

# 1 Introduction

This report uses data for hospital separations due to injury and poisoning that occurred in Australia during 2005–06 (1st July 2005 to 30th June 2006) to describe the occurrence of hospitalised injury in Australia. It follows on from the previous in the series which examines hospitalised injury in Australia during 2004–05 (Bradley & Harrison 2008). Hospitalised injury is described according to major types of injury and poisoning and detailed analysis of the external causes of injury is undertaken.

A small proportion of all incident injury cases result in admission to a hospital. For each hospital admission, many more cases present to Emergency Departments and are not admitted, or are seen by a general practitioner (Helps et al. 2002). A larger number of generally minor cases do not receive medical treatment. In addition, a smaller number of severe injuries that quickly result in death go unrecorded in terms of hospital separations, but are captured in mortality data (Kreisfeld et al. 2004). Although injury cases admitted to hospital comprise a small proportion of the number of incident cases of injury, they account for a large proportion of estimated costs of injury (Watson & Ozanne-Smith 1997).

## Hospital separations data

National hospital separations data were provided by the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (NHMD). A separation is defined as:

A formal, or statistical process, by which an episode of care for an admitted patient ceases (AIHW 2001).

Hospital separations reported here were coded according to the 4th edition of ICD-10-AM (NCCH 2004).

## Selecting injury and poisoning cases

Records that met the following criteria are included in this report:

- Australian hospital separations occurring 1st July 2005 to 30th June 2006; and
- Principal Diagnosis in the ICD-10-AM range S00–T98 using Chapter XIX *Injury, poisoning and certain other consequences of external causes* codes.

Cases referred to as ‘injury’ can be defined in many ways, usually on the basis of the presence of certain types of injury diagnosis. The presence of information about the external causes of injury may also be required, especially if analysis focuses on causes and prevention of injury. The starting point for this report was a file containing records of all separations from Australian hospitals in the study period that contain any ICD-10-AM diagnosis code in the range S00–T98 or any external cause code. Since some injuries result in more than one episode in hospital due to transfers and readmissions, a file of separations is likely to overestimate the number of new cases of injury. Australian hospital data files, at national level, lack direct means to avoid such over-counting.

In this report, a method has been used to reduce over-counting of cases, by omitting records in which the mode of admission is recorded as being by transfer from another acute-care hospital, on the grounds that such cases are likely to result in more than one separation record that meets the operational definition of injury. It should be recognised that this method for avoiding multiple counting of cases is approximate. It should allow for cases involving transfer between or within hospitals. It cannot allow for readmissions which meet the project's selection criteria. Cases transferred from another hospital are included in estimates of patient days.

Most injuries occur in settings such as car crashes, inter-personal violence, sporting and recreational activities, and work. In this report, these are referred to as *Community injury*. *Community injury* is the main subject of this report. Other injuries occur in the context of surgical and medical care, where they are often referred to as complications. These are considered briefly in this report, and are referred to here as *Complications of surgical and medical care*.

Since Australian hospital separations records should include a Principal Diagnosis code and, for 2005–06, could include up to 50 Additional Diagnosis codes, *Community injury* and *Complications of surgical and medical care* can be specified in various ways.

Table 1.1 provides summary counts where selection is based solely on Principal Diagnosis and the mode of admission excludes cases where transfer from another acute-care hospital has occurred. Table A1 further expands on these counts to take account of Additional Diagnosis codes.

We have used Principal Diagnosis as the basis of case inclusion (Table 1.1). The case selection criteria used in this report have the effect of almost completely restricting the cases included to the acute care type (99.6% of *Community injury*, 99.6% of *Complications of surgical and medical care* and 99.9% of *residual groups*).

## **Injury hospitalisations 2005–06 overview**

For public and private hospitals combined, episodes of care separating from hospital between 1st July 2005 and 30th June 2006 attributed to *Injury and poisoning and certain other consequences of external causes* (S00–T98) ranked fourth in the total number of hospitalisations after *Factors influencing health status & contact with health services* (Z00–Z99), *Diseases of the digestive system* (K00–K93) and *Neoplasms* (C00–D48) when records are grouped as in (AIHW 2006). This ranking is the same as in the previous year (Bradley & Harrison 2008).

Nearly half a million hospital separations were directly attributed to injury and poisoning in 2005–06 (Table 1.1). These separations accounted for 6.6% of all episodes of care in Australian hospitals in this year. Approximately two million hospital bed-days were utilised by injury separations in 2005–06. These bed-days accounted for a higher proportion of all hospital bed-days (8.1%) than injury separations contributed to all separations. This difference was most apparent for injuries involving females; injury separations accounted for 5.4% of all hospital separations involving females but the episodes of care associated with these injuries accounted for 7.7% of all hospital bed-days. This is related to the high rate of hospitalised injury for older females and the prevalence of serious injuries to the hip and thigh, often due to a fall, for this population.

**Table 1.1: Injury hospitalisations overview: males, females and persons, Australia 2005–06**

	<b>Males</b>	<b>Females</b>	<b>Persons<sup>(b)</sup></b>
<b>Total number of hospital separations for any cause<sup>(a)</sup></b>	3,438,248	3,873,645	7,311,983
Total number of hospital bed-days <sup>(a)</sup>	11,291,263	13,038,976	24,330,653
<b>Separations due to injury and poisoning (S00–T98<sup>(c)</sup>)</b>	275,425	208,705	484,136
Percentage of all separations	8.0	5.4	6.6
Bed-days due to injury and poisoning	973,363	1,001,244	1,974,621
Percentage of all bed-days	8.6	7.7	8.1
<b>Community injury separations (S00–T75 or T79<sup>(c)</sup>)</b>	232,666	167,347	400,019
Percentage of all injury separations	84.5	80.2	82.6
Bed-days due to community injury	728,853	769,995	1,498,862
Percentage of injury bed-days	74.9	76.9	75.9
<b>Complications of surgical &amp; medical care separations (T80–T88<sup>(c)</sup>)</b>	40,155	38,529	78,684
Percentage of all injury separations	14.6	18.5	16.3
Bed-days due to complications injury	240,897	227,428	468,325
Percentage of injury bed-days	24.7	22.7	23.7
<b>Residual injury separations (T78, T89 or T90–T98<sup>(c)</sup>)</b>	2,604	2,829	5,433
Percentage of all injury separations	0.9	1.4	1.1
Bed-days due to residual injury separations	3,613	3,821	7,434
Percentage of injury bed-days	0.4	0.4	0.4

(a) Source: Australian Hospital Statistics 2004–05 (AIHW 2006).

(b) Includes 90 separations where sex was not reported.

(c) Separations defined according to principal diagnosis.

Unit records classed as community injury separations (principal diagnosis S00–T75 or T79) accounted for 82.6% ( $n = 400,019$ ) of all injury separations in 2005–06. More community injury separations involved males (232,666 vs. 167,347 for females), but more bed-days were utilised by females due to community injury (769,995 vs. 728,853 for males). Conversely, males and females were involved in relatively similar numbers of separations and hospital bed-days due to injuries defined as complications of surgical and medical care. The bed-days utilised by complications separations accounted for a much higher proportion of all hospital bed-days due to injury and poisoning (23.7%) than the number of complications separations proportionately contributed to all injury hospitalisations (16.3%).

Residual injury separations accounted for a very small proportion of both all injury separations and hospital bed-days due to injury (1.1% and 0.4%, respectively).

## **Profiles of priority injury areas**

The National Injury Prevention and Safety Promotion Plan: 2004 Onwards has identified seven national injury prevention areas for action (Pointer et al. 2003; SIPP 2005); children (0–14 years), youth and young people (15–24 years), adults (25–64 years), older people (65+ years), Aboriginal and Torres Strait Islander people, rural and remote populations, and alcohol and injury. Where appropriate, results have been presented to highlight the impact of injury on the targeted age groups. Aboriginal and Torres Strait Islander cases are not distinguished in this report, largely because limitations of identification of Indigenous status necessitate a special approach. Injury among Aboriginal and Torres Strait Islander Australians is the subject of separate reports (Helps & Harrison 2004; Helps & Harrison 2006). Results for rural and remote populations, according to the Australian Standard Geographical Classification (ASGC) remoteness structure, were presented in the previous report in this series (Bradley & Harrison 2008). The contribution of alcohol to hospitalised injury in Australia is not considered in this report as it is not yet possible to assess the alcohol-relatedness of this data with adequate reliability (Pidd et al. 2006).

## **Trends in injury rates**

Valid reporting of trends over time in hospitalised injury is not easy to achieve. By the end of the financial year 1999–00, all jurisdictions had progressed from ICD-9-CM to ICD-10-AM as the basis for classifying diagnoses and external causes of injury. There are some inconsistencies between the two classification systems that limit comparability of major groups of injury. There is potential for variation over time in admission practice, especially for lower severity cases, and changes over time in the coding of external causes (Helps et al. 2002). Precise enumeration of cases is complicated by use of data organised in terms of separation events rather than in terms of cases of injured persons.

## 2 Community injury, Australia

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79

### 2.1 All community injury hospitalisations

Table 2.1.1: Key indicators for all community injury cases, Australia, 2005–06

Indicator	Males	Females	Persons
All hospital separations	3,438,248	3,873,645	7,311,983 <sup>(a)</sup>
Separations from hospital due to community injury	232,666	167,347	400,019 <sup>(b)</sup>
Percentage of all separations	6.8	4.3	5.5
Estimated community injury cases*	216,158	155,133	371,297
Crude rate/100,000 population	2,115.5	1,500.2	1,806.0
Age-standardised rate/100,000 population	2,141.2	1,404.6	1,789.8
Total patient days <sup>(c)</sup>	728,853	769,995	1,498,862
Mean length of stay (days)	3.4	5.0	4.0

Includes (a) 90 separations and (b) 6 separations and (c) 14 patient days for which sex was not reported.

\* Omits inward transfers from acute hospitals.

#### Overview

For public and private hospitals combined, *Injury, poisoning and certain other consequences of external causes* ranked fourth in the number of separations after *Factors influencing health status and contact with health services*, *Diseases of the digestive system* and *Neoplasms* (AIHW 2007). This represents an increase in position; this position is the same as for the previous year (Bradley & Harrison 2008).

In 2005–06, community injury accounted for 400,019 hospital separations, 5.5% of a total of 7,311,983 hospital separations from public, private and psychiatric hospitals in Australia (Table 2.1.1) (AIHW 2007). There were an estimated 371,297 incident injury cases in 2005–06. Community injury accounted for 1,498,862 patient days, at an average of 4.0 days per episode (Table 2.1.1).

The six most commonly reported identifiable causes of injury were:

1. Falls (36%)
2. Transportation (14%)
3. Intentional self-harm (6%)
4. Assault (6%)
5. Poisoning, pharmaceuticals (2%)
6. Fires, burns and scalds (1%)

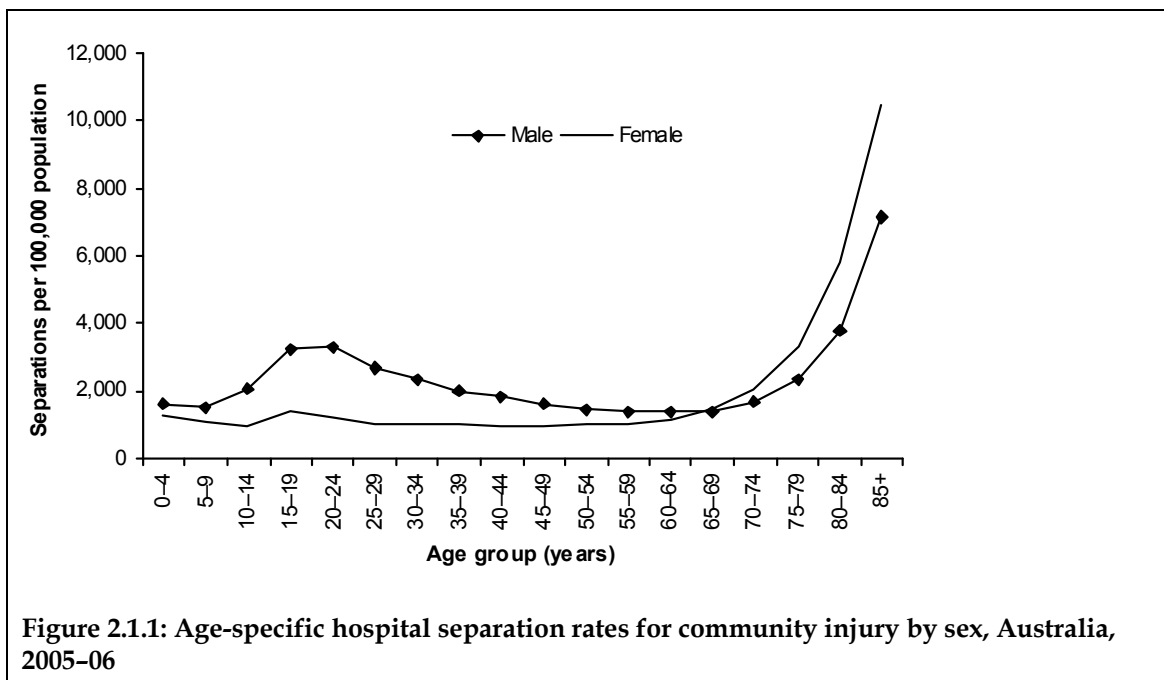
The male to female rate ratio (M:F rate ratio), based on age-standardised rates was 1.5:1, indicating that more males than females were hospitalised for community injury.

Many injury cases are likely to be included in both the NHMD and national mortality unit record data collection. Patients who sustain severe injuries may die rapidly and may not reach hospital or die in the Emergency Department (ED), prior to admission. Such injury cases may be omitted from hospital separations data, but will be captured in the national mortality database. Difficulties in differentiating between severe and fatal injuries complicate measurement of the extent of overlap between the NHMD and national mortality database.

Cases with a Principal Diagnosis of S00–T75, T79 are included in Table 2.1.1, even if they lack an external cause or have a first reported external cause code of complications of surgical and medical care (Table 1.1). Cases so defined ( $n = 1,995$  in 2005–06) constitute a small proportion of Community injury (0.5% in 2005–06). There is some difficulty in determining how to treat these cases as they meet the Principal Diagnosis definition of Community injury but lack a meaningful external cause which necessitates coding of these cases as ‘other/missing’ for analysis of external cause.

### Age and sex distribution

The age and sex profile of community injury in 2005–06 was very similar to 2004–05 (Bradley & Harrison 2008) (Figure 2.1.1). Male age-specific rates were higher than for females until the age of 65 years, after which female rates overtook male rates. Male age-specific rates increased in the teens, peaked in the late teens and early 20s and declined until 65 years of age. The pattern differed for females; there was a small peak in the late teens, after which age-specific rates were relatively constant up to 65 years of age. For both sexes, a steep increment occurred from 70+ years, reaching a peak in the 85+ age group (M:F rate ratio of 1.5:1).



The percentage of community injury hospitalisations attributed to the age groups identified in the National Injury Prevention and Safety Promotion Plan: 2004–2014 (SIPP 2005) were 16% ( $n = 58,015$ ) for children aged 0–14 years, 18% ( $n = 65,783$ ) for youth and young adults aged 15–24 years, 43% ( $n = 159,494$ ) for adults aged 25–64 years and 24% ( $n = 88,005$ ) for older people aged 65 years and over (Table 2.1.2).

**Table 2.1.2: Case counts by age group for all major causes of community injury, Australia, 2005–06**

External cause	Age group (years)						Total
	0–4	5–14	15–24	25–44	45–64	65+	
<b>Unintentional</b>							
Falls	7,396	16,556	8,157	13,573	20,100	66,784	132,566
Transportation	991	7,213	13,899	16,590	8,940	4,621	52,254
Poisoning, pharmaceuticals	1,320	217	1,107	1,819	924	971	6,358
Poisoning, other substances	437	117	424	680	460	280	2,398
Fires, burns, scalds	1,433	609	849	1,297	793	476	5,457
Drowning	232	55	65	67	53	22	494
Other unintentional injuries	6,876	12,939	25,807	37,681	23,687	12,497	119,487
<b>Intentional</b>							
Intentional self-harm	6*	621	6,699	10,680	4,856	916	23,778
Assault	256	464	7,332	10,818	2,854	356	22,080
Undetermined intent	70	122	1,295	1,940	771	232	4,430
Other	34	51	149	316	595	850	1,995
<b>Total</b>	<b>19,051</b>	<b>38,964</b>	<b>65,783</b>	<b>95,461</b>	<b>64,033</b>	<b>88,005</b>	<b>371,297</b>

Note: Shaded area indicates the leading identifiable cause of injury for each column (i.e. it excludes *other unintentional injuries* because it is a miscellaneous category for a diverse range of injuries).

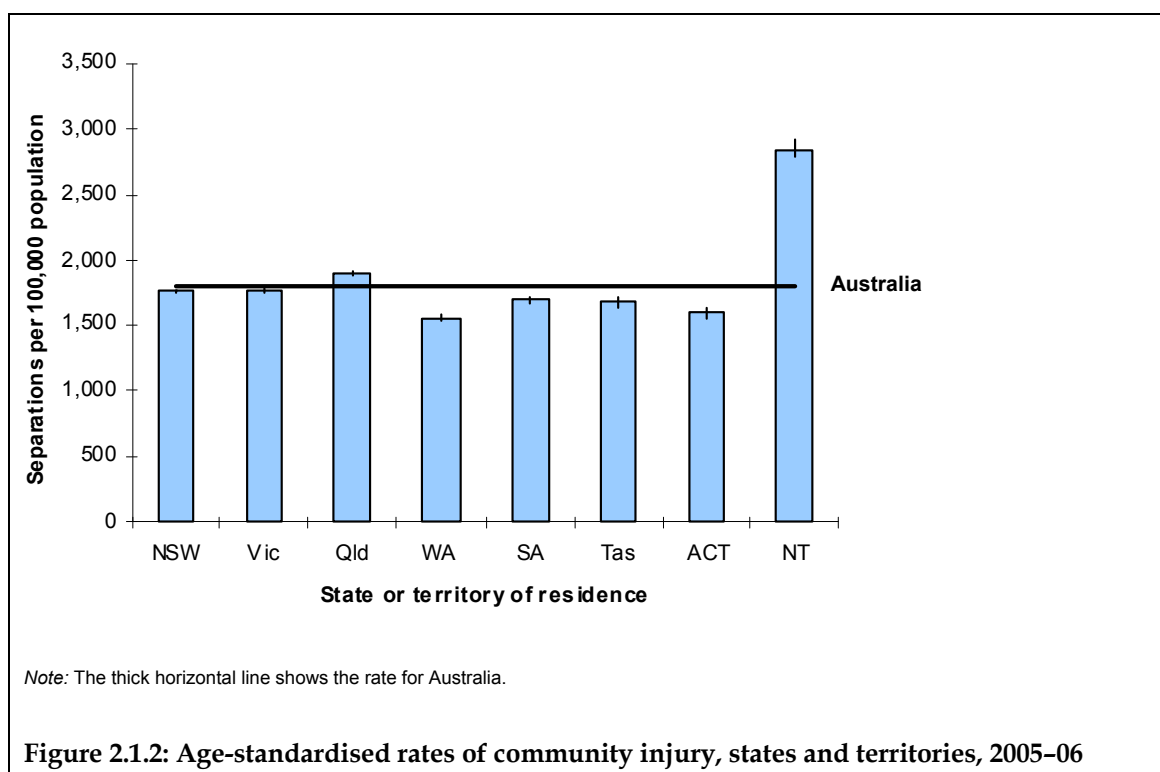
\* It is most likely that these cases have resulted from coding errors.

## State and territory differences

Most jurisdictions had rates that were fairly similar to the national age-standardised rate (Figure 2.1.2 and Table 2.1.3). Although the Northern Territory had a noticeably higher rate than that for Australia, the difference was not statistically significant. *State of residence not reported* was only 0.8% ( $n = 3,090$ ) and 0.1% ( $n = 367$ ) were from *Other Territories*. The *Other Territories* consist of the Cocos and Keeling Islands, Christmas Island and Jervis Bay.

**Table 2.1.3: Age-standardised rates of community injury, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	1,761	1,751–1,771
Vic	1,766	1,754–1,777
Qld	1,902	1,889–1,916
WA	1,558	1,541–1,575
SA	1,700	1,680–1,720
Tas	1,685	1,649–1,721
ACT	1,599	1,555–1,643
NT	2,852	2,778–2,925
<b>Australia</b>	<b>1,790</b>	<b>1,784–1,796</b>

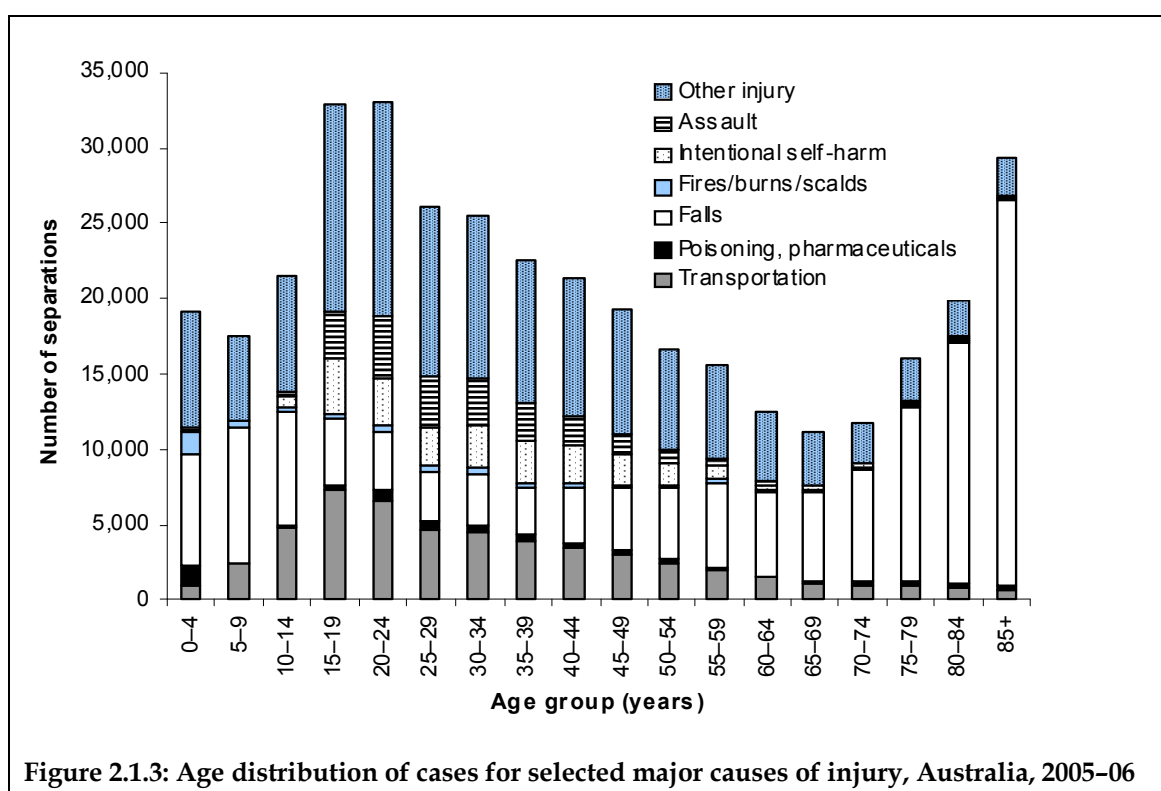


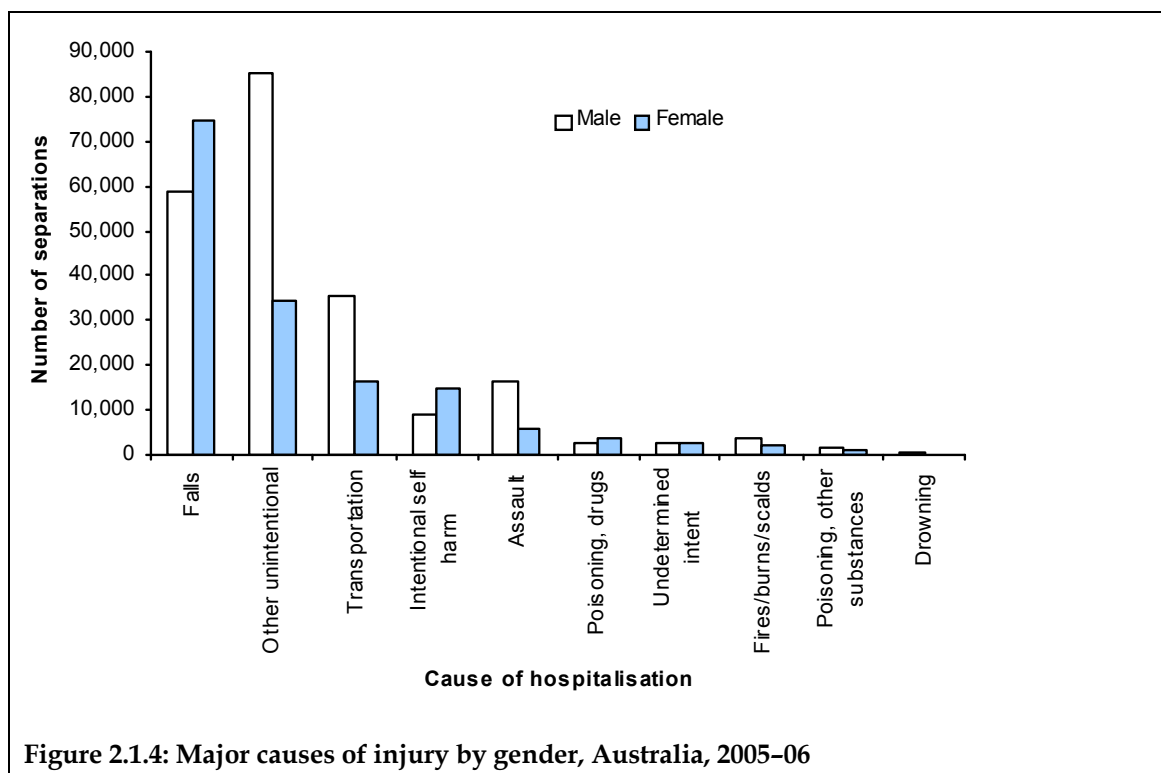
**Figure 2.1.2: Age-standardised rates of community injury, states and territories, 2005–06**



## Major types of injury

Falls constituted the largest proportion of injury hospitalisations, and accounted for 87% of hospitalisations in those aged 85+ years (Figure 2.1.3). Transport was reported for 14% of injury hospitalisation cases in early and was a substantial contributor up to and including 25–29 years, thereafter gradually declining to 2% of injury hospitalisations in the 85+ age group. Intentional self-harm was a lesser cause of injury, constituting an average of 11% of injury hospitalisation in each age group from 15–19 years up to and including 50–54 years. Assault accounted for an average of 11% of injury hospitalisations in each age group from 15–19 years up to and including 40–44 years. Poisoning by pharmaceuticals and fires, burns and scalds were most prevalent in children aged 0–4 years, comprising 7% and 8%, respectively of injury hospitalisations in 0–4 year olds.





The gender distribution differed according to external cause (Figure 2.1.4). The only external causes of injury where there were more females than males were falls and intentional self-harm.

The *Community injury* category with the largest number of cases in total after falls was other unintentional injuries. This was a heterogeneous category; it contained a large proportion of work- and sports-related injuries, but not all of them. Consistent with the previous report in this series (Bradley & Harrison 2008), other unintentional injuries is retained as the subject of one chapter instead of attempting to separate it into its component injury groups, which creates more problems than it solves.

## Principal diagnosis and body part injured

Body part injured is classified here and in similar tables elsewhere in this report according to Principal Diagnosis. If a patient is admitted due to injury and has injuries to more than one body part, then the most serious injury is normally coded as Principal Diagnosis and others as Additional Diagnoses. The head was the most commonly injured body region overall and in particular, for males (Table 2.1.4).

**Table 2.1.4: Principal diagnosis groups for community injury cases: males, females and persons, Australia 2005–06**

	<b>Males</b>	<b>Females</b>	<b>Persons<sup>†</sup></b>
Injuries to the head	45,037 (20.8%)	23,206 (15.0%)	68,244 (18.4%)
Injuries to the neck	4,453 (2.1%)	3,227 (2.1%)	7,681 (2.1%)
Injuries to the thorax	8,903 (4.1%)	6,162 (4.0%)	15,066 (4.1%)
Injuries to the abdomen, lower back, lumbar spine & pelvis	10,310 (4.8%)	11,085 (7.1%)	21,395 (5.8%)
Injuries to the shoulder & upper arm	13,937 (6.4%)	10,637 (6.9%)	24,574 (6.6%)
Injuries to the elbow & forearm	21,781 (10.1%)	18,426 (11.9%)	40,207 (10.8%)
Injuries to the wrist & hand	38,309 (17.7%)	11,506 (7.4%)	49,815 (13.4%)
Injuries to the hip & thigh	11,353 (5.3%)	19,288 (12.4%)	30,642 (8.3%)
Injuries to the knee & lower leg	26,156 (12.1%)	18,026 (11.6%)	44,182 (11.9%)
Injuries to the ankle & foot	8,220 (3.8%)	5,166 (3.3%)	13,386 (3.6%)
Injuries involving multiple body regions	175 (0.1%)	128 (0.1%)	303 (0.1%)
Injuries to unspecified parts of trunk, limb or body region	1,259 (0.6%)	1,020 (0.7%)	2,279 (0.6%)
Effects of foreign body entering through natural orifice	4,206 (1.9%)	2,708 (1.7%)	6,914 (1.9%)
Burns	4,403 (2.0%)	2,216 (1.4%)	6,619 (1.8%)
Frostbite	5 (0.0%)	*	6 (0.0%)
Poisoning by drugs, medicaments & biological substances	10,661 (4.9%)	17,949 (11.6%)	28,612 (7.7%)
Toxic effects of non-medical substances	4,230 (2.0%)	2,750 (1.8%)	6,980 (1.9%)
Other and unspecified effects of external causes	1,965 (0.9%)	1,266 (0.8%)	3,231 (0.9%)
Certain early complications of trauma	795 (0.4%)	366 (0.2%)	1,161 (0.3%)
<b>Total</b>	<b>216,158 (100.0%)</b>	<b>155,133 (100.0%)</b>	<b>371,297 (100.0%)</b>

† Persons includes 6 cases for which sex was not reported.

\* Small cell counts have been suppressed.

**Table 2.1.5: Principal diagnosis groups for community injury cases by age, Australia 2005–06**

	0–4	5–14	15–24	25–44	45–64	65+	All ages
Injuries to the head	7,031	7,487	14,750	17,056	8,395	13,525	68,244
Injuries to the neck	110	593	1,888	2,576	1,357	1,157	7,681
Injuries to the thorax	68	262	1,585	3,450	3,732	5,969	15,066
Injuries to the abdomen, lower back, lumbar spine & pelvis	282	1,323	3,064	4,630	3,352	8,744	21,395
Injuries to the shoulder & upper arm	1,065	3,061	3,365	4,890	4,690	7,503	24,574
Injuries to the elbow & forearm	1,615	12,462	5,201	6,944	6,395	7,590	40,207
Injuries to the wrist & hand	1,732	4,147	12,850	17,907	9,607	3,572	49,815
Injuries to the hip & thigh	476	910	1,204	1,986	2,921	23,145	30,642
Injuries to the knee & lower leg	552	3,523	8,066	13,262	9,838	8,941	44,182
Injuries to the ankle & foot	633	1,695	2,615	3,984	2,831	1,628	13,386
Injuries involving multiple body regions	5	17	62	93	40	86	303
Injuries to unspecified parts of trunk, limb or body region	55	159	389	615	394	667	2,279
Effects of foreign body entering through natural orifice	1,529	981	501	1,208	1,431	1,264	6,914
Burns	1,539	758	1,113	1,687	1,011	511	6,619
Frostbite	0	0	*	4	0	*	6
Poisoning by drugs, medicaments & biological substances	1,358	770	7,190	11,600	5,653	2,041	28,612
Toxic effects of non-medical substances	605	591	1,250	2,332	1,541	661	6,980
Other & unspecified effects of external causes	362	157	499	890	609	714	3,231
Certain early complications of trauma	34	68	190	347	236	286	1,161
<b>Total</b>	<b>19,051</b>	<b>38,964</b>	<b>65,783</b>	<b>95,461</b>	<b>64,033</b>	<b>88,005</b>	<b>371,297</b>

Note: Shading denotes highest category for each age group.

\* Small cell counts have been suppressed.

## Length of stay

Patient days is the number of full and partial days a patient was in hospital if they separated from hospital during the reporting period, and is summed for all patients to give an aggregate of the length of stay (LOS). Re-admissions, transfers and newly admitted cases are included in the calculation of LOS, but only estimated cases are included in the estimation of case counts (as a best available approximation of newly admitted cases). One patient day is counted for same day patients (admitted and discharged from hospital on the same day). LOS provides an approximate indication of case severity, that is, severe injuries are more likely to result in longer episodes of care than minor injuries. The mean length of stay (MLOS) is the average number of days each patient stays in hospital. This is calculated by dividing the total number of patient days for a reporting period (including inward transfers) by the estimated number of actual cases for the same period. Table 2.1.6 presents an aggregate estimate of LOS and MLOS.

**Table 2.1.6: Length of stay for all community injury: case counts, length of stay, percentage of total patient days for acute care of injury and mean length of stay, Australia, 2005–06**

External cause	Males				Females				Persons			
	Count	LOS	Per cent	MLOS	Count	LOS	Per cent	MLOS	Count	LOS	Per cent	MLOS
<b>Unintentional</b>												
Falls	58,323	289,178	39.7	5.0	74,242	517,163	67.2	7.0	132,566 <sup>(a)</sup>	806,342 <sup>(e)</sup>	53.8	6.1
Transportation	35,779	162,857	22.3	4.6	16,472	71,917	9.3	4.4	52,254 <sup>(b)</sup>	234,785 <sup>(f)</sup>	15.7	4.5
Poisoning, pharmaceuticals	2,917	6,636	0.9	2.3	3,441	7,672	1.0	2.2	6,358	14,308	1.0	2.3
Poisoning, other substances	1,421	2,854	0.4	2.0	977	1,600	0.2	1.6	2,398	4,454	0.3	1.9
Fires, burns, scalds	3,542	20,402	2.8	5.8	1,915	10,498	1.4	5.5	5,457	30,900	2.1	5.7
Drowning	334	1,044	0.1	3.1	160	398	0.1	2.5	494	1,442	0.1	2.9
Other unintentional injuries	84,973	165,053	22.6	1.9	34,514	96,276	12.5	2.8	119,487	261,329	17.4	2.2
<b>Intentional</b>												
Intentional self-harm	9,104	31,870	4.4	3.5	14,672	40,746	5.3	2.8	23,778 <sup>(c)</sup>	72,618 <sup>(g)</sup>	4.8	3.1
Assault	16,572	38,441	5.3	2.3	5,508	12,854	1.7	2.3	22,080	51,295	3.4	2.3
Undetermined intent	2,085	4,553	0.6	2.2	2,345	4,835	0.6	2.1	4,430	9,388	0.6	2.1
Other/missing	1,108	5,965	0.8	5.4	887	6,036	0.8	6.8	1,995	12,001	0.8	6.0
<b>Total</b>	<b>216,158</b>	<b>728,853</b>	<b>100.0</b>	<b>3.4</b>	<b>155,133</b>	<b>769,995</b>	<b>100.0</b>	<b>5.0</b>	<b>371,297<sup>(d)</sup></b>	<b>1,498,862<sup>(h)</sup></b>	<b>100.0</b>	<b>4.0</b>

Includes (a) 1, (b) 3, (c) 2 and (d) 6 separations, and (e) 1, (f) 11, (g) 2 and (h) 14 patient days where sex was not reported.

Note: Shaded areas indicate three highest figures for each column.

The MLOS in 2005–06 for community injury was 4.0 days (1,498,862 patient days for 371,297 estimated cases). Discharge occurred on the same day of admission for 36% ( $n = 134,858$ ) of these injury cases.

The mean length of stay for all community injury rose with age (Figure 2.1.5). The mean length of stay was 1.8 days for children aged 0–14 years, 2.3 days for young people aged 15–24 years, 2.7 days for adults aged 25–44 years, 3.7 days for adults aged 45–64 years and 8.6 days for older people aged 65+ years.

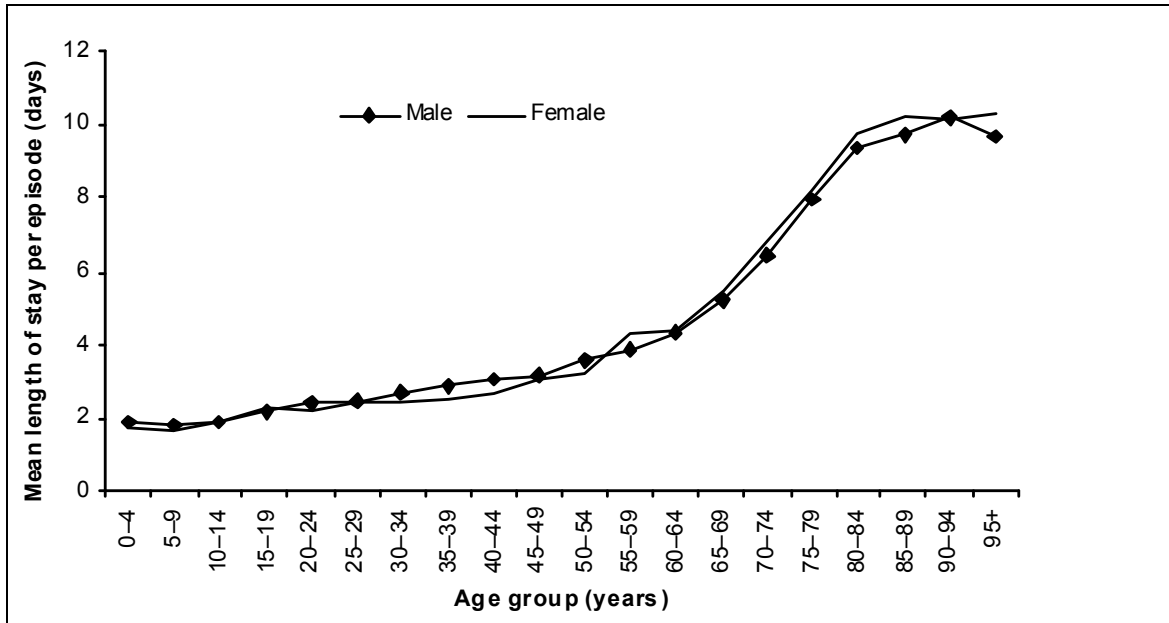


Figure 2.1.5: Length of stay per episode for all community injury by age and sex, Australia, 2005-06

### Time trends

Age-standardised rates for *Community injury* appear to change little over time from 1,724 per 100,000 of the population in 1999-00 (males: 2,069 per 100,000, females: 1,343 per 100,000) to 1,790 per 100,000 of the population in 2005-06 (males: 2,141 per 100,000, females: 1,405 per 100,000). Age-standardised rates for males were consistently higher than for females (Figure 2.1.6).

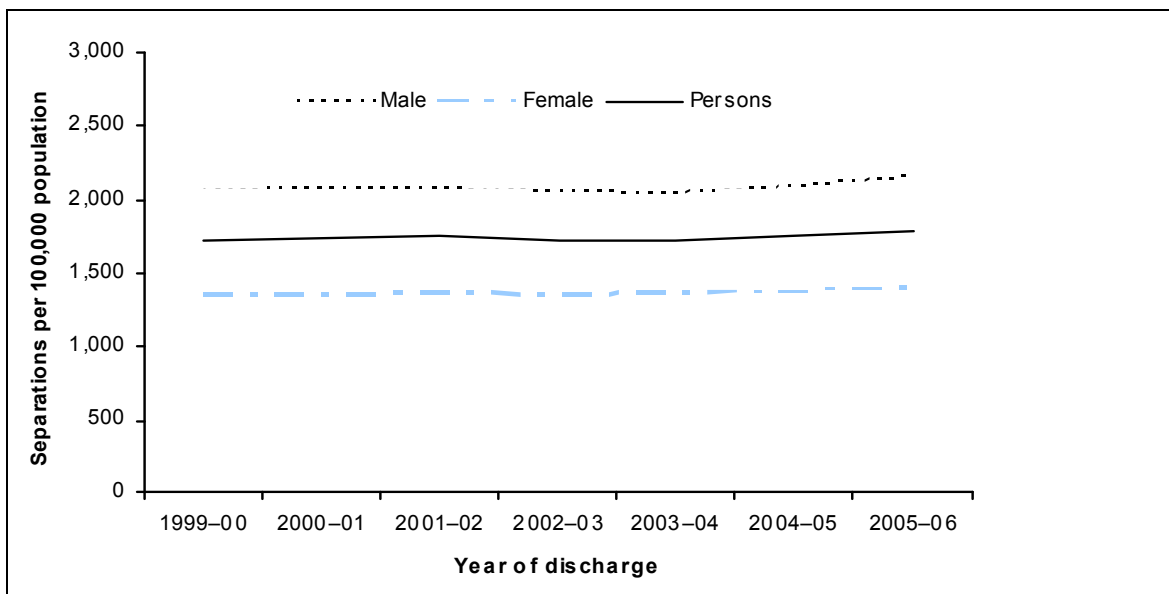


Figure 2.1.6: Age-standardised rates for Community injury, Australia, 1999-00 to 2005-06

## Activity and place

Overall, where the type of activity was specified, the highest proportions of cases occurred while playing sports (10.2%) or while working for income (6.3%). This pattern varied between males and females: 13.5% of males were injured while engaged in sports compared with 5.5% of females; and 9.4% of males were injured while working for income compared with only 2.1% of females. Females were more likely to be injured while resting, sleeping, eating or engaging in other vital activities (7.2%) compared with 3.3% of males (Table 2.1.7).

For a high proportion of cases (72.9%) the type of activity being undertaken at the time of injury was recorded as *Other specified activity* or *Unspecified activity*. For a small percentage of cases (0.6%) no activity had been recorded or the case was not eligible to receive an activity code (according to standard ICD-10-AM coding rules, activity codes are applicable within the range of external cause categories V01-Y34) (Table 2.1.7).

**Table 2.1.7: Activity when injury occurred for all Community injury, case counts, Australia, 2005–06**

Activity	Males	Percentage	Females	Percentage	Persons <sup>(a)</sup>	Percentage
While engaged in sports	29,190	13.5	8,609	5.5	37,800	10.2
While engaged in leisure	4,044	1.9	2,231	1.4	6,276	1.7
While working for income	20,269	9.4	3,295	2.1	23,564	6.3
While engaged in other types of work	7,480	3.5	5,123	3.3	12,603	3.4
While resting, sleeping, eating or engaging in other vital activities	7,223	3.3	11,208	7.2	18,431	5
Other specified activity	31,161	14.4	30,379	19.6	61,542	16.6
Unspecified activity	115,561	53.5	93,322	60.2	208,885	56.3
Activity not reported/not applicable	1,230	0.6	966	0.6	2,196	0.6
<b>Total</b>	<b>216,158</b>	<b>100.0</b>	<b>155,133</b>	<b>100.0</b>	<b>371,297</b>	<b>100</b>

(a) Includes 6 cases for which sex was not reported.

Note: Shading denotes the two most common activities in each column.

Overall, where place of injury was specified, the highest proportions of cases occurred at home (26.3%), on a street or highway (10.4%) or in a sports and athletics area (5.4%). This pattern for place of injury varied between males and females: a substantially higher percentage of females than males were injured at home (35.9% vs 19.4%); males were more likely than females to have been injured in a sports and athletics area (7.4% vs 2.6% (Table 9).

Place was recorded as *Other specified place of occurrence* or *Unspecified place of occurrence* for 44.1% of cases. For a small percentage of cases (0.1%) no place of occurrence had been recorded or the case was not eligible to receive a place code (according to standard ICD-10-AM coding rules, activity codes are applicable within the range of external cause categories V01-Y89) (Table 2.1.8).

**Table 2.1.8: Place of occurrence for all Community injury, case counts, Australia, 2005–06**

<b>Activity</b>	<b>Males</b>	<b>Percentage</b>	<b>Females</b>	<b>Percentage</b>	<b>Persons<sup>(a)</sup></b>	<b>Percentage</b>
Home	41,962	19.4	55,680	35.9	97,642	26.3
Residential institution	4,700	2.2	12,630	8.1	17,330	4.7
School	4,537	2.1	2,580	1.7	7,118	1.9
Health Service area	1,865	0.9	2,519	1.6	4,384	1.2
Other specified institution and public administrative area	465	0.2	568	0.4	1,033	0.3
Sports and athletics area	15,945	7.4	4,077	2.6	20,022	5.4
Street and highway	24,098	11.1	14,537	9.4	38,636	10.4
Trade and service area	6,877	3.2	4,177	2.7	11,054	3.0
Industrial and construction area	5,837	2.7	361	0.2	6,198	1.7
Farm	2,877	1.3	841	0.5	3,719	1.0
Other specified place of occurrence	9,672	4.5	4,414	2.8	14,087	3.8
Unspecified place of occurrence	97,082	44.9	52,564	33.9	149,648	40.3
Place not reported/not applicable	241	0.1	185	0.1	426	0.1
<b>Total</b>	<b>216,158</b>	<b>100.0</b>	<b>155,133</b>	<b>100.0</b>	<b>371,297</b>	<b>100.0</b>

(a) Includes 6 cases for which sex was not reported.

Note: Shading denotes the most common places of occurrence in each column.

The large number of injury cases lacking detail on the activity code limits meaningful interpretation of these counts. For this reason, activity data are not reported extensively in this report. Coding was more complete for place of occurrence, but over a third did not specify useful information on where the injury occurred. Variability may exist in the completeness of the coding of the activity being undertaken at the time of injury and the place of occurrence. For example, injuries that occur at work or while working for income may be better coded than other injuries. The activity and place of occurrence codes may have a different distribution for cases not given a code compared with injury cases that have a specified activity or place of occurrence.



# Part A: Unintentional injuries

## 2.2 Falls

ICD-10-AM case inclusion

Principal Diagnosis: **S00-T75, T79** and

First reported external cause: **W00-W19**

**Table 2.2.1: Key indicators for unintentional fall cases, Australia, 2005–06**

Indicator	Males	Females	Persons <sup>(a)</sup>
Separations from hospital due to falls	63,559	81,780	145,340
Percentage of all community injury separations	27.3	48.9	36.3
Estimated cases*	58,323	74,242	132,566
Crude rate/100,000 population	570.8	717.9	644.8
Age-standardised rate/100,000 population	597.9	622.9	624.4
Mean length of stay (days)	5.0	7.0	6.1
Total patient days	289,178	517,163	806,342

\* Omits inward transfers from acute hospitals.

(a) Includes 1 case for which sex was not stated.

This chapter covers hospitalised injury due to unintentional falls. Falls were responsible for 36% of all community injury hospitalisations in the financial year 2005–06 (Table 2.2.1).

This report does not employ the method previously described (Kreisfeld & Harrison 2005) to allow for the absence in ICD-10-AM of an equivalent to ICD-9 code E887 *Fracture, cause unspecified* in Australian deaths data. The effect of this coding change was large in Australian deaths data for reasons that do not apply to Australian hospitals data. We have previously shown a small effect of the change based on early ICD-10-AM hospital data [Figure 3.1; (Helps et al. 2002)]. Analysis of more recent data suggests that adjustment of hospital data for the lack of a code equivalent to E887 is unnecessary and may, in fact, introduce errors into time series.

There were similar numbers of females and male hospitalisations from fall injuries, based on age-standardised rates (M:F rate ratio of 1:1).

This chapter does not include falls due to intentional self-harm ( $n = 142$ ), assault ( $n = 22$ ) or falls of undetermined intent ( $n = 33$ ), falls inside or from trains or trams ( $n = 79$ ), non-collision pedal or motorcycle accidents which can include falls ( $n = 10,540$ ) falls from watercraft ( $n = 77$ ) fall in, on or from aircraft ( $n = 6$ ), parachutist accidents ( $n = 43$ ) falls from animals or animal-driven vehicles ( $n = 2,573$ ), exposure to uncontrolled fire in a building or structures which can include falls ( $n = 196$ ), or falls into water that resulted in drowning or other effects of immersion ( $n = 150$ ).

## Age and sex distribution

The age-specific rates for males and females were similar until the age of 65 years after which female rates were in excess (Figure 2.2.1). Rates for both sexes rose steeply from 70 years.

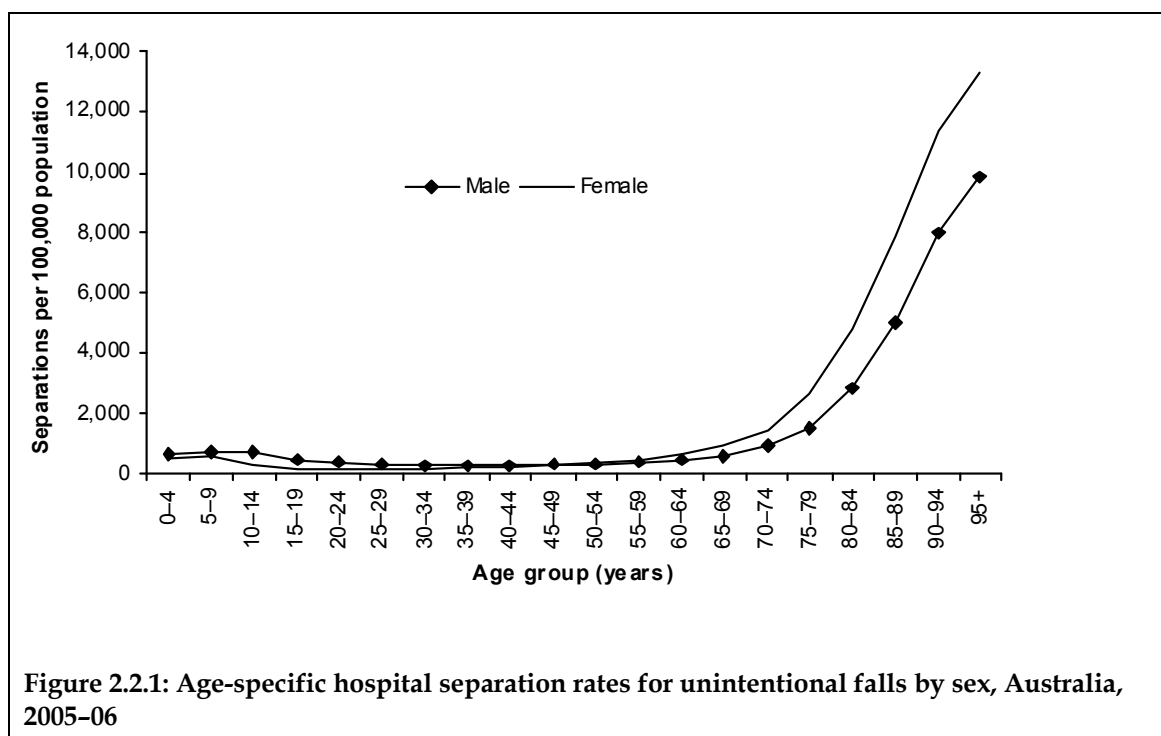


Figure 2.2.1: Age-specific hospital separation rates for unintentional falls by sex, Australia, 2005-06

Half of all fall injuries occurred in elderly adults aged 65+ years and 18% occurred in children aged 0-14 years (Table 2.2.2). Nearly 2.5 times as many elderly females aged 65+ years sustained a fall injury compared with elderly males aged 65+ years.

Table 2.2.2: Fall cases by age group, Australia, 2005-06

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-14 years	14,617	25.1	9,334	12.6	23,952	18.1
15-24 years	6,172	10.6	1,985	2.7	8,157	6.2
25-44 years	8,581	14.7	4,992	6.7	13,573	10.2
45-64 years	9,468	16.2	10,632	14.3	20,100	15.2
65+ years	19,485	33.4	47,299	63.7	66,784	50.4
<b>Total</b>	<b>58,323</b>	<b>100.0</b>	<b>74,242</b>	<b>100.0</b>	<b>132,566<sup>(a)</sup></b>	<b>100.0</b>

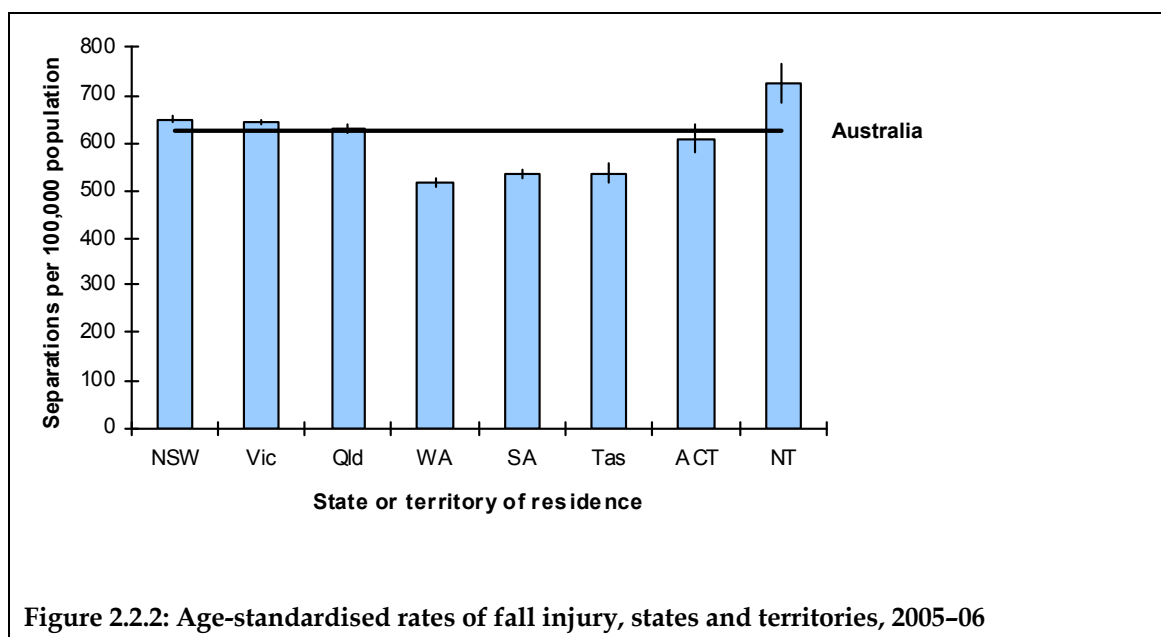
(a) Includes 1 case for which sex was not stated.

## State and territory differences

Rates of fall injury for New South Wales, Victoria and the Northern Territory were significantly above the national rate, and those for Western Australia, South Australia and Tasmania significantly below it (Table 2.2.3 and Figure 2.2.2). The rates for Queensland and the Australian Capital Territory were similar to the Australian rate.

**Table 2.2.3: Age-standardised rates of fall injury, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	650	644–656
Vic	644	637–651
Qld	629	622–637
WA	515	505–525
SA	535	524–545
Tas	537	517–557
ACT	608	580–637
NT	726	684–768
<b>Australia</b>	<b>624</b>	<b>621–628</b>



**Figure 2.2.2: Age-standardised rates of fall injury, states and territories, 2005–06**

## Principal diagnosis and body part injured

Close to two-thirds of admitted injury cases due to falls involved injuries to the shoulder and upper limb or hip and lower limb (Table 2.2.4).

**Table 2.2.4: Principal Diagnosis by body region for fall injury, Australia, 2005–06**

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	13,846	23.7	12,316	16.6	26,163	19.7
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	8,251	14.1	10,596	14.3	18,847	14.2
Shoulder and upper limb	19,368	33.2	22,829	30.7	42,197	31.8
Hip and lower limb	16,382	28.1	27,910	37.6	44,292	33.4
Other injuries not specified by body region	476	0.8	591	0.8	1,067	0.8
<b>All body regions</b>	<b>58,323</b>	<b>100.0</b>	<b>74,242</b>	<b>100.0</b>	<b>132,566<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 1 case for which sex was not stated.

Seven specific injury types accounted for close to two-thirds ( $n = 85,221$ ) of all fall injuries ( $n = 832,566$ ) (Table 2.2.5). Fracture of the limbs accounted for close to two-thirds of all fall injuries (65%;  $n = 86,489$ ).

*Fracture of forearm* was the most common injury (26%) and the lower end of the radius was most frequently broken (61%;  $n = 13,734$ ).

For the second most common fall injury – *fracture of femur* (15%), 88% were neck of femur fractures (neck of femur  $n = 9,180$ ; pertrochanteric fracture  $n = 7,282$ ; subtrochanteric  $n = 811$ ). There were 2.4 times as many females as males with a broken femur.

No specific site of injury was commonly involved for *fracture of lower leg, including ankle*.

The upper ( $n = 4,919$ ) and lower end ( $n = 3,317$ ) of the humerus were most frequently broken (88%) for *fracture of shoulder and upper arm*.

An open wound of the scalp was most common for *open wound of head* (35%;  $n = 3,429$ ).

For *fracture of lumbar spine and pelvis*, 52% were fracture of pubis ( $n = 3,258$ ) and 25% ( $n = 1,578$ ) were fracture of lumbar vertebra.

For *intracranial injury*, 58% were concussive injury ( $n = 3,565$ ) the majority of which were loss of consciousness for less than 30 minutes ( $n = 1,775$ ) or concussion ( $n = 1,201$ ). Twenty-two per cent of *intracranial injury* cases were traumatic subdural haemorrhage ( $n = 1,362$ ).

**Table 2.2.5: Top 7 specific injuries for unintentional falls, Australia, 2005–06**

Principal Diagnosis	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Fracture of forearm	9,995	28.8	12,543	24.8	22,538	26.4
Fracture of femur	5,771	16.6	13,769	27.3	19,540	22.9
Fracture of lower leg, including ankle	4,996	14.4	6,724	13.3	11,720	13.8
Open wound of head	5,040	14.5	4,643	9.2	9,683	11.4
Fracture of shoulder and upper arm	3,420	9.9	5,911	11.7	9,331	10.9
Fracture of lumbar spine and pelvis	1,847	5.3	4,378	8.7	6,225	7.3
Intracranial injury	3,625	10.4	2,559	5.1	6,184	7.3
<b>Sub-total of top 7 diagnoses</b>	<b>34,694</b>	<b>100.0</b>	<b>50,527</b>	<b>100.0</b>	<b>85,221</b>	<b>100.0</b>

Among children aged 0–14 years of age injured by a fall ( $n = 23,952$ ), *fracture of forearm* ( $n = 10,019$ ) was the most common injury, followed by *fracture of shoulder and upper arm* ( $n = 2,816$ ) and *open wound of head* ( $n = 2,357$ ).

Among youth and young people aged 15–24 years injured by a fall ( $n = 8,157$ ), *fracture of forearm* ( $n = 1,396$ ) was the most common injury, followed by *fracture of lower leg, including ankle* ( $n = 1,173$ ) and *intracranial injury* ( $n = 652$ ).

For adults aged 25–44 years of age ( $n = 13,573$ ), *fracture of lower leg, including ankle* ( $n = 2,315$ ), *fracture of forearm* ( $n = 2,013$ ) and *open wound of head* ( $n = 880$ ) were the most common fall injuries.

Among adults aged 45–64 years ( $n = 20,100$ ), the most common fall injuries were *fracture of forearm* ( $n = 3,614$ ), *fracture of lower leg, including ankle* ( $n = 3,569$ ), *fracture of shoulder and upper arm* ( $n = 1,317$ ), and *fracture of femur* ( $n = 1,262$ ).

For older people aged 65+ years ( $n = 66,784$ ), *fracture of femur* ( $n = 17,457$ ) was the most common injury, followed by *fracture of forearm* ( $n = 5,496$ ), *fracture of lumbar spine and pelvis* ( $n = 5,207$ ), *open wound of head* ( $n = 4,945$ ), *fracture of shoulder and upper arm* ( $n = 4,430$ ) and *fracture of lower leg, including ankle* ( $n = 3,483$ ).

## Mechanism

The most commonly identified mechanism for all persons was *fall on the same level from slipping, tripping and stumbling* (27% of all fall injuries;  $n = 35,590$ ) for which females outnumbered males 1.8:1 (Table 2.2.6). Most *falls on the same level from slipping, tripping and stumbling* involved older people aged 65+ years (17% of all fall injuries;  $n = 22,801$ , males  $n = 5,873$ ; females  $n = 16,928$ ), of which 13,940 cases were *fall on the same level from tripping* (males  $n = 3,463$ ; females  $n = 10,477$ ); 6,126 cases (males  $n = 1,548$ ; females  $n = 4,578$ ) were *fall on the same level from slipping* and 2,735 cases were *fall on the same level from stumbling* (males  $n = 862$ ; females  $n = 1,873$ ).

A *fall involving playground equipment* accounted for only 4% of fall injuries ( $n = 5,721$ ), yet it was the most common mechanism of injury for children aged 0–14 years ( $n = 5,523$ ), with 59% of child fall injuries being from playground climbing equipment e.g. the monkey bar or jungle gym (males  $n = 873$ ; females  $n = 1,033$ ) and trampolines (males  $n = 720$ ; females  $n = 654$ ).

Seven per cent of fall injuries ( $n = 9,179$ ) were a *fall on and from stairs and steps* and 45% of such cases occurred in older people aged 65+ years (males  $n = 1,252$ ; females  $n = 2,851$ ).

Three per cent of fall injuries were from *other fall on the same level due to collision with, or pushing, by another person* ( $n = 3,599$ ) and males outnumbered females by nearly 5:1. Although a large number of injury cases lack detail on the activity code, only 15% ( $n = 539$ ) of falls due to collision with or pushing by another person were unspecified or not reported, so the activity code is meaningful in this context. Most cases occurred while engaged in sports (males  $n = 2,507$ ; females  $n = 186$ ).

Two per cent of fall injuries were falls *involving ice-skates, skis, roller-skates or skateboards* ( $n = 2,927$ ) and males outnumbered females 3:1. Most (66%) were falls from a skateboard (male  $n = 1,611$ ; female  $n = 329$ ).

Males outnumbered females 4:1 for fall injuries due to *fall on and from ladder*, 22:1 for *fall on and from scaffolding*, 4:1 for *fall from, out of or through building or structure*, 4:1 for *fall from tree*, 2:1 for *fall from cliff* and 4:1 for *diving and jumping into water*.

**Table 2.2.6: External causes of unintentional fall injury by sex, Australia, 2005–06**

ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
W00	Fall on same level involving ice and snow	34	0.1	40	0.1	74	0.1
W01	Fall on same level from slipping, tripping and stumbling	11,565	19.8	24,024	32.4	35,590	26.8
W01.0	Fall on same level from slipping	3,690	6.3	7,562	10.2	11,252	8.5
W01.1	Fall on same level from tripping	6,362	10.9	14,086	19.0	20,449	15.4
W01.2	Fall on same level from stumbling	1,513	2.6	2,376	3.2	3,889	2.9
W02	Fall involving ice-skates, skis, roller-skates or skateboards	2,195	3.8	732	1.0	2,927	2.2
W02.0	Fall involving roller skates	160	0.3	171	0.2	331	0.2
W02.1	Fall involving skateboard	1,611	2.8	329	0.4	1,940	1.5
W02.2	Fall involving water ski	78	0.1	19	0.0	97	0.1
W02.3	Fall involving snow ski	135	0.2	95	0.1	230	0.2
W02.4	Fall involving snow board	131	0.2	31	0.0	162	0.1
W02.5	Fall involving ice skates	80	0.1	87	0.1	167	0.1
W03	Other fall on same level due to collision with, or pushing by, another person	2,976	5.1	623	0.8	3,599	2.7
W04	Fall while being carried or supported by other persons	264	0.5	240	0.3	504	0.4
W05	Fall involving wheelchair	324	0.6	392	0.5	716	0.5
W06	Fall involving bed	1,627	2.8	2,838	3.8	4,465	3.4
W07	Fall involving chair	1,524	2.6	2,222	3.0	3,746	2.8
W08	Fall involving other furniture	486	0.8	447	0.6	933	0.7
W09	Fall involving playground equipment	3,025	5.2	2,696	3.6	5,721	4.3
W09.0	Fall involving tree house	65	0.1	29	0.0	94	0.1
W09.1	Fall involving flying fox	183	0.3	183	0.2	366	0.3
W09.2	Fall involving playground climbing apparatus	876	1.5	1,038	1.4	1,914	1.4
W09.3	Fall involving slide	342	0.6	202	0.3	544	0.4
W09.4	Fall involving swing	296	0.5	243	0.3	539	0.4
W09.5	Fall involving seesaw	20	0.0	25	0.0	45	0.0
W09.6	Fall involving trampoline	779	1.3	681	0.9	1,460	1.1
W09.8	Fall involving other specified playground equipment	208	0.4	118	0.2	326	0.2
W09.9	Fall involving unspecified playground equipment	256	0.4	177	0.2	433	0.3
W10	Fall on and from stairs and steps	3,549	6.1	5,630	7.6	9,179	6.9
W11	Fall on and from ladder	3,165	5.4	744	1.0	3,909	2.9
W12	Fall on and from scaffolding	291	0.5	13	0.0	304	0.2
W13	Fall from, out of or through building or structure	2,777	4.8	643	0.9	3,420	2.6
W14	Fall from tree	925	1.6	249	0.3	1,174	0.9
W15	Fall from cliff	229	0.4	102	0.1	331	0.2
W16	Diving or jumping into water causing injury other than drowning or submersion	386	0.7	105	0.1	491	0.4
W17	Other fall from one level to another	3,360	5.8	1,910	2.6	5,270	4.0
W18	Other fall on same level	9,132	15.7	13,118	17.7	22,250	16.8
W19	Unspecified fall	10,489	18.0	17,474	23.5	27,963	21.1
<b>Total</b>		<b>58,323</b>	<b>100.0</b>	<b>74,242</b>	<b>100.0</b>	<b>132,566<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 1 case for which sex was not stated.

Figure 2.2.3 depicts male and female age-specific rates for fall injuries for selected categories of external cause. The vertical axis in both figures has been cut off at 600 for clarity.

Falls involving playground equipment were the most common cause of injury for children under 10 years of age, particularly in the 5–9 year age group (age-specific rate of 250 per 100,000 for males and 260 per 100,000 for females).

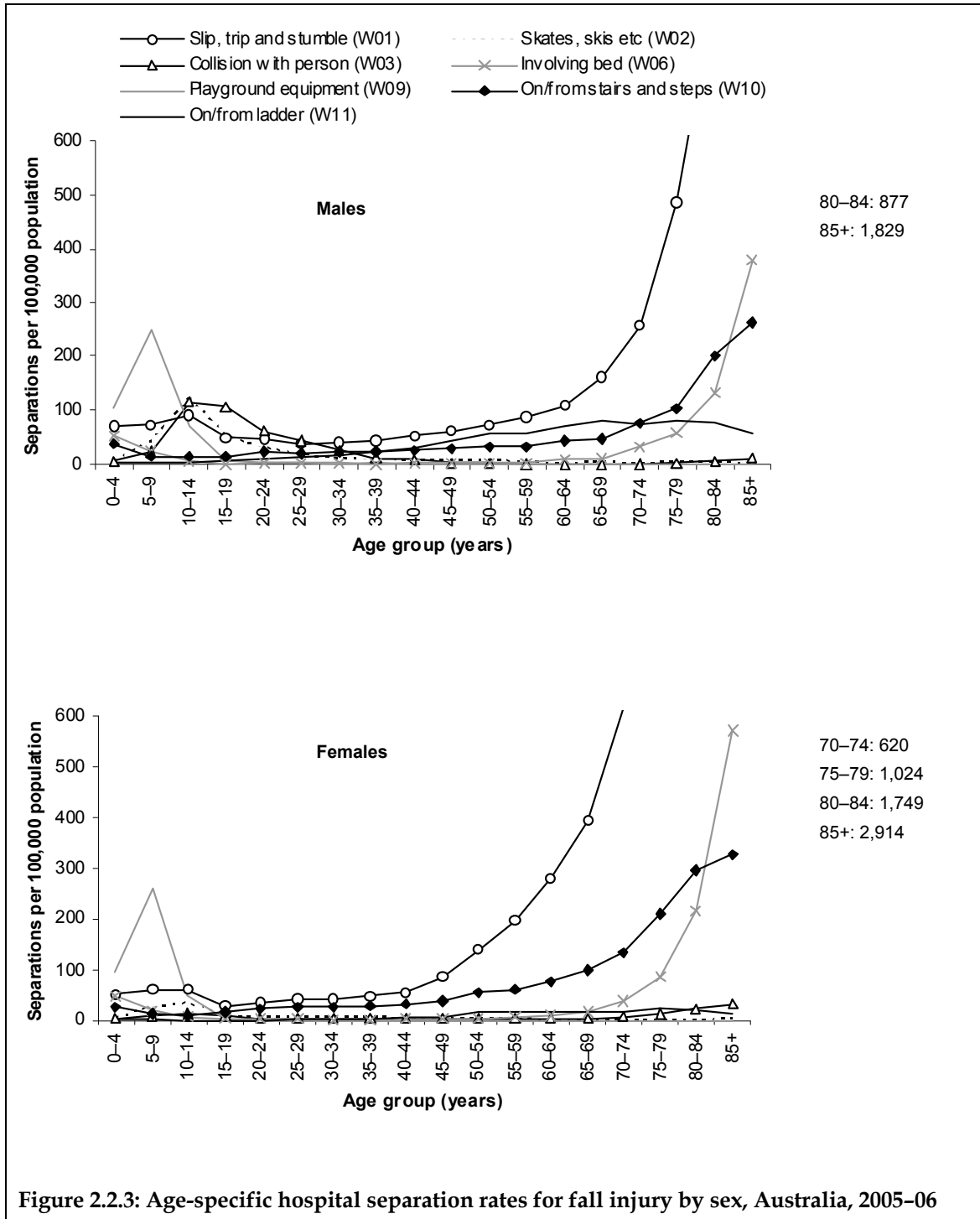
The most frequent cause of injury for male children aged 10–14 years was falls involving ice-skates, skis, roller-skates or skateboards (age-specific rate of 120 per 100,000) followed by falls on the same level due to collision with, or pushing by, another person (age-specific rate of 115 per 100,000). Cases in the former category were most frequently falls involving a skateboard – 101 males per 100,000). For female children aged 10–14 years, the most frequent cause of injury was falls from slipping, tripping and stumbling (age-specific rate of 60 per 100,000).

Young men (15–24 years) and adult males (25–29 years) were most likely to injure themselves from a collision with another person, with rates reaching a peak in the 15–19 year age group (106 per 100,000). Among males aged 30–34 years, slipping, tripping and stumbling was the most common cause of falls (42 per 100,000), and emerged as the predominant cause of injury in older age groups, incrementally increasing up to 1,829 per 100,000 in males aged 85+ years. The most common cause of injury in females aged 15–19 years was slipping, tripping and stumbling (27 per 100,000) and this became the predominant cause of injury in older ages, incrementally increasing up to 2,914 per 100,000 in the 85+ age group.

Falls from a bed increased sharply in prevalence from 65+ years and reached a peak in the 85+ age group with age-specific rates of 379 per 100,000 for males and 571 per 100,000 for females. A not dissimilar pattern was observed for falls from stairs and falls involving a chair. In the former category, rates rose sharply for males from 70+ years and for females from 65+ years. Rates peaked for both sexes in the 85+ age group with 262 per 100,000 for males and 327 per 100,000 for females. In the latter category – falls involving a chair – male rates rose sharply from 70+ years and females rates showed a dramatic rise from 75+ years. Rates for both sexes peaked in the 85+ age group with 211 per 100,000 for males and 279 per 100,000 for females.

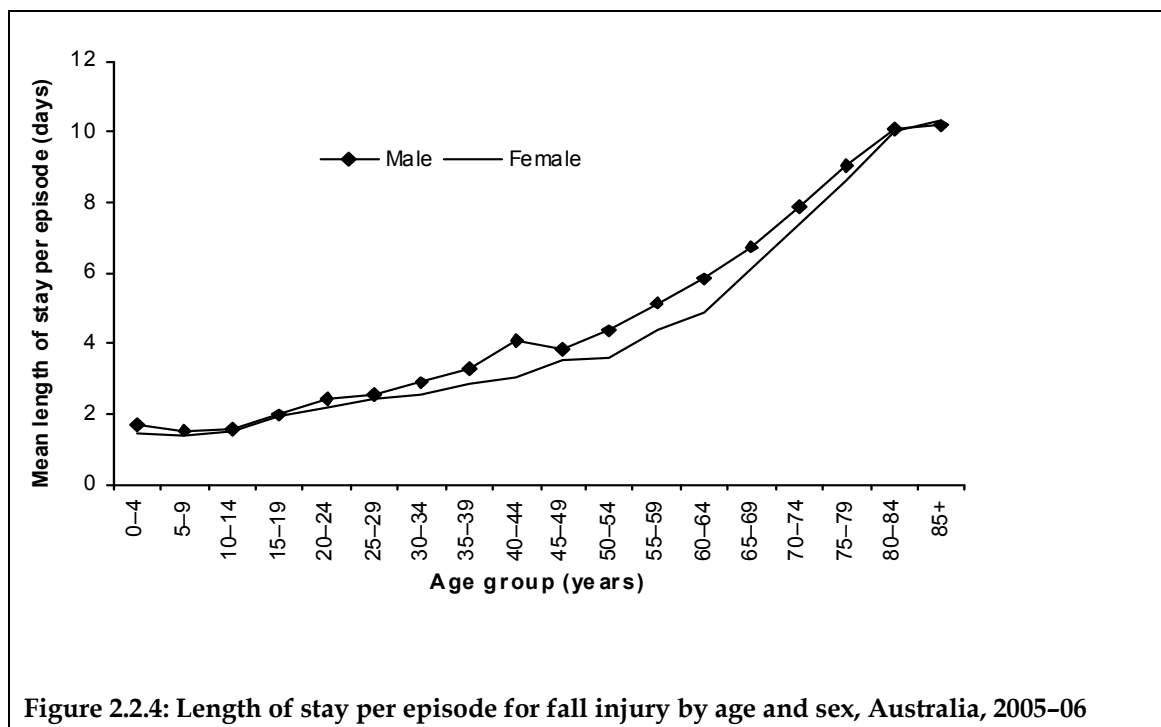
Injuries involving a fall from a ladder were more common in males than females and occurred mostly from middle age onwards, particularly in males aged 60–84 years of age (with peaks of 80 per 100,000 in males aged 65–69 years and 79 per 100,000 in males aged 75–79 years).





## Length of stay

Mean length of stay (all ages) was longer for unintentional falls than for any of the other types of *Community injury* that are the topics of chapters in this report. This reflects the long mean length of stay for falls cases at older ages (Figure 2.2.4) which are numerous (Table 2.2.7). The mean length of stay for fall injury hospital cases rose with age (Figure 2.2.4). The mean length of stay was 1.5 days for children aged 0–14 years, 2.2 days for young people aged 15–24 years, 3.0 days for adults aged 25–44 years, 4.5 days for adults aged 45–64 years and 9.3 days for older people aged 65+ years.



## Time trends

Age-standardised rates of hospitalised fall injury increased only slightly over recent years; rates for Australia were 602 per 100,000 of the population in 1999–00 and 624 per 100,000 in 2005–06 (Figure 2.2.5). Age-standardised rates were similar each year for males and females.



Figure 2.2.5: Age-standardised rates for fall injury, Australia, 1999-00 to 2005-06

For older people aged 65+ years, age-standardised rates of fall injury increased in recent years; from 2,218 per 100,000 population in 1999-00 to 2,420 per 100,000 in 2005-06 (Figure 2.2.6). Age-standardised rates for females aged 65+ years were higher than for males aged 65+ years; female rates increased from 2,661 per 100,000 in 1999-00 to 2,866 per 100,000, and male rates increased from 1,532 per 100,000 to 1,768 per 100,000.

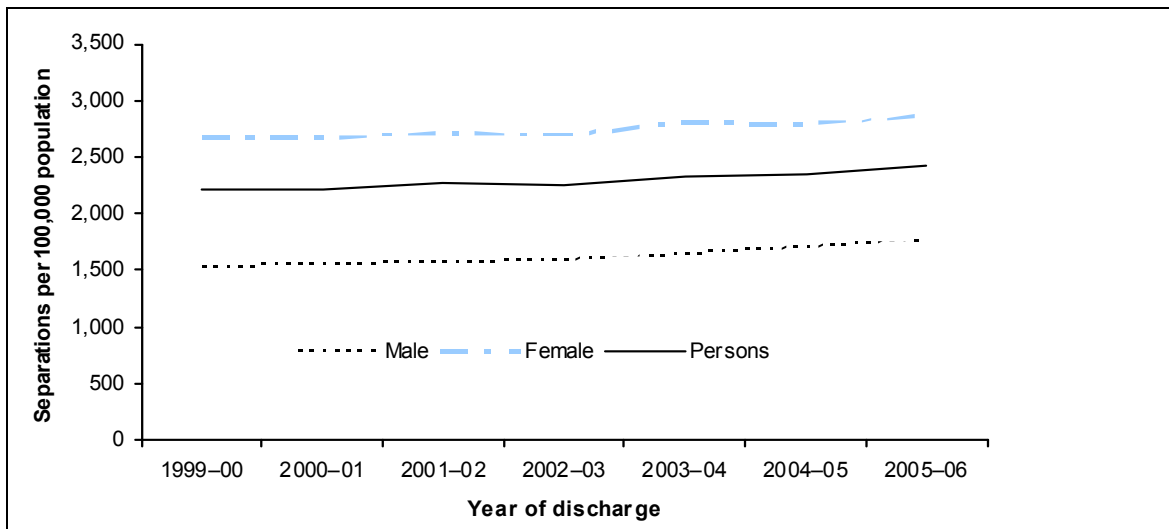


Figure 2.2.6: Age-standardised rates for fall injury in older people aged 65+ years, Australia, 1999-00 to 2005-06

## Place of occurrence

Falls resulting in hospitalisation due to unintentional falls injury occurred in diverse locations. Many were unspecified (29%;  $n = 37,847$ ) or not reported ( $n = 27$ ). The following observations are restricted to those cases in which the place of occurrence was specified (Table 2.2.7).

Children aged 0–14 years were most likely to sustain fall injuries in the home (males: 41%, females: 47%), followed by at school (males: 29%, females: 30%), and in sports and athletic areas (males: 17%, females: 10%).

Young men (15–24 years) sustained fall injuries most often in sports and athletic areas (49%), followed by home (14%), whereas the location for females of the same age was most commonly at home (36%), followed by sports and athletic areas (25%) and trade and service areas [14% – 61% ( $n = 200$ ) of which sustained fall injuries in cafés, hotels and restaurants].

Males aged 25–44 years were most commonly injured in the home (35%), followed by sports and athletic areas (23%) and trade and service areas (10%). Over half of females aged 25–44 years were injured in the home (54%), followed by sports and athletic areas (12%) and trade and service areas [11% – close to half ( $n = 141$ ) were injured in cafés, hotel and restaurants].

Males and females aged 45–64 years were most commonly injured in the home (58% and 63%, respectively). For males, this was followed by a trade and service area (9%) and a street or highway (8%). For females, the most common places of occurrence after the home (63%) were a street or highway (9%) and a trade and service area (8%). About 63% of fall injuries on a street or highway for persons aged 45–64 years occurred on the sidewalk (males  $n = 249$ , females  $n = 410$ ). A considerable proportion of fall injuries that occurred in a trade and service area for people aged 45–64 years were in cafés, hotel and restaurants (males  $n = 238$ , females  $n = 177$ ) or in a shop or store (males  $n = 111$ , females  $n = 280$ ).

Older males and females aged 65+ were most commonly injured in the home (61% and 58%, respectively) followed by residential institutions (22% and 29% respectively). Most fall injuries in the residential institutions were in aged care facilities for those aged 65+ years (males  $n = 3,402$ , females  $n = 11,169$ ).

Falls in aged care facilities accounted for 30% ( $n = 13,785$ ) of hospitalised fall injuries at ages 75 and older in which place of occurrence was specified ( $n = 45,770$ ) and 57% occurred at home ( $n = 26,017$ ). Falls in aged care facilities accounted for 40% ( $n = 9,091$ ) of hospitalised fall injuries at ages 85 and older in which place of occurrence was specified ( $n = 22,823$ ) and 51% occurred in the home ( $n = 11,618$ ).

Table 2.2.7: Place of occurrence of fall injury cases by age and sex, Australia, 2005-06

Place	0-14 yrs	Per cent	15-24 yrs	Per cent	25-44 yrs	Per cent	45-64 yrs	Per cent	65+ yrs	Per cent	Total	Per cent
<b>Male</b>												
Home	3,602	41.0	510	14.3	1,672	35.4	3,259	58.2	9,588	60.8	18,631	48.5
Residential institution	9	0.1	23	0.6	88	1.9	174	3.1	3,473	22.0	3,767	9.8
School	2,518	28.6	228	6.4	18	0.4	23	0.4	9	0.1	2,796	7.3
Health Service area	21	0.2	6	0.2	39	0.8	41	0.7	379	2.4	486	1.3
Other specified institution	52	0.6	13	0.4	24	0.5	31	0.6	88	0.6	208	0.5
Sports and athletics area	1,529	17.4	1,754	49.2	1,061	22.5	239	4.3	126	0.8	4,709	12.2
Street and highway	122	1.4	222	6.2	344	7.3	434	7.8	985	6.2	2,107	5.5
Trade and service area	165	1.9	200	5.6	458	9.7	478	8.5	632	4.0	1,933	5.0
Industrial and construction area	12	0.1	131	3.7	351	7.4	345	6.2	31	0.2	870	2.3
Farm	16	0.2	21	0.6	54	1.1	87	1.6	66	0.4	244	0.6
Other specified places	744	8.5	460	12.9	611	12.9	487	8.7	396	2.5	2,698	7.0
<b>Total</b>	<b>8,790</b>	<b>100.0</b>	<b>3,568</b>	<b>100.0</b>	<b>4,720</b>	<b>100.0</b>	<b>5,598</b>	<b>100.0</b>	<b>15,773</b>	<b>100.0</b>	<b>38,449</b>	<b>100.0</b>
<b>Female</b>												
Home	2,574	46.6	396	36.2	1,539	53.6	4,307	62.8	23,182	58.1	31,998	56.9
Residential institution	5	0.1	5	0.5	30	1.0	212	3.1	11,352	28.5	11,604	20.6
School	1,663	30.1	58	5.3	33	1.2	86	1.3	18	0.0	1,858	3.3
Health Service area	16	0.3	11	1.0	44	1.5	113	1.6	721	1.8	905	1.6
Other specified institution	40	0.7	10	0.9	32	1.1	62	0.9	294	0.7	438	0.8
Sports and athletics area	559	10.1	272	24.8	346	12.1	264	3.9	174	0.4	1,615	2.9
Street and highway	76	1.4	54	4.9	204	7.1	616	9.0	1,912	4.8	2,862	5.1
Trade and service area	141	2.6	154	14.1	303	10.6	576	8.4	1,509	3.8	2,683	4.8
Industrial and construction area	*	0.1	*	0.3	30	1.0	34	0.5	19	0.0	90	0.2
Farm	10	0.2	*	0.4	23	0.8	48	0.7	36	0.1	121	0.2
Other specified places	437	7.9	128	11.7	285	9.9	536	7.8	682	1.7	2,068	3.7
<b>Total</b>	<b>5,525</b>	<b>100.0</b>	<b>1,095</b>	<b>100.0</b>	<b>2,869</b>	<b>100.0</b>	<b>6,854</b>	<b>100.0</b>	<b>39,899</b>	<b>100.0</b>	<b>56,242</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 or 3 figures for a column. Cases are restricted to those where place of occurrence is specified.

## 2.3 Transportation

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: V01–V99

**Table 2.3.1: Key indicators for transport cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to transportation	39,533	17,877	57,413 <sup>(a)</sup>
Percentage of all injury separations	17.0	10.7	14.4
Estimated cases*	35,779	16,472	52,254 <sup>(b)</sup>
Crude rate/100,000 population	350.2	159.3	254.2
Age-standardised rate/100,000 population	350.0	159.5	255.2
Mean length of stay (days)	4.6	4.4	4.5
Total patient days	162,857	71,917	234,785 <sup>(c)</sup>

(a) Includes 3 separations, (b) 3 estimated cases and (c) 11 patient days for which sex was not reported.

\* Omits inward transfers from acute hospitals.

This chapter covers all hospitalisations due to unintentional transport-related injuries, including cases occurring in railway, water, land and air transport. Transportation accidents were responsible for 14% of all injury hospitalisations in the financial year 2005–06 (Table 2.3.1).

This chapter excludes transport-related injury cases that were registered as *intentional self-harm by jumping or lying before a moving object* ( $n = 46$ ), *intentional self-harm by crashing of motor vehicle* ( $n = 53$ ), *assault by pushing or placing victim before moving object and assault by crashing of motor vehicle* ( $n = 9$ ), *falling, lying or running before or into moving object, undetermined intent and crashing of motor vehicle, undetermined intent* ( $n = 13$ ) and *sequelae of transport accidents* ( $n = 55$ ).

Of the 52,254 transport injury cases in 2005–06, 1.6% were water transport (male  $n = 629$ , female  $n = 201$ ), 0.3% were air and space transport (male  $n = 136$ , female  $n = 23$ ) and 1.3% were other and unspecified transport (male  $n = 472$ , female  $n = 197$ ).

## Age and sex distribution

More males than females were hospitalised for transport injury (based on age-standardised rates) with a M:F ratio of 2.2:1. Males had a higher rate of transport injury at all ages. The age-specific rate for males peaked at 712 per 100,000 at ages 15–19 years, which was over twice the rate of 314 per 100,000 for females of the same age (Figure 2.3.1).

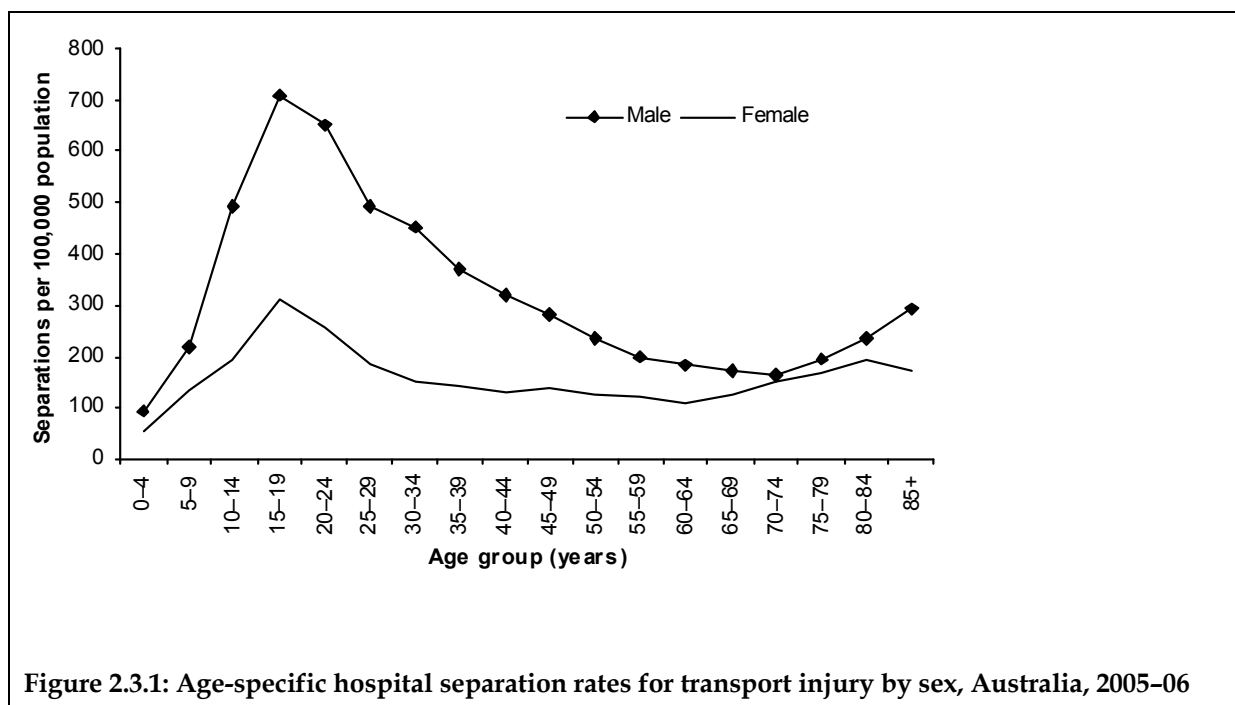


Figure 2.3.1: Age-specific hospital separation rates for transport injury by sex, Australia, 2005–06

Almost 60% of transport injuries occurred to people aged 15–44 years (Table 2.3.2).

Table 2.3.2: Transportation cases by age group, Australia, 2005–06

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0–14 years	5,675	15.9	2,528	15.3	8,204	15.7
15–24 years	9,928	27.7	3,970	24.1	13,899	26.6
25–44 years	12,071	33.7	4,519	27.4	16,590	31.7
45–64 years	5,793	16.2	3,146	19.1	8,940	17.1
65+ years	2,312	6.5	2,309	14.0	4,621	8.8
<b>Total</b>	<b>35,779</b>	<b>100.0</b>	<b>16,472</b>	<b>100.0</b>	<b>52,254<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 3 separations for which sex was not reported.

Table 2.3.3 shows age and sex differences for injuries by the mode of transport. More male car occupants were hospitalised due to injury than female car occupants. The highest proportion of male car occupants who were injured were young men aged 15–24 years (followed closely by adults aged 25–44 years) and for females it was adults aged 25–44 years (followed closely by young women aged 15–24 years). Eleven times more males than females were hospitalised due to motorcycle accidents. The highest proportion of motorcycle injuries

occurred in adults aged 25–44 years for both males (41.3%) and females (36.5%). Males had over four times as many pedal cycle accidents as females. The majority of pedal cycle accidents occurred to young children aged 0–14 years (38.4% of male and 46.0% of female pedal cycle injuries). More male pedestrians were injured compared with females. For males, the highest proportion of pedestrian accidents were in the 25–44 year age group, whereas for females, pedestrians aged 65+ were most frequently injured. More females were injured in bus accidents compared with males; the highest proportion of those injured was aged 65+ years for both males (42.7%) and females (63.0%). The frequency of injury to an animal rider or occupant of an animal-driven vehicle injuries was similar for males and females. For males, the highest proportion of animal rider or occupant of an animal-driven vehicle accidents occurred among adults aged 25–44 years (32.8%). Among females, the highest proportions were found among 0–14 year olds (27.3%) and 25–44 year olds (27.8%).



**Table 2.3.3: Injured person's vehicle by age group, Australia, 2005-06**

Place	0-14 yrs	Per cent	15-24 yrs	Per cent	25-44 yrs	Per cent	45-64 yrs	Per cent	65+ yrs	Per cent	Total <sup>(c)</sup>	Per cent
<b>Male</b>												
Pedestrian	410	17.6	457	19.6	722	31.0	398	17.1	342	14.7	2,329	100.0
Pedal cycle	2,745	38.4	1,545	21.6	1,696	23.7	906	12.7	250	3.5	7,142	100.0
Motorcycle	1,403	12.3	3,672	32.1	4,721	41.3	1,459	12.8	168	1.5	11,423	100.0
Three-wheeled motor vehicle	*	9.0	9	13.4	7	10.4	*	9.0	39	58.2	67	100.0
Car	542	5.5	3,333	34.1	3,135	32.0	1,684	17.2	1,092	11.2	9,786	100.0
Pick-up truck or van	27	6.3	106	24.7	154	35.8	124	28.8	19	4.4	430	100.0
Heavy transport vehicle	8	1.2	42	6.2	331	48.8	277	40.9	20	2.9	678	100.0
Bus	14	8.9	16	10.2	23	14.6	37	23.6	67	42.7	157	100.0
Animal or animal-driven vehicle	352	13.4	533	20.3	863	32.8	664	25.2	220	8.4	2,632	100.0
Other land transport	39	6.2	118	18.8	265	42.1	147	23.4	60	9.5	629	100.0
Water transport	*	0.7	15	11.0	73	53.7	*	27.9	9	6.6	136	100.0
Air and space transport	128	34.6	82	22.2	81	21.9	53	14.3	26	7.0	370	100.0
<b>Total<sup>(a)</sup></b>	<b>5,675</b>	<b>15.9</b>	<b>9,928</b>	<b>27.7</b>	<b>12,071</b>	<b>33.7</b>	<b>5,793</b>	<b>16.2</b>	<b>2,312</b>	<b>6.5</b>	<b>35,779</b>	<b>100.0</b>
<b>Female</b>												
Pedestrian	248	15.8	267	17.1	315	20.1	311	19.9	424	27.1	1,565	100.0
Pedal cycle	773	46.0	188	11.2	370	22.0	286	17.0	64	3.8	1,681	100.0
Motorcycle	199	18.4	280	25.8	396	36.5	182	16.8	27	2.5	1,084	100.0
Three-wheeled motor vehicle	4	13.3	5	16.7	0	0.0	4	13.3	17	56.7	30	100.0
Car	466	5.4	2,480	28.5	2,549	29.3	1,808	20.8	1,403	16.1	8,706	100.0
Pick-up truck or van	14	12.8	28	25.7	35	32.1	26	23.9	6	5.5	109	100.0
Heavy transport vehicle	*	9.8	6	11.8	16	31.4	16	31.4	*	15.7	51	100.0
Bus	8	2.9	22	8.1	27	9.9	44	16.1	172	63.0	273	100.0
Animal or animal-driven vehicle	715	27.3	631	24.1	728	27.8	396	15.1	148	5.7	2,618	100.0
Other land transport	30	14.9	38	18.9	53	26.4	59	29.4	21	10.4	201	100.0
Water transport	*	0.0	6	26.1	9	39.1	7	30.4	*	4.3	23	100.0
Air and space transport	66	50.4	19	14.5	21	16.0	7	5.3	18	13.7	131	100.0
<b>Total<sup>(b)</sup></b>	<b>2,528</b>	<b>15.3</b>	<b>3,970</b>	<b>24.1</b>	<b>4,519</b>	<b>27.4</b>	<b>3,146</b>	<b>19.1</b>	<b>2,309</b>	<b>14.0</b>	<b>16,472</b>	<b>100.0</b>

Note: Shaded areas indicate the highest figure(s) for a row. Excludes (a) 370 and (b) 131 injury cases that are other and unspecified transport, and (c) 3 for which sex was not reported.

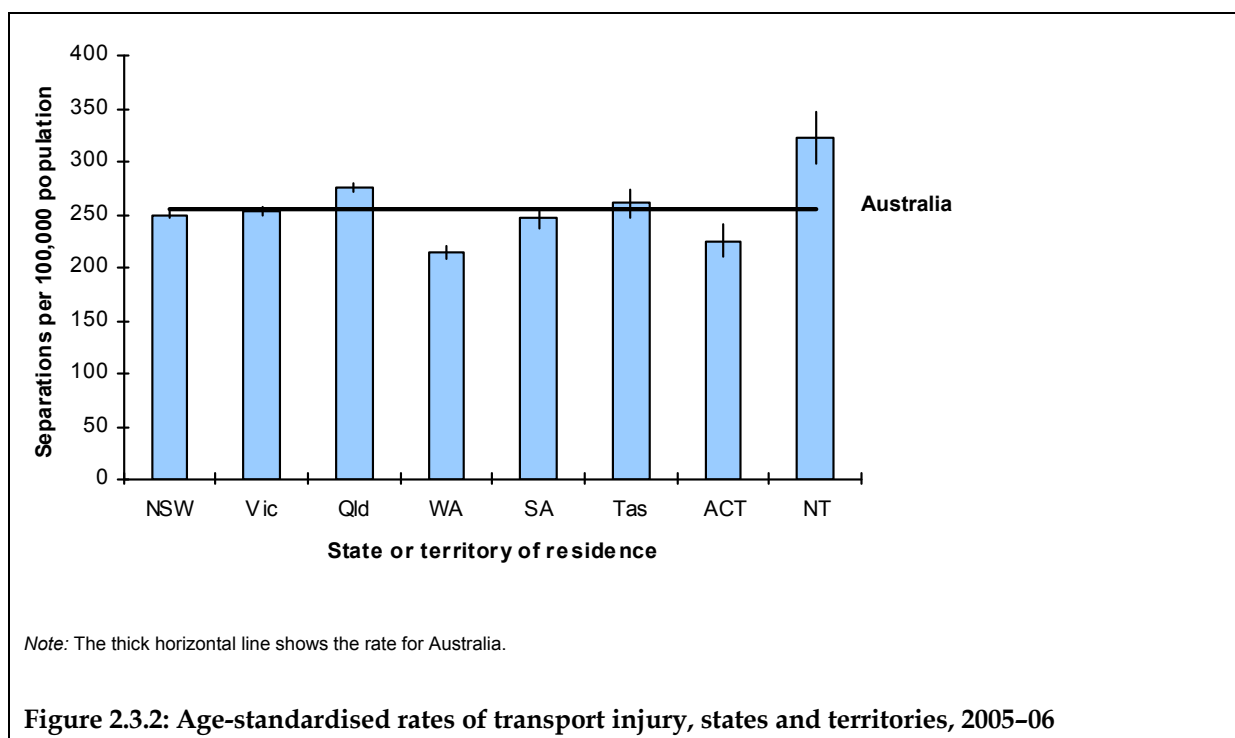
\* Small cell counts have been suppressed.

## State and territory differences

The rate of transport injury for the Northern Territory was significantly higher than that for Australia as a whole. Western Australia and the Australian Capital Territory had rates that were significantly below the national rate (Table 2.3.4 and Figure 2.3.2).

**Table 2.3.4: Age-standardised rates of transport injury, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	250	246–253
Vic	253	249–257
Qld	275	270–280
WA	213	207–219
SA	244	237–252
Tas	260	245–274
ACT	224	209–240
NT	323	298–347
<b>Australia</b>	<b>255</b>	<b>253–257</b>



**Figure 2.3.2: Age-standardised rates of transport injury, states and territories, 2005–06**

## Body part

Injuries sustained in transportation accidents involved all major body regions with similar frequency (Table 2.3.5).

Table 2.3.5: Principal Diagnosis by body region and sex for transport injury, Australia, 2005–06

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	8,038	22.5	3,504	21.3	11,542	22.1
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	8,535	23.9	6,170	37.5	14,707	28.1
Shoulder and upper limb	10,184	28.5	3,461	21.0	13,645	26.1
Hip and lower limb	8,406	23.5	3,022	18.3	11,429	21.9
Other injuries not specified by body region	616	1.7	315	1.9	931	1.8
<b>All body regions</b>	<b>35,779</b>	<b>100.0</b>	<b>16,472</b>	<b>100.0</b>	<b>52,254<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 3 separations for which sex was not reported.

## Length of stay

Mean length of stay for transportation injury cases rose with age (Figure 2.3.3). The mean length of stay was 2.7 days for children aged 0–14 years, 3.9 days for young people aged 15–24 years, 4.4 days for adults aged 25–44 years, 5.2 days for adults aged 45–64 years and 8.3 days for older people aged 65+ years.

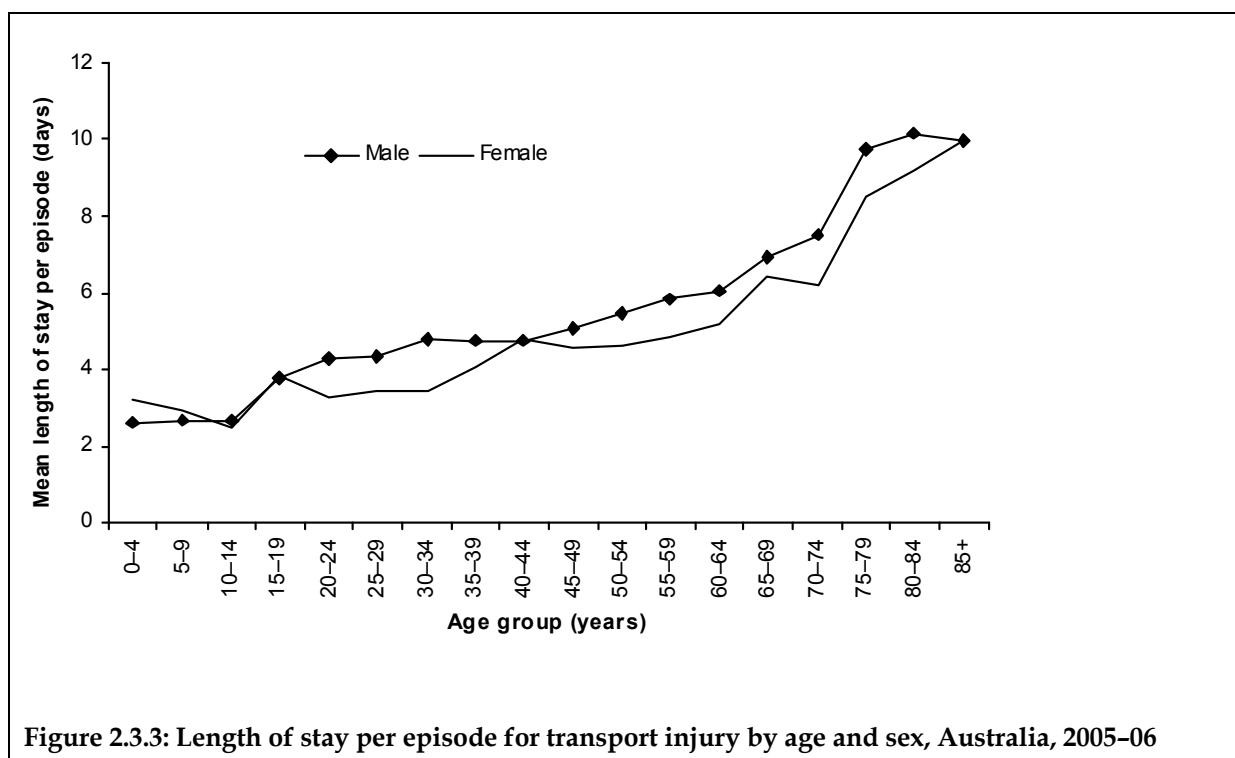


Figure 2.3.3: Length of stay per episode for transport injury by age and sex, Australia, 2005–06

## Time trends

Age-standardised rates for hospitalised transport injury rose from 249 per 100,000 of the population in 1999–00 to 255 per 100,000 in 2005–06, with fluctuations in intervening years (Figure 2.3.4). Age-standardised rates for males underwent a similar pattern of fluctuation, increasing from 337 per 100,000 in 1999–00 to 350 per 100,000 in 2005–06. Male rates were consistently higher than female rates which fell only slightly from 160 per 100,000 in 1999–00 to 159 per 100,000 in 2005–06.



## 2.3.1 Land transportation

ICD-10-AM case inclusion

Principal Diagnosis: **S00-T75, T79** and

First reported external cause: **V01-V89**

The following section concentrates on land transport accidents ( $n = 50,763$ ; see Table 2.3.6); 36% of people hospitalised due to land transport accidents were car occupants ( $n = 18,492$ ); 25% ( $n = 12,508$ ) were motorcyclists; 17% ( $n = 8,823$ ) were pedal cyclists; and 8% ( $n = 3,894$ ) were pedestrians. More males than females were injured in land transportation accidents (based on age-standardised rates), with a M:F rate ratio of 2.2:1.0.

A traffic accident is any vehicle accident occurring on a public highway. A non-traffic accident is any vehicle accident that occurs entirely in any place other than a public highway. Of all people hospitalised due to land transport accidents, 62% were injured in traffic accidents (see Table 2.3.6).

Table 2.3.6 and Figure 2.3.5 describe modes of transport for traffic and non-traffic cases. For traffic accident cases ( $n = 31,530$ ), the most frequent mode of transport of the injured person was a car (51.7%;  $n = 16,304$ ) followed by a motorcycle (20.7%;  $n = 6,531$ ). There were gender differences; 73% of females injured in traffic accidents were car occupants ( $n = 7,805$ ) and 10% were pedestrians ( $n = 1,120$ ), whereas 41% of males were car occupants ( $n = 8,499$ ) and 29% were on a motorcycle ( $n = 5,952$ ).

For non-traffic accidents ( $n = 13,578$ ), the most frequent mode of transport was a motorcycle (40.7%;  $n = 5,533$ ) followed by a pedal cycle (30.4%;  $n = 4,130$ ). There were gender differences; the most common mode of transport for females injured in non-traffic accidents were pedal cycles (32%;  $n = 771$ ) followed by cars (25%;  $n = 606$ ), whereas the most common for males were motorcycles (46%;  $n = 5,073$ ) followed by pedal cycles (30%;  $n = 3,359$ ).

Of accidents designated unspecified as to whether traffic or non-traffic (Table 2.3.6), the majority (58%;  $n = 3,278$ ) involved an animal rider or occupant of an animal-drawn vehicle.

Male case numbers exceeded females in most instances; exceptions were bus occupant injuries and animal rider or occupant of animal-driven vehicle injuries (Table 2.3.6).

**Table 2.3.6: Mode of transport for land transport injury cases, Australia, 2005–06**

Injured person's vehicle	Non-traffic accident	Traffic accident	Unspecified	Total
<b>Males</b>				
Car	995	8,499	292	9,786
Motorcycle	5,073	5,952	398	11,423
Pedal cycle	3,359	3,534	249	7,142
Pedestrian	444	1,622	263	2,329
Animal or animal-drawn vehicle	0	0	1,162	1,162
Heavy transport vehicle	191	388	99	678
Pick-up truck or van	121	272	37	430
Bus	27	82	48	157
Three-wheeled motor vehicle	37	30	0	67
Other land transport	885	388	197	1,470
<b>Total</b>	<b>11,132</b>	<b>20,767</b>	<b>2,745</b>	<b>34,644</b>
<b>Females</b>				
Car	606	7,805	295	8,706
Motorcycle	460	578	46	1,084
Pedal cycle	771	844	66	1,681
Pedestrian	289	1,120	156	1,565
Animal or animal-drawn vehicle	0	0	2,115	2,115
Heavy transport vehicle	16	23	12	51
Pick-up truck or van	26	74	9	109
Bus	54	117	102	273
Three-wheeled motor vehicle	22	6	*	30
Other land transport	202	195	106	503
<b>Total</b>	<b>2,446</b>	<b>10,762</b>	<b>2,909</b>	<b>16,117</b>
<b>Persons</b>				
Car	1,601	16,304	587	18,492
Motorcycle	5,533	6,531	444	12,508
Pedal cycle	4,130	4,378	315	8,823
Pedestrian	733	2,742	419	3,894
Animal or animal-drawn vehicle	0	0	3,278	3,278
Heavy transport vehicle	207	411	111	729
Pick-up truck or van	147	346	46	539
Bus	81	199	150	430
Three-wheeled motor vehicle	59	36	*	97
Other land transport <sup>(a)</sup>	1,087	583	303	1,973
<b>Total<sup>(b)</sup></b>	<b>13,578</b>	<b>31,530</b>	<b>5,655</b>	<b>50,763</b>

Note: Shaded areas indicate the 1 or 2 highest figures for a column.

(a) The injured person was an occupant of a railway train or railway vehicle ( $n = 116$ ), tram ( $n = 72$ ), special industrial vehicle ( $n = 152$ ), special agricultural vehicle ( $n = 219$ ), special construction vehicle ( $n = 60$ ), special all-terrain or off-road vehicle ( $n = 682$ ) and victim's mode of transport unknown ( $n = 672$ ).

(b) Includes 2 separations for which sex was not reported.

\* Small cell counts have been suppressed.

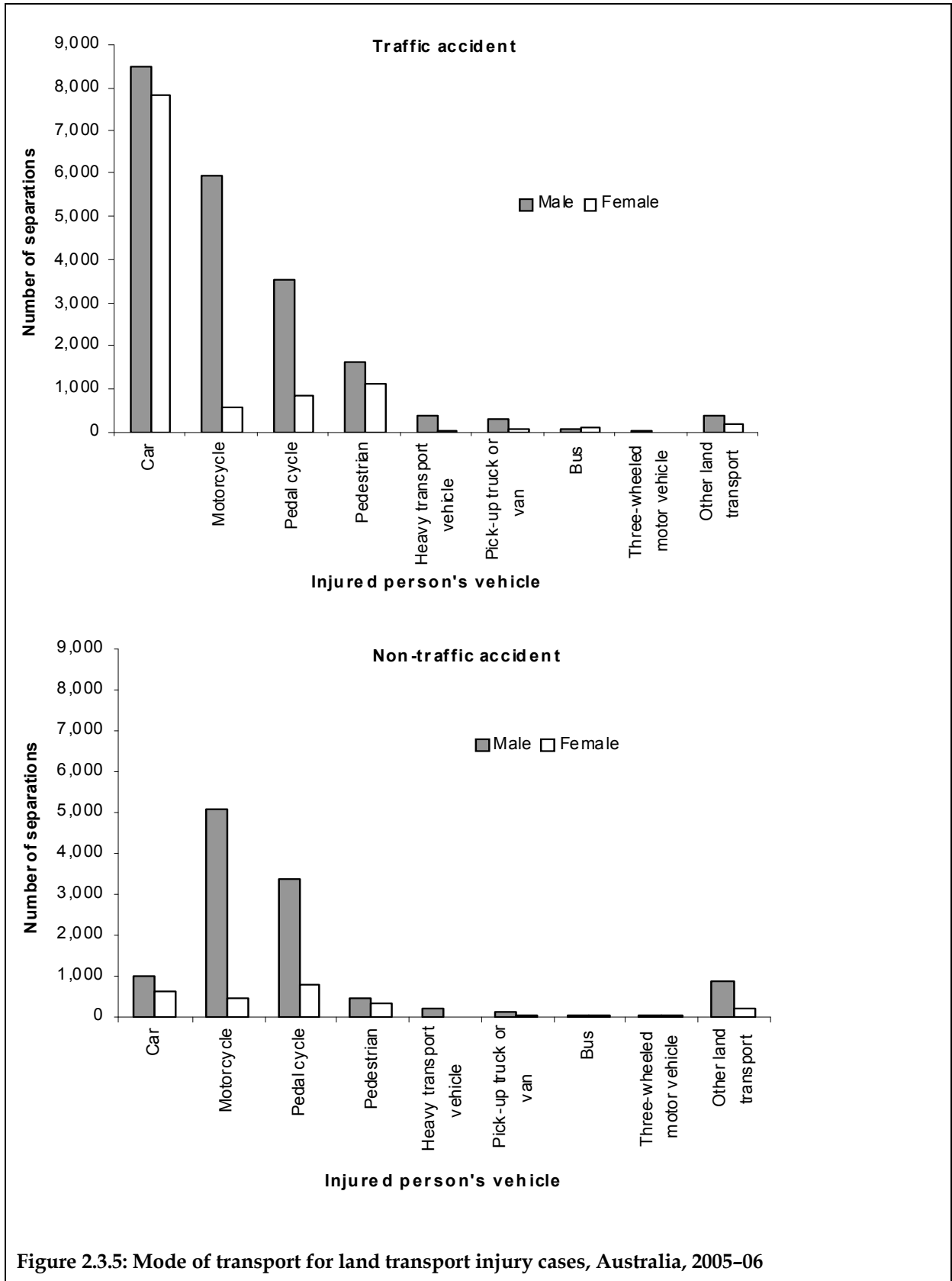


Figure 2.3.5: Mode of transport for land transport injury cases, Australia, 2005-06

Many injuries result from collision between a person's mode of transport and another vehicle, or collision with some other object. The other vehicle or object is often called the 'counterpart'. Table 2.3.7 details the counterpart in land transport crashes.

Table 2.3.7 lists the five most common mechanisms of injury in land transport crashes as being 1) a collision of a car with either a car, pick-up truck or van, 2) a motorcycle in a non-collision transport accident, 3) a pedal cycle in a non-collision transport accident, 4) a collision of a car with a fixed or stationary object, and 5) a car in a non-collision transport accident.

Tables 2.3.8 to 2.3.10 characterise the road user group (e.g. the position of the injured in the vehicle) for land transport accidents according to whether they were traffic, non-traffic or unspecified as to whether traffic or non-traffic.



Table 2.3.7: Mechanism of injury for land transport injury cases, Australia, 2005–06

Injured person	Counterpart in collision									
	Pedestrian or animal	Pedal cyclist	Two- or three-wheeled motor vehicle	Car, pick-up truck or van	Heavy transport vehicle or bus	Railway train or railway vehicle	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident	Other and unspecified transport
Car occupant	97	4	43	7,823	606	28	18	4,478	3,916	1,479
Motorcyclist	213	8	360	1,697	72	*	9	1,261	6,058	2,829
Pedal cyclist	65	223	23	1,101	37	0	4	419	4,482	2,469
Pedestrian	0	99	105	2,937	137	22	41	0	0	553
Animal rider or occupant of animal-driven vehicle	11	0	0	0	0	0	14	31	2,573	649
Occupant of heavy transport vehicle <sup>(b)</sup>	*	*	*	53	68	*	0	53	404	146
Occupant of pick-up truck or van	*	0	*	82	24	*	0	80	247	102
Bus occupant	*	0	0	42	10	0	0	10	245	122
Occupant of three-wheeled motor vehicle	0	0	*	12	*	0	*	8	50	21
<b>Total (n = 50,763)<sup>(a)</sup></b>	<b>391</b>	<b>335</b>	<b>536</b>	<b>13,747</b>	<b>955</b>	<b>53</b>	<b>88</b>	<b>6,340</b>	<b>17,975</b>	<b>8,370</b>

Note: Shaded areas indicate the highest figure for a row.

\* Small counts have been suppressed.

(a) Excludes 1,973 cases that are 'Other land transport accidents' (V81–V89) and 1,491 cases due to water, air and space, and other and unspecified transport.

(b) These categories are grouped together in ICD-10-AM classification as rider or occupant injured in collision with car, pick-up truck, van, heavy transport vehicle or bus.

Nearly half (48%) of motorcyclists were involved in a non-collision transport accident, 14% were hit by a car, pick-up truck or van and 10% collided with a fixed or stationary object.

Over half (51%) of pedal cyclists were involved in a non-collision transport accident and 13% were hit by a car, pick-up truck or van.

Of pedestrians injured, 75% were hit by a car, pick-up truck or van.

For animal riders or occupants of an animal-driven vehicles, 79% were injured in a non-collision accident. (These cases would usually be the result of falling from, or being thrown from, a horse.)

Of heavy transport vehicle occupants, 55% were involved in a non-collision transport accident, 9% collided with another heavy transport vehicle or bus, 7% collided with a fixed or stationary object and 7% hit a car, pick-up truck or van.

Of pick-up truck or van occupants, 46% were involved in a non-collision transport accident, 15% hit a car, pick-up truck or van and 15% collided with a fixed or stationary object.

Twenty-four per cent of car occupants were involved in a collision with a fixed or stationary object and 21% were involved in a non-collision transport accident.

Fifty-seven per cent of bus occupants were involved in a non-collision transport accident.

Fifty-two per cent of three-wheeled motor vehicle occupants were involved in non-collision transport accidents, 12% collided with a car, pick-up truck or van and 8% collided with a fixed or stationary object.

**Table 2.3.8: Mode of transport for traffic land transport injury cases, Australia, 2005–06**

<b>Injured person's vehicle</b>	<b>Pedestrian</b>	<b>Driver</b>	<b>Passenger</b>	<b>Person on outside of vehicle</b>	<b>Other and unspecified</b>	<b>Total</b>
Pedestrian	2,742	0	0	0	0	2,742
Pedal cycle	0	2,421	29	0	1,928	4,378
Motorcycle	0	4,282	221	0	2,028	6,531
3-wheeled motor vehicle	0	20	*	*	14	36
Car	0	10,078	5,087	82	1,057	16,304
Pick-up truck or van	0	178	106	27	35	346
Heavy transport vehicle	0	321	40	13	37	411
Bus	0	19	141	6	33	199
Other land transport	0	73	*	*	483	583
<b>Total</b>	<b>2,742</b>	<b>17,392</b>	<b>5,646</b>	<b>135</b>	<b>5,615</b>	<b>31,530</b>

\* Small cell counts have been suppressed.

**Table 2.3.9: Mode of transport for non-traffic land transport injury cases, Australia, 2005–06**

<b>Injured person's vehicle</b>	<b>Pedestrian</b>	<b>Driver</b>	<b>Passenger</b>	<b>Person on outside of vehicle</b>	<b>Other and unspecified</b>	<b>Total</b>
Pedestrian	733	0	0	0	0	733
Pedal cycle	0	3,122	55	0	953	4,130
Motorcycle	0	4,573	123	0	837	5,533
Three-wheeled motor vehicle	0	48	*	*	9	59
Car	0	888	421	123	169	1,601
Pick-up truck or van	0	28	32	47	40	147
Heavy transport vehicle	0	67	5	74	61	207
Bus	0	*	*	*	33	81
Other land transport	0	615	82	135	255	1,087
<b>Total</b>	<b>733</b>	<b>9,343</b>	<b>763</b>	<b>382</b>	<b>2,357</b>	<b>13,578</b>

\* Small cell counts have been suppressed.

**Table 2.3.10: Mode of transport for land transport injury cases unspecified as to whether traffic or non-traffic, Australia, 2005–06**

<b>Injured person's vehicle</b>	<b>Pedestrian</b>	<b>Boarding or alighting</b>	<b>Animal-rider or occupant of animal-driven vehicle</b>	<b>Other and unspecified</b>	<b>Total</b>
Pedestrian	419	0	0	0	419
Pedal cycle	0	18	0	297	315
Motorcycle	0	31	0	413	444
Car	0	348	0	239	587
Pick-up truck or van	0	17	0	29	46
Heavy transport vehicle	0	49	0	62	111
Bus	0	94	0	56	150
Animal or animal-drawn vehicle	0	0	3,278	0	3,278
Other land transport	0	124	0	181	305
<b>Total</b>	<b>419</b>	<b>681</b>	<b>3,278</b>	<b>1,277</b>	<b>5,655</b>

\* Three-wheeled motor vehicle has been included with the land transport, due to small cell counts.

## Age and sex distribution

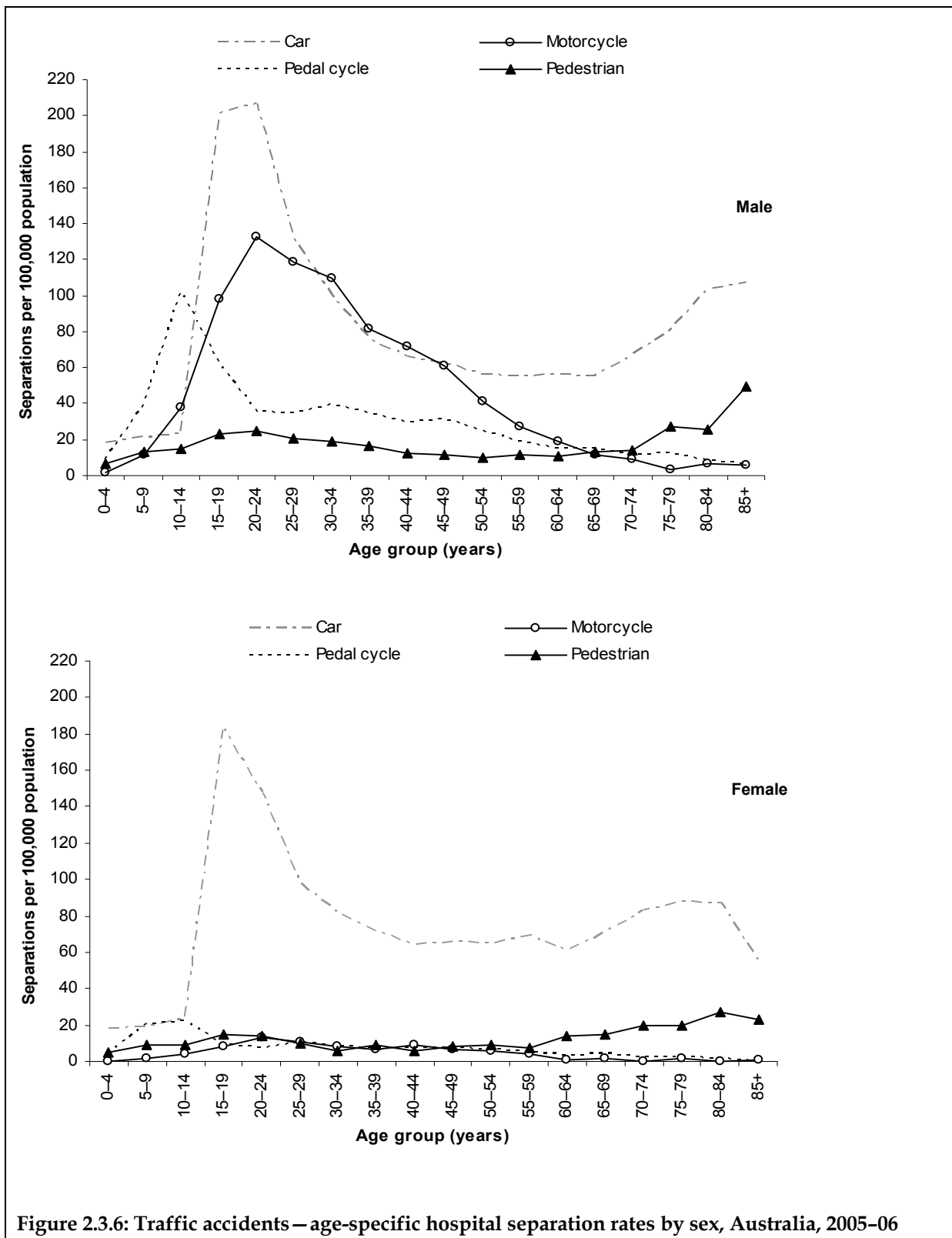


Figure 2.3.6: Traffic accidents – age-specific hospital separation rates by sex, Australia, 2005-06

For traffic accidents, car occupants were the group most commonly injured – male and female motor vehicle occupant rates of hospitalisation were highest between ages 15–24 years. Rates peaked for males in the 15–19 year age group (age-specific rate of 201 per 100,000). An equivalent peak was not observed for females where rates for 15–19 and 20–24 year olds were 182 and 147 per 100,000, respectively. Motorcyclists were the second most commonly injured group in traffic for males, peaking at 20–24 years with a rate of 133 per 100,000, but it was relatively uncommon for females (peaking at 13 per 100,000 for 20–24 year olds). Rates of pedal cycle injury in traffic peaked in the 10–14 year age group (102 and 22 per 100,000 for males and females, respectively). Pedestrian injury rates in traffic peaked at older ages (50 per 100,000 for males aged 85+ years and 27 per 100,000 for females aged 80–84 years).

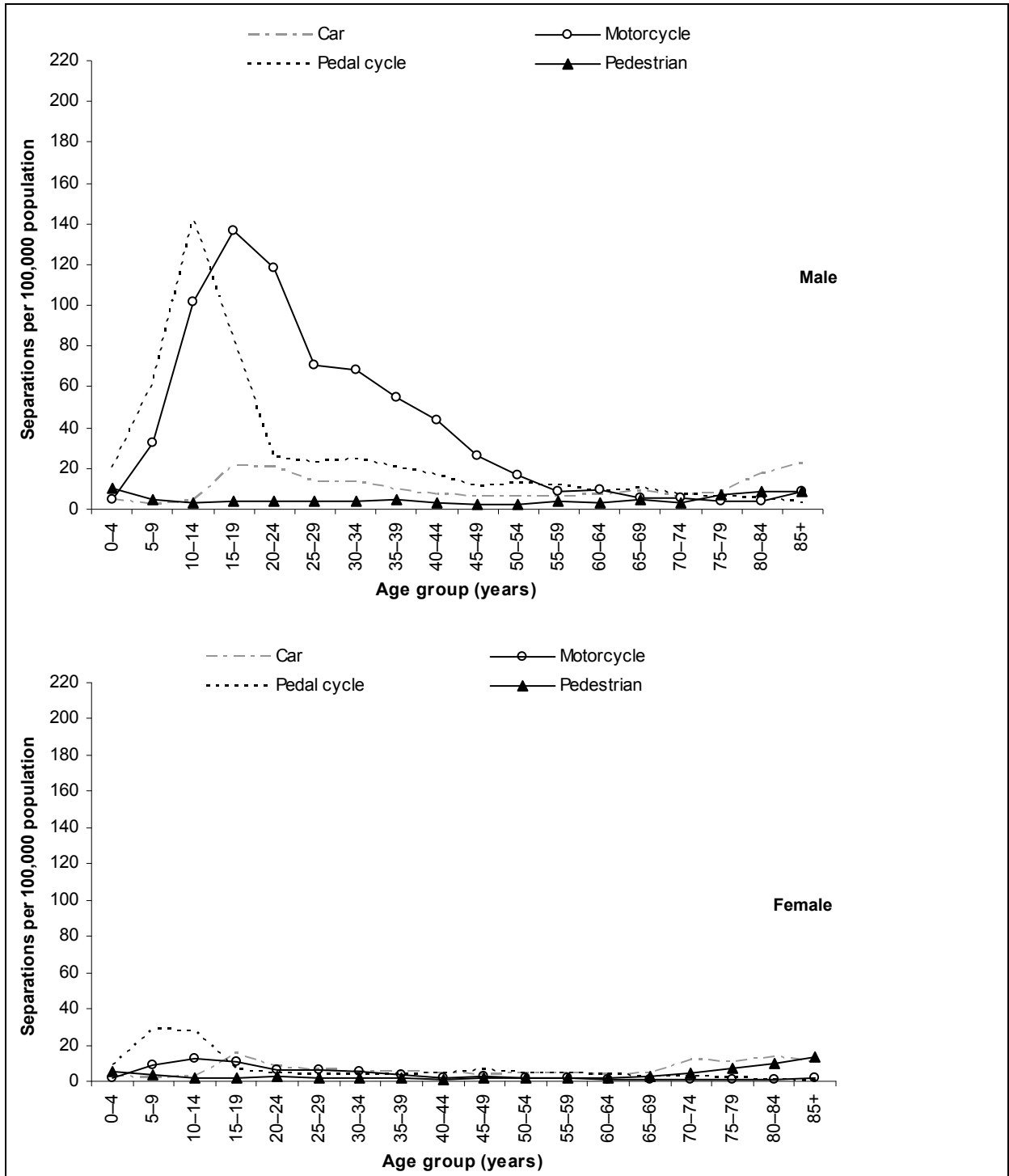
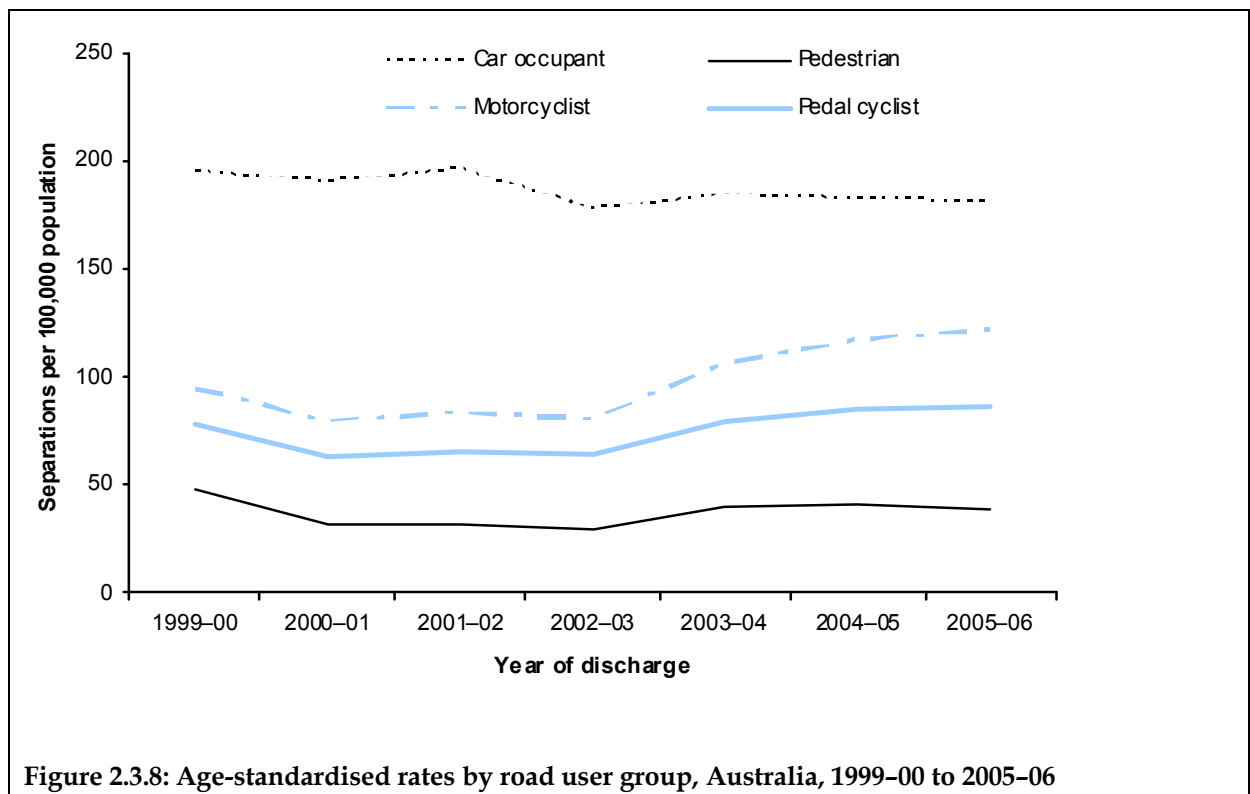


Figure 2.3.7: Non-traffic accidents – age-specific hospital separation rates by sex, Australia, 2005-06

For both males and females, pedal cyclists were the group most commonly injured in non-traffic accidents (Figure 2.3.7), reaching a peak for males at 10–14 years with an age-specific rate of 142 per 100,000 and, for females, 29 per 100,000 for 5–9 year olds). Motorcyclists were the second most commonly injured group in non-traffic for males, peaking at 15–19 years with a rate of 136 per 100,000, but hospitalisation due to non-traffic motorcycle accidents were relatively uncommon for females (peaking at 12 per 100,000 for 10–14 year olds). Injury rates for pedestrians, car drivers and car passengers were low for non-traffic accidents.

### Time trends by road user group

Age-standardised rates for injury hospitalisation of car occupants declined from 96 per 100,000 of the population in 1999–00 to 90 per 100,000 in 2005–06 (Figure 2.3.8). Rates for motorcyclists increased from 48 per 100,000 in 1999–00 to 62 per 100,000 in 2005–06. Pedal cyclist rates increased from 40 per 100,000 in 1999–00 to 44 per 100,000 in 2005–06). Rates for pedestrians declined from 24 per 100,000 of the population in 1999–00 to 19 per 100,000 in 2005–06.





## 2.4 Poisoning, pharmaceuticals

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: X40–X44

**Table 2.4.1: Key indicators for poisoning by pharmaceutical cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to poisoning by pharmaceuticals	3,041	3,582	6,623
Percentage of all community injury separations	1.3	2.1	1.7
Estimated cases*	2,917	3,441	6,358
Crude rate/100,000 population	28.5	33.3	30.9
Age-standardised rate/100,000 population	29.0	33.1	31.1
Mean length of stay (days)	2.3	2.2	2.3
Total patient days	6,636	7,672	14,308

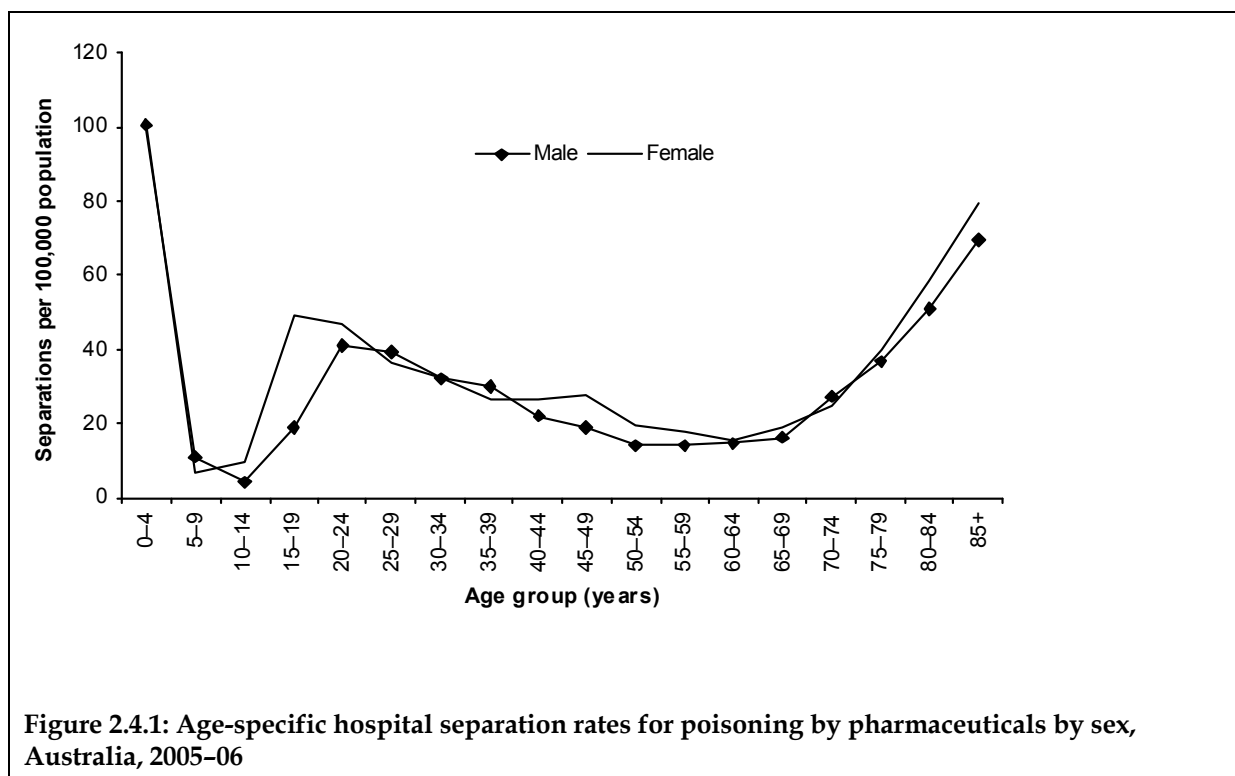
\* Omits inward transfers from acute hospitals.

This chapter describes injury admissions where the first reported external cause code refers to accidental poisoning by a drug or medicament. It includes drugs given or taken in error or inadvertently, and accidental over-dosage. Poisoning by pharmaceuticals accounted for 2% of all community injury hospitalisations in the financial year 2005–06 (Table 2.4.1).

This chapter does not include poisoning from non-pharmaceutical substances ( $n = 2,398$ ; see Chapter 2.5), intentional self-poisoning ( $n = 19,529$ ; see Chapter 2.9), assault by poisoning ( $n = 80$ ; see Chapter 2.10), or poisoning of undetermined intent ( $n = 3,783$ ; see Chapter 2.11).

### Age and sex distribution

More females than males were hospitalised for accidental poisoning by pharmaceuticals (based on age-standardised rates) with a M:F rate ratio of 0.9:1. Age-specific rates of poisoning by pharmaceuticals were highest in children aged 0–4 years (males: 101 per 100,000, females: 102 per 100,000) but much lower in older children (Figure 2.4.1). Rates were higher for youth and young people (15–24 years) and lower for older age groups – up to about 70 years, after which rates were higher for each older group.



A fifth of poisoning by pharmaceuticals occurred in young children aged 0-4 years of age and over one-quarter occurred in adults aged 25-44 years (Table 2.4.2).

**Table 2.4.2: Cases of poisoning by pharmaceuticals by age group, Australia, 2005-06**

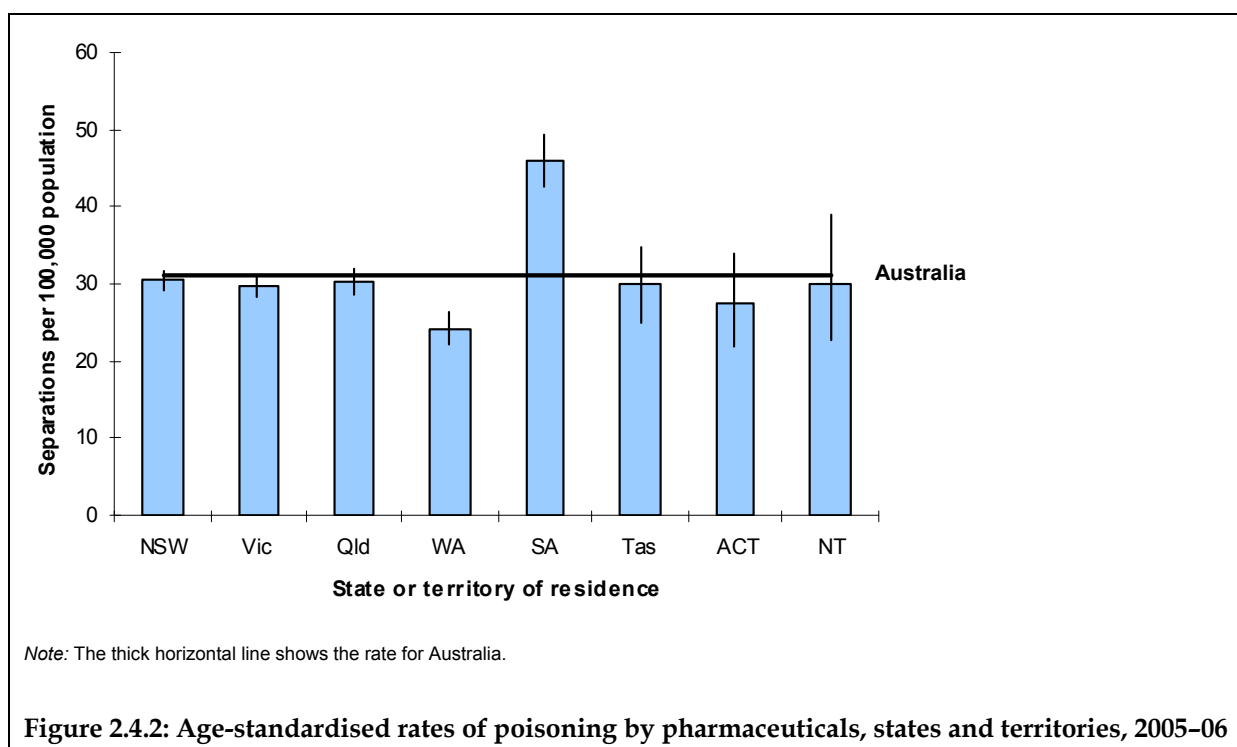
Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-4 years	673	23.1	647	18.8	1,320	20.8
5-14 years	105	3.6	112	3.3	217	3.4
15-24 years	437	15.0	670	19.5	1,107	17.4
25-44 years	914	31.3	905	26.3	1,819	28.6
45-64 years	398	13.6	526	15.3	924	14.5
65+ years	390	13.4	581	16.9	971	15.3
<b>Total</b>	<b>2,917</b>	<b>100.0</b>	<b>3,441</b>	<b>100.0</b>	<b>6,358</b>	<b>100.0</b>

## State and territory differences

Only two states, Western Australia and South Australia, had rates of poisoning by pharmaceuticals that differed significantly from the national rate. The comparatively high rate observed for South Australia was consistent with that state's rate in 2004–05 but not in 2003–04 where South Australia had a lower relative rate. The 2005–06 rate distribution also differs from the previous two years in that the rate for the Australian Capital Territory has increased relative to other jurisdictions. The rate for the Northern Territory moved from being considerably higher than the all-Australia rate in 2004–05 to being below the national rate during 2005–06 (Berry & Harrison 2007; Bradley & Harrison 2008). The rates for the smaller-population jurisdictions can be expected to show the greatest year-to-year variation due to relatively small case numbers.

**Table 2.4.3: Age-standardised rates of poisoning by pharmaceuticals, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	30.5	29.2–31.9
Vic	29.8	28.3–31.3
Qld	30.3	28.6–32.0
WA	24.3	22.2–26.5
SA	46.1	42.7–49.5
Tas	30.1	25.1–35.0
ACT	27.5	22.1–33.8
NT	30.1	22.7–39.2
<b>Australia</b>	<b>31.1</b>	<b>30.3–31.9</b>



**Figure 2.4.2: Age-standardised rates of poisoning by pharmaceuticals, states and territories, 2005–06**

## Mechanism

Almost all (99.8%;  $n = 6,343$ ) admitted injury cases did not specify a particular body part that was injured due to the mechanism being poisoning.

Forty-two per cent ( $n = 2,674$ ) of hospital cases were *accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs* (Table 2.4.4). This category includes benzodiazepines (17% of all pharmaceutical poisonings cases;  $n = 1,053$ ), other and unspecified antidepressants – likely to be selective serotonin reuptake inhibitors (6% of all cases;  $n = 363$ ), other and unspecified antipsychotics and neuroleptics (4% of all cases;  $n = 265$ ) and psychostimulants with potential for use disorder (4% of all cases;  $n = 243$ ).

Twenty-five per cent ( $n = 1,582$ ) of injury cases were *accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances*. This is a diverse group which includes a range of drugs in the broad categories of *poisoning by agents primarily affecting the cardiovascular system* ( $n = 397$ ), *systemic and haematological agents, not elsewhere classified* ( $n = 362$ ), *poisoning by diuretics and other unspecified drugs, medicaments and biological substances* ( $n = 224$ ) and various others.

Sixteen per cent ( $n = 1,048$ ) of cases were *accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics* – most of which were 4-aminophenol derivatives such as paracetamol (12% of all pharmaceutical poisoning cases;  $n = 760$ ) and other non-steroidal anti-inflammatory drugs (3% of all poisoning cases;  $n = 204$ ).

Thirteen per cent ( $n = 826$ ) were *accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified* – of which 127 were heroin (2% of all pharmaceutical poisoning cases), 261 were other opioids such as codeine and morphine (4% of all poisoning cases) and 126 were other and unspecified psychodysleptics [hallucinogens] (2% of all poisoning cases).

Four per cent ( $n = 228$ ) were *accidental poisoning by and exposure to other drugs acting on the autonomic nervous system*.

Table 2.4.4: Mechanism of pharmaceutical poisoning by age and sex, Australia, 2005-06

ICD-10-AM Code	Accidental poisoning by and exposure to:	0-14 yrs	Per cent	15-24 yrs	Per cent	25-44 yrs	Per cent	25-44 yrs	Per cent	65+ yrs	Per cent	Total	Per cent
<b>Male</b>													
X40	Nonopioid analgesics, antipyretics and antirheumatics	127	16.3	61	14.0	137	15.0	53	13.3	24	6.2	402	13.8
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	244	31.4	212	48.5	452	49.5	176	44.2	98	25.1	1,182	40.5
X42	Narcotics and psychodysleptics [hallucinogens]	41	5.3	98	22.4	211	23.1	61	15.3	56	14.4	467	16.0
X43	Other drugs acting on the autonomic nervous system	43	5.5	11	2.5	14	1.5	14	3.5	25	6.4	107	3.7
X44	Other and unspecified drugs, medicaments and biological substances	323	41.5	55	12.6	100	10.9	94	23.6	187	47.9	759	26.0
<b>Total</b>		<b>778</b>	<b>100.0</b>	<b>437</b>	<b>100.0</b>	<b>914</b>	<b>100.0</b>	<b>398</b>	<b>100.0</b>	<b>390</b>	<b>100.0</b>	<b>2,917</b>	<b>100.0</b>
<b>Female</b>													
X40	Nonopioid analgesics, antipyretics and antirheumatics	141	18.6	224	33.4	177	19.6	71	13.5	33	5.7	646	18.8
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	284	37.4	282	42.1	497	54.9	286	54.4	143	24.6	1,492	43.4
X42	Narcotics and psychodysleptics [hallucinogens]	26	3.4	90	13.4	116	12.8	72	13.7	55	9.5	359	10.4
X43	Other drugs acting on the autonomic nervous system	55	7.2	4	0.6	14	1.5	7	1.3	41	7.1	121	3.5
X44	Other and unspecified drugs, medicaments and biological substances	253	33.3	70	10.4	101	11.2	90	17.1	309	53.2	823	23.9
<b>Total</b>		<b>759</b>	<b>100.0</b>	<b>670</b>	<b>100.0</b>	<b>905</b>	<b>100.0</b>	<b>526</b>	<b>100.0</b>	<b>581</b>	<b>100.0</b>	<b>3,441</b>	<b>100.0</b>

Note: Shaded areas indicate the highest figure for a column.

## Young children aged 0–4 years

A considerable proportion of accidental pharmaceutical poisonings occurred in young children aged 0–4 years (21%;  $n = 1,320$ ), and most of these (89%) occurred in young children aged 1–3 years, whereas only 5% occurred in infants aged less than 1 year (Table 2.4.5).

*Accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances* in children aged 0–4 years ( $n = 509$ ) accounted for 8% of all hospital cases due to poisoning by pharmaceuticals. The drugs implicated were a diverse group, and included the broad categories of *poisoning by systemic and haematological agents, not elsewhere classified* ( $n = 131$ ), *agents primarily affecting the cardiovascular system* ( $n = 119$ ), *poisoning by topical agents primarily affecting skin and mucous membranes and by ophthalmological, otorhinolaryngological and dental drugs* ( $n = 89$ ) and various others.

*Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs* in children aged 0–4 years ( $n = 450$ ) accounted for 7% of all hospital cases due to poisoning by pharmaceuticals. This category included benzodiazepines ( $n = 235$ ), other and unspecified antidepressants – likely to be selective serotonin reuptake inhibitors ( $n = 72$ ).

*Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics* in children aged 0–4 years ( $n = 217$ ) accounted for 3% of all hospital cases due to poisoning by pharmaceuticals. Most were poisoning by 4-aminophenol derivatives such as paracetamol ( $n = 153$ ) and other non-steroidal anti-inflammatory drugs ( $n = 45$ ).

*Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified and other drugs acting on the autonomic nervous system* in children aged 0–4 years constituted only a small proportion of all hospital cases due to poisoning by pharmaceuticals; 0.8% and 1.4%, respectively.

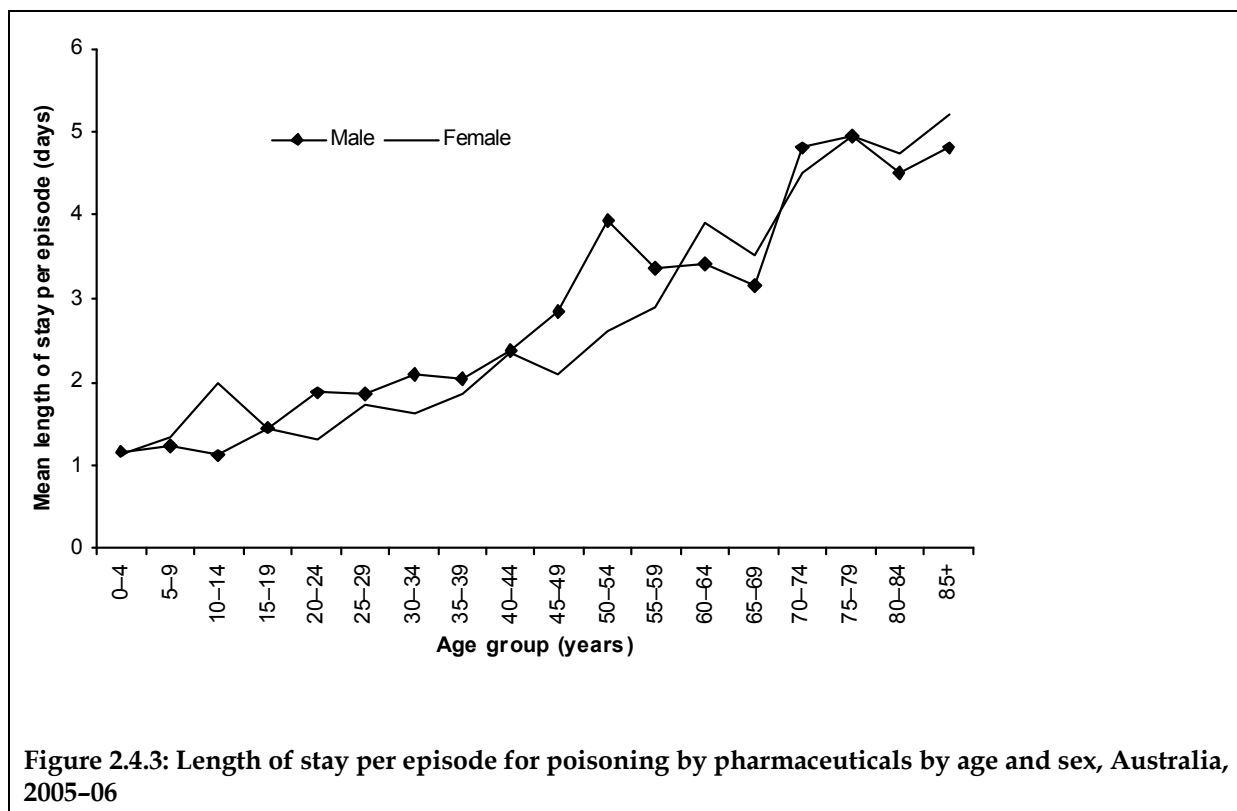
**Table 2.4.5: Mechanism of poisoning by pharmaceuticals in children 0–4 years, Australia, 2005–06**

ICD-10-AM Code	Accidental poisoning by and exposure to:	Age at admission					Total
		0–11 months	1 year	2 years	3 years	4 years	
X40	Nonopioid analgesics, antipyretics and antirheumatics	20	44	102	34	17	217
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	10	93	229	88	30	450
X42	Narcotics and psychodysleptics [hallucinogens]	*	15	21	11	*	53
X43	Other drugs acting on the autonomic nervous system	*	22	38	18	*	91
X44	Other and unspecified drugs, medicaments and biological substances	22	138	213	106	30	509
<b>Total</b>		<b>60</b>	<b>312</b>	<b>603</b>	<b>257</b>	<b>88</b>	<b>1,320</b>
<b>Per cent</b>		<b>4.5</b>	<b>23.6</b>	<b>45.7</b>	<b>19.5</b>	<b>6.7</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

## Length of stay

Mean length of stay for poisoning by pharmaceuticals increased with age (Figure 2.4.3). The mean length of stay was 1.2 days for children aged 0–14 years, 1.5 days for young people aged 15–24 years, 2.0 days for adults aged 25–44 years, 2.9 days for adults aged 45–64 years and 4.7 days for older people aged 65+ years.



## Time trends

Age-standardised rates for hospitalised unintentional poisoning by pharmaceuticals decreased in recent years from 49.5 per 100,000 of the population in 1999-00 to 31.1 per 100,000 in 2005-06 (Figure 2.4.4). Age-standardised rates decreased for both males and females (males: from 49.7 per 100,000 in 1999-00 to 29.0 per 100,000 in 2005-06, females: from 49.4 per 100,000 in 1999-00 to 33.1 per 100,000 in 2005-06).

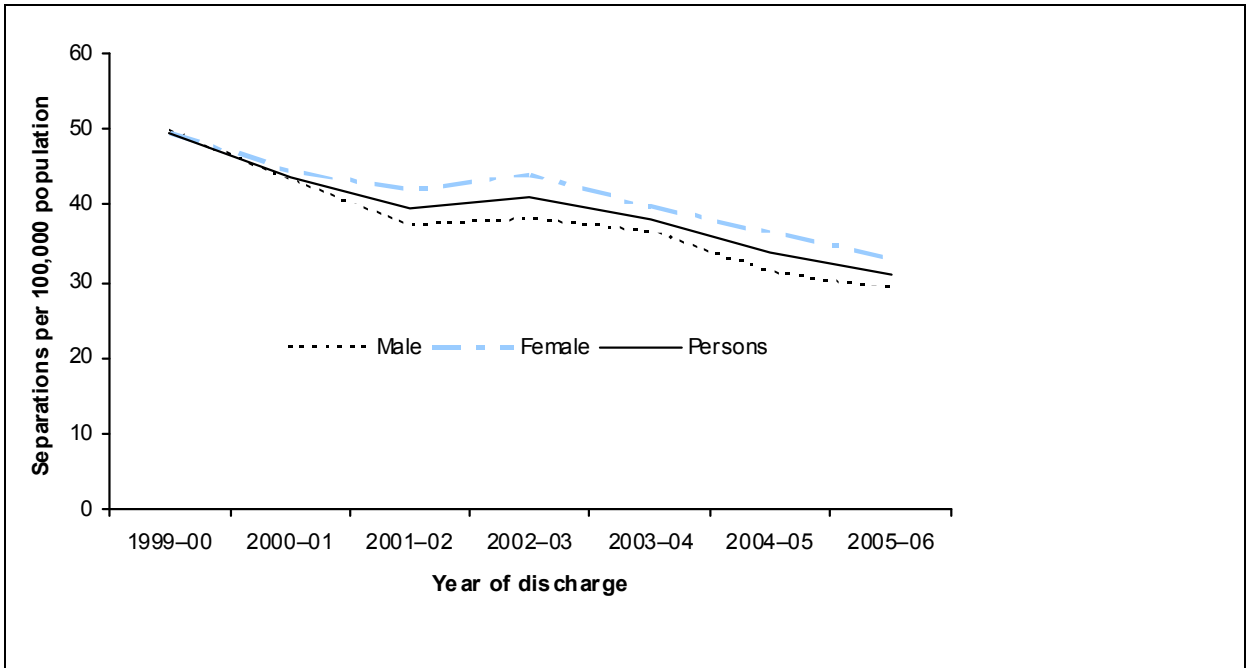


Figure 2.4.4: Age-standardised rates for poisoning by pharmaceuticals by sex, Australia, 1999-00 to 2005-06

The decrease in age-standardised rates for all ages in recent years was mainly attributable to a decline in age-standardised rates for people aged less than 45 years (Figure 2.4.5).

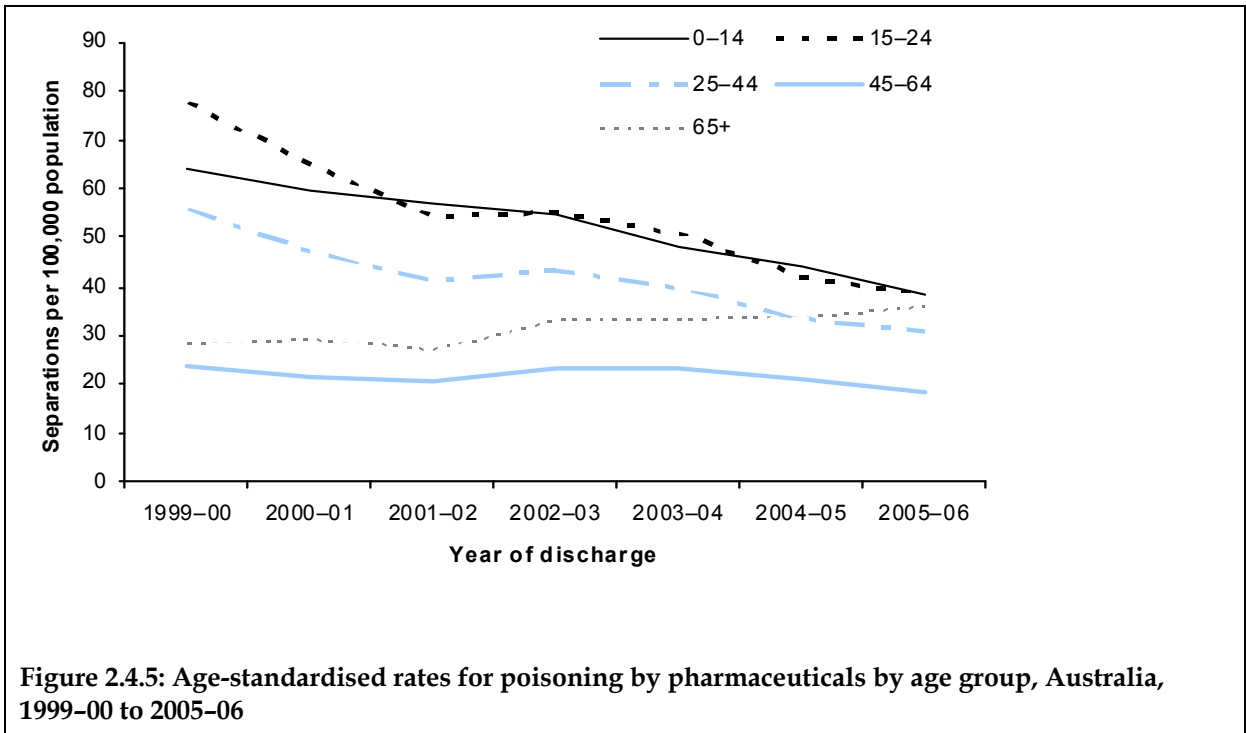


Figure 2.4.5: Age-standardised rates for poisoning by pharmaceuticals by age group, Australia, 1999-00 to 2005-06



## Place of occurrence

Location was not specified or reported for 30% of cases (unspecified;  $n = 1,919$ , not reported/not applicable;  $n = 12$ ). The following observations are restricted to those cases in which the place of occurrence was specified. The majority of hospitalised cases due to poisoning by pharmaceuticals occurred in the home (82%;  $n = 3,639$ ) (Table 2.4.6). Of the 139 cases that occurred in a residential institution, nearly 73% ( $n = 102$ ) occurred in aged care facilities. Of the 123 cases that occurred in a trade and service area, two-thirds occurred in a café, hotel or restaurant ( $n = 83$ ).

For children aged 0–4 years for whom a place of occurrence was specified ( $n = 1,020$ ), almost all poisoning by pharmaceuticals occurred in the home (97%;  $n = 986$ ).

**Table 2.4.6: Place of occurrence for cases of poisoning by pharmaceuticals, Australia, 2005–06**

Place	Persons	Per cent
Home	3,639	82.2
Residential institution	139	3.1
School	12	0.3
Health Service area	376	8.5
Other specified institution and public administrative area	15	0.3
Sports and athletics area	*	
Street and highway	37	0.8
Trade and service area	123	2.8
Industrial and construction area	9	0.2
Farm	*	
Other specified place of occurrence	71	1.6
<b>Total</b>	<b>4,427</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

## 2.5 Poisoning, other substances

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: X45–X49

**Table 2.5.1: Key indicators for poisoning by other substances cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to poisoning, other substances	1,489	1,005	2,494
Percentage of all community injury separations	0.6	0.6	0.6
Estimated cases*	1,421	977	2,398
Crude rate/100,000 population	13.9	9.4	11.7
Age-standardised rate/100,000 population	13.9	9.4	11.7
Mean length of stay (days)	2.0	1.6	1.9
Total patient days	2,854	1,600	4,454

\* Omits inward transfers from acute hospitals.

This chapter includes hospitalisations arising from the toxic effects of accidental contact with substances which are chiefly non-medicinal. These accounted for 1% of all community injury separations in the financial year 2005–06 (Table 2.5.1).

This chapter does not include unintentional poisoning by pharmaceuticals ( $n = 6,358$ ; see Chapter 2.4), intentional self-poisoning by other substances ( $n = 1,144$ , see Chapter 2.9), assault by poisoning ( $n = 80$ ; see Chapter 2.10), or poisoning of undetermined intent ( $n = 3,783$ ; see Chapter 2.11).

### Age and sex distribution

More males than females were hospitalised for accidental poisoning by other substances (based on age-standardised rates) with a M:F rate ratio of 1.5:1 (Figure 2.5.1). Rates of poisoning from non-medicinal sources were highest in children aged 0–4 years (males: 37.7 per 100,000, females: 29.2 per 100,000) but much lower in older children. Rates rose for youth and young people (15–24 years) and then declined gradually until the age of 75 when rates rose again for both sexes.

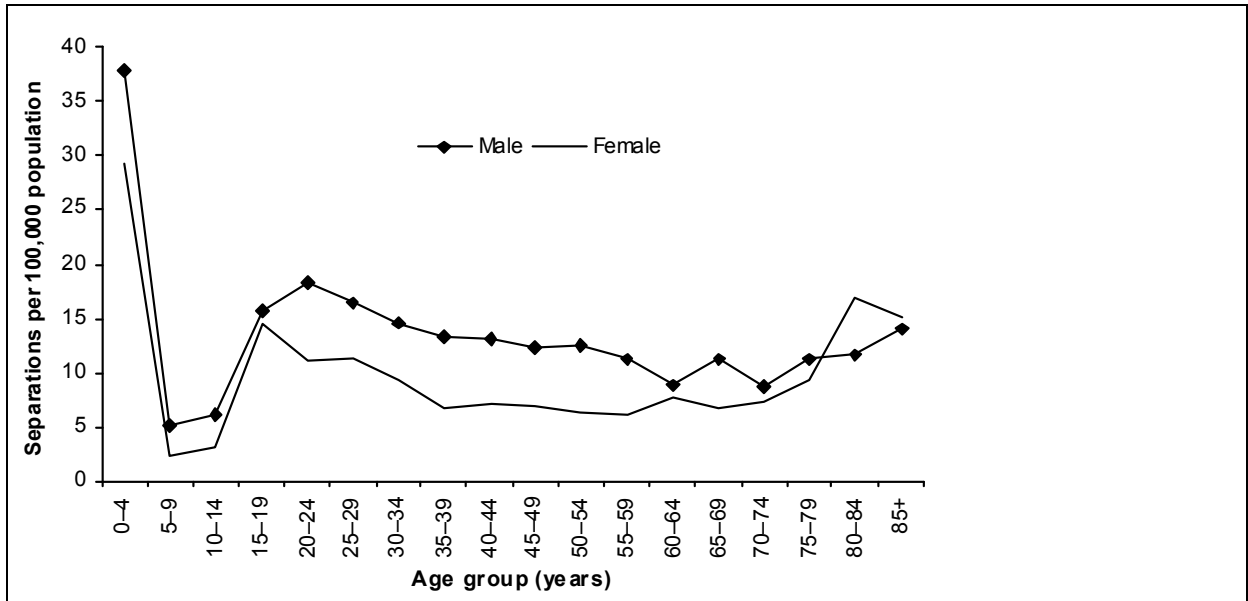


Figure 2.5.1: Age-specific hospital separation rates for poisoning by other substances by sex, Australia, 2005-06

Close to one-fifth of poisoning by other substances occurred in young children aged 0-4 years of age and over one-quarter occurred in adults aged 25-44 years (Table 2.5.2).

Table 2.5.2: Cases of poisoning by other substances by age group, Australia, 2005-06

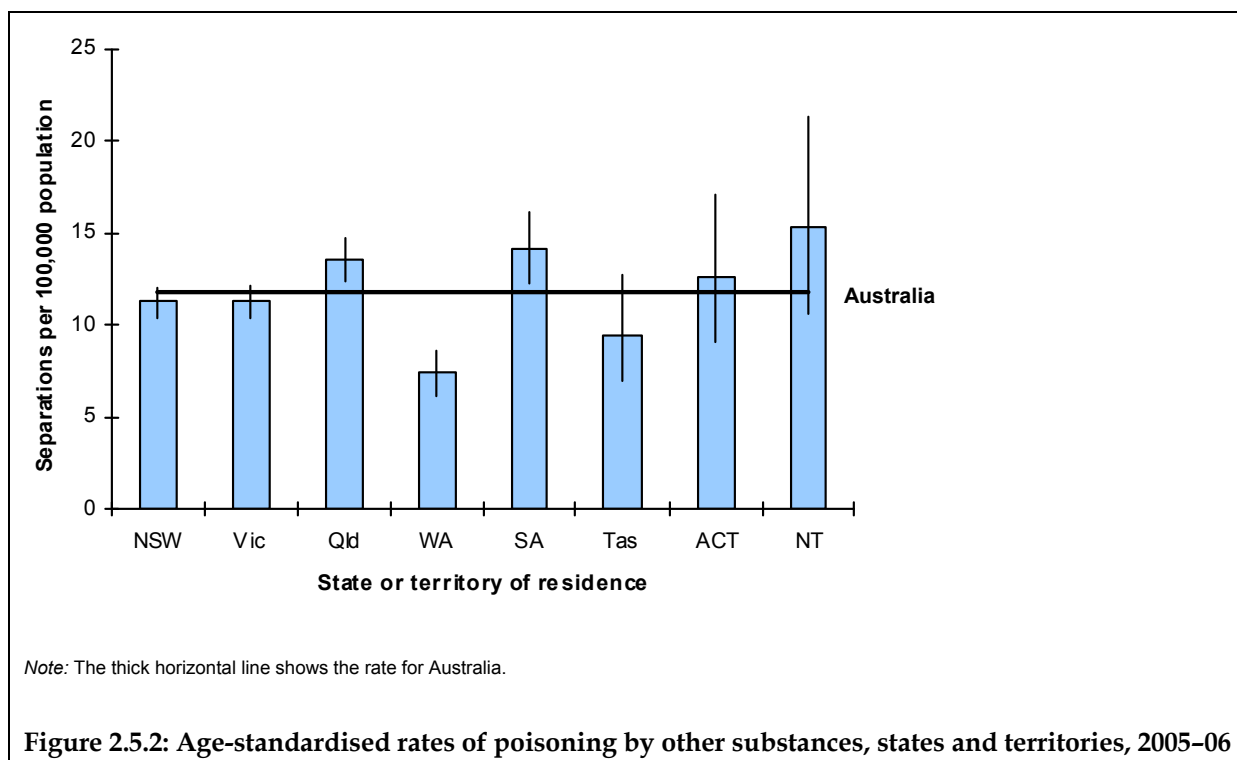
Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-4 years	252	17.7	185	18.9	437	18.2
5-14 years	80	5.6	37	3.8	117	4.9
15-24 years	247	17.4	177	18.1	424	17.7
25-44 years	423	29.8	257	26.3	680	28.4
45-64 years	289	20.3	171	17.5	460	19.2
65+ years	130	9.1	150	15.4	280	11.7
<b>Total</b>	<b>1,421</b>	<b>100.0</b>	<b>977</b>	<b>100.0</b>	<b>2,398</b>	<b>100.0</b>

## State and territory differences

Western Australia and Tasmania had rates of poisoning by other substances that were below the national rate (Table 2.5.3 and Figure 2.5.2), although the slight overlap of the confidence interval for the latter with the line showing the Australian rate suggests that the difference was not statistically significant. New South Wales and Victoria had rates that were similar to the national rate. Rates that were above the national rate were found in Queensland, South Australia, the Australian Capital Territory and the Northern Territory. The confidence intervals for these jurisdictions suggest that the difference from the national rate was only significant for Queensland and South Australia.

**Table 2.5.3: Age-standardised rates of poisoning by other substances, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	11.3	10.5–12.1
Vic	11.3	10.3–12.2
Qld	13.6	12.4–14.7
WA	7.4	6.2–8.6
SA	14.2	12.3–16.1
Tas	9.5	6.9–12.7
ACT	12.7	9.2–17.0
NT	15.3	10.7–21.3
<b>Australia</b>	<b>11.7</b>	<b>11.2–12.2</b>



**Figure 2.5.2: Age-standardised rates of poisoning by other substances, states and territories, 2005-06**

## Mechanism

Almost all (97.7%;  $n = 2,342$ ) of admitted injury cases did not specify a particular body part that was injured due to the mechanism being poisoning.

Around two-thirds of hospital cases of non-medicinal poisoning were as a result of *accidental poisoning by and exposure to other and unspecified chemicals and noxious substances* ( $n = 1,596$ ). This is a diverse category that includes corrosive and caustic agents, glues and adhesives, paints, dyes, soaps and detergents, poisonous foodstuffs and poisonous plants, among others.

Eleven per cent of hospital cases were as a result of *accidental poisoning by and exposure to alcohol*.

Six per cent of hospital cases were from *accidental poisoning by and exposure to other gases and vapours*. This category includes carbon monoxide, among various others.

Seven per cent of hospital cases were from *accidental poisoning by and exposure to pesticides*.

Six per cent of hospital cases were from *accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours*.

Table 2.5.4 shows the distribution of cases of poisoning by other substances by gender and age group. Poisoning by *organic solvents and halogenated hydrocarbon and their vapours* and *poisoning by pesticides* was most common in children aged 0-14 years. *Alcohol* poisoning occurred mostly in youth and young people (15-24 years) and adults aged 25-44 years. Poisoning by *other and unspecified chemicals and noxious substances* was most common in adults aged 25-44 years.

Table 2.5.4: External causes of poisoning by other substances by age and sex, Australia, 2005-06

ICD-10-AM Code	Accidental poisoning by and exposure to:	0-14 years		15-24 years		25-44 years		45-64 years		65+ years		Total	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
<b>Male</b>													
X45	Alcohol	17	11.3	61	40.4	47	31.1	*	14.6	*	2.6	151	100.0
X46	Organic solvents and halogenated hydrocarbons and their vapours	63	54.3	17	14.7	18	15.5	*	12.9	*	2.6	116	100.0
X47	Other gases and vapours	12	8.1	19	12.8	62	41.9	44	29.7	11	7.4	148	100.0
X48	Pesticides	48	41.4	9	7.8	23	19.8	24	20.7	12	10.3	116	100.0
X49	Other and unspecified chemicals and noxious substances	192	21.6	141	15.8	273	30.7	184	20.7	100	11.2	890	100.0
<b>Total</b>		<b>332</b>	<b>23.4</b>	<b>247</b>	<b>17.4</b>	<b>423</b>	<b>29.8</b>	<b>289</b>	<b>20.3</b>	<b>130</b>	<b>9.1</b>	<b>1,421</b>	<b>100.0</b>
<b>Female</b>													
X45	Alcohol	16	11.5	57	41.0	41	29.5	20	14.4	5	3.6	139	100.0
X46	Organic solvents and halogenated hydrocarbons and their vapours	23	65.7	*	14.3	*	11.4	*	8.6	0	0.0	35	100.0
X47	Other gases and vapours	5	10.4	6	12.5	20	41.7	10	20.8	7	14.6	48	100.0
X48	Pesticides	27	55.1	*	8.2	*	14.3	*	14.3	*	8.2	49	100.0
X49	Other and unspecified chemicals and noxious substances	151	21.4	105	14.9	185	26.2	131	18.6	134	19.0	706	100.0
<b>Total</b>		<b>222</b>	<b>22.7</b>	<b>177</b>	<b>18.1</b>	<b>257</b>	<b>26.3</b>	<b>171</b>	<b>17.5</b>	<b>150</b>	<b>15.4</b>	<b>977</b>	<b>100.0</b>

Note: Shaded areas indicate the highest figure for a row.

\* Small cell counts have been suppressed.

## Young children aged 0–4 years

A considerable proportion of accidental poisonings from non-medicinal sources occurred in young children aged 0–4 years (18%;  $n = 437$ ), and most of these (84%) occurred before the third birthday (Table 2.5.5).

*Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances* in children aged 0–4 years of age accounted for 61% ( $n = 267$ ) of all cases of poisoning due to other substances. This category included the toxic effects of; corrosive substances ( $n = 64$ ), soaps and detergents ( $n = 26$ ), tobacco and nicotine ( $n = 18$ ), noxious substances eaten as food ( $n = 16$ ), among others. *Organic solvents and halogenated hydrocarbons and their vapours* accounted for 18% ( $n = 77$ ) of all cases of poisoning by other substances; most cases were petroleum products ( $n = 35$ ) and other specified organic solvents ( $n = 31$ ). *Accidental poisoning and exposure to pesticides* accounted for 16% ( $n = 70$ ) of all cases of poisoning by other substances; most cases were rodenticides ( $n = 19$ ) and organophosphate and carbamate insecticides ( $n = 18$ ). *Accidental poisoning by and exposure to alcohol and other gases and vapours* in children aged 0–4 years constituted only a small proportion of poisoning by other substances, 3.7% and 1.6%, respectively.

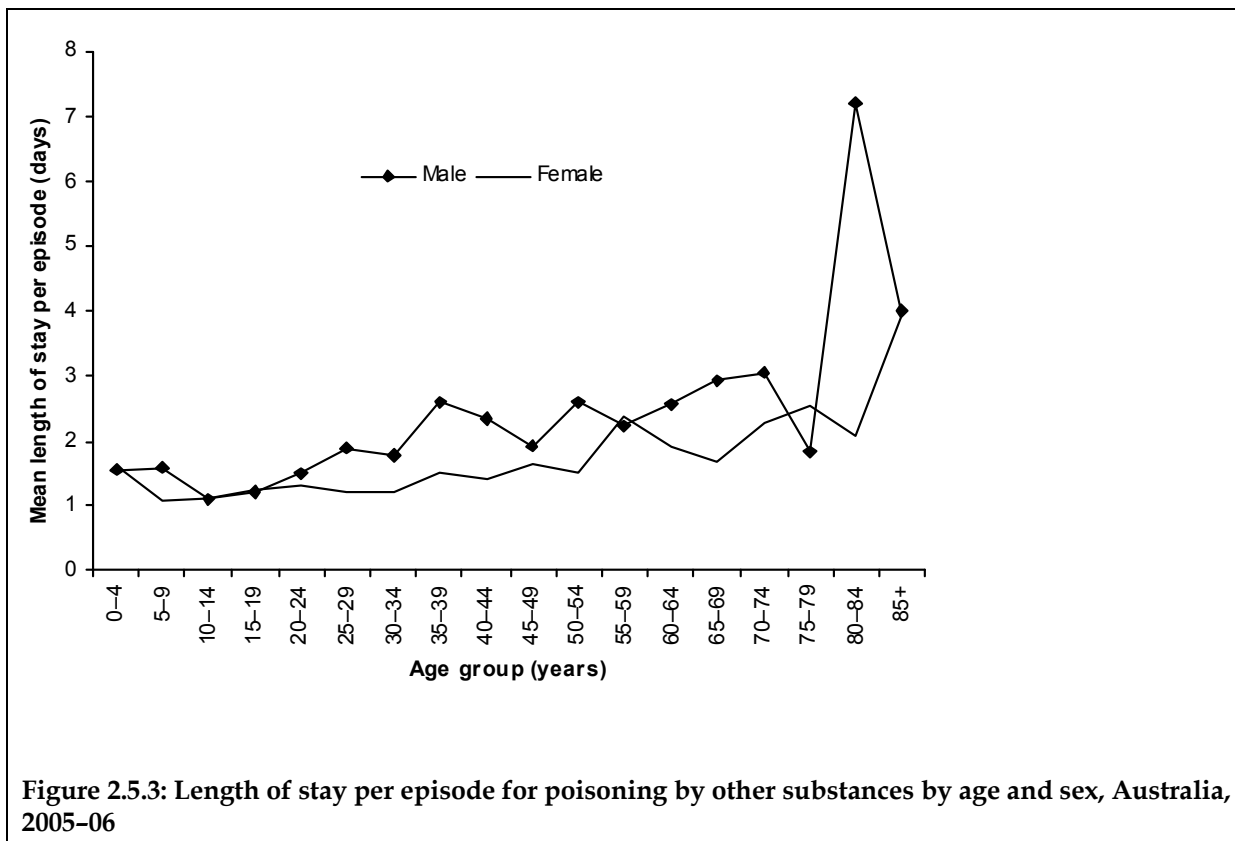
**Table 2.5.5: Mechanism of poisoning by other substances in children 0–4 years, Australia, 2005–06**

ICD-10-AM Code	Accidental poisoning by and exposure to:	Age at admission					Total
		0–11 months	1 year	2 years	3 years	4 years	
X45	Alcohol	*	*	*	*	*	16
X46	Organic solvents and halogenated hydrocarbons and their vapours	*	44	19	7	*	77
X47	Other gases and vapours	*	*	*	0	*	7
X48	Pesticides	7	27	25	7	*	70
X49	Other and unspecified chemicals and noxious substances	23	139	63	22	20	267
<b>Total</b>		<b>39</b>	<b>216</b>	<b>113</b>	<b>38</b>	<b>31</b>	<b>437</b>
<b>Per cent</b>		<b>8.9</b>	<b>49.4</b>	<b>25.9</b>	<b>8.7</b>	<b>7.1</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

## Length of stay

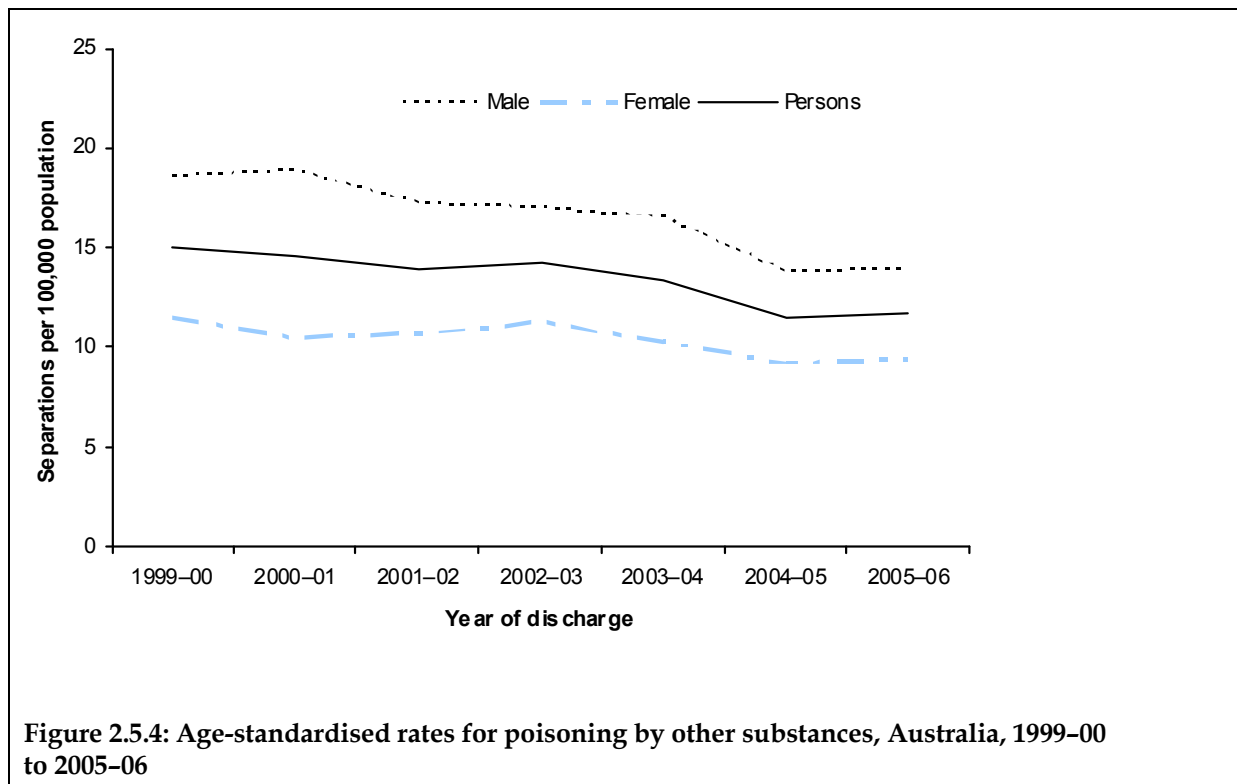
Mean length of stay was shorter for unintentional poisoning by other substances (1.9 days for persons, all ages) than for the types of cases reported in any other chapter of this report. Mean length of stay for poisoning by other substances increased with age, though less than for most types of *Community injury* (Figure 2.5.3). The mean length of stay was 1.5 days for children aged 0–14 years, 1.3 days for young people aged 15–24 years, 1.8 days for adults aged 25–44 years, 2.1 days for adults aged 45–64 years and 3.0 days for older people aged 65+ years.





## Time trends

Age-standardised rates for poisoning by other substances declined in recent years from 15.0 per 100,000 of the population in 1999–00 to 11.7 per 100,000 in 2005–06 (Figure 2.5.4). Male rates declined from 18.6 per 100,000 in 1999–00 to 13.9 per 100,000 in 2005–06. Male rates were consistently higher than female rates, which showed less change over time; 11.4 per 100,000 in 1999–00 and 9.4 per 100,000 in 2005–06.



## Place of occurrence

Location was not specified or reported for 42% of cases (unspecified;  $n = 1,013$ , not reported/not applicable;  $n = 2$ ). The following observations are restricted to those cases in which the place of occurrence was specified. Sixty-three per cent of injuries from poisoning by other substances occurred in the home ( $n = 871$ ) (Table 2.5.6).

For children aged 0–4 years for whom a place of occurrence was specified ( $n = 336$ ), almost all poisoning by other substances occurred in the home (95.2%;  $n = 320$ ).

**Table 2.5.6: Place of occurrence for cases of poisoning by other substances, Australia, 2005–06**

Place	Persons	Per cent
Home	871	63.0
Residential institution	25	1.8
School	18	1.3
Health Service area	21	1.5
Other specified institution and public administrative area	5	0.4
Sports and athletics area	8	0.6
Street and highway	10	0.7
Trade and service area	203	14.7
Industrial and construction area	133	9.6
Farm	27	2.0
Other specified place of occurrence	62	4.5
<b>Total</b>	<b>1,383</b>	<b>100.0</b>

## 2.6 Fires, burns and scalds

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: X00–X19

**Table 2.6.1: Key indicators for fires burns and scalds cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to fires, burns and scalds	4,073	2,166	6,239
Percentage of all injury separations	1.8	1.3	1.6
Estimated cases*	3,542	1,915	5,457
Crude rate/100,000 population	34.7	18.5	26.5
Age-standardised rate/100,000 population	34.8	18.9	26.9
Mean length of stay (days)	5.8	5.5	5.7
Total patient days	20,402	10,498	30,900

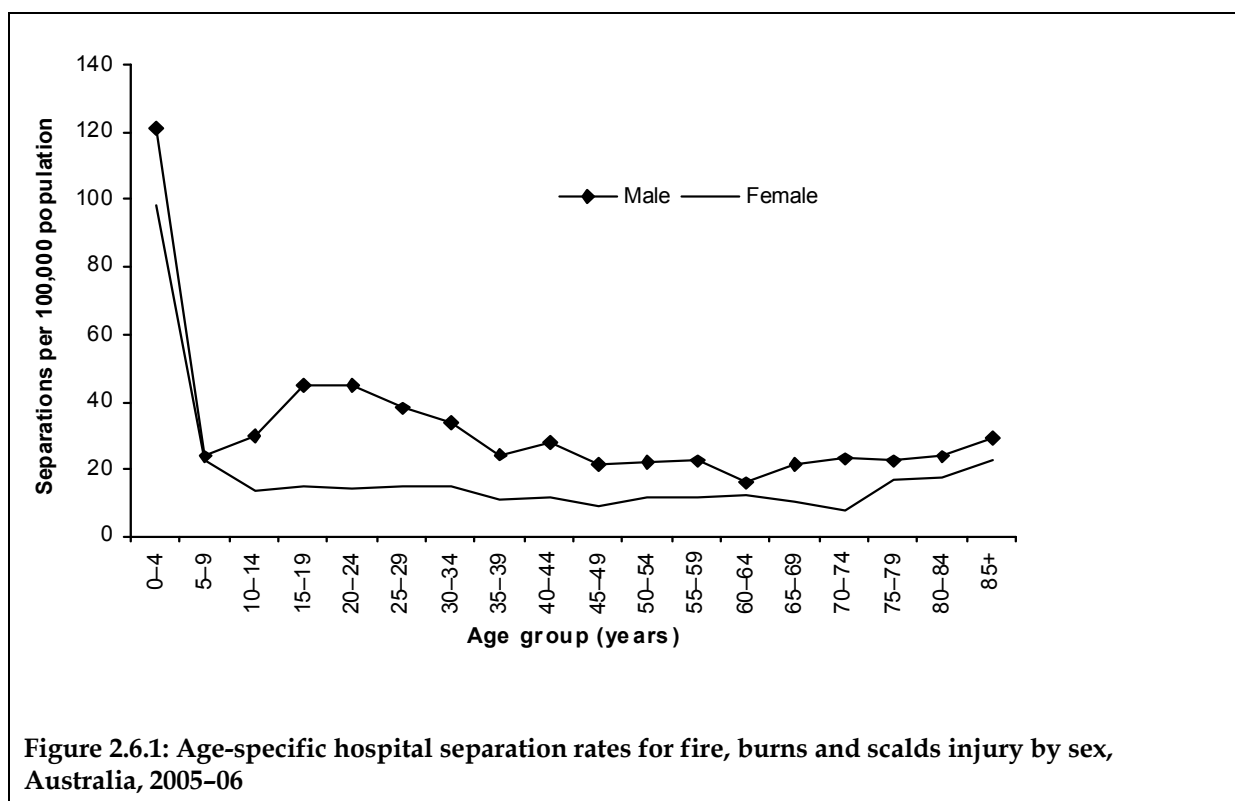
\* Omits inward transfers from acute hospitals.

This chapter includes *Community injury* cases in which the first reported external cause is unintentional *exposure to smoke, fire and flames* (ICD-10-AM X00–X09) or *contact with heat and hot substances* (X10–X19). These include most, but not all, injuries due to thermal and related external causes. Fire, burns and scalds injury accounted for 1.6% of all injury hospitalisations in the financial year 2005–06 (Table 2.6.1).

This chapter does not include injuries due to explosion and rupture of boilers ( $n = 8$ ), explosion and rupture of gas cylinder ( $n = 99$ ), discharge of fireworks ( $n = 52$ ), explosion of other materials (e.g. munitions, blasting material) ( $n = 197$ ), exposure to electric current ( $n = 589$ ), exposure to extreme heat of man-made origin, natural heat or volcanic eruption ( $n = 476$ ), sunlight ( $n = 21$ ), or lightning ( $n = 22$ ), all of which are covered by Chapter 2.8. Injuries attributable to intentional self-harm by explosive material ( $n = 2$ ), smoke, fire and flames ( $n = 86$ ) or steam, hot vapours and hot objects ( $n = 21$ ) are covered by Chapter 2.9. Injuries resulting from assault by means of explosive material ( $n = 25$ ), smoke, fire and flames ( $n = 35$ ) or steam, hot vapours and hot objects ( $n = 36$ ) are covered by Chapter 2.10 as are injuries from legal interventions involving explosives ( $n = 0$ ), war operations involving explosions and fragments ( $n = 2$ ), or fires, conflagrations and hot substances ( $n = 0$ ). Events of undetermined intent – contact with explosive material or smoke, fire and flames ( $n = 85$ ) or steam, hot vapours and hot objects ( $n = 15$ ) are included in Chapter 2.11.

## Age and sex distribution

More males than females were injured by fires, burns and scalds (based on age-standardised rates) by 1.8:1 (Figure 2.6.1). Rates were highest for young children aged 0–4 years (males: 121.4 per 100,000, females: 98.3 per 100,000).



Close to 40% of those injured were children aged 0–14 years; young children aged 0–4 years comprised over a quarter of injury cases due to fires, burns and scalds. Nearly a quarter of hospital cases were adults aged 25–44 years, whereas only 9% of those injured were older people aged 65+ years (Table 2.6.2). Sixty-five per cent of those injured were male.

**Table 2.6.2: Fires, burns and scalds cases by age group, Australia, 2005–06**

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0–4 years	811	22.9	622	32.5	1433	26.3
5–14 years	373	10.5	236	12.3	609	11.2
15–24 years	652	18.4	197	10.3	849	15.6
25–44 years	915	25.8	382	19.9	1297	23.8
45–64 years	518	14.6	275	14.4	793	14.5
65+ years	273	7.7	203	10.6	476	8.7
<b>Total</b>	<b>3,542</b>	<b>100.0</b>	<b>1,915</b>	<b>100.0</b>	<b>5,457</b>	<b>100.0</b>

## State and territory differences

The most notable aspect of Table 2.6.3 and Figure 2.6.2 is the extent to which the Northern Territory's rate of injury due to fires, burns and scalds exceeded the national rate. With the exception of Tasmania, rates for all jurisdictions were significantly higher or lower than the rate for Australia as a whole. Of the 180 hospital cases of residents in the Northern Territory, well over half ( $n = 112$ ) were recorded as being Aboriginal and Torres Strait Islander persons.

**Table 2.6.3: Age-standardised rates of fires, burns and scalds, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	24.9	23.7–26.1
Vic	19.5	18.3–20.7
Qld	32.4	30.7–34.2
WA	22.8	20.7–24.9
SA	40.6	37.4–43.8
Tas	27.7	23.0–32.4
ACT	17.1	13.0–22.1
NT	81.9	69.9–93.8
<b>Australia</b>	<b>26.9</b>	<b>26.2–27.6</b>



## Principal diagnosis and body part injured

Six specific body areas accounted for 90% ( $n = 4,926$ ) of all fire, burn and scald injuries ( $n = 5,457$ ) (Table 2.6.4). Fires, burns and scalds involved all major body regions with similar frequency – the top two being *burn of wrist and hand* (20%) and *burn of head and neck* (17%). *Burn of wrist and hand* was most common for males (21%) and *burn of trunk* was most common for females (21%).

**Table 2.6.4: Top 6 specific injuries for fires, burns and scalds, Australia, 2005–06**

Principal Diagnosis	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Burn of wrist and hand	727	20.5	335	17.5	1062	19.5
Burn of head and neck	679	19.2	262	13.7	941	17.2
Burn of trunk	456	12.9	406	21.2	862	15.8
Burn of hip and lower limb, except wrist and hand	543	15.3	310	16.2	853	15.6
Burn of shoulder and upper limb, except wrist and hand	388	11.0	233	12.2	621	11.4
Burn of ankle and foot	407	11.5	180	9.4	587	10.8
<b>Sub-total of top 6 diagnoses</b>	<b>3,200</b>	<b>90.3</b>	<b>1,726</b>	<b>90.1</b>	<b>4,926</b>	<b>90.3</b>

For all ages, the most common fire, burns and scalds injuries presenting to hospital were from *contact with hot drinks, foods, fats and cooking oils* (21%), followed by *contact with other hot fluids* e.g. water heated on a stove (14%) and *exposure to ignition of highly flammable material* e.g. gasoline, kerosene, petrol (14%) (Table 2.6.5). There were some differences by gender; although the most common cause of hospitalisation for both sexes was *contact with hot drinks, food, fats and cooking oils* (18% for males and 29% for females), the second most common cause of hospitalisation for males was *exposure to ignition of highly flammable materials* such as gasoline, kerosene, petrol etc (19%) whereas for females it was *contact with other hot fluids* e.g. hot water heated on a stove (19%).

In the context of the broader age groups identified in the National Injury Prevention and Promotion Plan: 2004–2014 (Pointer et al. 2003; SIPP 2005) the leading causes of fires, burns and scald hospitalisations were *contact with hot drinks, food, fats and cooking oils* for children aged 0–14 years ( $n = 665$ , 12.2% of all cases), *contact with other hot fluids* such as water heated on a stove for children aged 0–14 years ( $n = 343$ ; 6.3% of all cases), *exposure to ignition of highly flammable material* in adults aged 25–44 years ( $n = 249$ ; 4.6% of all cases) and youth and young adults aged 15–24 years ( $n = 239$ ; 4.4% of all cases) and *contact with hot tap-water* in children aged 0–14 years ( $n = 185$ ; 3.4% of all cases).

Admissions to hospital due to house fires (i.e. *exposure to uncontrolled fire in building or structure*) constituted only 3.6% of all fires, burns and scalds cases in 2005–06 ( $n = 196$ ). Young children aged 0–14 years comprised only 0.5% of all *exposure to uncontrolled fire in building or structure* ( $n = 28$ ), 0.5% were youth and young people aged 15–24 years ( $n = 30$ ), 1.4% were adults aged 25–44 years ( $n = 77$ ), 0.6% were adults aged 45–64 years ( $n = 32$ ) and 0.5% were older people aged 65+ years ( $n = 29$ ).

The main causes of fires, burns and scalds injury in older people aged 65+ years were *contact with hot drinks, food, fats and cooking oils* ( $n = 69$ ; 1.3% of all cases), *contact with other hot fluids* such as water heated on a stove ( $n = 61$ ; 1.1% of all fires, burns and scalds cases), and *contact with hot tap-water* ( $n = 59$ ; 1.1% of all cases).

**Table 2.6.5: External causes of fire, burns and scalds injury by sex, Australia, 2005–06**

ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
X00	Exposure to uncontrolled fire in building or structure	124	3.5	72	3.8	196	3.6
X01	Exposure to uncontrolled fire, not in building or structure (e.g. forest fire)	71	2.0	11	0.6	82	1.5
X02	Exposure to controlled fire in building or structure (e.g. fireplace, stove)	72	2.0	40	2.1	112	2.1
X03	Exposure to controlled fire, not in building or structure (e.g. camp-fire)	205	5.8	51	2.7	256	4.7
X04	Exposure to ignition of highly flammable material (e.g. gasoline, kerosene, petrol)	666	18.8	77	4.0	743	13.6
X05	Exposure to ignition or melting of nightwear	*	0.0	*	0.4	9	0.2
X06	Exposure to ignition or melting of other clothing and apparel	70	2.0	35	1.8	105	1.9
X08	Exposure to other specified smoke, fire and flames	97	2.7	57	3.0	154	2.8
X09	Exposure to unspecified smoke, fire and flames	267	7.5	105	5.5	372	6.8
X10	Contact with hot drinks, food, fats and cooking oils	620	17.5	547	28.6	1,167	21.4
X11	Contact with hot tap-water	181	5.1	186	9.7	367	6.7
X12	Contact with other hot fluids (e.g. water heated on stove)	385	10.9	357	18.6	742	13.6
X13	Contact with steam and hot vapours	112	3.2	47	2.5	159	2.9
X14	Contact with hot air and gases	*	0.4	*	0.1	15	0.3
X15	Contact with hot household appliances	144	4.1	84	4.4	228	4.2
X16	Contact with hot heating appliances, radiators and pipes	152	4.3	88	4.6	240	4.4
X17	Contact with hot engines, machinery and tools	94	2.7	33	1.7	127	2.3
X18	Contact with other hot metals	64	1.8	21	1.1	85	1.6
X19	Contact with other and unspecified heat and hot substances	204	5.8	94	4.9	298	5.5
<b>Total</b>		<b>3,542</b>	<b>100.0</b>	<b>1,915</b>	<b>100.0</b>	<b>5,457</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 or 3 figures for a column.

\*Small cell counts have been suppressed.

## Young children aged 0–4 years

The greatest proportion of fires, burns and scalds injury occurred in young children aged 0–4 years (26.3%;  $n = 1,433$ ), and most of these (83%) occurred before the third birthday (Table 2.6.6). Over a third of injuries were from *contact with hot drinks, foods, fats and cooking oils*, and over one-quarter were from *contact with hot tap-water* and *contact with other hot fluids* (e.g. water heated on a stove). The number of injuries was highest at one year and declined after two years of age. This is the age range during which children become mobile and manipulate objects, yet lack awareness of the hazardous nature of hot liquids and hot objects. The other leading causes of fire, burns and scalds injury for young children were *contact with hot household appliances* such as hotplates, stoves and toasters (10.3%), *contact with hot heating appliances* such as radiators and pipes (5.6%). There were 5 cases of *exposure to ignition or melting of nightwear* among children (1 case in young children aged 0–4 years, and 4 cases in 5–9 year olds). There were also cases among adults (1 case in the 50–54 year age group, 2 cases among 65–69 year olds, and 1 case in the 80–84 year age group).

**Table 2.6.6: Top 5 mechanisms of fires, burns and scalds for young children aged 0–4 years, Australia, 2005–06**

ICD-10-AM Code	Accidental poisoning by and exposure to:	Age at admission					Total	Per cent
		0–11 months	1 year	2 years	3 years	4 years		
X10	Contact with hot drinks, food, fats and cooking oils	96	294	65	26	30	511	35.7
X12	Contact with other hot fluids (e.g. water heated on stove)	60	99	57	27	21	264	18.4
X15	Contact with hot household appliances	32	58	36	17	8	151	10.5
X11	Contact with hot tap-water	44	59	30	*	*	148	10.3
X16	Contact with hot heating appliances, radiators and pipes	*	29	9	*	*	80	5.6
X19	Contact with other and unspecified heat and hot substances	*	32	24	12	*	78	5.4
	<b>Sub-total</b>	265	571	221	100	75	1,232	86.0
X00–X09, X13, X17–X18	Other	19	66	48	32	36	201	14.0
	<b>Total</b>	<b>284</b>	<b>637</b>	<b>269</b>	<b>132</b>	<b>111</b>	<b>1,433</b>	<b>100.0</b>

Small cell counts have been suppressed.

## Length of stay

Of *Community injury* chapters in this report, only unintentional falls has a longer all ages mean length of stay than this chapter. The mean length of stay for fires, burns and scalds injury increased with age (Figure 2.6.3). The mean length of stay was 3.9 days for children aged 0–14 years, 4.7 days for young people aged 15–24 years, 5.2 days for adults aged 25–44 years, 7.1 days for adults aged 45–64 years and 13.7 days for older people aged 65+ years.



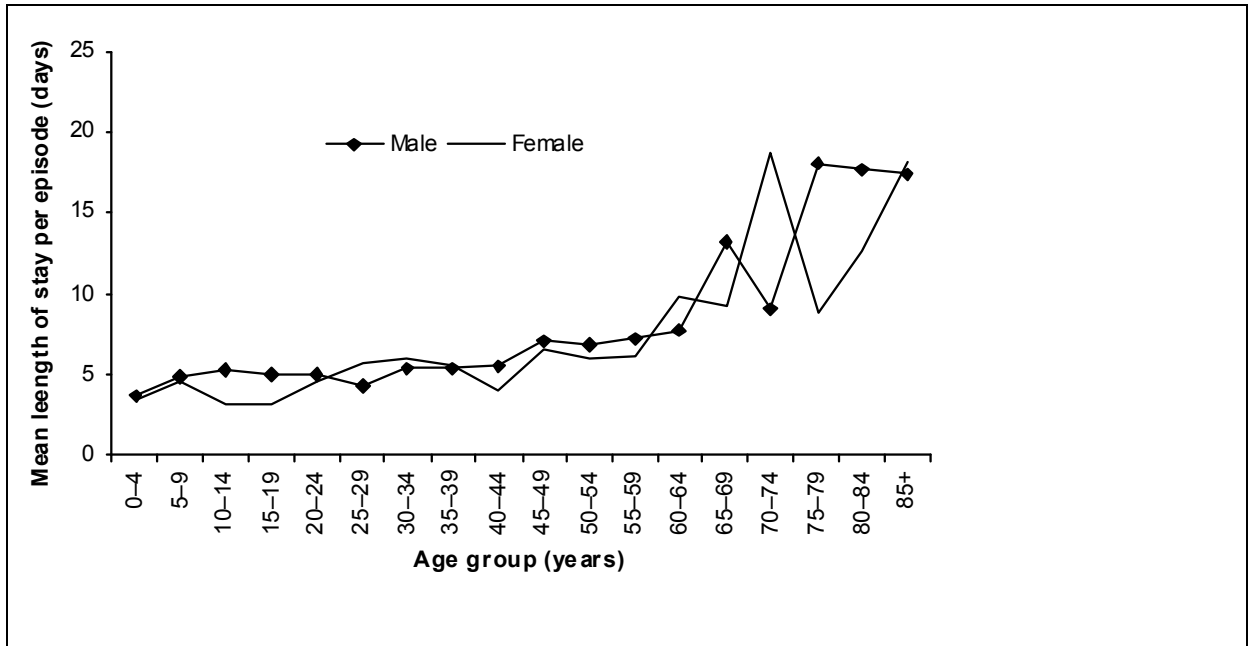
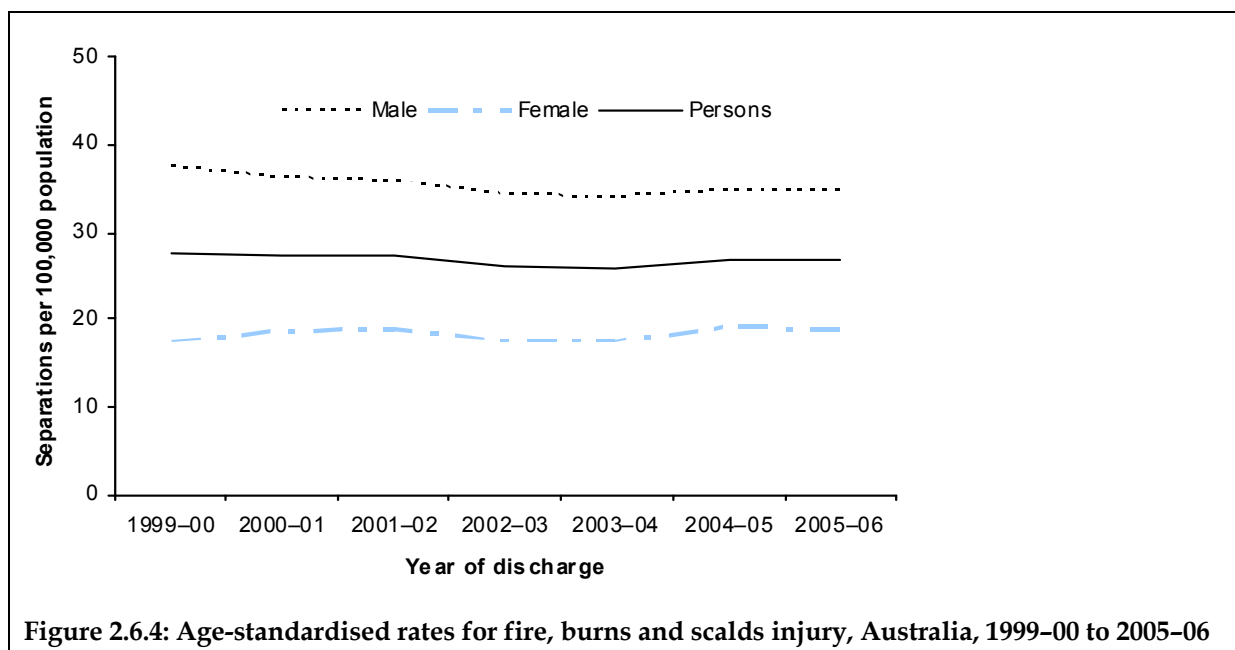


Figure 2.6.3: Length of stay per episode for fire, burns and scalds injury by age and sex, Australia, 2005-06

### Time trends

Although there was a gradual decline in age-standardised rates for fires, burns and scalds between 1999-00 and 2003-04 from 27.6 persons per 100,000 population to 25.8 per 100,000, that downward trend has not continued over the past two years. In 2004-05 the age-standardised rate rose to 27.0 per 100,000 and was 26.9 in 2005-06 (Figure 2.6.4). Male rates declined from 37.5 per 100,000 in 1999-00 to 34.8 per 100,000 in 2005-06. Male rates were consistently higher than female rates, which showed small fluctuations over time; 17.5 per 100,000 in 1999-00 and 18.9 per 100,000 in 2005-06.



## Place of occurrence

Location was not specified or reported for 33% of cases (unspecified;  $n = 1,804$ , not reported/not applicable;  $n = 2$ ). The following observations are restricted to those cases in which the place of occurrence was specified. Over three-quarters of hospital cases resulted from injuries that occurred in the home (79%;  $n = 2,872$ ) (Table 2.6.7).

Of the 159 cases that occurred in a trade and service area, 85 (53%) occurred in a café, hotel or restaurant. Of the 150 cases that occurred in an industrial or construction area, 81 occurred in a factory or plant. Of the 42 cases that occurred in a residential institution, 29 occurred in aged care facilities.

For children aged 0-4 years for whom a place of occurrence was specified ( $n = 1,118$ ), almost all fire, burns and scalds injuries occurred in the home (92%;  $n = 1,033$ ).

**Table 2.6.7: Place of occurrence for cases of fires, burns and scalds, Australia, 2005-06**

Place	Persons	Per cent
Home	2,872	78.7
Residential institution	42	1.2
School	20	0.5
Health service area	19	0.5
Other specified institution and public administrative area	4	0.1
Sports and athletics area	17	0.5
Street and highway	59	1.6
Trade and service area	159	4.4
Industrial and construction area	150	4.1
Farm	61	1.7
Other specified places	248	6.8
<b>Total</b>	<b>3,651</b>	<b>100.0</b>

## 2.7 Drowning and near-drowning

ICD-10-AM case inclusion

Principal Diagnosis: **S00-T75, T79** and

First reported external cause: **W65-W74**

All identifiable drowning and near-drowning (as shown in Table 2.7.2):

First reported external cause: **W65-W74, V90, V92, X71, X92, Y21**, plus various others

**Table 2.7.1: Key indicators for drowning and near-drowning cases, Australia, 2005-06**

Indicator	Males	Females	Persons
Separations from hospital due to drowning and near-drowning	373	172	545
Percentage of all community injury separations	0.2	0.1	0.1
Estimated cases*	334	160	494
Crude rate/100,000 population	3.3	1.5	2.4
Age-standardised rate/100,000 population	3.3	1.6	2.5
Mean length of stay (days)	3.1	2.5	2.9
Total patient days	1,044	398	1,442

\* Omits inward transfers from acute hospitals.

Drowning and near-drowning accounted for 0.1% of all injury hospitalisations in the financial year 2005-06 (Table 2.7.1). This chapter predominantly focuses on estimated cases of *Accidental drowning and submersion* that have an external cause in the ICD-10-AM range W65-W74 ( $n = 494$ ). There are 30 additional hospital cases that have an external cause code outside the range of *Accidental Drowning and submersion* (ICD-10-AM W65-W74) but have a Principal Diagnosis of T75.1 *Drowning and nonfatal submersion*. Section 2.7.1 provides an overview of all drowning and near-drowning cases ( $n = 524$ ) (Table 2.7.2).

## 2.7.1 Overview of all drowning and near-drowning cases

All identifiable hospitalised drowning and near-drowning cases in Australia in 2005–06 are summarised in Tables 2.7.2 and 2.7.3. Note that the total of 524 cases includes 30 cases that are also in the data for other chapters, since they involved both (near) drowning and another external cause.

**Table 2.7.2: All identifiable drowning and near-drowning cases, Australia, 2005–06**

No in 2005–06	Percentage of all drowning cases in 2005–06	ICD-10-AM Code	ICD Category	Coverage in this report	Terminology in this report
494	94.3	W65–W74	Accidental drowning and submersion	Drowning	Accidental drowning
11	2.1	V90, V92, V94	Water transport accident	Other transport	
8	1.5	X71	Suicide and self inflicted injury by drowning	Intentional, self-harm	Other drowning identified by external cause codes
*	*	Y21	Drowning and submersion	Undetermined intent	
*	*	Various	Various external cause codes that do not mention drowning (e.g. fall)	Various	Hidden drowning
<b>524</b>	<b>100.0</b>				<b>Total drowning with an external cause code</b>

*Note:* The total number of drowning hospital separations is the sum of cases with a first reported external cause code in the range W65–W74 and cases where the first reported external cause code fell outside this range but the case had a principal diagnosis code of T75.1 *Drowning and non-fatal submersion*.

\* Small counts have been suppressed.

Most hospitalised drowning and near-drowning (47%) occurred in the 0–4 year age group (Table 2.7.3). Swimming pools were the most common setting of drowning and near-drowning for children aged 0–4 years (70%) and children aged 5–14 years (53%). Natural water (e.g. rivers, lakes, the ocean) was the most common setting of drowning and near-drowning for those aged 15 years and over (percentages ranging from 46% in older people aged 65 years and over to 69% in people aged 25–44 year). Swimming pool-related cases in adults were less frequent (percentages ranging from 11% in young people aged 15–24 years to 27% in older people aged 65+ years). A greater proportion of older people aged 65+ years drowned or nearly drowned in swimming pools (27%) compared with other adults. Bathtub-related cases most commonly occurred in young children aged 0–4 years (17%). Overall, swimming pools were the most common setting for drowning-related cases (44%), followed by natural water (31%) and other or unspecified settings (16%).

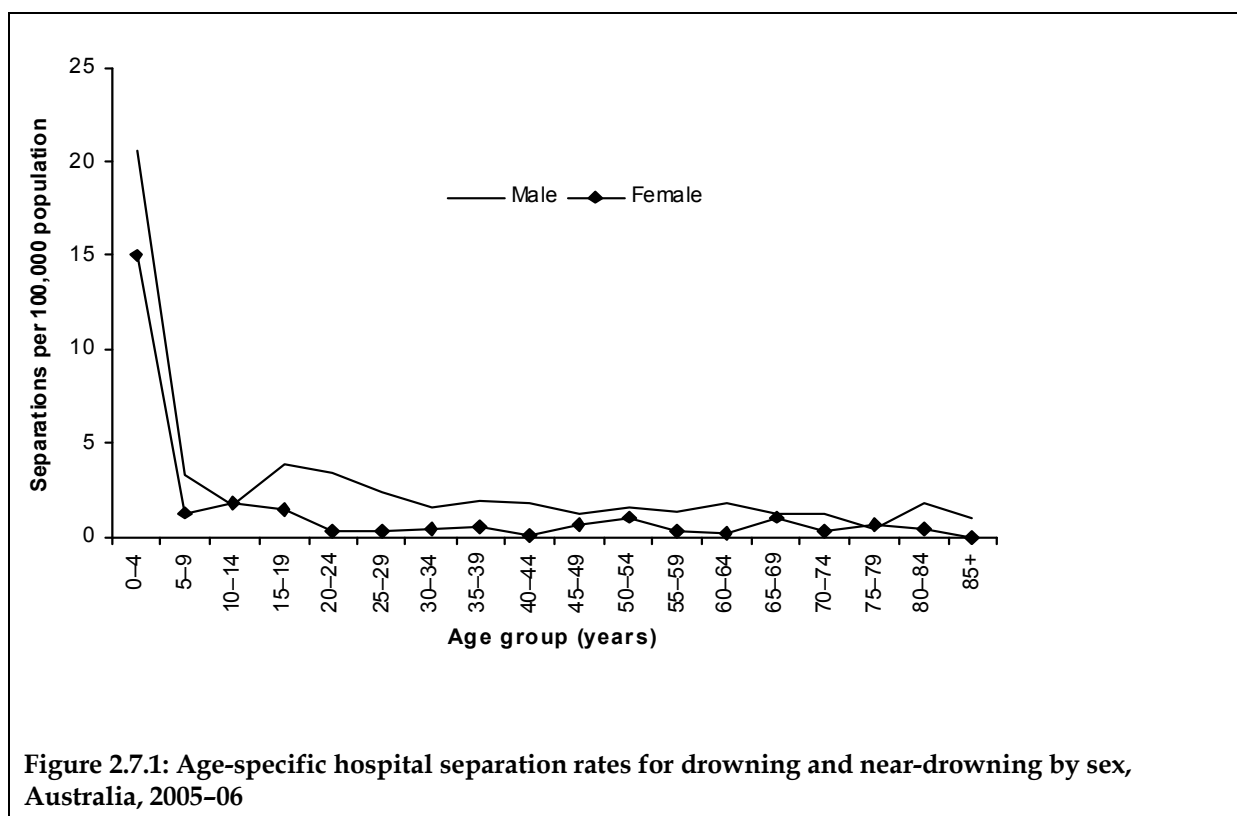
Table 2.7.3: Circumstances of accidental drowning and near-drowning cases by age, Australia, 2005-06

Circumstances of drowning	Age group (years)													
	0-4		5-14		15-24		25-44		45-64		65+		All ages	
	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent	Total	Per cent
Swimming pool	153	65.9	29	52.7	7	10.8	9	13.4	11	20.8	6	27.3	215	43.5
Natural water	13	5.6	15	27.3	43	66.2	46	68.7	28	52.8	10	45.5	155	31.4
Bathtub	40	17.2	*	1.8	*	1.5	0	0.0	*	1.9	0	0.0	43	8.7
Other or unspecified	26	11.2	*	18.2	*	21.5	12	17.9	*	24.5	6	27.3	81	16.4
<b>Group Total</b>	<b>232</b>	<b>100.0</b>	<b>55</b>	<b>100.0</b>	<b>65</b>	<b>100.0</b>	<b>67</b>	<b>100.0</b>	<b>53</b>	<b>100.0</b>	<b>22</b>	<b>100.0</b>	<b>494</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

## Age and sex distribution

The following sections focus on the *Accidental drowning and submersion* (ICD-10-AM W65-W74) category ( $n = 494$ ). The highest rates were in children aged 0–4 years (males: 20.5 per 100,000, females: 15.0 per 100,000) (Figure 2.7.1) and rates were much lower at older ages.



More males than females were hospitalised for drowning and near-drowning (based on age-standardised rates), by 2:1. Close to half of the drowning and near-drowning injury cases occurred in young children aged 0–4 years (Table 2.7.4).

**Table 2.7.4: Drowning and near-drowning cases by age group, Australia, 2005–06**

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0–4 years	137	41.0	95	59.4	232	47.0
5–14 years	35	10.5	20	12.5	55	11.1
15–24 years	53	15.9	12	7.5	65	13.2
25–44 years	57	17.1	10	6.3	67	13.6
45–64 years	38	11.4	15	9.4	53	10.7
65+ years	14	4.2	8	5.0	22	4.5
<b>Total</b>	<b>334</b>	<b>100.0</b>	<b>160</b>	<b>100.0</b>	<b>494</b>	<b>100.0</b>

Note: Shaded areas indicate the highest figure for a column.

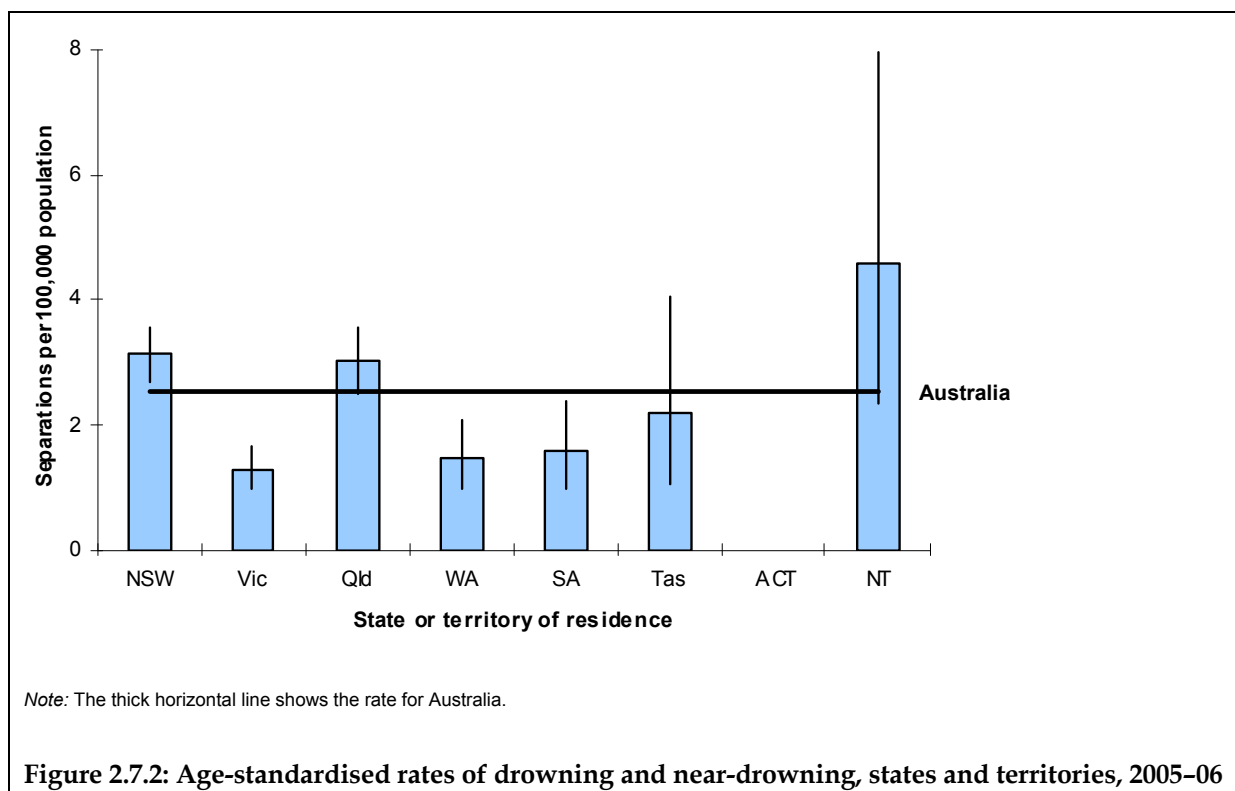
## State and territory differences

Victoria, Western Australia and South Australia had rates of drowning and near-drowning that were significantly below the national rate, and the New South Wales' rate was significantly above it (Table 2.7.5 and Figure 2.7.2). Tasmania's rate was consistent with the national rate. The rate for the Northern Territory was 84% above the national rate although note should be taken of the wide confidence intervals for that jurisdiction which suggest that considerable year to year variation can be expected. Rates for the Northern Territory in the two previous years, 2003–04 and 2004–05, were 1.9 and 3.6 per 100,000 respectively.

**Table 2.7.5: Age-standardised rates of drowning and near-drowning, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	2.4	2.1–2.8
Vic	1.7	1.4–2.1
Qld	3.4	2.8–3.9
WA	1.7	1.2–2.4
SA	2.1	1.4–3.0
Tas	1.3	0.5–2.7
ACT	*	
NT	5.1	2.7–8.8
<b>Australia</b>	<b>2.4</b>	<b>2.2–2.7</b>

\* The rate for the ACT has been suppressed because case numbers were less than 5.



**Figure 2.7.2: Age-standardised rates of drowning and near-drowning, states and territories, 2005-06**

## Mechanism

The majority (84.6%;  $n = 418$ ) of admitted injury cases did not specify a particular body part that was injured due to the mechanism being drowning.

Overall, swimming pools were the most common setting for drowning-related hospital cases (44% of all drowning cases) and especially for young children aged 0-4 years (47% of all drowning cases and 71% of all drownings that occurred in swimming pools), followed by natural water (31% of all drowning cases) and other or unspecified settings (16%). Drowning and near-drowning in bathtubs (9%) occurred less frequently (Table 2.7.6).

**Table 2.7.6: Circumstances of drowning and near-drowning by age group, Australia, 2005-06**

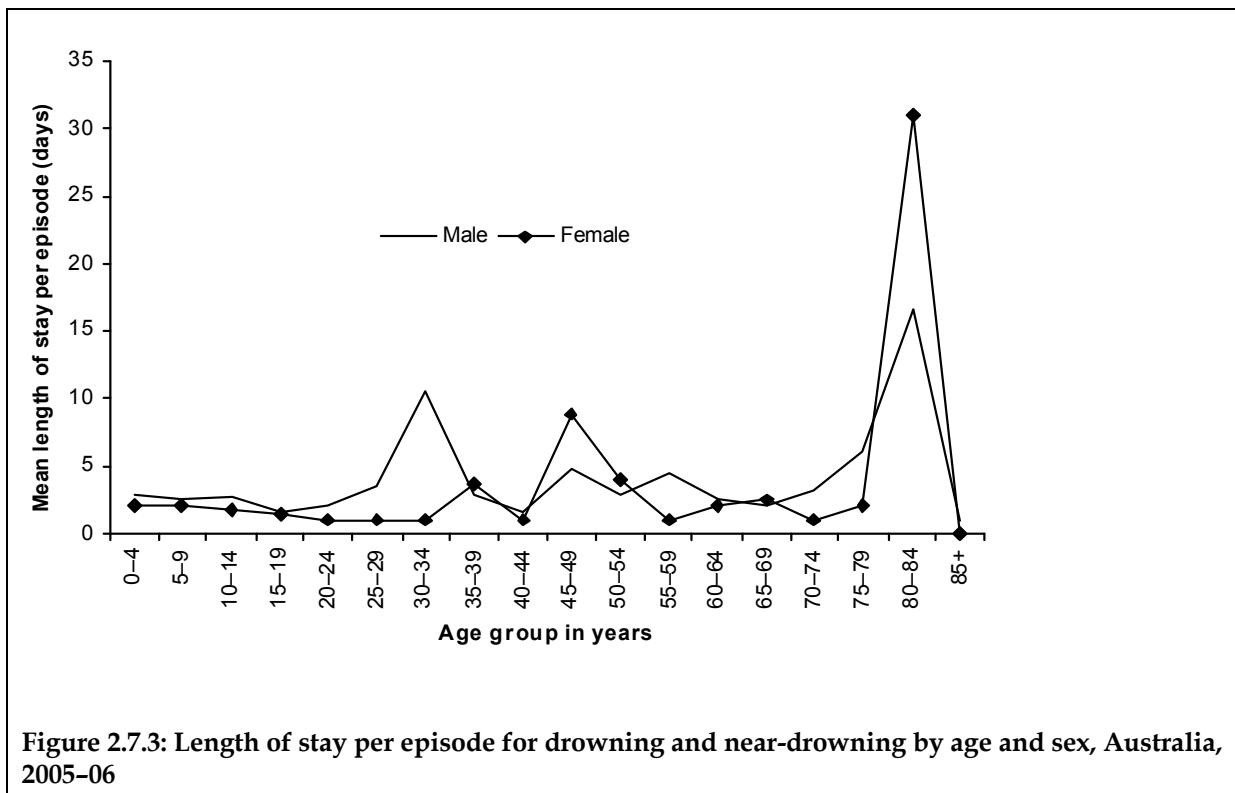
Circumstances of drowning	Age group (years)						All ages	
	0-4	5-14	15-24	25-44	45-64	65+	Total	Per cent
Swimming pool	153	29	7	9	11	6	215	43.5
Natural water	13	15	43	46	28	10	155	31.4
Bathtub	40	*	*	0	*	0	43	8.7
Other or unspecified	26	*	*	12	*	6	81	16.4
<b>Total</b>	<b>232</b>	<b>55</b>	<b>65</b>	<b>67</b>	<b>53</b>	<b>22</b>	<b>494</b>	<b>100.0</b>

\* Small cell counts have been suppressed.



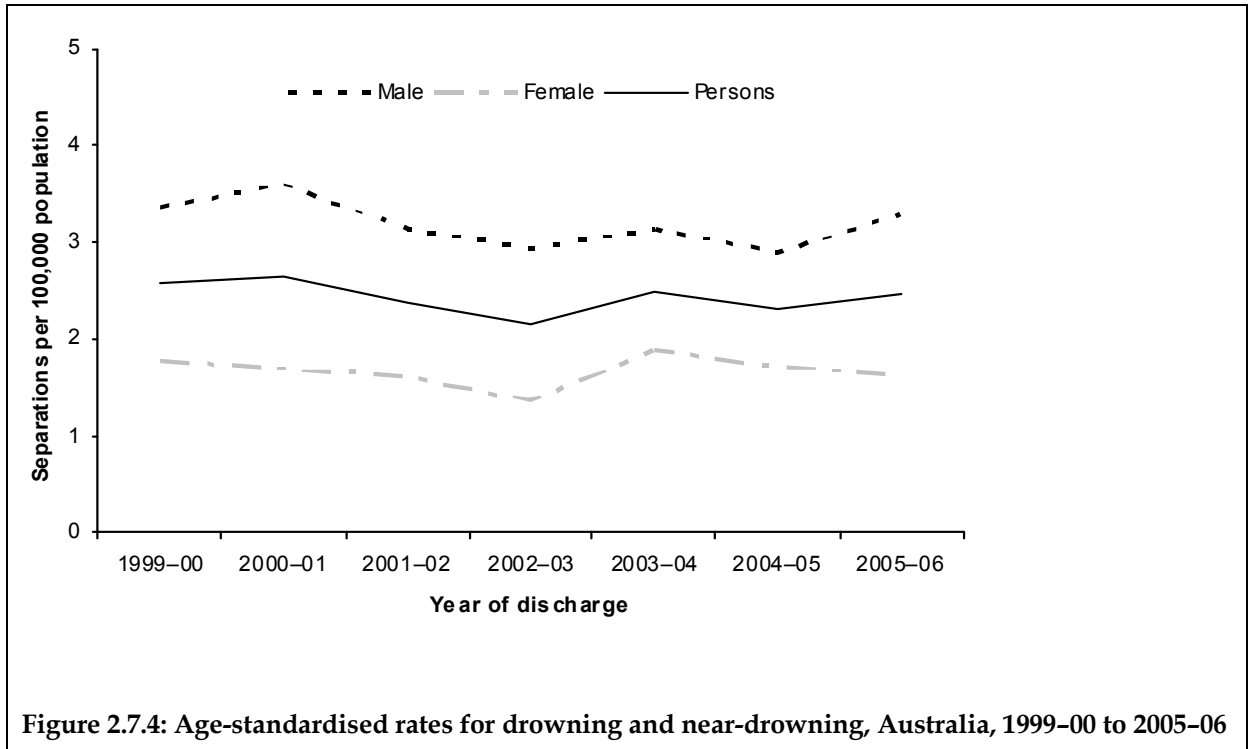
## Length of stay

The mean length of stay due to drowning and near-drowning showed no strong trend with age; large fluctuations for both sexes at older ages reflecting small case numbers (Figure 2.7.3). The mean length of stay was 1.9 days for children aged 0–14 years, 1.7 days for young people aged 15–24 years, 3.0 days for adults aged 25–44 years, 3.7 days for adults aged 45–64 years and 4.0 days for older people aged 65+ years.



## Time trends

Age-standardised rates for hospitalised drowning and near-drowning decreased very slightly from 2.6 per 100,000 of the population in 1999-00 to 2.5 per 100,000 in 2005-06 (Figure 2.7.4). For each year, age-standardised rates for males were higher than for females (male rates were 3.4 per 100,000 in 1999-00 to 3.3 per 100,000 in 2005-06; female rates were 1.8 per 100,000 in 1999-00 and 1.6 per 100,000 in 2005-06).



### Place of occurrence

Location was not specified or reported for 8.9% of cases (unspecified;  $n = 44$ ). The following observations are restricted to those cases in which the place of occurrence was specified. (Table 2.7.7). Forty-one per cent ( $n = 188$ ) of drowning and near-drowning cases occurred in the home and the majority ( $n = 128$ ) occurred in a home swimming pool. Other common places of occurrence were bodies of natural water ( $n = 152$ ) which included the beach ( $n = 53$ ), a large area of water such as a bay, lake or ocean ( $n = 66$ ), a stream of water e.g. river, creek, canal etc. ( $n = 15$ ) and an area of still water e.g. dam, pond etc. ( $n = 7$ ). Nine per cent ( $n = 41$ ) of drowning and near-drowning cases occurred in a sports and athletics area and the majority of these ( $n = 29$ ) were in a swimming pool.

**Table 2.7.7: Place of occurrence for cases of drowning and near-drowning, Australia, 2005-06**

<b>Place</b>	<b>Swimming pool</b>	<b>Natural water</b>	<b>Bathtub</b>	<b>Other or unspecified</b>	<b>Total</b>	<b>Per cent</b>
Home	128	*	41	*	188	41.3
School	*	0	0	*	*	*
Health Service area	*	0	0	0	*	*
Other specified institution and public administrative area	0	*	0	0	*	*
Sports and athletics area	29	7	*	*	41	9.0
Trade and service area	16	0	*	*	18	4.0
Industrial and construction area	0	0	*	*	*	*
Farm	0	0	*	*	*	*
Other specified place of occurrence	11	143	0	47	201	44.2
<b>Total</b>	<b>187</b>	<b>152</b>	<b>43</b>	<b>73</b>	<b>455</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

## 2.8 Other unintentional injuries

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: W20–W64, W75–W99, X20–X39, X50–X59, Y85, Y86, Y89.9

**Table 2.8.1: Key indicators for other unintentional injury cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to other unintentional injuries	90,006	36,360	126,366
Percentage of all injury separations	38.7	21.7	31.6
Estimated cases*	84,973	34,514	119,487
Crude rate/100,000 population	830.2	332.8	580.0
Age-standardised rate/100,000 population	828.4	328.8	581.0
Mean length of stay (days)	1.9	2.8	2.2
Total patient days	165,053	96,276	261,329

\* Omits inward transfers from acute hospitals.

This category includes all injury hospitalisation recorded as unintentional and not included in chapters 2.2 to 2.7. It covers many types of injury and is a heterogeneous category. It accounted for 32% of all injury hospitalisations in the financial year 2005–06 (Table 2.8.1). A summary of some key components is provided in Table 2.8.2 and a complete listing of the first reported external cause codes for other unintentional injuries is provided in Table 2.8.5.

**Table 2.8.2: Summary of key components of other unintentional injury cases, Australia, 2005–06**

External cause of morbidity and mortality	Persons	Per cent
Struck by or crushed by an object	20,179	17
Foreign body	11,562	10
Contact with machinery	10,230	9
Overexertion and strenuous or repetitive movements	9,224	8
Bitten by an animal, insect, reptile or envenomated (including plants)	9,179	8
Struck by another person or a crowd or a human stampede	7,145	6
Contact with sharp glass	5,783	5
<b>Sub-total of top 7 specific external causes</b>	<b>73,302</b>	<b>61</b>

### Age and sex distribution

More males than females were injured by other unintentional injuries (based on age-standardised rates) by 2.5:1 (Figure 2.8.1). Male rates were lower in childhood and then peaked in youth and young men aged 15–24 years and then steadily declined with age. Female rates were constant between the ages of 10 and 74 after which they increased steadily.

Much of the large excess in male rates, especially between the ages of 15–59, are associated with injuries that occur at work or during sport. This has been demonstrated in the two previous reports in this series (Berry & Harrison 2007; Bradley & Harrison 2008).

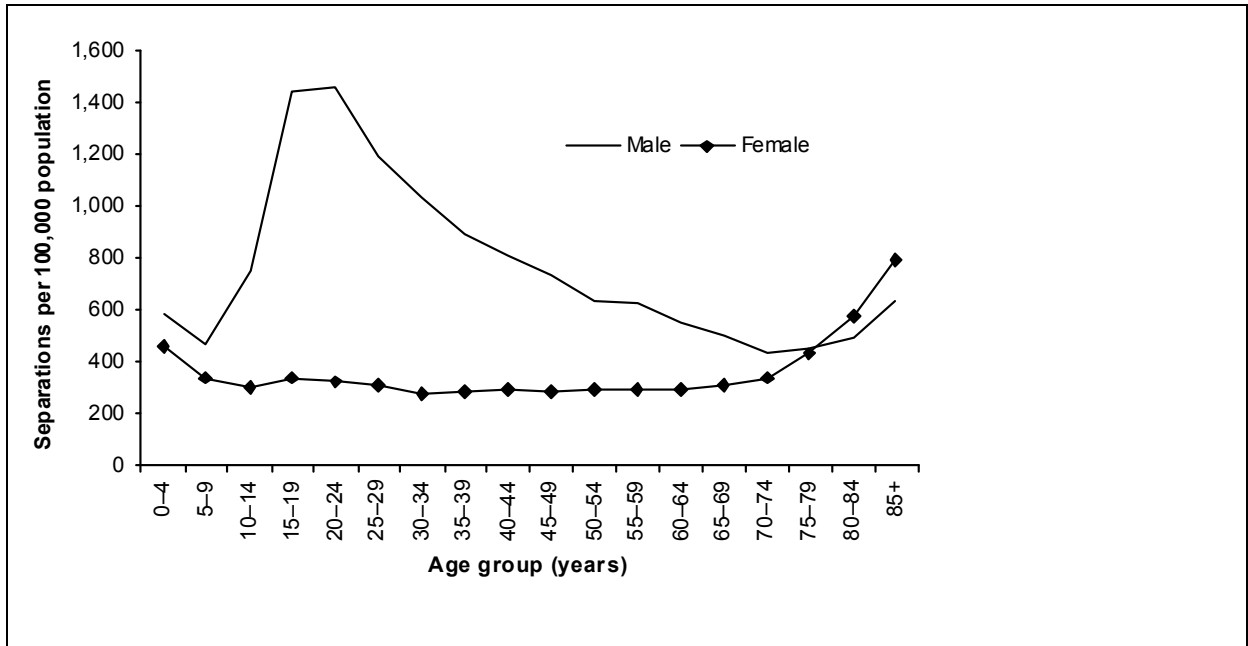


Figure 2.8.1: Age-specific hospital separation rates for other unintentional injury by sex, Australia, 2005-06

Seventy-one per cent of those injured were male (Table 2.8.3).

Table 2.8.3: Other unintentional injury cases by age group, Australia, 2005-06

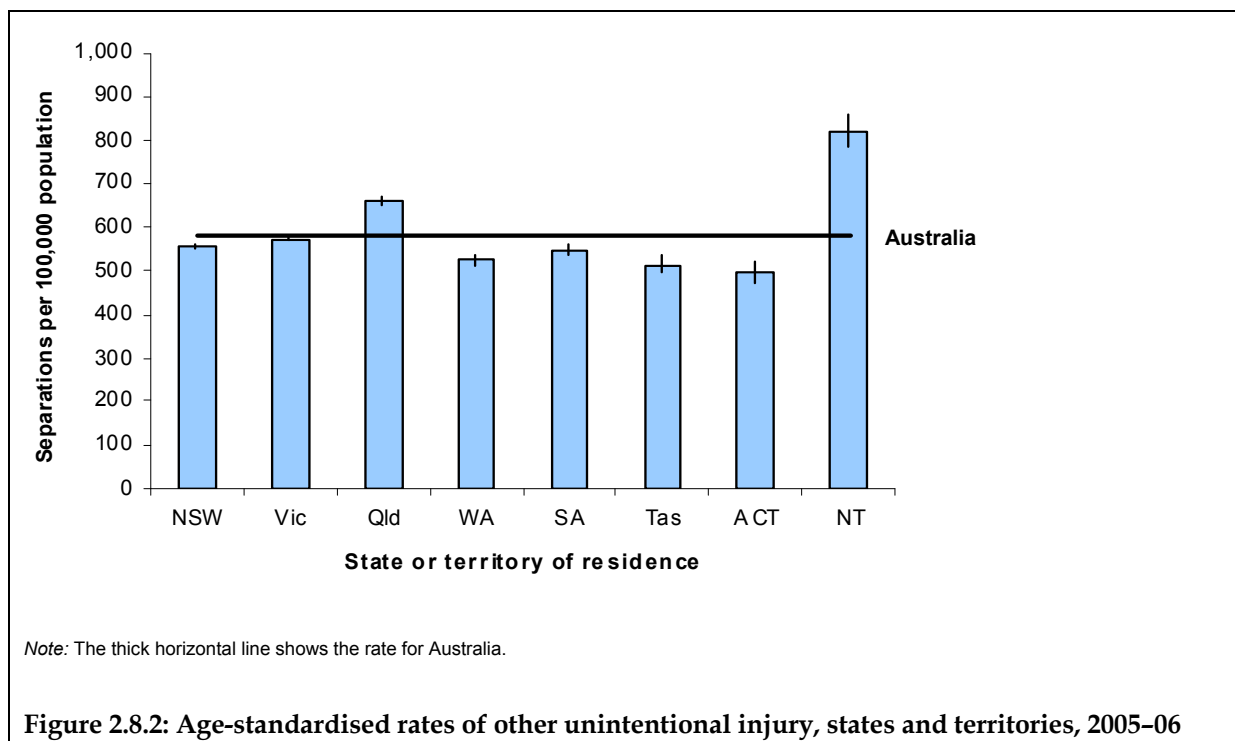
Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-14 years	12,635	14.9	7,180	20.8	19,815	16.6
15-24 years	21,180	24.9	4,627	13.4	25,807	21.6
25-44 years	29,001	34.1	8,680	25.1	37,681	31.5
45-64 years	16,326	19.2	7,361	21.3	23,687	19.8
65+ years	5,831	6.9	6,666	19.3	12,497	10.5
<b>Total</b>	<b>84,973</b>	<b>100.0</b>	<b>34,514</b>	<b>100.0</b>	<b>119,487</b>	<b>100.0</b>

## State and territory differences

As for many major causes of injury, the Northern Territory had the highest rate of hospitalised cases due to 'Other unintentional injury', a rate that differed significantly from the national rate. With the exception of Victoria (which had a rate that was very similar to the national rate), rates for all other jurisdictions differed significantly from the rate for Australia as a whole (Table 2.8.4 and Figure 2.8.2).

**Table 2.8.4: Age-standardised rates of other unintentional injury, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	554	549–560
Vic	575	568–581
Qld	660	652–668
WA	526	516–536
SA	547	535–559
Tas	514	494–535
ACT	497	473–521
NT	821	783–859
<b>Australia</b>	<b>582</b>	<b>579–585</b>



**Figure 2.8.2: Age-standardised rates of other unintentional injury, states and territories, 2005–06**

## Principal diagnosis and body part injured

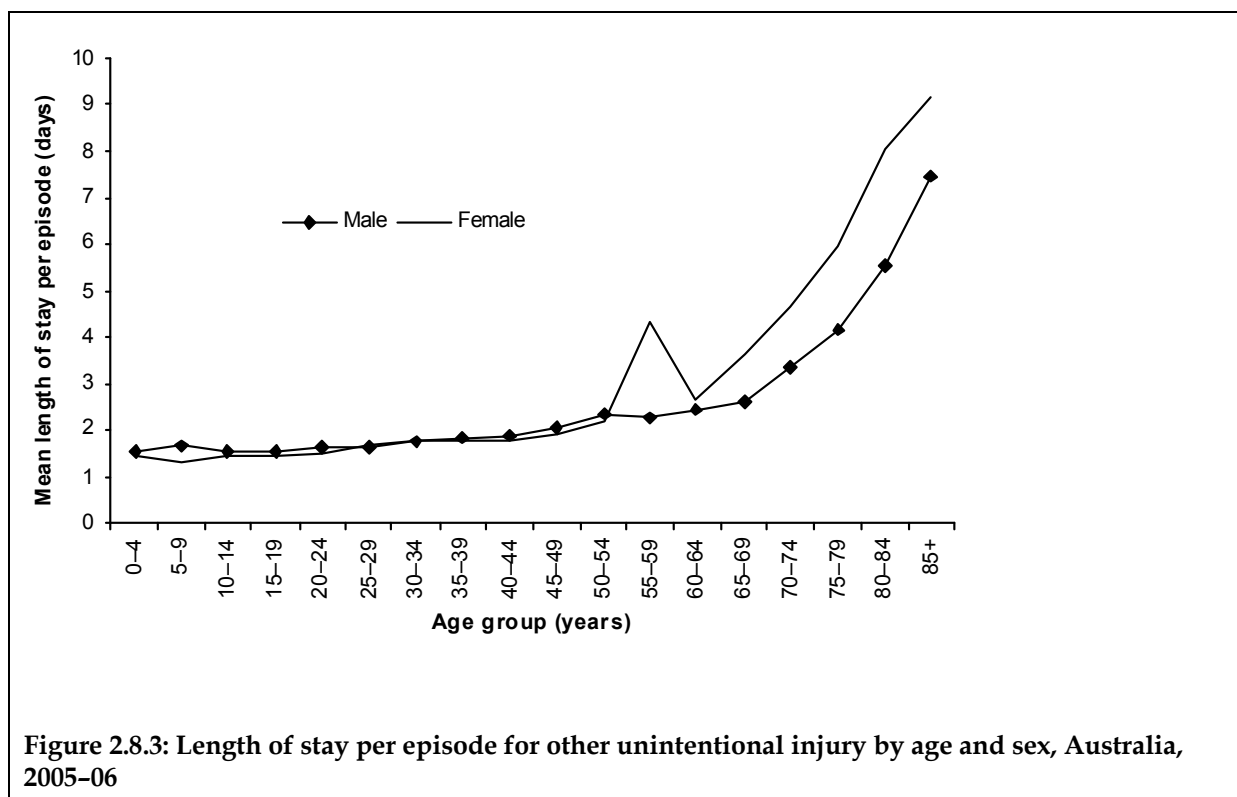
Other unintentional injuries occurred most commonly to either the shoulder and upper limb (44%) or the hip and lower limb (26%) (Table 2.8.5).

Table 2.8.5: Principal Diagnosis by body region for other unintentional injury, Australia, 2005-06

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	11,271	13.3	4,214	12.2	15,485	13.0
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	4,374	5.1	2,473	7.2	6,847	5.7
Shoulder and upper limb	40,666	47.9	11,928	34.6	52,594	44.0
Hip and lower limb	19,886	23.4	10,910	31.6	30,796	25.8
Other injuries not specified by body region	8,776	10.3	4,989	14.5	13,765	11.5
<b>All body regions</b>	<b>84,973</b>	<b>100.0</b>	<b>34,514</b>	<b>100.0</b>	<b>119,487</b>	<b>100.0</b>

## Length of stay

Mean length of stay for other unintentional injuries rose with age (Figure 2.8.3). The mean length of stay was 1.5 days for children aged 0-14 years, 1.6 days for young people aged 15-24 years, 1.8 days for adults aged 25-44 years, 2.4 days for adults aged 45-64 years and 5.4 days for older people aged 65+ years.



## Time trends

There was an increase in age-standardised rates for other unintentional injuries in recent years from 544 per 100,000 of the population in 1999-00 to 582 per 100,000 in 2005-06 (Figure 2.8.4). Male rates increased from 778 per 100,000 in 1999-00 to 830 per 100,000 in 2005-06. Male rates were consistently higher than female rates, which also showed an increase; 305 per 100,000 in 1999-00 to 330 per 100,000 in 2005-06.





**Table 2.8.6: External causes of other unintentional injury cases, Australia, 2005–06**

<b>ICD-10-AM</b>			
<b>Code</b>	<b>External cause of morbidity and mortality</b>	<b>Frequency</b>	<b>Per cent</b>
W20	Struck by thrown, projected or falling object	4,840	4
W21	Striking against or struck by sports equipment	2,683	2
W22	Striking against or struck by other objects	7,287	6
W23	Caught, crushed, jammed or pinched in or between objects	5,369	4
W24	Contact with lifting and transmission devices, not elsewhere classified	530	0
W25	Contact with sharp glass	5,783	5
W26	Contact with knife, sword or dagger	3,543	3
W27	Contact with nonpowered hand tool	1,711	1
W28	Contact with powered lawnmower	639	1
W29	Contact with other powered hand tools and household machinery	2,803	2
W30	Contact with agricultural machinery	347	0
W31	Contact with other and unspecified machinery	5,079	4
W32	Handgun discharge	16	0
W34	Discharge from other and unspecified firearms	91	0
W35	Explosion and rupture of boiler	8	0
W36	Explosion and rupture of gas cylinder	99	0
W37	Explosion and rupture of pressurised tyre, pipe or hose	27	0
W38	Explosion and rupture of other specified pressurised devices	26	0
W39	Discharge of firework	52	0
W40	Explosion of other materials	197	0
W41	Exposure to high-pressure jet	26	0
W44	Foreign body entering into or through eye or natural orifice	6,318	5
W45	Foreign body or object entering through skin	5,244	4
W49	Exposure to other and unspecified inanimate mechanical forces	1,974	2
W50	Hit, struck, kicked, twisted, bitten or scratched by another person	3,726	3
W51	Striking against or bumped into by another person	3,342	3
W52	Crushed, pushed or stepped on by crowd or human stampede	77	0
W53	Bitten by a rat	6	0
W54	Bitten or struck by dog	2,046	2
W55	Bitten or struck by other mammals	1,924	2
W56	Contact with marine animal	114	0
W57	Bitten or stung by nonvenomous insect and other nonvenomous arthropods	604	1
W58	Bitten or struck by crocodile or alligator	5	0
W59	Bitten or crushed by other reptiles	953	1
W60	Contact with plant thorns and spines and sharp leaves	234	0
W64	Exposure to other and unspecified animate mechanical forces	156	0
W75	Accidental suffocation and strangulation in bed	6	0
W76	Other accidental hanging and strangulation	13	0
W78	Inhalation of gastric contents	40	0
W79	Inhalation and ingestion of food causing obstruction of respiratory tract	512	0
W80	Inhalation and ingestion of other objects causing obstruction of respiratory tract	166	0
W81	Confined to or trapped in a low-oxygen environment	*	0
W83	Other specified threats to breathing	8	0

*(continued)*

**Table 2.8.6 (continued): External causes of other unintentional injury cases, Australia, 2005–06**

<b>ICD-10-AM</b>			
<b>Code</b>	<b>External cause of morbidity and mortality</b>	<b>Frequency</b>	<b>Per cent</b>
W84	Unspecified threat to breathing	56	0
W85	Exposure to electric transmission lines	38	0
W86	Exposure to other specified electric current	361	0
W87	Exposure to unspecified electric current	190	0
W89	Exposure to man-made visible and ultraviolet light	8	0
W90	Exposure to other non-ionising radiation	*	0
W91	Exposure to unspecified type of radiation	*	0
W92	Exposure to excessive heat of man-made origin	17	0
W93	Exposure to excessive cold of man-made origin	6	0
W94	Exposure to high and low air pressure and changes in air pressure	353	0
W99	Exposure to other and unspecified man-made environmental factors	*	0
X20	Contact with venomous snakes and lizards	599	1
X21	Contact with venomous spiders	1,012	1
X22	Contact with scorpions	6	0
X23	Contact with hornets, wasps and bees	957	1
X24	Contact with centipedes and venomous millipedes (tropical)	11	0
X25	Contact with other specified venomous arthropods	304	0
X26	Contact with venomous marine animals and plants	299	0
X27	Contact with other specified venomous animals	*	0
X28	Contact with other specified venomous plants	*	0
X29	Contact with unspecified venomous animal or plant	33	0
X30	Exposure to excessive natural heat	455	0
X31	Exposure to excessive natural cold	197	0
X32	Exposure to sunlight	21	0
X33	Victim of lightning	22	0
X34	Victim of earthquake	*	0
X35	Victim of volcanic eruption	*	0
X36	Victim of avalanche, landslide and other earth movements	11	0
X37	Victim of cataclysmic storm	*	0
X39	Victim of flood	21	0
X50	Exposure to other and unspecified forces of nature	9,224	8
X51	Travel and motion	36	0
X52	Prolonged stay in weightless environment	*	0
X53	Lack of food	14	0
X54	Lack of water	*	0
X58	Exposure to other specified factors	1,753	1
X59	Exposure to unspecified factor	34,593	29
Y85	Sequelae of transport accidents	55	0
Y86	Sequelae of other accidents	168	0
Y899	Sequelae of unspecified external cause	22	0
<b>Total</b>		<b>119,487</b>	<b>100</b>

\* Small cell counts have been suppressed.

## 2.9 Work-related injury

According to standard ICD-10-AM coding rules, activity codes are applicable within the range of external cause categories V01–Y34. For almost three-quarters of injury cases within this range, the activity code was not specified (i.e. coded as *other specified, unspecified, and not reported/not applicable*) which constrains meaningful interpretation of work-relatedness.

Sixty-nine per cent of all injury cases where activity was recorded as *while working for income* were within the scope of the other unintentional injuries category (Table 2.9.1).

Most work-related injury cases are male (86%;  $n = 20,251$ ) (Table 2.9.1).

Fourteen per cent ( $n = 16,253$ ) of other unintentional injuries ( $n = 119,487$ ) were work-related. There were 7,291 hospital cases that have an external cause code outside this range that were work-related (Table 2.9.1).

For other unintentional injuries the top five causes of work-related injury were X59, *exposure to unspecified factor* (males  $n = 2,326$ , females  $n = 472$ ), W31, *contact with other and unspecified machinery* (males  $n = 2,589$ , females  $n = 171$ ), W20, *struck by thrown, projected or falling object* (males  $n = 1,379$ , females  $n = 85$ ), W23, *caught, crushed, jammed or pinched in or between objects* (males  $n = 1,305$ , females  $n = 88$ ), X50, *overexertion and strenuous or repetitive movement* (males  $n = 868$ , females  $n = 265$ ) and

For falls injuries the most common causes of work-related injury were W01, *fall on the same level from slipping, tripping and stumbling* (males  $n = 467$ , females  $n = 405$ ), W11, *fall on and from ladder* (males  $n = 569$ , females  $n = 43$ ), and W17, *other fall from one level to another e.g. fall from or into a cavity, pit, shaft or tank etc.* (males  $n = 486$ , females  $n = 51$ ).

For transportation injuries the most common cause of work-related injuries were V80, *animal-rider or occupant of animal-driven vehicle injured in transport accident* (males  $n = 176$ , females  $n = 111$ ), V68, *occupant of heavy transport vehicle injured in noncollision transport accident* (males  $n = 238$ , females  $n = 4$ ) and V28, *motorcycle rider injured in noncollision transport accident* (males  $n = 157$ , females  $n = 10$ ).

**Table 2.9.1: Case counts and proportions by sex for work-related injury cases, Australia, 2005–06**

Major group of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
<b>Coverage in this report</b>						
Not an external cause	*	0.0	*	0.0	8	0.0
Transportation	1,974	9.7	360	10.9	2,334	9.9
Poisoning, pharmaceuticals	17	0.1	8	0.2	25	0.1
Poisoning, other substances	276	1.4	50	1.5	326	1.4
Falls	2,744	13.5	954	29.0	3,698	15.7
Fires, burns, scalds	381	1.9	70	2.1	451	1.9
<b>Other unintentional</b>	<b>14,476</b>	<b>71.5</b>	<b>1,777</b>	<b>54.0</b>	<b>16,253</b>	<b>69.0</b>
Intentional self-harm	9	0.0	9	0.3	18	0.1
Assault	341	1.7	59	1.8	400	1.7
Undetermined intent	26	0.1	5	0.2	31	0.1
<b>Total</b>	<b>20,251</b>	<b>100.0</b>	<b>3,293</b>	<b>100.0</b>	<b>23,544</b>	<b>100.0</b>

Note: Shading indicates other unintentional work-related injury cases.

This table excludes 20 cases for which an activity code is not applicable (ICD-10-AM range was outside V01–Y34).

\* Small cell counts have been suppressed.

## 2.10 Sports-related injury

As for work-related injury, the large number of cases lacking meaningful codes concerning activity (*other specified, unspecified, and not reported/not applicable*) limits assessment of sports-related injury.

Forty-nine per cent of all injury cases where activity was recorded as *while engaged in sports* were within the scope of the other unintentional injuries category (Table 2.10.1).

Most sports-related injury hospitalisations were male (77%;  $n = 29,188$ ) (Table 2.10.1).

Fifteen per cent ( $n = 18,332$ ) of other unintentional injuries ( $n = 119,487$ ) were sports-related injury. There were 19,464 hospital cases that had an external cause code outside this range that were sport-related (Table 2.10.1).

For other unintentional injuries the top five causes of sports-related injury were X59, *exposure to unspecified factor* (males  $n = 4,312$ ; females  $n = 1,146$ ), X50, *overexertion and strenuous or repetitive movement* (males  $n = 2,298$ ; females  $n = 912$ ), W50, *hit, struck, kicked, twisted, bitten or scratched by another person* (males  $n = 2,214$ ; females  $n = 197$ ), W51, *striking against or bumped into by another person* (males  $n = 2,192$ ; females  $n = 209$ ) and W21, *striking against or struck by sports equipment* (males  $n = 1,705$ ; females  $n = 432$ ).

For falls injuries the most common causes of sport-related injury were W18, *other fall on same level* (males  $n = 2,029$ ; females  $n = 880$ ), W03, *other fall on same level due to collision with, or pushing by, another person* (males  $n = 2,507$ ; females  $n = 186$ ), W02, *fall involving ice-skates, skis, roller-skates or skateboards* (males  $n = 1,467$ ; females  $n = 467$ ), and W01, *fall on the same level from slipping, tripping and stumbling* (males  $n = 945$ ; females  $n = 710$ ).

For transportation injuries the most common causes of sport-related injuries were V28, *Motorcycle rider injured in noncollision transport accident* (males  $n = 1,466$ ; females  $n = 56$ ), V18, *Pedal cyclist injured in non-collision transport accident* (males  $n = 1,256$ ; females  $n = 262$ ), V80, *animal-rider or occupant of animal-drawn vehicle injured in transport accident* (males  $n = 415$ ; females  $n = 1,017$ ), and V19, *Pedal cyclist injured in other and unspecified transport accidents* (males  $n = 563$ ; females  $n = 116$ ).

**Table 2.10.1: Case counts and proportions by sex for sports injury cases, Australia, 2005–06**

Major group of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
<b>Coverage in this report</b>						
Transportation	5,604	19.2	1,776	20.6	7,381	19.5
Drowning	119	0.4	39	0.5	158	0.4
Poisoning, pharmaceuticals	*	0.0	*	0.0	*	0.0
Poisoning, other substances	*	0.0	*	0.0	8	0.0
Falls (excluding X59+fracture)	8,539	29.3	3,219	37.4	11,758	31.1
Fires/burns/scalds	22	0.1	0	0.0	22	0.1
<b>Other unintentional</b>	<b>14,780</b>	<b>50.6</b>	<b>3,552</b>	<b>41.3</b>	<b>18,332</b>	<b>48.5</b>
Intentional, self inflicted	*	0.0	*	0.0	*	0.0
Intentional, inflicted by another	80	0.3	7	0.1	87	0.2
Undetermined intent	9	0.0	6	0.1	15	0.0
Other	24	0.1	6	0.1	30	0.1
<b>Total</b>	<b>29,188</b>	<b>100.0</b>	<b>8,607</b>	<b>100.0</b>	<b>37,796</b>	<b>100.0</b>

Note: Shading indicates other unintentional sports injury cases.

This table excludes 4 cases for which an activity code is not applicable (ICD-10-AM range was outside V01–Y34).

\* Small cell counts have been suppressed.

# Part B: Intentional injuries

## 2.11 Intentional self-harm

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: X60–X84

**Table 2.11.1: Key indicators for intentional self-harm cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to intentional self-harm	9,638	15,284	24,924 <sup>(a)</sup>
Percentage of all injury separations	4.1	9.1	6.2
Estimated cases*	9,104	14,672	23,778 <sup>(b)</sup>
Crude rate/100,000 population	89.1	141.9	115.7
Age-standardised rate/100,000 population	89.3	144.2	116.3
Mean length of stay (days)	3.5	2.8	3.1
Total patient days	31,867	40,738	72,607 <sup>(c)</sup>

\* Omits inward transfers from acute hospitals.

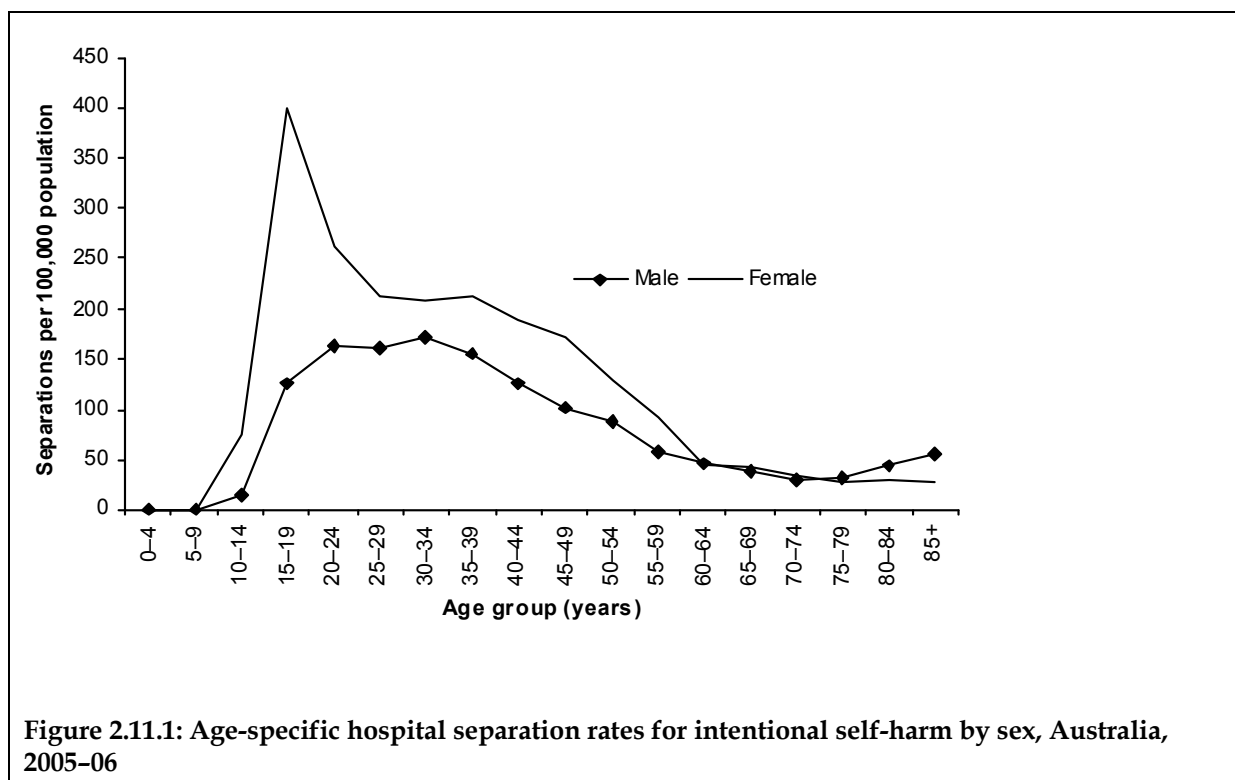
(a) Includes 2 separations, (b) 2 estimated cases and (c) 2 patient days for which sex was not reported.

Intentional self-harm accounted for 6% of all injury hospitalisations in the financial year 2005–06 (Table 2.11.1). It includes suicide and attempts of suicide, as well as cases where people have intentionally hurt themselves, but not necessarily with the intention to kill e.g. self-mutilation. This chapter does not include cases where the intent was unspecified, unstated or cannot be determined (see Chapter 2.13).

### Age and sex distribution

The cases that have been coded to the 0–4 ( $n = 6$ ) and 5–9 ( $n = 6$ ) year age groups are not considered to be valid. The most likely explanation is incorrect coding of age or external cause.

Females have higher rates of hospitalised intentional self-harm compared with males up to the age of 60 years (Figure 2.11.1 and Table 2.11.2). The difference in female rates was greatest for adolescents aged 15–19 years (age-specific rate of 75 per 100,000 for females compared with 15 per 100,000 for males). More females than males were hospitalised for intentional self-harm (based on age-standardised rates), with a M:F ratio of 0.6:1.



**Table 2.11.2: Intentional self-harm cases by age group, Australia, 2005-06**

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-14 years	114	1.3	513	3.5	627	2.6
15-24 years	2,102	23.1	4,597	31.3	6,699	28.2
25-44 years	4,532	49.8	6,146	41.9	10,680	44.9
45-64 years	1,918	21.1	2,938	20.0	4,856	20.4
65+ years	438	4.8	478	3.3	916	3.9
<b>Total</b>	<b>9,104</b>	<b>100.0</b>	<b>14,672</b>	<b>100.0</b>	<b>23,778<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 2 cases for which sex was not reported.

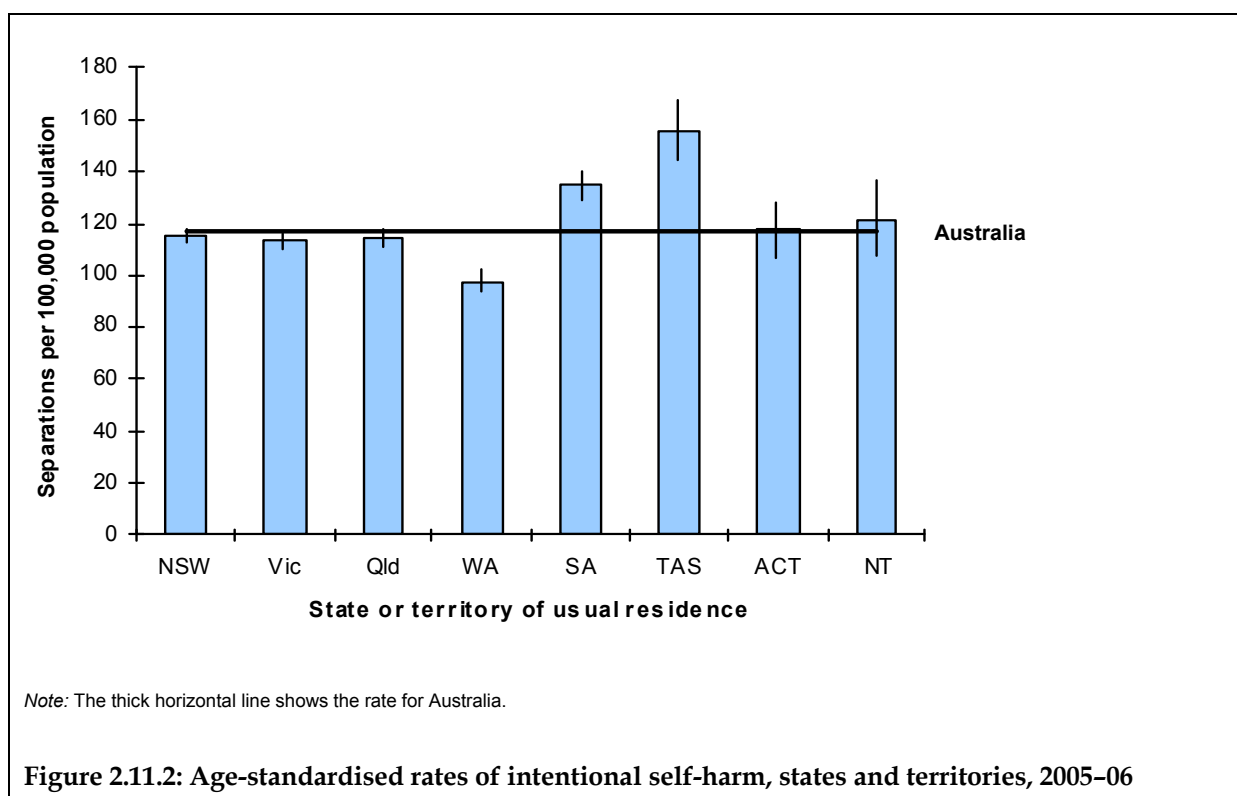
## State and territory differences

Tasmania and South Australia reported the highest rates of intentional self-harm. Rates for both jurisdictions differed significantly from the national rate (Table 2.11.3 and Figure 2.11.2). Western Australia had the lowest rate, differing significantly from the rate for Australia as a whole. The relative distribution of rates for states and territories was fairly similar to that in the previous two years except for the Australian Capital Territory for which there was a notable increase in the age standardised rate in 2005-06 (Berry & Harrison 2007; Bradley & Harrison 2008).



**Table 2.11.3: Age-standardised rates of intentional self-harm, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	115	112–118
Vic	113	110–116
Qld	114	111–118
WA	98	94–102
SA	135	129–141
Tas	156	144–167
ACT	117	106–128
NT	121	107–136
<b>Australia</b>	<b>116</b>	<b>115–118</b>



**Figure 2.11.2: Age-standardised rates of intentional self-harm, states and territories, 2005–06**

## Principal diagnosis and body part injured

The majority of admitted injury cases due to intentional self-harm did not specify a particular body region that was injured (Table 2.11.4). This reflects the fact that the mechanism in most cases was poisoning.

**Table 2.11.4: Principal Diagnosis by body region and sex for intentional self-harm cases, Australia, 2005–06**

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	149	1.6	50	0.3	199	0.8
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	443	4.9	280	1.9	723	3.0
Shoulder and upper limb	1,202	13.2	1,286	8.8	2,488	10.5
Hip and lower limb	119	1.3	107	0.7	226	1.0
Other injuries not specified by body region	7,191	79.0	12,949	88.3	20,142	84.7
<b>All body regions</b>	<b>9,104</b>	<b>100.0</b>	<b>14,672</b>	<b>100.0</b>	<b>23,778<sup>(a)</sup></b>	<b>100.0</b>

(a) Includes 2 cases for which sex was not reported,

## Mechanism

There were 23,778 cases of hospitalised intentional self-harm in the financial year 2005–06 (Table 2.11.5). The large majority of cases (82%) of self-harm were intentional self-poisoning and almost twice as many females as males used this method. Intentional self-harm by a sharp object accounted for 13% of cases of self-harm and slightly more females than males used this method. Hanging, strangulation and suffocation accounted for 2% of self-harm cases (of which 72% were males) and shooting by handgun or firearm was even less common (0.1% – almost all were males).

Forty-six per cent of all cases of intentional self-harm were poisoning with antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs. This category includes benzodiazepines, other and unspecified antidepressants – likely to be selective serotonin reuptake inhibitors, other and unspecified antipsychotics and neuroleptics, other antiepileptic and sedative-hypnotic drugs, tricyclic and tetracyclic antidepressants, phenothiazene antipsychotics and neuroleptics and psychostimulants with potential for use disorder.

The second most frequent category of self-poisoning was poisoning with nonopioid analgesics, antipyretics and antirheumatics ( $n = 4,617$ ; 19%). This category includes 4-aminophenol derivatives such as paracetamol, nonsteroidal anti-inflammatory drugs and salicylates such as aspirin.

Two per cent of self-harm cases were the result of poisoning by other gases and vapours ( $n = 387$ ). This category includes the toxic effects of carbon monoxide.

Intentional pesticide poisoning was an uncommon cause of hospitalisation (less than 1%;  $n = 135$ ).

The second most common cause of self-harm was intentional self-harm by a sharp object (13% of self-harm cases;  $n = 3,116$ ).

The profile of mechanisms reported here partly reflects the profile of mechanisms used in episodes of intentional self-harm, but it also reflects the fact that some means of self-harm are

more likely than others to result in an injury in which the person attends hospital and is admitted.

**Table 2.11.5: External cause of intentional self-harm injury cases, Australia, 2005–06**

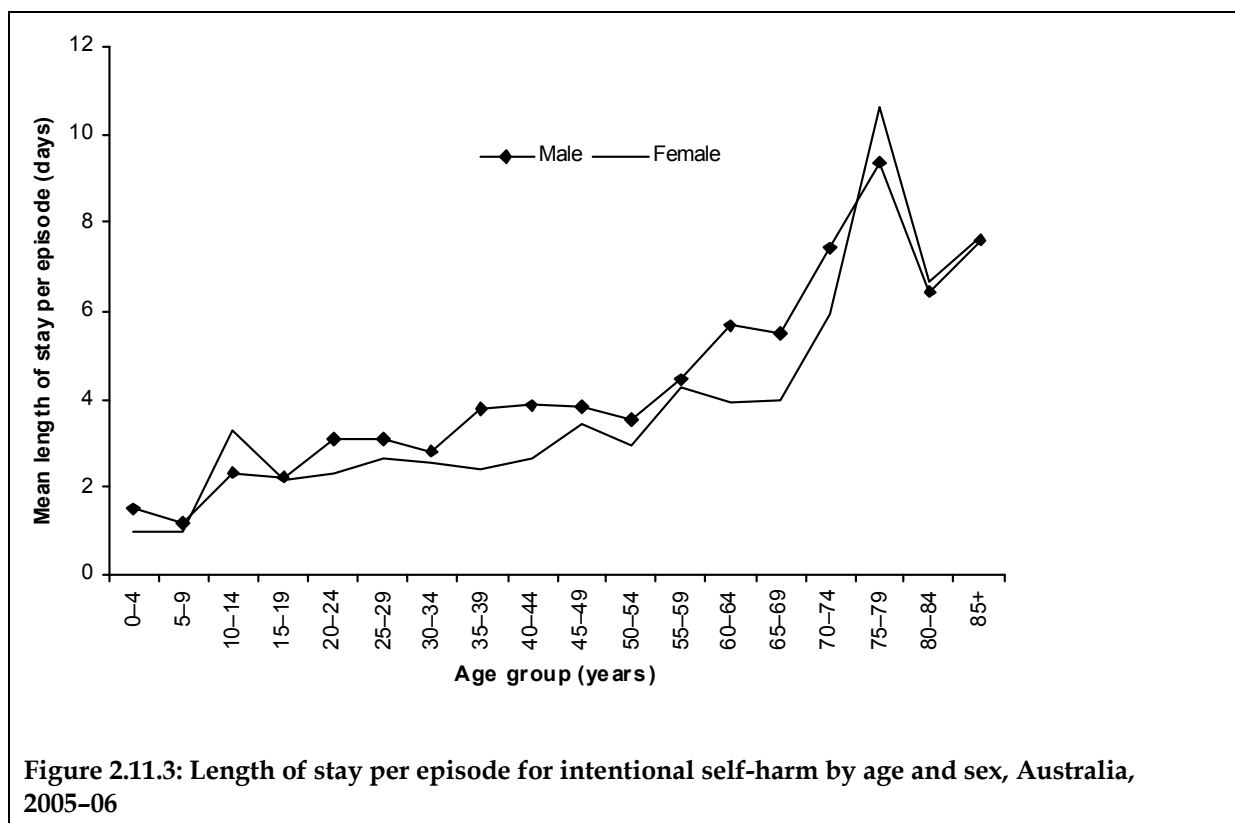
ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
	Intentional self-poisoning by and exposure to:						
X60	• nonopioid analgesics, antipyretics and antirheumatics	1,137	12.5	3,480	23.7	4,617	19.4
X61	• antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	3,846	42.2	6,995	47.7	10,843	45.6
X62	• narcotics and psychodysleptics [hallucinogens]	498	5.5	677	4.6	1,175	4.9
X63	• other drugs acting on the autonomic nervous system	93	1.0	142	1.0	235	1.0
X64	• other and unspecified drugs, medicaments and biological substances	588	6.5	927	6.3	1,515	6.4
X65	• alcohol	144	1.6	138	0.9	282	1.2
X66	• organic solvents and their halogenated hydrocarbons and their vapours	34	0.4	23	0.2	57	0.2
X67	• other gases and vapours (e.g. carbon monoxide)	274	3.0	113	0.8	387	1.6
X68	• pesticides	85	0.9	50	0.3	135	0.6
X69	• other and unspecified chemicals and noxious substances	116	1.3	167	1.1	283	1.2
X70	Intentional self-harm by hanging, strangulation and suffocation	352	3.9	139	0.9	491	2.1
X71	Intentional self-harm by drowning and submersion	8	0.1	10	0.1	18	0.1
X72	Intentional self-harm by handgun discharge	7	0.1	0	0.0	7	0.0
X74	Intentional self-harm by other and unspecified firearm discharge	*	0.3	*	0.0	27	0.1
X75	Intentional self-harm by explosive material	*	0.0	*	0.0	*	0.0
X76	Intentional self-harm by smoke, fire and flames	48	0.5	38	0.3	86	0.4
X77	Intentional self-harm by steam, hot vapours and hot objects	*	0.1	12	0.1	*	0.1
X78	Intentional self-harm by sharp object	1,534	16.8	1,582	10.8	3,116	13.1
X79	Intentional self-harm by blunt object	38	0.4	14	0.1	52	0.2
X80	Intentional self-harm by jumping from a high place	55	0.6	41	0.3	96	0.4
X81	Intentional self-harm by jumping or lying before moving object	34	0.4	12	0.1	46	0.2
X82	Intentional self-harm by crashing of motor vehicle	31	0.3	22	0.1	53	0.2
X83	Intentional self-harm by other specified means	115	1.3	48	0.3	163	0.7
X84, Y87.0	Intentional self-harm by unspecified means and sequelae of intentional self-harm	31	0.3	40	0.3	71	0.3
<b>Total</b>		<b>9,104</b>	<b>100.0</b>	<b>14,672</b>	<b>100.0</b>	<b>23,778</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 figures for a column.

\* Small counts are omitted.

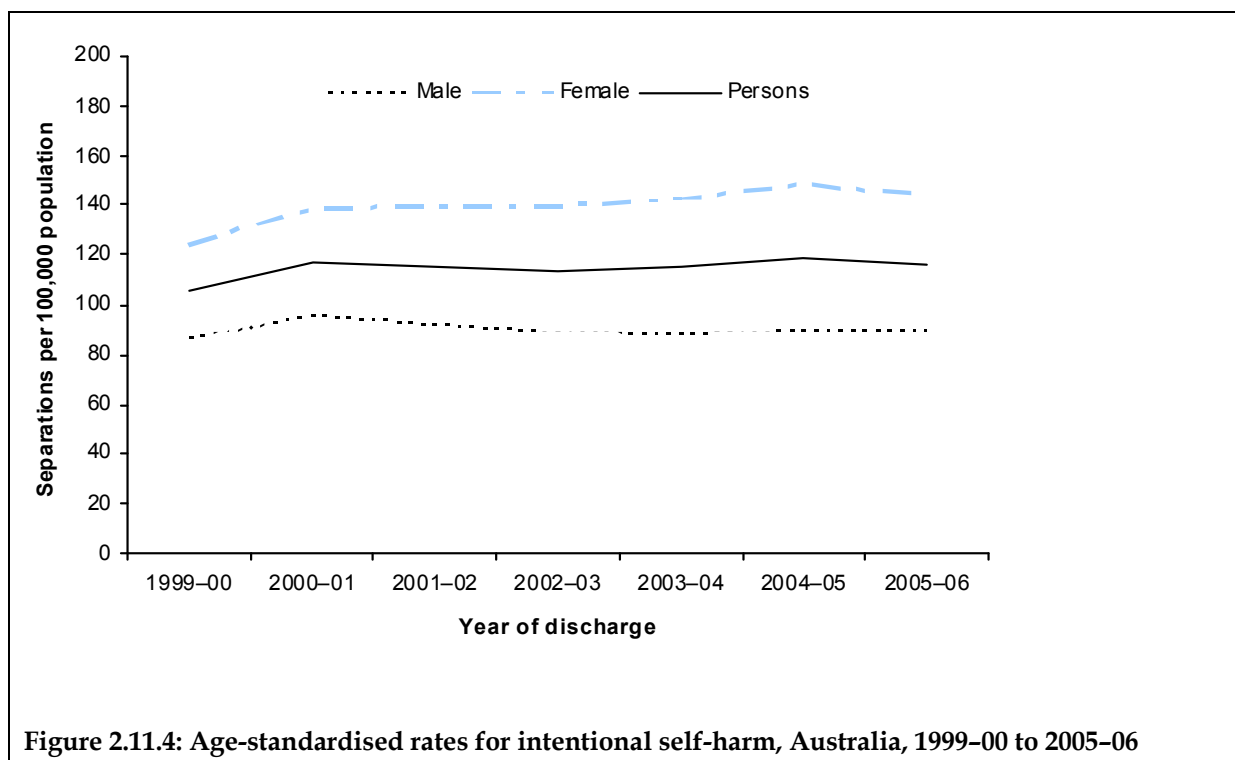
## Length of stay

Mean length of stay for intentional self-harm hospital cases rose with age up to 75 years. Thereafter, MLOS fell slightly but still remained higher than at younger age groups (Figure 2.11.3). The mean length of stay was 3.0 days for children aged 0–14 years, 2.4 days for young people aged 15–24 years, 2.9 days for adults aged 25–44 years, 3.7 days for adults aged 45–64 years and 6.7 days for older people aged 65+ years.



## Time trends

Age-standardised rates for intentional self-harm increased over the period reported, from 105 per 100,000 of the population in 1999–00 to 116 per 100,000 in 2005–06. However, apart from a rise in rates from 1999–00 to 2000–01, annual changes have been small. The increase in intentional self-harm was mainly attributable to female cases; female age-standardised rates increased from 124 per 100,000 in 1999–00 to 144 per 100,000 in 2005–06, whereas male age-standardised rates stayed relatively constant (87 per 100,000 in 1999–00 and 89 per 100,000 in 2005–06) (Figure 2.11.4).



## Place of occurrence

For almost a third of records, place of occurrence was unspecified (31.2%;  $n = 7,408$ ) or not reported (0.3%;  $n = 61$ ). The following observations are restricted to those records in which the place of occurrence was specified (Table 2.11.6). The majority of the intentional self-harm injury hospitalisations occurred in the home (87%;  $n = 14,199$ ).

**Table 2.11.6: Place of occurrence for cases of intentional self-harm, Australia, 2005-06**

Place	Persons	Per cent
Home	14,199	87.1
Residential institution	304	1.9
School	116	0.7
Health service area	576	3.5
Other specified institution and public administrative area	61	0.4
Sports and athletics area	15	0.1
Street and highway	296	1.8
Trade and service area	260	1.6
Industrial and construction area	20	0.1
Farm	12	0.1
Other specified places	450	2.8
<b>Total</b>	<b>16,309</b>	<b>100.0</b>

## Ascertainment of intentional self-harm

According to inclusion notes in ICD-10-AM, cases should be assigned codes in the range X60–X84 if they are purposely self-inflicted poisoning or injury, suicide, or attempted suicide [see page 483 (NCCH 2002)]. Determining whether an injury is due to intentional self-harm is not always straightforward. Intent is a complex concept and not easily defined. Cases may appear to be intentional self-harm, but their inconclusiveness may preclude them being coded as such (e.g. Y30–Y32 *Falling, jumping or pushed from a high place, undetermined intent, Falling, lying or running before or into moving object, undetermined intent*, or by *Crashing of motor vehicle, undetermined intent*). It is possible that through the coding process, some types of injury may be more readily attributed to intentional self-harm than others. The intent for many injuries is difficult to determine e.g. near-drowning by falling overboard on a watercraft (V92), falling from a building structure (e.g. W13, out of a window, bridge or roof), or a cliff (W15), other specified threats to breathing (e.g. W83, suffocation by plastic bag), and exposure to electric current (W85–W87). An unknown proportion of transport accidents could be intentional self-harm e.g. when a pedestrian is injured in a collision with a car, pick-up truck or van, or heavy transport vehicle or railway train (e.g. V03, V04, V05), or a small vehicle (e.g. car, motorcycle) collides with a heavy transport vehicle or train (e.g. V24, V25, V44, V45) or a fixed or stationary object (e.g. V27, V47). Some patients may choose not to disclose that their injuries resulted from intentional self-harm, or may be unable to do so due to the nature of the injuries, or because their motives were ambiguous. Such sources of uncertainty about the assignment of intent limit the certainty of any estimates of intentional self-harm based on routine hospital data. Coding categories provided for use when intent is recognised to be undetermined are a partial solution to this (see Chapter 2.13).

## 2.12 Assault

ICD-10-AM case inclusion

Principal Diagnosis: S00–T75, T79 and

First reported external cause: X85–Y09, Y35–Y36

**Table 2.12.1: Key indicators for assault cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to assault	17,623	5,746	23,369
Percentage of all injury separations	7.6	3.4	5.8
Estimated cases*	16,572	5,508	22,080
Crude rate/100,000 population	162.2	53.3	107.4
Age-standardised rate/100,000 population	161.8	54.5	108.5
Mean length of stay (days)	2.3	2.3	2.3
Total patient days	38,398	12,846	51,244

\* Omits inward transfers from acute hospitals.

Assault accounted for 6% of all injury hospitalisations in the financial year 2005–06 (Table 2.12.1). As defined here, this category includes all cases in which a person, or more than one person, intentionally injured another person. This chapter does not include cases where the intent was unspecified, unstated or cannot be determined (see Chapter 2.13).

### Age and sex distribution

Three times as many males as females were hospitalised for injury resulting from assault with a M:F ratio of 3.0:1.0 (based on age-standardised rates) (Figure 2.12.1 and Table 2.12.2). Male rates peaked in the 20–24 year age group with an age-specific rate of 463 hospitalisations for assault per 100,000 compared with 116 per 100,000 for females in the same age range. From 25 years onwards, age-specific rates of assault declined with age for both sexes.

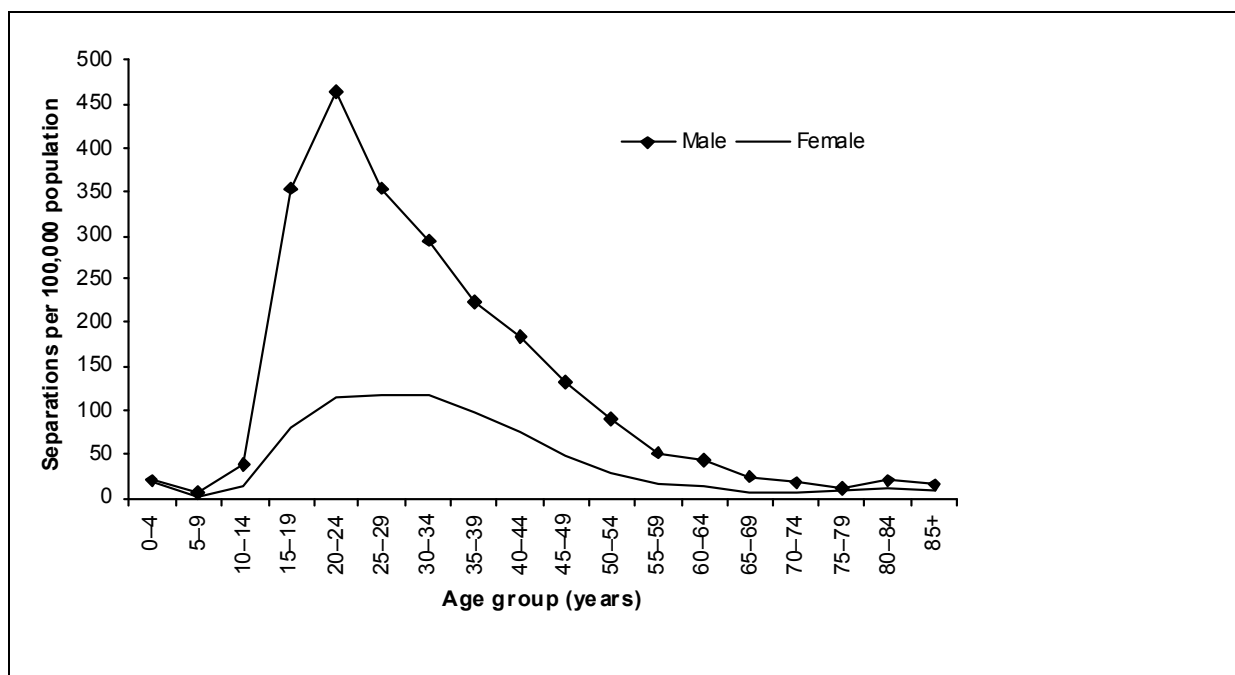


Figure 2.12.1: Age-specific hospital separation rates for assault by sex, Australia, 2005-06

Thirty-six per cent of male assault cases occurred in youth and young people aged 15-24 years and 47% were in adults aged 25-44 years (Table 2.12.2). Twenty-five per cent of female assault cases were in youth and young people aged 15-24 years and 55% involved adults aged 25-44 years. Only 3% involved children aged 0-14 years.

Table 2.12.2: Assault cases by age group, Australia, 2005-06

Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-14 years	481	2.9	239	4.3	720	3.3
15-24 years	5,961	36.0	1,371	24.9	7,332	33.2
25-44 years	7,773	46.9	3,045	55.3	10,818	49.0
45-64 years	2,128	12.8	726	13.2	2,854	12.9
65+ years	229	1.4	127	2.3	356	1.6
<b>Total</b>	<b>16,572</b>	<b>100.0</b>	<b>5,508</b>	<b>100.0</b>	<b>22,080</b>	<b>100.0</b>



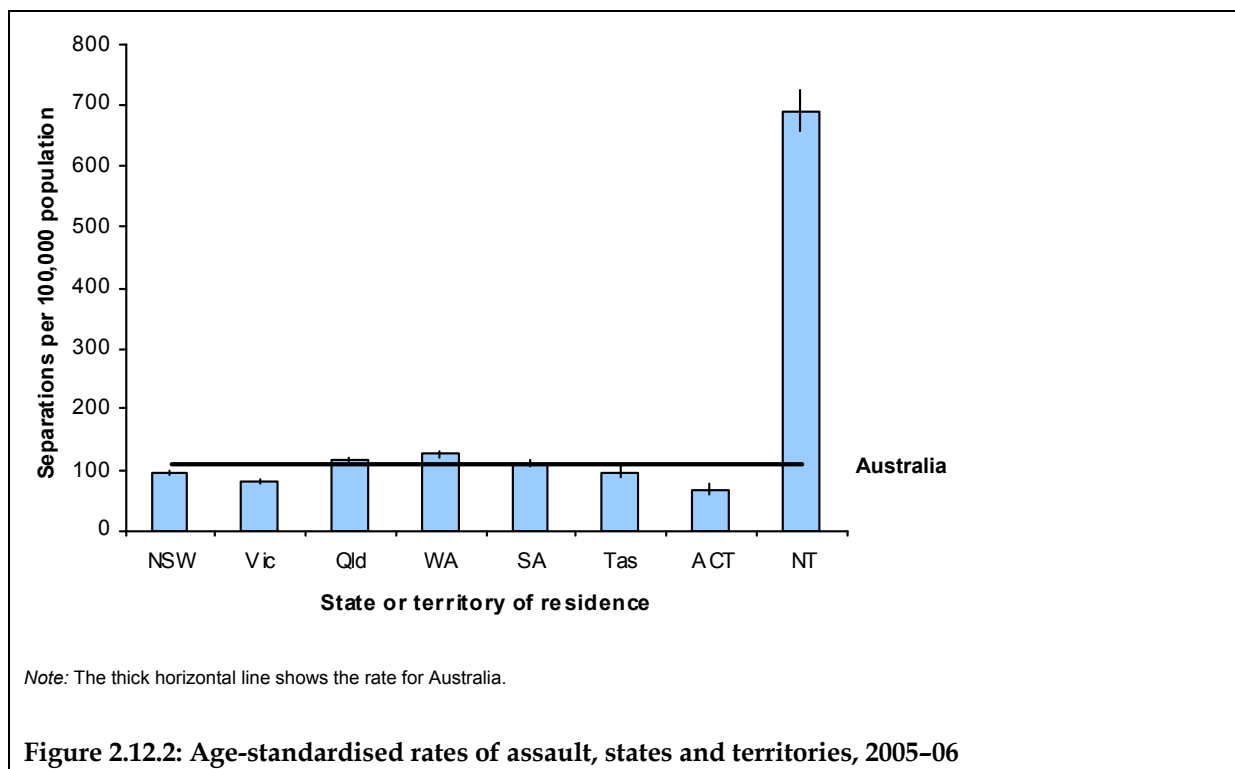
## State and territory differences

The rate of hospitalisation due to assault in the Northern Territory was 6.4 times higher than the national rate (Table 2.12.3 and Figure 2.12.2). Of the 1,579 hospital cases of residents in the Northern Territory, 88% ( $n = 1,387$ ) were recorded as being Aboriginal and Torres Strait Islander persons.

The 2005–06 pattern of relative rates for states and territories is very similar to that observed in the previous two years, with the Northern Territory having a much higher rate than the other jurisdictions and the Australian Capital Territory having a comparatively lower rate. The age standardised rates for the remaining states were similar in all three years to the all-Australia rate (Berry & Harrison 2007; Bradley & Harrison 2008).

**Table 2.12.3: Age-standardised rates of assault, states and territories, 2005–06**

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	96	94–99
Vic	82	79–84
Qld	114	111–118
WA	128	123–132
SA	109	104–115
Tas	96	87–105
ACT	66	58–74
NT	691	657–725
<b>Australia</b>	<b>109</b>	<b>107–110</b>



## Principal diagnosis and body part injured

Over two-thirds of hospital cases due to assault involved injuries to the head (Table 2.12.4).

**Table 2.12.4: Principal Diagnosis by body region for assault cases, Australia, 2005–06**

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	11,484	69.3	3,040	55.2	14,524	65.8
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	1,829	11.0	804	14.6	2,633	11.9
Shoulder and upper limb	2,297	13.9	923	16.8	3,220	14.6
Hip and lower limb	711	4.3	357	6.5	1,068	4.8
Other injuries not specified by body region	251	1.5	384	7.0	635	2.9
<b>All body regions</b>	<b>16,572</b>	<b>100.0</b>	<b>5,508</b>	<b>100.0</b>	<b>22,080</b>	<b>100.0</b>

## Mechanism

Of the 16,572 male cases, 60% ( $n = 9,914$ ) were due to *Assault by bodily force* (Table 2.12.5), 13% ( $n = 2,203$ ) were due to *Assault by blunt object*, 12% were *Assault by sharp object* ( $n = 2,022$ ) and 11% ( $n = 1,798$ ) were *Assault by unspecified means*.

For the 5,508 female cases, *Assault by bodily force* accounted for 54% of the assault hospitalisations ( $n = 2,992$ ), 17% were due to *Assault by blunt object* ( $n = 918$ ), 9% ( $n = 478$ ) were *Assault by unspecified means*, and 9% were *Assault by sharp object* ( $n = 470$ ).

Seventy-six per cent of assault cases in children aged 0–14 years ( $n = 550$ ) were due to *Assault by bodily force* (males  $n = 251$ ; females  $n = 66$ ), *Other maltreatment syndromes* (males  $n = 100$ ; females  $n = 72$ ) and *Assault by blunt object* (males  $n = 47$ ; females  $n = 14$ ).

Eighty-seven per cent of assault cases in youth and young people aged 15–24 years ( $n = 6,360$ ) were due to *Assault by bodily force* (males  $n = 3,854$ ; females  $n = 790$ ), *Assault by blunt object* (males  $n = 642$ ; females  $n = 198$ ), and *Assault by sharp object* (males  $n = 747$ ; females  $n = 129$ ).

Eighty-four per cent of assault cases in adults aged 25–44 years ( $n = 9,062$ ) were due to *Assault by bodily force* (males  $n = 4,416$ ; females  $n = 1,623$ ), *Assault by blunt object* (males  $n = 1,157$ ; females  $n = 557$ ), and *Assault by sharp object* (males  $n = 1,020$ ; females  $n = 289$ ).

Eighty-six per cent of assault cases in adults aged 45–64 years ( $n = 2,458$ ) were due to *Assault by bodily force* (males  $n = 1,254$ ; females  $n = 433$ ), *Assault by blunt object* (males  $n = 322$ ; females  $n = 135$ ) and *Assault by unspecified means* (males  $n = 252$ ; females  $n = 62$ ).

Eighty-seven per cent of assault cases in older people aged 65+ years ( $n = 309$ ) were due to *Assault by bodily force* (males  $n = 139$ ; females  $n = 80$ ), *Assault by blunt object* (males  $n = 35$ ; females  $n = 14$ ) and *Assault by unspecified means* (males  $n = 27$ ; females  $n = 14$ ).

Table 2.12.5: External cause of assault cases, Australia, 2005–06

ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
X85	Assault by drugs, medicaments and biological substances	18	0.1	41	0.7	59	0.3
X86–X90	Assault by corrosive substances, pesticides, gases and vapours, other specified or unspecified chemicals and noxious substances	13	0.1	8	0.1	21	0.1
X91	Assault by hanging, strangulation and suffocation	10	0.1	15	0.3	25	0.1
X93	Assault by handgun discharge	28	0.2	5	0.1	33	0.1
X95	Assault by other and unspecified firearm discharge	56	0.3	15	0.3	71	0.3
X96	Assault by explosive material	10	0.1	15	0.3	25	0.1
X97	Assault by smoke, fire and flames	19	0.1	16	0.3	35	0.2
X98	Assault by steam, hot vapours and hot objects	24	0.1	12	0.2	36	0.2
X99	Assault by sharp object	2,022	12.2	470	8.5	2,492	11.3
Y00	Assault by blunt object	2,203	13.3	918	16.7	3,121	14.1
Y01	Assault by pushing from a high place	9	0.1	4	0.1	13	0.1
Y02	Assault by pushing or placing victim before moving object	*	0.0	*	0.1	9	0.0
Y03	Assault by crashing of motor vehicle	19	0.1	14	0.3	33	0.1
Y04	Assault by bodily force	9,914	59.8	2,992	54.3	12,906	58.5
Y05	Sexual assault by bodily force	12	0.1	139	2.5	151	0.7
Y06	Neglect and abandonment	21	0.1	31	0.6	52	0.2
Y07	Other maltreatment syndromes	108	0.7	208	3.8	316	1.4
Y08	Assault by other specified means	214	1.3	111	2.0	325	1.5
Y09	Assault by unspecified means	1,798	10.8	478	8.7	2,276	10.3
Y35	Legal intervention	47	0.3	4	0.1	51	0.2
Y36	Operations of war	*	0.1	*	0.0	15	0.1
Y87.1	Sequelae of assault	*	0.1	*	0.1	15	0.1
<b>Total</b>		<b>16,572</b>	<b>100.0</b>	<b>5,508</b>	<b>100.0</b>	<b>22,080</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 figures for a column.

\* Small cell counts have been suppressed.

## Perpetrator

Codes for the relationship of the victim of assault to the perpetrator was added to ICD-10-AM 3rd edition. The perpetrator code is applicable within the range of external cause categories X85–Y09. According to this criterion, 21,999 hospital cases were eligible to receive a perpetrator code. A perpetrator was specified for only 42% ( $n = 9,234$ ) of eligible cases and varied by age and gender (e.g. the perpetrator was an *unspecified person* in 66% of male cases and 35% of female cases). The large number of separations lacking detail on the perpetrator code limits meaningful interpretation of these counts. The following observations are restricted to those records in which the perpetrator was specified.

**Table 2.12.6: Relationship of the perpetrator to the victim of assault, Australia, 2005–06**

Perpetrator	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Spouse or domestic partner	433	7.7	2,200	61.1	2,633	28.5
Parent	190	3.4	156	4.3	346	3.7
Other family member	609	10.8	428	11.9	1,037	11.2
Carer	10	0.2	8	0.2	18	0.2
Acquaintance or friend	968	17.2	313	8.7	1,281	13.9
Official authorities	173	3.1	16	0.4	189	2.0
Person unknown to the victim	1,269	22.5	176	4.9	1,445	15.6
Multiple persons unknown to the victim	1,262	22.4	107	3.0	1,369	14.8
Other specified person	718	12.7	198	5.5	916	9.9
<b>Total of cases where perpetrator is specified</b>	<b>5,632</b>	<b>100.0</b>	<b>3,602</b>	<b>100.0</b>	<b>9,234</b>	<b>100.0</b>

Note: Shaded areas indicate three highest figures for each column.

## Length of stay

Mean length of stay for assault was higher in young children 0–4 years than for other age groups (below 60 years of age). The mean length of stay was 3.2 days for children aged 0–14 years, 1.8 days for young people aged 15–24 years, 2.3 days for adults aged 25–44 years, 3.1 days for adults aged 45–64 years and 4.9 days for older people aged 65+ years (Figure 2.12.3).

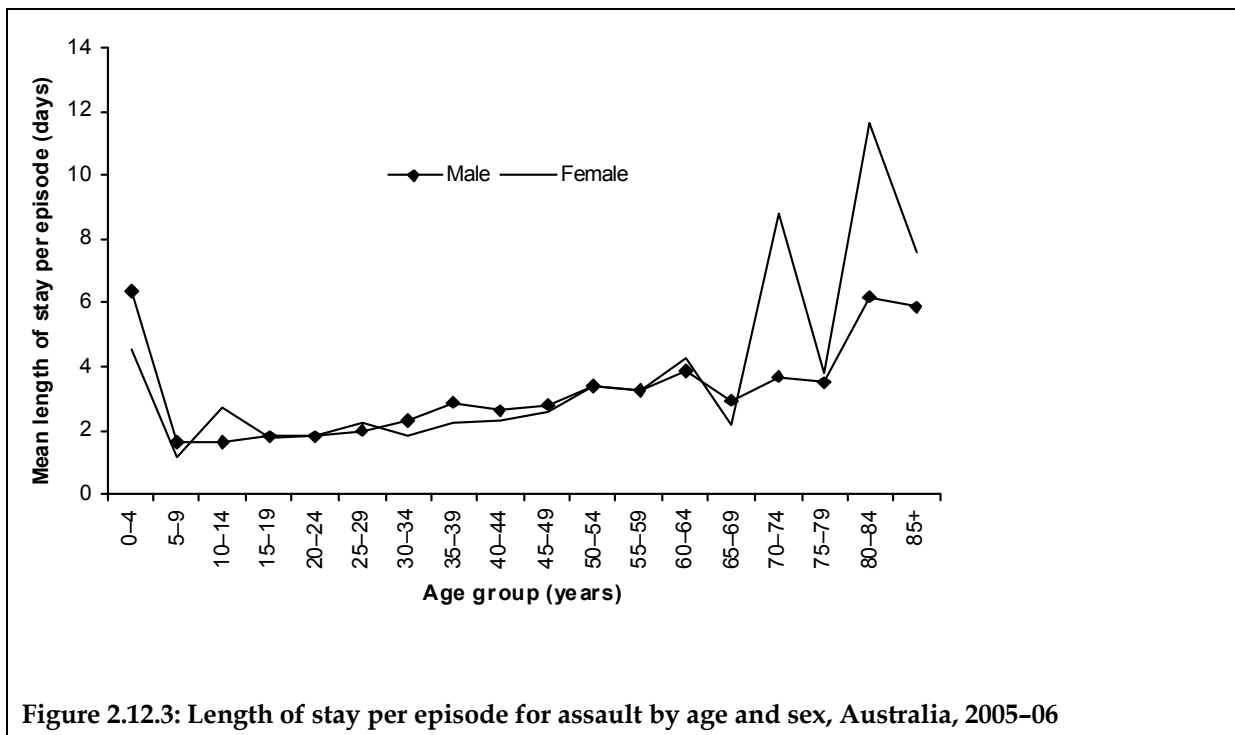
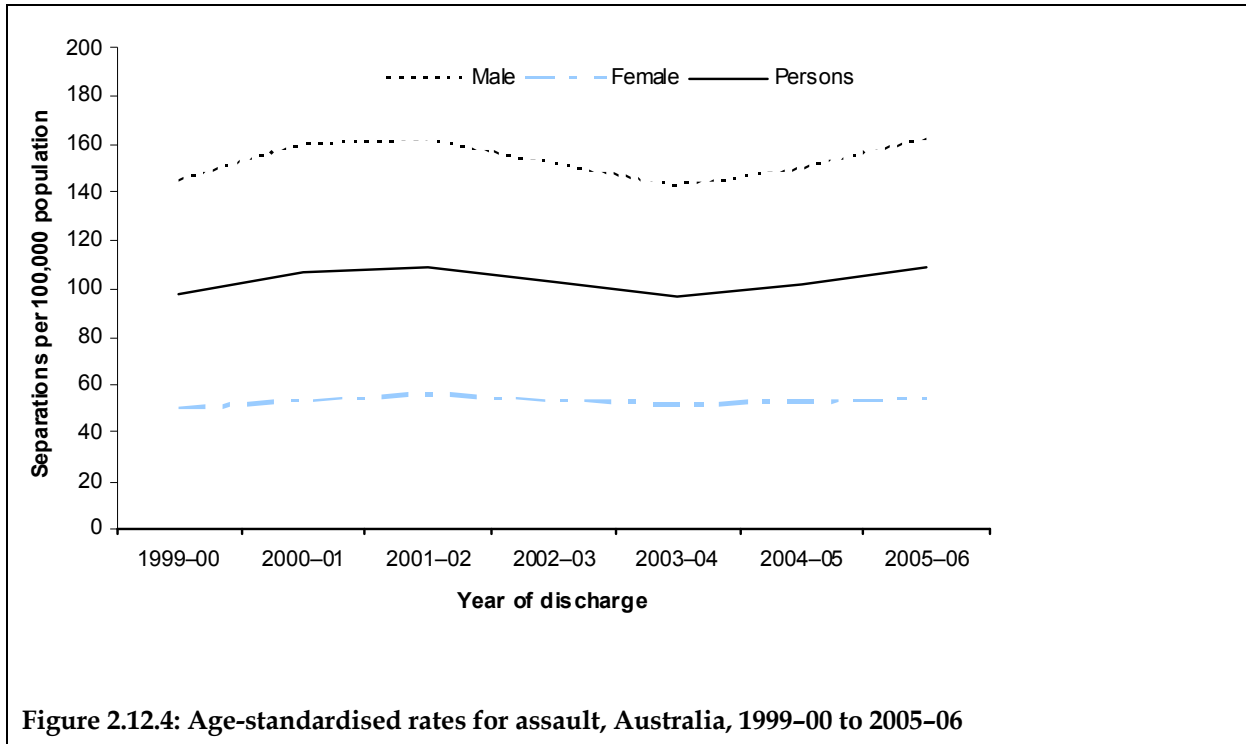


Figure 2.12.3: Length of stay per episode for assault by age and sex, Australia, 2005–06

## Time trends

Age-standardised rates for assault were 98 per 100,000 of the population in 1999–00 and 109 per 100,000 in 2005–06, with a slight increase in intervening years. For each year, age-standardised rates for males were about three times higher than for females (Figure 2.12.4).



### Place of occurrence

The hospitalisations from assault injury occurred in diverse locations. Most were unspecified (58%; *n* = 12,716) or not reported (0.1%; *n* = 22).

The following observations are restricted to those cases in which the place of occurrence was specified. Overall, about 69% of females were assaulted in the home (Table 2.12.7). Trade and service areas (which includes hotels and many other entertainment venues) and a street or highway were the second (11%) and third (9%) most common places of injury for young women.

The most common place of occurrence for males was a trade or service area (34%), followed by the home (26%) and a street or highway (21%).

### Ascertainment of assault

As for intentional self-harm, there are reasons to think that the identification of admitted injury cases as being due to inter-personal violence is not entirely complete. Feelings of shame or embarrassment may underlie reticence to admit to both types of intentional injury. In addition, most injury due to inter-personal violence has potential legal implications. Pressures or incentives not to reveal assault are particularly likely in circumstances such as injury of a child or other dependent person by a care-giver, and injury of one spouse by the other. Cases recognised as possibly being due to assault, but where doubt remains, can be coded as undetermined intent (see Chapter 2.13).

Table 2.12.7: Place of occurrence for assault cases by age and sex, Australia, 2005-06

Place	0-14 yrs	Per cent	15-24 yrs	Per cent	25-44 yrs	Per cent	45-64 yrs	Per cent	65+ yrs	Per cent	Total	Per cent
<b>Male</b>												
Home	128	47.1	332	15.0	824	25.2	417	40.4	80	51.9	1,781	25.7
Residential institution	*	0.4	35	1.6	135	4.1	39	3.8	*	14.9	233	3.4
School	85	31.3	54	2.4	*	0.1	*	0.0	*	1.3	144	2.1
Health service area	*	1.1	5	0.2	19	0.6	9	0.9	*	0.0	36	0.5
Other specified institution	*	0.0	18	0.8	42	1.3	12	1.2	*	0.6	73	1.1
Sports and athletics area	12	4.4	62	2.8	55	1.7	*	1.1	*	1.3	142	2.0
Street and highway	16	5.9	546	24.7	716	21.9	190	18.4	12	7.8	1,480	21.4
Trade and service area	9	3.3	885	40.1	1,190	36.4	251	24.3	23	14.9	2,358	34.0
Industrial and construction area	*	0.4	*	0.2	17	0.5	11	1.1	0	0.0	33	0.5
Farm	0	0.0	0	0.0	*	0.1	*	0.1	*	1.3	7	0.1
Other specified places	17	6.3	267	12.1	260	8.0	92	8.9	9	5.8	645	9.3
<b>Total</b>	<b>272</b>	<b>100.0</b>	<b>2,208</b>	<b>100.0</b>	<b>3,265</b>	<b>100.0</b>	<b>1,033</b>	<b>100.0</b>	<b>154</b>	<b>100.0</b>	<b>6,932</b>	<b>100.0</b>
<b>Female</b>												
Home	84	69.4	343	60.4	888	71.5	282	75.2	70	67.3	1,667	69.2
Residential institution	*	0.8	8	1.4	15	1.2	*	0.8	15	14.4	42	1.7
School	10	8.3	7	1.2	*	0.1	0	0.0	*	0.0	18	0.7
Health service area	0	0.0	*	0.4	8	0.6	8	2.1	*	1.0	19	0.8
Other specified institution	*	0.8	*	0.5	7	0.6	0	0.0	0	0.0	11	0.5
Sports and athletics area	*	0.8	*	0.2	5	0.4	*	0.8	0	0.0	10	0.4
Street and highway	7	5.8	68	12.0	109	8.8	30	8.0	11	10.6	225	9.3
Trade and service area	11	9.1	98	17.3	124	10.0	32	8.5	5	4.8	270	11.2
Industrial and construction area	0	0.0	0	0.0	*	0.1	*	0.3	0	0.0	*	0.1
Farm	0	0.0	0	0.0	*	0.1	*	0.3	0	0.0	*	0.1
Other specified places	*	5.0	38	6.7	83	6.7	15	4.0	*	1.9	144	6.0
<b>Total</b>	<b>121</b>	<b>100.0</b>	<b>568</b>	<b>100.0</b>	<b>1,242</b>	<b>100.0</b>	<b>375</b>	<b>100.0</b>	<b>104</b>	<b>100.0</b>	<b>2,410</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 figures for a column. Cases are restricted to those where place of occurrence is specified.

\* Small cell counts have been suppressed.

## 2.13 Undetermined intent

ICD-10-AM case inclusion

Principal Diagnosis: **S00–T75, T79** and

First reported external cause: **Y10–Y34**

**Table 2.13.1: Key indicators for undetermined intent cases, Australia, 2005–06**

Indicator	Males	Females	Persons
Separations from hospital due to undetermined intent	2,157	2,419	4,576
Percentage of all injury separations	0.9	1.4	1.1
Estimated cases*	2,085	2,345	4,430
Crude rate/100,000 population	20.4	22.7	21.5
Age-standardised rate/100,000 population	20.4	22.9	21.7
Mean length of stay (days)	2.1	2.0	2.1
Total patient days	4,479	4,791	9,270

\* Omits inward transfers from acute hospitals.

Injuries where the intent is undetermined accounted for 1.1% of all injury hospitalisations in the financial year 2005–06 (Table 2.13.1). This chapter includes cases where intent was unspecified, unstated or could not be determined. Most such cases are uncertain self-harm or uncertain assault.

A note to coders in ICD-10-AM states that codes in the undetermined intent section (Y10–Y34) ‘are designed for use when the intent is unspecified, unstated or cannot be determined. That is, the injuries are not specified as accidental (unintentional), self-inflicted with intent to self-harm, or assault.’

This differs from the way that undetermined intent categories are usually applied in ICD-10 when coding injury deaths. In that context, those codes are normally only used if intent has been explicitly stated to be undetermined, after a formal process (i.e. investigation by a coroner). If a death has not been specified as being due to intentional self-harm or assault, nor specified as being of undetermined intent, then it is supposed to be coded as accidental, even if there are reasons to think that it might have been intentional. In hospitals data, such doubtful cases can be coded to undetermined intent.

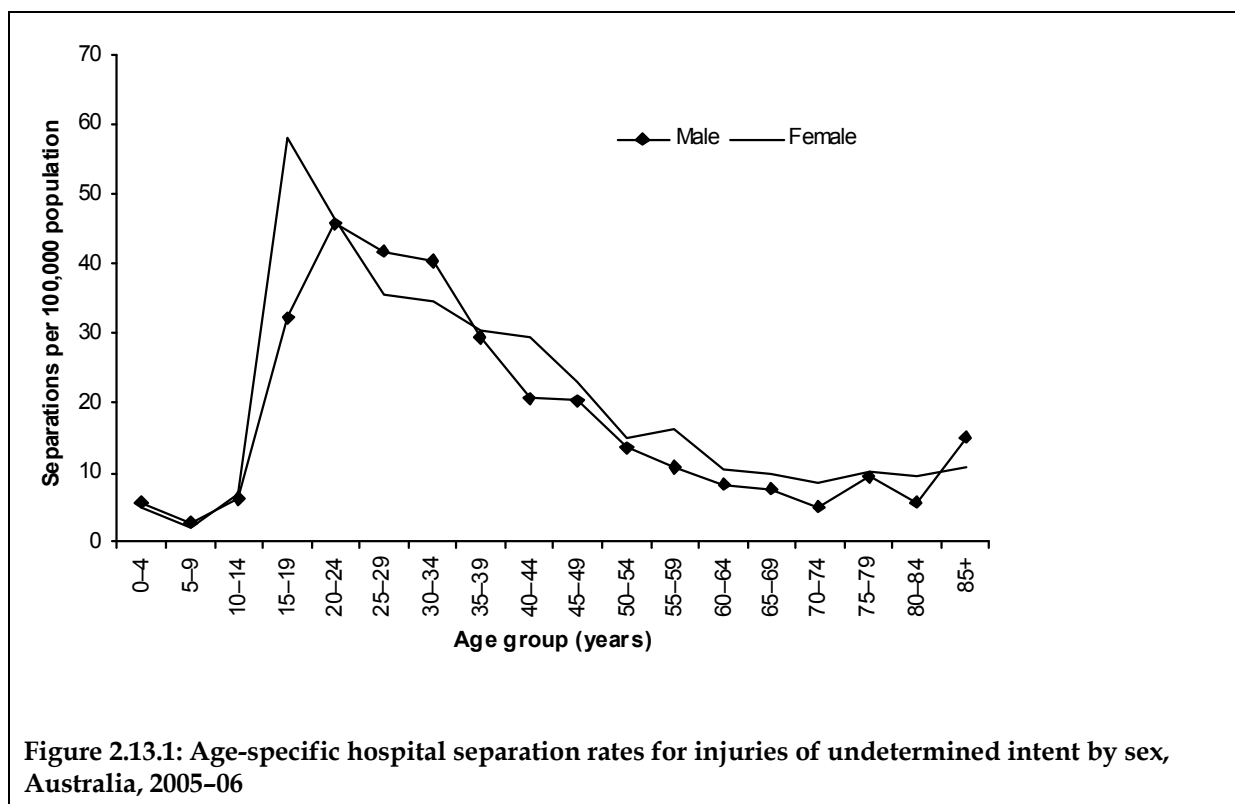
### Age and sex distribution

More females than males were hospitalised for injuries of undetermined intent (based on age-standardised rates), with a M:F rate ratio of 0.9:1 (Figure 2.13.1). Rates were low for children and peaked in youth and young people aged 15–24 years and declined with age.

The male and female profiles of age-specific rates for undetermined intent appears to be similar to that of intentional self-harm, rather than assault, except for children. Very similar cases can be coded so they appear in this chapter or in Chapter 2.11 (intentional self-harm), depending on the extent of evidence in the record concerning intent and how this is interpreted by clinical coders. Hence, there is the possibility that changes in information or coding over time could result in apparent trends which are, in fact, due to these data issues.



In practice, this does not appear to have occurred to an important extent: the undetermined intent category is small in relation to the intentional self-harm group and the assault group, and all three groups have tended to rise in the most recent years covered by this report.



Forty-four per cent of injuries of undetermined event occurred in adults aged 25-44 years (Table 2.13.2).

**Table 2.13.2: Injuries of undetermined intent by age group, Australia, 2005-06**

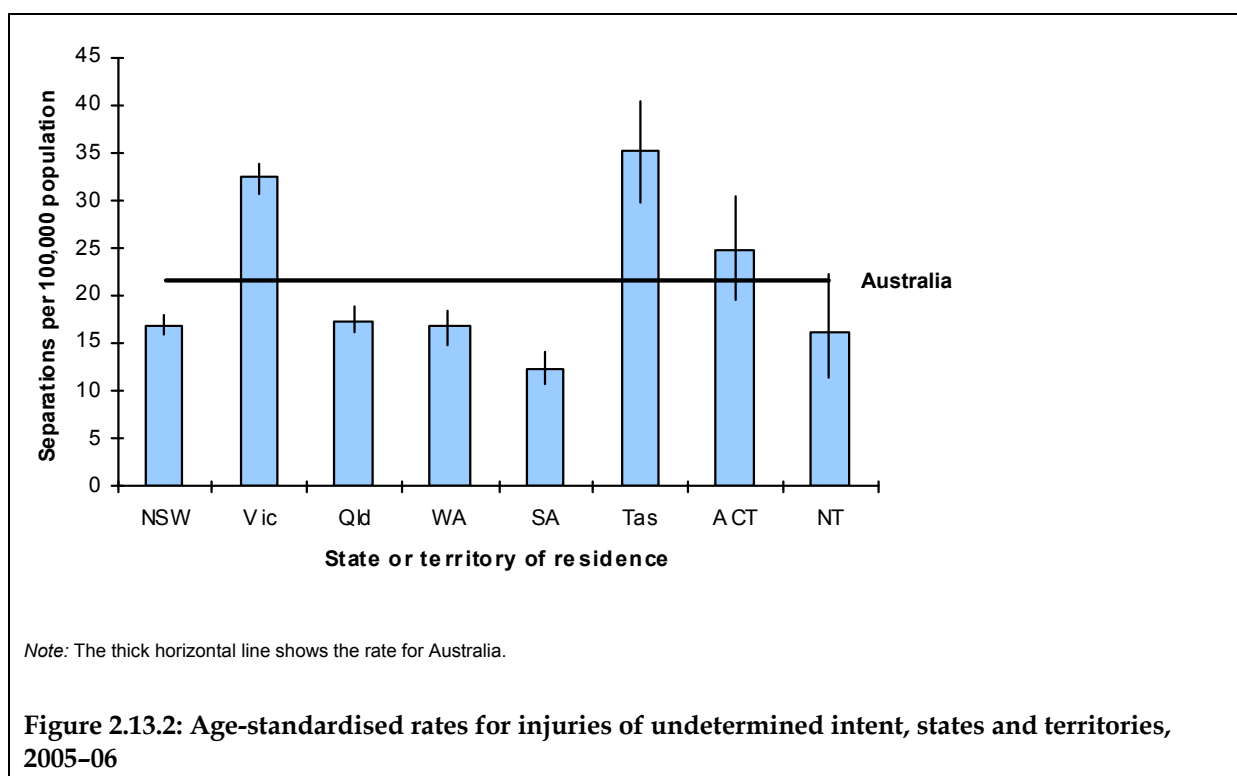
Age group	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
0-14 years	101	4.8	91	3.9	192	4.3
15-24 years	569	27.3	726	31.0	1,295	29.2
25-44 years	975	46.8	965	41.2	1,940	43.8
45-64 years	349	16.7	422	18.0	771	17.4
65+ years	91	4.4	141	6.0	232	5.2
<b>Total</b>	<b>2,085</b>	<b>100.0</b>	<b>2,345</b>	<b>100.0</b>	<b>4,430</b>	<b>100.0</b>

## State and territory differences

There was considerable variation between jurisdictional rates. Rates for Victoria and Tasmania were significantly higher than the national rate, and those for New South Wales, Queensland, Western Australia and South Australia were significantly below it (Table 2.13.3 and Figure 2.13.2).

**Table 2.13.3: Age-standardised rates of injuries of undetermined intent, states and territories, 2005–06**

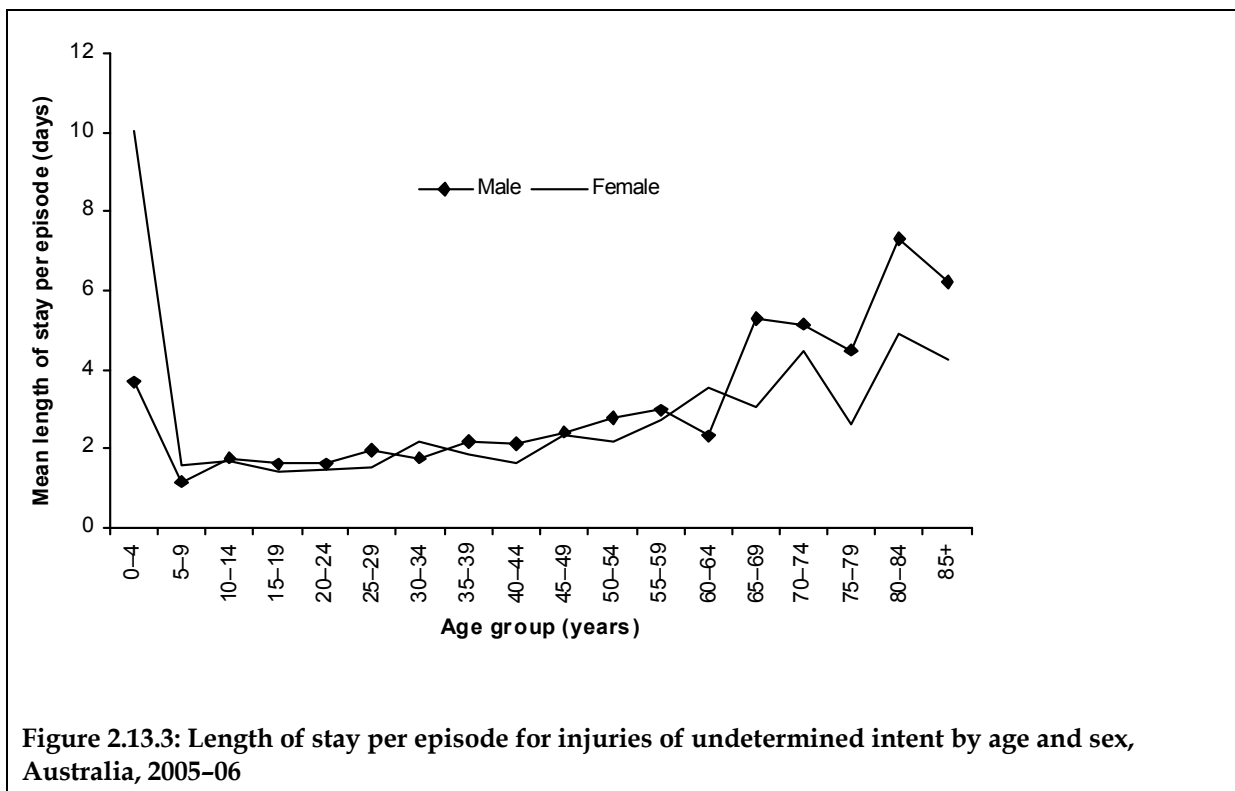
Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI
NSW	17.0	16.0–18.0
Vic	32.4	30.8–33.9
Qld	17.5	16.2–18.7
WA	16.7	14.9–18.5
SA	12.3	10.6–14.1
Tas	35.1	29.8–40.5
ACT	24.6	19.8–30.3
NT	16.1	11.4–22.3
<b>Australia</b>	<b>21.7</b>	<b>21.0–22.3</b>



## Length of stay

The mean length of stay for injuries of undetermined intent was highest for males aged 0–4 years (Figure 2.13.3). From the age of 5 years, the mean length of stay tends to increase with age. The comparatively large fluctuations at older ages reflect small case numbers.

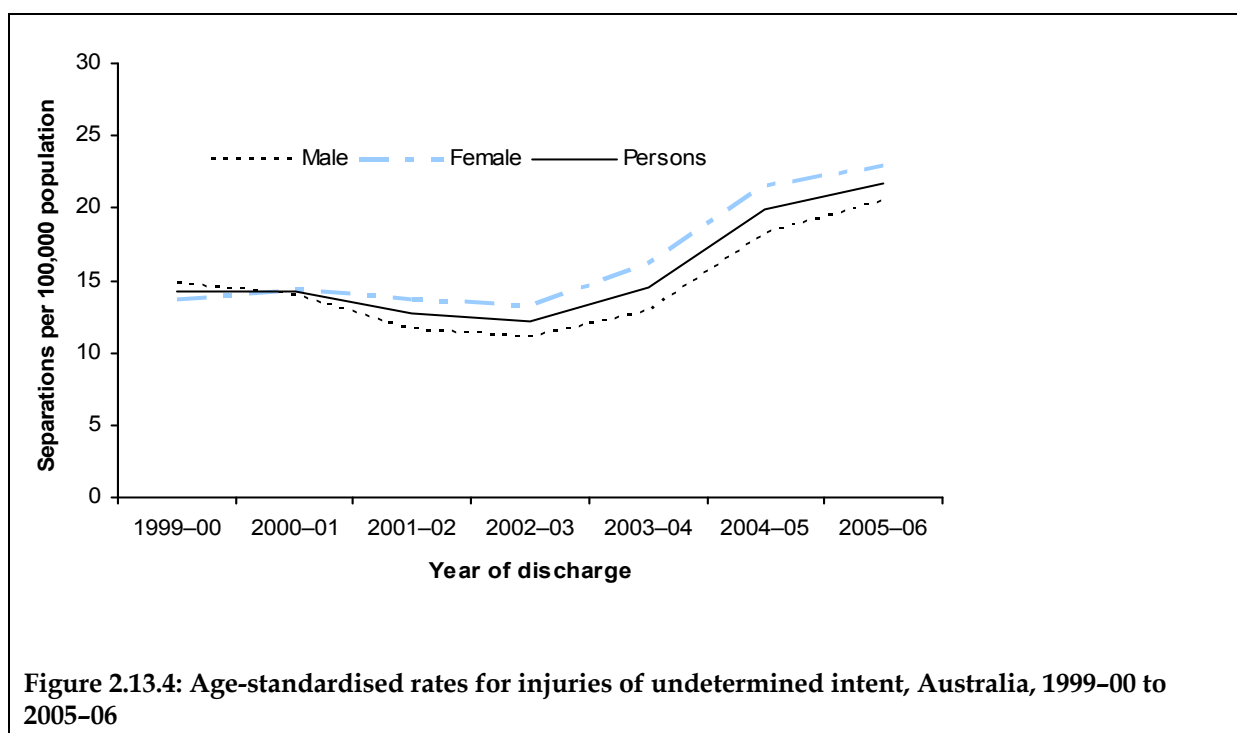
The mean length of stay was 3.4 days for children aged 0–14 years, 1.5 days for young people aged 15–24 years, 1.9 days for adults aged 25–44 years, 2.6 days for adults aged 45–64 years and 4.4 days for older people aged 65+ years.



## Time trends

Age-standardised annual rates for injuries of undetermined intent showed minimal annual fluctuations between 1999–00 and 2003–04. Rates rose from 14.5 per 100,000 of the population in 2003–04 to 21.7 per 100,000 in 2005–06 (Figure 2.13.4). Growth in the number of cases in all jurisdictions, with the exception of the Northern Territory, contributed to the increase in rates from 2003–04.

The upward trend in rates was also associated with a steep increase in the number of poisoning cases. Case numbers for other mechanisms of injury remained reasonably stable over the period.



## Principal diagnosis and body part injured

The majority of admitted injury cases due to undetermined intent did not specify a particular body region that was injured (Table 2.13.4). This reflects the fact that the mechanism in most cases was poisoning.

**Table 2.13.4: Principal Diagnosis by body region for injuries of undetermined intent, Australia, 2005–06**

Principal Diagnosis by body region	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	63	3.0	21	0.9	84	1.9
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	49	2.4	18	0.8	67	1.5
Shoulder and upper limb	180	8.6	74	3.2	254	5.7
Hip and lower limb	64	3.1	41	1.7	105	2.4
Other injuries not specified by body region	1,729	82.9	2,191	93.4	3,920	88.5
<b>All body regions</b>	<b>2,085</b>	<b>100.0</b>	<b>2,345</b>	<b>100.0</b>	<b>4,430</b>	<b>100.0</b>

## Mechanism

Overall, 85% of injuries of undetermined intent resulted from poisoning (Table 2.13.5). Poisoning by antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs comprised 40% ( $n = 1,752$ ) of injuries of undetermined intent, and mainly consisted of poisoning by benzodiazepines ( $n = 726$ ), other and unspecified antidepressants – likely to be selective serotonin reuptake inhibitors ( $n = 234$ ) and other and unspecified antipsychotics and neuroleptics with potential for use disorder ( $n = 197$ ).

Thirteen per cent ( $n = 591$ ) of injuries of undetermined intent were poisoning by nonopioid analgesics, antipyretics and antirheumatics, and mainly consisted of 4-aminophenol derivatives such as paracetamol ( $n = 464$ ) and other non-steroidal anti-inflammatory drugs (NSAID) ( $n = 88$ ).

Eleven per cent ( $n = 497$ ) of injuries of undetermined intent were from narcotics and hallucinogens, and mainly consisted of heroin ( $n = 123$ ), and other opioids such as codeine and morphine ( $n = 108$ ).

**Table 2.13.5: External cause of injuries of undetermined intent, Australia, 2005–06**

ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
	Poisoning by and exposure to:						
Y10	• nonopioid analgesics, antipyretics and antirheumatics	158	7.6	433	18.5	591	13.3
Y11	• antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	712	34.1	1,040	44.3	1,752	39.5
Y12	• narcotics and psychodysleptics [hallucinogens]	289	13.9	208	8.9	497	11.2
Y13	• other drugs acting on the autonomic nervous system	30	1.4	26	1.1	56	1.3
Y14	• other and unspecified drugs, medicaments and biological substances	218	10.5	261	11.1	479	10.8
Y15	• alcohol	90	4.3	103	4.4	193	4.4
Y16	• organic solvents and their halogenated hydrocarbons and their vapours	55	2.6	20	0.9	75	1.7
Y17	• other gases and vapours (e.g. Carbon monoxide)	25	1.2	11	0.5	36	0.8
Y18	• pesticides	22	1.1	5	0.2	27	0.6
Y19	• other and unspecified chemicals and noxious substances	43	2.1	34	1.4	77	1.7
Y20	Hanging, strangulation and suffocation	13	0.6	7	0.3	20	0.5
Y21	Drowning and submersion	*	0.1	*	0.1	5	0.1
Y22	Handgun discharge	*	0.0	*	0.0	*	0.0
Y24	Other and unspecified firearm discharge	*	1.4	*	0.1	31	0.7
Y25	Contact with explosive material	*	0.0	*	0.0	*	0.0
Y26	Exposure to smoke, fire and flames	57	2.7	27	1.2	84	1.9
Y27	Contact with steam, hot vapours and hot objects	*	0.2	*	0.5	15	0.3
Y28	Contact with sharp object	188	9.0	76	3.2	264	6.0
Y29	Contact with blunt object	20	1.0	7	0.3	27	0.6
Y30	Falling, jumping or pushed from a high place	*	1.0	*	0.2	24	0.5
Y31	Falling, lying or running before or into moving object	*	0.3	*	0.1	9	0.2
Y32	Crashing of motor vehicle	*	0.1	*	0.0	4	0.1
Y33	Other specified events	12	0.6	11	0.5	23	0.5
Y34	Unspecified event	67	3.2	39	1.7	106	2.4
Y87.2	Sequelae of events of undetermined intent	20	1.0	12	0.5	32	0.7
<b>Total</b>		<b>2,085</b>	<b>100.0</b>	<b>2,345</b>	<b>100.0</b>	<b>4,430</b>	<b>100.0</b>

Note: Shaded areas indicate the highest 2 figures for a column.  
\* Small cell counts have been suppressed.

## Place of occurrence

Location was not specified or reported for 52% of cases (unspecified;  $n = 2,286$ , not reported/not applicable;  $n = 9$ ). The following observations are restricted to those cases in which the place of occurrence was specified. The majority of hospital cases resulted from injuries that occurred in the home (77%;  $n = 1,634$ ) (Table 2.13.6).

**Table 2.13.6: Place of occurrence for injury cases of undetermined intent, Australia, 2005–06**

Place	Persons	Per cent
Home	1,634	76.5
Residential institution	48	2.2
School	22	1.0
Health service area	119	5.6
Other specified institution and public administrative area	*	0.5
Sports and athletics area	14	0.7
Street and highway	57	2.7
Trade and service area	143	6.7
Industrial and construction area	15	0.7
Farm	*	0.1
Other specified places	69	3.2
<b>Total</b>	<b>2,135</b>	<b>100.0</b>

\* Small cell counts have been suppressed.

### 3 Complications of surgical and medical care, Australia

ICD-10-AM case inclusion

Principal Diagnosis: T80–T88

**Table 3.1: Key indicators for cases due to *Complications of surgical and medical care, Australia, 2005–06***

Indicator	Males	Females	Persons
All hospital separations	3,438,248	3,873,645	7,311,983 <sup>(a)</sup>
Separations from hospital due to complications of surgical and medical care	40,155	38,529	78,684
Percentage of all separations	1.2	1.0	1.1
Estimated cases*	37,085	35,960	73,045
Crude rate/100,000 population	362.9	347.7	355.3
Age-standardised rate/100,000 population	370.4	330.2	345.8
Mean length of stay (days)	5.6	5.5	5.6
Total patient days	208,631	197,299	405,930

\* Omits inward transfers from acute hospitals.

(a) Includes 90 separations where sex was not reported.

#### Overview

Hospital separations with a Principal Diagnosis of T80–T88 *Complications of surgical and medical care, not elsewhere classified* can provide a rudimentary measure of the frequency of occurrence of adverse events related to medical care. However, other ICD-10-AM codes outside the Principal Diagnosis range of T80–T88 may also indicate that an adverse event has occurred. Hence, the method used in this chapter uses different specifications to those used in the Australian Hospital Statistics 2005–06, which results in lower estimates here than in that publication (AIHW 2007). The wide diversity of estimates of the incidence of adverse events reported in the national and international literature is due to divergence in definitions, methods and conceptual focus (Wilson et al. 1995; Thomas et al. 2000; Vincent et al. 2001).

Caution is needed when interpreting the data in this chapter due to uncertainty about the completeness of coding, difficulties in identifying some complications as well as limitations of the classification and data systems. The limitations of these data are elsewhere described (Berry & Harrison 2006).

In 2005–06, *Complications of surgical and medical care, not elsewhere classified* was the Principal Diagnosis assigned to 78,684 separate episodes of hospital inpatient care, 1.1% of all hospital separations from public, private and psychiatric hospitals in Australia (Table 3.1). An estimated 73,045 separations were incident injury cases in 2005–06. About as many again had an Additional Diagnosis in the range T80–T88 *Complications of surgical and medical care, not elsewhere classified* (see Table A1). The male to female rate ratio (M:F rate ratio), based on age-standardised rates was 1.1:1.0, indicating slightly more males than females were hospitalised for complications of surgical and medical care.



## Major types of injury

Table 3.2: Major types of injury for *Complications of surgical and medical care, Australia, 2005–06*

Principal Diagnosis	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Complications following infusion, transfusion and therapeutic injection	251	0.7	281	0.8	532	0.7
Complications of procedures, not elsewhere classified	15,177	40.9	14,454	40.2	29,631	40.6
Complications of cardiac and vascular prosthetic devices, implants and grafts	5,160	13.9	3,694	10.3	8,854	12.1
Complications of genitourinary prosthetic devices, implants and grafts	2,535	6.8	1,477	4.1	4,012	5.5
Complications of internal orthopaedic prosthetic devices, implants and grafts	6,993	18.9	6,841	19.0	13,834	18.9
Complications of other internal prosthetic devices, implants and grafts	3,913	10.6	6,715	18.7	10,628	14.5
Failure and rejection of transplanted organs and tissues	1,756	4.7	1,111	3.1	2,867	3.9
Complications peculiar to reattachment and amputation	650	1.8	335	0.9	985	1.3
Other complications of surgical and medical care, not elsewhere classified	650	1.8	1,052	2.9	1,702	2.3
<b>Total</b>	<b>37,085</b>	<b>100.0</b>	<b>35,960</b>	<b>100.0</b>	<b>73,045</b>	<b>100.0</b>

All (100%;  $n = 73,045$ ) admitted injury cases did not specify a particular body part that was injured.

The ICD-10-AM Principal Diagnoses T81, *Complications of procedures, not elsewhere classified* ( $n = 29,631$ ), T82 *Complications of cardiac and vascular prosthetic devices, implants and grafts* ( $n = 8,854$ ), T84, *Complications of internal orthopaedic prosthetic devices, implants and grafts* ( $n = 13,834$ ), and T85 *Complications of other internal prosthetic devices, implants and grafts* ( $n = 10,628$ ) accounted for 86% of all *Complications of surgical and medical care*.

The most commonly recorded specific adverse event was T81.4, *Infection following a procedure, not elsewhere classified* ( $n = 14,429$ ; 20% of all adverse events). The overwhelming majority of cases with a principal diagnosis of T81.4 were coded as T81.41 *Wound infection following a procedure* ( $n = 13,855$ , 96%). The second most common adverse event was T81.0, *Haemorrhage and haematoma complicating a procedure, not elsewhere classified* ( $n = 9,333$ ; 13% of all adverse events). The third most common adverse event was T84.0, *Mechanical complication of internal joint prosthesis* ( $n = 4,976$ ; 7% of all adverse events).

Most of these common adverse events were given an external cause code of Y83 ( $n = 70,307$ , 96%), indicating a surgical operation and other surgical procedure was the cause of the abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure.

## Age and sex distribution

Rates of hospitalised injury were similar for males and females at ages up to 30 years (Figure 3.1). Female rates exceeded male rates at ages 30–59 years. At ages 60 years and older, male rates exceeded those for females (Figure 3.1).

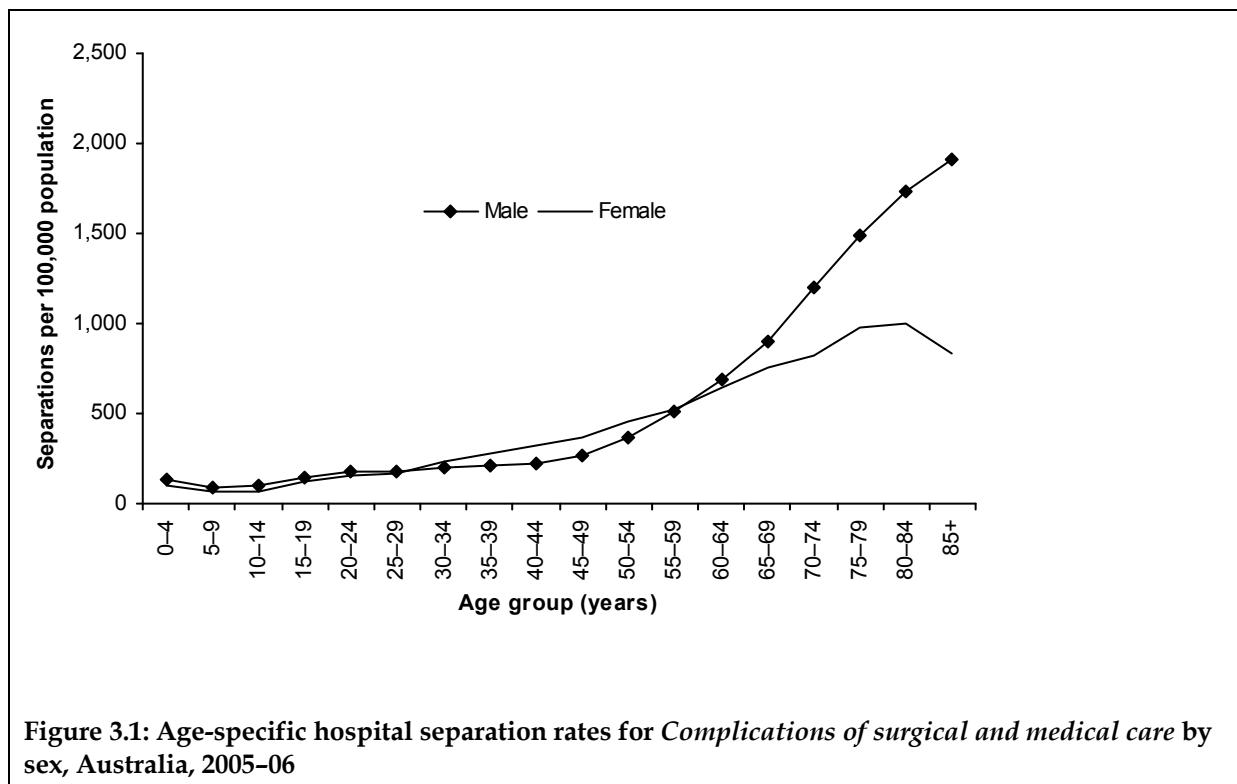


Figure 3.1: Age-specific hospital separation rates for *Complications of surgical and medical care* by sex, Australia, 2005-06

## Length of stay

In general, mean length of stay due to *Complications of surgical and medical care* increased with age (Figure 3.2).

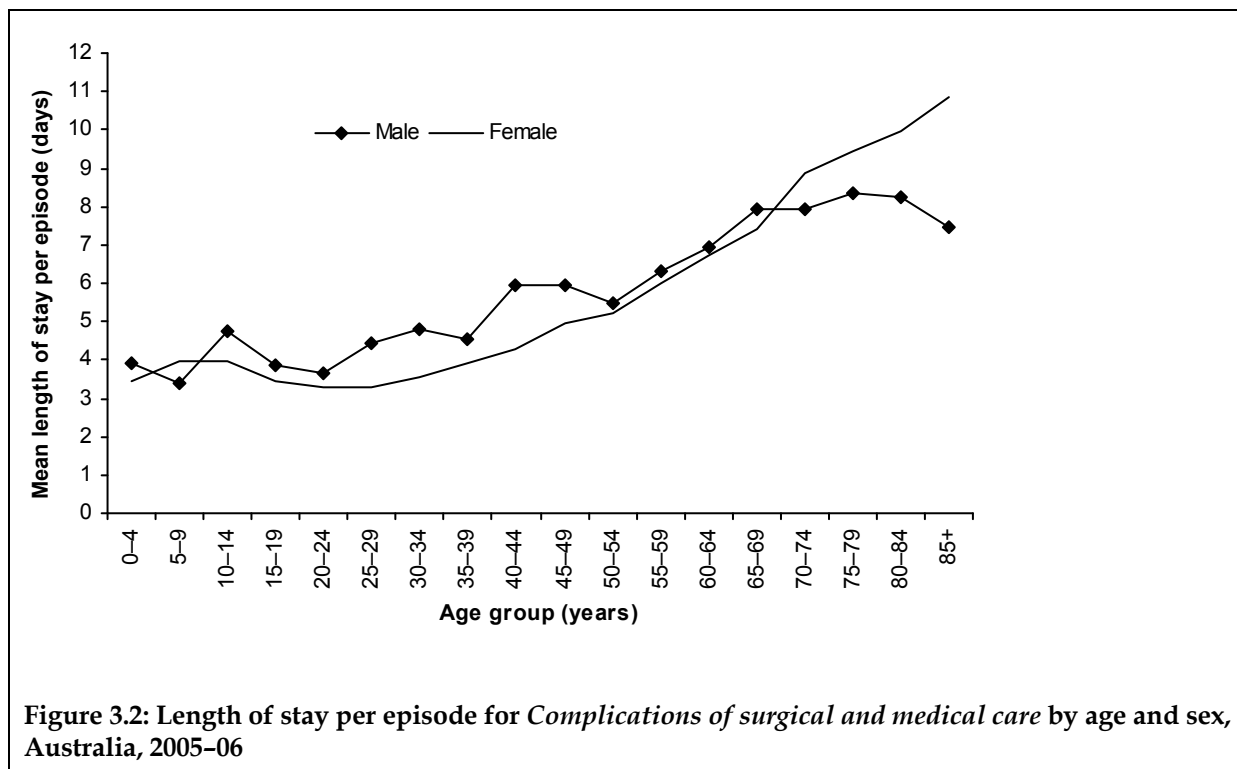
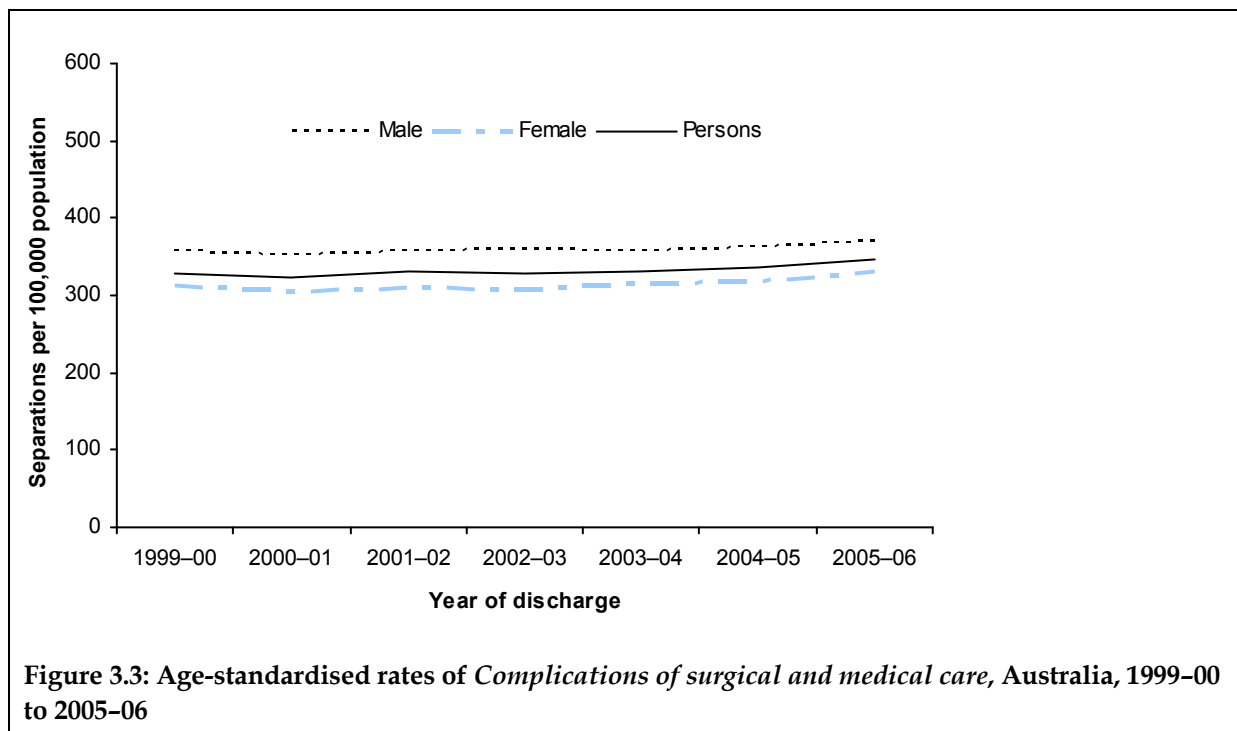


Figure 3.2: Length of stay per episode for *Complications of surgical and medical care* by age and sex, Australia, 2005-06

## Time trends

Age-standardised rates for *Complications of surgical and medical care* showed a small and gradual increase over time from 329 per 100,000 of the population in 1999–00 to 346 per 100,000 in 2005–06. Age-standardised rates are higher for males than females (Figure 3.3).



## Place of occurrence

As expected, where a place of occurrence was recorded ( $n = 71,714$ ), the great majority of cases occurred in a health service area (98.9%;  $n = 70,911$ ). The remaining 0.9% occurred in the home or in another location, but these are difficult to interpret due to the limited information available. It may be that these cases refer to the place of occurrence of the original condition or disease, to the place where the complication became apparent, or to complications of care delivered at home.

## 4 Residual groups

This chapter includes hospital separations where the Principal Diagnosis was in ICD-10-AM Chapter XIX *Injury, poisoning and certain other consequences of external causes* but were not classified as *Community injury* or *Complications of surgical and medical care* ( $n = 5,433$ ) and estimated cases ( $n = 5,320$ ) were derived by omitting separations which were inward transfer from another acute care hospital. Most of these 5,320 estimated cases were coded as ICD-10-AM Principal Diagnosis T78 *Adverse effects, not elsewhere classified* ( $n = 5,155$ ) (Table 4.1). The remainder were T89, *Other specified complications of trauma* ( $n = 154$ ) or T90–T98, *Sequelae of injuries, of poisoning and of other consequences of external causes* ( $n = 11$ ).

**Table 4.1: Case counts for ICD-10-AM Principal Diagnosis T78, Adverse effects, not elsewhere classified, Australia, 2005–06**

Principal Diagnosis	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Anaphylactic shock due to adverse food reaction	546	22.5	559	20.5	1,105	21.4
Other adverse food reactions, not elsewhere classified	423	17.5	429	15.7	852	16.5
Anaphylactic shock, unspecified	327	13.5	374	13.7	701	13.6
Angioneurotic oedema	647	26.7	744	27.2	1,391	27.0
Allergy, unspecified	475	19.6	614	22.5	1,089	21.1
Other adverse effects, not elsewhere classified or unspecified	6	0.2	11	0.4	17	0.3
<b>Total</b>	<b>2,424</b>	<b>100.0</b>	<b>2,731</b>	<b>100.0</b>	<b>5,155</b>	<b>100.0</b>