MONASH University
Accident Research Centre

VISU
Victorian Injury Surveillance Unit

E_BULLETIN **Edition 4**

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UNINTENTIONAL (ACCIDENTAL) HOSPITAL-TREATED INJURY

VICTORIA

2007

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Unintentional (accidental) hospital-treated injury in Victoria 2007

Summary results

This is the forth of a series of regular E-bulletins that provide an overview of the injury profile for Victoria utilising two injury surveillance datasets that separately record hospital admissions and Emergency Department (ED) presentations for injury. This edition provides an overview of unintentional ('accidental') hospital-treated injury in 2007. Overall there were 377,060 hospital-treated injury cases in Victoria in 2007 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 86% of which were unintentional (n=322,750).

All ages

- More than 320,000 Victorians (more than 6 in every 100) were treated in hospital for unintentional injury during 2007 (91,709 admissions and 231,041 ED presentations).

- Hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 1996 to 2007. The frequency of admissions increased by 53% and the admission rate by 32% if same day admissions are included in the analysis, reducing to 28% and 10% if same day admissions are excluded (the latter method produces a more stable indicator of trend). The frequency of ED presentations increased by 73%.

- Males were overrepresented accounting for 60% 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%), cutting and piercing (8%) and transport (7%).

- The home was the most common location of injury (22% of hospital admissions and 38% of ED presentations). Persons were also commonly injured on roads, streets and highways (11% of admissions and 8% of ED presentations), sports and athletics areas (5% of admissions and 8% of ED presentations) and schools and public buildings (6% of admissions and 6% of ED presentations).

- Coding of hospital admissions for activity is poor with most cases coded to unspecified activity (59%). Sport is recorded as the activity being undertaken at the time of injury in 11% of hospital admissions. ED presentations are better coded for activity. Leisure is the most common activity recorded for ED presentations (41%) and sports and working for income each account for a further 10% of injury cases.

Children (0-14 years)

- 80,000 Victorian children (more than 8 in every 100) were treated in hospital for unintentional injury during 2007 (13,207 admissions and 67,491 ED presentations).

- The frequency of child ED presentations increased by 82% over the 12-year period 1996 to 2007. The frequency of admissions increased by 15% and the admission rate by 11% if same day admissions are included in the analysis. However if same-day admissions are excluded the frequency of admissions decreased by 17% and the admission rate by 20%.

- Males were overrepresented accounting for 60% of all hospital-treated injury cases (63% of admissions and 59% of ED presentations).

- Falls were the leading cause of hospital-treated injury (42%) followed by hit/struck/crush (20%).

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

- The activity engaged in at the time of injury was unspecified for more than half of all child injury admissions (58%) and recorded as 'other specified' for a further 15% of admission. Sport was the most common specified activity for hospital admissions (18%). Leisure was recorded as the activity engaged in at the time of injury for 54% of child ED presentations, followed by sports (10%) 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 2007 (12,895 admissions and 48,149 ED presentations).

- The frequency of adolescent and young adult ED presentations increased by 49% over the 12-year period 1996 to 2007. The frequency of admissions increased by 33% and the admission rate by 16% if same day admissions are included in the analysis. However if same-day admissions are excluded the frequency of admissions increased by just 4% and the admission rate decreased by 9%.

- Males were overrepresented accounting for 70% of all hospital-treated injury cases (75% of admissions and 69% of ED presentations).

- Falls account for a quarter of admissions and 23% of ED presentations. Hit/struck/crush is the leading cause of ED presentations (26%) and accounts for 15% of hospital admissions. Transport accounts for a quarter of admissions but only 11% 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 (17%) 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 (51%) and recorded as 'other specified' for a further 12% of injuries. Sports (24%) 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 36% of ED presentations, followed by sports (19%) and working for income (12%).

Adults (25-64 years)

- More than 130,000 Victorian adults (almost 5 in every 100) were treated in hospital for unintentional injury during 2007 (35,992 admissions and 96,318 ED presentations).

- Adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 1996 to 2007. The frequency of admissions increased by 61% and the admission rate by 36% if same day admissions are included in the analysis, reducing to 32% and 11% if same day admissions are excluded. The frequency of ED presentations increased by 74%.

- Males were overrepresented accounting for 63% of all hospital-treated injury cases (64% of admissions and 63% of ED presentations).

- The leading cause of adult hospital injury admissions and ED presentations is falls - 33% of hospital admissions and 24% of ED presentations. Other major causes are transport (19% of admissions and 8% of ED presentations hit/struck/crush (9% of admissions and 20% of ED presentations) and cutting and piercing (8% of admissions and 14% of ED presentations).

- 16% 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 (15% of admissions and 10% of ED presentations); trade

and service areas (3% of admissions and 9% of ED presentations) and sports and athletics areas (5% of admissions and 6% of ED presentations).

- The activity engaged in at the time of injury was unspecified for more than half of adult injury hospital admissions (56%) and recorded as 'other specified' for a further 13% 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 one-third of adult ED presentations, followed by working for income (17%) and sports (7%).

Older adults (65+ years)

- Almost 50,000 Victorian older adults (7 in every 100) were treated in hospital for unintentional injury during 2007 (29,615 admissions and 19,083 ED presentations).

- Older adult hospital admissions (frequency and rate) and ED presentations (frequency) have increased significantly over the 12-year period 1996 to 2007. The frequency of admissions increased by 83% and the admission rate by 46% if same day admissions are included in the analysis, reducing to 59% and 27% if same day admissions are excluded. The frequency of ED presentations increased by 111%.

- Females were overrepresented accounting for 62% of all hospital-treated injury cases (65% of admissions and 58% of ED presentations).

- Falls account for more than three-quarters of hospital admissions (77%) and more than half of ED presentations (54%) in this age group.

- Almost 40% of hospital admissions and more than half ED presentations were for injuries that occurred in the home (37% and 51%).

- The activity engaged in at the time of injury was unspecified for two-thirds of older adult injury admissions and recorded as 'other specified' for a further 13% 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 (8%).

Introduction

This E-bulletin provides information on unintentional hospital-treated injury in 2007. Overall there were 377,060 hospital-treated injury cases in Victoria in 2007 (excluding complications of surgical and medical care, adverse effects of drugs in therapeutic use and late effects of injury), 86% of which were unintentional (n=322,750). The remaining injury cases were either intentional i.e. self harm or assault (6%, n=22,737) or of undetermined intent (8%, n=31,573).

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 2007 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 2007 for ED presentations data (VEMD). ED presentation rates were also calculated for 2005 and 2006 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 2006 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 rend sections differ from those reported elsewhere in the report because only hospitals that contributed data to VEMD over the whole 11-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® 9.1.5 . 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 hospital-treated injury in Victoria during 2007. Overall, there were more than 320,000 hospital treated injuries recorded in this period (91,709 admissions and 231,041 ED presentations) giving a rate of 6,201 hospital-treated injury cases per 100,000 Victorians.

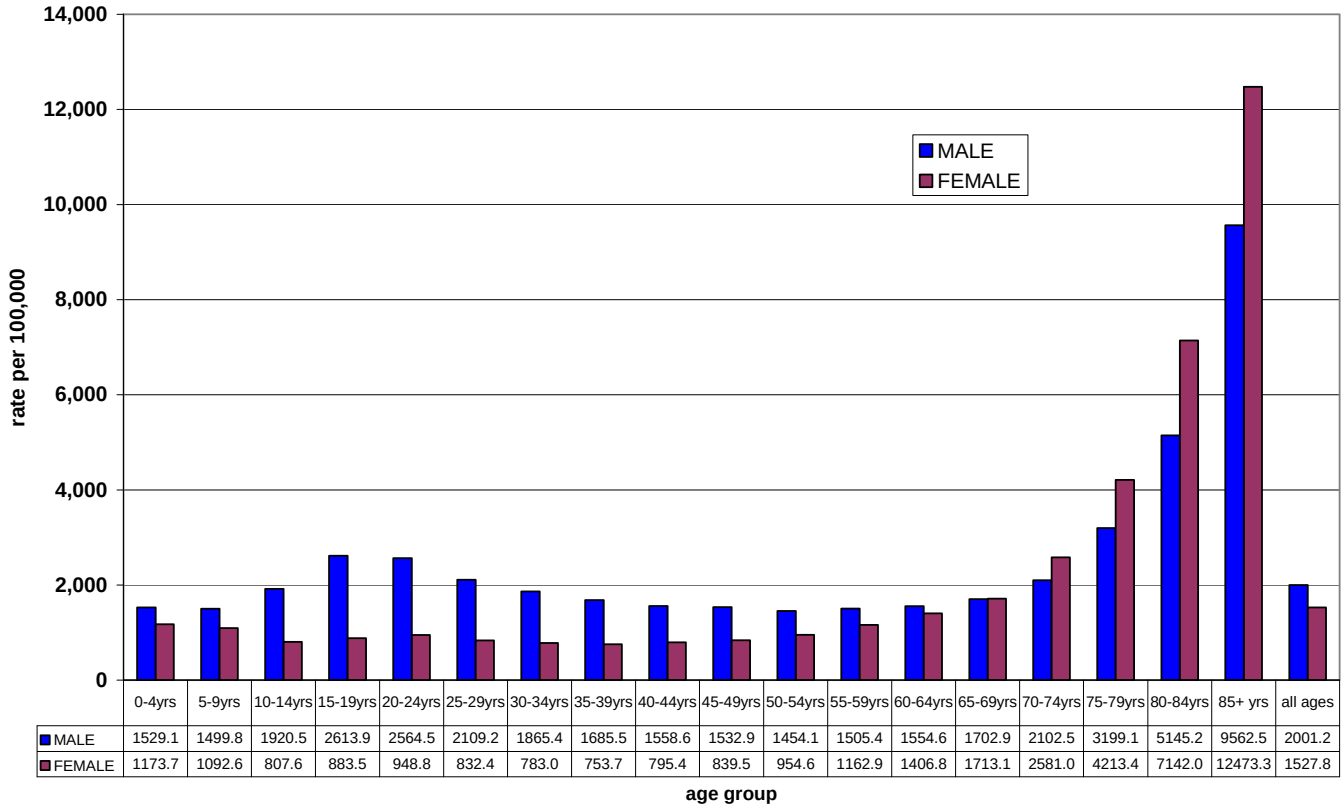
- The hospital admission rate is highest in older adults (4,214 per 100,000 persons) and lowest in adults (1,289 per 100,000 persons)
- The ED presentation rate is highest in children (6,878/100,000) and lowest in older adults (2,716/100,000).
- Adolescents and young adults have the highest overall hospital-treated injury rate (admissions and presentations combined, 8,381/100,000), followed by children (8,224/100,000) and older adults (6,930/100,000). Adults aged 25-64 years have the lowest hospital-treated injury rate (4,738/100,000).

Table 1 Hospital treated injury frequency and rates by broad age group, Victoria 2007.

	Children 0-14 years		Adolescents and young adults 15-24 yrs		Adults 25-64 yrs		Older adults 65+ yrs		ALL	
	Freq.	***Rate / 100,000***	**Freq.**	***Rate / 100,000***	**Freq.**	***Rate / 100,000***	**Freq.**	***Rate / 100,000***	**Freq.**	***Rate / 100,000***
Admissions	13,207	*1,345.9*	12,895	*1,770.4*	35,992	*1,288.9*	29,615	*4,214.3*	91,709	*1,762.0*
ED presentations	67,491	*6,877.8*	48,149	*6,610.4*	96,318	*3,449.2*	19,083	*2,715.6*	231,041	*4,439.0*
Hospital-treated	80,698	*8,223.7*	61,044	*8,380.8*	132,310	*4,738.1*	48,698	*6,929.9*	322,750	*6,201.0*

Figure 1 shows hospital admission injury rates by age and gender for Victoria in 2007. In 2007, 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 65 years.

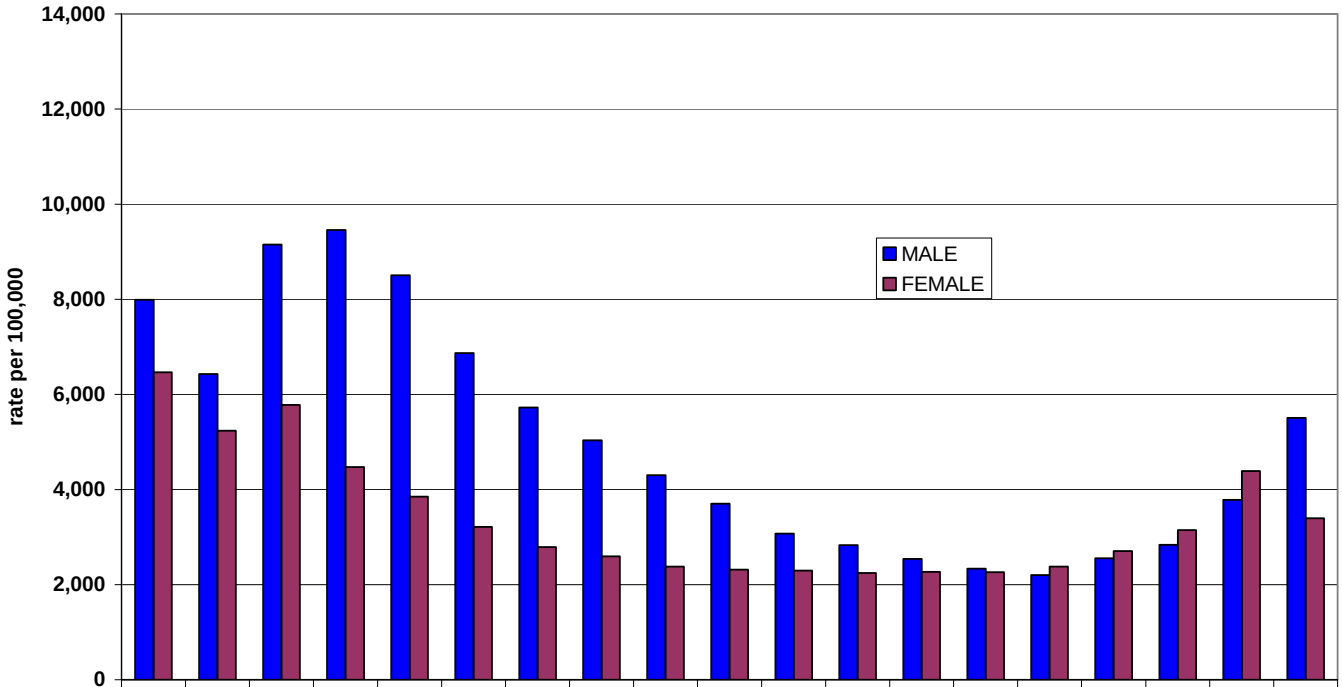
Figure 1 Hospital admissions injury rates by age group and gender, Victoria 2007.



	0-4yrs	5-9yrs	10-14yrs	15-19yrs	20-24yrs	25-29yrs	30-34yrs	35-39yrs	40-44yrs	45-49yrs	50-54yrs	55-59yrs	60-64yrs	65-69yrs	70-74yrs	75-79yrs	80-84yrs	85+ yrs	all ages
MALE	1529.1	1499.8	1920.5	2613.9	2564.5	2109.2	1865.4	1685.5	1558.6	1532.9	1454.1	1505.4	1554.6	1702.9	2102.5	3199.1	5145.2	9562.5	2001.2
FEMALE	1173.7	1092.6	807.6	883.5	948.8	832.4	783.0	753.7	795.4	839.5	954.6	1162.9	1406.8	1713.1	2581.0	4213.4	7142.0	12473.3	1527.8

Figure 2 shows ED presentation rates by age and gender for Victoria in 2007. In 2007, 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 2007.



	0-4yrs	5-9yrs	10-14yrs	15-19yrs	20-24yrs	25-29yrs	30-34yrs	35-39yrs	40-44yrs	45-49yrs	50-54yrs	55-59yrs	60-64yrs	65-69yrs	70-74yrs	75-79yrs	80-84yrs	85+ yrs	all ages
MALE	7989.0	6424.9	9152.4	9459.3	8502.2	6869.0	5726.0	5035.2	4302.5	3702.9	3076.2	2828.8	2541.9	2335.2	2203.6	2555.9	2839.1	3785.4	5505.2
FEMALE	6463.0	5236.2	5780.3	4472.6	3853.7	3211.6	2793.0	2596.2	2377.7	2315.6	2298.9	2242.7	2269.2	2263.8	2380.9	2703.7	3147.3	4389.5	3395.1

age group

Trend

FREQUENCY

Frequency and rate data for 2007 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations (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 12-year period from 58,625 in 1996 to 86,890 in 2007, representing an estimated annual change of 3.6% (95% confidence interval 3.1% to 4%) and an overall increase of 53% (45% to 60%) based on the trend line.
- The frequency of ALL AGES unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 41,872 in 1996 to 53,692 in 2007, representing an estimated annual change of 2.1% (1.7% to 2.4%) and an overall increase of 28% (22% to 33%) based on the trend line.
- The frequency of ALL AGES unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 97,468 in 1996 to 163,391 in 2007, representing an estimated annual change of 4.7% (3.5% to 5.7%) and an overall increase of 73% (50% to 95%) based on the trend line.

Figure 3: Trend in the frequency of injury hospital admissions, Victoria 1996-2007

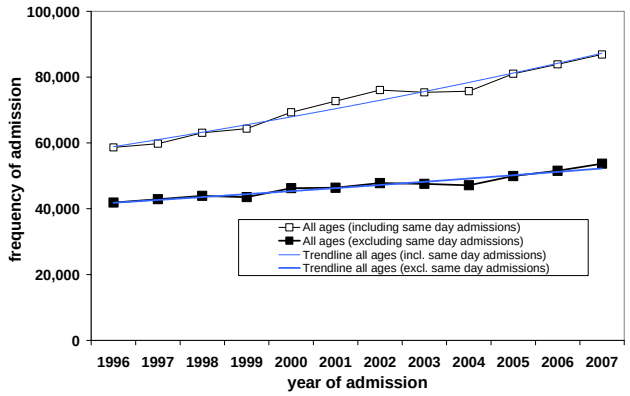
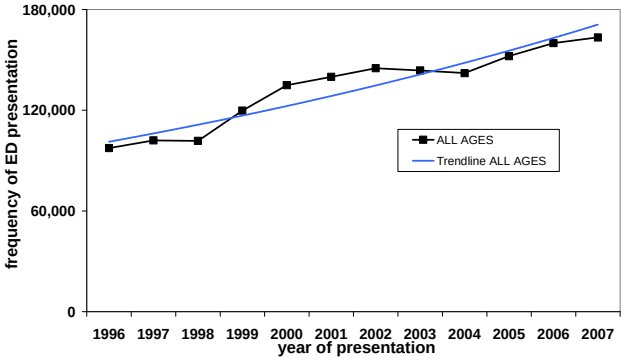


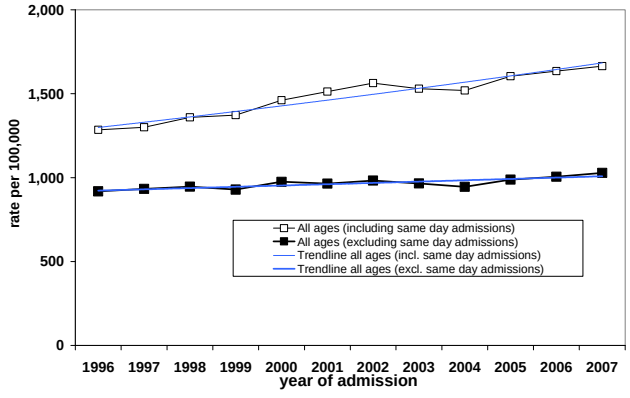
Figure 4: Trend in the frequency of injury ED presentations, Victoria 1996-2007



RATE

- The ALL AGES unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,286/100,000 in 1996 to 1,664/100,000 in 2007, representing an estimated annual change of 2.4% (1.9% to 2.8%) and an overall increase of 32% (25% to 39%) based on the trend line.
- The ALL AGES unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 918/100,000 in 1996 to 1,028/100,000 in 2007, representing an estimated annual change of 0.8% (0.5% to 1.1%) and an overall increase of 10% (6% to 15%) 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 1996-2007



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

Gender

- Males are overrepresented accounting for 56% of hospital admissions (n=51,529) and 61% of ED presentations (n=141,753) in Victoria in 2007. (Figures 6 & 7)

Figure 6: Hospital injury admissions by gender, Victoria 2007

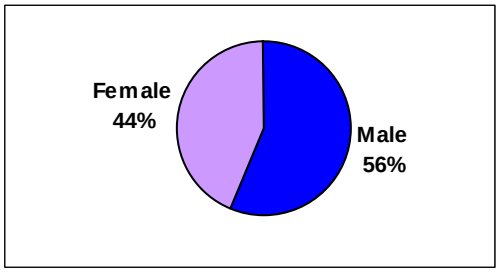
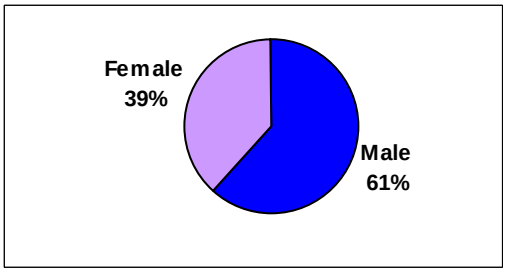


Figure 7: ED injury presentations by gender, Victoria 2007



- The rate of hospital admission and ED presentation is also higher for males than females (2,001 & 5,505/100,000 vs. 1,528 & 3,395/100,000). (Table 2)

Table 2. Frequency and rate of hospital admission and ED presentation, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	51,529	2,001.2	141,753	5,505.2
Female	40,180	1,527.8	89,288	3,395.1
All	91,709	1,762.0	231,041	4,439.0

Age

- Persons aged 65 years and older have the highest rate of hospital admissions (4,214.3/100,000) and adults aged 25-64 have the lowest (1,288.9/100,000).
- Young persons aged 0-14 and 15-24 have the highest ED presentation (non-admission) rates, 6,877.8 and 6,610.4/100,000 respectively.

Table 3. Frequency and rate of hospital admission and ED presentation, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-14	13,207	1,345.9	67,491	6,877.8
15-24	12,895	1,770.4	48,149	6,610.4
25-64	35,992	1,288.9	96,318	3,449.2
65+	29,615	4,214.3	19,083	2,715.6
All	91,709	1,762.0	231,041	4,439.0

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 48% (n=43,969) of hospital admissions and 32% (n=73,049) of ED presentations.
- Transport accounts for 14% of admissions (n=13,106) but just 7% of presentations (n=16,735) which indicates that transport injuries are more severe than injuries from other causes.
- Hit/struck/crush injuries account for 9% of admissions (n=7,765) but a higher proportion (21%) of ED presentations (n=47,840).
- Cutting and piercing injuries account for 5% of admissions (n=4,907) and 11% of ED presentations (n=26,107).
- The fifth ranking cause of hospital admissions is overexertion and strenuous movements (3%, n=3,036) whereas for ED presentations it is injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (3%, n=7,404).

Figure 8: Hospital admissions by cause, Victoria 2007

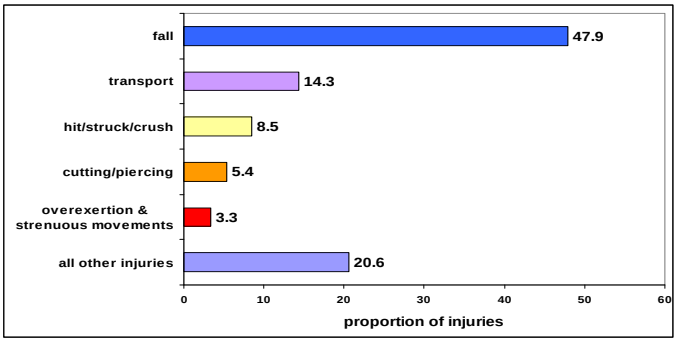
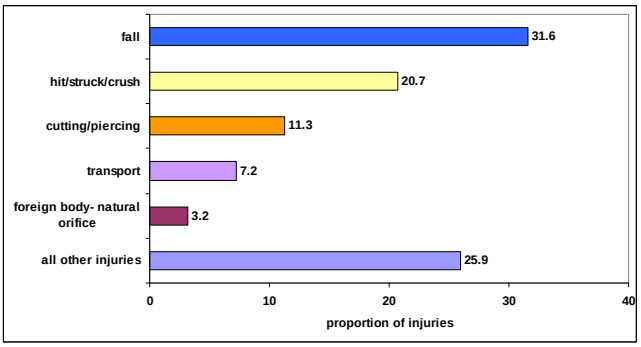


Figure 9: ED presentations by cause, Victoria 2007



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 18% 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 (9%) 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 5% of hospital injury admissions and 9% of ED presentations.

Figure 10: Major injury type, hospital admissions, Victoria 2007

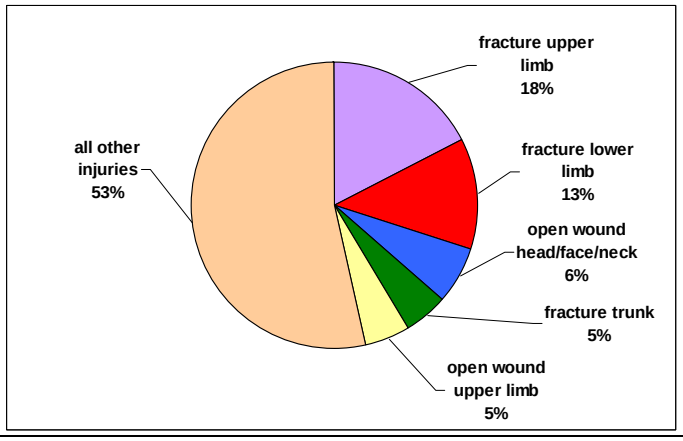
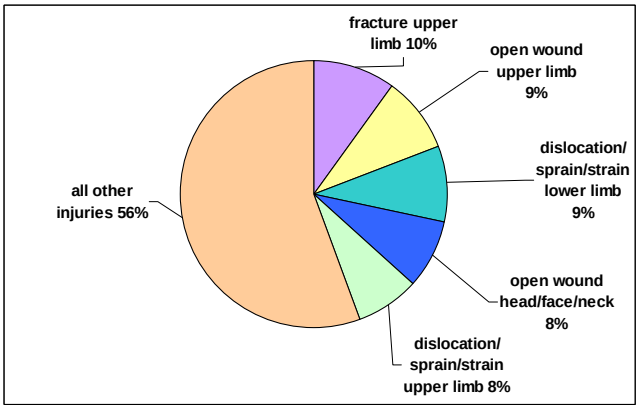


Figure 11: Major injury type, ED presentations Victoria 2007



Place of injury occurrence

- At least 22% 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 (11% of admissions and 8% of ED presentations), sports and athletics areas (5% of admissions and 8% of ED presentations) and schools and public buildings (6% of admissions and 6% of ED presentations).

Figure 12: Hospital admissions by place of occurrence, Victoria 2007

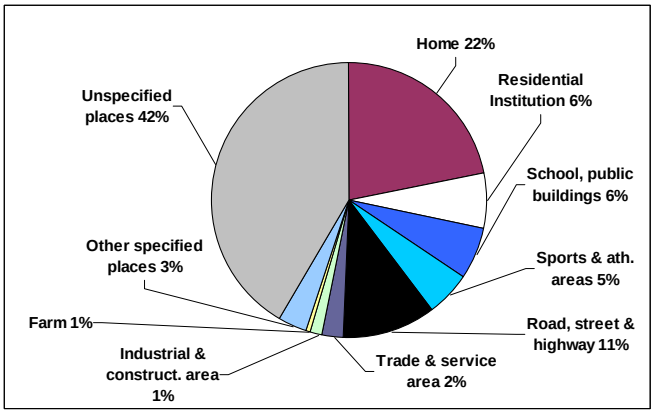
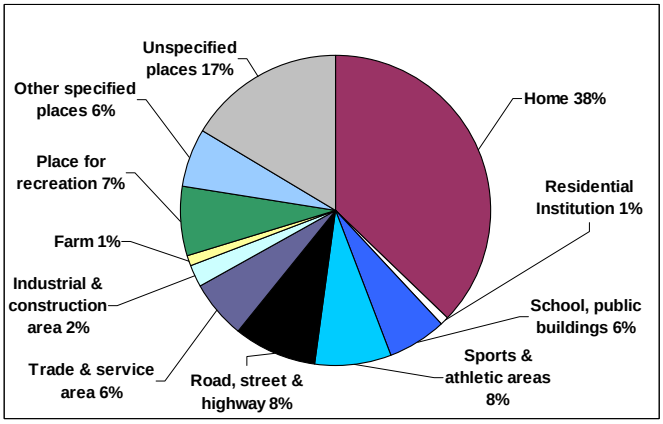


Figure 13: ED presentations by place of occurrence, Victoria 2007



Activity when injured

- Hospital admissions are mostly coded to unspecified activity (59%). Sport is recorded as the activity at the time of injury for more than 10% hospital admissions (11%).
- Leisure is the most common activity recorded for ED presentations (41%) and sports and working for income each account for a further 10% of injuries.

Figure 14: Hospital admissions by activity when injured, Victoria 2007

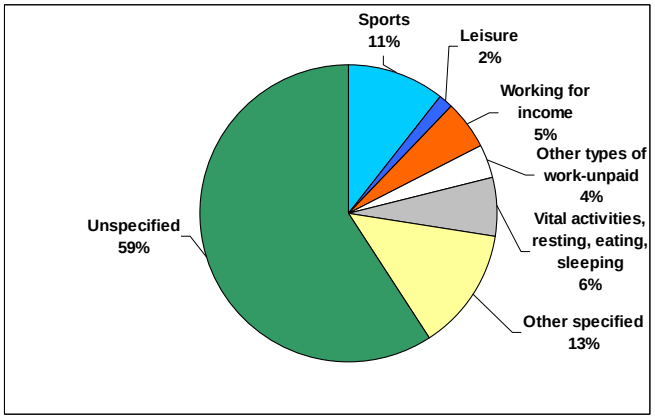


Figure 15: ED presentations by activity when injured, Victoria 2007

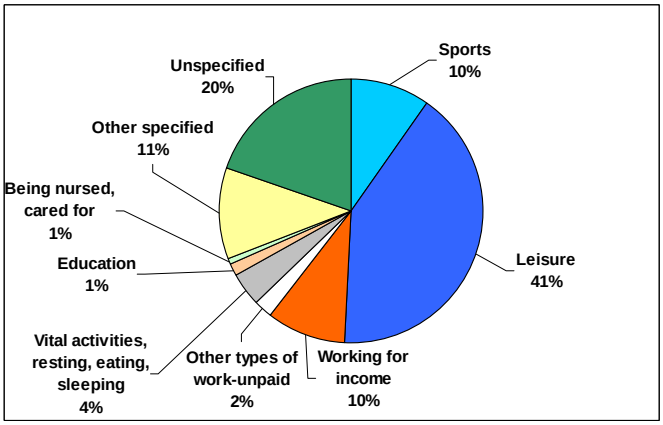


Table 4 Ranking of causes for hospital admissions and ED presentations, all ages, 2007

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	**%**	**CAUSE**	**FREQ**	**%**
0-14 years	1	fall	6,255	*47.4*	fall	28,025	*41.5*
	2	hit/struck/crush	1,841	*13.9*	hit/struck/crush	14,544	*21.5*
	3	transport	1,669	*12.6*	other specified unintentional	6,467	*9.6*
	4	cutting/piercing	601	*4.6*	unspecified factor	4,701	*7.0*
	5	unspecified factor	584	*4.4*	cutting/piercing	4,485	*6.6*
	6	poisoning	520	*3.9*	transport	3,063	*4.5*
	7	foreign body- natural orifice	487	*3.7*	foreign body- natural orifice	2,115	*3.1*
	8	natural/environmental/animals	400	*3.0*	natural/environmental/animals	1,758	*2.6*
	9	fires/burns/scalds	319	*2.4*	fires/burns/scalds	1,495	*2.2*
	10	other specified unintentional	167	*1.3*	poisoning	645	*1.0*
	11	overexertion & strenuous movements	158	*1.2*	choking/suffocation	132	*<1*
	12	choking/suffocate	125	*<1*	machinery	43	*<1*
	13	machinery	38	*<1*	near drowning	14	*<1*
	14	near drowning	32	*<1*	explosions/firearms	4	*<1*
	15	explosions/firearms	11	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	13,207	*100.0*	ALL	67,491	*100.0*
15-24 years	1	fall	3,275	*25.4*	hit/struck/crush	12,391	*25.7*
	2	transport	3,264	*25.3*	fall	11,174	*23.2*
	3	hit/struck/crush	1,965	*15.2*	cutting/piercing	6,374	*13.2*
	4	cutting/piercing	1,147	*8.9*	transport	5,032	*10.5*
	5	unspecified factor	1,061	*8.2*	other specified unintentional	4,851	*10.1*
	6	overexertion & strenuous movements	552	*4.3*	unspecified factor	3,977	*8.3*
	7	poisoning	495	*3.8*	natural/environmental/animals	1,200	*2.5*
	8	other specified unintentional	269	*2.1*	fires/burns/scalds	1,133	*2.4*
	9	natural/environmental/animals	248	*1.9*	foreign body- natural orifice	956	*2.0*
	10	machinery	242	*1.9*	machinery	504	*1.0*
	11	fires/burns/scalds	185	*1.4*	poisoning	498	*1.0*
	12	foreign body- natural orifice	106	*<1*	choking/suffocation	39	*<1*
	13	explosions/firearms	44	*<1*	near drowning	16	*<1*
	14	choking/suffocate	33	*<1*	explosions/firearms	4	*<1*
	15	near drowning	9	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	12,895	*100.0*	ALL	48,149	*100.0*
25-64 years	1	fall	11,760	*32.7*	fall	23,474	*24.4*
	2	transport	6,878	*19.1*	hit/struck/crush	19,191	*19.9*
	3	unspecified factor	3,539	*9.8*	cutting/piercing	13,666	*14.2*
	4	hit/struck/crush	3,197	*8.9*	other specified unintentional	10,583	*11.0*
	5	cutting/piercing	2,830	*7.9*	unspecified factor	8,853	*9.2*
	6	overexertion & strenuous movements	1,726	*4.8*	transport	7,909	*8.2*
	7	natural/environmental/animals	1,293	*3.6*	foreign body- natural orifice	3,875	*4.0*
	8	poisoning	1,260	*3.5*	natural/environmental/animals	3,577	*3.7*
	9	machinery	1,126	*3.1*	fires/burns/scalds	2,389	*2.5*
	10	other specified unintentional	799	*2.2*	machinery	1,793	*1.9*
	11	foreign body- natural orifice	666	*1.9*	poisoning	848	*<1*
	12	fires/burns/scalds	493	*1.4*	choking/suffocation	125	*<1*
	13	choking/suffocate	322	*<1*	near drowning	24	*<1*
	14	explosions/firearms	75	*<1*	explosions/firearms	11	*<1*
	15	near drowning	28	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	35,992	*100.0*	ALL	96,318	*100.0*
65+ years	1	fall	22,679	*76.6*	fall	10,376	*54.4*
	2	unspecified factor	1,306	*4.4*	unspecified factor	1,765	*9.2*
	3	transport	1,295	*4.4*	hit/struck/crush	1,714	*9.0*
	4	choking/suffocate	779	*2.6*	cutting/piercing	1,582	*8.3*
	5	hit/struck/crush	762	*2.6*	other specified unintentional	1,491	*7.8*
	6	overexertion & strenuous movements	600	*2.0*	transport	731	*3.8*
	7	natural/environmental/animals	495	*1.7*	natural/environmental/animals	481	*2.5*
	8	poisoning	494	*1.7*	foreign body- natural orifice	458	*2.4*
	9	cutting/piercing	329	*1.1*	fires/burns/scalds	194	*1.0*
	10	foreign body- natural orifice	321	*1.1*	poisoning	125	*<1*
	11	other specified unintentional	212	*<1*	machinery	125	*<1*
	12	machinery	174	*<1*	choking/suffocation	35	*<1*
	13	fires/burns/scalds	161	*<1*	near drowning	4	*<1*
	14	explosions/firearms	7	*<1*	explosions/firearms	2	*<1*
	15	near drowning	1	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	29,615	*100.0*	ALL	19,083	*100.0*

Children (0-14 years)

Trend

FREQUENCY

Frequency and rate data for 2007 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations (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 12-year period from 11,159 in 1996 to 12,929 in 2007, representing an estimated annual change of 1.2% (95% confidence interval 0.8% to 1.5%) and an overall increase of 15% (10% to 20%) based on the trend line.
- The frequency of CHILD unintentional injury and poisoning admissions (EXCLUDING same-day admissions) decreased significantly over the 12-year period from 7,276 in 1996 to 6,726 in 2007, representing an estimated annual decrease of 1.5% (-2.2% to -0.9%) and an overall reduction of 17% (-23% to -10%) based on the trend line.
- The frequency of CHILD unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 28,375 in 1996 to 48,751 in 2007, representing an estimated annual change of 5.1% (3.5% to 6.4%) and an overall increase of 82% (52% to 111%) based on the trend line.

Figure 16: Trend in the frequency of hospital admissions, Victoria 1996-2007

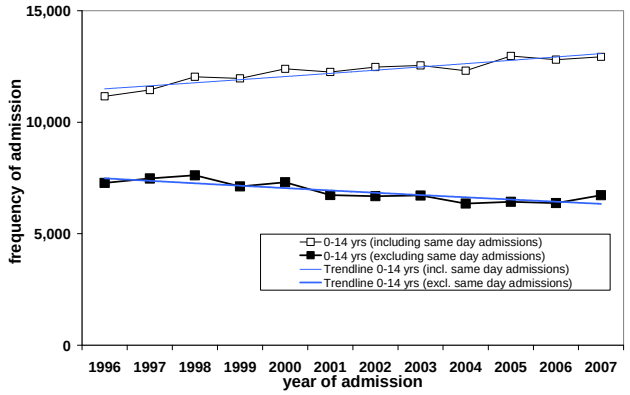
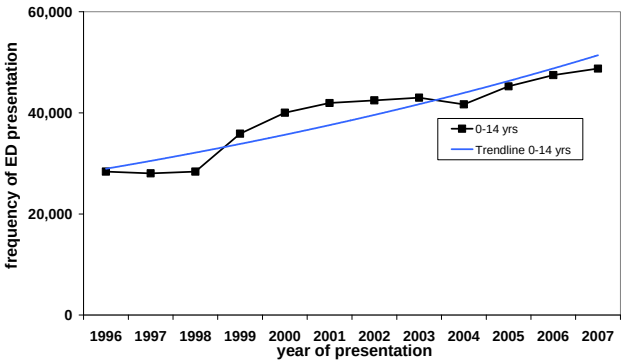


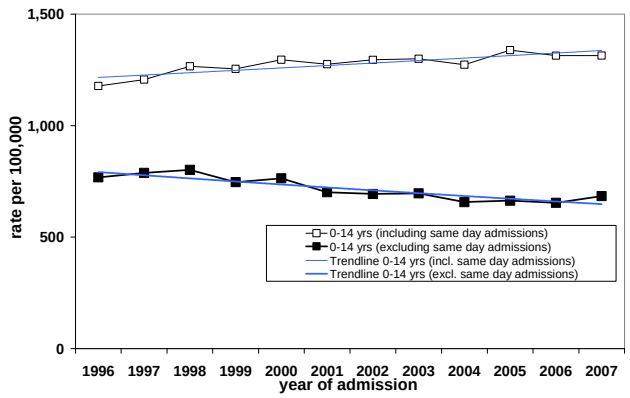
Figure 17: Trend in the frequency of injury ED presentations, Victoria 1996-2007



RATE

- The CHILD unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,178/100,000 in 1996 to 1,314/100,000 in 2007, representing an estimated annual change of 0.9% (0.5% to 1.2%) and an overall increase of 11% (6% to 16%) based on the trend line.
- The CHILD unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) decreased significantly over the 12-year period from 768/100,000 in 1996 to 684/100,000 in 2007, representing an estimated annual decrease of 1.8% (-2.5% to -1.2%) and an overall reduction of 20% (-26% to -14%) 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 1996-2007



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

Gender

- Males are overrepresented in child hospital-treated injury cases, accounting for 63% of hospital admissions (n=8,324) and 59% of ED presentations (n=39,639) in Victoria in 2007.

Figure 19: Child hospital injury admissions by gender, Victoria 2007

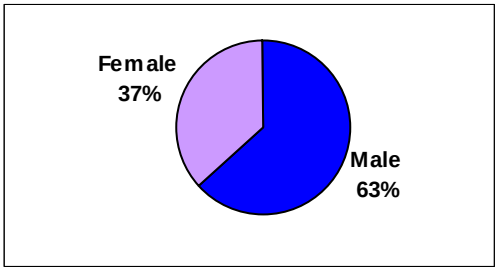
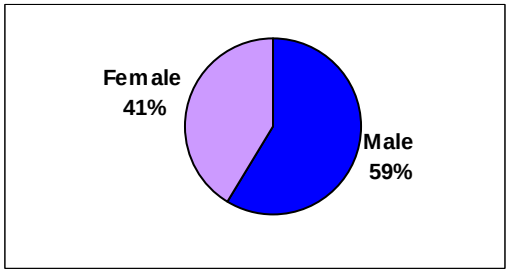


Figure 20: Child ED injury presentations by gender, Victoria 2007



- The child hospital admission and ED presentation rates are also higher for males than females (1,654 & 7,875/100,000 vs. 1,022 & 5,828/100,000). (Table 5)

Table 5. Frequency and rate of hospital admission and ED presentation in children, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	8,324	1,653.7	39,639	7,875.1
Female	4,883	1,021.7	27,852	5,827.5
All	13,207	1,345.9	67,491	6,877.8

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 one-third of child admissions and 35% of child ED presentations.
- Children aged 5-9 years account for 32% of child hospital admissions and 28% of child ED presentations.
- Children aged 10-14 years account for 35% of child admissions and 37% of child ED presentations.

Figure 21: Child hospital admissions by age group, Victoria 2007

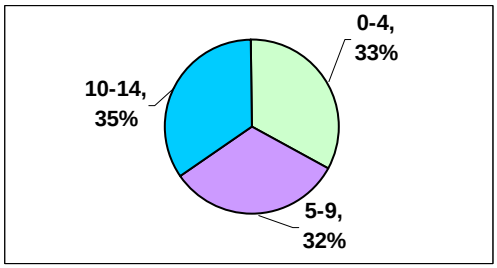
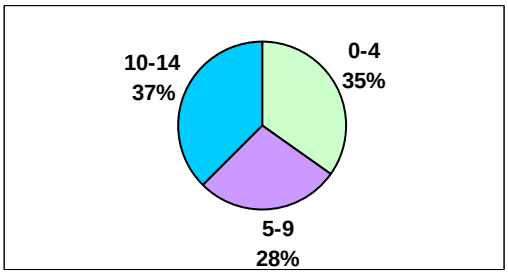


Figure 22: Child ED presentations by age group, Victoria 2007



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

Table 6. Frequency and rate of hospital admission and ED presentation in children, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
0-4 years	4,383	1,355.7	23,422	7,244.6
5-9 years	4,185	1,301.7	18,797	5,846.6
10-14 years	4,639	1,378.7	25,272	7,510.7
All	13,207	1,345.9	67,491	6,877.8

Leading causes of injury

- Four of 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 48% (n=6,255) of child hospital admissions and 42% (n=28,025) of ED presentations.
- Hit/struck/crush injuries are the next major cause of injury accounting for 14% of admissions (n=1,841) and 22% of ED presentations (n=14,544).
- Transport accounts for 13% of admissions (n=1,669) and only 5% of ED presentations (n=3,063).
- Cutting and piercing injuries account for 5% of admissions (n=601) and 7% of ED presentations (n=4,485).
- The fifth ranking cause of hospital admissions is poisoning (4%, n=520) whereas for ED presentations it is injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (3%, n=2,115).

Figure 23: Child hospital admissions by cause, Victoria 2007

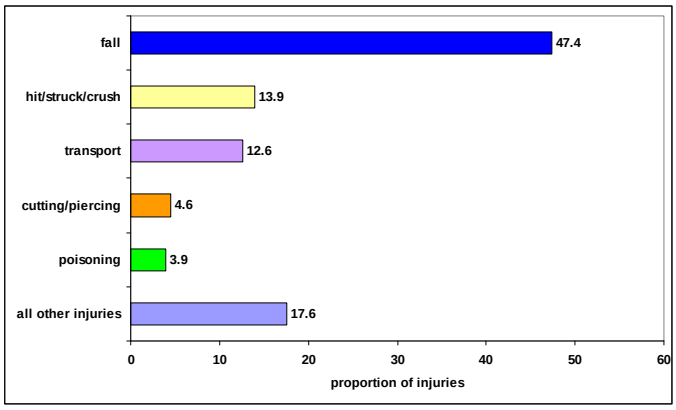
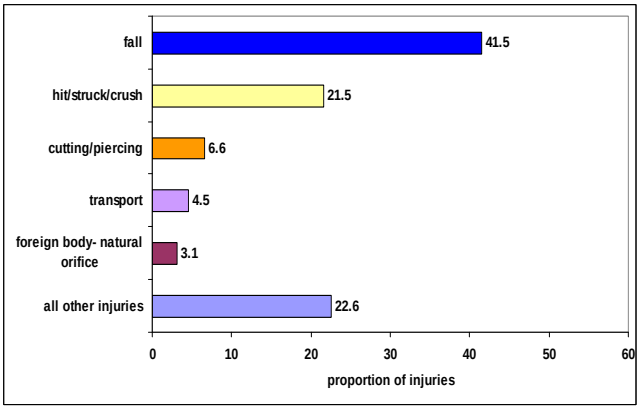


Figure 24: Child ED presentations by cause, Victoria 2007



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 more than one-third of child hospital injury admissions (34%) and 14% of ED presentations.
- Open wounds to the head/face/neck account for 12% of child hospital injury admissions and 14% of ED presentations.

Figure 25: Major injury type, child hospital admissions, Victoria 2007

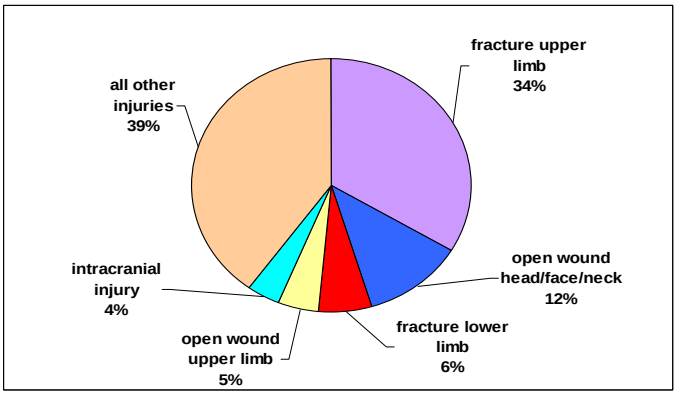
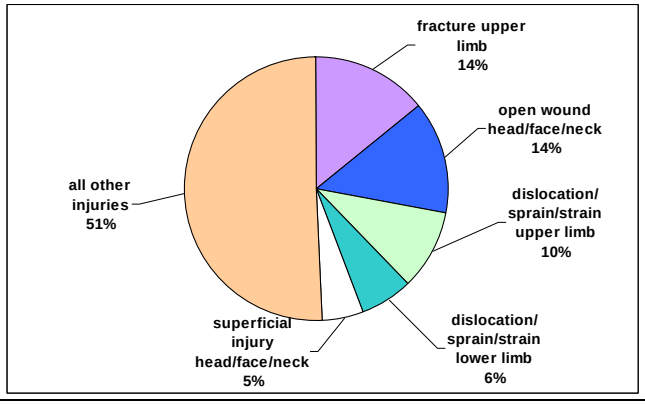


Figure 26: Major injury type, child ED presentations, Victoria 2007



Place of injury occurrence

- The major place of occurrence (location) of injury was the home (19% of hospital admissions and 47% of ED presentations).
- Children were also commonly injured in schools and other public buildings (14% of admissions and 15% of ED presentations) and sports and athletics areas (7% of admissions and 7% of ED presentations).

Figure 27: Child hospital admissions by place of occurrence, Victoria 2007

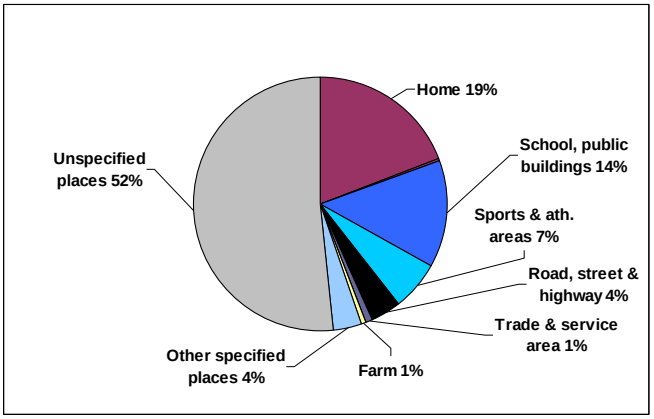
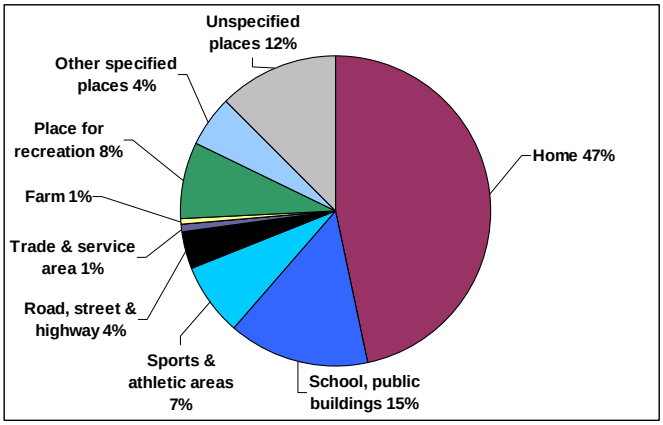


Figure 28: Child ED presentations by place of occurrence, Victoria 2007



Activity when injured

- The activity engaged in at the time of injury was unspecified for more than half of all child injury admissions (58%) and recorded as 'other specified' for a further 15% of injuries.
- Sport was the only activity recorded for a significant number of child admissions (18%).
- Leisure was recorded as the activity engaged in at the time of injury for 54% of child ED presentations, followed by sports (10%) and education (4%).

Figure 29: Child hospital admissions by activity when injured, Victoria 2007

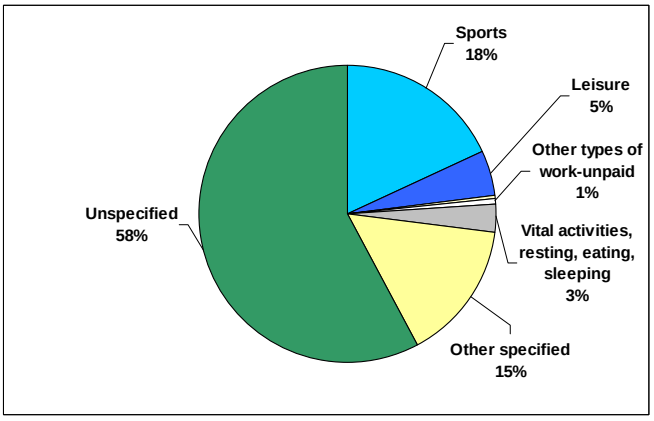


Figure 30: Child ED presentations by activity when injured, Victoria 2007

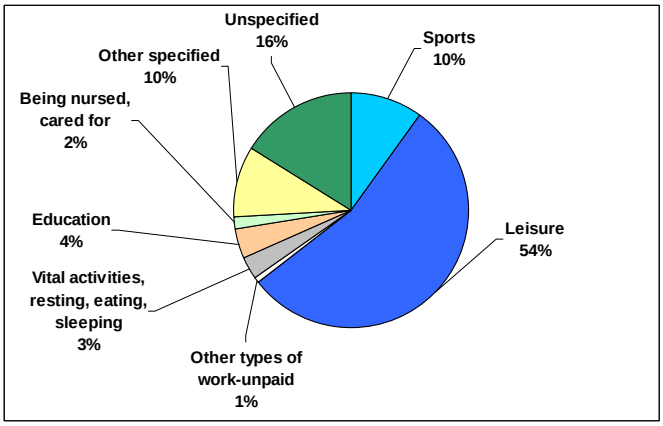


Table 7 Ranking of causes for hospital admissions and ED presentations, children aged 0-14 years, 2007

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	**%**	**CAUSE**	**FREQ**	**%**
0-4 years	1	fall	1,769	*40.4*	fall	9,462	*40.4*
	2	hit/struck/crush	657	*15.0*	hit/struck/crush	4,143	*17.7*
	3	poisoning	398	*9.1*	other specified unintentional	2,573	*11.0*
	4	unspecified factor	295	*6.7*	unspecified factor	1,827	*7.8*
	5	foreign body- natural orifice	291	*6.6*	cutting/piercing	1,535	*6.6*
	6	fires/burns/scalds	217	*5.0*	foreign body- natural orifice	1,295	*5.5*
	7	cutting/piercing	216	*4.9*	fires/burns/scalds	959	*4.1*
	8	natural/environmental/animals	170	*3.9*	natural/environmental/animals	703	*3.0*
	9	transport	163	*3.7*	poisoning	516	*2.2*
	10	choking/suffocate	95	*2.2*	transport	292	*1.2*
	11	other specified unintentional	50	*1.1*	choking/suffocation	95	*<1*
	12	near drowning	26	*<1*	machinery	13	*<1*
	13	overexertion & strenuous movements	20	*<1*	drowning/near drowning	9	*<1*
	14	machinery	16	*<1*	explosions/firearms	0	*0.0*
	15	explosions/firearms	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,383	*100.0*	ALL	23,422	*100.0*
5-9 years	1	fall	2,401	*57.4*	fall	8,559	*45.5*
	2	hit/struck/crush	494	*11.8*	hit/struck/crush	3,832	*20.4*
	3	transport	485	*11.6*	other specified unintentional	1,547	*8.2*
	4	cutting/piercing	175	*4.2*	cutting/piercing	1,413	*7.5*
	5	unspecified factor	142	*3.4*	unspecified factor	1,174	*6.2*
	6	foreign body- natural orifice	140	*3.3*	transport	870	*4.6*
	7	natural/environmental/animals	127	*3.0*	foreign body- natural orifice	544	*2.9*
	8	poisoning	66	*1.6*	natural/environmental/animals	476	*2.5*
	9	fires/burns/scalds	52	*1.2*	fires/burns/scalds	275	*1.5*
	10	other specified unintentional	40	*1.0*	poisoning	71	*<1*
	11	overexertion & strenuous movements	29	*<1*	choking/suffocation	27	*<1*
	12	choking/suffocate	19	*<1*	machinery	8	*<1*
	13	machinery	9	*<1*	drowning/near drowning	1	*<1*
	14	near drowning	5	*<1*	explosions/firearms	0	*0.0*
	15	explosions/firearms	1	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,185	*100.0*	ALL	18,797	*100.0*
10-14 years	1	fall	2,085	*44.9*	fall	10,004	*39.6*
	2	transport	1,021	*22.0*	hit/struck/crush	6,569	*26.0*
	3	hit/struck/crush	690	*14.9*	other specified unintentional	2,347	*9.3*
	4	cutting/piercing	210	*4.5*	transport	1,901	*7.5*
	5	unspecified factor	147	*3.2*	unspecified factor	1,700	*6.7*
	6	overexertion & strenuous movements	109	*2.3*	cutting/piercing	1,537	*6.1*
	7	natural/environmental/animals	103	*2.2*	natural/environmental/animals	579	*2.3*
	8	other specified unintentional	77	*1.7*	foreign body- natural orifice	276	*1.1*
	9	poisoning	56	*1.2*	fires/burns/scalds	261	*1.0*
	10	foreign body- natural orifice	56	*1.2*	poisoning	58	*<1*
	11	fires/burns/scalds	50	*1.1*	machinery	22	*<1*
	12	machinery	13	*<1*	choking/suffocation	10	*<1*
	13	choking/suffocate	11	*<1*	drowning/near drowning	4	*<1*
	14	explosions/firearms	10	*<1*	explosions/firearms	4	*<1*
	15	near drowning	1	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	4,639	*100.0*	ALL	25,272	*100.0*

Adolescents and young adults (15-24 years)

Trend

FREQUENCY

Frequency and rate data for 2007 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations (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 12-year period from 9,633 in 1996 to 12,637 in 2007, representing an estimated annual change of 2.4% (95% confidence interval 1.8% to 3%) and an overall increase of 33% (24% to 42%) based on the trend line.
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased slightly over the 12-year period. In 1996 the frequency was 5,950 and in 2007 it was 6,417. This represented an estimated annual change of 0.3% (-0.4% to 1%) and an overall increase of 4% (-4% to 13%) based on the trend line. The change was not statistically significant.
- The frequency of ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 23,224 in 1996 to 33,669 in 2007, representing an estimated annual change of 3.4% (2.7% to 4%) and an overall increase of 49% (38% to 60%) based on the trend line.

Figure 31: Trend in the frequency of hospital admissions, Victoria 1996-2007

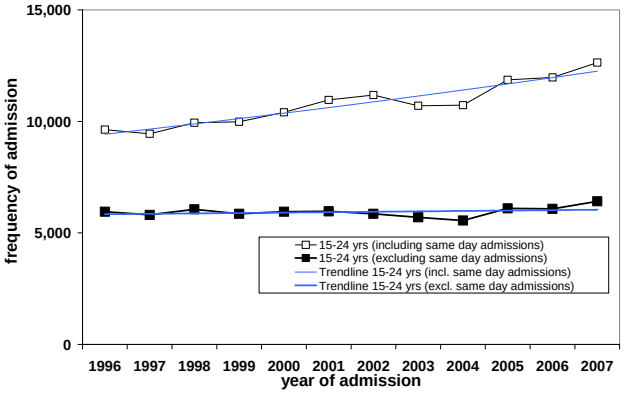
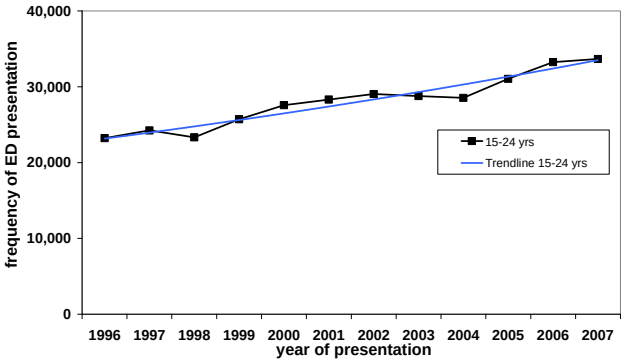


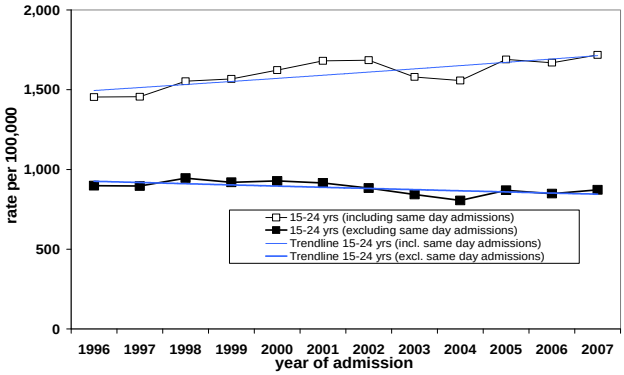
Figure 32: Trend in the frequency of injury ED presentations, Victoria 1996-2007



RATE

- The ADOLESCENT AND YOUNG ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 1,454/100,000 in 1996 to 1,718/100,000 in 2007, representing an estimated annual change of 1.2% (0.5% to 1.9%) and an overall increase of 16% (7% 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 12-year period from 898/100,000 in 1996 to 872/100,000 in 2007, representing an estimated annual reduction of 0.8% (-1.5% to -0.2%) and an overall decrease of 9% (-17% to -2%) 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 1996-2007



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

Gender

- Males are overrepresented in hospital-treated injury cases among adolescents and young adults, accounting for 75% of hospital admissions (n=9,624) and 69% of ED presentations (n=33,343) in Victoria in 2007.

Figure 34: Adolescent and young adult hospital injury admissions by gender, Victoria 2007

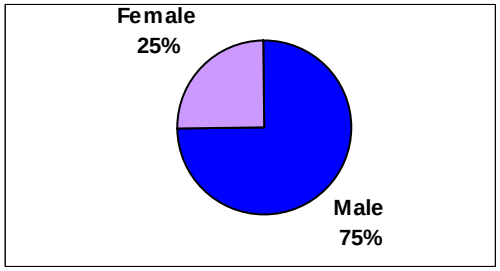
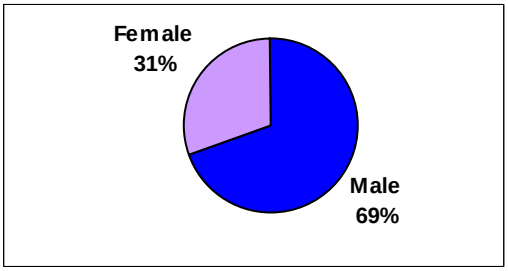


Figure 35: Adolescent and young adult ED injury presentations by gender, Victoria 2007



- Hospital admissions and ED presentation rates are also higher for males than females (2,589 & 8,968/100,000 vs. 917 & 4,152/100,000). (Table 8)

Table 8. Frequency and rate of hospital admission and ED presentation, adolescent and young adults, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	9,624	2,588.6	33,343	8,968.2
Female	3,271	917.3	14,806	4,152.1
All	12,895	1,770.4	48,149	6,610.4

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 48% of admissions and 51% of ED presentations.
- Young adults aged 20 to 24 years account for 52% of admissions and 49% of ED presentations.

Figure 36: Adolescent and young adult hospital admissions by age group, Victoria 2007

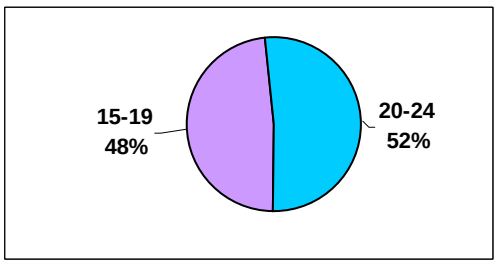
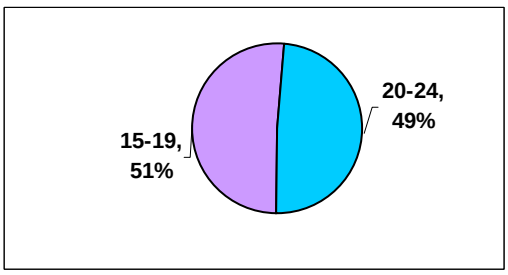


Figure 37: Adolescent and young adult ED presentations by age group, Victoria 2007



- Hospital admission rates are almost equal among 15-19 year olds and 20-24 year olds whereas ED presentation rates are highest in 15-19 year olds (7,030/100,000 vs 6,216/100,000. (Table 9)

Table 9. Frequency and rate of hospital admission and ED presentation in adolescent and young adults, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
15-19 years	6,251	1,771.0	24,814	7,030.2
20-24 years	6,644	1,769.8	23,335	6,215.8
All	12,895	1,770.4	48,149	6,610.4

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)
- Falls is the leading cause of adolescent and young adult hospital admissions (25%, n=3,275), and the second leading cause of ED presentations (23%, n=11,174).
- Transport is the second most common cause of hospital admissions in this age group (25%, n=3,264) but only accounts for 11%of ED presentations (n=5,032).
- Hit/struck/crush accounted for 15% of hospital admissions (n=1,965) and was the leading cause of ED presentations (26%, n=12,391).
- Cutting and piercing injuries account for 9% of admissions (n=1,147) and 13% of ED presentations (n=6,374).
- The fifth ranking cause of adolescent and young adult hospital admissions is overexertion and strenuous movements (4%, n=552) whereas for ED presentations it is natural/environmental/animals (3%, n=1,200).

Figure 38: Adolescent and young adult hospital admissions by cause, Victoria 2007

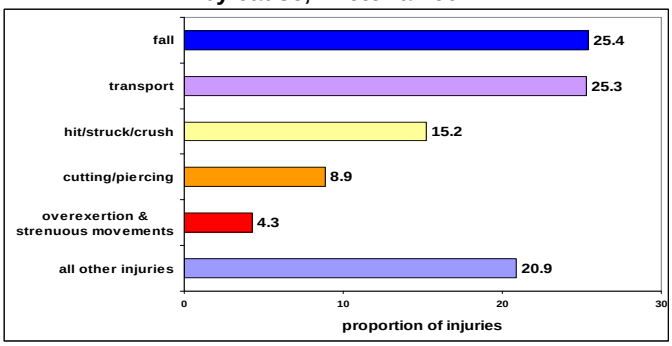
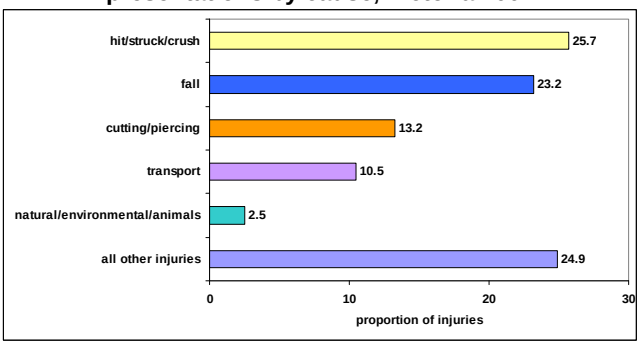


Figure 39: Adolescent and young adult ED presentations by cause, Victoria 2007



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 (13%) and open wounds to the upper limb (11%) are common among ED presentations.

Figure 40: Major injury type, adolescent and young adult hospital admissions, Victoria 2007

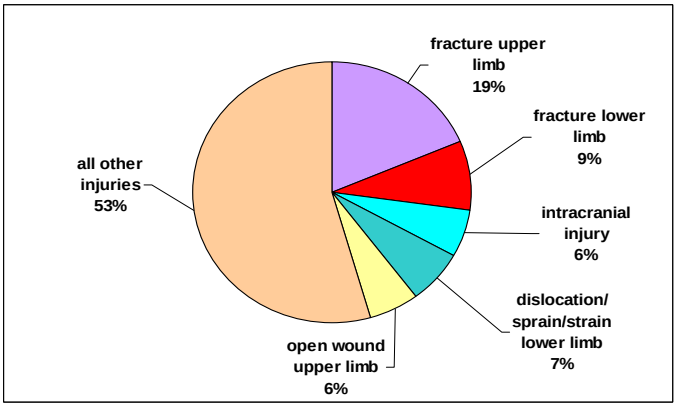
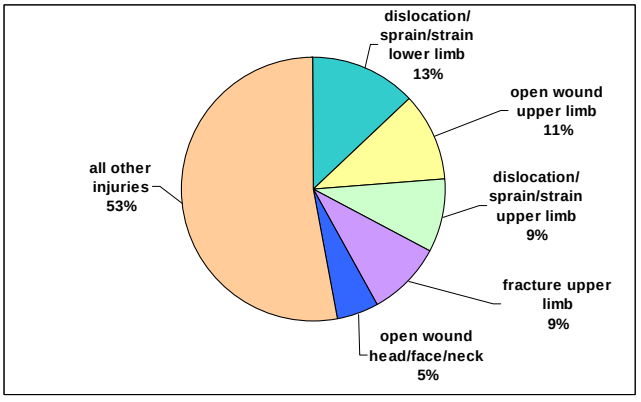


Figure 41: Major injury type, adolescent and young adult ED presentations, Victoria 2007



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 (17%) 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 (14% of admissions and 17% of ED presentations)
  - place for recreation (11% of ED presentations) and
  - trades and service areas (3% of admissions and 8% of ED presentations).

Figure 42: Adolescent and young adult hospital admissions by place of occurrence, Victoria 2007

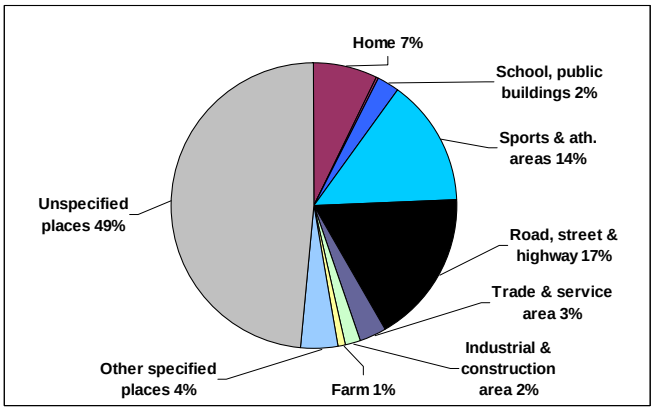
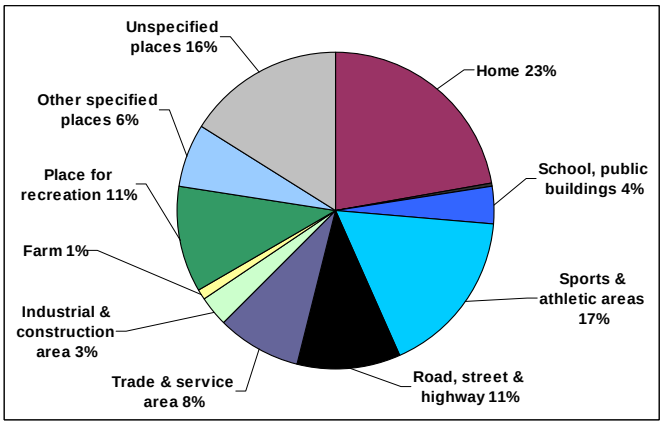


Figure 43: Adolescent and young adult ED presentations by place of occurrence, Victoria 2007



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 (51%) and recorded as 'other specified' for a further 12% of injuries.
- Sports (24%) 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 36% of adolescent and young adult ED presentations, followed by sports (19%) and working for income (12%).

Figure 44: Adolescent and young adult hospital admissions by activity when injured, Victoria 2007

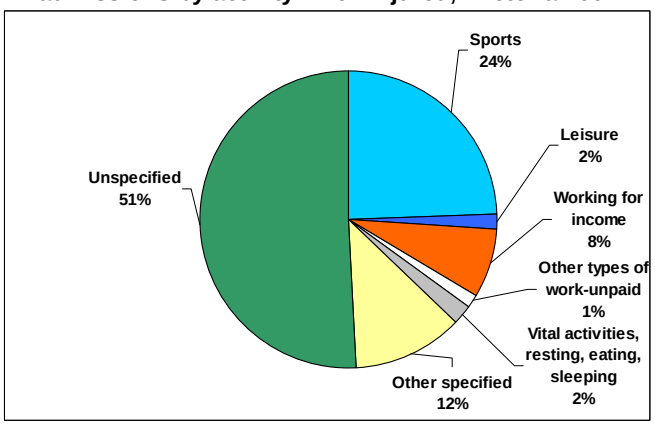


Figure 45: Adolescent and young adult ED presentations by activity when injured, Victoria 2007

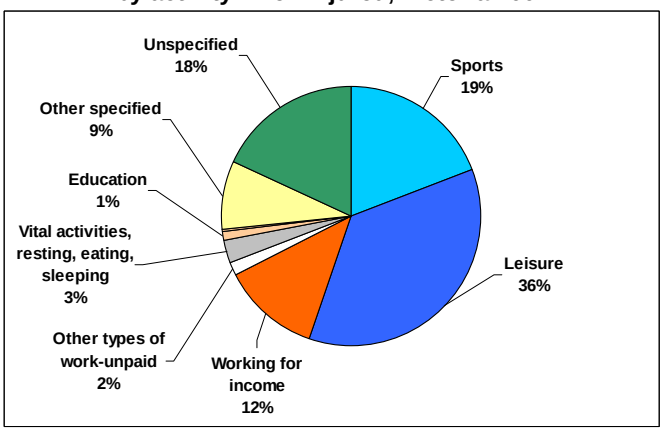


Table 10 Ranking of causes for hospital admissions and ED presentations, persons aged 15 to 24 years, 2007

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
15-19 years	1	fall	1,689	*27.0*	hit/struck/crush	6,764	*27.3*
	2	transport	1,581	*25.3*	fall	6,326	*25.5*
	3	hit/struck/crush	1,002	*16.0*	cutting/piercing	2,833	*11.4*
	4	cutting/piercing	486	*7.8*	transport	2,584	*10.4*
	5	unspecified factor	482	*7.7*	other specified unintentional	2,482	*10.0*
	6	overexertion & strenuous movements	258	*4.1*	unspecified factor	1,961	*7.9*
	7	poisoning	202	*3.2*	natural/environmental/animals	535	*2.2*
	8	other specified unintentional	133	*2.1*	fires/burns/scalds	530	*2.1*
	9	natural/environmental/animals	125	*2.0*	foreign body- natural orifice	356	*1.4*
	10	fires/burns/scalds	102	*1.6*	poisoning	230	*<1*
	11	machinery	93	*1.5*	machinery	189	*<1*
	12	foreign body- natural orifice	54	*<1*	choking/suffocation	16	*<1*
	13	explosions/firearms	23	*<1*	drowning/near drowning	5	*<1*
	14	choking/suffocate	16	*<1*	explosions/firearms	3	*<1*
	15	near drowning	5	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	6,251	*100.0*	ALL	24,814	*100.0*
20-24 years	1	transport	1,683	*25.3*	hit/struck/crush	5,627	*24.1*
	2	fall	1,586	*23.9*	fall	4,848	*20.8*
	3	hit/struck/crush	963	*14.5*	cutting/piercing	3,541	*15.2*
	4	cutting/piercing	661	*9.9*	transport	2,448	*10.5*
	5	unspecified factor	579	*8.7*	other specified unintentional	2,369	*10.2*
	6	overexertion & strenuous movements	294	*4.4*	unspecified factor	2,016	*8.6*
	7	poisoning	293	*4.4*	natural/environmental/animals	665	*2.8*
	8	machinery	149	*2.2*	fires/burns/scalds	603	*2.6*
	9	other specified unintentional	136	*2.0*	foreign body- natural orifice	600	*2.6*
	10	natural/environmental/animals	123	*1.9*	machinery	315	*1.3*
	11	fires/burns/scalds	83	*1.2*	poisoning	268	*1.1*
	12	foreign body- natural orifice	52	*<1*	choking/suffocation	23	*<1*
	13	explosions/firearms	21	*<1*	drowning/near drowning	11	*<1*
	14	choking/suffocate	17	*<1*	explosions/firearms	1	*<1*
	15	near drowning	4	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	6,644	*100.0*	ALL	23,335	*100.0*

Adults (25-64 years)

Trend

FREQUENCY

Frequency and rate data for 2007 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations (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 12-year period from 22,242 in 1996 to 34,576 in 2007, representing an estimated annual change of 4% (95% confidence interval 3.4% to 4.5%) and an overall increase of 61% (49% to 70%) based on the trend line.
- The frequency of ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 15,133 in 1996 to 20,101 in 2007, representing an estimated annual change of 2.3% (1.8% to 2.8%) and an overall increase of 32% (24% to 39%) based on the trend line.
- The frequency of ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 39,543 in 1996 to 67,570 in 2007, representing an estimated annual change of 4.7% (3.4% to 5.9%) and an overall increase of 74% (49% to 98%) based on the trend line.

Figure 46: Trend in the frequency of hospital admissions, Victoria 1996-2007

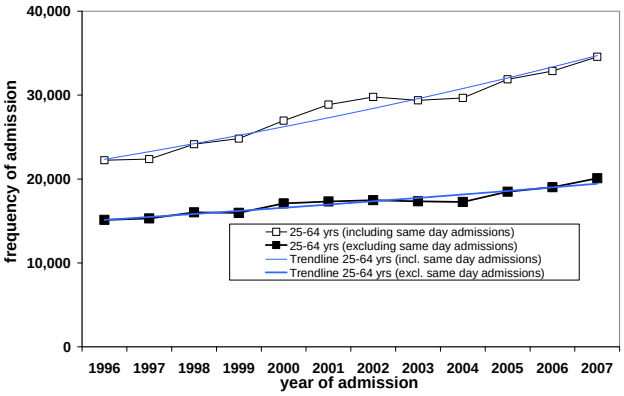
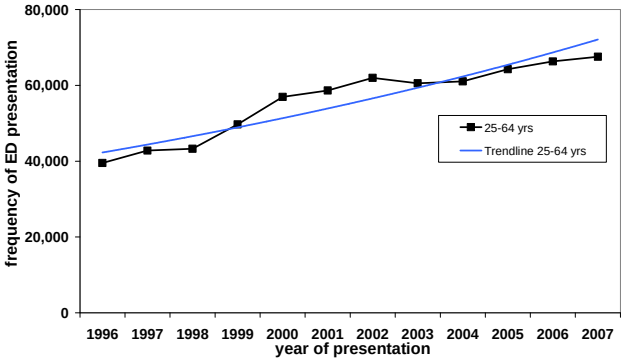


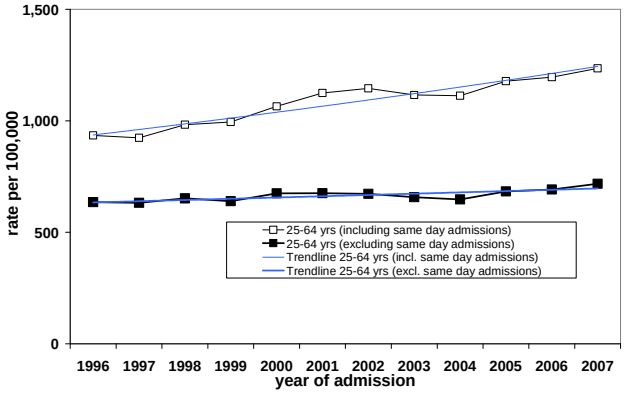
Figure 47: Trend in the frequency of injury ED presentations, Victoria 1996-2007



RATE

- The ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 934/100,000 in 1996 to 1,235/100,000 in 2007, representing an estimated annual change of 2.6% (2% to 3.1%) and an overall increase of 36% (27% to 44%) based on the trend line.
- The ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 636/100,000 in 1996 to 718/100,000 in 2007, representing an estimated annual change of 0.9% (0.4% to 1.3%) and an overall increase of 11% (5% to 17%) 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 1996-2007



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

Gender

- Males are overrepresented in hospital injury data for adults aged 25 to 64 years, accounting for 64% of hospital admissions (n=23,105) and 63% of ED presentations (n=60,725) in Victoria in 2007.

Figure 49: Adult hospital injury admissions by gender, Victoria 2007

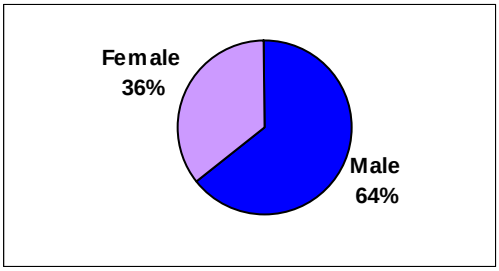
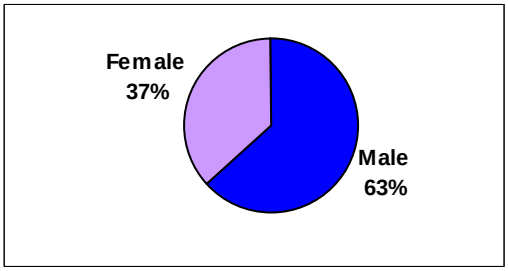


Figure 50: Adult ED injury presentations by gender, Victoria 2007



- Hospital admission and ED presentation rates are higher for males compared with females (1,669 & 4,385/100,000 vs. 915 & 2,528/100,000). (Table 11)

Table 11. Frequency and rate of adult hospital admission and ED presentation, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	23,105	1,668.6	60,725	4,385.4
Female	12,887	915.4	35,593	2,528.4
All	35,992	1,288.9	96,318	3,449.2

Age

- Persons aged 25 to 44 years account for most adult hospital admissions and ED presentations (56% and 64%).

Figure 51: Adult hospital admissions by age group, Victoria 2007

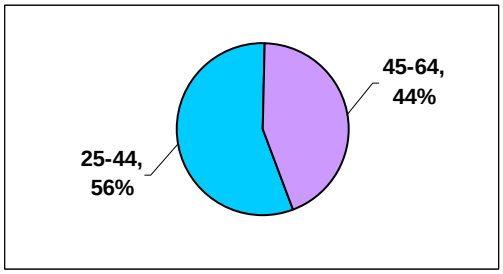
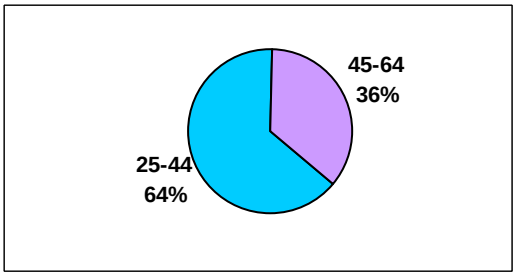


Figure 52: Adult ED presentations by age group, Victoria 2007



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

Table 12. Frequency and rate of hospital admission and ED presentation in adults, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
25-29 years	5,405	1,476.5	18,511	5,056.6
30-34 years	4,897	1,321.5	15,757	4,252.1
35-39 years	4,832	1,213.8	15,129	3,800.5
40-44 years	4,436	1,172.7	12,594	3,329.4
45-49 years	4,412	1,182.1	11,201	3,001.1
50-54 years	4,076	1,201.7	9,102	2,683.5
55-59 years	4,105	1,331.4	7,804	2,531.2
60-64 years	3,829	1,480.0	6,220	2,404.2
All	35,992	1,288.9	96,318	3,449.2

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 33% (n=11,760) of hospital admissions and 24% (n=23,474) of ED presentations.
- Transport accounts for 19% of admissions (n=6,878) but only 8% of presentations (n=7,909).
- Hit/struck/crush injuries account for just 9% of admissions (n=3,197) but 20% of ED presentations (n=19,191).
- Cutting and piercing injuries account for 8% of admissions (n=2,830) and 14% of ED presentations (n=13,666).
- The fifth ranking cause of hospital admissions is overexertion and strenuous movements (5%, n=1,726) whereas for ED presentations it is injuries caused by a foreign body in a natural orifice e.g. ear, nose, eye (4%, n=3,875).

Figure 53: Adult hospital admissions by cause, Victoria 2007

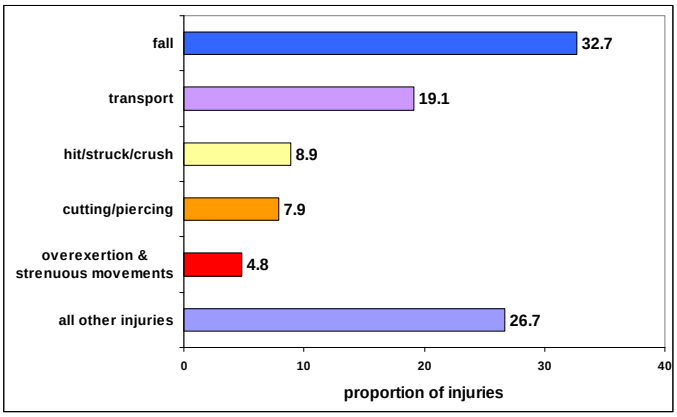
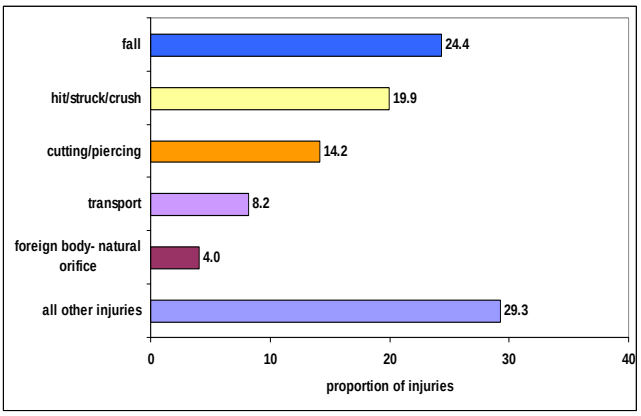


Figure 54: Adult ED presentations by cause, Victoria 2007



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 2007

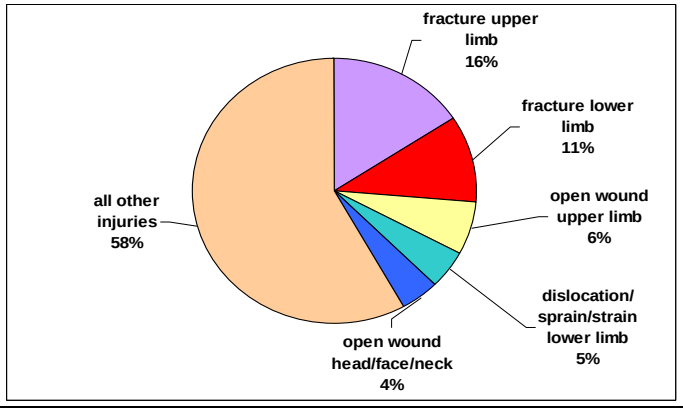
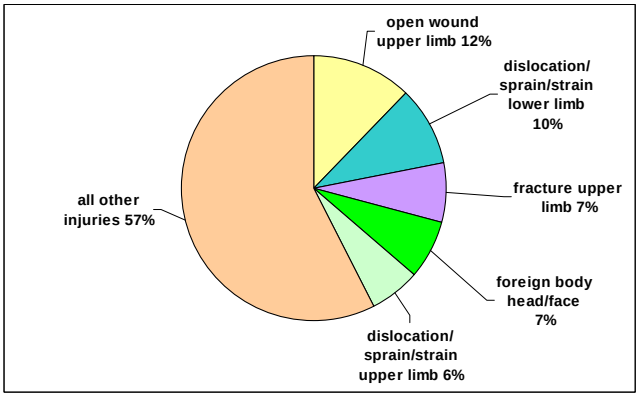


Figure 56: Major injury type, adult ED presentations, Victoria 2007



Place of injury occurrence

- Sixteen 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 (15% of admissions and 10% of ED presentations)
  - trade and service areas (3% of admissions and 9% of ED presentations) and
  - sports and athletics areas (5% of admissions and 6% of ED presentations).

Figure 57: Adult hospital admissions by place of occurrence, Victoria 2007

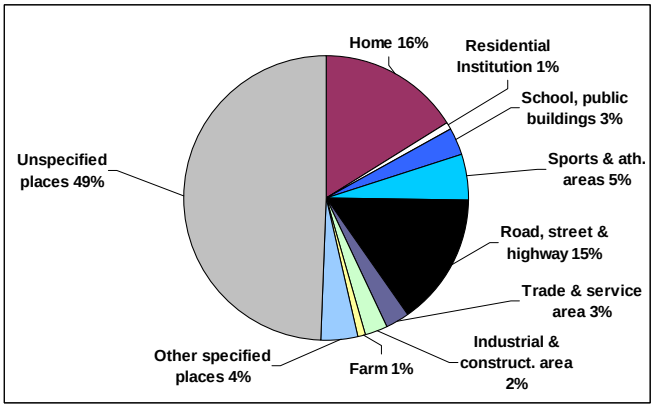
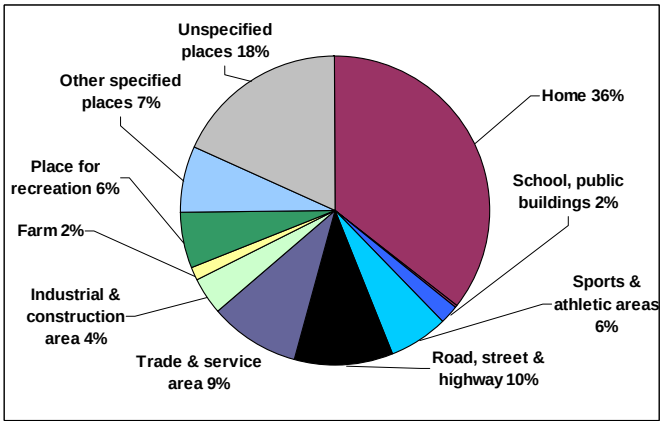


Figure 58: Adult ED presentations by place of occurrence, Victoria 2007



Activity when injured

- The activity engaged in at the time of injury was unspecified for more than half of adult injury admissions (56%) and recorded as 'other specified' for a further 13% 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 one-third of adult ED presentations, followed by working for income (17%) and sports (7%).

Figure 59: Adult hospital admissions by activity when injured, Victoria 2007

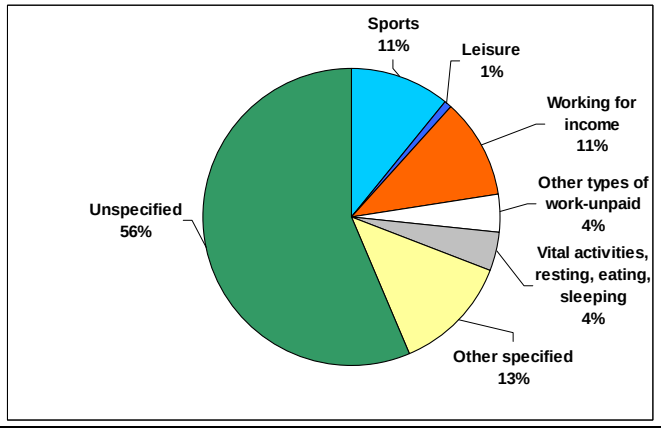


Figure 60: Adult ED presentations by activity when injured, Victoria 2007

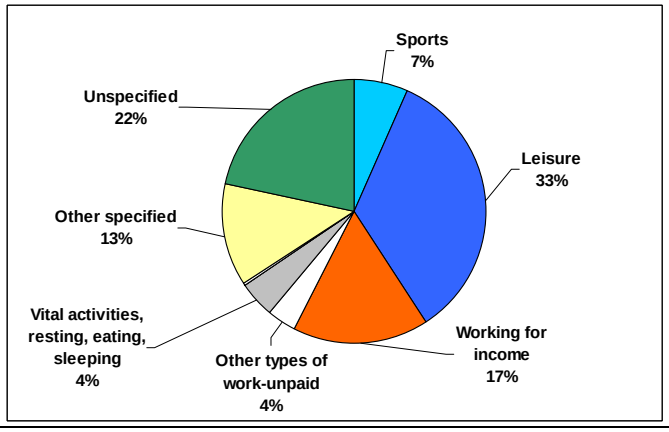


Table 13 Ranking of causes for hospital admissions and ED presentations, persons aged 25 to 64 years, 2007

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
25-44 years	1	fall	5,007	*25.6*	hit/struck/crush	13,558	*21.9*
	2	transport	4,381	*22.4*	fall	13,498	*21.8*
	3	hit/struck/crush	2,188	*11.2*	cutting/piercing	8,943	*14.4*
	4	unspecified factor	1,943	*9.9*	other specified unintentional	6,882	*11.1*
	5	cutting/piercing	1,814	*9.3*	unspecified factor	5,595	*9.0*
	6	overexertion & strenuous movements	986	*5.0*	transport	5,515	*8.9*
	7	poisoning	781	*4.0*	foreign body- natural orifice	2,381	*3.8*
	8	natural/environmental/animals	650	*3.3*	natural/environmental/animals	2,179	*3.5*
	9	machinery	577	*2.9*	fires/burns/scalds	1,600	*2.6*
	10	other specified unintentional	487	*2.5*	machinery	1,156	*1.9*
	11	fires/burns/scalds	305	*1.6*	poisoning	594	*1.0*
	12	foreign body- natural orifice	267	*1.4*	choking/suffocation	64	*<1*
	13	choking/suffocate	118	*<1*	drowning/near drowning	18	*<1*
	14	explosions/firearms	48	*<1*	explosions/firearms	8	*<1*
	15	near drowning	18	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	19,570	*100.0*	ALL	61,991	*100.0*
45-64 years	1	fall	6,753	*41.1*	fall	9,976	*29.1*
	2	transport	2,497	*15.2*	hit/struck/crush	5,633	*16.4*
	3	unspecified factor	1,596	*9.7*	cutting/piercing	4,723	*13.8*
	4	cutting/piercing	1,016	*6.2*	other specified unintentional	3,701	*10.8*
	5	hit/struck/crush	1,009	*6.1*	unspecified factor	3,258	*9.5*
	6	overexertion & strenuous movements	740	*4.5*	transport	2,394	*7.0*
	7	natural/environmental/animals	643	*3.9*	foreign body- natural orifice	1,494	*4.4*
	8	machinery	549	*3.3*	natural/environmental/animals	1,398	*4.1*
	9	poisoning	479	*2.9*	fires/burns/scalds	789	*2.3*
	10	foreign body- natural orifice	399	*2.4*	machinery	637	*1.9*
	11	other specified unintentional	312	*1.9*	poisoning	254	*<1*
	12	choking/suffocate	204	*1.2*	choking/suffocation	61	*<1*
	13	fires/burns/scalds	188	*1.1*	drowning/near drowning	6	*<1*
	14	explosions/firearms	27	*<1*	explosions/firearms	3	*<1*
	15	near drowning	10	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	16,422	*100.0*	ALL	34,327	*100.0*

Older adults (65 years and older)

Trend

FREQUENCY

Frequency and rate data for 2007 reported here differ slightly from those reported elsewhere in this report because a stricter inclusion criterion based on primary injury diagnosis was used for the trend calculations (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 12-year period from 15,588 in 1996 to 26,748 in 2007, representing an estimated annual change of 5.1% (95% confidence interval 4.5% to 5.6%) and an overall increase of 83% (69% to 92%) based on the trend line.
- The frequency of OLDER ADULT unintentional injury and poisoning admissions (EXCLUDING same-day admissions) increased significantly over the 12-year period from 13,511 in 1996 to 20,448 in 2007, representing an estimated annual change of 3.9% (3.4% to 4.3%) and an overall increase of 59% (50% to 65%) based on the trend line.
- The frequency of OLDER ADULT unintentional injury and poisoning ED presentations increased significantly over the 12-year period from 6,326 in 1996 to 13,401 in 2007, representing an estimated annual change of 6.4% (4.4% to 8.1%) and an overall increase of 111% (67% to 154%) based on the trend line.

Figure 61: Trend in the frequency of hospital admissions, Victoria 1996-2007

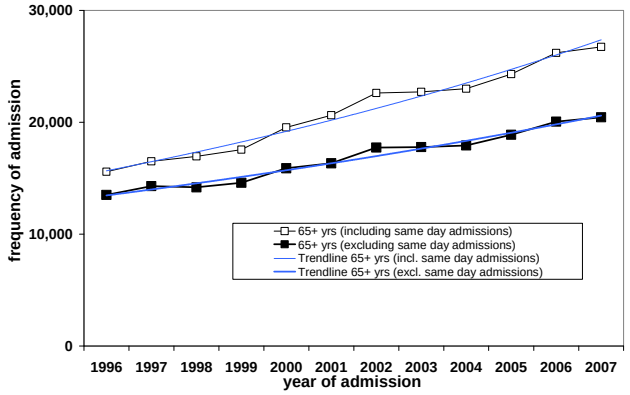
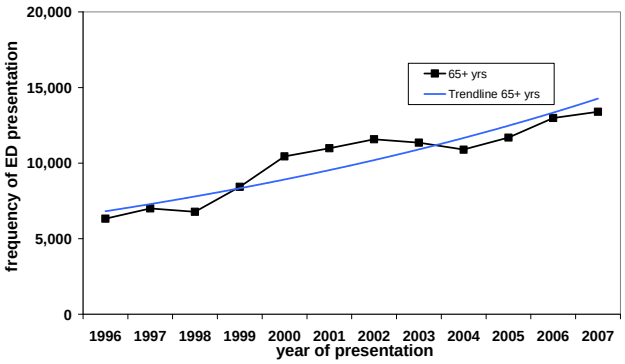


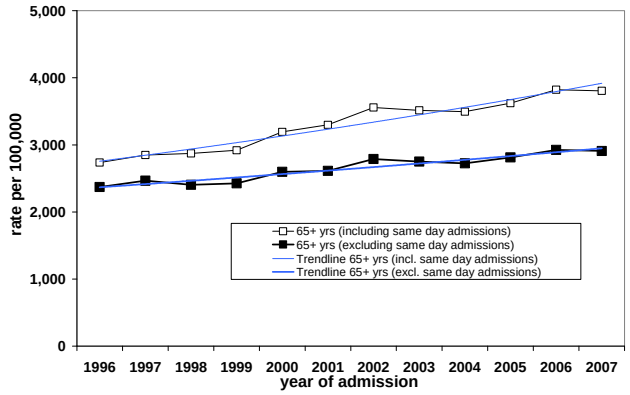
Figure 62: Trend in the frequency of injury ED presentations, Victoria 1996-2007



RATE

- The OLDER ADULT unintentional injury and poisoning admission rate (INCLUDING same-day admissions) increased significantly over the 12-year period from 2,737/100,000 in 1996 to 3,806/100,000 in 2007, representing an estimated annual change of 3.2% (2.6% to 3.7%) and an overall increase of 46% (36% to 55%) based on the trend line.
- The OLDER ADULT unintentional injury and poisoning admission rate (EXCLUDING same-day admissions) increased significantly over the 12-year period from 2,373/100,000 in 1996 to 2,910/100,000 in 2007, representing an estimated annual change of 2% (1.6% to 2.4%) and an overall increase of 27% (21% to 33%) 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 1996-2007



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

Gender

- Females are overrepresented in hospital injury data for persons aged 65 years and older. They accounted for 65% of hospital admissions (n=19,139) and 58% of ED presentations (n=11,037) in Victoria in 2007.

Figure 64: Older adult hospital injury admissions by gender, Victoria 2007

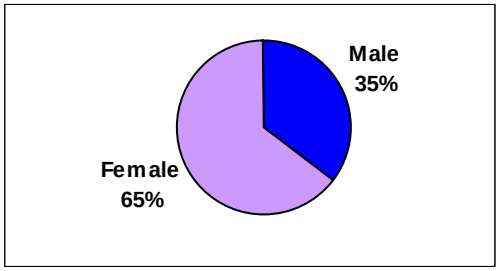
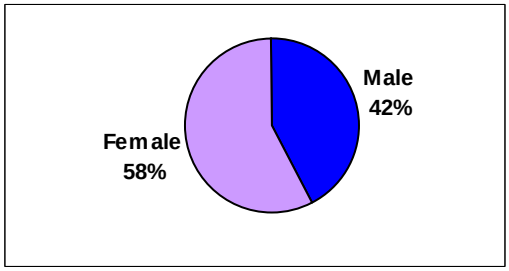


Figure 65: Older adult ED injury presentations by gender, Victoria 2007



- The rate of hospital admission and ED presentation is also higher for females than males (4,937 & 2,847/100,000 vs. 3,3250 & 2,554/100,000). (Table 14)

Table 14. Frequency and rate of older adult hospital admission and ED presentation, Victoria 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
Male	10,476	3,325.1	8,046	2,553.8
Female	19,139	4,937.1	11,037	2,847.1
All	29,615	4,214.3	19,083	2,715.6

Age

- Persons aged 85 years and older account for 34% of injury hospital admissions among older adults and persons aged 80-84 years account for a further 23%.
- Older adult ED presentations are fairly evenly distributed across the five age groups.

Figure 66: Older adult hospital admissions by age group, Victoria 2007

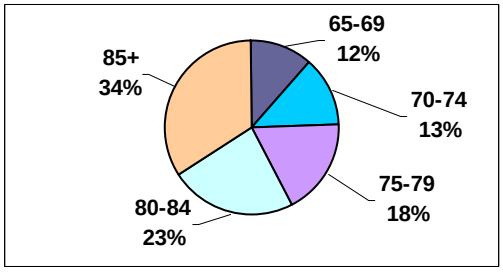
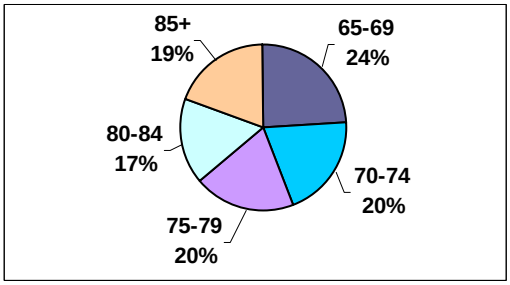


Figure 67: Older adult ED presentations by age group, Victoria 2007



- 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 2007.

	Hospital admissions		ED presentations	
	Frequency	Rate	Frequency	Rate
65-69 years	3,426	1,708.1	4,611	2,298.9
70-74 years	3,861	2,353.2	3,768	2,296.5
75-79 years	5,317	3,749.6	3,738	2,636.1
80-84 years	6,796	6,319.9	3,248	3,020.4
85+ years	10,215	11,511.4	3,718	4,189.9
All	29,615	4,214.3	19,083	2,715.6

Leading causes of injury

- The leading cause of hospital admissions and ED presentations for older adults is falls. Falls account for more than three-quarters of hospital admissions (77%, n=22,679) and more than half of ED presentations (54%, n=10,376) in this age group.
- Transport is the second most common cause of hospital admission (4%, n=1,295) and the cause of 4% of presentations (n=731).
- The third leading cause of admissions is choking and suffocation (3%, n=779) whereas for ED presentations it is cutting and piercing (8%, n=1,582).
- Hit/struck/crush injuries account for 3% of admissions (n=762) and 9% of ED presentations (n=1,714).
- The fifth ranking cause of hospital admissions is overexertion and strenuous movements (2%, n=600) whereas for ED presentations it is natural/environmental/animals, mostly dog, horse and insect related (3%, n=481).

Figure 68: Older adult hospital admissions by cause, Victoria 2007

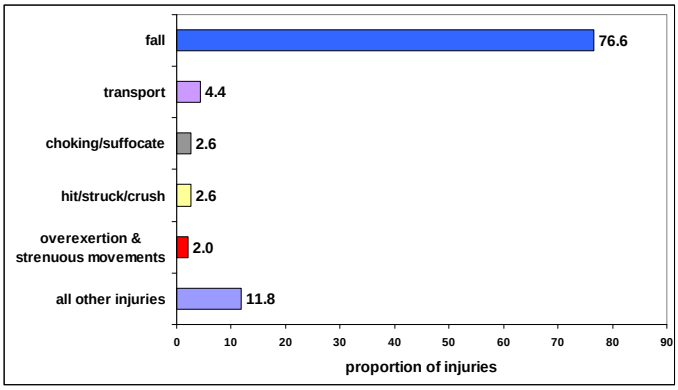
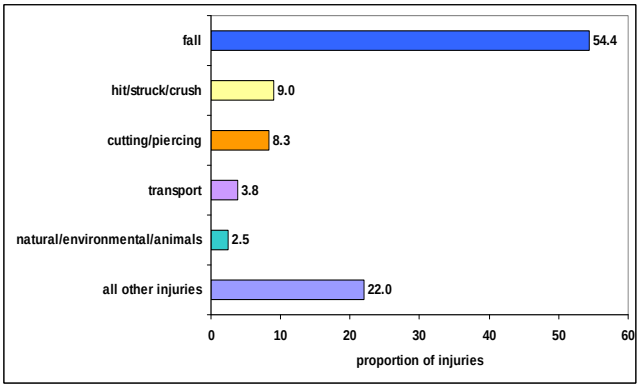


Figure 69: Older adult ED presentations by cause, Victoria 2007



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 (12%) are the most common injury among ED presentations and account for 7% of hospital admissions.

Figure 70: Major injury type, older adult hospital admissions, Victoria 2007

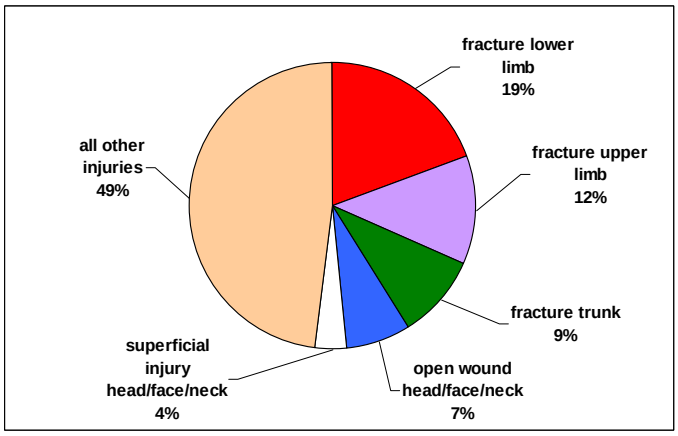
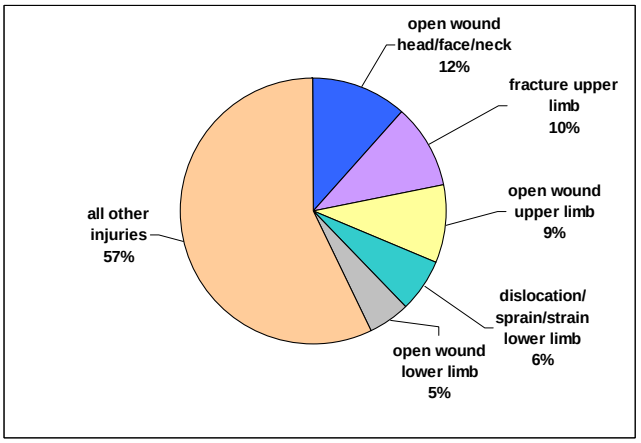


Figure 71: Major injury type, older adult ED presentations, Victoria 2007



Place of injury occurrence

- Thirty-seven percent of older adult injuries requiring hospital admission and more than half of injuries resulting in ED presentations (51%) occurred in the home.
- Other locations where injuries to older adults commonly occurred were:
  - residential institutions (19% of admissions and 5% of ED presentations)
  - roads, streets and highways (7% of admissions and 10% of ED presentations) and
  - schools and other public buildings (8% of admissions and 1% of ED presentations).

Figure 72: Older adult hospital admissions by place of occurrence, Victoria 2007

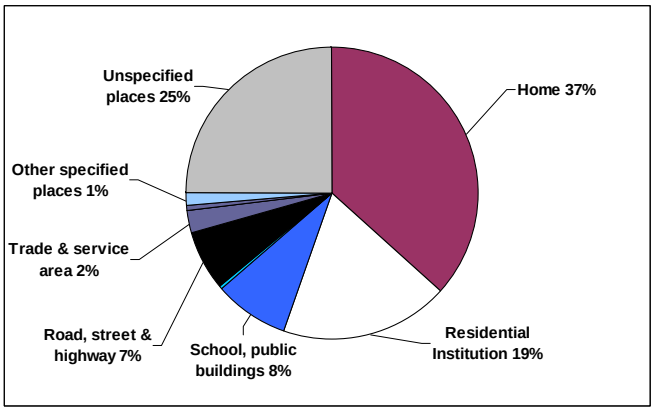
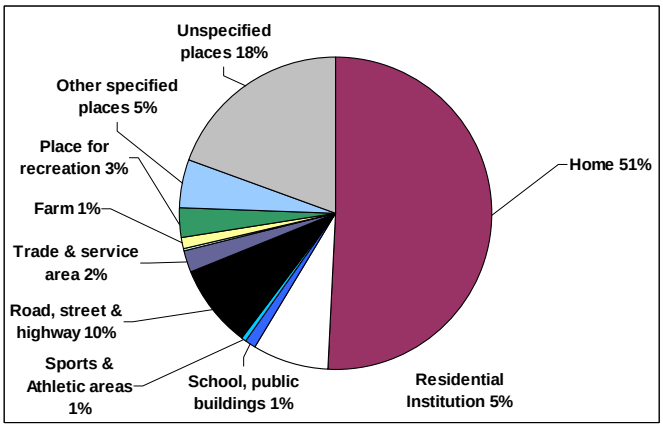


Figure 73: Older adult ED presentations by place of occurrence, Victoria 2007



Activity when injured

- The activity engaged in at the time of injury was unspecified for two thirds of older adult injury admissions and recorded as 'other specified' for a further 13% 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 (8%).

Figure 74: Older adult hospital admissions by activity when injured, Victoria 2007

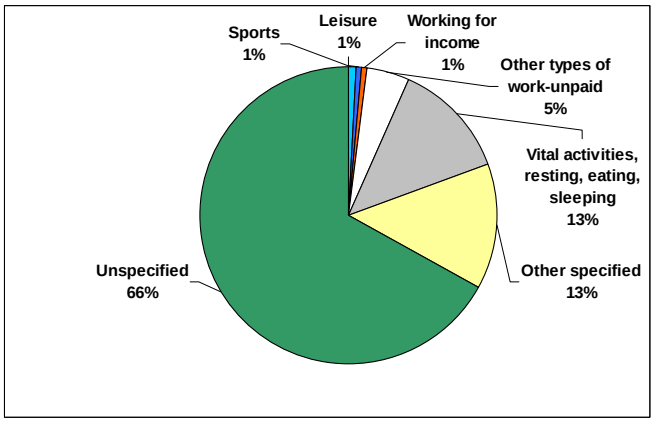


Figure 75: Older adult ED presentations by activity when injured, Victoria 2007

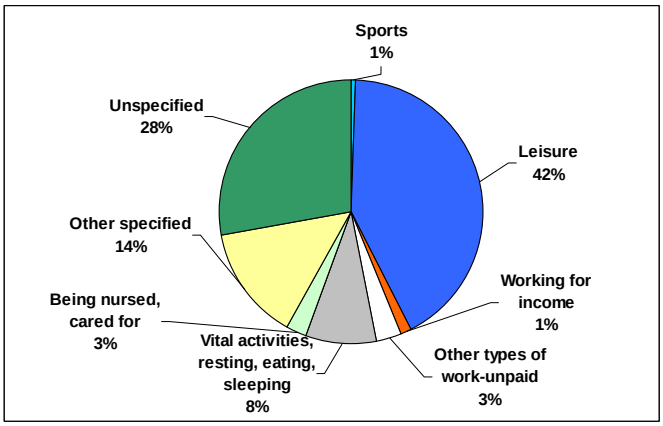


Table 16 Ranking of causes for hospital admissions and ED presentations, persons aged 65 years and older, 2007

		ADMISSIONS			PRESENTATIONS		
AGE GROUP	**RANK**	**CAUSE**	**FREQ**	***%***	**CAUSE**	**FREQ**	***%***
65-74 years	1	fall	4,587	*62.9*	fall	3,663	*43.7*
	2	transport	575	*7.9*	hit/struck/crush	903	*10.8*
	3	unspecified factor	470	*6.4*	cutting/piercing	900	*10.7*
	4	overexertion & strenuous movements	242	*3.3*	unspecified factor	838	*10.0*
	5	hit/struck/crush	240	*3.3*	other specified unintentional	774	*9.2*
	6	natural/environmental/animals	218	*3.0*	transport	431	*5.1*
	7	cutting/piercing	210	*2.9*	natural/environmental/animals	292	*3.5*
	8	poisoning	173	*2.4*	foreign body- natural orifice	286	*3.4*
	9	choking/suffocate	166	*2.3*	fires/burns/scalds	123	*1.5*
	10	foreign body- natural orifice	138	*1.9*	machinery	94	*1.1*
	11	machinery	115	*1.6*	poisoning	55	*<1*
	12	other specified unintentional	86	*1.2*	choking/suffocation	18	*<1*
	13	fires/burns/scalds	62	*<1*	drowning/near drowning	2	*<1*
	14	explosions/firearms	4	*<1*	explosions/firearms	0	*0.0*
	15	near drowning	1	*<1*	overexertion & strenuous movements	N/A	*N/A*
		ALL	7,287	*100.0*	ALL	8,379	*100.0*
75-84 years	1	fall	9,413	*77.7*	fall	4,058	*58.1*
	2	transport	528	*4.4*	unspecified factor	609	*8.7*
	3	unspecified factor	507	*4.2*	hit/struck/crush	574	*8.2*
	4	choking/suffocate	335	*2.8*	other specified unintentional	538	*7.7*
	5	hit/struck/crush	286	*2.4*	cutting/piercing	514	*7.4*
	6	overexertion & strenuous movements	254	*2.1*	transport	241	*3.4*
	7	poisoning	198	*1.6*	natural/environmental/animals	160	*2.3*
	8	natural/environmental/animals	175	*1.4*	foreign body- natural orifice	139	*2.0*
	9	foreign body- natural orifice	132	*1.1*	fires/burns/scalds	59	*<1*
	10	cutting/piercing	91	*<1*	poisoning	53	*<1*
	11	other specified unintentional	85	*<1*	machinery	28	*<1*
	12	fires/burns/scalds	57	*<1*	choking/suffocation	12	*<1*
	13	machinery	49	*<1*	drowning/near drowning	2	*<1*
	14	explosions/firearms	3	*<1*	explosions/firearms	0	*0.0*
	15	near drowning	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	12,113	*100.0*	ALL	6,987	*100.0*
85+ years	1	fall	8,679	*85.0*	fall	2,655	*71.4*
	2	unspecified factor	329	*3.2*	unspecified factor	318	*8.6*
	3	choking/suffocate	278	*2.7*	hit/struck/crush	237	*6.4*
	4	hit/struck/crush	236	*2.3*	other specified unintentional	179	*4.8*
	5	transport	192	*1.9*	cutting/piercing	168	*4.5*
	6	poisoning	123	*1.2*	transport	59	*1.6*
	7	overexertion & strenuous movements	104	*1.0*	foreign body- natural orifice	33	*<1*
	8	natural/environmental/animals	102	*1.0*	natural/environmental/animals	29	*<1*
	9	foreign body- natural orifice	51	*<1*	poisoning	17	*<1*
	10	fires/burns/scalds	42	*<1*	fires/burns/scalds	12	*<1*
	11	other specified unintentional	41	*<1*	choking/suffocation	5	*<1*
	12	cutting/piercing	28	*<1*	machinery	3	*<1*
	13	machinery	10	*<1*	explosions/firearms	2	*<1*
	14	near drowning	0	*0.0*	drowning/near drowning	0	*0.0*
	15	explosions/firearms	0	*0.0*	overexertion & strenuous movements	N/A	*N/A*
		ALL	10,215	*100.0*	ALL	3,717	*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 Human Services (DHS) 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 2007 to 31 December 2007, coded according to the 5th edition of ICD-10–AM (NCCH, July 2004 and July 2006)
- 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 2007.

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 Human Services (DHS) and supplied quarterly in unit record format to VISU (prior to 2004 VISU collected injury surveillance data directly from hospital EDs). Data are currently coded to the Victorian Emergency Minimum Dataset (VEMD) User Manual 10th Edition, July 2005 published by the Department of Human Services.

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 2007 to 31 December 2007 coded according to the Victorian Emergency Minimum Dataset (VEMD) User Manual 10th Edition, July 2005.
- Data were selected if the injury was unintentional (VEMD human intent=1)
- ED presentations that resulted in death or admission have been excluded from the ED presentations dataset to avoid double counting with the hospital admissions data provided in this edition.
- Only hospitals that contributed data to VEMD over the whole 12-year period were included in the trend analysis of ED presentations frequency data (24 of the current 38 hospitals contributing to the surveillance system).