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**UNINTENTIONAL (ACCIDENTAL)  
HOSPITAL-TREATED INJURY  
VICTORIA**

**2009**

**Angela Clapperton**





# Unintentional (accidental) hospital-treated injury in Victoria 2009

## Summary results

This is the seventh 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 2009 utilising two injury surveillance datasets that separately record hospital admissions and Emergency Department (ED) presentations for injury. Overall there were 395,805 hospital-treated injury cases in Victoria in 2009 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 84% of which were unintentional (n=330,791).

## All ages

- More than 330,000 Victorians (6 in every 100) were treated in hospital for unintentional injury during 2009 (97,205 admissions and 233,586 ED presentations).
- Hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 14-year period 1996 to 2009. The frequency of admissions increased by 65% and the admission rate by 37% if same day admissions are included in the analysis, reducing to 40% and 16% if same day admissions are excluded (the latter method produces a more stable indicator of trend). The frequency of ED presentations increased by 72%.
- Males were overrepresented accounting for 59% of all hospital-treated injury cases (56% of admissions and 61% of ED presentations).
- Falls were the leading cause of injury admissions and ED presentations accounting for more than one-third of all hospital-treated injury cases (36%), followed by hit/struck/crush (19%), transport (10%) and cutting and piercing (10%).
- The home was the most common location of injury (23% of hospital admissions and 38% 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 (6% of admissions and 9% of ED presentations) and schools and public buildings (6% of admissions and 5% of ED presentations).
- Coding of hospital admissions for activity is poor with most cases coded to unspecified activity (62%). Sport is recorded as the activity being undertaken at the time of injury in 10% of hospital admissions. ED presentations are better coded for activity. Leisure is the most common activity recorded for ED presentations (40%), followed by sports (11%) and working for income (9%).

## Children (0-14 years)

- 80,909 Victorian children (approximately 8 in every 100) were treated in hospital for unintentional injury during 2009 (12,827 admissions and 68,082 ED presentations).
- The frequency of child ED presentations increased by 79% over the 14-year period 1996 to 2009. The frequency of admissions increased by 14% and the admission rate by 8% if same day admissions are included in the analysis. However if same-day admissions are excluded the frequency of admissions decreased by 19% and the admission rate by 23%.
- Males were overrepresented accounting for 59% of all hospital-treated injury cases (63% of admissions and 58% of ED presentations).
- Falls were the leading cause of hospital-treated injury (44%) followed by hit/struck/crush (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 (13% 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 almost 60% of all child injury admissions (59%) and recorded as 'other specified' for a further 9% of admissions. Sport was the most common specified activity for hospital admissions (16%). Leisure was recorded as the activity engaged in at the time of injury for 52% of child ED presentations, followed by sports (11%) and education (4%).

### **Adolescents and young adults (15-24 years)**

- More than 60,000 Victorian adolescents and young adults (8 in every 100) were treated in hospital for unintentional injury during 2009 (13,449 admissions and 48,024 ED presentations).
- The frequency of adolescent and young adult ED presentations increased by 52% over the 14-year period 1996 to 2009. The frequency of admissions increased by 45% and the admission rate by 18% if same day admissions are included in the analysis. However if same-day admissions are excluded the frequency of admissions increased by 13% and the admission rate actually decreased by 8%.
- Males were overrepresented accounting for 70% of all hospital-treated injury cases (75% of admissions and 68% of ED presentations).
- Falls account for 18% of admissions and 25% of ED presentations. Hit/struck/crush is the leading cause of ED presentations (26%) and accounts for 15% of hospital admissions. Transport accounts for almost a quarter of admissions (24%) but only 10% of ED presentations.
- The road, street and highway is the most common place of occurrence of adolescent and young adult injuries resulting in hospital admission (16%) whereas the home is the leading place of occurrence for injuries resulting in ED presentation (23%).
- The activity engaged in at the time of injury was unspecified for more than half of adolescent and young adult injury admissions (52%) and recorded as 'other specified' for a further 7% of injuries. Sports (26%) and working for income (8%) were the activities recorded for a substantial proportion of admissions. Leisure was recorded as the activity engaged in at the time of injury for 35% of ED presentations, followed by sports (21%) and working for income (11%).

### **Adults (25-64 years)**

- More than 135,000 Victorian adults (almost 5 in every 100) were treated in hospital for unintentional injury during 2009 (38,085 admissions and 97,266 ED presentations).
- Adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 14-year period 1996 to 2009. The frequency of admissions increased by 73% and the admission rate by 41% if same day admissions are included in the analysis, reducing to 46% and 18% if same day admissions are excluded. The frequency of ED presentations increased by 71%.
- Males were overrepresented accounting for 63% of all hospital-treated injury cases (64% of admissions and 62% of ED presentations).
- The leading cause of adult hospital injury admissions and ED presentations was falls: 28% of hospital admissions and 26% of ED presentations. Other major causes were transport (19% of admissions and 8% of ED presentations), hit/struck/crush (8% of admissions and 20% of ED presentations) and cutting and piercing (9% of admissions and 14% of ED presentations).
- Seventeen percent of hospital admissions and 36% 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).

presentations); trade and service areas (3% of admissions and 9% of ED presentations) and sports and athletics areas (6% of both admissions and ED presentations).

- The activity engaged in at the time of injury was unspecified for more than half of adult injury hospital admissions (59%) and recorded as 'other specified' for a further 8% of injuries. Working for income (11%) and sports (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)**

- More than 50,000 Victorian older adults (7 in every 100) were treated in hospital for unintentional injury during 2009 (32,844 admissions and 20,214 ED presentations).
- Older adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 14-year period 1996 to 2009. The frequency of admissions increased by 102% and the admission rate by 54% if same day admissions are included in the analysis, reducing to 79% and 36% if same day admissions are excluded. The frequency of ED presentations increased by 115%.
- Females were overrepresented accounting for 61% of all hospital-treated injury cases (64% of admissions and 57% of ED presentations).
- Falls account for almost three-quarters of hospital admissions (72%) and more than half of ED presentations (55%) 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 52%).
- The activity engaged in at the time of injury was unspecified for more than two-thirds of older adult injury admissions (69%) and recorded as 'other specified' for a further 10% 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 2009. Overall there were 395,805 hospital-treated injury cases in Victoria in 2009 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 84% of which were unintentional (n=330,791). The remaining injury cases were either intentional i.e. self harm or assault (6%, n=23,198) or of other or undetermined intent (11%, n=41,816).

## 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 (38 hospitals). Deaths were excluded from the hospital admissions dataset as injury deaths are covered in separate E-Bulletins. 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. Data were selected if the admission (VAED) or presentation (VEMD) date occurred in 2009 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 2009 for ED presentations data (VEMD). ED presentation rates were also calculated for 2005 to 2008 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.

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 2009 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 14-year period were included in the trend analysis of ED presentations frequency data (24 of the current 38 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 2009. Overall, there were more than 330,000 hospital treated injuries recorded in this period (97,205 admissions and 233,586 ED presentations) giving a rate of 6,072 hospital-treated injury cases per 100,000 Victorians.

- The hospital admission rate is highest in older adults (4,450 per 100,000 persons) and lowest in children (1,273 per 100,000 persons)
- The ED presentation rate is highest in children (6,757/100,000) and lowest in older adults (2,739/100,000).
- Adolescents and young adults have the highest overall hospital-treated injury rate (admissions and presentations combined, 8,030/100,000), followed by children (7,875/100,000) and older adults (7,189/100,000). Adults aged 25-64 years have the lowest hospital-treated injury rate (4,632/100,000).

**Table 1 Hospital treated injury frequency and rates by broad age group, Victoria 2009**

	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
<b>Admissions</b>	12,827	1,273.0	13,449	1,722.9	38,085	1,303.4	32,844	4,450.0	97,205	1,784.2
<b>ED presentations</b>	68,082	6,756.8	48,024	6,152.2	97,266	3,328.8	20,214	2,738.8	233,586	4,287.4
<b>Hospital-treated</b>	80,909	8,029.8	61,473	7,875.1	135,351	4,632.2	53,058	7,188.8	330,791	6,071.6

Figure 1 shows hospital admission injury rates by age and gender for Victoria in 2009. In 2009, 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 admissions injury rates by age group and gender, Victoria 2009**

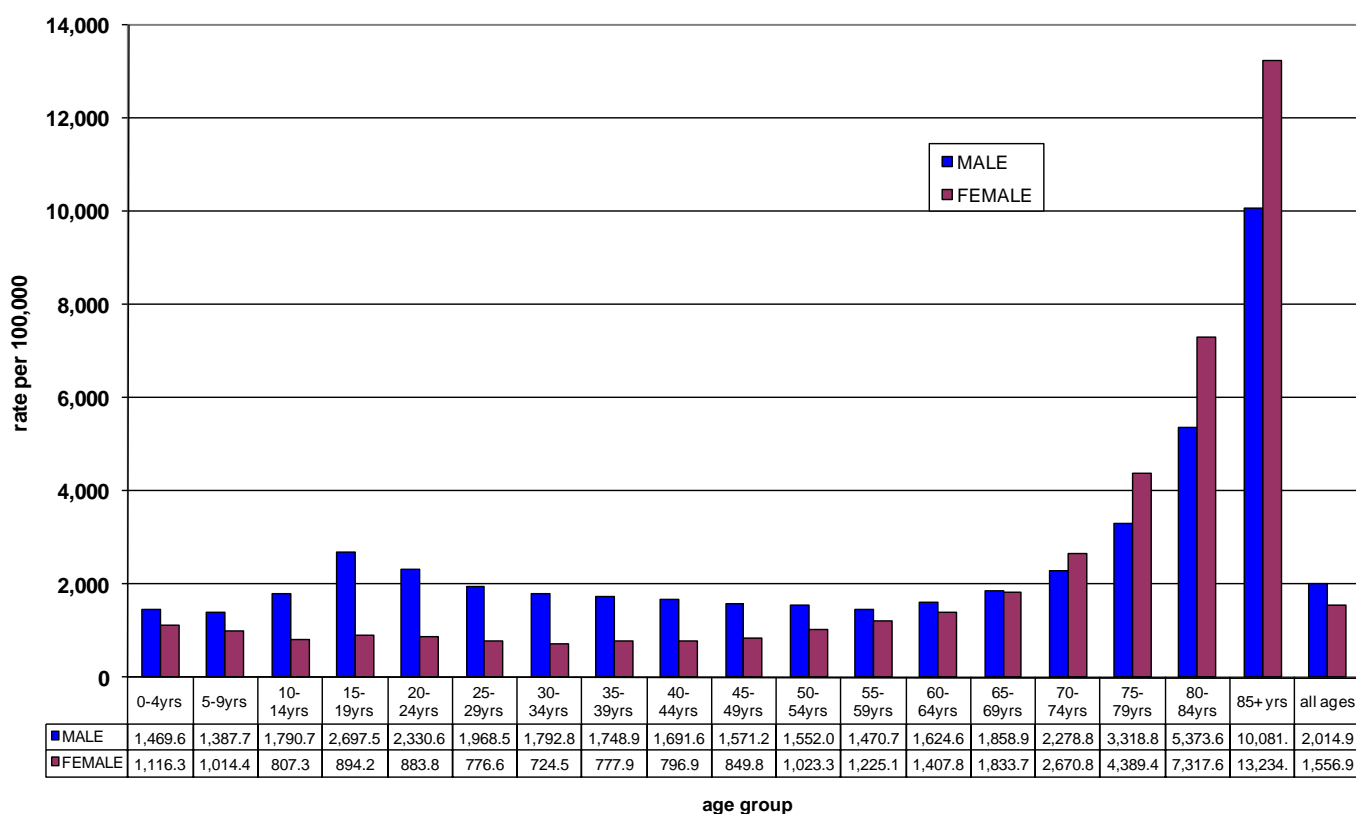
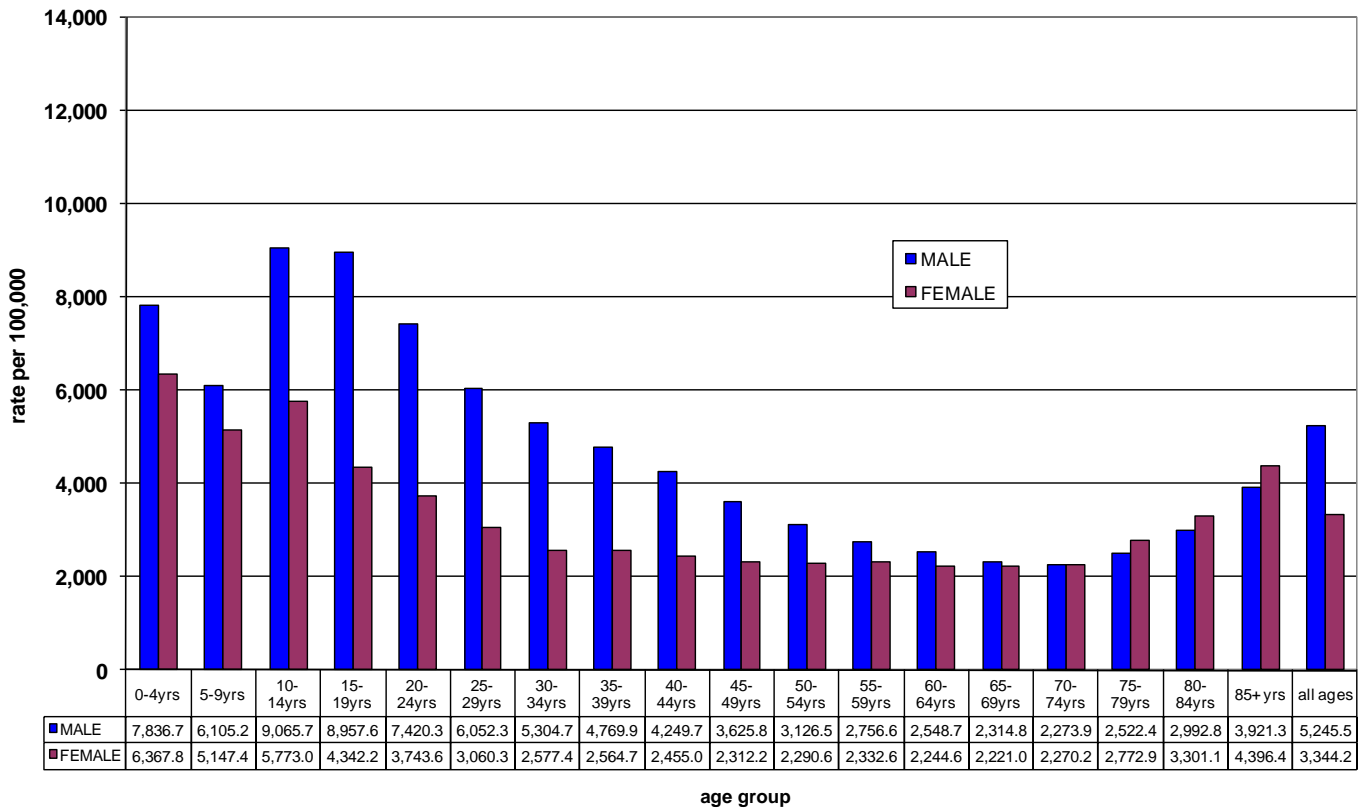


Figure 2 shows ED presentation rates by age and gender for Victoria in 2009. In 2009, age-specific injury ED presentation rates were high in children (0-9 years), highest in older children (10-14 years), adolescents and young adults, and then decreased throughout the adult age groups until age 75 when rates showed a slight increase. The overall male age-specific injury hospital admissions 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 2009**



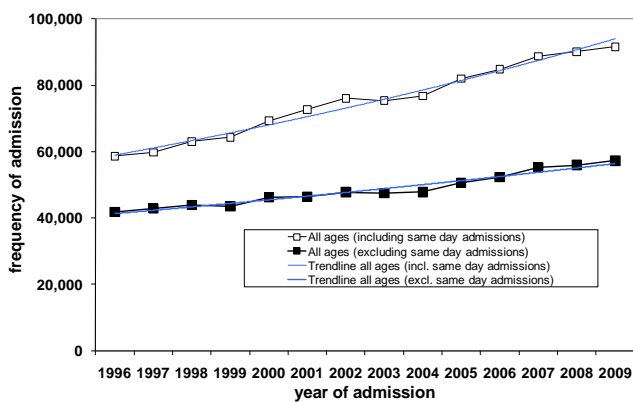
## Trend

### FREQUENCY

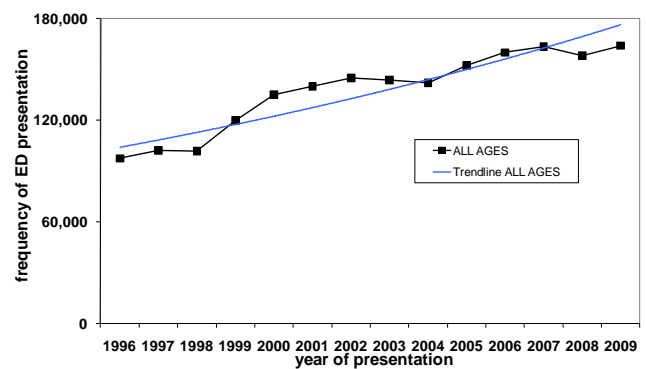
Frequency and rate data for 2009 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) are used for the trend calculations.

- The frequency of ALL AGES unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 14-year period from 58,625 in 1996 to 91,642 in 2009, representing an estimated annual change of 3.6% (95% confidence interval 3.3% to 3.9%) and an overall increase of 65% (57% to 70%) based on the trend line.
- The frequency of ALL AGES unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 14-year period from 41,872 in 1996 to 57,269 in 2009, representing an estimated annual change of 2.4% (2.1% to 2.7%) and an overall increase of 40% (34% to 46%) based on the trend line.
- The frequency of ALL AGES unintentional injury and poisoning ED presentations increased significantly over the 14-year period from 97,468 in 1996 to 164,089 in 2009, representing an estimated annual change of 3.9% (2.9% to 4.9%) and an overall increase of 72% (49% to 94%) based on the trend line.

**Figure 3 Trend in the frequency of injury hospital admissions, Victoria 1996-2009**



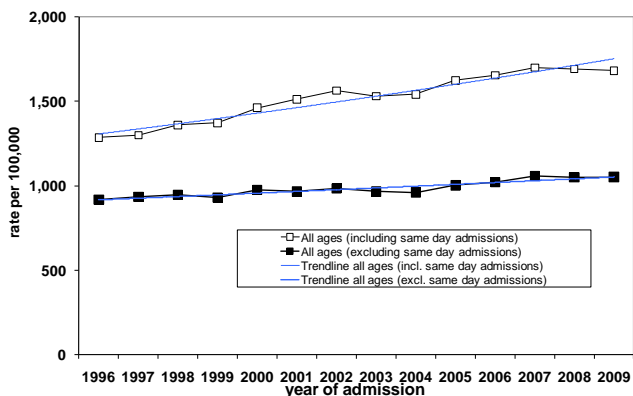
**Figure 4 Trend in the frequency of injury ED presentations, Victoria 1996-2009**



### RATE

- The ALL AGES unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 14-year period from 1,286/100,000 in 1996 to 1,692/100,000 in 2009, representing an estimated annual change of 2.3% (1.9% to 2.6%) and an overall increase of 37% (29% to 43%) based on the trend line.
- The ALL AGES unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 14-year period from 918/100,000 in 1996 to 1,051/100,000 in 2009, representing an estimated annual change of 1.1% (0.8% to 1.3%) and an overall increase of 16% (12% to 20%) based on the trend line.
- The trend in the ED presentation rate cannot be determined because numerator data are not complete.

**Figure 5 Trend in the hospital admission rates per 100,000 population, Victoria 1996-2009**

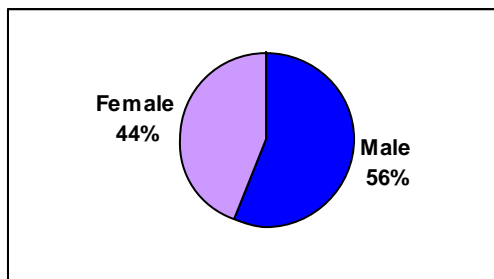


Rates cannot be calculated for ED presentations because numerator data are not complete for the 14-year period.

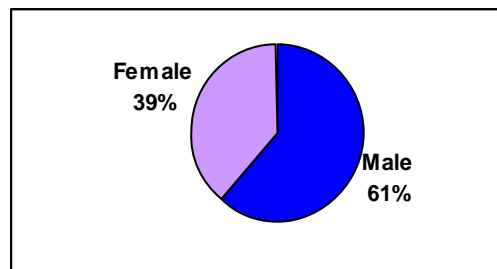
## Gender

- Males are overrepresented accounting for 56% of hospital admissions (n=54,458) and 61% of ED presentations (n=141,773) in Victoria in 2009. (Figures 6 & 7)

**Figure 6 Hospital injury admissions by gender, Victoria 2009**



**Figure 7 ED injury presentations by gender, Victoria 2009**



- The rate of hospital admission and ED presentation is also higher for males than females (2,015 & 5,246/100,000 vs. 1,557 & 3,344/100,000). (Table 2)

**Table 2 Frequency and rate of hospital admission and ED presentation, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	54,458	2,014.9	141,773	5,245.5
Female	42,745	1,556.9	91,813	3,344.2
All	97,205	1,784.2	233,586	4,287.4

## Age

- Persons aged 65 years and older have the highest rate of hospital admissions (4,450/100,000) and children aged 25-64 have the lowest (1,273/100,000).
- Young persons aged 0-14 and 15-24 have the highest ED presentation (non-admission) rates, 6,757 and 6,152/100,000 respectively.

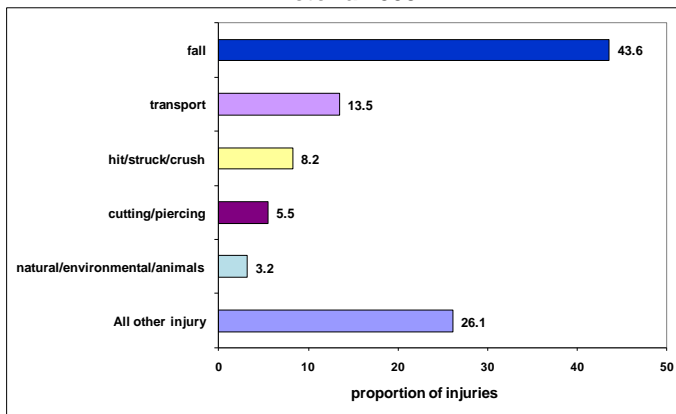
**Table 3 Frequency and rate of hospital admission and ED presentation, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-14 years	12,827	1,273.0	68,082	6,756.8
15-24 years	13,449	1,722.9	48,024	6,152.2
25-64 years	38,085	1,303.4	97,266	3,328.8
65+ years	32,844	4,450.0	20,214	2,738.8
ALL	97,205	1,784.2	233,586	4,287.4

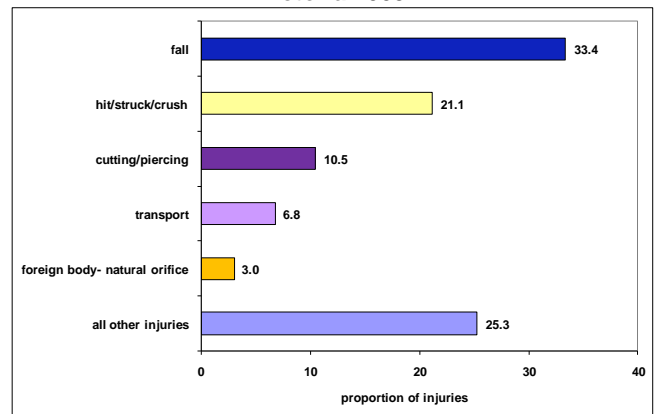
## Leading causes of injury

- Four of the five major causes of hospital admissions and ED presentations are the same although the ranking on frequency of cases is different.
- The leading cause of both hospital admissions and ED presentations is falls. Falls account for 44% (n=42,346) of hospital admissions and 33% (n=77,916) of ED presentations.
- Transport accounts for 14% of admissions (n=13,093) but just 7% of presentations (n=15,827) which indicates that transport injuries are more severe than injuries from other causes.
- Hit/struck/crush injuries account for 8% of admissions (n=8,008) but a higher proportion of ED presentations (21%, n=49,368).
- Cutting and piercing injuries account for 6% of admissions (n=5,322) and 11% of ED presentations (n=24,453).
- The fifth ranking cause of hospital admissions is natural/environmental/animal related injury (3%, n=3,075) whereas for ED presentations it is injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (3%, n=7,040).

**Figure 8 Hospital admissions by cause, Victoria 2009**



**Figure 9 ED presentations by cause, Victoria 2009**



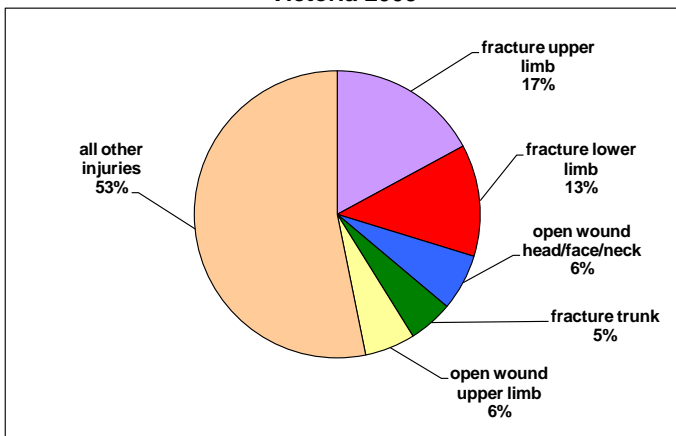
Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

## Major injury type (body site and nature of injury)

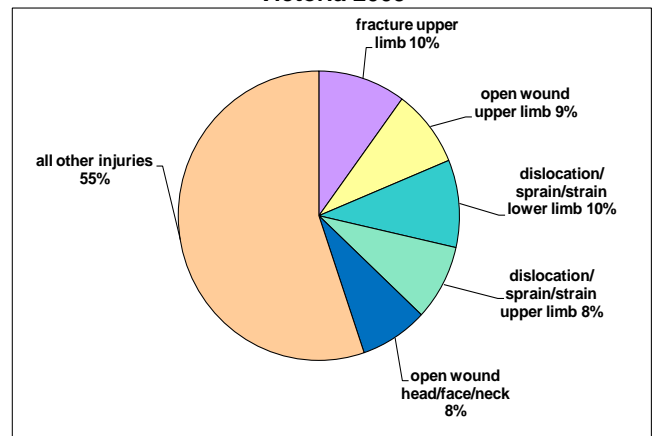
Figures 10 & 11 show the five most common specific injury types for hospital admissions and ED presentations.

- Fracture to the upper limb account for 17% of hospital injury admissions and 10% of ED presentations.
- Fracture to the lower limb is the second most common type of injury requiring hospital admission (13%).
- Dislocations/sprains and strains to the lower limb (10%) and upper limb (8%) are common among ED presentations.
- Open wounds to the head/face/neck account for 6% of hospital injury admissions and 8% of ED presentations.
- Open wounds to the upper limb account for 6% of hospital injury admissions and 9% of ED presentations.

**Figure 10 Major injury type, hospital admissions, Victoria 2009**



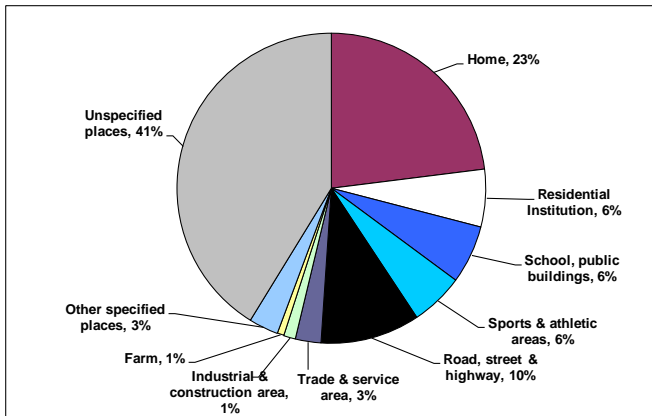
**Figure 11 Major injury type, ED presentations, Victoria 2009**



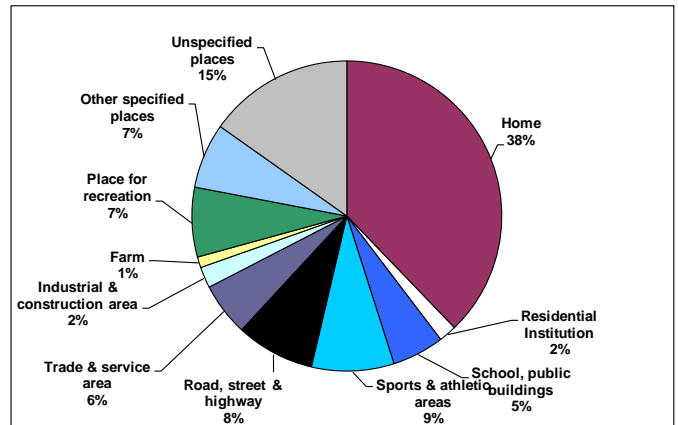
## Place of injury occurrence

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

**Figure 12 Hospital admissions by place of occurrence, Victoria 2009**



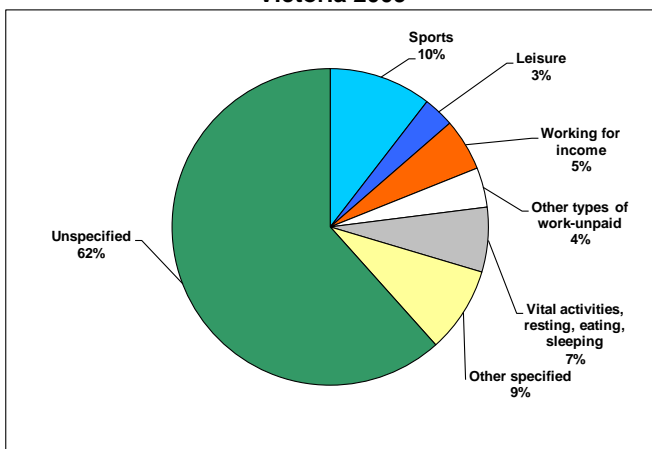
**Figure 13 ED presentations by place of occurrence, Victoria 2009**



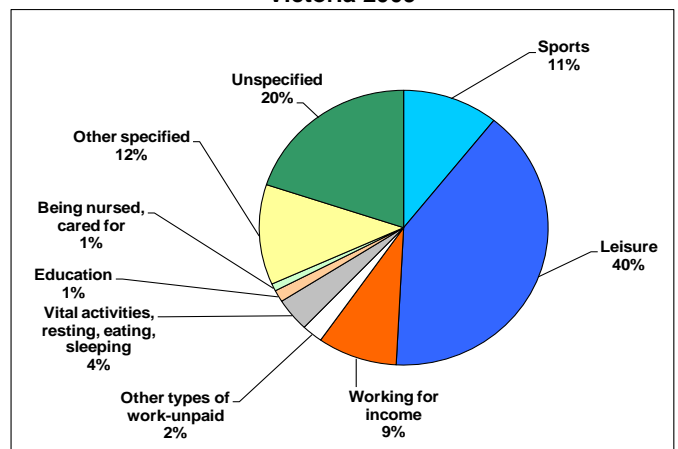
## Activity when injured

- Hospital admissions are mostly coded to unspecified activity (62%). Sport is recorded as the activity at the time of injury for 10% of hospital admissions.
- Leisure is the most common activity recorded for ED presentations (40%), followed by sports (11%) and working for income (9%).

**Figure 14 Hospital admissions by activity when injured, Victoria 2009**



**Figure 15 ED presentations by activity when injured, Victoria 2009**



**Table 4 Ranking of causes for hospital admissions and ED presentations, all ages, 2009**

AGE GROUP	RANK	ADMISSIONS			PRESENTATIONS		
		CAUSE	FREQ	%	CAUSE	FREQ	%
0-14 years	1	fall	5,589	43.6	fall	29,958	44.0
	2	hit/struck/crush	1,912	14.9	hit/struck/crush	14,934	21.9
	3	transport	1,352	10.5	other specified unintentional	7,092	10.4
	4	unspecified	1,273	9.9	unspecified factor	3,821	5.6
	5	foreign body- natural orifice	513	4.0	cutting/piercing	3,817	5.6
	6	cutting/piercing	485	3.8	transport	2,421	3.6
	7	natural/environmental/animals	384	3.0	foreign body- natural orifice	2,069	3.0
	8	poisoning	337	2.6	natural/environmental/animals	1,709	2.5
	9	other specified unintentional	331	2.6	fires/burns/scalds	1,419	2.1
	10	fires/burns/scalds	290	2.3	poisoning	665	1.0
	11	overexertion & strenuous movements	193	1.5	choking/suffocation	120	<1
	12	choking/suffocate	83	<1	machinery	31	<1
	13	machinery	43	<1	near drowning	20	<1
	14	near drowning	32	<1	explosions/firearms	6	<1
	15	explosions/firearms	10	<1	overexertion & strenuous movements	N/A	N/A
		ALL	12,827	100.0	ALL	68,082	100.0
15-24 years	1	transport	3,193	23.7	hit/struck/crush	12,651	26.3
	2	fall	2,428	18.1	fall	12,040	25.1
	3	unspecified	2,284	17.0	cutting/piercing	5,834	12.1
	4	hit/struck/crush	2,057	15.3	other specified unintentional	5,188	10.8
	5	cutting/piercing	1,198	8.9	transport	4,705	9.8
	6	overexertion & strenuous movements	478	3.6	unspecified factor	3,342	7.0
	7	poisoning	466	3.5	natural/environmental/animals	1,240	2.6
	8	other specified unintentional	427	3.2	fires/burns/scalds	1,139	2.4
	9	natural/environmental/animals	336	2.5	foreign body- natural orifice	889	1.9
	10	machinery	215	1.6	poisoning	523	1.1
	11	fires/burns/scalds	170	1.3	machinery	404	<1
	12	foreign body- natural orifice	131	1.0	choking/suffocation	50	<1
	13	choking/suffocate	30	<1	near drowning	14	<1
	14	explosions/firearms	26	<1	explosions/firearms	5	<1
	15	near drowning	10	<1	overexertion & strenuous movements	N/A	N/A
		ALL	13,449	100.0	ALL	48,024	100.0
25-64 years	1	fall	10,636	27.9	fall	24,773	25.5
	2	transport	7,132	18.7	hit/struck/crush	19,849	20.4
	3	unspecified	5,707	15.0	cutting/piercing	13,301	13.7
	4	cutting/piercing	3,235	8.5	other specified unintentional	11,491	11.8
	5	hit/struck/crush	3,215	8.4	transport	7,959	8.2
	6	natural/environmental/animals	1,547	4.1	unspecified factor	7,778	8.0
	7	overexertion & strenuous movements	1,516	4.0	foreign body- natural orifice	3,642	3.7
	8	other specified unintentional	1,227	3.2	natural/environmental/animals	3,503	3.6
	9	poisoning	1,111	2.9	fires/burns/scalds	2,407	2.5
	10	machinery	978	2.6	machinery	1,515	1.6
	11	foreign body- natural orifice	748	2.0	poisoning	832	<1
	12	fires/burns/scalds	575	1.5	choking/suffocation	175	<1
	13	choking/suffocate	356	<1	near drowning	23	<1
	14	explosions/firearms	72	<1	explosions/firearms	18	<1
	15	near drowning	30	<1	overexertion & strenuous movements	N/A	N/A
		ALL	38,085	100.0	ALL	97,266	100.0
65+ years	1	fall	23,693	72.1	fall	11,145	55.1
	2	unspecified	2,541	7.7	hit/struck/crush	1,934	9.6
	3	transport	1,416	4.3	other specified unintentional	1,837	9.1
	4	choking/suffocate	902	2.7	unspecified factor	1,613	8.0
	5	hit/struck/crush	824	2.5	cutting/piercing	1,501	7.4
	6	natural/environmental/animals	808	2.5	transport	742	3.7
	7	overexertion & strenuous movements	620	1.9	natural/environmental/animals	475	2.3
	8	poisoning	536	1.6	foreign body- natural orifice	440	2.2
	9	cutting/piercing	404	1.2	fires/burns/scalds	216	1.1
	10	other specified unintentional	397	1.2	poisoning	136	<1
	11	foreign body- natural orifice	343	1.0	machinery	122	<1
	12	fires/burns/scalds	193	<1	choking/suffocation	48	<1
	13	machinery	158	<1	explosions/firearms	3	<1
	14	near drowning	7	<1	near drowning	2	<1
	15	explosions/firearms	2	<1	overexertion & strenuous movements	N/A	N/A
		ALL	32,844	100.0	ALL	20,214	100.0





# Children (0-14 years)

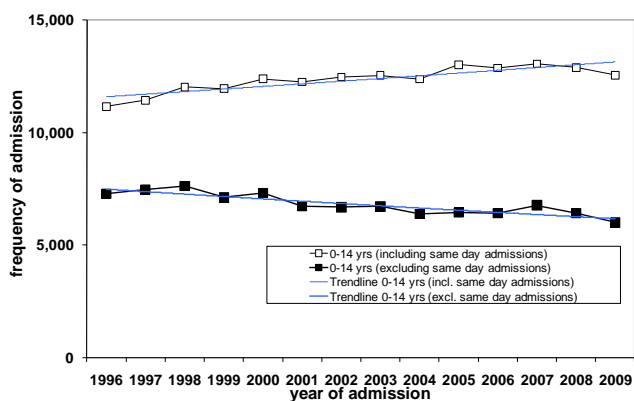
## Trend

### FREQUENCY

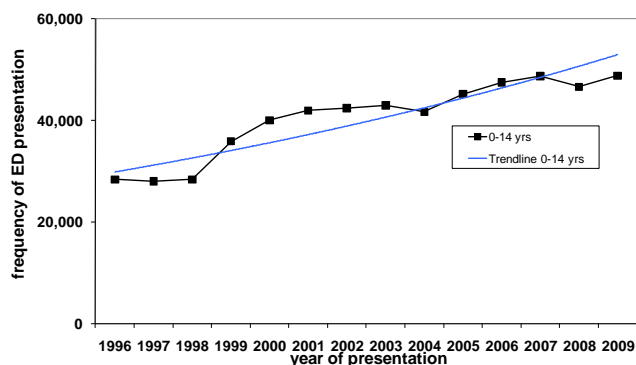
Frequency and rate data for 2009 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) are used for the trend calculations.

- The frequency of CHILD unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 14-year period from 11,159 in 1996 to 12,552 in 2009, representing an estimated annual change of 1.0% (95% confidence interval 0.6% to 1.3%) and an overall increase of 14% (9% to 20%) based on the trend line.
- The frequency of CHILD unintentional injury and poisoning admissions (EXCLUDING same-day admissions) decreased significantly over the 14-year period from 7,276 in 1996 to 6,000 in 2009, representing an estimated annual decrease of 1.5% (-2.0% to -1.0%) and an overall reduction of 19% (-24% to -13%) based on the trend line.
- The frequency of CHILD unintentional injury and poisoning ED presentations increased significantly over the 14-year period from 28,375 in 1996 to 48,806 in 2009, representing an estimated annual change of 4.2% (3.0% to 5.3%) and an overall increase of 79% (50% to 107%) based on the trend line.

**Figure 16 Trend in the frequency of hospital admissions, Victoria 1996-2009**



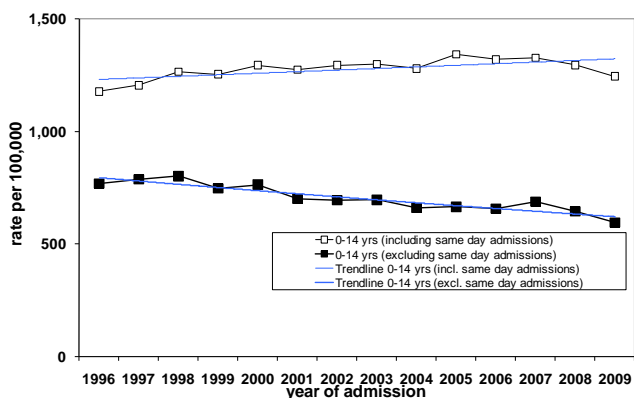
**Figure 17 Trend in the frequency of injury ED presentations, Victoria 1996-2009**



### RATE

- The CHILD unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 14-year period from 1,178/100,000 in 1996 to 1,246/100,000 in 2009, representing an estimated annual change of 0.5% (0.1% to 1.0%) and an overall increase of 8% (2% to 14%) based on the trend line.
- The CHILD unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) decreased significantly over the 14-year period from 768/100,000 in 1996 to 596/100,000 in 2009, representing an estimated annual decrease of 1.9% (-2.4% to -1.4%) and an overall reduction of 23% (-29% to -18%) based on the trend line.
- The trend in the ED presentation rate cannot be determined because numerator data are not complete.

**Figure 18 Trend in hospital admission rates per 100,000 population, Victoria 1996-2009**

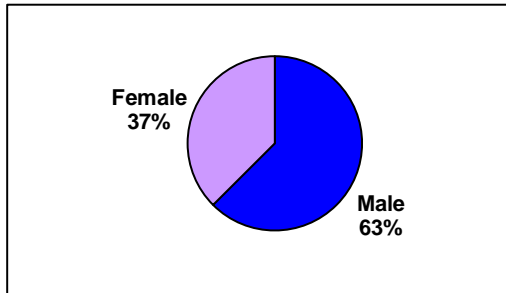


Rates cannot be calculated for ED presentations because numerator data are not complete for the 14-year period.

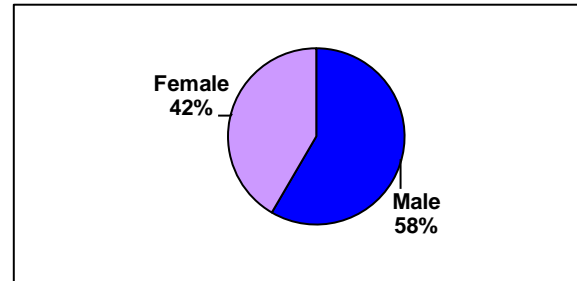
## Gender

- Males are overrepresented in child hospital-treated injury cases, accounting for 63% of hospital admissions (n=8,019) and 58% of ED presentations (n=39,763) in Victoria in 2009.

**Figure 19 Child hospital injury admissions by gender, Victoria 2009**



**Figure 20 Child ED injury presentations by gender, Victoria 2009**



- The child hospital admission and ED presentation rates are also higher for males than females (1,551 & 7,687/100,000 vs. 980 & 5,774/100,000). (Table 5)

**Table 5 Frequency and rate of hospital admission and ED presentation in children, Victoria 2009**

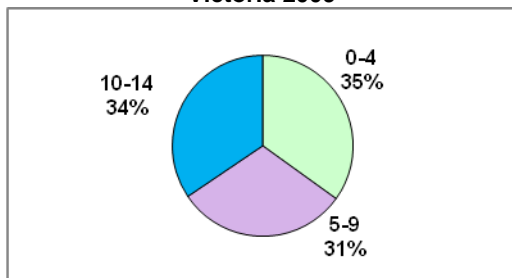
	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	8,019	1,550.6	39,763	7,688.6
Female	4,808	980.3	28,319	5,774.2
All	12,827	1,273.0	68,082	6,756.8

## Age

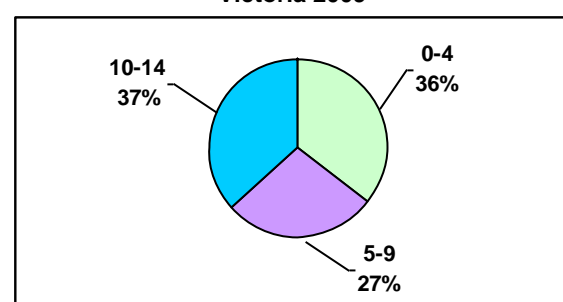
Child injury hospital admissions and ED presentations are fairly evenly distributed across the 5-year age groups.

- Children aged 0-4 years account for 35% of child admissions and 36% of child ED presentations.
- Children aged 5-9 years account for 31% of child hospital admissions and 27% of child ED presentations.
- Children aged 10-14 years account for 34% of child admissions and 37% of child ED presentations.

**Figure 21 Child hospital admissions by age group, Victoria 2009**



**Figure 22 Child ED presentations by age group, Victoria 2009**



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

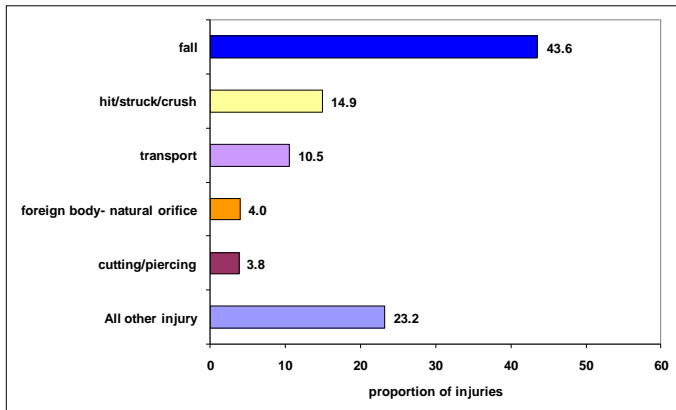
**Table 6 Frequency and rate of hospital admission and ED presentation in children, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-4 years	4,480	1,297.5	24,588	7,121.4
5-9 years	3,930	1,205.7	18,378	5,638.2
10-14 years	4,417	1,313.1	25,116	7,466.4
All	12,827	1,273.0	68,082	6,756.8

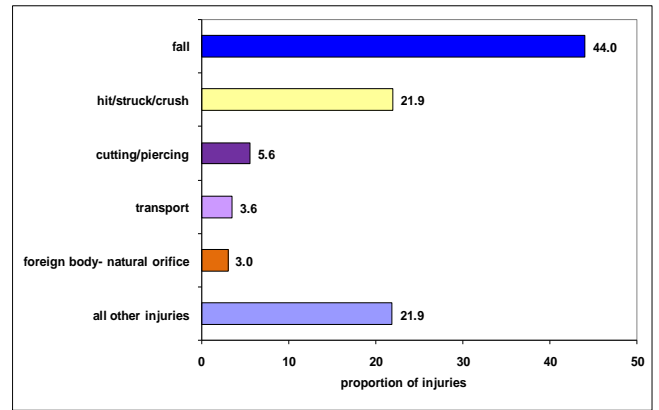
## Leading causes of injury

- The five leading causes of child hospital admissions and ED presentations are the same although the ranking on frequency of cases is different.
- The leading cause of child hospital admissions and ED presentations is falls accounting for 44% (n=5,589) of child hospital admissions and 44% (n=29,958) of ED presentations.
- Hit/struck/crush injuries are the next major cause of injury accounting for 15% of admissions (n=1,912) and 22% of ED presentations (n=14,934).
- Transport accounts for 11% of admissions (n=1,352) and only 4% of ED presentations (n=2,421).
- Cutting and piercing injuries account for 4% of admissions (n=485) and 6% of ED presentations (n=3,817).
- Injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye, account for 4% of admissions (n=513) and 3% of presentations (n=2,069).

**Figure 23 Child hospital admissions by cause, Victoria 2009**



**Figure 24 Child ED presentations by cause, Victoria 2009**



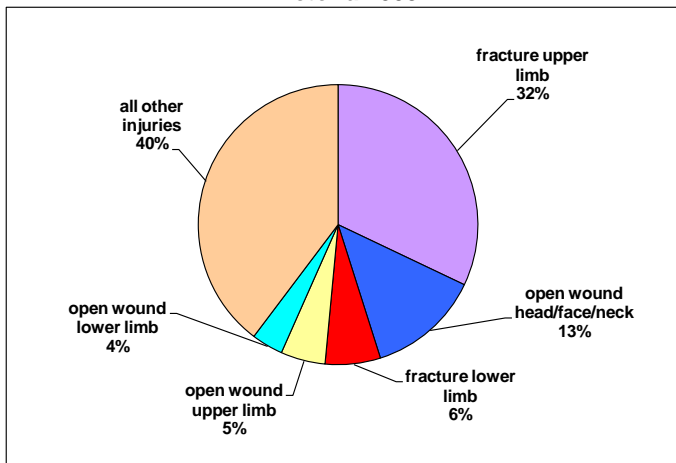
*Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking*

## Major injury type (body site and nature of injury)

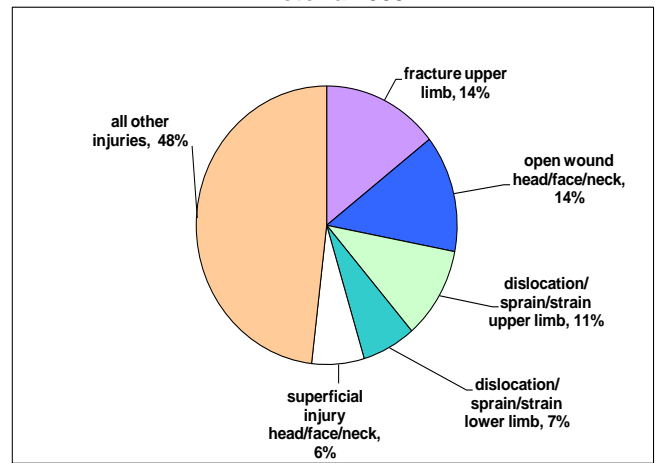
Figures 25 & 26 show the five major injury types for child hospital admissions and presentations.

- Fracture to the upper limb accounts for almost one-third of child hospital injury admissions (32%) and 14% of ED presentations.
- Open wounds to the head/face/neck account for 13% of child hospital injury admissions and 14% of ED presentations.

**Figure 25 Major injury type, child hospital admissions, Victoria 2009**



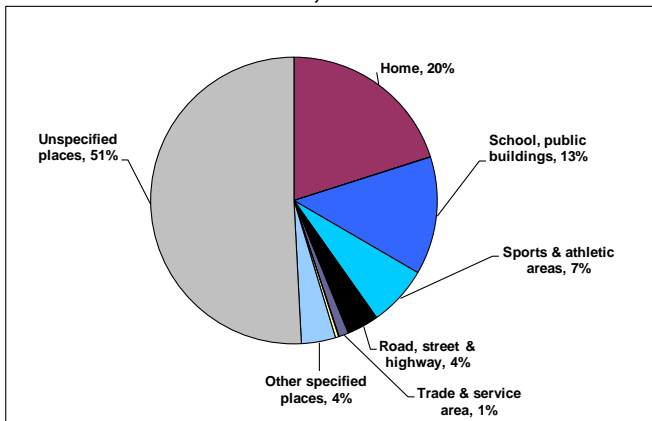
**Figure 26 Major injury type, child ED presentations, Victoria 2009**



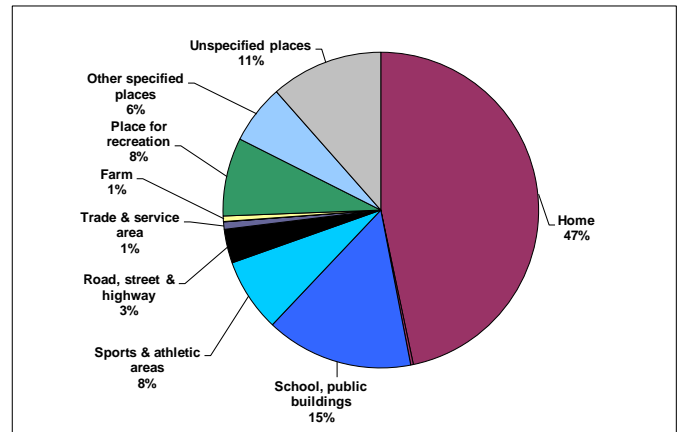
## Place of injury occurrence

- The major place of occurrence (location) of injury was the home (20% of hospital admissions and 47% of ED presentations).
- Children were also commonly injured in schools and other public buildings (13% 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 2009**



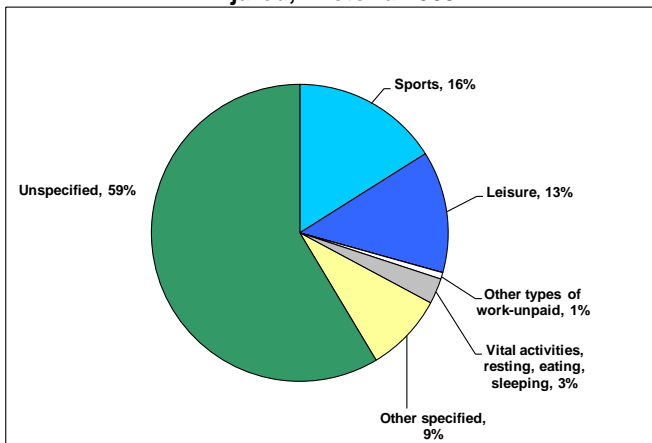
**Figure 28 Child ED presentations by place of occurrence, Victoria 2009**



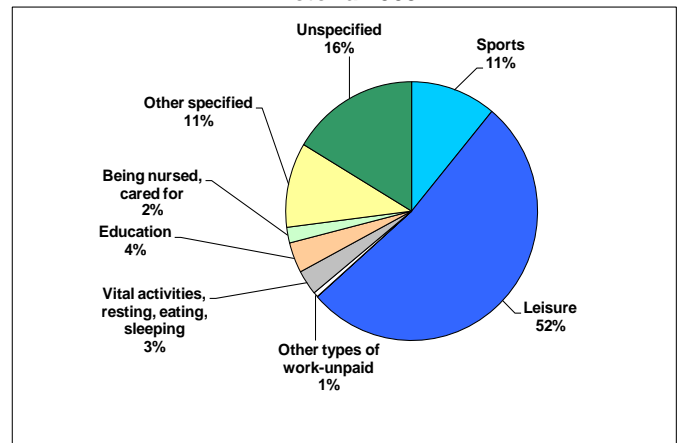
## Activity when injured

- The activity engaged in at the time of injury was unspecified for almost 60% of all child injury admissions (59%) and recorded as 'other specified' for a further 9% of injuries.
- Sport was the only activity recorded for a significant number of child admissions (16%).
- Leisure was recorded as the activity engaged in at the time of injury for 52% of child ED presentations, followed by sports (11%) and education (4%).

**Figure 29 Child hospital admissions by activity when injured, Victoria 2009**



**Figure 30 Child ED presentations by activity when injured, Victoria 2009**



**Table 7 Ranking of causes for hospital admissions and ED presentations, children aged 0-14 years, 2009**

AGE GROUP	RANK	ADMISSIONS			PRESENTATIONS		
		CAUSE	FREQ	%	CAUSE	FREQ	%
0-4 years	1	fall	1,785	39.8	fall	10,503	42.7
	2	hit/struck/crush	715	16.0	hit/struck/crush	4,426	18.0
	3	unspecified	446	10.0	other specified unintentional	2,993	12.2
	4	foreign body- natural orifice	294	6.6	unspecified factor	1,525	6.2
	5	poisoning	273	6.1	foreign body- natural orifice	1,290	5.2
	6	fires/burns/scalds	213	4.8	cutting/piercing	1,271	5.2
	7	cutting/piercing	161	3.6	fires/burns/scalds	926	3.8
	8	natural/environmental/animals	150	3.3	natural/environmental/animals	704	2.9
	9	transport	145	3.2	poisoning	558	2.3
	10	other specified unintentional	135	3.0	transport	285	1.2
	11	overexertion & strenuous movements	65	1.5	choking/suffocation	84	<1
	12	choking/suffocate	58	1.3	near drowning	12	<1
	13	near drowning	20	<1	machinery	10	<1
	14	machinery	20	<1	explosions/firearms	1	<1
	15	explosions/firearms	0	0.0	overexertion & strenuous movements	N/A	N/A
		ALL	4,480	100.0	ALL	24,588	100.0
5-9 years	1	fall	2,144	54.6	fall	8,988	48.9
	2	hit/struck/crush	473	12.0	hit/struck/crush	3,700	20.1
	3	transport	383	9.7	other specified unintentional	1,537	8.4
	4	unspecified	303	7.7	cutting/piercing	1,209	6.6
	5	foreign body- natural orifice	148	3.8	unspecified factor	918	5.0
	6	cutting/piercing	147	3.7	transport	646	3.5
	7	natural/environmental/animals	120	3.1	foreign body- natural orifice	563	3.1
	8	other specified unintentional	80	2.0	natural/environmental/animals	463	2.5
	9	fires/burns/scalds	39	1.0	fires/burns/scalds	257	1.4
	10	poisoning	33	<1	poisoning	57	<1
	11	choking/suffocate	17	<1	choking/suffocation	25	<1
	12	overexertion & strenuous movements	17	<1	machinery	10	<1
	13	machinery	14	<1	near drowning	3	<1
	14	near drowning	7	<1	explosions/firearms	2	<1
	15	explosions/firearms	5	<1	overexertion & strenuous movements	N/A	N/A
		ALL	3,930	100.0	ALL	18,378	100.0
10-14 years	1	fall	1,660	37.6	fall	10,467	41.7
	2	transport	824	18.7	hit/struck/crush	6,808	27.1
	3	hit/struck/crush	724	16.4	other specified unintentional	2,562	10.2
	4	unspecified	524	11.9	transport	1,490	5.9
	5	cutting/piercing	177	4.0	unspecified factor	1,378	5.5
	6	other specified unintentional	116	2.6	cutting/piercing	1,337	5.3
	7	natural/environmental/animals	114	2.6	natural/environmental/animals	542	2.2
	8	overexertion & strenuous movements	111	2.5	fires/burns/scalds	236	<1
	9	foreign body- natural orifice	71	1.6	foreign body- natural orifice	216	<1
	10	fires/burns/scalds	38	<1	poisoning	50	<1
	11	poisoning	31	<1	choking/suffocation	11	<1
	12	machinery	9	<1	machinery	11	<1
	13	choking/suffocate	8	<1	near drowning	5	<1
	14	near drowning	5	<1	explosions/firearms	3	<1
	15	explosions/firearms	5	<1	overexertion & strenuous movements	N/A	N/A
		ALL	4,417	100.0	ALL	25,116	100.0



# Adolescents and young adults (15-24 years)

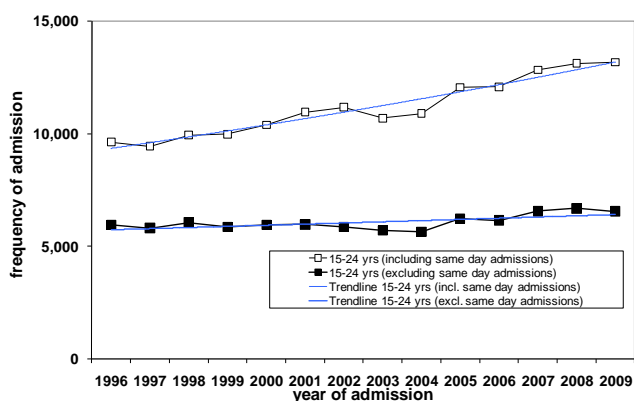
## Trend

### FREQUENCY

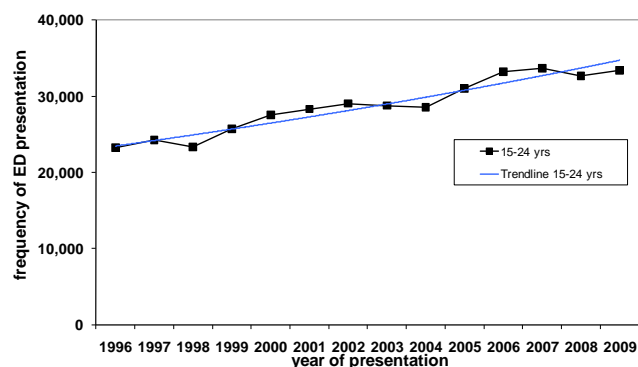
Frequency and rate data for 2009 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) are used for the trend calculations.

- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 14-year period from 9,633 in 1996 to 13,183 in 2009, representing an estimated annual change of 2.7% (95% confidence interval 2.3% to 3.1%) and an overall increase of 45% (37% to 53%) based on the trend line.
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 14-year period. In 1996 the frequency was 5,950 and in 2009 it was 6,554. This represented an estimated annual change of 0.9% (0.3% to 1.5%) and an overall increase of 13% (4% to 23%) based on the trend line.
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning ED presentations increased significantly over the 14-year period from 23,224 in 1996 to 33,425 in 2009, representing an estimated annual change of 3.0% (2.5% to 3.5%) and an overall increase of 52% (40% to 62%) based on the trend line.

**Figure 31 Trend in the frequency of hospital admissions, Victoria 1996-2009**



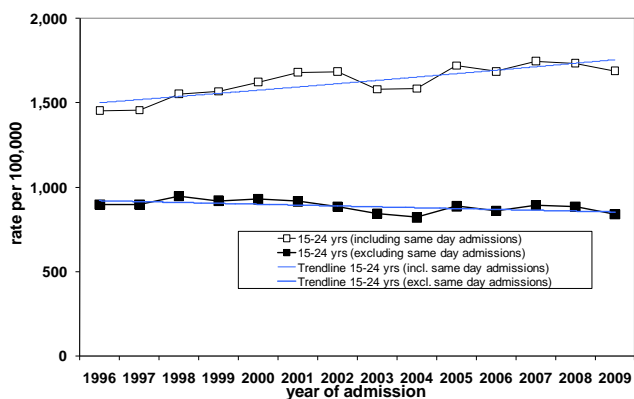
**Figure 32 Trend in the frequency of injury ED presentations, Victoria 1996-2009**



### RATE

- The ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 14-year period from 1,454/100,000 in 1996 to 1,689/100,000 in 2009, representing an estimated annual change of 1.2% (0.7% to 1.7%) and an overall increase of 18% (10% to 26%) based on the trend line.
- The ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) decreased significantly over the 14-year period from 898/100,000 in 1996 to 840/100,000 in 2009, representing an estimated annual reduction of 0.6% (-1.1% to -0.1%) and an overall decrease of 8% (-14% to 1%) based on the trend line.
- The trend in ED presentation rate cannot be determined because numerator data are not complete.

**Figure 33 Trend in hospital admission rates per 100,000 population, Victoria 1996-2009**

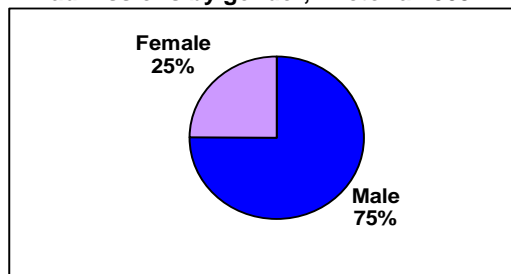


Rates cannot be calculated for ED presentations because numerator data are not complete for the 14-year period.

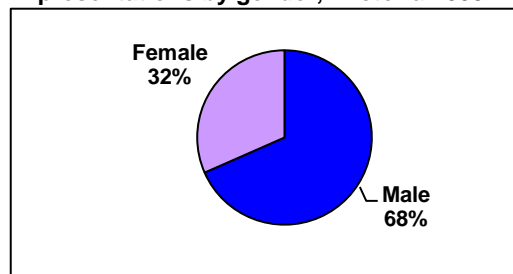
## Gender

- Males are overrepresented in hospital-treated injury cases among adolescents and young adults, accounting for 75% of hospital admissions (n=10,099) and 68% of ED presentations (n=32,849) in Victoria in 2009.

**Figure 34 Adolescent and young adult hospital injury admissions by gender, Victoria 2009**



**Figure 35 Adolescent and young adult ED injury presentations by gender, Victoria 2009**



- Hospital admissions and ED presentation rates are also higher for males than females (2,502 & 8,138/100,000 vs. 888 & 4,026/100,000). (Table 8)

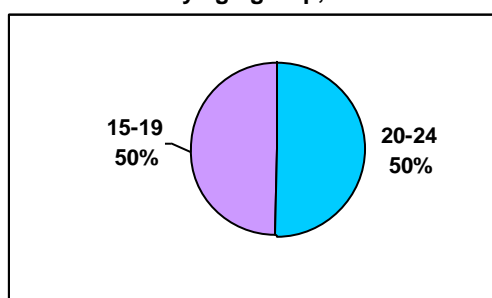
**Table 8 Frequency and rate of hospital admission and ED presentation, adolescent and young adults, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	10,099	2,501.9	32,849	8,138.0
Female	3,350	888.7	15,175	4,025.8
All	13,449	1,722.9	48,024	6,152.2

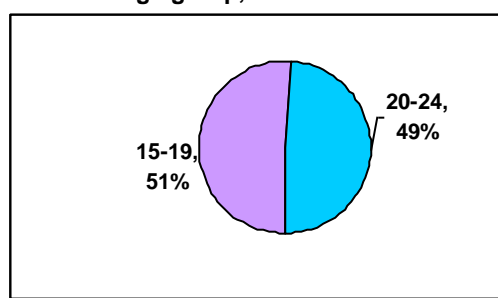
## Age

- Adolescent and young adult injury hospital admissions and ED presentations are very evenly distributed across the two 5-year age groups.
- Adolescents aged 15 to 19 years account for 50% of admissions and 51% of ED presentations.
- Young adults aged 20 to 24 years account for 50% of admissions and 49% of ED presentations.

**Figure 36 Adolescent and young adult hospital admissions by age group, Victoria 2009**



**Figure 37 Adolescent and young adult ED presentations by age group, Victoria 2009**



- Hospital admission rates are higher in 15-19 year olds than 20-24 year olds (1,822/100,000 vs. 1,635/100,000) whereas ED presentation rates are highest in 15-19 year olds (6,718/100,000 vs. 5,653/100,000). (Table 9)

**Table 9 Frequency and rate of hospital admission and ED presentation in adolescent and young adults, Victoria 2009**

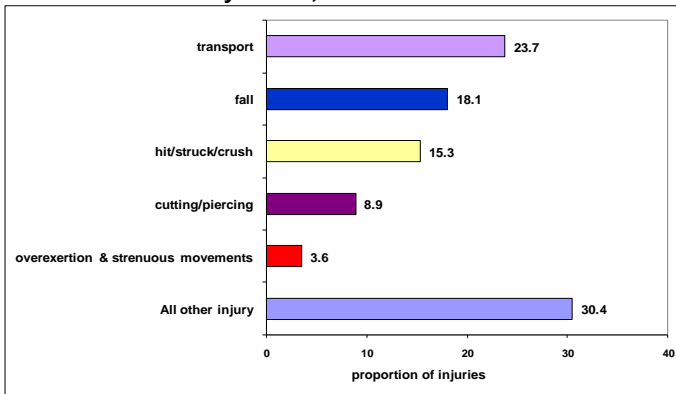
	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
15-19 years	6,672	1,822.3	24,595	6,717.6
20-24 years	6,777	1,635.1	23,429	5,652.8
All	13,449	1,722.9	48,024	6,152.2



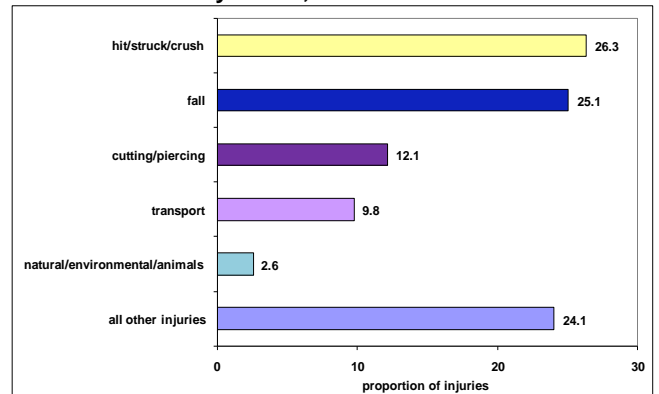
## Leading causes of injury

- Four of the five leading causes of adolescent and young adult hospital admissions and ED presentations are the same although the ranking on frequency of cases is different. (Figures 38 & 39)
- Transport is the leading cause of adolescent and young adult hospital admissions (24%, n=3,193) but only accounts for 10% of ED presentations (n=4,705).
- Falls is the second most common cause of hospital admissions (18%, n=2,428), and ED presentations (25%, n=12,040) in this age group.
- Hit/struck/crush accounted for 15% of hospital admissions (n=2,057) and was the leading cause of ED presentations (26%, n=12,651).
- Cutting and piercing injuries account for 9% of admissions (n=1,198) and 12% of ED presentations (n=5,834).
- The fifth ranking cause of adolescent and young adult hospital admissions is overexertion and strenuous movements (4%, n=478) whereas for ED presentations it is natural/environmental/animals (3%, n=1,240).

**Figure 38 Adolescent and young adult hospital admissions by cause, Victoria 2009**



**Figure 39 Adolescent and young adult ED presentations by cause, Victoria 2009**



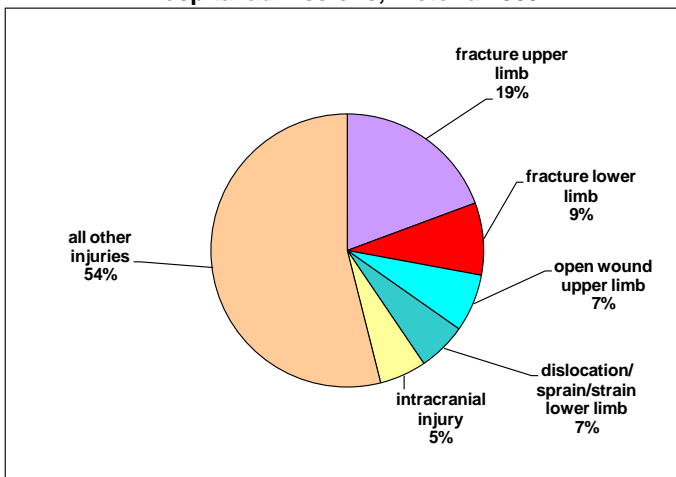
Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking

## Major injury type (body site and nature of injury)

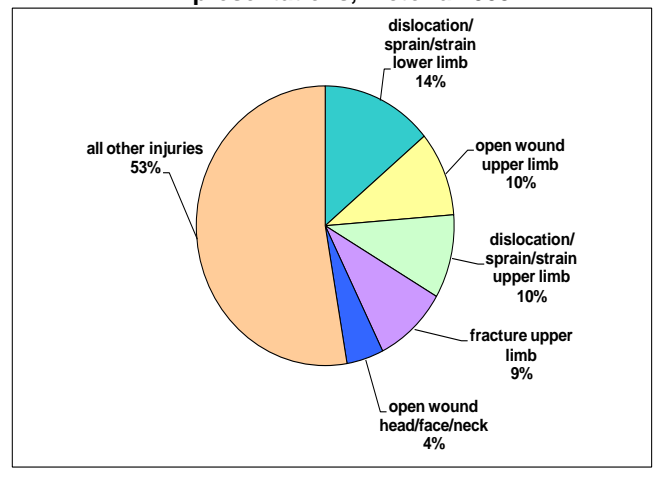
Figures 40 & 41 show the five major specific injury types for adolescent and young adult hospital admissions and ED presentations.

- Fracture to the upper limb accounts for 19% of hospital injury admissions and 9% of ED presentations.
- Fracture to the lower limb is the second most common type of injury requiring hospital admission (9%).
- Dislocations/sprains and strains to the lower limb (14%) and open wounds to the upper limb (10%) are common among ED presentations.

**Figure 40 Major injury type, adolescent and young adult hospital admissions, Victoria 2009**



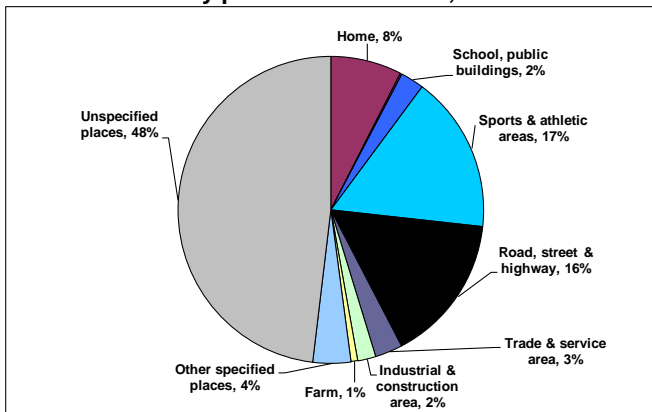
**Figure 41 Major injury type, adolescent and young adult ED presentations, Victoria 2009**



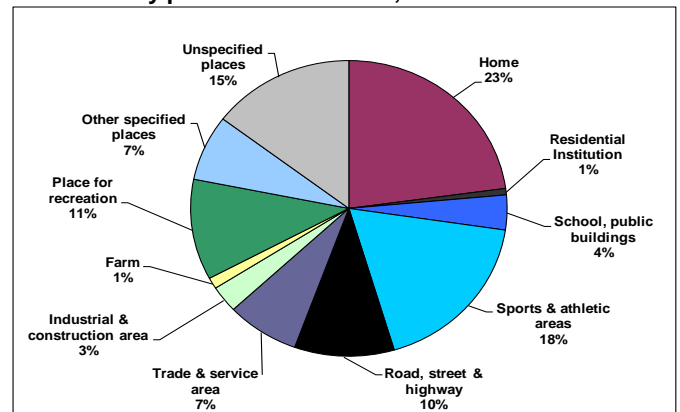
## Place of injury occurrence

- The road, street and highway is the most common place of occurrence of adolescent and young adult injuries resulting in hospital admission (16%) whereas the home is the leading place of occurrence for injuries resulting in ED presentation (23%).
- Other locations where injuries to adolescents and young adults commonly occurred were:
  - sports and athletics areas (17% of admissions and 18% of ED presentations)
  - place for recreation (11% of ED presentations) and
  - trades and service areas (3% of admissions and 7% of ED presentations).

**Figure 42 Adolescent and young adult hospital admissions by place of occurrence, Victoria 2009**



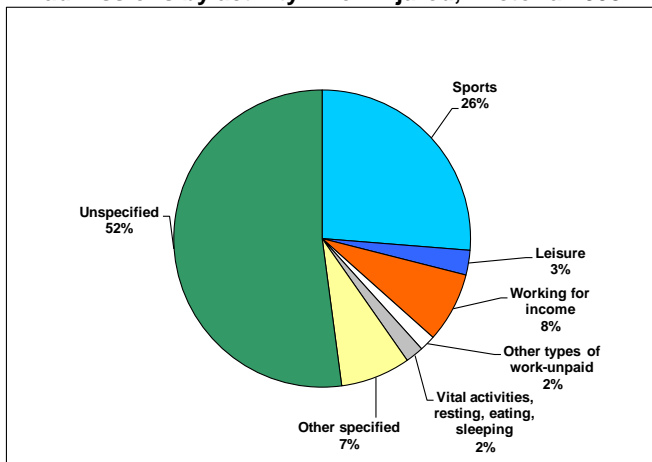
**Figure 43 Adolescent and young adult ED presentations by place of occurrence, Victoria 2009**



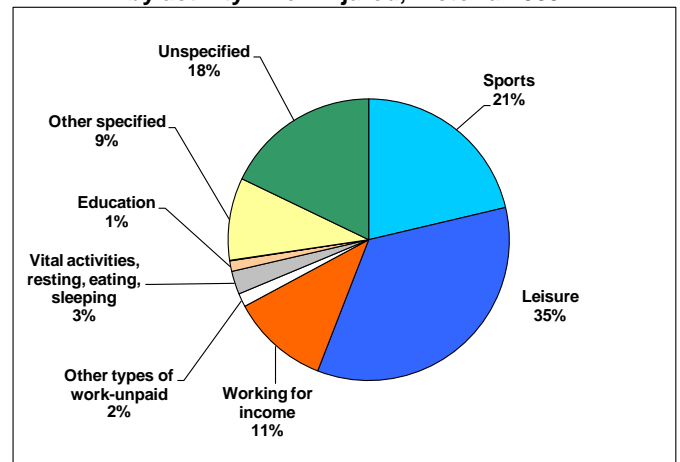
## Activity when injured

- The activity engaged in at the time of injury was unspecified for more than half of adolescent and young adult injury admissions (52%) and recorded as 'other specified' for a further 7% of injuries.
- Sports (26%) and working for income (8%) were the only activities recorded for a significant number of adolescent and young adult admissions.
- Leisure was recorded as the activity engaged in at the time of injury for 35% of adolescent and young adult ED presentations, followed by sports (21%) and working for income (11%).

**Figure 44 Adolescent and young adult hospital admissions by activity when injured, Victoria 2009**



**Figure 45 Adolescent and young adult ED presentations by activity when injured, Victoria 2009**



**Table 10 Ranking of causes for hospital admissions and ED presentations, persons aged 15 to 24 years, 2009**

AGE GROUP	RANK	ADMISSIONS			PRESENTATIONS		
		CAUSE	FREQ	%	CAUSE	FREQ	%
<b>15-19 years</b>	1	transport	1,582	23.7	hit/struck/crush	6,952	28.3
	2	fall	1,237	18.5	fall	6,711	27.3
	3	unspecified	1,186	17.8	other specified unintentional	2,672	10.9
	4	hit/struck/crush	1,124	16.8	cutting/piercing	2,480	10.1
	5	cutting/piercing	497	7.4	transport	2,340	9.5
	6	overexertion & strenuous movements	243	3.6	unspecified factor	1,625	6.6
	7	other specified unintentional	203	3.0	natural/environmental/animals	577	2.3
	8	poisoning	189	2.8	fires/burns/scalds	501	2.0
	9	natural/environmental/animals	157	2.4	foreign body- natural orifice	332	1.3
	10	machinery	88	1.3	poisoning	233	<1
	11	fires/burns/scalds	84	1.3	machinery	143	<1
	12	foreign body- natural orifice	50	<1	choking/suffocation	24	<1
	13	explosions/firearms	16	<1	near drowning	3	<1
	14	choking/suffocate	11	<1	explosions/firearms	2	<1
	15	near drowning	5	<1	overexertion & strenuous movements	N/A	N/A
		ALL	6,672	100.0	ALL	24,595	100.0
<b>20-24 years</b>	1	transport	1,611	23.8	hit/struck/crush	5,699	24.3
	2	fall	1,191	17.6	fall	5,329	22.7
	3	unspecified	1,098	16.2	cutting/piercing	3,354	14.3
	4	hit/struck/crush	933	13.8	other specified unintentional	2,516	10.7
	5	cutting/piercing	701	10.3	transport	2,365	10.1
	6	poisoning	277	4.1	unspecified factor	1,717	7.3
	7	overexertion & strenuous movements	235	3.5	natural/environmental/animals	663	2.8
	8	other specified unintentional	224	3.3	fires/burns/scalds	638	2.7
	9	natural/environmental/animals	179	2.6	foreign body- natural orifice	557	2.4
	10	machinery	127	1.9	poisoning	290	1.2
	11	fires/burns/scalds	86	1.3	machinery	261	1.1
	12	foreign body- natural orifice	81	1.2	choking/suffocation	26	<1
	13	choking/suffocate	19	<1	near drowning	11	<1
	14	explosions/firearms	10	<1	explosions/firearms	3	<1
	15	near drowning	5	<1	overexertion & strenuous movements	N/A	N/A
		ALL	6,777	100.0	ALL	23,429	100.0



# Adults (25-64 years)

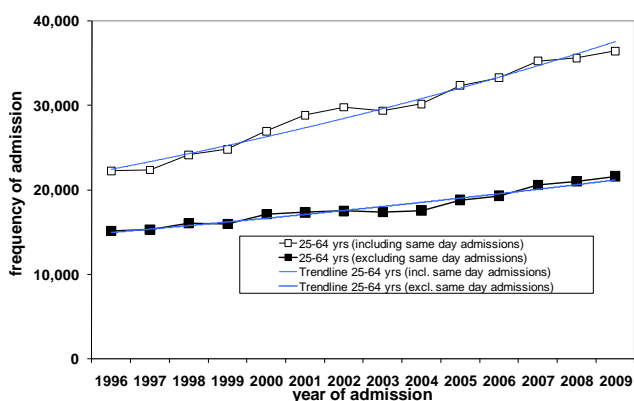
## Trend

### FREQUENCY

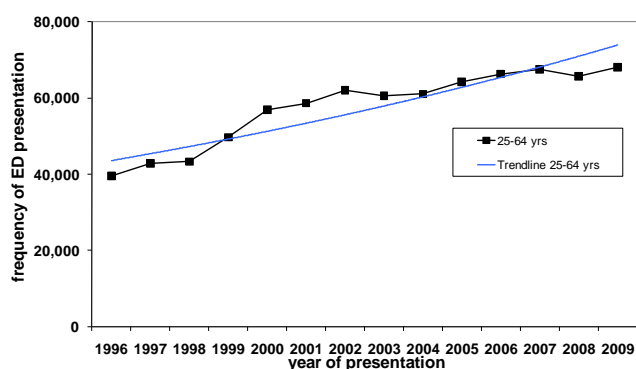
Frequency and rate data for 2009 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) are used for the trend calculations.

- The frequency of ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 14-year period from 22,242 in 1996 to 36,461 in 2009, representing an estimated annual change of 4.0% (95% confidence interval 3.5% to 4.3%) and an overall increase of 73% (62% to 81%) based on the trend line.
- The frequency of ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 14-year period from 15,133 in 1996 to 21,606 in 2009, representing an estimated annual change of 2.8% (2.3% to 3.1%) and an overall increase of 46% (38% to 53%) based on the trend line.
- The frequency of ADULT unintentional injury and poisoning ED presentations increased significantly over the 14-year period from 39,543 in 1996 to 68,050 in 2009, representing an estimated annual change of 3.9% (2.8% to 4.9%) and an overall increase of 71% (46% to 95%) based on the trend line.

**Figure 46 Trend in the frequency of hospital admissions, Victoria 1996-2009**



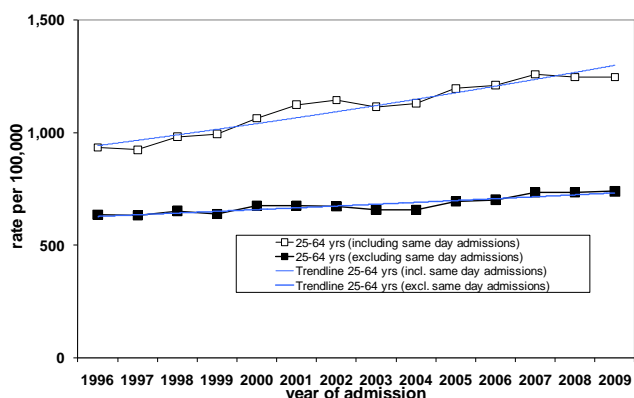
**Figure 47 Trend in the frequency of injury ED presentations, Victoria 1996-2009**



### RATE

- The ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 14-year period from 934/100,000 in 1996 to 1,248/100,000 in 2009, representing an estimated annual change of 2.5% (2.0% to 2.9%) and an overall increase of 41% (32% to 49%) based on the trend line.
- The ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 14-year period from 636/100,000 in 1996 to 739/100,000 in 2009, representing an estimated annual change of 1.2% (0.9% to 1.5%) and an overall increase of 18% (13% to 24%) based on the trend line.
- The trend in ED presentation rate cannot be determined because numerator data are not complete.

**Figure 48 Trend in hospital admission rates per 100,000 population, Victoria 1996-2009**

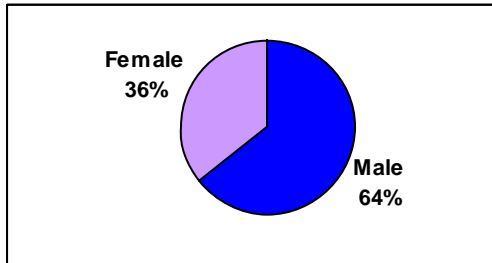


Rates cannot be calculated for ED presentations because numerator data are not complete for the 14-year period.

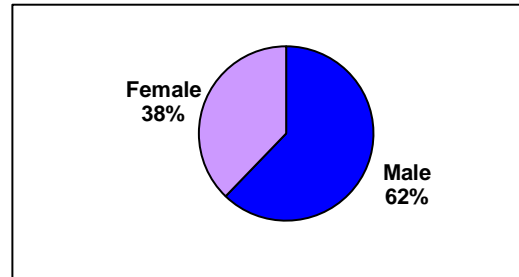
## Gender

- Males are overrepresented in hospital injury data for adults aged 25 to 64 years, accounting for 64% of hospital admissions (n=24,480) and 62% of ED presentations (n=60,501) in Victoria in 2009.

**Figure 49 Adult hospital injury admissions by gender, Victoria 2009**



**Figure 50 Adult ED injury presentations by gender, Victoria 2009**



- Hospital admission and ED presentation rates are higher for males compared with females (1,690 & 4,176/100,000 vs. 924 & 2,496/100,000). (Table 11)

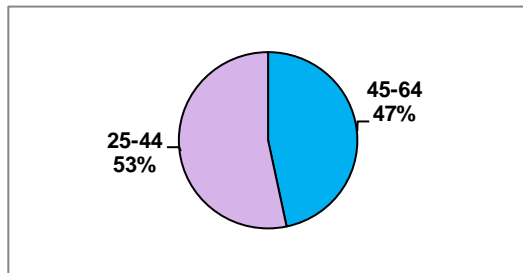
**Table 11 Frequency and rate of adult hospital admission and ED presentation, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	24,480	1,689.5	60,501	4,175.5
Female	13,603	923.5	36,765	2,495.9
All	38,085	1,303.4	97,266	3,328.8

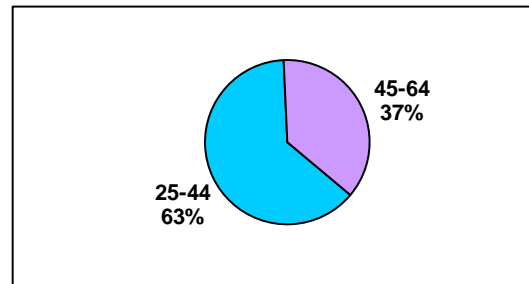
## Age

- Persons aged 25 to 44 years account for most adult hospital admissions and ED presentations (53% and 63%).

**Figure 51 Adult hospital admissions by age group, Victoria 2009**



**Figure 52 Adult ED presentations by age group, Victoria 2009**



- The highest adult hospital admission rates are in 60-64 year olds. The highest ED presentation rate is in 25-29 year olds, rates then decrease with age. (Table 12)

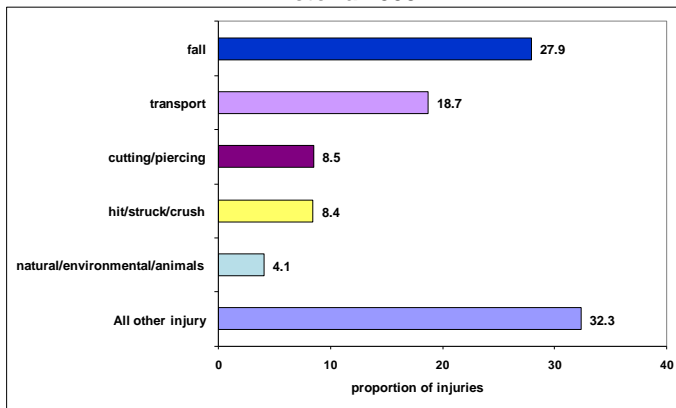
**Table 12 Frequency and rate of hospital admission and ED presentation in adults, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
25-29 years	5,621	1,380.3	18,634	4,575.6
30-34 years	4,808	1,259.6	15,050	3,942.7
35-39 years	5,127	1,256.6	14,900	3,651.9
40-44 years	4,768	1,239.1	12,860	3,342.0
45-49 years	4,642	1,205.7	11,397	2,960.2
50-54 years	4,532	1,284.4	9,539	2,703.3
55-59 years	4,273	1,345.9	8,066	2,540.6
60-64 years	4,314	1,514.6	6,820	2,394.5
All	38,085	1,303.4	97,266	3,328.8

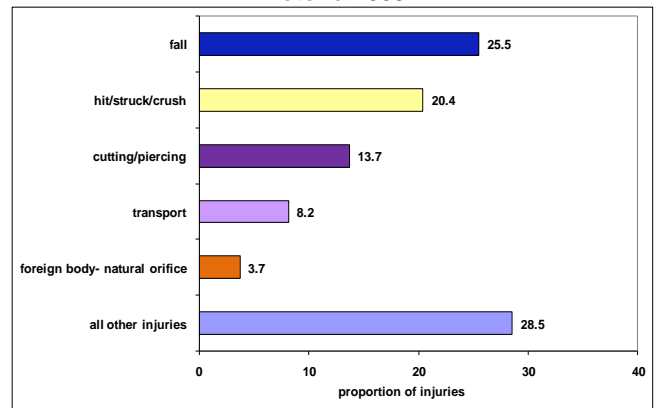
## Leading causes of injury

- Four of the five leading causes of adult hospital admissions and ED presentations are 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 is falls accounting for 28% (n=10,636) of hospital admissions and 26% (n=24,773) of ED presentations.
- Transport accounts for 19% of admissions (n=7,132) but only 8% of presentations (n=7,959).
- Cutting and piercing injuries account for 9% of admissions (n=3,235) and 14% of ED presentations (n=13,301).
- Hit/struck/crush injuries account for just 8% of admissions (n=3,215) but 20% of ED presentations (n=19,849).
- The fifth ranking cause of hospital admissions is natural/environmental/animal related injury (4%, n=1,547) whereas for ED presentations it is injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (4%, n=3,642).

**Figure 53 Adult hospital admissions by cause, Victoria 2009**



**Figure 54 Adult ED presentations by cause, Victoria 2009**



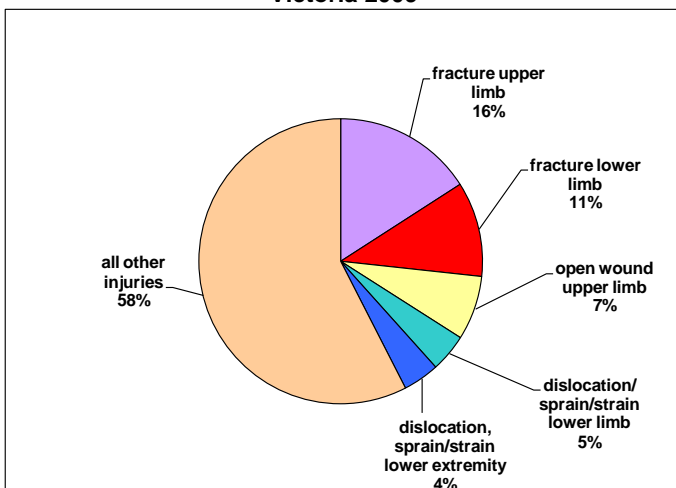
*Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking*

## Major injury type (body site and nature of injury)

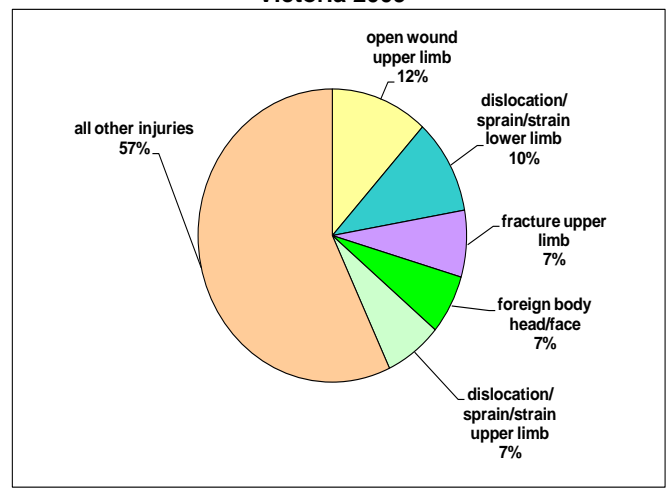
Figures 55 & 56 show the five major specific injury types for adult hospital admissions and ED presentations.

- Fracture to the upper limb accounted for 16% of adult hospital injury admissions and 7% of ED presentations.
- Fracture to the lower limb is the second most common type of adult injury requiring hospital admission (11%).
- Open wounds to the upper limb (12%) and dislocations/sprains and strains to the lower limb (10%) are common among ED presentations.

**Figure 55 Major injury type, adult hospital admissions, Victoria 2009**



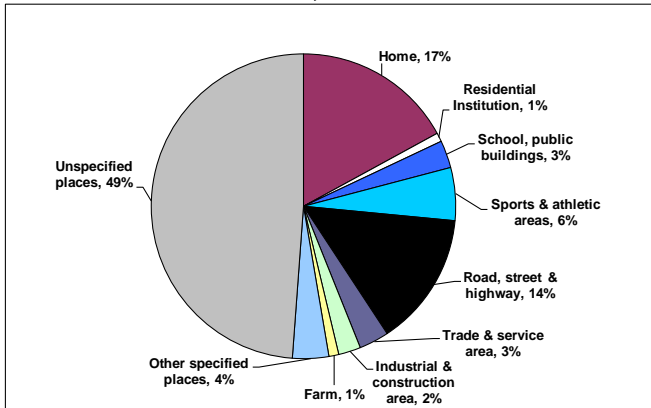
**Figure 56 Major injury type, adult ED presentations, Victoria 2009**



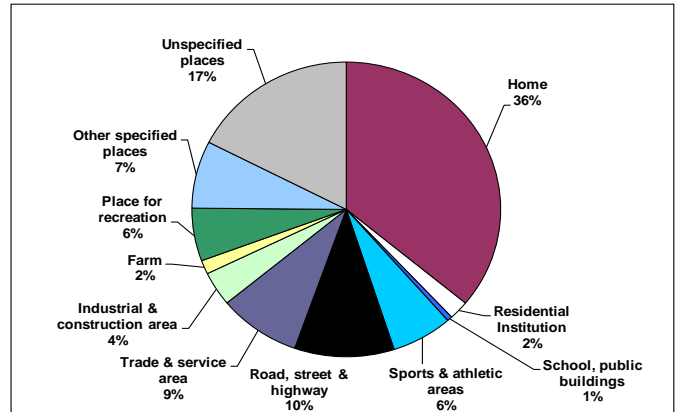
## Place of injury occurrence

- Seventeen percent of adult injuries requiring hospital admission and 36% of injuries resulting in ED presentation occurred in the home.
- 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 (6% of admissions and 6% of ED presentations).

**Figure 57 Adult hospital admissions by place of occurrence, Victoria 2009**



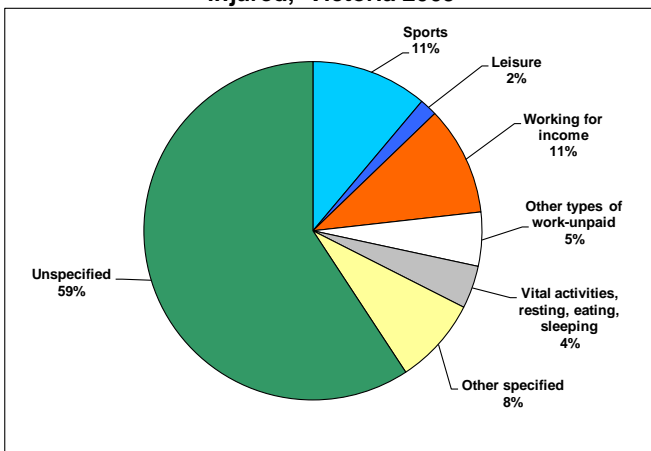
**Figure 58 Adult ED presentations by place of occurrence, Victoria 2009**



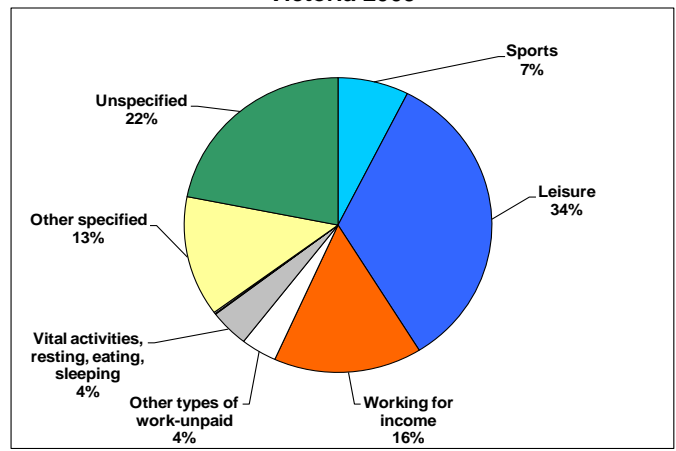
## Activity when injured

- The activity engaged in at the time of injury was unspecified for nearly 60% of adult injury admissions (59%) and recorded as 'other specified' for a further 8% of injuries.
- Working for income (11%) and sports (11%) were the only activities recorded for a significant number of adult admissions.
- 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 59 Adult hospital admissions by activity when injured, Victoria 2009**



**Figure 60 Adult ED presentations by activity when injured, Victoria 2009**





**Table 13 Ranking of causes for hospital admissions and ED presentations, persons aged 25 to 64 years, 2009**

AGE GROUP	RANK	ADMISSIONS			PRESENTATIONS		
		CAUSE	FREQ	%	CAUSE	FREQ	%
<b>25-44 years</b>	1	transport	4,494	22.1	fall	14,056	22.9
	2	fall	4,120	20.3	hit/struck/crush	13,804	22.5
	3	unspecified	3,140	15.4	cutting/piercing	8,664	14.1
	4	hit/struck/crush	2,182	10.7	other specified unintentional	7,228	11.8
	5	cutting/piercing	2,009	9.9	transport	5,523	9.0
	6	overexertion & strenuous movements	903	4.4	unspecified factor	4,783	7.8
	7	natural/environmental/animals	753	3.7	foreign body- natural orifice	2,119	3.4
	8	other specified unintentional	745	3.7	natural/environmental/animals	2,091	3.4
	9	poisoning	687	3.4	fires/burns/scalds	1,564	2.5
	10	machinery	496	2.4	machinery	929	1.5
	11	fires/burns/scalds	309	1.5	poisoning	558	<1
	12	foreign body- natural orifice	309	1.5	choking/suffocation	98	<1
	13	choking/suffocate	119	<1	near drowning	17	<1
	14	explosions/firearms	42	<1	explosions/firearms	10	<1
	15	near drowning	16	<1	overexertion & strenuous movements	N/A	N/A
		ALL	20,324	100.0	ALL	61,444	100.0
<b>45-64 years</b>	1	fall	6,516	36.7	fall	10,717	29.9
	2	transport	2,638	14.9	hit/struck/crush	6,045	16.9
	3	unspecified	2,567	14.5	cutting/piercing	4,637	12.9
	4	cutting/piercing	1,226	6.9	other specified unintentional	4,263	11.9
	5	hit/struck/crush	1,033	5.8	unspecified factor	2,995	8.4
	6	natural/environmental/animals	794	4.5	transport	2,436	6.8
	7	overexertion & strenuous movements	613	3.5	foreign body- natural orifice	1,523	4.3
	8	machinery	482	2.7	natural/environmental/animals	1,412	3.9
	9	other specified unintentional	482	2.7	fires/burns/scalds	843	2.4
	10	foreign body- natural orifice	439	2.5	machinery	586	1.6
	11	poisoning	424	2.4	poisoning	274	<1
	12	fires/burns/scalds	266	1.5	choking/suffocation	77	<1
	13	choking/suffocate	237	1.3	explosions/firearms	8	<1
	14	explosions/firearms	30	<1	near drowning	6	<1
	15	near drowning	14	<1	overexertion & strenuous movements	N/A	N/A
		ALL	17,761	100.0	ALL	35,822	100.0



# Older adults (65 years and older)

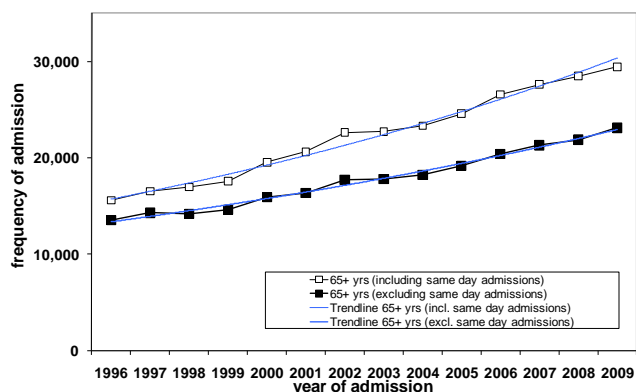
## Trend

### FREQUENCY

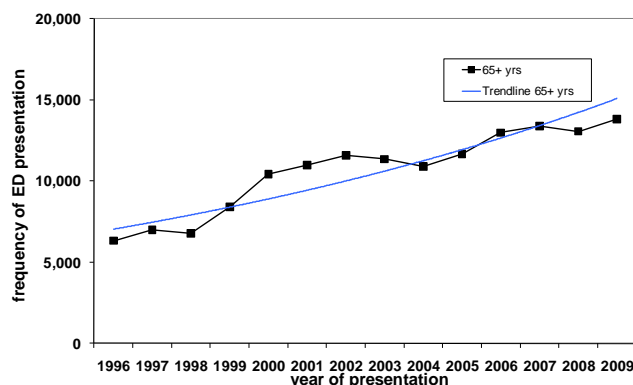
Frequency and rate data for 2009 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis (for admissions) and hospital site (for ED presentations) are used for the trend calculations.

- The frequency of OLDER ADULT unintentional injury and poisoning admissions (INCLUDING same-day admissions) increased significantly over the 14-year period from 15,588 in 1996 to 29,446 in 2009, representing an estimated annual change of 5.1% (95% confidence interval 4.6% to 5.4%) and an overall increase of 102% (88% to 109%) based on the trend line.
- The frequency of OLDER ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 14-year period from 13,511 in 1996 to 23,109 in 2009, representing an estimated annual change of 4.3% (3.9% to 4.5%) and an overall increase of 79% (71% to 84%) based on the trend line.
- The frequency of OLDER ADULT unintentional injury and poisoning ED presentations increased significantly over the 14-year period from 6,326 in 1996 to 13,808 in 2009, representing an estimated annual change of 5.6% (4.0% to 6.9%) and an overall increase of 115% (73% to 155%) based on the trend line.

**Figure 61 Trend in the frequency of hospital admissions, Victoria 1996-2009**



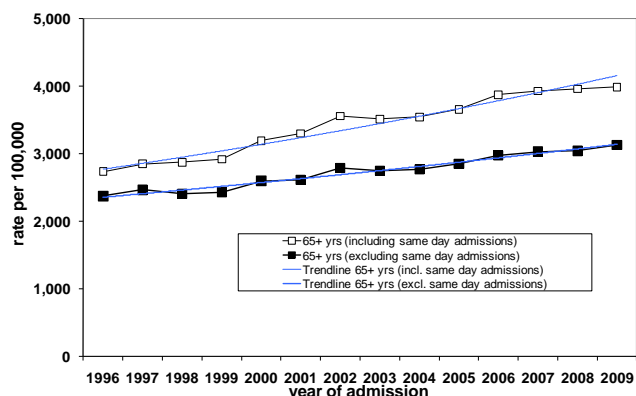
**Figure 62 Trend in the frequency of injury ED presentations, Victoria 1996-2009**



### RATE

- The OLDER ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 14-year period from 2,737/100,000 in 1996 to 3,990/100,000 in 2009, representing an estimated annual change of 3.1% (2.7% to 3.5%) and an overall increase of 54% (45% to 62%) based on the trend line.
- The OLDER ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 14-year period from 2,373/100,000 in 1996 to 3,131/100,000 in 2009, representing an estimated annual change of 2.2% (1.9% to 2.5%) and an overall increase of 36% (31% to 41%) based on the trend line.
- The trend in ED presentation rate cannot be determined because numerator data are not complete.

**Figure 63 Trend in hospital admission rates per 100,000 population, Victoria 1996-2009**

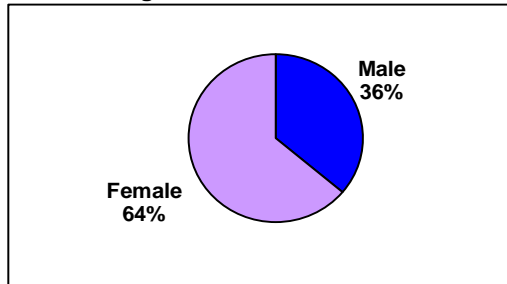


Rates cannot be calculated for ED presentations because numerator data are not complete for the 14-year period.

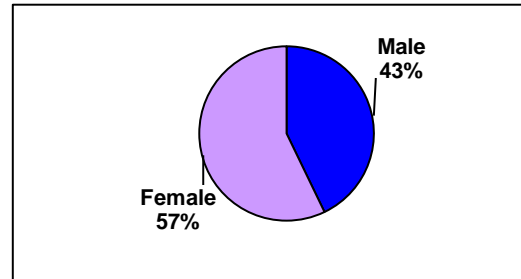
## Gender

- Females are overrepresented in hospital injury data for persons aged 65 years and older. They accounted for 64% of hospital admissions (n=20,984) and 57% of ED presentations (n=11,554) in Victoria in 2009.

**Figure 64 Older adult hospital injury admissions by gender, Victoria 2009**



**Figure 65 Older adult ED injury presentations by gender, Victoria 2009**



- The rate of hospital admission and ED presentation is higher for females than males (5,181 & 2,853/100,000 vs. 3,561 & 2,601/100,000). (Table 14)

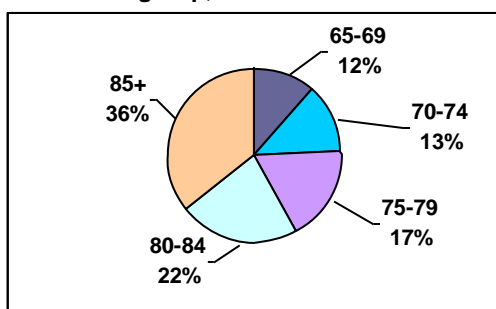
**Table 14 Frequency and rate of older adult hospital admission and ED presentation, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	11,860	3,561.4	8,660	2,600.5
Female	20,984	5,180.6	11,554	2,852.5
All	32,844	4,450.0	20,214	2,738.8

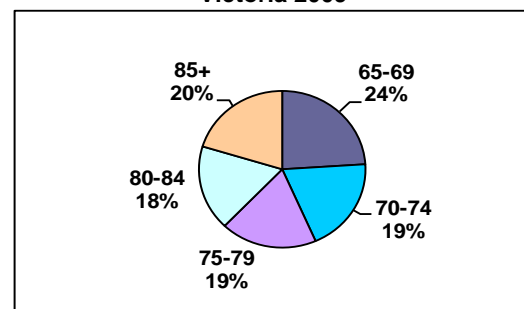
## Age

- Persons aged 85 years and older account for 36% of injury hospital admissions among older adults and persons aged 80-84 years account for a further 22%.
- Older adult ED presentations are fairly evenly distributed across the five age groups.

**Figure 66 Older adult hospital admissions by age group, Victoria 2009**



**Figure 67 Older adult ED presentations by age group, Victoria 2009**



- In persons aged 65 years and older both admission and ED presentation rates generally increase as age increases and the highest rates are in persons aged 85 years and older. (Table 15)

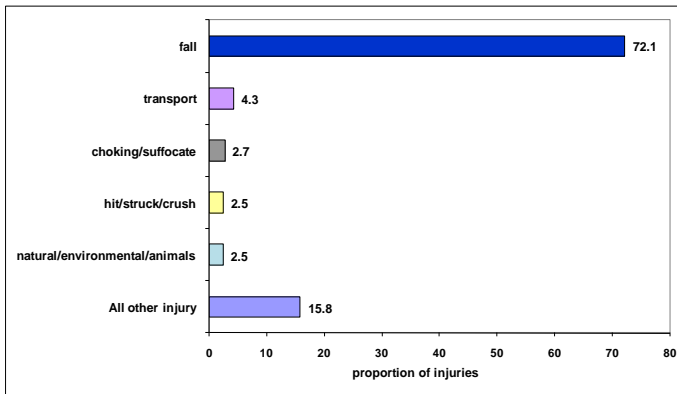
**Table 15 Frequency and rate of hospital admission and ED presentation in older adults, Victoria 2009**

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
65-69 years	3,947	1,846.1	4,847	2,267.0
70-74 years	4,300	2,484.0	3,933	2,272.0
75-79 years	5,549	3,897.5	3,784	2,657.8
80-84 years	7,272	6,494.9	3,550	3,170.7
85+ years	11,776	12,164.0	4,100	4,235.1
All	32,844	4,450.0	20,214	2,738.8

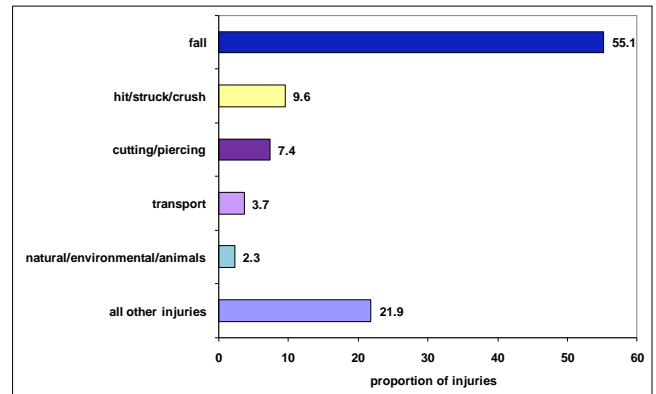
## Leading causes of injury

- The leading cause of hospital admissions and ED presentations for older adults is falls. Falls account for almost three-quarters of hospital admissions (72%, n=23,693) and more than half of ED presentations (55%, n=11,145) in this age group.
- Transport is the second most common cause of hospital admission (4%, n=1,416) and the cause of 4% of presentations (n=742).
- The third leading cause of admissions is choking and suffocation (3%, n=902) whereas for ED presentations it is cutting and piercing (7%, n=1,501).
- Hit/struck/crush injuries account for 3% of admissions (n=824) and 10% of ED presentations (n=1,934).
- The fifth ranking cause of both hospital admissions and ED presentations is natural/environmental/animal related injury accounting for 3% (n=808) of admissions and 2% (n=475) of ED presentations.

**Figure 68 Older adult hospital admissions by cause, Victoria 2009**



**Figure 69 Older adult ED presentations by cause, Victoria 2009**



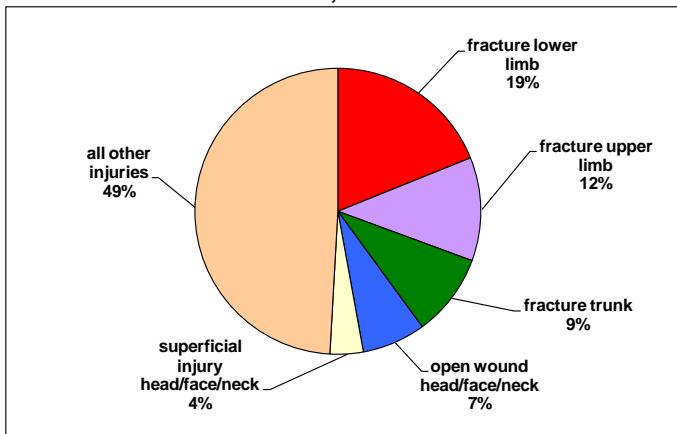
*Note: 'Other specified' and 'unspecified' cases were included in the 'all other injuries' category regardless of their ranking*

## Major injury type (body site and nature of injury)

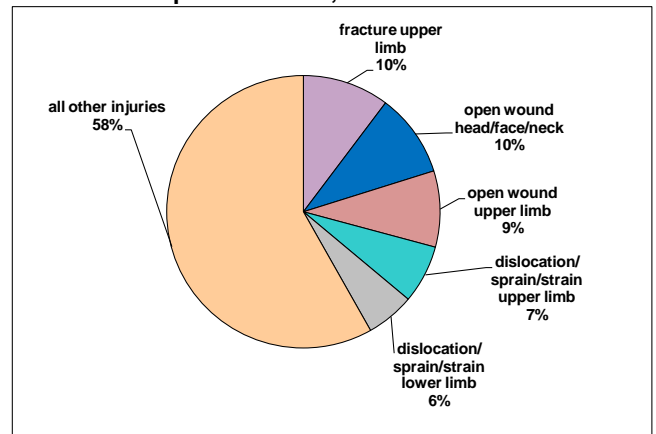
Figures 70 & 71 show the five major specific injury types for older adult hospital admissions and ED presentations.

- Fracture to the lower limb accounts for 19% of hospital injury admissions.
- Fracture to the upper limb accounts for 12% of hospital admissions and 10% of ED presentations.
- Open wounds to the head/face/neck account for 7% of hospital admissions and 10% of ED presentations.

**Figure 70 Major injury type, older adult hospital admissions, Victoria 2009**



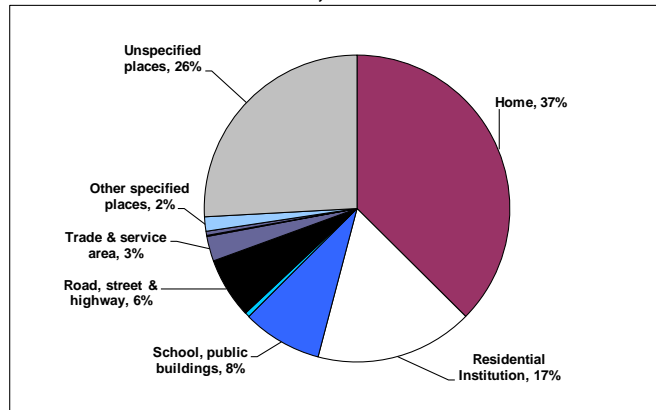
**Figure 71 Major injury type, older adult ED presentations, Victoria 2009**



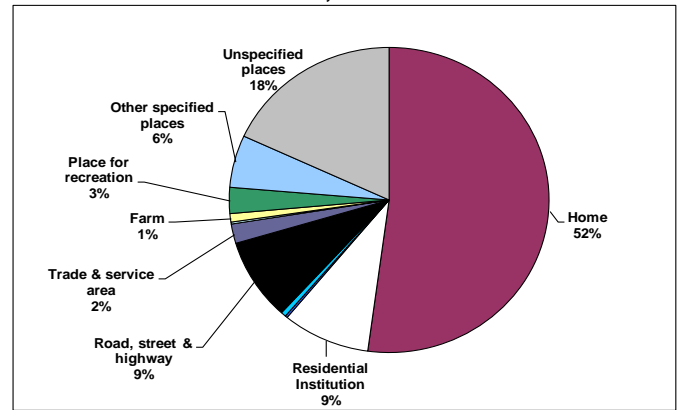
## Place of injury occurrence

- Thirty-seven percent of older adult injuries requiring hospital admission and half of injuries resulting in ED presentations (52%) occurred in the home.
- Other locations where injuries to older adults commonly occurred were:
  - residential institutions (17% of admissions and 9% 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 2009**



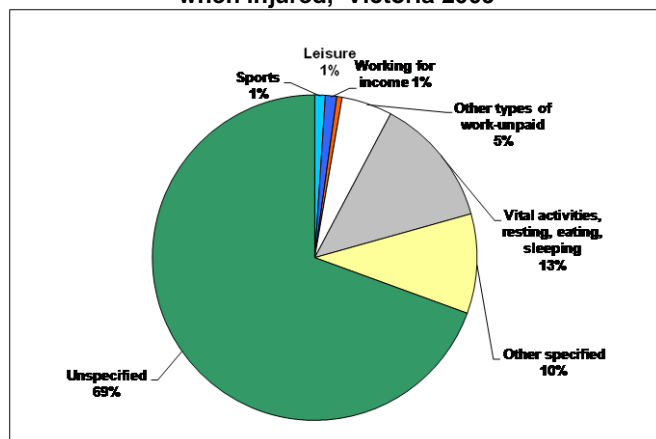
**Figure 73 Older adult ED presentations by place of occurrence, Victoria 2009**



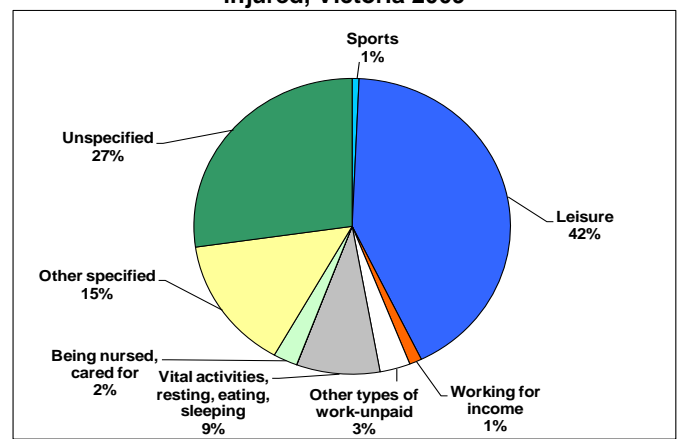
## Activity when injured

- The activity engaged in at the time of injury was unspecified for more than two-thirds of older adult injury admissions and recorded as 'other specified' for a further 10% of injuries.
- Vital activities such as resting, eating and sleeping were the only activities recorded for a significant 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%).

**Figure 74 Older adult hospital admissions by activity when injured, Victoria 2009**



**Figure 75 Older adult ED presentations by activity when injured, Victoria 2009**



**Table 16 Ranking of causes for hospital admissions and ED presentations, persons aged 65 years and older, 2009**

AGE GROUP	RANK	ADMISSIONS			PRESENTATIONS		
		CAUSE	FREQ	%	CAUSE	FREQ	%
<b>65-74 years</b>	1	fall	4,773	57.9	fall	3,876	44.1
	2	unspecified	937	11.4	hit/struck/crush	1,073	12.2
	3	transport	657	8.0	other specified unintentional	920	10.5
	4	natural/environmental/animals	279	3.4	cutting/piercing	873	9.9
	5	hit/struck/crush	263	3.2	unspecified factor	752	8.6
	6	cutting/piercing	262	3.2	transport	420	4.8
	7	overexertion & strenuous movements	225	2.7	natural/environmental/animals	289	3.3
	8	choking/suffocate	212	2.6	foreign body- natural orifice	268	3.1
	9	poisoning	189	2.3	fires/burns/scalds	135	1.5
	10	other specified unintentional	157	1.9	machinery	89	1.0
	11	foreign body- natural orifice	113	1.4	poisoning	57	<1
	12	machinery	97	1.2	choking/suffocation	27	<1
	13	fires/burns/scalds	80	1.0	near drowning	1	<1
	14	near drowning	3	<1	explosions/firearms	0	0.0
	15	explosions/firearms	0	0.0	overexertion & strenuous movements	N/A	N/A
		ALL	8,247	100.0	ALL	8,780	100.0
<b>75-84 years</b>	1	fall	9,326	72.7	fall	4,355	59.4
	2	unspecified	949	7.4	other specified unintentional	655	8.9
	3	transport	526	4.1	hit/struck/crush	582	7.9
	4	choking/suffocate	365	2.8	unspecified factor	557	7.6
	5	hit/struck/crush	323	2.5	cutting/piercing	480	6.5
	6	natural/environmental/animals	304	2.4	transport	252	3.4
	7	overexertion & strenuous movements	262	2.0	natural/environmental/animals	145	2.0
	8	poisoning	222	1.7	foreign body- natural orifice	142	1.9
	9	other specified unintentional	164	1.3	fires/burns/scalds	69	<1
	10	foreign body- natural orifice	146	1.1	poisoning	55	<1
	11	cutting/piercing	106	<1	machinery	30	<1
	12	fires/burns/scalds	73	<1	choking/suffocation	9	<1
	13	machinery	49	<1	explosions/firearms	2	<1
	14	near drowning	4	<1	near drowning	1	<1
	15	explosions/firearms	2	<1	overexertion & strenuous movements	N/A	N/A
		ALL	12,821	100.0	ALL	7,334	100.0
<b>85+ years</b>	1	fall	9,594	81.5	fall	2,914	71.1
	2	unspecified	655	5.6	unspecified factor	304	7.4
	3	choking/suffocate	325	2.8	hit/struck/crush	279	6.8
	4	hit/struck/crush	238	2.0	other specified unintentional	262	6.4
	5	transport	233	2.0	cutting/piercing	148	3.6
	6	natural/environmental/animals	225	1.9	transport	70	1.7
	7	overexertion & strenuous movements	133	1.1	natural/environmental/animals	41	1.0
	8	poisoning	125	1.1	foreign body- natural orifice	30	<1
	9	foreign body- natural orifice	84	<1	poisoning	24	<1
	10	other specified unintentional	76	<1	fires/burns/scalds	12	<1
	11	fires/burns/scalds	40	<1	choking/suffocation	12	<1
	12	cutting/piercing	36	<1	machinery	3	<1
	13	machinery	12	<1	explosions/firearms	1	<1
	14	near drowning	0	0.0	near drowning	0	0.0
	15	explosions/firearms	0	0.0	overexertion & strenuous movements	N/A	N/A
		ALL	11,776	100.0	ALL	4,100	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 (formerly the VIMD) by the Victorian Department of Health (DH) and supplied in unit record format to VISU every six months. The file is cleaned, checked and loaded onto 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 (V01-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 2009 to 31 December 2009, coded according to the 6<sup>th</sup> edition of ICD-10-AM (NCCH, July 2008)
- Cases with an external cause of morbidity in ICD-10-AM range V01-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 1996 and 31 December 2009.

Note: As of January 1<sup>st</sup> 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 1989. 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.

Emergency Department presentations for injury and poisoning are extracted from the VEMD by the Victorian Department of Health (DH) and supplied quarterly in unit record format to VISU (prior to 2004 VISU collected injury surveillance data directly from hospital EDs). Data for this edition of the E-bulletin were coded to the Victorian Emergency Minimum Dataset (VEMD) User Manual 13<sup>th</sup> & 14<sup>th</sup> Editions, July 2008 & July 2009 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 loaded onto 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** and **suburb** 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 2009 to 31 December 2009 coded according to the Victorian Emergency Minimum Dataset (VEMD) User Manuals 13<sup>th</sup> (July 2008) & 14<sup>th</sup> (July 2009) 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 14-year period were included in the trend analysis of ED presentations frequency data (24 of the current 38 hospitals contributing to the surveillance system).