	825	*16.9*	hit/struck/crush	6,766	*28.0*
	3	transport	700	*14.4*	other specified unintentional	2,210	*9.1*
	4	unspecified unintentional	547	*11.2*	unspecified unintentional	1,398	*5.8*
	5	cutting/piercing	264	*5.4*	cutting/piercing	1,234	*5.1*
	6	natural/environmental/animals	124	*2.5*	transport	1,195	*4.9*
	7	other specified unintentional	124	*2.5*	natural/environmental/animals	356	*1.5*
	8	foreign body - natural orifice	93	*1.9*	foreign body - natural orifice	317	*1.3*
	9	overexertion & strenuous movements	90	*1.8*	fires/burns/scalds	261	*1.1*
	10	fires/burns/scalds	48	*1.0*	poisoning	44	*<1*
	11	poisoning	32	*<1*	machinery	25	*<1*
	12	machinery	25	*<1*	choking/suffocate	13	*<1*
	13	choking/suffocate	12	*<1*	near drowning	12	*<1*
	14	explosions/firearms	6	*<1*	explosions/firearms	*	*
	15	near drowning	*	*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,869	*100.0*	ALL	24,184	*100.0*
ALL CHILDREN	1	fall	6,570	*45.9*	fall	30,147	*44.6*
	2	hit/struck/crush	2,164	*15.1*	hit/struck/crush	15,366	*22.7*
	3	unspecified unintentional	1,344	*9.4*	other specified unintentional	6,524	*9.6*
	4	transport	1,237	*8.6*	unspecified unintentional	3,890	*5.8*
	5	cutting/piercing	684	*4.8*	cutting/piercing	3,753	*5.5*
	6	foreign body - natural orifice	602	*4.2*	foreign body - natural orifice	2,476	*3.7*
	7	natural/environmental/animals	453	*3.2*	transport	2,021	*3.0*
	8	other specified unintentional	315	*2.2*	fires/burns/scalds	1,394	*2.1*
	9	fires/burns/scalds	312	*2.2*	natural/environmental/animals	1,381	*2.0*
	10	poisoning	299	*2.1*	poisoning	561	*<1*
	11	overexertion & strenuous movements	155	*1.1*	machinery	53	*<1*
	12	choking/suffocate	91	*<1*	choking/suffocate	49	*<1*
	13	machinery	48	*<1*	near drowning	27	*<1*
	14	near drowning	19	*<1*	explosions/firearms	7	*<1*
	15	explosions/firearms	8	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,301	*100.0*	ALL	67,649	*100.0*

Adolescents and young adults (15-24 years)

Trend

FREQUENCY

Frequency and rate data for 2011 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) were used for the trend calculations.

- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 12-year period from 10,396 in 2000 to 14,585 in 2011, representing an estimated annual change of 3.0% (95% confidence interval 2.4% to 3.4%) and an overall increase of 42% (34% to 49%) based on the trend line (figure 31).
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period. In 2000 the frequency was 5,942 and in 2011 it was 7,389. This represented an estimated annual change of 1.9% (1.3% to 2.6%) and an overall increase of 26% (17% to 36%) based on the trend line (figure 31).
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 32,226 in 2000 to 37,911 in 2011, representing an estimated annual change of 1.8% (1.2% to 2.3%) and an overall increase of 23% (15% to 31%) based on the trend line (figure 32).

Figure 31 Trend in the frequency of hospital admissions, Victoria 2000-2011

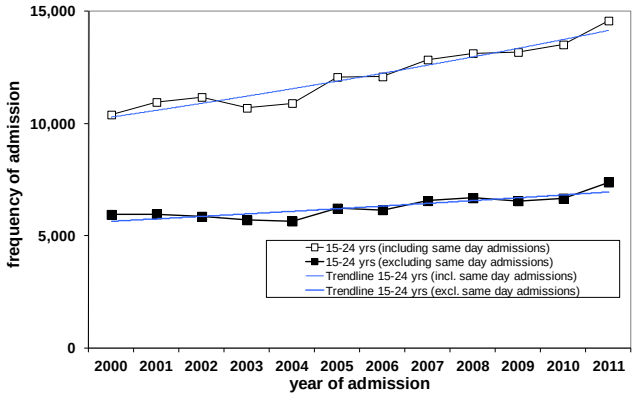
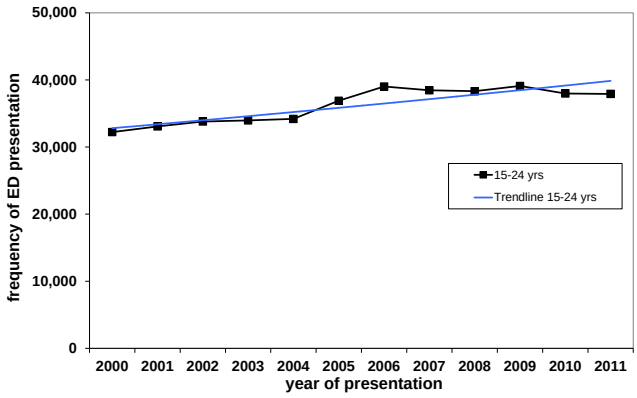


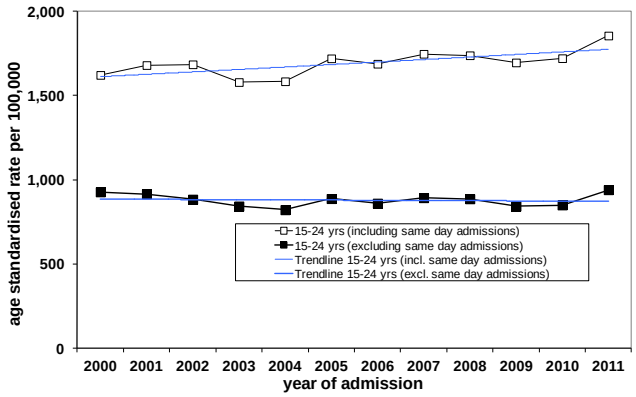
Figure 32 Trend in the frequency of injury ED presentations, Victoria 2000-2011



RATE

- The ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,621.9/100,000 in 2000 to 1,856.0/100,000 in 2011, representing an estimated annual change of 0.9% (0.4% to 1.4%) and an overall increase of 11% (5% to 18%) based on the trend line (figure 33).
- The ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) was fairly stable over the 12-year period. It was 927.0/100,000 in 2000 and 939.8.1/100,000 in 2011, representing an estimated annual reduction of 0.1% (-0.8% to 0.5%) and an overall decrease of 2% (-9% to 7%) based on the trend line. This slight decrease was not statistically significant (figure 33).
- The trend in ED presentation rate cannot be determined because numerator data were not complete.

Figure 33 Trend in hospital admission rates per 100,000 population, Victoria 2000-2011



Rates cannot be calculated for ED presentations because numerator data were not complete for the 12-year period.

Gender

- Males were overrepresented in hospital-treated injury cases among adolescents and young adults, accounting for 73% of hospital admissions (n=10,908) and 67% of ED presentations (n=31,678) in Victoria in 2011 (figure 34 & 35).

Figure 34 Adolescent and young adult hospital injury admissions by gender, Victoria 2011

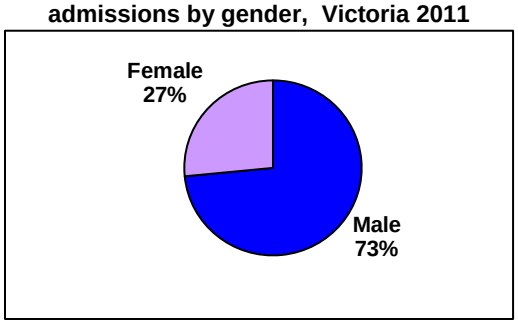
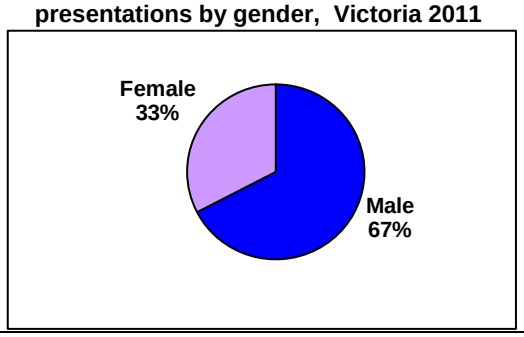


Figure 35 Adolescent and young adult ED injury presentations by gender, Victoria 2011



- Hospital admissions and ED presentation rates were also higher for males than females (2,776.7 & 8,063.7/100,000 vs. 1,049.5 & 4,104.0/100,000). (Table 8)

Table 8 Frequency and rate of hospital admission and ED presentation, adolescent and young adults, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	10,908	2,776.7	31,678	8,063.7
Female	3,936	1,049.5	15,392	4,104.0
All	14,844	1,933.1	47,070	6,129.7

Age

- Adolescent and young adult injury hospital admissions and ED presentations were very evenly distributed across the two 5-year age groups (figures 36 & 37).
- Adolescents aged 15 to 19 years accounted for 47% of admissions and 51% of ED presentations.
- Young adults aged 20 to 24 years accounted for 53% of admissions and 49% of ED presentations.

Figure 36 Adolescent and young adult hospital admissions by age group, Victoria 2011

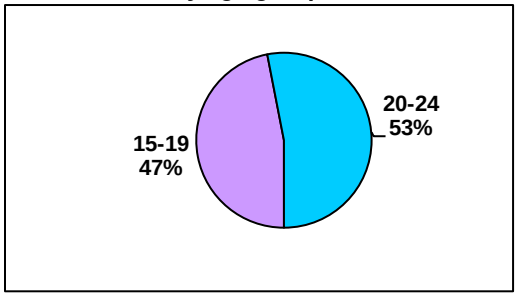
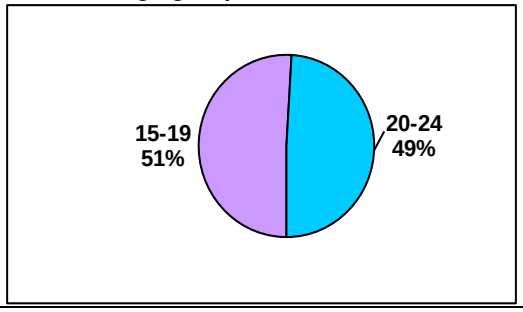


Figure 37 Adolescent and young adult ED presentations by age group, Victoria 2011



- Both hospital admission and ED presentation rates were slightly higher in 15-19 year olds than 20-24 year olds (1,960.6/100,000 vs. 1,909.4/100,000 & 6,756.0 /100,000 vs. 5,589.9.6/100,000, respectively) (Table 9).

Table 9 Frequency and rate of hospital admission and ED presentation in adolescent and young adults, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
15-19 years	6,969	1,960.6	24,015	6,756.0
20-24 years	7,875	1,909.4	23,055	5,589.9
All	14,844	1,933.1	47,070	6,129.7

Leading causes of injury

- Four of the five leading causes of adolescent and young adult hospital admissions and ED presentations were the same although the ranking on frequency of cases is different (figures 38 & 39).
- Transport was the leading cause of adolescent and young adult hospital admissions (21%, n=3,176) but only accounted for 9% of ED presentations (n=4,243).
- Falls was the second most common cause of hospital admissions (19%, n=2,797), and ED presentations (26%, n=12,146) in this age group.
- Hit/struck/crush injuries accounted for 16% of hospital admissions (n=2,340) and was the leading cause of ED presentations (26%, n=12,389).
- Cutting and piercing injuries accounted for 10% of admissions (n=1,495) and 11% of ED presentations (n=5,387).
- The fifth ranking cause of adolescent and young adult hospital admissions was overexertion and strenuous movements (3%, n=482) whereas for ED presentations it was injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (3%, n=1,616).

Figure 38 Adolescent and young adult hospital admissions by cause, Victoria 2011

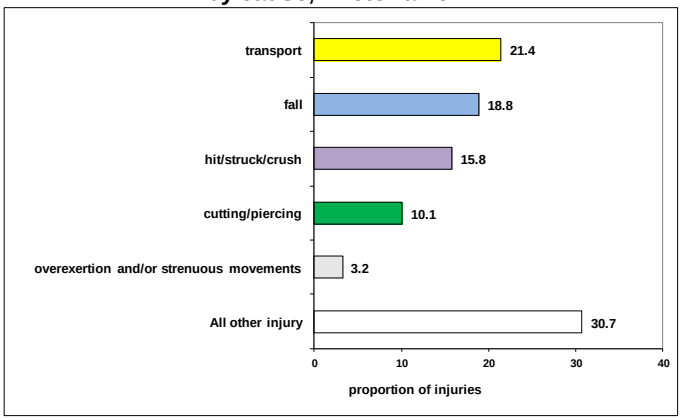
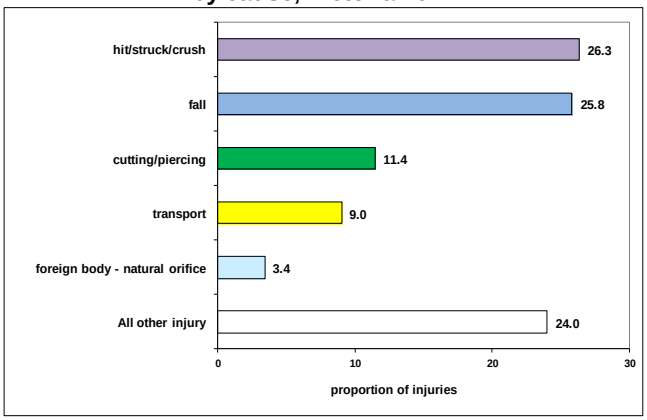


Figure 39 Adolescent and young adult ED presentations by cause, Victoria 2011



Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

Major injury type (body site and nature of injury)

Figures 40 & 41 show the five major specific injury types for adolescent and young adult hospital admissions and ED presentations.

- Fracture to the upper limb accounted for 19% of hospital injury admissions and 9% of ED presentations.
- Fracture to the lower limb and open wounds of the upper limb were also common among hospital admissions (8% each).
- Dislocations/sprains and strains to the lower limb (15%), upper limb (11%) and open wounds to the upper limb (9%) were common among ED presentations.

Figure 40 Major injury type, adolescent and young adult hospital admissions, Victoria 2011

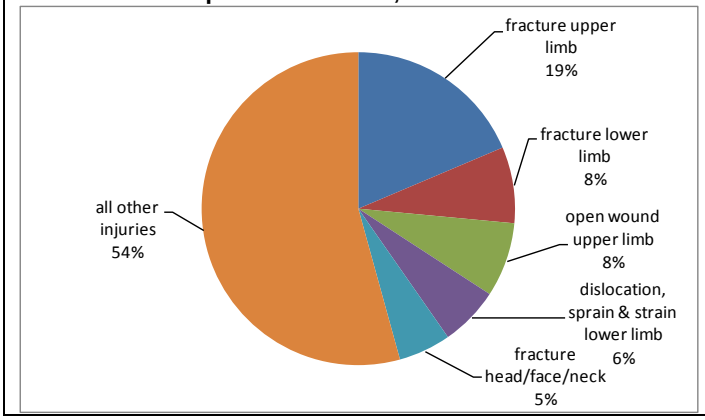
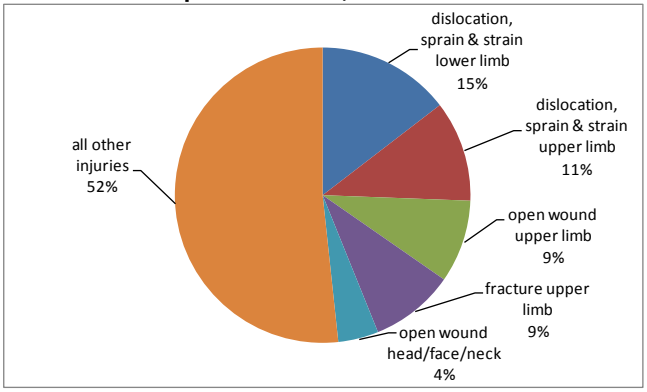


Figure 41 Major injury type, adolescent and young adult ED presentations, Victoria 2011



Place of injury occurrence

- Sports & athletics areas (16%) and the road, street and highway (14%) were the most common places of occurrence of adolescent and young adult injuries resulting in hospital admission (figure 42).
- Among ED presentations the home (24%) and sports & athletics areas (18%) were the most common places of occurrence for injuries resulting in ED presentation (figure 43).

Figure 42 Adolescent and young adult hospital admissions by place of occurrence, Victoria 2011

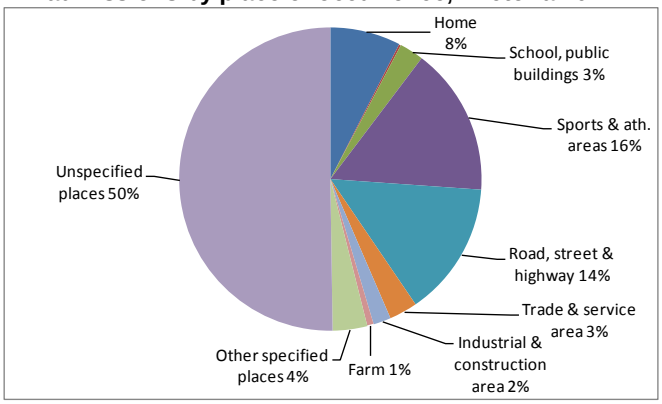
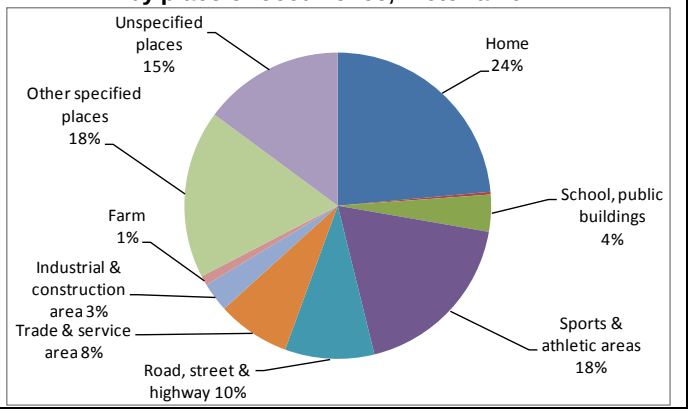


Figure 43 Adolescent and young adult ED presentations by place of occurrence, Victoria 2011



Activity when injured

- The activity engaged in at the time of injury was unspecified for more than half of adolescent and young adult injury admissions (53%) (figure 44).
- Sports (27%) and working for income (9%) were the only activities recorded for a significant number of adolescent and young adult admissions (figure 44).
- Leisure was recorded as the activity engaged in at the time of injury for 34% of adolescent and young adult ED presentations, followed by sports (22%) and working for income (11%) (figure 45).

Figure 44 Adolescent and young adult hospital admissions by activity when injured, Victoria 2011

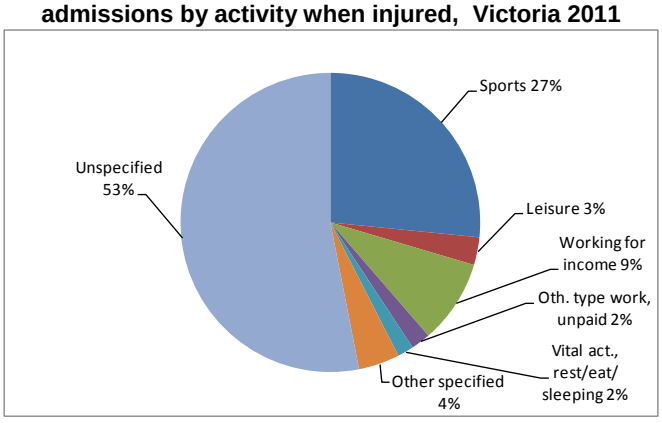


Figure 45 Adolescent and young adult ED presentations by activity when injured, Victoria 2011

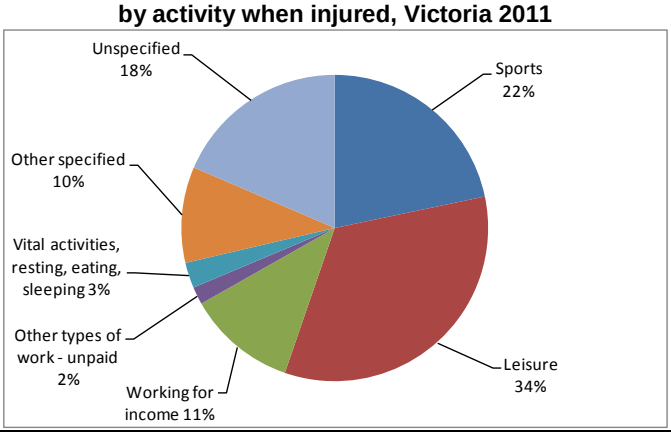


Table 10 Ranking of causes for hospital admissions and ED presentations, persons aged 15 to 24 years, 2011

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
15-19 years	1	transport	1,471	*21.1*	hit/struck/crush	6,858	*28.6*
	2	fall	1,421	*20.4*	fall	6,755	*28.1*
	3	hit/struck/crush	1,167	*16.7*	other specified unintentional	2,501	*10.4*
	4	unspecified unintentional	1,156	*16.6*	cutting/piercing	2,295	*9.6*
	5	cutting/piercing	648	*9.3*	transport	2,066	*8.6*
	6	other specified unintentional	224	*3.2*	unspecified unintentional	1,734	*7.2*
	7	overexertion & strenuous movements	216	*3.1*	foreign body - natural orifice	576	*2.4*
	8	poisoning	181	*2.6*	fires/burns/scalds	478	*2.0*
	9	natural/environmental/animals	162	*2.3*	natural/environmental/animals	425	*1.8*
	10	foreign body - natural orifice	113	*1.6*	poisoning	192	*<1*
	11	fires/burns/scalds	93	*1.3*	machinery	107	*<1*
	12	machinery	75	*1.1*	choking/suffocate	22	*<1*
	13	choking/suffocate	20	*<1*	near drowning	*	*
	14	explosions/firearms	18	*<1*	explosions/firearms	*	*
	15	near drowning	*	*	overexertion & strenuous movements	N/A	*N/A*
		ALL	6,969	*100.0*	ALL	24,015	*100.0*
20-24 years	1	transport	1,705	*21.7*	hit/struck/crush	5,531	*24.0*
	2	fall	1,376	*17.5*	fall	5,391	*23.4*
	3	unspecified unintentional	1,263	*16.0*	cutting/piercing	3,092	*13.4*
	4	hit/struck/crush	1,173	*14.9*	other specified unintentional	2,384	*10.3*
	5	cutting/piercing	847	*10.8*	transport	2,177	*9.4*
	6	poisoning	281	*3.6*	unspecified unintentional	1,769	*7.7*
	7	other specified unintentional	272	*3.5*	foreign body - natural orifice	1,040	*4.5*
	8	overexertion & strenuous movements	266	*3.4*	natural/environmental/animals	629	*2.7*
	9	natural/environmental/animals	218	*2.8*	fires/burns/scalds	583	*2.5*
	10	foreign body - natural orifice	177	*2.2*	poisoning	239	*1.0*
	11	machinery	146	*1.9*	machinery	187	*<1*
	12	fires/burns/scalds	112	*1.4*	choking/suffocate	21	*<1*
	13	choking/suffocate	22	*<1*	near drowning	7	*<1*
	14	explosions/firearms	15	*<1*	explosions/firearms	5	*<1*
	15	near drowning	*	*	overexertion & strenuous movements	N/A	*N/A*
		ALL	7,875	*100.0*	ALL	23,055	*100.0*
ALL ADOLES-CENTS & YOUNG ADULTS	1	transport	3,176	*21.4*	hit/struck/crush	12,389	*26.3*
	2	fall	2,797	*18.8*	fall	12,146	*25.8*
	3	unspecified unintentional	2,419	*16.3*	cutting/piercing	5,387	*11.4*
	4	hit/struck/crush	2,340	*15.8*	other specified unintentional	4,885	*10.4*
	5	cutting/piercing	1,495	*10.1*	transport	4,243	*9.0*
	6	other specified unintentional	496	*3.3*	unspecified unintentional	3,503	*7.4*
	7	overexertion & strenuous movements	482	*3.2*	foreign body - natural orifice	1,616	*3.4*
	8	poisoning	462	*3.1*	fires/burns/scalds	1,061	*2.3*
	9	natural/environmental/animals	380	*2.6*	natural/environmental/animals	1,054	*2.2*
	10	foreign body - natural orifice	290	*2.0*	poisoning	431	*<1*
	11	machinery	221	*1.5*	machinery	294	*<1*
	12	fires/burns/scalds	205	*1.4*	choking/suffocate	43	*<1*
	13	choking/suffocate	42	*<1*	near drowning	11	*<1*
	14	explosions/firearms	33	*<1*	explosions/firearms	7	*<1*
	15	near drowning	6	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,844	*100.0*	ALL	47,070	*100.0*

Adults (25-64 years)

Trend

FREQUENCY

Frequency and rate data for 2011 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) were used for the trend calculations.

- The frequency of ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 12-year period from 26,920 in 2000 to 43,079 in 2011, representing an estimated annual change of 3.9% (95% confidence interval 3.4% to 4.3%) and an overall increase of 587% (49% to 66%) based on the trend line (figure 46).
- The frequency of ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 17,064 in 2000 to 25,059 in 2011, representing an estimated annual change of 3.5% (2.9% to 4.0%) and an overall increase of 52% (41% to 61%) based on the trend line (figure 46).
- The frequency of ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 66,096 in 2000 to 77,479 in 2011, representing an estimated annual change of 1.5% (1.0% to 1.9%) and an overall increase of 19% (13% to 26%) based on the trend line (figure 47).

Figure 46 Trend in the frequency of hospital admissions, Victoria 2000-2011

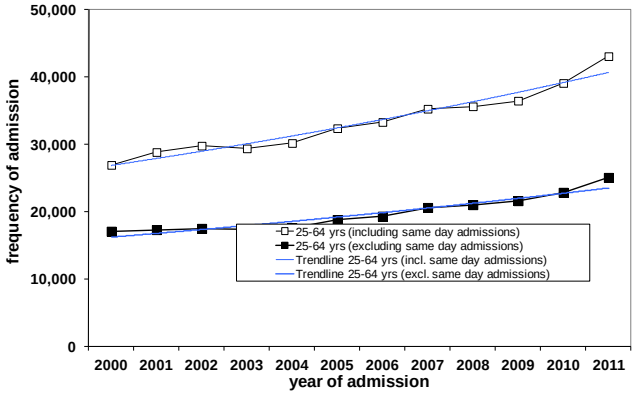
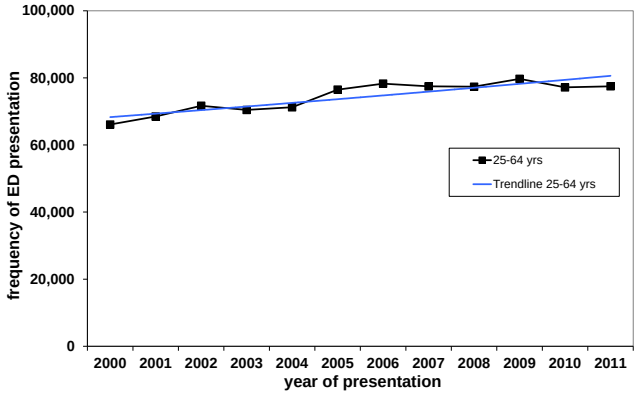


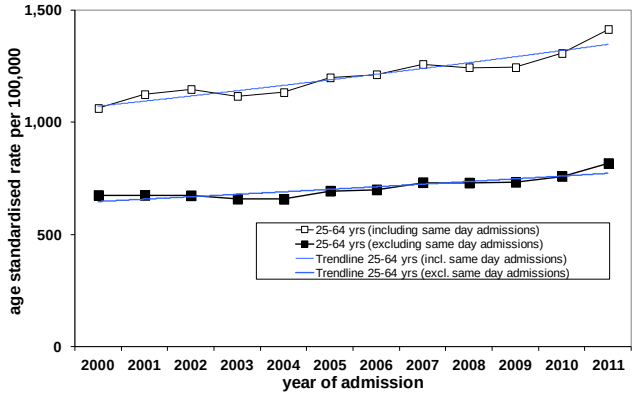
Figure 47 Trend in the frequency of injury ED presentations, Victoria 2000-2011



RATE

- The ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,061.4/100,000 in 2000 to 1,413.6/100,000 in 2011, representing an estimated annual change of 2.1% (1.7% to 2.5%) and an overall increase of 29% (22% to 35%) based on the trend line (figure 48).
- The ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 673.6/100,000 in 2000 to 816.0/100,000 in 2011, representing an estimated annual change of 1.7% (1.2% to 2.1%) and an overall increase of 22% (15% to 29%) based on the trend line (figure 48).
- The trend in ED presentation rate cannot be determined because numerator data were not complete.

Figure 48 Trend in hospital admission rates per 100,000 population, Victoria 2000-2011



Rates cannot be calculated for ED presentations because numerator data were not complete for the 12-year period.

Gender

- Males were overrepresented in hospital injury data for adults aged 25 to 64 years, accounting for 63% of hospital admissions (n=28,373) and 61% of ED presentations (n=58,614) in Victoria in 2011 (figures 49 & 50).

Figure 49 Adult hospital injury admissions by gender, Victoria 2011

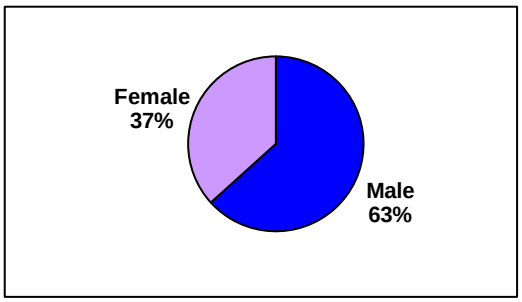
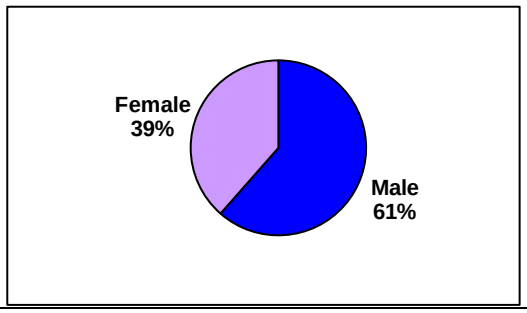


Figure 50 Adult ED injury presentations by gender, Victoria 2011



- Hospital admission and ED presentation rates were higher for males compared with females (1,924.2 & 3,975.2/100,000 vs. 1,091.6 & 2,455.3/100,000). (Table 11)

Table 11 Frequency and rate of adult hospital admission and ED presentation, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	28,373	1,924.2	58,614	3,975.2
Female	16,455	1,091.6	37,014	2,455.3
All	44,828	1,503.3	95,628	3,206.9

Age

- Persons aged 25 to 44 years accounted for more adult hospital admissions and ED presentations than persons aged 45 to 64 years (52% and 62%) (figures 51 & 52).

Figure 51 Adult hospital admissions by age group, Victoria 2011

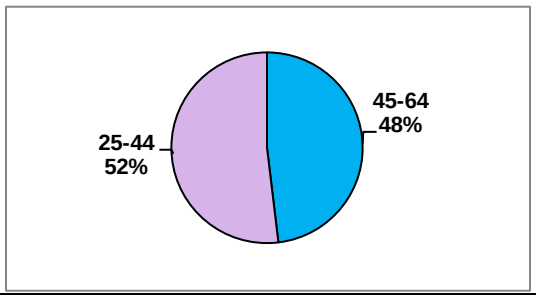
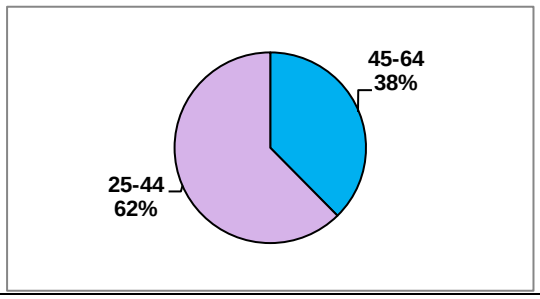


Figure 52 Adult ED presentations by age group, Victoria 2011



- The highest adult hospital admission rate was among 60-64 year olds (1,812.8/100,000). The highest ED presentation rate was among 25-29 year olds (4,400.5.4/100,000), rates then decrease with age. (Table 12)

Table 12 Frequency and rate of hospital admission and ED presentation in adults, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
25-29 years	6,490	1,527.9	18,692	4,400.5
30-34 years	5,615	1,433.9	14,735	3,762.9
35-39 years	5,561	1,407.2	13,460	3,406.1
40-44 years	5,600	1,403.1	12,765	3,198.2
45-49 years	5,422	1,420.4	11,001	2,882.0
50-54 years	5,538	1,522.3	9,773	2,686.4
55-59 years	5,143	1,584.0	8,004	2,465.1
60-64 years	5,459	1,812.8	7,198	2,390.3
All	44,828	1,503.3	95,628	3,206.9

Leading causes of injury

- Four of the five leading causes of adult hospital admissions and ED presentations were the same although the ranking on frequency of cases is different (figures 53 and 54).
- The leading cause of adult hospital admissions and ED presentations was falls accounting for 28% (n=12,619) of hospital admissions and 27% (n=25,423) of ED presentations.
- Transport accounted for 17% of admissions (n=7,732) but only 8% of presentations (n=7,358).
- Cutting and piercing injuries accounted for 9% of admissions (n=4,051) and 13% of ED presentations (n=12,746).
- Hit/struck/crush injuries accounted for just 9% of admissions (n=3,990) but 19% of ED presentations (n=17,821).
- The fifth ranking cause of hospital admissions was natural/environmental/animal related injury (4%, n=1,911) whereas for ED presentations it was injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (7%, n=6,387).

Figure 53 Adult hospital admissions by cause, Victoria 2011

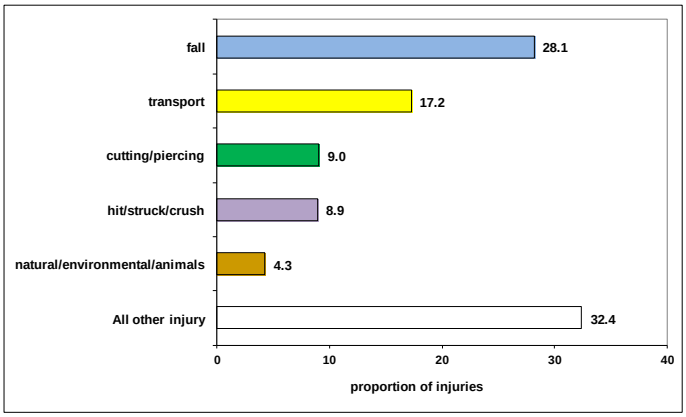
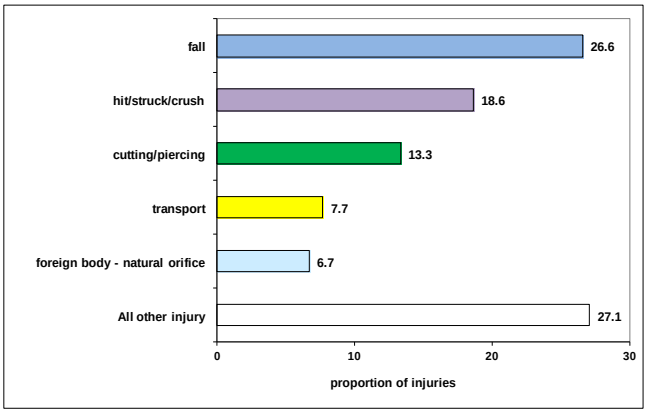


Figure 54 Adult ED presentations by cause, Victoria 2011



Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

Major injury type (body site and nature of injury)

Figures 55 & 56 show the five major specific injury types for adult hospital admissions and ED presentations.

- Fracture to the upper limb accounted for 15% of adult hospital injury admissions and 8% of ED presentations.
- Fracture to the lower limb was the second most common type of adult injury requiring hospital admission (10%).
- Dislocations/sprains and strains to the lower limb (11%) and open wounds to the upper limb (11%) were the most common type of injuries among ED presentations.

Figure 55 Major injury type, adult hospital admissions, Victoria 2011

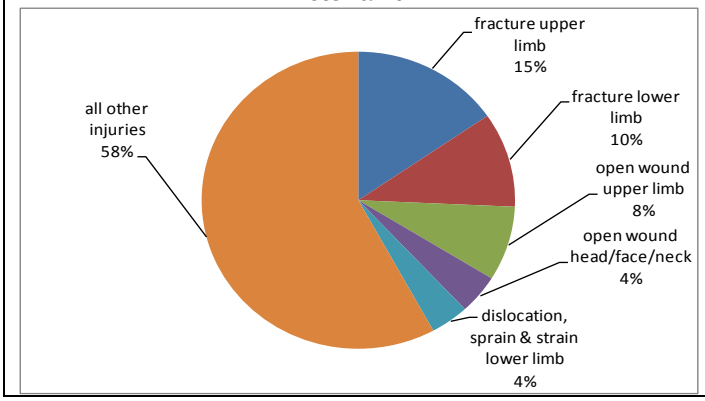
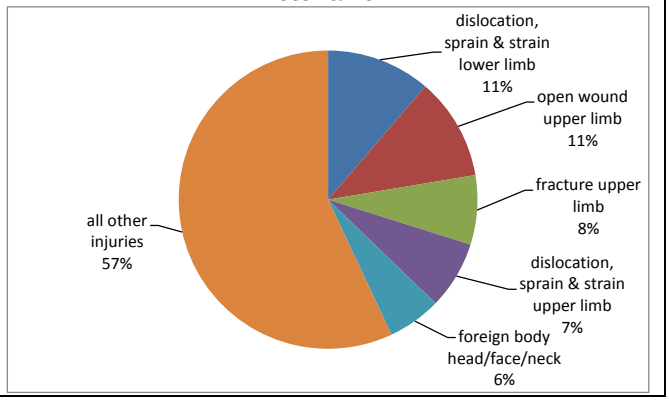


Figure 56 Major injury type, adult ED presentations, Victoria 2011



Place of injury occurrence

- Seventeen percent of adult injuries requiring hospital admission and 37% of injuries resulting in ED presentation occurred in the home (figures 57 & 58).
- Other locations where injuries to adults commonly occurred were:
  - roads, streets and highways (14% of admissions and 10% of ED presentations)
  - trade and service areas (3% of admissions and 9% of ED presentations) and
  - sports and athletics areas (5% of admissions and 6% of ED presentations).

Figure 57 Adult hospital admissions by place of occurrence, Victoria 2011

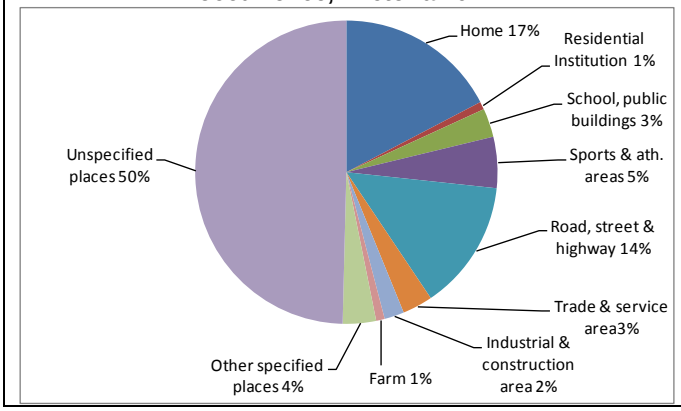
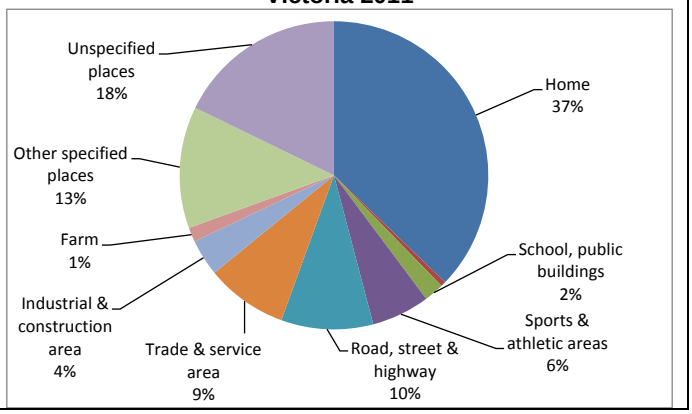


Figure 58 Adult ED presentations by place of occurrence, Victoria 2011



Activity when injured

- The activity engaged in at the time of injury was unspecified for 62% of adult injury admissions and recorded as 'other specified' for a further 5% of injuries (figure 59).
- Working for income (11%) and sports (11%) were the only activities recorded for a significant number of adult admissions (figure 59).
- Leisure was recorded as the activity engaged in at the time of injury for more than one-third of adult ED presentations (34%), followed by working for income (16%) and sports (7%) (figure 60).

Figure 59 Adult hospital admissions by activity when injured, Victoria 2011

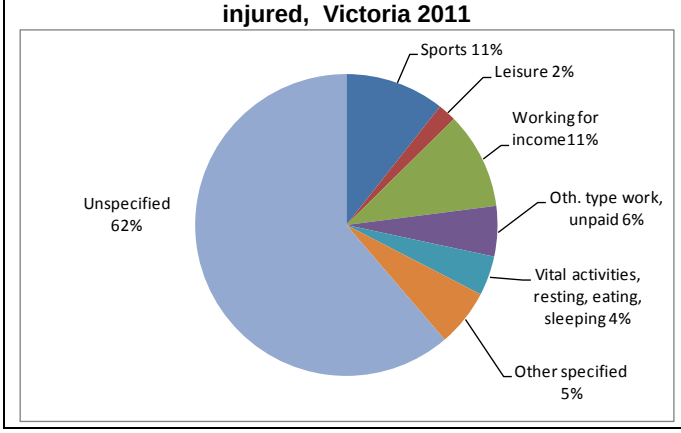


Figure 60 Adult ED presentations by activity when injured, Victoria 2011

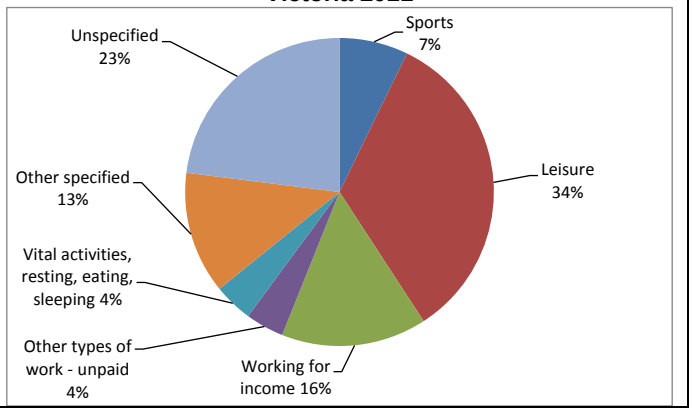


Table 13 Ranking of causes for hospital admissions and ED presentations, persons aged 25 to 64 years, 2011

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
25-44 years	1	fall	4,831	*20.8*	fall	14,092	*23.6*
	2	transport	4,592	*19.7*	hit/struck/crush	12,540	*21.0*
	3	unspecified unintentional	3,569	*15.3*	cutting/piercing	8,260	*13.8*
	4	hit/struck/crush	2,612	*11.2*	other specified unintentional	6,984	*11.7*
	5	cutting/piercing	2,441	*10.5*	transport	4,926	*8.3*
	6	overexertion & strenuous movements	906	*3.9*	unspecified unintentional	4,705	*7.9*
	7	natural/environmental/animals	904	*3.9*	foreign body - natural orifice	3,813	*6.4*
	8	other specified unintentional	863	*3.7*	natural/environmental/animals	1,760	*3.0*
	9	poisoning	747	*3.2*	fires/burns/scalds	1,425	*2.4*
	10	foreign body - natural orifice	729	*3.1*	machinery	563	*<1*
	11	machinery	520	*2.2*	poisoning	500	*<1*
	12	fires/burns/scalds	366	*1.6*	choking/suffocate	59	*<1*
	13	choking/suffocate	120	*<1*	near drowning	23	*<1*
	14	explosions/firearms	55	*<1*	explosions/firearms	*	*
	15	near drowning	11	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	23,266	*100.0*	ALL	59,652	*100.0*
45-64 years	1	fall	7,788	*36.1*	fall	11,331	*31.5*
	2	transport	3,140	*14.6*	hit/struck/crush	5,281	*14.7*
	3	unspecified unintentional	3,126	*14.5*	cutting/piercing	4,486	*12.5*
	4	cutting/piercing	1,610	*7.5*	other specified unintentional	4,088	*11.4*
	5	hit/struck/crush	1,378	*6.4*	unspecified unintentional	2,938	*8.2*
	6	natural/environmental/animals	1,007	*4.7*	foreign body - natural orifice	2,574	*7.2*
	7	overexertion & strenuous movements	680	*3.2*	transport	2,432	*6.8*
	8	foreign body - natural orifice	648	*3.0*	natural/environmental/animals	1,255	*3.5*
	9	other specified unintentional	593	*2.8*	fires/burns/scalds	885	*2.5*
	10	machinery	514	*2.4*	machinery	397	*1.1*
	11	poisoning	511	*2.4*	poisoning	246	*<1*
	12	choking/suffocate	284	*1.3*	choking/suffocate	50	*<1*
	13	fires/burns/scalds	247	*1.1*	near drowning	8	*<1*
	14	explosions/firearms	25	*<1*	explosions/firearms	5	*<1*
	15	near drowning	11	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	21,562	*100.0*	ALL	35,976	*100.0*
ALL ADULTS AGED 25-64	1	fall	12,619	*28.1*	fall	25,423	*26.6*
	2	transport	7,732	*17.2*	hit/struck/crush	17,821	*18.6*
	3	unspecified unintentional	6,695	*14.9*	cutting/piercing	12,746	*13.3*
	4	cutting/piercing	4,051	*9.0*	other specified unintentional	11,072	*11.6*
	5	hit/struck/crush	3,990	*8.9*	unspecified unintentional	7,643	*8.0*
	6	natural/environmental/animals	1,911	*4.3*	transport	7,358	*7.7*
	7	overexertion & strenuous movements	1,586	*3.5*	foreign body - natural orifice	6,387	*6.7*
	8	other specified unintentional	1,456	*3.2*	natural/environmental/animals	3,015	*3.2*
	9	foreign body - natural orifice	1,377	*3.1*	fires/burns/scalds	2,310	*2.4*
	10	poisoning	1,258	*2.8*	machinery	960	*1.0*
	11	machinery	1,034	*2.3*	poisoning	746	*<1*
	12	fires/burns/scalds	613	*1.4*	choking/suffocate	109	*<1*
	13	choking/suffocate	404	*<1*	near drowning	31	*<1*
	14	explosions/firearms	80	*<1*	explosions/firearms	7	*<1*
	15	near drowning	22	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	44,828	*100.0*	ALL	95,628	*100.0*

Older adults (65 years and older)

Trend

FREQUENCY

Frequency and rate data for 2011 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) were used for the trend calculations.

- The frequency of OLDER ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 12-year period from 19,510 in 2000 to 35,043 in 2011, representing an estimated annual change of 5.1% (95% confidence interval 4.6% to 5.3%) and an overall increase of 81% (71% to 87%) based on the trend line (figure 61).
- The frequency of OLDER ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 15,861 in 2000 to 26,929 in 2011, representing an estimated annual change of 4.7% (4.3% to 5.0%) and an overall increase of 75% (65% to 80%) based on the trend line (figure 61).
- The frequency of OLDER ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 12,001 in 2000 to 15,804 in 2011, representing an estimated annual change of 2.6% (2.1% to 2.9%) and an overall increase of 35% (29% to 41%) based on the trend line (figure 62).

Figure 61 Trend in the frequency of hospital admissions, Victoria 2000-2011

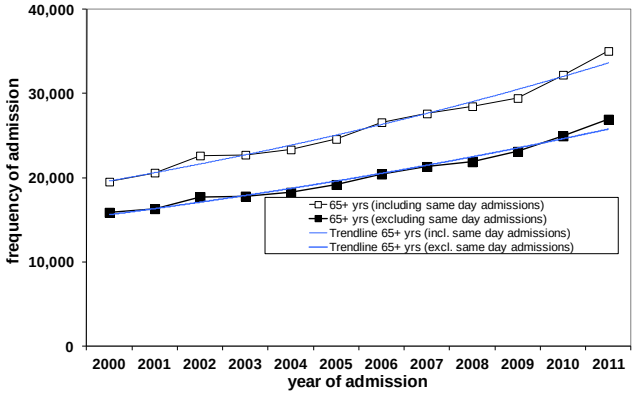
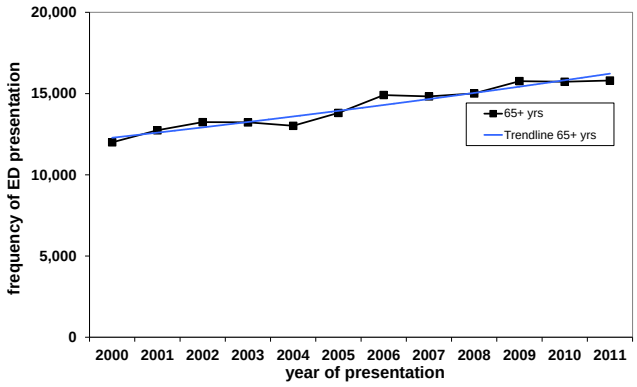


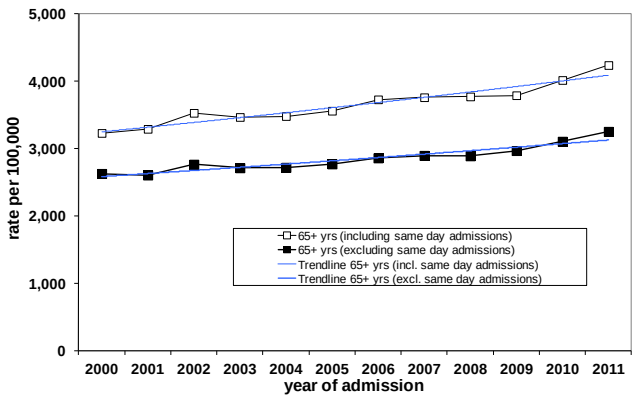
Figure 62 Trend in the frequency of injury ED presentations, Victoria 2000-2011



RATE

- The OLDER ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 3,230.4/100,000 in 2000 to 4,239.1/100,000 in 2011, representing an estimated annual change of 2.1% (1.8% to 2.5%) and an overall increase of 29% (23% to 34%) based on the trend line (figure 63).
- The OLDER ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 2,628.2/100,000 in 2000 to 3,253.3/100,000 in 2011, representing an estimated annual change of 1.8% (1.4% to 2.1%) and an overall increase of 24% (18% to 28%) based on the trend line (figure 63).
- The trend in ED presentation rate cannot be determined because numerator data were not complete.

Figure 63 Trend in hospital admission rates per 100,000 population, Victoria 2000-2011



Rates cannot be calculated for ED presentations because numerator data were not complete for the 12-year period.

Gender

- Females were overrepresented in hospital injury data for persons aged 65 years and older. They accounted for 63% of hospital admissions (n=24,195 and 56% of ED presentations (n=11,426) in Victoria in 2011 (figure 64 & 65).

Figure 64 Older adult hospital injury admissions by gender, Victoria 2011

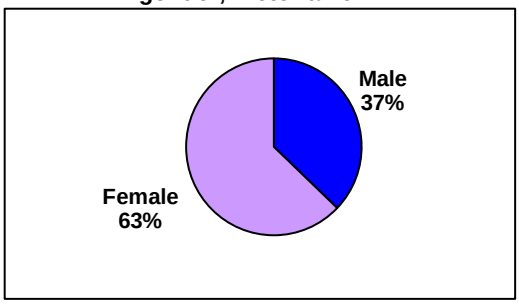
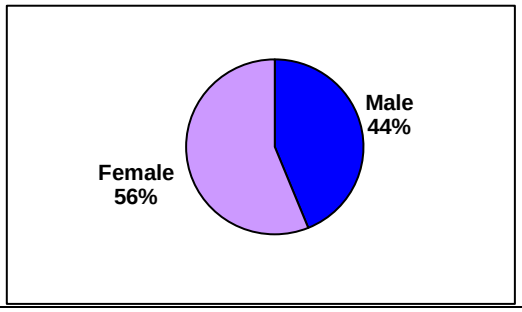


Figure 65 Older adult ED injury presentations by gender, Victoria 2011



- The rate of hospital admission and ED presentation was higher for females than males (5,711.9 & 2,697.4 /100,000 vs. 4,087.9 & 2,532.4/100,000). (Table 14)

Table 14 Frequency and rate of older adult hospital admission and ED presentation, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	14,362	4,087.9	8,897	2,532.4
Female	24,195	5,711.9	11,426	2,697.4
All	38,557	4,975.6	20,323	2,622.6

Age

- Persons aged 85 years and older accounted for 37% of injury hospital admissions among older adults and persons aged 80-84 years accounted for a further 21% (figure 66).
- Older adult ED presentations were fairly evenly distributed across the five age groups (figure 67).

Figure 66 Older adult hospital admissions by age group, Victoria 2011

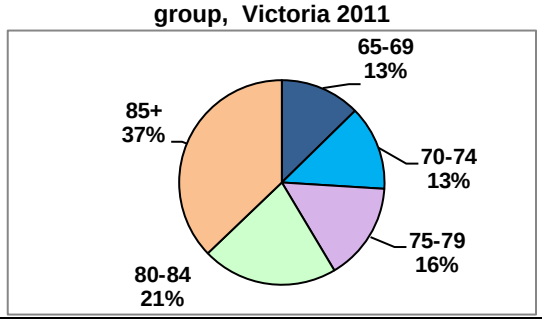
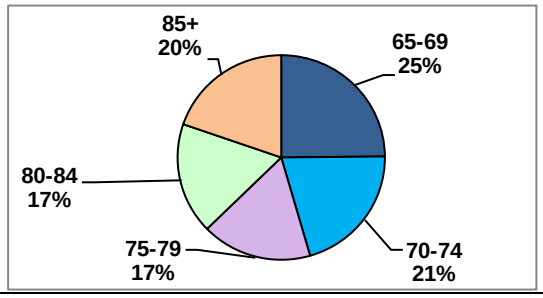


Figure 67 Older adult ED presentations by age group, Victoria 2011



- Among persons aged 65 years and older both admission and ED presentation rates increased as age increased and the highest rates were in persons aged 85 years and older. (Table 15)

Table 15 Frequency and rate of hospital admission and ED presentation in older adults, Victoria 2011

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
65-69 years	4,873	2,095.7	5,049	2,171.4
70-74 years	5,147	2,862.5	4,191	2,330.8
75-79 years	5,963	4,168.0	3,519	2,459.7
80-84 years	8,241	7,153.0	3,546	3,077.8
85+ years	14,333	13,740.9	4,018	3,852.0
All	38,557	4,975.6	20,323	2,622.6

Leading causes of injury

- The leading cause of hospital admissions and ED presentations for older adults was falls. Falls accounted for almost three-quarters of hospital admissions (72%, n=27,735) and more than half of ED presentations (54%, n=11,042) in this age group (figures 68 & 69).
- Transport was the second most common cause of hospital admission (4%, n=1,647) and the cause of 3% of presentations (n=685).
- The third leading cause of admissions was choking and suffocation (3%, n=1,121) whereas for ED presentations it was cutting and piercing (8%, n=1,541).
- Hit/struck/crush injuries accounted for 3% of admissions (n=1,069) and 8% of ED presentations (n=1,541).

Figure 68 Older adult hospital admissions by cause, Victoria 2011

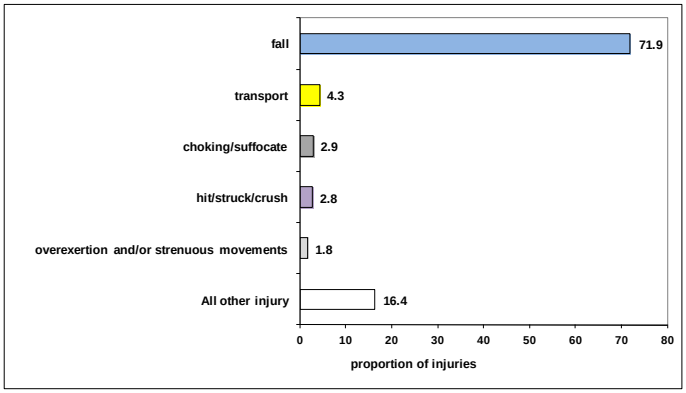
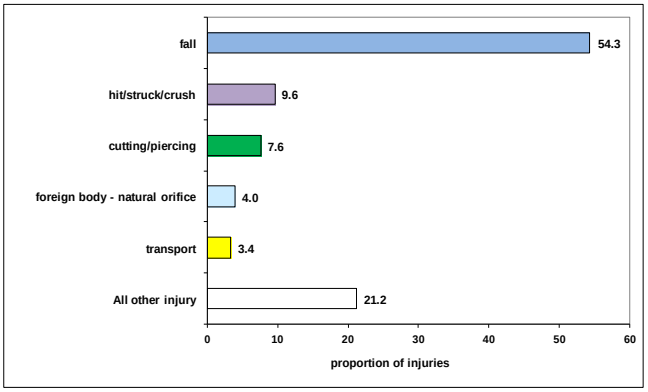


Figure 69 Older adult ED presentations by cause, Victoria 2011



Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

Major injury type (body site and nature of injury)

Figures 70 & 71 show the five major specific injury types for older adult hospital admissions and ED presentations.

- Fracture to the lower limb accounted for 17% of hospital injury admissions.
- Fracture to the upper limb accounted for 11% of hospital admissions and 10% of ED presentations. Fractures to the trunk were also common among hospital admissions (10%).
- Open wounds to the head/face/neck accounted for 8% of hospital admissions and 9% of ED presentations.

Figure 70 Major injury type, older adult hospital admissions, Victoria 2011

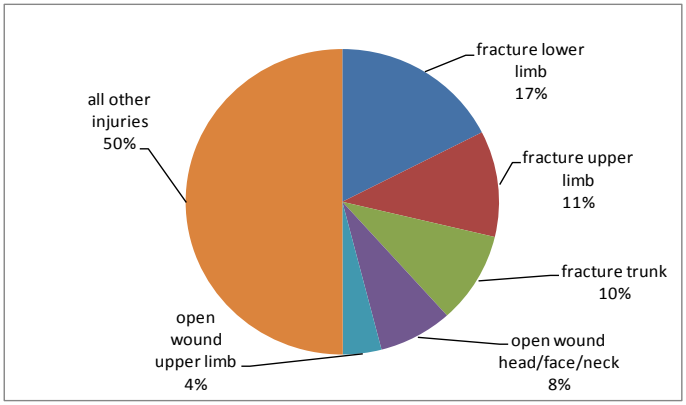
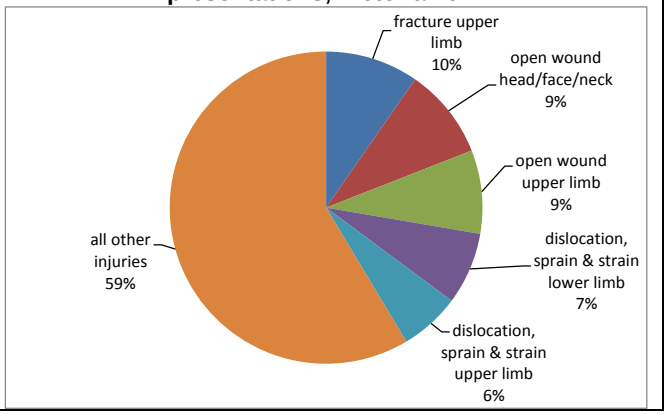


Figure 71 Major injury type, older adult ED presentations, Victoria 2011



Place of injury occurrence

- Thirty-seven percent of older adult injuries requiring hospital admission and more than half of injuries resulting in ED presentations (55%) occurred in the home (figures 72 & 73).
- Other locations where injuries to older adults commonly occurred were:
  - residential institutions (17% of admissions and 7% of ED presentations)
  - roads, streets and highways (6% of admissions and 9% of ED presentations) and
  - schools and other public buildings (8% of admissions).

Figure 72 Older adult hospital admissions by place of occurrence, Victoria 2011

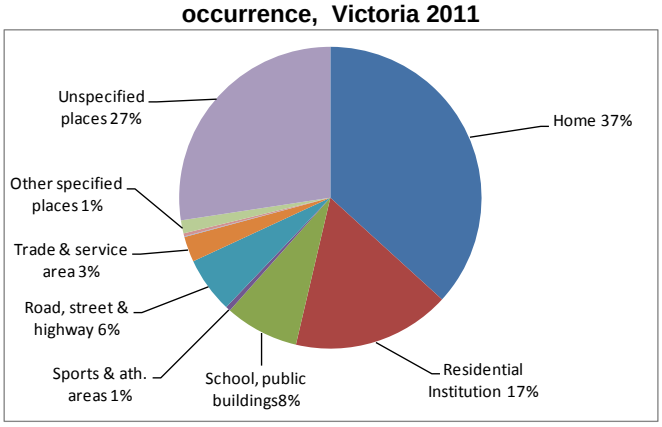
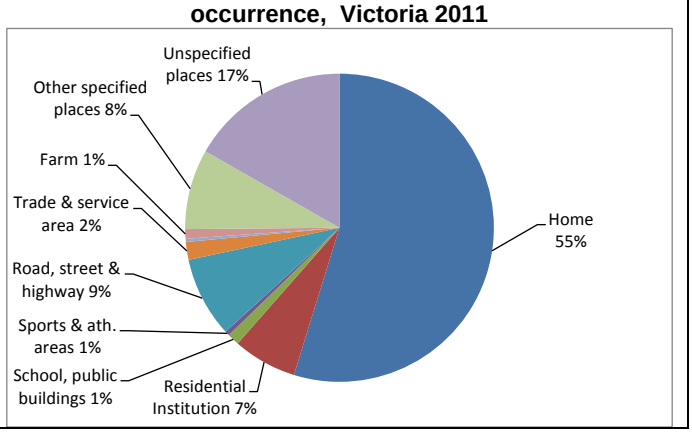


Figure 73 Older adult ED presentations by place of occurrence, Victoria 2011



Activity when injured

- The activity engaged in at the time of injury was unspecified for 73% of older adult injury admissions and recorded as 'other specified' for a further 6% of injuries (figure 74).
- Vital activities such as resting, eating and sleeping were the only activities recorded for a significant number of older adult admissions (13%) (figure 74).
- Leisure was recorded as the activity engaged in at the time of injury for 42% of older adult ED presentations, followed by vital activities such as resting, eating and sleeping (9%) (figure 75).

Figure 74 Older adult hospital admissions by activity when injured, Victoria 2011

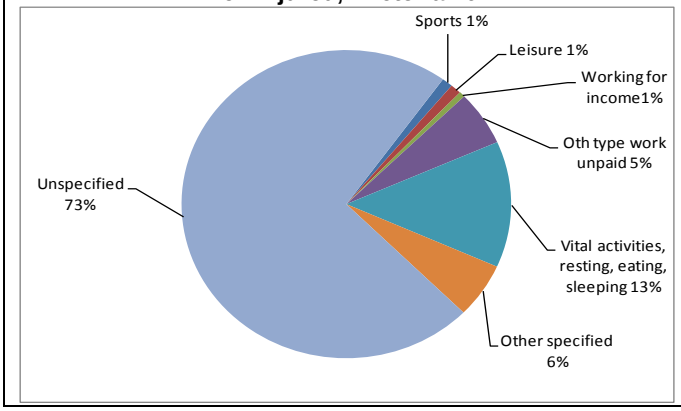


Figure 75 Older adult ED presentations by activity when injured, Victoria 2011

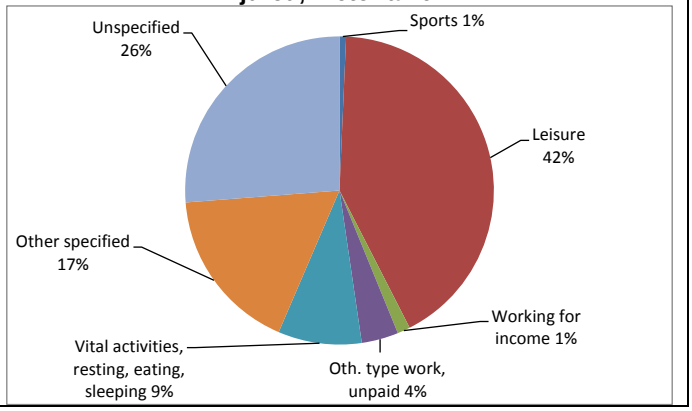


Table 16 Ranking of causes for hospital admissions and ED presentations, persons aged 65 years and older, 2011

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
65-74 years	1	fall	5,679	*56.7*	fall	4,051	*43.8*
	2	unspecified unintentional	1,174	*11.7*	hit/struck/crush	1,028	*11.1*
	3	transport	790	*7.9*	other specified unintentional	959	*10.4*
	4	cutting/piercing	414	*4.1*	cutting/piercing	903	*9.8*
	5	hit/struck/crush	396	*4.0*	unspecified unintentional	775	*8.4*
	6	natural/environmental/animals	309	*3.1*	foreign body - natural orifice	542	*5.9*
	7	overexertion & strenuous movements	262	*2.6*	transport	390	*4.2*
	8	choking/suffocate	249	*2.5*	natural/environmental/animals	327	*3.5*
	9	foreign body - natural orifice	227	*2.3*	fires/burns/scalds	119	*1.3*
	10	poisoning	210	*2.1*	poisoning	68	*<1*
	11	other specified unintentional	147	*1.5*	machinery	66	*<1*
	12	machinery	99	*1.0*	choking/suffocate	10	*<1*
	13	fires/burns/scalds	58	*<1*	near drowning	*	*
	14	explosions/firearms	*	*	explosions/firearms	*	*
	15	near drowning	*	*	overexertion & strenuous movements	N/A	*N/A*
		ALL	10,020	*100.0*	ALL	9,240	*100.0*
75-84 years	1	fall	10,385	*73.1*	fall	4,068	*57.6*
	2	unspecified unintentional	1,175	*8.3*	hit/struck/crush	646	*9.1*
	3	transport	589	*4.1*	other specified unintentional	592	*8.4*
	4	choking/suffocate	420	*3.0*	unspecified unintentional	552	*7.8*
	5	hit/struck/crush	379	*2.7*	cutting/piercing	494	*7.0*
	6	overexertion & strenuous movements	253	*1.8*	transport	220	*3.1*
	7	poisoning	224	*1.6*	foreign body - natural orifice	211	*3.0*
	8	foreign body - natural orifice	195	*1.4*	natural/environmental/animals	147	*2.1*
	9	natural/environmental/animals	174	*1.2*	fires/burns/scalds	67	*<1*
	10	cutting/piercing	163	*1.1*	poisoning	42	*<1*
	11	other specified unintentional	136	*1.0*	machinery	17	*<1*
	12	fires/burns/scalds	67	*<1*	choking/suffocate	8	*<1*
	13	machinery	39	*<1*	near drowning	*	*
	14	explosions/firearms	*	*	explosions/firearms	*	*
	15	near drowning	*	*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,204	*100.0*	ALL	7,065	*100.0*
85 + years	1	fall	11,671	*81.4*	fall	2,923	*72.7*
	2	unspecified unintentional	964	*6.7*	hit/struck/crush	275	*6.8*
	3	choking/suffocate	452	*3.2*	other specified unintentional	233	*5.8*
	4	hit/struck/crush	294	*2.1*	unspecified unintentional	229	*5.7*
	5	transport	268	*1.9*	cutting/piercing	144	*3.6*
	6	overexertion & strenuous movements	163	*1.1*	transport	75	*1.9*
	7	poisoning	150	*1.0*	foreign body - natural orifice	54	*1.3*
	8	foreign body - natural orifice	102	*<1*	natural/environmental/animals	50	*1.2*
	9	other specified unintentional	93	*<1*	poisoning	15	*<1*
	10	natural/environmental/animals	87	*<1*	fires/burns/scalds	11	*<1*
	11	fires/burns/scalds	41	*<1*	machinery	5	*<1*
	12	cutting/piercing	30	*<1*	near drowning	*	*
	13	machinery	17	*<1*	choking/suffocate	*	*
	14	near drowning	*	*	explosions/firearms	0	*0*
	15	explosions/firearms	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	14,333	*100.0*	ALL	4,018	*100.0*
ALL 65+ YEARS	1	fall	27,735	*71.9*	fall	11,042	*54.3*
	2	unspecified unintentional	3,313	*8.6*	hit/struck/crush	1,949	*9.6*
	3	transport	1,647	*4.3*	other specified unintentional	1,784	*8.8*
	4	choking/suffocate	1,121	*2.9*	unspecified unintentional	1,556	*7.7*
	5	hit/struck/crush	1,069	*2.8*	cutting/piercing	1,541	*7.6*
	6	overexertion & strenuous movements	678	*1.8*	foreign body - natural orifice	807	*4.0*
	7	cutting/piercing	607	*1.6*	transport	685	*3.4*
	8	poisoning	584	*1.5*	natural/environmental/animals	524	*2.6*
	9	natural/environmental/animals	570	*1.5*	fires/burns/scalds	197	*1.0*
	10	foreign body - natural orifice	524	*1.4*	poisoning	125	*<1*
	11	other specified unintentional	376	*1.0*	machinery	88	*<1*
	12	fires/burns/scalds	166	*<1*	choking/suffocate	20	*<1*
	13	machinery	155	*<1*	near drowning	5	*<1*
	14	explosions/firearms	7	*<1*	explosions/firearms	0	*0*
	15	near drowning	5	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	38,557	*100.0*	ALL	20,323	*100.0*

Appendix 1
VISU DEFINITIONS, DATA SOURCES AND CASE SELECTION

DEFINITIONS

'Injury': Injury is commonly defined as: 'any unintentional or intentional damage to the body ... caused by acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals, and ionizing radiation interacting with the body in amounts or at rates that exceed the threshold of human tolerance'.

'Unintentional injury': Injuries that are unintended, often described as 'accidents'. We try to avoid using the term 'accidents' as it implies that injuries are random events due to chance.

'Intentional injury'*:* Injuries that are the result of intended acts by people i.e., harm of one person by another (assault, homicide, neglect) or self-harm.

An injury **'death'** is defined as an injury or poisoning by an external cause (transport crash, fall, suicide, drowning etc.) that results in a person dying either in or out of hospital. In Victoria (and in other Australian States and Territories) all deaths by external causes must be reported to the State Coroner.

An injury **'hospital admission'** is defined as an injury or poisoning that results in the person being admitted to an inpatient bed (a ward, short stay observation unit, emergency medical unit, medical assessment and planning unit, intensive care bed, mental health bed or coronary care unit) and subsequently discharged alive either on the same day (after at least 4 hours from the time patient management commences) or after one or more nights stay in a hospital bed.

An injury **'emergency department (ED) presentation'** is defined as an injury or poisoning that results in a person presenting to a hospital emergency department for treatment who is triaged (assessed for urgency), including those patients who leave before treatment commences. A **'non-admission'** is a person who is discharged from the ED within four hours of the time patient management commenced.

A **'child'** is usually defined as a person aged 0-14 years. An **'adult'** is usually defined as a person aged 15 years and older. These definitions apply because age data are usually grouped in 5-year age groups (0-4, 5-9, 10-14, 15-19 etc.).

VISU DATA SOURCES AND CASE SELECTION

1. Hospital admissions
Source: Victorian Admitted Episodes Dataset (VAED)

Hospital admissions for injury and poisoning that contain an external cause code are extracted from the VAED by the Victorian Department of Health (DH) and supplied in unit record format to VISU annually. The file is cleaned, checked and merged with the VISU-held VAED dataset.

From July 1998 cases recorded on the VAED are coded to **ICD-10-AM,** the WHO International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification. ICD-10-AM has been developed by the National Centre for Classification in Health in Queensland with assistance from clinicians and clinical coders to ensure that the classification is current and appropriate for Australian clinical practice. The Australian Modifications of ICD-10 are updated every two years. Up to June 30 1998, cases were coded to **ICD-9-CM**. The external causes chapters of ICD-9-CM and ICD-10-AM describe the causes of injury, poisoning and adverse events (complications of medical and surgical care). Adverse events and sequelae (late effects) of external causes of morbidity and mortality are usually not included in VISU reports.

The VAED data items held by VISU include:

Demographic/administrative items

- **Age, sex, postcode**, **suburb and local government area of residence**
- **Country of birth**
- **Date of admission, date of separation** (discharge) **and length of hospital stay** (in days)
- **Separation type (patient destination on discharge from hospital):** separation and transfer to acute hospital /extended care, death, separation to private residence,/accommodation, separation and transfer to aged care residential facility, separation and transfer to mental health residential facility etc.

Injury surveillance items

Up to 40 ICD-10-AM codes from any or all of the chapters of the ICD-10-AM manual can currently be assigned to each record. These codes are then used to derive the following injury surveillance variables that are added to the VISU-VAED dataset.

- **Cause of injury** – transport, fall, poisoning etc.
  [Coded to ICD-10-AM Chapter XX: External Causes of Morbidity and Mortality (V00-Y34)]
- **Place of occurrence** i.e. location of injury - home, road, street or highway etc. [Coded to ICD-10-AM Chapter XX: External Causes of Morbidity and Mortality (Y92.0-Y92.9)]
- **Activity when injured** - sports, leisure, work etc.
  [Coded to ICD-10-AM Chapter XX: External Causes of Morbidity and Mortality (U50-U73)]
- **Human intent** – unintentional; intentional-assault, neglect, self harm; undetermined intent. Intent information is derived from the external cause of injury code.
- **Injury diagnosis** i.e. exact injury code – superficial injury of scalp, fracture of neck of femur etc. (Coded to ICD-10-AM Chapter 19 Injury, Poisoning and Consequences of External Cause S00-T98)
- **Body region injured** – head, thorax, shoulder, upper arm etc. Body region information is derived from the injury diagnosis variables.
- **Nature of main injury** - open wound, fracture, dislocation/sprain/strain etc. Nature of main injury is derived from the injury diagnosis variables.
- **Comorbidities** – co-occurrence of injury with other diseases and conditions that can happen by chance or because there is some association between them (for example, suicide and mental disorders, drowning or hot water scalds and epilepsy). Co-morbidities are derived from the diagnosis variables (Coded to ICD-10-AM Chapters 1-17).

Case selection (for this report):

- Victorian hospital admissions recorded on the VAED occurring 1 January 2011 to 31 December 2011, coded according to the 7th edition of ICD-10–AM (NCCH, July 2010)
- Cases with an external cause of morbidity in ICD-10-AM range V00-X59 (i.e. unintentional section of Chapter XX *External causes of morbidity and mortality)*.
- Mode of admission has any value except those indicating that transfer from another hospital has occurred or that the record is a 'statistical separation'- a change of care type within a hospital. The aim of these omissions is to reduce over-counting of cases and to provide an estimated incidence of admission.
- Mode of separation has any value except that the person died while in hospital.
- For the trends section only cases with a Primary Diagnosis in the ICD-10-AM range S00-T98 using Chapter XIX *Injury, poisoning and certain other consequences of external causes codes* were included. Cases were selected for this section if the admission occurred between 1 January 2000 and 31 December 2011.

Note: As of January 1st 2010 (2008 injury data E-bulletin) VISU no longer recodes X59 cases to falls as in previous E-Bulletins of hospital treated injury.

2. Emergency Department Presentations
Source: Victorian Emergency Minimum Dataset (VEMD)

The Victorian Injury Surveillance System began in the Royal Children's Hospital in 1988. It expanded to adult hospitals over time with a large boost in 1995 when the Department of Human Services absorbed the injury surveillance minimum dataset into the Victorian Emergency Minimum Dataset (VEMD) that collects demographic, administrative and clinical data from public hospitals. From January 2004, VEMD data are collected by all 38 Victorian public hospitals that provide a 24-hour ED service. In July 2011 Bass Coast Regional Health began contributing to the VEMD taking the total contributing hospitals to 39.

Emergency Department presentations for injury and poisoning are extracted from the VEMD by the Victorian Department of Health (DH) and are now supplied annually in unit record format to VISU. Data for this edition of the E-bulletin were coded to the Victorian Emergency Minimum Dataset (VEMD) User Manual 15th & 16th Editions, published by the Department of Health. The VEMD contains cases that are treated and discharged from the ED within 4 hours from the time patient management commences (i.e. 'non-admissions') and cases that are defined as 'admissions' because they are treated for 4 hours or more in the ED or a short stay ward attached to the ED or depart from the ED to an inpatient bed or are transferred to another hospital campus. Admissions recorded on the VEMD are not usually included in injury surveillance reports if admissions are also being selected from the VAED because cases would then be over counted.

When the data file is received by VISU, it is cleaned, checked and merged with the VISU-VEMD injury surveillance dataset. VISU is able to run data searches on any of the data items contained in the dataset to provide a customised report containing a set of tables and short written summary.

The VEMD data items held by VISU include:

Demographic/administrative items

- **Age, sex, postcode, suburb and local government area of residence**
- **Country of birth, preferred language spoken at home**
- **Time** and **date of presentation to ED**
- **Departure status** (patient destination on discharge from ED i.e. admitted to ward, died within ED, discharged home, discharged to residential care etc.)
- **Referred to on departure** (outpatients, local medical officer i.e. GP, home nursing service, scheduled review in ED etc.)

Injury surveillance items

- **Human intent** (unintentional, assault, self harm etc.)
- **Cause of injury** (fall, poisoning etc.)
- **Place where injury occurred** i.e. location of injury (home, road, street or highway etc.)
- **Activity when injured** (sports, leisure, work etc.)
- **Nature of main injury**
- **Body region injured**
- **Description of injury event** ('narrative')

Case selection (for this report)

- Victorian hospital ED presentations recorded on the VEMD occurring 1 January 2011 to 31 December 2011 coded according to the Victorian Emergency Minimum Dataset (VEMD) User Manuals 15th & 16th editions.
- Data were selected if the injury was unintentional (VEMD human intent=1)
- ED presentations that resulted in death or admission have been excluded from the ED presentations dataset to avoid double counting with the hospital admissions data provided in this edition.
- Only hospitals that contributed data to VEMD over the whole 12-year period were included in the trend analysis of ED presentations frequency data (24 of the current 39 hospitals contributing to the surveillance system).

The Victorian Emergency Minimum Dataset (VEMD) held by VISU was replaced in April 2012 to include some useful variables not previously released to VISU by the Department of Health. The new dataset now contains consolidated data for the period July 1999 to June 2012 rather than the provisional data previously supplied to VISU earlier in the revision cycle. Consequently, data are more complete and reliable but less timely (VISU will now receive data annually rather than quarterly) and data outputs may be different from those reported previously.