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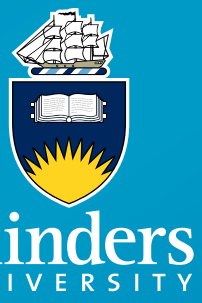
Trends in hospitalised injury, Australia 1999–00 to 2012–13



INJURY RESEARCH AND STATISTICS SERIES NO. 95

Australian Government
Australian Institute of Health and Welfare

Authoritative information and statistics to promote better health and wellbeing

INJURY RESEARCH AND STATISTICS SERIES
Number 95

Trends in hospitalised injury, Australia

1999–00 to 2012–13

Australian Institute of Health and Welfare
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Contents

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Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASGC	Australian Standard Geographical Classification
CI	confidence interval
ERP	estimated resident population
HTTL	high threat to life
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
LOS	length of stay
METeOR	Metadata Online Registry
MLOS	mean length of stay
NCCH	National Centre for Classification in Health
NEC	not elsewhere classified
NHMD	National Hospital Morbidity Database
NMDS	National Minimum Data Set
NPHP	National Public Health Partnership
WHO	World Health Organization

Symbols

n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
%	per cent
p	probability

Summary

This report describes trends in the occurrence of injuries requiring hospitalisation in Australia from 1 July 1999 to 30 June 2013. The annual number of cases rose from about 327,000 to 447,000 during this period.

Injuries in 2012–13

Overall, injuries were more common among males (250,440 cases) than females (196,233 cases). Case numbers and population-based rates were higher for males than females for all age groups to 60–64, the largest difference being for ages 15–24. Rates were higher for females than males for age groups 65–69 and older. The oldest group (85+) had the highest rates.

There were an estimated 22,277 cases due to injury and poisoning for Indigenous people during 2012–13. More males than females were hospitalised (1.3:1). Rates of injury among Indigenous people (3,513 cases per 100,000) were twice those of non-Indigenous people (1,806 cases per 100,000) in 2012–13.

The average length of stay in hospital as a result of an injury was 4 days (more than 1.7 million days for the 447,000 cases). Length of stay in hospital increased with age to an average of 7 days for people aged 65+. About 1 in 6 injury cases were classified as 'high threat to life'. The percentage of high-threat-to-life cases increased with age to 29% of cases at 65+.

Two of the main causes of injury in 2012–13 were falls (40%) and transport crashes (12%). Over 170,000 people were hospitalised as a result of a fall in 2012–13. About 53% of the falls cases were people aged over 65 years and about 66% of the cases in that age group were females. Transport crash injuries were more common in males (36,877 cases) than females (17,728 cases) and rates were highest for age group 15–24.

Trends in injury cases

The age-standardised rate of injury increased from 1999–00 to 2012–13 by an average of 1% per year. The rate of injury was 1,736 cases per 100,000 population at the beginning of the period, and by the end the rate was 1,888 per 100,000.

Increases in age-standardised rates across the period were found for injuries due to: falls (2% increase per year) and intentional self-harm (0.4% increase per year). Significant decreases occurred in the rate of hospitalised cases due to poisoning by pharmaceuticals (4% per year) and by other substances (4% per year), and drowning and near-drowning (1% decrease per year—3.5% per year for boys 0–4 and 2.8% for girls 0–4). No significant trends were observed for transport-related injuries, assaults and thermal injuries such as burns.

Trends in injury among Indigenous people

Rates of injury for Indigenous males and females increased over the period, rising more rapidly in recent years. A similar rapid rise was not seen for non-Indigenous Australians. There were increases in rates of poisoning by pharmaceuticals, falls, intentional self-harm and assault during this time.

1 Introduction

This report describes trends in the occurrence of injuries requiring hospitalisation in Australia (in both public and private hospitals) from 1 July 1999 to 30 June 2013. Injury is described according to major types of external causes of injury. The report covers injuries that occurred in community settings such as car crashes, interpersonal violence, sporting and recreational activities, and work.

Injury prevention and control is a National Health Priority Area. Injury is also the subject of three national prevention plans: the National Injury Prevention and Safety Promotion Plan: 2004–14 (NPHP 2005a); the National Falls Prevention for Older People Plan: 2004 Onwards (NPHP 2004); and the National Indigenous People Safety Promotion Strategy (NPHP 2005b).

1.1 Structure of this report

The broad topics in this report are:

- an overview of injury cases in 2012–13
- trends in injury (the number and rate of separations and estimated cases over time by age and sex)
- trends in the severity of injury (high-threat-to-life and length-of-stay indicators)
- trends in external causes of injury (number and rate of estimated cases over time by age and sex for each major external cause).

Chapter 2 presents an overview of injury in Australia including time series information.

Chapter 3 presents time series information on measures of the severity of injury using proportions of high threat to life and length of stay.

Chapters 4 to 12 present time series analyses on each major external cause of injury.

'Appendix A: Data issues' provides summary information on the National Hospital Morbidity Database (NHMD), notes on the presentation of data, the population estimates used to calculate population rates, and analysis methods.

'Appendix B: Additional tables' consists of tables underpinning results presented in the chapters.

1.2 Chapter structure

In this report, chapters 3–12 each begin by answering the following two questions:

- What data are reported? (describes the data presented in the chapter)
- What methods were used? (outlines issues such as inclusions and exclusions of records, and calculation methods).

The data presentations that follow answer, where possible, the following questions:

- How many hospitalised cases for injury were there in 2012–13?
- How have hospitalised cases for injury changed over time?
- How have hospitalised cases for injury varied by age and sex?
- How have hospitalised cases for injury varied by remoteness of usual residence?

- How have hospitalised cases for injury among Indigenous people changed over time? How does this compare with trends for non-Indigenous Australians?

Generally, summary tables and figures are placed immediately below the discussion in related text. Where appropriate, tables and figures within the chapter are accompanied by footnotes referring readers to additional statistical tables in 'Appendix B: Additional tables'. Further information about the methods used in this report can be found in 'Appendix A: Data issues'.

1.3 Methods

This report uses data from the National Hospital Morbidity Database (NHMD) covering the years 1 July 1999 to 30 June 2013 to provide information on trends in injury in Australia. This period was chosen as it covers the time after the transition from *International statistical classification of diseases and related health problems, 9th revision, Clinical modification* (ICD-9-AM) to *International statistical classification of diseases and related health problems, 10th revision, Australian modification* (ICD-10-AM) to the most recent year of data available. Analysis of trends in injury among Aboriginal and Torres Strait Islander people is presented for the period 2004–05 to 2012–13. The year 2004–05 was chosen as the starting period for the analysis to maximise the number of jurisdictions available for inclusion that were assessed by the AIHW as having adequate identification of Indigenous hospitalised cases. Further information about the selection of hospital separations for Indigenous and non-Indigenous Australians and other methodological issues can be found in Box 1.2 and in 'Appendix A: Data issues'. (For a definition of the term 'separation' see Box 1.1 and the Glossary.)

Diagnosis and external cause information for the hospital separations reported here were coded according to seven editions of ICD-10-AM that were current during parts of the period 1999 to 2013.

What data are reported?

The data are presented by:

- age
- sex
- external cause of injury
- remoteness of the patient's area of usual residence
- Indigenous status.

Selection criteria for records, and data terms and definitions

Records that met all of the following criteria were included in this report:

- hospital separations occurring in Australia 1 July 1999 to 30 June 2013; and
- principal diagnosis in the ICD-10-AM range S00–T75 or T79 using Chapter XIX *Injury, poisoning and certain other consequences of external causes* codes; and
- mode of admission was not a transfer from another acute hospital (see 'Appendix A: Data issues' for details).

Important terms relating to the data used in this report are summarised in Boxes 1.1 to 1.3, and further information on data and methods is provided in 'Appendix A: Data issues'. Other information boxes are included within relevant areas in various chapters in the report.

In tables and charts, unless stated otherwise:

- The patient's age is calculated at the date of admission.
- In tables by age group and sex, separations for which age and sex were not reported were included in totals.
- Rates were age-standardised as detailed in 'Appendix A: Data issues'.
- Trends were analysed using the negative binomial distribution regression technique, as described in Berry and Harrison (2006, see also 'Appendix A: Data issues').

All chapters on specific external causes have used this methodology supplemented by additional selection criteria for the specific external cause.

Changes in separation rates due to changes in underlying population data

All populations, except those used for analyses by Indigenous status (see 'Appendix A: Data issues'), are based on 2011 Census data. The age-standardised rates (per 100,000 population) presented in this report for the years 1999–00 to 2011–12 in time series have been calculated using 'rebased' estimated resident populations. Therefore, the rates in this report are not directly comparable to the rates presented in earlier injury reports.

Box 1.1: Summary of terms relating to hospitalised injury

Statistics on admitted patients are compiled when an **admitted patient** (a patient who undergoes a hospital's formal admission process) completes an episode of admitted patient care and 'separates' from the hospital. This is because most of the data on the use of hospitals by admitted patients are based on information provided at the end of the patients' episodes of care, rather than at the beginning. The length of stay and the procedures carried out are then known and the diagnostic information is more accurate.

Separation is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

The **principal diagnosis** is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care.

An **external cause** is defined as the environmental event, circumstance or condition that was the cause of injury or poisoning. Whenever a patient has a principal or additional diagnosis of an injury or poisoning, an external cause code should be recorded.

(continued)

Box 1.1 (continued)

The **injury separation records** included in this report are those that have a principal diagnosis code in the ICD-10-AM range S00–T75 or T79. Whenever a patient has a principal or additional diagnosis of an injury or poisoning, an external cause code should be recorded. This includes records where the main reason for the episode in hospital was a recent injury, such as a fracture, laceration or burn to any part of the body, or poisoning. It also includes a small number of episodes mainly due to complications of surgical and medical care or due to sequelae present a year or more after injury, or other late effects.

Records are included whether caused unintentionally ('accidents') or intentionally (intentional self-harm, or assault). Records where intent was not determined are also included. Throughout this report, records with a principal diagnosis of S00–T75 or T79 are included in the totals of tables unless otherwise indicated, even if they lack an external cause or have a first-reported external cause code of complications of surgical and medical care, or codes describing the sequelae of external causes. These records meet the principal diagnosis definition of community injury, but lack a meaningful external cause.

Injury cases are estimated as the number of injury separations, less those records where the mode of admission was 'inward transfer'. Inward transfers are omitted to reduce over-counting.

The criteria for injury cases retain a small number of records with a first external cause code that is invalid or refers to a sequelae (late effect) or complication of care. These cases are reported as 'other or missing' in tables of external causes.

The **mean length of stay** is the average number of days each patient stayed in hospital. This is calculated by dividing the total number of patient days for **injury separations** by the number of **injury cases,** estimated as above. Patients who were admitted and discharged from hospital on the same day are counted as staying for one day.

Injuries can be classified according to the likelihood that a patient with that injury will die in hospital. The method used refers to cases with a predicted mortality risk of about 6% or higher as having a **high threat to life** (Stephenson et al. 2003). Injuries of this severity are likely to have a large impact on the patient, often with persisting problems and ongoing need for health care services.

Box 1.2: Indigenous reporting

In this report, the terms 'Indigenous' and 'non-Indigenous' are used to refer to persons identified as such in Australian hospital separations data and population data collections. Separations for which Indigenous status was 'not stated' have been excluded from analyses presented in this report. There were 7,888 separations (1.6%) in 2012–13 with Indigenous status recorded as 'not stated.

From 2010–11 onwards, Indigenous status information within hospital separations data from all jurisdictions were of sufficient quality for statistical reporting purposes (AIHW 2013). An AIHW study found that an estimated 88% of Indigenous patients were correctly identified in Australian public hospital admission records in 2011–12. Analyses of 2012–13 hospitals data in this paper therefore include data for all jurisdictions, except for time trend analyses, which present data for the 6 jurisdictions that the AIHW has assessed as having adequate identification of Indigenous hospitalised cases between 2004–05 and up to 2010–11.

(continued)

Box 1.2 (continued)

These jurisdictions were: New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only).

Indigenous people in these 6 jurisdictions comprise approximately 96% of the Indigenous population of Australia. For the latest information on the quality of Indigenous status in the NHMD, and recommendations for future reporting practices, see *Indigenous identification in hospital separations data: quality report* (AIHW 2013).

Injury rates were age-standardised to 85+ by the direct method.

Further information is available in 'Appendix A: Data issues'.

Box 1.3: Changes to NHMD inclusions for 2012–13

The emergency department admission policy was changed for Victorian hospitals in 2012–13. Episodes of care delivered entirely within a designated emergency department or urgent care centre could no longer be categorised as an admission regardless of the amount of time spent in the hospital. This narrowing of the categorisation has had the effect of reducing the number of admissions recorded in Victoria for the 2012–13 financial year. According to *Australian Hospital Statistics 2012–13* there was a decrease of about 140,000 admissions in emergency departments, with a flow-on effect to admitted patient admissions (AIHW 2014).

For this report we have used the NHMD data as provided. Consequently, fewer injury separations are reported than would have been seen had the Victorian policy not changed, for most analyses. We have undertaken modelling to examine the impact of the change to Victorian policy by comparing trend data for all jurisdictions with the same data excluding Victoria. We have also provided estimates of the approximate reduction in the number of injury cases in 2012–13 due to the Victorian policy change. Details of the procedure can be found in 'Appendix A: Data issues'. A footnote has been added to trends charts in the report to remind readers of the potential impact due to the Victorian policy change.

2 Overview of hospitalised injury

2.1 What was the profile of injury cases in 2012–13?

There were 483,189 hospital separations due to injury and poisoning for public and private hospitals in Australia during 2012–13 (Table 2.1). Excluding inward transfers, there were an estimated 446,680 injury cases.

More males than females (1.3:1) were hospitalised as a result of an injury in 2012–13. The age-standardised rate of injury was also higher for males than for females.

Table 2.1: Key indicators for injury cases, by sex, Australia, 2012–13

Indicators	Males	Females	Persons
Separations from hospital due to injury	270,736	212,446	483,189
Injury cases	250,440	196,233	446,680
Age-standardised rate/100,000 population	2,204	1,544	1,888

Age and sex

The largest proportion of injuries occurred in people aged 65 and older (29%). This was also true for females but not for males (Table 2.2). For males, the largest proportion of injuries occurred at 25–44 years (28%) compared with 18% for females of the same age.

Table 2.2: Injury cases, by age and sex, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	11,850	4.7	8,795	4.5	20,645	4.6
5–14	24,311	9.7	14,041	7.2	38,352	8.6
15–24	46,763	18.7	21,082	10.7	67,846	15.2
25–44	70,976	28.3	34,397	17.5	105,375	23.6
45–64	49,229	19.7	35,429	18.1	84,658	19.0
65+	47,310	18.9	82,489	42.0	129,799	29.1
Total	**250,440**	**100**	**196,233**	**100**	**446,680**	**100**

In 2012–13, the rates of injury, as in previous years, were much higher in the older age groups from about 65 years (Figure 2.1). Males had a higher rate of injury across all age groups up to about 65–69; thereafter females had much higher rates (Figure 2.1). The highest rate of injury for females occurred at 85+ years with 12,431 cases per 100,000 population compared with 8,911 for males at the same age. At younger ages the highest rates of injury for males occurred at 15–19 (2,928) and 20–25 (2,982).

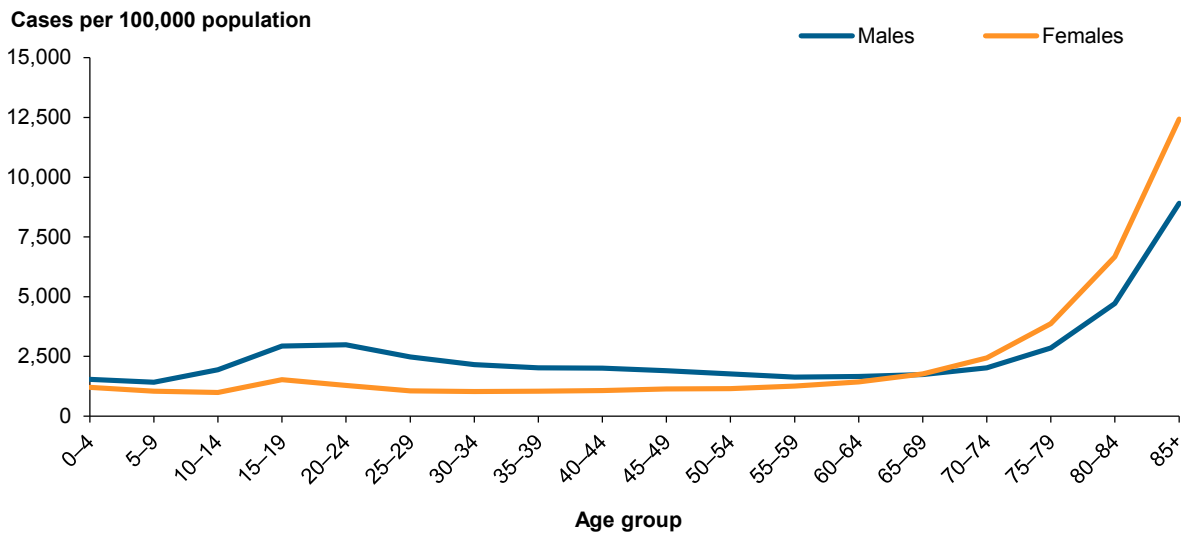


Figure 2.1: Age-specific rates of injury, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of injury in 2012–13 increased with increasing remoteness. The rate of injury in *Very remote* regions (3,901 per 100,000 population) was more than double the rate in the *Major cities* (1,763 per 100,000 population) (Table 2.3).

Table 2.3: Injury cases by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	**Major cities**	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Total[(a)]**
Injury cases	291,328	86,309	46,410	9,563	7,950	446,680
Per cent	65.2	19.3	10.4	2.1	1.8	100
Age-standardised rate/100,000 population	1,763	2,008	2,266	3,102	3,901	1,888

(a) Includes 5,120 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were 24,238 hospital separations due to injury and poisoning for Indigenous people during 2012–13 (Table 2.4). Excluding inward transfers, there were an estimated 22,277 injury cases. More males than females were hospitalised (1.3:1). For Indigenous people, rates of injury were twice those of non-Indigenous Australians.

Table 2.4: Key indicators for injury cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Separations from hospital due to injury	13,888	10,350	24,238	252,358	198,702	451,063
Injury cases	12,640	9,637	22,277	233,662	183,518	417,183
Age-standardised rate/100,000 population	3,891	3,122	3,513	2,116	1,469	1,806

Table 2.5 presents the distribution of injury cases by age and sex. For Indigenous people the largest proportion of cases occurred at ages 25–44 for both males and females; a higher proportion of cases occurred among Indigenous females (42%) at that age compared with males (36%). The greatest difference between Indigenous females and non-Indigenous females was seen at 65+ (4% and 44% respectively).

Table 2.5: Injury cases, by age, sex and Indigenous status, Australia, 2012–13

	Indigenous		Non-Indigenous	
Age group	**Number**	**%**	**Number**	**%**
Males				
0–4	957	7.6	10,779	4.6
5–14	1,748	13.8	22,349	9.6
15–24	3,161	25.0	42,777	18.3
25–44	4,500	35.6	65,187	27.9
45–64	1,938	15.3	46,397	19.9
65+	336	2.7	46,172	19.8
Total	**12,640**	**100**	**233,662**	**100**
Females				
0–4	697	7.2	7,995	4.4
5–14	971	10.1	12,928	7.0
15–24	1,992	20.7	18,774	10.2
25–44	4,002	41.5	29,896	16.3
45–64	1,547	16.1	33,257	18.1
65+	428	4.4	80,668	44.0
Total	**9,637**	**100**	**183,518**	**100**

In terms of injury rates by age, the pattern was quite different for Indigenous males and females compared with their non-Indigenous counterparts (Figure 2.2). Rates were higher for Indigenous people in the middle years, from about 15–19 through to 50–54 years. From about 65 years rates were high for both Indigenous and non-Indigenous people.

The overall Indigenous rate ratios for children and young people aged 0–4, 5–9, and 10–14 averaged 1.4. The average rate ratio from 15–19 through to 60–64 was 2.5. The highest rate ratio was observed at 30–34 where the rate of injury for Indigenous people was 3.6 times the rate of injury for non-Indigenous people. From about age 65 the rate ratio averaged 1.

While rates for Indigenous males were higher than for other males at nearly all ages, the difference was greatest from teen years to about age 50–54. For Indigenous females a noteworthy difference was present from 20–24 to 50–54.

Injury rates for Indigenous and non-Indigenous males were highest in the two oldest age groups (80–84, and 85+). However, at younger ages, for Indigenous males, the highest rate of injury occurred at 30–34 (5,454 per 100,000), while for non-Indigenous males it occurred at 20–24 years (2,833 per 100,000).

As with males, Indigenous and non-Indigenous females the highest rates of injury in the two oldest age groups. For Indigenous females the highest rate of injury in the younger age groups occurred at 30–34 (5,454 per 100,000), while for non-Indigenous females it occurred at 15–19 years (1,448 per 100,000).

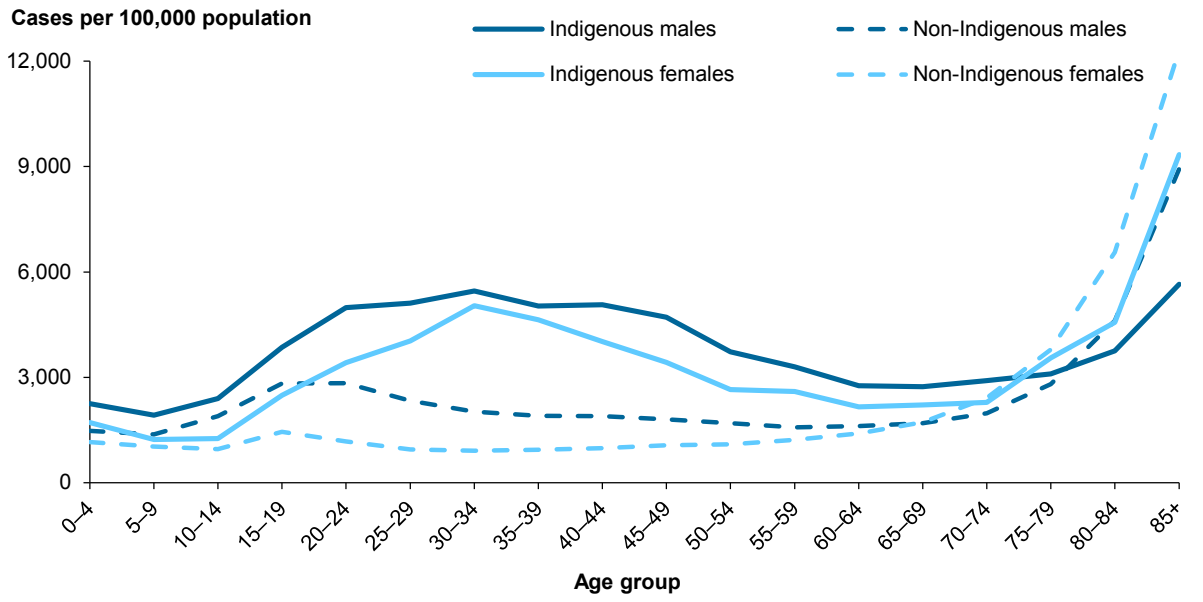


Figure 2.2: Age-specific rates of injury, by sex and Indigenous status, Australia, 2012–13

Causes of injury

Falls constituted the largest proportion of injury cases overall in 2012–13 (40%), followed by *Other unintentional causes* (32%) and *Transport accidents* (12%) (Table 2.6).

Other unintentional causes is a broad category that includes, for example, *Exposure to inanimate mechanical forces* (W20–W49) and *Contact with venomous animals and plants* (X20–X29). Because it is so diverse and non-specific, this residual group is not generally included in assessments of the rank order of external causes. The *Other unintentional causes* category is described more fully in Chapter 10.

For males the leading external cause after *Falls* (31%) and *Transport accidents* (15%) was *Assault* (6%).

For females the rankings were: *Falls* (51%) followed by *Transport accidents* (9%) and *Intentional self-harm* (9%).

Table 2.6: Major external cause groups for injury cases, by sex, Australia, 2012–13

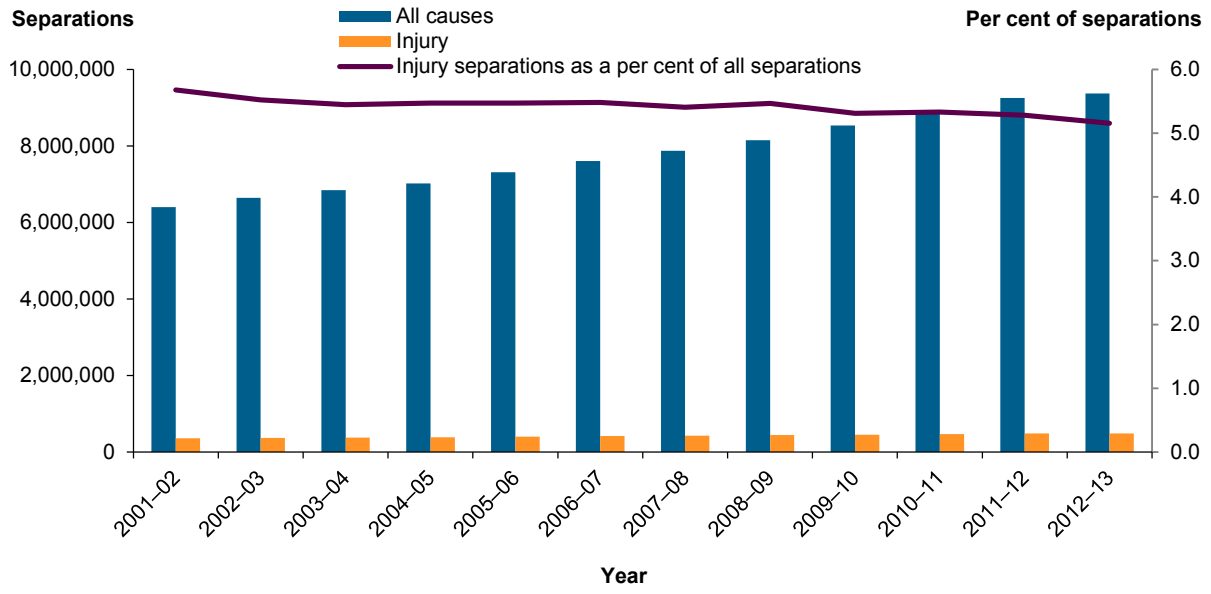
	Males		Females		Persons	
External cause	**Number**	**%**	**Number**	**%**	**Number**	**%**
Unintentional injuries						
Transport crashes	36,877	14.7	17,728	9.0	54,606	12.2
Drowning and submersion	362	0.1	182	0.1	544	0.1
Poisoning, pharmaceuticals	3,612	1.4	3,664	1.9	7,276	1.6
Poisoning, other substances	1,251	0.5	699	0.4	1,950	0.4
Falls	77,857	31.1	100,920	51.4	178,780	40.0
Thermal causes	3,800	1.5	2,057	1.0	5,857	1.3
Other unintentional causes	98,431	39.3	44,347	22.6	142,780	32.0
Intentional injuries						
Intentional self-harm	9,759	3.9	17,340	8.8	27,100	6.1
Assault	14,769	5.9	6,365	3.2	21,134	4.7
Undetermined intent	2,558	1.0	2,104	1.1	4,662	1.0
Other or missing	1,164	0.5	827	0.4	1,991	0.5
Total	**250,440**	**100**	**196,233**	**100**	**446,680**	**100**

2.2 How have injury cases changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. A narrowed inclusion policy in Victoria (see Box 1.3), introduced for 2012–13, contributed to generally lower observed rates in 2012–13 compared to 2011–12, although the exact size of the effect cannot be determined. In Section 2.3, a predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented, along with the observed rate for comparison.

Separations from hospital as a result of an injury generally account for around 6% of all separations from hospital due to any cause. In the last 3 years, however, the proportion has been decreasing so that while injury separations accounted for 6% of all separations (345,710 separations) in 1999–00, they accounted for 5% in 2012–13 (446,680) (Figure 2.3).

(This summary of injury in relation to all causes of hospitalisation is presented in terms of *separations* and not in terms of *estimated cases*, because the latter measure, as used in this report, applies only to injury.)



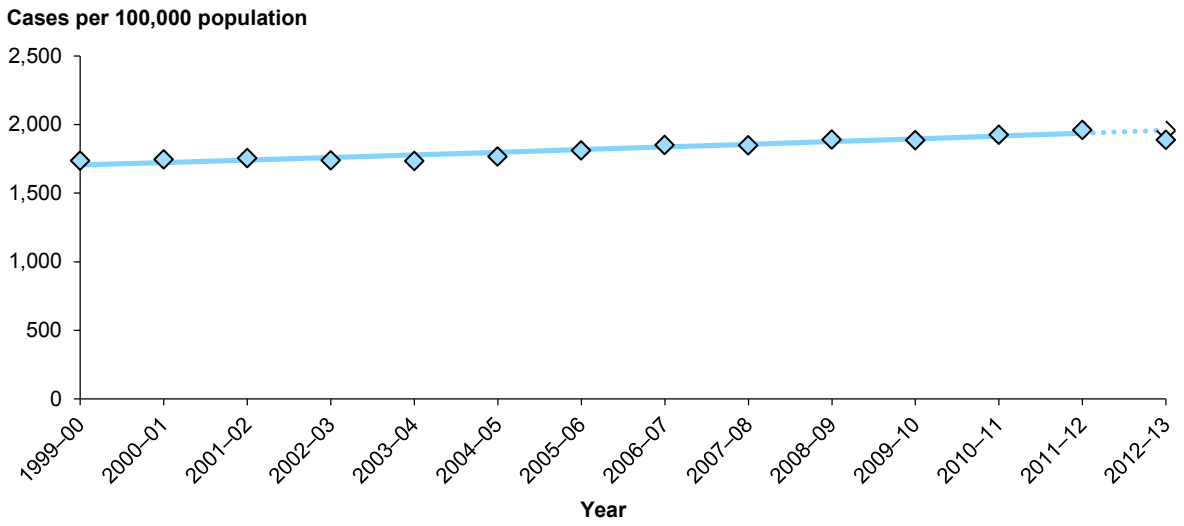
Notes

1. Information on all-cause separations is from relevant editions of *Australian Hospital Statistics* (published by AIHW).
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.3: Number of separations for injury, and hospitalised cases for all causes, Australia, 2001–02 to 2012–13

The population-based age-standardised rate of cases of injury rose slowly but definitely during the 13 years to 2012–13 (Figure 2.4). The rate was 1,736 per 100,000 population in 1999–00 and 1,888 in 2012–13. The observed rate declined from 2011–12 to 2012–13 mainly due to the narrowing of case inclusion criteria for Victoria (see Box 1.3)—the artifactually low rate observed for 2012–13 was therefore not used for modelling trends in rates in Figure 2.4. Note that the same issue applies to all rates for 2012–13 and the change from 2011–12 to 2012–13 should be interpreted cautiously.

The rise in the modelled rate averaged 1.1% per year and was statistically significant (95% CI: 0.9%, 1.2%). The predicted rate of injury in 2012–13 based on the trend from 1999–00 to 2011–12 was 1,984 cases per 100,000 population.



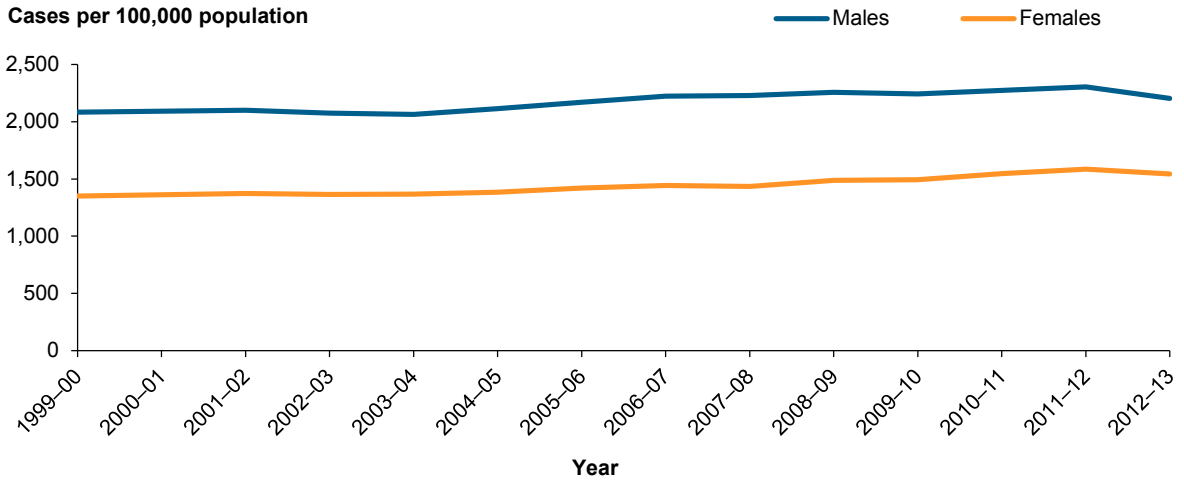
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.1 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.4: Modelled age-standardised rates of injury, Australia, 1999–00 to 2012–13

2.3 How have injury cases varied by age and sex over time?

Age-standardised rates of injury for males and females showed little variation over the period (Figure 2.5). For females, the lowest rate occurred in 1999–00 (1,343 per 100,000 population) and the highest in 2011–12 (1,585 per 100,000). For males, the lowest and highest rates were in 2003–04 (2,043 per 100,000) and 2011–12 (2,304 per 100,000) respectively.



Notes

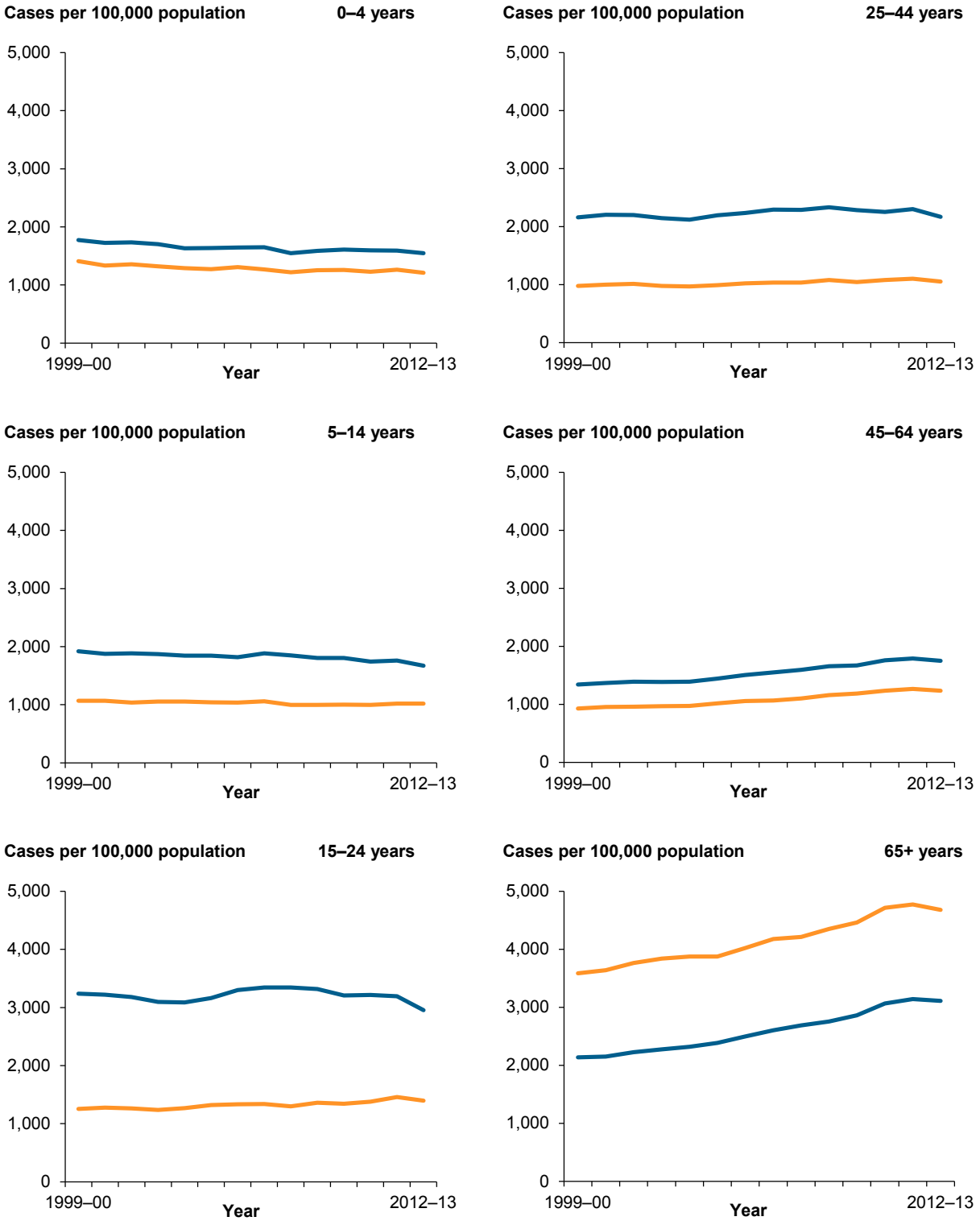
1. Data underpinning this figure are available in Tables B.1 and B.2 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.5: Age-standardised rates of injury, by sex, Australia, 1999–00 to 2012–13

Changes in rates of injury over time by broad age group as well as sex is shown in Figure 2.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admission policy in Victoria are confined to the most recent year of these two years, and readers should interpret any changes between these years (2011–12 and 2012–13) with caution.

Crude rates of injury were much higher for females compared with males in the 65+ group in contrast to all other age groups. Rates rose over the period for both males and females in the 65+ group, however. The crude rate for males aged 65+ in 1999–00 was 2,125 cases per 100,000 population, rising to 3,114 in 2012–13. For females, the rate was 3,565 in 1999–00 rising to 4,682 in 2012–13.

Rates of injury in children aged 0–4 decreased over time. For males, the rate was 1,774 cases per 100,000 in 1999–00 decreasing to 1,579 in 2012–13. For females, the rate was 1,408 in 1999–00 and 1,210 in 2012–13.



Notes

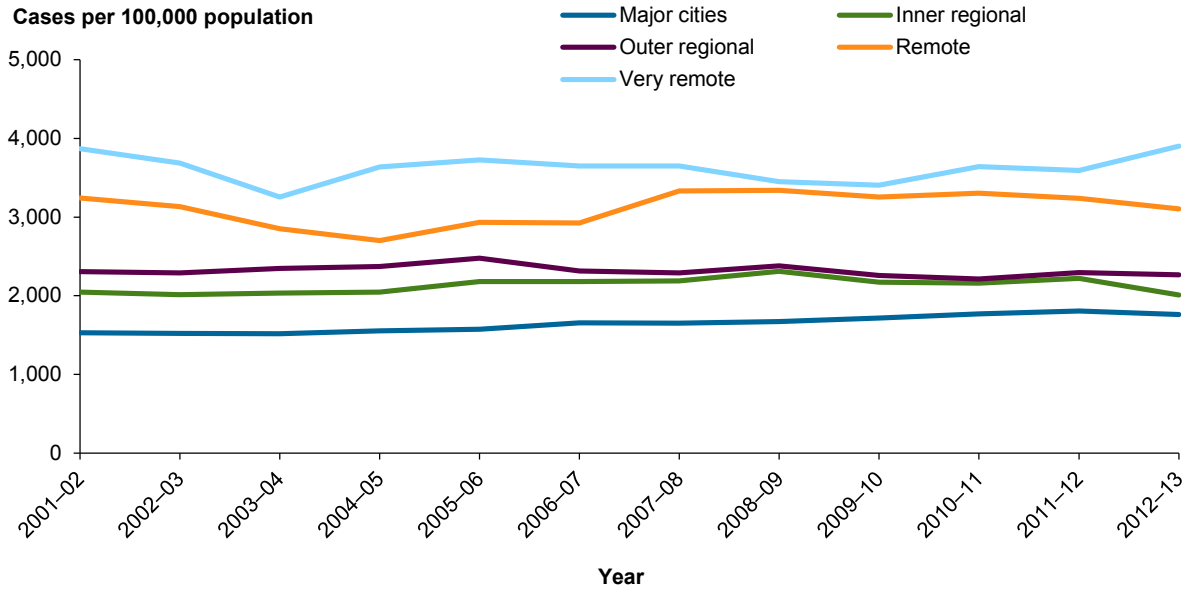
1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.2 and B.3 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.6: Age-specific rates of injury by age and sex, Australia, 1999–00 to 2012–13

2.4 How have injury cases varied by remoteness of usual residence over time?

Rates of injury were consistently higher over time for residents of *Very remote* and *Remote* areas compared with other areas. Rates were lowest for residents of *Major cities* (Figure 2.7). The rank order of remoteness area from lowest rate of injury to highest rate of injury did not change over time.

The high rate of injury for residents of the more remote areas may be partly attributable to higher injury rates among Indigenous people, who comprise a relatively large proportion of remote area populations. The fluctuation in rate of injury in the *Very remote* and *Remote* regions of Australia is largely a reflection of the small population and number of incidents occurring each year.



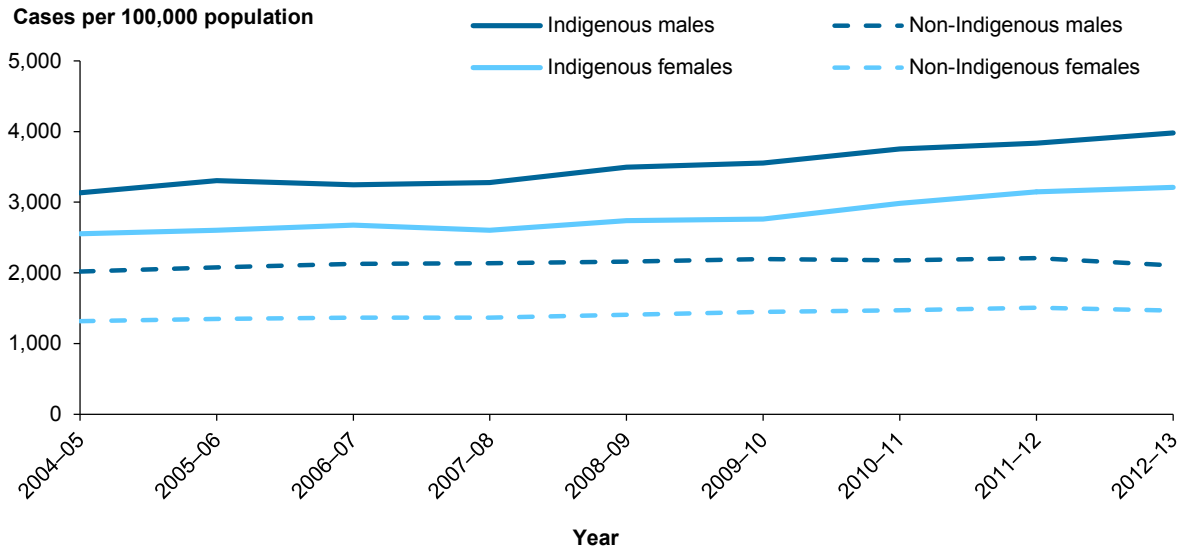
Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.7: Age-standardised rates of injury, by remoteness of usual residence, Australia, 2001–02 to 2012–13

2.5 How have injury cases in Indigenous people changed over time?

Age–standardised rates of injury among Indigenous and non-Indigenous Australians by sex are shown in Figure 2.8. Rates of injury for Indigenous people were higher than rates of injury for non-Indigenous people over the period. From about 2009–10 the gap in rate of injury between Indigenous and non-Indigenous Australians widened. For example, in 2004–05 the rate ratio between Indigenous and non-Indigenous males was 1.6:1 and in 2012–13 it was 1.9:1.

Rates of injury for Indigenous males and females increased over the period, rising more rapidly in recent years. A similar rapid rise was not seen for non-Indigenous Australians. The highest rate of injury over the period in both males and females was for Indigenous people in the most recent year (2012–13) 3,980 and 3,210 cases per 100,000 population respectively.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.23 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 2.8: Age-standardised rates of injury, by sex and Indigenous status, Australia, 2004–05 to 2012–13

2.6 How have the causes of injury cases varied over time?

Changes in age-standardised rates of injury for various causes over the 1999–2013 period are summarised in Table 2.7. More information on trends in each of the causes of injury listed in the table is available in subsequent chapters of this report.

Two specific causes of injury showed statistically significant increases in age-standardised rates: falls (2.4% increase per year from 2002–03), and intentional self-harm (0.4% increase per year from 2000–01).

Three of the causes (transport crashes; thermal causes; and assault) showed little or no trend over time.

Significant downward trends were seen in the rate of hospitalised cases due to: poisoning by pharmaceuticals (4.1% decrease per year from 2005–06); poisoning by other substances (3.6% decrease per year from 1999–00); and drowning and near-drowning (1.2% decrease per year from 1999–00).

Table 2.7: Trends in age-standardised rates of injury cases, by type of external cause, Australia, 1999–00 to 2012–13

External cause	Trend	Per cent change per year	Per cent of all injuries 2012–13
Unintentional injuries			
Transport crashes	↔	**	12.2
Drowning and submersion	↓	1.2*	0.1
Poisoning, pharmaceuticals	↓	4.1*	1.6
Poisoning, other substances	↓	3.6*	0.4
Falls	↑	2.4*	40.0
Thermal causes	↔	**	1.3
Other unintentional causes	↑	1.6*	32.0
Intentional injuries			
Intentional self-harm	↑	0.4*	6.1
Assault	↔	**	4.7

* Average per cent change per year differed from zero to a statistically significant extent ($p<0.05$).

** Average percent change per year was small (<0.1%) and did not differ significantly from zero ($p\geq0.05$).

Note: Rates for 2012–13 were not used when calculating per cent change per year due to the narrowing of Victorian policy on admissions (see Box 1.3).

3 Severity of injury

Two measures of severity for hospitalised injury cases are length of stay and the proportion of high threat to life cases. This chapter presents information on how length of stay in hospital and the proportion of high threat to life cases have varied over time.

Length of stay provides an approximate indication of case severity because severe injuries are more likely to result in long episodes of care than minor injuries. However some severe cases have relatively short lengths of stay because the injured person dies in hospital. Estimates of length of stay are likely to be underestimates of the total amount of time an individual spends in hospital as a result of their injury. Length of stay information presented here is based on hospitalisations that represent cases and those with transfer in as the mode of admission (see 'Appendix A: Data issues'). Some of the included cases may have had additional time spent in hospital (for example, for rehabilitation) but that is not included here.

What data were reported?

Information is presented in this chapter for injury in terms of:

- Case numbers
- Mean length of stay
- Total patient-days
- Proportion of high threat to life cases.

Results are presented by age, sex, Indigenous status and year of separation.

What methods were used?

The mean length of stay (MLOS) is the average number of days each patient stays in hospital in acute care. This was calculated by dividing the total number of patient-days for a reporting period (including inward transfers) by the estimated number of cases for the same period. Patient-days are the number of full and partial days a patient spends in hospital. One patient-day is counted for same-day patients (admitted and discharged from hospital on the same day).

Injuries can be classified according to the likelihood that a patient with that injury will die in hospital. The method used refers to cases with predicted mortality risk of about 6% or higher as having a high threat to life (Stephenson et al. 2003). Injuries of this severity may well have a large impact on the patient, often with persisting problems and ongoing need for health care services.

3.1 Length of stay

In 2012–13, the overall MLOS for injury was 3.9 days (more than 1.7 million days for 446,680 cases) (Table 3.1). MLOS was shorter for males overall than for females (3.9 days compared with 4.6). However, age-specific MLOS was very similar for both sexes. Hence, the overall difference is due to the different age distribution of male and female cases. Discharge occurred on the same day as admission for one-third of all injury cases (34%; 157,963

separations). More males (34.8%; 94,243 separations) were discharged on the same day compared with females (28%; 60,054).

Table 3.1: Length of stay for injury: case counts, total patient days, and mean length of stay, Australia, 2012–13

	Males			Females			Persons		
Age group	Cases	Total patient days	MLOS	Cases	Total patient days	MLOS	Cases	Total patient days	MLOS
0–4	11,850	19,613	1.7	8,795	14,226	1.6	20,645	33,839	1.6
5–14	24,311	41,269	1.7	14,041	24,182	1.7	38,352	65,451	1.7
15–24	46,763	100,827	2.2	21,082	45,784	2.2	67,846	146,612	2.2
25–44	70,976	177,755	2.5	34,397	82,796	2.4	105,375	260,555	2.5
45–64	49,229	166,740	3.4	35,429	121,955	3.4	84,658	288,695	3.4
65+	47,310	312,076	6.6	82,489	607,310	7.4	129,799	919,386	7.1
Total	**250,440**	**818,281**	**3.8**	**196,233**	**896,253**	**4.6**	**446,680**	**1,714,544**	**3.8**

MLOS was much higher for ages 65+ in 2012–13 (Figure 3.1). The average stay for people aged 85+ (8.2 days) was almost twice that for those aged 65–69 (4.7 days).

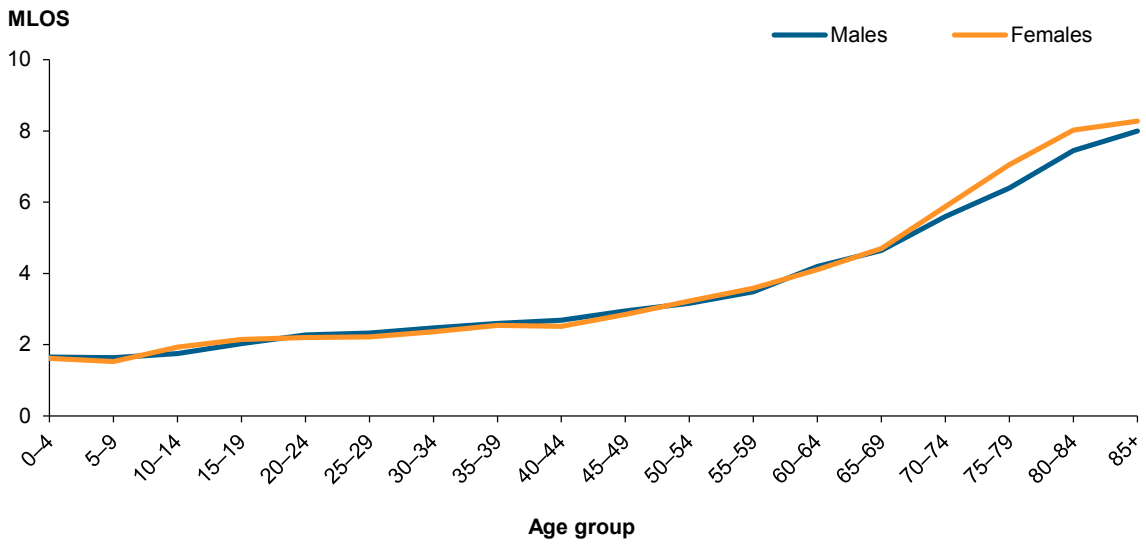


Figure 3.1: Mean length of stay for injury, by age and sex, Australia, 2012–13

Aboriginal and Torres Strait Islander people

Mean length of stay for Indigenous people generally increased with age (Figure 3.2). The average stay was shortest for Indigenous children aged 0–14 (2.2 days), and highest for people aged 65 and older (6.9 days). The highest lengths of stay were recorded for Indigenous females 85+ (9.6 days) and Indigenous males 75–79 (5.6 days). Mean lengths of stay were a little higher among Indigenous males compared with non-Indigenous males up until the age of 65–69. While this was also true of Indigenous females the difference in MLOS at each age was very small other than at 70–74 years.

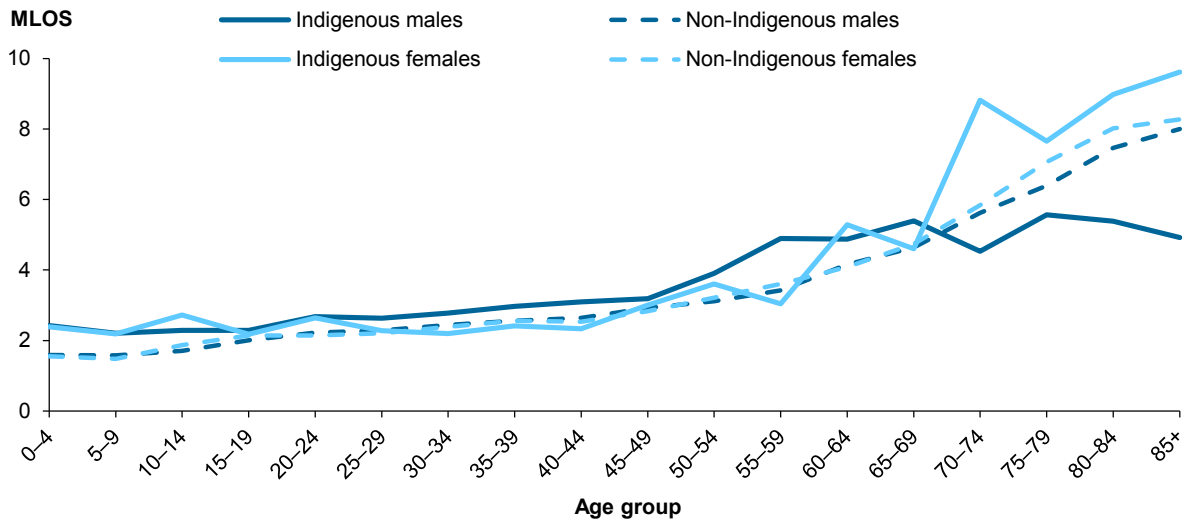


Figure 3.2: Mean length of stay for injury, by age, sex and Indigenous status, Australia, 2012–13

Table 3.2 presents information on length of stay for Indigenous and non-Indigenous Australians. In 2012–13, the overall MLOS for injury among Indigenous people was 2.8 days (more than 60,000 days for 22,277 cases). Discharge occurred on the same day of admission for one-third of all injury cases among Indigenous people (36%; 8,495 separations), similar to non-Indigenous Australians (32%; 136,228). A larger proportion of Indigenous females (38%) were discharged on the same day compared with non-Indigenous females (28%).

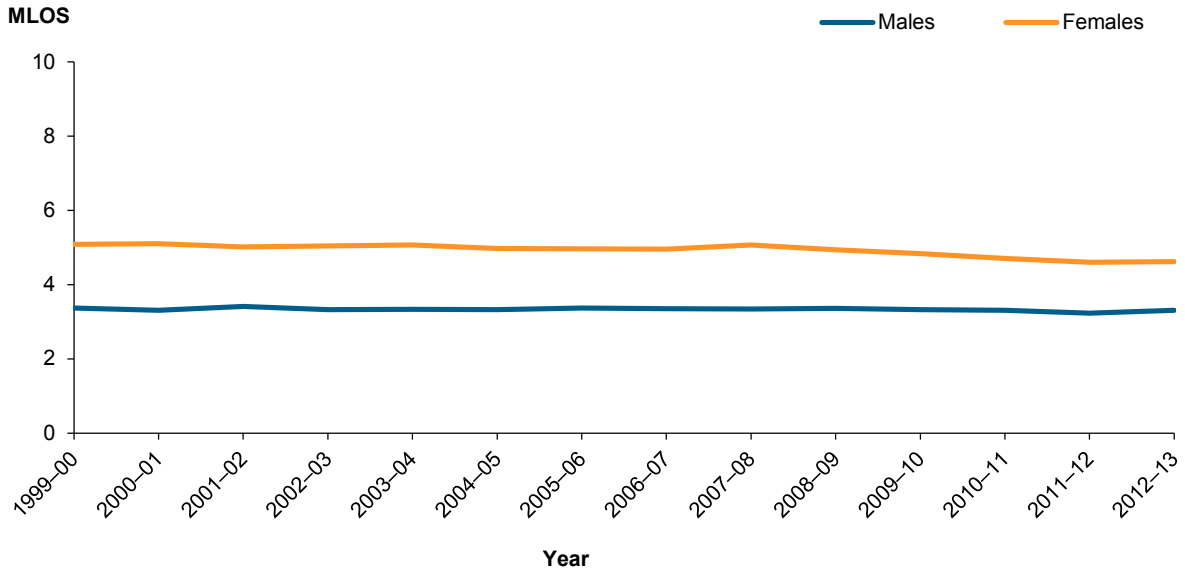
Table 3.2: Length of stay for injury: case counts, total patient days, and mean length of stay, by Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Age group	**Cases**	**Total patient days**	**MLOS**	**Cases**	**Total patient days**	**MLOS**
0–4	1,654	3,978	2.4	18,774	29,500	1.6
5–14	2,719	6,315	2.3	35,277	58,537	1.7
15–24	5,153	12,724	2.5	61,552	131,080	2.1
25–44	8,502	22,011	2.6	95,085	233,417	2.5
45–64	3,485	12,920	3.7	79,654	269,978	3.4
65+	764	4,964	6.5	126,840	899,611	7.1
Total	**22,277**	**62,912**	**2.8**	**417,183**	**1,622,124**	**3.9**

How has length of stay changed over time?

There was little change over the 1999–00 to 2012–13 period in the MLOS for injury (Figure 3.3). Females had longer mean lengths of stay compared with males in each of the years examined. The difference was at its smallest in 2012–13 (3.3 for males; 4.6 for females).

Although MLOS is only an approximate indication of case severity, the consistency over time in MLOS suggests that the overall severity of injuries treated in hospital has not increased or decreased markedly.

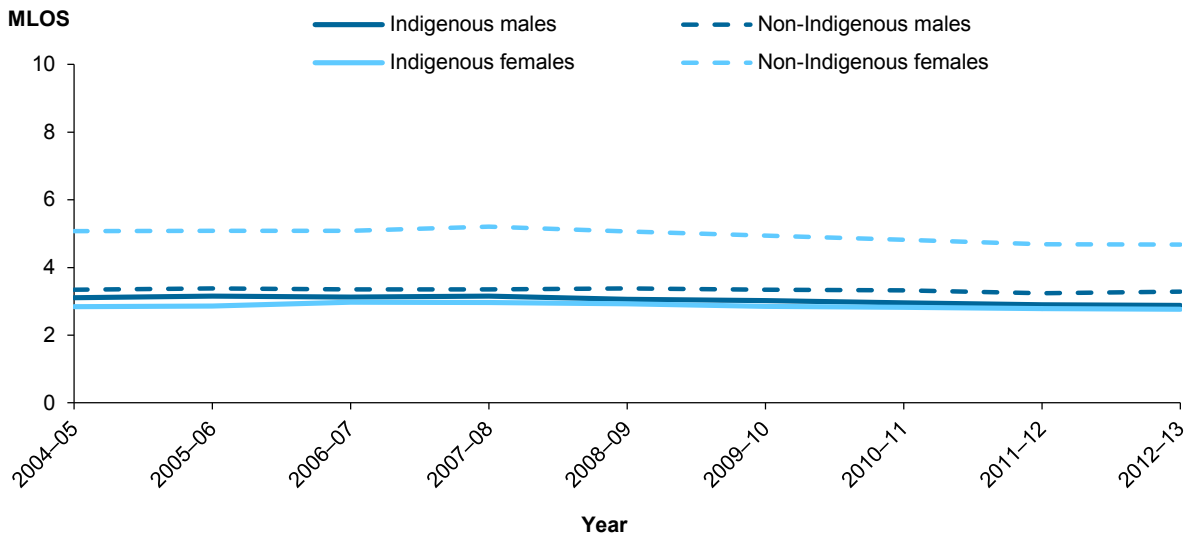


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 3.3: Mean length of stay for injury cases, by sex, Australia, 1999–00 to 2012–13

Aboriginal and Torres Strait Islander people

As with the population as a whole, there was little change over the period in the MLOS among Indigenous people (Figure 3.4). Non-Indigenous females had longer mean lengths of stay compared with all other groups in each of the years examined. A large contributing factor to this pattern is the high number of falls in older non-Indigenous females.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 3.4: Mean length of stay for injury cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

3.2 High threat to life

About 1 in 6 injury cases (16%; 69,325) were classified as high threat to life (HTTL) in 2012–13 (Table 3.3). There were 34,499 HTTL cases reported for males; however, as more males were hospitalised for injury overall, this represented a smaller proportion of male injury cases (14%) compared with 18% HTTL cases for females.

Table 3.3: High threat to life injury cases, Australia, 2012–13

	Males		Females		Persons	
Age group	**Number**	**% HTTL**	**Number**	**% HTTL**	**Number**	**% HTTL**
0–4	767	6.5	518	5.9	1,285	6.2
5–14	1,102	4.4	479	3.4	1,581	4.1
15–24	4,333	9.2	1,352	6.4	5,685	8.4
25–44	7,369	10.5	2,300	6.7	9,669	9.2
45–64	7,068	9.7	3,430	9.7	10,498	12.5
65+	13,860	28.4	26,746	28.4	40,606	28.6
Total	**34,499**	**13.8**	**34,825**	**17.7**	**69,325**	**15.5**

Aboriginal and Torres Strait Islander people

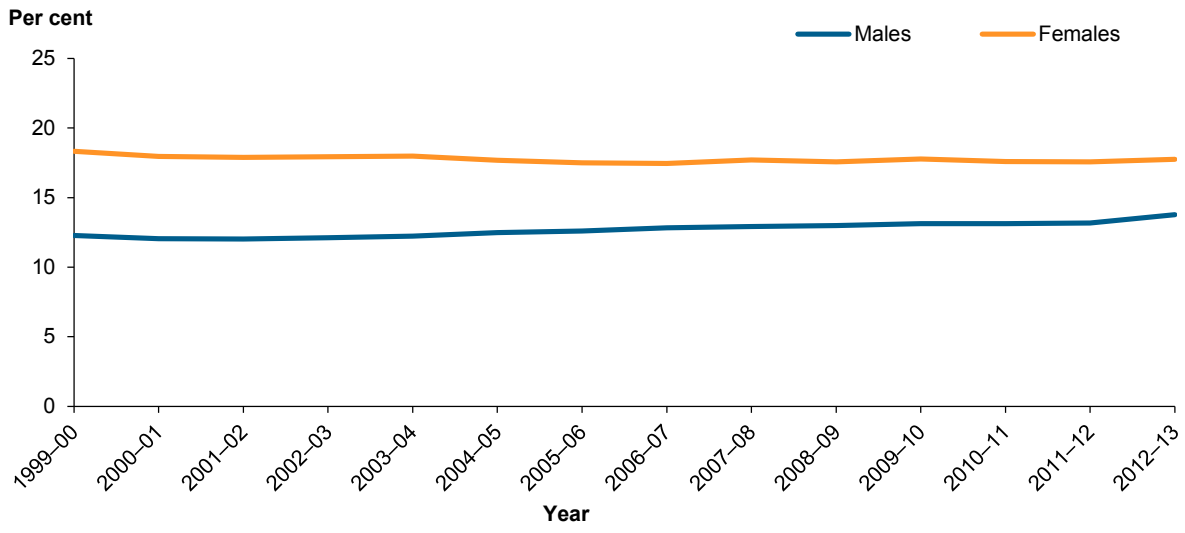
The pattern of HTTL cases is somewhat similar between Indigenous and non-Indigenous people, with greater proportions of HTTL cases among males up to 65+ (Table 3.4). The highest proportion of cases of HTTL occurred at 65+ for both groups. One notable difference was the higher proportion of HTTL cases for Indigenous females (33%) at 65+ compared with Indigenous males (25%).

Table 3.4: High threat to life injury cases, by Indigenous status, Australia, 2012–13

	Males		Females		Persons	
Age group	**Number**	**% HTTL**	**Number**	**% HTTL**	**Number**	**% HTTL**
Indigenous						
0–4	67	7.0	51	7.3	118	7.1
5–14	103	5.9	51	5.3	154	5.7
15–24	342	10.8	170	8.5	512	9.9
25–44	526	11.7	355	8.9	881	10.4
45–64	305	15.7	173	11.2	478	13.7
65+	85	25.3	141	32.9	226	29.6
Total	**1,428**	**11.3**	**941**	**9.8**	**2,369**	**10.6**
Non-Indigenous						
0–4	690	6.4	460	5.8	1,150	6.1
5–14	994	4.4	418	3.2	1,412	4.0
15–24	3,876	9.1	1,155	6.2	5,031	8.2
25–44	6,620	10.2	1,886	6.3	8,506	8.9
45–64	6,591	14.2	3,194	9.6	9,785	12.3
65+	13,520	29.3	26,169	32.4	39,689	31.3
Total	**32,291**	**13.8**	**33,282**	**18.1**	**65,573**	**15.7**

How have HTTL cases of injury varied over time?

The proportion of HTTL cases was fairly stable over the period (Figure 3.5). At the beginning of the period, the proportion of HTTL cases overall was 14.8% and at the end it was 15.5%. A greater proportion of female cases were classified as HTTL in each year compared with males.

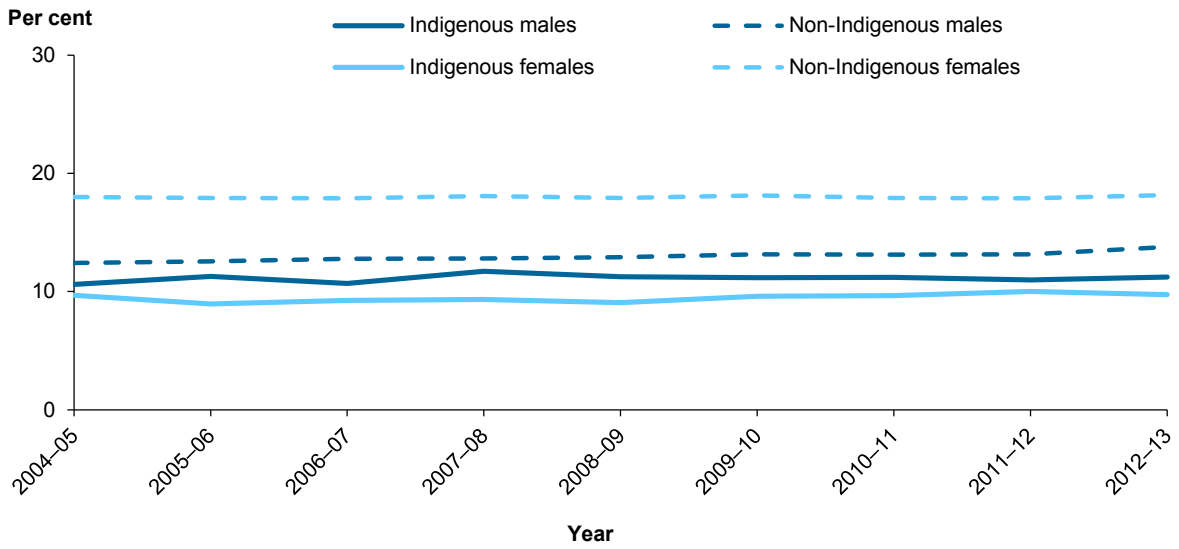


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 3.5: High threat to life injury cases as a proportion of all injury cases, by sex, Australia, 1999–00 to 2012–13

Aboriginal and Torres Strait Islander people

The proportion of HTTL cases was fairly stable over the period, averaging 11% for Indigenous males and 13% for Indigenous females compared with 9% for non-Indigenous males and 18% for non-Indigenous females (Figure 3.6). The greater proportion of HTTL cases for non-Indigenous females is largely due to the higher proportion of cases at older ages for non-Indigenous people (these proportions have not been age-adjusted).



Note: Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).

Figure 3.6: High threat to life injury cases as a proportion of all injury cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

4 Transport crashes

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional transport crash injury in Australia. It excludes transport crash-related injury cases that were coded as: *Intentional self-harm by crashing of motor vehicle*; *Intentional self-harm by jumping or lying before a moving object*; *Assault by pushing or placing victim before moving object*; *Assault by crashing of motor vehicle*; *Falling, lying or running before or into moving object, undetermined intent; Crashing of motor vehicle, undetermined intent;* and *Sequelae of transport accidents*. More detailed information on transport crash injuries, including trend information, can be found in publications available on the AIHW website—for example *Trends in serious injury due to land transport accidents, Australia 2000–01 to 2008–09* (Henley & Harrison 2012).

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM range V00–V99 (*Transport accidents*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 4.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 4.1: External causes of transport crash injury

This chapter focuses on the *Transport accidents* (V00–V99) section of ICD-10-AM Chapter XX External causes of morbidity and mortality which contains the following 12 groups:

- Pedestrian injured in transport accident (V00–V09)
- Pedal cyclist injured in transport accident (V10–V19)
- Motorcycle rider injured in transport accident (V20–V29)
- Occupant of three-wheeled motor vehicle injured in transport accident (V30–V39)
- Car occupant injured in transport accident (V40–V49)
- Occupant of pick-up truck or van injured in transport accident (V50–V59)
- Occupant of heavy transport vehicle injured in transport accident (V60–V69)
- Bus occupant injured in transport accident (V70–V79)
- Other land transport accidents (V80–V89)
- Water transport accidents (V90–V94)
- Air and space transport accidents (V95–V97)
- Other and unspecified transport accidents (V98–V99).

4.1 How many transport crash injury cases were there in 2012–13?

There were an estimated 54,606 transport crash injury cases during 2012–13 excluding inward transfers (Table 4.1). Transport crash injury cases made up 12% of all injury hospitalised cases.

Twice as many males as females were hospitalised as a result of a transport crash injury. The age-standardised rate was twice as high for males compared to females.

Table 4.1: Key indicators for transport crash injury cases, Australia, 2012–13

Indicators	Males	Females	Persons
Transport crash injury cases	36,877	17,728	54,606
Per cent of all injury cases	14.7	9.0	12.2
Age-standardised rate/100,000 population	326	153	240

Age and sex

One-quarter of transport crash injury cases occurred at ages 15–24 (23%) and almost another one-third at ages 25–44 (32%) (Table 4.2). These proportions are much higher than for the same age groups for injury due to all external causes combined (Table 2.3). For males, transport crash injury cases from these two age groups combined as a proportion of all male transport crash injury cases was 59%. For females the corresponding proportion was 49%.

Table 4.2: Transport crash injury cases by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	467	1.3	331	1.9	798	1.5
5–14	3,455	9.4	1,640	9.3	5,095	9.3
15–24	8,982	24.4	3,725	21.0	12,707	23.3
25–44	12,573	34.1	5,041	28.4	17,615	32.3
45–64	8,047	21.8	3,964	22.4	12,011	22.0
65+	3,353	9.1	3,027	17.1	6,380	11.7
Total	**36,877**	**100**	**17,728**	**100**	**54,606**	**100**

Males had a higher rate of transport crash injury across all age groups (Figure 4.1). The rate for males was highest at age 15–19 (577 per 100,000 population) and the equivalent rate for females in this age group was 251 per 100,000. A rise in rates with age group was seen for both sexes at older ages, but this is much less marked than for injury overall.

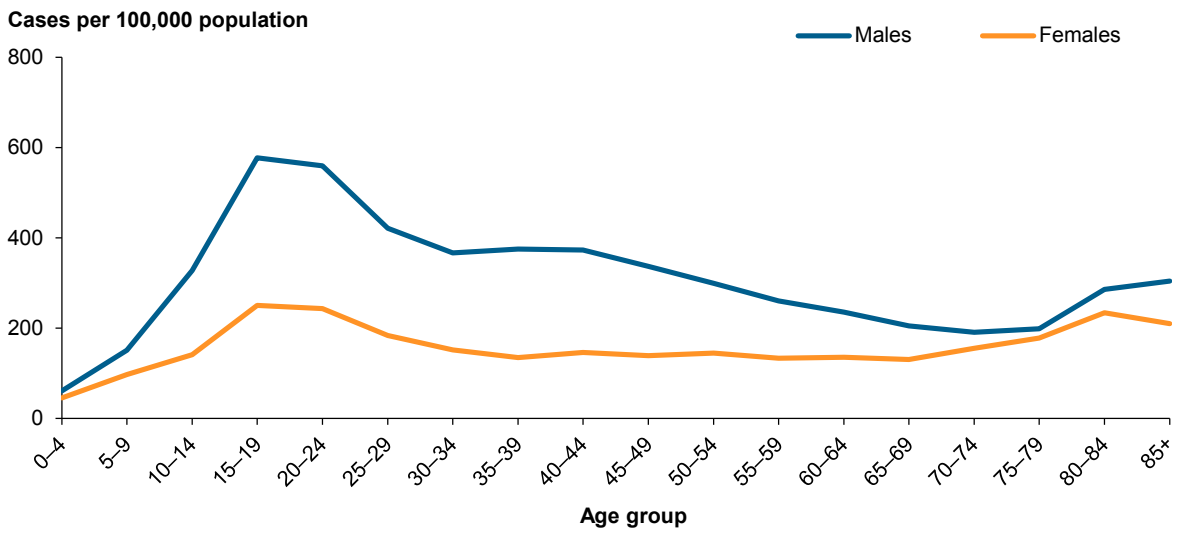


Figure 4.1: Age-specific rates of transport crash injury cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of transport crash injury in 2012–13 increased with increasing remoteness. The rate of injury in *Very remote* regions (486 per 100,000 population) was more than double the rate in *Major cities* (202 per 100,000) (Table 4.3).

Table 4.3: Transport crash injury cases, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Transport crash injury cases	32,641	11,810	6,749	1,400	1,034	54,606
Per cent	59.8	21.6	12.4	2.6	1.9	100
Age-standardised rate/100,000 population	202	297	347	453	486	240

(a) Excludes 972 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

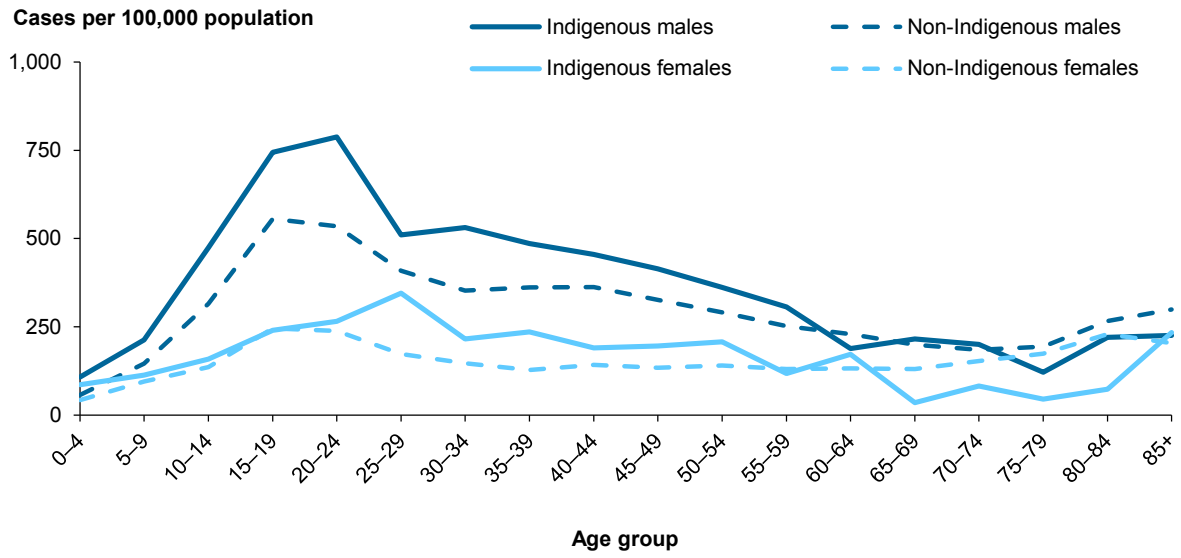
There were an estimated 2,152 cases of Indigenous people hospitalised as a result of a transport crash injury in 2012–13 (Table 4.4). More than twice as many males were hospitalised as females. Transport crash injury among Indigenous people made up a smaller proportion (10%) of all injury compared with non-Indigenous people (12%). The age-standardised rates of transport crash injury were higher for Indigenous males as well as females compared with non-Indigenous males and females respectively. Further information on transport crash injury among Aboriginal and Torres Strait Islander people can be found in *Injury of Aboriginal and Torres Strait Islander people due to transport, 2005–06 to 2009–10* (Henley & Harrison 2013).

Table 4.4: Key indicators for transport crash injury cases, by Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Transport crash injury cases	1,503	649	2,152	34,528	16,720	51,249
Per cent of all cases of injury	11.9	6.7	9.7	14.8	9.1	12.3
Age-standardised rate/100,000 population	410	184	296	314	149	232

The pattern of transport crash injury rates by age was similar for Indigenous males and females (Figure 4.2). While rates for Indigenous males were higher than for other males at nearly all ages, the excess was greatest from the teen years to about age 40–44. For Indigenous females a noteworthy excess was present from 25–29 to 50–54.

Transport crash injury rates for Indigenous and non-Indigenous males were highest at two age groups: 15–19 (744 and 555 per 100,000 population respectively); and 20–24 (788 and 535 per 100,000 population respectively). For Indigenous females the highest rate of transport crash injury occurred at 25–29 (346 per 100,000). In comparison, the highest rate in non-Indigenous females occurred at 15–19 (246 per 100,000).



Note: Includes data from all Australian jurisdictions (see Box 1.2).

Figure 4.2: Age-specific rates of transport crash injury cases, by sex and Indigenous status, Australia, 2012–13

Type of land transport crash injury

Land transport crash injury includes cases due to crashes occurring on a public road (traffic) and cases due to vehicle crashes that occur entirely in any place other than a public road (non-traffic) (restricted to external cause codes V00–V89). Of all people hospitalised due to land transport crashes, 65% of cases occurred in traffic.

Land transport crashes resulted in 53,037 hospitalised cases in 2012–13. Thirty-five per cent of people hospitalised due to land transport crashes were car occupants (18,114); 35% (13,516) were motorcyclists; 26% (10,098) were pedal cyclists; and 7% (3,823) were pedestrians (Table 4.5).

For traffic cases (33,759), the most frequent mode of transport of the injured person was a car (48%; 16,267). There were gender differences; 71% of females injured in traffic were car occupants (8,115) whereas 37% of males were car occupants (8,152).

For non-traffic cases (13,174), the most frequent mode of transport was a motorcycle (42%; 5,499) followed by a pedal cycle (31%; 4,013). Again, there were gender differences; the most common mode of transport for females injured in non-traffic crashes was a pedal cycle (34%; 787), whereas the most common for males was a motorcycle (47%; 5,057).

More than 60% of cases unspecified as to whether they occurred in traffic or non-traffic, (3,346 cases) involved an animal rider or occupant of an animal-drawn vehicle.

Table 4.5: Mode of transport for land transport crash injury cases, Australia, 2012–13

Injured person's mode of transport	Non-traffic	Traffic	Unspecified	Total
Males				
Car	687	8,152	269	9,108
Motorcycle	5,057	6,978	186	12,221
Pedal cycle	3,226	4,688	129	8,043
Pedestrian	421	1,608	223	2,252
Animal or animal-drawn vehicle	0	0	1,030	1,030
Heavy transport vehicle	112	461	86	659
Pick-up truck or van	47	215	30	292
Bus	23	105	67	195
Special all-terrain or off-road vehicle	875	32	7	914
Other land transport	492	334	176	1,002
Total	**10,940**	**22,573**	**2,203**	**35,716**
Females				
Car	474	8,115	417	9,006
Motorcycle	442	816	36	1,294
Pedal cycle	787	1,232	36	2,055
Pedestrian	328	1,084	159	1,571
Animal or animal-drawn vehicle	0	0	2316	2,316
Heavy transport vehicle	6	23	15	44
Pick-up truck or van	11	54	6	71
Bus	29	138	157	324
Special all-terrain or off-road vehicle	224	12	6	242
Other land transport	87	186	124	397
Total	**2,388**	**11,660**	**3,272**	**17,320**

(continued)

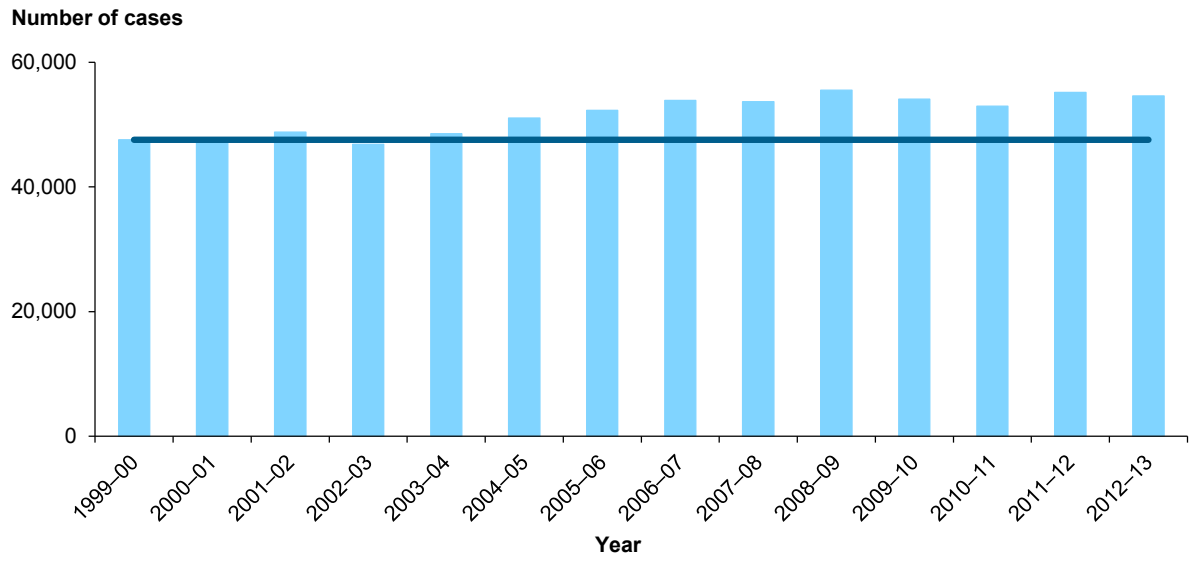
Table 4.5 (continued): Mode of transport for land transport crash injury cases, Australia, 2012–13

Injured person's mode of transport	Non-traffic	Traffic	Unspecified	Total
Persons				
Car	1,161	16,267	686	18,114
Motorcycle	5,499	7,795	222	13,516
Pedal cycle	4,013	5,920	165	10,098
Pedestrian	749	2,692	382	3,823
Animal or animal-drawn vehicle	0	0	3,346	3,346
Heavy transport vehicle	118	484	101	703
Pick-up truck or van	58	269	36	363
Bus	52	243	224	519
Special all-terrain or off-road vehicle	1,099	44	13	1,156
Other land transport	579	520	300	1,399
Total	**13,328**	**34,234**	**5,475**	**53,037**

4.2 How have cases of transport crash injury changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 4.3 below the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate for comparison.

Figure 4.3 compares the number of cases of transport crash injury each year with the baseline number of cases (47,599 in 1999–00). From about 2004–05, the number has been higher than the baseline period. The largest difference was in 2008–09 when there were an additional 7,626 cases (55,525 in total) of transport crash injury.



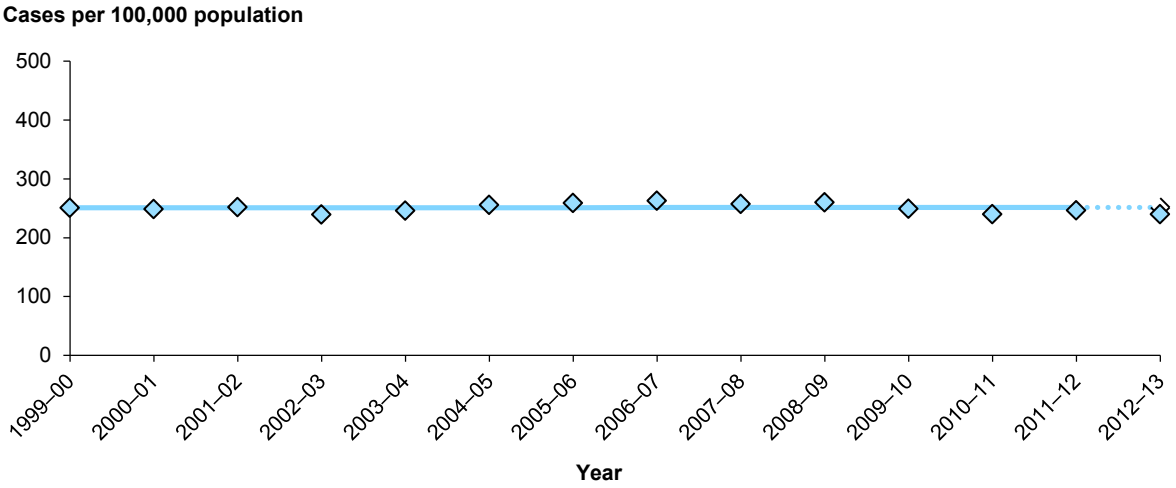
Notes

1. The single line represents the number of cases of transport crash injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.3: Number of cases of transport crash injury, Australia, 1999–00 to 2012–13

4.3 How have rates of transport crash injury changed over time?

Age-standardised rates of transport crash injury showed little change from the beginning of the period. In 1999–00, the base rate was 251 cases per 100,000 population and in 2012–13 the observed rate was 240 cases per 100,000 (Figure 4.4). No significant trend in age-standardised annual rates occurred over the period from 1999–00 to 2011–12 (95% CI: –0.4%, 0.4%). The predicted rate of transport crash injury in 2012–13 was 252 cases per 100,000 population based on the trend from 1999–00 to 2011–12.



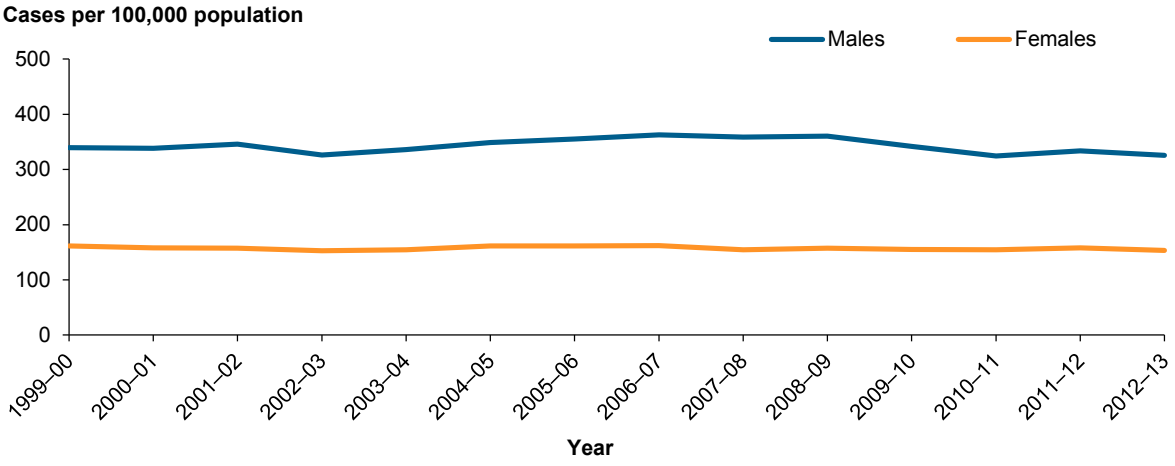
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.4: Modelled age-standardised rates of transport crash injury cases, Australia, 1999–00 to 2012–13

4.4 How have rates of transport crash injury varied by sex and age?

Age-standardised rates for males were consistently higher than for females at all times throughout the period (Figure 4.5). Rates varied more for males than for females but there is no evidence any substantial change in transport crash injury rates for either sex over the period.



Notes

1. Data underpinning this figure are available in Table B.5 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.5: Age-standardised rates of transport crash injury cases, by sex, Australia, 1999–00 to 2012–13

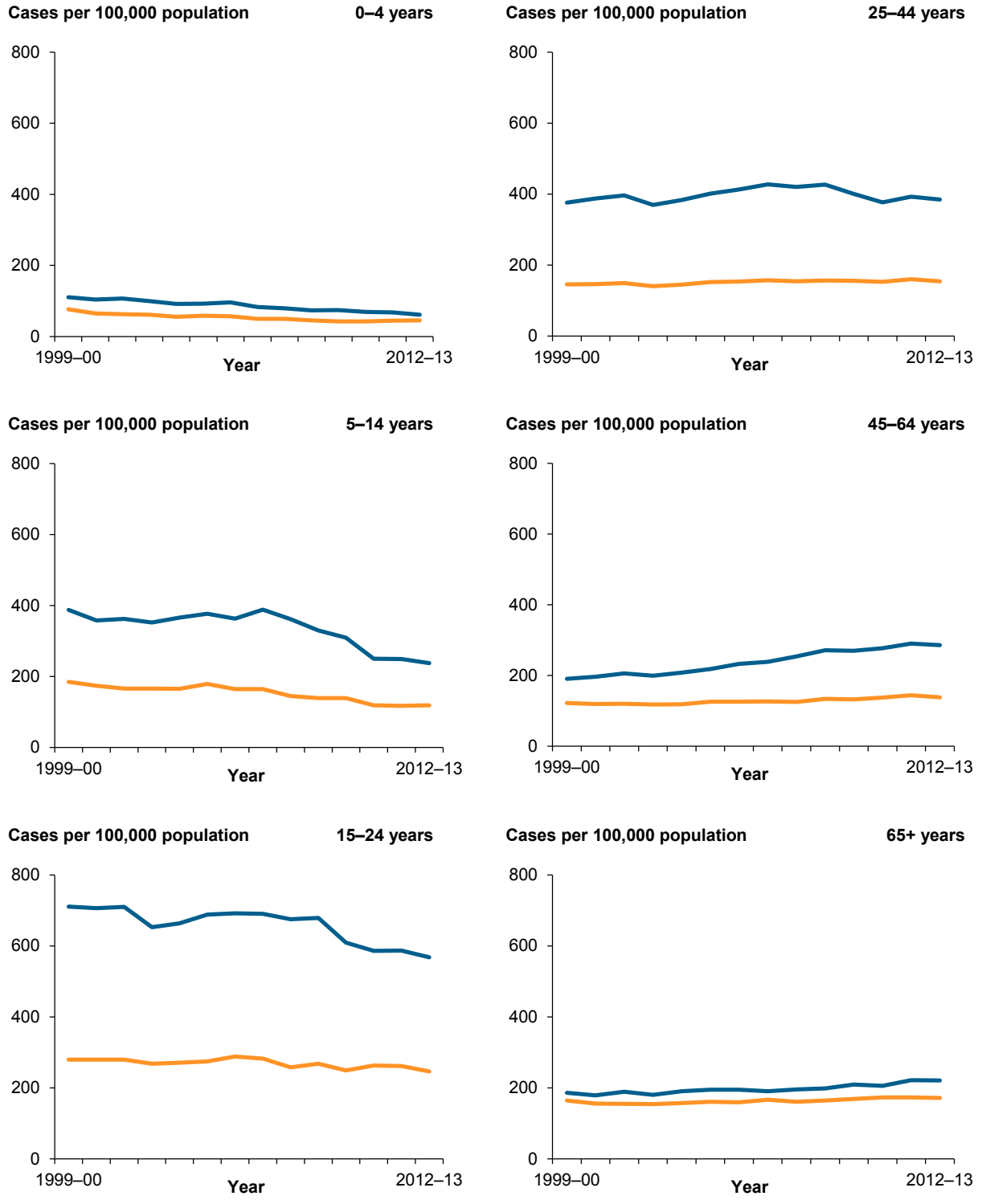
An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 4.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years and readers should interpret any changes between these years with caution.

In contrast to the lack of strong trend in overall age-standardised rates, age-specific rates for males show noteworthy trends that differ with age group. Age-specific rates for females show less marked trends.

Rates of transport crash injury were low and declining in the youngest age group (0–4).

Rates for 5–14 and 15–24 year old males declined in the last few years. The decline began in 2006–07 for 5–14 year olds and in 2008–09 for 15–24 year olds. The decline noted in 25–44 year old males from about 2008–09 in the previous *Trends in hospitalised injury* report (Pointer 2013) appears not to have been sustained.

In contrast to the declines in younger age groups, rates of transport crash injury increased steadily for 45–64 year old males over the period. In a similar period reported by Henley & Harrison (2013), much of this rise was accounted for by increasing rates of motorcycle and pedal cycle related injury (Henley & Harrison 2013). A much smaller rise in rates of transport crash injury was seen in the oldest age group among males.



Notes

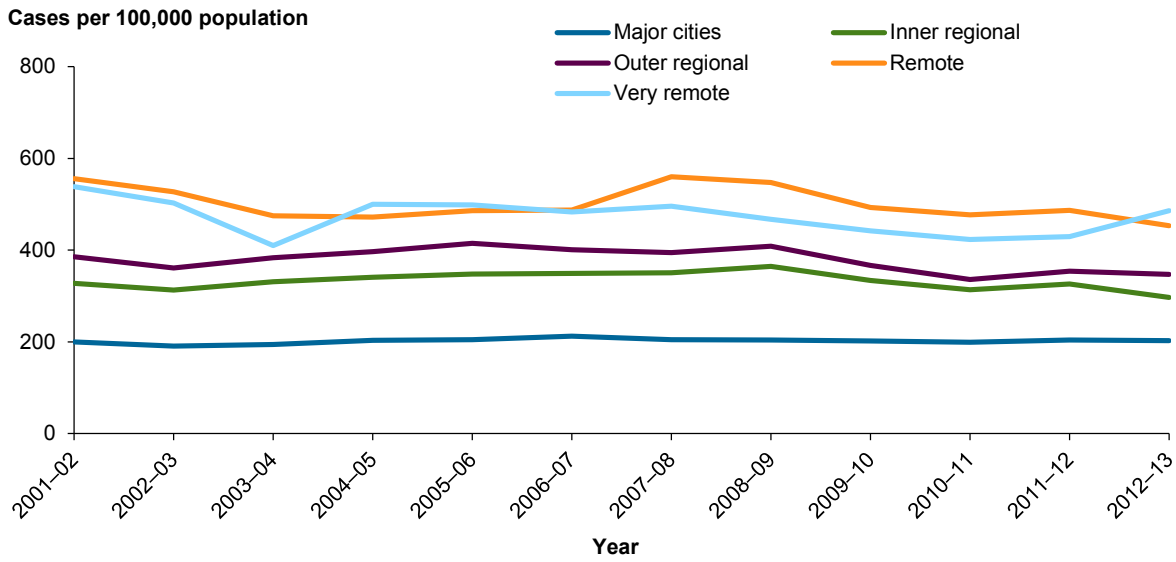
1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.5 and B.6 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.6: Age-specific rates of transport crash injury cases, by age and sex, Australia, 1999–00 to 2012–13

4.5 How have rates of transport crash injury varied by remoteness?

Rates of transport crash injury by remoteness of usual residence showed little consistent change over the period, taking into account year-on-year fluctuation (Figure 4.7).

Rates generally rose with increasing remoteness. Rates were highest for residents of *Very remote* and *Remote* areas. Rates for these two areas fluctuated more than rates for other areas, reflecting the small population and number of cases per year. Rates for the other areas fluctuated slightly and did not show marked trends.

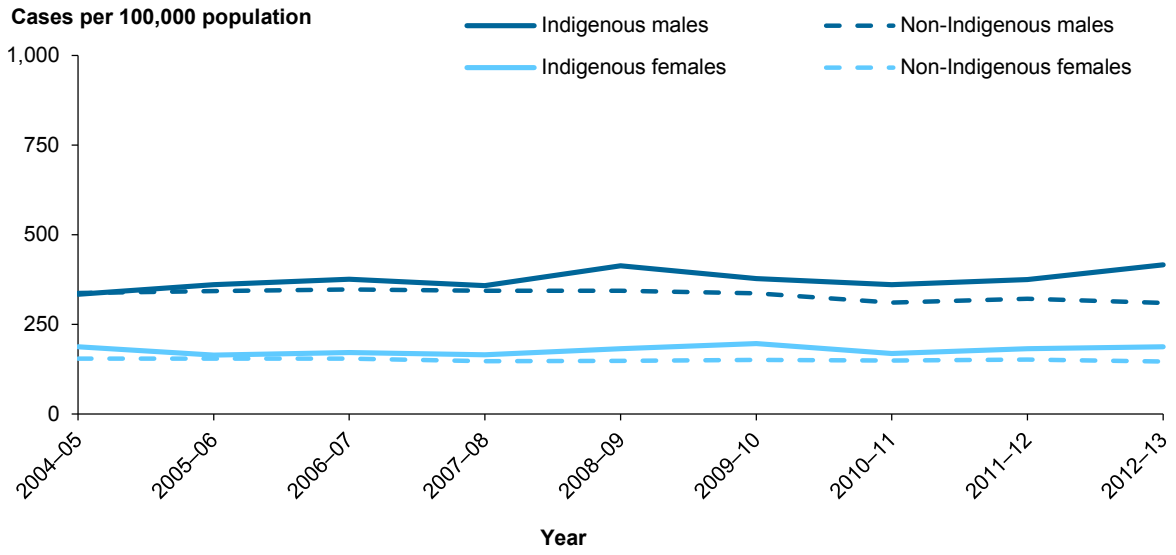


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.7: Age-standardised rates of transport crash injury cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

4.6 How have rates of transport crash injury in Indigenous people changed over time?

Age-standardised rates of transport crash injury showed little change over the period for Indigenous Australians (Figure 4.8). Rates were consistently higher for Indigenous people compared with non-Indigenous people and for both males and females over time. Rates of transport crash injury were consistently higher for males, Indigenous and non-Indigenous, compared with females.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.24 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 4.8: Age-standardised rates of transport crash injury cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

5 Drowning and submersion

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional drowning and submersion injury in Australia.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM range W65–W74 (*Accidental drowning and submersion*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 5.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 5.1: External causes of drowning and submersion injury

This chapter focuses on the **Accidental drowning and submersion** (W65–W74) section of Chapter XX *External causes of morbidity and mortality* which contains the following groups:

- Drowning and submersion while in bathtub (W65)
- Drowning and submersion following fall into bathtub (W66)
- Drowning and submersion while in swimming pool (W67)
- Drowning and submersion following fall into swimming pool (W68)
- Drowning and submersion while in natural water (W69)
- Drowning and submersion following fall into natural water (W70)
- Other specified drowning and submersion (W73)
- Unspecified drowning and submersion (W74).

Understanding 'drowning'

The cases included in this chapter are those involving unintentional 'drowning and submersion' in the circumstances covered by the categories listed above. Note that this chapter does not include unintentional drowning and submersion related to water transportation, or related to other transportation crashes, or due to cataclysms such as storms and floods unless the first-mentioned external cause code is one of those listed above. *Accidental drowning and submersion* (W65–W74) is not defined in the ICD-10-AM. A discussion of terms such as drowning and submersion can be found in WHO 2014.

Submersion: Brief submersion (or immersion) in water or other non-toxic liquid is usually harmless. However, injuries can occur while a person is submerged, particularly following a fall or dive into water, and these account for about 30% of the 2012–13 cases included in this chapter. A submerged person may experience respiratory impairment (see drowning, below). Harm can also result from submersion to a great depth (nitrogen narcosis), or from rising rapidly from a deep dive (the bends). Such cases are out of scope for this chapter, but none were recorded in the 2012–13 data used for this report.

Drowning: Prolonged submersion, or brief submersion in some circumstances (for example, if a person is unconscious when entering the water), puts a person at immediate risk of death by drowning. The drowning process typically involves breath-holding, attempted

(continued)

Box 5.1 (continued)

inhalation triggering spasm of the larynx, depletion of oxygen and build-up of carbon dioxide, loss of consciousness and, eventually, inhalation of water into the lungs.

Sometimes the process is interrupted before death (for example, by rescue), in which case the person may survive with harm, such as brain damage due to lack of oxygen. That situation is variously referred to as drowning with a non-fatal outcome (this is the term currently recommended by the WHO), or near drowning. If the process ends at an early stage of respiratory distress, then the person is likely to survive with no physical ill-effects.

In 2012–13, 69% of the cases included in this chapter had 'drowning and non-fatal submersion' as the Principal diagnosis code, while the remainder were coded to other injury conditions, most commonly fractures.

5.1 How many drowning and submersion cases were there in 2012–13?

There were an estimated 544 drowning and submersion cases during 2012–13 (Table 5.1). Drowning made up less than 1% of all injury hospitalised cases.

More males than females were hospitalised as a result of drowning and submersion, with a male to female ratio of 2:1. The age-standardised rate was also higher for males compared with females.

Table 5.1: Key indicators for drowning and submersion cases, Australia, 2012–13

Indicators	Males	Females	Persons
Drowning and submersion cases	362	182	544
Per cent of all injury cases	0.2	0.1	0.1
Age-standardised rate/100,000 population	3.2	1.7	2.4

Age and sex

The largest proportion of drowning and submersion injuries occurred in children aged 0–4 (36%) (Table 5.2). In contrast, just 5% of all external cause injuries occurred in this age group (Table 2.2). A greater proportion of hospitalised cases for drowning were for girls (41%) than for boys (34%) aged 0–4. Drowning and near-drowning injuries were more common in men aged 15+ than in women.

Table 5.2: Drowning and submersion cases, by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	122	33.7	75	41.2	197	36.2
5–14	55	15.2	28	15.4	83	15.3
15–24	49	13.5	25	13.7	74	13.6
25–44	77	21.3	26	14.3	103	18.9
45–64	35	9.7	18	9.9	53	9.7
65+	24	6.6	10	5.5	34	6.3
Total	**362**	**100**	**182**	**100**	**544**	**100**

Age-specific rates are presented below for the 6 age groups (Figure 5.1). Males had a higher rate of drowning and submersion across all age groups. The rate for males was highest at age 0–4 (16 per 100,000), and similarly for females (10 per 100,000).

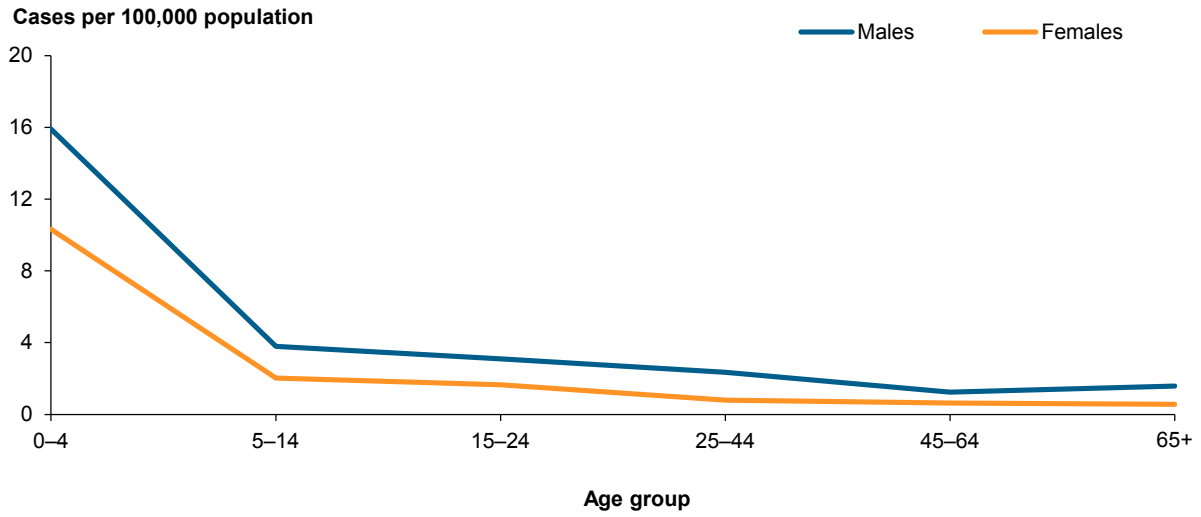


Figure 5.1: Age-specific rates of drowning and submersion cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of drowning and submersion injury increased with increasing remoteness (Table 5.3). The rate in *Very remote* areas was double the rate in *Major cities*. Caution should be exercised in interpreting these results because of low numbers of cases (on average fewer than 20 cases per 5-year age band other than in the 0–4 group) in regions outside *Major cities*.

Table 5.3: Drowning and submersion cases, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Drowning and submersion cases	325	115	60	8	9	544
Per cent	59.7	21.1	11.0	1.5	1.7	100
Age-standardised rate/100,000 population	2.1	2.9	3.0	2.4	4.2	2.4

(a) Excludes 27 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were an estimated 20 cases of Indigenous people hospitalised as a result of drowning and submersion in 2012–13 (Table 5.4). More males than females were hospitalised. As a proportion of all injury cases, drowning and submersion cases among Indigenous people (1.9%) was similar to non-Indigenous people (2.4%). Age-standardised rates of drowning and submersion were unable to be presented for Indigenous people due to the lack of case numbers in the age groups older than 0–4 years. Caution should be exercised in interpreting all drowning results, however, because of low case numbers in all but the youngest (0–4) and among Indigenous people in particular.

Table 5.4: Key indicators for drowning and submersion cases, by Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Drowning and submersion cases	9	11	20	347	167	514
Per cent of all cases of injury	0.1	0.1	0.1	0.1	0.1	0.1
Age-standardised rate/100,000 population	n.p.	n.p.	n.p.	3.2	1.6	2.4

As can be seen in Table 5.5, relatively few Indigenous children aged 0–4 were hospitalised as a result of drowning and submersion injury compared to their non-Indigenous counterparts. About two-thirds of all cases occurred among Indigenous children aged 0–4 compared with around a third of all cases for non-Indigenous children. The age-specific rates of drowning and submersion among Indigenous children overall was higher than the non-Indigenous children; this was true for girls but not boys.

Table 5.5: Key indicators for drowning and submersion cases in 0–4 year olds, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Drowning and submersion cases	6	7	13	114	66	180
Per cent of all ages drowning and submersions cases	67	64	65	33	40	35
Age-specific rate/100,000 population	14.1	17.2	15.6	15.6	9.6	12.7

Location of drowning incident

Location of occurrence information is contained within the drowning and submersion external cause categories—for example W65 *Drowning and submersion while in bath-tub*. Just over one-third of all drowning-related cases in Australia in 2012–13 occurred in a swimming pool (35%, 189 cases) (Table 5.6). Children under 15 accounted for 82% of all swimming pool drowning–related cases; those aged 0–4 constituted 56% of these alone. Almost all cases of bathtub drowning-related injuries occurred in young children aged 0–4 (92%). The second most common setting for drowning and submersion cases overall was a body of natural water (including rivers, lakes and the ocean) (18%); natural water was also the principal setting for adult drowning and submersion cases.

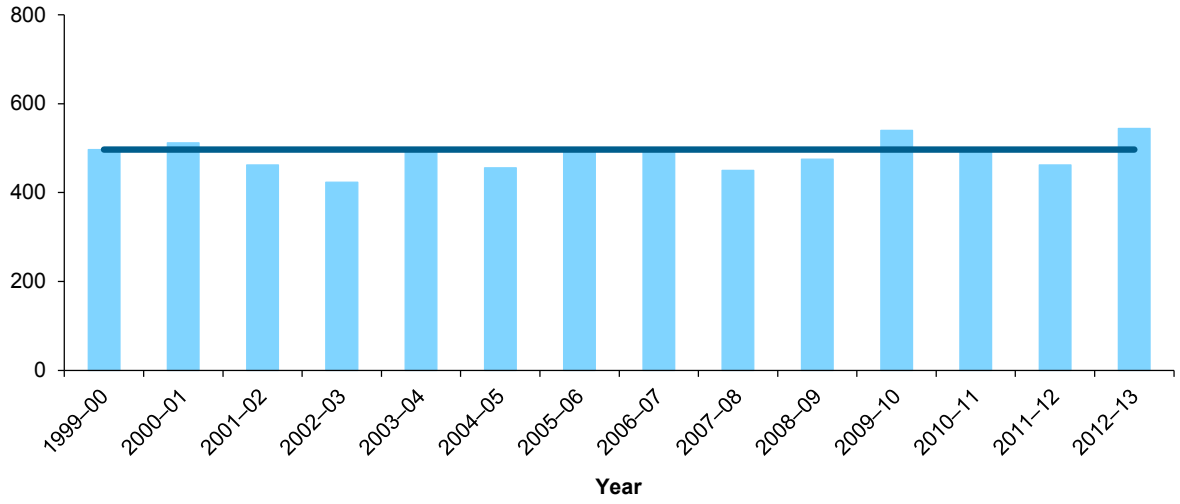
Table 5.6: Drowning and submersion cases, by age and location, Australia, 2012–13

	Swimming pool		Natural water		Bathtub		Other or unspecified		Total	
Age group	Number	%	Number	%	Number	%	Number	%	Number	%
0–4	106	56.1	9	8.1	36	92.3	46	22.4	197	36.2
5–14	48	25.4	10	9.0	1	2.6	24	11.7	83	15.3
15–24	13	6.9	38	34.2	0	0.0	23	11.2	74	13.6
25–44	11	5.8	30	27.0	0	0.0	62	30.2	103	18.9
45–64	7	3.7	19	17.1	2	5.1	25	12.2	53	9.7
65+	4	2.1	5	4.5	0	0.0	25	12.2	34	6.3
Total	**189**	**100**	**111**	**100**	**39**	**100**	**205**	**100**	**544**	**100**

5.2 How have cases of drowning and submersion changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined.

Figure 5.2 compares the number of cases of drowning and submersion each year with the baseline number of cases (497 in 1999–00). Case numbers have generally stayed below baseline except in 2000–01 (512), 2009–10 (540), and 2012–13 (544).



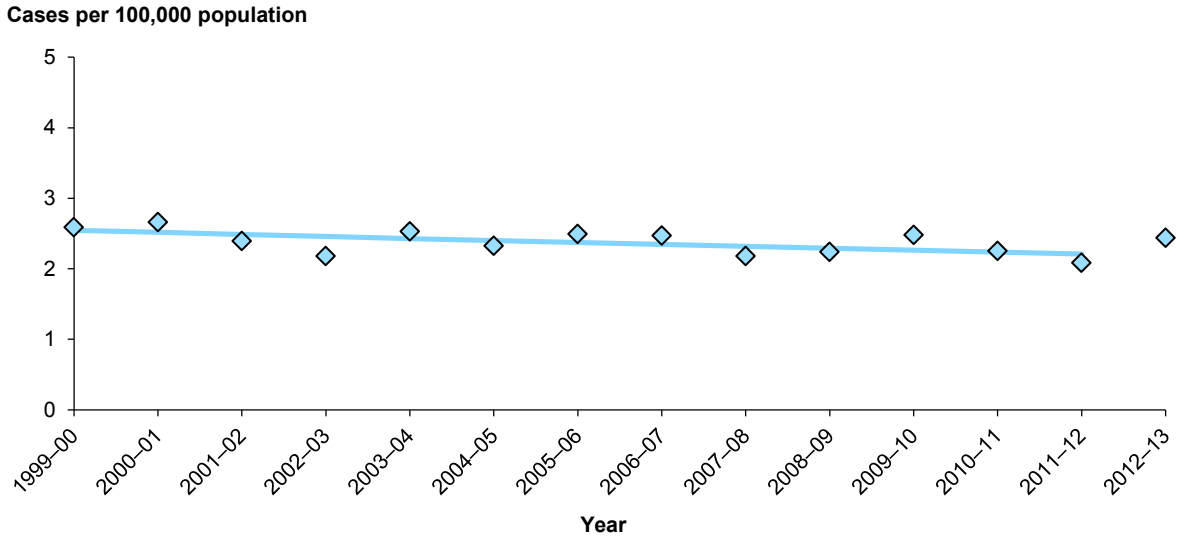
Notes

1. The single line represents the number of cases of drowning and submersion injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.2: Number of cases of drowning and submersion, Australia, 1999–00 to 2012–13

5.3 How have rates of drowning and submersion changed over time?

Age-standardised annual rates of drowning and submersion cases showed a small decrease from the beginning of the period. In 1999–00, the rate was 2.6 cases per 100,000 population and in 2012–13 it was 2.4 (Figure 5.3). The decrease in modelled rates from 1999–00 to 2011–12 averaged 1.2% per year and was statistically significant (95% CI: –2.0%, –0.3%).



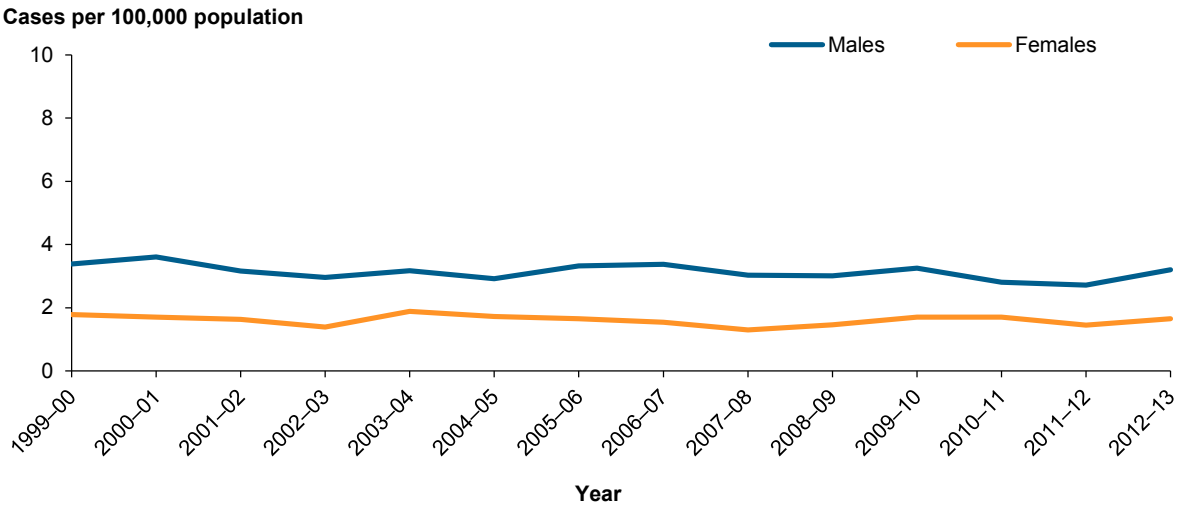
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.3: Modelled age-standardised rates of drowning and submersion cases, Australia, 1999–00 to 2012–13

5.4 How have rates of drowning and submersion varied by sex and age?

The age-standardised rate of drowning and submersion fluctuated over the period, primarily due to small case numbers (Figure 5.5). Age-standardised rates for males were consistently higher than for females at all times.

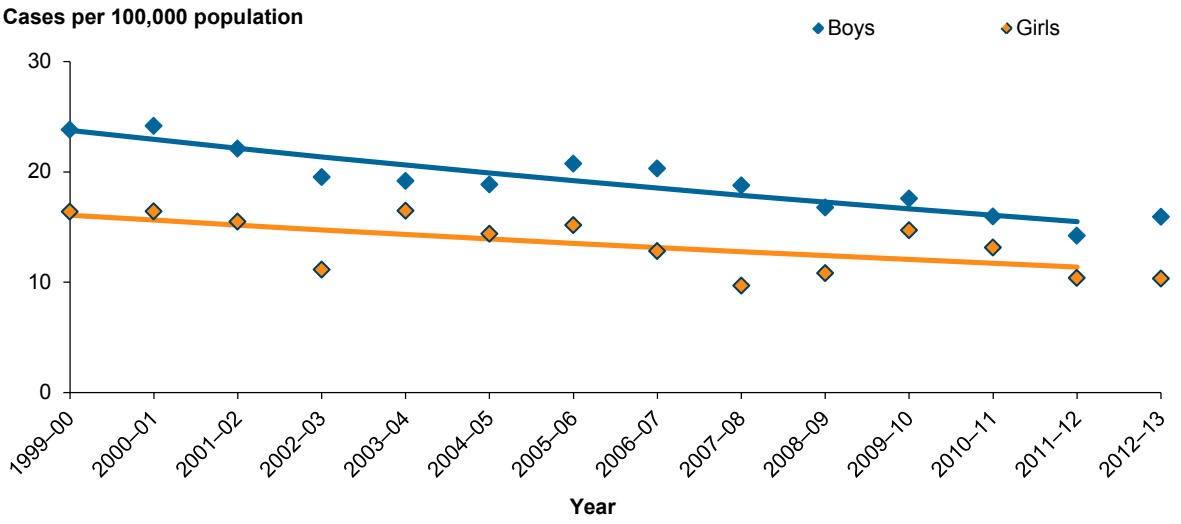


Notes

1. Data underpinning this figure are available in Table B.7 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.4: Age-standardised rates of drowning and submersion cases, by sex, Australia, 1999–00 to 2012–13

As the great majority of drowning and submersion cases occur at 0–4 years, a separate trend analysis was undertaken for this age group (Figure 5.4). A steeper decline in rates of drowning and submersion was evident in boys and girls over the period than in the all-ages rates. For boys the decrease in rate averaged 3.5% per year and was statistically significant (95% CI: –4.7%, –2.3%). For girls the decrease in rate averaged 2.8% per year and was also statistically significant (95% CI: –4.8%, –0.9%).



Notes

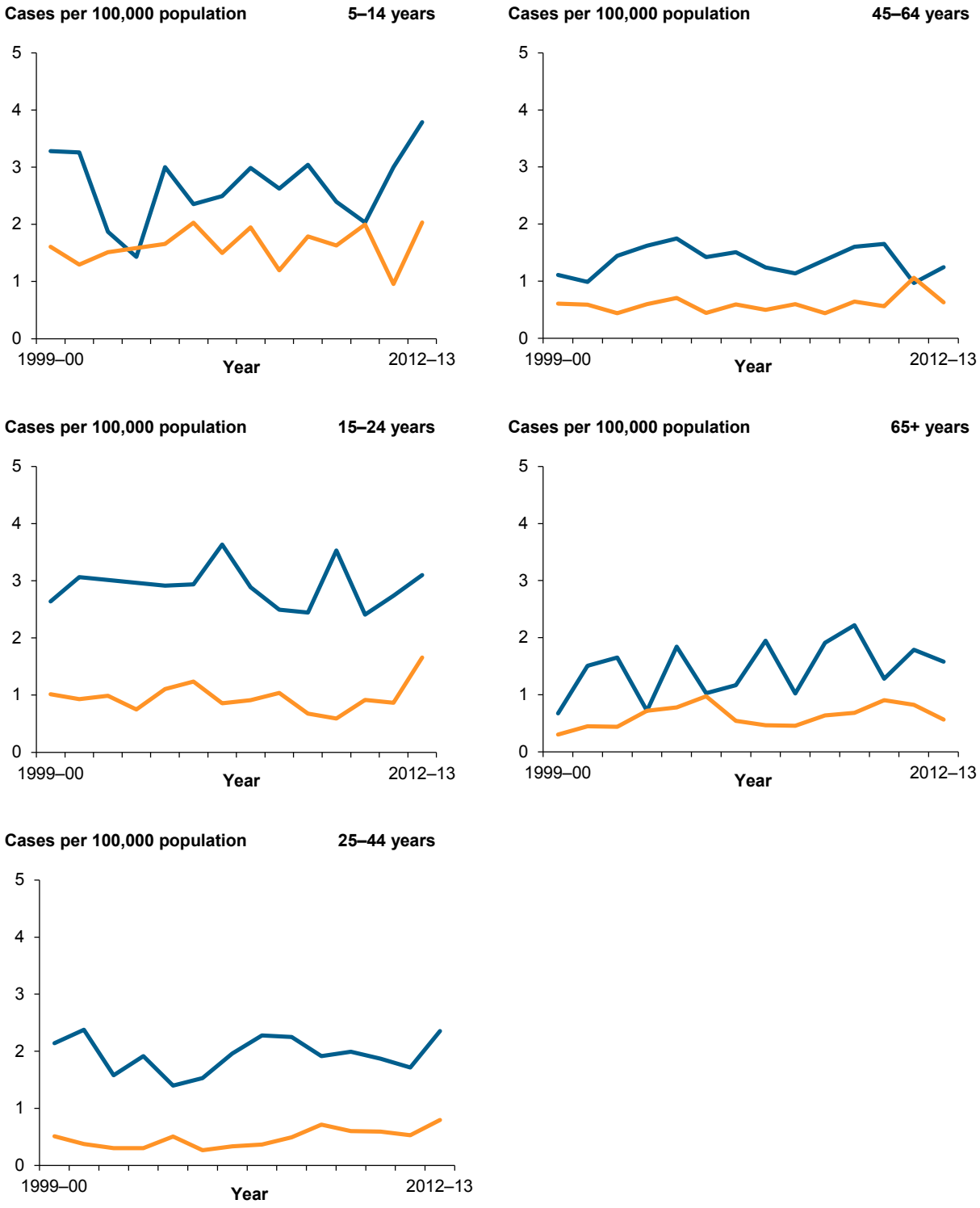
1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age standardised rate value for each year.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.5: Modelled age-standardised rates of drowning and submersion cases, 0–4 year olds, by sex, Australia, 1999–00 to 2012–13

Overall, the decrease in age-specific rates of drowning and submersion in 0–4 year olds can be seen clearly for both males and females, with the rate of decline steeper in males. The rate of injury at the beginning of the period for boys was 24 cases per 100,000 population and 16 for girls. In 2012–13, the rate for boys was 16 per 100,000 and for girls it was 10 per 100,000.

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 5.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years and readers should interpret any changes between these years with caution.

As can be seen in Figure 5.6, age-specific rates fluctuated, as they did for overall age-standardised rates. Due to the small number of cases each year in all age groups, caution should be exercised in interpreting the charts.



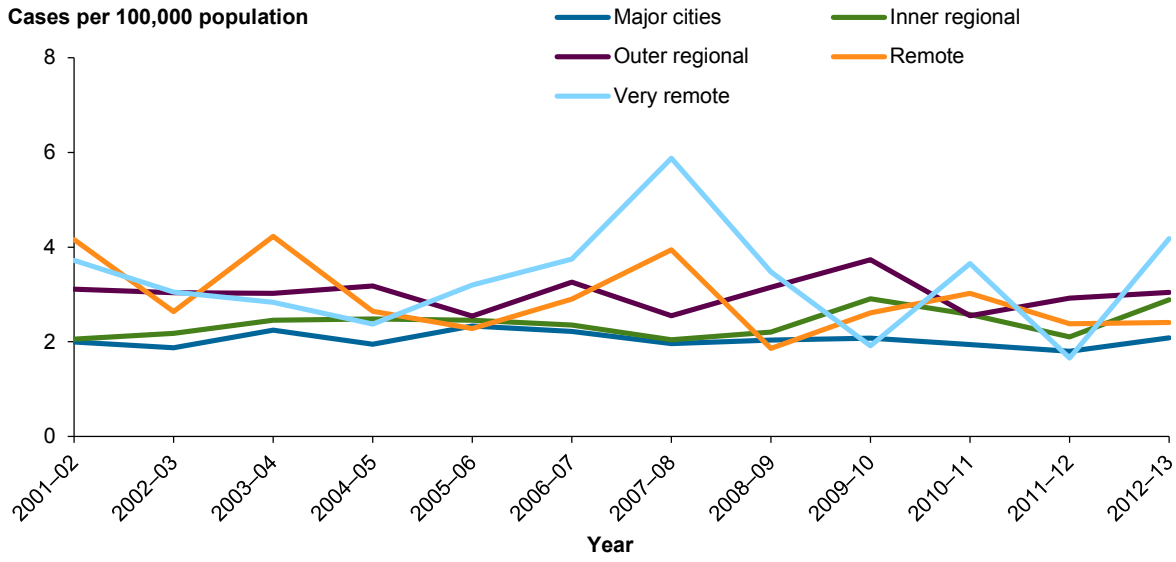
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.7 and B.8 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.6: Age-specific rates of drowning and submersion injury cases, by age and sex, Australia, 1999–00 to 2012–13

5.5 How have rates of drowning and submersion varied by remoteness?

Age-standardised rates of drowning and submersion fluctuated with remoteness of usual residence and over time (Figure 5.7). Generally speaking, rates were lower over time in *Major cities* and *Inner regional* areas and highest in *Very remote* areas. Fluctuations in the rates by year reflect the small case numbers involved, and fluctuations were more prominent in *Remote* and *Very remote* areas where fewer cases of drowning and near-drowning occur each year.

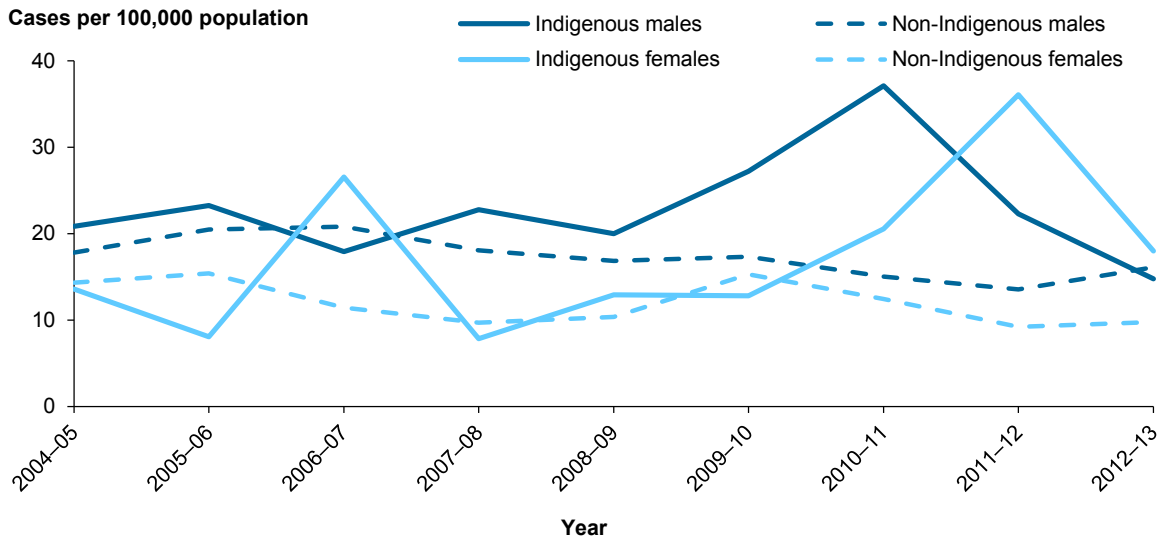


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.7: Age-standardised rates of drowning and submersion cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

5.6 How have rates of drowning and submersion in Indigenous people changed over time?

Due to extremely small case numbers in age groups other than 0–4 over the period analyses were restricted to the youngest age group. During the period the age-specific rate of drowning and submersion in 0–4 year olds fluctuated for Indigenous people, largely as a consequence of small numbers of cases (Figure 5.8); the number of cases over the period ranged between 3 and 23. Age-specific rates for non-Indigenous people were, in contrast, more steady over the period with a slight downward trend over the period. Rates were mostly higher for Indigenous children compared with non-Indigenous children in each year but again caution must be exercised in interpreting differences due to small case numbers.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data for all ages cases of drowning and submersion are available in Table B.25 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 5.8: Age-specific rates of drowning and submersion cases in 0–4 year olds, by sex and Indigenous status, Australia, 2004–05 to 2012–13

6 Poisoning, pharmaceuticals

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional poisoning by pharmaceuticals in Australia. This chapter describes admissions where the first-reported external cause code refers to unintentional poisoning by a drug or medicament. It includes drugs given or taken in error or inadvertently, and accidental over-dosage. This chapter does not include poisoning from non-pharmaceutical substances, intentional self-poisoning by drugs, assault by drug-related poisoning, or poisoning of undetermined intent.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code is in the ICD-10-AM range X40–X44 (within *Accidental poisoning by and exposure to noxious substances*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 6.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 6.1: External causes of poisoning by pharmaceuticals

This chapter focuses on the **Accidental poisoning by and exposure to noxious substances** (X40–X49) section of ICD-10-AM Chapter XX *External causes of morbidity and mortality,* and is restricted to the first five of those groups (X40–X44) (the remaining groups are the focus of Chapter 7 of this report):

- Accidental poisoning by and exposure to non-opioid analgesics, antipyretics and antirheumatics (X40)
- Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified (X41)
- Accidental poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X42)
- Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system (X43)
- Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X44).

6.1 How many cases of poisoning by pharmaceuticals were there in 2012–13?

There were an estimated 7,276 cases of poisoning by pharmaceuticals during 2012–13 (Table 6.1). Poisoning by pharmaceuticals made up less than 2% of all injury hospitalised cases.

Males and females were hospitalised as a result of poisoning by pharmaceuticals in similar numbers, and the age-standardised rate was also similar for males and females.

Table 6.1: Key indicators for cases of poisoning by pharmaceuticals, Australia, 2012–13

Indicators	Males	Females	Persons
Cases of poisoning by pharmaceuticals	3,612	3,664	7,276
Per cent of all injury cases	1.4	1.9	1.6
Age-standardised rate/100,000 population	32	31	31

Age and sex

The largest proportion of cases of poisoning by pharmaceuticals by age group was in people aged 25–44 (28%); this was true of both males and females (Table 6.2). However, the proportion of cases of poisoning by pharmaceuticals in young children aged 0–4 (14%) was much higher than all external cause injuries in this age group (5%) (Table 2.2). Females had higher proportions of cases of poisoning by pharmaceuticals than males at ages 15–24 and 65+.

Table 6.2: Cases of poisoning by pharmaceuticals, by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	535	14.8	480	13.1	1,015	13.9
5–14	107	3.0	124	3.4	231	3.2
15–24	499	13.8	545	14.9	1,044	14.3
25–44	1,081	29.9	954	26.0	2,035	28.0
45–64	735	20.3	686	18.7	1,421	19.5
65+	655	18.1	875	23.9	1,530	21.0
Total	**3,612**	**100**	**3,664**	**100**	**7,276**	**100**

Age-specific rates were highest for the youngest and oldest age groups (Figure 6.1). Rates for males and females were similar, except between 15–19 years where rates were higher for females than for males (41 and 27 per 100,000 population, respectively).

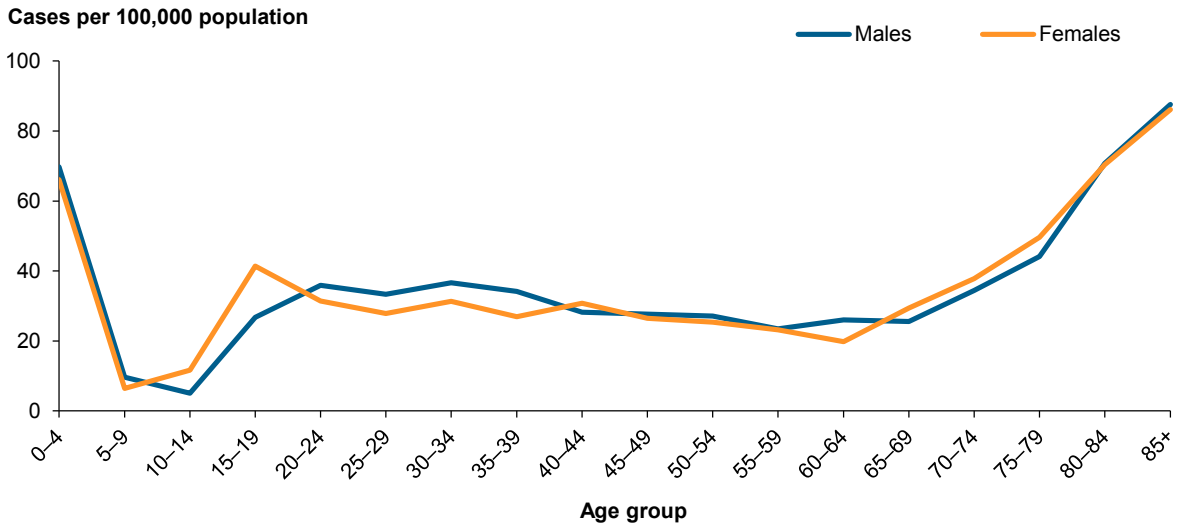


Figure 6.1: Age-specific rates of cases of poisoning by pharmaceuticals, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of poisoning by pharmaceuticals in 2012–13 generally increased with remoteness (Table 6.3). The lowest rate was observed for residents of *Major cities* (30 cases per 100,000 population) and the highest for residents of *Remote* areas (43 per 100,000).

Table 6.3: Cases of poisoning by pharmaceuticals, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Cases of poisoning by pharmaceuticals	4,857	1,291	796	138	64	7,276
Per cent	66.8	17.7	10.9	1.9	0.9	100
Age-standardised rate/100,000 population	30	31	39	43	33	31

(a) Excludes 130 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were an estimated 471 cases of Indigenous people hospitalised as a result of poisoning by pharmaceuticals in 2012–13 (Table 6.4). Similar numbers of males were hospitalised as females. Poisoning by pharmaceuticals among Indigenous people made up a similar proportion (2.1%) of all injury cases compared with non-Indigenous people (1.6%). The age-standardised rates of poisoning by pharmaceuticals among Indigenous people were more than twice that of non-Indigenous people. This was true for Indigenous males and females.

Table 6.4: Key indicators for cases of poisoning by pharmaceuticals, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	Males	Females	Persons	Males	Females	Persons
Cases of poisoning by pharmaceuticals	242	229	471	3,311	3,376	6,687
Per cent of all cases of injury	1.9	2.4	2.1	1.4	1.8	1.6
Age-standardised rate/100,000 population	83	67	74	30	29	29

Overall, rates of poisoning by pharmaceuticals were higher in all age categories among Indigenous people compared with non-Indigenous people, although the difference was much smaller from about 5–9 to 15–19 years (Figure 6.2). Due to small case numbers among Indigenous people from about 20–24 years, difference in rates in comparison with non-Indigenous people should not be over-interpreted. (Older age groups have been combined to 65+.)

The rates for Indigenous children aged 0–4 were much higher than for non-Indigenous children aged 0–4 (119 and 64 per 100,000 population respectively). For Indigenous boys of this age the rate was 108 per 100,000 compared to 66 per 100,000 for non-Indigenous boys. For Indigenous girls of this age the rate was 130 per 100,000 compared to 61 per 100,000 for non-Indigenous girls.

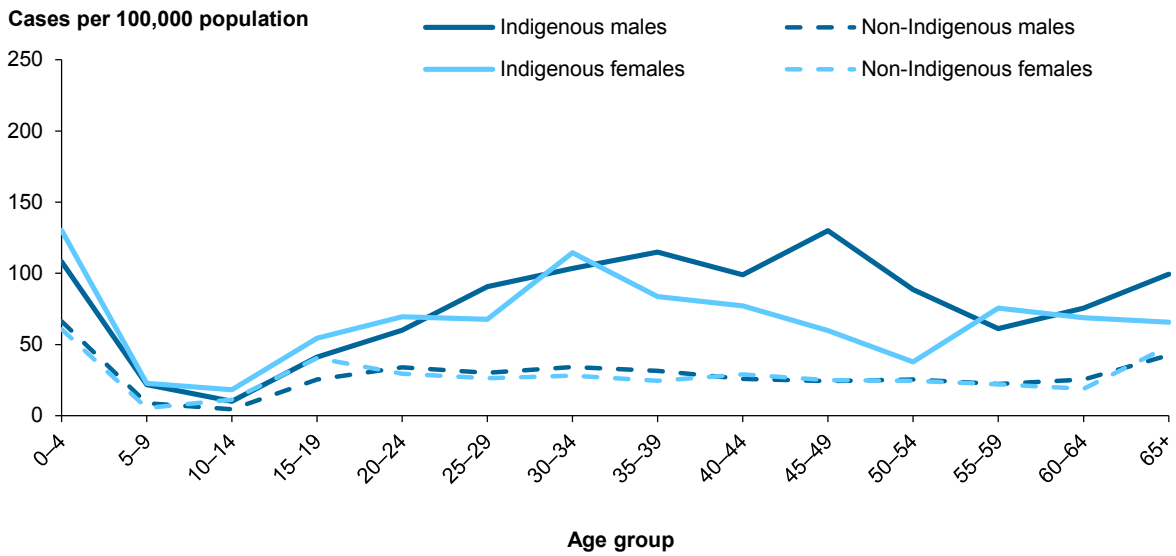


Figure 6.2: Age-specific rates of cases of poisoning by pharmaceuticals, by sex and Indigenous status, Australia, 2012–13

Type of pharmaceutical

In this chapter, external causes were tabulated to describe the groups of drugs responsible for poisoning cases (see Box 6.1). However, principal diagnoses can offer a more detailed description of the substances involved for each of these groups. In Table 6.5 and accompanying text, the top 3 principal diagnosis categories associated with the 5 major external causes for poisoning by pharmaceuticals have been presented.

Table 6.5: Cases of poisoning by pharmaceuticals and drug type, Australia, 2012–13

Accidental poisoning by and exposure to:	Number	%
Non-opioid analgesics, antipyretics and anti-rheumatics	**1,074**	**14.8**
4-Aminophenol derivatives	*863*	*80.4*
Other non-steroidal anti-inflammatory drugs (NSAIDs)	*159*	*14.8*
Salicylates	*30*	*2.8*
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	**2,534**	**34.8**
Benzodiazepines	*843*	*33.3*
Other and unspecified anti-psychotics and neuroleptics	*402*	*15.9*
Psychostimulants with potential for use disorder	*465*	*18.4*
Narcotics and psychodysleptics (hallucinogens)	**1,336**	**18.4**
Other opioids (codeine and morphine)	*526*	*39.4*
Heroin	*228*	*17.1*
Other synthetic narcotics (pethidine)	*176*	*13.2*
Other drugs acting on the autonomic nervous system	**250**	**3.4**
ß-Adrenoreceptor antagonists, NEC	*141*	*56.4*
Other parasympatholytics (anti-cholinergics and anti-muscarinics) and spasmolytics, NEC	*45*	*18.0*
α-Adrenoreceptor antagonists, NEC	*22*	*8.8*
Other and unspecified drugs, medicaments and biological substances	**2,082**	**28.6**
Insulin and oral hypoglycaemic [antidiabetic] drugs	*508*	*24.4*
Other and unspecified drugs, medicaments and biological substances	*204*	*9.8*
Anticoagulants	*198*	*9.5*
Total	**7,276**	**100**

Note: The external cause groups are presented in bold. Information about the specific drugs types taken from the principal diagnosis codes are presented in italics.

From Table 6.5 we can see that:

- 15% of cases (1,074 cases) were *Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and anti-rheumatics.* Most of these (80%) involved 4-aminophenol derivatives such as paracetamol and other non-steroidal anti-inflammatory drugs.
- 35% (2,534 cases) were *Accidental poisoning by and exposure to anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs*. This category includes benzodiazepines (33%), other and unspecified anti-psychotics and neuroleptics (16%), and psychostimulants with potential for use disorder (18%).
- 18% (1,336 cases) were *Accidental poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified*—of which 389 were 'other' opioids such as codeine and morphine, 17% were heroin and 13% were other synthetic narcotics including pethidine.
- 3% (250 cases) were *Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system*, just over one-half (56%) of which were ß-Adrenoreceptor antagonists, not elsewhere classified, also known as beta-blockers.

- 29% (2,082 cases) were *Accidental poisoning by and exposure to other and unspecified drugs, medicaments, and biological substances*. This is a diverse group that includes insulin and oral hypoglycaemic (antidiabetic) drugs (24%) and anticoagulants (10%).

Males had a higher proportion of poisoning by narcotics and psychodysleptics (21%) than females (16%) (Table 6.6). In contrast, females (18%) had higher proportions of poisoning by non-opioid analgesics compared with males (12%). For the other categories there was little difference between males and females.

Table 6.6: Cases of poisoning by pharmaceuticals and drug type, by sex, Australia, 2012–13

	Males		Females		Persons	
Accidental poisoning by and exposure to:	**Number**	**%**	**Number**	**%**	**Number**	**%**
Non-opioid analgesics, antipyretics and anti-rheumatics	428	11.8	646	17.6	1,074	14.8
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	1,265	35	1,269	34.6	2,534	34.8
Narcotics and psychodysleptics (hallucinogens)	750	20.8	586	16	1,336	18.4
Other drugs acting on the autonomic nervous system	122	3.4	128	3.5	250	3.4
Other and unspecified drugs, medicaments and biological substances	1,047	29	1,035	28.2	2,082	28.6
Total	**3,612**	**100**	**3,664**	**100**	**7,276**	**100**

The age distribution of cases differed between types of pharmaceutical (Figure 6.3). Compared with the other types shown, cases of poisoning involving narcotics and psychodysleptic substances were less likely to involve children and more likely to involve adults aged 25–64.

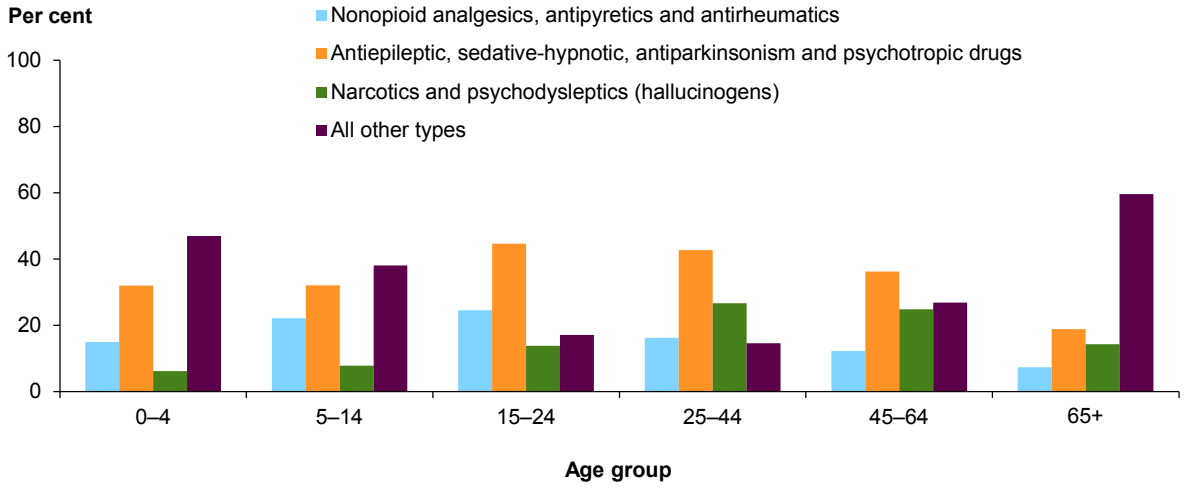
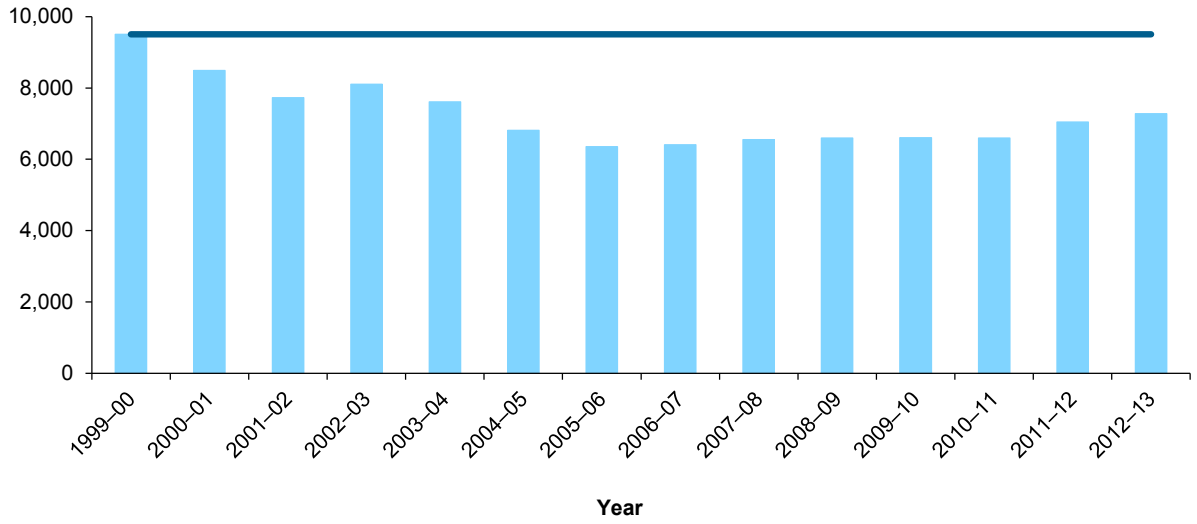


Figure 6.3: Proportion of cases of poisoning by pharmaceuticals, by drug type and age, Australia, 2012–13

6.2 How have cases of poisoning by pharmaceuticals changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined.

Figure 6.4 compares the number of cases of poisoning by pharmaceuticals occurring each year with the baseline number of cases (9,503 in 1999–00). From 2000–01 onwards, the number of cases each year was lower than the baseline. The largest difference occurred in 2005–06 when there were 3,145 fewer cases (6,358 in total) of poisoning by pharmaceuticals.

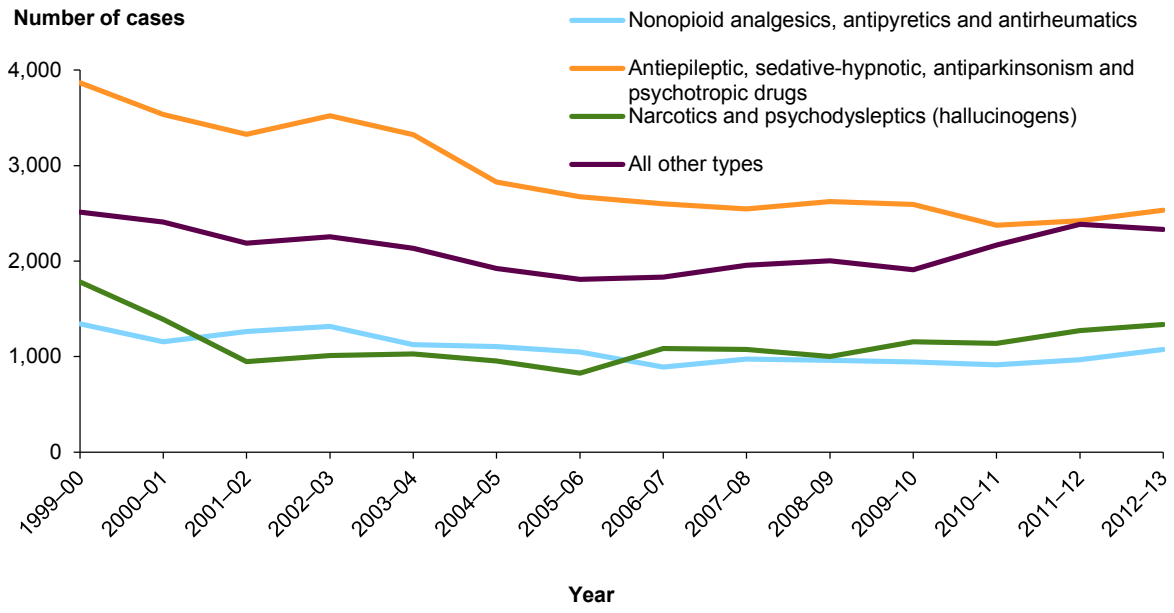


Notes

1. The single line represents the number of cases of poisoning by pharmaceuticals that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.4: Number of cases of poisoning by pharmaceuticals, Australia, 1999–00 to 2012–13

The beginning of the period under study corresponds with a period of decline in the availability of heroin in Australia (Topp et al. 2003). As can be seen in Figure 6.5, the number of cases of poisoning by *Narcotics and psychodysleptics (hallucinogens)* has shown a small consistent rise from 2008–09 (1,101 cases) to 2012–13 (1,336 cases).

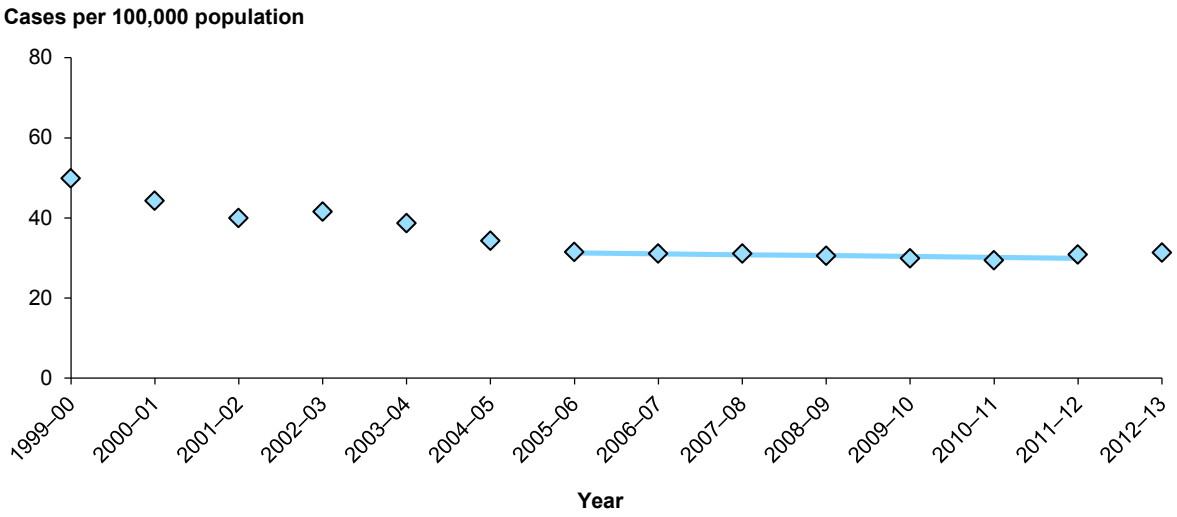


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.5: Cases of poisoning by pharmaceuticals by selected types of pharmaceuticals, Australia, 1999–00 to 2012–13

6.3 How have rates of poisoning by pharmaceuticals changed over time?

Rates of estimated cases of poisoning by pharmaceuticals decreased from 50 cases per 100,000 population in 1999–00 to 31 in 2005–06, after which there was little change (Figure 6.6). The observed rate of injury in 2012–13 was 31 cases per 100,000 population. The decrease in rate over the period 2005–06 to 2011–12 averaged 0.7% per year and was statistically significant (95% CI: –1.4%, –0.1%).



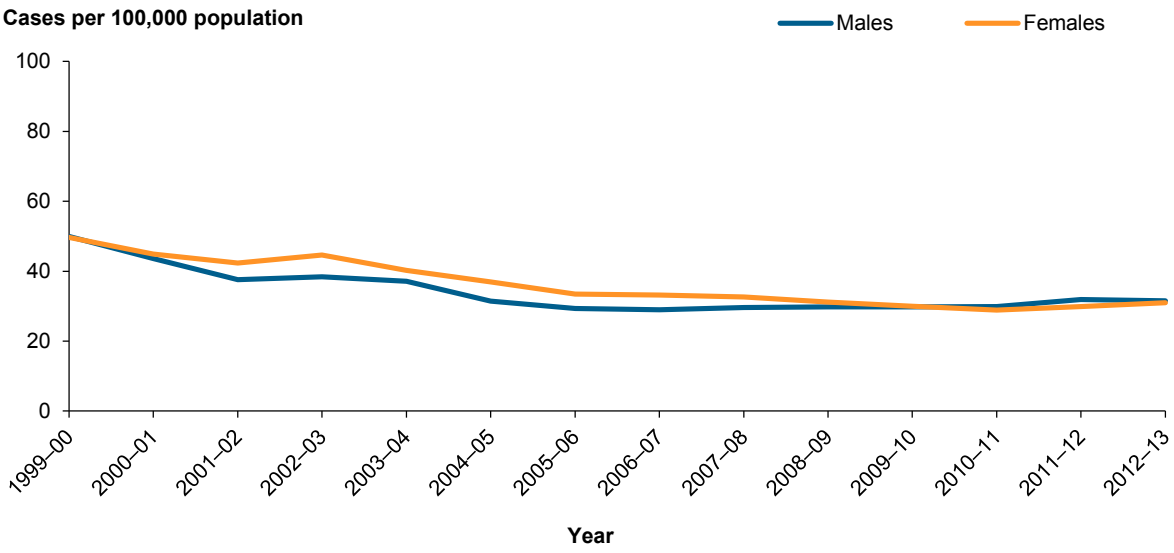
Notes

1. The solid line represents the modelled rate from 2005–06 to 2011–12. The modelled period was chosen based on the most recent period of relative stability in rates. The filled symbols represent the observed age-standardised rate value for each year.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.6: Modelled age-standardised rates of cases of poisoning by pharmaceuticals, Australia, 1999–00 to 2012–13

6.4 How have rates of poisoning by pharmaceuticals varied by sex and age?

A decline in the age-standardised rate of poisoning by pharmaceuticals was evident for both males and females. The steepness of the decline was more pronounced in the earlier years and appeared to level out from about 2006–07 (Figure 6.7). Age-standardised rates for females were generally slightly higher than for males, except at the beginning and end of the period.



Notes

1. Data underpinning this figure are available in Table B.9 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

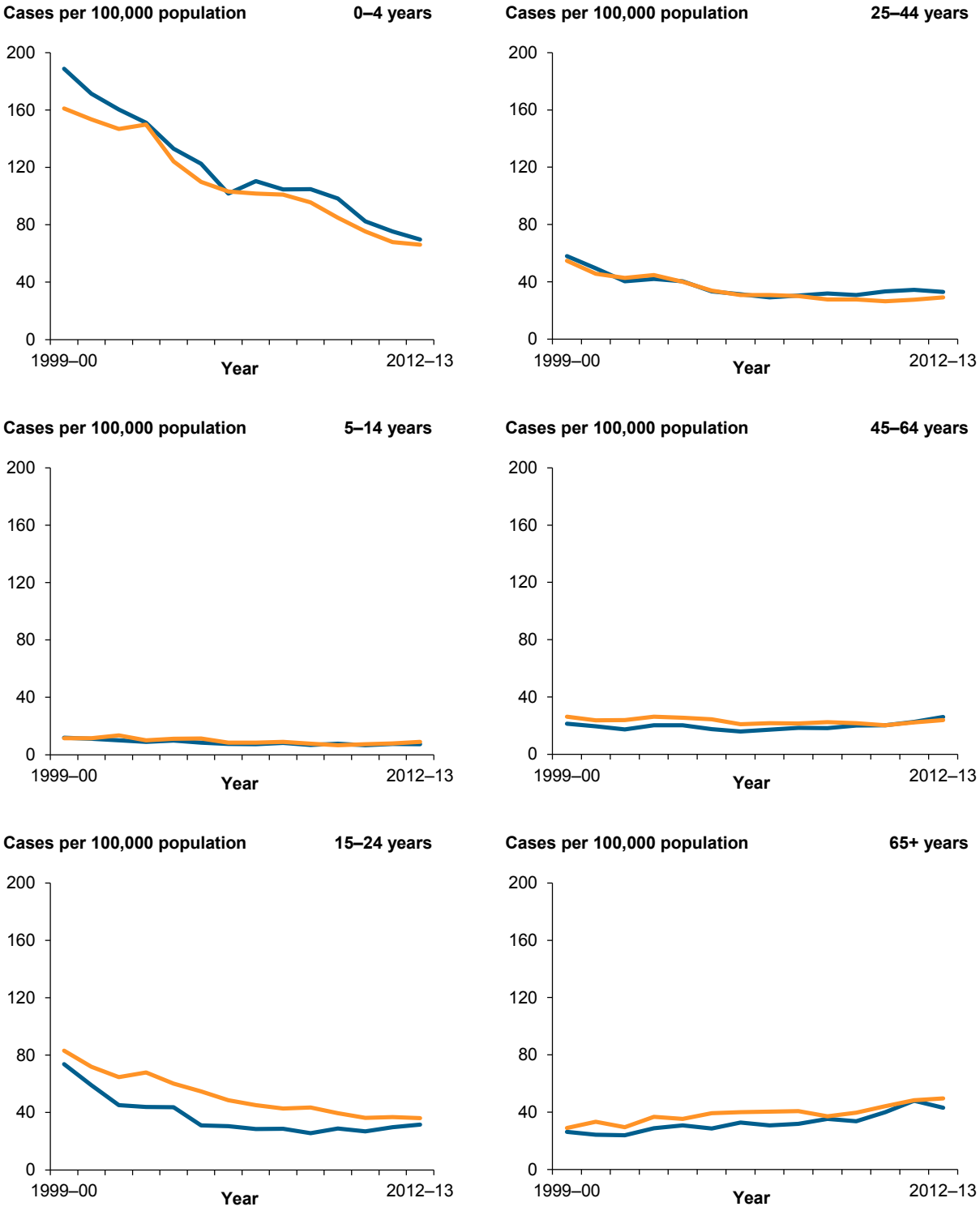
Figure 6.7: Age-standardised rates of cases of poisoning by pharmaceuticals, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 6.8. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years and readers should interpret any changes between these years with caution.

As can be seen in Figure 6.8, declines in age-specific rates were evident in all age groups except 45–64 and 65+, where a small rise in rates over the period is evident.

Rates in children aged 0–4 years declined throughout the period. An examination of the trend by type of substance shows a steep decline in poisoning by *Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs* in recent years and continuing decline *Non-opioid analgesics, antipyretics and anti-rheumatics*. In 2009–10, the number of cases of poisoning by *Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs* was 511, decreasing to 324 in 2012–13. For non-opioid analgesics the number of cases among 0–4 years olds in 1999–00 was 486, decreasing to 152 in 2012–13.

Rates for people aged 65+ increased steadily over the period, with the rise getting steeper from about 2007–08. Almost all of this recent increase was due to increases in poisoning by *Other and unspecified drugs, medicaments and biological substances* (X44) and *Narcotics and psychodysleptics (hallucinogens)*. Cases of poisoning by *Other and unspecified drugs* doubled from 107 cases in 2004–05 to 218 cases in 2012–13.



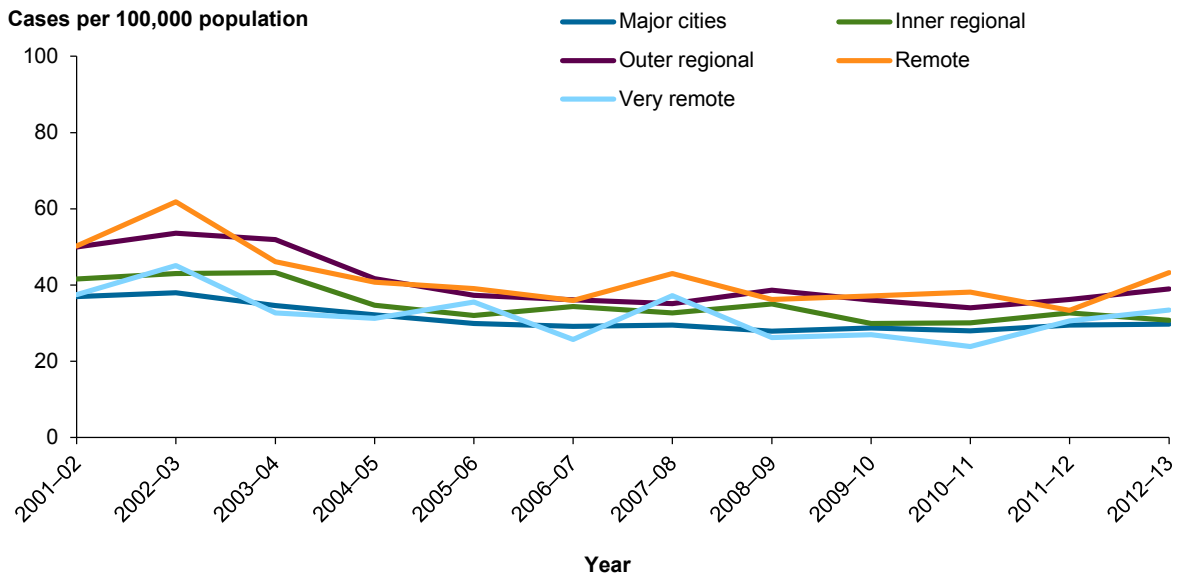
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.9 and B.10 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.8: Age-specific rates of cases of poisoning by pharmaceuticals, by age and sex, Australia, 1999–00 to 2012–13

6.5 How have rates of poisoning by pharmaceuticals varied by remoteness?

Rates of poisoning by pharmaceuticals declined over the period for all remoteness areas (Figure 6.9). Age-standardised rates fluctuated over time in all areas other than *Major cities.* A clear pattern of the effect of remoteness is therefore difficult to discern. Much of the fluctuation was due to small case numbers, particularly in the more remote areas.

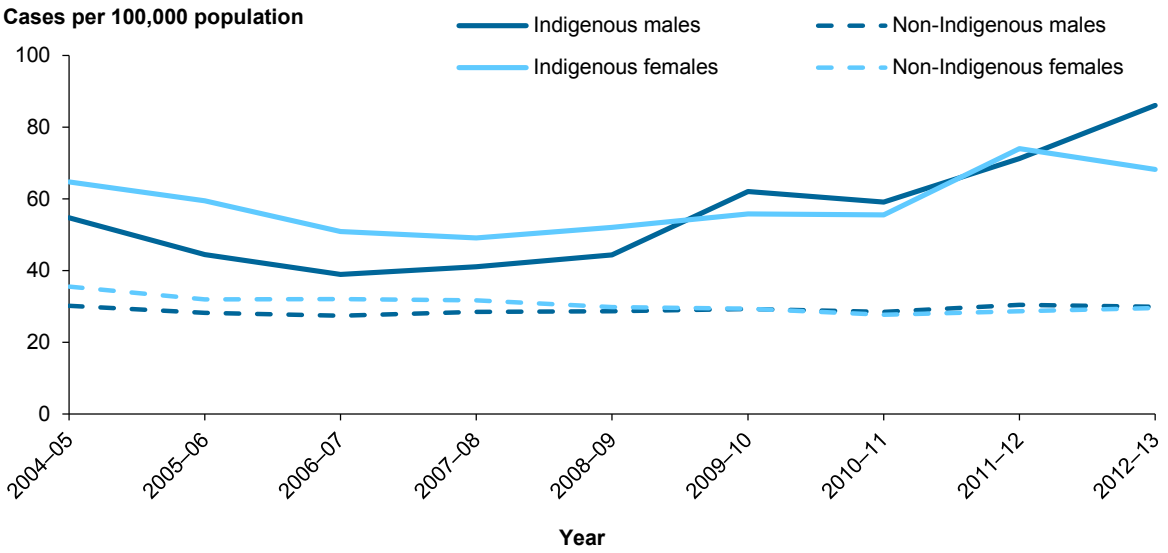


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.9: Age-standardised rates of cases of poisoning by pharmaceuticals, by remoteness of usual residence, Australia, 2001–02 to 2012–13

6.6 How have rates of poisoning by pharmaceuticals in Indigenous people changed over time?

Age-standardised rates of poisoning by pharmaceuticals were higher among Indigenous people than for non-Indigenous people over the period (Figure 6.10). Rates of poisoning by pharmaceuticals rose in Indigenous males and females from about 2006–07. A similar increase was not evident for non-Indigenous people. At the beginning of the period the rates for Indigenous females were higher than their male counterparts but by the middle of the period rates were similar. In 2012–13 the rate of poisoning by pharmaceuticals in Indigenous males was 86 cases per 100,000 population compared to 30 cases per 100,000 for non-Indigenous males. A similar difference was also seen in the most recent year between Indigenous and non-Indigenous females (68 and 30 cases per 100,000 respectively).



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.26 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 6.10: Age-standardised rates of cases of poisoning by pharmaceuticals, by sex and Indigenous status, Australia, 2004–05 to 2012–13

7 Poisoning, non-pharmaceutical substances

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional poisoning by substances other than pharmaceuticals in Australia. It does not include intentional self-poisoning by drugs, assault by drug-related poisoning, or poisoning with undetermined intent.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code is in the ICD-10-AM range X45–X49 (within *Accidental poisoning by and exposure to noxious substances*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 7.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 7.1: External causes of poisoning by other substances

This chapter focuses on the Accidental poisoning by and exposure to noxious substances (X40–X49) section of ICD-10-AM Chapter XX *External causes of morbidity and mortality* and is restricted to the last five of those groups (X45–X49) (the first groups were the focus of Chapter 6 of this report):

- Accidental poisoning by and exposure to alcohol (X45)
- Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours (X46)
- Accidental poisoning by and exposure to other gases and vapours (X47)
- Accidental poisoning by and exposure to pesticides (X48)
- Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances (X49).

7.1 How many cases of poisoning by non-pharmaceutical substances were there in 2012–13?

There were an estimated 1,950 cases of poisoning by non-pharmaceutical substances during 2012–13 (Table 7.1). Poisoning by non-pharmaceutical substances made up less than 1% of all injury cases.

More males than females were hospitalised as a result of poisoning by non-pharmaceutical substances and the age-standardised rate was also higher for males compared with females.

Table 7.1: Key indicators for cases of poisoning by non-pharmaceutical substances, Australia, 2012–13

Indicators	Males	Females	Persons
Cases of poisoning by non-pharmaceutical substances	1,251	699	1,950
Per cent of all injury cases	0.5	0.4	0.4
Age-standardised rate/100,000 population	11	6	9

Age and sex

The proportion of cases of poisoning by non-pharmaceutical substances in children aged 0–4 (Table 7.2) was much higher than the proportion of all external cause injuries in this age group (5%) (Table 2.2). Higher proportions of cases of poisoning by non-pharmaceutical substances occurred in females in 4 out of the 6 age groups.

Table 7.2: Cases of poisoning by non-pharmaceutical substances, by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	252	20.1	147	21.0	399	20.5
5–14	54	4.3	40	5.7	94	4.8
15–24	170	13.6	105	15.0	275	14.1
25–44	357	28.5	181	25.9	538	27.6
45–64	292	23.3	125	17.9	417	21.4
65+	126	10.1	101	14.4	227	11.6
Total	**1,251**	**100**	**699**	**100**	**1,950**	**100**

Age-specific rates of poisoning by non-pharmaceutical substances were highest in young children aged 0–4 for both males and females (33 and 20 per 100,000 population, respectively) (Figure 7.1). Rates for males were higher than females for the majority of age groups other than 70–74. The greatest difference in rates occurred at 0–4.

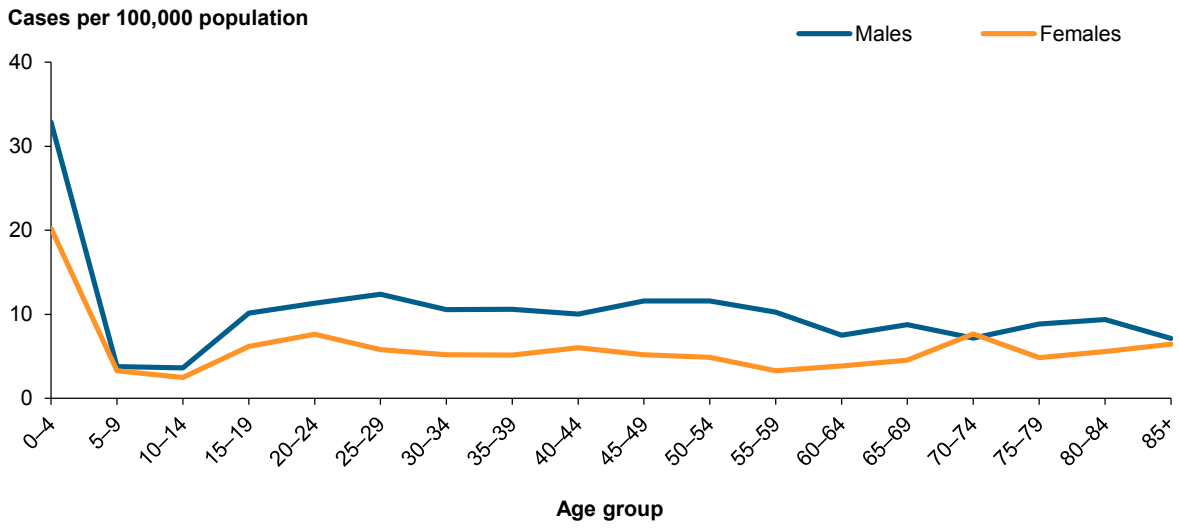


Figure 7.1: Age-specific rates of cases of poisoning by non-pharmaceutical substances, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of poisoning by non-pharmaceutical substances in 2012–13 increased according to remoteness (Table 7.3). The lowest rate was observed for residents of *Major cities* (7 per 100,000 population) and the highest for residents of *Very remote* areas (21 per 100,000).

Table 7.3: Cases of poisoning by non-pharmaceutical substances, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Cases of poisoning by non-pharmaceutical substances	1,156	388	276	61	46	1,950
Per cent	59.3	19.9	14.2	3.1	2.4	100
Age-standardised rate/100,000 population	7	10	14	19	21	9

(a) Excludes 23 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were an estimated 136 cases of Indigenous people hospitalised as a result of poisoning by non-pharmaceutical substances in 2012–13 (Table 7.4). More males were hospitalised than females. Poisoning by non-pharmaceutical substances, as a proportion of all injury cases, was similar among Indigenous people (0.6%) and non-Indigenous people (0.4%).
Age-standardised rates of poisoning by non-pharmaceutical substances among Indigenous people were more than twice those of non-Indigenous people.

Table 7.4: Key indicators for cases of poisoning by non-pharmaceutical substances, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	Males	Females	Persons	Males	Females	Persons
Cases of poisoning by non-pharmaceutical substances	81	55	136	1,155	637	1,792
Per cent of all cases of injury	0.6	0.6	0.6	0.5	0.3	0.4
Age-standardised rate/100,000 population	21.0	14.8	17.9	10.4	5.7	8.1

Due to the very small numbers of cases in age categories other than 0–4, further examination of difference in rates by age among Indigenous Australians has not been attempted.
Age-specific rates for Indigenous and non-Indigenous children aged 0–4 were 63 and 24 per 100,000 population respectively.

Substance type

As in the previous chapter, external causes were tabulated to describe the groups of substances responsible for poisoning cases (see Box 7.1). However, principal diagnoses can offer a more detailed description of the substances involved for each of these groups. For example, more detailed information about the type of drug covered by *Accidental poisoning by and exposure to alcohol* (X45) can be found in the principal diagnosis code for the patient (for example, whether it was attributable to ethanol or methanol). In Table 7.5 and accompanying

text, the top 3 principal diagnosis categories associated with the 5 major external causes for poisoning by pharmaceuticals have been presented.

Table 7.5: Cases of poisoning by non-pharmaceutical substances and substance type, Australia, 2012–13

Accidental poisoning by and exposure to:	Number	%
Alcohol	**214**	**11.0**
Ethanol	*152*	*71.0*
Alcohol, unspecified	*30*	*14.0*
Methanol	*15*	*7.0*
Organic solvents and halogenated hydrocarbons and their vapours	**154**	**7.9**
Petroleum products	*56*	*36.4*
Other organic solvents	*54*	*35.1*
Halogen derivative of aliphatic and aromatic hydrocarbons, unspecified	*8*	*5.2*
Other gases and vapours	**222**	**11.4**
Other specified gases, fumes and vapours	*88*	*39.6*
Toxic effect of carbon monoxide	*51*	*23.0*
Chlorine gas	*48*	*21.6*
Pesticides	**111**	**5.7**
Organophosphate and carbamate insecticides	*34*	*30.6*
Herbicides and fungicides	*19*	*17.1*
Rodenticides	*15*	*13.5*
Other and unspecified chemicals and noxious substances	**1,249**	**64.1**
Noxious substance eaten as food, unspecified	*139*	*11.1*
Corrosive alkalis and alkali-like substances	*80*	*37.4*
Toxic effect of unspecified substance	*71*	*33.2*
Total	**1,950**	**100**

Note: The external cause groups are presented in bold. Information about the specific substance types taken from the principal diagnosis codes are presented in italics.

From Table 7.5 we can see that:

- 11% of cases (214) resulted from *Accidental poisoning by and exposure to alcohol* (Table 7.3). The most commonly reported substance was ethanol (71%).
- 8% of cases resulted from *Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours*. Petroleum products (36%) and 'Other organic solvents' (35%) were commonly reported.
- 11% of cases resulted from *Accidental poisoning by and exposure to other gases and vapours*. This category includes poisoning by carbon monoxide (23%) and chlorine gas (22%).
- 6% of cases resulted from *Accidental poisoning by and exposure to pesticides*. Organophosphate and carbamate insecticides was the most commonly reported substance group (31%).
- More than one-half of the total number of cases were a result of *Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances* (64%; 1,249 cases). 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.

- Males (10%) had a higher proportion of poisoning by *Organic solvents and halogenated hydrocarbons and their vapours* compared with females (5%) (Table 7.6).

Table 7.6: Cases of poisoning by non-pharmaceutical substances and substance type, by sex, Australia, 2012–13

	Males		Females		Persons	
Accidental poisoning by and exposure to:	**Number**	**%**	**Number**	**%**	**Number**	**%**
Alcohol	136	10.9	78	11.2	214	11.0
Organic solvents and halogenated hydrocarbons and their vapours	119	9.5	35	5.0	154	7.9
Other gases and vapours	151	12.1	71	10.2	222	11.4
Pesticides	69	5.5	42	6.0	111	5.7
Other and unspecified chemicals and noxious substances	776	62.0	473	67.7	1,249	64.1
Total	**1,251**	**100**	**699**	**100**	**1,950**	**100**

The age distribution of cases differed by substance type (Figure 7.2). Compared with the other types shown, cases of poisoning by alcohol were more prominent in the 15–24 and 25–44 age groups.

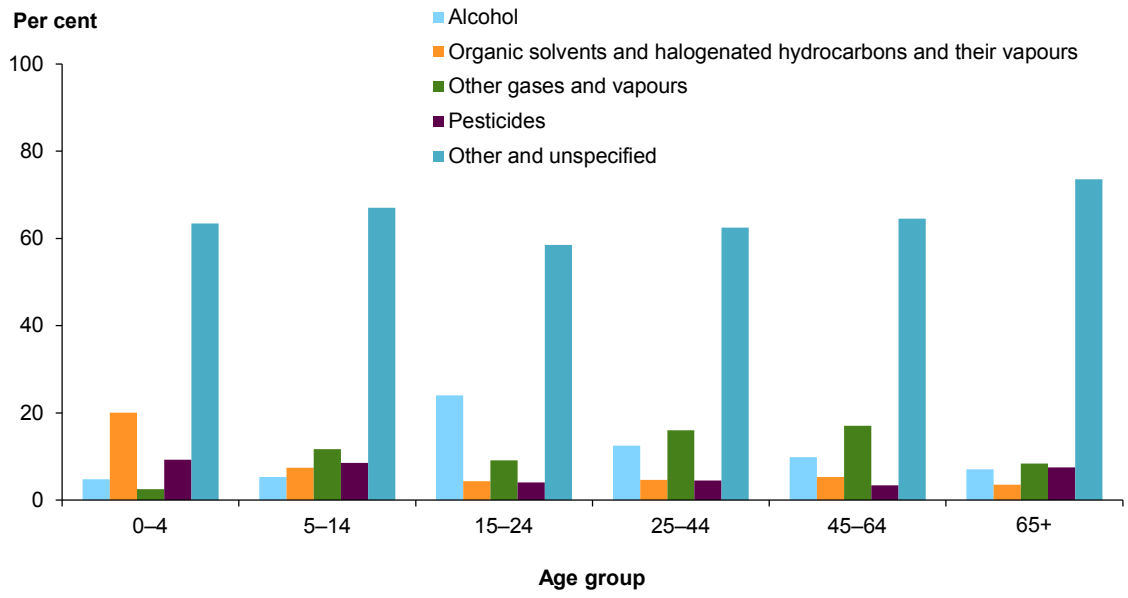
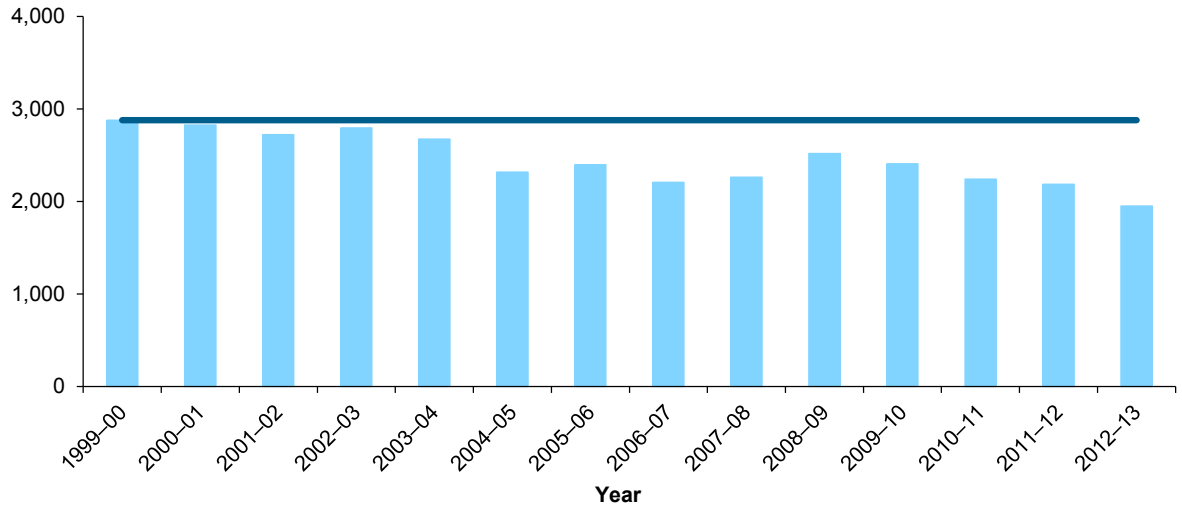


Figure 7.2: Proportion of cases of poisoning by non-pharmaceutical substances, by substance type and age, Australia, 2012–13

7.2 How have cases of poisoning by non-pharmaceutical substances changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 7.3 below, the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 7.3 compares the number of cases of poisoning by non-pharmaceutical substances occurring each year with a baseline number of cases (2,877 in 1999–00). From 2000–01 onwards, the annual number of cases was lower than the baseline. The largest difference was in 2006–07 when there were 670 fewer cases of poisoning by non-pharmaceutical substances. The smaller number of cases in 2012–13, the lowest recorded (1,950) in the period, should be viewed with caution due to the unknown effects of the change in emergency department admissions policy in Victoria.



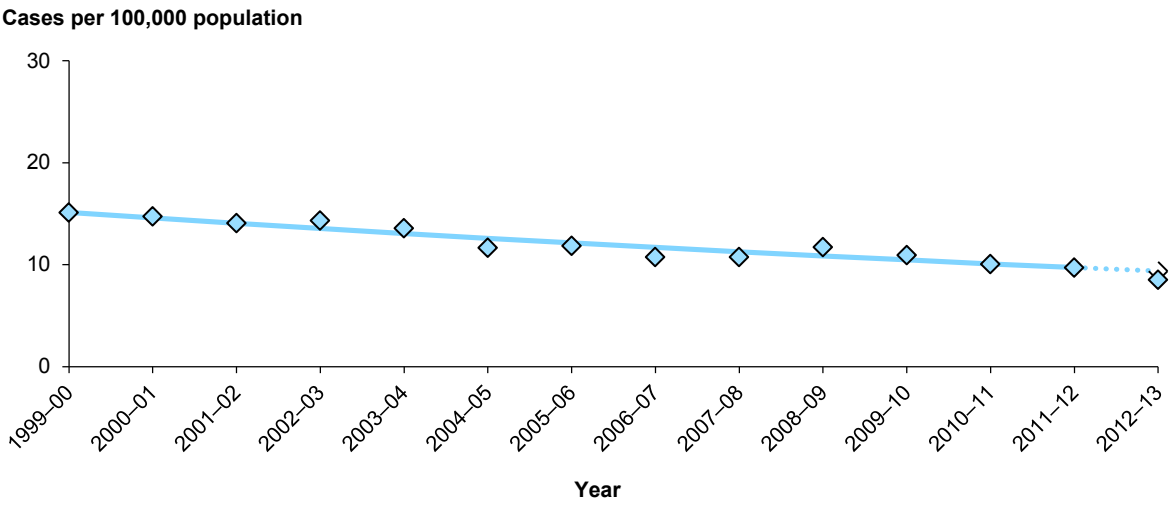
Notes

1. The single line represents the number of cases of poisoning by non-pharmaceutical substances that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.3: Cases of poisoning by non-pharmaceutical substances, Australia, 1999–00 to 2012–13

7.3 How have rates of poisoning by non-pharmaceutical substances changed over time?

Rates of estimated cases of poisoning by non-pharmaceutical substances decreased from 15.1 cases per 100,000 population in 1999–00 to 8.5 in 2012–13 (Figure 7.4). The decrease from 1999–00 to 2011–12 averaged 3.6% per year and was statistically significant (95% CI: –4.3%, –3.0%). The predicted rate of poisoning by non-pharmaceutical substances in 2012–13 was 9.4 cases per 100,000 population based on the trend from 1999–00 to 2011–12.



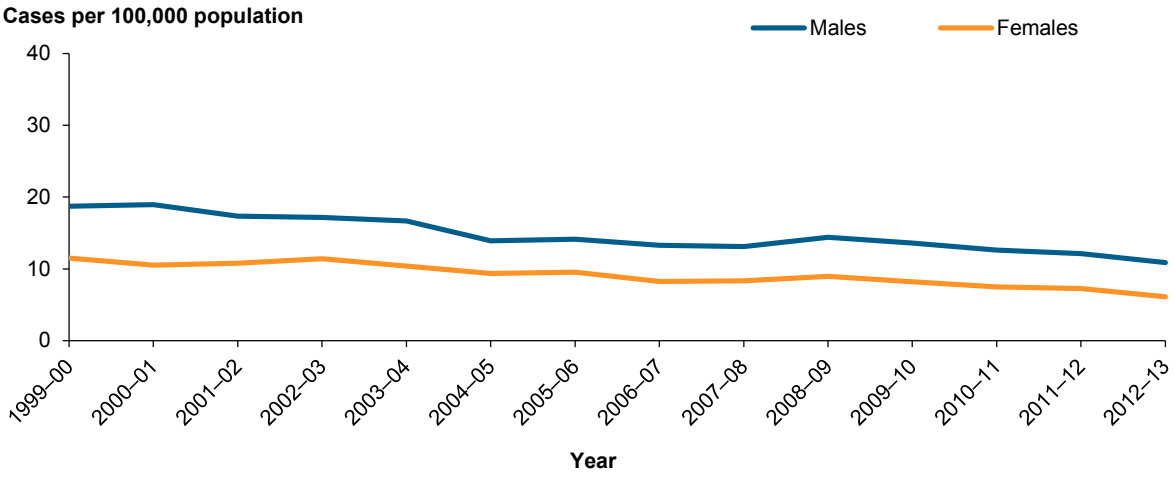
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.4: Modelled age-standardised rates of cases of poisoning by non-pharmaceutical substances, Australia, 1999–00 to 2012–13

7.4 How have rates of poisoning by non-pharmaceutical substances varied by sex and age?

During the period, age-standardised rates of poisoning by non-pharmaceutical substances decreased for males and females (Figure 7.5). Age-standardised rates for males were consistently higher than for females.



Notes

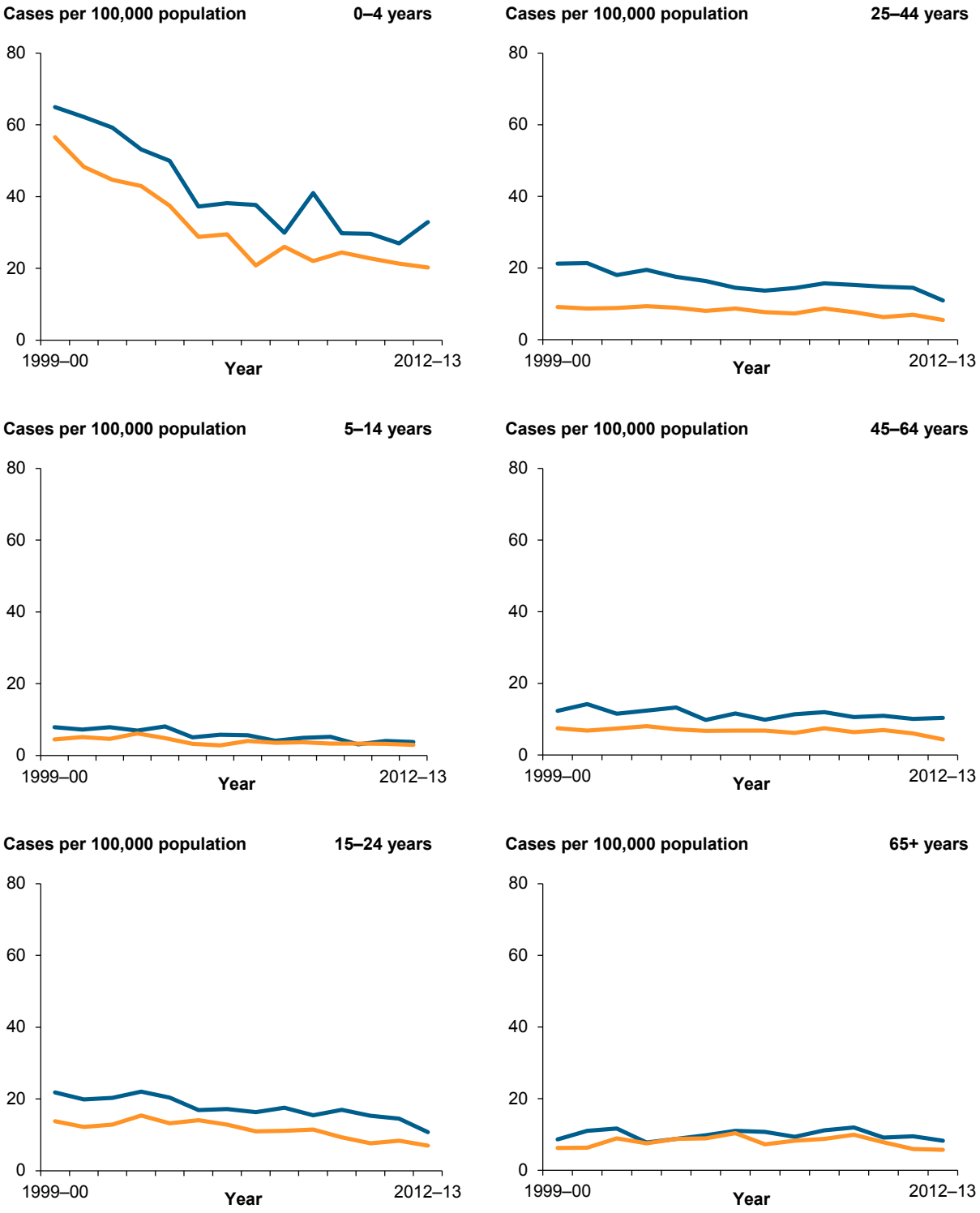
1. Data underpinning this figure are available in Table B.11 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.5: Age-standardised rates of cases of poisoning by non-pharmaceutical substances, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 7.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria is confined to the most recent year of these two years, and readers should interpret any changes between these years with caution.

As can be seen in Figure 7.6, the gradual decline in age-standardised rates was similar to the age-specific rates for all age groups other than 0–4. The steeper decline in rates in children aged 0–4 is similar to that seen in poisoning by pharmaceutical substances.

Underpinning the rates were declines in all the major categories of poisoning by non-pharmaceutical substances in children aged 0–4. For example, alcohol poisoning fell from 36 cases in 1999–00 to 13 in 2012–13, poisoning by *Organic solvents and halogenated hydrocarbons and their vapours* decreased from 144 cases (1999–00) to 75 (2012–13), and poisonings as a result of pesticides decreased from 168 cases (1999–00) to 50 (2012–13) (data not shown).



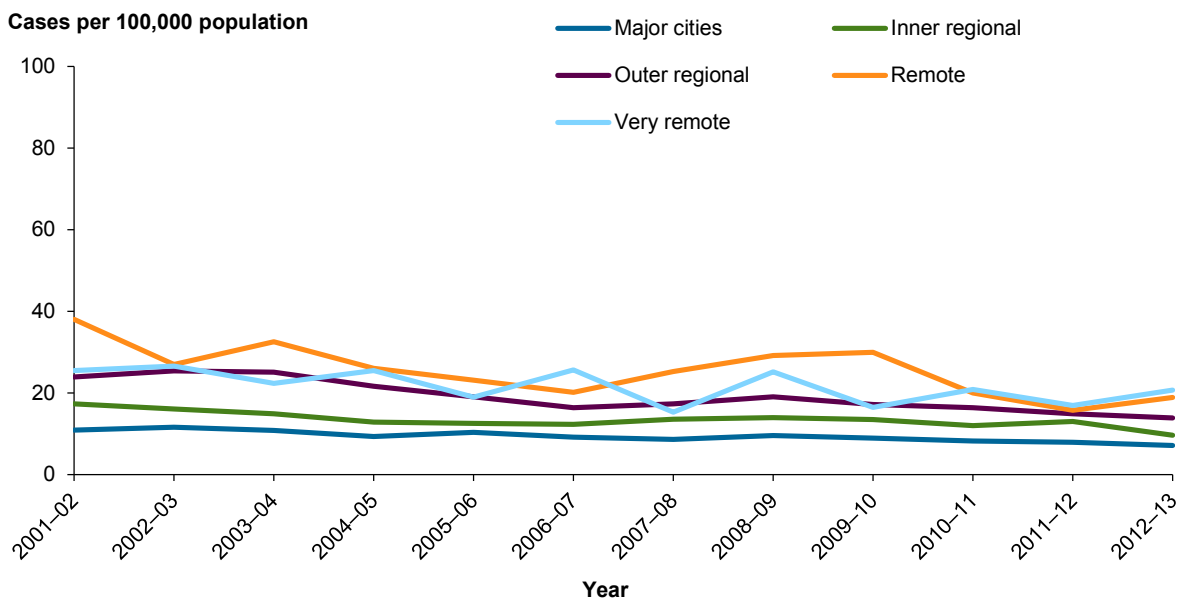
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.11 and B.12 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.6: Age-specific rates of cases of poisoning by non-pharmaceutical substances, by age and sex, Australia, 1999–00 to 2012–13

7.5 How have rates of poisoning by non-pharmaceutical substances varied by remoteness?

Age-standardised rates of poisoning by non-pharmaceutical substances remained higher in *Remote* and *Very remote* regions over the period (Figure 7.7). In each year, rates were lower for *Major cities* and *Inner regional* areas than all other areas.

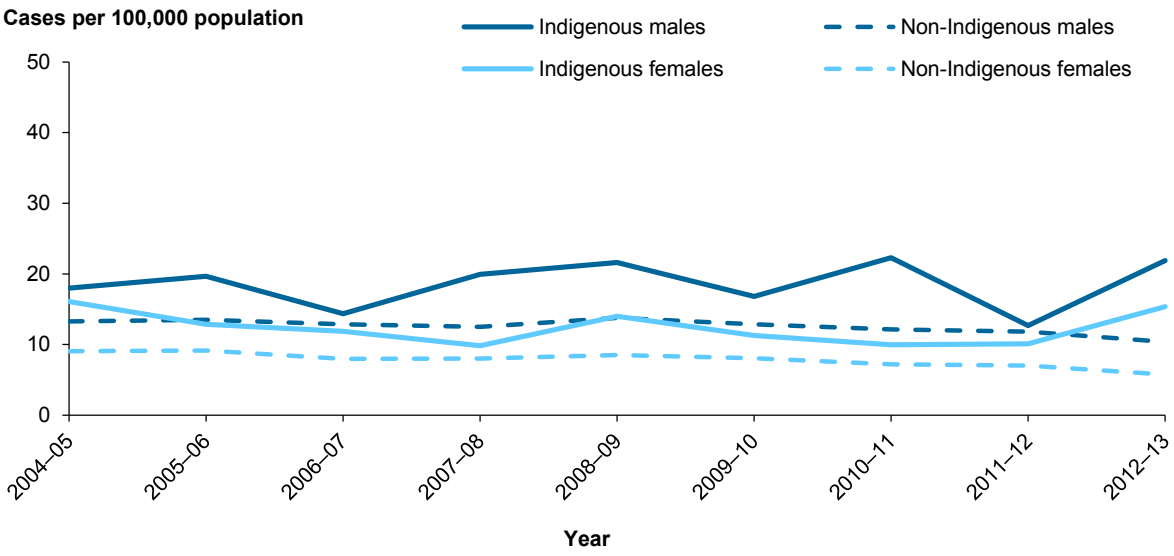


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.7: Age-standardised rates of cases of poisoning by non-pharmaceutical substances, by remoteness of usual residence, Australia, 2001–02 to 2012–13

7.6 How have rates of poisoning by non-pharmaceutical substances in Indigenous people changed over time?

Age-standardised rates of poisoning by non-pharmaceutical substances were higher among Indigenous males and females compared to their non-Indigenous counterparts over the period. Rates of poisoning by non-pharmaceutical substances fluctuate more for Indigenous people over time primarily due to the low number of cases in each year.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.27 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 7.8: Age-standardised rates of cases of poisoning by non-pharmaceutical substances, by sex and Indigenous status, Australia, 2004–05 to 2012–13

8 Falls

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional falls in Australia. Further statistical information on fall injuries can be found in reports focused on this topic available from the AIHW website. This chapter does not include falls due to intentional self-harm or assault, and falls of undetermined intent.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, providing that the first-reported external cause code is in the ICD-10-AM range W00–W19 (*Falls*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 8.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 8.1: External causes of falls

This chapter focuses on the **Other external causes of accidental injury (W00–X59)** section of ICD-10-AM Chapter XX *External causes of morbidity and mortality,* but is restricted to Falls (W00–W19) as follows:

- Fall on same level involving ice and snow (W00)
- Fall on same level from slipping, tripping and stumbling (W01)
- Fall involving ice-skates, skis, roller-skates or skateboards (W02)
- Other fall on same level due to collision with, or pushing by, another person (W03)
- Fall while being carried or supported by other persons (W04)
- Fall involving wheelchair (W05)
- Fall involving bed (W06)
- Fall involving chair (W07)
- Fall involving other furniture (W08)
- Fall involving playground equipment (W09)
- Fall on and from stairs and steps (W10)
- Fall on and from ladder (W11)
- Fall on and from scaffolding (W12)
- Fall from, out of or through building or structure (W13)
- Fall from tree (W14)
- Fall from cliff (W15)
- Diving or jumping into water causing injury other than drowning or submersion (W16)
- Other fall from one level to another (W17)
- Other fall on same level (W18)
- Unspecified fall (W19).

8.1 How many fall cases were there in 2012–13?

There were an estimated 178,780 fall cases during 2012–13 (Table 8.1). Falls made up 40% of all injury hospitalised cases.

More females than males were hospitalised as a result of a fall. The age-standardised rate of falls was also higher for females.

Table 8.1: Key indicators for fall cases, Australia, 2012–13

Indicators	Males	Females	Persons
Fall cases	77,857	100,920	178,780
Per cent of all injury cases	31.1	51.4	40.0
Age-standardised rate/100,000 population	685	719	714

Age and sex

Fifty-five per cent of fall injuries occurred in adults aged 65+ (Table 8.2), with higher proportions of women in this age group hospitalised as a result of a fall. In contrast differences between males and females were seen in younger age groups with higher proportions of males 5–14 and 25–44 hospitalised as a result of a fall compared to females.

Table 8.2: Fall cases by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	5,197	6.7	3,887	3.9	9,084	5.1
5–14	11,385	14.6	6,514	6.5	17,899	10.0
15–24	7,188	9.2	2,595	2.6	9,783	5.5
25–44	9,900	12.7	6,324	6.3	16,224	9.1
45–64	12,452	16.0	14,631	14.5	27,083	15.1
65+	31,735	40.8	66,969	66.4	98,704	55.2
Total	**77,857**	**100**	**100,920**	**100**	**178,780**	**100**

For both sexes, age-specific rates of falls increased exponentially from age 65 (Figure 8.1). Rates for males were higher than females from about 5–9 to 20–24. In contrast, from about 55–59, rates for females were higher than for males.

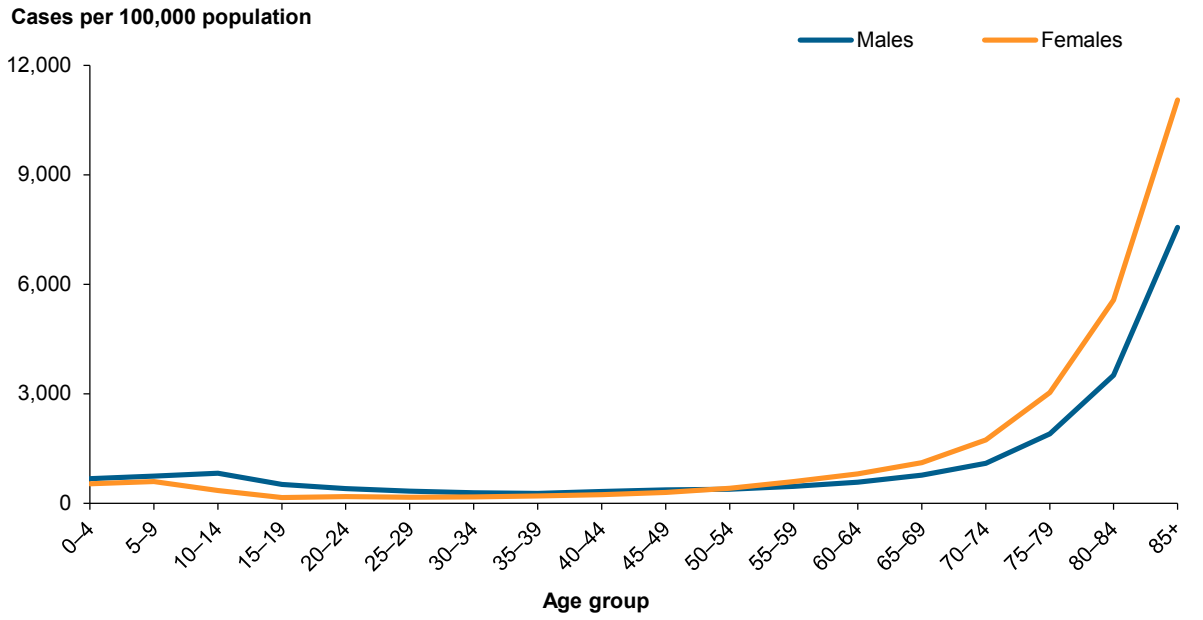


Figure 8.1: Age-specific rates of fall cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of falls in 2012–13 varied somewhat according to remoteness (Table 8.3). The highest rates were in *Remote* and *Very remote* areas (826 and 931 per 100,000 population respectively).

Table 8.3: Fall cases, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	**Major cities**	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Total[(a)]**
Fall cases	123,229	33,871	16,196	2,473	1,629	178,780
Per cent	68.9	18.9	9.1	1.4	0.9	100
Age-standardised rate/100,000 population	720	693	721	826	931	714

(a) Excludes 1,382 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were an estimated 4,817 cases of Indigenous people hospitalised as a result of a fall in 2012–13 (Table 8.4). Falls among Indigenous people made up a lower proportion of all injury (22%) compared with non-Indigenous people (41%). In contrast to non-Indigenous people, more Indigenous males than females were hospitalised as a result of a fall. The age-standardised rate of falls among Indigenous people was higher than that of non-Indigenous people.

Table 8.4: Key indicators for fall cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Fall cases	2,745	2,072	4,817	74,129	97,413	171,542
Per cent of all cases of injury	21.7	21.5	21.6	31.7	53.1	41.1
Age-standardised rate/100,000 population	940.2	847.8	906.7	669.4	703.6	698.0

Generally speaking, the pattern of falls by age for Indigenous males and females was similar to that for non-Indigenous males and females (Figure 8.2). Falls rates are low up until about age 65–69. After 65–69, falls rates increased substantially for Indigenous and non-Indigenous Australians regardless of sex. At older ages rates of fall injury in non-Indigenous females were higher than all other groups.

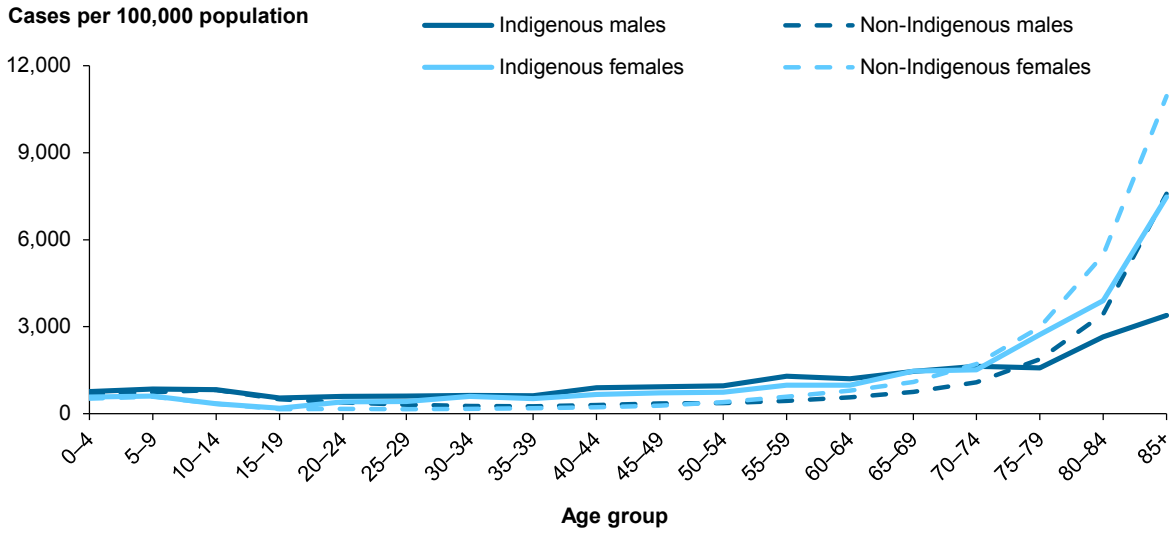


Figure 8.2: Age-specific rates of fall cases, by sex and Indigenous status, Australia, 2012–13

Type of fall

Falls on the same level from slipping, tripping and stumbling accounted for more than one-quarter of all fall injuries (27%) in 2012–13 (Table 8.5). The next two most commonly reported types of fall were *Other fall on same level* and *Fall on and from stairs and steps,* accounting for 19% and 7% of cases respectively.

Fall injuries where males outnumbered females by more than 3:1 were: *Other fall on same level due to collision with, or pushing by, another person; Fall on and from ladder; Fall on and from scaffolding; Fall from, out of or through building or structure;* and *Diving or jumping into water causing injury other than drowning or submersion*.

Table 8.5: External causes of fall cases, by sex, Australia, 2012–13

	Males		Females		Persons	
External cause	**Number**	**%**	**Number**	**%**	**Number**	**%**
Fall on same level from slipping, tripping and stumbling	16,179	20.8	32,573	32.3	48,753	27.3
Other fall on same level	13,836	17.8	20,925	20.7	34,763	19.4
Fall on and from stairs and steps	4,873	6.3	7,528	7.5	12,401	6.9
Fall involving playground equipment	3,522	4.5	2,840	2.8	6,362	3.6
Fall involving ice-skates, skis, roller-skates, skateboards, scooters and other pedestrian conveyances	4,224	5.4	1,777	1.8	6,001	3.4
Other fall from one level to another	3,699	4.8	2,208	2.2	5,907	3.3
Fall involving bed	2,172	2.8	3,615	3.6	5,787	3.2
Fall involving chair	2,048	2.6	3,152	3.1	5,200	2.9
Other fall on same level due to collision with, or pushing by, another person	3,983	5.1	706	0.7	4,689	2.6
Fall on and from ladder	3,641	4.7	896	0.9	4,537	2.5
Fall from, out of or through building or structure	3,161	4.1	894	0.9	4,055	2.3
Fall from tree	862	1.1	308	0.3	1,170	0.7
Fall involving wheelchair	409	0.5	496	0.5	905	0.5
Fall involving other furniture	396	0.5	355	0.4	751	0.4
Fall while being carried or supported by other persons	323	0.4	294	0.3	617	0.3
Diving or jumping into water causing injury other than drowning or submersion	421	0.5	135	0.1	556	0.3
Fall from cliff	259	0.3	147	0.1	406	0.2
Fall on and from scaffolding	228	0.3	8	0	236	0.1
Fall on same level involving ice and snow	39	0.1	45	0	84	0
Unspecified fall	13,582	17.4	22,018	21.8	35,600	19.9
Total	**77,857**	**100**	**100,920**	**100**	**178,780**	**100**

Cases lacking specific information about the type of fall (20%) may have occurred for a number of reasons, including patients arriving unconscious to the hospital, information not being reported by or on behalf of the patient, or information not being recorded in the patient's hospital record. Unspecified falls were greater among people aged 65+.

The external cause of fall injury varied by age. For young children (0–4), falls from playground equipment and furniture were common (Table 8.6). Older children (5–14) were also frequently hospitalised as a result of a fall from playground equipment, but were also increasingly hospitalised as a result of falling from pedestrian conveyances (for example, skateboards and bicycles). For people aged 65+, falls resulting from slips, trips and stumbles or falls on the same level accounted for more than one-half of all cases.

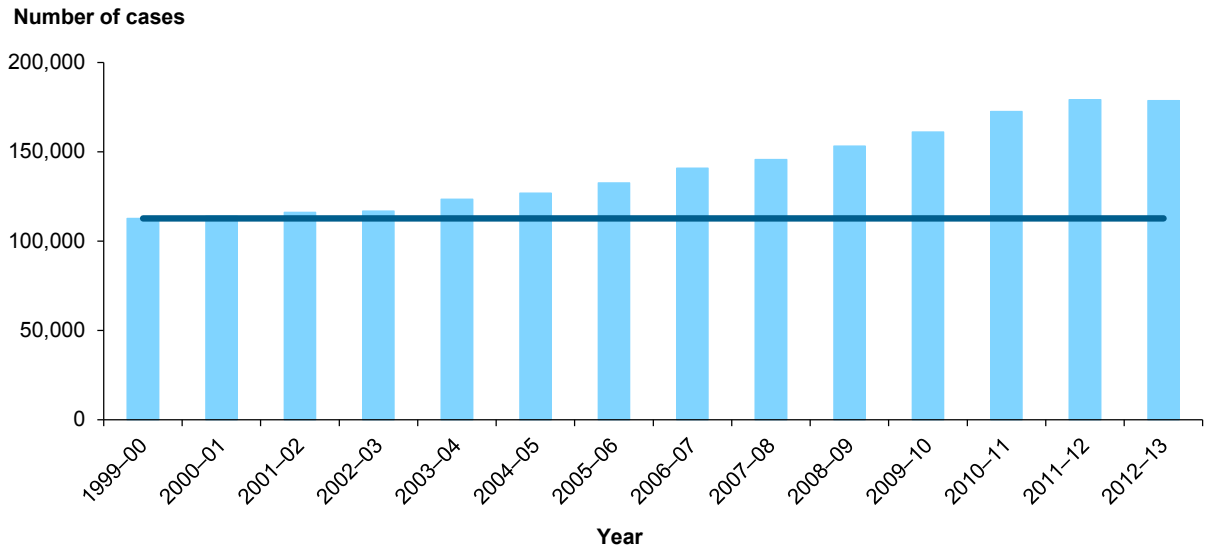
Table 8.6: Selected external causes of fall cases, by selected age group, Australia, 2012–13

	Number	%
0–4 year olds		
Fall involving playground equipment	1,499	16.5
Fall involving chair	1,053	11.6
Fall on same level from slipping, tripping and stumbling	943	10.4
Fall involving bed	854	9.4
Total falls 0–4	**9,084**	
5–14 year olds		
Fall involving playground equipment	4,516	25.2
Fall involving pedestrian conveyances	2,513	14.0
Other fall on same level	2,265	12.7
Fall on same level from slipping, tripping and stumbling	2,077	11.6
Total falls 5–14	**17,899**	
65+ year olds		
Fall on same level from slipping, tripping and stumbling	32,775	33.2
Unspecified fall	23,517	23.8
Other fall on same level	6,229	6.3
Fall on and from stairs and steps	1,650	1.7
Total falls 65+	**98,704**	

8.2 How have rates of falls cases changed over time?

Caution should be used in interpreting variation in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 8.3 below the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 8.3 compares the number of falls each year with a baseline number of cases (112,747 in 1999–00). From 2000–01 onwards, the annual number of cases has been higher than the baseline, increasing each year. The largest difference was in 2011–12 when there were 66,511 more cases of falls since the beginning of the period (179,258 in total). This pattern largely reflects the increasing number of older people in the Australian population. The number of cases in 2012–13 (178,780), should be viewed with caution due to the unknown effects of the change in emergency department admissions policy in Victoria.



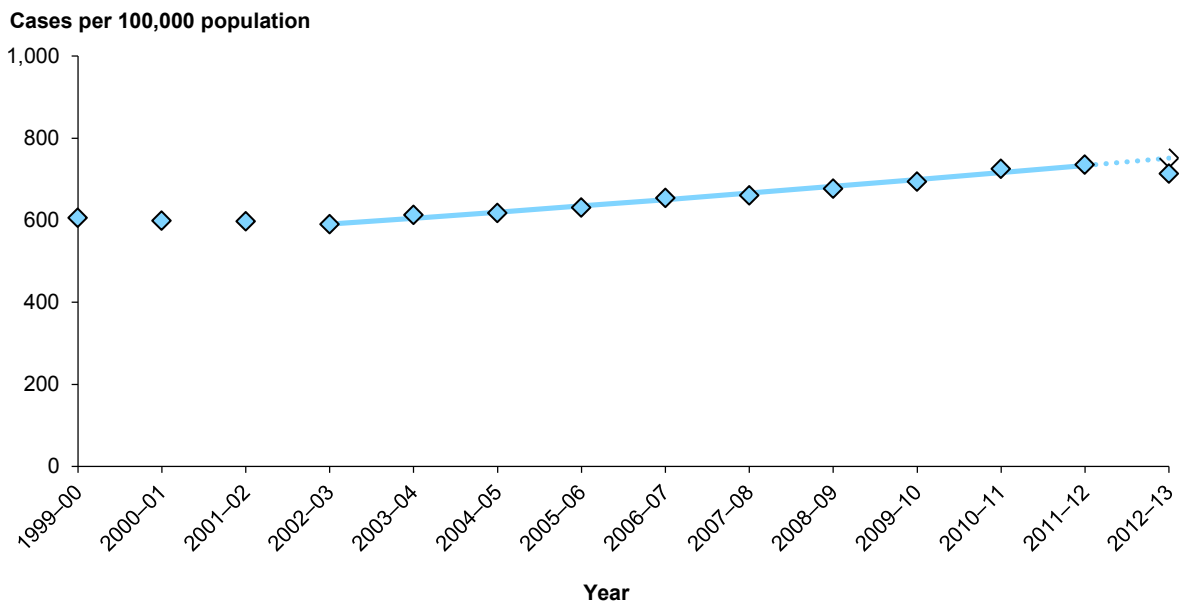
Notes

1. The single line represents the number of cases of fall injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.3: Number of cases of fall injury, Australia, 1999–00 to 2012–13

8.3 How have rates of falls changed over time?

Age-standardised rates of falls increased from 606 per 100,000 population in 1999–00 to 735 per 100,000 in 2011–12 (Figure 8.4). The increase averaged 2.4% per year and was statistically significant (95% CI: 2.3%, 2.6%). The predicted rate of fall injury in 2012–13 was 751 cases per 100,000 population based on the trend from 2002–03 to 2011–12.



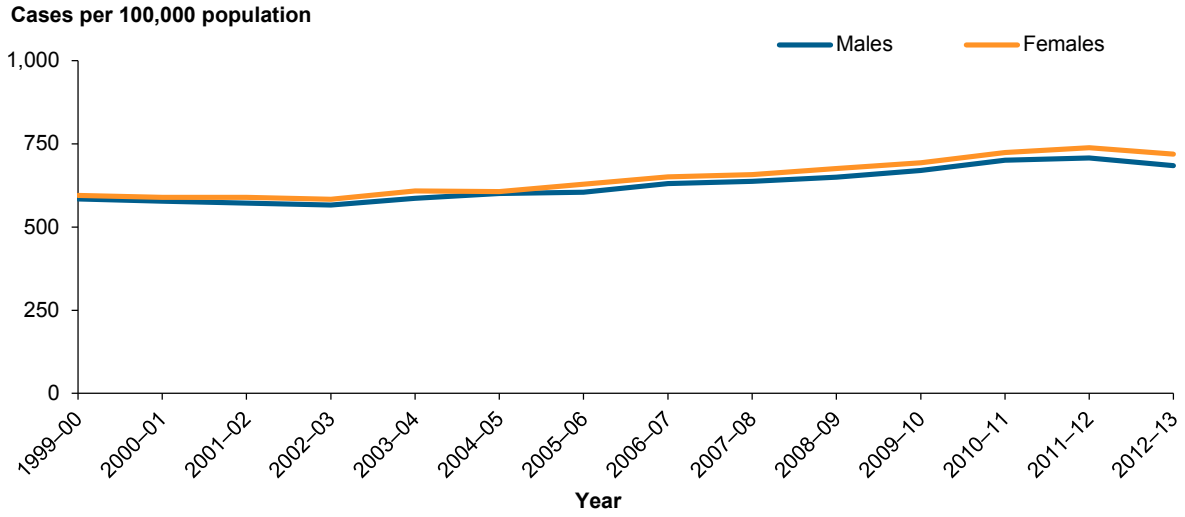
Notes

1. The solid line represents the modelled rate from 2005–06 to 2011–12. The modelled period was chosen based on the most recent period of relative stability in rates. The filled symbols represent the observed age-standardised rate value for each year.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.4: Modelled age-standardised rates of fall cases, Australia, 1999–00 to 2012–13

8.4 How have rates of falls varied by sex and age?

The age-standardised rate for fall injury increased over the period for both males and females (Figure 8.5). Rates were slightly higher for females compared with males.



Notes

1. Data underpinning this figure are available in Table B.13 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.5: Age-standardised rates of fall cases, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 8.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years, and readers should interpret any changes between these years with caution.

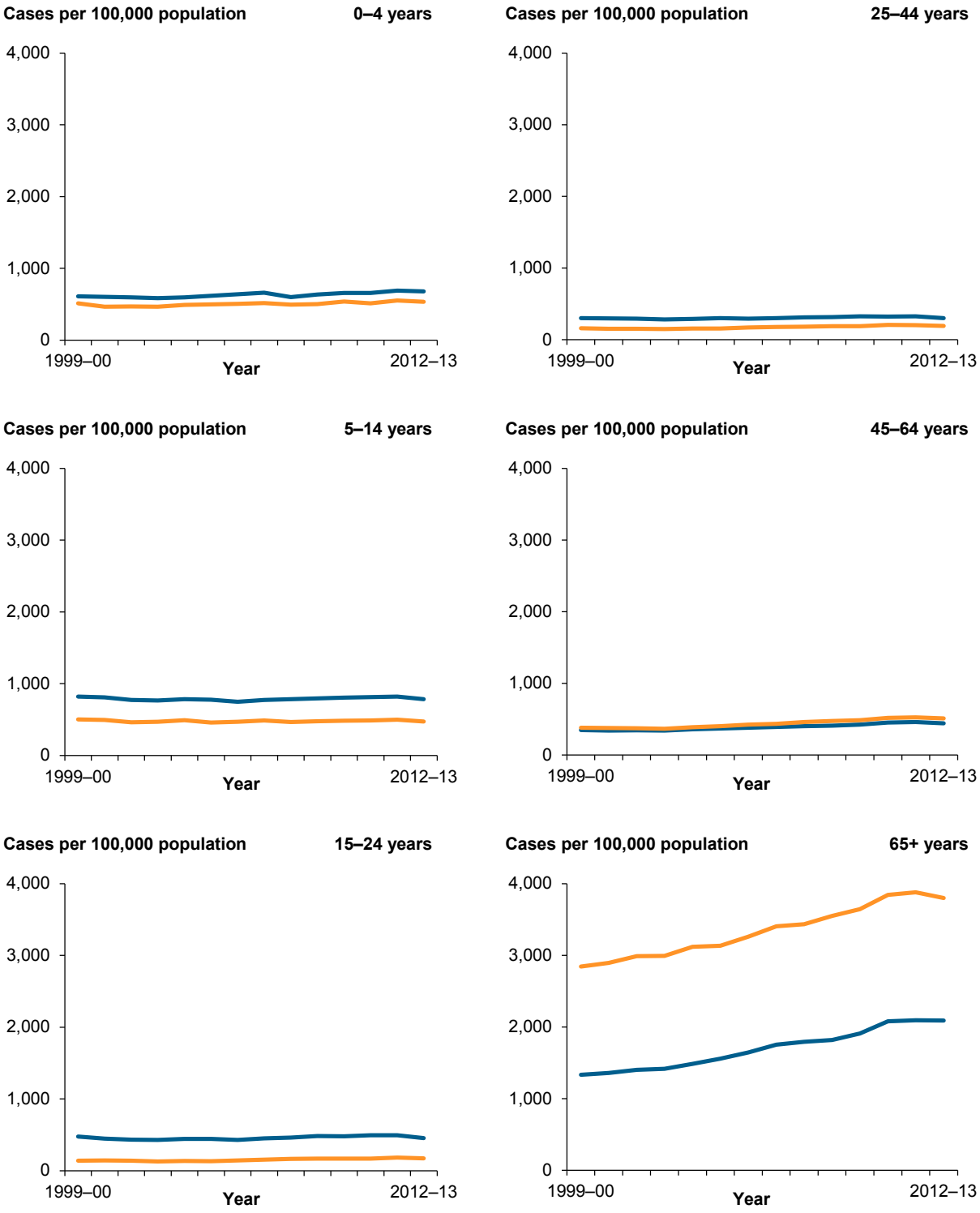
As can be seen in Figure 8.6, age-specific rates for females 65+, and to a lesser extent males 65+, showed a marked increase, again reflecting the increasing population within this age group. Steep rises in age-specific rates were not seen in any other age group.

The rate of injury at the beginning of the period for females aged 65+ was 2,842 per 100,000, and in 2012–13 it was 3,801 per 100,000. For males aged 65+ the corresponding rates were 1,335 and 2,089 cases per 100,000 population.

Further information on falls in older Australians can be found in *Trends in hospitalised cases due to falls by older people, Australia 1999–00 to 2012–13* (Bradley 2013).

While the trend in rates of fall cases in very young children aged 0-4 increased to a much smaller extent than for older people (from 561 cases per 100,000 in 1999–00 to 608 in 2012–13), falls in children 0–4 make up a large proportion (about 40% each year) of all hospitalised cases of injury.

There were large increases in certain types of falls over the period—for example, falls involving pedestrian conveyances increased from 21 cases in 1999–00 to 435 in 2012–13; falls while being carried increased from 264 cases (1999–00) to 411 (2012–13); and falls from a chair increased from 691 cases (1999–00) to 1,053 (2012–13).



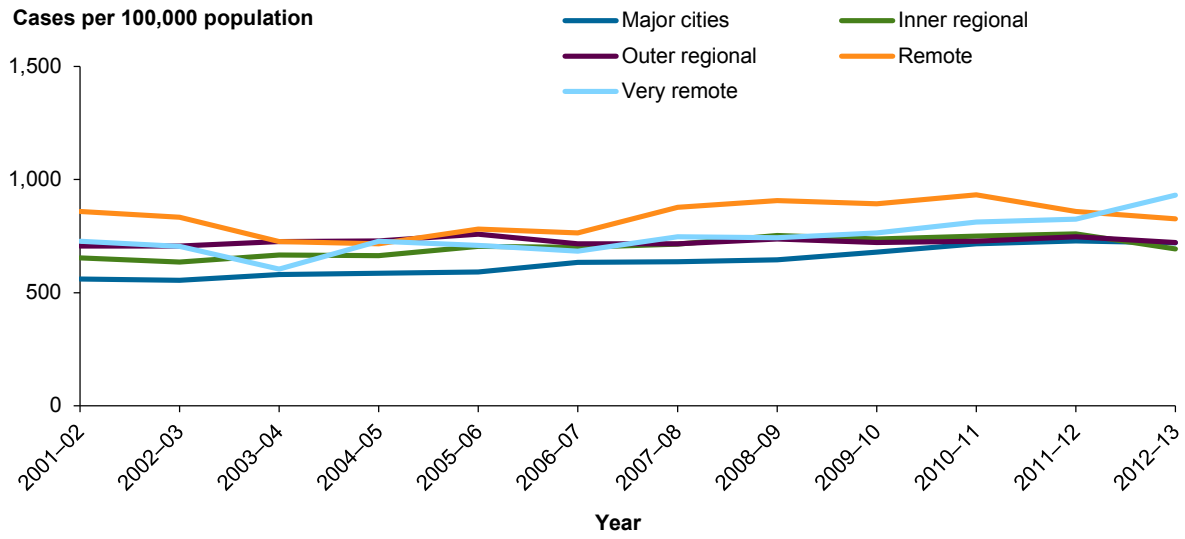
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.13 and B.14 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.6: Age-specific rates of fall cases, by age and sex, Australia, 1999–00 to 2012–13

8.5 How have rates of falls varied by remoteness?

Age-standardised rates of falls over the period were generally higher with increasing remoteness (Figure 8.7). Rates were higher in most years, particularly recently, for *Remote* and *Very remote* areas than all other areas. In *Major cities* and *Inner regional* areas, rates were lower for most of the period although they converged later in the period. Rises in rates of falls were seen in most remoteness areas over the period.

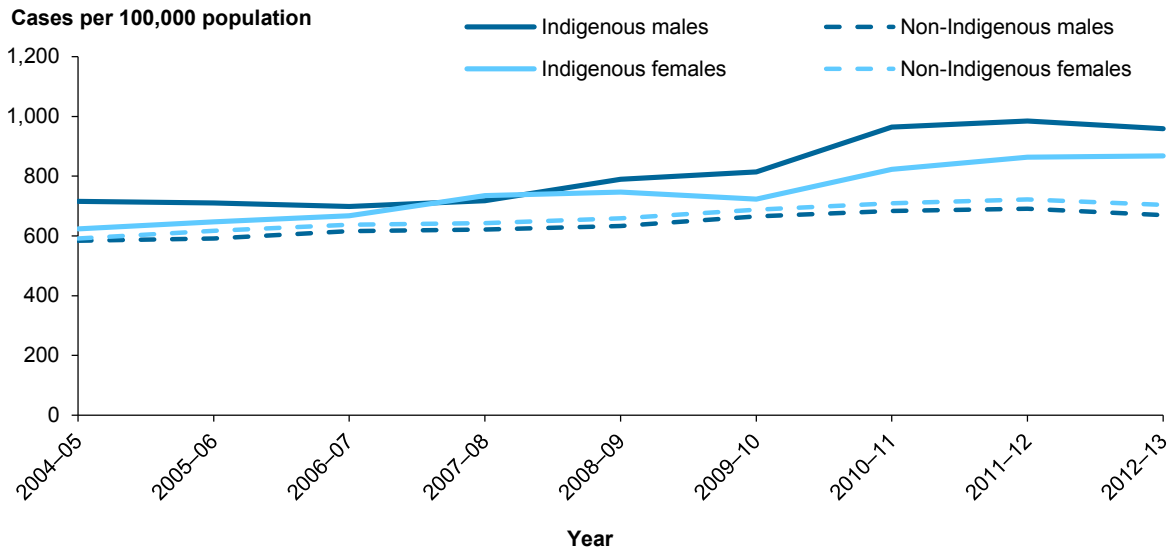


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.7: Age-standardised rates of fall cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

8.6 How have rates of falls in Indigenous people changed over time?

Age-standardised rates of falls were higher among Indigenous people than non-Indigenous people over the period. Rates of falls in Indigenous people appear to have risen over the period at a rate slightly steeper than that of non-Indigenous people. For example, the difference in rate between Indigenous females (868 cases per 100,000 population) and non-Indigenous females (704) is now much greater than at any previous time.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.28 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 8.8: Age-standardised rates of fall cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

9 Thermal causes of injury

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in unintentional exposure to smoke, fire, heat and hot substances injuries in Australia. Injury cases included are those where 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)—collectively these are referred to as 'thermal causes'. Burns are the injury that usually (although not always) result from thermal causes.

This chapter does not include injuries due to *Explosion and rupture of boilers*, *Explosion and rupture of gas cylinder*, *Discharge of fireworks*, *Explosion of other materials* (for example, munitions, blasting material), *Exposure to electric current*, *Exposure to excessive heat of man-made origin*, *Exposure to sunlight*, or *Exposure to lightning*. Also excluded are injuries attributable to: *Intentional self-harm by smoke, fire and flames*; *Intentional self-harm by steam, hot vapours and hot objects*; *Assault by means of explosive material*; *Assault by smoke, fire and flames*; *Assault by steam, hot vapours and hot objects*; and *Events of undetermined intent – exposure to smoke, fire and flames and steam, hot vapours and hot objects*.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM range X00–X19 (*Other external causes of accidental injury*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 9.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 9.1: External causes of exposure to smoke, fire, heat and hot substances injury

This chapter focuses on the **Other external causes of accidental injury (W00–X59)** section of ICD-10-AM Chapter XX *External causes of morbidity and mortality* but is restricted to *Exposure to smoke, fire and flames* (X00–X09) and *Contact with heat and hot substances* (X10–X19) as follows.

Exposure to smoke, fire and flames (X00–X09)

- Exposure to uncontrolled fire in building or structure (X00)
- Exposure to uncontrolled fire, not in building or structure (X01)
- Exposure to controlled fire in building or structure (X02)
- Exposure to controlled fire, not in building or structure (X03)
- Exposure to ignition of highly flammable material (X04)
- Exposure to ignition or melting of nightwear (X05)
- Exposure to ignition or melting of other clothing and apparel (X06)
- Exposure to other specified smoke, fire and flames (X07)
- Exposure to unspecified smoke, fire and flames (X09).

(continued)

Box 9.1 (continued)

Contact with heat and hot substances (X10–X19)

- Contact with hot drinks, food, fats and cooking oils (X10)
- Contact with hot tap-water (X11)
- Contact with other hot fluids (X12)
- Contact with steam and hot vapours (X13)
- Contact with hot air and gases (X14)
- Contact with hot household appliances (X15)
- Contact with hot heating appliances, radiators and pipes (X16)
- Contact with hot engines, machinery and tools (X17)
- Contact with other hot metals (X18)
- Contact with other and unspecified heat and hot substances (X19).

9.1 How many thermal causes of injury cases were there in 2012–13?

There were an estimated 5,857 cases of injury due to thermal causes during 2012–13 (Table 9.1). Injury due to thermal causes made up 1% of all injury cases.

More males than females were hospitalised due to thermal causes. The age-standardised rate was nearly twice as high for males compared to females.

Table 9.1: Key indicators for thermal causes of injury cases, Australia, 2012–13

Indicators	Males	Females	Persons
Thermal causes of injury cases	3,800	2,057	5,857
Per cent of all injury cases	1.5	1.0	1.3
Age-standardised rate/100,000 population	33	18	26

Age and sex

About one-third of those injured due to thermal causes in 2012–13 were children aged 0–14 (Table 9.2). A higher proportion of females aged 0–14 were injured (33%) compared with males in the same age group (28%). One-quarter of injuries occurred in adults aged 25–44 (1,499 cases) and about 10% occurred in older people aged 65+ (604 cases).

Table 9.2: Thermal causes of injury cases, by age and sex, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	731	19.2	492	23.9	1,223	20.9
5–14	345	9.1	182	8.8	527	9.0
15–24	649	17.1	266	12.9	915	15.6
25–44	1,038	27.3	461	22.4	1,499	25.6
45–64	719	18.9	370	18.0	1,089	18.6
65+	318	8.4	286	13.9	604	10.3
Total	**3,800**	**100**	**2,057**	**100**	**5,857**	**100**

Rates of injury due to thermal causes were highest for young children aged 0–4. The incidence rate for boys aged 0–4 was 95 per 100,000 population compared with 68 per 100,000 for girls of the same age (Figure 9.1).

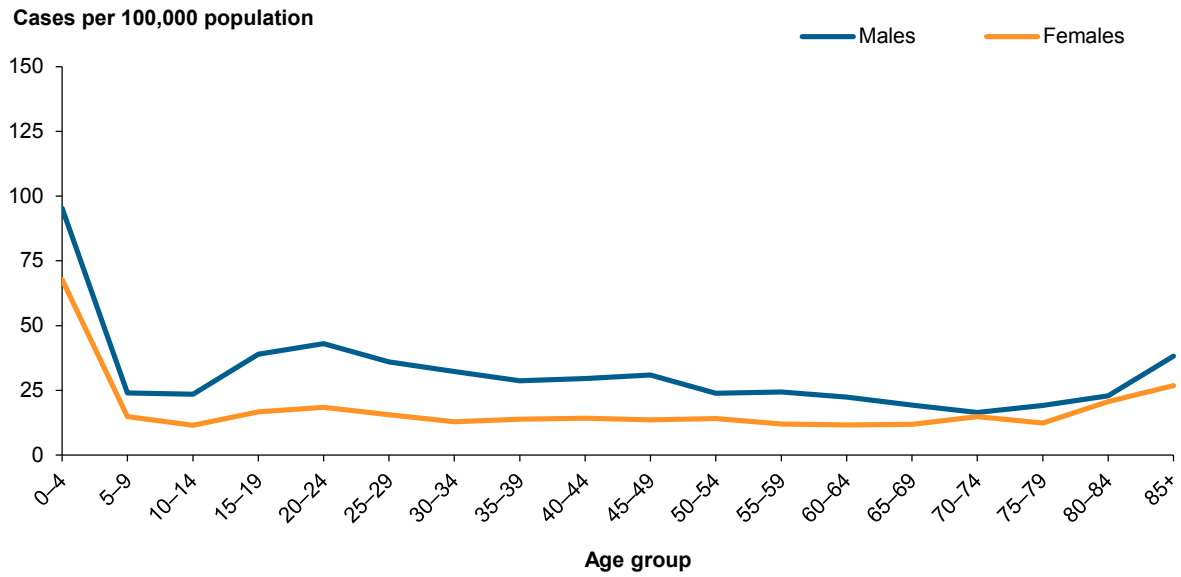


Figure 9.1: Age-specific rates of thermal causes of injury cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of injury due to thermal causes in 2012–13 increased with increasing remoteness (Table 9.3). The lowest rate was in *Major cities* (20 per 100,000 population) and the highest in *Very remote* areas (105). Caution should be exercised in interpreting these results because of low numbers of cases in *Remote* and *Very remote* areas (on average less than 20 cases per 5-year age band, other than in the 0–4 group).

Table 9.3: Thermal causes of injury cases, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Thermal causes of injury cases	3,171	1,235	900	227	230	5,857
Per cent	54.1	21.1	15.4	3.9	3.9	100
Age-standardised rate/100,000 population	20	31	45	71	105	26

(a) Excludes 94 cases where remoteness was not reported or residence was reported as an external territory.

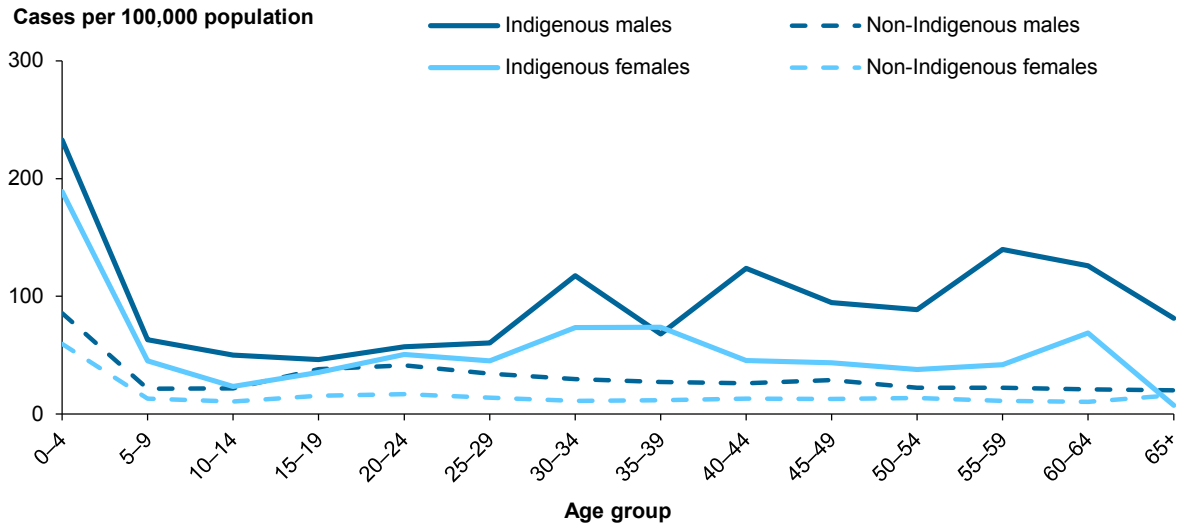
Aboriginal and Torres Strait Islander people

There were an estimated 537 cases of Indigenous people hospitalised for injury due to thermal causes in 2012–13 (Table 9.4). More males than females were hospitalised. Thermal causes of injury cases made up a higher proportion of all injury cases among Indigenous people (2.4%) compared with non-Indigenous people (1.3%). Age-standardised rates of thermal injury among Indigenous people were more than twice those of non-Indigenous people.

Table 9.4: Key indicators for thermal causes of injury cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	Males	Females	Persons	Males	Females	Persons
Thermal causes of injury cases	325	212	537	3,426	1,817	5,243
Per cent of all cases of injury	2.6	2.2	2.4	1.5	1.0	1.3
Age-standardised rate/100,000 population	92.6	53.0	72.1	31.1	16.3	23.7

In nearly all age groups, but especially so in very young children, rates of injury due to thermal causes were higher among Indigenous people (Figure 9.2). The rates of injury for Indigenous boys and girls (0–4) (233 and 189 per 100,000 population respectively) were much higher than for non-Indigenous boys and girls in the same age group (86 and 60 per 100,000 population respectively). Due to small case numbers among Indigenous people aged 65+, rate comparisons with non-Indigenous people of this age should not be over-interpreted.



Note: Includes data from all Australian jurisdictions (see Box 1.2).

Figure 9.2: Age-specific rates of thermal causes of injury cases, by sex and Indigenous status, Australia, 2012–13

Mechanism

Contact with hot drinks, food, fats and cooking oils was the leading cause of thermal injury hospitalised cases (20%), followed by *Contact with other hot fluid* (for example, water heated on stove) (14%), and *Exposure to ignition of highly flammable material* (for example, gasoline, kerosene, petrol) (9%) (Table 9.5).

There were some notable differences between the sexes: 26% of females experienced an injury from *Contact with hot drinks, food, fats and cooking oils* compared with 16% of males. Similarly, females were more likely to experience a scald from *Contact with other hot fluids* than males (20% versus 11%). Males had higher proportions of burn injuries from *Exposure to ignition of highly flammable material* (for example, gasoline, kerosene, petrol) and *Exposure to controlled fire, not in building or structure* (for example, a camp-fire) (12% versus 4%, and 10% versus 6% respectively).

Table 9.5: Type of thermal cause of injury cases, by sex, Australia, 2012–13

	Males		Females		Persons	
External cause	**Count**	**%**	**Count**	**%**	**Count**	**%**
Exposure to uncontrolled fire in building or structure	105	2.8	76	3.7	181	3.1
Exposure to uncontrolled fire, not in building or structure (for example, forest fire)	82	2.2	8	0.4	90	1.5
Exposure to controlled fire in building or structure (for example, fireplace, stove)	140	3.7	77	3.7	217	3.7
Exposure to controlled fire, not in building or structure (for example, camp-fire)	385	10.1	124	6	509	8.7
Exposure to ignition of highly flammable material (for example, gasoline, kerosene, petrol)	459	12.1	73	3.5	532	9.1
Exposure to ignition or melting of nightwear	2	0.1	4	0.2	6	0.1
Exposure to ignition or melting of other clothing and apparel	61	1.6	14	0.7	75	1.3
Exposure to other specified smoke, fire and flames	277	7.3	101	4.9	378	6.5
Exposure to unspecified smoke, fire and flames	244	6.4	97	4.7	341	5.8
Contact with hot drinks, food, fats and cooking oils	610	16.1	536	26.1	1,146	19.6
Contact with hot tap-water	197	5.2	160	7.8	357	6.1
Contact with other hot fluids (for example, water heated on stove)	432	11.4	412	20	844	14.4
Contact with steam and hot vapours	75	2	19	0.9	94	1.6
Contact with hot air and gases	12	0.3	7	0.3	19	0.3
Contact with hot household appliances	150	3.9	121	5.9	271	4.6
Contact with hot heating appliances, radiators and pipes	166	4.4	75	3.6	241	4.1
Contact with hot engines, machinery and tools	172	4.5	53	2.6	225	3.8
Contact with other hot metals	50	1.3	10	0.5	60	1
Contact with other and unspecified heat and hot substances	181	4.8	90	4.4	271	4.6
Total	**3,800**	**100**	**2,057**	**100**	**5,857**	**100**

The causes of thermal injury varied by age. For young children aged 0–4, who make up one-fifth of all cases, *Contact with hot drinks, food, fats and cooking oils* and *Contact with other hot fluids* scalds were common, comprising a total of 51% of all causes in that age group (Table 9.6). For adults aged 24–44, the most common cause of hospitalisation was a burn caused by *Contact with hot drinks, food, fats and cooking oils* (16%) followed by scalds caused by *Exposure to ignition of highly flammable material* (13%).

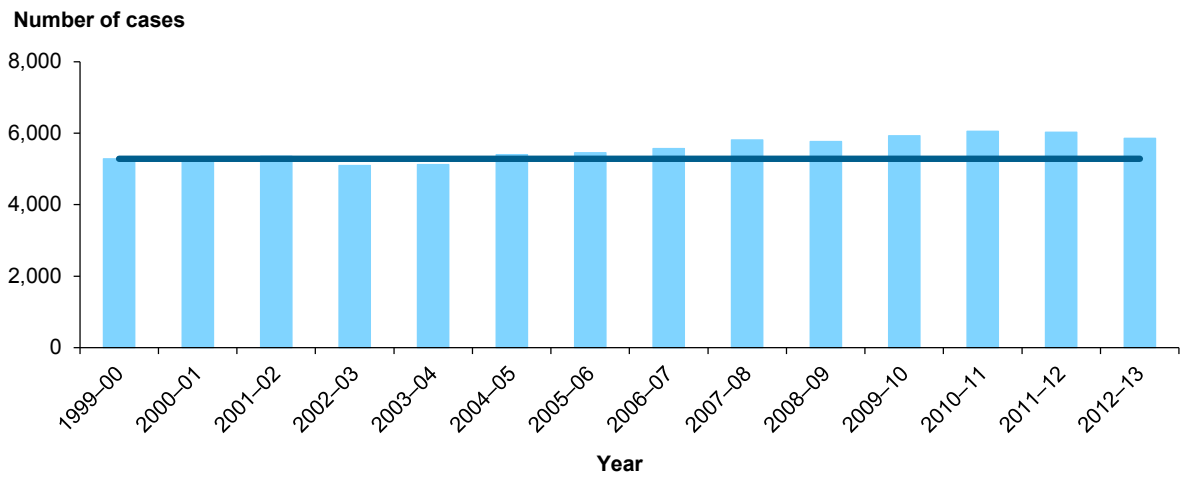
Table 9.6: Selected thermal causes of injury cases, by selected age group, Australia, 2012–13

	Number	%
0–4 year olds		
Contact with hot drinks, food, fats and cooking oils	374	30.6
Contact with other hot fluids	253	20.7
Contact with hot household appliances	120	9.8
Contact with hot tap-water	125	10.2
All smoke, fire, heat and hot substances cases, 0–4 year olds	**1,223**	
25–44 year olds		
Contact with hot drinks, food, fats and cooking oils	242	16.1
Exposure to ignition of highly flammable material	193	12.9
Contact with other hot fluids	186	12.4
Exposure to controlled fire, not in building or structure	158	10.5
All smoke, fire, heat and hot substances cases, 24–44 year olds	**1,499**	

9.2 How have cases of thermal injury changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 9.3 below the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 9.3 compares the number of cases caused by thermal injury each year with a baseline (5,284 cases in 1999–00). From about 2004–05, the annual number of cases of thermal injury has been higher than the baseline and rising. The largest difference was in 2010–11, when there were 774 more cases of injuries due to thermal causes (5,857 in total).



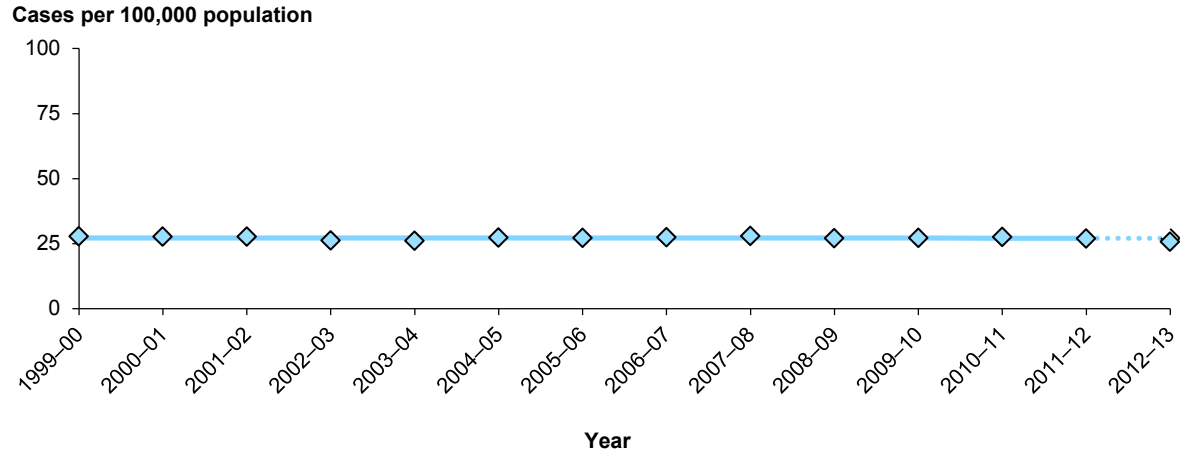
Notes

1. The single line represents the number of cases of exposure to smoke, fire, heat and hot substances that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 9.3: Number of thermal causes of injury cases, Australia, 1999–00 to 2012–13

9.3 How have rates of thermal causes of injury changed over time?

Age-standardised rates of thermal causes of injury cases changed little over the period (Figure 7.4). The rate was 28 cases per 100,000 population in 1999–00 and 26 in 2012–13. The predicted rate of thermal causes of injury cases in 2012–13 was 27 cases per 100,000 population based on the trend from 1999–00 to 2011–12. That trend did not differ from zero to a statistically significant degree (95% CI: –0.3%, 0.3%).



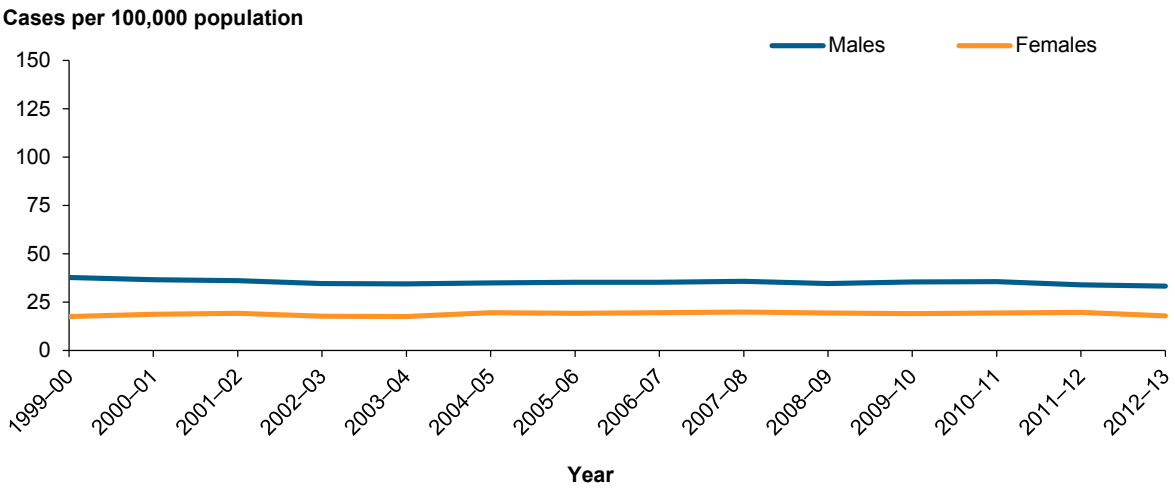
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 9.4: Modelled age-standardised rates of thermal causes of injury cases, Australia, 1999–00 to 2012–13

9.4 How have rates of thermal causes of injury varied by sex and age?

The age-standardised rate for thermal causes of injury was consistently higher for males than females and showed little change for either sex over time (Figure 9.5).



Notes

1. Data underpinning this figure are available in Table B.15 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

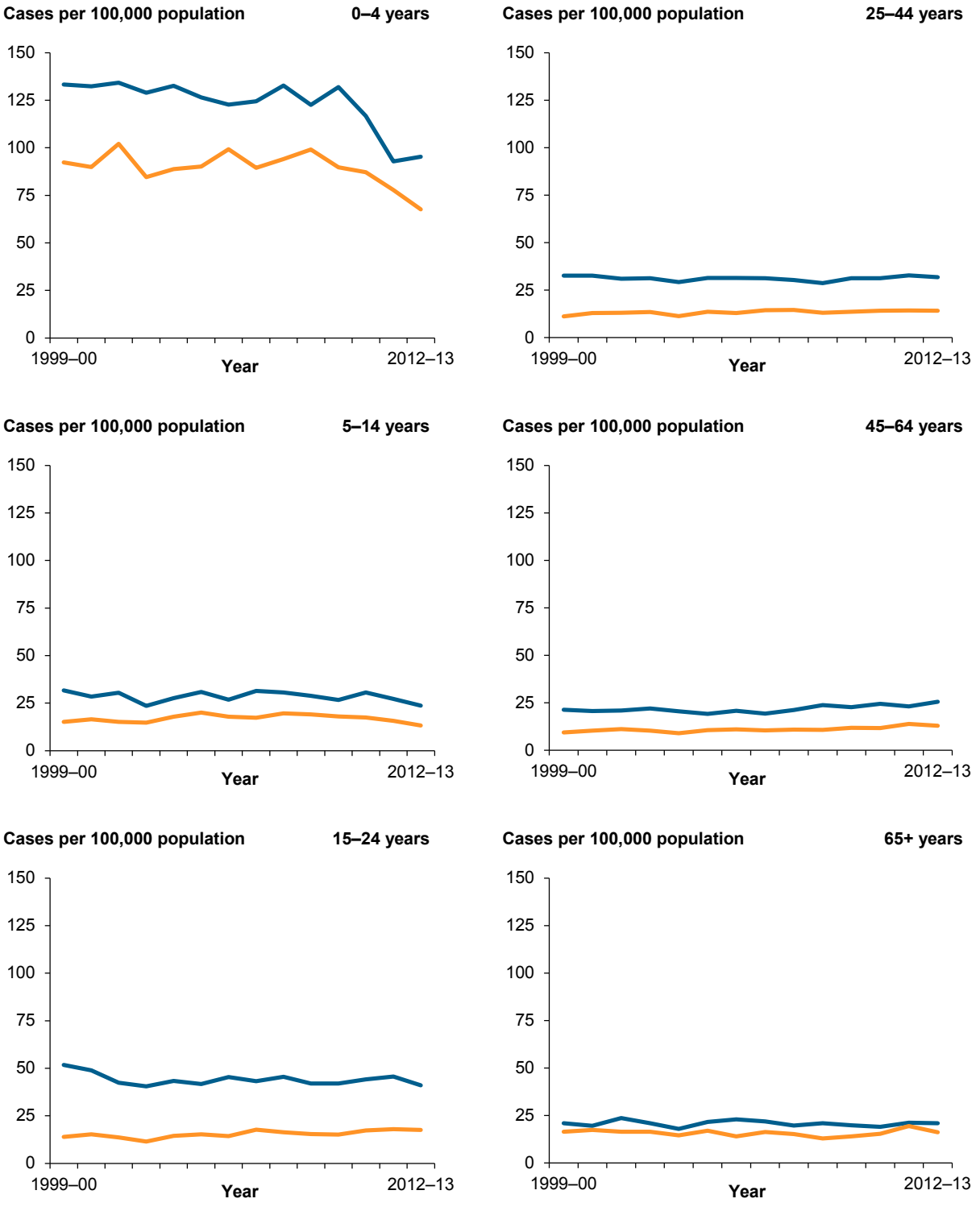
Figure 9.5: Age-standardised rates of thermal causes of injury cases, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 9.6. The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years, and readers should interpret any changes between these years with caution.

As can be seen in Figure 9.6, age-specific rates were highest over time in young children aged 0–4, and were marked by a pronounced decline from 2009–10. Rates did not change much for most of the other age groups. Caution should be exercised in interpreting rates in people over 65+ due to small numbers of cases.

For children aged 0–4, changes over time were noted in terms of the number of hospitalised cases for different causes. The number of cases of *Contact with hot household appliances* varied over the period, with an initial increase from 115 in 1999–00 to 239 in 2009–10 followed by a steady fall to 120 in the most recent year. There was little change in the number of cases of *Contact with hot drinks, food, fats and cooking oils* in each year up to about 2009–10 (average 500 cases per year), after which cases decreased steadily to 374 in the most recent year. The number of cases of scalds associated with *Contact with hot tap water* continued to decrease, from 236 cases (1999–00) to 125 (2012–13).

Rates of thermal causes of injury in 15–24 year olds were the second-highest of all the age groups. In terms of external causes of burns and scalds, increases were seen for *Exposure to controlled fire, not in building or structure* (54 to 138) and *Contact with hot drinks, food, fats and cooking oils* (109 to 134). There was a decrease for this age group for burns caused by *Exposure to ignition of highly flammable material* (212 to 130) from the beginning to the end of the period.



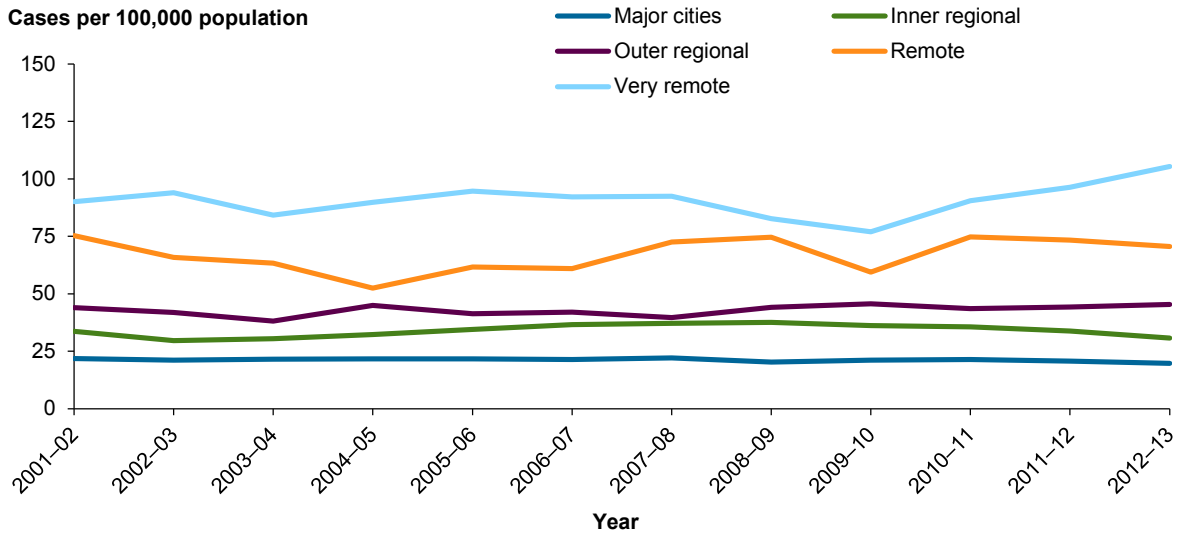
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.15 and B.16 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 9.6: Age-specific rates of thermal causes of injury cases, by age and sex, Australia, 1999–00 to 2012–13

9.5 How have rates of thermal causes of injury varied by remoteness?

Age-standardised rates of thermal causes of injury were consistently higher with increasing remoteness over the 2001–02 to 2012–13 period (Figure 9.7). Rates in *Very remote* and *Remote* areas rose and fell over the period. The rise in rates of thermal injury seen in *Very remote* areas since 2009–10 should be viewed with caution given the small case numbers in this category.

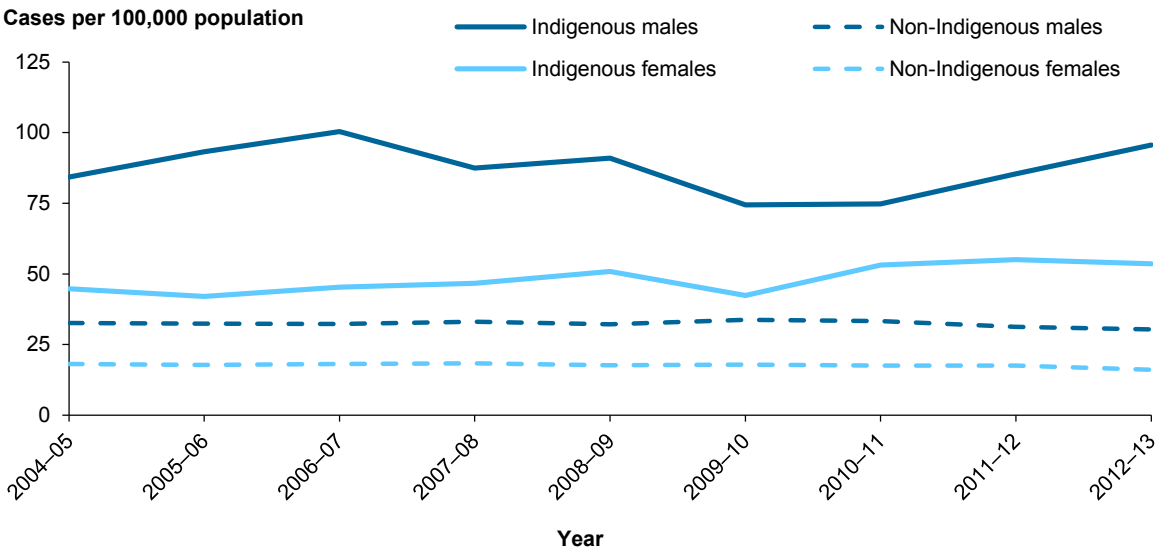


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 9.7: Age-standardised rates of thermal causes of injury cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

9.6 How have rates of thermal causes of injury in Indigenous people changed over time?

Age-standardised rates of thermal cause injury cases were higher among Indigenous people over the period. Rates of thermal injury fluctuated for Indigenous people but not for non-Indigenous people, largely due to small case numbers in the former group (Figure 9.8). Due to the large fluctuations, no trend is discernible.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.29 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 9.8: Age-standardised rates of thermal causes of injury cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

10 Other unintentional injury

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in injury due to 'other unintentional causes' in Australia. 'Other unintentional causes' covers a wide range of injury mechanisms coded to categories in the *Other external causes of accidental injury* (W00–X59) section of ICD-10-AM. These external causes were placed in this residual category because they were either non-specific or accounted for relatively small proportions of the cases. Results have been provided for several sub-categories.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM range W20–W64, W75–W99, X20–X39, X50–X59 (*Other external causes of accidental injury*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 12.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 10.1: External causes of other unintentional injury

This chapter focuses on one section of ICD-10-AM Chapter XX *External causes of morbidity and mortality* and *Other external causes of accidental injury* (W00–X59) which includes:

- Exposure to inanimate mechanical forces (W20–W49), which includes, for example, *Caught, jammed or pinched in or between objects* (W23) and *Contact with sharp glass* (W25)
- Exposure to animate mechanical forces (W50–W64), which includes, for example, *Striking against or bumped in to by another person* (W51) and *Bitten or struck by other mammals* (W55)
- Other accidental threats to breathing (W75–W84), which includes, for example, *Other accidental hanging and strangulation* (W76) and *Inhalation of gastric contents* (W78)
- Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85–W99)
- Contact with venomous animals and plants (X20–X29)
- Exposure to forces of nature (X30–X39), which includes, for example, *Exposure to excessive natural heat* (X30) and *Victim of flood* (X38)
- Overexertion, travel and privation (X50–X57), which includes, for example, *Overexertion and strenuous or repetitive movements* (X50) and *Lack of water* (X54)
- Accidental exposure to other and unspecified factors (X58–X59).

10.1 How many other unintentional injury cases were there in 2012–13?

There were an estimated 142,780 cases of other unintentional causes during 2012–13 (Table 10.1). Injury due to other unintentional causes made up 32% of all injury hospitalised cases.

More than twice as many males as females were hospitalised as a result of other unintentional injury. The age-standardised rate was also higher for males than females.

Table 10.1: Key indicators for other unintentional injury cases, Australia, 2012–13

Indicators	Males	Females	Persons
Other unintentional injury cases	98,431	44,347	142,780
Per cent of all injury cases	39.3	22.6	32.0
Age-standardised rate/100,000 population	865	376	623

Age and sex

The highest proportion of other unintentional injury cases (31%) was in the 25–44 age group (Table 10.2). Similar to the overall distribution of all-cause injury hospitalised cases by age and sex, females (22%) had a much higher proportion of other unintentional injury at 65+ than males (10%).

Table 10.2: Other unintentional injury cases by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	4,346	4.4	3,242	7.3	7,588	5.3
5–14	8,455	8.6	4,303	9.7	12,758	8.9
15–24	21,634	22.0	5,772	13.0	27,406	19.2
25–44	33,173	33.7	10,961	24.7	44,135	30.9
45–64	21,300	21.6	10,249	23.1	31,549	22.1
65+	9,523	9.7	9,820	22.1	19,343	13.5
Total	**98,431**	**100**	**44,347**	**100**	**142,780**	**100**

Age-specific rates for males were much higher than for females except in the 2 oldest age groups (Figure 10.1). Male rates peaked at 20–24 with an age-specific rate of 1,405 hospitalised cases per 100,000 population compared with 379 per 100,000 for females in the same age group.

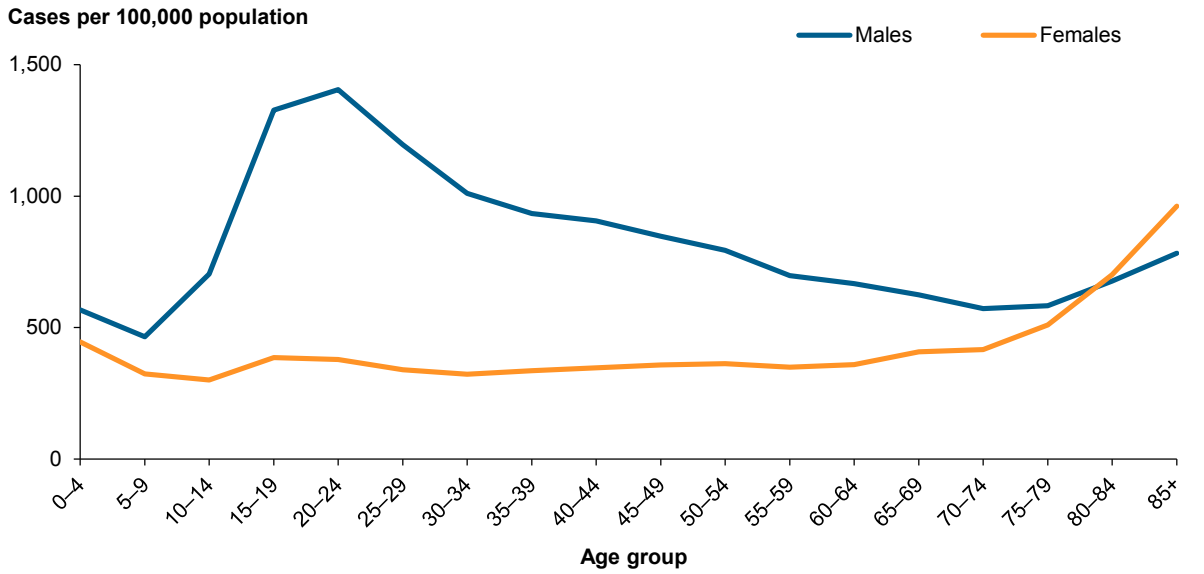


Figure 10.1: Age-specific rates of other unintentional injury cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of injury due to other unintentional causes increased with increasing remoteness (Table 10.3). The rate of other unintentional causes in *Very remote* areas (1,092 cases per 100,000 population) was more than twice that in *Major cities* (577 cases per 100,000).

Table 10.3: Other unintentional injury cases, by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Other unintentional injury cases	93,045	28,023	15,097	2,980	2,248	142,780
Per cent	65.2	19.6	10.6	2.1	1.6	100
Age-standardised rate/100,000 population	577	693	759	951	1,092	623

(a) Excludes 1,387 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

There were an estimated 5,866 cases of Indigenous people hospitalised as a result of other unintentional causes in 2012–13 (Table 10.4). More males than females were hospitalised. Other unintentional injury made up a much lower proportion of all hospitalised cases among Indigenous people (26%) compared with non-Indigenous people (32%). The age-standardised rates of other unintentional causes among Indigenous people were higher than for non-Indigenous people.

Table 10.4: Key indicators for other unintentional injury cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Other unintentional injury cases	3,982	1,884	5,866	92,905	41,653	134,559
Per cent of all cases of hospitalised cases for injury	31.5	19.5	26.3	39.8	22.7	32.3
Age-standardised rate/100,000 population	1,133	559	842	841	363	604

Age-specific rates of other unintentional injury were generally higher among Indigenous people compared with non-Indigenous people—this was true of males and females at all ages other than the youngest and oldest age groups (Figure 10.2). There were smaller case numbers of Indigenous people injured as a result of other unintentional causes over the age of 65+ and results should be viewed cautiously. Setting aside the results for those aged 65+, rates of injury were highest for Indigenous males for age groups from 10–14 to 60–64; the highest rate occurred in 25–29 year olds (1,719 cases per 100,000 population). For Indigenous females, the highest rates were seen from about 20–24 to 45–49; the highest rate occurred in 30–34 year olds (775 cases per 100,000 population).

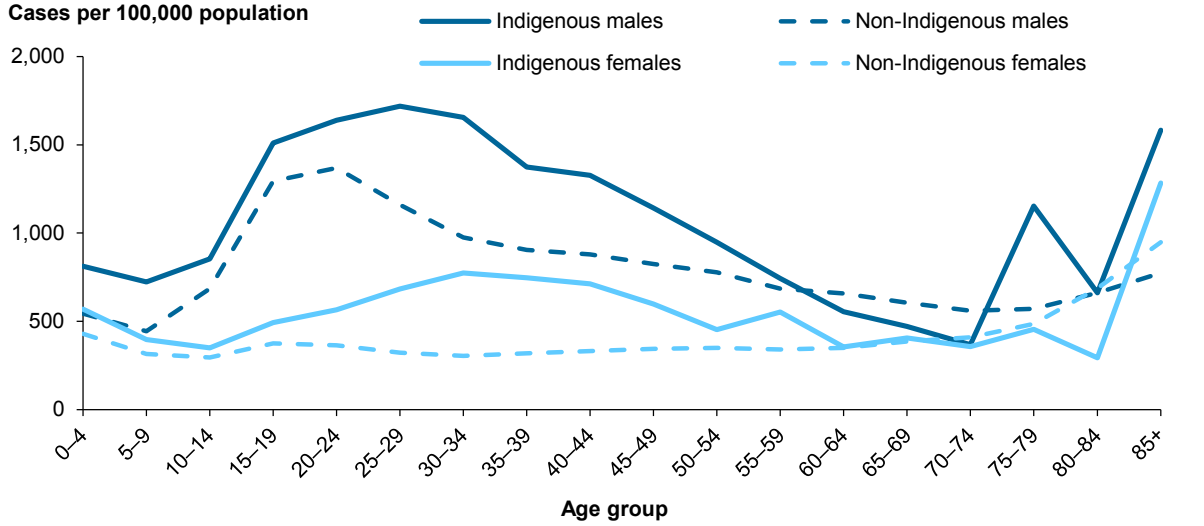


Figure 10.2: Age-specific rates of other unintentional injury cases, by sex and Indigenous status, Australia, 2012–13

Mechanism

The majority of cases of injury due to other unintentional causes occurred as a result of *Exposure to inanimate mechanical forces* (44%) or as a result of *Accidental exposure to other and unspecified factors* (32%) (Table 10.5). Although a large proportion of cases were coded as *Accidental exposure to other and unspecified factors*, a lack of detail about the mechanism responsible for the injuries precludes more detailed analysis, and the cases were therefore not considered further in this report.

Exposure to animate mechanical forces; *Overexertion, travel and privation*; and *Contact with venomous animals and plants* also accounted for sizeable proportions of hospitalised cases each year. The other categories combined accounted for less than 2% of all cases and were also not considered further in this report.

Table 10.5: Summary of key components of other unintentional injury cases, Australia, 2012–13

External cause	Persons	%
Exposure to inanimate mechanical forces (W20–W49)	63,270	44.3
Exposure to animate mechanical forces (W50–W64)	17,025	11.9
Other accidental threats to breathing (W75–W84)	687	0.5
Exposure to electric current, radiation and extreme ambient air temperature and pressure (W85–W99)	832	0.6
Contact with venomous animals and plants (X20–X29)	3,232	2.3
Exposure to forces of nature (X30–X39)	648	0.5
Overexertion, travel and privation (X50–X57)	11,954	8.4
Accidental exposure to other and unspecified factors (X58–X59)	45,132	31.6
Total	**142,780**	**100**

Age-specific rates of injury for the 4 most frequent causes of other unintentional injuries are shown in Figures 10.3 to 10.6. Rates for males were generally higher than for females across all types of other unintentional injury. The peak in rates for young males is evident in all types other than *Contact with venomous animals and plants*.

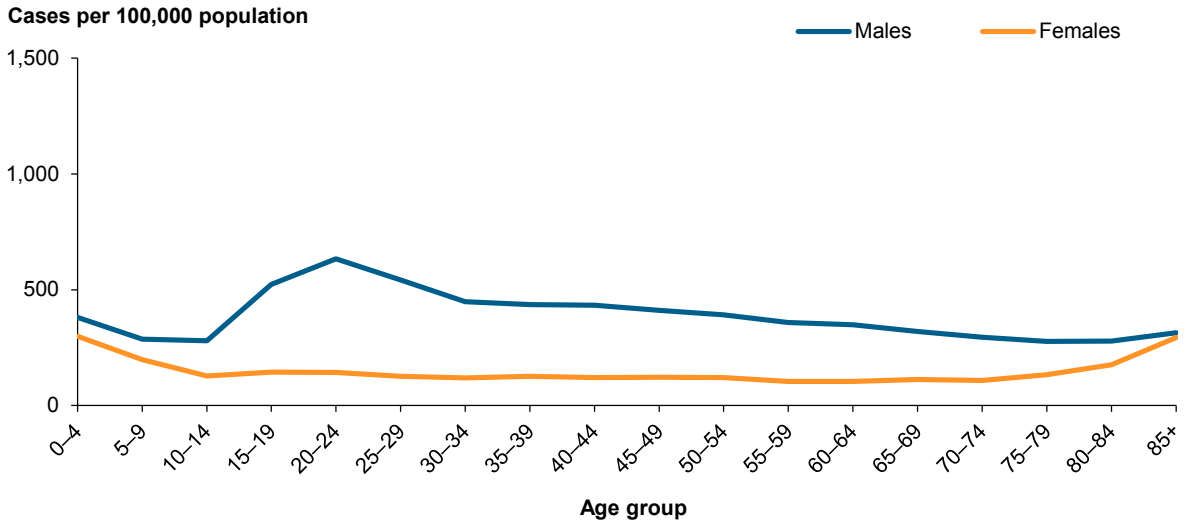


Figure 10.3: Age-specific rates of *Exposure to inanimate mechanical forces* cases, by sex, Australia, 2012–13

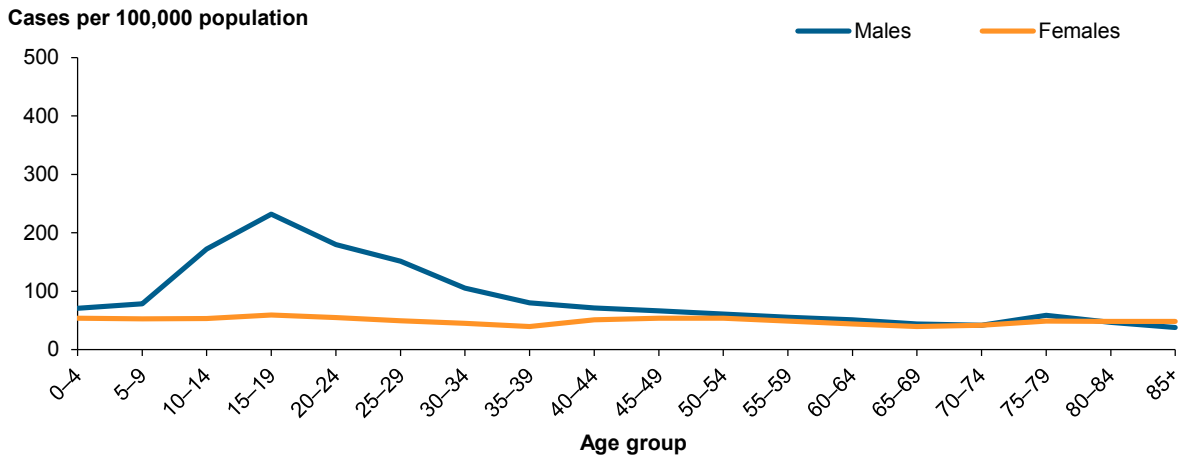


Figure 10.4: Age-specific rates of *Exposure to animate mechanical forces* cases, by sex, Australia, 2012–13

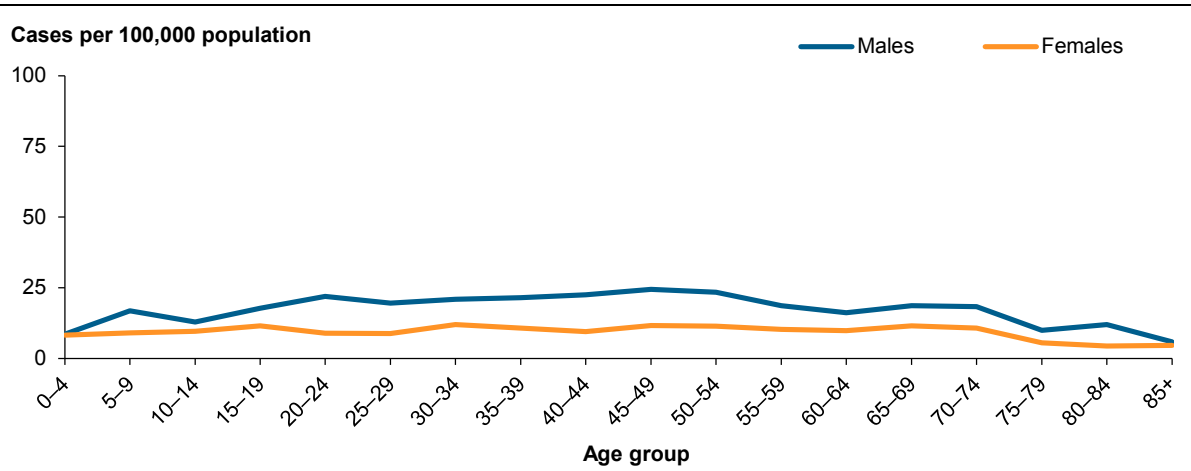


Figure 10.5: Age-specific rates of *Contact with venomous animals and plants* cases, by sex, Australia, 2012–13

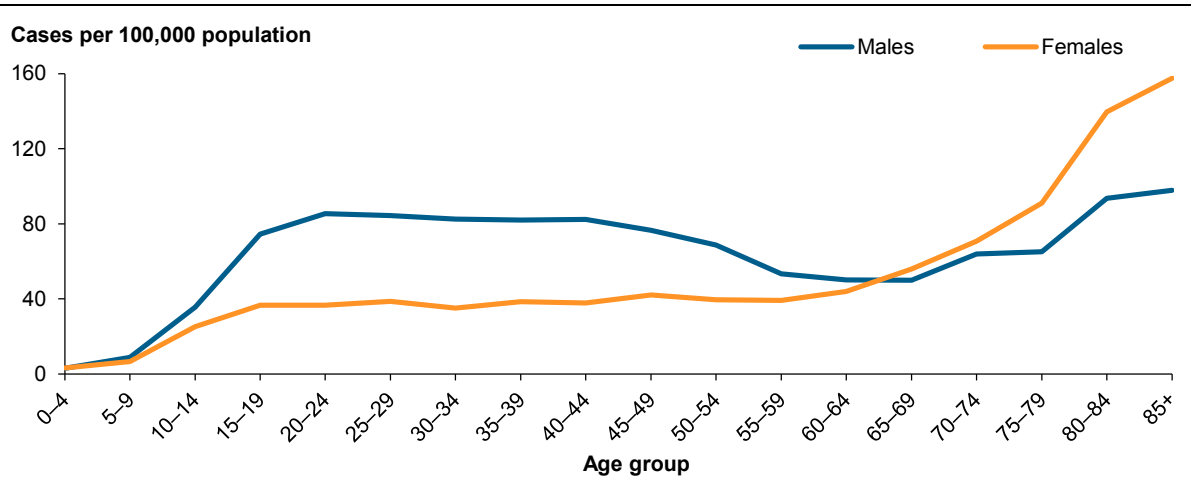
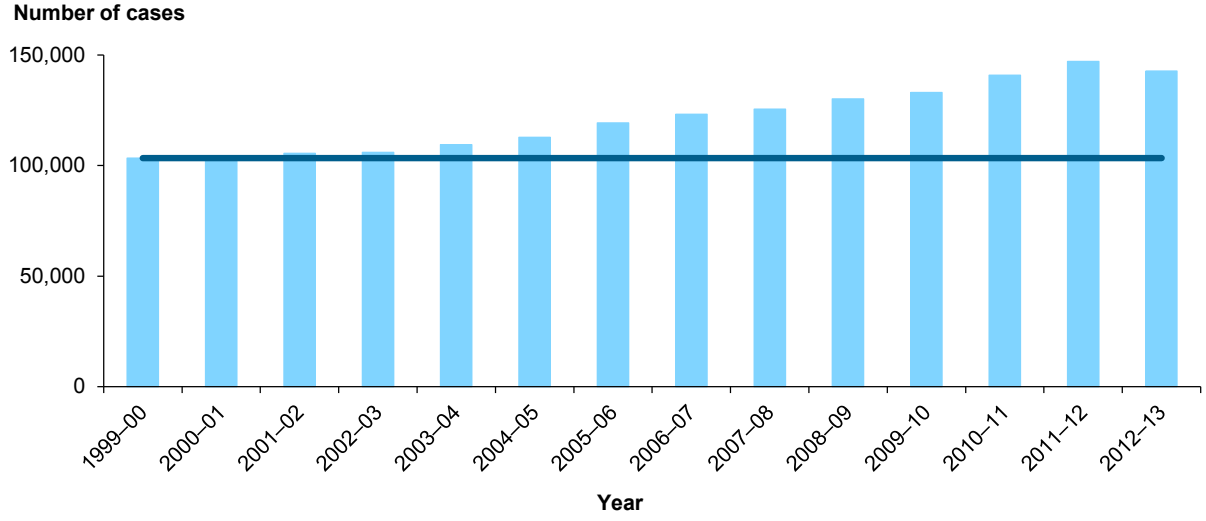


Figure 10.6: Age-specific rates of *Overexertion, travel and privation* cases, by sex, Australia, 2012–13

10.2 How have cases of other unintentional injury changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 10.3 below the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 10.7 compares the number of cases of other causes of unintentional injury each year with a baseline (103,426 cases in 1999–00). From 2000–01 onwards, the annual number of cases has been higher than the baseline, increasing steadily over the period. The largest difference was in 2011–12 when there were 43,727 more cases than the baseline (147,153 in total).



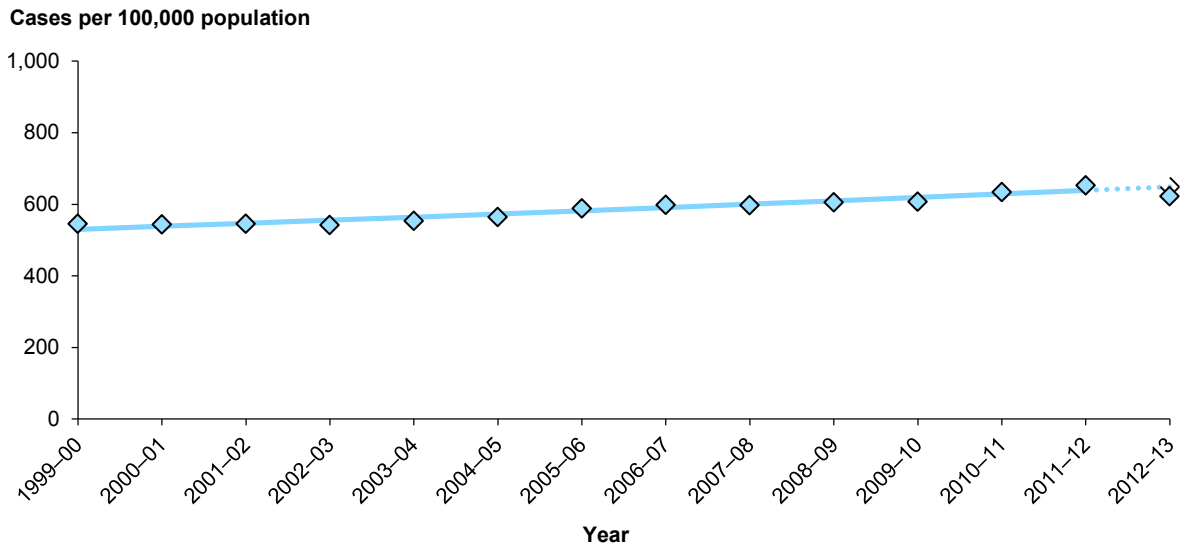
Notes

1. The single line represents the number of cases of other causes of unintentional injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.7: Number of cases of other unintentional injury, Australia, 1999–00 to 2012–13

10.3 How have rates of other unintentional injury changed over time?

Rates of estimated cases of other unintentional injury increased from 545 cases per 100,000 population in 1999–00 to 623 in 2012–13 (Figure 10.8). The rate increased by an average of 1.6% per year from 1999–00 to 2011–12 and the trend was statistically significant (95% CI: 1.3%, 1.8%). The predicted rate of other unintentional injury in 2012–13 was 649 cases per 100,000 population based on the trend from 1999–00 to 2011–12.

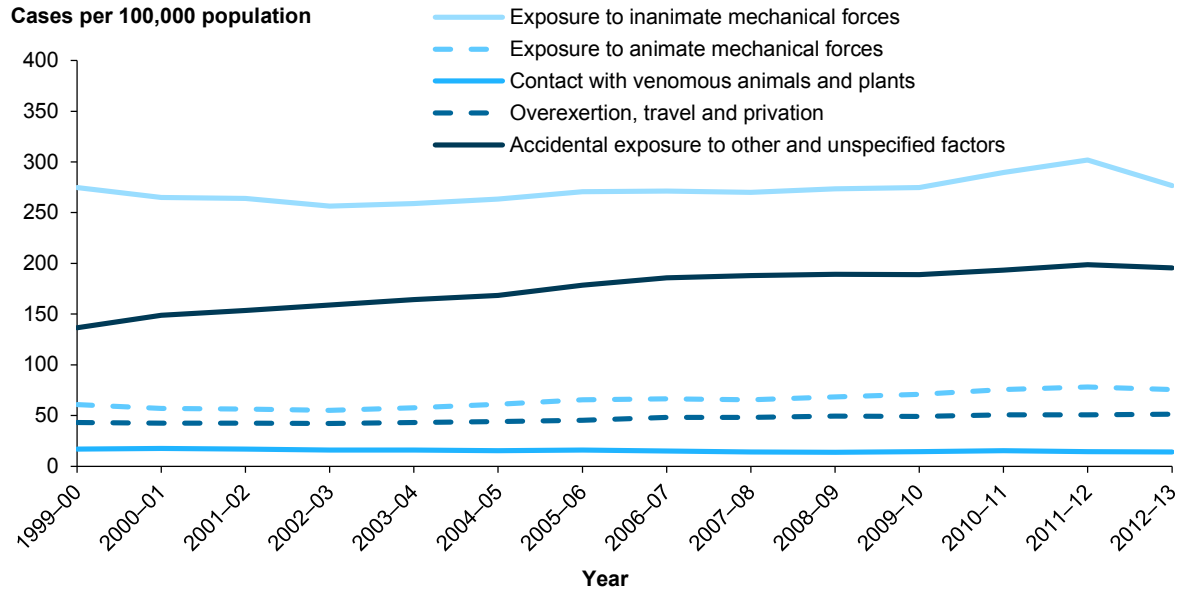


Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.8: Modelled age-standardised rates of other unintentional injury cases, Australia, 1999–00 to 2012–13

Figure 10.9 presents age-standardised rates of selected types of other unintentional injury over the period. There was a large rise in rates of *Accidental exposure to other and unspecified factors*—136 cases per 100,000 population in 1999–00 up to 195 cases per 100,000 in 2012–13.

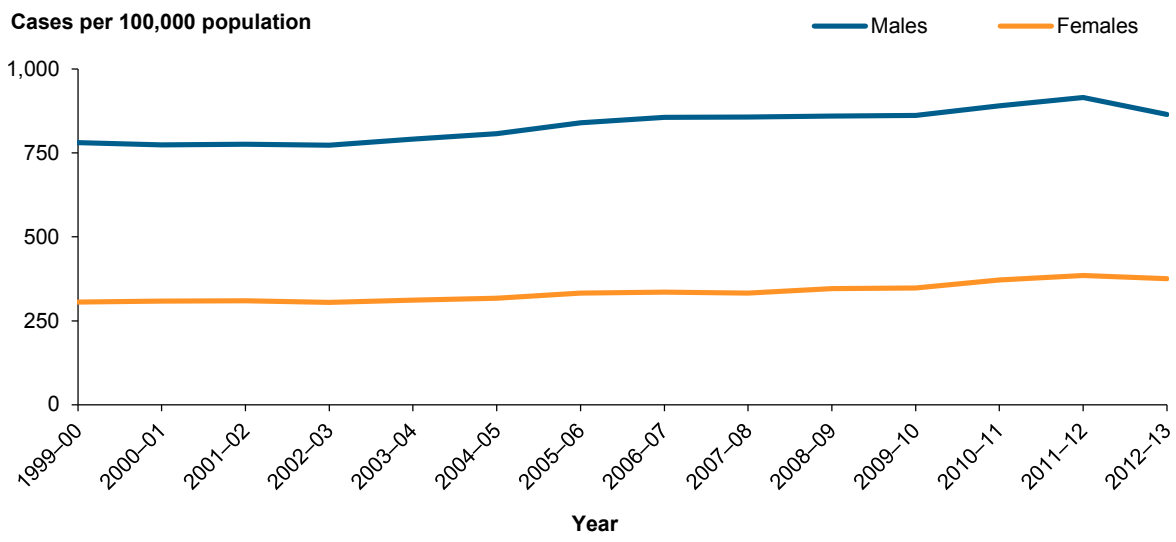


Note: Data underpinning this figure are available in Table B.17 in 'Appendix B: Additional tables'.

Figure 10.9: Age-standardised rates of selected types of other unintentional injury cases, Australia, 1999–00 to 2012–13

10.4 How have rates of other unintentional injury varied by sex and age?

Age-standardised rates of other unintentional injury were consistently twice as high for males as for females over the period (Figure 10.10). A small but consistent rise in rates over time was seen for both males and females.



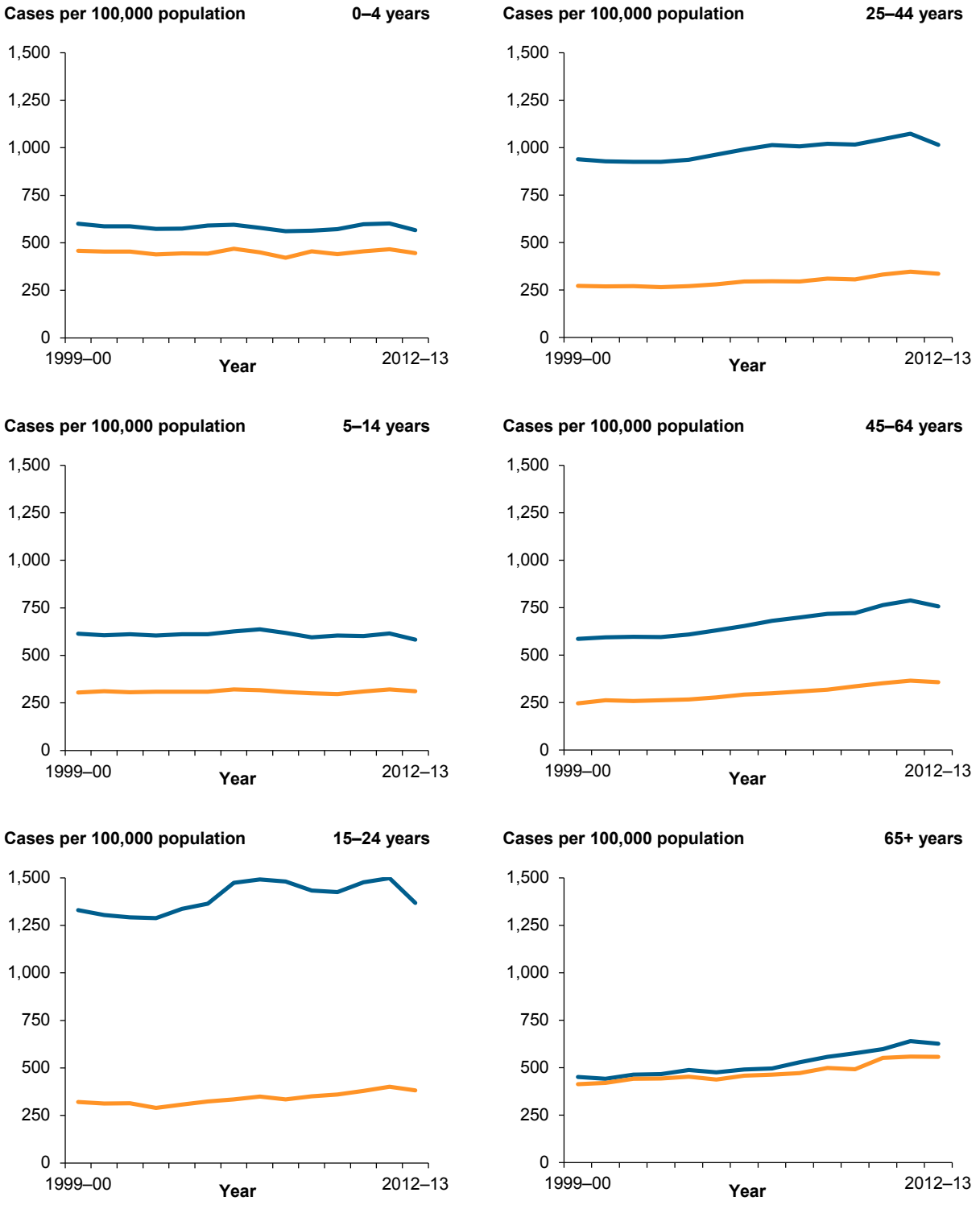
Notes

1. Data underpinning this figure are available in Table B.18 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.10: Age-standardised rates of other unintentional injury cases, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 10.11. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years, and readers should interpret any changes between these years with caution.

As seen in Figure 10.11, age-specific rates of other unintentional injury increased in each age group above 15–24 years for both males and females. Rates were much higher in males at 15–24 and 25–44 years compared with other age groups and females overall.



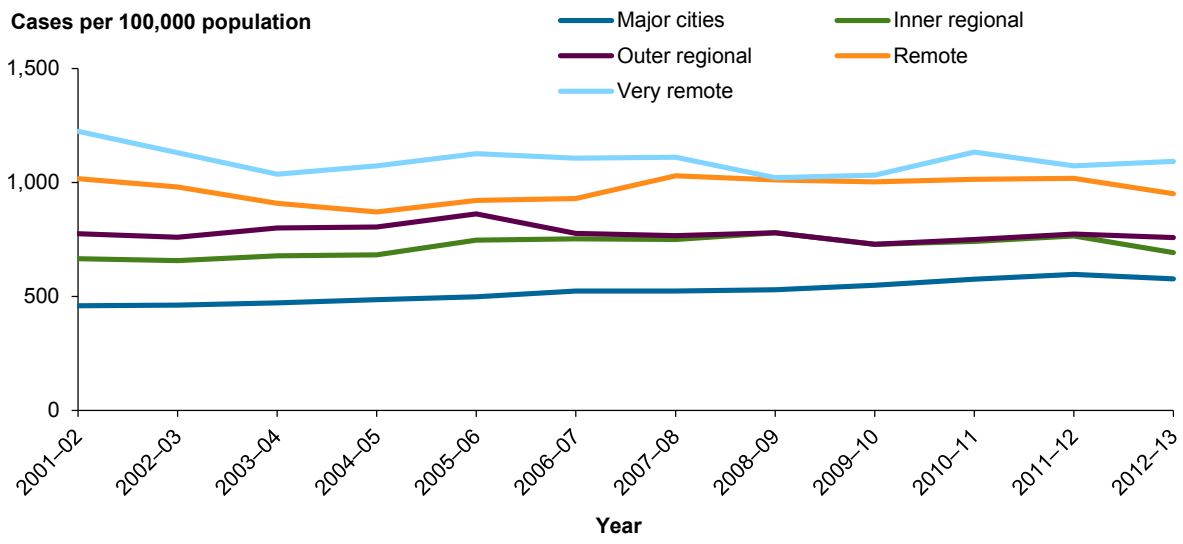
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.18 and B.19 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.11: Age-specific rates of other unintentional injury cases, by age and sex, Australia, 1999–00 to 2012–13

10.5 How have rates of other unintentional injury varied by remoteness?

Age-standardised rates of other unintentional injury were higher with increasing remoteness. Rates were highest in *Very remote* and *Remote* areas (Figure 10.12). The lowest were in *Major cities* but a rise was evident over the 2001–02 to 2012–13 period. Rates in all other areas fluctuated over the period.

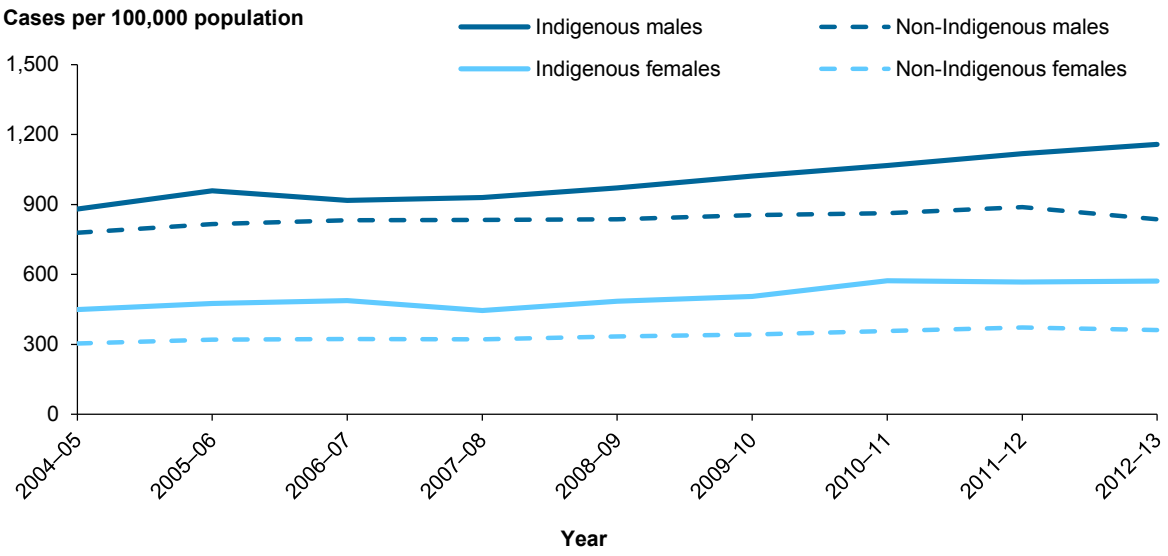


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.12: Age-standardised rates of other unintentional injury cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

10.6 How have rates of other unintentional injury in Indigenous people changed over time?

Age-standardised rates of other unintentional injury were much higher among Indigenous people than non-Indigenous people over the period for both males and females (Figure 10.13). Rates of injury due to other unintentional injury have shown an upward trend for Indigenous and non-Indigenous people.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.32 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 10.13: Age-standardised rates of other unintentional injury cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

11 Intentional self-harm

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in intentional self-harm injury in Australia. It includes injury cases in which the first-reported external cause is *Intentional self-harm* (ICD-10-AM X60–X84).

This chapter includes suicide and attempts to suicide, as well as cases where people have intentionally hurt themselves, but not necessarily with the intention of suicide—for example, acts of self-mutilation. This chapter does not include cases where the intent was unspecified, unstated or could not be determined.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM range X60–X84 (*Intentional self-harm*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 11.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 11.1: External causes of intentional self-harm

This chapter focuses on the **Intentional self-harm** (X60–X84) section of ICD-10-AM Chapter XX *External causes of morbidity and mortality* which includes the following:

- Intentional self-poisoning by and exposure to non-opioid analgesics, antipyretics and anti-rheumatics (X60)
- Intentional self-poisoning by and exposure to anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified (X61)
- Intentional self-poisoning by and exposure to narcotics and psychodysleptics (hallucinogens), not elsewhere classified (X62)
- Intentional self-poisoning by and exposure to other drugs acting on the autonomic nervous system (X63)
- Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances (X64)
- Intentional self-poisoning by and exposure to alcohol (X65)
- Intentional self-poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours (X66)
- Intentional self-poisoning by and exposure to other gases and vapours (X67)
- Intentional self-poisoning by and exposure to pesticides (X68)
- Intentional self-poisoning by and exposure to other and unspecified chemicals and noxious substances (X69)
- Intentional self-harm by hanging, strangulation and suffocation (X70)
- Intentional self-harm by drowning and submersion (X71)

(continued)

Box 11.1 (continued)

- Intentional self-harm by handgun discharge (X72)
- Intentional self-harm by other and unspecified firearm discharge (X74)
- Intentional self-harm by explosive material (X75)
- Intentional self-harm by smoke, fire and flames (X76)
- Intentional self-harm by steam, hot vapours and hot objects (X77)
- Intentional self-harm by sharp object (X78)
- Intentional self-harm by blunt object (X79)
- Intentional self-harm by jumping from a high place (X80)
- Intentional self-harm by jumping or lying before moving object (X81)
- Intentional self-harm by crashing of motor vehicle (X82)
- Intentional self-harm by other specified means (X83)
- Intentional self-harm by unspecified means (X84).

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 were purposely self-inflicted poisoning or injury, suicide or attempted suicide (NCCH 2010). 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*.

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.

In very young children, ascertaining whether an injury was due to intentional self-harm can be difficult and may involve a parent or caregiver's perception of the intent. Ability to form an intention to inflict self-harm and to understand the implications of doing so requires a degree of maturation that is absent in infancy and early childhood.

It is not possible to differentiate between acts of self-injury and acts of self-harm with suicidal intent within the NHMD, but it is likely that an unknown proportion of cases of intentional self-harm are self-injurious in nature rather than suicidal in intent.

Such sources of uncertainty about the assignment of intent limit the certainty of any estimates of intentional self-harm based on routine hospital data, particularly for children. For these reasons, in this report, cases of intentional self-harm are presented in aggregate for ages up to and including 14.

11.1 How many intentional self-harm cases were there in 2012–13?

There were an estimated 27,100 cases of intentional self-harm during 2012–13 (Table 11.1). Intentional self-harm cases made up 6% of all injury hospitalised cases.

More females than males were hospitalised as a result of intentional self-harm, and the age-standardised rate was also higher for females.

Table 11.1: Key indicators for intentional self-harm cases, Australia, 2012–13

Indicators	Males	Females	Persons
Intentional self-harm cases	9,759	17,340	27,100
Per cent of all injury cases	3.9	8.8	6.1
Age-standardised rate/100,000 population	86	157	121

Age and sex

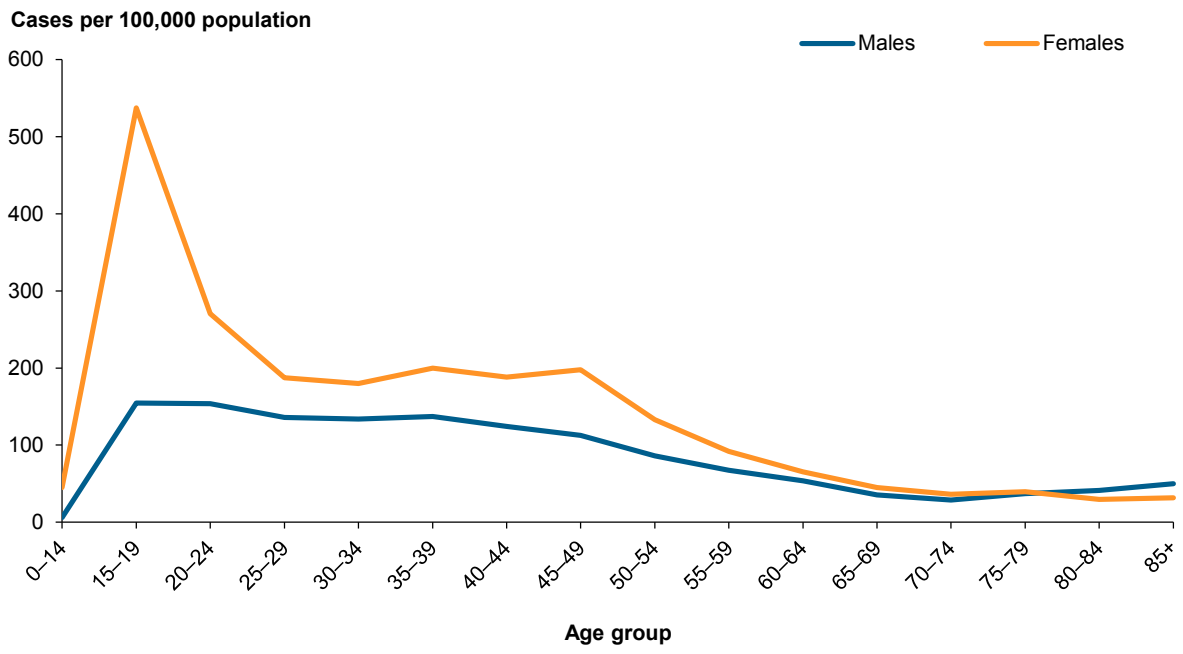
Cases of intentional self-harm in very young children may be subject to misinterpretation given the difficulties in assigning intent to the actions of young children. With this in mind, and due to the small number of cases of intentional self-harm in children, the youngest age groups have been combined (see Box 11.1).

Thirty-nine per cent of all cases of intentional self-harm occurred in the 25–44 age group (Table 11.2). Higher proportions of males (45%) were hospitalised as a result of self-harm in this age group compared with females (36%). In contrast, among 15–24 year olds, higher proportions of females were hospitalised as a result of intentional self-harm compared with males.

Table 11.2: Intentional self-harm cases by age, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–14	134	1.4	943	5.4	1,077	4.0
15–24	2,438	25.0	5,981	34.5	8,420	31.1
25–44	4,338	44.5	6,150	35.5	10,488	38.7
45–64	2,298	23.5	3,603	20.8	5,901	21.8
65+	551	5.6	663	3.8	1,214	4.5
Total	**9,759**	**100**	**17,340**	**100**	**27,100**	**100**

Age-specific rates of intentional self-harm differ by sex (Figure 11.1). Up to 70–74 years, rates were higher for females than males. The difference was substantial at 15–19 years, where the rate for females (538 cases per 100,000 population) was almost three times that of males (155 cases per 100,000).



Note: Data for 0–14 year olds combined (see Box 11.1).

Figure 11.1: Age-specific rates of intentional self-harm cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of intentional self-harm in 2012–13 was higher with increasing remoteness (Table 11.3). The lowest was in *Major cities* (112 per 100,000 population) and the highest in *Very remote* areas (164 per 100,000).

Table 11.3: Intentional self-harm cases by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	Major cities	Inner regional	Outer regional	Remote	Very remote	Total[(a)]
Intentional self-harm cases	17,848	5,230	2,802	463	352	27,100
Per cent	65.9	19.3	10.3	1.7	1.3	100
Age-standardised rate/100,000 population	112	136	149	152	164	121

(a) Excludes 405 cases where remoteness was not reported or residence was reported as an external territory.

Aboriginal and Torres Strait Islander people

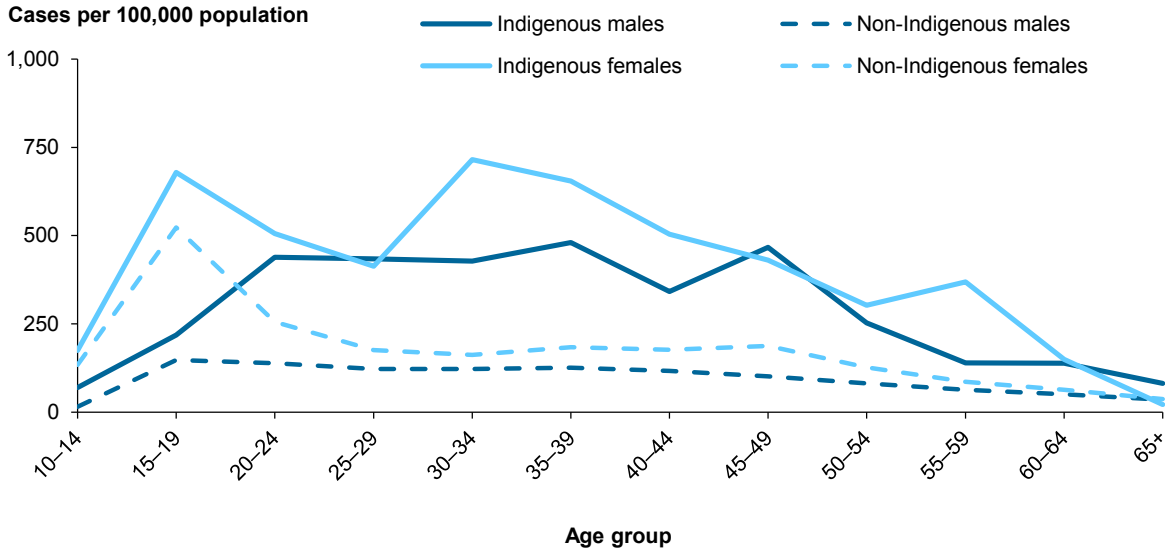
There were an estimated 1,953 cases of Indigenous people hospitalised as a result of intentional self-harm in 2012–13 (Table 11.4). More females than males were hospitalised. Intentional self-harm cases among Indigenous people made up a slightly higher proportion (9%) of all injury cases compared with non-Indigenous people (6%). Age-standardised rates of intentional self-harm among Indigenous people were more than twice those of non-Indigenous people, and in the case of Indigenous men more than 3 times the rate for non-Indigenous men.

Table 11.4: Key indicators for intentional self-harm cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Intentional self-harm cases	778	1,175	1,953	8,782	15,918	24,701
Per cent of all cases of hospitalised cases for injury	6.2	12.2	8.8	3.8	8.7	5.9
Age-standardised rate/100,000 population	247.0	344.8	295.8	79.9	149.2	114.0

The pattern of age- and sex-specific rates of intentional self-harm for Indigenous people was very different from those of non-Indigenous people (Figure 11.2). Rates of intentional self-harm were higher for both male and female Indigenous people in the 15–19 to 45–49 age groups. Rates of self-harm were generally higher for Indigenous females compared to males at all ages other than 25–29 and 45–49. The highest rate of self-harm injury in Indigenous males occurred at 45–49 years (467 cases per 100,000 population); the rate of injury in non-Indigenous males in the same age group was 102. For Indigenous females the highest rate of self-harm injury occurred at 30–34 years (715 cases per 100,000 population); the rate of injury in non-Indigenous females in the same age group was 163.

Due to small case numbers among Indigenous people from 65+ years, differences in rates between Indigenous and non-Indigenous people in this age group should not be over-interpreted.



Notes

1. Includes data from all Australian jurisdictions (see Box 1.2).
2. Excludes data for 0–9 year olds due to small case numbers.

Figure 11.2: Age-specific rates of intentional self-harm cases, by sex and Indigenous status, Australia, 2012–13

Mechanism

Intentional self-poisoning (X60–X69) accounted for 83% of all cases of self-harm in 2012–13 (Table 11.5), with female case numbers (15,045) more than twice those of males (7,454). The second most common mechanism overall was *Intentional self-harm by sharp object* (12%), and again there were more cases for females than males.

Hanging, strangulation and suffocation accounted for 2% of all self-harm cases, but substantially more males were admitted for this method than females (456 and 203 cases respectively). More than twice as many males as females were admitted for *Intentional poisoning by other gases and vapours*—this category includes the toxic effects of carbon monoxide.

Forty-four per cent of all cases of intentional self-harm were *Intentional poisoning by and exposure to anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs* (11,885). This category includes benzodiazepines, other and unspecified antidepressants—which include selective serotonin reuptake inhibitors, other and unspecified antipsychotics and neuroleptics, other anti-epileptic and sedative-hypnotic drugs, tricyclic and tetracyclic antidepressants, phenothiazine antipsychotics, and neuroleptics and psychostimulants with potential for use disorder.

Intentional self-poisoning by narcotics and psychodysleptics (hallucinogens) accounted for 6% of self-harm cases. This category includes cannabis (and its derivatives), cocaine, heroin, codeine and LSD, among others. *Intentional self-poisoning by alcohol* was reported in 320 cases.

Table 11.5: Mechanism of intentional self-harm injury cases, Australia, 2012–13

	Males		Females		Persons	
Mechanism	**Number**	**%**	**Number.**	**%**	**Number**	**%**
Intentional self-poisoning by and exposure to:						
Non-opioid analgesics, antipyretics and anti-rheumatics	1,314	13.5	4,437	25.6	5,751	21.2
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	4,048	41.5	7,837	45.2	11,885	43.9
Narcotics and psychodysleptics (hallucinogens)	731	7.5	825	4.8	1,556	5.7
Other drugs acting on the autonomic nervous system	109	1.1	180	1.0	289	1.1
Other and unspecified drugs, medicaments and biological substances	647	6.6	1,187	6.8	1,834	6.8
Alcohol	132	1.4	188	1.1	320	1.2
Organic solvents and their halogenated hydrocarbons and their vapours	22	0.2	22	0.1	44	0.2
Other gases and vapours (for example, carbon monoxide)	220	2.3	69	0.4	289	1.1
Pesticides	76	0.8	46	0.3	122	0.5
Other and unspecified chemicals and noxious substances	155	1.6	254	1.5	409	1.5
Intentional self-harm by hanging, strangulation and suffocation	456	4.7	203	1.2	659	2.4
Intentional self-harm by drowning and submersion	6	0.1	18	0.1	24	0.1
Intentional self-harm by handgun discharge	4	0.0	-	0.0	4	0.0
Intentional self-harm by other and unspecified firearm discharge	25	0.3	1	0.0	26	0.1
Intentional self-harm by explosive material	1	0.0	-	0.0	1	0.0
Intentional self-harm by smoke, fire and flames	55	0.6	50	0.3	105	0.4
Intentional self-harm by steam, hot vapours and hot objects	2	0.0	6	0.0	8	0.0
Intentional self-harm by sharp object	1,457	14.9	1,734	10.0	3,192	11.8
Intentional self-harm by blunt object	30	0.3	33	0.2	63	0.2
Intentional self-harm by jumping from a high place	55	0.6	47	0.3	102	0.4
Intentional self-harm by jumping or lying before moving object	35	0.4	23	0.1	58	0.2
Intentional self-harm by crashing of motor vehicle	51	0.5	28	0.2	79	0.3
Intentional self-harm by other specified means	83	0.9	97	0.6	180	0.7
Intentional self-harm by unspecified means	45	0.5	55	0.3	100	0.4
Total	**9,759**	**100**	**17,340**	**100**	**27,100**	**100**

The top three causes of intentional self-harm did not vary much by age, with *Intentional self-poisoning by and exposure to anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs* the most common mechanism followed by *Intentional self-poisoning and exposure to non-opioid analgesics, antipyretics and antirheumatics* and *Intentional self-harm by sharp object* (Table 11.6). The relative proportions of mechanisms did vary with age group.

Sex differences were apparent within the age groups. For example, there was a much higher proportion of *Intentional self-poisoning by and exposure to non-opioid analgesics, antipyretics and anti-rheumatics* among 15–24 year old females (27%; 2,232 cases) compared with males (6%; 545 cases) (data not shown).

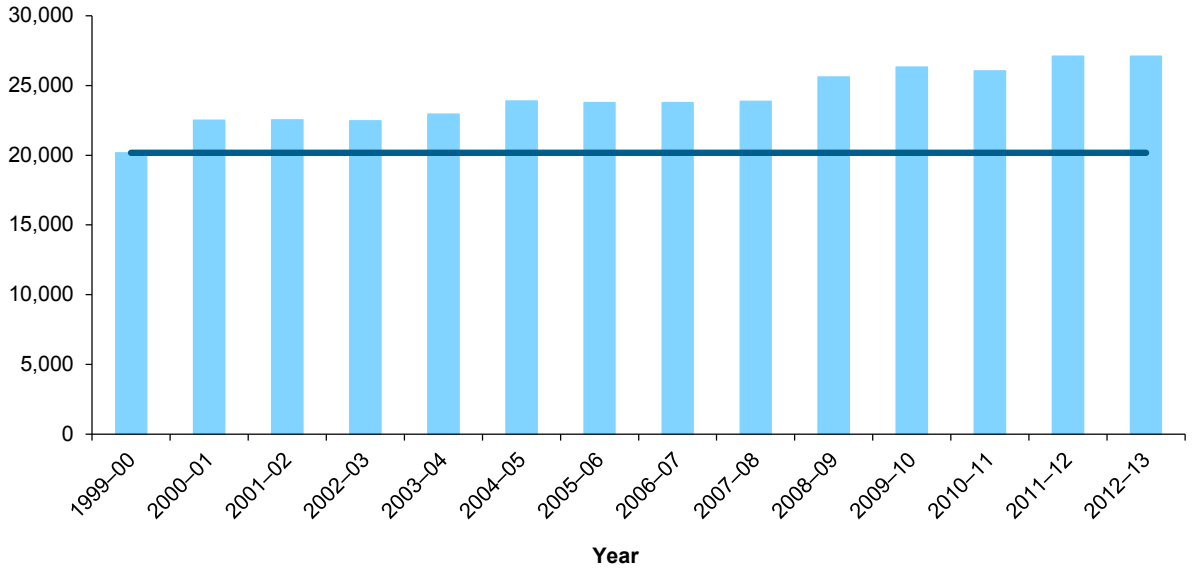
Table 11.6: Top 3 mechanisms of intentional self-harm cases, by age group, Australia, 2012–13

	Number	%
0–14		
Intentional self-poisoning by and exposure to:		
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	524	48.7
Non-opioid analgesics, antipyretics and anti-rheumatics	225	20.9
Intentional self-harm by sharp object	115	10.7
Total intentional self-harm, 0–14	**1,077**	
15–24		
Intentional self-poisoning by and exposure to:		
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	2,998	35.6
Non-opioid analgesics, antipyretics and anti-rheumatics	2,777	33.0
Intentional self-harm by sharp object	1,020	12.1
Total intentional self-harm,15–24	**8,419**	
25–44		
Intentional self-poisoning by and exposure to:		
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	5,073	48.4
Non-opioid analgesics, antipyretics and anti-rheumatics	1,573	15.0
Intentional self-harm by sharp object	1,340	12.8
Total intentional self-harm, 25–44	**10,488**	
45–64		
Intentional self-poisoning by and exposure to:		
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	3,005	50.9
Non-opioid analgesics, antipyretics and anti-rheumatics	741	12.6
Intentional self-harm by sharp object	599	10.2
Total intentional self-harm, 45–64	**5,901**	
65+		
Intentional self-poisoning by and exposure to:		
Anti-epileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs	584	48.1
Other and unspecified drugs, medicaments and biological substances	136	11.2
Non-opioid analgesics, antipyretics and anti-rheumatics	126	10.4
Total intentional self-harm, 65+	**1,214**	

11.2 How have cases of intentional self-harm changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 11.3 below, the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 11.3 compares the number of cases of intentional self-harm each year with a baseline (20,166 cases in 1999–00). From 2000–01 onwards, the annual number of cases of intentional self-harm has been higher than the baseline. The largest difference was in 2011–12 when there were 6,946 more cases of intentional self-harm since the beginning of the period (27,112 in total).



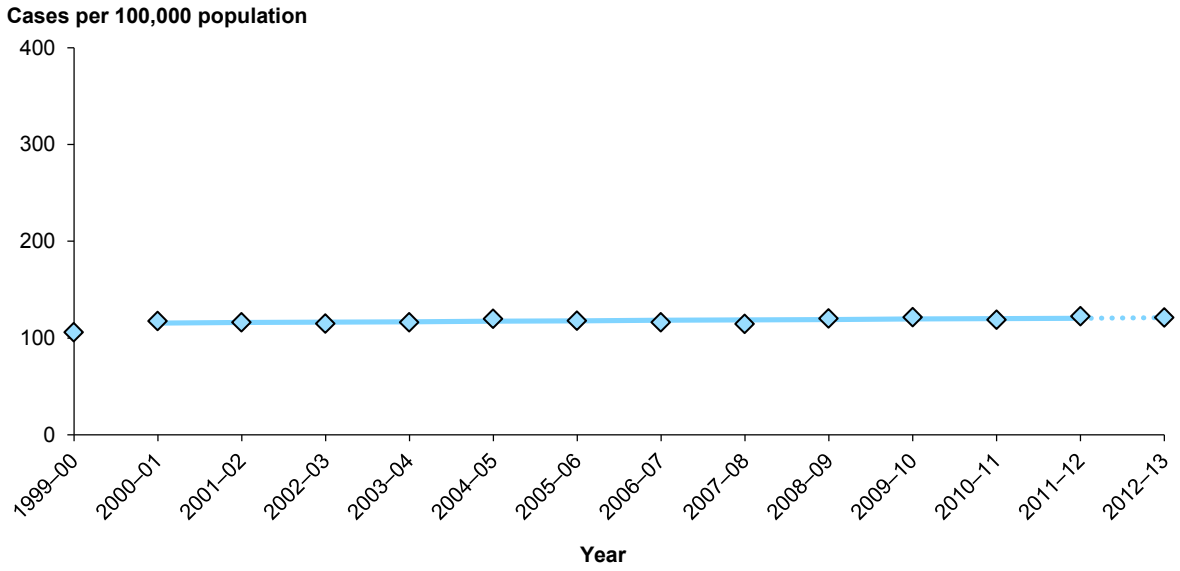
Notes

1. The single line represents the number of cases of intentional self-harm injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 11.3: Number of cases of intentional self-harm, Australia, 1999–00 to 2012–13

11.3 How have rates of intentional self-harm changed over time?

Rates of intentional self-harm increased from 106 cases per 100,000 population in 1999–00 to 121 in 2012–13 (Figure 11.4). The increase in modelled rate averaged 0.4% per year from 2000–01 to 2011–12 and was statistically significant (95% CI: 0.1%, 0.7%). The predicted rate of intentional self-harm injury in 2012–13 was 121 cases per 100,000 population based on the trend from 2000–01 to 2011–12, the same as the observed rate.



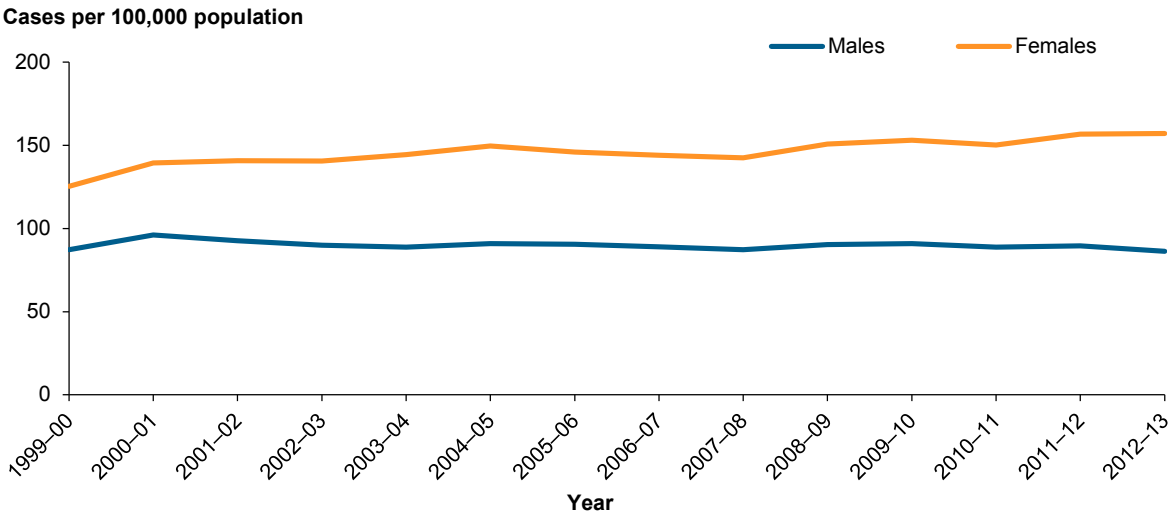
Notes

1. The solid line represents the modelled rate from 2000–01 to 2011–12. The modelled period was chosen based on the most recent period of relative stability in rates. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 2000–01 to 2011–12. In this case the two symbols coincide.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 11.4: Modelled age-standardised rates of intentional self-harm cases, Australia, 1999–00 to 2012–13

11.4 How have rates of intentional self-harm varied by sex and age?

During the period, the age-standardised rate of intentional self-harm remained fairly steady for males and females (Figure 11.5). Rates for females were consistently higher than for males.



Notes

1. Data underpinning this figure are available in Table B.20 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

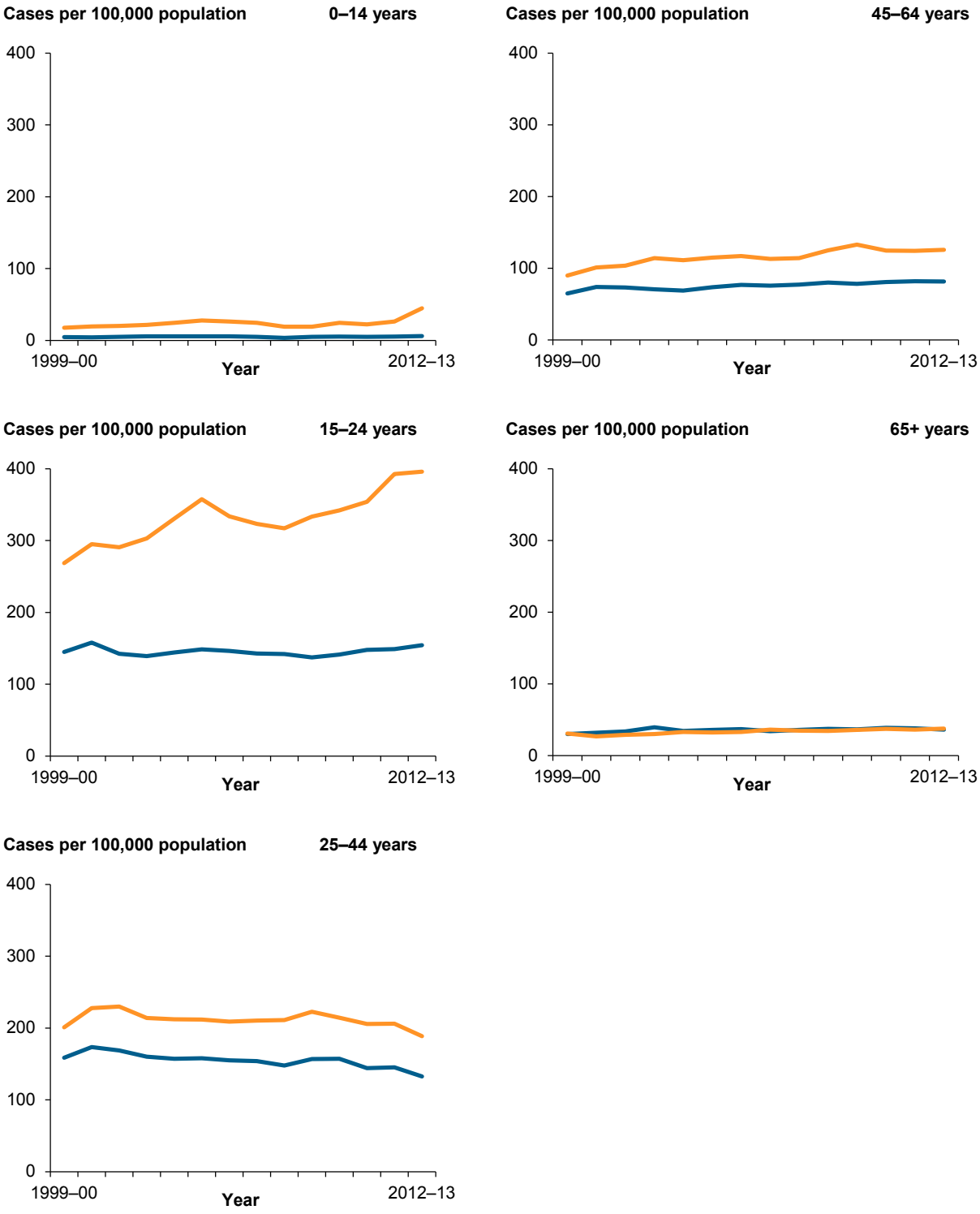
Figure 11.5: Age-standardised rates of intentional self-harm cases, by sex, Australia, 1999–00 to 2012–13

An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 11.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years, and readers should interpret any changes between these years with caution.

As can be seen in Figure 11.6, age-specific rates for intentional self-harm for children aged 0–14 are shown in aggregate due to small case numbers.

Age-specific rates of intentional self-harm were higher for females in all age groups other than 65+. Rates were highest and rose over the period among females aged 15–24, particularly as a result of intentional self-harm by poisoning, which increased from a total of 3,050 cases in 1999–00 to 5,140 in 2012–13. Large increases in this group were seen in the number of cases of poisoning by *antiepileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs* (1,308 to 2,124 cases) and *non-opioid analgesics, antipyretics and anti-rheumatics* drugs (983 to 2,232 cases) from the beginning to the end of the period.

The number of cases of *Intentional self-harm by sharp object* also rose substantially, from 1,936 cases in 1999–00 to 3,191 in 2012–13. For females, the number of cases of *Intentional self-harm by sharp object* more than doubled, from 880 in 1999–00 to 1,734 in 2012–13.



Notes

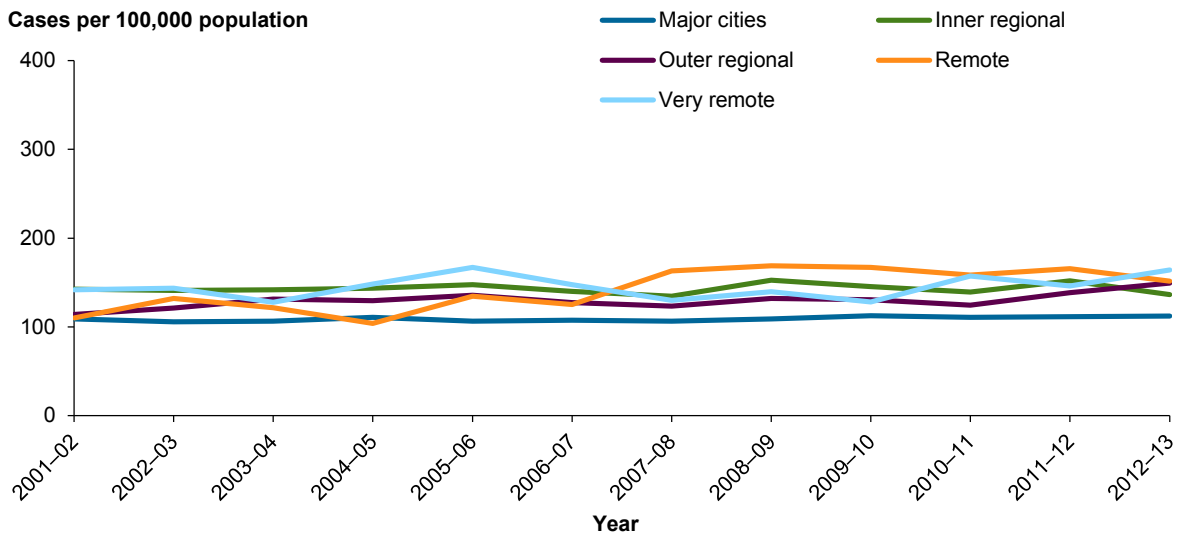
1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.20 and B.21 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 11.6: Age-specific rates of intentional self-harm cases, by age and sex, Australia, 1999–00 to 2012–13

11.5 How have rates of intentional self-harm varied by remoteness?

Generally speaking, age-standardised rates of intentional self-harm are higher with increasing remoteness (Figure 11.7). The exception to this is the pattern of rates in *Remote* areas. In the first half of the 2001–02 to 2012–13 period, rates of intentional self-harm in *Remote* areas were consistently lower than in *Inner regional* and *Very remote* regions, but from 2006–07 rates were generally higher than in all other remoteness areas.

Lower rates over the period were observed in *Major cities*. There were small increases for *Remote* and *Outer regional* areas.

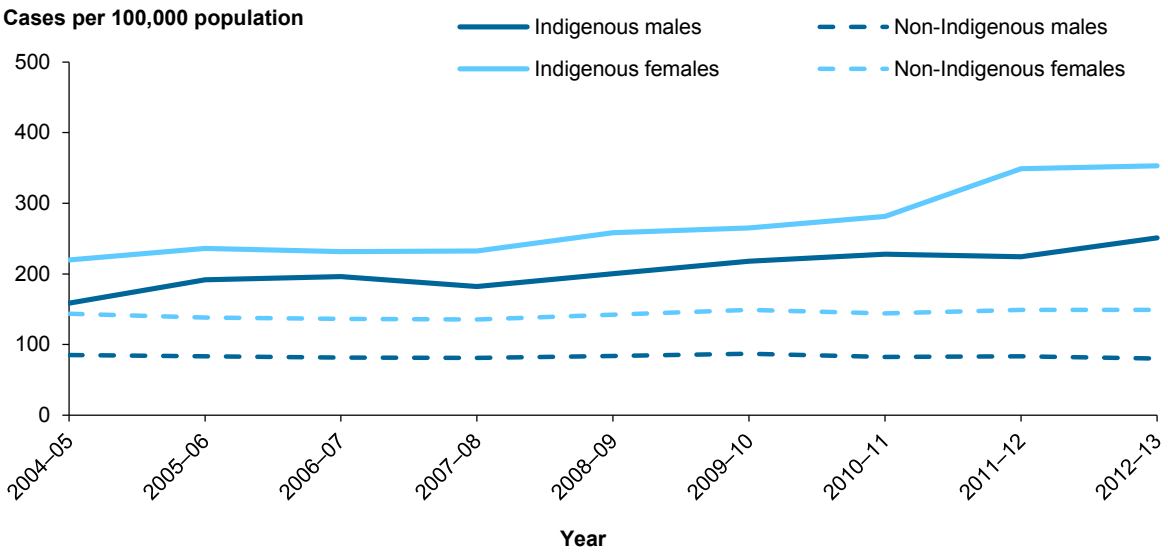


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 11.7: Age-standardised rates of intentional self-harm cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

11.6 How have rates of intentional self-harm in Indigenous people changed over time?

Rates of intentional self-harm were much higher and rising among Indigenous people compared with non-Indigenous people over the period (Figure 11.8). The highest rates of intentional self-harm injury were seen in Indigenous females and the difference in rates between Indigenous males and females has widened in the last 2 years.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.30 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 11.8: Age-standardised rates of intentional self-harm cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

12 Assault

This chapter draws on data from the NHMD covering the years 1 July 1999 to 30 June 2013 to present an overview of trends in intentional assault injury in Australia. The chapter includes injury cases in which the first-reported external cause is *Assault* (ICD-10-AM X85–Y09) or *Legal intervention and operations of war* (Y35–Y36). As defined here, this category includes all cases in which a person, or more than one person, intentionally injured another person. It does not include cases where the intent was unspecified, unstated or could not be determined.

What methods were used?

This chapter includes injury cases meeting the criteria set out in Section 1.3, provided that the first-reported external cause code was in the ICD-10-AM ranges X85–Y09 (*Assault*) and Y35–Y36 (*Legal intervention and operations of war*) in Chapter *XX External causes of morbidity and mortality*.

Relevant terms and information applying to the data used in this chapter are summarised in Boxes 1.1, 1.2 and 12.1. Further information on methods is provided in 'Appendix A: Data issues'.

Box 12.1: External causes of assault injury

This chapter focuses on two sections of ICD-10-AM Chapter XX *External causes of morbidity and mortality*; *Assault* (X85–Y09) and *Legal intervention and operations of war* (Y35–Y36), which include:

Assault (X85–Y09)

- Assault by drugs, medicaments and biological substances (X85)
- Assault by corrosive substance (X86)
- Assault by pesticides (X87)
- Assault by gases and vapours (X88)
- Assault by other specified chemicals and noxious substances (X89)
- Assault by unspecified chemical or noxious substance (X90)
- Assault by hanging, strangulation and suffocation (X91)
- Assault by drowning and submersion (X92)
- Assault by handgun discharge (X93)
- Assault by other and unspecified firearm discharge (X95)
- Assault by explosive material (X96)
- Assault by smoke, fire and flames (X97)
- Assault by steam, hot vapours and hot objects (X98)
- Assault by sharp object (X99)
- Assault by blunt object (Y00)
- Assault by pushing from high place (Y01)
- Assault by pushing or placing victim before moving object (Y02)

(continued)

Box 12.1 (continued)

- Assault by crashing of motor vehicle (Y03)
- Assault by bodily force (Y04)
- Sexual assault by bodily force (Y05)
- Neglect and abandonment (Y06)
- Other maltreatment syndromes (Y07)
- Assault by other specified means (Y08)
- Assault by unspecified means (Y09).

Legal intervention and operations of war (Y35–Y36)

- Legal intervention (Y35)
- Operations of war (Y36).

Ascertainment of injury due to assault

As with intentional self-harm, there are reasons to think that the identification of admitted injury cases as being due to interpersonal violence is not entirely complete. Feelings of shame or embarrassment may underlie reticence to admit to both types of intentional injury. In addition, most injuries due to interpersonal violence have potential legal implications. Pressures or incentives to not reveal assault may be particularly likely in circumstances such as injury of a child or other dependent person by a caregiver, or 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.

Perpetrator codes are used in ICD-10-AM when a code from the ICD-10-AM category *Assault* (X85–Y09) is present (see 'Appendix A: Data issues'). A coding standard (NCCH 2010) provides guidance to clinical coders in assigning codes identifying the perpetrator of assault, abuse or neglect. The coding rules operate on a hierarchical basis with coders required to code the closest relationship between the perpetrator and the victim. The 10 subcategories of perpetrator consist of the following:

- Spouse or domestic partner
- Parent
- Other family member
- Carer
- Acquaintance or friend
- Official authorities
- Person unknown to the victim
- Multiple persons unknown to the victim
- Other specified person
- Unspecified person.

12.1 How many assault cases were there in 2012–13?

There were an estimated 21,134 cases of assault injury during 2012–13 (Table 12.1). Assaults made up 5% of all injury hospitalised cases.

More than twice as many males as females were hospitalised due to assault. The age-standardised rate was also higher in males than females.

Table 12.1: Key indicators for assault cases, Australia, 2012–13

Indicators	Males	Females	Persons
Assault cases	14,769	6,365	21,134
Per cent of all injury cases	5.9	3.2	4.7
Age-standardised rate/100,000 population	131	57	94

Age and sex

Almost one-half of all assault cases in males (48%) occurred in the 25–44 age group, and nearly one-third (30%) in the 15–24 age group (Table 12.2). Just under one-quarter of female assault cases involved young women aged 15–24 and 53% involved women aged 25–44. Three per cent involved children under 15.

Table 12.2: Assault cases by age and sex, Australia, 2012–13

	Males		Females		Persons	
Age group	Number	%	Number	%	Number	%
0–4	114	0.8	87	1.4	201	1.0
5–14	216	1.5	165	2.6	381	1.8
15–24	4,495	30.4	1,484	23.3	5,979	28.3
25–44	7,110	48.1	3,383	53.2	10,493	49.6
45–64	2,531	17.1	1,063	16.7	3,594	17.0
65+	302	2.0	183	2.9	485	2.3
Total	**14,769**	**100**	**6,365**	**100**	**21,134**	**100**

Age-specific rates for males were significantly higher than for females between the ages of about 15 and 74 (Figure 12.1). Male rates for assault peaked in the 20–24 age group, with an age-specific rate of 326 hospitalised cases per 100,000 population compared with 115 per 100,000 for females in the same age group.

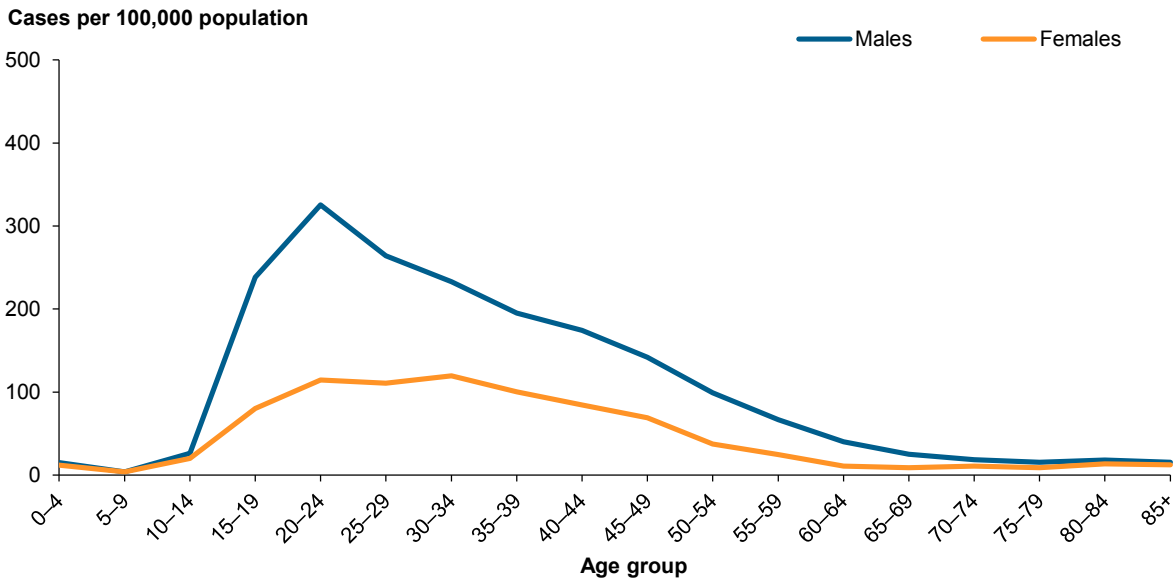


Figure 12.1: Age-specific rates of assault cases, by sex, Australia, 2012–13

Remoteness of usual residence

The age-standardised rate of assault injury was higher with increasing remoteness (Table 12.3). The rate of assault in *Very remote* areas (1,000 cases per 100,000 population) was more than 13 times the rate in *Major cities* (68 cases per 100,000).

Table 12.3: Assault cases by remoteness of usual residence, Australia, 2012–13

	Remoteness of usual residence					
Indicators	**Major cities**	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Total[(a)]**
Assault cases	11,006	3,016	2,688	1,642	2,212	21,134
Per cent	52.1	14.3	12.7	7.8	10.5	100
Age-standardised rate/100,000 population	68	83	148	527	1,000	94

(a) Excludes 570 cases where remoteness was not reported or residence was reported as an external territory.

Mechanism

The most common mechanism by which injury occurred was *Assault by bodily force*, comprising 60% of cases (12,474). Twice as many males as females were injured as a result of bodily force (Table 12.5). The second and third most-common mechanisms of injury were *Assault by blunt object* (15%) and *Assault by sharp object* (12%), and again more males than females were hospitalised due to these causes. Females were much more likely than males to be hospitalised as a result of a sexual assault (108 and 11 cases respectively).

Table 12.5: Mechanism of assault cases, by sex, Australia, 2012–13

	Males		Females		Persons	
Mechanism	**Number**	**%**	**Number**	**%**	**Number**	**%**
Assault by drugs, medicaments and biological substances	21	0.1	28	0.4	49	0.2
Assault by corrosive substance	8	0.1	4	0.1	12	0.1
Assault by pesticides	2	0.0	1	0.0	3	0.0
Assault by gases and vapours	1	0.0	0	0.0	1	0.0
Assault by other specified chemicals and noxious substances	4	0.0	3	0.0	7	0.0
Assault by unspecified chemical or noxious substance	4	0.0	4	0.1	8	0.0
Assault by hanging, strangulation and suffocation	26	0.2	73	1.1	99	0.5
Assault by drowning and submersion	2	0.0	0	0.0	2	0.0
Assault by handgun discharge	24	0.2	2	0.0	26	0.1
Assault by other and unspecified firearm discharge	119	0.8	12	0.2	131	0.6
Assault by explosive material	0	0.0	0	0.0	0	0.0
Assault by smoke, fire and flames	7	0.0	15	0.2	22	0.1
Assault by steam, hot vapours and hot objects	21	0.1	15	0.2	36	0.2
Assault by sharp object	1,918	13.0	569	8.9	2,487	11.8
Assault by blunt object	1,981	13.4	1,086	17.1	3,067	14.5
Assault by pushing from high place	6	0.0	4	0.1	10	0.0
Assault by pushing or placing victim before moving object	3	0.0	1	0.0	4	0.0
Assault by crashing of motor vehicle	9	0.1	6	0.1	15	0.1
Assault by bodily force	8,775	59.4	3,699	58.1	12,474	59.0
Sexual assault by bodily force	11	0.1	108	1.7	119	0.6
Neglect and abandonment	16	0.1	28	0.4	44	0.2
Other maltreatment syndromes	73	0.5	129	2.0	202	1.0
Assault by other specified means	279	1.9	143	2.2	422	2.0
Assault by unspecified means	1,397	9.5	423	6.6	1,820	8.6
Legal intervention involving firearm discharge	56	0.4	12	0.2	68	0.3
Operations of war	6	0.0	0	0.0	6	0.0
Total	**14,769**	**100**	**6,365**	**100**	**21,134**	**100**

The top 3 causes of hospitalisation as a result of an assault did not vary much by age. Assault by bodily force accounted for well over 50% of all causes of hospitalisation in each age group, other than children aged 0–4. For that group, the most common causes were maltreatment syndromes (Table 12.6).

Table 12.6: Top 3 mechanisms of assault cases, 0–4 years, Australia, 2012–13

	Number	%
0–4 year olds		
Other maltreatment syndromes	101	50.2
Assault by bodily force	33	16.4
Neglect and abandonment	27	13.4
Total assault, 0–4	**201**	

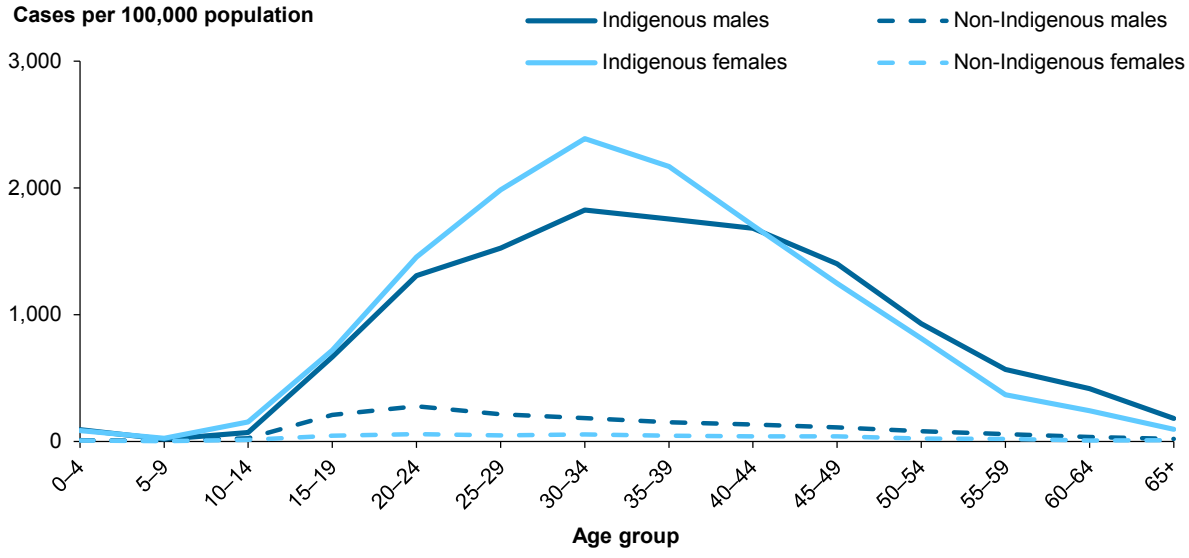
Aboriginal and Torres Strait Islander people

There were an estimated 5,856 cases of Indigenous people hospitalised as a result of assault in 2012–13 (Table 12.4). More females were hospitalised than males. Assaults made up a much higher proportion of all hospitalised cases among Indigenous people (26%) compared with non-Indigenous people (4%). Age-standardised rates of assault among Indigenous people were more than 14 times those of non-Indigenous people. The rate among Indigenous females was over 33 times the rate for non-Indigenous females.

Table 12.4: Key indicators for assault cases, by sex and Indigenous status, Australia, 2012–13

	Indigenous			Non-Indigenous		
Indicators	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Assault cases	2,727	3,129	5,856	11,691	3,155	14,846
Per cent of all cases of hospitalised cases for injury	21.6	32.5	26.3	5.0	1.7	3.6
Age-standardised rate/100,000 population	883	970	927	107	29	68

The pattern by age was very different for Indigenous people compared with non-Indigenous people (Figure 12.2). For both Indigenous males and females, rates of assault were far higher from about 10–14 years of age up to about 55–59. The highest rate occurred at 30–34 for Indigenous females (2,388 cases per 100,000 population). In the same age group, for non-Indigenous females, the rate of assault injury was 55 cases per 100,000. For Indigenous males the highest rate also occurred at 30–34 (1,824 cases per 100,000 population); at the same age, the rate for non-Indigenous males was 184 cases per 100,000. Due to small case numbers among Indigenous people aged 65+, difference in rates compared with non-Indigenous people of the same age should not be over-interpreted. In response to the small numbers of cases older age groups have been combined to 65+.



Note: Includes data from all Australian jurisdictions (see Box 1.2).

Figure 12.2: Age-specific rates of assault cases, by sex and Indigenous status, Australia, 2012–13

Perpetrator

The relationship of the perpetrator to the victim of assault is presented in Table 12.7. Overall the most commonly reported perpetrator of an assault was a *Spouse or domestic partner* (16%) followed by *Other family member* (8%). Gender differences were apparent, with 44% of female assault victims identifying the perpetrator as a *Spouse or domestic partner* compared to just 4% of males. For males hospitalised as a result of an assault, reported perpetrators were more likely to be a *Person unknown to the victim* (8%) or *Multiple persons unknown to the victim* (9%), compared to females (3% each respectively). Almost 50% of cases had an unspecified person listed as the perpetrator. Cases lacking specific information about a perpetrator may have occurred for a number of reasons, including information not being reported by or on behalf of victims, or information not being recorded in the patient's hospital record.

Table 12.7: Relationship of the perpetrator to the victim of assault cases, by sex, Australia, 2012–13

	Males		Females		Persons	
Perpetrator	**Number**	**Per cent**	**Number**	**Per cent**	**Number**	**Per cent**
Spouse or domestic partner	521	3.5	2,816	44.2	3,337	15.8
Parent	181	1.2	205	3.2	386	1.8
Other family member	893	6.0	776	12.2	1,669	7.9
Carer	9	0.1	7	0.1	16	0.1
Acquaintance or friend	1,150	7.8	341	5.4	1,491	7.1
Official authorities	112	0.8	8	0.1	120	0.6
Person unknown to the victim	1,104	7.5	206	3.2	1,310	6.2
Multiple persons unknown to the victim	1,379	9.3	165	2.6	1,544	7.3
Other specified person	650	4.4	249	3.9	899	4.3
Unspecified person	8,708	59.0	1,580	24.8	10,288	48.7
Total[(a)]	**14,769**	**100**	**6,365**	**100**	**21,134**	**100**

(a) Contains 74 cases of *Legal intervention involving firearm discharge* or *Operations of war*.

The type of perpetrator reported also differed by age group (Table 12.8). For children, the majority of perpetrators were parents or other family members (79% and 28% for 0–4 and 5–14 year olds respectively). Among 15–24 year olds hospitalised as a result of an assault, *Spouse or domestic partner* was the most commonly identified perpetrator (12%)—this was much more true of females (42%) than males (2%). Similar results were seen for the 25–44 group, where 20% of cases had a *Spouse or domestic partner* listed as the perpetrator. In the oldest age group, high proportions of *Other family member* (21%) and *Acquaintance or friend* (15%) were identified as perpetrators.

Table 12.8: Relationship of the perpetrator to the victim of assault cases, by age, Australia, 2012–13

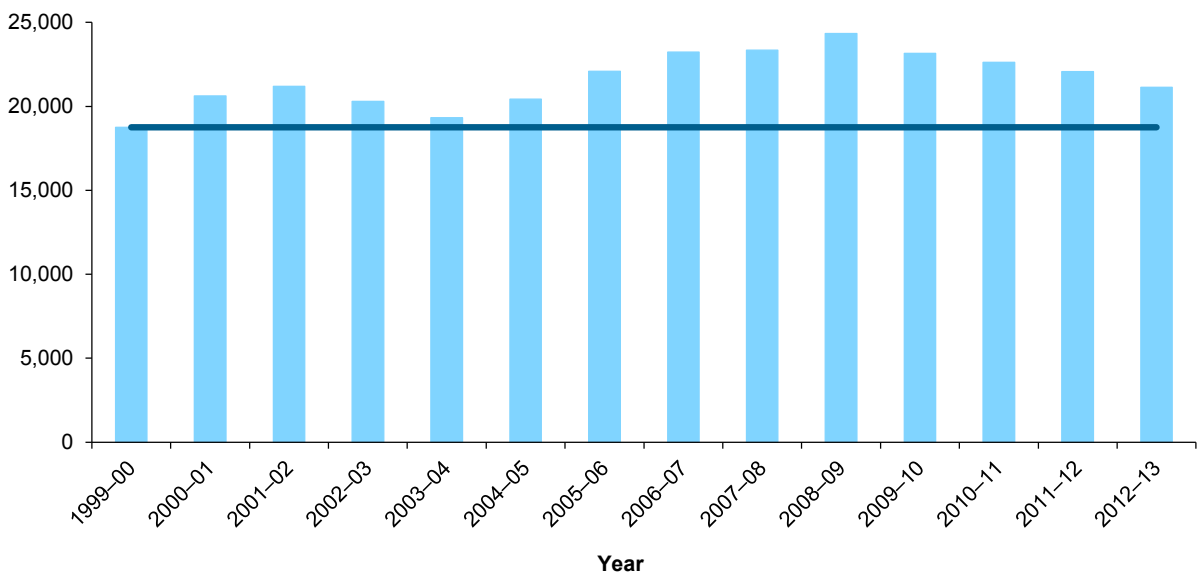
	0–4		5–14		15–24		25–44		45–64		65+	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Spouse or domestic partner	0	0.0	8	2.1	685	11.5	2,043	19.5	547	15.2	54	11.1
Parent	135	67.2	68	17.8	109	1.8	67	0.6	6	0.2	1	0.2
Other family member	23	11.4	39	10.2	299	5.0	762	7.3	445	12.4	101	20.8
Carer	2	1.0	1	0.3	1	0.0	3	0.0	8	0.2	1	0.2
Acquaintance or friend	4	2.0	66	17.3	358	6.0	670	6.4	320	8.9	73	15.1
Official authorities	0	0.0	0	0.0	32	0.5	69	0.7	18	0.5	1	0.2
Person unknown to the victim	3	1.5	17	4.5	445	7.4	575	5.5	225	6.3	44	9.1
Multiple persons unknown to the victim	0	0.0	19	5.0	528	8.8	730	7.0	243	6.8	24	4.9
Other specified person	3	1.5	48	12.6	216	3.6	396	3.8	180	5.0	56	11.5
Unspecified person	31	15.4	115	30.2	3,288	55.0	5,139	49.0	1,588	44.2	127	26.2
Total[(a)]	**201**	**100**	**381**	**100**	**5,979**	**100**	**10,493**	**100**	**3,594**	**100**	**485**	**100**

(a) Contains 74 cases of *Legal intervention involving firearm discharge* or *Operations of war*.

12.2 How have cases of assault changed over time?

Caution should be used in interpreting variations in rates between 2011–12 and 2012–13 in the following trend analyses. Rises and falls in rates between single points in time can be caused by a number of factors. The narrowed inclusion policy in Victoria (see Box 1.3) contributed to the generally lower observed rates in 2012–13 compared to 2011–12, but the exact size of the effect cannot be determined. In Section 12.3 below, the predicted rate for 2012–13 based on the trend in the 13 years to 2011–12 is presented along with the observed rate, for comparison.

Figure 12.3 compares the number of cases of assault occurring each year with a baseline (18,762 cases in 1999–00). From 2000–01 onwards, the annual number of cases of assault has been higher than the baseline, increasing more sharply from 2003–04. The largest difference was in 2008–09 when there were 5,573 more cases of assault compared with the baseline (24,335 in total). From this peak, cases of assault injury have declined steadily.



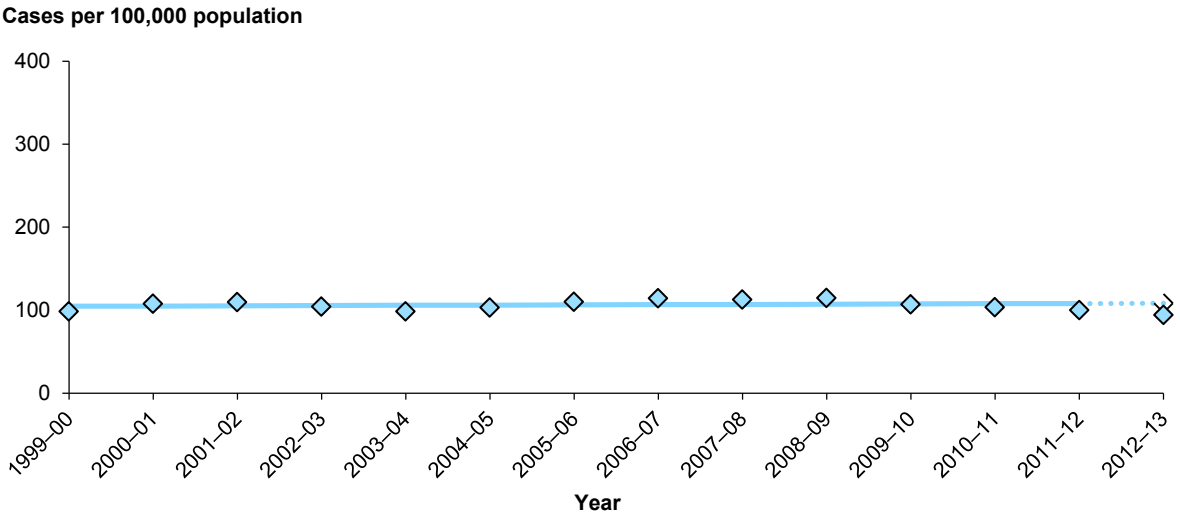
Notes

1. The single line represents the number of cases of transport crash injury that occurred in 1999–00. It is referred to as the baseline.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.3: Number of cases of assault, Australia, 1999–00 to 2012–13

12.3 How have rates of assault changed over time?

Age-standardised rates of injury cases due to assault fluctuated a little in the period, but remained close to 100 cases per 100,000 population (Figure 12.4). The rate was 98 cases per 100,000 population in 1999–00 compared with 94 in 2012–13 and no statistically significant upward or downward trend was present from 1999–00 to 2011–12 (95% CI: –0.5%, 1.0%). The predicted rate of assault injury in 2012–13 was 108 cases per 100,000 population based on the trend from 1999–00 to 2011–12.



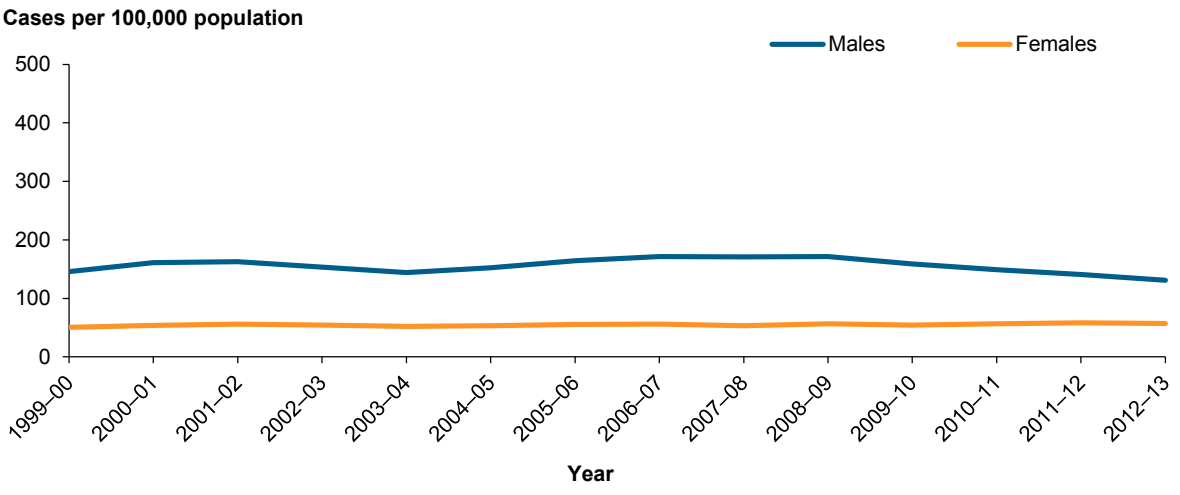
Notes

1. The solid line represents the modelled rate from 1999–00 to 2011–12. The filled symbols represent the observed age-standardised rate value for each year. The hollow symbol in the 2012–13 year is the predicted rate based on the trend from 1999–00 to 2011–12.
2. Data underpinning this figure are available in Table B.4 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.4: Modelled age-standardised rates of assault cases, Australia, 1999–00 to 2012–13

12.4 How have rates of assault varied by sex and age?

There was no marked change in age-standardised rates of assault for males or females over the period (Figure 12.5). Age-standardised rates of assault were higher for males in each year than females.



Notes

1. Data underpinning this figure are available in Table B.22 in 'Appendix B: Additional tables'.
2. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.5: Age-standardised rates of assault cases, by sex, Australia, 1999–00 to 2012–13

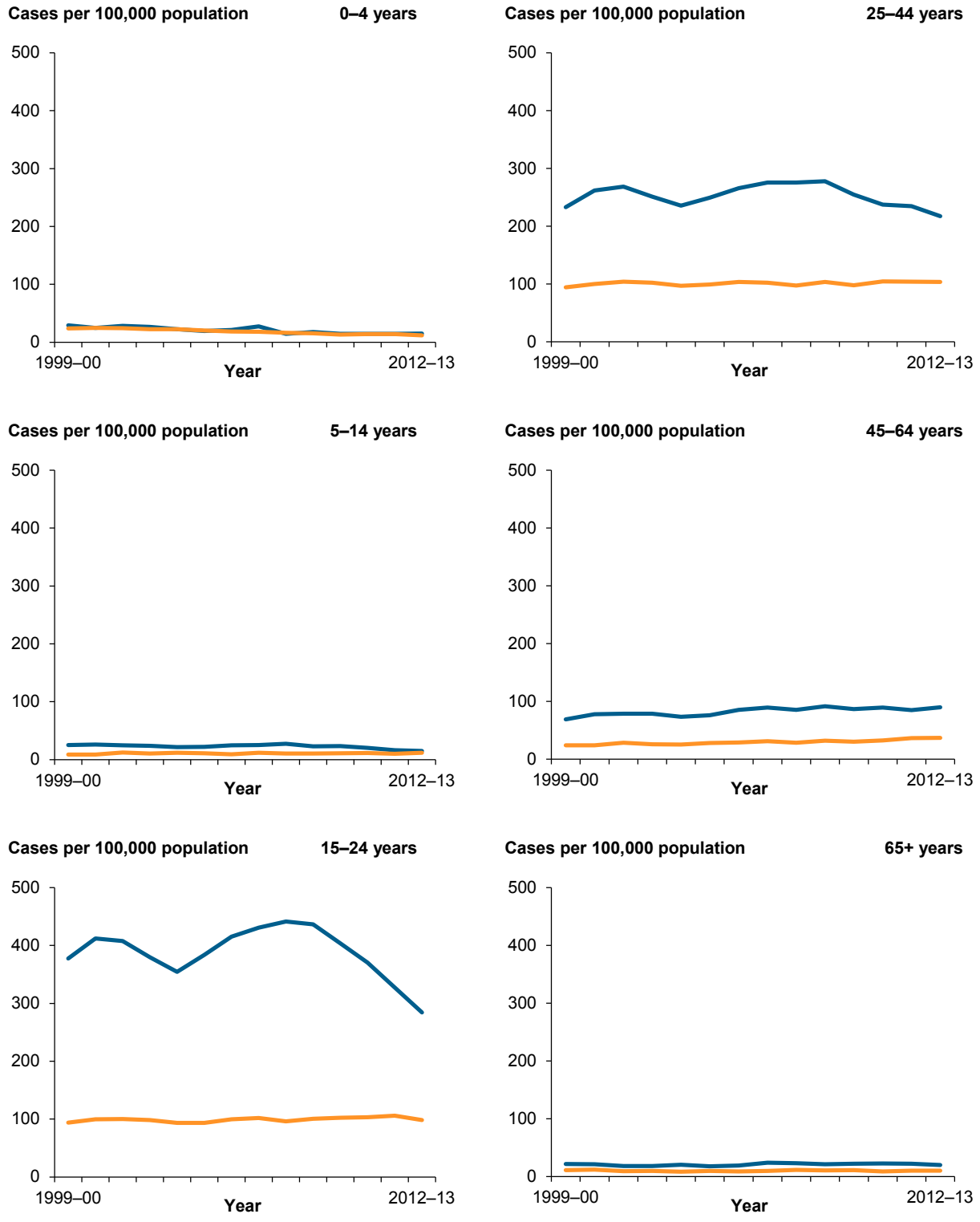
An examination of changes in rates of injury over time by broad age group as well as sex is shown in Figure 12.6. The figures show an additional two years of data since the publication of the previous *Trends in hospitalised injury* report (Pointer 2013). The effects of the change in emergency department admissions policy in Victoria are confined to the most recent year of these two years and readers should interpret any changes between these years with caution.

As can be seen in Figure 12.6, age-specific rates of assault vary by age and sex, with the highest rates for both males and females occurring between 15 and 44 years.

Age-specific rates of assault remained steady in very young children (0–4) for both girls and boys in the past 4 years, with an average rate of 15 cases per 100,000 population for boys and 13 per 100,000 for girls. There has been a decline, however, in the total number of cases of *Other maltreatment syndrome,* from 258 cases in 1999–00 to 101 in 2012–13.

Rates of injury in males aged 15–24, and to a lesser extent males aged 25–44, fluctuated over the period—although rates have been declining in 15–24 year old males since about 2008–09. In this latter age group the number of cases of *Assault by bodily force* decreased from 4,274 in 2008–09 to 2,959 in 2012–13, *Assault by sharp object* decreased from 963 cases in 2008–09 to 534 in 2012–13, and cases of *Assault by unspecified means* almost halved from 646 cases in 2008–09 to 368 cases in 2012–13.

Rates of assault in 45–64 year old women have risen slowly but consistently from the beginning of the period (24 cases per 100,000 population) to 28 per 100,000 in 2007–08, and reaching a high of 37 in 2012–13. It is not known how much of this change has been due to increased occurrences of assault or increased reporting by female victims in this age group.



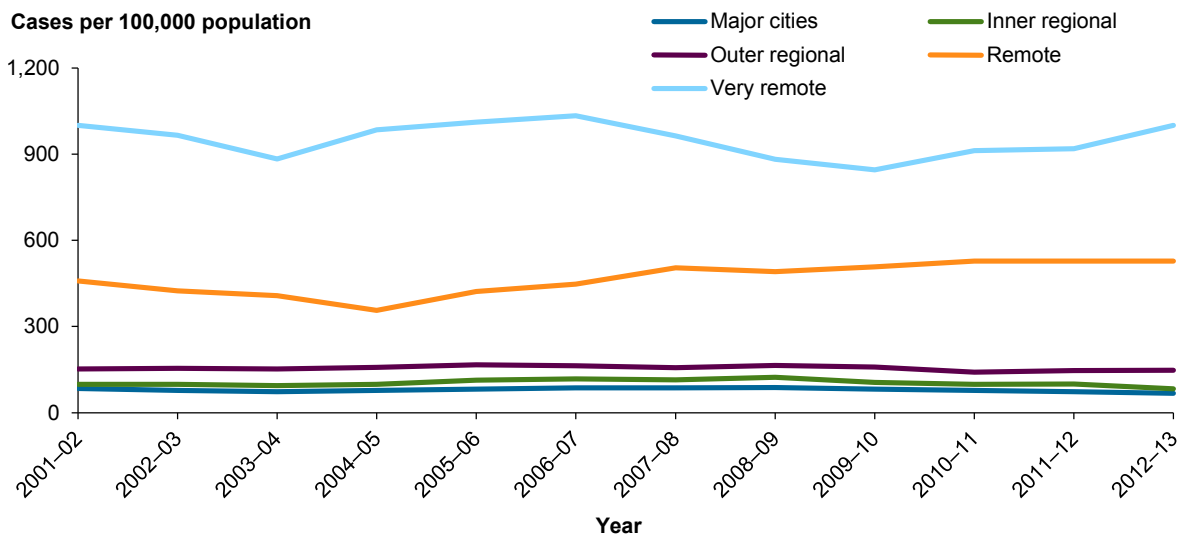
Notes

1. Rates for males are indicated by the blue line and rates for females by the orange line in all charts.
2. Data underpinning this figure are available in Tables B.22 and B.23 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.6: Age-specific rates of assault cases, by age and sex, Australia, 1999–00 to 2012–13

12.5 How have rates of assault varied by remoteness?

Age-standardised rates of assault were higher with increasing remoteness (Figure 12.7). Rates of assault were highest in *Very remote* areas. The lowest rates were in *Major cities,* and *Inner regional* and *Outer regional* areas, where no change over time was evident.

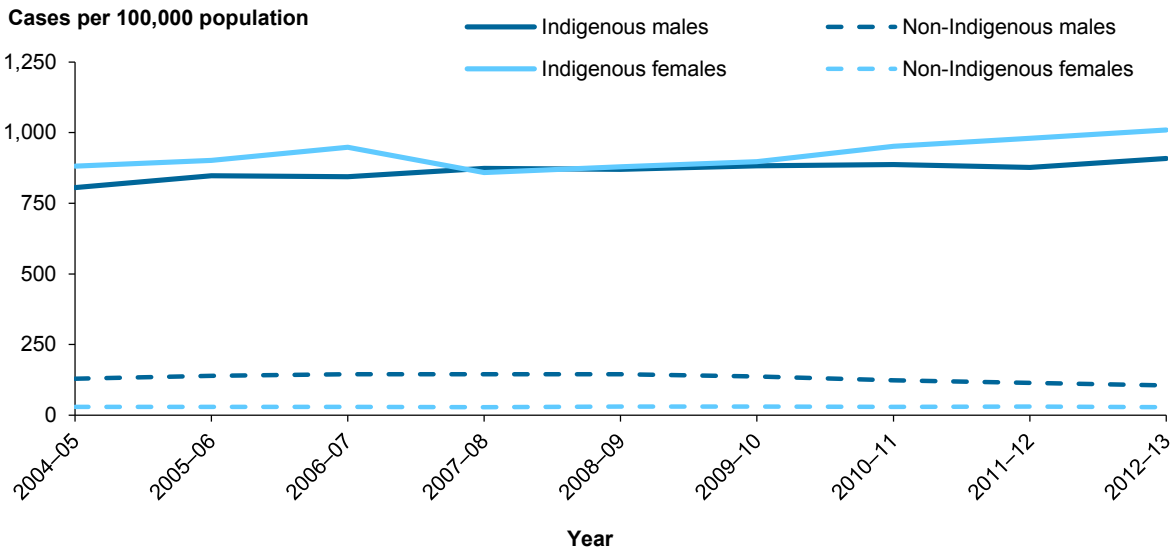


Note: Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.7: Age-standardised rates of assault cases, by remoteness of usual residence, Australia, 2001–02 to 2012–13

12.6 How have rates of assault in Indigenous people changed over time?

Age-standardised rates of assault are much higher among Indigenous people than non-Indigenous people and have risen over the 2004–05 to 2012–13 period (Figure 12.8). Rates of assault were higher for Indigenous females compared with males for most years. High rates for males and females were similar from 2007–08 to 2009–10.



Notes

1. Includes cases from six jurisdictions (WA, SA, NT, Qld, NSW and Vic) and excludes private hospitals within NT (see Box 1.2).
2. Data underpinning this figure are available in Table B.31 in 'Appendix B: Additional tables'.
3. Results for 2012–13 are likely to have been affected by the narrowing of Victorian policy on admissions (see Box 1.3).

Figure 12.8: Age-standardised rates of assault cases, by sex and Indigenous status, Australia, 2004–05 to 2012–13

Appendix A: Data issues

Data sources

The data on hospital separations are from the Australian Institute of Health and Welfare's National Hospital Morbidity Database (NHMD). Comprehensive information on the quality of the data for 2012–13 is available in *Australian hospital statistics 2012–13* (AIHW 2014) and the data quality statement below. Nearly all injury cases admitted to hospitals in Australia are included in the NHMD data reported.

In 2012–13, diagnoses and external cause injury and poisoning were recorded using the seventh edition of the *International statistical classification of diseases and related health problems, 10th revision, Australia modification* (ICD-10-AM). Data from 1999–2000 were coded to earlier editions of ICD-10-AM.

Denominators for most age-specific and age-standardised rates are estimated resident population (ERP) values as at 31 December of the relevant year. Australian ERPs for 30 June 2001 (persons, by five-year age groups to 85+ years) were used as the standardising population throughout the report (ABS 2003). Data from other sources, mostly based on ERPs, were used as denominators for rates by remoteness of usual residence and Indigenous people status (see Rates, below).

Selection criteria

This report is intended to describe the population incidence of injuries newly occurring that resulted 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 2012 to 30 June 2013 for the single-year analyses, and admitted patient episodes that ended in the period 1 July 1999 to 30 June 2013 for the trend analyses. Selection was 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 were small.

Injury

Injury separations were defined as records that contained a principal diagnosis in the ICD-10-AM range S00–T75 or T79 using *Chapter XIX Injury, poisoning and certain other consequences of external causes* codes. Nearly all injury separations were thought to be included in the data reported, representing minimal risk of sampling error.

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 or has a change in care type (for example, acute to rehabilitation) within the one hospital; 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 for the same injury, to the same hospital or another one.

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, which exists when a single incident injury case results in two or more NHMD records being generated, 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 began with inward transfer from another acute care hospital. Episodes of this type (inward transfers) are likely to have been preceded by another episode that also met the case selection criteria for injury cases, so are omitted from our estimated case counts.

This procedure should largely correct for over-estimation of cases due to transfers, but will not correct for over-estimation due to readmissions.

Length of stay

The patient days reported during the episodes that were omitted to reduce overestimation of incident cases are part of the hospital care provided to the incident cases and are therefore retained when calculating mean and total length of stay.

Note that length of stay as presented in this report does not include some patient days potentially attributable to injury. In particular, it does not include days for most aspects of injury rehabilitation, which were difficult to assign correctly without information enabling identification of all admitted episodes associated with an injury case.

Rates

Age-standardisation

Cases per 100,000 population are reported as directly age-standardised rates based on the Australian population as at 30 June of the year of interest. The Australian population as at 30 June 2001 was used as the reference population. Age-standardisation of rates enables valid comparison across years and/or jurisdictions without being affected by the differences in age distributions.

Changes in rates due to changes in underlying population data

All populations, except those used for analyses by Indigenous status, are based on the 2011 Census data. The age-standardised rates (per 100,000 population) presented in this report for the years 1999–00 to 2011–12 in time series tables have been calculated using 'rebased' estimated resident populations. Therefore, the separation rates reported for 1999–00 to

2011–12 in this report are not comparable to the separation rates presented in earlier hospitalised injury statistics reports.

Population denominators

General population

Where possible, rates were calculated using the final estimate of the resident population (ERP) as at 31 December in the relevant year as the denominator (for example, 31 December 2006 for 2006–07 data). Where tables of 31 December ERPs were not available but tables of 30 June ERPs were available, population denominators were calculated as the average of 30 June estimates for adjacent years. This method was used to produce denominators for rates by remoteness of usual residence.

Indigenous population

The population estimates used are from ABS 3238.0 (Series B) as issued on 30 April 2014, based on results of the 2011 Census of Population and Housing. The population for non-Indigenous Australians was based on the estimated resident populations as at 30 June 2012, based on the 2011 Census data.

Rates for Indigenous Australians in this report are only reported by financial year. Hence, all rates were calculated using, as the denominator, the final estimate of the estimated resident Indigenous population as at 31 December for the relevant period (for example, 31 December 2006 for 2006–07 cases). Since estimates of resident Indigenous populations are only provided for 30 June, estimates for 31 December are calculated by adding 2 consecutive 30 June estimates and dividing by 2 (for example, estimate for 31 December 2006 is calculated by adding estimates for 30 June 2006 and 30 June 2007 and dividing by 2.)

Estimated change in rates over time

Estimated trends in rates of separations were reported as annual percentage change obtained using negative binomial regression modelling using Stata 13 (StataCorp 2013).

The use of the terms 'significant' or 'significantly' throughout this report indicates an outcome that was *statistically* significant ($p = 0.05$ or less).

Population-based rates of injury tend to have a similar value in one year and the next. Exceptions to this can occur (for example due to a mass-casualty disaster) but are unusual in Australian injury data. Some year-to-year variation and other short-run fluctuations are to be expected, due to unknown and essentially random factors, and so small changes in rates over a short period normally do not provide a firm basis for asserting that a trend is present.

However, the period covered by this report (14 years) is long enough for noteworthy changes to occur. The fundamental questions concerning a series of annual estimates of population-based rates are whether they show a statistically significant rise or fall over the period and, if so, the average rate of change. Analysis in this report is limited to those characteristics of change.

For each type of injury for which estimates of change were made:

- Age-adjusted annual case numbers were obtained by multiplying age-adjusted unscaled rates by the Australian population in the corresponding year.

- Negative binomial regression, a method suitable for count-based data, was run with the adjusted case numbers as the dependent variable, year (as an integer, from 0 to the number of years of data) as an independent variable and annual population as the exposure. The relevant outputs are a modelled rate for each year and a model-based estimate of average annual change in rate and its 95% confidence interval (CI).

Interpretation: if the 95% CI around the point estimate for trend is entirely above zero then the rates have tended to rise; if the 95% CI is entirely below zero then the rates have tended to fall; otherwise it cannot be said with useful confidence that the age standardised rates tended to rise or to fall in the period considered.

Change in Victorian admissions policy

Counts of admitted cases depend, in part, on the criteria or policies used to specify admission. The definition used in Victoria changed, beginning with cases whose episode of hospital care ended on 1 July 2012. The effect of the change was to decrease the number of admitted cases compared with the count that would have been obtained if the former criterion had continued to be used. This change affects all types of cases that are cared for in the emergency department, including injury cases.

Information is not available that would allow calculation of the exact number of cases that would have been reported in 2012–13 under the former criterion. Nor has a method been identified that allows exact calculation of the number of cases that would have been counted in the years before 2012–13 if the new Victorian criterion had been applied then.

The effect of the change on case counts can, however, be estimated. Various methods can be used, and it is not evident that one method is superior to the others. One simple method is to project observed counts for Australia for a period ending in 2011–12 by one year, to 2012–13, and then compare the estimate obtained with the observed number. The estimates reported here are based on a negative binomial regression trend of annual age-adjusted rates based on national case counts to 2011–12. This method takes account of trends in the period to 2011–12. It is not sensitive to changes from 2011–12 to 2012–13 that differ markedly from the trend in the earlier period. If an upswing occurred in the last year, the projected estimate could be lower than the observed value. Where this occurred (drowning and poisoning by pharmaceuticals) the projected estimate was not reported.

Values for Victoria:

Observed (2012–13 compared with previous year): –21.5%

Expected (based on the trend from 1999–00 to 2011–12): +2.1%

Estimated reduction of 2012–13 count due to changed criterion: about –26,000 cases

The change in Victoria's emergency department admission policy may have had different effects on case numbers within different external cause categories. This is because different types of injury have a different likelihood of requiring prolonged care in an emergency department, but without an admission to a hospital ward.

Classification of remoteness area

Data on geographical location of the patient's usual residence and of the hospital location are defined using the Australian Bureau of Statistics (ABS) Australian Statistical Geography Standard (ASGS). Data on remoteness area of usual residence are defined using the ABS's

ASGS Remoteness Structure 2011 (ABS 2011). The period examined in this report is limited to 2001–02 to 2012–13 due to changes in the Remoteness Structure at the time of the 2006 Census (see ABS 2006).

Australia can be divided into several regions based on their distance from urban centres. This is considered to determine the range and types of services available. In this report, remoteness area refers to the place of usual residence of the person who was admitted to hospital, assigned on the basis of the reported Statistical Local Area (SLA) of residence.

The remoteness areas were specified according to the ABS Australian Standard Geographical Classification (ASGC). Remoteness categories were defined in a manner based on the Accessibility/Remoteness Index of Australia (ARIA). According to this method, remoteness is an index applicable to any point in Australia, based on road distance from urban centres of 5 sizes. The reported areas are defined as the following ranges of the index:

Major cities (for example, Sydney, Geelong, Gold Coast), ARIA index 0 to 0.2

Inner regional (for example, Hobart, Ballarat, Coffs Harbour), ARIA index >0.2 and ≤2.4

Outer regional (for example, Darwin, Cairns, Coonabarabran), ARIA index >2.4 and ≤5.92

Remote (for example, Alice Springs, Broome, Strahan), ARIA index of >5.92 and ≤10.53

Very remote (for example, Coober Pedy, Longreach, Exmouth), ARIA index >10.53.

Most SLAs lie entirely within 1 of the 5 areas. If this was so for all SLAs, then each record could simply be assigned to the area in which its SLA lies. However, some SLAs overlap 2 or more of the areas. Records with these SLAs were assigned to remoteness areas in proportion to the area-specific distribution of the resident population of the SLA according to the 2006 Census. Each record in the set having a particular SLA code was randomly assigned to one or other of the remoteness areas present in it, in proportion to the resident population of that SLA.

Indigenous status

In this report the term 'Indigenous people' is used to refer to persons identified as such in Australian hospital separations data and population data collections. For this report, the term 'non-Indigenous people' includes all separations for persons identified as not Indigenous and does not include separations where Indigenous status was not stated.

Quality of Indigenous status data

The AIHW report *Indigenous identification in hospital separations data: Quality report* (AIHW 2013) presents the latest findings on the quality of Indigenous identification in hospital separations data in Australia, based on studies conducted in public hospitals during 2011. Private hospitals were not included in the assessment. The results of the study indicate that, overall, the quality of Indigenous identification in hospital separations data was similar to that achieved in a previous study (AIHW 2010). However, the survey for the 2013 report was performed on larger samples for each jurisdiction/region and is therefore considered more robust than the previous study.

The report recommends using data from all jurisdictions in national analyses of Indigenous admitted patient care for data from 2010–11 onwards. Therefore the single year analyses (2012-13) contain data from all juristictions.

However, for time trend analyses, only the 6 jurisdictions that AIHW has assessed as having adequate identification of Indigenous hospitalised cases are included: New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only). Indigenous people in these 6 jurisdictions comprise approximately 96% of the Indigenous population of Australia.

The data presented on Indigenous status in this report should therefore be interpreted with some caution. Patterns of Indigenous hospitalised cases in the jurisdictions not included may not be the same as in those that are included. The single year results presented are not directly comparable with the final year result in the trends analyses due to the different jurisdictional inclusions. Future reports on trends in Indigenous hospitalised cases may show different patterns to what is being reported now if recommended changes outlined in the *Indigenous identification in hospital separations data* report (AIHW 2013) are adopted.

Suppression of small cell counts in data tables

The AIHW operates under a strict privacy regime, which has its basis in Section 29 of the *Australian Institute of Health and Welfare Act 1987* (AIHW Act). Section 29 of the AIHW Act requires that confidentiality of data relating to persons (living and deceased) and organisations be maintained. The Privacy Act governs confidentiality of information about living individuals.

The AIHW is committed to reporting that maximises the value of information released for users while being statistically reliable and meeting legislative requirements described above. Data (cells) in tables may be suppressed in order to maintain the privacy or confidentiality of a person or organisation, or because a proportion or other measure related to a small number of events and may therefore not be reliable.

Data have been suppressed to avoid attribute disclosure. Some measures have been suppressed if there were fewer than 100 separations in the category being presented (for example, for length of stay and separations rates). The abbreviation 'n.p.' has been used in tables to denote these suppressions. For these tables, the totals include the suppressed information.

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 the National Injury Surveillance Unit. 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.

Data quality statement: National Hospital Morbidity Database

This section provides a summary of key issues relevant to interpretation of the National Hospital Morbidity Database (NHMD). Further information on the quality of the data for earlier years is available in relevant editions of the AIHW's *Australian hospital statistics*.

The full AIHW Data Quality Statement for the NHMD is accessible at:

<http://meteor.aihw.gov.au/content/index.phtml/itemId/568730>.

Summary of key issues

- The National Hospital Morbidity Database (NHMD) is a comprehensive dataset that has records for all separations of admitted patients from essentially all public and private hospitals in Australia.
- A record is included for each separation, not for each patient, so patients who separated more than once in the year have more than one record in the NHMD.
- For 2012–13, almost all public hospitals provided data for the NHMD. The exception was a mothercraft hospital in the Australian Capital Territory. The great majority of private hospitals also provided data, the exceptions being the private free-standing day hospital facilities in the Australian Capital Territory, the single private free-standing day hospital in the Northern Territory, and a private free-standing day hospital in Victoria.
- Hospitals may be re-categorised as public or private between or within years.
- There is apparent variation between states and territories in the use of statistical discharges and associated assignment of care types. For example, for public hospitals, the proportion of separations ending with a statistical discharge varied from 0.9% to 3.9% across states and territories.
- There was variation between states and territories in the reporting of separations for Newborns (without qualified days).
- Data on state or territory of hospitalisation should be interpreted with caution because of cross-border flows of patients. This is particularly the case for the Australian Capital Territory. In 2012–13, about 20% of separations for Australian Capital Territory hospitals were for patients who resided in New South Wales.
- Variations in admission practices and policies lead to variation among providers in the number of admissions for some conditions.
- Caution should be used in comparing diagnosis, procedure and external cause data over time, as the classifications and coding standards for those data can change over time.
- The Indigenous status data in the NHMD for all states and territories are considered of sufficient quality for statistical reporting for 2010–11, 2011–12 and 2012–13. In 2011–12, an estimated 88% of Indigenous patients were correctly identified in public hospitals. The overall quality of the data provided for Indigenous status is considered to be in need of some improvement and varied between states and territories.

Appendix B: Additional tables

Table B.1: Age standardised[a] rates for injury, by sex, Australia, 1999–00 to 2012–13

	Males	Females	Persons[b]	Modelled rate (based on 1999–00 to 2012–13)[c]	Modelled rate (based on 1999–00 to 2011–12)[d]
1999–00	2,083	1,351	1,736	1,712	1,705
2000–01	2,093	1,361	1,745	1,728	1,723
2001–02	2,101	1,372	1,755	1,745	1,742
2002–03	2,075	1,366	1,738	1,762	1,760
2003–04	2,063	1,368	1,733	1,779	1,779
2004–05	2,115	1,385	1,766	1,796	1,798
2005–06	2,169	1,420	1,811	1,813	1,817
2006–07	2,223	1,442	1,849	1,831	1,836
2007–08	2,228	1,435	1,848	1,848	1,856
2008–09	2,257	1,487	1,889	1,866	1,876
2009–10	2,244	1,494	1,885	1,884	1,896
2010–11	2,274	1,545	1,925	1,902	1,916
2011–12	2,304	1,585	1,960	1,921	1,936
2012–13	2,204	1,544	1,888	1,939	1,957[e]

(a) Age-standardised to the 2001 Australian population (per 100,000).

(b) Persons totals include separations for which sex was not reported.

(c) Negative binomial regression modelled rate using 1999–00 to 2012–13.

(d) Negative binomial regression modelled rate using 1999–00 to 2011–12.

(e) Predicted rate of injury based on modelling using 1999–00 to 2011–12 data.

Table B.2: Injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	11,634	26,154	42,548	62,219	28,834	22,009	193,399	8,770	13,855	15,884	28,516	19,757	47,029	133,811
2000–01	11,297	25,742	42,676	63,530	30,302	22,671	196,222	8,287	13,907	16,309	29,158	20,958	48,613	137,235
2001–02	11,316	26,023	42,830	63,610	31,579	24,081	199,443	8,420	13,622	16,417	29,637	21,672	51,181	140,955
2002–03	11,092	25,876	42,342	62,234	32,241	25,125	198,917	8,195	13,883	16,308	28,696	22,432	52,990	142,507
2003–04	10,629	25,598	42,861	61,589	33,160	26,224	200,061	7,978	13,878	16,945	28,442	23,201	54,341	144,785
2004–05	10,679	25,627	44,632	63,867	35,205	27,613	207,624	7,866	13,691	17,937	29,046	24,830	55,261	148,631
2005–06	10,865	25,273	47,411	65,420	37,535	29,654	216,158	8,184	13,691	18,371	30,039	26,497	58,351	155,133
2006–07	11,138	26,183	48,993	67,653	39,566	31,764	225,297	8,101	13,953	18,767	30,725	27,470	61,889	160,905
2007–08	10,820	25,722	50,262	68,464	41,682	33,726	230,676	8,061	13,184	18,544	31,108	29,178	63,748	163,823
2008–09	11,474	25,219	51,276	71,324	44,377	35,675	239,345	8,589	13,249	19,894	33,019	31,366	67,520	173,637
2009–10	11,902	25,345	50,350	71,061	45,396	38,424	242,478	8,817	13,368	19,956	32,517	32,715	71,213	178,586
2010–11	11,912	24,683	50,467	71,152	48,512	42,729	249,455	8,708	13,417	20,567	34,118	34,593	77,518	188,921
2011–12	11,999	25,221	50,206	73,806	49,917	45,667	256,816	9,020	13,889	21,861	35,373	35,908	81,159	197,210
2012–13	11,850	24,311	46,763	70,976	49,229	47,310	250,440	8,795	14,041	21,082	34,397	35,429	82,489	196,233

Table B.3: Injury cases, by age and year, persons, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	20,404	40,009	58,432	90,736	48,591	69,038	327,211
2000–01	19,584	39,649	58,985	92,692	51,260	71,284	333,461
2001–02	19,736	39,647	59,250	93,248	53,252	75,262	340,405
2002–03	19,289	39,759	58,652	90,931	54,674	78,115	341,432
2003–04	18,608	39,477	59,806	90,032	56,361	80,565	344,849
2004–05	18,545	39,319	62,569	92,913	60,037	82,876	356,260
2005–06	19,051	38,964	65,783	95,461	64,033	88,005	371,297
2006–07	19,239	40,136	67,761	98,381	67,036	93,655	386,208
2007–08	18,881	38,906	68,807	99,576	70,861	97,474	394,505
2008–09	20,063	38,468	71,170	104,344	75,745	103,195	412,985
2009–10	20,719	38,713	70,306	103,578	78,111	109,638	421,065
2010–11	20,620	38,101	71,035	105,271	83,105	120,247	438,382
2011–12	21,019	39,110	72,069	109,181	85,825	126,827	454,031
2012–13	20,645	38,352	67,846	105,375	84,658	129,799	446,680

Table B.4: Age-standardised rates of injury, by external cause and year, Australia, 1999–00 to 2012–13

	Transport crash		Drowning and submersion		Poisoning, pharmaceuticals		Poisoning, other substances		Falls		Thermal causes		Other unintentional causes		Intentional self-harm		Assault	
	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate	Rate	Mod. rate
1999–00	251.0	250.9	2.6	2.5	49.8	..	15.1	15.1	605.8	..	27.8	27.3	545.4	530.0	106.0	..	98.4	104.7
2000–01	248.4	250.9	2.7	2.5	44.3	..	14.7	14.6	599.0	..	27.7	27.3	543.4	538.3	117.5	115.6	107.5	105.0
2001–02	252.0	251.0	2.4	2.5	40.0	..	14.1	14.1	596.9	..	27.7	27.3	545.2	546.7	116.4	116.1	109.6	105.2
2002–03	239.4	251.0	2.2	2.5	41.5	..	14.3	13.6	590.1	590.6	26.1	27.2	541.4	555.3	114.9	116.5	104.2	105.5
2003–04	245.6	251.1	2.5	2.4	38.7	..	13.6	13.1	612.8	605.0	26.1	27.2	553.2	564.0	116.3	116.9	98.3	105.8
2004–05	255.6	251.1	2.3	2.4	34.2	..	11.6	12.6	617.4	619.8	27.3	27.2	564.3	572.8	119.8	117.4	103.0	106.1
2005–06	258.6	251.2	2.5	2.4	31.4	31.3	11.9	12.1	630.8	634.8	27.2	27.2	588.4	581.8	117.9	117.8	110.0	106.3
2006–07	262.9	251.2	2.5	2.3	31.1	31.0	10.8	11.7	654.0	650.3	27.4	27.2	598.1	590.9	116.2	118.3	114.1	106.6
2007–08	257.1	251.3	2.2	2.3	31.1	30.8	10.7	11.3	660.7	666.1	27.9	27.2	597.1	600.2	114.5	118.7	112.6	106.9
2008–09	259.8	251.3	2.2	2.3	30.5	30.6	11.7	10.9	676.9	682.4	27.0	27.2	605.4	609.6	120.2	119.2	114.5	107.2
2009–10	248.9	251.4	2.5	2.3	29.9	30.4	10.9	10.5	694.4	699.0	27.2	27.2	607.6	619.1	121.5	119.7	107.0	107.4
2010–11	239.9	251.4	2.3	2.2	29.4	30.1	10.0	10.1	724.9	716.0	27.5	27.2	634.0	628.8	119.0	120.1	103.5	107.7
2011–12	246.4	251.5	2.1	2.2	30.9	29.9	9.7	9.7	735.5	733.4	26.9	27.2	652.9	638.7	122.6	120.6	99.8	108.0
2012–13	239.6	251.5	2.4	..	31.3	..	8.5	9.4	713.6	751.3	25.7	27.1	622.5	648.7	121.2	121.0	94.3	108.3

Notes

1. Rate is age-standardised to the 2001 Australian population (per 100,000).
2. 'Mod. rate' is the predicted rate of injury based on modelling data to 2011–12, and projecting the trend to 2012–13.

Table B.5: Transport crash injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	725	5,285	9,339	10,832	4,098	1,914	32,194	477	2,400	3,550	4,231	2,590	2,156	15,404
2000–01	680	4,910	9,361	11,174	4,334	1,885	32,344	404	2,273	3,574	4,265	2,604	2,082	15,202
2001–02	697	5,004	9,559	11,448	4,666	2,042	33,416	390	2,174	3,630	4,379	2,699	2,113	15,386
2002–03	647	4,876	8,924	10,706	4,633	1,992	31,779	379	2,179	3,535	4,114	2,721	2,127	15,055
2003–04	595	5,073	9,221	11,127	4,951	2,151	33,118	345	2,177	3,621	4,241	2,821	2,203	15,408
2004–05	603	5,227	9,713	11,671	5,302	2,252	34,769	363	2,356	3,730	4,461	3,074	2,297	16,281
2005–06	632	5,043	9,935	12,079	5,797	2,316	35,802	358	2,170	3,971	4,521	3,148	2,313	16,481
2006–07	561	5,393	10,109	12,612	6,090	2,326	37,091	316	2,171	3,955	4,664	3,251	2,470	16,827
2007–08	554	5,027	10,148	12,570	6,625	2,459	37,383	330	1,919	3,687	4,642	3,293	2,439	16,310
2008–09	533	4,607	10,490	13,036	7,246	2,570	38,482	311	1,848	3,924	4,794	3,608	2,557	17,042
2009–10	547	4,342	9,570	12,467	7,330	2,812	37,068	296	1,851	3,701	4,847	3,649	2,698	17,042
2010–11	515	3,541	9,197	11,887	7,648	2,870	35,658	299	1,594	3,918	4,829	3,841	2,850	17,331
2011–12	510	3,570	9,223	12,597	8,091	3,228	37,219	320	1,594	3,922	5,127	4,077	2,941	17,981
2012–13	467	3,455	8,982	12,573	8,047	3,353	36,877	331	1,640	3,725	5,041	3,964	3,027	17,728

Table B.6: Transport crash injury cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	1,202	7,685	12,889	15,064	6,688	4,070	47,599
2000–01	1,084	7,183	12,935	15,439	6,938	3,967	47,546
2001–02	1,087	7,178	13,190	15,827	7,365	4,155	48,803
2002–03	1,026	7,055	12,459	14,820	7,354	4,119	46,834
2003–04	941	7,251	12,842	15,368	7,772	4,354	48,528
2004–05	966	7,583	13,443	16,132	8,377	4,550	51,052
2005–06	991	7,213	13,907	16,600	8,946	4,629	52,286
2006–07	877	7,564	14,065	17,276	9,341	4,796	53,919
2007–08	884	6,946	13,835	17,212	9,918	4,898	53,693
2008–09	844	6,455	14,414	17,830	10,855	5,127	55,525
2009–10	843	6,193	13,271	17,314	10,979	5,510	54,110
2010–11	814	5,135	13,115	16,716	11,489	5,720	52,989
2011–12	830	5,164	13,145	17,724	12,168	6,169	55,200
2012–13	798	5,095	12,707	17,615	12,011	6,380	54,606

Table B.7: Drowning and submersion cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	156	45	35	62	24	7	329	102	21	13	15	13	4	168
2000–01	158	45	41	69	22	16	351	102	17	12	11	13	6	161
2001–02	144	26	41	46	33	18	308	96	20	13	9	10	6	154
2002–03	127	20	41	56	38	8	290	69	21	10	9	14	10	133
2003–04	125	42	41	41	42	21	312	102	22	15	15	17	11	182
2004–05	123	33	42	45	35	12	290	89	27	17	8	11	14	166
2005–06	137	35	53	58	38	14	335	95	20	12	10	15	8	160
2006–07	137	42	43	68	32	24	346	82	26	13	11	13	7	152
2007–08	131	37	38	68	30	13	317	64	16	15	15	16	7	133
2008–09	121	43	38	59	37	25	323	74	24	10	22	12	10	152
2009–10	130	34	57	63	44	30	358	103	22	9	19	18	11	182
2010–11	119	29	39	60	46	18	311	93	27	14	19	16	15	184
2011–12	107	43	43	55	27	26	301	74	13	13	17	30	14	161
2012–13	122	55	49	77	35	24	362	75	28	25	26	18	10	182

Table B.8: Drowning and submersion cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	258	66	48	77	37	11	497
2000–01	260	62	53	80	35	22	512
2001–02	240	46	54	55	43	24	462
2002–03	196	41	51	65	52	18	423
2003–04	227	64	56	56	59	32	494
2004–05	212	60	59	53	46	26	456
2005–06	232	55	65	68	53	22	495
2006–07	219	68	56	79	45	31	498
2007–08	195	53	53	83	46	20	450
2008–09	195	67	48	81	49	35	475
2009–10	233	56	66	82	62	41	540
2010–11	212	56	53	79	62	33	495
2011–12	181	56	56	72	57	40	462
2012–13	197	83	74	103	53	34	544

Table B.9: Poisoning by pharmaceuticals cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	1,237	162	968	1,667	461	270	4,765	1,003	150	1,054	1,593	557	381	4,738
2000–01	1,121	152	784	1,424	432	256	4,169	954	151	919	1,333	521	445	4,323
2001–02	1,046	139	607	1,169	393	259	3,614	910	176	840	1,249	538	402	4,115
2002–03	985	125	601	1,217	472	319	3,720	928	133	896	1,314	607	507	4,385
2003–04	867	137	606	1,172	484	348	3,614	769	146	805	1,176	607	496	3,999
2004–05	800	117	437	972	429	332	3,087	681	150	742	993	596	561	3,723
2005–06	673	105	437	914	398	390	2,917	647	112	670	905	526	581	3,441
2006–07	745	102	417	858	441	376	2,939	651	110	632	913	560	599	3,465
2007–08	731	115	430	909	485	400	3,070	668	118	612	900	569	616	3,483
2008–09	757	96	397	974	488	458	3,170	654	103	636	846	608	575	3,422
2009–10	727	109	454	956	545	451	3,242	595	88	587	861	599	632	3,362
2010–11	615	93	422	1,051	559	557	3,297	534	98	541	832	568	728	3,301
2011–12	568	108	467	1,103	630	697	3,573	485	106	551	882	630	822	3,476
2012–13	535	107	499	1,081	735	655	3,612	480	124	545	954	686	875	3,664

Table B.10: Poisoning by pharmaceuticals cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	2,240	312	2,022	3,260	1,018	651	9,503
2000–01	2,075	303	1,703	2,757	953	701	8,492
2001–02	1,956	315	1,448	2,418	931	661	7,730
2002–03	1,913	258	1,497	2,531	1,079	826	8,105
2003–04	1,636	283	1,411	2,348	1,091	844	7,613
2004–05	1,481	267	1,179	1,965	1,025	893	6,810
2005–06	1,320	217	1,107	1,819	924	971	6,358
2006–07	1,396	212	1,049	1,771	1,001	975	6,404
2007–08	1,399	233	1,042	1,809	1,054	1,016	6,553
2008–09	1,411	199	1,033	1,820	1,096	1,033	6,592
2009–10	1,322	197	1,041	1,817	1,144	1,083	6,604
2010–11	1,149	191	963	1,883	1,127	1,285	6,598
2011–12	1,053	214	1,018	1,985	1,260	1,519	7,049
2012–13	1,015	231	1,044	2,035	1,421	1,530	7,276

Table B.11: Poisoning by other substances cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	426	107	287	611	265	89	1,785	352	58	175	266	159	82	1,092
2000–01	407	99	263	617	314	116	1,816	300	67	156	254	149	84	1,010
2001–02	386	108	273	521	261	126	1,675	277	60	167	258	166	121	1,049
2002–03	346	96	301	565	288	86	1,682	266	80	203	275	187	104	1,115
2003–04	326	112	283	510	316	99	1,646	232	63	177	262	170	123	1,027
2004–05	243	70	238	477	239	113	1,380	178	42	191	236	165	127	939
2005–06	252	80	247	423	289	131	1,422	185	37	177	257	171	150	977
2006–07	254	78	239	404	251	131	1,357	133	53	154	228	175	107	850
2007–08	209	57	264	432	298	117	1,377	172	46	159	219	163	125	884
2008–09	296	68	239	480	320	145	1,548	151	49	168	265	202	136	971
2009–10	220	73	266	476	288	160	1,483	171	44	138	238	175	158	924
2010–11	221	44	240	466	302	127	1,400	161	44	114	200	194	129	842
2011–12	203	58	228	464	280	138	1,371	152	44	125	222	171	101	815
2012–13	252	54	170	357	292	126	1,251	147	40	105	181	125	101	699

Table B.12: Poisoning by other substances cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	778	165	462	877	424	171	2,877
2000–01	707	166	419	871	463	200	2,826
2001–02	663	168	440	779	427	247	2,724
2002–03	612	176	504	840	475	190	2,797
2003–04	558	175	460	772	486	222	2,673
2004–05	421	112	429	713	404	240	2,319
2005–06	437	117	424	680	460	281	2,399
2006–07	387	131	393	632	426	238	2,207
2007–08	381	103	423	651	461	242	2,261
2008–09	447	117	407	745	522	281	2,519
2009–10	391	117	404	714	463	318	2,407
2010–11	382	88	354	666	496	256	2,242
2011–12	355	102	353	686	451	239	2,186
2012–13	399	94	275	538	417	227	1,950

Table B.13: Fall injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	3,991	11,152	6,277	8,678	7,487	13,743	51,328	3,179	6,517	1,773	4,642	8,043	37,265	61,419
2000–01	3,932	11,107	5,939	8,558	7,570	14,329	51,435	2,896	6,462	1,818	4,503	8,270	38,611	62,562
2001–02	3,874	10,686	5,834	8,467	7,835	15,165	51,861	2,916	6,063	1,797	4,506	8,395	40,596	64,274
2002–03	3,798	10,569	5,846	8,158	7,931	15,652	51,954	2,886	6,159	1,714	4,345	8,474	41,306	64,886
2003–04	3,879	10,852	6,144	8,437	8,555	16,784	54,651	3,042	6,433	1,832	4,569	9,242	43,726	68,844
2004–05	4,035	10,750	6,273	8,765	9,003	18,038	56,864	3,075	6,013	1,783	4,613	9,846	44,670	70,000
2005–06	4,230	10,388	6,175	8,588	9,476	19,500	58,357	3,165	6,169	1,987	4,993	10,635	47,322	74,271
2006–07	4,449	10,733	6,624	8,922	10,013	21,362	62,103	3,305	6,441	2,141	5,262	11,163	50,426	78,738
2007–08	4,186	10,896	6,936	9,358	10,482	22,481	64,339	3,264	6,153	2,341	5,500	12,194	51,990	81,442
2008–09	4,584	11,112	7,454	9,657	10,956	23,570	67,333	3,441	6,322	2,456	5,744	12,850	55,040	85,853
2009–10	4,856	11,317	7,553	10,156	11,519	25,597	70,998	3,770	6,431	2,504	5,867	13,406	58,171	90,149
2010–11	4,903	11,480	7,732	10,181	12,507	28,992	75,795	3,614	6,543	2,508	6,465	14,531	63,158	96,819
2011–12	5,180	11,767	7,737	10,430	12,845	30,420	78,379	3,942	6,764	2,757	6,508	14,943	65,965	100,879
2012–13	5,197	11,385	7,188	9,900	12,452	31,735	77,857	3,887	6,514	2,595	6,324	14,631	66,969	100,920

Table B.14: Fall injury cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	7,170	17,669	8,050	13,320	15,530	51,008	112,747
2000–01	6,828	17,569	7,757	13,062	15,840	52,940	113,998
2001–02	6,790	16,750	7,631	12,973	16,230	55,761	116,136
2002–03	6,686	16,728	7,560	12,503	16,405	56,958	116,844
2003–04	6,921	17,285	7,976	13,006	17,797	60,510	123,495
2004–05	7,110	16,764	8,056	13,378	18,849	62,709	126,866
2005–06	7,396	16,557	8,162	13,581	20,111	66,822	132,629
2006–07	7,754	17,174	8,765	14,184	21,176	71,790	140,843
2007–08	7,450	17,049	9,277	14,858	22,676	74,471	145,781
2008–09	8,025	17,434	9,910	15,401	23,806	78,610	153,186
2009–10	8,626	17,748	10,057	16,023	24,925	83,768	161,147
2010–11	8,517	18,023	10,240	16,646	27,038	92,150	172,616
2011–12	9,122	18,531	10,494	16,938	27,788	96,385	179,258
2012–13	9,084	17,899	9,783	16,224	27,083	98,704	178,780

Table B.15: Thermal causes of injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	874	431	681	939	458	216	3,599	575	196	176	325	198	215	1,685
2000–01	866	390	648	940	457	206	3,507	559	216	196	378	225	232	1,806
2001–02	875	421	571	895	475	255	3,492	633	198	178	382	250	224	1,865
2002–03	840	326	553	906	511	232	3,368	524	194	152	393	238	228	1,729
2003–04	865	383	603	850	488	203	3,392	550	235	193	330	215	205	1,728
2004–05	826	428	589	913	466	250	3,472	558	264	208	398	260	242	1,930
2005–06	811	373	652	916	518	273	3,543	622	236	197	382	275	203	1,915
2006–07	840	437	633	920	492	267	3,589	572	228	249	427	269	241	1,986
2007–08	927	425	683	904	555	247	3,741	622	259	233	435	289	231	2,069
2008–09	886	403	649	876	637	271	3,722	678	254	226	398	289	201	2,046
2009–10	976	375	660	971	619	266	3,867	629	240	224	422	327	224	2,066
2010–11	871	433	693	984	676	266	3,923	617	235	258	446	326	253	2,135
2011–12	699	389	718	1,051	643	309	3,809	555	213	269	459	392	331	2,219
2012–13	731	345	649	1,038	719	318	3,800	492	182	266	461	370	286	2,057

Table B.16: Thermal causes of injury cases, by age and year, Australia 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	1,449	627	857	1,264	656	431	5,284
2000–01	1,425	606	844	1,318	682	438	5,313
2001–02	1,508	620	749	1,277	725	479	5,358
2002–03	1,364	520	705	1,299	749	460	5,097
2003–04	1,415	618	796	1,180	703	408	5,120
2004–05	1,384	692	797	1,311	726	492	5,402
2005–06	1,433	609	849	1,298	793	476	5,458
2006–07	1,412	665	882	1,347	761	508	5,575
2007–08	1,549	684	917	1,339	844	478	5,811
2008–09	1,564	657	875	1,274	926	472	5,768
2009–10	1,605	615	884	1,393	946	490	5,933
2010–11	1,488	668	951	1,430	1,002	519	6,058
2011–12	1,254	602	987	1,510	1,035	640	6,028
2012–13	1,223	527	915	1,499	1,089	604	5,857

Table B.17: Age-standardised rates[(a)] of selected types of other unintentional injury cases, by sex, Australia, 1999–00 to 2012–13

	Other unintentional injury				
	Exposure to inanimate mechanical forces	Exposure to animate mechanical forces	Contact with venomous animals and plants	Overexertion, travel and privation	Accidental exposure to other and unspecified factors
1999–00	275	61	17	43	137
2000–01	265	57	18	43	149
2001–02	264	56	17	43	154
2002–03	257	55	16	42	159
2003–04	259	58	16	43	164
2004–05	263	61	15	44	168
2005–06	271	66	16	45	179
2006–07	271	67	15	48	186
2007–08	270	65	14	48	188
2008–09	273	68	14	50	189
2009–10	275	71	14	49	189
2010–11	290	76	15	51	193
2011–12	302	78	14	51	199
2012–13	277	76	14	51	195

(a) Rate is age-standardised to the 2001 Australian population (per 100,000).

Table B.18: Other unintentional injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	3,939	8,374	17,478	26,998	12,572	4,641	74,002	2,855	3,959	4,067	7,904	5,224	5,415	29,424
2000–01	3,836	8,316	17,282	26,732	13,126	4,662	73,955	2,820	4,068	3,997	7,840	5,751	5,606	30,082
2001–02	3,825	8,430	17,409	26,757	13,534	5,012	74,969	2,818	4,011	4,086	7,919	5,827	5,993	30,655
2002–03	3,730	8,357	17,616	26,804	13,815	5,142	75,466	2,718	4,052	3,813	7,772	6,080	6,107	30,542
2003–04	3,751	8,483	18,574	27,173	14,498	5,509	77,988	2,751	4,057	4,102	7,938	6,326	6,347	31,521
2004–05	3,855	8,479	19,252	28,021	15,355	5,502	80,464	2,743	4,059	4,386	8,194	6,786	6,231	32,399
2005–06	3,931	8,694	21,154	28,960	16,280	5,815	84,834	2,940	4,228	4,616	8,659	7,335	6,641	34,419
2006–07	3,902	8,848	21,833	29,866	17,381	6,040	87,870	2,875	4,177	4,887	8,788	7,706	6,856	35,289
2007–08	3,918	8,590	22,239	30,077	18,269	6,629	89,722	2,784	4,053	4,774	8,860	8,162	7,127	35,760
2008–09	4,072	8,323	22,156	31,184	19,179	7,214	92,128	3,112	3,992	5,128	9,457	8,610	7,733	38,032
2009–10	4,233	8,499	22,375	31,622	19,626	7,727	94,082	3,086	3,949	5,363	9,491	9,238	7,855	38,982
2010–11	4,459	8,513	23,155	32,942	21,067	8,326	98,462	3,218	4,162	5,650	10,436	9,851	9,069	42,386
2011–12	4,526	8,808	23,529	34,403	21,950	9,308	102,524	3,328	4,364	6,001	11,090	10,345	9,501	44,629
2012–13	4,346	8,455	21,634	33,173	21,300	9,523	98,431	3,242	4,303	5,772	10,961	10,249	9,820	44,347

Table B.19: Other unintentional injury cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	6,794	12,333	21,545	34,902	17,796	10,056	103,426
2000–01	6,656	12,384	21,279	34,574	18,877	10,268	104,039
2001–02	6,643	12,441	21,495	34,676	19,362	11,005	105,625
2002–03	6,448	12,409	21,430	34,576	19,896	11,249	106,010
2003–04	6,502	12,540	22,676	35,112	20,824	11,856	109,510
2004–05	6,598	12,538	23,638	36,215	22,142	11,733	112,864
2005–06	6,871	12,922	25,770	37,619	23,615	12,456	119,253
2006–07	6,777	13,025	26,720	38,654	25,087	12,896	123,159
2007–08	6,702	12,643	27,013	38,937	26,431	13,756	125,482
2008–09	7,184	12,315	27,284	40,642	27,790	14,947	130,162
2009–10	7,319	12,448	27,738	41,113	28,864	15,583	133,065
2010–11	7,677	12,676	28,805	43,378	30,918	17,395	140,850
2011–12	7,854	13,172	29,530	45,493	32,295	18,809	147,153
2012–13	7,588	12,758	27,406	44,135	31,549	19,343	142,780

Table B.20: Intentional self-harm injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males						Females					
	0–14	15–24	25–44	45–64	65+	Total	0–14	15–24	25–44	45–64	65+	Total
1999–00	91	1,903	4,565	1,396	311	8,266	337	3,407	5,843	1,909	404	11,900
2000–01	88	2,095	4,997	1,636	338	9,157	370	3,775	6,642	2,208	360	13,356
2001–02	97	1,917	4,882	1,657	363	8,916	388	3,776	6,726	2,332	396	13,621
2002–03	114	1,900	4,639	1,640	438	8,731	416	3,995	6,270	2,644	415	13,741
2003–04	118	2,004	4,568	1,643	390	8,723	475	4,421	6,224	2,648	462	14,230
2004–05	117	2,095	4,593	1,795	417	9,017	535	4,853	6,214	2,806	458	14,866
2005–06	114	2,102	4,530	1,919	438	9,103	513	4,597	6,144	2,937	478	14,669
2006–07	98	2,090	4,539	1,937	414	9,078	481	4,531	6,231	2,914	535	14,692
2007–08	75	2,133	4,415	2,016	451	9,090	376	4,533	6,334	3,010	527	14,780
2008–09	101	2,122	4,793	2,139	485	9,640	382	4,873	6,809	3,384	532	15,980
2009–10	110	2,219	4,895	2,133	492	9,849	496	5,082	6,667	3,662	575	16,482
2010–11	108	2,319	4,551	2,230	540	9,748	457	5,278	6,479	3,487	613	16,314
2011–12	113	2,337	4,652	2,287	554	9,943	548	5,878	6,601	3,519	619	17,165
2012–13	134	2,438	4,338	2,298	551	9,759	943	5,981	6,150	3,603	663	17,340

Table B.21: Intentional self-harm injury cases, by age and year, Australia, 1999–00 to 2012–13

	Persons					
	0–14	15–24	25–44	45–64	65+	Total
1999–00	428	5,310	10,408	3,305	715	20,166
2000–01	458	5,870	11,639	3,844	698	22,513
2001–02	485	5,693	11,609	3,989	759	22,538
2002–03	530	5,895	10,909	4,284	853	22,472
2003–04	593	6,425	10,792	4,291	852	22,953
2004–05	652	6,948	10,807	4,601	875	23,883
2005–06	627	6,699	10,676	4,856	916	23,774
2006–07	579	6,621	10,773	4,851	949	23,773
2007–08	451	6,666	10,752	5,026	978	23,873
2008–09	483	6,995	11,602	5,523	1,017	25,620
2009–10	606	7,301	11,562	5,795	1,067	26,331
2010–11	565	7,597	11,030	5,717	1,153	26,062
2011–12	661	8,217	11,255	5,806	1,173	27,112
2012–13	1077	8,420	10,488	5,901	1,214	27,100

Table B.22: Assault injury cases, by sex, age and year, Australia, 1999–00 to 2012–13

	Males							Females						
	0–4	5–14	15–24	25–44	45–64	65+	Total	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	191	343	4,961	6,710	1,485	224	13,914	147	115	1,192	2,741	509	144	4,848
2000–01	162	360	5,460	7,545	1,718	224	15,469	153	111	1,276	2,920	528	162	5,150
2001–02	185	339	5,492	7,758	1,790	200	15,765	150	162	1,304	3,048	638	130	5,432
2002–03	172	331	5,190	7,285	1,825	204	15,008	138	135	1,298	2,996	595	136	5,298
2003–04	147	302	4,924	6,846	1,748	233	14,200	139	155	1,248	2,849	608	122	5,121
2004–05	126	305	5,417	7,250	1,856	205	15,159	126	144	1,269	2,903	683	141	5,266
2005–06	140	341	5,961	7,773	2,129	229	16,573	116	123	1,371	3,045	727	127	5,509
2006–07	186	350	6,308	8,133	2,280	292	17,549	116	155	1,426	3,037	801	146	5,681
2007–08	100	382	6,631	8,238	2,236	288	17,875	108	139	1,377	2,928	748	179	5,479
2008–09	127	319	6,748	8,495	2,448	278	18,415	104	138	1,471	3,170	870	167	5,920
2009–10	107	330	6,340	7,920	2,357	299	17,353	92	146	1,523	3,036	835	177	5,809
2010–11	108	286	5,811	7,483	2,465	317	16,470	100	152	1,541	3,290	916	145	6,144
2011–12	109	233	5,143	7,519	2,365	323	15,692	100	138	1,587	3,338	1,037	178	6,378
2012–13	114	216	4,495	7,110	2,531	302	14,769	87	165	1,484	3,383	1,063	183	6,365

Table B.23: Assault injury cases, by age and year, Australia, 1999–00 to 2012–13

	Persons						
	0–4	5–14	15–24	25–44	45–64	65+	Total
1999–00	338	458	6,153	9,451	1,994	368	18,762
2000–01	315	471	6,736	10,466	2,246	386	20,620
2001–02	335	501	6,797	10,806	2,428	330	21,198
2002–03	310	466	6,489	10,281	2,420	340	20,307
2003–04	286	457	6,172	9,695	2,356	355	19,321
2004–05	252	449	6,686	10,153	2,539	346	20,425
2005–06	256	464	7,332	10,818	2,856	356	22,082
2006–07	302	505	7,734	11,170	3,081	438	23,230
2007–08	208	521	8,008	11,167	2,984	467	23,355
2008–09	231	457	8,219	11,665	3,318	445	24,335
2009–10	199	476	7,863	10,956	3,192	476	23,162
2010–11	208	438	7,353	10,774	3,381	462	22,616
2011–12	209	371	6,730	10,857	3,402	501	22,070
2012–13	201	381	5,979	10,493	3,594	485	21,134

Table B.23: Injury cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	8,195	3,135	6,367	2,554	14,562	2,846	184,873	2,021	132,785	1,315	317,662	1,684
2005–06	8,813	3,303	6,731	2,604	15,544	2,951	193,035	2,079	138,831	1,349	331,870	1,731
2006–07	9,106	3,247	7,027	2,674	16,133	2,971	201,083	2,128	143,873	1,368	344,960	1,765
2007–08	9,303	3,278	6,954	2,605	16,257	2,946	206,318	2,135	146,969	1,365	353,291	1,767
2008–09	9,982	3,495	7,473	2,740	17,455	3,123	213,404	2,159	155,260	1,409	368,667	1,801
2009–10	10,505	3,553	7,788	2,761	18,293	3,160	221,170	2,196	163,280	1,448	384,451	1,838
2010–11	11,072	3,755	8,480	2,986	19,553	3,373	222,953	2,178	169,947	1,471	392,902	1,840
2011–12	11,442	3,834	9,159	3,147	20,601	3,491	229,957	2,210	177,403	1,509	407,365	1,874
2012–13	12,322	3,980	9,463	3,210	21,785	3,601	223,175	2,103	176,029	1,464	399,207	1,797

Table B.24: Transport crash injury cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	980	334	521	188	1,501	260	31,245	337	14,495	154	45,742	246
2005–06	1,066	360	484	164	1,550	261	32,141	343	14,659	154	46,802	249
2006–07	1,140	376	508	171	1,648	273	33,075	348	14,952	154	48,028	252
2007–08	1,127	359	501	165	1,628	260	33,391	344	14,502	147	47,893	246
2008–09	1,299	413	564	182	1,863	296	34,120	344	14,984	149	49,105	247
2009–10	1,227	378	590	197	1,817	287	33,951	337	15,529	151	49,480	245
2010–11	1,216	361	535	169	1,751	265	31,882	311	15,583	149	47,465	231
2011–12	1,223	375	621	182	1,844	275	33,448	322	16,104	152	49,552	237
2012–13	1,457	416	635	188	2,092	301	32,715	310	15,837	146	48,553	228

Table B.25: Drowning and submersion cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	13	n.p.	11	n.p.	24	n.p.	237	2.6	137	1.6	374	2.1
2005–06	12	n.p.	4	n.p.	16	n.p.	292	3.2	139	1.6	431	2.4
2006–07	14	n.p.	13	n.p.	27	n.p.	298	3.2	124	1.4	422	2.3
2007–08	13	n.p.	6	n.p.	19	n.p.	270	2.8	114	1.2	384	2.0
2008–09	15	n.p.	8	n.p.	23	n.p.	278	2.8	127	1.3	405	2.1
2009–10	15	n.p.	6	n.p.	21	n.p.	321	3.2	166	1.7	487	2.4
2010–11	22	n.p.	14	n.p.	36	n.p.	267	2.6	148	1.5	415	2.1
2011–12	12	n.p.	16	n.p.	28	n.p.	254	2.5	129	1.3	383	1.9
2012–13	9	n.p.	11	n.p.	20	n.p.	321	3.1	156	1.5	477	2.3

Table B.26: Poisoning by pharmaceuticals cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	156	55	178	65	334	60	2,749	30	3,332	36	6,081	33
2005–06	126	44	174	59	300	52	2,602	28	3,053	32	5,655	30
2006–07	124	39	131	51	255	46	2,583	27	3,108	32	5,691	30
2007–08	136	41	139	49	275	46	2,750	28	3,151	32	5,901	30
2008–09	147	44	167	52	314	49	2,835	29	3,043	30	5,878	29
2009–10	178	62	176	56	354	58	2,969	29	3,075	29	6,044	29
2010–11	174	59	175	56	349	57	2,935	29	2,960	28	5,895	28
2011–12	208	71	217	74	425	72	3,193	30	3,121	29	6,314	30
2012–13	238	86	225	68	463	76	3,203	30	3,281	30	6,484	30

Table B.27: Poisoning by other substances cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	59	18	39	16	98	17	1,223	13	842	9	2,065	11
2005–06	62	20	37	13	99	16	1,262	13	867	9	2,129	11
2006–07	56	14	41	12	97	13	1,223	13	765	8	1,988	10
2007–08	58	20	32	10	90	14	1,224	13	789	8	2,013	10
2008–09	71	22	49	14	120	18	1,375	14	858	9	2,233	11
2009–10	61	17	43	11	104	14	1,308	13	842	8	2,150	10
2010–11	67	22	39	10	106	16	1,255	12	758	7	2,013	10
2011–12	48	13	38	10	86	11	1,246	12	736	7	1,982	9
2012–13	80	22	54	15	134	19	1,113	10	614	6	1,727	8

Table B.28: Fall injury cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	1,625	716	1,158	624	2,783	674	51,698	584	64,714	591	116,414	602
2005–06	1,627	710	1,244	647	2,871	683	53,313	591	69,019	617	122,332	618
2006–07	1,789	699	1,352	667	3,141	695	56,745	616	73,061	638	129,806	640
2007–08	1,772	718	1,498	735	3,270	737	58,776	622	75,461	642	134,237	645
2008–09	1,988	790	1,552	747	3,540	780	61,306	633	79,377	659	140,683	659
2009–10	2,141	815	1,624	723	3,765	777	65,954	665	84,974	688	150,928	690
2010–11	2,461	964	1,787	823	4,248	901	69,319	684	90,011	709	159,330	709
2011–12	2,547	984	1,981	863	4,528	931	71,669	691	93,735	723	165,404	719
2012–13	2,672	959	2,028	868	4,700	927	71,241	669	93,796	704	165,037	698

Table B.29: Thermal causes of injury cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	247	84	141	45	388	64	2,992	33	1,666	18	4,658	25
2005–06	263	93	142	42	405	66	3,017	32	1,640	18	4,657	25
2006–07	292	100	148	45	440	72	3,046	32	1,715	18	4,761	25
2007–08	299	87	161	47	460	67	3,209	33	1,766	18	4,976	26
2008–09	292	91	177	51	469	70	3,204	32	1,730	18	4,934	25
2009–10	269	74	146	42	415	59	3,417	34	1,808	18	5,225	26
2010–11	258	75	209	53	467	63	3,406	33	1,806	18	5,212	26
2011–12	304	85	214	55	518	69	3,251	31	1,847	18	5,098	24
2012–13	319	96	204	54	523	74	3,222	30	1,722	16	4,944	23

Table B.30: Other unintentional injury cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	2,508	880	1,209	449	3,717	662	72,218	778	28,929	304	101,147	543
2005–06	2,788	959	1,397	475	4,185	712	76,723	816	30,920	320	107,643	571
2006–07	2,784	918	1,414	487	4,198	702	79,604	833	31,676	322	111,280	580
2007–08	2,880	929	1,338	445	4,218	685	81,374	833	32,278	321	113,652	580
2008–09	2,983	971	1,483	485	4,466	724	83,404	836	34,321	334	117,727	588
2009–10	3,284	1,021	1,566	506	4,850	760	86,754	854	35,815	342	122,570	601
2010–11	3,432	1,067	1,809	572	5,241	816	88,906	863	38,103	357	127,010	613
2011–12	3,649	1,118	1,825	567	5,474	839	92,781	889	40,294	372	133,075	633
2012–13	3,871	1,159	1,836	571	5,707	860	88,847	837	39,879	361	128,727	601

Table B.31: Intentional self-harm cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	400	159	593	220	993	189	7,912	85	13,294	144	21,206	114
2005–06	514	192	644	236	1,158	214	7,840	83	12,919	138	20,761	110
2006–07	502	196	640	231	1,142	214	7,818	82	12,960	136	20,781	109
2007–08	492	182	679	232	1,171	207	7,917	81	13,104	136	21,024	108
2008–09	554	200	764	258	1,318	230	8,345	84	14,046	142	22,391	113
2009–10	617	218	820	265	1,437	241	8,809	87	14,936	149	23,745	118
2010–11	652	228	874	282	1,526	254	8,482	83	14,560	144	23,042	113
2011–12	658	225	1,101	349	1,759	288	8,677	84	15,200	149	23,881	116
2012–13	753	251	1,150	353	1,903	302	8,458	80	15,294	149	23,753	114

Table B.32: Assault cases and age-standardised rates (per 100,000 population), by year, sex and Indigenous status, Australia, 2004–05 to 2012–13

	Indigenous						Non-Indigenous					
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
2004–05	2,031	805	2,362	882	4,393	844	11,990	129	2,689	29	14,679	79
2005–06	2,180	848	2,450	902	4,630	875	13,080	139	2,784	30	15,864	85
2006–07	2,247	844	2,629	948	4,876	897	13,860	145	2,770	29	16,630	88
2007–08	2,342	873	2,432	859	4,774	865	14,149	145	2,789	29	16,938	87
2008–09	2,389	870	2,516	880	4,905	875	14,547	145	3,074	31	17,621	89
2009–10	2,471	883	2,630	897	5,101	889	14,000	137	3,032	30	17,032	84
2010–11	2,545	887	2,845	951	5,391	919	12,729	124	3,041	30	15,771	77
2011–12	2,551	877	2,961	980	5,512	929	11,962	115	3,178	31	15,140	73
2012–13	2,680	909	3,108	1,009	5,788	959	11,112	105	3,010	29	14,122	67

Glossary

Definitions in this glossary contain an identification number from the Metadata Online Registry (METeOR). METeOR is Australia's central repository for health, community services and housing assistance metadata, or 'data about data'. It provides definitions for data for health and community services-related topics and specifications for related national minimum data sets (NMDSs), such as the NMDSs that form the basis of this report. METeOR can be viewed on the AIHW website at <www.aihw.gov.au>. For further information on the terms used in this report, refer to the definitions in the *National health data dictionary,* version 16 (AIHW 2012).

Acute: Having a short and relatively severe course.

Acute care: See **Care type**.

Acute care hospital: See **Establishment type**.

Admitted patient: A patient who undergoes a hospital's formal admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home (for hospital-in-the-home patients). METeOR identifier: 268957.

Age-standardisation: A set of techniques used to remove, as far as possible, the effects of differences in age when comparing two or more populations.

Episode of care: The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type (see **Care type** and **Separation**). METeOR identifier: 270174 (Care type). METeOR identifier: 268956 (Episode of admitted patient care).

External cause: The environmental event, circumstance or condition as the cause of injury, poisoning and other adverse effect. METeOR identifier: 361926.

Hospital: A health-care facility established under Commonwealth, state or territory legislation as a hospital or a free-standing day procedure unit and authorised to provide treatment and/or care to patients. METeOR identifier: 268971.

Inpatient: See **Admitted patient**. METeOR identifier: 268957.

International Classification of Diseases and Related Health Conditions (ICD): The World Health Organization's internationally accepted classification of diseases and related health conditions. The 10th revision, Australian modification (ICD-10-AM) is currently in use in Australian hospitals for admitted patients.

Length of stay: The length of stay of an overnight patient is calculated by subtracting the date the patient is admitted from the date of separation and deducting days the patient was on leave. A same-day patient is allocated a length of stay of 1 day. METeOR identifier: 269982.

Mode of admission: The mechanism by which a person begins an episode of admitted patient care. METeOR identifier: 269976.

Mode of separation: Status at separation of person (discharge/transfer/death) and place to which person is released (where applicable). METeOR identifier: 270094.

Patient days: The total number of days for patients who were admitted for an episode of care and who separated during a specified reference period. A patient who is admitted and separated on the same day is allocated 1 patient day. METeOR identifier: 270045.

Principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care. METeOR identifier: 391326.

Private hospital: A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital and relevant medical and paramedical practitioners. Acute care and psychiatric hospitals are included, as are private free-standing day hospital facilities.

Public hospital: A hospital controlled by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

Same-day patient: An admitted patient who is admitted and separated on the same date.

Separation: An episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

Separation rate: The total number of episodes of care for admitted patients divided by the total number of persons in the population under study. Often presented as a rate per 10,000 or 100,000 members of a population. Rates may be crude or standardised.

Separations: The total number of episodes of care for admitted patients, which can be total hospital stays (from admission to discharge, transfer or death) or portions of hospital stays beginning or ending in a change of type of care (for example, from acute to rehabilitation) that cease during a reference period. METeOR identifier: 270407.

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Related publications

The AIHW has published annual reports on hospitalised cases occurring as a result of an injury. Earlier editions and any published subsequently can be downloaded for free from the AIHW website at <www.aihw.gov.au/publications>. The website also includes information on ordering printed copies.

The following AIHW publications relating to injury might also be of interest:

- AIHW (various years). Australian hospital statistics. Canberra: AIHW
  - AIHW 1999. Health services series no. 12. Cat. no. HSE 6.
  - AIHW 2000. Health services series no. 15. Cat. no. HSE 11.
  - AIHW 2001. Health services series no. 17. Cat. no. HSE 14.
  - AIHW 2002. Health services series no. 19. Cat. no. HSE 20.
  - AIHW 2003. Health services series no. 20. Cat. no. HSE 25.
  - AIHW 2004. Health services series no. 22. Cat. no. HSE 32.
  - AIHW 2005. Health services series no. 23. Cat. no. HSE 37.
  - AIHW 2006. Health services series no. 26. Cat. no. HSE 41.
  - AIHW 2007. Health services series no. 30. Cat. no. HSE 50.
  - AIHW 2008. Health services series no. 31. Cat. no. HSE 55.
  - AIHW 2009. Health services series no. 33. Cat. no. HSE 71.
  - AIHW 2010. Health services series no. 34. Cat. no. HSE 84.
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  - AIHW 2012. Health services series no. 43. Cat. no. HSE 117.
  - AIHW 2013. Health services series no. 50. Cat. no. HSE 134.
- AIHW: Harrison JE & Henley G 2014. Suicide and hospitalised self-harm in Australia: trends and analysis. Injury research and statistics series no. 93. Cat. no. INJCAT 169. Canberra: AIHW.
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- Tovell A, Harrison JE & Pointer S 2014. Hospitalised injury in older Australians, 2011–12. Injury research and statistics series no. 90. Cat. no. INJCAT 166. Canberra: AIHW.

This report shows that the rate of injury hospitalised cases in Australia rose from 1999–00 to 2012–13 by an average of 1% per year. In 2012–13, case numbers and rates were higher for males than females for all age groups to 60–64, and higher for females for age groups 65–69 and older.