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Hospital separations due to injury and poisoning, Australia 2006–07

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Contents

Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ASGC	Australian Standard Geographical Classification
CI	Confidence interval
ICD-9	International Classification of Diseases, 9th Revision
ICD-10-AM	International Classification of Diseases, 10th Revision Australian Modification
LOS	Length of stay
MLOS	Mean length of stay
NHMD	National Hospital Morbidity Database
NISU	National Injury Surveillance Unit
NPHP	National Public Health Partnership
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

n	number
n.p.	Not published. Small cell counts have been supressed to prevent patient identification.

Summary

This report, covering injuries resulting in admission to Australian hospitals in the financial year 2006–07, is the fifth in the series which started in 2001–02 (Berry & Harrison 2006a).

The focus of the report is analysis of community injury (that is, injuries typically sustained in the home, workplace, street, etc.). The report also includes short sections on work and sports related injury, complications of surgical and medical care and residual injury such as adverse effects not elsewhere classified.

An estimated 386,208 community injury cases required hospitalisation during the twelve-month period 2006–07 (225,297 males and 160,905 females).

A total of 1,553,030 patient days were attributed to hospitalised community injury, equating to a mean length of stay of 4 days per hospitalised case.

The leading causes of hospitalised injury were unintentional falls, which accounted for 36% of all community injury cases. Unlike for most other types of community injury, females outnumbered males (56% to 44%) and rates were highest for older Australians.

The second most common causes of hospitalised injury were transport accidents (14% or 53,829 cases). Males had higher rates of transport injury hospitalisations than females across all age groups, with the highest rates among those aged 10–29.

For very young children aged 0–4, the most common specific causes of injury were falls (40%), fires, burns and scalds and poisoning by drugs (both 7%). Falls were also the most common cause of injury for older children aged 5–14 (43%), followed by transport accidents (19%). The most common causes of injury for young adults aged 15–24 were transport accidents (21%), falls (13%), assault (11%) and intentional self-harm (10%). A similar pattern was seen in adults aged 25–44 where transport accidents accounted for 18% of hospitalisations, falls for 14% and assault and intentional self-harm for 11% each. For adults aged 45–64, falls were prominent, accounting for 32% of hospitalisations, followed by transport accidents (14%) and intentional self-harm (7%). For those aged 65 and over, well over three-quarters of hospitalisations were the result of falls (77%).

Just over a quarter of all hospitalised injury cases occurred at home. A higher percentage of females than males were injured at home (36% vs. 19%) or in a residential institution (8% vs. 2%). Males were more likely than females to have been injured on a street or highway, as well as in sports and athletics areas, trade and construction areas, and farms.

Rates of community injury increased with geographical remoteness. The lowest rate of 1,665 per 100,000 was found for *Major cities* while the highest rate was found for *Very remote* regions (3,947 per 100,000 population).

1 Introduction

This report describes the occurrence of injuries requiring hospitalisation in Australia during 2006–07. It uses data for episodes of admitted patient care that ended between 1 July 2006 and 30 June 2007 and that were due to injury and poisoning. It follows the fourth report in the series which examines hospitalised injury in Australia during 2005–06 (Kreisfeld & Harrison 2010). 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 (Harrison & Steenkamp 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 & Harrison 2005). 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).

Diagnosis and external cause of injury information for the hospital separations reported here was coded according to the 5th edition of ICD-10-AM (NCCH 2006).

Selecting injury and poisoning cases

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

- Hospital separations occurring in Australia 1 July 2006 to 30 June 2007 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. All records for cases involving hospital transfers are however included in the calculation of the number 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 and this 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 adverse events or *Complications of surgical and medical care*. The remaining injuries are referred to as Residual Injuries which comprise only a small number of injuries, including adverse effects not elsewhere classified.

Since Australian hospital separations records should include a principal diagnosis code and, for 2006–07, 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). That is, care for rehabilitation and other sub-acute care is not generally included.

Confidence Intervals are provided in some figures and tables to show non-sampling variation, which is largest where case counts are small. Further information is provided in Data Issues.

Profiles of priority injury areas

The National Injury Prevention and Safety Promotion Plan: 2004-14 has identified seven national injury prevention areas for action (Pointer et al. 2003; NPHP 2005); children (0–14), youth and young people (15–24), adults (25–64), older people (65+), 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 has been the subject of separate reports (Helps & Harrison 2004, 2006). Results for rural and remote populations, according to the Australian Standard Geographical Classification (ASGC) remoteness structure, are presented in this report. 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 these data with adequate reliability (Pidd et al. 2006).

Injury hospitalisations 2006–07 overview

For public and private hospitals combined, episodes of care separating from hospital between 1st July 2006 and 30th June 2007 attributed to *Injury and poisoning and certain other consequences of external causes* (S00–T98) ranked 4th 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 groups as in (AIHW 2008). This ranking is the same as in the previous two reports (Bradley & Harrison 2008; Kreisfeld & Harrison 2010). Over half a million hospital separations were directly attributed to injury and poisoning in 2006–07 (Table 1.1). These separations accounted for 6.6% of all episodes of care in Australian hospitals in this year. Approximately two million hospital patient days were utilised by injury separations in 2006–07. These patient days accounted for a higher proportion of all hospital patient days (8.2%) 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 8.1% of all hospital patient days. This is related to the longer lengths of stay for injury, on average, than for other reasons.

Table 1.1: Injury hospitalisations overview: males, females and persons, Australia, 2006–07

	Males	Females	Persons[b]
Total number of hospital separations for any cause[a]	3,581,515	4,020,928	7,602,917
Total number of hospital patient days[a]	12,108,442	12,813,733	24,924,565
Separations due to injury and poisoning (S00–T98)[c]	288,158	216,911	505,080
Percentage of all separations	8.0	5.4	6.6
Patient days due to injury and poisoning	1,006,496	1,033,519	2,040,088
Percentage of all patient days	8.3	8.1	8.2
Community injury separations (S00–T75 or T79)[c]	243,038	173,957	417,003
Percentage of all injury separations	84.3	80.2	82.6
Patient days due to community injury	755,208	797,788	1,553,030
Percentage of injury patient days	75.0	77.2	76.1
Complications of surgical & medical care separations (T80–T88)[c]	42,456	39,988	82,447
Percentage of all injury separations	14.7	18.4	16.3
Patient days due to complications injury	247,667	231,309	479,015
Percentage of injury patient days	24.6	22.4	23.5
Residual injury separations (T78, T89 or T90–T98)[c]	2,664	2,966	5,630
Percentage of all injury separations	0.9	1.4	1.1
Patient days due to residual injury separations	3,621	4,422	8,043
Percentage of injury patient days	0.4	0.4	0.4

(a) Source: *Australian Hospital Statistics 2006–07* (AIHW 2008).

(b) Includes separations where sex was not reported.

(c) Separations defined according to principal diagnosis.

Community injury separations (principal diagnosis S00–T75 or T79) accounted for 83% (*n* = 417,003) of all injury separations in 2006–07. More community injury separations involved males (243,038 vs. 173,957 for females), but more patient days were utilised by females due to community injury (797,788 vs. 755,208 for males). Conversely, males and females were involved in relatively similar numbers of separations and hospital patient days due to injuries defined as *Complications of surgical and medical care.* The patient days utilised by complications separations accounted for a much higher proportion of all hospital patient days due to injury and poisoning (23.5%) than the number of complications separations proportionately contributed to all injury and poisoning separations (16.3%).

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

2 Community injury, Australia

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 *Injury, poisoning and certain other consequences of external causes*.

2.1 All Community injury hospitalisations

Table 2.1.1: Key indicators for all community injury cases, Australia, 2006–07

Indicator	Males	Females	Persons[a]
Total number of hospital separations due to injury and poisoning	288,158	216,911	505,080
Separations from hospital due to community injury	243,038	173,957	417,003
Percentage of all separations due to injury and poisoning	84.3	80.2	82.6
Estimated community injury cases[b]	225,297	160,905	386,208
Crude rate/100,000 population	2,173.3	1,534.5	1,852.1
Age-standardised rate/100,000 population[c]	2,196.4	1,427.0	1,828.2
Total patient days[d]	755,208	797,788	1,553,030
Mean length of stay (days)	3.4	5.0	4.0

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

(b) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(c) Standardised to the Australian estimated resident population 30th June 2001.

(d) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

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 2008). This ranking is the same as for the previous year (Kreisfeld & Harrison 2010).

In 2006–07, community injury accounted for 417,003 hospital separations, 83% of a total of 505,080 hospital separations due to injury and poisoning from public, private and psychiatric hospitals in Australia (Table 2.1.1) (AIHW 2008). There were an estimated 386,208 incident injury cases in 2006–07. Community injury accounted for around 1.5 million patient days, at an average of 4 days per episode (Table 2.1.1).

The six most commonly reported identifiable causes of community injury were:

- Falls (36.4%)
- Transportation (13.9%)
- Intentional self-harm (6.2%)
- Assault (6.0%)
- Poisoning, pharmaceuticals (1.7%)
- Fires, burns and scalds (1.4%)

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.

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). Such cases (*n* = 2,177 in 2006–07) make up a small proportion of community injury (0.6% in 2006–07). These cases 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 2006–07 (Figure 2.1.1) has followed a similar pattern for the past five reports (Berry & Harrison 2006b; Bradley & Harrison 2008; Cripps et al. 2002; Helps et al. 2002; Kreisfeld & Harrison 2010). Male age-specific rates were low for children with a peak between the ages of 15–24. This was followed by a decrease to age 65 and then a steep increase in injury rates from 70+. Female age-specific rates followed a similar pattern with a small peak in the late teens, after which age-specific rates were relatively constant up to 65 of age when injury rates then increased steeply overtaking the male rates.

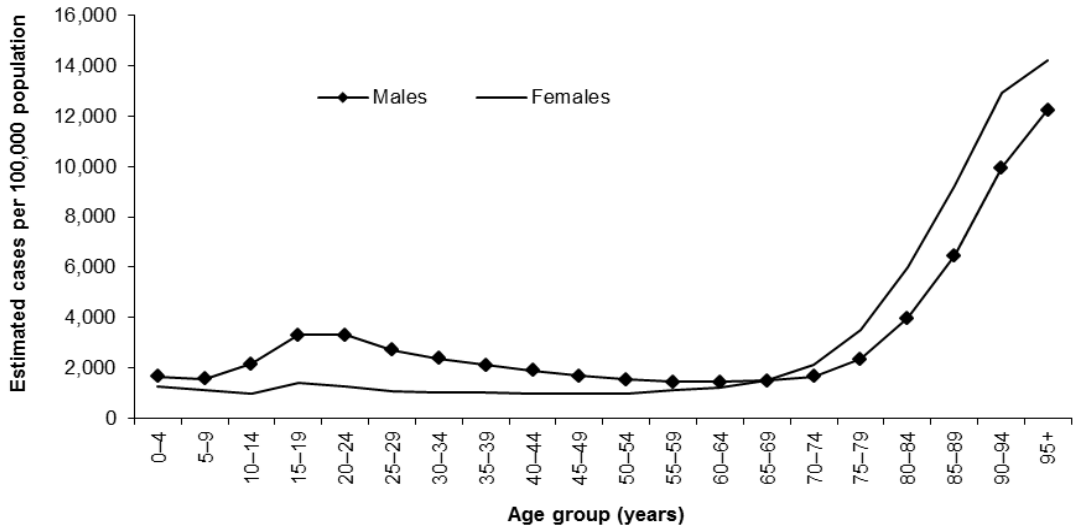


Figure 2.1.1: Age-specific estimated cases of community injury by sex, Australia, 2006–07

The percentage of community injury hospitalisations attributed to the age groups identified in the National Injury Prevention and Safety Promotion Plan: 2004–14 (NPHP 2005) were 15.4% (n = 59,375) for children aged 0–14, 17.5% (n = 67,761) for youth and young adults aged 15–24, 42.8% (n = 165,417) for adults aged 25–64 and 24.2% (n = 93,655) for older people aged 65 and over (Table 2.1.2).

External cause

Falls constituted the largest proportion of community injury hospitalisations (36.4%, n = 140,752) and was the predominant external cause for most age groups except for those aged 15–44. Transportation was the second most common specific external cause type (13.9%, n = 53,829) and was the leading cause of injury for persons aged 15–44 (Table 2.1.2). Intentional injuries accounted for 13.4%% (n = 51,624) of community injury hospitalisations.

Table 2.1.2: Major external cause groups for community injury cases by age, Australia, 2006–07

	Age group (years)						
External cause	**0–4**	**5–14**	**15–24**	**25–44**	**45–64**	**65+**	**All ages**
Unintentional injuries							
Transportation	875	7,549	14,051	17,256	9,335	4,763	53,829
Drowning	219	68	56	78	45	31	497
Poisoning, pharmaceuticals	1,396	212	1,049	1,771	1,001	975	6,404
Poisoning, other substances	387	131	393	632	426	238	2,207
Falls	7,753	17,172	8,757	14,171	21,153	71,746	140,752
Fires, burns & scalds	1,412	665	881	1,345	761	508	5,572
Other unintentional injuries	6,777	13,022	26,716	38,651	25,085	12,895	123,146
Intentional injuries							
Intentional self-harm	n.p.	n.p.	6,616	10,768	4,849	949	23,761
Assault	302	504	7,718	11,159	3,080	437	23,200
Undetermined intent	84	154	1,307	2,121	746	251	4,663
Other or missing	n.p.	n.p.	217	429	555	862	2,177
Total community injury cases	**19,239**	**40,136**	**67,761**	**98,381**	**67,036**	**93,655**	**386,208**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

The pattern of injury hospitalisations by age group is shown in Figure 2.1.2. Injuries related to transportation peaked at 15–24, as did intentional self-harm and assaults. Falls accounted for a large proportion of injuries for those aged 0–14 and for those over 44. Falls were the predominant cause of injury hospitalisations in those aged over 65. Poisoning by pharmaceuticals and fires, burns and scalds were most prevalent in children aged 0–4, comprising 7.3% each, of injury hospitalisations in 0–4 year olds. Hospitalised intentional injuries, both self-inflicted and assaults were most common for Australians aged 15–44.

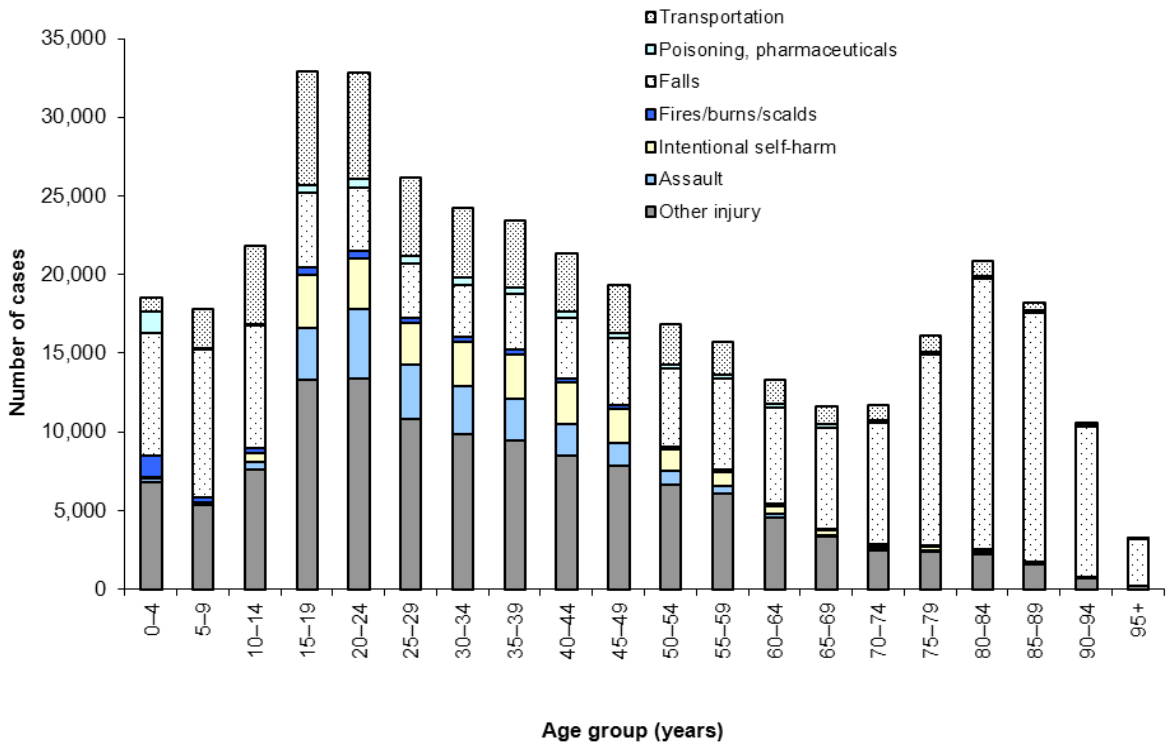


Figure 2.1.2: Age distribution of cases for selected major causes of injury, Australia, 2006–07

The community injury category with the largest number of cases in total after falls was other unintentional injuries. This was a mixed category; it contained a large proportion of work- and sports-related injuries, but not all of them. In this report, other unintentional injuries are the subject of Section 2.8. In addition, the overlapping subjects of injury due to work and sport have been made the subjects of separate short Chapters 3 and 4.

Place and activity

Overall, where place of injury was specified (59% of cases), the highest proportions of cases occurred at home (25.8%), on a street or highway (10.2%) or in a sports and athletics area (5.2%) or a residential institution (5.0%). This pattern for place of injury varied between males and females: a substantially higher percentage of females than males were injured at home (35.5% vs. 18.9%); males were more likely than females to have been injured in a sports and athletics area (7.2% vs. 2.5%) (Table 2.1.3).

The majority, (92%), of cases occurring in residential institutions took place in aged care facilities (not shown in table). The most frequently specified locations for incidents occurring in trade and service areas were cafes, hotels and restaurants (47%) and shops and stores (30%). Of incidents that happened in industrial and construction areas, 40% occurred in a factory or plant and 23% on a construction site. Among other specified places of occurrence, the most frequent were a beach (26%), a large area of water (25%) and a forest (14%).

Place was recorded as *Other specified place of occurrence* or *Unspecified place of occurrence* for 44.8% of cases. For a small percentage of cases (0.1%) no place of occurrence had been recorded or was not required to be reported (according to standard ICD-10-AM coding rules, place codes are applicable within the range of external cause categories V01–Y89) (Table 2.1.3).

Table 2.1.3: Place of occurrence for community injury, case counts, Australia, 2006–07

Place of occurrence	Males	Percentage of male cases	Females	Percentage of female cases	Persons[(a)]	Percentage of all cases
Home	42,673	18.9	57,135	35.5	99,813	25.8
Residential institution	5,331	2.4	13,838	8.6	19,169	5.0
School	4,686	2.1	2,594	1.6	7,280	1.9
Health service area	1,946	0.9	2,645	1.6	4,591	1.2
Other specified institution and public administrative area	541	0.2	559	0.3	1,100	0.3
Sports and athletics area	16,124	7.2	3,996	2.5	20,120	5.2
Street and highway	24,789	11.0	14,759	9.2	39,548	10.2
Trade and service area	7,302	3.2	4,373	2.7	11,675	3.0
Industrial and construction area	5,775	2.6	319	0.2	6,094	1.6
Farm	2,814	1.2	767	0.5	3,581	0.9
Other specified place of occurrence	10,183	4.5	4,566	2.8	14,749	3.8
Unspecified place of occurrence	102,891	45.7	55,219	34.3	158,111	40.9
Place not reported	242	0.1	135	0.1	377	0.1
Total	**225,297**	**100**	**160,905**	**100**	**386,208**	**100**

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

Overall, where the type of activity was specified, the highest proportions of cases occurred while playing sports (10.3%) or while working for income (6.3%). This pattern varied between males and females: more than twice as many males were injured playing sport than were females (13.6% compared with 5.6%); and a considerably higher proportion of males were injured while working for income when compared with females (9.4% vs. 2.1%, respectively). Females were more likely to be injured while resting, sleeping, eating or engaging in other vital activities (7.1%) compared with 3.3% of males (Table 2.1.4).

Football was the most frequently reported sporting activity (36%). For those cases where a football code was specified (n = 11,365), the most common were Australian Rules football (35%) and soccer (33%). Among cases that occurred while the person was working for an income, the most commonly specified industries were construction (11%) and agriculture (9%).

For a high proportion of cases (73.0%) 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 (0.5%) no activity had been recorded or an activity code was not required (according to standard ICD-10-AM coding rules, activity codes are applicable within the range of external cause categories V01–Y34) (Table 2.1.4).

Table 2.1.4: Activity when injury occurred for all community injury, case counts, Australia, 2006–07

Activity	Males	Percentage of male cases	Females	Percentage of female cases	Persons[(a)]	Percentage of all cases
While engaged in sports	30,751	13.6	9,002	5.6	39,753	10.3
While engaged in leisure	3,957	1.8	2,276	1.4	6,233	1.6
While working for income	21,074	9.4	3,426	2.1	24,500	6.3
While engaged in other types of work	7,517	3.3	5,557	3.5	13,074	3.4
While resting, sleeping, eating, etc.	7,503	3.3	11,377	7.1	18,881	4.9
Other specified activity	30,801	13.7	29,342	18.2	60,145	15.6
Unspecified activity	122,513	54.4	99,095	61.6	221,611	57.4
Activity not reported/not applicable	1,181	0.5	830	0.5	2,011	0.5
Total	**225,297**	**100**	**160,905**	**100**	**386,208**	**100**

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

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.

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 the principal diagnosis and others as Additional Diagnoses.

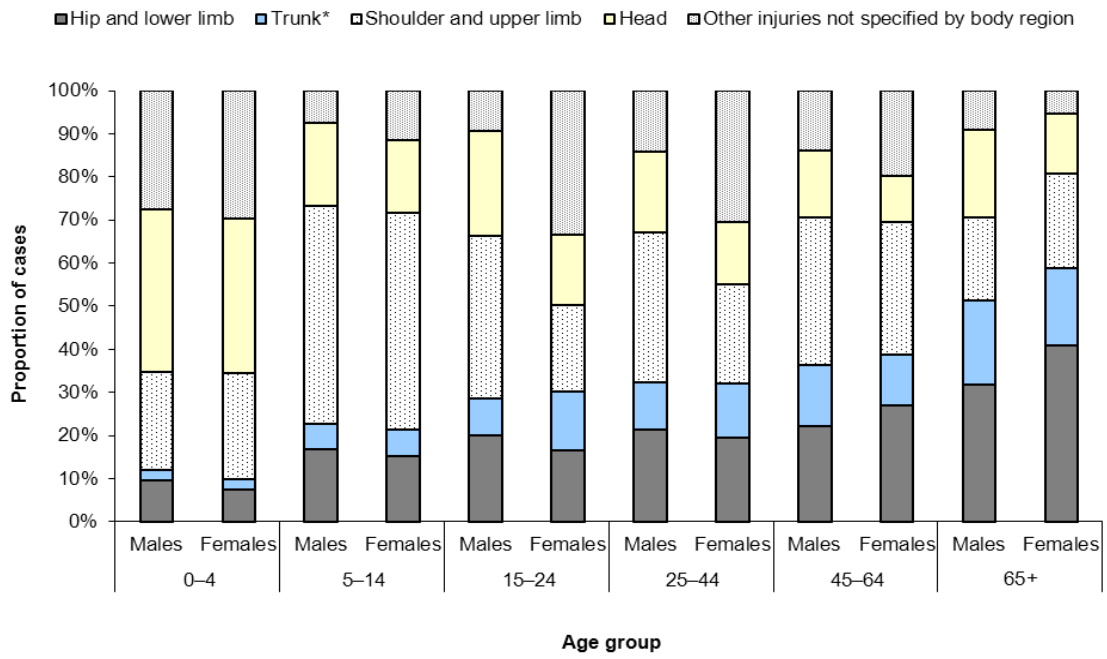
The head was the most commonly injured body region overall (Table 2.1.5). Injuries to the wrist and hand were the second most common principal diagnosis overall. A large proportion of these injuries occurred in males (77.2%, *n* = 39,879). For females, injuries to the hip and thigh constituted the second most common diagnosis category (*n* = 20,193). Sex specific data can be found in Figure 2.1.3.

Table 2.1.5: Principal diagnosis groups for community injury cases by age, Australia, 2006–07

	0–4	5–14	15–24	25–44	45–64	65+	All ages
Injuries to the head	7,102	7,403	14,945	17,144	9,041	14,976	70,611
Injuries to the neck	105	712	1,943	2,622	1,487	1,339	8,208
Injuries to the thorax	46	286	1,664	3,658	3,756	6,404	15,814
Injuries to the abdomen, lower back, lumbar spine & pelvis	291	1,379	3,195	4,981	3,519	9,411	22,776
Injuries to the shoulder & upper arm	1,033	3,171	3,347	5,208	5,218	7,964	25,941
Injuries to the elbow & forearm	1,768	12,795	5,602	7,126	6,655	8,123	42,069
Injuries to the wrist & hand	1,727	4,308	13,322	18,312	10,171	3,811	51,651
Injuries to the hip & thigh	542	962	1,306	1,989	3,072	24,184	32,055
Injuries to the knee & lower leg	543	3,816	8,759	14,107	10,294	9,426	46,945
Injuries to the ankle & foot	591	1,756	2,774	4,256	2,842	1,818	14,037
Injuries involving multiple body regions	11	16	70	85	34	84	300
Injuries to unspecified parts of trunk, limb or body region	82	200	388	666	459	696	2,491
Effects of foreign body entering through natural orifice	1,534	1,037	491	1,200	1,587	1,280	7,129
Burns	1,536	809	1,143	1,841	1,001	584	6,914
Frostbite	0	0	n.p.	16	n.p.	n.p.	21
Poisoning by drugs, medicaments & biological substances	1,439	724	7,109	11,930	5,668	2,049	28,919
Toxic effects of non-medical substances	498	542	1,094	2,034	1,499	627	6,294
Other & unspecified effects of external causes	369	161	406	847	510	602	2,895
Certain early complications of trauma	22	59	202	359	220	276	1,138
Total	**19,239**	**40,136**	**67,761**	**98,381**	**67,036**	**93,655**	**386,208**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Patterns of injury by body region and age are presented in Figure 2.1.3. There are similar distributions of body region injured by sex for children aged 0–14 with head injuries more prominent in the 0–4 age group and injuries to the shoulder and upper limb more prominent in the 5–14 age group. Sex differences are evident in the body regions injured in the 15–44 categories. Head, shoulder and upper limb injuries were more prominent in males than for females. Injuries affecting the hip and lower limb were more prominent in females over 45 and were the major body region injured in both males and females over the age of 65 (31.8% of males and 40.9% of females).



Note: *Trunk includes the neck, thorax, abdomen, lower back, lumbar spine & pelvis.

Figure 2.1.3: Body region affected by principal diagnosis for community injury cases by age, Australia, 2006–07

Length of stay

Patient days are the number of full and partial days a patient was in hospital and these are summed for all patients to give an aggregate of the length of stay (the term LOS is used in tables throughout this report to refer to the count of patient days). Inwards transfers and newly admitted cases are included in the calculation of LOS (as these all contribute to the total burden of hospital care due to community injury). 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), which is a term used throughout this report, 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 re-admissions and inward transfers) by the estimated number of cases for the same period (as a best available approximation of newly admitted cases).

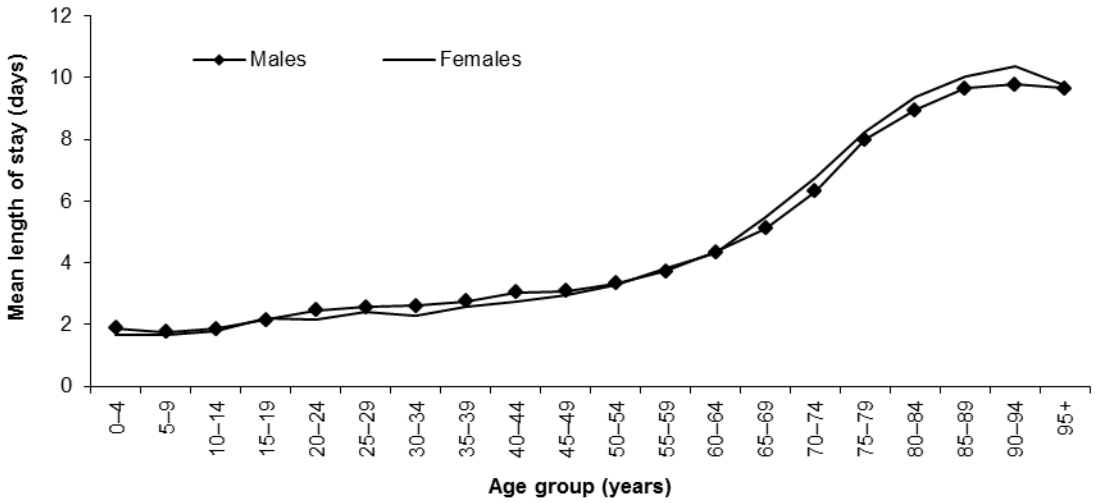


Figure 2.1.4: Length of stay per case for all community injury by age and sex, Australia, 2006–07

The MLOS for all community injury was similar for males and females and rose with age (Figure 2.1.4). The average stay for children aged 0–14 was 1.8 days, for young people aged 15–24 MLOS was 2.3 days, 2.7 days for adults aged 25–44, 3.5 days for adults aged 45–64 and 8.5 days for older people aged 65+.

Table 2.1.6 presents an aggregate estimate of LOS and MLOS. In 2006–07 the overall MLOS for community injury was 4.0 days (over 1.5 million patient days for just over 386,000 cases) and was shorter for males (3.4 days) compared with females (5.0 days). Discharge occurred on the same day of admission for 36% (n = 139,791) of these injury cases.

Injuries due to falls had the longest MLOS for persons overall (6.1 days) followed by fires, burns and scalds (5.5 days). Differences in the sex distributions for these categories indicate that, for males, fires, burns and scalds resulted in the longest hospitalisations (5.8 days) while for females, falls resulted in the longest hospitalisations (6.9 days).

Table 2.1.6: Length of stay for all community injury: case counts, patient days, percentage of total patient days for injury and mean length of stay, Australia, 2006–07

	Males				Females				Persons[(a)]			
External cause	Count	LOS	Per cent	MLOS	Count	LOS	Per cent	MLOS	Count	LOS	Per cent	MLOS
Unintentional												
Transport	37,036	162,710	21.5	4.4	16,792	75,369	9.4	4.5	53,829	238,082	15.3	4.4
Drowning	345	929	0.1	2.7	152	322	0.0	2.1	497	1,251	0.1	2.5
Poisoning, pharmaceuticals	2,939	6,435	0.9	2.2	3,465	8,427	1.1	2.4	6,404	14,862	1.0	2.3
Poisoning, other substances	1,357	2,937	0.4	2.2	850	1,481	0.2	1.7	2,207	4,418	0.3	2.0
Falls	62,054	305,979	40.5	4.9	78,696	546,835	68.5	6.9	140,752	852,842	54.9	6.1
Fires, burns, scalds	3,586	20,718	2.7	5.8	1,986	9,935	1.2	5.0	5,572	30,653	2.0	5.5
Other unintentional injuries	87,860	170,167	22.5	1.9	35,286	90,617	11.4	2.6	123,146	260,784	16.8	2.1
Intentional												
Intentional self-harm	9,070	31,392	4.2	3.5	14,688	41,639	5.2	2.8	23,761	73,034	4.7	3.1
Assault	17,523	41,176	5.5	2.3	5,677	11,977	1.5	2.1	23,200	53,153	3.4	2.3
Undetermined intent	2,215	5,411	0.7	2.4	2,448	5,140	0.6	2.1	4,663	10,551	0.7	2.3
Other/missing	1,312	7,354	1.0	5.6	865	6,046	0.8	7.0	2,177	13,400	0.9	6.2
Total	**225,297**	**755,208**	**100**	**3.4**	**160,905**	**797,788**	**100**	**5.0**	**386,208**	**1,553,030**	**100**	**4.0**

(a) Persons includes cases for which sex was not reported.

Note: Length of stay (LOS) refers to total patient days.

State and territory differences

Rates of hospitalised community injury cases in 2006–07 were analysed according to the state of usual residence of the patient. This may not reflect the state that the injury occurred in or the state in which the patient was hospitalised. However, this has been the standard practice for these reports and is seen to be the best measure of the distribution of serious injury cases across Australia.

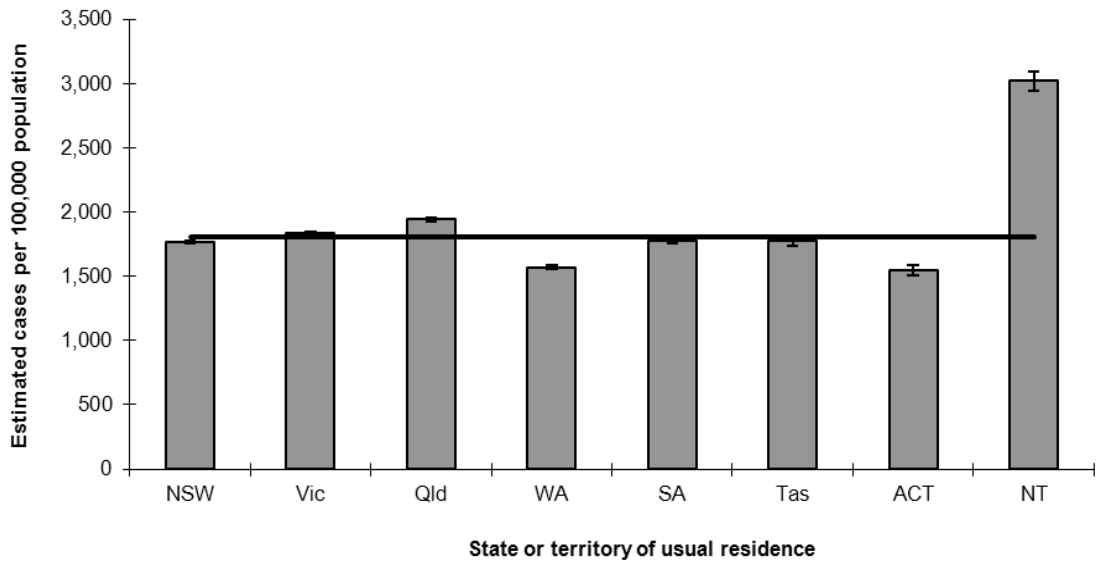
As has been shown in previous reports the Northern Territory and Queensland had the highest rates of hospitalised community injury cases (Table 2.1.7 and Figure 2.1.5). The lowest rate was observed in the Australian Capital Territory. Less than one per cent of all cases did not have a state of usual residence reported (0.9%, n = 3,625) or were from other Territories (0.02%, n = 76). The other Territories consist of the Cocos and Keeling Islands, Christmas Island and Jervis Bay.

Table 2.1.7: Age-standardised cases of community injury, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	1,765	1,755–1,775
Vic	1,836	1,825–1,848
Qld	1,944	1,930–1,957
WA	1,569	1,552–1,586
SA	1,780	1,760–1,801
Tas	1,778	1,741–1,816
ACT	1,549	1,506–1,592
NT	3,020	2,946–3,095
Australia[(b)]	**1,828**	**1,822–1,834**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

(b) Includes residents of other territories and persons with unspecified jurisdiction of residence.



Notes

1. The thick horizontal line shows the rate for Australia.

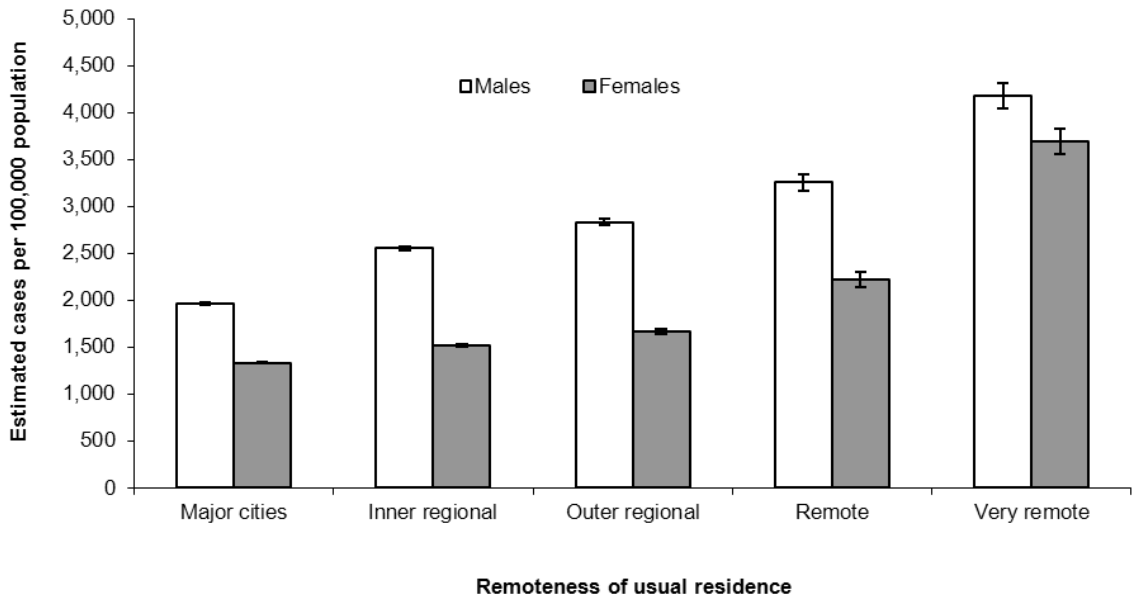
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.1.5: Age-standardised cases of community injury, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised community injury cases were also analysed according to the remoteness classification of the person's usual residence. The Remoteness Structure of the Australian Standard Geographical Classification (ASGC) categorises census collection districts which share common characteristics into broad geographical regions called Remoteness Areas (RAs). The AGSC Remoteness Structure is more fully described in the Data Issues section.

The age-standardised rate of hospitalised community injury cases in 2006–07 increased linearly with increasing remoteness of the person's place of usual residence; the lowest rate was observed for residents of Australia's *Major cities* (1,643.9 per 100,000 population) and the highest rate was observed for residents of Australia's *Very remote* regions (4,024.3per 100,000). This pattern was also seen for both males and females separately (Figure 2.1.6) and is similar to patterns observed in previous years (Kreisfeld & Harrison 2010) see also (AIHW 2007; Henley et al. 2007). The high rate of injury hospitalisations for residents of the more remote areas of Australia may be partly attributable to higher injury risk among Aboriginal and Torres Strait Islander Australians, who comprise a relatively large proportion of the remote area populations (Helps & Harrison 2006). The high rate of hospitalised injury for residents of the Northern Territory, described in the previous section, is most likely related to remoteness factors; the majority of the Territory being classed as *Remote* or *Very remote* (ABS 2004; AIHW 2004).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.1.6: Age-standardised cases (± 95% CI) of community injury cases: males and females by remoteness of usual residence (ASGC regions), 2006–07

Part A: Unintentional injuries

2.2 Transportation

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: V01–V99

Table 2.2.1: Key indicators for transport cases, Australia, 2006–07

Indicator	Males	Females	Persons[(a)]
Separations from hospital due to transport-related injury	40,898	18,313	59,213
Percentage of all community injury separations	16.8	10.5	14.2
Estimated cases[(b)]	37,036	16,792	53,829
Crude rate/100,000 population	357.3	160.1	258.1
Age-standardised rate/100,000 population[(c)]	357.5	159.9	259.4
Total patient days[(d)]	162,710	75,369	238,082
Mean length of stay (days)	4.4	4.5	4.4

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

(b) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(c) Standardised to the Australian estimated resident population 30th June 2001.

(d) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

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 14.2% of all injury hospitalisations in the financial year 2006–07 (Table 2.2.1).

This chapter excludes transport-related injury cases that were registered as *intentional self-harm by jumping or lying before a moving object* (*n* = 44), *intentional self-harm by crashing of motor vehicle* (*n* = 69), *assault by pushing or placing victim before moving object* and *assault by crashing of motor vehicle* (*n* = 42), *falling, lying or running before or into moving object, undetermined intent* and *crashing of motor vehicle, undetermined intent* (*n* = 7) and *sequelae of transport accidents* (*n* = 42).

The majority of transport injury cases in 2006–07, were due to land transport (for example, accidents involving pedestrians, cyclists, cars, trucks, trains, etc. *n* = 52,341), 881 were water transport (for example, boats, water-skis, kayaks, etc.) and 119 were air and space transport (for example, hot-air balloons, gliders, helicopters, planes). Land transport accidents are covered in more detail in Section 2.2.1.

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 highest age-specific rate for males was 714.3 per 100,000 at ages 15–19. This was close to 2.5 times the rate of 295.9 per 100,000 for females of the same age (Figure 2.2.1). Over 58% of transport injuries occurred to people aged 15–44 (Table 2.2.2).

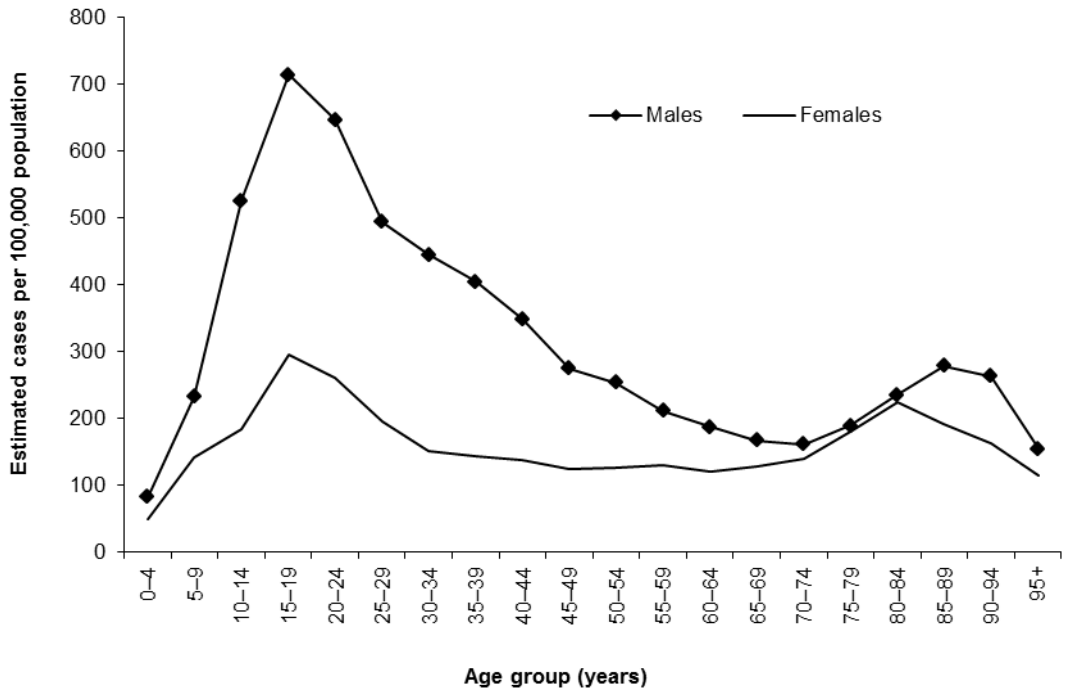


Figure 2.2.1: Age-specific cases of transport injury by sex, Australia, 2006–07

Table 2.2.2: Transportation cases by age group, Australia, 2006–07

	Males		Females		Persons[(a)]	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–4	560	1.5	315	1.9	875	1.6
5–14	5,381	14.5	2,168	12.9	7,549	14.0
15–24	10,098	27.3	3,952	23.5	14,051	26.1
25–44	12,594	34.0	4,662	27.8	17,256	32.1
45–64	6,086	16.4	3,249	19.3	9,335	17.3
65+	2,317	6.3	2,446	14.6	4,763	8.8
Total	**37,036**	**100**	**16,792**	**100**	**53,829**	**100**

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

Injured person's vehicle

Table 2.2.3 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 both male and female car occupants who were injured were adults aged 15–24 (followed closely by young men and women aged 15–24).

Over ten times more males than females were hospitalised due to motorcycle accidents. The highest proportion of motorcycle injuries occurred in adults aged 25–44 for both males (40%) and females (32%).

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 (39% of male and 44% 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 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+ for both males (38%) and females (65%).

The frequency of injury to an animal rider or occupant of an animal-driven vehicle injuries was greater for females than for males. For males, the highest proportion of animal rider or occupant of an animal-driven vehicle accidents occurred among adults aged 25–44 (32%). Among females, the highest proportions were also found among 25–44 (31%).

Table 2.2.3: Injured person's mode of transport by age group, Australia, 2006–07

Injured person's mode of transport	0–14	Per cent	15–24	Per cent	25–44	Per cent	45–64	Per cent	65+	Per cent	Total	Per cent
Males												
Pedestrian	382	15.9	503	21	735	30.7	427	17.8	350	14.6	2,397	100
Pedal cycle	2,965	39.3	1,548	20.5	1,777	23.6	995	13.2	259	3.4	7,544	100
Motorcycle	1,533	12.2	4,094	32.6	5,073	40.4	1,663	13.3	180	1.4	12,543	100
Car	516	5.4	3,020	31.8	3,215	33.8	1,639	17.3	1,111	11.7	9,501	100
Pick-up truck or van	28	7.2	96	24.7	138	35.6	97	25	29	7.5	388	100
Heavy transport	15	2	43	5.8	342	46.4	304	41.2	33	4.5	737	100
Bus	9	5.7	15	9.6	31	19.7	43	27.4	59	37.6	157	100
Animal or animal-driven	151	13.4	239	21.2	357	31.6	306	27.1	75	6.6	1,128	100
Special all-terrain or off-road	131	21.1	152	24.5	208	33.5	98	15.8	31	5	620	100
Other land transport	66	7.2	179	19.6	297	32.5	257	28.1	115	12.6	914	100
Water transport	34	5.1	120	18.2	277	41.9	184	27.8	46	7	661	100
Other and unspecified[(b)]	111	25.0	89	20.0	144	32.4	72	16.2	28	6.3	444	100
Total[(a)]	**5,941**	**16.0**	**10,098**	**27.3**	**12,594**	**34.0**	**6,086**	**16.4**	**2,317**	**6.3**	**37,036**	**100**

(continued)

Table 2.2.3 (continued): Injured person's mode of transport by age group, Australia, 2006–07

Injured person's mode of transport	0–14	Per cent	15–24	Per cent	25–44	Per cent	45–64	Per cent	65+	Per cent	Total	Per cent
Females												
Pedestrian	206	13.8	264	17.7	331	22.2	263	17.6	427	28.6	1,491	100
Pedal cycle	758	44.3	174	10.2	413	24.2	319	18.7	46	2.7	1,710	100
Motorcycle	284	23.2	325	26.5	391	31.9	199	16.2	26	2.1	1,225	100
Car	452	5.1	2,432	27.7	2,573	29.3	1,795	20.4	1,537	17.5	8,789	100
Pick-up truck or van	14	13.2	29	27.4	28	26.4	26	24.5	9	8.5	106	100
Heavy transport	8	13.3	10	16.7	16	26.7	20	33.3	6	10	60	100
Bus	12	3.9	19	6.1	35	11.3	43	13.9	200	64.7	309	100
Animal or animal-driven	578	27	525	24.6	653	30.6	365	17.1	16	0.7	2,137	100
Special all-terrain or off-road	77	36.5	50	23.7	46	21.8	27	12.8	11	5.2	211	100
Other land transport	26	7	62	16.6	72	19.3	106	28.4	107	28.7	373	100
Water transport	19	8.6	44	19.9	64	29	61	27.6	33	14.9	221	100
Other and unspecified[(b)]	49	30.6	18	11.3	40	25.0	25	15.6	28	17.5	160	100
Total[(a)]	**2,483**	**14.8**	**3,952**	**23.5**	**4,662**	**27.8**	**3,249**	**19.3**	**2,446**	**14.6**	**16,792**	**100**

(a) Total includes cases that did not involve a motor vehicle.

(b) Includes 117 cases (94 males: 23 females) for air and space transport.

Principal diagnosis and body part injured

Injuries sustained in transportation accidents involved all major body regions with similar frequency (Table 2.2.4).

Table 2.2.4: Principal diagnosis by body region and sex for transport injury, Australia, 2006–07

	Males		Females		Persons[(a)]	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	7,789	21.0	3,475	20.7	11,264	20.9
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	8,924	24.1	6,217	37.0	15,141	28.1
Shoulder and upper limb	10,700	28.9	3,651	21.7	14,352	26.7
Hip and lower limb	8,968	24.2	3,157	18.8	12,125	22.5
Other injuries not specified by body region	655	1.8	292	1.7	947	1.8
All body regions	**37,036**	**100**	**16,792**	**100**	**53,829**	**100**

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

Length of stay

Mean length of stay for transportation injury cases rose with age for both males and females (Figure 2.2.2). Mean length of stay for males ranged from a low of 2.7 days for children aged 0–4 to a high of 8.9 days for those aged 85 and over, while the mean length of stay for females ranged from a low of 2.5 days for children aged 10–14 to a high of 9.9 days for those aged 85 and over.

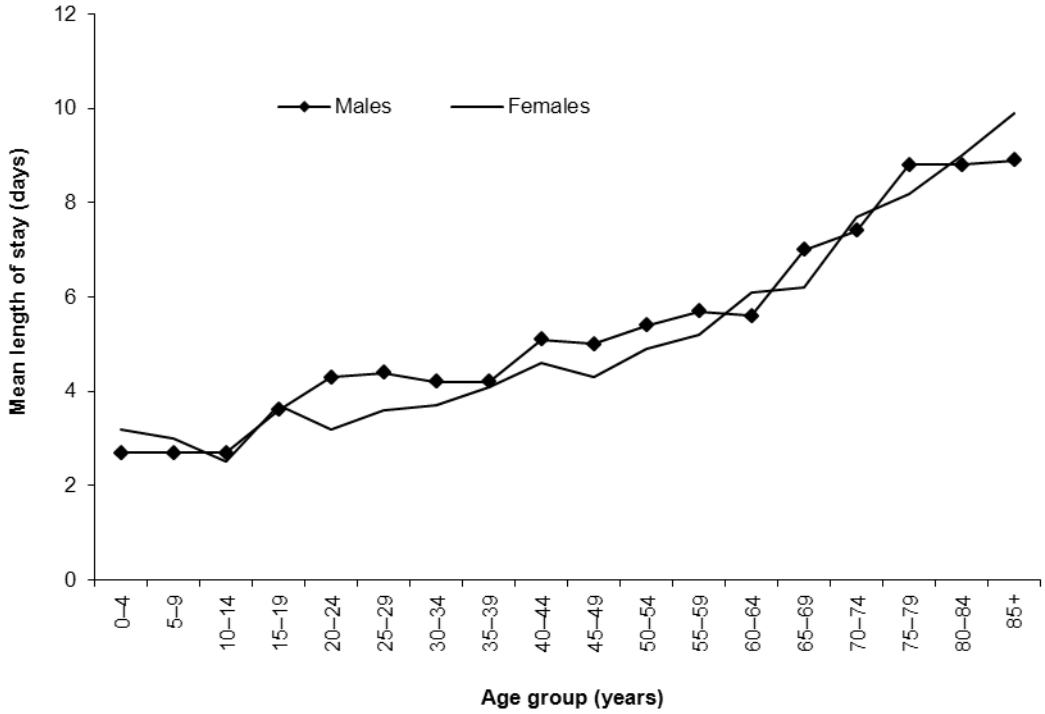


Figure 2.2.2: Length of stay per case for transport injury by age and sex, Australia, 2006–07

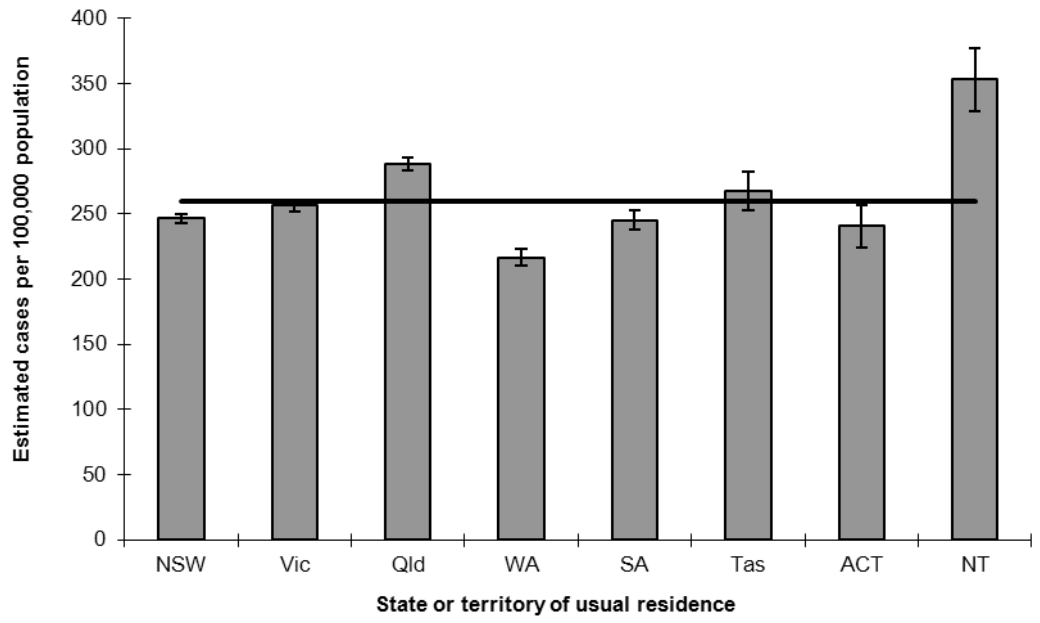
State and territory differences

Residents of New South Wales, Western Australia, South Australia and the Australian Capital Territory had rates of transport injury that were markedly below the national rate (Table 2.2.5 and Figure 2.2.3). Rates that were markedly above the national rate were found in Queensland, and the Northern Territory.

Table 2.2.5: Age-standardised cases of transport injury, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	246.4	242.6–250.1
Vic	256.5	252.1–260.9
Qld	288.2	283.0–293.4
WA	216.3	210.0–222.7
SA	245.3	237.5–253.1
Tas	267.7	252.9–282.4
ACT	240.6	224.3–257.0
NT	352.9	328.4–377.4
Australia	**259.4**	**257.2–261.6**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



Notes

1. The thick horizontal line shows the rate for Australia.

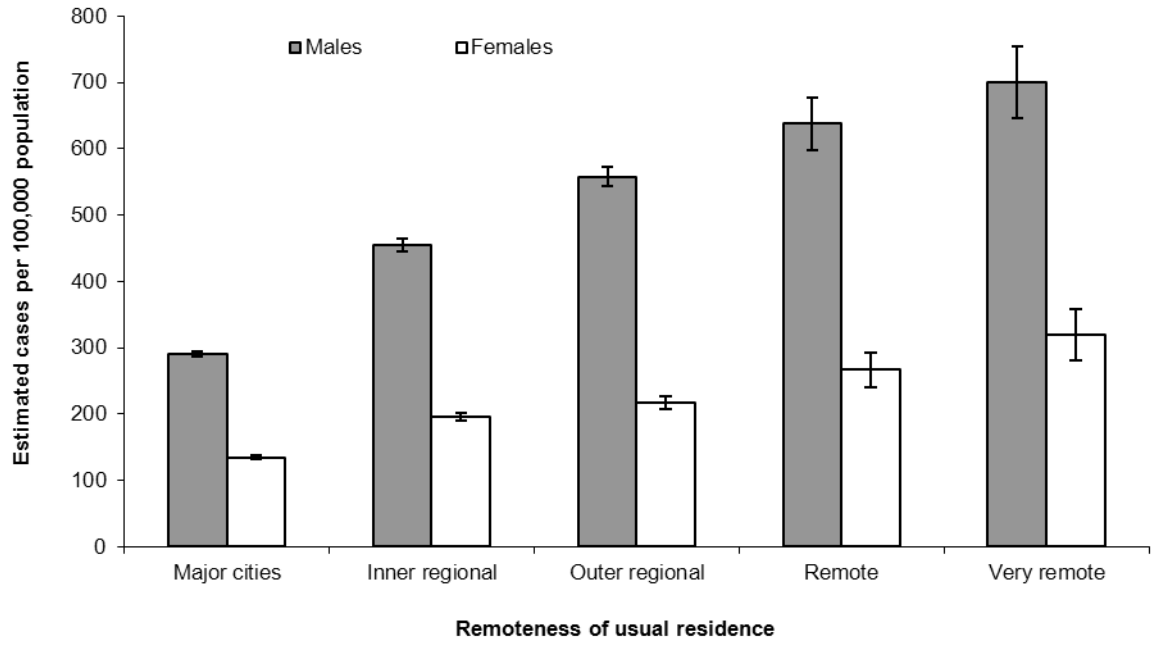
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.2.3: Age-standardised cases of transport injury, states and territories, 2006–07

Remoteness of usual residence

The age-standardised rate of hospitalised community injury cases in 2006–07 increased monotonically with increasing remoteness of the person's place of usual residence; the lowest rate was observed for residents of Australia's *Major cities* (210.7 per 100,000 population) and the highest rate was observed for residents of Australia's *Very remote* regions (531.1 per 100,000). This pattern was also seen for both males and females separately (Figure 2.2.4). This is similar to patterns observed for rates of hospitalisation and rates of deaths due to injury in previous years (AIHW 2007; Henley et al. 2007; Kreisfeld & Harrison 2010).

The high rate of injury morbidity for residents of the more remote areas of Australia may be partly attributable to higher injury risk among Aboriginal and Torres Strait Islander Australians, who comprise a relatively large proportion of the remote area populations (Helps & Harrison 2006). The high rate of hospitalised injury for residents of the Northern Territory, described in the previous section, is most likely related to remoteness factors; the majority of the Territory being classed as *Remote* or *Very remote* (ABS 2004; AIHW 2004).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.2.4: Age-standardised cases (±95% CI) of transport injury cases: males and females by remoteness of usual residence (ASGC regions), 2006–07

2.2.1 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* = 52,341; see Table 2.2.6); 35% of people hospitalised due to land transport accidents were car occupants (*n* = 18,290); 26% (*n* = 13,768) were motorcyclists; 18% (*n* = 9,255) were pedal cyclists; and 7% (*n* = 3,888) 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, 63% were injured in traffic accidents.

Table 2.2.6 and Figure 2.2.5 describe modes of transport for traffic and non-traffic cases. For traffic accident cases (*n* = 33,054), the most frequent mode of transport of the injured person was a car (50%; *n* = 16,379) followed by a motorcycle (22%; *n* = 7,341). There were gender differences; 72% of females injured in traffic accidents were car occupants (*n* = 7,947) and 10% were pedestrians (*n* = 1,124), whereas 38% of males were car occupants (*n* = 8,432) and 30% were on a motorcycle (*n* = 6,648).

For non-traffic accidents (*n* = 13,626), the most frequent mode of transport was a motorcycle (43%; *n* = 5,925) followed by a pedal cycle (31%; *n* = 4,179). There were gender differences; the most common mode of transport for females injured in non-traffic accidents were pedal cycles (33%; *n* = 763) followed by cars (22%; *n* = 513), whereas the most common for males were motorcycles (48%; *n* = 5,446) followed by pedal cycles (30%; *n* = 3,415).

Of accidents designated unspecified as to whether traffic or non-traffic (Table 2.2.6), the majority (58%; *n* = 3,265) involved an animal rider or occupant of an animal-drawn vehicle.

Male case numbers exceeded females in most instances; exceptions were car occupant injuries, bus occupant injuries and animal rider or occupant of animal-driven vehicle injuries (Table 2.2.6).

Table 2.2.6: Mode of transport for land transport injury cases, Australia, 2006–07

Injured person's mode of transport	Non-traffic accident	Traffic accident	Unspecified	Total
Males				
Car	789	8,432	280	9,501
Motorcycle	5,446	6,648	449	12,543
Pedal cycle	3,415	3,894	235	7,544
Pedestrian	380	1,778	239	2,397
Animal or animal-drawn vehicle	0	0	1,128	1,128
Heavy transport vehicle	192	439	106	737
Pick-up truck or van	111	247	n.p.	388
Bus	24	80	53	157
Three-wheeled motor vehicle	546	71	n.p.	620
Other land transport	388	352	174	914
Total	**11,291**	**21,941**	**2,697**	**35,929**
Females				
Car	513	7,947	329	8,789
Motorcycle	479	693	53	1,225
Pedal cycle	763	905	42	1,710
Pedestrian	243	1,124	124	1,491
Animal or animal-drawn vehicle	0	0	2,137	2,137
Heavy transport vehicle	11	33	16	60
Pick-up truck or van	24	76	n.p.	106
Bus	50	131	128	309
Three-wheeled motor vehicle	184	23	n.p.	211
Other land transport	67	181	125	373
Total	**2,334**	**11,113**	**2,964**	**16,411**
Persons[(a)]				
Car	1,302	16,379	609	18,290
Motorcycle	5,925	7,341	502	13,768
Pedal cycle	4,179	4,799	277	9,255
Pedestrian	623	2,902	363	3,888
Animal or animal-drawn vehicle	0	0	3,265	3,265
Heavy transport vehicle	203	472	122	797
Pick-up truck or van	135	323	36	494
Bus	74	211	181	466
Three-wheeled motor vehicle	730	94	7	831
Other land transport	455	533	299	1,287
Total	**13,626**	**33,054**	**5,661**	**52,341**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

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

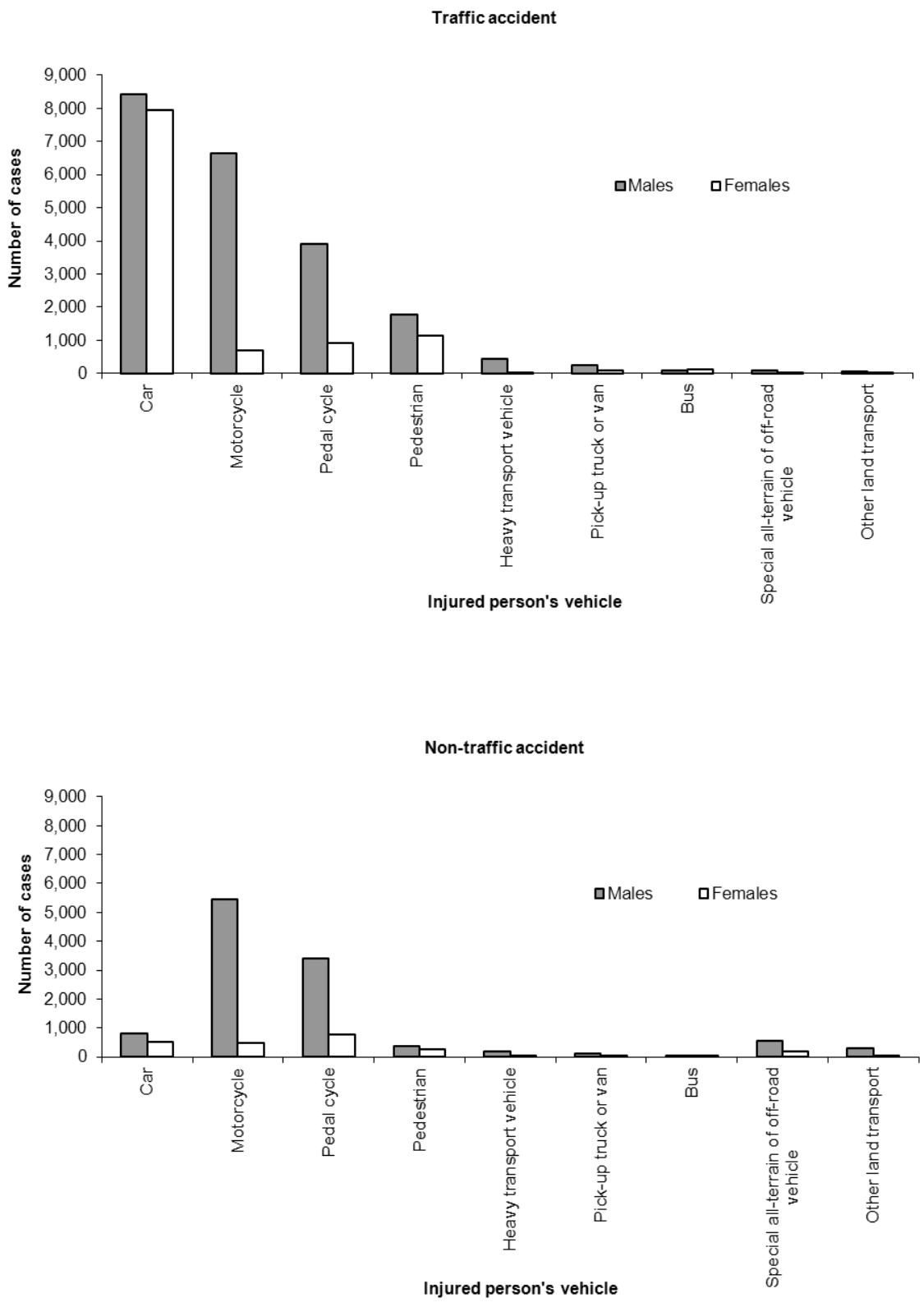


Figure 2.2.5: Mode of transport for land transport injury cases, Australia, 2006–07

Mechanism of injury

Most injuries result from collision with another vehicle or collision with some other object. The other vehicle or object is often called the 'counterpart'. Table 2.2.7 details the counterpart in land transport crashes. However, some injuries result from non-collision events, such as car roll-over.

Table 2.2.7 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.

Of injured car occupants, 42% were involved in a collision with a car, pick-up truck or van, 24% were involved in a collision with a fixed or stationary object and 22% were involved in a non-collision transport accident.

Nearly half (48%) of motorcyclists were involved in a non-collision transport accident, 13% were hit by a car, pick-up truck or van and 11% collided with a fixed or stationary object.

Over half (52%) of pedal cyclists were involved in a non-collision transport accident and 12% were hit by a car, pick-up truck or van.

Of pedestrians injured, 77% were hit by a car, pick-up truck or van.

For animal riders or occupants of an animal-driven vehicle, 72% 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, 56% were involved in a non-collision transport accident, 8% collided with another heavy transport vehicle or bus, 8% hit a car, pick-up truck or van and 6% collided with a fixed or stationary object.

Of pick-up truck or van occupants, 47% were involved in a non-collision transport accident, 18% hit a car, pick-up truck or van and 14% collided with a fixed or stationary object.

Sixty-two per cent of bus occupants were involved in a non-collision transport accident.

Road user group by traffic status

Tables 2.2.8 and 2.2.9 characterise the road user group (for example, the position of the injured person in or outside of the vehicle) for land transport accidents according to whether they were traffic accident.

Excluding the other and unspecified road user group, almost three-quarters of motor vehicle occupants injured in a traffic accident were drivers. Almost 67% of car occupants involved in a traffic accident were drivers while less than 5% of those injured in a traffic accident while on a motorcycle were passengers.

Again excluding the other and unspecified road user group, almost 87% of motor vehicle occupants injured in a non-traffic accident were drivers. Over 62% of car occupants involved in a non-traffic accident were drivers while less than 3% of those injured in a non-traffic accident while on a motorcycle were passengers.

In cases where the traffic status was unspecified as to traffic or non-traffic, over half (57%) of injuries were involving an animal rider or occupant of animal driven vehicle. There were also a notable number of people injured whilst boarding or alighting vehicles, (13%) of which were boarding or alighting from a car.

Table 2.2.7: Mechanism of injury for land transport injury cases, Australia, 2006–07

	Counterpart									
Injured person's mode of transport	**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	128	12	36	7,608	602	18	31	4,360	4,015	1,480
Motorcyclist	124	10	381	1,792	74	n.p.	31	1,499	6,625	3,230
Pedal cyclist	47	220	15	1,101	48	n.p.	11	475	4,792	2,543
Pedestrian	n.p.	108	112	2,990	133	34	34	0	0	477
Animal rider or occupant of animal-driven vehicle	11	0	0	0	0	0	9	26	2,339	880
Occupant of heavy transport vehicle	7	0	n.p.	61	60	6	0	51	444	165
Occupant of pick-up truck or van	7	0	n.p.	88	28	n.p.	n.p.	71	233	63
Bus occupant	n.p.	0	0	62	11	0	n.p.	14	288	87
Special all-terrain or off-road vehicle	0	0	0	0	0	0	0	0	0	831
Total (*n* = 51,054)[(a)]	**328**	**350**	**548**	**13,702**	**956**	**65**	**117**	**6,496**	**18,736**	**9,756**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

(a) Excludes 631 cases that are 'Other land transport accidents' (V81–V89) and 656 cases due to water, air and space.

Table 2.2.8: Mode of transport for traffic land transport injury cases, Australia, 2006–07

Injured person's mode of transport	Pedestrian	Driver	Passenger	Person on outside of vehicle	Other and unspecified	Total
Pedestrian	2,902	0	0	0	0	2,902
Pedal cycle	0	2,746	34	0	2,019	4,799
Motorcycle	0	4,786	237	0	2,318	7,341
Car	0	10,131	5,019	72	1,157	16,379
Pick-up truck or van	0	180	95	28	20	323
Heavy transport vehicle	0	375	45	n.p.	8	472
Bus	0	39	146	n.p.	28	211
Special all-terrain of off-road vehicle	0	58	17	7	12	94
Other land transport	0	41	17	n.p.	8	533
Total	**2,902**	**18,356**	**5,610**	**117**	**6,069**	**33,054**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Table 2.2.9: Mode of transport for non-traffic land transport injury cases, Australia, 2006–07

Injured person's mode of transport	Pedestrian	Driver	Passenger	Person on outside of vehicle	Other and unspecified	Total
Pedestrian	623	0	0	0	0	623
Pedal cycle	0	3,186	35	0	958	4,179
Motorcycle	0	4,979	127	0	819	5,925
Car	0	718	315	119	150	1,302
Pick-up truck or van	0	n.p.	24	n.p.	29	135
Heavy transport vehicle	0	55	8	72	68	203
Bus	0	n.p.	49	n.p.	21	74
Special all-terrain of off-road vehicle	0	549	76	19	86	730
Other land transport	0	189	21	96	149	455
Total	**623**	**9,699**	**655**	**369**	**2,280**	**13,626**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Age and sex distribution by traffic status

Traffic

For traffic accidents, hospitalised injury rates for both male and female car drivers peaked at ages 20–24 with rates of 122.5 and 95.9 per 100,000 respectively (Figure 2.2.6). For both sexes, rates for car passengers peaked at age 15–19 with males recording a rate of 78.6 per 100,000 and females a slightly lower rate of 76.0 per 100,000. Rates for male and female motorcyclists differed markedly across all ages, although both experienced a peak at 20–24. The male rate at this age group of 156.6 per 100,000 was more than 12 times that of the female rate of 12.5 per 100,000. Rates of pedal cycle injury in traffic peaked in the 10–14 age group (110.9 per 100,000) for males and the 5–9 age group (21.9 per 100,000) for females. Pedestrian injury rates in traffic peaked in the 85+ age group (45.1 and 28.7 per 100,000 for males and females respectively).

Non-traffic

For non-traffic accidents, hospitalised injury rates for both male and female car drivers peaked at ages 15–19 with rates of 19.1 and 9.4 per 100,000 respectively (Figure 2.2.7). For males, the rate for car passengers peaked at age 15–19 (10.1 per 100,000), while for females the rate for car passengers peaked at age 80–84 (9.5 per 100,000). As with traffic accidents, rates for male and female motorcyclists differed markedly across all ages, with males experiencing a peak at 15–19 (148.5 per 100,000) and females experiencing a peak at 10–14 (17.6 per 100,000). Rates of pedal cycle injury in non-traffic peaked in the 10–14 age group (155.0 per 100,000) for males and the 5–9 age group (34.3 per 100,000) for females. Pedestrian injury rates in non-traffic peaked in the 85+ age group (7.4 and 9.0 per 100,000 for males and females respectively).

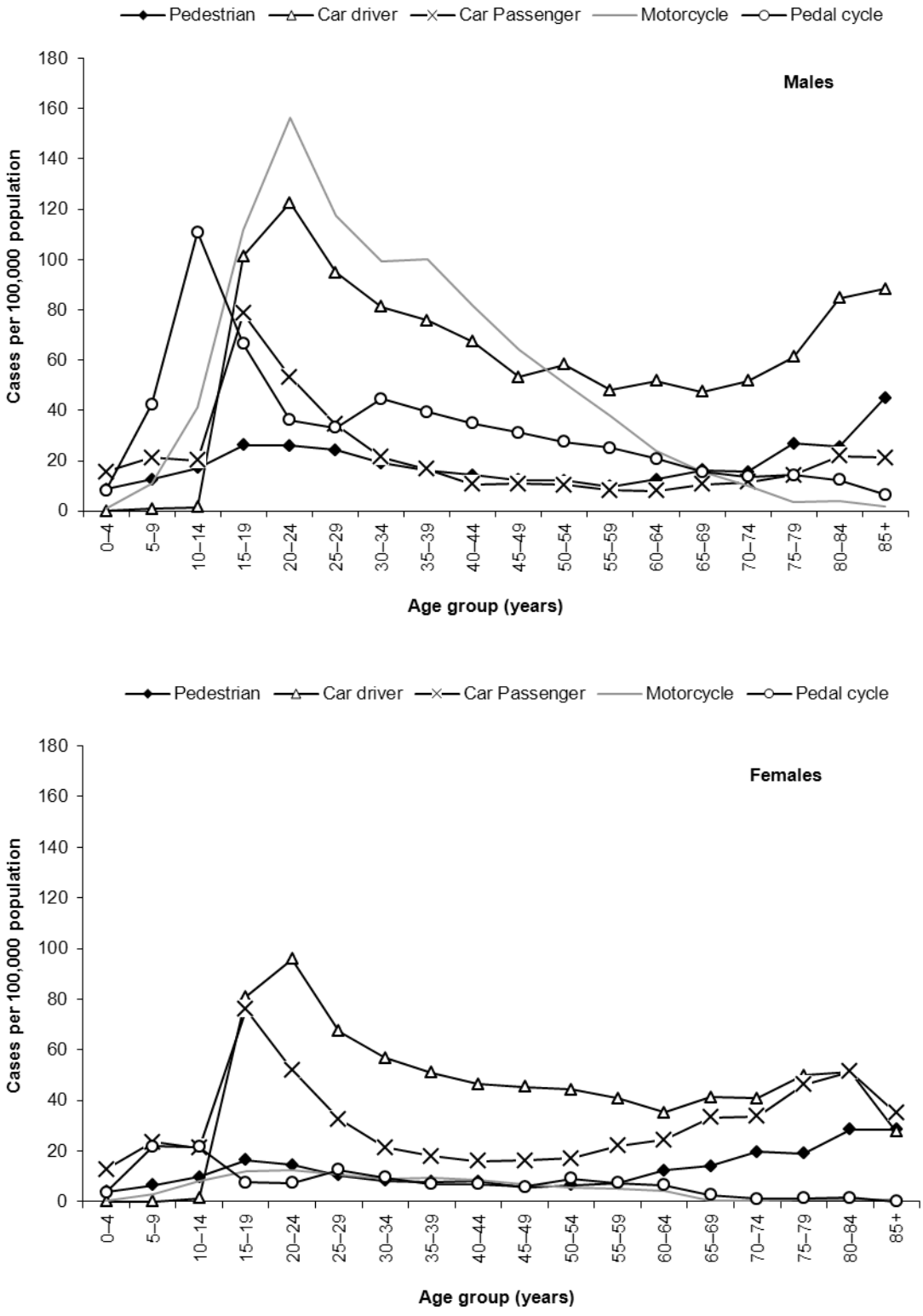


Figure 2.2.6: Traffic accidents—age-specific hospital separation rates by sex, Australia, 2006–07

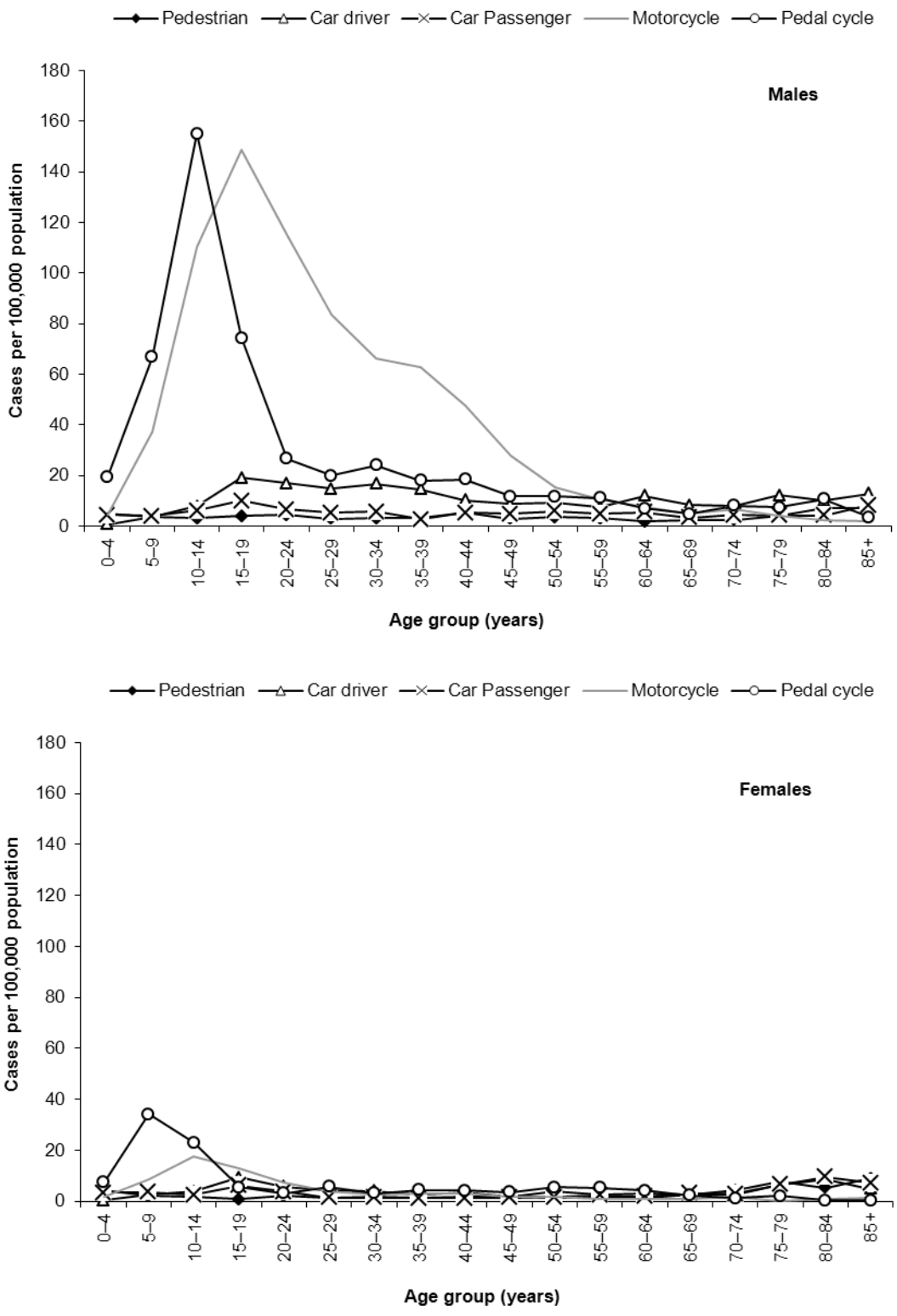


Figure 2.2.7: Non-traffic accidents—age-specific hospital separation rates by sex, Australia, 2006–07

2.3 Drowning and near-drowning

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: W65–W74

Table 2.3.1: Key indicators for drowning and near-drowning cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to drowning and near-drowning	368	164	532
Percentage of all community injury separations	0.2	0.1	0.1
Estimated cases[(a)]	345	152	497
Crude rate/100,000 population	3.3	1.4	2.4
Age-standardised rate/100,000 population[(b)]	3.3	1.5	2.4
Total patient days[(c)]	929	322	1,251
Mean length of stay (days)	2.7	2.1	2.5

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

Increasingly, the term 'drowning' is used to refer to 'the process of experiencing respiratory impairment from submersion/immersion in liquid' (van Beek et al. 2005). Framed this way, drowning can have various outcomes: death, survival with lasting consequences of greater or lesser severity, survival with transient morbidity or survival with no detectable consequences. 'Near drowning' is less well defined. It can refer to survived episodes of respiratory impairment from submersion/immersion in liquid. It can also refer to episodes in which a person nearly, but not quite, experiences respiratory impairment from submersion/immersion in liquid (e.g. a person who becomes exhausted while swimming, but manages to reach a shore, perhaps with assistance). This report provides data on episodes of non-fatal drowning that resulted in admission to a hospital.

Drowning and near-drowning accounted for one per cent of all injury hospitalisations in the financial year 2006–07 (Table 2.3.1). This chapter predominantly focuses on cases of *Accidental drowning and submersion* that have an external cause, *Accidental drowning and submersion* in the ICD-10-AM range W65–W74 (*n* = 497). However, there were 33 additional cases that had an external cause code outside the range of *Accidental drowning and submersion* (ICD-10-AM W65–W74) but had a principal diagnosis of T75.1 *Drowning and nonfatal submersion.* These cases are not included in Table 2.3.1 but are summarised in Table 2.3.2.

Overview of all drowning and near-drowning cases

All identifiable hospitalised drowning and near-drowning cases in Australia in 2006–07 are summarised in Table 2.3.2. There are a small number of cases of drowning and submersion that fall outside the range W65–W74 but still specifically refer to drowning and submersion as external causes, for example V90 *Accident to water craft causing drowning and submersion*. These specific cases are included in the coverage of other sections in this report, for example records with an external cause code of V90 are included in the Other transport section. The

cases without an explicit drowning and submersion external cause that have a principal diagnosis of T75.1 *Drowning and nonfatal submersion* are summarised under the heading Various external cause codes that do not mention drowning.

Table 2.3.2: All identifiable drowning and near-drowning cases, Australia, 2006–07

Number in 2006–07	Per cent of all drowning cases	ICD-10-AM Code	Description	Coverage in this report
497	93.8	W65–W74	Accidental drowning and submersion	Drowning
6	1.1	V90	Accident to water craft causing drowning and submersion	Other transport
n.p.	0.4	V92	Water transport related drowning and submersion without accident to water craft	Other transport
12	2.3	X71	Intentional self-harm by drowning and submersion	Intentional, self-harm
n.p.	0.2	X92	Assault by drowning and submersion	Assault
n.p.	0.6	Y21	Drowning and submersion, undetermined intent	Undetermined intent
9	1.7		Various external cause codes that do not mention drowning (for example, fall)	Various
530	**100**			

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

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.

Age and sex distribution

The following sections focus on the *Accidental drowning and submersion* (ICD-10-AM W65–W74) category (*n* = 497 cases). Close to half of the drowning and near-drowning injury cases occurred in young children aged 0–4 and 69.4% involved males (Table 2.3.4).

Table 2.3.3: Drowning and near-drowning cases by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	Count	Per cent	Count	Per cent	Count	Per cent
0–4	137	39.7	82	53.9	219	44.1
5–14	42	12.2	26	17.1	68	13.7
15–24	43	12.5	13	8.6	56	11.3
25–44	67	19.4	11	7.2	78	15.7
45–64	32	9.3	13	8.6	45	9.1
65+	24	7.0	7	4.6	31	6.2
Total	**345**	**100**	**152**	**100**	**497**	**100**

The highest age-specific rates were in children aged 0–4 (males: 20.2 per 100,000, females: 12.8 per 100,000) (Figure 2.3.1) and rates were much lower at older ages. Rates based on small case numbers have been suppressed (see Data Issues).

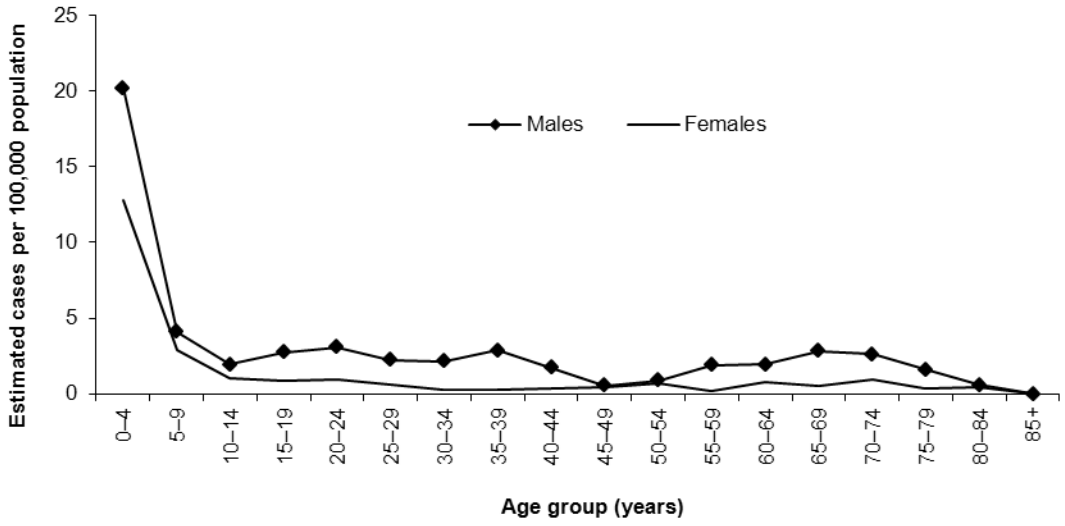


Figure 2.3.1: Age-specific cases of drowning and near-drowning by sex, Australia, 2006–07

More males than females were hospitalised for drowning and near-drowning (based on age-standardised rates). The overall rate of drowning and near-drowning for males was 3.3 per 100,000 population while for females this rate was 1.5 per 100,000 population (M:F ratio 2.2:1). Most hospitalised drowning and near-drowning (44.1%) occurred in the 0–4 age group (Table 2.3.3).

Mechanism

Overall, swimming pools were the most common setting for drowning-related cases (40.4% of all drowning and near-drowning cases) and especially for young children aged 0–4 (62.1% of all drowning cases in that age group and 67.7% of all cases that occurred in swimming pools). Bodies of natural water (for example, rivers, lakes, the ocean) were the second most common setting of drowning and near-drowning overall and the principal place for those aged 15 and over (percentages ranging from 57.1% in people aged 15–24 to 61.3% in those aged 65 and over). Drowning and near-drowning in bathtubs (8.9%) occurred less frequently and three-quarters of these cases involved children aged 0–4 (75.0%) (Table 2.3.4).

Table 2.3.4: Circumstances of accidental drowning and near-drowning cases by age, Australia, 2006–07

	Age group (years)													
	0–4		5–14		15–24		25–44		45–64		65+		All ages	
Circumstances of drowning	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**	**Total**	**Per cent**
Swimming pool	136	62.1	34	50.0	7	12.5	12	15.4	6	13.3	6	19.4	201	40.4
Natural water	13	5.9	11	16.2	32	57.1	44	56.4	27	60.0	19	61.3	146	29.4
Bathtub	33	15.1	7	10.3	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0	0.0	44	8.9
Other or unspecified	37	16.9	16	23.5	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	6	19.4	106	21.3
Total	**219**	**100**	**68**	**100**	**56**	**100**	**78**	**100**	**45**	**100**	**31**	**100**	**497**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Length of stay

There were 1,251 patient days attributed to hospitalised drowning and near-drowning in 2006–07 was 1,251. The mean length of stay (2.5 days) was relatively short compared with other types of injuries; this was because nearly three-quarters of drowning and near-drowning hospitalisations had a length of stay of one day or less (*n* = 367, 73.8%). It would appear, from Figure 2.3.2, that MLOS increased with age however small case numbers for both sexes at older ages preclude a meaningful analysis. The mean length of stay was 1.5 days for children aged 0–4, 1.9 days for children aged 5–14, 3.5 days for young people aged 15–24, 4.8 days for adults aged 25–44, 3.0 days for adults aged 45–64 and 2.9 days for older people aged 65+.

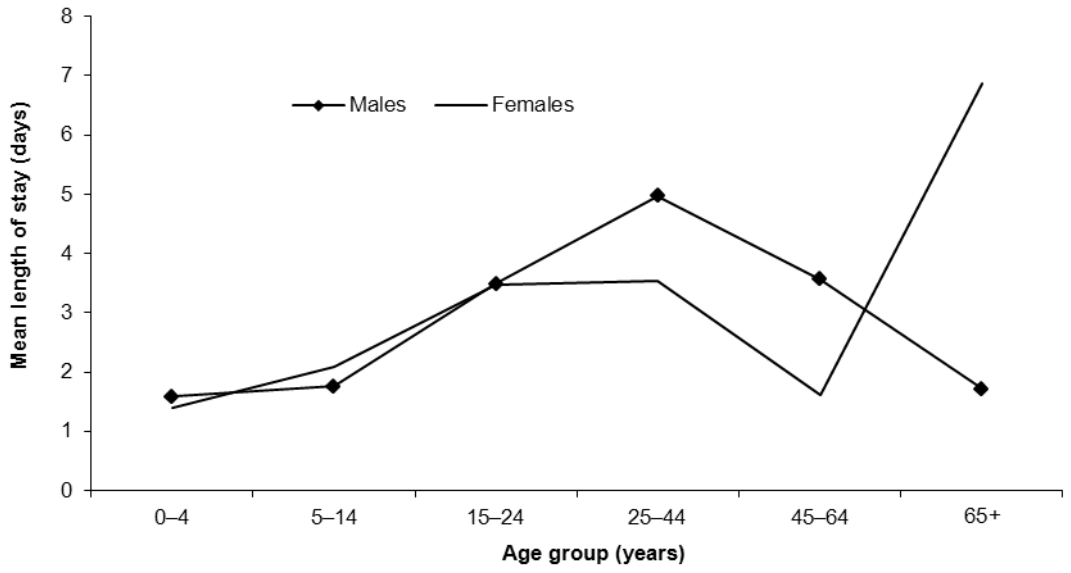


Figure 2.3.2: Length of stay per case for drowning and near-drowning injuries; males and females by age, Australia 2006–07

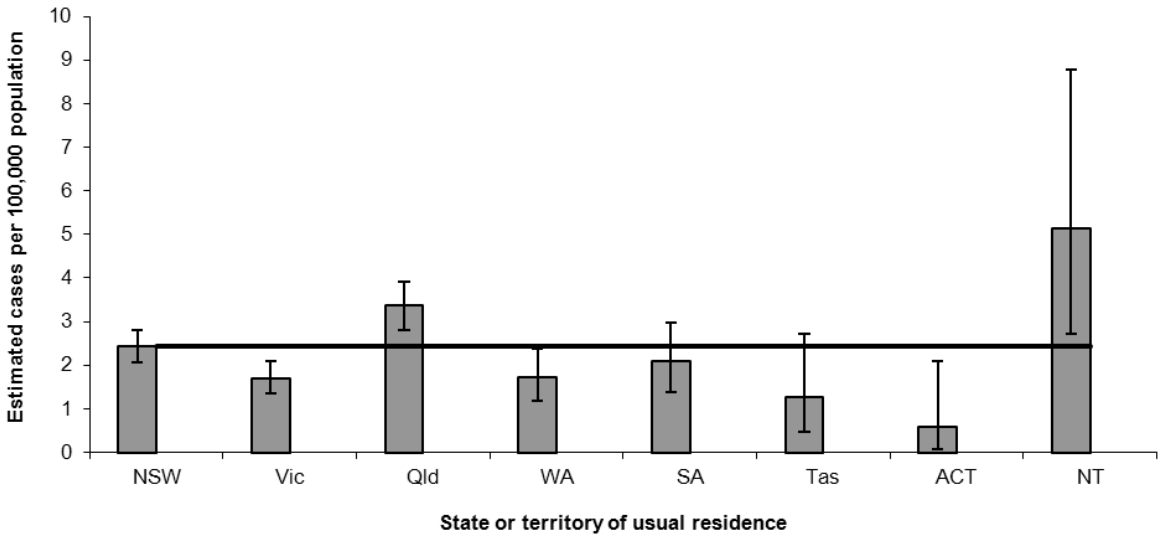
State and territory differences

Age-standardised cases of cases of hospitalised drowning and near drowning for residents of most states were lower than the national rate (2.4 per 100,000 population) (Table 2.3.5 and Figure 2.3.3). Queensland and the Northern Territory residents had rates above the national rate. Due to the small population numbers in the NT, rates can fluctuate from year to year. Rates for the Northern Territory in the two previous years, 2004–05 and 2005–06, were 3.6 and 4.6 per 100,000 respectively.

Table 2.3.5: Age-standardised cases of drowning and near-drowning, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
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	0.6	0.1–2.1
NT	5.1	2.7–8.8
Australia	**2.4**	**2.2–2.7**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



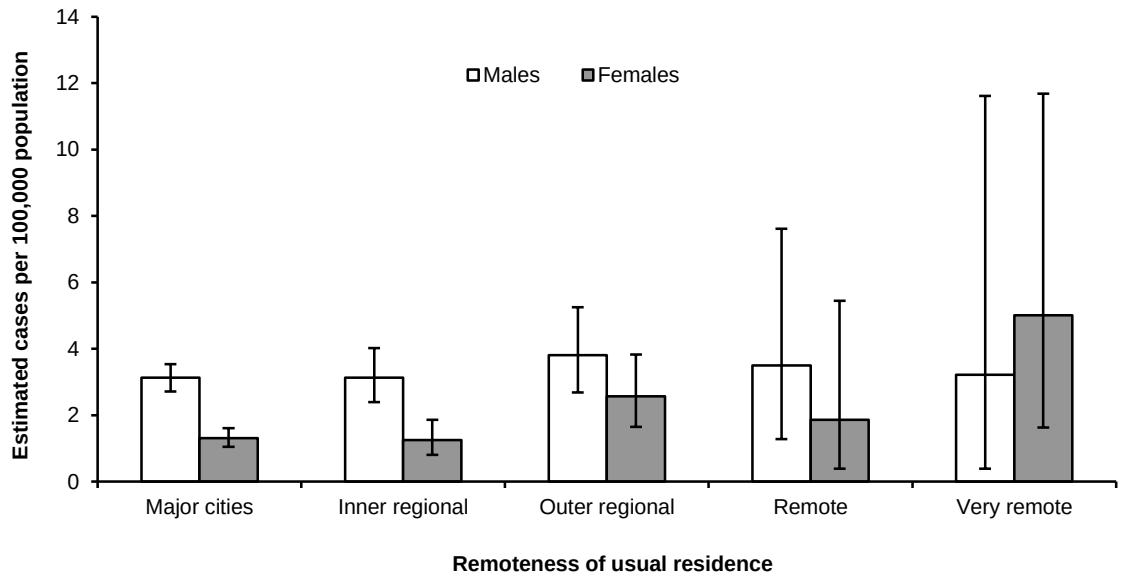
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.3.3: Age-standardised cases of drowning and near-drowning, states and territories, 2006–07

Remoteness of usual residence

The age-standardised rate of drowning and near-drowning cases in 2006–07 is shown in Figure 2.3.4 according to remoteness of the person's place of usual residence. The lowest rate was observed for residents of Australia's *Major cities* (2.2 per 100,000 population) and this was not significantly different from the highest rate of 4.1 per 100,000 which was observed for residents of Australia's *Very remote* regions. This differs slightly from the 2004–05 report where the highest rates were seen for residents of *Outer regional* Australia. The pattern of cases varied depending on sex (Figure 2.3.4); for males, rates were highest for residents in *Outer regional* areas (3.8 per 100,000 population) whereas the highest rates for females were seen in *Very remote* regions (5.2 per 100,000 population). Care should be taken interpreting these data as numbers in each remoteness region are small.



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.3.4: Age-standardised cases (± 95% CI) of drowning cases: males and females by remoteness of usual residence (ASGC regions), 2006–07

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 cases of poisoning by pharmaceuticals, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to poisoning by pharmaceuticals	3,087	3,595	6,682
Percentage of all community injury separations	1.3	2.1	1.6
Estimated cases[(a)]	2,939	3,465	6,404
Crude rate/100,000 population	28.4	33.0	30.7
Age-standardised rate/100,000 population[(b)]	28.7	32.9	30.8
Total patient days[(c)]	6,435	8,427	14,862
Mean length of stay (days)	2.2	2.4	2.3

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

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. The data does not distinguish between prescribed and non-prescribed pharmaceuticals; illicitly used drugs would be included. Poisoning by pharmaceuticals accounted for almost 2% of all community injury hospitalisations in the financial year 2006–07 (Table 2.4.1).

This chapter does not include poisoning from non-pharmaceutical substances (*n* = 2,207; see Chapter 2.5), intentional self-poisoning by drugs (*n* = 19,542; see Chapter 2.9), assault by drug-related poisoning (*n* = 52; see Chapter 2.10), poisoning of undetermined intent (*n* = 4,044; see Chapter 2.11), or adverse effects of drugs properly administered.

Age and sex distribution

Slightly 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. The age-standardised rate of poisoning by pharmaceuticals for females was 32.9 per 100,000 population, compared with 28.7 per 100,000 population for males. The highest age-specific rate was in children aged 0–4 (males: 109.9 per 100,000, females: 101.5 per 100,000) while the lowest rates were in children aged 5–14 (Figure 2.4.1). Rates increased for youth and young people (15–24) and decreased for older age groups—up to about 70, after which rates increased in each age group. The rates at ages 95 and older are based on small numbers of cases (5 male and 11 female).

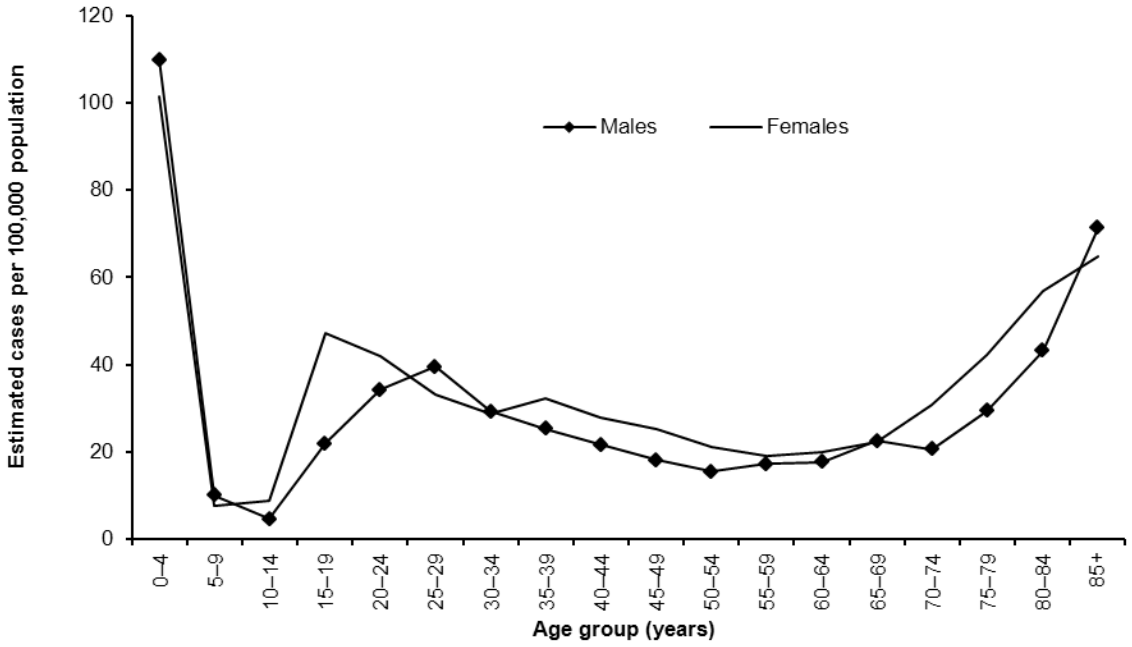


Figure 2.4.1: Age-specific cases of poisoning by pharmaceuticals by sex, Australia, 2006–07

Over one-fifth of cases of poisoning by pharmaceuticals occurred in young children aged 0–4 of age and more than one-quarter occurred in adults aged 25–44 (Table 2.4.2).

Table 2.4.2: Cases of poisoning by pharmaceuticals by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–4	745	25.3	651	18.8	1,396	21.8
5–14	102	3.5	110	3.2	212	3.3
15–24	417	14.2	632	18.2	1,049	16.4
25–44	858	29.2	913	26.3	1,771	27.7
45–64	441	15.0	560	16.2	1,001	15.6
65+	376	12.8	599	17.3	975	15.2
Total	**2,939**	**100**	**3,465**	**100**	**6,404**	**100**

Mechanism

Almost all cases included in this chapter (99.5%; *n* = 6,372) had a principal diagnosis classified as 'poisoning by drugs, medicaments and biological substances'. In this chapter, external causes are tabulated to describe the basic mechanism of poisoning cases. However, Principal Diagnoses offer a more detailed description of the substances involved. Therefore, we have also referred to principal diagnosis categories in the discussion below.

Forty-one per cent (*n* = 2,599) of cases were *accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs* (Table 2.4.3). This category includes benzodiazepines (16.3% of all pharmaceutical poisonings cases; *n* = 1,045), other and unspecified antidepressants (5.2% of all cases; *n* = 336), other and unspecified antipsychotics and neuroleptics (4.4% of all cases; *n* = 283) and *psychostimulants* with potential for use disorder (4.1% of all cases; *n* = 260).

Twenty-five per cent (*n* = 1,599) 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* = 392), *systemic and haematological agents, not elsewhere classified* (*n* = 328), *poisoning by hormones and their synthetic substitutes and antagonists, not elsewhere classified* (*n* = 137) and various others.

Seventeen per cent (*n* = 1,084) of cases were *accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified*—of which 444 were other opioids such as codeine and morphine (6.9% of all pharmaceutical poisoning cases), 152 were heroin (2.4% of all poisoning cases) and 123 were other synthetic narcotics [including pethidine] (1.9% of all poisoning cases).

Fourteen per cent (*n* = 890) of cases were *accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics*—most of which were 4-aminophenol derivatives such as paracetamol (10.9% of all pharmaceutical poisoning cases; *n* = 699) and other non-steroidal anti-inflammatory drugs (1.8% of all poisoning cases; *n* = 114).

Four per cent (*n* = 232) were *accidental poisoning by and exposure to other drugs acting on the autonomic nervous system*.

Table 2.4.3: Mechanism of pharmaceutical poisoning by age and sex, Australia, 2006–07

ICD-10-AM Code	Accidental poisoning by and exposure to:	0–14	Per cent	15–24	Per cent	25–44	Per cent	25–44	Per cent	65+	Per cent	Total	Per cent
Males													
X40	Nonopioid analgesics, antipyretics and antirheumatics	126	14.9	66	15.8	90	10.5	46	10.4	16	4.3	344	11.7
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	293	34.6	167	40.0	410	47.8	203	46.0	92	24.5	1,165	39.6
X42	Narcotics and psychodysleptics [hallucinogens]	44	5.2	97	23.3	237	27.6	102	23.1	56	14.9	536	18.2
X43	Other drugs acting on the autonomic nervous system	50	5.9	9	2.2	10	1.2	7	1.6	28	7.4	104	3.5
X44	Other and unspecified drugs, medicaments and biological substances	334	39.4	78	18.7	111	12.9	83	18.8	184	48.9	790	26.9
Total		**847**	**100**	**417**	**100**	**858**	**100**	**441**	**100**	**376**	**100**	**2,939**	**100**
Females													
X40	Nonopioid analgesics, antipyretics and antirheumatics	120	15.8	195	30.9	137	15.0	63	11.3	31	5.2	546	15.8
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	283	37.2	252	39.9	470	51.5	286	51.1	143	23.9	1,434	41.4
X42	Narcotics and psychodysleptics [hallucinogens]	51	6.7	104	16.5	191	20.9	100	17.9	102	17.0	548	15.8
X43	Other drugs acting on the autonomic nervous system	58	7.6	5	0.8	10	1.1	14	2.5	41	6.8	128	3.7
X44	Other and unspecified drugs, medicaments and biological substances	249	32.7	76	12.0	105	11.5	97	17.3	282	47.1	809	23.3
Total		**761**	**100**	**632**	**100**	**913**	**100**	**560**	**100**	**599**	**100**	**3,465**	**100**

Young children aged 0–4

A considerable proportion of accidental pharmaceutical poisonings occurred in young children aged 0–4 (21.8%; *n* = 1,396), and most of these (94.3%) occurred in young children aged 1–4; 5.7% occurred in infants aged less than 1 (Table 2.4.4).

Accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances (X44) accounted for 8.2% of all cases due to poisoning by pharmaceuticals in children aged 0–4 (*n* = 528). The drugs implicated were a diverse group, and included the broad categories of *agents primarily affecting the cardiovascular system* (*n* = 137), *poisoning by systemic and haematological agents, not elsewhere classified* (*n* = 116), *poisoning by topical agents primarily affecting skin and mucous membranes and by ophthalmological, otorhinolaryngological and dental drugs* (*n* = 72) and various others.

Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs (X41) in children aged 0–4 (*n* = 480) accounted for 7.5% of all cases due to poisoning by pharmaceuticals. This category included benzodiazepines (*n* = 251), other and unspecified antidepressants (*n* = 66).

Accidental poisoning by and exposure to nonopioid analgesics, antipyretics, and antiheumatics (X40) in children aged 0–4 (*n* = 207) accounted for 3.2% of all cases due to poisoning by pharmaceuticals. Most were poisoning by 4-aminophenol derivatives such as paracetamol (*n* = 146) and other non-steroidal anti-inflammatory drugs (*n* = 39).

Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified (X42) and *other drugs acting on the autonomic nervous system (X43)* in children aged 0–4 constituted only a small proportion of all cases due to poisoning by pharmaceuticals; 1.3% and 1.6%, respectively.

Table 2.4.4: Mechanism of poisoning by pharmaceuticals in children 0–4, Australia, 2006–07

ICD-10-AM Code	Accidental poisoning by and exposure to:	Age					
		< 1	1	2	3	4	Total
X40	Nonopioid analgesics, antipyretics and antirheumatics	13	43	82	57	12	207
X41	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	10	108	228	88	46	480
X42	Narcotics and psychodysleptics [hallucinogens]	8	22	28	18	5	81
X43	Other drugs acting on the autonomic nervous system	13	15	45	18	9	100
X44	Other and unspecified drugs, medicaments and biological substances	35	153	213	100	27	528
Total		**79**	**341**	**596**	**281**	**99**	**1,396**
Per cent		**5.7**	**24.4**	**42.7**	**20.1**	**7.1**	**100**

Length of stay

The majority (76.2%, *n* = 4,879) of unintentional poisoning separations had a hospital stay of one day, although ten cases had a LOS greater than 50 days and one case had a LOS over 100 days. Accordingly, the overall mean length of stay for poisoning by pharmaceuticals was 2.3 days. Mean LOS increased with age (Figure 2.4.2), for children aged 0–14 it was 1.2 days, 1.6 days for young people aged 15–24, 2.1 days for adults aged 25–44, 2.8 days for adults aged 45–64 and 4.9 days for older people aged 65+.

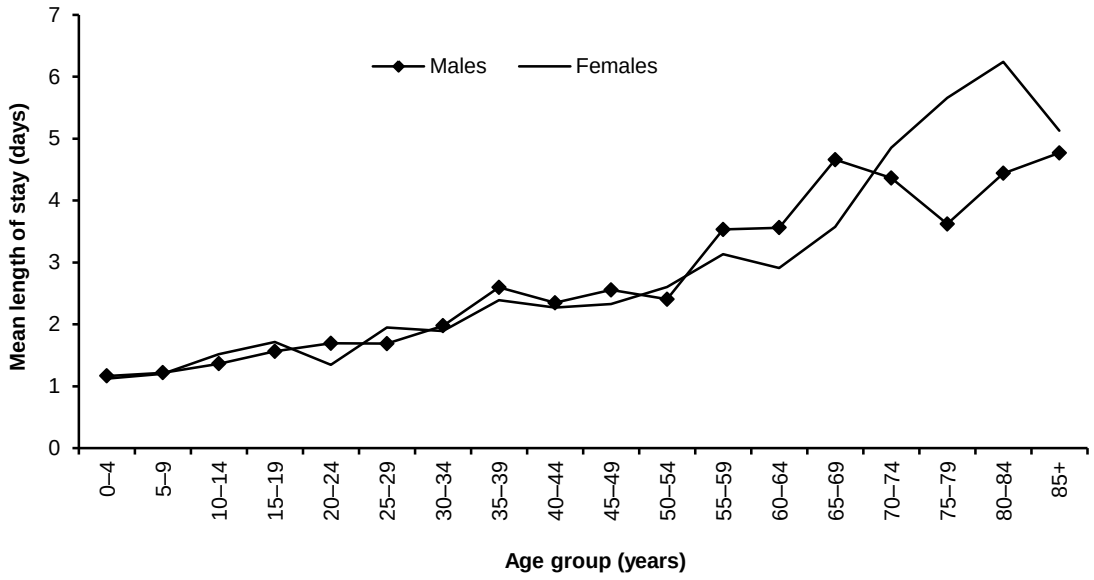


Figure 2.4.2: Length of stay per case for poisoning by pharmaceuticals by age and sex, Australia, 2006–07

Place of occurrence

Location was not specified or reported for 27.3% of cases (unspecified; *n* = 1,741, not reported/not applicable; *n* = 5). 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 (80.5%; *n* = 3,750) (Table 2.4.5). Of the 170 cases that occurred in a residential institution, nearly 73.5% (*n* = 125) occurred in aged care facilities. Of the 117 cases that occurred in a trade and service area, 71.8% (*n* = 84) occurred in a café, hotel or restaurant (not shown in table).

For children aged 0–4 for whom a place of occurrence was specified (*n* = 1,078), almost all poisoning by pharmaceuticals occurred in the home (95.8%; *n* = 1,033).

Table 2.4.5: Place of occurrence for cases of poisoning by pharmaceuticals, Australia, 2006–07

Place	Persons	Per cent
Home	3,750	80.5
Residential institution	170	3.6
School	14	0.3
Health service area	452	9.7
Other specified institution and public administrative area	8	0.2
Sports and athletics area	n.p.	0.1
Street and highway	42	0.9
Trade and service area	117	2.5
Industrial and construction area	9	0.2
Farm	n.p.	0.1
Other specified place of occurrence	87	1.9
Total	**4,658**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

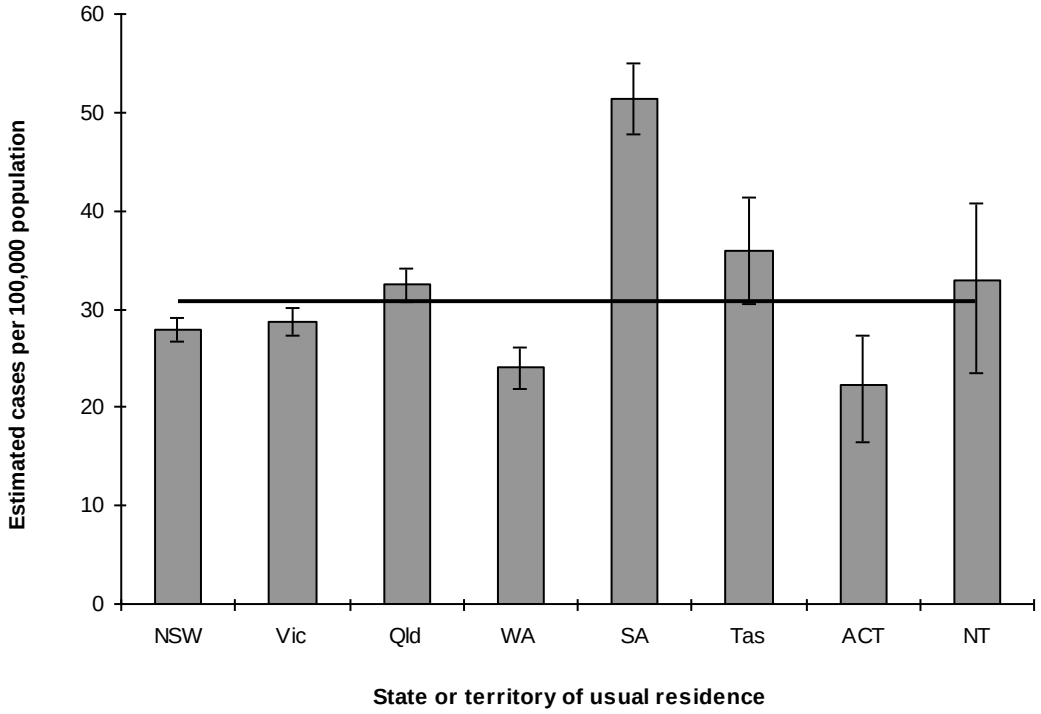
State and territory differences

Usual residents of Victoria, Queensland, Tasmania and the Northern Territory had rates of hospitalised poisoning by pharmaceuticals that were similar to the national rate (Table 2.4.6 and Figure 2.4.3). Residents of New South Wales, Western Australia and the Australian Capital Territory had rates that were lower than the national age-standardised rate. The highest rate was observed for South Australia. This has been a consistent finding in the past two reporting periods (50.2 per 100,000 population in 2004–05 and 46.1 per 100,000 population in 2005–06).

Table 2.4.6: Age-standardised cases of poisoning by pharmaceuticals, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	27.8	26.6–29.1
Vic	28.7	27.3–30.2
Qld	32.4	30.7–34.2
WA	24.1	21.9–26.2
SA	51.3	47.7–54.9
Tas	35.9	30.6–41.3
ACT	22.3	17.5–28.1
NT	33.0	25.2–42.5
Australia	**30.8**	**30.0–31.5**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



Notes

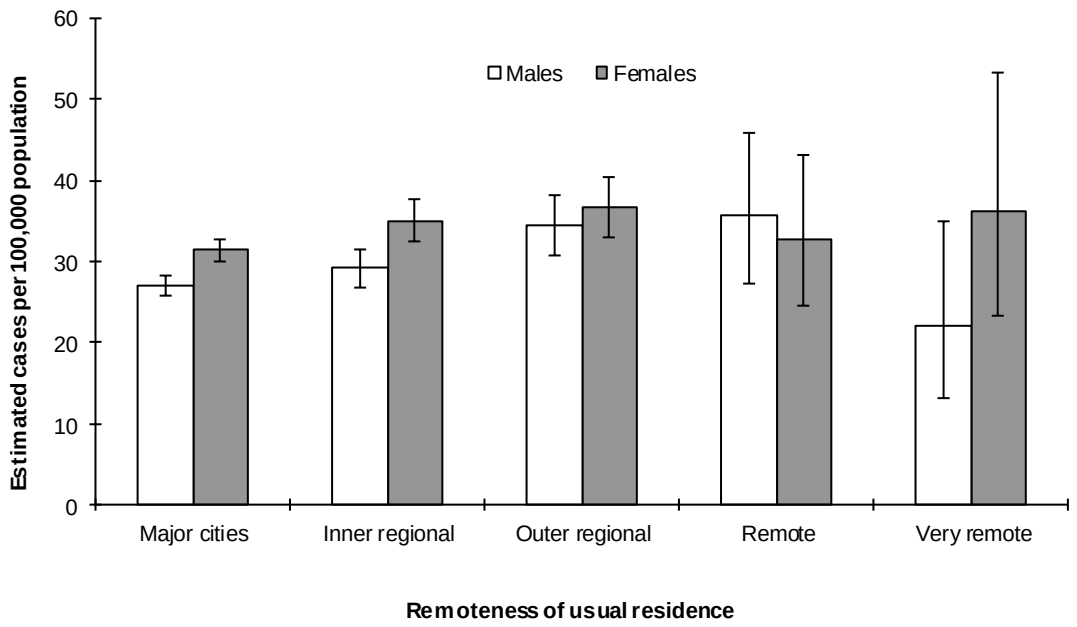
1. The thick horizontal line shows the rate for Australia.

2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.4.3: Age-standardised cases of poisoning by pharmaceuticals, states and territories, 2006–07

Remoteness of usual residence

The age-standardised rate of hospitalised poisoning by pharmaceuticals in 2006–07 varied only a little according to remoteness of the person's place of usual residence; the lowest rate was observed for residents of Australia's *Very remote* regions (28.8 per 100,000 population) and the highest rate was observed for residents of Australia's *Outer regional* areas (35.2 per 100,000). Residents of *Outer regional* areas had significantly higher rates of poisoning by pharmaceuticals than residents of *Major cities*. The pattern of cases varied depending on sex (Figure 2.4.4); rates were highest for males in *Remote* areas whereas for females the highest rates were seen in *Outer regional* areas (36.0 and 36.4 per 100,000 population, respectively).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.4.4: Age-standardised cases (± 95% CI) of poisoning by pharmaceuticals: males and females by remoteness of usual residence (ASGC regions), 2006–07

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 cases of poisoning by other substances, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to poisoning, other substances	1,436	887	2,323
Percentage of all community injury separations	0.6	0.5	0.6
Estimated cases[(a)]	1,357	850	2,207
Crude rate/100,000 population	13.1	8.1	10.6
Age-standardised rate/100,000 population[(b)]	13.1	8.2	10.6
Total patient days[(c)]	2,937	1,481	4,418
Mean length of stay (days)	2.2	1.7	2.0

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This chapter includes hospitalisations arising from the toxic effects of accidental contact with substances which are chiefly non-medicinal. These accounted for less than 1 per cent of all community injury separations in the financial year 2006–07 (Table 2.5.1).

This chapter does not include unintentional poisoning by pharmaceuticals (*n* = 6,404; see Chapter 2.4), intentional self-poisoning by other substances (*n* = 19,542; see Chapter 2.9), assault by poisoning (*n* = 52; see Chapter 2.10), or poisoning of undetermined intent (*n* = 4,044; 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 1.6:1 (Figure 2.5.1). Rates of poisoning from non-medicinal sources were highest in children aged 0–4 (males: 37.5 per 100,000, females: 20.7 per 100,000) but were lowest in older children aged 5–14. Rates rose for youth and young people (15–24) and then declined gradually until the age of 75 when rates rose again for both sexes. Rates at ages 90-94 are based on small numbers of cases (6 male and 4 female).

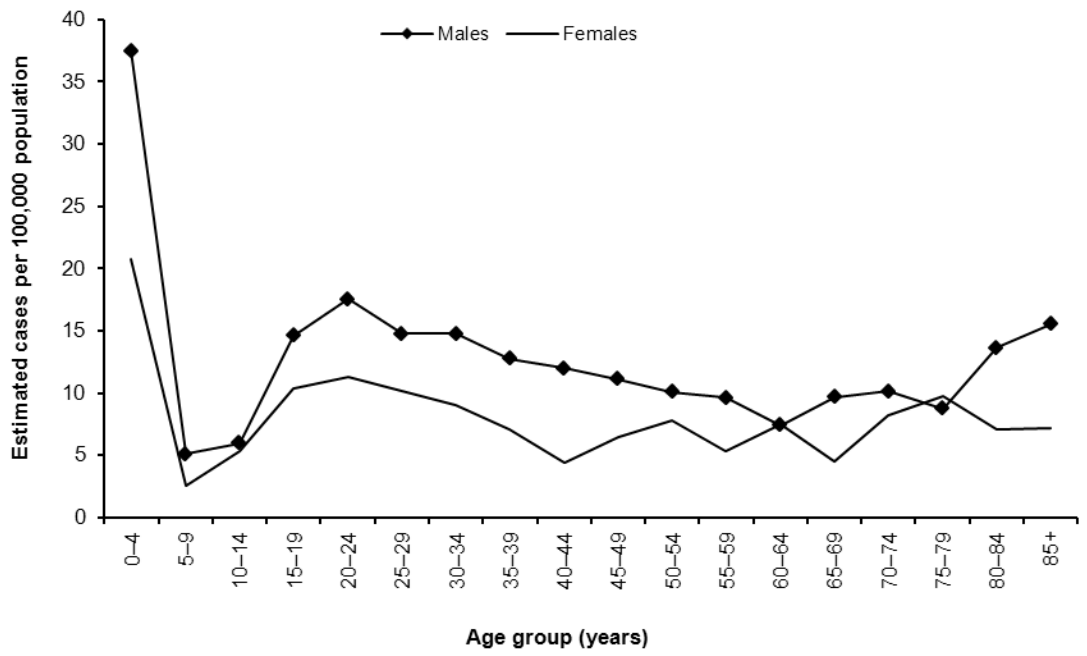


Figure 2.5.1: Age-specific cases of poisoning by other substances by sex, Australia, 2006-07

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

Table 2.5.2: Cases of poisoning by other substances by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–4	254	18.7	133	15.6	387	17.5
5–14	78	5.7	53	6.2	131	5.9
15–24	239	17.6	154	18.1	393	17.8
25–44	404	29.8	228	26.8	632	28.6
45–64	251	18.5	175	20.6	426	19.3
65+	131	9.7	107	12.6	238	10.8
Total	**1,357**	**100**	**850**	**100**	**2,207**	**100**

Mechanism

Around two-thirds of cases of unintentional poisoning by other substances were as a result of *accidental poisoning by and exposure to other and unspecified chemicals and noxious substances X49* (*n* = 1,473). 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.

Twelve per cent of cases in this group were as a result of *accidental poisoning by and exposure to alcohol (X45)*. These cases due to alcohol poisoning are only a small proportion of hospitalised alcohol-related admissions (Indig et al. 2008; Roxburgh & Degenhardt 2008).

Nine per cent of cases were from *accidental poisoning by and exposure to other gases and vapours (X47)*. This category includes carbon monoxide, among various others.

Six per cent of cases were from *accidental poisoning by and exposure to pesticides (X48).*

Six per cent of cases were from *accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours (X46).*

Table 2.5.3 shows the distribution of cases of poisoning by other substances by sex

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 (61.7%). *Alcohol* poisoning occurred mostly in youth and young people (15–24) and adults aged 25–44 (45.4% and 25.5%, respectively). Poisoning by *other and unspecified chemicals and noxious substances* was most common in adults aged 25–44 (30.1% of poisonings in this category).

Due to the variety of substances involved in the unintentional poisoning category, the types of injuries reported were varied. Over three-quarters of cases (79.5%, *n* = 1,754) reported toxic effects of substances non-medicinal while a further 16.3% (*n* = 360) reported burns.

Table 2.5.3: External causes of poisoning by other substances by age and sex, Australia, 2006–07

		0–14		15–24		25–44		45–64		65+		Total	
ICD-10-AM Code	Accidental poisoning by and exposure to:	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent	Count	Per cent
Males													
X45	Alcohol	21	6.3	68	28.5	42	10.4	18	7.2	12	9.2	161	11.9
X46	Organic solvents and halogenated hydrocarbons and their vapours	58	17.5	16	6.7	16	4.0	6	2.4	n.p.	n.p.	101	7.4
X47	Other gases and vapours	16	4.8	20	8.4	55	13.6	31	12.4	n.p.	n.p.	132	9.7
X48	Pesticides	35	10.5	10	4.2	22	5.4	19	7.6	12	9.2	98	7.2
X49	Other and unspecified chemicals and noxious substances	202	60.8	125	52.3	269	66.6	177	70.5	92	70.2	865	63.7
Total		**332**	**100**	**239**	**100**	**404**	**100**	**251**	**100**	**131**	**100**	**1,357**	**100**
Females													
X45	Alcohol	11	5.9	55	35.7	27	11.8	12	6.9	n.p.	n.p.	110	12.9
X46	Organic solvents and halogenated hydrocarbons and their vapours	24	12.9	n.p.	n.p.	n.p.	n.p.	6	3.4	0	0.0	32	3.8
X47	Other gases and vapours	9	4.8	8	5.2	20	8.8	21	12.0	7	6.5	65	7.6
X48	Pesticides	18	9.7	n.p.	n.p.	n.p.	n.p.	6	3.4	n.p.	n.p.	35	4.1
X49	Other and unspecified chemicals and noxious substances	124	66.7	88	57.1	174	76.3	130	74.3	92	86.0	608	71.5
Total		**186**	**100**	**154**	**100**	**228**	**100**	**175**	**100**	**107**	**100**	**850**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Young children aged 0–4

A considerable proportion of accidental poisonings from non-medicinal sources occurred in young children aged 0–4 (17.5%; *n* = 387), and most of these (82.2%) occurred before the third birthday (Table 2.5.4).

Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances (X49) in children aged 0–4 of age accounted for 11.1% (*n* = 245) of all cases of poisoning due to other substances. This category included the toxic effects of corrosive substances (*n* = 27), tobacco and nicotine (*n* = 23), noxious substances eaten as food (*n* = 22), among others. *Organic solvents and halogenated hydrocarbons and their vapours (X46)* accounted for 2.9% (*n* = 65) of all cases of poisoning by other substances; most cases were other specified organic solvents (*n* = 29) and petroleum products (*n* = 20). *Accidental poisoning and exposure to pesticides* accounted for 2.2% (*n* = 49) of all cases of poisoning by other substances; most cases were organophosphate and carbamate insecticides (*n* = 15) and rodenticides (*n* = 11). *Accidental poisoning by and exposure to alcohol* and *other gases and vapours* in children aged 0–4 constituted only a small proportion of poisoning by other substances, 0.7% and 0.6%, respectively.

Table 2.5.4: Mechanism of poisoning by other substances in children 0–4, Australia, 2006–07

ICD-10-AM Code	Accidental poisoning by and exposure to:	Age					
		< 1	1	2	3	4	Total
X45	Alcohol	n.p.	n.p.	n.p.	n.p.	n.p.	15
X46	Organic solvents and halogenated hydrocarbons and their vapours	n.p.	34	21	7	n.p.	65
X47	Other gases and vapours	n.p.	n.p.	n.p.	n.p.	n.p.	13
X48	Pesticides	n.p.	25	14	n.p.	n.p.	49
X49	Other and unspecified chemicals and noxious substances	20	112	67	29	17	245
Total		28	181	109	44	25	387
Per cent		**1.3**	**8.2**	**4.9**	**2.0**	**1.1**	**17.5**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Length of stay

Mean length of stay for unintentional poisoning by other substances was short (2.0 days for persons, all ages). Males had a slightly longer mean length of stay (2.2 days) than females (1.7 days). Mean length of stay increased with age, though less than for most types of *community injury* (Figure 2.5.2). The mean length of stay was 1.5 days for children aged 0–14 and for young people aged 15–24, 2.0 days for adults aged 25–44, 2.8 days for adults aged 45–64 and 2.6 days for older people aged 65+.

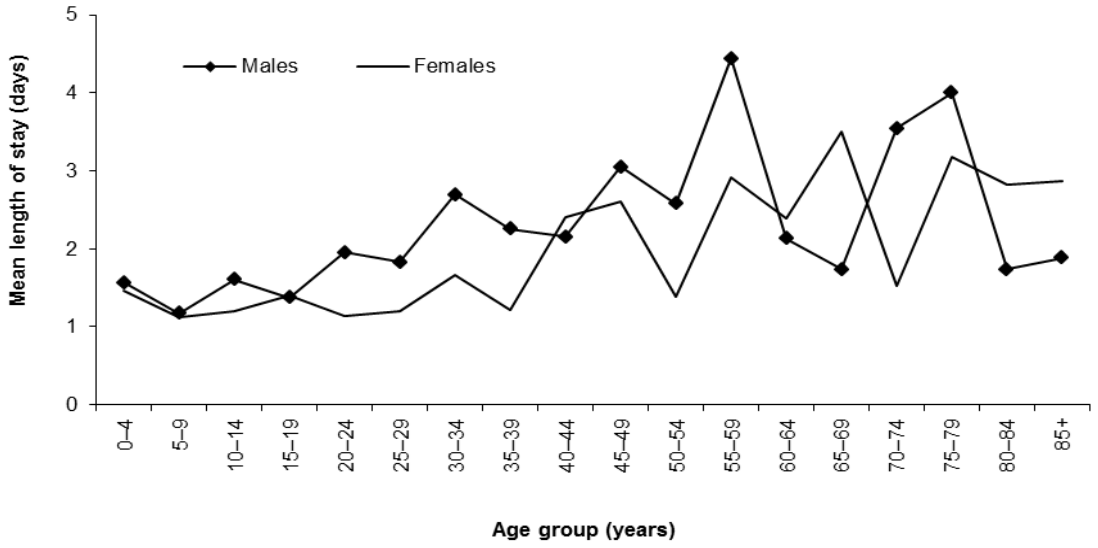


Figure 2.5.2: Length of stay per case for poisoning by other substances by age and sex, Australia, 2006–07

Place of occurrence

Location was not specified or reported for 45% of cases (unspecified; *n* = 993, not reported/not applicable; *n* = 1). The following observations are restricted to those cases in which the place of occurrence was specified. Sixty-one per cent of injuries from poisoning by other substances occurred in the home (*n* = 736) (Table 2.5.5).

For children aged 0–4 for whom a place of occurrence was specified (*n* = 287), almost all poisoning by other substances occurred in the home (93.0%; *n* = 267).

Table 2.5.5: Place of occurrence for cases of poisoning by other substances, Australia, 2006–07

Place	Persons	Per cent
Home	736	60.7
Residential institution	23	1.9
School	27	2.2
Health service area	12	1.0
Other specified institution and public administrative area	9	0.7
Sports and athletics area	6	0.5
Street and highway	16	1.3
Trade and service area	145	12.0
Industrial and construction area	132	10.9
Farm	34	2.8
Other specified place of occurrence	73	6.0
Total	**1,213**	**100**

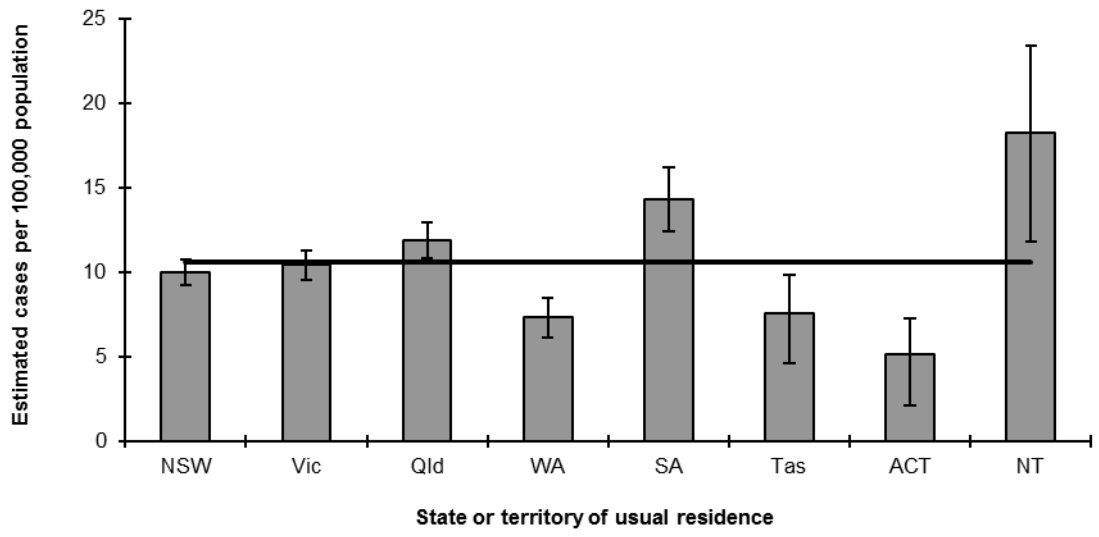
State and territory differences

The lowest rates of hospitalised poisoning by other substances were observed for residents of Western Australia and the Australian Capital Territory; Tasmania also had rates that were below the national rate (Table 2.5.6 and Figure 2.5.3). The highest rates were found in Queensland, South Australia and the Northern Territory.

Table 2.5.6: Age-standardised cases of poisoning by other substances, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	10.0	9.3–10.8
Vic	10.4	9.6–11.3
Qld	11.9	10.9–13.0
WA	7.3	6.2–8.5
SA	14.3	12.4–16.2
Tas	7.6	5.3–10.5
ACT	5.1	3.1–8.1
NT	18.3	13.2–24.7
Australia	**10.6**	**10.2–11.1**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



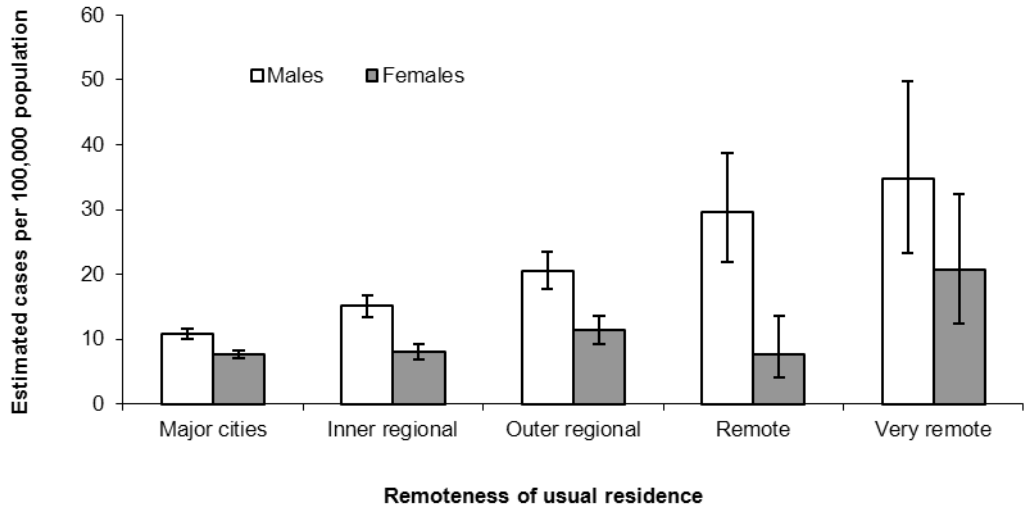
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.5.3: Age-standardised cases of poisoning by other substances, states and territories, 2006–07

Remoteness of usual residence

The age-standardised rate of poisoning by other substances in 2006–07 varied according to remoteness of the person's place of usual residence; the lowest rate was observed for residents of Australia's *Major cities* (9.1 per 100,000 population) and the highest rate was observed for residents of Australia's *Very remote* regions (28.4 per 100,000). This was similar to the 2004–05 report where the highest rates were seen for residents of *Very remote* Australia. Figure 2.5.4 illustrates the significant gender differences in rates for *Major cities*, inner- and outer-regional and *Remote* areas. For both males and females, rates were highest for residents in *Very remote* areas (34.9 and 21.3 per 100,000 population, respectively).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.5.4: Age-standardised cases (± 95% CI) of poisoning by other substances: males and females by remoteness of usual residence (ASGC regions), 2006–07

2.6 Falls

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: W00–W19

Table 2.6.1: Key indicators for fall cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to falls[(a)]	67,788	86,732	154,523
Percentage of all community injury separations	27.9	49.9	37.1
Estimated cases[(b)]	62,054	78,696	140,752
Crude rate/100,000 population	598.6	750.5	675.0
Age-standardised rate/100,000 population[(c)]	622.4	644.5	646.5
Total patient days[(d)]	305,979	546,835	852,842
Mean length of stay (days)	4.9	6.9	6.1

(a) Includes separations for which no sex was reported.

(b) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(c) Standardised to the Australian estimated resident population 30th June 2001.

(d) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This chapter covers hospitalised injury due to unintentional falls. Falls were responsible for 37.1% of all community injury hospitalisations in the financial year 2006–07 (Table 2.6.1).

This chapter does not include falls due to intentional self-harm (*n* = 108), assault (*n* = 25) or falls of undetermined intent (*n* = 35), falls inside or from trains or trams (*n* = 69), non-collision pedal or motorcycle accidents which can include falls (*n* = 11,417), falls from watercraft (*n* = 52), fall in, on or from aircraft (*n* = 3), parachutist accidents (*n* = 37) falls from animals or animal-driven vehicles (*n* = 2,339), exposure to uncontrolled fire in a building or structures which can include falls (*n* = 178), or falls into water that resulted in drowning or other effects of immersion (*n* = 172).

Age and sex distribution

Age-standardised cases of hospitalised fall cases were lower for males than for females (622.4 versus 644.5 per 100,000 population, respectively) with a M:F rate ratio of 0.97:1.

For both males and females, age-specific rates increased in an exponential pattern from about 65 (Figure 2.6.1). At younger ages males had slightly higher rates than females. However, older females had higher rates of hospitalised falls injury than males at ages older than about 65.

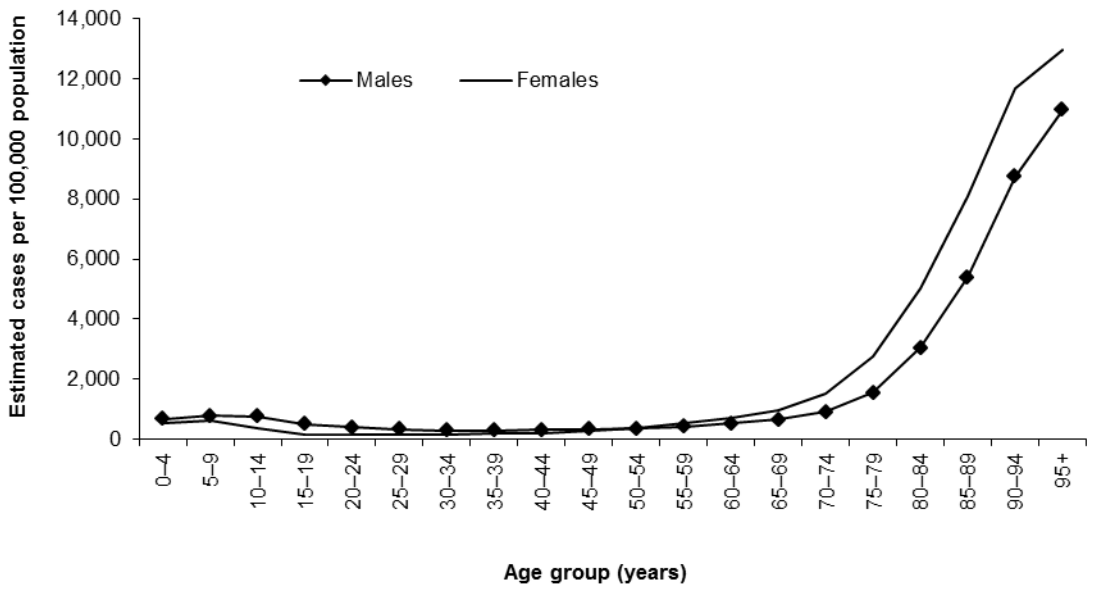


Figure 2.6.1: Age-specific cases of falls by sex, Australia, 2006–07

Half of all fall injuries occurred in elderly adults aged 65+ and 17.7% occurred in children aged 0–14 (Table 2.6.2). More than twice as many females aged 65+ sustained a fall injury compared with males aged 65+.

Table 2.6.2: Fall cases by age group, Australia, 2006–07

	Males		Females		Persons[(a)]	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–14	15,179	24.5	9,746	12.4	24,925	17.7
15–24	6,620	10.7	2,137	2.7	8,757	6.2
25–44	8,911	14.4	5,260	6.7	14,171	10.1
45–64	9,996	16.1	11,157	14.2	21,153	15.0
65+	21,348	34.4	50,396	64.0	71,746	51.0
Total	**62,054**	**100**	**78,696**	**100**	**140,752**	**100**

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

Mechanism

Falls on the same level from slipping, tripping and stumbling accounted for one quarter of all hospitalised accidental fall injuries (*n* = 35,845) (Table 2.6.3). Most were recorded as *fall on the same level from tripping* (15.1% of all fall injuries, *n* = 21,239). While *fall from slipping* and *fall from stumbling* accounted for 8.1% (*n* = 11,336) and 2.3% (*n* = 3,270) of cases, respectively.

Almost two-thirds of *falls on the same level from slipping, tripping and stumbling* involved older people aged 65+ (64.9% of falls from slipping, tripping and stumbling, *n* = 23,253), of which 14,713 cases were *fall on the same level from tripping* (males *n* = 3,657; females *n* = 11,056); 6,151 cases (males *n* = 1,586; females *n* = 4,565) were *fall on the same level from slipping* and 2,389 cases were *fall on the same level from stumbling* (males *n* = 714; females *n* = 1,675).

Overall, females outnumbered males 2.1:1 however, in the 65+ age category females outnumbered males almost 3:1 (males *n* = 5,957; females *n* = 17,296).

Other fall on same level accounted for 16.9% of all hospitalised accidental fall injuries (*n* = 23,853), this category included fall from bumping against object (*n* = 1,661); fall from or off toilet (*n* = 741); fall in or into bathtub or shower (*n* = 378); other specified fall on same level (*n* = 15,996) and unspecified fall on same level (*n* = 31,497).

Seven per cent of fall injuries (*n* = 9,787) were a *fall on and from stairs and steps* and 46.5% of such cases occurred in older people aged 65+ (males *n* = 1,437; females *n* = 3,118).

Falls involving furniture (beds, chairs and other furniture, W06–W08) were reported in 7.1% of cases. As with other external cause categories, the proportion of cases was highest in people > 65 (56.5%, *n* = 5,658), however, those aged 0–14 also accounted for 29.0% of cases (*n* = 2,903).

A *fall involving playground equipment* accounted for only 4.4% of all fall injuries (*n* = 6,217), yet it was the most common mechanism of injury for children aged 0–14 (*n* = 5,934), with 23.8% of child fall injuries being from playground climbing equipment for example, the monkey bar or jungle gym (males *n* = 936; females *n* = 1,097) and trampolines (males *n* = 850; females *n* = 742).

Males outnumbered females 4.2:1 for fall injuries due to *fall on and from ladder*, 23.4:1 for *fall on and from scaffolding*, 3.8:1 for *fall from, out of or through building or structure*, 3.1:1 for *fall from tree*, 2.3:1 for *fall from cliff* and 3.8:1 for *diving and jumping into water*. Likewise males outnumbered females by 2.6:1 for fall injuries in the category *fall involving ice-skates, roller-skates, skateboards, scooters and other public conveyances*. Almost half of these were attributed to skateboards (45.9%) with the majority of cases being male (90.4%, *n* = 1,422). Children aged 0–14 accounted for most of the hospitalised falls involving non-powered scooters (88.4%, *n* = 420). Conversely, people aged 65+ accounted for more than half of hospitalised fall cases involving powered scooters (*n* = 195, 57.0%).

Table 2.6.3: External causes of fall injury by sex, Australia, 2006–07

ICD-10-AM Code	External cause	Males		Females		Persons[a]	
		Count	Per cent	Count	Per cent	Count	Per cent
W00	Fall on same level involving ice and snow	12	0.0	25	0.0	37	0.0
W01.0	Fall on same level from slipping	3,772	6.1	7,564	9.6	11,336	8.1
W01.1	Fall on same level from tripping	6,535	10.5	14,704	18.7	21,239	15.1
W01.2	Fall on same level from stumbling	1,208	1.9	2,062	2.6	3,270	2.3
W01	*All fall on same level from slipping, tripping and stumbling*	*11,515*	*18.6*	*24,330*	*30.9*	*35,845*	*25.5*
W02.0	Fall involving roller skates	177	0.3	179	0.2	356	0.3
W02.1	Fall involving skateboard	1,422	2.3	151	0.2	1,573	1.1
W02.2	Fall involving water ski	65	0.1	14	0.0	79	0.1
W02.3	Fall involving snow ski	104	0.2	84	0.1	188	0.1
W02.4	Fall involving snow board	98	0.2	35	0.0	133	0.1
W02.5	Fall involving ice skates	55	0.1	97	0.1	152	0.1
W02.6	Fall involving non-powered scooter	285	0.5	190	0.2	475	0.3
W02.7& W02.8	Fall involving baby carriage (W02.7) or baby walker (W02.8)	76	0.1	53	0.1	129	0.1
W02.9	Fall involving other & unspecified public conveyance (including powered scooter)	194	0.3	148	0.2	342	0.2
W02	*All fall involving ice-skates, skis, roller-skates, skateboards, scooters and other public conveyances*	*2,476*	*4.0*	*951*	*1.2*	*3,427*	*2.4*
W03	Other fall on same level due to collision with, or pushing by, another person	2,978	4.8	617	0.8	3,595	2.6
W04	Fall while being carried or supported by other persons	245	0.4	255	0.3	500	0.4
W05	Fall involving wheelchair	331	0.5	421	0.5	752	0.5
W06	Fall involving bed	1,833	3.0	3,010	3.8	4,843	3.4
W07	Fall involving chair	1,669	2.7	2,632	3.3	4,301	3.1
W08	Fall involving other furniture	445	0.7	418	0.5	863	0.6
W09.0	Fall involving tree house	49	0.1	44	0.1	93	0.1
W09.1	Fall involving flying fox	195	0.3	190	0.2	385	0.3
W09.2	Fall involving playground climbing apparatus	944	1.5	1,101	1.4	2,045	1.5
W09.3	Fall involving slide	312	0.5	205	0.3	517	0.4
W09.4	Fall involving swing	316	0.5	254	0.3	570	0.4
W09.5	Fall involving seesaw	19	0.0	28	0.0	47	0.0
W09.6	Fall involving trampoline	937	1.5	773	1.0	1,710	1.2
W09.8	Fall involving other specified playground equipment	227	0.4	108	0.1	335	0.2
W09.9	Fall involving unspecified playground equipment	319	0.5	196	0.2	515	0.4
W09	*All fall involving playground equipment*	*3,318*	*5.3*	*2,899*	*3.7*	*6,217*	*4.4*

(continued)

Table 2.6.3 (continued): External causes of fall injury by sex, Australia, 2006–07

ICD-10-AM Code	External cause	Males		Females		Persons[a]	
		Count	Per cent	Count	Per cent	Count	Per cent
W10	Fall on and from stairs and steps	3,844	6.2	5,943	7.6	9,787	7.0
W11	Fall on and from ladder	3,177	5.1	758	1.0	3,935	2.8
W12	Fall on and from scaffolding	304	0.5	13	0.0	317	0.2
W13	Fall from, out of or through building or structure	3,024	4.9	786	1.0	3,810	2.7
W14	Fall from tree	847	1.4	270	0.3	1,117	0.8
W15	Fall from cliff	266	0.4	114	0.1	380	0.3
W16	Diving or jumping into water causing injury other than drowning or submersion	383	0.6	101	0.1	484	0.3
W17	Other fall from one level to another	3,488	5.6	1,704	2.2	5,192	3.7
W18	Other fall on same level	9,830	15.8	14,022	17.8	23,853	16.9
W19	Unspecified fall	12,069	19.4	19,427	24.7	31,497	22.4
Total		**62,054**	**100**	**78,696**	**100**	**140,752**	**100**

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

Figure 2.6.2 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 700 for clarity.

At ages 0–9, playground equipment was the most common cause of hospitalised fall cases for both males and females. The age-specific rate for those aged 5–9 was more than four times as high as than the next most common cause of fall injuries, that is, falls on the same level from slipping, tripping and stumbling (271.0 versus 64.3 per 100,000 population, respectively). The rate of playground equipment related falls was slightly higher for females than males (275.7per 100,000 versus 266.5 per 100,000, respectively).

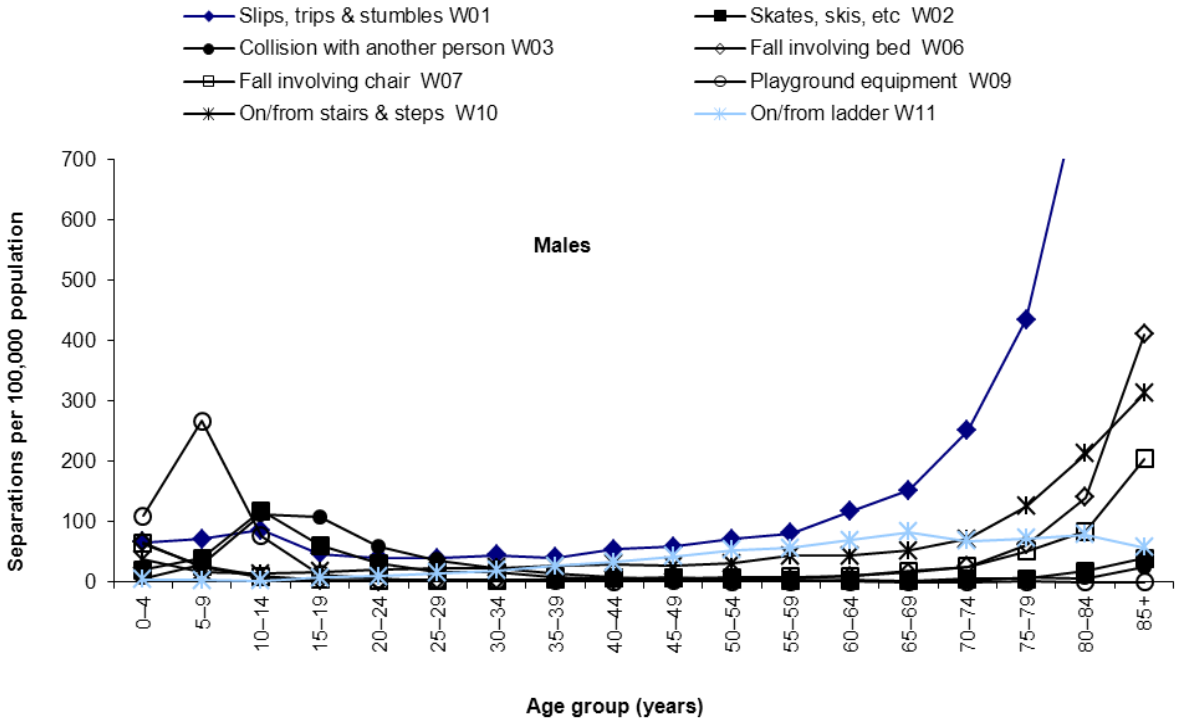
For males aged 10–14, the most frequent cause of fall related injury involved pedestrian conveyances (for example, ice-skates, skis, roller-skates or skateboards) (117.4 per 100,000). This was followed by falls on the same level due to collision with, or pushing by, another person (111.1 per 100,000). For females in this age group the most frequent cause of injury was from falls involving playground equipment (60.6 per 100,000) followed by falls on the same level from slipping, tripping and stumbling (53.6 per 100,000).

While the rates for injuries associated with falls due to collision with, or pushing by, another person were highest in those aged 10–14 was also the most common cause of fall injuries for males in the 15–19 and 20–24 age groups (107.2 per 100,000 and 58.2 per 100,000). Among males aged 25–29, slipping, tripping and stumbling was the most common cause of falls (age-specific rate of 38.5 per 100,000 population), and this continued as the predominant cause of injury in older age groups, incrementally increasing up to 1,875.0 per 100,000 in males aged 85+. The second most frequent cause of fall related injury, for males aged between 35 and 74, involved a fall from a ladder (with age-specific rates ranging from 26.6 per 100,000 in the 35–39 age group to a high of 82.6 per 100,000 in the 65–69 age group).

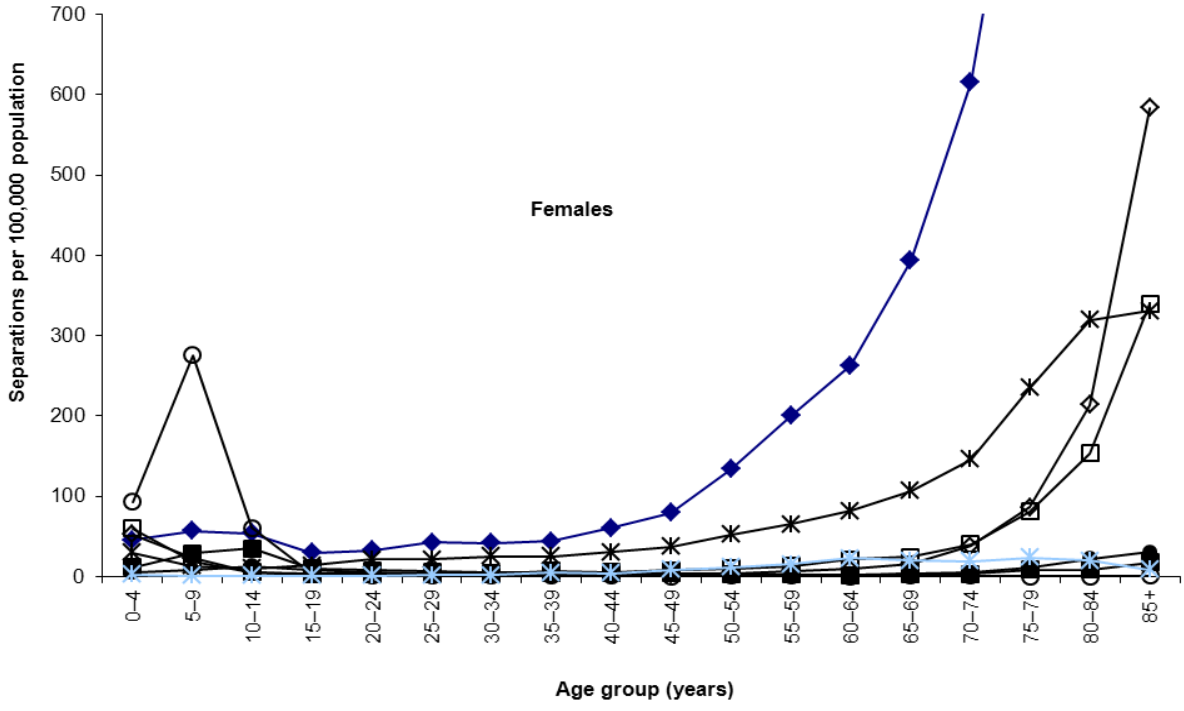
The most common cause of injury in females aged 15–19 was slipping, tripping and stumbling (29.8 per 100,000 population). This remained the predominant cause of injury for females increasing in an exponential pattern, particularly across the older ages, to a peak of 2,847.6 per 100,000 in the 85+ age group.

Falls from a bed or a chair were associated with non-trivial rates of injuries in young children aged 0–4 (59.2 per 100,000 and 61.3 per 100,000 population, respectively). Rates were low between the ages of 10 and 64, followed by a marked increase in both from 65+. Age-specific rates for falls involving a bed were highest for females aged 85+ (583.6 per 100,000) compared with males aged 85+ (410.0 per 100,000). Similarly, rates in this age group for falls involving a chair were highest for females (340.0 per 100,000) compared with males (204.1 per 100,000).

As can be seen in Figure 2.6.2 a similar pattern was observed for falls from stairs. Rates rose sharply for males from 70+ and for females from 65+. Rates peaked for both sexes in the 85+ age group with 312.0 per 100,000 for males and 330.6 per 100,000 for females.



W01: 80-84 years: 859 per 100,000 population
W01: 85+ years: 1,875 per 100,000 population



W01: 75-79 years: 1,035 per 100,000 population
W01: 80-84 years: 1,755 per 100,000 population
W01: 85+ years: 2,848 per 100,000 population

Figure 2.6.2: Age-specific cases of fall injury by sex, Australia, 2006–07

Principal diagnosis and body part injured

Injuries to the hip and lower limb were the most commonly reported body region associated with hospitalised falls (33.0% of cases) (Table 2.6.4). More than half of these, were injuries to the hip and thigh (53.4%, *n* = 24,792). Similarly, while 31.8 % of fall related injuries involved the shoulder and upper limb, 57.8% (*n* = 25,869) of these were injuries to the elbow and forearm. Head injuries were the third most commonly reported principal diagnosis (20.0%, *n* = 28,102).

Injuries to the hip and lower limb (37.0%) were the most commonly reported body region in females; of these, 59.1% (*n* = 17,199) involved the hip and thigh. For males the shoulder and upper limb accounted for 33.3% of injuries, predominantly injuries to the elbow and forearm (*n* = 11,719).

Table 2.6.4: Principal diagnosis by body region for fall injury, Australia, 2006–07

	Males		Females		Persons[(a)]	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	14,696	23.7	13,406	17.0	28,102	20.0
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	8,848	14.3	11,492	14.6	20,340	14.5
Shoulder and upper limb	20,669	33.3	24,079	30.6	44,750	31.8
Hip and lower limb	17,285	27.9	29,119	37.0	46,404	33.0
Other injuries not specified by body region	556	0.9	600	0.8	1,156	0.8
All body regions	**62,054**	**100.0**	**78,696**	**100.0**	**140,752**	**100.0**

(a) Persons includes cases for which sex was not reported.

Fractures were the most commonly reported injury type due to a fall in every age group and for both males and females (60.7%, *n* = 85,476). The highest proportion was seen among children aged 0–14 (64.7% of injuries in this age group, *n* = 16,124). Specifically, *fracture of forearm* (*n* = 10,294) was the most common injury site, followed by *fracture of shoulder and upper arm* (*n* = 2,869) and *open wound of head* (*n* = 2,421).

Among youth and young people aged 15–24 injured by a fall (*n* = 8,757), *fracture of forearm* (*n* = 1,554) was the most common injury, followed by *fracture of lower leg, including ankle* (*n* = 1,322) and *intracranial injury* (*n* = 681).

For adults aged 25–44 of age (*n* = 14,171), *fracture of lower leg, including ankle* (*n* = 2,450), *fracture of forearm* (*n* = 2,129) and *open wound of head* (*n* = 889) were the most common fall injuries.

Among adults aged 45–64 (*n* = 21,153), the most common fall injuries were *fracture of forearm* (*n* = 3,771), *fracture of lower leg, including ankle* (*n* = 3,503), *fracture of shoulder and upper arm* (*n* = 1,447), *and fracture of femur* (*n* = 1,280).

For older people aged 65+ (*n* = 71,746), *fracture of femur* (*n* = 17,972) was the most common injury, followed by *fracture of forearm* (*n* = 5,900*), fracture of lumbar spine and pelvis* (*n* = 5,491) *and open wound of head* (*n* = 5,363). Eighty-nine per cent of femur fractures occurred in those aged 65+ and of these 73.4% were females.

Table 2.6.5: Top 7 specific injuries for falls, Australia, 2006–07

	Males		Females		Persons[(a)]	
Principal diagnosis	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Fracture of forearm	10,541	17.0	13,107	16.7	23,648	16.8
Fracture of femur	5,919	9.5	14,176	18.0	20,095	14.3
Fracture of lower leg, including ankle	5,165	8.3	6,887	8.8	12,052	8.6
Open wound of head	5,371	8.7	4,970	6.3	10,341	7.3
Fracture of shoulder and upper arm	3,696	6.0	6,187	7.9	9,884	7.0
Fracture of lumbar spine and pelvis	3,966	6.4	2,786	3.5	6,752	4.8
Intracranial injury	1,929	3.1	4,628	5.9	6,557	4.7
Sub-total of top 7 specific injuries	**36,587**	**59.0**	**52,741**	**67.0**	**89,329**	**63.5**

(a) Persons includes cases for which sex was not reported.

Seven specific types of injuries were seen in nearly two-thirds (*n* = 89,329) of all fall injuries (*n* = 140,752) (Table 2.6.5).

Fracture of forearm was the most common injury (16.8%) with the lower end of the radius the most frequently involved site (60.7%; *n* = 14,343).

For the second most common fall injury—*fracture of femur* (14.3%), 46.5% were neck of femur fractures (neck of femur *n* = 9,347; pertrochanteric fracture *n* = 7,524; subtrochanteric *n* = 847). There were 2.4 times as many females as males with a fractured femur.

Injuries classified as *fracture of lower leg, including ankle* commonly involved multiple fractures of the lower leg and ankle (S82.50–S82.88) (*n* = 6,390).

More than three-quarters of *shoulder and upper arm* fractures involved the upper- and lower-end of the humerus (*n* = 4,332 and *n* = 3,415, respectively).

An open wound of the scalp was most common for *open wound of head* (31.7%; *n* = 3,273).

For *fracture of lumbar spine and pelvis*, 52.6% were fracture of pubis (*n* = 3,449) and 25.1% (*n* = 1,644) were fracture of lumbar vertebra.

The most common diagnosis reported for *intracranial injury* was loss of consciousness (34.9%, *n* = 2,356), of these, nearly three quarters were loss of consciousness for less than 30 minutes (*n* = 2,290), Concussion accounted for a further 16.7 per cent of intracranial injury (*n* = 1,130). One quarter of intracranial injury cases were traumatic subdural haemorrhage (*n* = 1,686).

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, an average of 6.1 days. This reflects the long mean length of stay for falls cases at older ages (Figure 2.6.3). The mean length of stay for fall injury cases rose with age ranging from 1.6 days for children aged 0–14, 2.2 days for young people aged 15–24, 3.0 days for adults aged 25–44, 4.4 days for adults aged 45–64 and 9.2 days for older people aged 65+.

Overall, the mean length of stay for males was 2 days shorter than for females (4.9 days versus 6.9 days, respectively).

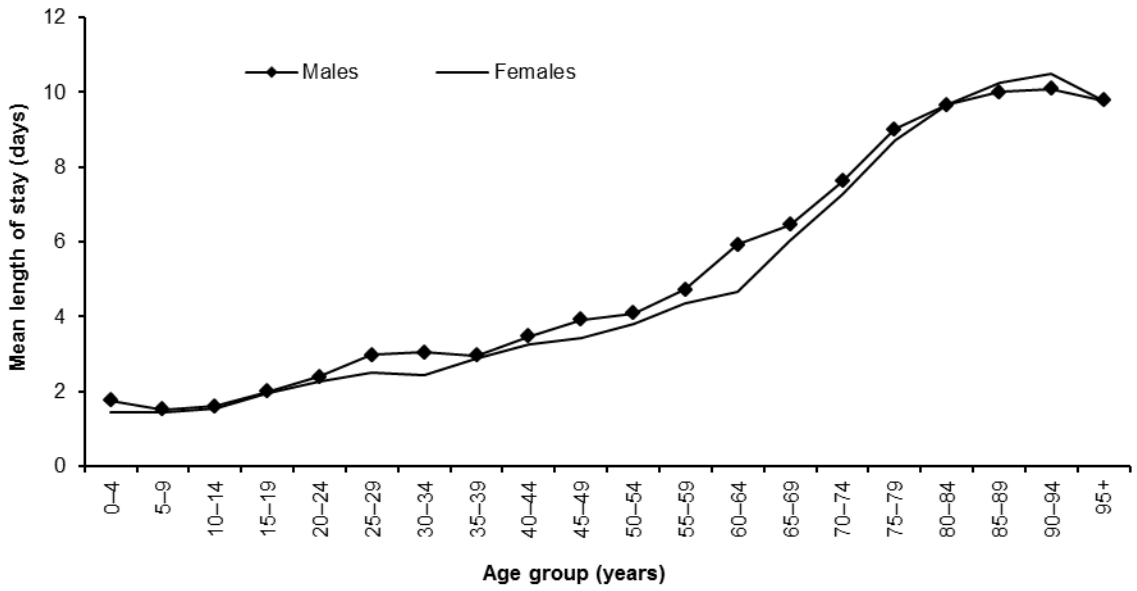


Figure 2.6.3: Length of stay per case for fall injury by age and sex, Australia, 2006–07

Place of occurrence

Most cases of hospitalised fall injury had a place of injury occurrence reported although 29.1% (*n* = 41,015) were unspecified or not reported. The following observations are restricted to those cases in which the place of occurrence was specified (Table 2.6.6).

The most commonly reported place of occurrence for hospitalised fall injuries was in or around the home for both males (31.5%) and females (42.8%). Residential institutions were the next most frequently documented place of occurrence with 12.1% of all fall injuries (*n* = 16,962). Ninety-seven per cent of falls in residential institutions occurred in aged care facilities (*n* = 16,404) and, not surprisingly, most of these falls were among those aged 65+ (*n* = 16,136) with females outnumbering males by 3.1:1. Falls that occurred in sports and athletics areas accounted for 4.3% of hospitalised cases, with males outnumbering females 3:1.

Children aged 0–14 were most likely to sustain fall injuries in the home (males: 23.3%, females: 27.5%), followed by at school (males: 17.3%, females: 16.6%), and in sports and athletic areas (males: 9.5%, females: 5.4%).

Young men (15–24) sustained fall injuries most often in sports and athletic areas (25.6%), followed by home (8.7%), whereas the location for females of the same age was most commonly at home (20.2%), followed by sports and athletic areas (12.3%).

Males aged 25–44 were most commonly injured in the home (18.1%), followed by sports and athletic areas (11.2%) and trade and service areas (4.9%). Just under 30% of females aged 25–44 were injured in the home, followed by sports and athletic areas (6.5%) and trade and service areas (6.1%).

Males and females aged 45–64 were most commonly injured in the home (33.2% and 40.6%, respectively). For males, this was followed by a street or highway (5.2%) and a trade and service area (5.0%). For females, the most common places of occurrence after the home were a trade and service area (5.6%) then a street or highway (5.5%).

Older males and females aged 65+ were most commonly injured in the home (49.1% and 48.5%, respectively) followed by residential institutions (18.7% and 24.7% respectively). Most fall injuries in residential institutions were in aged care facilities for those aged 65+ (males *n* = 3,904, females *n* = 12,232).

About 64.3% of fall injuries on a street or highway occurred on the sidewalk (males *n* = 1,361, females *n* = 2,128). A considerable proportion of fall injuries that occurred in a trade and service area were in a shop or store (males *n* = 651, females *n* = 1,600) or cafés, hotel and restaurants (males *n* = 957, females *n* = 825).

Table 2.6.6: Place of occurrence of fall injury cases by age and sex, Australia, 2006–07

Place	0–14	Per cent	15–24	Per cent	25–44	Per cent	45–64	Per cent	65+	Per cent	Total	Per cent
Males												
Home	3,540	23.3	577	8.7	1,614	18.1	3,320	33.2	10,483	49.1	19,534	31.5
Residential institution	13	0.1	15	0.2	87	1.0	197	2.0	4,001	18.7	4,313	7.0
School	2,632	17.3	228	3.4	21	0.2	23	0.2	11	0.1	2,915	4.7
Health service area	20	0.1	13	0.2	31	0.3	65	0.7	361	1.7	490	0.8
Other specified institution	72	0.5	16	0.2	32	0.4	40	0.4	99	0.5	259	0.4
Sports and athletics area	1,449	9.5	1,694	25.6	999	11.2	249	2.5	116	0.5	4,507	7.3
Street and highway	152	1.0	243	3.7	374	4.2	522	5.2	1,064	5.0	2,355	3.8
Trade and service area	203	1.3	246	3.7	435	4.9	501	5.0	681	3.2	2,066	3.3
Industrial and construction area	13	0.1	133	2.0	355	4.0	337	3.4	38	0.2	876	1.4
Farm	21	0.1	17	0.3	44	0.5	79	0.8	96	0.4	257	0.4
Other specified places	810	5.3	535	8.1	614	6.9	504	5.0	396	1.9	2,859	4.6
Total	**15,179**	**100**	**6,620**	**100**	**8,911**	**100**	**9,996**	**100**	**21,348**	**100**	**62,054**	**100**
Females												
Home	2,684	27.5	432	20.2	1,565	29.8	4,529	40.6	24,458	48.5	33,668	42.8
Residential institution	12	0.1	12	0.6	39	0.7	148	1.3	12,438	24.7	12,649	16.1
School	1,617	16.6	74	3.5	35	0.7	98	0.9	18	0.0	1,842	2.3
Health service area	n.p.	n.p.	n.p.	n.p.	59	1.1	142	1.3	740	1.5	959	1.2
Other specified institution	50	0.5	16	0.7	28	0.5	73	0.7	243	0.5	410	0.5
Sports and athletics area	527	5.4	262	12.3	341	6.5	211	1.9	142	0.3	1,483	1.9
Street and highway	84	0.9	77	3.6	203	3.9	609	5.5	2,097	4.2	3,070	3.9
Trade and service area	141	1.4	171	8.0	321	6.1	625	5.6	1,633	3.2	2,891	3.7
Industrial and construction area	n.p.	n.p.	n.p.	n.p.	29	0.6	26	0.2	11	0.0	83	0.1
Farm	10	0.1	6	0.3	11	0.2	48	0.4	42	0.1	117	0.1
Other specified places	471	4.8	156	7.3	291	5.5	530	4.8	684	1.4	2,132	2.7
Total	**9,746**	**100**	**2,137**	**100**	**5,260**	**100**	**11,157**	**100**	**50,396**	**100**	**78,696**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Note: Cases are restricted to those where place of occurrence is specified.

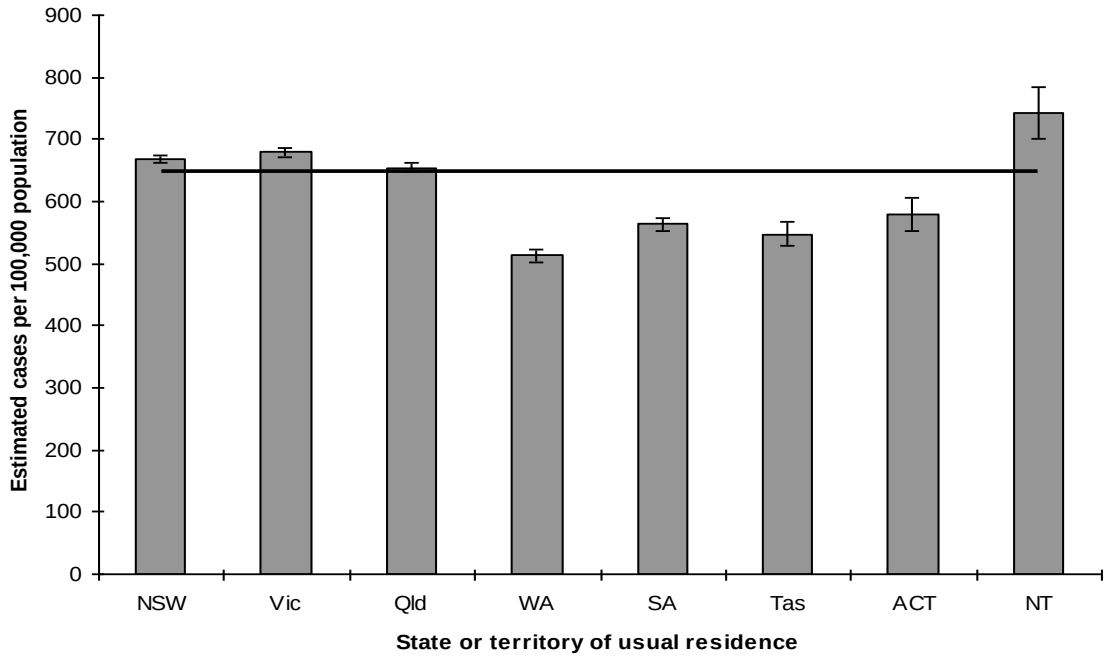
State and territory differences

Residents of New South Wales, Victoria and the Northern Territory had rates of hospitalised fall injury that were a little above the national rate (Table 2.6.7 and Figure 2.6.4). Queensland residents had a rate that was similar to the national rate (646.5; 95% CI: 643.1–649.9). The lowest rates of hospitalised fall injury were found in Western Australia, South Australia, Tasmania and the Australian Capital Territory. This pattern was similar to that reported in 2005–06 (Kreisfeld & Harrison 2010; Kreisfeld et al. 2004).

Table 2.6.7: Age-standardised cases of fall injury, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	667.9	662.0–673.8
Vic	679.6	672.6–686.5
Qld	653.9	646.1–661.7
WA	513.2	503.4–523.0
SA	563.7	552.7–574.6
Tas	547.4	527.6–567.2
ACT	579.8	552.5–607.1
NT	742.2	699.9–784.4
Australia	**646.5**	**643.1–649.9**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



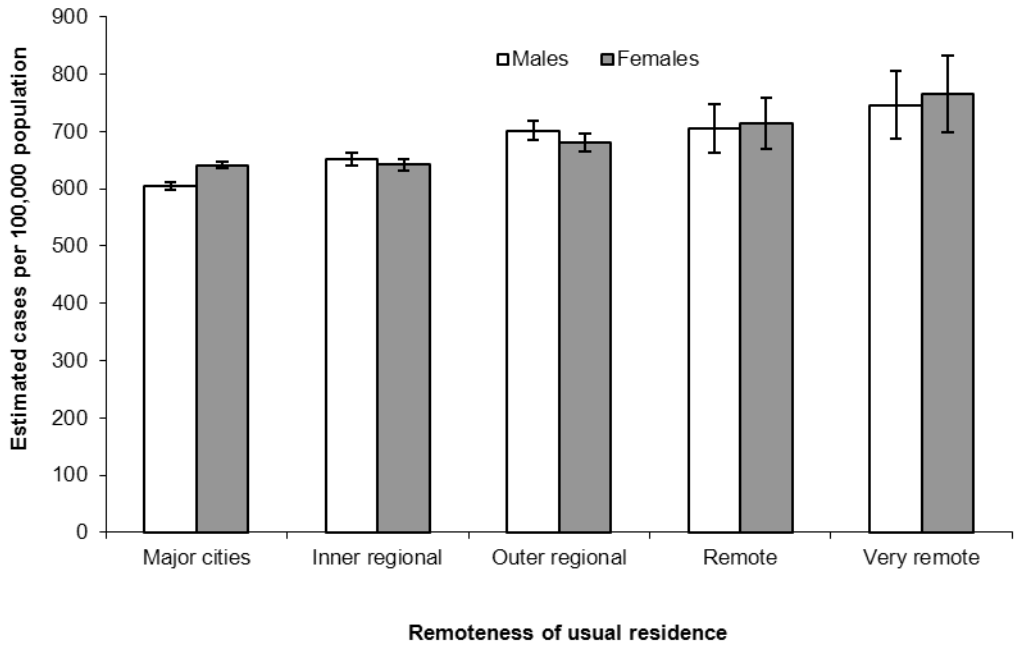
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.6.4: Age-standardised cases of fall injury, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised fall injury increased gradually and consistently across remoteness regions for both sexes (Figure 2.6.5). For persons overall, the lowest rate was found for residents of *Major cities* (637.4 per 100,000 population) while the highest rate was for residents in *Very remote* Australia (756.2 per 100,000 population). Rates for all regions are slightly higher than reported in 2004–05 (Bradley & Harrison 2008).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.6.5: Age-standardised cases (± 95% CI) of fall injury: males and females by remoteness of usual residence (ASGC regions), 2006–07

2.7 Smoke, fire, heat and hot substances

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: X00–X19

Table 2.7.1: Key indicators for smoke, fire, heat and hot substances cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to smoke, fire, heat and hot substances	4,188	2,235	6,423
Percentage of all community injury separations	1.7	1.3	1.5
Estimated cases[(a)]	3,586	1,986	5,572
Crude rate/100,000 population	34.6	18.9	26.7
Age-standardised rate/100,000 population[(b)]	34.8	19.3	27.1
Total patient days[(c)]	20,718	9,935	30,653
Mean length of stay (days)	5.8	5.0	5.5

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

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. Smoke, fire, heat and hot substances injury accounted for around 2% of all community injury hospitalisations in the financial year 2006–07 (Table 2.7.1).

This chapter does not include injuries due to explosion and rupture of boilers (n = 14), explosion and rupture of gas cylinder (n = 135), discharge of fireworks (n = 49), explosion of other materials (for example, munitions, blasting material) (n = 239), exposure to electric current (n = 534), exposure to extreme heat of man-made origin, natural heat or volcanic eruption (n = 350), sunlight (n = 16), or lightning (n = 38), all of which are covered by Chapter 2.8. Injuries attributable to intentional self-harm by explosive material (n = 1), smoke, fire and flames (n = 55) 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 = 6), smoke, fire and flames (n = 23) or steam, hot vapours and hot objects (n = 40) are covered by Chapter 2.10 as are injuries from legal interventions involving explosives (n = 0), war operations involving explosions and fragments (n = 0), 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 = 2) are included in Chapter 2.11.

Age and sex distribution

More males than females were injured by smoke, fire, heat and hot substances (based on age-standardised rates) by 1.8:1 (Figure 2.7.1). Rates were highest for young children aged 0–4 (males: 123.9 per 100,000, females: 89.2 per 100,000).

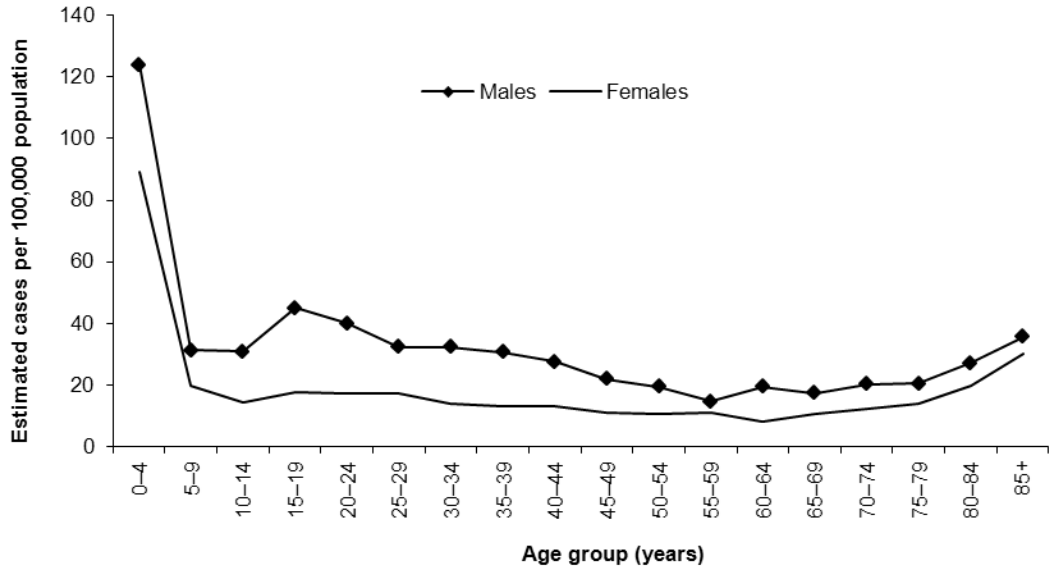


Figure 2.7.1: Age-specific cases of smoke, fire, heat and hot substances injury by sex, Australia, 2006–07

Over one-third of those injured were children aged 0–14; young children aged 0–4 comprised a quarter of injury cases due to smoke, fire, heat and hot substances. Slightly less than a quarter of cases were adults aged 25–44, whereas less than 10% of those injured were older people aged 65+ (Table 2.7.2).

Table 2.7.2: Smoke, fire, heat and hot substances cases by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	Count	Per cent	Count	Per cent	Count	Per cent
0–4	840	23.4	572	28.8	1,412	25.3
5–14	437	12.2	228	11.5	665	11.9
15–24	632	17.6	249	12.5	881	15.8
25–44	918	25.6	427	21.5	1,345	24.1
45–64	492	13.7	269	13.5	761	13.7
65+	267	7.4	241	12.1	508	9.1
Total	**3,586**	**100**	**1,986**	**100**	**5,572**	**100**

External cause

For all ages, *contact with hot drinks, foods, fats and cooking oils* (22.2%) was the leading cause of hospitalised burns and scalds injuries, followed by *contact with other hot fluids* for example, water heated on a stove (13.0%) and *exposure to ignition of highly flammable material* for example, gasoline, kerosene, petrol (12.7%) (Table 2.7.3). 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* (17.9% for males and 29.9% for females), the second most common cause of hospitalisation for males was *exposure to ignition of highly flammable materials* (17.5%) whereas for females it was *contact with other hot fluids* (16.1%).

Table 2.7.3: External causes of smoke, fire, heat and hot substances injury by sex, Australia, 2006–07

		Males		Females		Persons	
ICD-10-AM Code	External cause	Count	Per cent	Count	Per cent	Count	Per cent
X00	Exposure to uncontrolled fire in building or structure	112	3.1	66	3.3	178	3.2
X01	Exposure to uncontrolled fire, not in building or structure (for example, forest fire)	55	1.5	14	0.7	69	1.2
X02	Exposure to controlled fire in building or structure (for example, fireplace, stove)	79	2.2	45	2.3	124	2.2
X03	Exposure to controlled fire, not in building or structure (for example, camp-fire)	223	6.2	58	2.9	281	5.0
X04	Exposure to ignition of highly flammable material (for example, gasoline, kerosene, petrol)	629	17.5	76	3.8	705	12.7
X05	Exposure to ignition or melting of nightwear	5	0.1	6	0.3	11	0.2
X06	Exposure to ignition or melting of other clothing and apparel	58	1.6	30	1.5	88	1.6
X08	Exposure to other specified smoke, fire and flames	104	2.9	48	2.4	152	2.7
X09	Exposure to unspecified smoke, fire and flames	287	8.0	119	6.0	406	7.3
X10	Contact with hot drinks, food, fats and cooking oils	641	17.9	594	29.9	1,235	22.2
X11	Contact with hot tap-water	202	5.6	207	10.4	409	7.3
X12	Contact with other hot fluids (for example, water heated on stove)	402	11.2	320	16.1	722	13.0
X13	Contact with steam and hot vapours	125	3.5	31	1.6	156	2.8
X14	Contact with hot air and gases	15	0.4	8	0.4	23	0.4
X15	Contact with hot household appliances	180	5.0	126	6.3	306	5.5
X16	Contact with hot heating appliances, radiators and pipes	138	3.8	65	3.3	203	3.6
X17	Contact with hot engines, machinery and tools	100	2.8	31	1.6	131	2.4
X18	Contact with other hot metals	60	1.7	13	0.7	73	1.3
X19	Contact with other and unspecified heat and hot substances	171	4.8	129	6.5	300	5.4
Total		**3,586**	**100**	**1,986**	**100**	**5,572**	**100**

Admission to hospital due to *exposure to ignition of highly flammable material* was the most common cause of smoke, fire, heat and hot substances injury in those aged 15–24 and 25–44 (n = 231 and n = 239, respectively). The majority of these cases were males (90.9%).

The main causes of smoke, fire, heat and hot substances injury in older people aged 65+ were *contact with hot drinks, food, fats and cooking oils* (n = 91; 1.6% of all fires, burns and scalds cases), *contact with other hot fluids* (n = 63; 1.1% of all cases), and *contact with hot tap-water* (n = 60; 1.1% of all cases).

There were eleven cases of *exposure to ignition or melting of nightwear*. Most were in adults aged 35 and older (n = 8) with 3 cases in children aged less than nine.

Young children aged 0–4

One quarter of smoke, fire, heat and hot substances injury occurred in young children aged 0–4 (n = 1,412), and most of these (83.3%) occurred before the third birthday (Table 2.7.4). Thirty-six per cent of injuries were from *contact with hot drinks, foods, fats and cooking oils* (n = 506), while one-quarter were from *contact with hot tap-water* and *contact with other hot fluids*. The number of injuries was highest at one year and declined after two years of age. The other leading causes of smoke, fire, heat and hot substances injury for young children were *contact with hot household appliances* such as hotplates, stoves and toasters (13.7% of all smoke, fire, heat and hot substances injury cases in children 0–4) and *contact with hot heating appliances* such as radiators and pipes (5.2% of all cases in children 0–4).

Table 2.7.4: Top 6 mechanisms of smoke, fire, heat and hot substances for young children aged 0–4, Australia, 2006–07

ICD-10-AM Code	External cause	Age						
		< 1	1	2	3	4	Total	Per cent
X10	Contact with hot drinks, food, fats and cooking oils	58	309	78	36	25	506	35.8
X12	Contact with other hot fluids (for example, water heated on stove)	33	108	43	23	18	225	15.9
X15	Contact with hot household appliances	47	93	34	13	7	194	13.7
X11	Contact with hot tap-water	33	75	23	9	10	150	10.6
X16	Contact with hot heating appliances, radiators and pipes	29	28	6	n.p.	n.p.	74	5.2
X19	Contact with other and unspecified heat and hot substances	8	27	28	n.p.	n.p.	74	5.2
	Sub-total	**208**	**640**	**212**	**98**	**65**	**1,223**	**86.6**
X00–X09, X13, X17–X18	Other	10	53	53	41	32	189	13.4
Total		**218**	**693**	**265**	**139**	**97**	**1,412**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Principal diagnosis and body part injured

The majority of Smoke, fire, heat and hot substances injuries were ascribed to the six specific sites shown in Table 2.7.5 (91.0%, *n* = 5,069). The most common site of injury for both males and females was the wrist and hand (19.7% for males and 20.3% for females). For males, injuries to the head and neck followed (18.2% of cases) while for females injuries to hip and lower leg and to the trunk accounted for 18.8% each, of cases. A small number of cases had a principal diagnosis describing *toxic effects of substances chiefly non-medicinal as to source* (*n* = 283). These were primarily gases and vapours such as carbon monoxide (T59.8 and T58).

Table 2.7.5: Top 6 specific injuries for smoke, fire, heat and hot substances, Australia, 2006–07

	Males		Females		Persons	
Principal diagnosis	**Count**	**Per cent[(a)]**	**Count**	**Per cent[(a)]**	**Count**	**Per cent[(a)]**
Burn of wrist and hand	706	19.7	403	20.3	1,109	19.9
Burn of hip and lower limb, except ankle and foot	549	15.3	374	18.8	923	16.6
Burn of head and neck	654	18.2	231	11.6	885	15.9
Burn of trunk	489	13.6	374	18.8	863	15.5
Burn of ankle and foot	444	12.4	206	10.4	650	11.7
Burn of shoulder and upper limb, except wrist and hand	414	11.5	225	11.3	639	11.5
Sub-total of top 6 diagnoses	**3,256**	**90.8**	**1,813**	**91.3**	**5,069**	**91.0**

(a) Per cent of total diagnoses.

Length of stay

Nearly two-thirds of all Smoke, fire, heat and hot substances separations had a length of stay of one day (63.8%, *n* = 3,557), this includes same-day separations (*n* = 2,075). However, a small proportion of prolonged hospital admissions of more than 100 days were also reported (0.1%, *n* = 4). The average length of stay for smoke, fire, heat and hot substances injury was 5.5 days (5.8 days for males and 5.0 days for females). This is the second longest overall length of stay for a *community injury* category in this report.

Length of stay increased with age as shown in Figure 2.7.2. The mean length of stay was shortest, at 3.2 days, for children aged 0–4 and longest at 13.6 days for older people aged 80–84.

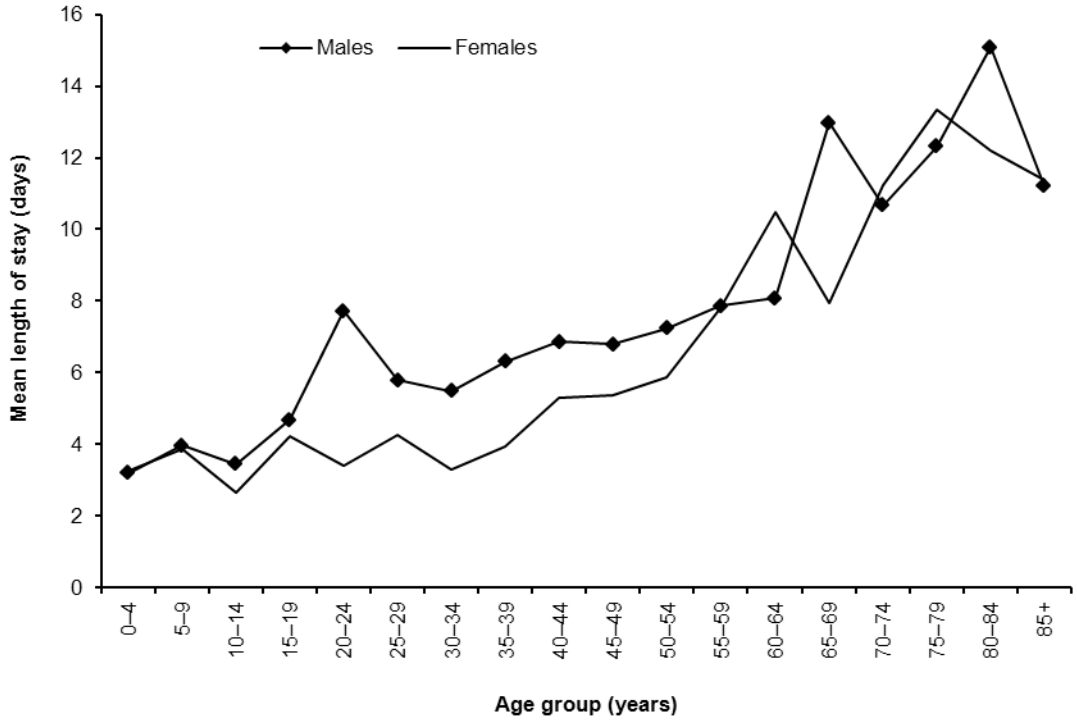


Figure 2.7.2: Length of stay per case for smoke, fire, heat and hot substances injury by age and sex, Australia, 2006–07

Place of occurrence

Location was not specified or reported for 35.1% of cases (unspecified; *n* = 1,953, not reported/not applicable; *n* = 1). The following observations are restricted to those cases in which the place of occurrence was specified. Over three-quarters of cases resulted from injuries that occurred in the home (78.9%; *n* = 2,856) (Table 2.7.6).

Of the 161 cases that occurred in a trade and service area, 101 (62.7%) occurred in a café, hotel or restaurant. Of the 127 cases that occurred in an industrial or construction area, 75 occurred in a factory or plant. Of the 46 cases that occurred in a residential institution, 30 occurred in aged care facilities.

For children aged 0–4 for whom a place of occurrence was specified (*n* = 1,102), almost all Smoke, fire, heat and hot substances injuries occurred in the home (93.0%; *n* = 1,025).

Table 2.7.6: Place of occurrence for cases of injury from smoke, fire, heat and hot substances, Australia, 2006–07

Place	Persons	Per cent
Home	2,856	78.9
Residential institution	46	1.3
School	30	0.8
Health service area	14	0.4
Other specified institution and public administrative area	7	0.2
Sports and athletics area	17	0.5
Street and highway	57	1.6
Trade and service area	161	4.4
Industrial and construction area	136	3.8
Farm	44	1.2
Other specified places	250	6.9
Total	**3,618**	**100**

Note: Cases are restricted to those where place of occurrence is specified.

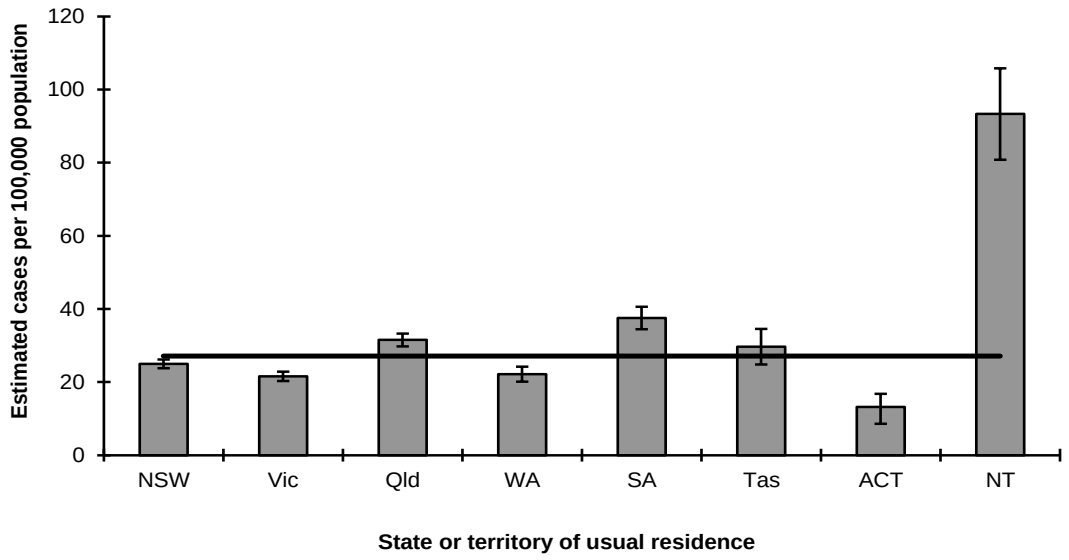
State and territory differences

Usual residents of Victoria, Western Australia and the Australian Capital Territory had rates of injury from Smoke, fire, heat and hot substances that were below the national rate (Table 2.7.7 and Figure 2.7.3). Residents of New South Wales and Tasmania had rates that were similar to the national rate. Rates that were above the national rate were found for Queensland, South Australia and the Northern Territory. Of the 214 cases of residents in the Northern Territory, more than half (56.1%, n = 120) were recorded as being Aboriginal or Torres Strait Islander persons.

Table 2.7.7: Age-standardised cases of cases of injury from smoke, fire, heat and hot substances, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	25.0	23.8–26.1
Vic	21.5	20.3–22.8
Qld	31.5	29.8–33.2
WA	22.2	20.1–24.2
SA	37.5	34.5–40.6
Tas	29.7	24.8–34.6
ACT	13.2	9.5–17.7
NT	93.3	80.8–105.8
Australia	**27.1**	**26.4–27.8**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



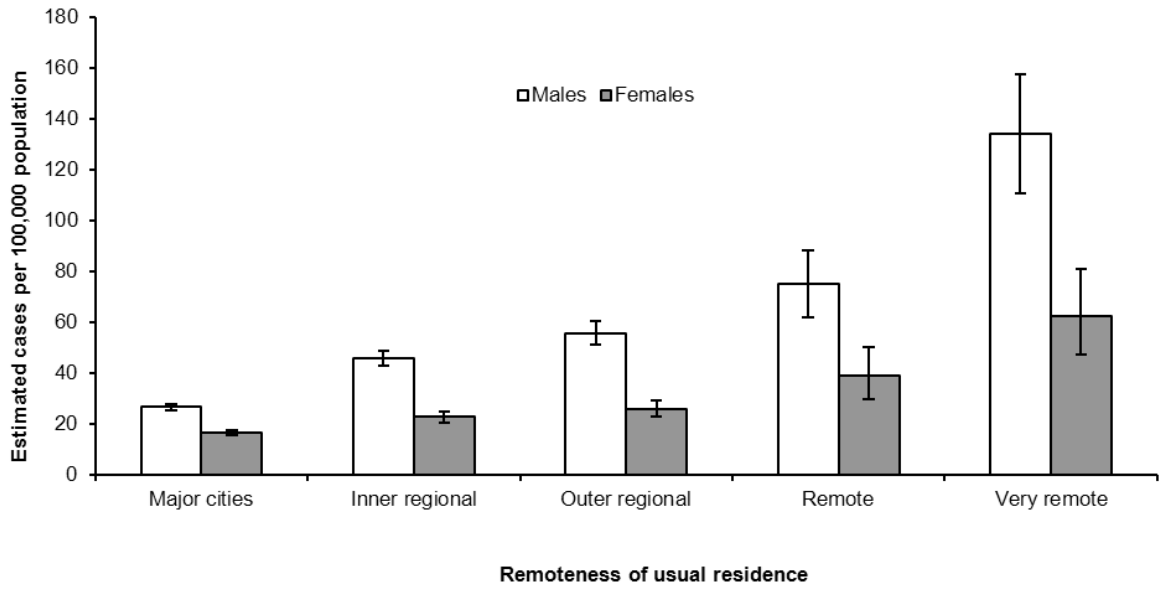
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.7.3: Age-standardised cases of smoke, fire, heat and hot substances injury, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised Smoke, fire, heat and hot substances injury increased markedly across remoteness regions for both sexes (Figure 2.7.4). For persons overall, the lowest rate was found for residents of *Major cities* (21.3 per 100,000 population) while the highest rate was or residents in *Very remote* Australia (101.9 per 100,000 population). Rates for males were significantly higher than the rates for females in each remoteness category. In the *Very remote* region, rates for males increased from 100.3 per 100,000 in 2004–05 (Bradley & Harrison 2008) to 136.4 per 100,000 population. At the same time rates for females decreased from 72.5 per 100,000 to 64.3 per 100,000 population. These trends should be interpreted with caution as they involve fairly small numbers of cases each year. More than half of the hospitalised Smoke, fire, heat and hot substances injury cases recorded as living in *Very remote* regions were from the Northern Territory (52.2%).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.7.4: Age-standardised cases (± 95% CI) of smoke, fire, heat and hot substances injury: males and females by remoteness of usual residence (ASGC regions), 2006–07

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

Table 2.8.1: Key indicators for other unintentional injury cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to other unintentional injuries	93,243	37,284	130,527
Percentage of all community injury separations	38.4	21.4	31.3
Estimated cases[(a)]	87,860	35,286	123,146
Crude rate/100,000 population	847.5	336.5	590.6
Age-standardised rate/100,000 population[(b)]	845.7	331.6	591.3
Total patient days[(c)]	170,167	90,617	260,784
Mean length of stay (days)	1.9	2.6	2.1

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This category includes all injury hospitalisation recorded as unintentional and not included in chapters 2.2 to 2.7. It includes exposure to animate and inanimate mechanical forces, accidental threats to breathing, contact with venomous animals and plants, exposure to forces of nature, and overexertion, travel and privation. Other unintentional injuries accounted for 31% of all injury hospitalisations in the financial year 2006–07 (Table 2.8.1). A summary of the key components of other unintentional injury cases 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, 2006–07

External cause	Persons	Per cent
Exposure to inanimate mechanical forces (W20–W49)	55,648	45.2
Exposure to animate mechanical forces (W50–W64)	13,592	11.0
Other accidental threats to breathing (W75–W84)	851	0.7
Exposure to electric current, radiation & extreme ambient air temperature & pressure (W85–W99)	894	0.7
Contact with venomous animals and plants (X20–W29)	3,065	2.5
Exposure to forces of nature (X30–X39)	693	0.6
Overexertion, travel and privation (X50–X57)	9,990	8.1
Accidental exposure to other and unspecified factors (X58–X59)	38,413	31.2
Total	**123,146**	**100.0**

Age and sex distribution

More males than females were injured by other unintentional injuries (based on age-standardised rates) by 2.6:1 (Figure 2.8.1). Male rates were lower in childhood and then peaked in youth and young men aged 15–24 and then steadily declined with age. Female rates were constant between the ages of 10–74 after which they increased steadily.

Figure 2.8.1: Age-specific cases of other unintentional injury by sex, Australia, 2006–07

Much of the excess in male rates, especially between the ages of 15–59, is associated with injuries that occur at work or during sport. This has been demonstrated in previous reports in this series (Bradley & Harrison 2008; Kreisfeld & Harrison 2010). Nearly three-quarters of those injured were male (71.3 %) (Table 2.8.3).

Table 2.8.3: Other unintentional injury cases by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–14	12,747	14.5	7,052	20.0	19,799	16.1
15–24	21,829	24.8	4,887	13.8	26,716	21.7
25–44	29,865	34.0	8,786	24.9	38,651	31.4
45–64	17,379	19.8	7,706	21.8	25,085	20.4
65+	6,040	6.9	6,855	19.4	12,895	10.5
Total	**87,860**	**100**	**35,286**	**100**	**123,146**	**100**

Principal diagnosis and body part injured

The shoulder and upper limb was the most commonly injured body region for other unintentional injuries (43.9%) this was followed by the hip and lower limb (26.6%) (Table 2.8.4).

Table 2.8.4: Principal diagnosis by body region for other unintentional injury, Australia, 2006–07

	Males		Females		Persons	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	11,318	12.9	4,147	11.8	15,465	12.6
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	4,645	5.3	2,661	7.5	7,306	5.9
Shoulder and upper limb	42,113	47.9	12,003	34.0	54,116	43.9
Hip and lower limb	21,197	24.1	11,566	32.8	32,763	26.6
Other injuries not specified by body region	8,587	9.8	4,909	13.9	13,496	11.0
All body regions	**87,860**	**100**	**35,286**	**100**	**123,146**	**100**

Length of stay

Mean length of stay for other unintentional injuries rose with age (Figure 2.8.2) and overall, was shorter for males (1.9 days) than for females (2.6 days); this can be attributed to the longer hospitalisations for females in the older age groups. The mean length of stay was 1.5 days for children aged 0–14, 1.6 days for young people aged 15–24, 1.8 days for adults aged 25–44, 2.1 days for adults aged 45–64 and 5.2 days for older people aged 65+.

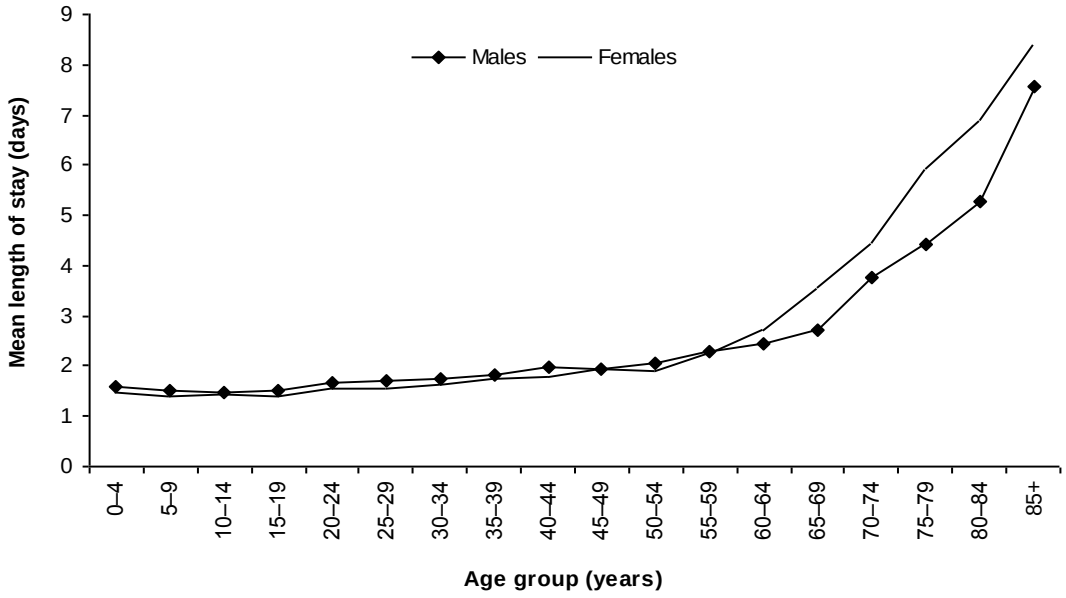


Figure 2.8.2: Length of stay per case for other unintentional injury by age and sex, Australia, 2006–07

External cause

The majority (87.4%) of unintentional hospitalised injury cases could be classified into three broad external cause categories. The most common category of external causes was *exposure to inanimate mechanical forces* (*n* = 55,648, 45.2%). This group includes W22, striking against or struck by other object (*n* = 7,760), W44, foreign body entering into or through eye or natural orifice (*n* = 6,515) and W25, contact with sharp glass (*n* = 5,880). For W22 the highest age-specific rate occurred in those aged 85 and older (81.3 per 100,000 population); this probably reflects an age-related decrease in balance and stability that is also reflected in the high rates for falls in the elderly. The highest age-specific rates for foreign bodies were seen among the youngest age groups (99.1 and 53.5 per 100,000 in those aged 0–4 and 5–9, respectively).

The second most common category, *accidental exposure to other and unspecified factors*, accounted for 31.2% (*n* = 38,413) of other unintentional hospitalised injury cases. The majority of these were attributed to unspecified factors (95.4%, *n* = 36,644).

The third most common type of external cause, for cases coded as other unintentional injury, described *exposure to animate mechanical forces* (W50–W64). Just over a quarter of these were coded as being hit, struck, kicked, twisted, bitten or scratched by another person (29.5%, *n* = 4,004), a further 24.6% were classified as striking against or bumped into by another person. This category also includes being bitten or struck by animals. Dog bites accounted for 13.5% of hospitalised injuries ascribed to animate mechanical forces (*n* = 1,841), followed by injuries related to being bitten or crushed by other reptiles (8.0%, *n* = 1,081) specifically non-venomous snakes (*n* = 337) and snakes which were not identified as being either venomous or non-venomous (*n* = 733). There were 610 cases of hospitalised injury with a first external cause code recorded as contact with a venomous snake (X20); over half of these (59.8%) involved snakes of the brown snake immunotype. A detailed analysis of hospitalised separations attributed to venomous animals and plants (Bradley 2008) is available at the AIHW website <www.aihw.gov.au> and the Research Centre for Injury Studies website <www.nisu.flinders.edu.au>.

Table 2.8.5: External causes of other unintentional injury cases, Australia, 2006–07

ICD-10-AM Code	External cause	Frequency	Per cent
W20	Struck by thrown, projected or falling object	4,899	4.0
W21	Striking against or struck by sports equipment	2,544	2.1
W22	Striking against or struck by other objects	7,760	6.3
W23	Caught, crushed, jammed or pinched in or between objects	5,623	4.6
W24	Contact with lifting and transmission devices, not elsewhere classified	580	0.5
W25	Contact with sharp glass	5,880	4.8
W26	Contact with knife, sword or dagger	3,604	2.9
W27	Contact with non-powered hand tool	1,648	1.3
W28	Contact with powered lawnmower	474	0.4
W29	Contact with other powered hand tools and household machinery	2,513	2.0
W30	Contact with agricultural machinery	389	0.3
W31	Contact with other and unspecified machinery	5,264	4.3
W32	Handgun discharge	13	0.0
W34	Discharge from other and unspecified firearms	123	0.1
W35	Explosion and rupture of boiler	14	0.0
W36	Explosion and rupture of gas cylinder	135	0.1
W37	Explosion and rupture of pressurised tyre, pipe or hose	42	0.0
W38	Explosion and rupture of other specified pressurised devices	28	0.0
W39	Discharge of firework	49	0.0
W40	Explosion of other materials	239	0.2
W41	Exposure to high-pressure jet	36	0.0
W42	Exposure to noise	n.p.	n.p.
W43	Exposure to vibration	n.p.	n.p.
W44	Foreign body entering into or through eye or natural orifice	6,515	5.3
W45	Foreign body or object entering through skin	5,376	4.4
W46	Contact with hypodermic needle	68	0.1
W49	Exposure to other and unspecified inanimate mechanical forces	1,828	1.5
W50	Hit, struck, kicked, twisted, bitten or scratched by another person	4,004	3.3
W51	Striking against or bumped into by another person	3,338	2.7
W52	Crushed, pushed or stepped on by crowd or human stampede	83	0.1
W53	Bitten by a rat	7	0.0
W54	Bitten or struck by dog	1,998	1.6
W55	Bitten or struck by other mammals	2,014	1.6
W56	Contact with marine animal	151	0.1
W57	Bitten or stung by nonvenomous insect and other nonvenomous arthropods	512	0.4
W58	Bitten or struck by crocodile or alligator	6	0.0
W59	Bitten or crushed by other reptiles	1,081	0.9
W60	Contact with plant thorns and spines and sharp leaves	243	0.2
W64	Exposure to other and unspecified animate mechanical forces	155	0.1
W75	Accidental suffocation and strangulation in bed	5	0.0
W76	Other accidental hanging and strangulation	17	0.0
W78	Inhalation of gastric contents	36	0.0
W79	Inhalation and ingestion of food causing obstruction of respiratory tract	507	0.4

(continued)

Table 2.8.5 (continued): External causes of other unintentional injury cases, Australia, 2006–07

ICD-10-AM Code	External cause	Frequency	Per cent
W80	Inhalation and ingestion of other objects causing obstruction of respiratory tract	208	0.2
W81	Confined to or trapped in a low-oxygen environment	5	0.0
W84	Unspecified threat to breathing	73	0.1
W85	Exposure to electric transmission lines	38	0
W86	Exposure to other specified electric current	346	0.3
W87	Exposure to unspecified electric current	150	0.1
W89	Exposure to man-made visible and ultraviolet light	7	0
W91	Exposure to unspecified type of radiation	n.p.	n.p.
W92	Exposure to excessive heat of man-made origin	10	0
W93	Exposure to excessive cold of man-made origin	11	0
W94	Exposure to high and low air pressure and changes in air pressure	328	0.3
W99	Exposure to other and unspecified man-made environmental factors	n.p.	n.p.
X20	Contact with venomous snakes and lizards	610	0.5
X21	Contact with venomous spiders	875	0.7
X22	Contact with scorpions	6	0
X23	Contact with hornets, wasps and bees	942	0.8
X24	Contact with centipedes and venomous millipedes (tropical)	17	0
X25	Contact with other specified venomous arthropods	294	0.2
X26	Contact with venomous marine animals and plants	287	0.2
X27	Contact with other specified venomous animals	n.p.	n.p.
X28	Contact with other specified venomous plants	n.p.	n.p.
X29	Contact with unspecified venomous animal or plant	32	0
X30	Exposure to excessive natural heat	337	0.3
X31	Exposure to excessive natural cold	234	0.2
X32	Exposure to sunlight	16	0
X33	Victim of lightning	38	0
X35	Victim of volcanic eruption	n.p.	n.p.
X36	Victim of avalanche, landslide and other earth movements	11	0
X37	Victim of cataclysmic storm	27	0
X38	Victim of flood	n.p.	n.p.
X39	Exposure to other and unspecified forces of nature	26	0
X50	Overexertion and strenuous or repetitive movements	9,924	8.1
X51	Travel and motion	50	0
X52	Prolonged stay in weightless environment	n.p.	n.p.
X53	Lack of food	10	0
X54	Lack of water	n.p.	n.p.
X57	Unspecified privation	n.p.	n.p.
X58	Exposure to other specified factors	1,769	1.4
X59	Exposure to unspecified factor	36,644	29.8
Total		**123,146**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

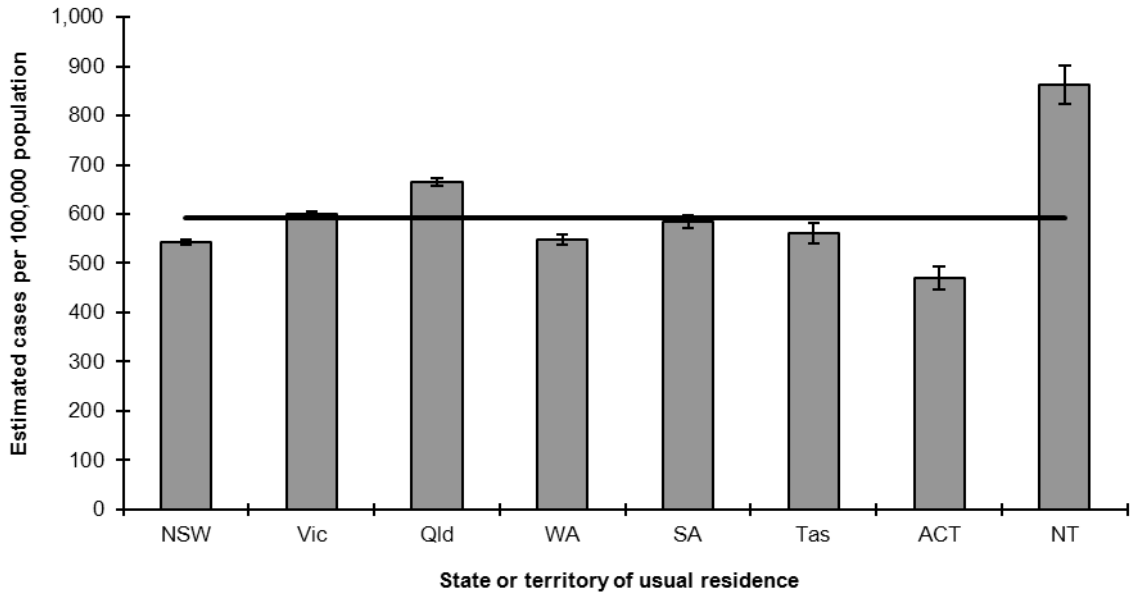
State and territory differences

Residents of New South Wales, Western Australia, Tasmania and the Australian Capital Territory had rates of other unintentional injury that were below the national rate (Table 2.8.6 and Figure 2.8.3). Victorians and South Australians had rates similar to the national rate. The highest rates of hospitalised other unintentional injury cases were found for Queensland and the Northern Territory.

Table 2.8.6: Age-standardised cases of other unintentional injury, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	543.0	537.5–548.5
Vic	599.4	592.8–606.1
Qld	665.4	657.5–673.2
WA	547.7	537.6–557.7
SA	584.3	572.3–596.3
Tas	560.8	539.7–581.9
ACT	470.6	447.7–493.6
NT	862.5	823.4–901.7
Australia	**591.3**	**588.0–594.6**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



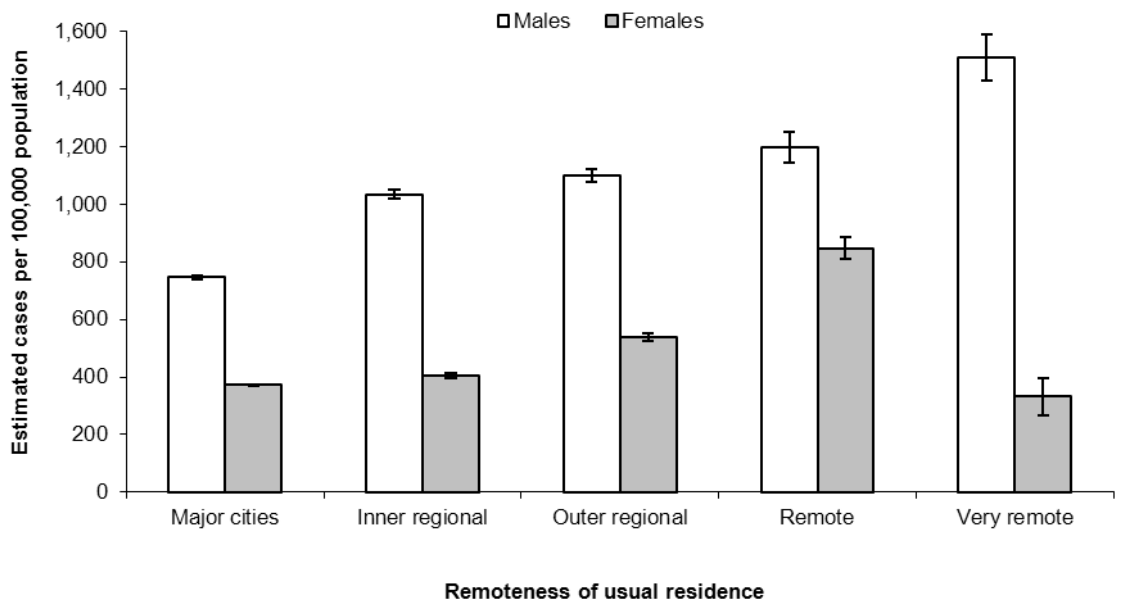
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.8.3: Age-standardised cases of other unintentional injury, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised unintentional injury increased across remoteness regions (Figure 2.8.4). As with previous chapters, overall the lowest injury rate was found for residents of *Major cities* (520.6 per 100,000 population) while the highest rate was for residents in *Remote* Australia (1,220.5 per 100,000 population). Rates for males were significantly higher than the rates for females in each remoteness category.



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.8.4: Age-standardised cases (± 95% CI) of other unintentional injury: males and females by remoteness of usual residence (ASGC regions), 2006–07

Part B: Intentional injuries

2.9 Intentional self-harm

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: X60–X84

Table 2.9.1: Key indicators for intentional self-harm cases, Australia, 2006–07

Indicator	Males	Females	Persons[a]
Separations from hospital due to intentional self-harm	9,589	15,359	24,951
Percentage of all community injury separations	3.9	8.8	6.0
Estimated cases[b]	9,070	14,688	23,761
Crude rate/100,000 population	87.5	140.1	114.0
Age-standardised rate/100,000 population[c]	87.7	142.4	114.7
Total patient days[d]	31,392	41,639	73,034
Mean length of stay (days)	3.5	2.8	3.1

(a) Includes separations and cases for which sex was not reported

(b) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(c) Standardised to the Australian estimated resident population 30th June 2001.

(d) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

Intentional self-harm accounted for 6% of all injury hospitalisations in the financial year 2006–07 (Table 2.9.1). 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 for example, self-mutilation. This chapter does not include cases where the intent was unspecified, unstated or could not be determined (see Chapter 2.11).

Age and sex distribution

Females had higher rates of hospitalised intentional self-harm compared with males up to the age of 80 (Figure 2.9.1 and Table 2.9.2). More females than males were hospitalised for intentional self-harm (142.4 per 100,000 population vs. 87.7 per 100,000 population, based on age-standardised rates) with a M:F ratio of 0.6:1. The highest age-specific rate for cases of hospitalised self-harm was for females aged 15–19 (371.1 per 100,000 population). For males, rates of hospitalised self-harm were highest in those aged 30–34 (166.4 per 100,000 population).

Due to the small number of cases of intentional self-harm coded to the 0–4 age group, these numbers have been supressed in the chart (Figure 2.9.1) but are included as a part of the 0–14 group in Table 2.9.2 (see data issues). Cases of intentional self-harm in the 0–9 age group can be subject to misinterpretation given the difficulties in assigning intent to the actions of small children. Intentional self-harm in the context of this section may not necessarily reflect suicidal intent among children.

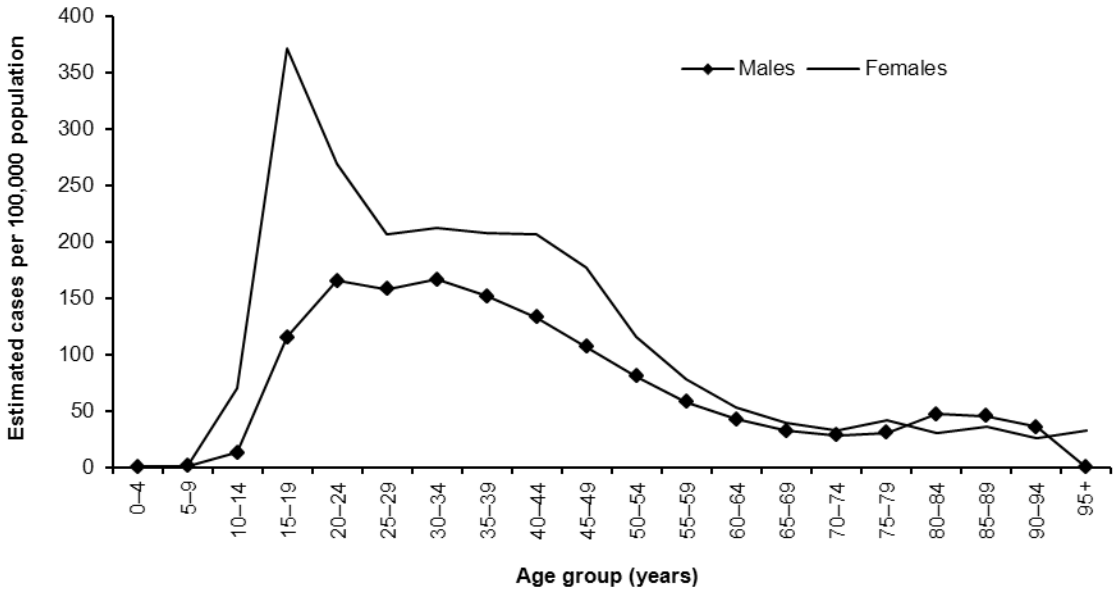


Figure 2.9.1: Age-specific cases of intentional self-harm by sex, Australia, 2006–07

Table 2.9.2: Intentional self-harm cases by age group, Australia, 2006–07

	Males		Females		Persons[(a)]	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–14	98	1.1	481	3.3	579	2.4
15–24	2,086	23.0	4,530	30.8	6,616	27.8
25–44	4,536	50.0	6,229	42.4	10,768	45.3
45–64	1,936	21.3	2,913	19.8	4,849	20.4
65+	414	4.6	535	3.6	949	4.0
Total	**9,070**	**100**	**14,688**	**100**	**23,761**	**100**

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

Principal diagnosis and body part injured

For the majority of admitted injury cases due to intentional self-harm a particular body region that was injured was not specified (Table 2.9.3). This reflects the fact that the mechanism in most cases was poisoning. The majority of intentional self-harm cases involving the shoulder and upper limb (93.4%, *n* = 2,309) had an external cause related to self-harm by a sharp object. Similarly, 72.4% of injuries to the trunk had an external cause related to self-harm by a sharp object (*n* = 536).

Table 2.9.3: Principal diagnosis by body region and sex for intentional self-harm cases, Australia, 2006–07

	Males		Females		Persons[(a)]	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	169	1.9	58	0.4	227	1.0
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	488	5.4	252	1.7	740	3.1
Shoulder and upper limb	1,206	13.3	1,266	8.6	2,472	10.4
Hip and lower limb	99	1.1	130	0.9	229	1.0
Other injuries not specified by body region	7,108	78.4	12,982	88.4	20,093	84.6
All body regions	**9,070**	**100**	**14,688**	**100**	**23,761**	**100**

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

Mechanism

There were 23,761 cases of hospitalised intentional self-harm in the financial year 2006–07 (Table 2.9.1). The majority of cases (82.2%) 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 13.3% of cases of self-harm and slightly more males than females used this method. Hanging, strangulation and suffocation accounted for 1.9% of self-harm cases (of which 69.9% were males) and shooting by handgun or firearm was even less common (0.2%—all were males).

Forty-six per cent of all cases of intentional self-harm were poisoning with antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs (n = 10,892). This category includes benzodiazepines, other and unspecified antidepressants—including 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* = 4,451; 18.7% of all cases of intentional self-harm). This category includes paracetamol, nonsteroidal anti-inflammatory drugs and salicylates such as aspirin.

Poisoning by other gases and vapours accounted for 1.3% of self-harm cases (*n* = 311). Three-quarters of these cases were males (74.6%). This category includes the toxic effects of carbon monoxide.

The profile of mechanisms reported here most likely 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 2.9.4: External cause of intentional self-harm injury cases, Australia, 2006–07

ICD-10-AM Code	External cause	Males		Females		Persons[(a)]	
		Count	Per cent	Count	Per cent	Count	Per cent
	Intentional self-poisoning by and exposure to:	6,777	74.7	12,762	86.9	19,542	82.2
X60	Nonopioid analgesics, antipyretics and antirheumatics	1,095	12.1	3,355	22.8	4,451	18.7
X61	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	3,821	42.1	7,071	48.1	10,892	45.8
X62	Narcotics and psychodysleptics [hallucinogens]	583	6.4	716	4.9	1,300	5.5
X63	Other drugs acting on the autonomic nervous system	94	1.0	129	0.9	223	0.9
X64	Other and unspecified drugs, medicaments and biological substances	592	6.5	1,005	6.8	1,597	6.7
X65	Alcohol	132	1.5	175	1.2	307	1.3
X66	Organic solvents and their halogenated hydrocarbons and their vapours	25	0.3	25	0.2	51	0.2
X67	Other gases and vapours (for example, carbon monoxide)	232	2.6	79	0.5	311	1.3
X68	Pesticides	91	1.0	43	0.3	134	0.6
X69	Other and unspecified chemicals and noxious substances	112	1.2	164	1.1	276	1.2
X70	Intentional self-harm by hanging, strangulation and suffocation	309	3.4	133	0.9	442	1.9
X71	Intentional self-harm by drowning and submersion	8	0.1	8	0.1	16	0.1
X72	Intentional self-harm by handgun discharge	12	0.1	0	0.0	12	0.1
X74	Intentional self-harm by other and unspecified firearm discharge	29	0.3	0	0.0	29	0.1
X75	Intentional self-harm by explosive material	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
X76	Intentional self-harm by smoke, fire and flames	31	0.3	24	0.2	55	0.2
X77	Intentional self-harm by steam, hot vapours and hot objects	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
X78	Intentional self-harm by sharp object	1,598	17.6	1,559	10.6	3,157	13.3
X79	Intentional self-harm by blunt object	40	0.4	17	0.1	57	0.2
X80	Intentional self-harm by jumping from a high place	60	0.7	48	0.3	108	0.5
X81	Intentional self-harm by jumping or lying before moving object	26	0.3	18	0.1	44	0.2
X82	Intentional self-harm by crashing of motor vehicle	43	0.5	26	0.2	69	0.3
X83	Intentional self-harm by other specified means	101	1.1	48	0.3	149	0.6
X84	Intentional self-harm by unspecified means	27	0.3	32	0.2	59	0.2
Total		**9,070**	**100**	**14,688**	**100**	**23,761**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

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

Length of stay

The mean length of stay for intentional self-harm cases was 3.1 days and was greater for males than females (3.5 days vs. 2.8 days). MLOS rose with age with the longest average hospital stay in persons aged 75–79 (9.0 days). Thereafter, MLOS fell slightly but still remained higher than at younger age groups (Figure 2.9.2). The mean length of stay was 2.5 days for children aged 10–14, 2.3 days for young people aged 15–24, 2.9 days for adults aged 25–44, 3.8 days for adults aged 45–64 and 7.2 days for older people aged 65+.

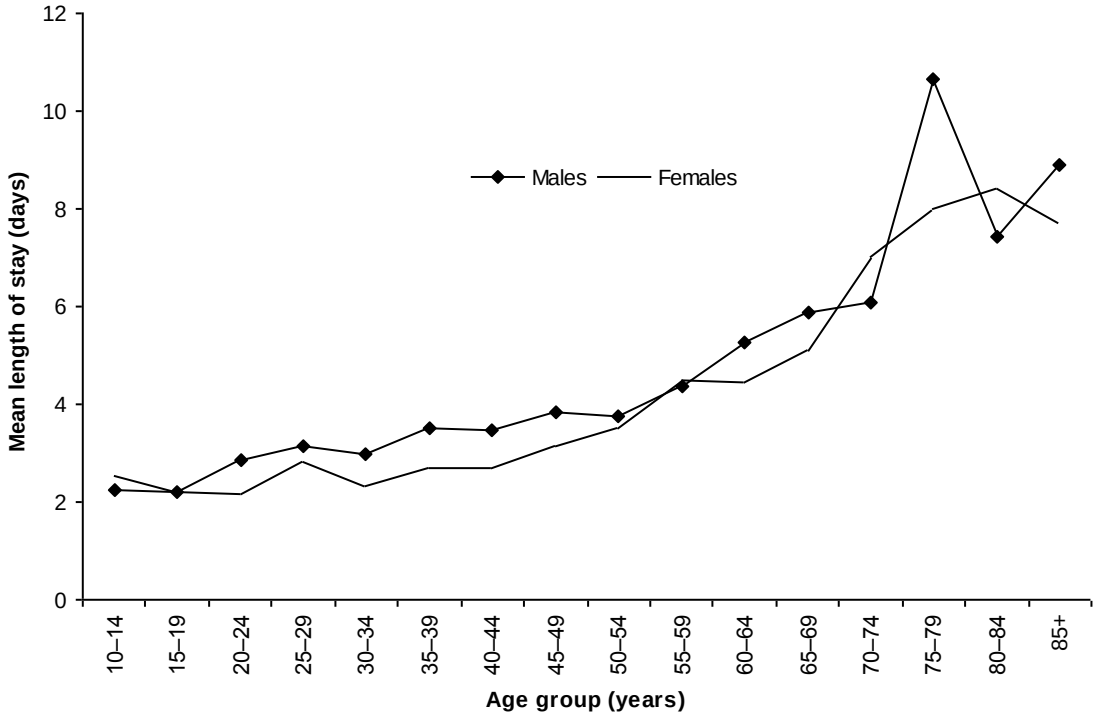


Figure 2.9.2: Length of stay per case for intentional self-harm by age and sex, Australia, 2006–07

Place of occurrence

For almost a third of records, place of occurrence was unspecified (30.6%; *n* = 7,260) or not reported (0.1%; *n* = 27). The following observations are restricted to those records in which the place of occurrence was specified (Table 2.9.5). The majority of the intentional self-harm injury hospitalisations occurred in the home (85.7%; *n* = 14,119). A small proportion also occurred in a health service area (4.5%).

Table 2.9.5: Place of occurrence for cases of intentional self-harm, Australia, 2006–07

Place	Persons	Per cent
Home	14,119	85.7
Residential institution	344	2.1
School	108	0.7
Health service area	737	4.5
Other specified institution and public administrative area	45	0.3
Sports and athletics area	10	0.1
Street and highway	316	1.9
Trade and service area	312	1.9
Industrial and construction area	24	0.1
Farm	5	0.0
Other specified places	454	2.8
Total	**16,474**	**100**

Note: Cases are restricted to those where place of occurrence is specified.

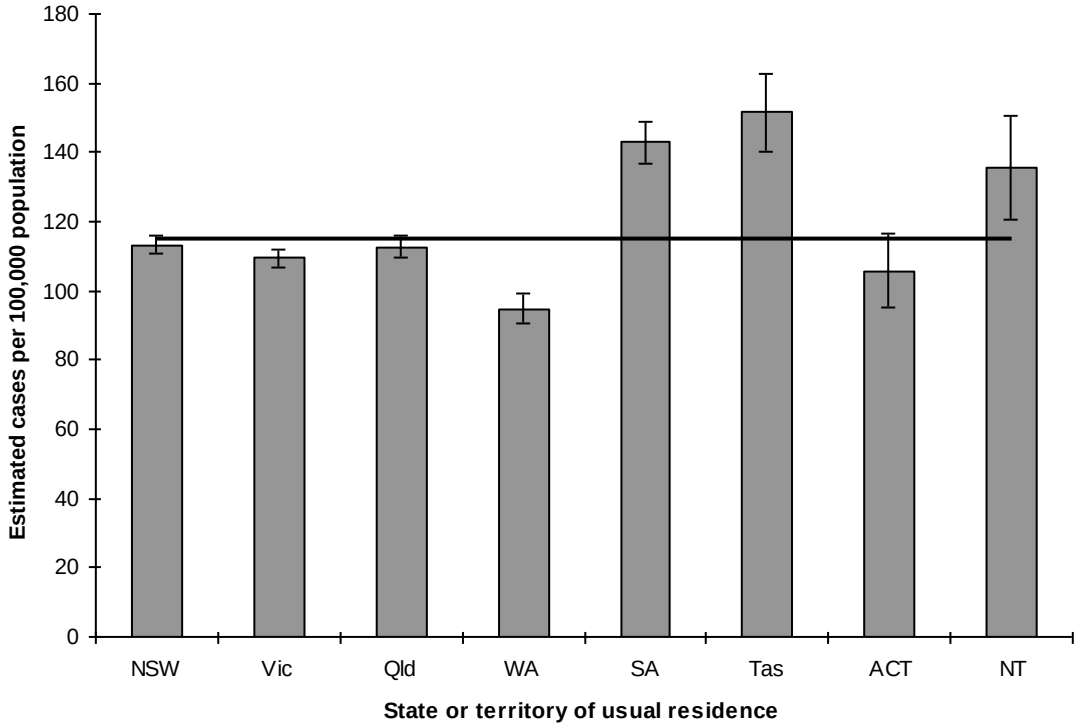
State and territory differences

Similar rates of intentional self-harm to the national age-standardised rate were found for usual residents of New South Wales, Queensland, and the Australian Capital Territory (Table 2.9.6 and Figure 2.9.3). Residents of Victoria and Western Australia had rates that were below the national rate, while those of South Australia, Tasmania and the Northern Territory had rates that were above the national rate. The pattern of rates for states and territories was fairly similar to that in previous reports except for the Australian Capital Territory for which a rise in the age standardised rate in the year to 2005–06 (Bradley & Harrison 2008) was followed by a small decline .

Table 2.9.6: Age-standardised cases of intentional cases of self-harm, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	113.0	110.5–115.5
Vic	109.2	106.3–112.0
Qld	112.5	109.2–115.7
WA	94.7	90.5–98.9
SA	142.7	136.7–148.7
Tas	151.5	140.3–162.6
ACT	105.8	95.1–116.4
NT	135.2	120.0–150.5
Australia	**114.7**	**113.3–116.2**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



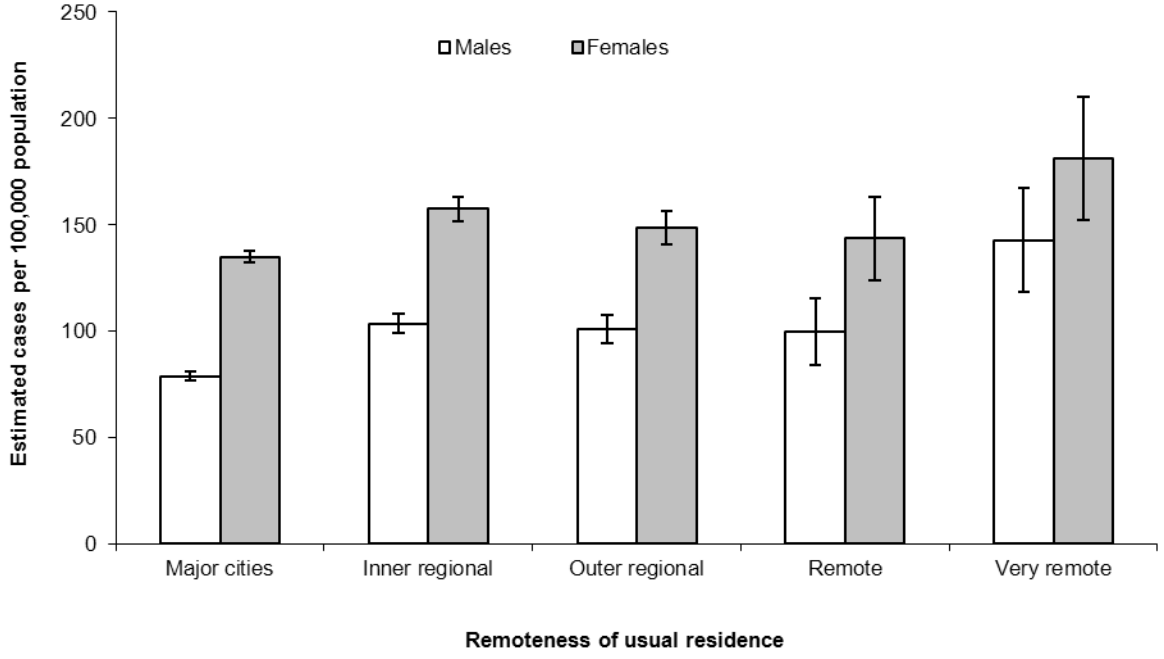
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.9.3: Age-standardised cases of intentional self-harm, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised intentional self-harm injury showed less strong differences by remoteness of usual residence than the types of cases reported in many other chapters. Rates followed a broadly similar pattern for both sexes, being lowest for residents of *Major cities* and highest for residents of *Very remote* Australia (Figure 2.9.4). For male residents of *Very remote* Australia, the rate was 1.8 times that seen for male residents of *Major cities*. For females, the equivalent ratio was 1.3. Rates for females were higher than male rates for every remoteness zone, though the difference was not statistically significant for residents of the *Very remote* zone.



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.9.4: Age-standardised cases (± 95% CI) of intentional self-harm: males and females by remoteness of usual residence (ASGC regions), 2006–07

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 (NCCH 2006). Determining whether an injury is due to intentional self-harm is not always straightforward. Cases may appear to be intentional self-harm, but inconclusiveness of available information may preclude them being coded as such. In this situation the case can be coded to an "undetermined intent" category (for example, Y30 *Falling, jumping or pushed from a high place, undetermined intent* or Y32 *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, for example, 'intentional self-harm by hanging' as opposed to 'falling from a building structure' (for example, W13, out of a window, bridge or roof). 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 2.11).

2.10 Assault

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

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

Table 2.10.1: Key indicators for assault cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to assault	18,754	5,918	24,672
Percentage of all community injury separations	7.7	3.4	5.9
Estimated cases[(a)]	17,523	5,677	23,200
Crude rate/100,000 population	169.0	54.1	111.3
Age-standardised rate/100,000 population[(b)]	168.0	55.2	112.1
Total patient days[(c)]	41,176	11,977	53,153
Mean length of stay (days)	2.3	2.1	2.3

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

An estimated 5.9% of all injury hospitalisations were due to assault in 2006–07 (Table 2.10.1). 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 2.11).

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 (based on age-standardised rates) (Table 2.10.2). Age-specific rates for males were significantly higher than for females for almost all age groups (Figure 2.10.1). Male rates peaked in the 20–24 age group with an age-specific rate of 477.7 hospitalisations for assault per 100,000 compared with 114.1 per 100,000 for females in the same age range. From 25 onwards, age-specific rates of assault declined with age for both sexes. The age-specific rate for males aged 95+ (115.6 per 100,000 population) results from a small number of cases (n = 6) and should be interpreted cautiously.

Figure 2.10.1: Age-specific cases of assault by sex, Australia, 2006–07

Over one-third of male assault cases occurred in youth and young people aged 15–24 and 46.4% were in adults aged 25–44 (Table 2.10.2). One-quarter of female assault cases were in youth and young people aged 15–24 and over half involved adults aged 25–44. Just 4% involved children aged 0–14.

Table 2.10.2: Assault cases by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–14	536	3.1	270	4.8	806	3.5
15–24	6,292	35.9	1,426	25.1	7,718	33.3
25–44	8,125	46.4	3,034	53.4	11,159	48.1
45–64	2,279	13.0	801	14.1	3,080	13.3
65+	291	1.7	146	2.6	437	1.9
Total	**17,523**	**100**	**5,677**	**100**	**23,200**	**100**

Principal diagnosis and body part injured

Nearly two-thirds of all hospitalised cases due to assault involved injuries to the head (Table 2.10.3). This was the most common principal diagnosis associated with assault cases for every age group. Injuries to the wrist and hand were the second most common diagnoses associated with assault cases.

Table 2.10.3: Principal diagnosis by body region for assault cases, Australia, 2006–07

	Males		Females		Persons	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	12,064	68.8	3,071	54.1	15,135	65.2
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	1,980	11.3	884	15.6	2,864	12.3
Shoulder and upper limb	2,489	14.2	934	16.5	3,423	14.8
Hip and lower limb	706	4.0	373	6.6	1,079	4.7
Other injuries not specified by body region	284	1.6	415	7.3	699	3.0
All body regions	**17,523**	**100**	**5,677**	**100**	**23,200**	**100**

Mechanism

The most common mechanism by which injury occurred was *Assault by bodily force*, 58.0% of cases (*n* = 13,457). The second most common mechanism of injury was *Assault by blunt object,* (13.9%, *n* = 3,234). A higher proportion of cases involving females were attributed to assault by blunt object (17.4% of female injuries vs 12.8% of male injuries). *Assault by sharp object* was documented in 11.8% (*n* = 2,729) of hospitalised assault cases with a higher proportion of males injured in this way (12.5%, *n* = 2,184) compared with females (9.6%, *n* = 545). *Assault by unspecified means* accounted for 10.6% of cases (*n* = 2,460) (Table 2.10.4).

Forty-three per cent of assault cases in children aged 0–14 (*n* = 348) were due to *Assault by bodily force* (males *n* = 273; females *n* = 75), *Other maltreatment syndromes* (males *n* = 114; females *n* = 73) and *Assault by blunt object* (males *n* = 32; females *n* = 22).

Sixty-three per cent of assault cases in youth and young people aged 15–24 (*n* = 4,850) were due to *Assault by bodily force* (males *n* = 4,067; females *n* = 783), *Assault by sharp object* (males *n* = 814; females *n* = 151), and *Assault by blunt object* (males *n* = 658; females *n* = 215).

Fifty-six per cent of assault cases in adults aged 25–44 (*n* = 6,254) were due to *Assault by bodily force* (males *n* = 4,691; females *n* = 1,563), *Assault by blunt object* (males *n* = 1,134; females *n* = 585), and *Assault by sharp object* (males *n* = 1,079; females *n* = 315).

Fifty-seven per cent of assault cases in adults aged 45–64 (*n* = 1,740) were due to *Assault by bodily force* (males *n* = 1,287; females *n* = 453), *Assault by blunt object* (males *n* = 376; females *n* = 152) and *Assault by unspecified means* (males *n* = 296; females *n* = 89).

Sixty-one per cent of assault cases in older people aged 65+ (*n* = 265) were due to *Assault by bodily force* (males *n* = 173; females *n* = 92), *Assault by blunt object* (males *n* = 44; females *n* = 16) and *Assault by unspecified means* (males *n* = 44; females *n* = 14).

Table 2.10.4: External cause of assault cases, Australia, 2006–07

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	15	0.1	37	0.7	52	0.2
X86–X90	Assault by corrosive substances, pesticides, gases and vapours, other specified or unspecified chemicals and noxious substances	15	0.1	12	0.2	27	0.1
X91	Assault by hanging, strangulation and suffocation	10	0.1	16	0.3	26	0.1
X92	Assault by drowning and submersion	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
X93	Assault by handgun discharge	29	0.2	3	0.1	32	0.1
X95	Assault by other and unspecified firearm discharge	56	0.3	3	0.1	59	0.3
X96	Assault by explosive material	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
X97	Assault by smoke, fire and flames	16	0.1	7	0.1	23	0.1
X98	Assault by steam, hot vapours and hot objects	22	0.1	18	0.3	40	0.2
X99	Assault by sharp object	2,184	12.5	545	9.6	2,729	11.8
Y00	Assault by blunt object	2,244	12.8	990	17.4	3,234	13.9
Y01	Assault by pushing from a high place	15	0.1	10	0.2	25	0.1
Y02	Assault by pushing or placing victim before moving object	7	0.0	5	0.1	12	0.1
Y03	Assault by crashing of motor vehicle	23	0.1	7	0.1	30	0.1
Y04	Assault by bodily force	10,491	59.9	2,966	52.2	13,457	58.0
Y05	Sexual assault by bodily force	22	0.1	174	3.1	196	0.8
Y06	Neglect and abandonment	39	0.2	31	0.5	70	0.3
Y07	Other maltreatment syndromes	122	0.7	188	3.3	310	1.3
Y08	Assault by other specified means	262	1.5	92	1.6	354	1.5
Y09	Assault by unspecified means	1,894	10.8	566	10.0	2,460	10.6
Y35	Legal intervention	46	0.3	5	0.1	51	0.2
Y36	Operations of war	6	0.0	0	0.0	6	0.0
	Total	**17,523**	**100**	**5,677**	**100**	**23,200**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Perpetrator

Codes describing the relationship of the victim of assault to the perpetrator were 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, 23,143 cases were eligible to receive a perpetrator code. A perpetrator was specified for only 41.6% (n = 9,637) of eligible cases and varied by age and sex (for example, the perpetrator was an *unspecified person* in 66.4% of male cases and 33.5% of female cases). The large number of separations lacking detail on the perpetrator limits meaningful interpretation of these counts. The following observations are restricted to those records in which the perpetrator was specified (Table 2.10.5).

For males, the perpetrator was most commonly unknown to the victim (46.1%, n = 2,700). For females, a spouse or partner was the most commonly reported perpetrator (60.7%, n = 2,288).

Table 2.10.5: Relationship of the perpetrator to the victim of assault, Australia, 2006–07

	Males		Females		Persons	
Perpetrator	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Spouse or domestic partner	453	7.7	2,288	60.7	2,741	28.4
Parent	229	3.9	153	4.1	382	4.0
Other family member	666	11.4	480	12.7	1,146	11.9
Carer	11	0.2	12	0.3	23	0.2
Acquaintance or friend	1,003	17.1	340	9.0	1,343	13.9
Official authorities (for example, police, correctional services)	137	2.3	6	0.2	143	1.5
Person unknown to the victim	1,242	21.2	167	4.4	1,409	14.6
Multiple persons unknown to the victim	1,458	24.9	121	3.2	1,579	16.4
Other specified person	667	11.4	204	5.4	871	9.0
Total of cases where perpetrator is specified	**5,866**	**100**	**3,771**	**100**	**9,637**	**100**

Length of stay

Mean length of stay for assault was higher in young children 0–4 than for other age groups (below 60). The mean length of stay was 3.4 days for children aged 0–14, 1.9 days for young people aged 15–24, 2.3 days for adults aged 25–44, 2.8 days for adults aged 45–64 and 5.1 days for older people aged 65+ (Figure 2.10.2).

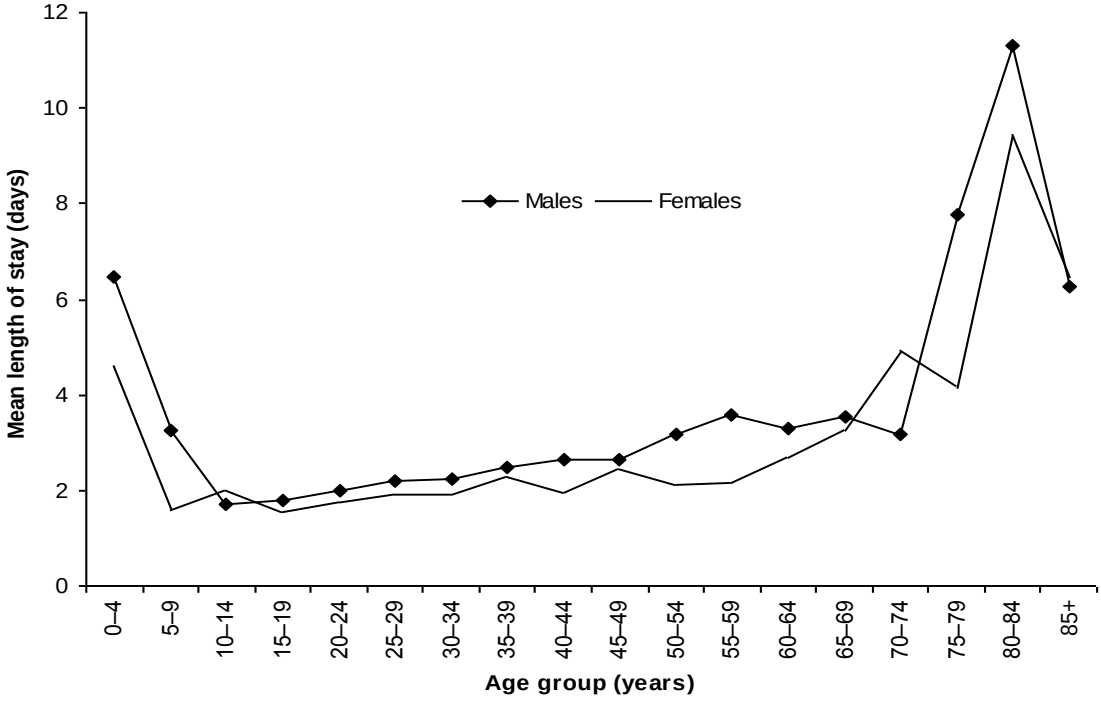


Figure 2.10.2: Length of stay per case for assault by age and sex, Australia, 2006–07

Place of occurrence

The hospitalisations from assault injury occurred in diverse locations. Many were unspecified (57.3%; n = 13,304) or not reported (0.04%; n = 10).

The following observations are restricted to those cases in which the place of occurrence was specified. Overall, the most common place for an assault injury to occur was in the home (36.8% of cases) followed by a trade or service area (27.5% of cases) (Table 2.10.6). However, there were vast differences between the sexes with a greater proportion of cases involving females occurring in the home (71.6%). Trade and service areas (which includes hotels and many other entertainment venues) and a street or highway were the second (27.5%) and third (18.6%) most common places of injury for young women.

The most common place of occurrence for males was a trade or service area (33.6%), followed by the home (25.5%) and a street or highway (22.3%).

Table 2.10.6: Place of occurrence for assault cases by age and sex, Australia, 2006–07

Place	0–14	Per cent	15–24	Per cent	25–44	Per cent	45–64	Per cent	65+	Per cent	Total	Per cent
Males												
Home	161	49.4	335	13.9	862	24.9	434	41.4	107	53.0	1,899	25.5
Residential institution	n.p.	n.p.	56	2.3	136	3.9	28	2.7	27	13.4	248	3.3
School	108	33.1	60	2.5	n.p.	n.p.	n.p.	n.p.	0	0.0	172	2.3
Health service area	n.p.	n.p.	n.p.	n.p.	12	0.3	n.p.	n.p.	4	2.0	24	0.3
Other specified institution	n.p.	n.p.	24	1.0	49	1.4	14	1.3	n.p.	n.p.	91	1.2
Sports and athletics area	9	2.8	63	2.6	48	1.4	n.p.	n.p.	n.p.	n.p.	128	1.7
Street and highway	15	4.6	668	27.7	761	22.0	194	18.5	24	11.9	1,662	22.3
Trade and service area	9	2.8	938	38.9	1,258	36.3	278	26.5	20	9.9	2,503	33.6
Industrial and construction area	n.p.	n.p.	6	0.2	20	0.6	10	1.0	n.p.	n.p.	38	0.5
Farm	0	0.0	n.p.	n.p.	n.p.	n.p.	0	0.0	0	0.0	10	0.1
Other specified places	18	5.5	256	10.6	308	8.9	79	7.5	16	7.9	677	9.1
Total	**326**	**100**	**2,412**	**100**	**3,463**	**100**	**1,049**	**100**	**202**	**100**	**7,452**	**100**
Females												
Home	111	72.5	324	58.0	943	76.7	292	76.6	73	65.2	1,743	71.6
Residential institution	n.p.	n.p.	n.p.	n.p.	14	1.1	14	3.7	21	18.8	52	2.1
School	13	8.5	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0	0.0	22	0.9
Health service area	n.p.	n.p.	n.p.	n.p.	10	0.8	n.p.	n.p.	0	0.0	21	0.9
Other specified institution	0	0.0	7	1.3	6	0.5	n.p.	n.p.	n.p.	n.p.	16	0.7
Sports and athletics area	n.p.	n.p.	5	0.9	8	0.7	n.p.	n.p.	0	0.0	16	0.7
Street and highway	7	4.6	57	10.2	87	7.1	21	5.5	8	7.1	180	7.4
Trade and service area	n.p.	n.p.	98	17.5	81	6.6	28	7.3	n.p.	n.p.	215	8.8
Industrial and construction area	0	0.0	0	0.0	0	0.0	n.p.	n.p.	0	0.0	n.p.	n.p.
Farm	0	0.0	0	0.0	n.p.	n.p.	0	0.0	0	0.0	n.p.	n.p.
Other specified places	13	8.5	57	10.2	74	6.0	17	4.5	5	4.5	166	6.8
Total	**153**	**100**	**559**	**100**	**1,229**	**100**	**381**	**100**	**112**	**100**	**2,434**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

State and territory differences

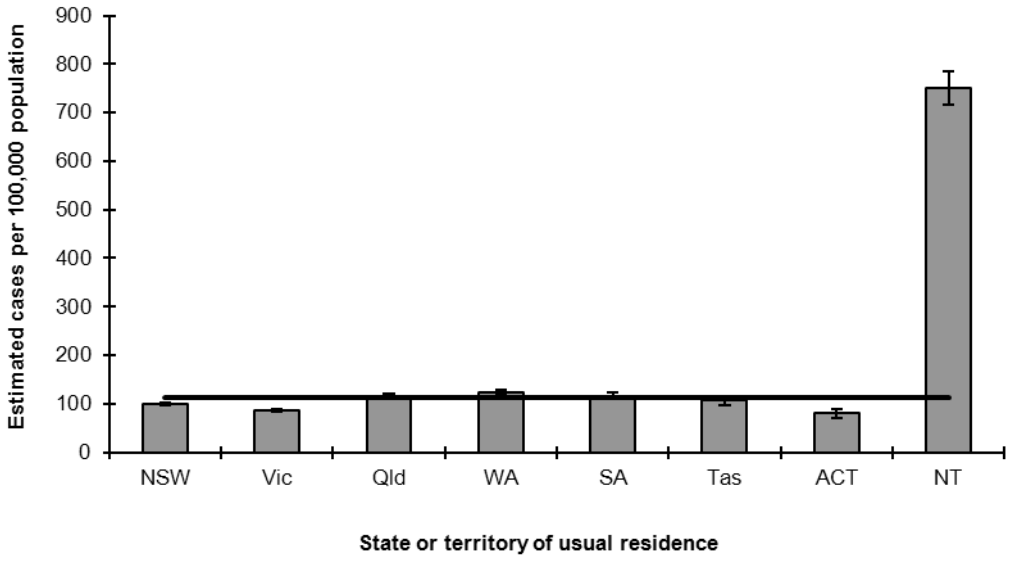
The rate of hospitalisation due to assault among residents of the Northern Territory was more than seven times as high as the national rate (Table 2.10.7 and Figure 2.10.3). Of the 1,747 residents in the Northern Territory hospitalised for this reason, 86.5% (n = 1,511) were recorded as being Aboriginal or Torres Strait Islander persons. Western Australia also had rates that were above the national rate. The assault rates in residents of Queensland, South Australia and Tasmania were similar to the national rate. Rates that were below the national rate were found in New South Wales, Victoria and the Australian Capital Territory.

The 2006–07 pattern of relative rates for states and territories is very similar to that observed in the previous three 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; Kreisfeld & Harrison 2010).

Table 2.10.7: Age-standardised cases of assault, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	100.1	97.8–102.3
Vic	85.3	83.1–87.6
Qld	116.2	112.9–119.6
WA	122.9	117.5–128.3
SA	116.8	111.9–121.7
Tas	106.7	98.8–114.5
ACT	80.4	72.3–88.5
NT	750.9	666.3–835.4
Australia	**112.6**	**111.1–114.0**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



Notes

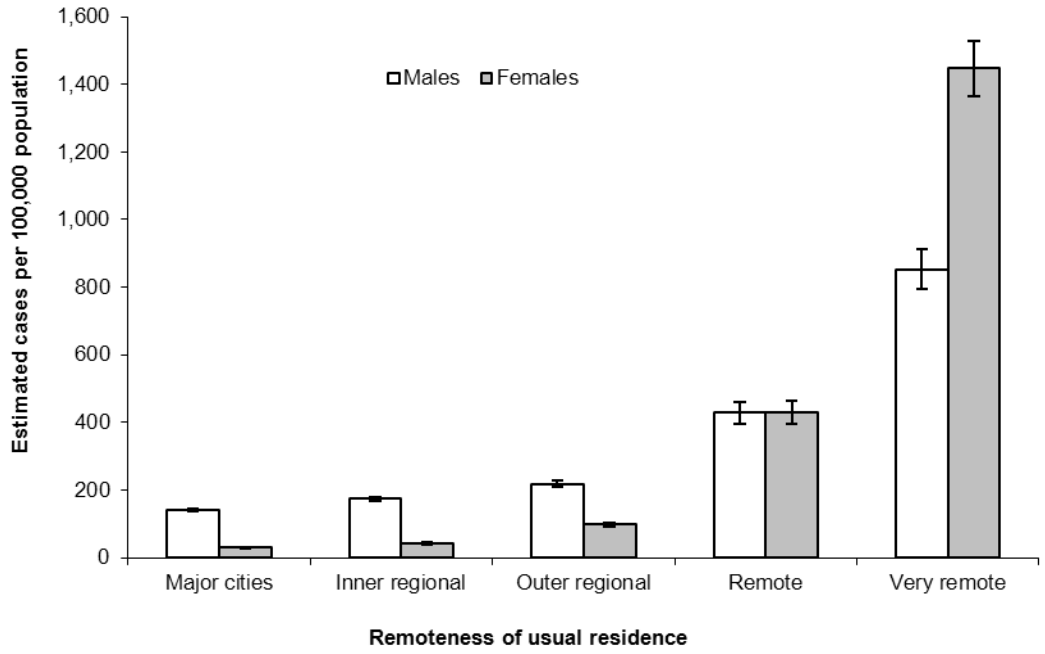
1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.10.3: Age-standardised cases of assault, states and territories, 2006–07

Remoteness of usual residence

Rates of hospitalised assault injuries increased significantly with remoteness (Figure 2.10.4). As with many of the previous injury categories, the lowest rate of hospitalised assaults for both males and females was for residents of *Major cities* (142.8 per 100,000 population for males, 29.3 per 100,000 population for females). The highest rate was among residents of *Very remote* areas.

Rates for males were significantly higher than for females among residents of *Major cities* (nearly five times greater), *Inner regional* (four times greater) and *Outer regional* areas (double the rate for females). In *Remote* areas the rate for males was similar to that for females. This changed in *Very remote* areas with the rate for females (1,402.8 per 100,000 population) significantly exceeding that for males (839.6 per 100,000 population). The proportion of these cases where the injured person was recorded as being Aboriginal of Torres Strait Islander rose from 5% of Major city cases to 73% of *Remote* zone cases and 91% of those where the person resided in the *Very remote* zone. Rates of hospitalised injury due to interpersonal violence of Aboriginal Australians, especially women living in *Remote* and *Very remote* zones, has been reported elsewhere (Berry et al. 2009).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.10.4: Age-standardised cases (± 95% CI) of assault: males and females by remoteness of usual residence (ASGC regions), 2006–07

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 2.11).

2.11 Undetermined intent

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: Y10–Y34

Table 2.11.1: Key indicators for undetermined intent cases, Australia, 2006–07

Indicator	Males	Females	Persons
Separations from hospital due to undetermined intent	2,293	2,528	4,821
Percentage of all community injury separations	0.9	1.5	1.2
Estimated cases[(a)]	2,215	2,448	4,663
Crude rate/100,000 population	21.4	23.3	22.4
Age-standardised rate/100,000 population[(b)]	21.5	23.7	22.6
Total patient days[(c)]	5,411	5,140	10,551
Mean length of stay (days)	2.4	2.1	2.3

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This chapter includes cases where intent was unspecified, unstated or could not be determined. Injuries where the intent is undetermined accounted for 1% of all injury hospitalisations in the financial year 2006–07 (Table 2.11.1).

The coding of the external cause of injury is based on a review of the patient's discharge summary and hospital record by medical coders. The external cause codes Y10–Y34, undetermined intent, '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'(NCCH 2006). This is different to the use of external cause codes in mortality data where undetermined intent is used only when it has been explicitly stated on a death certificate or following formal investigation. If a death has not been specified as being due to intentional self-harm or assault, nor specified as being of undetermined intent, then the usual approach has been to code it as unintentional, even if there are reasons to think that it might have been intentional. In hospital data, such doubtful cases can be coded to undetermined intent.

While cases that are suggestive of being due to assault can be assigned to this category certain characteristics of the data suggest that most are possible self-harm. In particular, like self-harm cases, and unlike assault cases, the great majority of undetermined intent cases involve poisoning by and exposure to pharmaceutical drugs.

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 Rates were lowest for children (0–14), highest in youth and young people aged 15–29, and declined with age (Figure 2.11.1). Forty-five per cent of injuries of undetermined event occurred in adults aged 25–44 (Table 2.11.2).

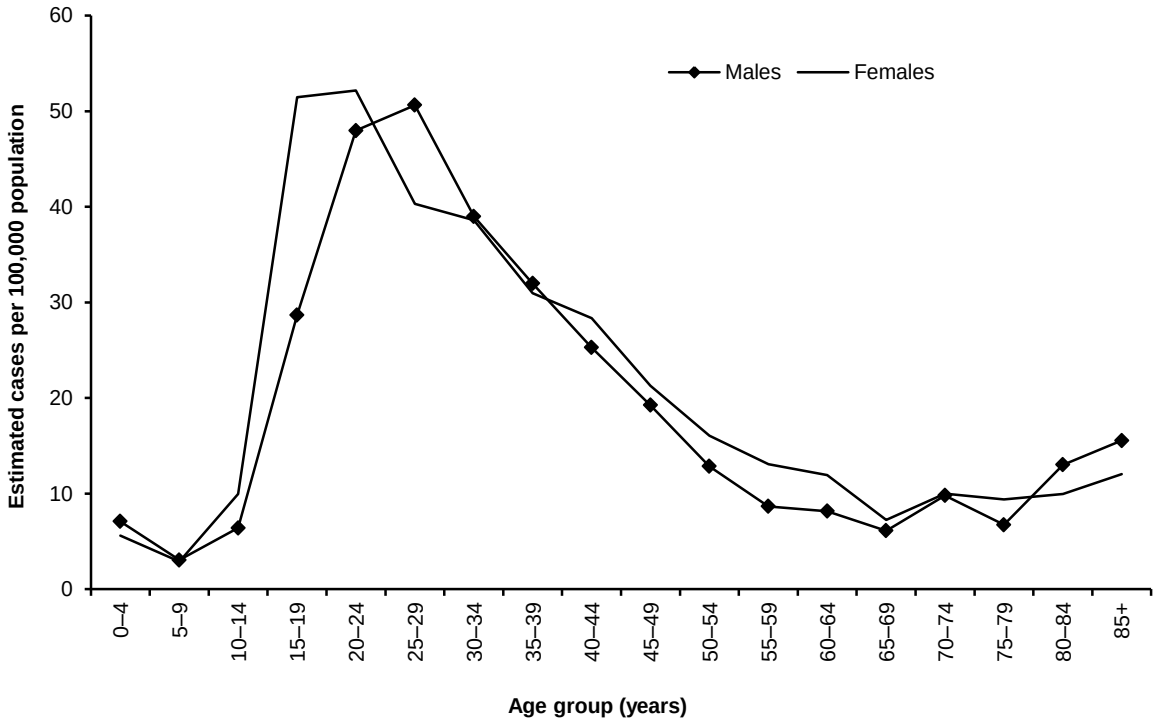


Figure 2.11.1: Age-specific cases of injuries of undetermined intent by sex, Australia, 2006–07

Table 2.11.2: Injuries of undetermined intent by age group, Australia, 2006–07

	Males		Females		Persons	
Age group	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
0–14	115	5.2	123	5.0	238	5.1
15–24	571	25.8	736	30.1	1,307	28.0
25–44	1,090	49.2	1,031	42.1	2,121	45.5
45–64	329	14.9	417	17.0	746	16.0
65+	110	5.0	141	5.8	251	5.4
Total	**2,215**	**100**	**2,448**	**100**	**4,663**	**100**

Length of stay

The overall mean length of stay for injuries of undetermined intent was 2.3 days and was slightly longer for males (2.4 days) than for females (2.1 days). The general trend was for an increasing length of stay with age. Small case numbers in some age groups appear as large fluctuations in the average length of stay, particularly in the older age groups (Figure 2.11.2).

The mean length of stay was 2.3 days for children aged 0–14, 1.5 days for young people aged 15–24, 2.0 days for adults aged 25–44, 2.8 days for adults aged 45–64 and 6.7 days for older people aged 65+.

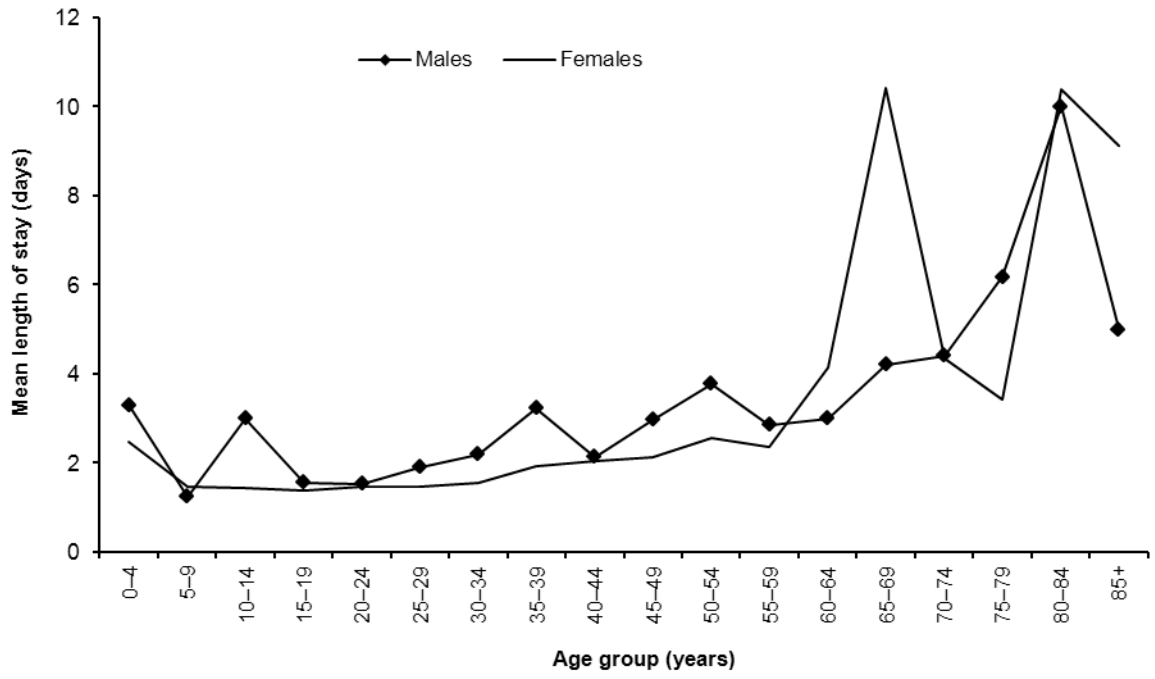


Figure 2.11.2: Length of stay per case for injuries of undetermined intent by age and sex, Australia, 2006–07

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 2.11.3). This reflects the fact that the mechanism in most cases was poisoning.

Table 2.11.3: Principal diagnosis by body region for injuries of undetermined intent, Australia, 2006–07

	Males		Females		Persons	
Principal diagnosis by body region	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Head	57	2.6	24	1.0	81	1.7
Trunk (neck, thorax, abdomen, lower back, lumbar spine and pelvis)	37	1.7	15	.6	52	1.1
Shoulder and upper limb	161	7.3	81	3.3	242	5.2
Hip and lower limb	71	3.2	26	1.1	97	2.1
Other injuries not specified by body region	1,889	85.3	2,302	94.0	4,191	89.9
All body regions	**2,215**	**100**	**2,448**	**100**	**4,663**	**100**

Mechanism

Overall, 86.7% of injuries of undetermined intent resulted from poisoning. A higher proportion of cases involving females were coded as poisoning (92.0%) than cases involving males (80.9%). Conversely, a higher proportion of males were assigned a principal diagnosis code of *contact with sharp object* (6.7%) than cases involving females (3.1%) (Table 2.11.4).

Poisoning by antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs comprised 39.6% (n = 1,847) of injuries of undetermined intent, and mainly consisted of poisoning by benzodiazepines (n = 791), other and unspecified anti-depressants such as selective serotonin reuptake inhibitors (n = 256) and other and unspecified antipsychotics and neuroleptics (n = 219).

Thirteen per cent (n = 601) of injuries of undetermined intent were poisoning by nonopioid analgesics, antipyretics and antirheumatics, and mainly consisted of 4-aminophenol derivatives such as paracetamol (n = 425) and other non-steroidal anti-inflammatory drugs (n = 77).

A further 12.5% (n = 585) of injuries of undetermined intent were from narcotics and hallucinogens, and mainly consisted of other opioids such as codeine and morphine (n = 195) and heroin (n = 160).

Table 2.11.4: External cause of injuries of undetermined intent, Australia, 2006–07

ICD-10-AM Code	External cause	Males		Females		Persons	
		Count	Per cent	Count	Per cent	Count	Per cent
	Poisoning by and exposure to:	1,791	80.9	2,253	92.0	4,044	86.7
Y10	Nonopioid analgesics, antipyretics and antirheumatics	153	6.9	448	18.3	601	12.9
Y11	Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs	744	33.6	1,103	45.1	1,847	39.6
Y12	Narcotics and psychodysleptics [hallucinogens]	344	15.5	241	9.8	585	12.5
Y13	Other drugs acting on the autonomic nervous system	16	0.7	30	1.2	46	1.0
Y14	Other and unspecified drugs, medicaments and biological substances	315	14.2	256	10.5	571	12.2
Y15	Alcohol	98	4.4	101	4.1	199	4.3
Y16	Organic solvents and their halogenated hydrocarbons and their vapours	28	1.3	21	0.9	49	1.1
Y17	Other gases and vapours (for example, Carbon monoxide)	30	1.4	9	0.4	39	0.8
Y18	Pesticides	28	1.3	11	0.4	39	0.8
Y19	Other and unspecified chemicals and noxious substances	35	1.6	33	1.3	68	1.5
Y20	Hanging, strangulation and suffocation	21	0.9	7	0.3	28	0.6
Y21	Drowning and submersion	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Y22	Handgun discharge	n.p.	n.p.	0	0.0	n.p.	n.p.
Y24	Other and unspecified firearm discharge	31	1.4	5	0.2	36	0.8
Y25	Contact with explosive material	n.p.	n.p.	0	0.0	n.p.	n.p.
Y26	Exposure to smoke, fire and flames	53	2.4	29	1.2	82	1.8
Y27	Contact with steam, hot vapours and hot objects	13	0.6	8	0.3	21	0.5
Y28	Contact with sharp object	148	6.7	77	3.1	225	4.8
Y29	Contact with blunt object	12	0.5	9	0.4	21	0.5
Y30	Falling, jumping or pushed from a high place	24	1.1	5	0.2	29	0.6
Y31	Falling, lying or running before or into moving object	n.p.	n.p.	n.p.	n.p.	6	0.1
Y32	Crashing of motor vehicle	n.p.	n.p.	0	0.0	n.p.	n.p.
Y33	Other specified events	25	1.1	5	0.2	30	0.6
Y34	Unspecified event	85	3.8	46	1.9	131	2.8
Total		**2,215**	**100**	**2,448**	**100**	**4,663**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Place of occurrence

Location was not specified or reported for 51.6% of cases (unspecified; *n* = 2,392, not reported/not applicable; *n* = 13). The following observations are restricted to those cases in which the place of occurrence was specified. The majority of cases resulted from injuries that occurred in the home (72.8%; *n* = 1,644) (Table 2.11.5).

Table 2.11.5: Place of occurrence for injury cases of undetermined intent, Australia, 2006–07

Place	Persons	Per cent
Home	1,644	72.8
Residential institution	80	3.5
School	14	0.6
Health service area	173	7.7
Other specified institution and public administrative area	15	0.7
Sports and athletics area	11	0.5
Street and highway	74	3.3
Trade and service area	146	6.5
Industrial and construction area	n.p.	n.p.
Farm	n.p.	n.p.
Other specified places	93	4.1
Total specified	**2,258**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

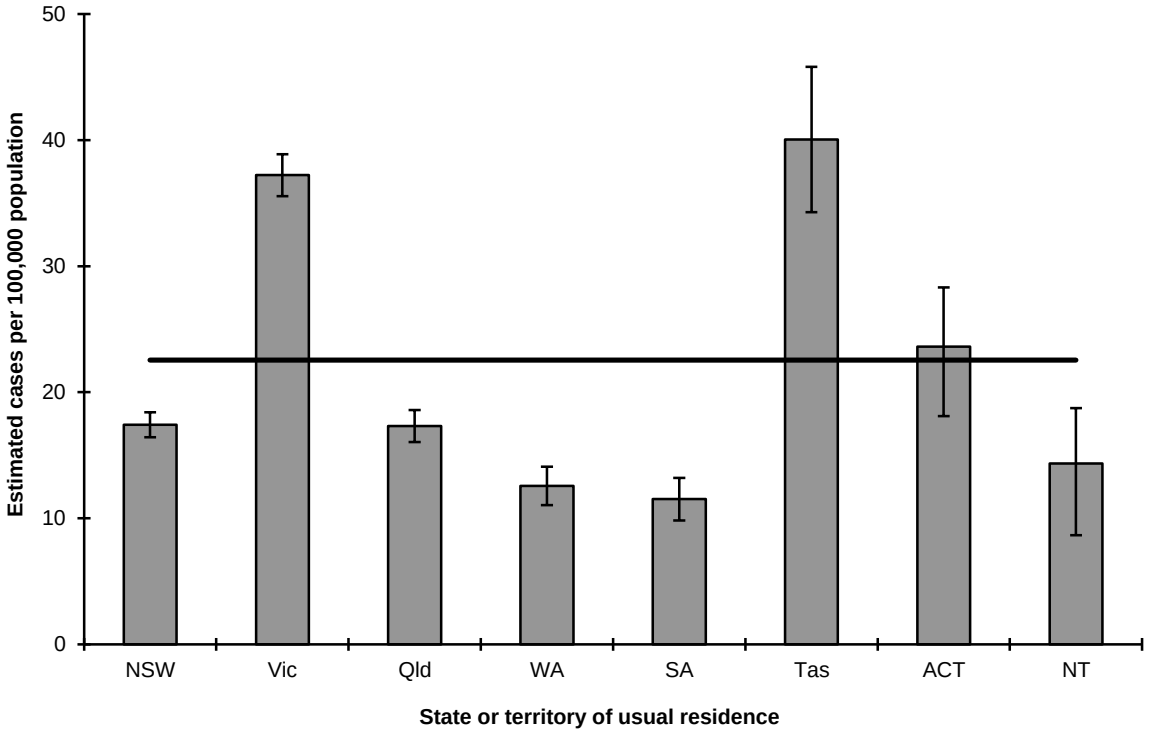
State and territory differences

Rates of injures of undetermined intent that were below the national rate of 22.5 per 100,000 population were found in New South Wales, Queensland, South Australia, Western Australia and the Northern Territory (Table 2.11.6 and Figure 2.11.3). Victoria, Tasmania and the Australian Capital Territory had rates that were above the national rate. Rates of injury cases have remained steady for residents in each state. The diversity of rates between jurisdictions, considered with the similarity over time within each jurisdiction, suggests differences in the use of this category.

Table 2.11.6: Age-standardised cases of injuries of undetermined intent, states and territories, 2006–07

Jurisdiction	Age-standardised rate (per 100,000 population)	95% CI[(a)]
NSW	17.4	16.4–18.4
Vic	37.2	35.6–38.9
Qld	17.3	16.0–18.6
WA	12.6	11.0–14.1
SA	11.5	9.8–13.2
Tas	40.1	34.3–45.8
ACT	23.6	18.9–28.1
NT	14.4	10.0–20.1
Australia	**22.5**	**21.9–23.2**

(a) Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.



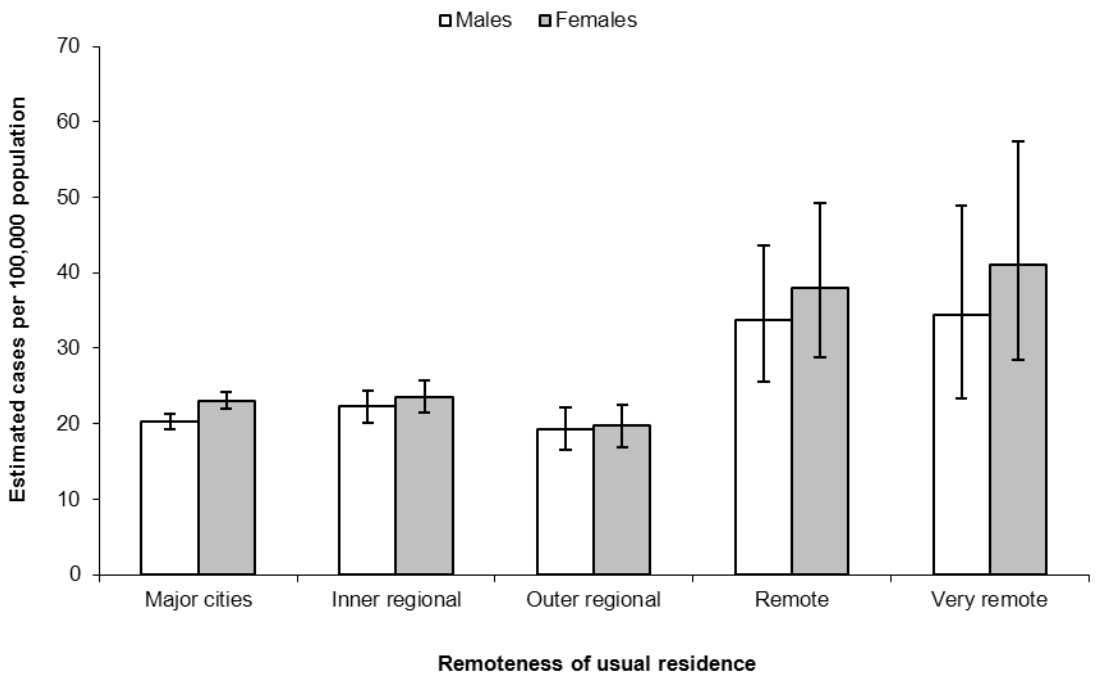
Notes

1. The thick horizontal line shows the rate for Australia.
2. Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.11.3: Age-standardised cases of injuries of undetermined intent, states and territories, 2006–07

Remoteness of usual residence

Rates of injuries with undetermined intent were higher for residents of *Remote* and *Very remote* regions of Australia than elsewhere (Figure 2.11.4). The lowest rates were found in *Outer regional* areas for both males (19.3 per 100,000 population) and for females (19.7 per 100,000 population). The highest rates were in *Very remote* regions (males 34.4 per 100,000 population, females 41.1 per 100,000 population).



Note: Confidence intervals are provided to show by about how much rates might be expected to vary (between years, for example) in view of the number of cases. See the Data issues section for further information.

Figure 2.11.4: Age-standardised cases (± 95% CI) of undetermined intent: males and females by remoteness of usual residence (ASGC regions), 2006–07

3 Work-related community injury

ICD-10-AM case inclusion

Principal diagnosis: S00–T75, T79 and

First reported external cause: V01–Y34 and

Activity code: U73.0

Table 3.1.1: Key indicators for hospitalised work-related injury; males, females and persons, Australia 2006–07

Key indicators	Males	Females	Persons
Separations from hospital due to work-related injury	25,141	4,273	29,414
Percentage of all community injury separations	10.3	2.5	7.1
Estimated cases[(a)]	23,169	3,983	27,152
Crude rate/100,000 population	223.5	38.0	130.2
Age-standardised rate/100,000 population[(b)]	221.2	37.7	129.6
Total patient days[(c)]	57,826	8,549	66,375
Mean length of stay (days)	2.5	2.1	2.4

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This chapter includes those cases with a first external cause code in the range V01–Y34 and an activity code U73.0 *while working for income*. Three-quarters of injury cases in this category had a non-specific activity code (that is, coded as *other specified, unspecified,* and *not reported/not applicable*) which constrains meaningful interpretation of work-relatedness.

An estimated 27,152 community injury cases in 2006–07 were sustained while working for income (Table 3.1.1). The age-standardised rate of hospitalised work-related injuries was 129.6 per 100,000 population.

Most work-related community injuries involved males (85.3%, *n* = 23,169). Accordingly, the age-standardised rate of hospitalised injuries due to work-related injury was much higher for males (221.2 per 100,000 population) than for females (37.7 per 100,000).

The majority of cases were classified as 'other unintentional injuries' while falls were the second most common type of injury sustained while working for income (Table 3.1.2).

The top five causes of work-related injury in the other unintentional injuries category were *exposure to unspecified factor* X59 (males *n* = 2,687, females *n* = 599), W31, *contact with other and unspecified machinery* (males *n* = 2,728, females *n* = 155), X50, *overexertion and strenuous or repetitive movement* (males *n* = 1,212, females *n* = 372), W20, *struck by thrown, projected or falling object* (males *n* = 1,460, females *n* = 95), and W23, *caught, crushed, jammed or pinched in or between objects* (males *n* = 1,406, females *n* = 115).

For falls injuries the most common causes of work-related injury were W01, *fall on the same level from slipping, tripping and stumbling* W01, (males *n* = 615, females *n* = 452), W19, *unspecified fall* (males *n* = 472, females *n* = 237), and W11, *fall on and from ladder* (males *n* = 649, females *n* = 49).

For transportation injuries the most common cause of work-related injuries were V68, *occupant of heavy transport vehicle injured in noncollision transport accident* (males *n* = 307, females *n* = 7), V80, *animal-rider or occupant of animal-driven vehicle injured in transport accident* (males *n* = 175, females *n* = 111), and V43, *car occupant injured in collision with car, pick-up truck or van* (males *n* = 123, females *n* = 88).

More detailed information on work-related injury hospitalisation can be found in the 2004–05 edition of this series (Bradley & Harrison 2008) and (Harrison et al. 2007).

Table 3.1.2: Major external cause groups for work-related injury cases; males, females and persons, Australia 2006–07

	Males		Females		Persons	
External cause	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Transportation	2,374	10.2	427	10.7	2,801	10.3
Drowning	7	0.0	0	0.0	7	0.0
Poisoning, pharmaceuticals	23	00.1	12	0.3	35	0.1
Poisoning, other substances	290	1.3	73	1.8	363	1.3
Falls	3,451	14.9	1,156	29.0	4,607	17.0
Fires, burns & scalds	384	1.7	83	2.1	467	1.7
Other unintentional injuries	16,173	69.8	2,159	54.2	18,332	67.5
Intentional, self-inflicted (self-harm)	17	0.1	12	0.3	29	0.1
Intentional, inflicted by another (assault)	420	1.8	55	1.4	475	1.7
Undetermined intent	30	0.1	6	0.2	36	0.1
Total	**23,169**	**100**	**3,983**	**100**	**27,152**	**100**

4 Sport-related community injury

ICD-10-AM case inclusion

Principal diagnosis: S00–T75 or T79, and

Activity code: U50–U71

Table 4.1.1: Key indicators for hospitalised sport-related injury: males, females and persons, Australia 2006–07

Key indicators	Males	Females	Persons
Separations from hospital due to sport-related injury	32,753	9,535	42,288
Percentage of all community injury separations	13.5	5.5	10.1
Estimated cases[(a)]	30,751	9,002	39,753
Crude rate/100,000 population	296.6	85.9	190.6
Age-standardised rate/100,000 population[(b)]	296.9	88.7	194.3
Total patient-days[(c)]	66,563	19,310	85,873
Mean length of stay	2.2	2.1	2.2

(a) Excludes records with a mode of admission of 'transfer from another acute hospital'.

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

This chapter covers all hospitalised injury cases recorded as occurring while engaged in sports, that is with an activity code in the range U50–U71.

An estimated 42,288 hospitalised community injury cases in 2006–07 were due to injuries sustained while engaged in sport (Table 4.1.1). The age-standardised rate of these sport-related injury cases was 194.3 per 100,000 population. This is slightly higher than the rate reported by Bradley and Harrison for the year 2004–05 (Bradley & Harrison 2008).

Most sports-related injury hospitalisations involved males (77.4%; *n* = 30,751) (Table 4.1.1). Accordingly the age-standardised rate of sport-related injuries was much higher for males (296.9 per 100,000 population) than for females (88.7 per 100,000 population). The highest rates of hospitalised sport-related injury were for males aged 15–19 (12,015 per 100,000) and for females aged 10–14 (3,410 per 100,000 population).

The majority (98.9%) of sport-related injury cases hospitalised during 2006–07 could be classified into three broad external cause groups, 'other unintentional', falls and transportation (Table 4.1.2). Almost half of the sport-related community injury cases were attributed to other unintentional external causes (47.2%; *n* = 18,781). The top five other unintentional causes of sports-related injury were X59, *exposure to unspecified factor* (males *n* = 4,471; females *n* = 1,205), X50, *overexertion and strenuous or repetitive movement* (males *n* = 2,490; females *n* = 904), W50, *hit, struck, kicked, twisted, bitten or scratched by another person* (males *n* = 2,397; females *n* = 235), W51, *striking against or bumped into by another person* (males *n* = 2,056; females *n* = 198) and W21, *striking against or struck by sports equipment* (males *n* = 1,615; females *n* = 392).

Falls were the second most common cause of sport-related injuries accounting for 30.1% of all cases (*n* = 11,985). The most common causes of sport-related falls injury were W18, *other fall on same level* (males *n* = 2,103; females *n* = 939), W03, *other fall on same level due to collision with, or pushing by, another person* (males *n* = 2,429; females *n* = 184), W02, *fall involving ice-skates, skis, roller-skates or skateboards* (males *n* = 1,467; females *n* = 509), and W01, *fall on the same level from slipping, tripping and stumbling* (males *n* = 818; females *n* = 660).

Transportation injuries accounted for 21.6% of all sport-related injuries (*n* = 8,605). The most common causes of sport-related transport injuries were V28, *Motorcycle rider injured in noncollision transport accident* (males *n* = 1,764; females *n* = 85), V18, *Pedal cyclist injured in non-collision transport accident* (males *n* = 1,506; females *n* = 291), V80, *animal-rider or occupant of animal-drawn vehicle injured in transport accident* (males *n* = 427; females *n* = 1,087), and V19, *Pedal cyclist injured in other and unspecified transport accidents* (males *n* = 667; females *n* = 135).

Table 4.1.2: Case counts and proportions by sex for sports injury cases, Australia, 2006–07

	Males		Females		Persons	
External cause	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Transportation	6,584	21.4	2,021	22.5	8,605	21.6
Drowning	131	0.4	44	0.5	175	0.4
Poisoning, pharmaceuticals	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Poisoning, other substances	6	0.0	6	0.1	12	0.0
Falls	8,637	28.1	3,348	37.2	11,985	30.1
Fires/burns/scalds	21	0.1	6	0.1	27	0.1
Other unintentional	15,224	49.5	3,557	39.5	18,781	47.2
Intentional, self- inflicted	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Intentional, inflicted by another	91	0.3	4	0.0	95	0.2
Undetermined intent	13	0.0	5	0.1	18	0.0
Other	39	0.1	11	0.1	50	0.1
Total	**30,751**	**100**	**9,002**	**100**	**39,753**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

The total number of patient-days attributed to hospitalised sports injuries in 2006–07 was 85,873, giving a mean length of stay of 2.2 days per case. Under a fifth of sport-related injury separations were discharged from hospital on the same day as admitted (17.9%, *n* = 15,356) and including these, 35.2% of sport-related injury separations had a length of stay of only one day (*n* = 30,185).

A detailed analysis of hospitalised sports injury was reported by Flood and Harrison for the year 2002–03 (Flood & Harrison 2006).

5 Complications of surgical and medical care

ICD-10-AM case inclusion

Principal diagnosis: T80–T88

Table 5.1.1: Key indicators for cases due to complications of surgical and medical care, Australia, 2006–07

Indicator	Males	Females	Persons[(a)]
All hospital separations[(a)]	3,581,515	4,020,928	7,602,917
Separations from hospital due to complications of surgical and medical care	42,456	39,988	82,447
Percentage of all separations	1.2	1.0	1.1
Crude rate/100,000 population	380.3	355.8	368.0
Age-standardised rate/100,000 population[(b)]	383.0	337.3	356.3
Total patient days[(c)]	247,667	231,309	479,015
Mean length of stay (days)	6.3	6.2	6.2

(a) Includes separations and cases for which sex was not reported

(b) Standardised to the Australian estimated resident population 30th June 2001.

(c) Includes records with a mode of admission of 'transfer from another acute hospital' as contributing to hospital burden due to injury.

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. The words "not elsewhere classified" in the title indicate that some complications of care can be coded to other categories in ICD-10-AM, including codes outside the injury chapter, which is the subject of this report. The method used in this chapter uses different specifications to those used in the Australian Hospital Statistics 2006–07, which results in lower estimates here than in that publication (AIHW 2008).

The method used here should include cases in which complications of surgical or medical care occurred:

- in the course of the episode of admitted patient care during which the care giving rise to the complication was provided or
- because of care delivered during a previous episode of admitted care, or in another context (for example, outpatient care), complications of which caused or contributed to the current episode of admitted patient care.

Inclusion of a case in the data available for analysis here depends on conditions having been recognised, recorded and coded as complications of care. Sometimes a complication of care is the chief reason for an episode of admitted care (in which case it should have been coded as the principal diagnosis), or it may be an additional condition that affects patient

management (that is, an additional diagnosis). The focus of this chapter is cases where a complication was coded as the principal diagnosis, but it should be noted that a slightly larger number of records included complications of care as additional diagnoses (see Table A1).

If a complication of care resulted in more than one episode of admitted care then it might have been counted more than once. The nature of the data available to us did not permit precise accounting for this. Cases admitted after transfer from another hospital are likely to result in multiple counting, though whether this occurred for a particular case depends on how it was coded at the referring hospital. In keeping with other sections of this report, inward transfers were omitted from the estimate of case numbers. No allowance could be made for multiple counting due to readmissions.

The condition onset flag is a means of differentiating those conditions which arise during, or arose before, an admitted patient episode of care. The item became part of the National Minimum Data Set (NMDS) for admitted patient care on 1 July 2008. It is anticipated that when condition onset flag data suitable for reporting become available the item will be used to extend the analysis in this section.

Caution is needed when interpreting the data in this section 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 (Pidd et al. 2006).

In 2006–07, *Complications of surgical and medical care, not elsewhere classified* was the principal diagnosis assigned to 82,447 separate episodes of hospital inpatient care, 16.3% of all hospital separations (Table 5.1.1).

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 5.1.2: Major types of injury for complications of surgical and medical care, Australia, 2006–07

	Males		Females		Persons[(a)]	
Principal diagnosis	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Complications following infusion, transfusion and therapeutic injection	304	0.8	298	0.8	602	0.8
Complications of procedures, not elsewhere classified	16,345	41.5	15,358	41.2	31,704	41.3
Complications of cardiac and vascular prosthetic devices, implants and grafts	5,314	13.5	3,810	10.2	9,124	11.9
Complications of genitourinary prosthetic devices, implants and grafts	2,712	6.9	1,485	4.0	4,197	5.5
Complications of internal orthopaedic prosthetic devices, implants and grafts	7,482	19.0	7,062	18.9	14,545	19.0
Complications of other internal prosthetic devices, implants and grafts	4,139	10.5	6,972	18.7	11,111	14.5
Failure and rejection of transplanted organs and tissues	1,870	4.7	1,046	2.8	2,916	3.8
Complications peculiar to reattachment and amputation	587	1.5	218	0.6	805	1.0
Other complications of surgical and medical care, not elsewhere classified	666	1.7	1,056	2.8	1,722	2.2
Total	**39,419**	**100**	**37,305**	**100**	**76,726**	**100**

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

The major types of injury related to complications of surgical and medical care are shown in Table 5.1.2. *Complications of procedures, not elsewhere classified* (ICD-10-AM principal diagnosis code T81*)* accounted for 41.3% of injury cases in 2006–07 (*n* = 31,704). This category included T81.4, *Infection following a procedure, not elsewhere classified* (*n* = 15,380; 20.0% of all adverse events). And most of these were coded as T81.41 *Wound infection following a procedure* (*n* = 14,743, 19.2% of all adverse events). Overall, the second most common specific adverse event was also in the T81 category, T81.0, *Haemorrhage and haematoma complicating a procedure, not elsewhere classified* (*n* = 9,814; 12.8% of all adverse events).

Complications of internal orthopaedic prosthetic devices, implants and grafts (T84) accounted for 19.0% of adverse events (*n* = 14,545). Over one-third of this category was coded as T84.0 *Mechanical complication of internal joint prosthesis* (*n* = 5,005; 6.5% of all adverse events).

Complications of other internal prosthetic devices, implants and grafts (T85) accounted for 14.5% of all *Complications of surgical and medical care* (*n* = 11,111) and *Complications of cardiac and vascular prosthetic devices, implants and grafts* (T82) a further 11.9% (*n* = 9,124).

A particular body part was not specified for any injury cases associated with complications of surgical and medical care.

Most of these common adverse events were given an external cause code of Y83 (*n* = 63,998, 83.4%), 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 or Y84 (*n* = 9,701, 12.6%), other medical procedures as 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 (Figure 5.1.1). Female rates exceeded male rates at ages 30–59. At ages 60 and older, male rates exceeded those for females. The highest rate for males was at ages 85–89 and for females at 80–84.

Figure 5.1.1: Age-specific cases of complications of surgical and medical care by sex, Australia, 2006–07

Length of stay

In general, mean length of stay due to *Complications of surgical and medical care* increased with age (Figure 5.1.2).

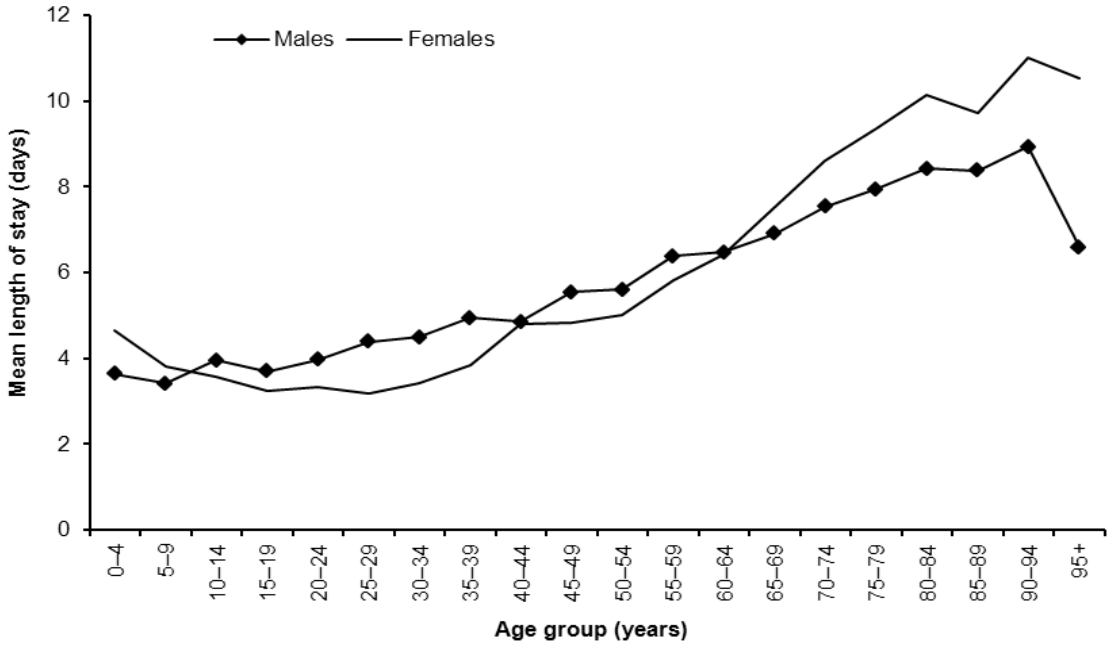


Figure 5.1.2: Length of stay per case for complications of surgical and medical care by age and sex, Australia, 2006–07

Place of occurrence

The majority of cases where a place of occurrence was recorded (*n* = 75,523) occurred in a health service area (99.0%; *n* = 74,803). The remaining 1.0% occurred in the home, a residential institution or in another location. It may be that these cases refer to the place where the complication became apparent, or to complications of care delivered at home or in another location, for example a residential institution.

6 Residual groups

ICD-10-AM case inclusion

Principal diagnosis: T78, T89 or T90–T98

This chapter includes hospital separations where the principal diagnosis was in the ICD-10-AM Chapter XIX *Injury, poisoning and certain other consequences of external causes* but was not classified as *community injury* or *Complications of surgical and medical care.* Principal diagnoses coded to T78, T89 or T90–T98 accounted for 5,630 hospital separations. When inward transfers from another acute care hospital were excluded there remained 5,507 cases. Most of these 5,507 cases were coded T78 *Adverse effects, not elsewhere classified* (*n* = 5,348) (Table 6.1.1). The remainder were T89, *Other specified complications of trauma* (*n* = 149) or T90–T98, *Sequelae of injuries, of poisoning and of other consequences of external causes* (*n* = 10).

Table 6.1.1: Case counts for ICD-10-AM principal diagnosis T78, T89 or T90–T98, Australia, 2006–07

	Males		Females		Persons	
Principal diagnosis	**Count**	**Per cent**	**Count**	**Per cent**	**Count**	**Per cent**
Anaphylactic shock due to adverse food reaction (T78.0)	582	22.4	573	19.7	1,155	21.0
Other adverse food reactions, not elsewhere classified (T78.1)	417	16.1	494	17.0	911	16.5
Anaphylactic shock, unspecified (T78.2)	383	14.8	426	14.6	809	14.7
Angioneurotic oedema (T78.3)	655	25.2	717	24.6	1,372	24.9
Allergy, unspecified (T78.4)	446	17.2	637	21.9	1,083	19.7
Other adverse effects, not elsewhere classified or unspecified (T78.8)	8	0.3	8	0.3	16	0.3
Adverse effect, unspecified (T78.9)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
All adverse effects not elsewhere classified (T78)	*2,492*	*96.0*	*2,856*	*98.1*	*5,348*	*97.1*
Complications of open wound, unspecified (T89.00)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Open wound with foreign body (T89.01)	49	1.9	22	0.8	71	1.3
Open wound with infection (T89.02)	44	1.7	26	0.9	70	1.3
Other complications of open wound (T89.03)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
All complications of open wound (T89)	*98*	*3.8*	*51*	*1.8*	*149*	*2.7*
Sequelae (T90–T98)	5	0.2	5	0.2	10	0.2
Total	**2,595**	**100**	**2,912**	**100**	**5,507**	**100**

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Appendix A: Data issues

Data sources

The data on hospital separations were provided by the Australian Institute of Health and Welfare (AIHW), from the National Hospital Morbidity Database (NHMD).

Crude and age-specific rates were calculated using as population data the final estimate of the estimated resident population as at 31 December 2006, obtained from the AIHW.

Selection criteria

This report is intended to describe the population incidence of injuries newly occurring in Australia and resulting in admission to a hospital. This section describes the criteria that were used to select cases to achieve this purpose.

Period

This report is restricted to admitted patient episodes that ended in the period 1 July 2006 to 30 June 2007.

For purposes of injury prevention, it would be preferable to specify cases in terms of date of injury occurrence. Date of injury occurrence is not available in the NHMD (though it is available in equivalent data in New Zealand).

Most hospital episodes due to injury are brief (mean duration of 4.0 days for *community injury*) and hospital admission (if it occurs at all) usually follows soon after occurrence of an injury. Hence injury data reported—as here—in terms of date of separation should not, overall, differ greatly from reporting in terms of date of occurrence, though caution should be taken in making this assumption for some types of case (for example, spinal cord injuries, for which mean length of stay is several months (Cripps, 2009).

Scope

We included data from all hospitals that contributed to the NHMD in 2006–07. This includes nearly all public and private hospitals in Australia that provide acute care services. Further information on inclusion scope can be found in Australian Hospital Statistics 2006–07 (AIHW 2008).

Injury

The operational definition of injury used in this report is NHMD records that were assigned, as the principal diagnosis, an ICD-10-AM code in particular ranges. The code range S00–T75 and T79 has been used to designate *community injury* and the range T80–T88 designates *Complications of surgical and medical care*.

About 99% of all NHMD records in the period of interest that have any code from ICD-10-AM Chapter XIX (*Injury, poisoning and certain other consequences of external causes S00–T98*) as their principal diagnosis fall into one of these two groups (Table A1).

Table A1: Selection criteria for cases due to injury and poisoning, Australia, 2006–07

Selection criteria	Males	Females	Persons[(a)]
Community injury (ICD-10-AM principal diagnosis range S00–T75, T79), and			
• lack any external cause code	335	168	504
• have a first reported external cause code of *Complications of surgical and medical care*	721	587	1,308
• have a first reported external cause code in the range V01–Y36, Y85–Y87, Y89	224,240	160,150	384,396
Total case numbers for *community injury*	**225,296**	**160,905**	**386,208**
Do not have a principal diagnosis of *community injury*, but additional diagnosis codes are in range (ICD-10-AM range S00–T75, T79)	40,028	46,165	86,195
Total case numbers where there is a code for *community injury* in the principal or additional diagnosis fields	**265,324**	**207,070**	**472,403**
Complications of surgical and medical care (ICD-10-AM principal diagnosis range T80–T88), and			
• lack any external cause code	52	67	119
• have a first reported external cause code of *community injury*	160	134	294
• have a first reported external cause in the range Y40–T84, Y88	39,207	37,104	76,313
Total case numbers for *Complications of surgical and medical care*	**39,419**	**37,305**	**76,726**
Do not have a principal diagnosis of *Complications of surgical and medical care*, but additional diagnosis codes are in range (ICD-10-AM range T80–T88)	44,546	40,124	84,675
Total case numbers where there is a code for *Complications of surgical and medical care* in the principal or additional diagnosis fields	**83,965**	**77,429**	**161,401**
Case numbers where principal diagnosis is in ICD-10-AM Chapter XIX *Injury and poisoning* but is not classified as *community injury* or *Complications of surgical and medical care*			
• Adverse effects, not elsewhere classified (ICD-10-AM principal diagnosis T78)—includes adverse food reactions for example, anaphylactic shock.	2,492	2,856	5,348
• Other complications of trauma not elsewhere classified (ICD-10-AM principal diagnosis T89)	98	51	149
• Sequelae of injuries, of poisoning and of other consequences of external causes (ICD-10-AM principal diagnosis T90–T98)	5	5	10
All cases with principal diagnosis in the ICD-10-AM range S00–T98	**267,311**	**201,122**	**468,441**

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

Note: To correct for double-counting, 30,795 separations were omitted from the estimate of incident cases as they were inward transfers from another acute care hospital. Without this exclusion, the separations from hospital according to principal diagnosis were 417,003 for community injury, 82,447 for Complications of surgical and medical care and 5,630 for the remainder of separations in the Chapter XIX Injury and poisoning chapter.

The distinction between these two groups reflects contemporary injury prevention practice. For example, the current National Injury Prevention and Safety Promotion Plan, in common with previous Australian injury prevention policies and plans, has a scope corresponding to *community injury* (NPHP 2005).

Community injury generally occurs outside the context of medical care, but (if serious) prompts one or more episodes of care, sometimes including admission to a hospital. A *Complication of surgical and medical care* always occurs within the context of medical care and often arises in a hospital, although the concept can include complications of surgical and medical care in other settings.

There is some potential overlap between these types of injury. For example, an injurious fall sustained by a hospital patient can be seen as part of the *community injury* issue of falls, and also as a *Complication of surgical and medical care*. In this document, such cases have been assigned on the basis of principal diagnosis.

A small proportion of records were ambiguous as to whether they should be treated as *community injury* or *Complications of surgical and medical care*. These records have a principal diagnosis in the *community injury* range and a first reported external cause code meaning *Complications of surgical and medical care* (n = 1,308) or a principal diagnosis in the *Complications of surgical and medical care* range and a first reported external cause code indicating *community injury* (n = 294). These records were included in the analysis according to their principal diagnosis.

Residual groups

Hospital separations coded to T78, T89 or T90–T98 have been included in a separate section for this report (p122). These codes fall in the ICD-10-AM chapter XIX *Injury, poisoning and certain other consequences of external causes* but are not classified as either *community injury* or *Complications of surgical and medical care*. They describe 'adverse effects, not elsewhere classified' (T78); 'other specified complications of trauma' (T89) and 'sequelae of injuries, of poisoning and of other consequences of external causes' (T90–T98). This group accounted for 5,630 injury separations in 2006–07 and 97.8% (n = 5,507) were determined to be injury cases.

Injury solely as additional diagnosis (excluded)

Records in the NHMD for 2006–07 can report up to 50 additional diagnosis codes as well as a principal diagnosis code. Hence, records can occur that have a principal diagnosis code outside the range designating *community injury*, but have one or more additional diagnosis codes within that range. The same is true for *Complications of surgical and medical care*. The numbers of records of these types are shown in Table A1.

Records in which injury codes appear only as Additional Diagnoses have not been used in the analysis presented in this report, mainly because injury was not recorded as being the main reason for these episodes in hospital. Principal diagnosis means 'The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care…' (AIHW 2008). Hence, while many or all of the people represented by these records will, at some time, have sustained an injury as defined above, that injury was not recorded as being the main reason for their current episode in hospital.

Many of these records with an additional diagnosis of injury will have been counted in incidence estimates on the basis of a previous episode in hospital for acute care, the current episode being for rehabilitation. In some other instances, the additional diagnosis injury

referred to in the record may have been incidental to the reason for admission and would not, on its own, have prompted admission. Availability of person-linked hospital morbidity data would do much to enable appropriate assignment of this group of records.

External cause codes

According to Australian Coding Standards (NCCH 2006) all records in the NHMD that meet either of the injury definitions stated above should include one or more ICD-10-AM external cause codes. In practice, only 0.6% of NHMD records that met all other selection criteria had no external cause code. Since the main focus of this report is to describe injury cases in terms of the external causes that brought them about, injury cases without an external cause code are only included in the *community injury* and *Complications of surgical and medical care* chapters, and not in the sub chapters (such as 2.2 etc.) that focus on external causes.

Records that have a principal diagnosis within a specified injury range, but no accompanying external cause code, numbered 504 (0.1%) of the *community injury* subset, and 119 (0.2%) of the *Complications of surgical and medical care* subset (see Table A1).

Estimating incident cases

Each record in the NHMD refers to a single episode of care in a hospital. Some injuries result in more than one episode in hospital and, hence, more than one NHMD record. This can occur in two main ways:

- a person is admitted to one hospital, then transferred to another and
- a person has an episode of care in hospital, is discharged home (or to another place of residence) and is then admitted for further treatment due to the same injury, to the same hospital or another one.

Patients can also be discharged from a hospital and then immediately be readmitted with a different status ("Type change").

The NHMD does not include information designed to enable the set of records belonging to an injury case to be recognised as such. Hence, there is potential for some incident injury cases to be counted more than once. This potential exists when a single incident injury case results in two or more NHMD records, all of which satisfy the selection criteria being used.

Information in the NHMD enables this problem to be reduced, though not eliminated. The approach used for this report makes use of the Mode of Admission variable, which indicates whether the current episode commenced with inward transfer from another acute-care hospital. Episodes of this type with injury as the principal diagnosis are likely to have been preceded by another episode, also meeting the case selection criteria for injury. Hence, these records (n = 30,795) were omitted from the estimates of incident cases that are shown in Table A1 and elsewhere in this report.

This procedure should correct for over-estimation of cases that is due to transfers, but will not correct for over-estimation that is due to readmissions or type changes.

The patient days reported during the episodes omitted to reduce overestimation of incident cases are part of the burden of acute hospital care provided to the incident cases. Hence, these patient days were retained when calculating mean and total length of stay. Note that this method does not include all patient days potentially attributable to injury. In particular, it does not include days for most aspects of injury rehabilitation, which are difficult to assign

correctly without information enabling identification of all patient episodes associated with an injury case.

Rates for Australia include all cases meeting the selection criteria described above. Rates for Australian states and territories and for remoteness zones are based on place of usual residence (as are the population data used as denominators). Some cases lack data on place of residence (because it is missing or because the person was not a resident of Australia), or specify residence in one of the 'other Australian territories' (that is, Jervis Bay Territory; Cocos (Keeling) Islands; Christmas Island). These cases are included in rates for Australia but not in the sub-national rates.

Quantifying variability in the counts presented in this report

The data presented in this report are subject to two types of statistical error, non-random and random. (A third type of statistical error, sampling error, does not apply here because none of the data sources used involved probability sampling.)

Non-random error: Some amount of non-random error is to be expected in administrative data collections such as the hospital inpatient data on which this report relies. For example, non-random error could occur if the approach to assigning cause codes to cases were to differ systematically between jurisdictions or over time. Systems are in place to encourage uniform data collection and coding and scrutiny of data during analysis includes checking for patterns that might reflect non-random error. Nevertheless, some non-random error is likely to remain. Identified or suspected non-random errors large enough to materially affect findings are mentioned in reports.

Random error: The values presented in the report are subject to random error, or variation. Variation is relatively large when the case count is small (especially if less than about 10) and small enough to be unimportant in most circumstances when the case count is larger (that is, more than a few tens of cases).

Some of the topics for which results are reported compare groups that vary widely in case count, largely due to differences in population size (for example, the population of NSW is more than 30 times as large as the NT population and the Major City zone population is nearly 90 times as large as that of the *Very remote* zone). In this situation, year-to-year changes in counts or rates for the smaller-population groups may be subject to large random variation. There is potential to misinterpret such fluctuations as meaningful rises or falls in occurrence.

In this situation, and similar ones, guidance is provided to readers concerning how much variation of values can be expected due to random variation of small counts. Confidence Intervals (CIs) are calculated for this purpose.

Confidence intervals

Nearly all injury/poisoning cases are thought to be included in the data reported, representing minimal risk of sampling error. Data are based on the financial year of separation, but choice of this time period is arbitrary. Use of calendar year would result in different rates, particularly where case numbers are small. Confidence intervals (95%; based

on a Poisson distribution) were calculated using the method described by (Anderson & Rosenburg 1998). Asymmetrical confidence intervals were calculated for case numbers up to 100. Symmetrical intervals, based on a normal approximation, were calculated where case numbers exceed 100.

The AIHW is currently undertaking a review to assess the provision of confidence intervals and statistical tests when data arise from sources that provide information on all subjects, rather than from a sample survey. This review will include analysis of the methods used to calculate confidence intervals, as well as the appropriateness of reporting confidence intervals and undertaking statistical testing for such data. This review aims to ensure that statistical methods used in AIHW reports remain robust and appropriately inform understanding and decision making. As a consequence, the type of information reported in future editions of this publication may change.

Age adjustment

Most all-ages rates have been adjusted for age to allow comparison of injury risk free from the distortion introduced by one population having a different age distribution to another. Direct standardisation was employed, using as the standard the Australian population at 30 June 2001 grouped into five-year age bands to 85 and older (ABS 2003) (Table B1).

Where crude rates or age-specific rates are reported, this is noted. Age-specific rates by sex and five-year age groups to 90–94, then 95 and older, are presented in the first chart of each main section of the report. Elsewhere, age groups have been selected based on the purpose of the table or chart and case numbers.

Suppression of small cell counts in data tables

Cell counts referring to one to 4 cases have been suppressed, to protect confidentiality and because values based on very small numbers are sometimes difficult to interpret. In the instances where only one cell in a row or column has a non-zero count 4 or less, counts of one or more other cells in the same row or column have generally also been suppressed.

Errors, inconsistencies and uncertainties

Due to rounding, the sum of the percentages in tables may not equal 100 per cent.

NHMD data are generally abstracted from records, entered and coded in hospitals, passed to state and territory health departments, then to the AIHW before being provided to NISU. Processing occurs at each of these steps. Errors and inconsistencies can arise due to the large number of people and processes involved in providing the data. Some variations occur in reporting and coding although Coding Standards, National Minimum Data Sets and other mechanisms have reduced this.

Appendix B: Additional tables

Table B1: Age-specific rates and age-standardised rates of separations due to external causes in males (per 100,000 population), Australia, 2006–07

Major groups	Age group (years)																	All ages (crude)	Age Std
	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	
Unintentional																			
Transportation	82.6	232.6	525.9	714.3	647.0	493.6	445.1	404.2	348.8	274.5	253.1	210.7	186.7	166.8	161.4	189.5	234.9	269.0	357.3	357.5
Drowning and near-drowning	20.2	4.1	1.9	2.7	3.1	2.2	2.2	2.9	1.7	n.p.	0.9	1.9	1.9	2.8	2.6	n.p.	n.p.	0.0	3.3	3.3
Poisoning, pharmaceuticals	109.9	10.0	4.6	21.9	34.2	39.5	29.2	25.2	21.6	18.0	15.5	17.2	17.7	22.4	20.6	29.3	43.2	71.4	28.4	28.6
Poisoning, other substances	37.5	5.1	6.0	14.6	17.5	14.7	14.8	12.7	12.0	11.1	10.1	9.6	7.4	9.7	10.1	8.7	13.6	15.6	13.1	13.1
Falls	656.3	771.3	754.7	501.4	392.0	324.7	290.5	279.1	300.7	317.6	352.6	402.9	514.2	653.0	892.8	1,549.1	3,035.7	6,421.1	598.6	623.4
Fires, burns and scalds	123.9	31.3	30.9	45.1	40.1	32.3	32.4	30.8	27.7	21.9	19.6	14.8	19.4	17.3	20.3	20.6	27.2	35.7	34.6	34.8
Other unintentional injuries	575.8	484.2	767.0	1,482.1	1,459.0	1,207.2	1,048.6	924.7	833.3	755.1	674.2	647.7	582.9	519.6	457.9	442.4	498.2	589.3	847.5	845.9
Intentional																			
Intentional self-harm	n.p.	0.7	12.7	115.1	165.2	157.9	166.4	151.3	132.7	106.8	80.6	57.8	42.4	32.4	28.1	30.5	46.7	41.2	87.5	87.9
Assault	27.4	8.1	40.9	368.5	477.7	382.8	288.6	242.2	181.4	140.0	93.3	58.9	42.6	31.6	24.5	18.2	11.2	24.7	169.0	168.8
Undetermined intent	7.1	3.1	6.4	28.7	48.0	50.6	39.0	32.0	25.3	19.3	12.9	8.7	8.2	6.1	9.8	6.7	13.0	15.6	21.4	21.5
Community injury*	**1,643.5**	**1,553.7**	**2,155.4**	**3,306.2**	**3,294.2**	**2,715.5**	**2,366.0**	**2,116.9**	**1,892.3**	**1,676.3**	**1,527.8**	**1,438.6**	**1,443.2**	**1,482.9**	**1,664.1**	**2,339.5**	**3,967.6**	**7,549.3**	**2,173.3**	**2,197.8**
Complications of surgical and medical care	120.4	88.3	95.8	150.2	189.5	175.0	193.1	221.1	243.7	285.4	393.2	530.4	782.9	1,011.3	1,264.1	1,502.7	1,663.1	1,724.0	380.3	384.8

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Note: * Rates are higher than the sum of Unintentional and Intentional Major groups due to community injury records that lacked an external cause code or where the first external cause code was for Complications (see Table A1).

Table B2: Age-specific rates and age-standardised rates of separations due to external causes in females (per 100,000 population), Australia, 2006–07

Major groups	Age group (years)																	All ages (crude)	Age Std
	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85+	
Unintentional																			
Transportation	49.1	141.1	182.8	295.9	261.4	194.5	150.6	142.4	137.8	124.7	125.4	129.4	119.6	128.0	139.1	180.4	224.1	177.6	160.1	160.0
Drowning and near-drowning	12.8	2.9	1.0	0.9	1.0	n.p.	n.p.	n.p.	n.p.	n.p.	0.7	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	0.0	1.4	1.5
Poisoning, pharmaceuticals	101.5	7.6	8.8	47.3	41.9	33.2	28.8	32.1	27.8	25.1	21.1	19.1	20.0	22.2	30.9	42.3	56.9	64.7	33.0	32.9
Poisoning, other substances	20.7	2.6	5.3	10.4	11.3	10.2	9.0	7.1	4.4	6.4	7.8	5.4	7.4	4.5	8.2	9.7	7.1	7.1	8.1	8.2
Falls	515.2	622.2	348.3	149.5	151.4	157.1	161.2	176.7	204.9	250.6	362.2	508.9	687.8	970.1	1,501.4	2,753.2	5,017.4	9,496.5	750.5	647.3
Fires, burns and scalds	89.2	19.9	14.4	17.9	17.2	17.3	13.8	13.0	13.1	11.0	10.8	10.9	8.0	10.7	12.1	14.1	20.0	30.3	18.9	19.3
Other unintentional injuries	448.2	314.5	311.2	352.7	335.9	299.7	287.2	301.5	284.3	285.4	298.2	307.2	297.8	318.0	330.7	431.0	572.8	816.1	336.5	331.7
Intentional																			
Intentional self-harm	n.p.	n.p.	70.1	371.1	269.2	205.9	211.8	207.0	206.5	177.1	115.9	77.8	52.9	39.0	32.7	41.9	29.9	33.0	140.1	142.6
Assault	18.1	5.8	17.0	86.0	114.1	105.6	115.8	103.7	80.5	58.3	28.6	17.2	9.8	6.5	9.4	13.8	10.4	10.3	54.1	55.5
Undetermined intent	5.6	2.9	10.0	51.5	52.2	40.3	38.6	31.0	28.4	21.3	16.1	13.1	11.9	7.2	10.0	9.4	10.0	12.0	23.3	23.7
Community injury*	**1,262.9**	**1,122.0**	**971.1**	**1,385.8**	**1,260.0**	**1,068.2**	**1,022.3**	**1,019.2**	**993.8**	**966.9**	**993.0**	**1,099.4**	**1,226.1**	**1,519.0**	**2,097.6**	**3,528.9**	**5,986.0**	**10,695.4**	**1,534.5**	**1,430.1**
Complications of surgical and medical care	79.2	59.2	70.0	138.7	156.7	186.4	250.2	309.5	347.5	372.8	478.4	529.7	630.6	764.1	862.1	941.8	966.1	808.5	355.8	338.8

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Note: * Rates are higher than the sum of Unintentional and Intentional Major groups due to community injury records that lacked an external cause code or where the first external cause code was for Complications (see Table A1).

Table B3: Age-specific rates and age-standardised rates of separations due to external causes in persons (per 100,000 population), Australia, 2006–07

	Age group																	All ages	Age
Major groups	**0–4**	**5–9**	**10–14**	**15–19**	**20–24**	**25–29**	**30–34**	**35–39**	**40–44**	**45–49**	**50–54**	**55–59**	**60–64**	**65–69**	**70–74**	**75–79**	**80–84**	**85+**	**(crude)**	**Std**
Unintentional																				
Transportation	66.3	188.0	358.9	510.8	457.6	345.2	297.4	272.5	242.7	198.9	189.0	170.1	153.3	147.2	149.9	184.6	228.5	207.6	258.1	259.4
Drowning and near-drowning	16.6	3.5	1.5	1.8	2.0	1.4	1.2	1.6	1.0	0.5	0.8	1.0	1.4	1.6	1.7	0.9	n.p.	0.0	2.4	2.4
Poisoning, pharmaceuticals	105.8	8.9	6.6	34.2	37.9	36.4	29.0	28.7	24.7	21.6	18.3	18.1	18.8	22.3	25.9	36.3	51.3	66.9	30.7	30.8
Poisoning, other substances	29.3	3.9	5.6	12.6	14.5	12.5	11.9	9.9	8.2	8.7	8.9	7.5	7.4	7.1	9.1	9.3	9.8	9.9	10.6	10.6
Falls	587.7	698.6	557.0	330.1	273.8	241.6	225.7	227.6	252.5	283.8	357.4	455.9	600.6	813.1	1,208.5	2,201.7	4,199.6	8,488.4	675.0	648.5
Fires, burns and scalds	107.0	25.7	22.8	31.8	28.9	24.8	23.1	21.8	20.4	16.4	15.2	12.8	13.8	14.0	16.0	17.1	23.0	32.1	26.7	27.1
Other unintentional injuries	513.7	401.5	545.2	932.6	907.3	757.2	666.6	611.3	557.2	518.2	485.3	477.5	440.9	417.7	391.9	436.2	542.0	741.8	590.6	591.5
Intentional																				
Intentional self-harm	n.p.	0.4	40.6	239.7	216.3	181.7	189.2	179.4	170.0	142.3	98.3	67.8	47.6	35.7	30.5	36.7	36.9	35.7	114.0	114.9
Assault	22.9	7.0	29.3	231.1	299.1	245.4	201.9	172.5	130.7	98.8	60.8	38.0	26.2	18.9	16.7	15.8	10.7	15.0	111.3	112.6
Undetermined intent	6.4	3.0	8.1	39.8	50.0	45.5	38.8	31.5	26.8	20.3	14.5	10.9	10.0	6.7	9.9	8.2	11.2	13.2	22.4	22.6
Community injury*	**1,458.4**	**1,343.3**	**1,579.1**	**2,371.9**	**2,295.0**	**1,898.7**	**1,691.8**	**1,565.0**	**1,440.6**	**1,318.5**	**1,259.1**	**1,269.0**	**1,335.1**	**1,501.2**	**1,889.0**	**2,984.2**	**5,153.0**	**9,664.2**	**1,852.1**	**1,830.5**
Complications of surgical and medical care	100.4	74.1	83.2	144.6	173.4	180.7	221.7	265.5	295.9	329.5	436.0	530.1	707.0	886.5	1,055.5	1,199.2	1,253.7	1,108.6	368.0	357.9

n.p. = Not published. Small cell counts have been supressed to prevent patient identification.

Notes

1. * Rates are higher than the sum of Unintentional and Intentional Major groups due to community injury records that lacked an external cause code or where the first external cause code was for Complications (see Table A1).

2. Rates per 100,000 population.

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List of tables

List of figures

This report is the fifth in a series on hospitalisations due to injury and poisoning in Australia, and covers the financial year 2006–07. A total of 386,208 injury cases required hospitalisation in the 12 months (225,297 males and 160,905 females). Overall rates of injury were higher among people aged 65 and over, and lower in children aged 0–14. The leading causes of hospitalised injury were unintentional falls (36% of cases), followed by transport accidents (14%).

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