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Injury deaths, Australia 2003–04



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Geoff Henley, Renate Kreisfeld, James Harrison



Injury deaths, Australia

2003–04

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Geoff Henley

Renate Kreisfeld

and

James E Harrison

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Australian Institute of Health and Welfare

Board Chair

Hon. Peter Collins, AM, QC

Director

Penny Allbon

Any enquiries about or comments on this publication should be directed to:

Geoff Henley

Research Centre for Injury Studies

Flinders University of South Australia

GPO Box 2100,

Adelaide 5001, South Australia

Phone: (08) 8201 7602

Email: Geoffrey.Henley@flinders.edu.au

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Executive summary

Overview

Community Injury

A total of 9,924 community injury deaths occurred in Australia in 2003–04, 63% of which were males. The age-standardised rate was 66.8 deaths per 100,000 population for males and 31.6 per 100,000 for females. Rates were highest for young and middle-aged males in the age band 20–44 years (64.5 per 100,000 population) and for older males aged 70 years and over (267.3 per 100,000).

The most common cause of injury death was Unintentional falls, which accounted for 30% of all community injury deaths that occurred in 2003–04. This was followed by Suicide which accounted for 22% of community injury deaths.

A slight downward trend in injury deaths, evident over the past few years, continued in 2003–04. This trend was more marked for males than females. Under-ascertainment of injury deaths in the source data file may have contributed to this.

Rates were highest for Tasmania and the Northern Territory. The latter had an age-adjusted rate of 111.4 per 100,000 population. The Australian Capital Territory had the lowest age-adjusted rate (34.4 per 100,000).

Three states had rates that differed at a statistically significant level from the Australian rate of 48.5 per 100,000 population – New South Wales, Western Australia and South Australia.

Age-adjusted rates of injury mortality increased according to the remoteness of the deceased's zone of residence. The rate was more than 2.5 times greater in the Very Remote zone than it was in Major cities.

There was strong evidence of undercounting of cases in some external cause categories on 2003–04. This was particularly evident in the sections related to transport and homicide where the reported totals were significantly less than those reported by other agencies. Other sections where there was a suspicion of under-counting included suicide, drowning and smoke, fire and flames, heat and hot substances.

Since the trend in death rate for all community injury cases remained relatively unchanged, there was suspicion that the undercounting in the external cause categories mentioned above was compensated for by some over-counting in other external cause categories. This was evident to some degree for the sections on poisoning and other unintentional deaths.

Major causes of community injury death in 2003–04

Major causes of community injury death ^(a)	Number of deaths	Percentage of all community injury deaths	Rate per 100,000 population
Unintentional:			
Transport	1,724	17%	8.6
Falls	2,960	30%	14.0
Drowning	260	3%	1.3
Poisoning by drugs	824	8%	4.1
Poisoning by other substances	304	3%	1.5
Smoke, fire and flames, heat and hot substances	135	1%	0.7
Other unintentional injury	1,654	17%	8.0
Intentional:			
Suicide	2,173	22%	10.8
Homicide	215	2%	1.1
Total	10,249		48.5

(a) See later sections for inclusion criteria.

Note: Sum of rows is greater than the figure of 9,924 indicated above because some cases appear in more than one category since they were assigned using Multiple Cause of Death codes.

Unintentional injury

Transportation

1,724 deaths during 2003–04 were as a result of transport-related injury. Males accounted for 73% of these deaths.

Age-adjusted rates for large population states were similar, varying from 7.5 per 100,000 population for New South Wales to 10 per 100,000 population for Western Australia. The rate for the Northern Territory (18.5) was more than double the rate for Australia (8.6), while the rate for Tasmania (13.0) was just over 50% higher than the national rate. The rate for the Australian Capital Territory (4.7) was by far the lowest, being just over 50% of the national rate.

The most common types of injuries sustained in transport-related deaths were fractures and intracranial injuries whilst the most common locations for injuries were the head and the thorax region.

1,482 of all transport-related deaths resulted from on-road collisions in which a motor vehicle was involved. Of these 1,482 cases, 64% were motor vehicle occupants. Of the remainder, pedestrians accounted for 15%, motorcyclists 12% and pedal cyclists 2%. Drivers represented almost two-thirds of vehicle occupant deaths and over three times as many drivers were male.

By far the largest proportion of vehicle occupants died while driving a car. The involvement of occupants of heavy transport vehicles and pickup trucks or vans, was also very evident.

Falls

2,960 deaths during 2003–04 were fall-related, representing an age-adjusted rate of 14 deaths per 100,000 population and accounting for 30% of all community injury deaths.

Fall rates were concentrated in the older age groups and were particularly high among both males and females aged 85 years and over. Males generally had moderately higher rates than females across most age groups.

Rates appear to differ across jurisdictions. South Australia was the only jurisdiction to record a rate significantly lower than the national rate while the rate for the Northern Territory was more than double the national rate. However, these apparent differences should be interpreted cautiously because of variations in collection and coding might contribute to the differences.

By far the most common type of injury sustained in fall-related deaths is a fracture with a large proportion of these being hip fractures.

Drowning

260 unintentional drowning deaths occurred in 2003–04. These deaths accounted for 3% of all injury deaths. 3.2 times as many men as women drowned during 2003–04 (Males 198; Females 62). 14% ($n=36$) of unintentional drowning deaths occurred to children aged 0–4 years.

Overall, the age-adjusted rate of unintentional drowning fell by 29% between 1997–98 and 2003–04. Between 2002–03 and 2003–04, the age-adjusted rate fell by 11%.

Two states, Victoria (low) and the Northern Territory (high) had rates that were statistically significantly different from that for Australia as a whole (1.3 per 100,000 population).

Age-adjusted rates rose slightly according to the remoteness of the deceased person's residence.

The most common circumstances for unintentional drowning were drowning in bodies of natural water (36%), watercraft or road transport-related drowning (15%), swimming pool drowning (14%), or drowning in bathtubs (6%).

Swimming pool drownings occurred most frequently in the 0–4 year age group. The all-Australia age-adjusted rate of unintentional drowning in swimming pools for this age group was 0.09 per 100,000 population. Queensland and New South Wales had the highest rates of swimming pool drownings for children aged 0–4 years (0.12 and 0.11 per 100,000 population, respectively). Other states and territories all had 3 or fewer cases. Annual rates of swimming pool drowning have fluctuated, partly as a consequence of fairly small case numbers. Overall, there was no discernible trend for the seven year period 1997–98 to 2003–04.

Unintentional poisoning by drugs

824 deaths during 2003–04 involved poisoning by drugs, representing an age-adjusted rate of 4.1 deaths per 100,000 population. Close to two-thirds of these deaths involved males. Rates were highest for males aged 20–44 years with this age group accounting for 73% of all male unintentional drug deaths.

Rates varied significantly between jurisdictions, possibly reflecting differences in availability of drugs within each jurisdiction.

The most commonly specified family of drugs was narcotics, which were associated with 56% of the deaths in this category. Just over a third of narcotics-related deaths involved heroin.

A smaller group of unintentional poisoning deaths were associated with other substances. This group represented 304 deaths during 2003–04. Close to three-quarters of these deaths involved males.

Rates for these deaths were significantly higher in the Northern Territory when compared to the other jurisdictions and in very remote areas. Of the 17 deaths occurring in the Northern Territory, 13 were recorded as Aboriginal and/or Torres Strait Islander.

The two most common agents associated with this group of deaths were alcohol, and gases and vapours.

Smoke, fire and flames, heat and hot substances

135 deaths occurred in 2003–04 as the result of unintentional burns, or exposure to smoke, fire or hot substances. 55 (41%) of these occurred in a building or structure. The major mechanisms for all deaths in this category are shown in Table 2.6.2.

The all-ages male adjusted rate of death due to unintentional exposure to smoke, fire, flames, heat and hot substances was 1.7 times the equivalent female rate. Rates were highest in the older age groups. Males had consistently lower rates of deaths due to exposure to smoke, fire, flames, heat and hot substances in all years during the period 1997–98 to 2003–04. Rates peaked slightly in 1998–99 and 2002–03, but were fairly constant over the entire period.

Victoria had the lowest age-adjusted rate of deaths due to exposure to smoke, fire, flames, heat and hot substances with a rate of 0.4 deaths per 100,000 population during 2003–04, and Tasmania had the highest (2.3 per 100,000). The rate for both states differed at a statistically significant level from the all Australia rate of 0.7.

Where a burn had occurred, the affected body part was not specified in 70 (52%) cases. 27 (20%) cases received a code indicating that burns had been classified according to the extent of the body surface involved. In 22 (81%) of the latter group, burns had involved 90% or more of the body surface.

47 (35%) cases received a code indicating that a toxic effect of carbon monoxide or other gases, fumes and vapours had contributed to the death.

Intentional injury

Suicide

2,173 deaths that occurred during 2003–04 have been coded as being the result of intentional self-harm. Suicide was responsible for 22% of all injury deaths in 2003–04, at an age-adjusted rate of 10.8 deaths per 100,000. Suicide accounted for more deaths than transport related accidents, which had an age-adjusted rate of 8.6 per 100,000 population.

Males had higher rates than females in all age groups. The overall male age-adjusted rate of 17.4 per 100,000 population in 2003–04 was almost 4 times the female rate of 4.6 deaths per 100,000. The excess of male rates over female rates was greatest for young and middle-aged adults aged 20–44, and in those aged 80 years and over.

Overall, there has been a steady downward trend in the age-adjusted suicide rate for persons between 1997–98 and 2003–04, based on available data. However, the problem

of under-ascertain mentioned above and in section 1.4 probably contributed to this apparent decline. The rate fell from 1.8 per 100,000 population at the beginning of the period to 0.7 per 100,000 in 2003–04. The decline in annual age-adjusted rates was slightly slower for females than for males. Over the period 1997–98 to 2003–04, the male age-adjusted rate fell by 29% and the female rate by 24%

Age-adjusted rates for Victoria, Queensland, Western Australia and South Australia were fairly similar (between 10.0 and 15.0 per 100,000 population). New South Wales, the most populous state, had the lowest rate at 8.6 per 100,000 population, and Tasmania and the Northern Territory had the highest (17.3 and 24.7 per 100,000 population, respectively). The rates for New South Wales, Queensland, Tasmania and the Northern Territory differed, at a statistically significant level, from the rate for Australia as a whole (10.8 per 100,000 population).

Age adjusted rates of suicide mortality increased according to the remoteness of the deceased person's zone of residence. Major cities had the lowest age-adjusted rate and the Very remote zone had the highest. The age-adjusted rate for the Very remote zone was more than 2.3 times greater than that for Major cities.

The two most commonly coded diagnoses in cases of suicide death were asphyxiation and injuries to the head. 46% of all cases of suicide death had been assigned a diagnosis code indicating that asphyxiation had contributed to the death. 82% of these cases involved males. A head injury diagnosis code was assigned in 10% of suicide cases. 93% of these cases were male.

The most frequently coded mechanism of suicide in 2003–04 was ICD-10 X70 Hanging, strangulation and suffocation (46% of suicide deaths). This was followed by poisoning (31%) and use of a firearm (9%).

Age-adjusted rates fell for suicide due to all major mechanisms over the period 1997–98 to 2003–04: Suicide deaths due to hanging fell by 22%, poisoning-related suicide by 37%, and firearm-related suicide by 35%.

Age-adjusted rates of suicide increased consistently with the remoteness of the zone of residence of the deceased person. Rates ranged between 9.9 per 100,000 population in Major cities to 22.7 per 100,000 in Very remote areas. There was, however, variation in the distribution of rates between remoteness zones according to the mechanism of death. For example, self-inflicted hanging deaths were 3.6 times more frequent in Very remote areas than in Major cities whereas suicide due to poisoning was 1.6 times more common in Very remote areas than in Major cities.

Homicide

215 deaths during 2003–04 involved assault by another person, representing an age-adjusted rate of 1.1 deaths per 100,000 population.

Males were almost twice as likely as females to be a victim of homicide. 58% of male homicides and 50% of female homicides occurred in the age range 20–44 years.

14 (10%) of homicide deaths involved children: 11 were at ages 0–4 years, 2 at ages 5–9 years and 1 at ages 10–14 years.

For both male and female victims, the most frequently used means of assault was a sharp object, accounting for 47% and 30% respectively. A firearm was used in just over 16% of homicides.

As in previous years, the rate of homicide for the Northern Territory was well above the national rate. Of the 12 deaths occurring in the Northern Territory, 10 were recorded as Aboriginal and/or Torres Strait Islander.

An apparent decline of rates in recent years is at least partly due to under-ascertainment of this type of case in the source data.

Complications of medical and surgical care

1,764 deaths during 2003–04 involved complications of surgical and medical care, representing an age adjusted rate of 8.5 deaths per 100,000 population.

Higher death rates are concentrated in older age groups and increase almost exponentially in both males and females from about 60 years of age onwards.

In terms of types of injury, just over half of these deaths were classified to *Complications of procedures, not elsewhere classified* and 15% were classified to *Complications of cardiac and vascular prosthetic devices, implants and grafts*.

In terms of external causes of death, almost 84% of these deaths were classified to *Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*.

Abbreviations used

ABS	Australian Bureau of Statistics
AIHW	Australian Institute for Health and Welfare
E-code	ICD External Cause code
ICD	International Classification of Diseases
ICD-9	International Classification of Diseases, 9th Revision
ICD-10	International Classification of Diseases, 10th Revision
MCoD	Multiple Cause of Death
nec	Not elsewhere classified
NISU	National Injury Surveillance Unit
RCIS	Research Centre for Injury Studies
STIPDA	State and Territory Injury Prevention Directors Association (US)
UCoD	Underlying Cause of Death

1 Introduction

Every year, the Australian Bureau of Statistics (ABS), compiles data on all deaths registered in Australia. Since 1992, the National Injury Surveillance Unit (NISU) has used these data as the basis for reports on injury deaths. These reports have the aim of describing and monitoring the pattern of injury mortality in Australia.

This report is implementing a new approach, devised by NISU, for the reporting of injury mortality. The new approach has three facets that depart from previous practice:

1. Application of a new *Operational definition of injury* as the criterion for selecting deaths for inclusion in the report (Kreissfeld & Harrison 2006).
2. Reporting of deaths according to when they occurred rather than when they were registered.
3. Use of financial year rather than a calendar year as the reporting period.

1.1 Operational Definition of Injury

Previous reports have defined injury deaths as those cases where the Underlying Cause of Death (UCoD) is an external cause from ICD-10 Chapter XX. This method conflicts with recommendations from injury researchers that injury should be defined in terms of the physiological damage which occurred, rather than what caused it (Harrison & Steenkamp 2002; Langley et al. 2002). Following these recommendations was not possible prior to 1997, when injury-related information in ABS deaths data was confined to a single UCoD. In 1997, Multiple Causes of Death (MCoDs) were added to the mortality database. MCoDs encompass both ICD-10 Chapter XIX diagnosis codes and Chapter XX external cause codes. Currently, up to 20 codes representing all of the conditions listed on the death certificate, can be assigned to a data record. The availability of MCoDs makes it possible to select injury cases according to physiological damage.

In recent work, NISU has arrived at a new *Operational Definition of Injury* (Kreissfeld & Harrison 2006). The *Definition* has been adapted from a scheme of case inclusion and exclusion criteria developed by the state and territory Directors of Injury Prevention Association (STIPDA) in the US. In essence, the *Operational Definition of Injury* specifies that cases with the presence of one or more of the Chapter XIX diagnosis codes S00–S99, T00–T75, or T79 *anywhere* in the record are selected for inclusion. Cases meeting this criterion are referred to as community injury, in keeping with terminology applied to hospitalised injuries (Berry & Harrison 2006). The principal difference between the inclusion codes above and those used previously (UCoD in the range V01–Y98) is that codes relating to *Complications of surgical and medical care* are not included as community injury. While the emphasis of this report is on those deaths that meet the *Operational Definition of Injury* as defined above, we also include in this report a brief review of deaths involving *Complications of care* (see below).

The advantages of applying the new *Operational Definition of Injury* in this report include the following:

1. The approach will provide more valid estimates of injury incidence, and a more complete and reliable picture of the burden of injury mortality. Research undertaken at NISU has shown that, using the traditional approach of selecting cases solely according to the presence of an external cause as the UCoD, results in many injury deaths not being recognised as such.
2. MCoD information gives access to a greater range of detail in relation to some causes of death. An example of this is poisoning as the result of drugs, where the availability of codes from ICD-10 Chapter XIX enables the identification of a broad range of specific poisoning agents, something that is not possible when data analyses are restricted to the use of UCoDs.

Community injury and complications of surgical and medical care

Most injuries occur in settings such as car crashes, inter-personal violence, sporting and recreational activities, and work. In this report, these are referred to as *Community injury*. *Community injury* is the main subject of this report and includes deaths which have any MCoD code in the injury diagnosis range S00–T75, T79 or an UCoD code in the external cause range V01–Y36, Y85–Y87, Y89. Other injuries occur in the context of surgical and medical care. These injuries are referred to as *Complications of surgical and medical care* and include deaths which have an UCoD code in the external cause range Y40–Y84, Y88 or any MCoD code in the injury diagnosis range T80–T88. These injuries are considered briefly in this report (Chapter 3).

Community injury comprises intentional and unintentional injuries. Self-harm (suicide) and assault (homicide) are categorised as intentional injury, but for some injury types, intent is difficult to determine. ICD-10, as applied to Australian deaths data, allows cases to be coded as suicide or homicide only if the person certifying the death (normally a coroner) has clearly come to this conclusion. If the certifier has explicitly concluded that intent could not be determined, then ICD-10 codes for ‘undetermined intent’ are used. Otherwise, the death may be coded as unintentional (accidental), even though available information suggests that the death may have been intentional (usually suicide). This issue is considered further in Section 2.8.

Residual groups that do not fit into either category are considered separately at the end of this report (Chapter 4). These are deaths that do not meet the criteria given above for community injury or Complications of surgical and medical care, but do include at least one code from ICD-10 Chapter XIX *Injury, poisoning and certain other consequences of external causes* or Chapter XX *External causes of morbidity and mortality*.

1.2 Occurrence during a financial year versus registration during a calendar year

In another departure from previous practice, this publication reports on deaths in terms of when they *occurred* rather than when they were *registered*. There is always a delay between the occurrence of a death and its registration. This delay can be lengthy and varies between types of case and over time. Grouping deaths according to their date occurrence provides a more accurate picture of injury mortality within the time period under study.

We have previously reported on deaths according to the *calendar* year in which they were registered. NISU receives deaths data from the ABS in the form of annual files each containing records for deaths registered during a calendar year. In this report, we include all injury deaths that occurred during the *financial year* period 2003–04 (i.e. 1 July 2003 to 30 June 2004). This move will bring about consistency between the reporting of deaths and hospitalisations data. Hospital separations data are received from states and territories as financial year subsets, according to date of separation (i.e. discharge).

NISU has investigated the extent to which all deaths that *occurred* during the most recent financial year period had been captured using available year-of-registration data. The results of these investigations are detailed in *Appendix 1: Data Issues*.

1.3 Major causes of injury

External cause codes will continue to be used for the purpose of classifying deaths according to major cause groups. The major cause groups will be the same as those used in previous reports. However, whereas previous reports have focussed only on the external cause code that appears as the UCoD, this report will classify cases on the basis of ICD-10 Chapter XX codes anywhere within the record. This will, in some cases, result in individual deaths appearing in more than one section because they have been assigned more than one external cause code.

1.4 Under-counting of injury deaths

Information from several sources indicate that some estimates of numbers of injury deaths in 2003–04, based on ABS mortality data, are falsely low. Certain other categories (mainly in the *Other Unintentional* group) are falsely high. This problem might also affect other recent years to some extent. Notes about this have been included in sections of the report reporting particular types of case to which the problem of under-counting certainly applies. This section provides an overview of the problem.

Indications that a problem has occurred have come from several sources. Explanatory notes in the ABS Cause of Death publication for deaths registered in 2004 cautions that care should be taken in interpreting results in recent years for External causes of morbidity and mortality (Australian Bureau of Statistics 2005). The authors refer, in particular, to:

Falls (W00–W19) registered in Victoria. Administrative changes have resulted in an increased number of deaths being assigned underlying cause codes in this range.

Suicide (X60–X84). An increase is stated to have occurred in the number of coroner cases where final information, following coronial enquiry, was not available to the ABS in time for inclusion in the causes of death publication. It is noted that this might partly explain apparent recent downward trends in suicide numbers.

Assault (X85–Y09). The large decrease in cases coded to this range in 2004, compared with 2003, is attributed to the same issue as above.

We have examined the data available to us closely, to assess the extent and nature of the problem. We have:

1. Examined trends for many groups of cases during the period 1997–04, looking for rises and falls in case numbers that might be due to data issues rather than changes in occurrence. We looked particularly closely at codes which, if ICD-10 coding rules are followed, are likely to be assigned to injury cases for which no information or incomplete information was available to the coder. Findings supported the suspicion that such assignments had occurred, especially in 2004.
2. Compared data from the ABS with data from other sources, for the types of injury death for which other sources exist. The main relevant sources are data from the Australian Transport Safety Bureau on motor vehicle traffic injury deaths (see Section 2.2.8) and data on homicides from the Australian Institute of Criminology (see Section 2.9). These confirmed under-estimation of these two types of external cause of injury.
3. Compared trends in ABS deaths data with data for hospitalised injury. In particular, we compared ABS deaths data with numbers of cases of hospitalised injury where the person died in hospital. The downward inflection in rates for several types of injury death, when calculated using the ABS data, was not seen in rates based on deaths in hospital due to the same types of cause.
4. Examined certain groups of cases in the National Coroners Information System. In particular, we examined the sets of NCIS records that include certain ABS Underlying Cause of Death codes, having selected these on the basis of reasons to suspect that they would be likely to be assigned to injury cases coded under circumstances in which no information or incomplete information was available to the coder. When we did this work, the most recent cases in NCIS for which ABS-assigned ICD-10 codes were available were deaths registered in 2003. We found numerous injury deaths which, if coded on the basis of data available from NCIS at the time we did the assessment (July 2006), would be assigned different ICD codes to those that had been assigned by the ABS at an earlier date, and presumably on the basis of less information.

The information available to us has enabled us to confirm the concern announced by the ABS, to identify at least one additional type of case affected by significant undercount (motor vehicle traffic accidents, especially in New South Wales), and to confirm that this problem affected deaths registered in 2003 to a considerable extent. We did not have access to sufficient information to enable us to formally revise case counts for 2003–04. Pending such review, apparent trends in injury mortality based on ABS data for deaths certified by coroners for the period since about 2002 must be regarded as doubtful.

2 Community injury

Multiple Cause of Death: [S00–T75, T79](#); or

Underlying Cause of Death: [V01–Y36, Y85–Y87, Y89](#)

Community injury is the main subject of this report. Other injuries occur in the context of surgical and medical care, where they are often referred to as complications. These are considered briefly in Chapter 3 of this report.

2.1 All injury deaths

Multiple Cause of Death: [S00–T75, T79](#); or

Underlying Cause of Death: [V01–Y36, Y85–Y87, Y89](#)

Table 2.1.1: Key indicators for community injury deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	6,205	3,719	9,924	5,247	2,619	7,866
Percentage of all injury deaths	100%	100%	100%	100%	100%	100%
Crude rate/100,000 population	62.5	37.0	49.7	52.8	26.1	39.4
Adjusted rate (direct)	66.8	31.6	48.5	55.3	23.2	38.7
Rate ratio*	1.38	0.65		1.43	0.60	
Mean YPLL <75years	25	14	21	28	19	25

* Rate ratios are standardised rate for male or female/standardised rate for persons.

2.1.1 Overview

133,028 deaths from all causes occurred in Australia in 2003–04. The total number of deaths fell slightly between 1997–98 and 1998–99, and then rose steadily until 2003–04. Overall, the number of deaths between 1997–98 and 2003–04 increased by 3,772 (3%).

There were 9,924 community injury deaths during 2003–04 where the case had been assigned one or more multiple causes of death from the ranges specified at the beginning of this chapter. In 339 (3%) of these cases, the deceased person is recorded as having been Aboriginal or Torres Strait Islander¹.

Community injury accounted for 7% of all deaths that occurred during 2003–04.

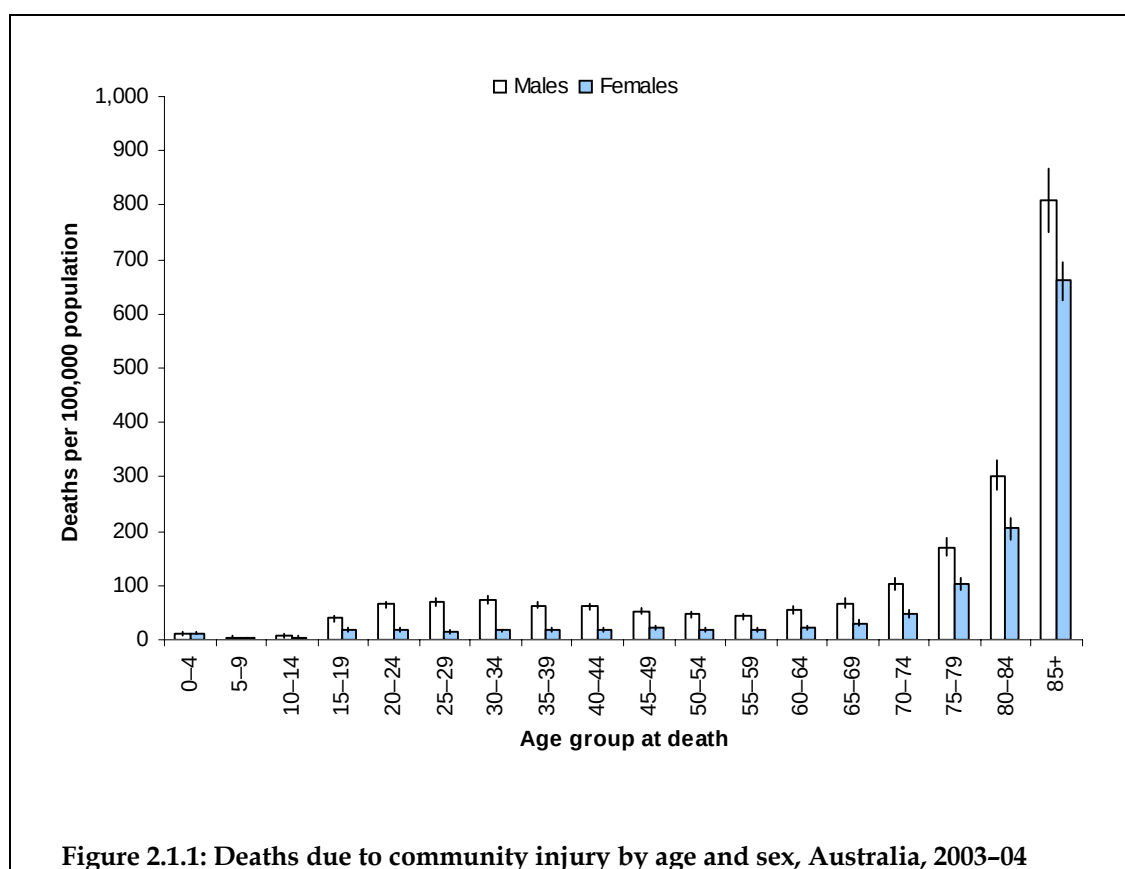
¹ This is probably an underestimate, due to incomplete identification of Indigenous status. This complicates reliable reporting of Indigenous injury mortality, which has been made the subject of a special report (Helps & Harrison (2004) Reported injury mortality of Aboriginal and Torres Strait Islander people in Australia, 1997–2000. Canberra: Australian Institute of Health and Welfare).

2.1.2 Age and sex distribution

Male rates are consistently higher than female rates. The ratio between male and female age-adjusted rates was 2.1 in 2003–04. The ratio fluctuates slightly from year to year. The highest ratio during the period 1997–98 to 2003–04 was 2.3. The rate has remained constant at 2.1 for the past three years.

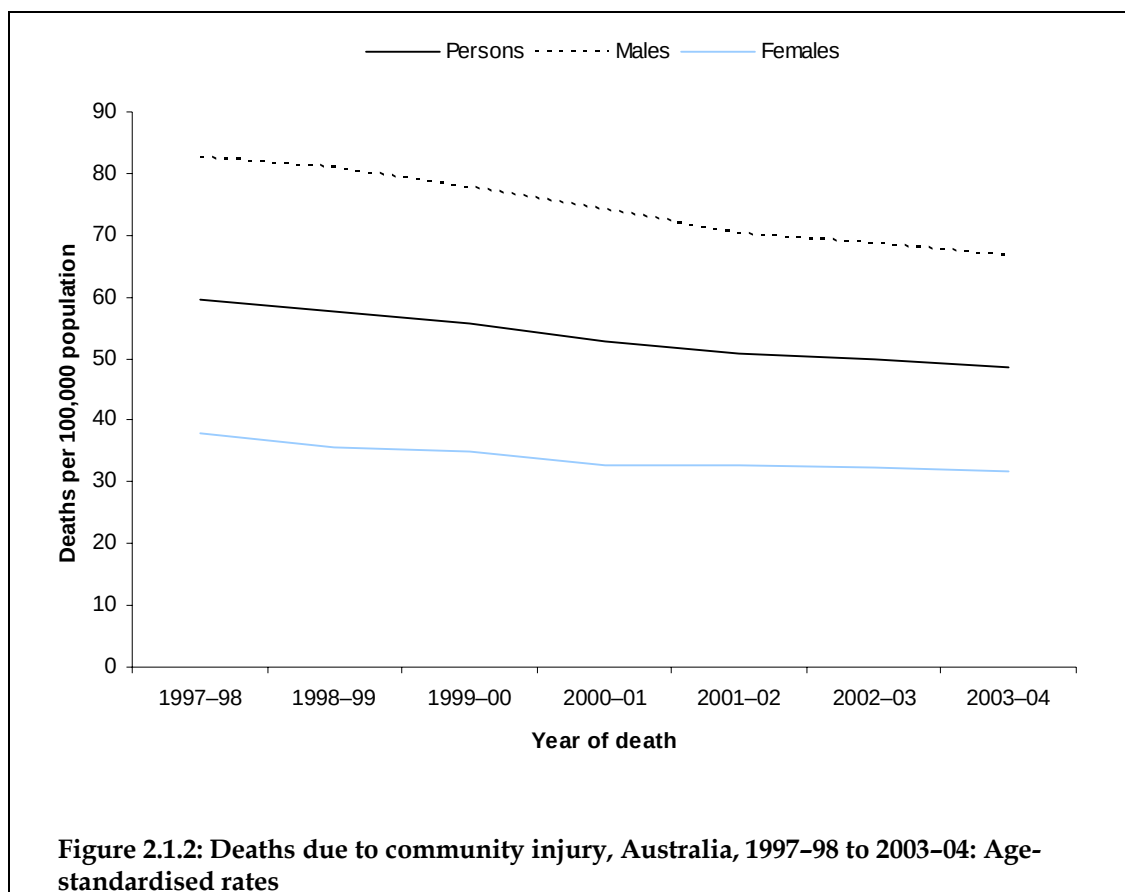
Rates for both sexes were lowest in childhood and highest at ages 75 and older (Figure 2.1.1). Rates for males were higher than rates for females for all age groups 5 years and over. Male rates were around 4 times higher than female rates at ages 25–39 years. The rate ratio was lowest for children up to 14 years and in the oldest group age groups, 75 years and over (around 1.2–1.6).

Young adults, in the age range 20–39 years, accounted for 25% of all injury deaths ($n=2,444$). Young males, alone, accounted for 20% of all community injury cases.



2.1.3 Trends in death rates

Figure 2.1.2 shows age adjusted injury mortality rates for males, females and persons for the period 1997–98 to 2003–04. Rates of reported cases for males and females fell during the period. Male rates fell by 19% from 82.4 in 1997–98 to 66.8 in 2003–04. Female rates fell by 17% from 37.8 to 31.6 over the same period. However, the case identification problem described in Section 1.4 may have contributed to this decline.



2.1.4 State and territory rates

Figure 2.1.3 and Table 2.1.2 show that, among the five most populous states, New South Wales, Victoria and South Australia had similar rates of injury mortality. The age-adjusted rates for Queensland and Western Australia were also of a similar magnitude. Rates were highest for Tasmania and the Northern Territory, in particular, which had an age-adjusted rate of 111.4 per 100,000 population. The Australian Capital Territory had the lowest age-adjusted rate.

Three states had rates that differed at a statistically significant level from the Australian rate of 48.5 per 100,000 population – New South Wales, Western Australia and South Australia.

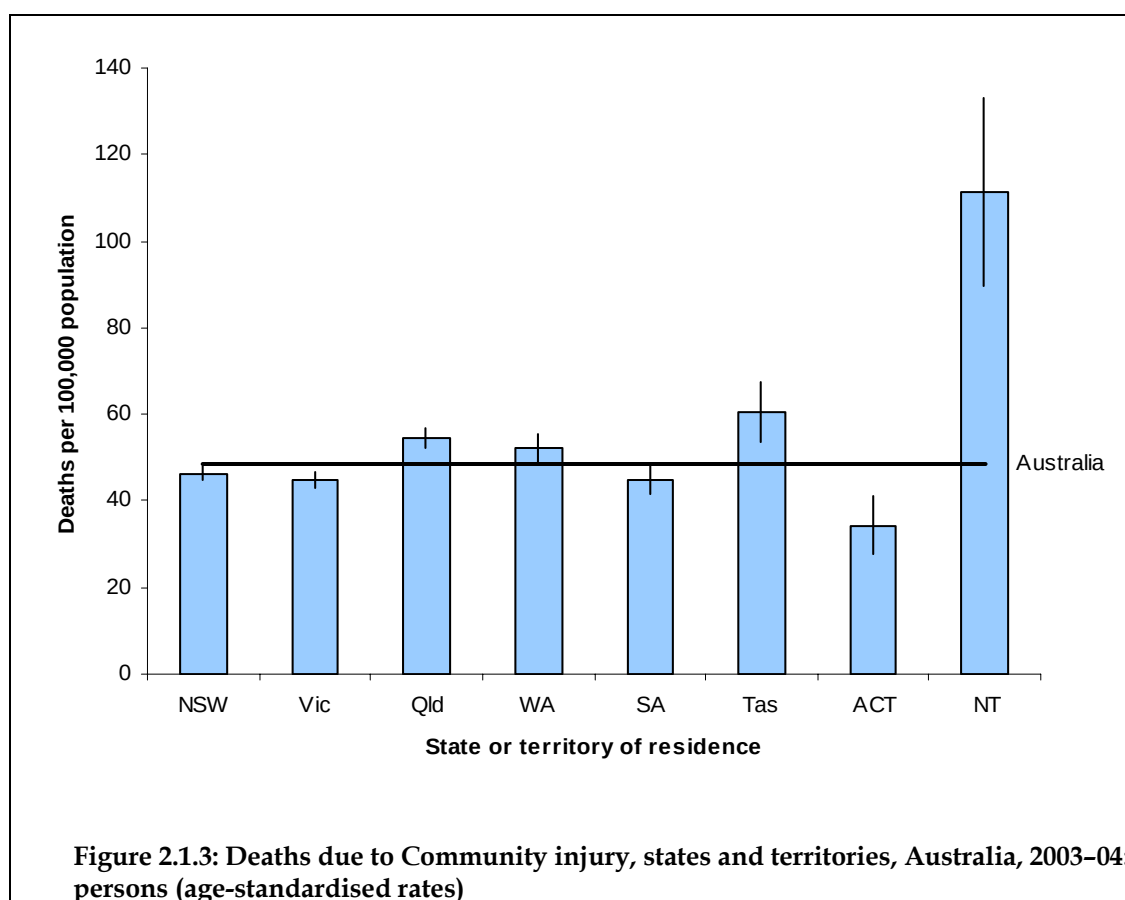


Table 2.1.2: Cases, age-adjusted rates and rate ratios* by state or territory for community injury deaths, Australia, 2003-04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	3,251	2,315	2,057	986	746	301	101	165
Adjusted rate (direct)	46.4	44.9	54.5	52.1	45.0	60.4	34.4	111.4
Rate ratio*	0.96	0.93	1.12	1.07	0.93	1.24	0.71	2.30

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.1.5 Remoteness of residence

Age adjusted rates of injury mortality increased according to the remoteness of the deceased's zone of residence. The rate was more than 2.5 times greater in the Very Remote zone than it was in major cities (Figure 2.1.4 and Table 2.1.3).

All remoteness zones had a rate that differed at a statistically significant level from that for Australia as a whole (47.9 per 100,000 population).

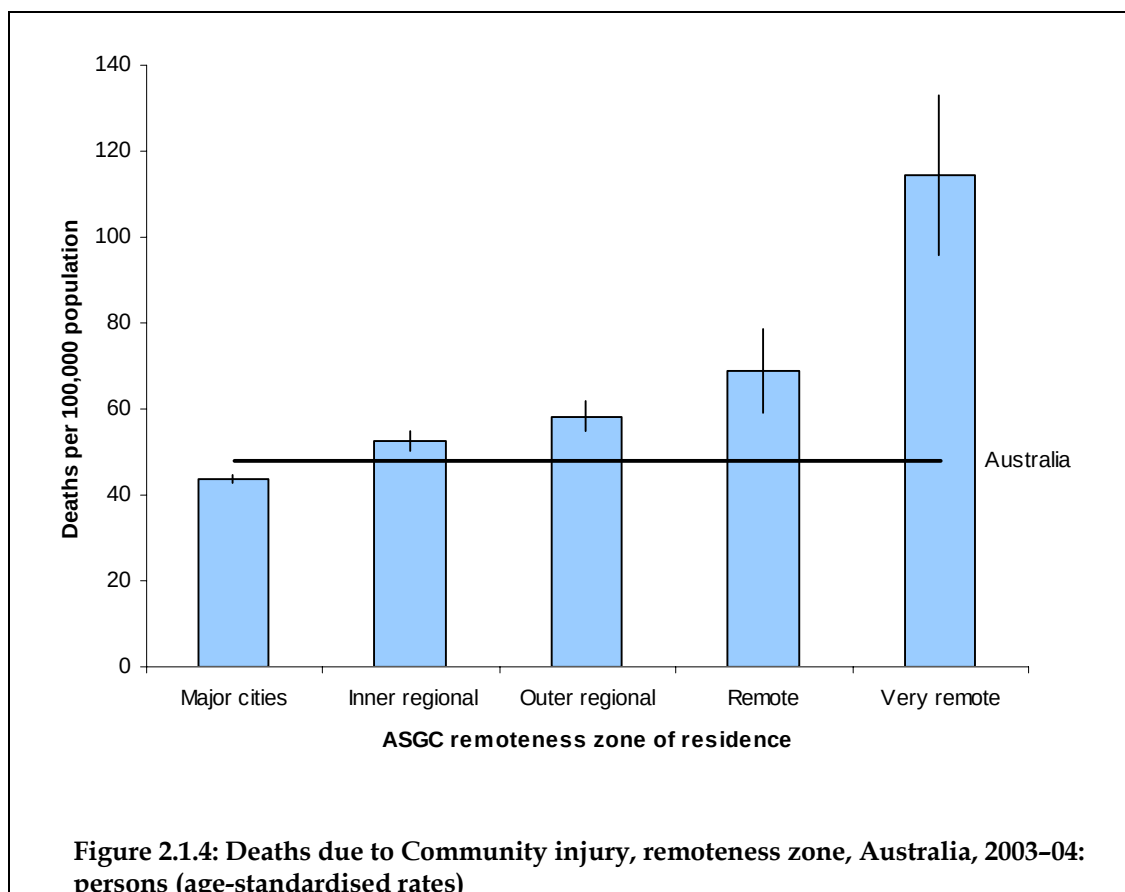


Table 2.1.3: Cases, age-adjusted rates and rate ratios* by remoteness zone for community injury deaths, Australia, 2003-04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	5,975	2,268	1,184	202	174
Adjusted rate (direct)	43.8	52.5	58.4	68.9	114.3
Rate ratio*	0.91	1.09	1.22	1.44	2.39

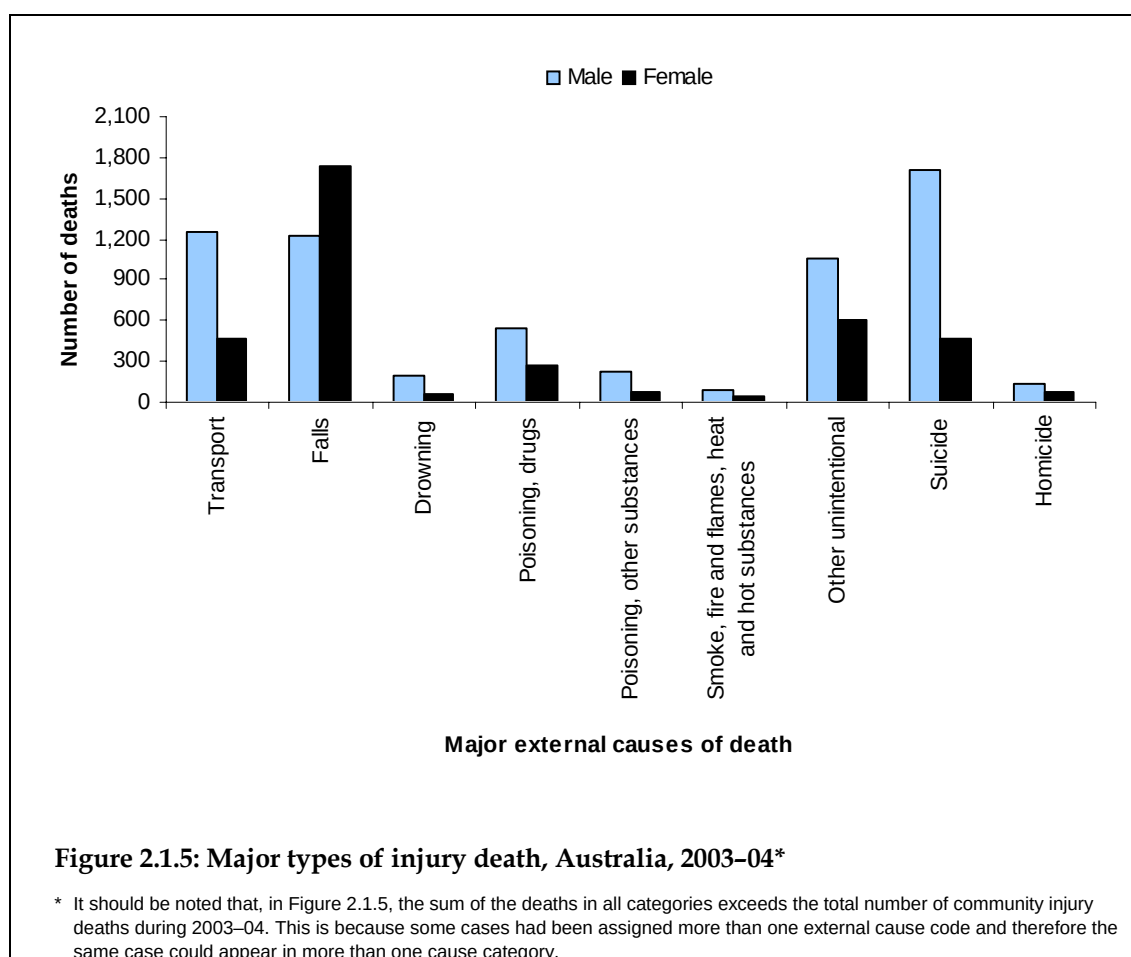
* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.1.6 Major types of injury death

Not only are rates of injury mortality higher for males than females (Figures 2.1.1 and 2.1.2), but the pattern of external causes differs between the sexes (Figure 2.1.5).

The number of males exceeded the number of females in all major categories of injury deaths with the exception of unintentional falls. Females were around 1.5 times more likely than males to die from this cause. The greater number of deaths due to falls by females reflects their preponderance in the age group at most risk of this cause (see Section 2.3).

The preponderance of male deaths was particularly marked in several categories. More than 3.5 times as many males as females died as the result of suicide; more than 3 times as many males died as the result of unintentional poisoning by substances other than drugs and by drowning; and over 2.5 times as many males as females died as the result of transport-related injury.



2.1.7 Nature and bodily region of injury

This section is based on analyses of diagnosis codes from ICD-10 Chapter XIX. It should be noted that, because some cases have been assigned more than one diagnosis code, it is possible for them to be included within more than one of the categories used to describe the nature of the injury and/or the body region affected.

27% of all community injury cases had been assigned a diagnosis code indicating that a fracture had contributed to the death. 59% of these cases involved females. The most common type of fracture, was a fracture of the femur which had occurred in 18% of all injury deaths. 63% of these cases involved females (refer to Section 2.3 for further information).

Injuries to the lower extremities, head injuries, and asphyxiation were also common (19%, 16% and 12% of all injury deaths, respectively). Head injuries and asphyxiation were more common among men (71% and 80% of all injury, respectively).

Asphyxiation was the most common diagnosis for male suicide deaths (see sections 2.8.6 and 2.8.7). Injuries to the lower extremities most frequently involved females (63% of all injuries). Injuries to the lower extremities were a common outcome of falls, with nearly 73% of fatal falls resulting in a hip fracture (see Section 2.3.6).

Part A: Unintentional injury

2.2 Transport deaths, Australia

Multiple Cause of Death: [S00-T75, T79](#) and [V01-V99](#); or

Underlying Cause of Death Code: [V01-V99](#)

Table 2.2.1: Key indicators for transport deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,251	473	1,724	1,234	467	1,701
Percentage of all injury deaths	20%	13%	17%	24%	18%	22%
Crude rate/100,000 population	12.6	4.7	8.6	12.4	4.6	8.5
Adjusted rate (direct)	12.7	4.6	8.6	12.5	4.5	8.5
Rate ratio*	1.47	0.54		1.47	0.54	
Mean YPLL <75years	36	33	35	36	33	35

* Rate ratios are standardised rate for male or female/standardised rate for persons.

This section covers all transport deaths including motor vehicle traffic and motor vehicle non-traffic, railway, water and air transport. It does not include transport-related injury deaths that were registered as intentional.

The left-hand panel of Table 2.2.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.2.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a small effect on this topic, increasing case numbers by a little more than one percent.

2.2.1 Overview

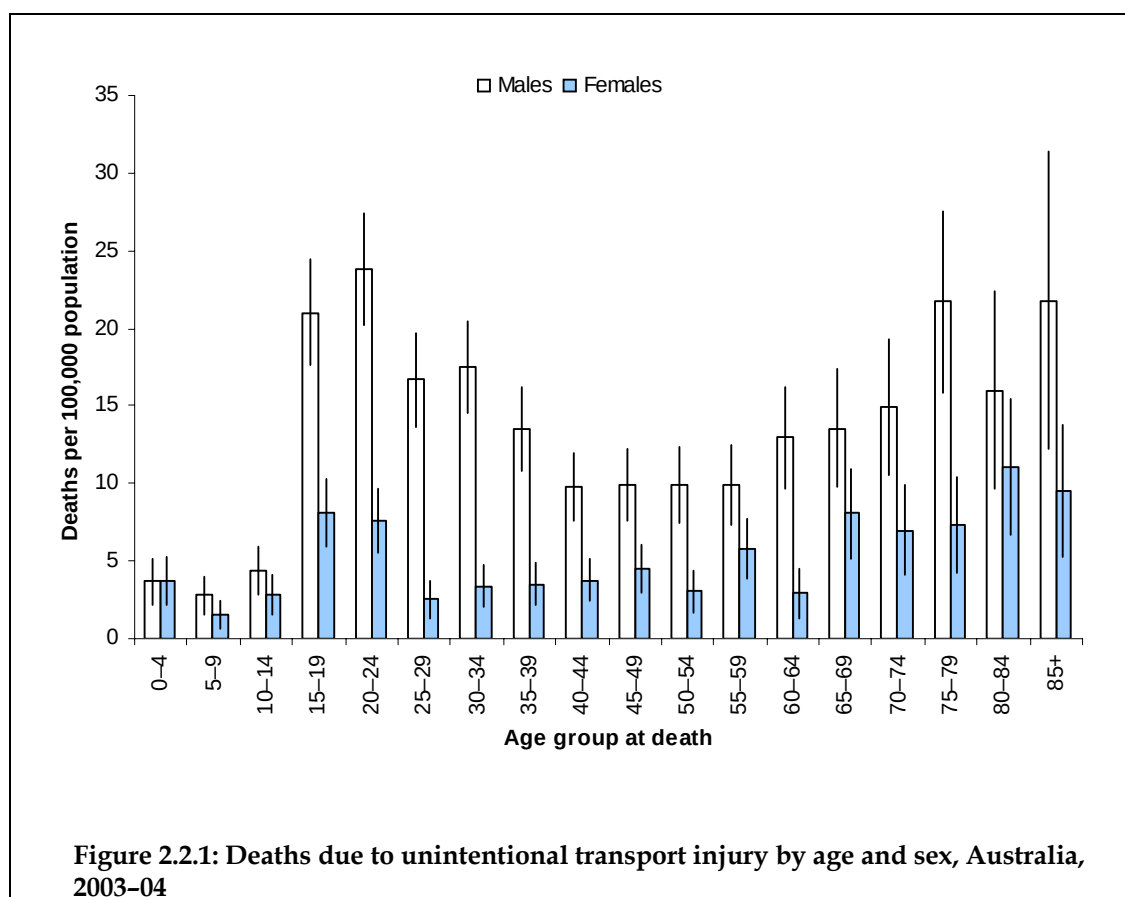
Table 2.2.2: Major mechanism of injury for transport deaths, Australia, 2003–04

Major mechanism of injury	Description	Males	Females	Persons
Motor vehicle traffic	Includes all fatalities due to on-road accidents in which a motor vehicle was involved	1,056	426	1,482
Other pedestrian and pedal cycle	Transport related cases where no motor vehicle was involved	54	20	74
Other motor vehicle non-traffic	Includes all fatalities due to off-road accidents in which a motor vehicle was involved	37	5	42
Other land transport		36	8	44
Water transport		32	2	34
Air transport		36	12	48
Total		1,251	473	1,724

Of the 1,724 transport-related deaths in 2003–04, 86% ($n=1,482$) resulted from on-road accidents involving a motor vehicle. These deaths are covered in more detail in Section 2.2.8 of this report. Of the remaining deaths, 4% ($n=74$) were transport-related deaths where no motor vehicle was involved, 2.4% ($n=42$) were off-road accidents involving motor vehicles and 2.6% ($n=44$) involved other forms of land transport. Water-related transport accounted for almost 2% ($n=34$) of all transport deaths, while air transport accounted for almost 3% ($n=48$) of all transport deaths.

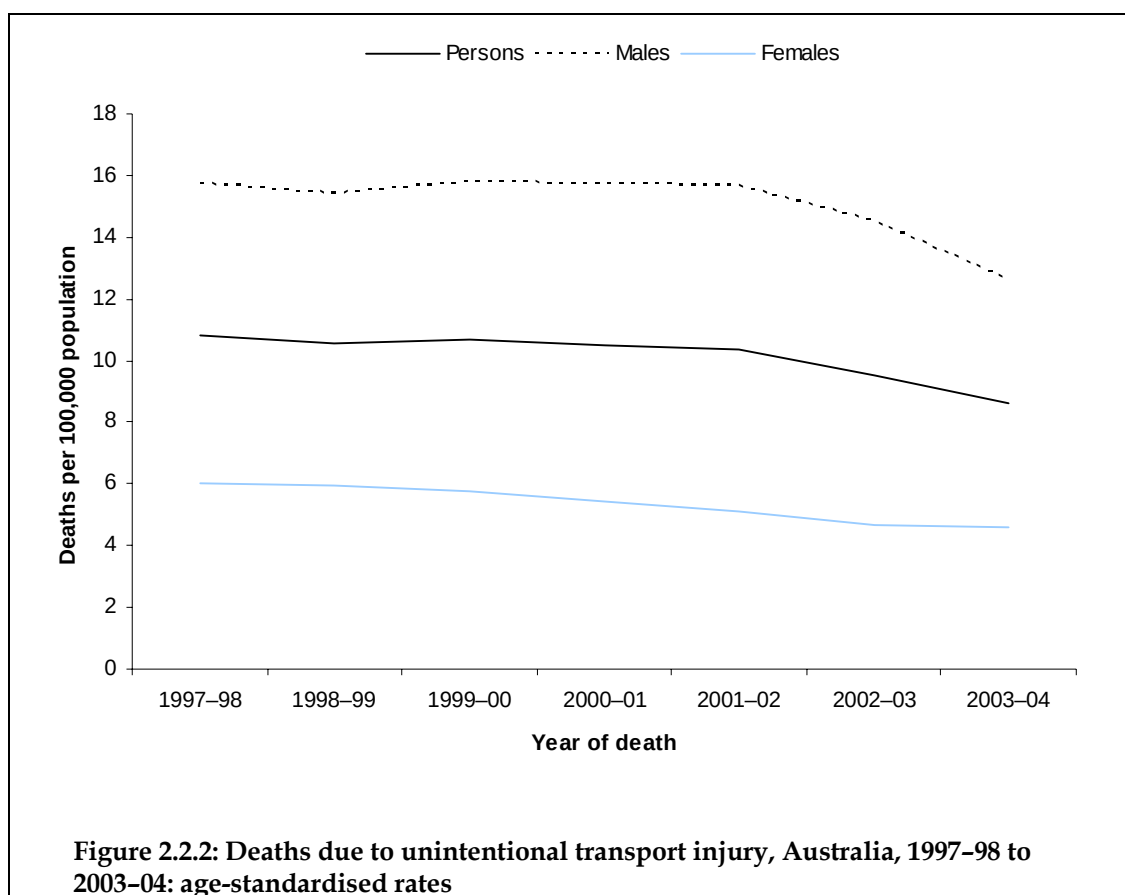
2.2.2 Age and sex distribution

Figure 2.2.1 shows age-specific death rates for all transport-related deaths in 2003–04. Males accounted for 72.6% ($n=1,251$) of all transport-related deaths during this period. Males in the 15–34 year age range accounted for 33% ($n=561$) of all transport-related deaths in 2003–04 while females in the same age range accounted for a further 9% ($n=148$). Adolescents, young adults and the elderly had the highest death rates. Male age-specific rates were markedly higher than female rates for all age groups except for children.



2.2.3 Trends in deaths rates

Figure 2.2.2 shows age-adjusted rates for all transport-related deaths for the period from 1997–98 to 2003–04. Overall age-adjusted rates for persons fell by 21% during this period. Age-adjusted rates for males remained relatively steady from 1997–98 to 2001–02 before falling by 19% between 2001–02 and 2003–04. Age-adjusted rates for females experienced a steadier decline falling by 24% over the entire period. This apparent decline is at least partly due to the problem of under-identification of cases described in sections 1.4 and 2.2.8.



2.2.4 State and territory rates

Figure 2.2.3 shows age-adjusted rates for all transport-related deaths by state or territory of residence for 2003–04. Age-adjusted rates for large population states were similar, varying from 7.5 per 100,000 population for New South Wales to 10 per 100,000 population for Western Australia. The rate for the Northern Territory (18.5) was more than double the rate for Australia (8.6), while the rate for Tasmania (13.0) was just over 50% higher than the national rate. The rate for the Australian Capital Territory (4.7) was by far the lowest, being just over 50% of the national rate. The data issue described in Section 2.2.8 especially affected identification of transport cases in New South Wales.

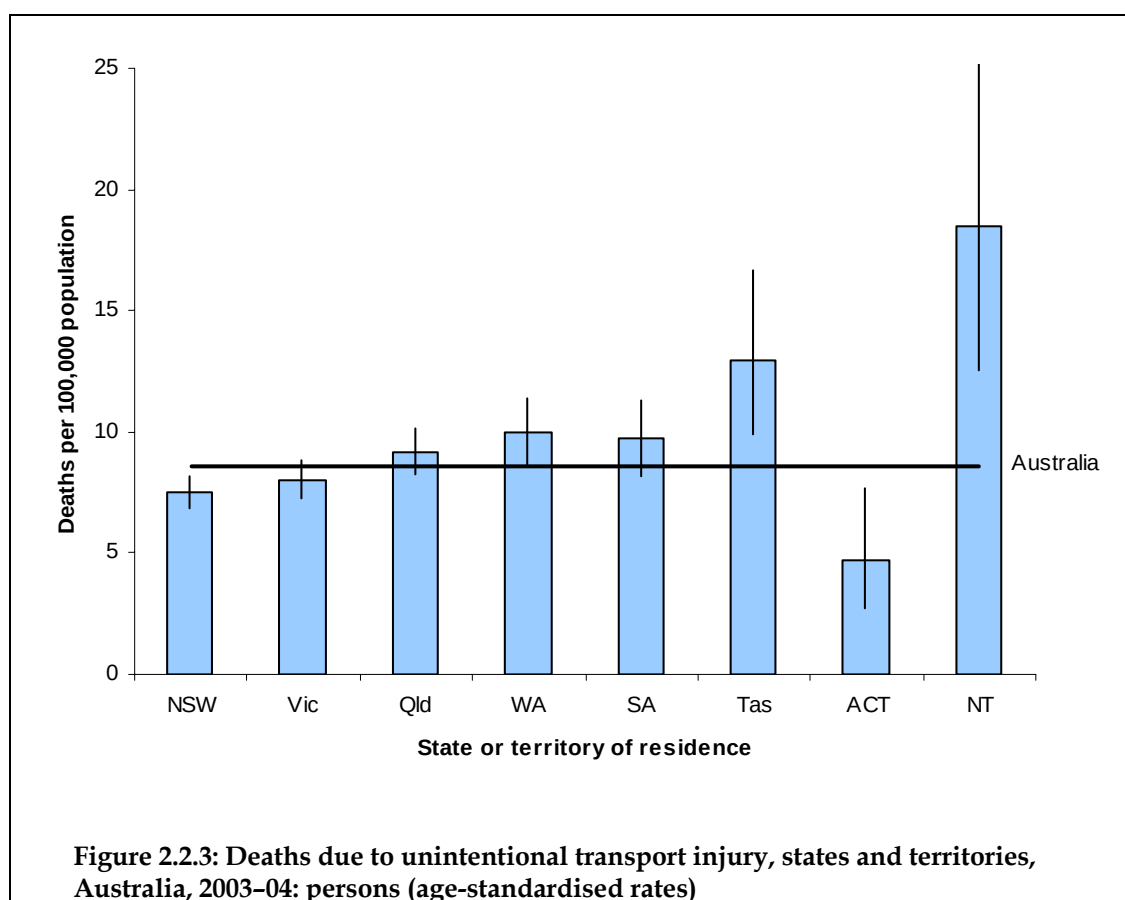


Table 2.2.3: Cases, age-adjusted rates and rate ratios* by state or territory for transportation deaths, Australia, 2003-04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	507	401	353	196	151	62	16	38
Adjusted rate (direct)	7.5	8.0	9.2	10.0	9.8	13.0	4.7	18.5
Rate ratio*	0.87	0.94	1.07	1.16	1.14	1.51	0.55	2.15

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.2.5 Remoteness of residence

Figure 2.2.4 shows age-adjusted rates for all transport-related injury deaths by remoteness zone of residence for 2003–04. Rates increased with the remoteness of the person's usual residence. Rates for major cities (6 deaths per 100,000 population) were significantly lower than the rate for Australia (8.4). Rates for the Inner regional, Outer regional and Remote zones were all significantly higher than the national rate varying from 12.5 deaths per 100,000 population for inner regional to 15.5 deaths per 100,000 population for the Remote zone. The rates for the Very remote zone (33.1) were almost 4 times higher than the national rate.

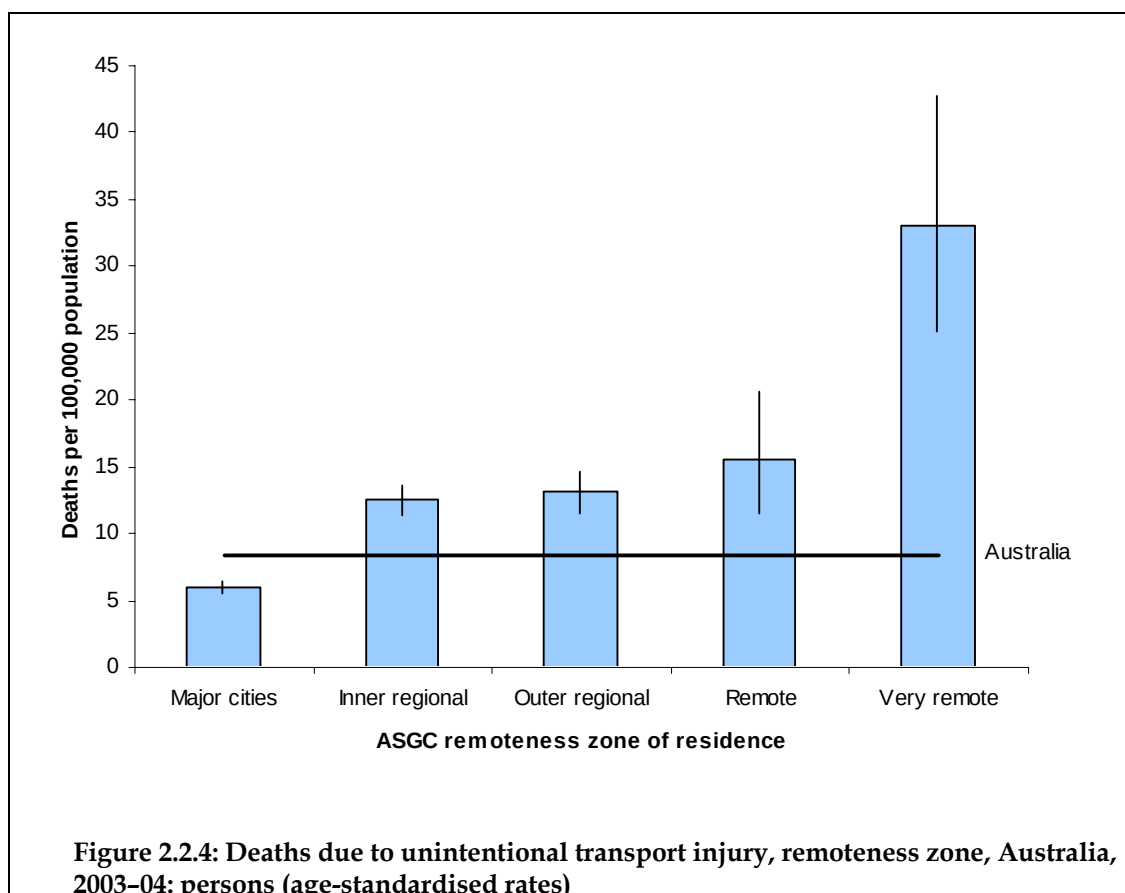


Table 2.2.4: Cases, age-adjusted rates and rate ratios* by remoteness zone for transportation deaths, Australia, 2003–04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	803	515	259	49	60
Adjusted rate (direct)	6.0	12.5	13.1	15.5	33.1
Rate ratio*	0.71	1.49	1.56	1.85	3.95

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.2.6 Nature of injury

Most deaths in this group were assigned a single nature of injury code that refers either to multiple injuries (without further specifying either the nature or bodily location of the injuries) or a category that refers to injuries to a general body location (e.g. 'Head'), without further specifying the nature of the injuries sustained. Table 2.2.5 shows the number of cases in which some more specific types of trauma were coded. This table suggests that by far the most common types of injury sustained were fractures and intracranial injury.

Table 2.2.5: Transport deaths, by sex and nature of injury, Australia, 2003–04

Nature of injury	Male	Female	Persons
Fracture	193	72	265
Intracranial injury	99	45	144
Burn	19	5	24
All transport injury deaths	1,251	473	1,724

2.2.7 Bodily location of injury

Almost 33% ($n=571$) of motor vehicle fatalities in 2003–04 were reported as having sustained at least one injury to the head. Just over 19% ($n=336$) sustained at least one injury to the thorax, just over 8% ($n=149$) sustained at least one injury to the neck while almost 8% ($n=132$) sustained at least one injury to the abdominal region. Almost 40% ($n=703$) of motor vehicle fatalities were reported as having sustained injuries to more than one body region.

Table 2.2.6: Transport deaths, by sex and bodily location of injury, Australia, 2003–04

Bodily location of injury	Male	Female	Persons
Head	421	150	571
Thorax	257	79	336
Neck	101	48	149
Abdomen, lower back, lumbar spine and pelvis	99	33	132
Lower limb	21	11	32
Upper limb	13	4	17
Multiple injuries	486	217	703
All transport injury deaths	1,251	473	1,724

2.2.8 Transport deaths: motor vehicle traffic

Multiple Cause of Death: [S00–T75](#), [T79](#) and *Pedestrians*: [V02–V04 \(.1,.9\)](#), [V09.2](#), *Pedal cyclists*: [V12–V14 \(.3-.9\)](#), [V19 \(.4-.6\)](#), *Motorcyclists*: [V20–V28 \(.3-.9\)](#), [V29 \(.4-.9\)](#), *Occupants*: [V30–V39 \(.4-.9\)](#), [V40–V49 \(.4-.9\)](#), [V50–V59 \(.4-.9\)](#), [V60–V69 \(.4-.9\)](#), [V70–V79 \(.4-.9\)](#), [V81.1](#), [V82.1](#), [V83–V86 \(.0-.3\)](#), *Other*: [V80 \(.3-.5\)](#), *Unspecified*: [V87 \(.0-.8\)](#), [V89.2](#); or

Underlying Multiple Cause of Death : *Pedestrians*: [V02–V04 \(.1,.9\)](#), [V09.2](#), *Pedal cyclists*: [V12–V14 \(.3-.9\)](#), [V19 \(.4-.6\)](#), *Motorcyclists*: [V20–V28 \(.3-.9\)](#), [V29 \(.4-.9\)](#), *Occupants*: [30–V39 \(.4-.9\)](#), [V40–V49 \(.4-.9\)](#), [V50–V59 \(.4-.9\)](#), [V60–V69 \(.4-.9\)](#), [V70–V79 \(.4-.9\)](#), [V81.1](#), [V82.1](#), [V83–V86 \(.0-.3\)](#), *Other*: [V80 \(.3-.5\)](#), *Unspecified*: [V87 \(.0-.8\)](#), [V89.2](#)

Table 2.2.7: Key indicators for motor vehicle traffic deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,056	426	1,482	1,039	421	1,460
Percentage of all injury deaths	17%	11%	15%	20%	16%	19%
Crude rate/100,000 population	10.6	4.2	7.4	10.5	4.2	7.3
Adjusted rate (direct)	10.7	4.1	7.4	10.5	4.1	7.3
Rate ratio*	1.45	0.56		1.45	0.56	
Mean YPLL <75years	36	32	35	36	33	35

* Rate ratios are standardised rate for male or female/standardised rate for persons.

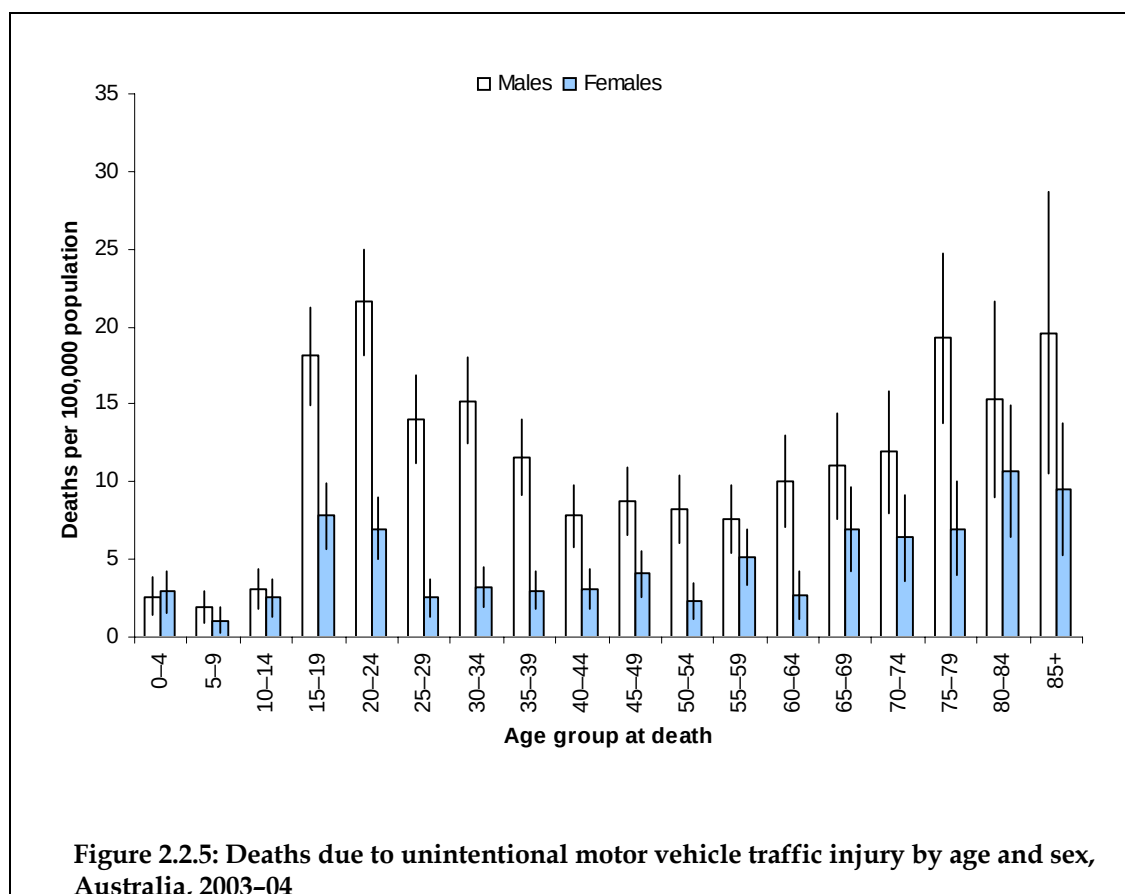
This section covers fatalities due to all on-road accidents in which a motor vehicle was involved.

The left-hand panel of Table 2.2.7 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.2.7 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a small effect on this topic, increasing case numbers by a little more than 1%.

The numbers of deaths indicated in Table 2.2.7 above are likely to be a significant underestimate of the true number of motor vehicle traffic-related deaths which occurred in 2003–04 (refer to Section 1.4). The Australian Bureau of Statistics have indicated that there may be a significant decline in deaths coded to some external cause categories in 2004 largely due to an increase in the number of coroner's cases not closed at the time the ABS finalised the 2004 deaths file (ABS 2005). A recent report estimated the number of road deaths in Australia to be 1,621 in 2003 and 1,598 in 2004 (Australian Transport Safety Bureau 2005). This is compared to the estimates of 1,555 in 2003 and 1,362 in 2004 obtained when using the ABS mortality unit record data collection. These figures represent 4% and 15% differences between those published by the Australian Transport Safety Bureau and those published by the ABS for the years 2003 and 2004 respectively. Analysis indicates differences in numbers for New South Wales accounts for the large majority of differences between the two data sources. Minor, but notable differences were also detected for Victoria, Queensland, Western Australia and South Australia in 2004. In light of these facts, the following charts and tables should be interpreted with caution.

2.2.8.1 Age and sex distribution

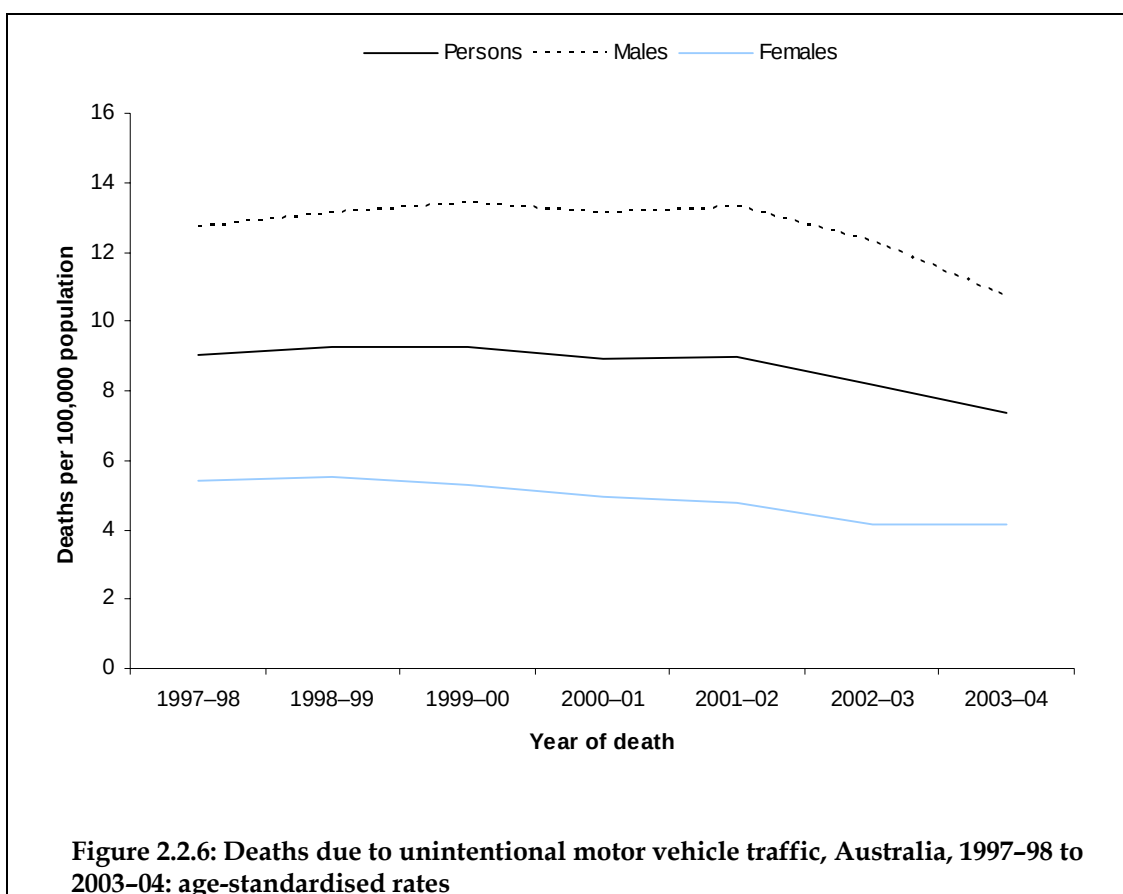
Figure 2.2.5 shows age-specific death rates for all motor vehicle traffic deaths in 2003–04. Males accounted for 71% ($n=1,056$) of all deaths in this group, while males aged 15–29 years, 75 years and older recorded the highest rates. Males aged 15–34 years accounted for 33% ($n=490$) of all motor vehicle traffic deaths. Male age-specific rates were markedly higher than female rates for all ages 15 and over.



2.2.8.2 Trends in deaths rates

Figure 2.2.6 shows age-adjusted rates for all motor vehicle traffic deaths for the period from 1997–98 to 2003–04. Overall age-adjusted rates for persons fell by 18% during this period. Age-adjusted rates for males increased by almost 5% from 1997–98 to 1999–00, remained steady for the next two years before falling almost 20% between 2001–02 and 2003–04. Age-adjusted rates for females experienced a steady decline falling by almost 25% from 1998–99 to 2002–03 with little change from 2002–03 to 2003–04.

For the reasons described in Section 2.2.8, the apparent decline in the rate in 2003–04, and to some degree, that in 2002–03, is at least partly due to under-identification of cases of this type.



2.2.8.3 State and territory rates

Figure 2.2.7 shows age-adjusted rates for all motor vehicle traffic deaths by state or territory of residence for 2003–04. Rates for the six most populous states increased as the state population declined varying from 6.4 per 100,000 population for New South Wales to 10.4 per 100,000 population for Tasmania. The rate for the Northern Territory (16.9) was more than double the national rate (7.4). The rate for the Australian Capital Territory (4.7) was the lowest rate, being just over 63% of the national rate.

The data issue described in Section 2.2.8 especially affected identification of motor vehicle transport cases in New South Wales and is likely to have led to a significant underestimation of the true death rate for this state.

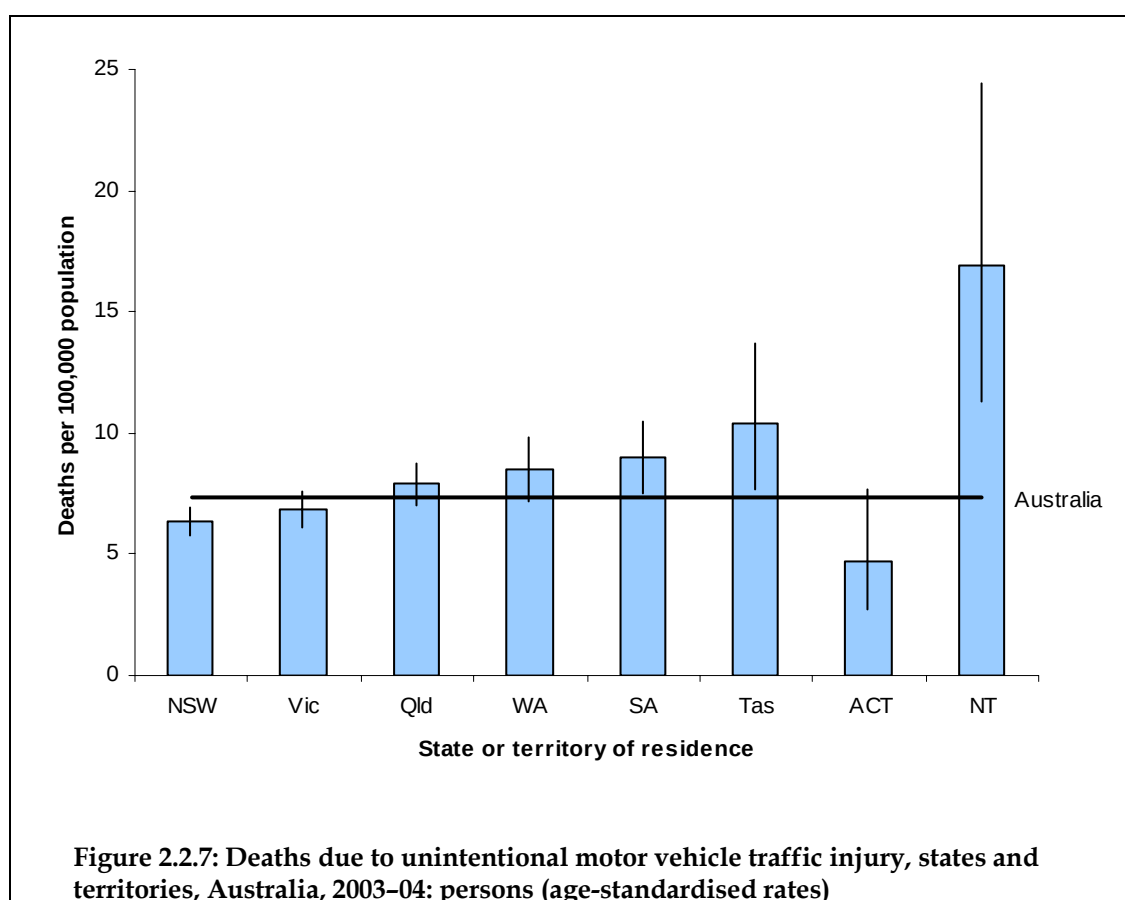


Table 2.2.8: Cases, age-adjusted rates and rate ratios* by state or territory for motor vehicle traffic crash deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	431	341	303	167	139	50	16	35
Adjusted rate (direct)	6.4	6.8	7.9	8.5	9.0	10.4	4.7	16.9
Rate ratio*	0.86	0.93	1.07	1.15	1.22	1.41	0.64	2.30

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.2.8.4 Remoteness of residence

Figure 2.2.8 shows age-adjusted rates for all motor vehicle traffic deaths by remoteness zone of residence for 2003–04. Rates increased with the remoteness of the person's usual residence. Rates for major cities (5.2 deaths per 100,000 population) were significantly lower than the national rate (7.2). Rates for Inner regional, Outer regional and Remote zones were all significantly higher than the national rate varying from 10.7 deaths per 100,000 population for Inner regional to 12.3 deaths per 100,000 population for Remote zones. Rates for Very remote zones (28.2) were almost four times higher than the national rate.

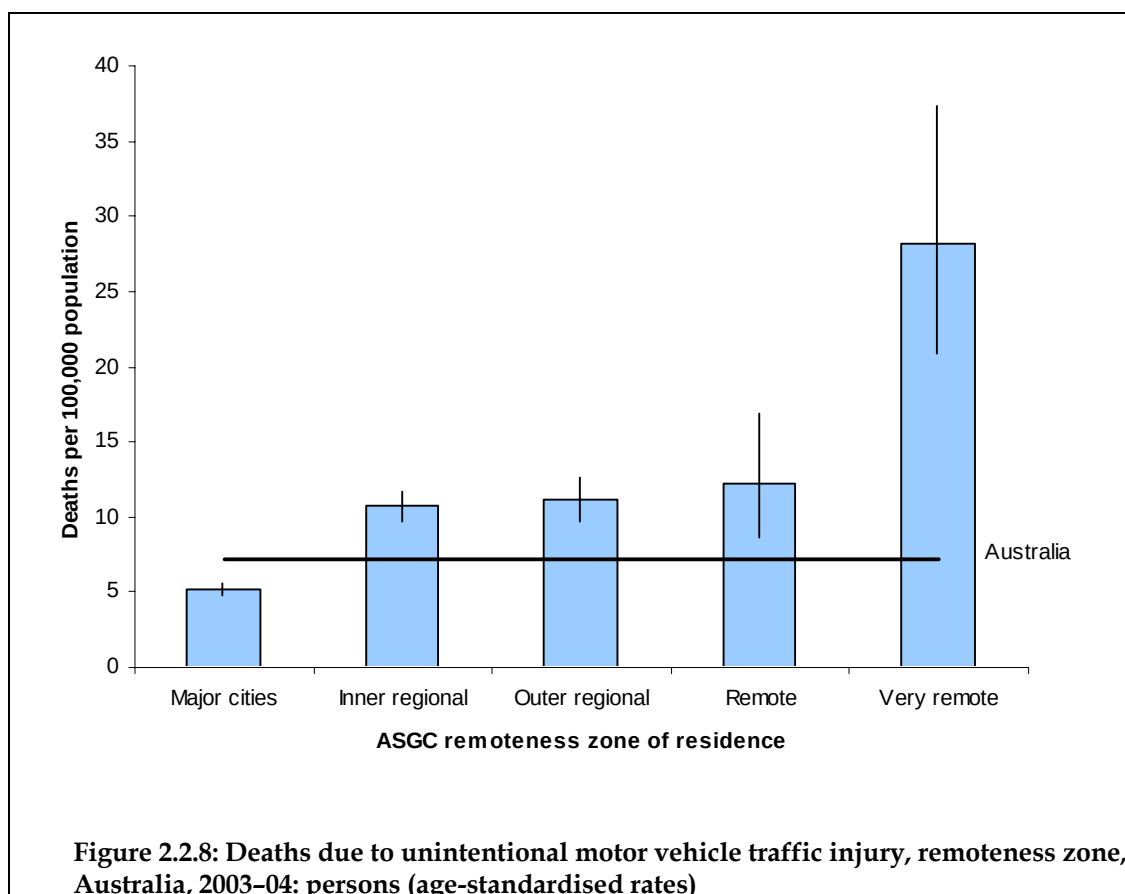


Table 2.2.9: Cases, age-adjusted rates and rate ratios* by remoteness zone for motor vehicle traffic crash deaths, Australia, 2003–04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	700	440	221	38	51
Adjusted rate (direct)	5.2	10.7	11.2	12.3	28.2
Rate ratio*	0.72	1.49	1.55	1.70	3.91

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.2.8.5 Road user type

Of the 1,482 motor vehicle traffic deaths in 2003–04, 64% ($n=942$) were motor vehicle occupants. Pedestrians accounted for 15% ($n=216$); motorcyclists for 12% ($n=183$) and pedal cyclists for 2% ($n=27$) respectively.

Table 2.2.10: Motor vehicle traffic deaths, by road user type and sex, Australia, 2003–04

Road user type	Male	Female	Persons
Pedestrian	150	66	216
Pedal cycle	23	4	27
Motorcycle	169	14	183
Occupant	637	305	942
Unspecified	77	37	114
Total	1,056	426	1,482

2.2.8.6 Occupant type

Drivers represented the largest group of vehicle occupant deaths 66% ($n=622$), reflecting the fact that the driver is the sole occupant of many vehicles. 77% of the drivers were males, compared with 46% of passengers, probably reflecting different gender-specific patterns of usage.

Table 2.2.11: Motor vehicle occupant deaths, by sex and type of occupant, Australia, 2003–04

Occupant type	Male	Female	Persons
Driver	476	146	622
Passenger	126	148	274
Unspecified occupant	35	11	46
Total	637	305	942

2.2.8.7 Vehicle type

By far the largest proportion of vehicle occupants died while travelling in a car (91%). The high proportion of males among fatally injured occupants of heavy transport vehicles and pickup trucks or vans was also very evident (Table 2.2.12).

Table 2.2.12: Motor vehicle occupant deaths, by sex and type of vehicle occupied, Australia, 2003–04

Type of vehicle	Male	Female	Persons
Three-wheeled motor vehicle	0	2	2
Car	559	294	853
Pickup truck or van	40	5	45
Heavy transport vehicle	32	1	33
Bus	1	2	3
Special agricultural vehicle	2	0	2
All-terrain or off-road vehicle	3	1	4
Total	637	305	942

2.2.8.8 Nature of injury

Similar to transport deaths, most deaths in this group were assigned a single nature of injury code that refers either to multiple injuries (without further specifying either the nature or bodily location of the injuries) or a category that refers to injuries to a general body location (e.g. 'Head'), without further specifying the nature of the injuries sustained. Table 2.2.13 shows the number of cases in which some more specific types of trauma were coded. This table suggests that by far the most common types of injury sustained were fractures and intracranial injury.

Table 2.2.13: Motor vehicle deaths, by sex and nature of injury, Australia, 2003–04

Nature of injury	Male	Female	Persons
Fracture	173	63	236
Intracranial injury	88	39	127
Burn	13	4	17

2.2.8.9 Bodily location of injury

Almost 34% ($n=502$) of motor vehicle fatalities in 2003–04 were recorded as having sustained at least one injury to the head. Just over 20% ($n=300$) sustained at least one injury to the thorax, 9% ($n=134$) sustained at least one injury to the neck while 8% ($n=122$) sustained at least one injury to the abdominal region. Almost 42% ($n=621$) of motor vehicle fatalities were reported as having sustained multiple injuries, which may have involved more than one body region.

Table 2.2.14: Motor vehicle deaths, by sex and bodily location of injury, Australia, 2003–04

Bodily location of injury	Male	Female	Persons
Head	368	134	502
Thorax	228	72	300
Neck	87	47	134
Abdomen, lower back, lumbar spine and pelvis	92	30	122
Lower limb	20	7	27
Upper limb	13	4	17
Multiple injuries	425	196	621

2.3 Fall deaths, Australia

Multiple Cause of Death: S00–T75, T79 and W00–W19; or X59 and any S02, S21, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, or T14.2; or

Underlying Cause of Death: W00–W19; or X59 and any S02, S21, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, or T14.2

Table 2.3.1: Key indicators for accidental falls (including X59+fracture) deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,225	1,735	2,960	691	850	1,541
Percentage of all injury deaths	20%	47%	30%	13%	32%	20%
Crude rate/100,000 population	12.3	17.3	14.8	7.0	8.5	7.7
Adjusted rate (direct)	15.4	13.0	14.0	8.6	6.4	7.3
Rate ratio*	1.10	0.93		1.17	0.87	
Mean YPLL <75years	4	1	2	6	2	4

* Rate ratios are standardised rate for male or female/standardised rate for persons.

This section covers deaths due to unintentional falls. This category of deaths was substantially affected by the change, in 1999, from ICD-9 to ICD-10. The impact of this change in classification was described in *Injury Deaths, Australia 1999* (Kreissfeld & Harrison 2005). In order to achieve good comparability with previous practice, a revised approach has been adopted to specifying ‘unintentional falls’. The rationale for this revised approach, which entails the inclusion of all cases where any multiple cause code was in the range W00–W19, or any multiple cause equal to X59 *Exposure to unspecified factor*, in combination with the presence of one or more multiple cause code indicating that a fracture has been sustained is described in the NISU Report ‘Injury Deaths, Australia 1999’ (Kreissfeld & Harrison 2005)

Note that this section does not include falls found to be suicides, homicides, or of undetermined intent; nor does it include falls associated with vehicles, nor those from burning structures, nor falls into water which resulted in drowning. The 2,960 fall-related cases which occurred in 2003–04 accounted for about 30% of all injury deaths (male 20%, female 50%).

The left-hand panel of Table 2.3.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.3.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a large effect on this topic, increasing case numbers by around 92%.

2.3.1 Overview of total falls deaths

All falls-related deaths which occurred in Australia in 2003–04 and detectable in mortality data are summarised in Table 2.3.2. The remainder of this section focuses on the 2,960 deaths that were due to unintentional falls that were not related to transport or drowning. Transport-related falls are included in Section 2.2 of this report while drowning-related falls are included in Section 2.4. Just over 3% ($n=103$) of all falls were suicide-related. These falls are included in Section 2.8 of this report.

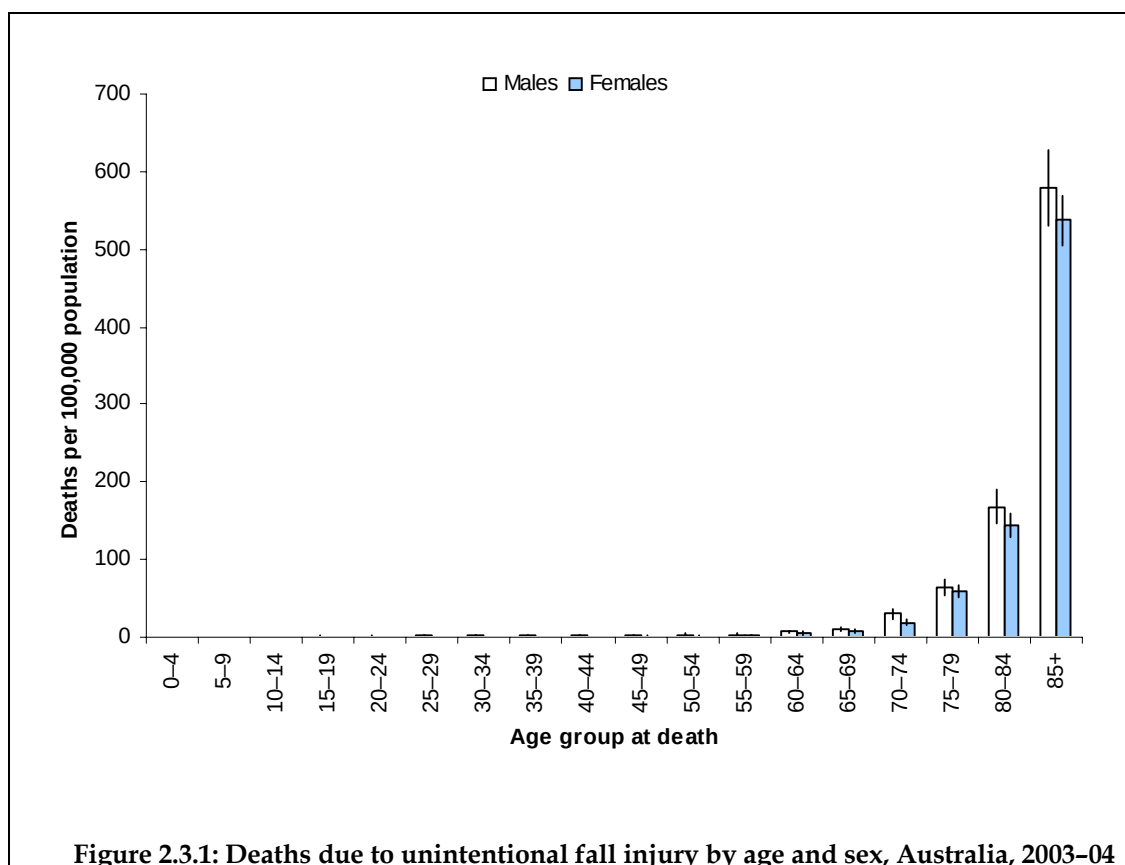
Table 2.3.2: All identifiable falls, Australia, 2003–04

ICD-10 codes	ICD Category	Males	Females	Persons
UCoD W00–W19	Unintentional falls	407	390	797
UCoD X59 + fracture		284	460	744
MCoD W00–W19 and S00–T75,T79		107	106	213
MCoD X59 + fracture and S00–T75,T79		427	779	1,206
Total unintentional falls deaths		1,225	1,735	2,960
V80.0	Unintentional transport-related falls	0	4	4
V81.6		1	1	2
W66, W68, W70	Unintentional drowning-related falls	35	10	45
Total other unintentional falls deaths		36	15	51
X80	Suicide-related falls	72	31	103
Y30	Falls, undetermined intent	2	1	3
Total intentional deaths		74	32	106
MCoD W00–W19 but without MCoD S00–T75,T79	Other ^(a)	17	24	41
Total falls deaths		1,352	1,806	3,158

(a) These cases are referred to as residual cases and are discussed in Section 4 of this report.

2.3.2 Age and sex distribution

Figure 2.3.1 shows age-specific deaths rates for falls for males and females during 2003–04. Fall rates are concentrated in older age groups and are particularly high among both males and females aged 85 and over. Female rates are higher than male rates in both the 80–84 and 85+ age groups, but not significantly so.



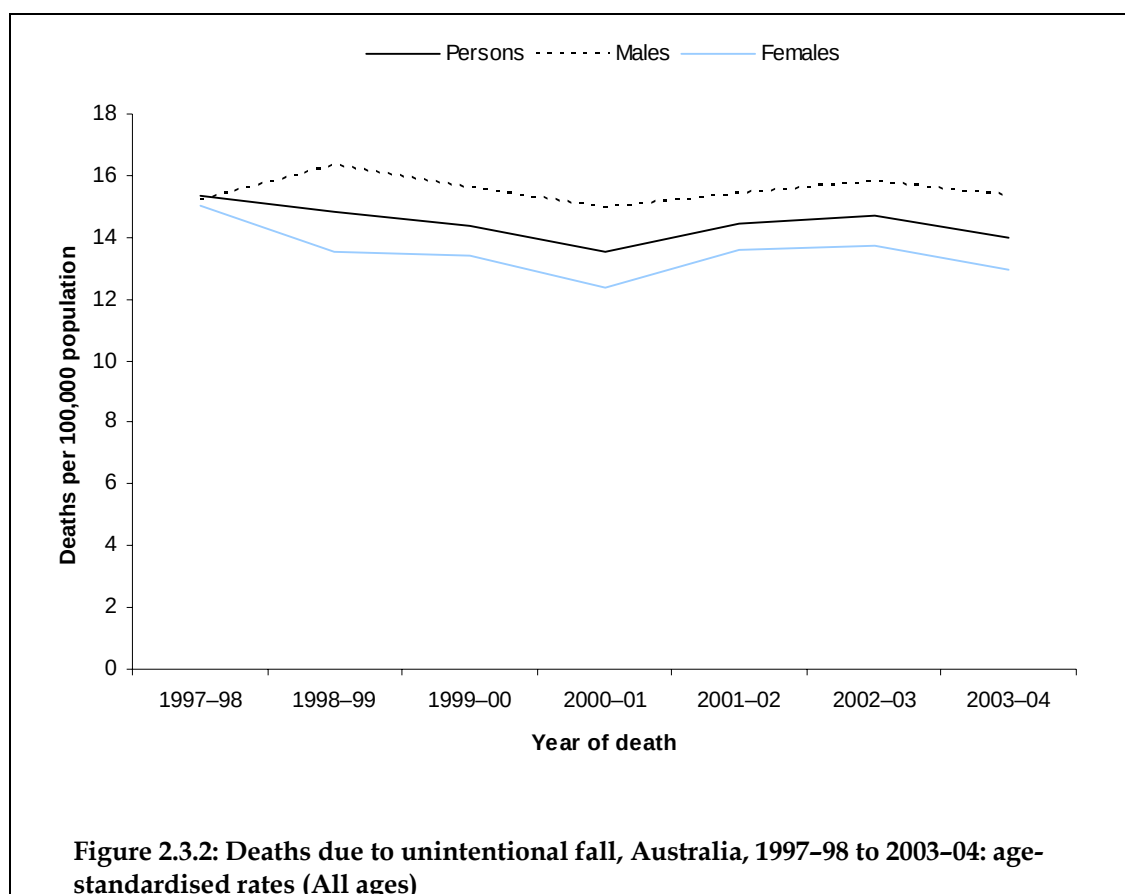
2.3.3 Trends in deaths rates

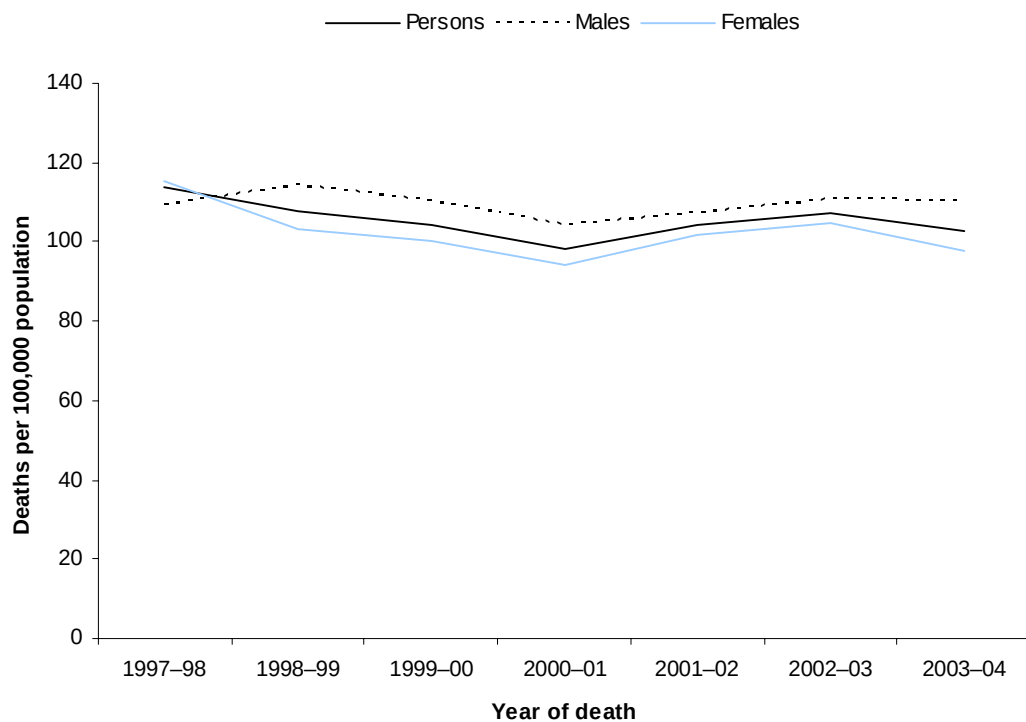
Figures 2.3.2 and 2.3.3 indicate age-adjusted rates of fall deaths in Australia for the period 1997–98 to 2003–04. The rates in Figure 2.3.2 are for fall deaths at all ages, while the rates in Figure 2.3.3 are for deaths at ages 65 years and older. Note that the scale of the vertical axis differs between these two figures, reflecting the much higher rates for this cause of death at older ages.

Overall, rates for persons for all age groups fell by almost 9% from 1997–98 to 2003–04, although some fluctuations in rates were observed during this period. Similarly, rates for persons aged 65 years and over fell by 10% from 1997–98 to 2003–04, also with some fluctuations in rates observed during this period.

It is also important to note that although there was a marked increase of 17% in the number of fall-related deaths (2,337 to 2,735) for persons aged 65 years and over, between 2000–01 and 2003–04, the rates for this period have not been significantly affected primarily due to Australia's ageing population.

Trends for this type of case are likely to be less affected than others in this report by the data issue described in Section 1.4, because only a minority of falls deaths are certified by coroners.





Note: During 2003 in Victoria, all deaths where the medical certificate mentions falls are now referred to a coroner for verification (ABS 2005). This has led to significant increases in the number of deaths assigned external cause codes in the range W00–W19 in 2003 and 2004 in Victoria. However, the practice of including cases with an X59 plus a fracture in our case definition appears to already include most of these deaths. Hence the above change in policy should not significantly affect the trends shown in Figures 2.3.2 or 2.3.3 above.

Figure 2.3.3: Deaths due to unintentional fall, Australia, 1997-98 to 2003-04: age-standardised rates (aged 65 years and older)

2.3.4 State and territory rates

Figure 2.3.4 shows age adjusted rates of fall deaths occurring in 2003–04 for Australia's states and territories. Rates appear to differ across jurisdictions. However, these apparent differences should be interpreted cautiously, because variations in collection and coding might contribute to them.

The rates were similar for New South Wales, Victoria, Queensland and the Australian Capital Territory, where rates were close to the national rate (14 deaths per 100,000 population). Western Australia and Tasmania experienced slightly higher rates (17.4 and 17.6 respectively) whilst the rate for the Northern Territory was more than double that of the national rate. This last result should be interpreted cautiously due to the low case numbers in the Northern Territory as indicated by the wide confidence intervals. South Australia recorded the lowest rate (8.8); data issues may contribute to this, since rates of hospitalised injury in South Australia are not particularly low (Berry & Harrison 2006).

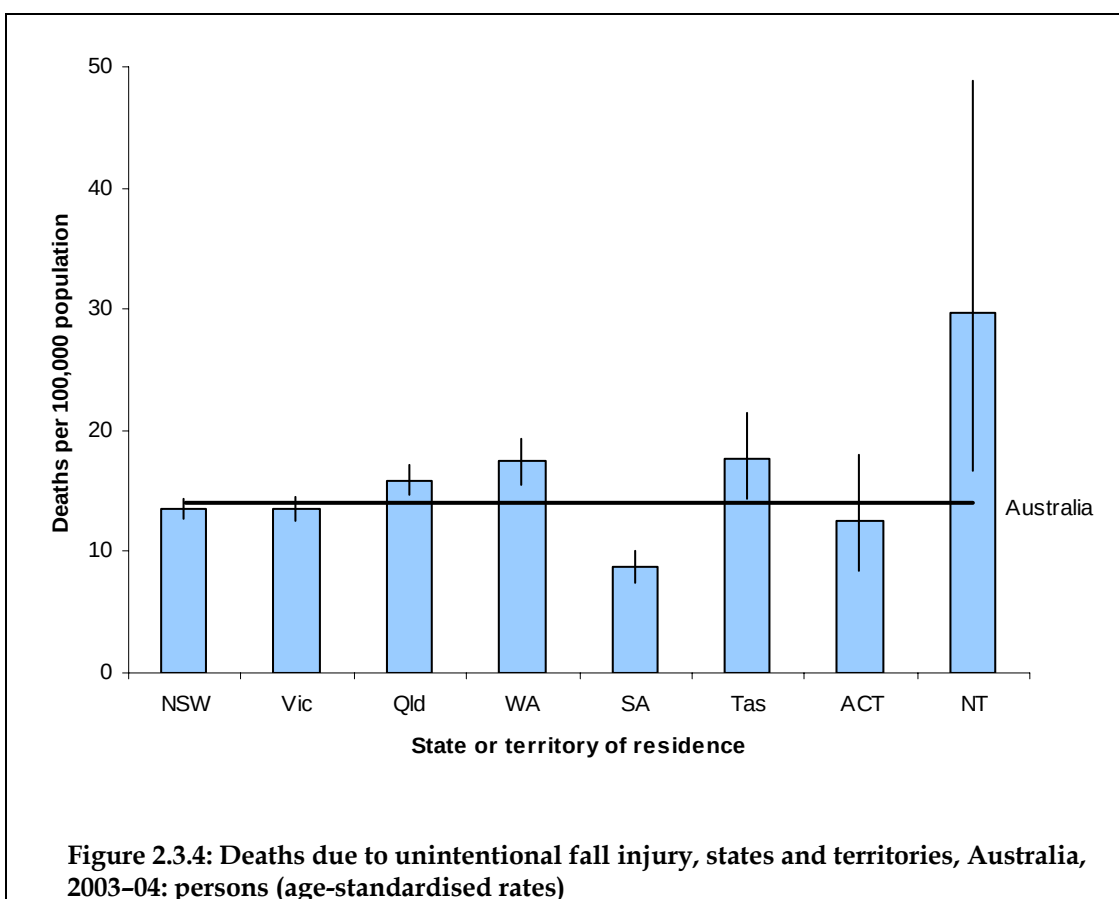


Table 2.3.3: Cases, age-adjusted rates and rate ratios* by state or territory for accidental falls (including X59+fracture) deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	1,002	736	586	316	173	97	30	19
Adjusted rate (direct)	13.5	13.6	15.9	17.4	8.8	17.6	12.6	29.7
Rate ratio*	0.97	0.97	1.14	1.25	0.63	1.26	0.90	2.12

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.3.5 Remoteness of residence

Figure 2.3.5 shows age-adjusted rates for falls deaths occurring in 2003–04 by remoteness zone of person's residence. Rates do not appear to be strongly associated with remoteness. All zones, apart from the most remote zone, recorded rates very close to the national rate (14 deaths per 100,000 population). The rate for the very remote zone (28) was double the national rate, although this result should be interpreted cautiously due to low case numbers.

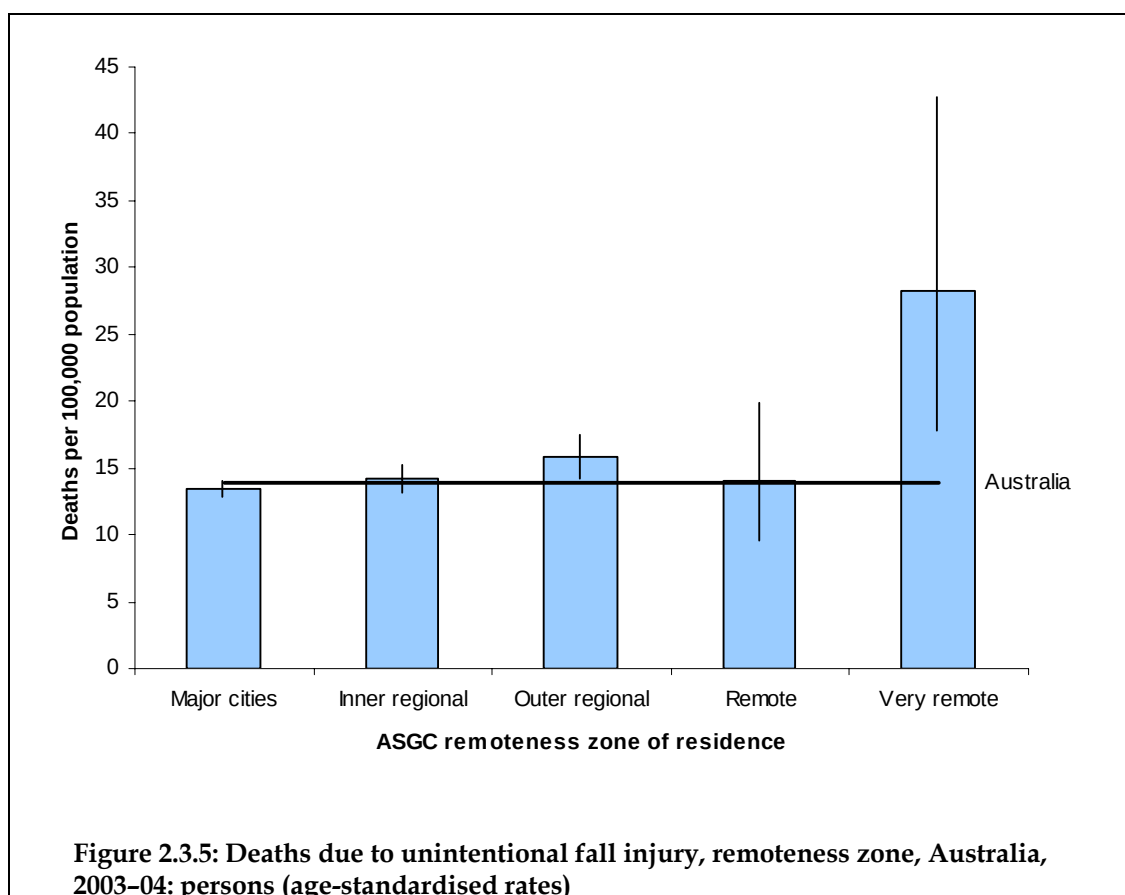


Table 2.3.4: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental falls (including X59+fracture) deaths, Australia, 2003–04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	1887	678	332	32	23
Adjusted rate (direct)	13.5	14.2	15.8	14.0	28.3
Rate ratio*	0.97	1.02	1.13	1.00	2.02

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.3.6 Nature of injury

During 2003–04 almost 80% ($n=2,366$) of falls fatalities were recorded as having sustained at least one fracture. Of these, almost 73% ($n=1,716$) were hip fractures. Just over 11% of falls fatalities were recorded as having sustained intracranial injuries.

Table 2.3.5: Falls deaths, by sex and nature of injury, Australia, 2003–04

Nature of injury	Male	Female	Persons
All fractures	882	1,484	2,366
Hip fracture	630	1,086	1,716
Intracranial	177	150	327

2.3.7 Bodily location of injury

Almost 16% ($n=479$) of falls fatalities in 2003–04 were recorded as having sustained at least one injury to the head. Just over 8% ($n=239$) sustained at least one injury to the abdominal region, 5% ($n=173$) sustained at least one injury to the thorax while only 3% ($n=84$) sustained at least one injury to the neck. As can be seen from Table 2.3.5 above, the vast majority of the injuries relating to the lower limb region were hip fractures.

Table 2.3.6: Falls deaths, by sex and bodily location of injury, Australia, 2003–04

Bodily location of injury	Male	Female	Persons
Head	277	202	479
Neck	48	36	84
Thorax	94	64	158
Abdomen, lower back, lumbar spine and pelvis	76	163	239
Upper limb	54	119	173
Lower limb	648	1,132	1,780
Multiple	36	14	50

2.4 Drowning deaths, Australia

Multiple Cause of Death: [S00–T75, T79](#) and [W65–W74](#); or

Multiple Cause of Death: [T75.1](#) and [V01–X59](#); or

Underlying Cause of Death: [W65–W74](#)

Table 2.4.1: Key indicators for accidental drowning and submersion deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	198	62	260	150	51	201
Percentage of all injury deaths	3%	2%	3%	3%	2%	3%
Crude rate/100,000 population	2.0	0.6	1.3	1.5	0.5	1.0
Adjusted rate (direct)	2.0	0.6	1.3	1.5	0.5	1.0
Rate ratio*	1.54	0.48		1.51	0.50	
Mean YPLL <75years	35	38	36	37	39	38

* Rate ratios are standardised rate for male or female/standardised rate for persons.

Previous NISU mortality reports have restricted the scope of the chapter on unintentional drowning deaths to those with an UCoD in the range W65–W74. This report uses an expanded scope that includes cases with one or more MCoDs in the same range (W65–W74), or T75.1 *Drowning and nonfatal submersion* in combination with a code in the range V01–X59 (i.e. unintentional injury) among the MCoDs. This expansion brings about the inclusion of cases of drowning that were associated with a range of external causes such as transport accidents.

While the focus of this chapter is on *Unintentional drownings* in 2003–04, some information has also been included on *Total drownings* during that year (Table 2.4.2). That is, all deaths that can be identified in the ABS mortality data as involving drowning, irrespective of other cause of death codes. Identification of drowning deaths for this report was based only on UCoD and MCoD codes. In previous reports a special ‘drowning’ data item was also used. Provision of this item was discontinued by the ABS for deaths registered after 2002.

The left-hand panel of Table 2.4.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.4.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria had a moderate effect on this topic, increasing case numbers by a just over 29%.

2.4.1 Overview

260 *Unintentional drowning* deaths occurred in 2003–04. The *Unintentional drowning* deaths that occurred during 2003–04 accounted for 3% of all injury deaths. In 12 cases, the person was recorded as being Aboriginal or Torres Strait Islander.

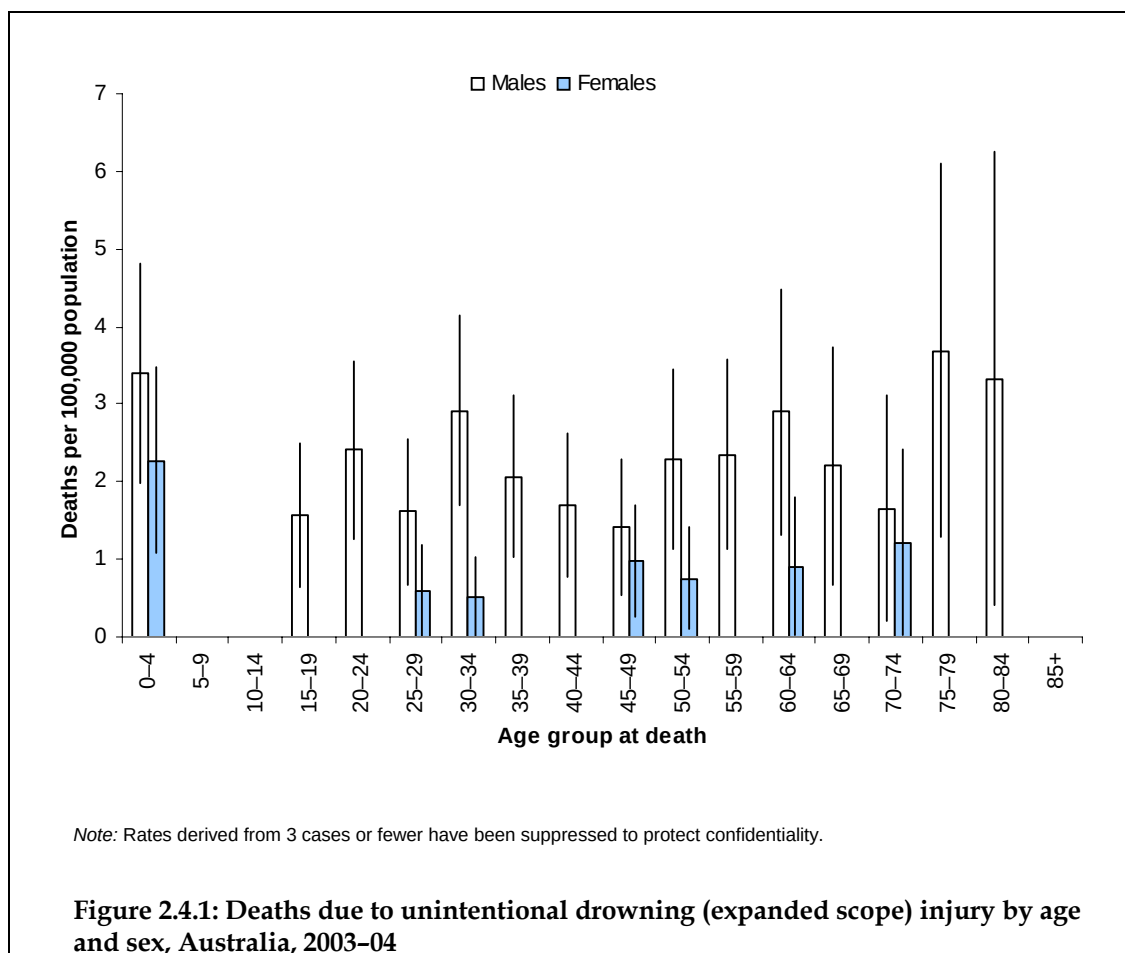
Table 2.4.2: All identifiable drowning cases in 2003–04

Number of cases in 2003–04	Percentage of all drowning cases in 2003–04	ICD-10 codes	ICD Category	Coverage in this report	Terminology in this report
260	76.2%	MCoD S00–T75, T79 and W65–W74; or MCoD T75.1 and V01–X59; or UCoD W65–W74	Unintentional drowning and submersion (includes water transport accidents and road transport related drownings)	Drowning	Unintentional drowning
260	76.2%				Total unintentional drowning deaths
69	20.2%	T75.1 and X60–X84	Intentional self-harm by drowning and submersion	Suicide	Other drowning identified by external cause codes
3	0.9%	T75.1 and X85–Y09	Assault by drowning and submersion	Homicide	
8	2.3%	T75.1 and Y10–Y34	Drowning and submersion, undetermined intent	Undetermined intent	
80	23.5%				Total intentional drowning deaths
1	0.3%	MCoD V90, V92, X71, X92, Y21 and no T75.1, T79) and (no UCoD W65–W74)	Other		
341	100.0%				Total drowning deaths

Note: Versions of this table in previous years identified the total number of drowning deaths using a combination of the relevant External Cause codes and the supplementary drowning flag which the ABS used to identify and code the location and circumstances of drowning deaths. The ABS has discontinued the practice of assigning a drowning flag.

2.4.2 Age and sex distribution

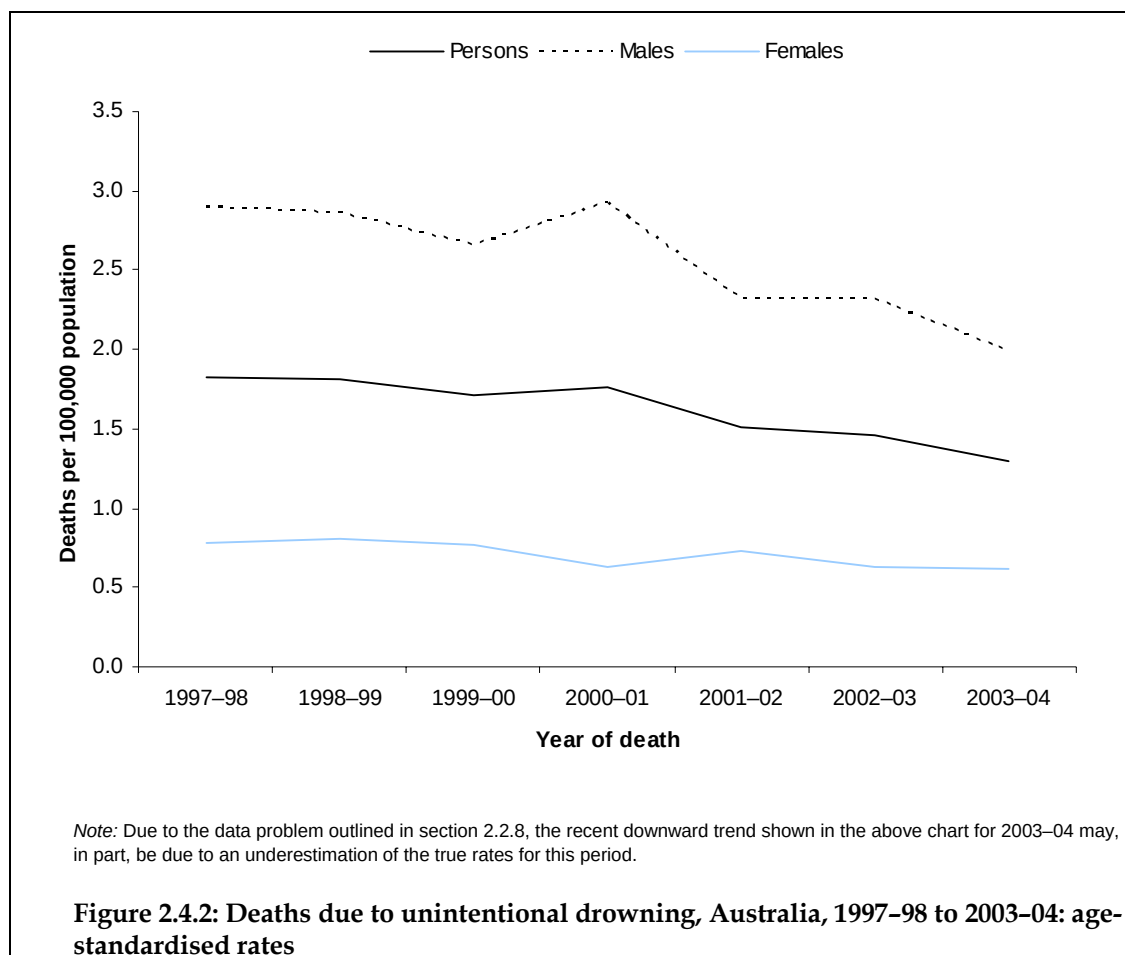
3.2 times as many men as women drowned during 2003–04 (Males: 198; Females 62).
14% ($n=36$) of Unintentional drowning deaths occurred to children aged 0–4 years.



2.4.3 Trends in death rates

Overall, the age-adjusted rate fell by 29% between 1997–98 and 2003–04. This continues a general downward trend since at least 1920 (Bordeaux & Harrison 1998). Between 2002–03 and 2003–04, the age-adjusted rate fell by 11%.

It is not yet clear whether trends for this type of case have been affected by the issue discussed in Section 1.4.



2.4.4 State and territory rates

Two states, Victoria (low) and the Northern Territory (high) had rates that were statistically significantly different from that for Australia as a whole (1.3 per 100,000 population).

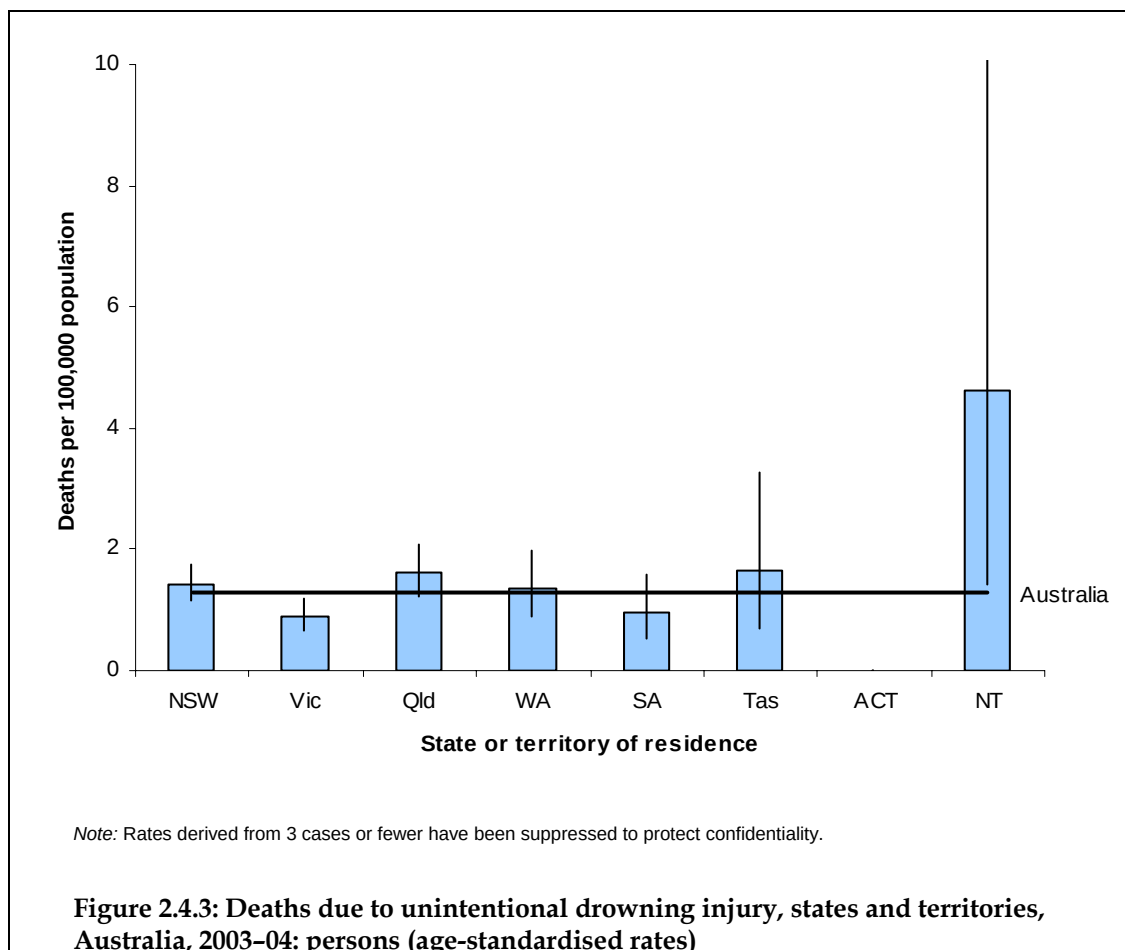


Table 2.4.3: Cases, age-adjusted rates and rate ratios* by state or territory for accidental drowning and submersion (expanded scope) deaths, Australia, 2003-04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	97	44	62	26	15	8	..	7
Adjusted rate (direct)	1.4	0.9	1.6	1.4	1.0	1.7	..	4.6
Rate ratio*	1.11	0.69	1.24	1.05	0.74	1.28	..	3.57

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.4.5 Remoteness of residence

Age-adjusted rates rose slightly according to the remoteness of the deceased person's residence. The rate for drownings in the very remote zone has been suppressed (see note to Table 2.4.3).

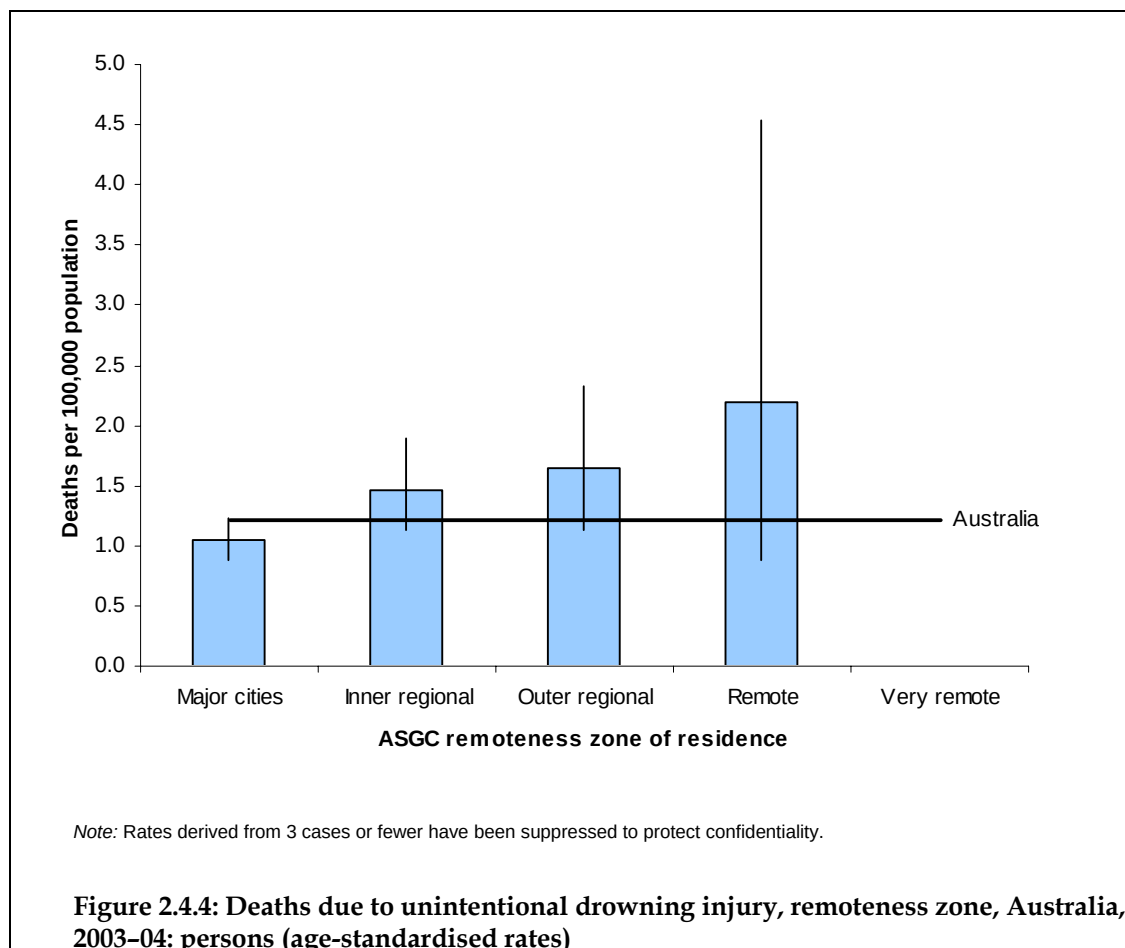


Table 2.4.4: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental drowning and submersion (expanded scope) deaths, Australia, 2003-04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	138	61	33	7	..
Adjusted rate (direct)	1.0	1.5	1.6	2.2	..
Rate ratio*	0.87	1.22	1.36	1.82	..

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.4.6 Associated factors

2.4.6.1 Drowning in natural water

94 (36%) of deaths were the result of drowning while in a body of natural water. Close to two-thirds ($n=62$, 66%) of cases were aged between 15 and 54 years. The majority of deaths in this group involved males ($n=82$, 87%).

In 65 (69%) of cases, the person drowned while in the water. In the remaining 29 (31%) cases, the drowning occurred after the person fell into a body of natural water.

2.4.6.2 Drowning in bathtubs

16 (6%) of the drowning deaths occurred in a bathtub. 14 (88%) of these cases were male and 8 (50%) involved children aged 0–4 years. The remaining 8 (50%) deaths involved young or middle-aged persons.

In 14 (88%) cases the person died while in the bathtub. In the remaining 2 (12%) cases, the death occurred after the person fell into the bath.

2.4.6.3 Transport-related drownings

39 cases of drowning were related to transport, either motor vehicle or watercraft. The majority of cases ($n=29$, 74%) involved persons aged 25–64 years. 90% of cases were male.

In 8 (21%) cases, drowning was caused by an accident to watercraft (e.g. overturning or sinking boat, falling or jumping from a burning ship or crushed watercraft, etc.) In 14 (36%) cases, the drowning was water-transport related, but did not result from an accident to watercraft (e.g. fall from gangplank or ship, fall overboard, etc.). The remaining 17 cases were related to various types of motor vehicle accident (e.g. drowning when a car ends up submerged in water after a crash).

2.4.6.4 Drowning in swimming pools

In 35 (14%) cases, the drowning occurred in a swimming pool. 17 (49%) of these cases involved children aged less than five years. Across all ages, male cases were more frequent ($n=21$, 60%) than female cases ($n=14$, 40%). The all-ages rate for swimming pool drownings was 0.2 deaths per 100,000 population.

In 20 (57%) of these cases, the deceased person was already in the swimming pool when they drowned. In the remaining 15 (43%) of cases, they drowned after falling into the pool.

Swimming pool drownings occurred most frequently in the 0–4 year age group ($n=17$, 49%).

Children aged 0–4 years

The rate of death by drowning in a swimming pool for children aged 0–4 years was 0.9 per 100,000 population.

Queensland and New South Wales had the highest rates of swimming pool drownings for children aged 0–4 years (0.12 and 0.11 per 100,000 population, respectively). Other states and territories all had 3 or fewer cases.

Annual rates have fluctuated, partly as a consequence of fairly small case numbers. Overall, there was no discernible trend for the seven year period shown in Figure 2.4.5.

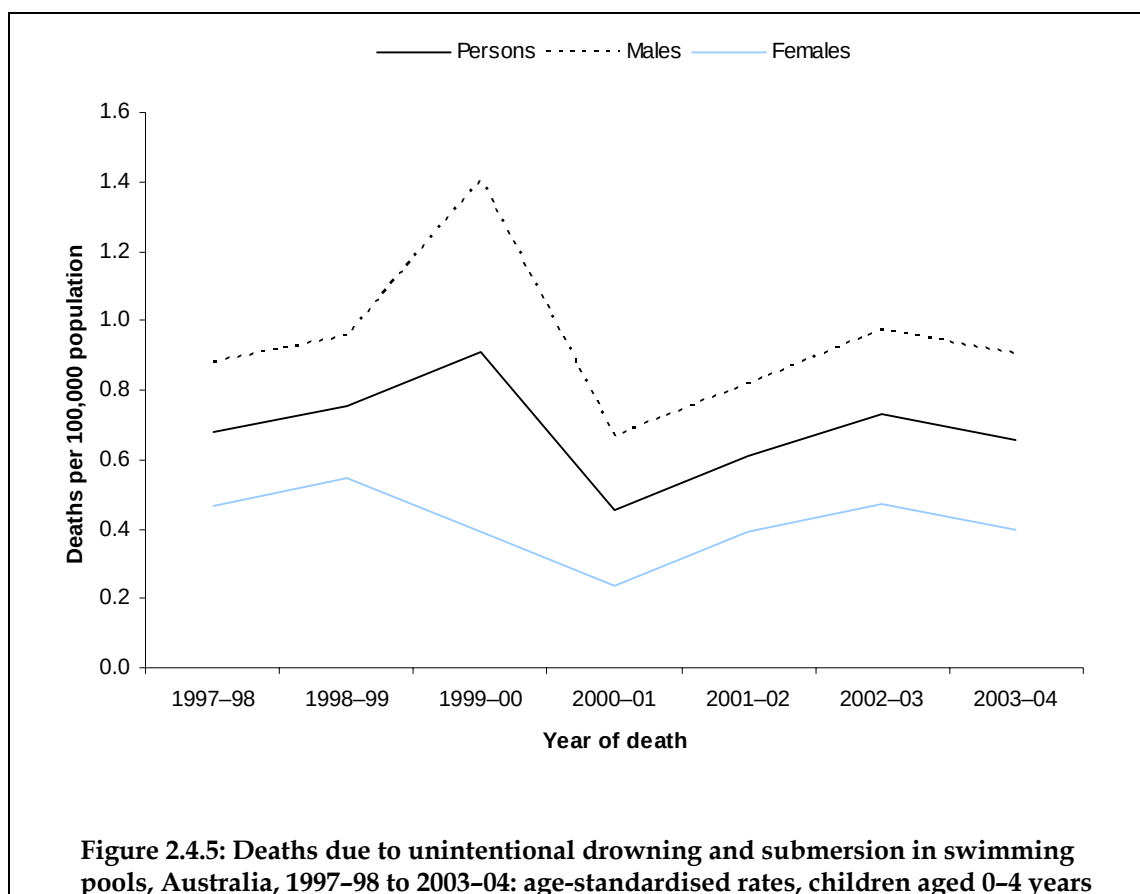


Table 2.4.5: Swimming pool drownings among children aged 0-4 years, Australia, 1997-98 to 2003-04

Year of death registration	Cases	Age-specific rate
1997-98	18	0.7
1998-99	20	0.8
1999-00	24	0.9
2000-01	12	0.5
2001-02	16	0.6
2002-03	19	0.7
2003-04	17	0.7

2.5 Poisoning deaths, Australia

Multiple Cause of Death: [S00–T75, T79](#) and [X40–X49](#); or

Multiple Cause of Death: [T36–T65](#) and [V01–X59](#); or

Underlying Cause of Death: [X40–X49](#)

Table 2.5.1: Key indicators for accidental poisoning deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	689	315	1,004	510	225	735
Percentage of all injury deaths	11%	8%	10%	10%	9%	9%
Crude rate/100,000 population	6.9	3.1	5.0	5.1	2.2	3.7
Adjusted rate (direct)	7.0	3.0	5.0	5.2	2.2	3.7
Rate ratio*	1.39	0.61		1.40	0.59	
Mean YPLL <75years	35	29	34	37	30	35

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The subject of this chapter is deaths involving poisoning. The main focus is on unintentional poisoning, but Section 2.5.1 provides an overview of all poisoning deaths, irrespective of intent.

Unintentional poisoning deaths can be divided into two main types, *Poisoning by drugs* (ICD10 X40–X44 or (T36–T50 and V01–X59) and *Poisoning by other substances* (ICD-10 X45–X49 or (T51–T65 and V01–X59). In 2003–04, 824 and 304 deaths, respectively, were coded to these two categories. 124 deaths were assigned codes for both *Poisoning by drugs* and *Poisoning by other substances*. These two types of cases are considered separately in Subsections 2.5.2 and 2.5.3.

The left-hand panel of Table 2.5.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.5.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a substantial effect on this topic, increasing case numbers by almost 37%.

2.5.1 Overview of total poisoning deaths

All deaths identifiable as being due to poisoning, which occurred in Australia in 2003–04 are summarised in Table 2.5.2, according to the ICD code ranges assigned as MCoD.

Table 2.5.2: Deaths with Multiple cause codes for poisoning*, Australia, 2003–04

Multiple Cause of Death	Males	Females	Persons
Unintentional Poisoning (X40–X49) or (T36–T65 and V01–X59)	689	315	1,004
Intentional self-harm (X60–X84, Y87.0) and (T36–T65)	475	192	667
Intentional harm by another person (X85–Y09, Y36–Y36, Y87.1, Y89.0, Y89.1) and (T36–T65)	0	2	2
Undetermined intent (Y10–Y34, Y87.2) and (T36–T65)	18	11	29
Other (Y40–Y84) and (T36–T65)	2	4	6
Total	1,184	524	1,708

* Defined as presence in any MCoD field of a code in the range X40–X49 or T36–T65.

Note: There were no cases which had any codes in the ranges X60–X69, X85–X90 or Y10–Y19, and without any code in the range T36–T65.

Of the total poisoning deaths which occurred in 2003–04, 59% ($n=1,004$) were unintentional and 39% ($n=667$) were as a result of intentional self-harm. Only two poisoning deaths were as a result of intentional harm by another person while a further 1.7% ($n=29$) were of undetermined intent.

The remainder of this section focuses on the 1,004 deaths that were due to unintentional poisoning. Section 2.5.2 reports on unintentional poisonings that were due to drugs while Section 2.5.3 reports on unintentional poisonings that were due to non-pharmaceutical substances. Poisoning deaths that were due to intentional self-harm are covered in Section 2.8 of this report, while poisoning deaths that were due to intentional harm by another are covered in Section 2.9 of this report.

2.5.2 Unintentional poisoning by drugs

Multiple Cause of Death: [S00–T75, T79](#) and [X40–X44](#); or

Multiple Cause of Death: [T36–T50](#) and [V01–X59](#); or

Underlying Cause of Death: [X40–X44](#)

Table 2.5.3: Key indicators for accidental poisoning by drugs deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	550	274	824	447	218	665
Percentage of all injury deaths	9%	7%	8%	9%	8%	8%
Crude rate/100,000 population	5.5	2.7	4.1	4.5	2.2	3.3
Adjusted rate (direct)	5.6	2.7	4.1	4.5	2.1	3.3
Rate ratio*	1.35	0.64		1.36	0.64	
Mean YPLL <75years	37	30	34	37	31	35

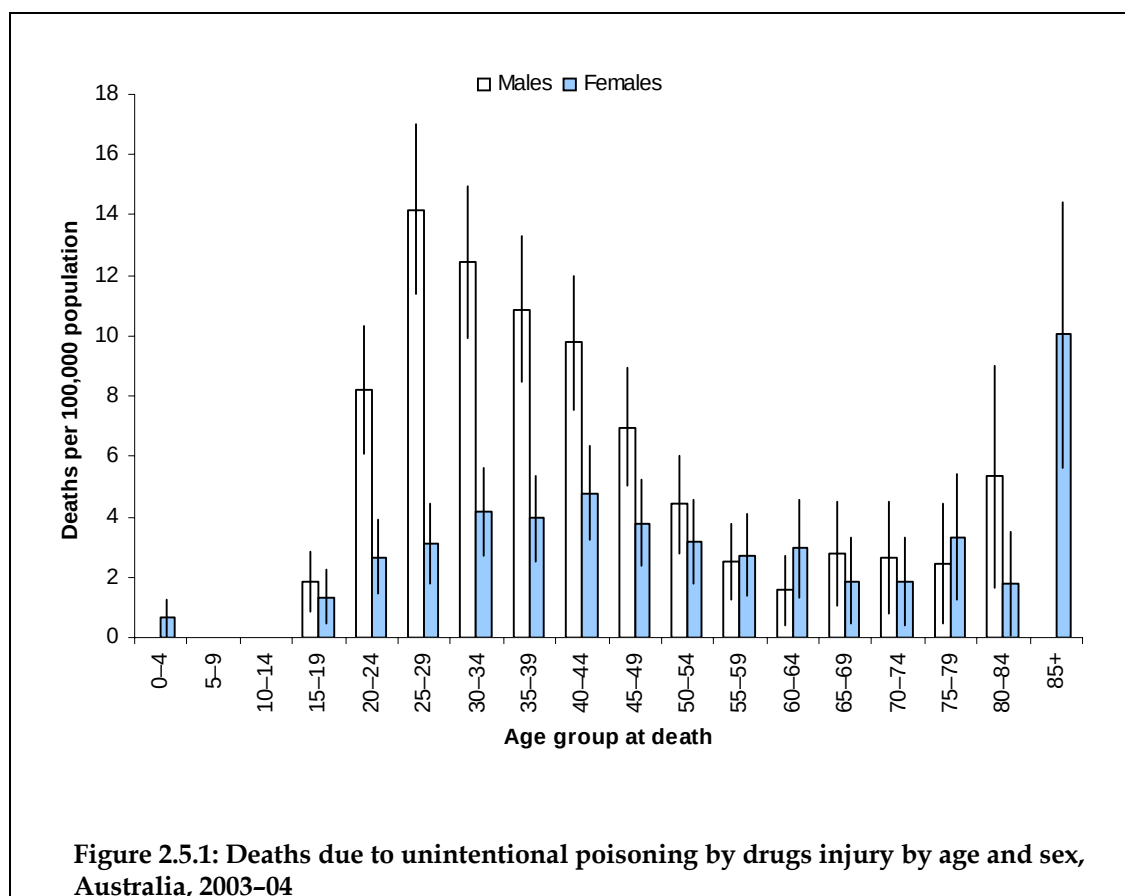
* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.5.3 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.5.3 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a moderate effect on this topic, increasing case numbers by around 24 percent.

It is possible that the number of deaths indicated in Table 2.5.3 above is an overestimate of the true number of drug poisoning-related deaths which occurred in 2003–04. It is quite possible that some of these deaths may be due to intentional self-harm (suicide). Some of these cases also may be due to assault (homicide), although this is less likely. These issues are examined in more detail in Section 1.4 of this report. In light of these facts, the following charts and tables should be interpreted with caution.

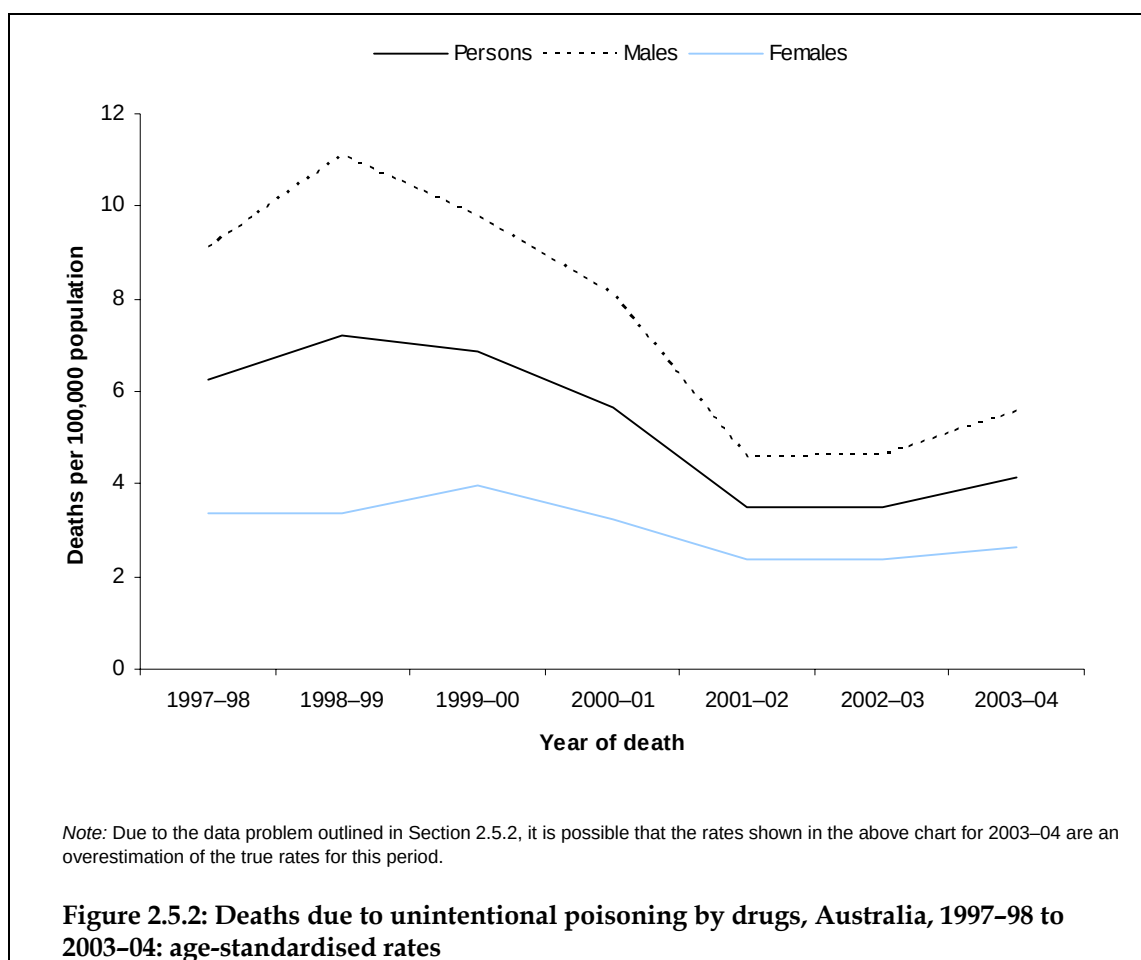
2.5.2.1 Age and sex distribution

Figure 2.5.1 shows age and sex distribution for deaths due to unintentional poisoning by drugs. In 2003–04, males accounted for almost 67% ($n=550$) of Unintentional poisoning deaths due to drugs. Rates were highest for males aged 20–44 years with this age group accounting for 73% of all male unintentional drug deaths. Males between 20 and 39 years had rates 3 to 4½ times higher than females in the equivalent age group. The rate of 10 deaths per 100,000 population for females aged 85 years and older is markedly higher than for previous years, though based on small case numbers.



2.5.2.2 Trends in deaths rates

Figure 2.5.2 shows trends in deaths due to Unintentional poisoning by drugs for the period from 1997–98 to 2003–04. The main feature is a significant downward trend in rates between 1998–1999 and 2001–02 with rates for all persons dropping by 52% from 7.2 deaths per 100,000 population to just under 3.5 deaths per 100,000 population. This drop coincides with the end of an epidemic of drug poisoning, mainly poisoning by opiate narcotics (chiefly heroin). Death rates were steady between 2001–02 and 2002–03 before rising again between 2002–03 and 2003–04.



2.5.2.3 State and territory rates

Figure 2.5.3 shows death rates due to unintentional poisoning in 2003–04 by state or territory of residence. Queensland, Western Australia and the Australian Capital Territory all had rates which were significantly lower than the national rate (4.1 deaths per 100,000 population). Tasmania and the Australian Capital Territory also recorded rates lower than the national rate. New South Wales, Victoria and South Australia all had rates higher than the national rate, although the rate for South Australia was only marginally higher.

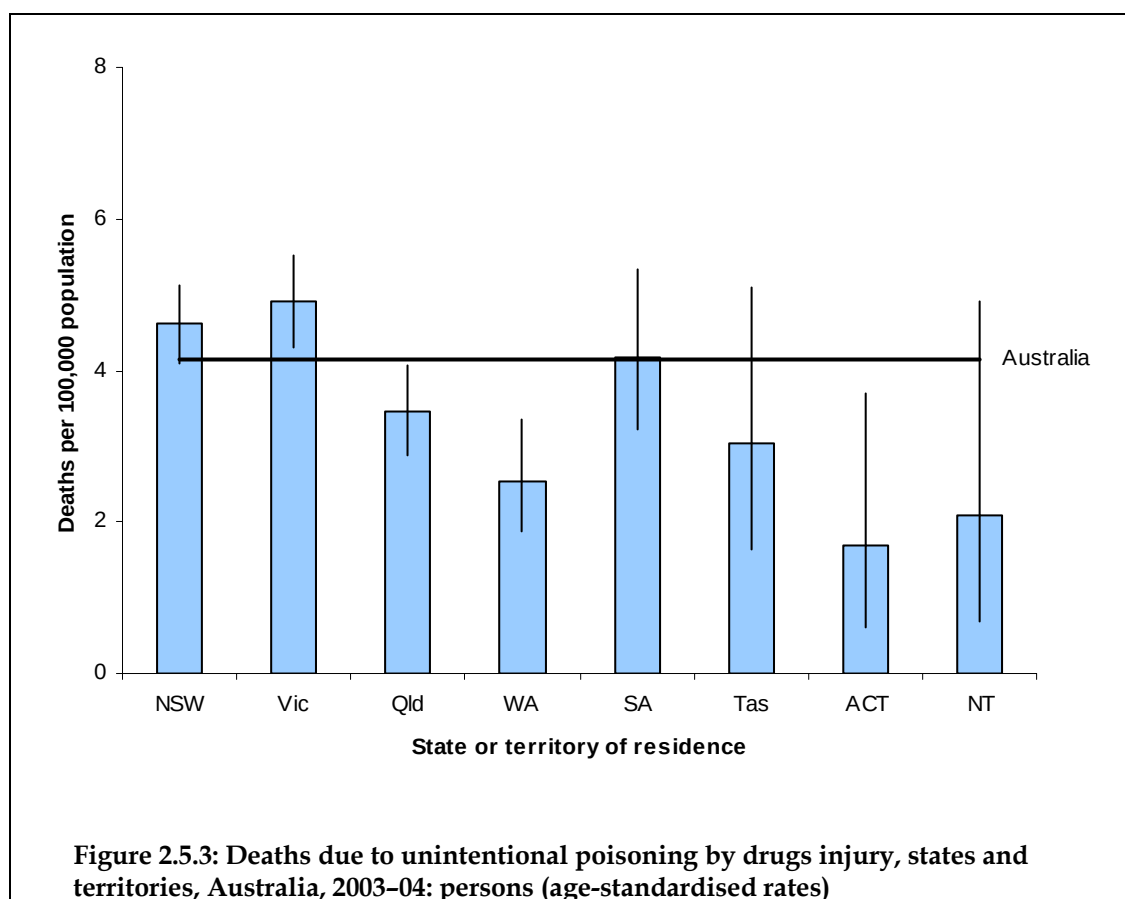


Table 2.5.4: Cases, age-adjusted rates and rate ratios* by state or territory for accidental poisoning by drugs deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	309	243	132	50	65	14	6	5
Adjusted rate (direct)	4.6	4.9	3.5	2.5	4.2	3.0	1.7	2.1
Rate ratio*	1.12	1.19	0.84	0.61	1.01	0.73	0.41	0.51

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.5.2.4 Remoteness of residence

Figure 2.5.4 shows age-adjusted rates for poisoning by drugs deaths occurring in 2003–04 by remoteness zone of person's residence. Only persons living in major cities experienced a rate which was significantly higher than the national rate (4.0 deaths per 100,000 population). This result may reflect easier availability of drugs in more heavily populated areas. Death rates for persons living in Inner regional, Outer regional and Remote areas were lower than the national rate. The death rate for person livings in very remote areas was very low.

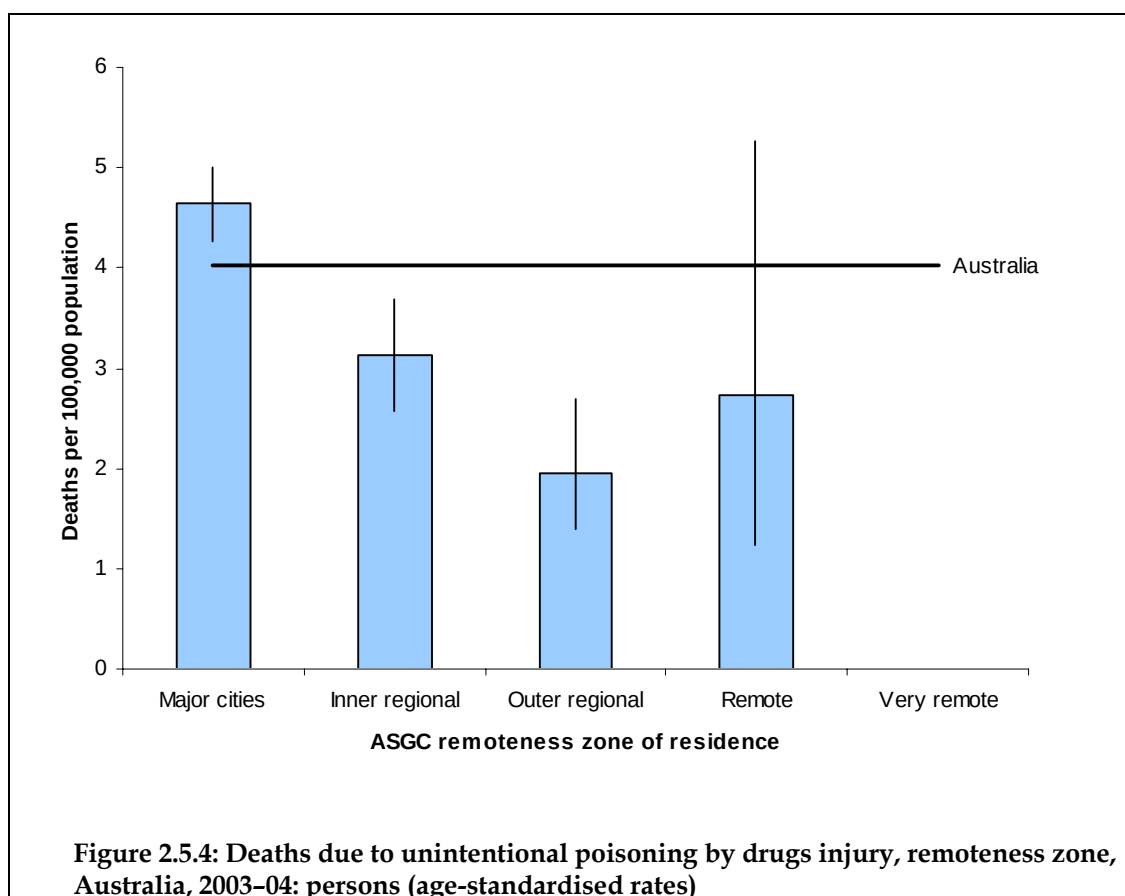


Table 2.5.5: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental poisoning by drugs deaths, Australia, 2003–04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	628	124	39	9	..
Adjusted rate (direct)	4.6	3.1	2.0	2.7	..
Rate ratio*	1.15	0.78	0.49	0.68	..

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.5.2.5 Associated factors

Almost 56% ($n=459$) of the cases were coded to the category T40 *Poisoning by narcotics and psychodysleptics [hallucinogens]* (345 males, 114 females). Of these cases, 34% ($n=158$) were exposed to poisoning by heroin, 42% ($n=192$) were exposed to poisoning by other opioids, and 16% ($n=74$) were exposed to poisoning by methadone. Almost 87% ($n=398$) of these cases were in the age range 20–49.

Just over 26% ($n=216$) of the cases were coded to the category T42 *Poisoning by antiepileptic, sedative-hypnotic and antiparkinsonism drugs* (148 males, 68 females). Of these cases, 91% ($n=197$) were exposed to poisoning by benzodiazepines. Just over 82% ($n=178$) of these cases were in the age range 20–49.

Just over 25% ($n=208$) of the cases were coded to the category T43 *Poisoning by psychotropic drugs, not elsewhere classified* (132 males, 76 females). Of these cases, 62% ($n=134$) were exposed to poisoning by antidepressants. Just over 73% ($n=152$) of these cases were in the age range 20–49.

2.5.3 Unintentional poisoning by other substances

Multiple Cause of Death: [S00–T75](#), [T79](#) and [X45–X49](#); or

Multiple Cause of Death: [T51–T65](#) and [V01–X59](#); or

Underlying Cause of Death: [X45–X49](#)

This sub-section deals with unintentional poisonings by substances other than drugs. It includes acute poisoning by alcoholic beverages, petroleum substances, agricultural chemicals, motor vehicle exhaust gas, food stuffs and poisonous plants.

Table 2.5.6: Key indicators for accidental poisoning by other substances deaths, Australia, 2003–04

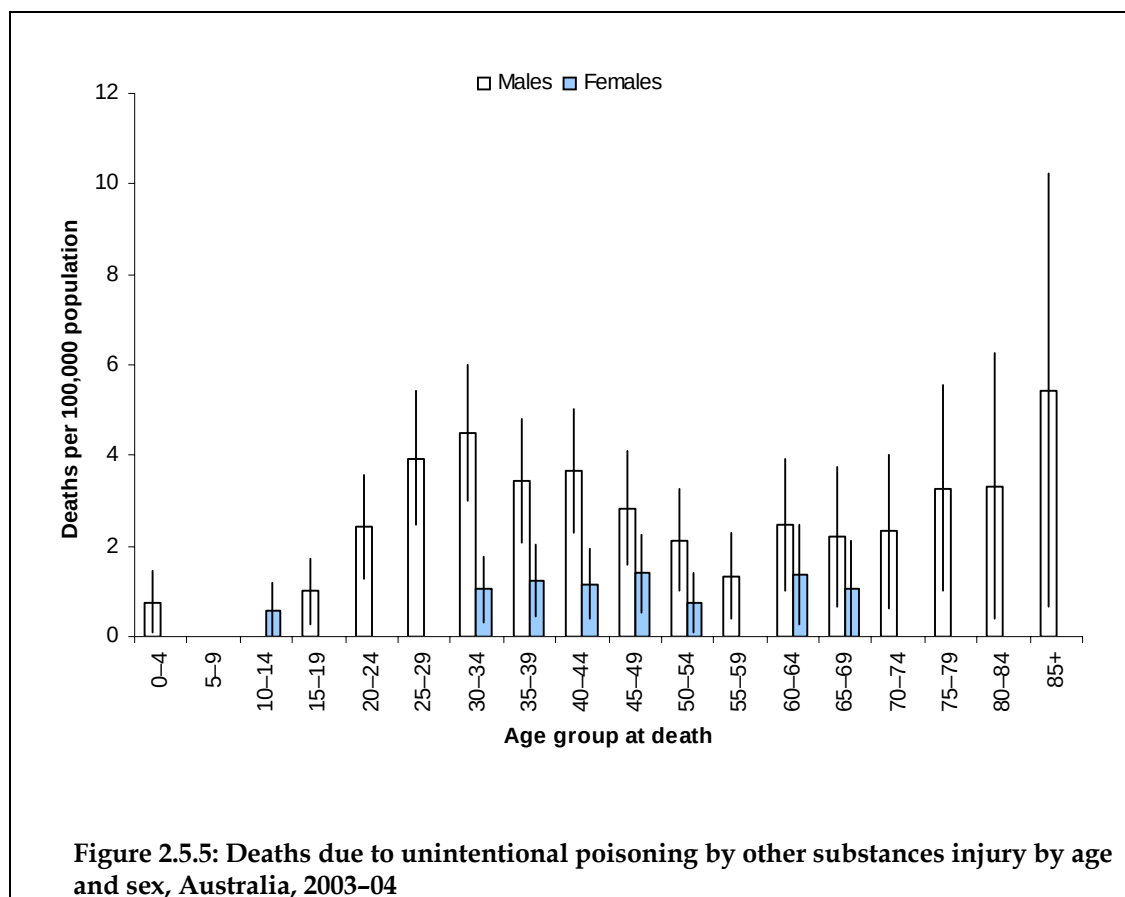
Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	231	73	304	63	7	70
Percentage of all injury deaths	4%	2%	3%	1%	0%	1%
Crude rate/100,000 population	2.3	0.7	1.5	0.6	0.1	0.4
Adjusted rate (direct)	2.4	0.7	1.5	0.6	0.1	0.4
Rate ratio*	1.55	0.47		1.84	0.18	
Mean YPLL <75years	33	30	32	32	14	30

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.5.6 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.5.6 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a large effect on this topic, increasing case numbers by 334%.

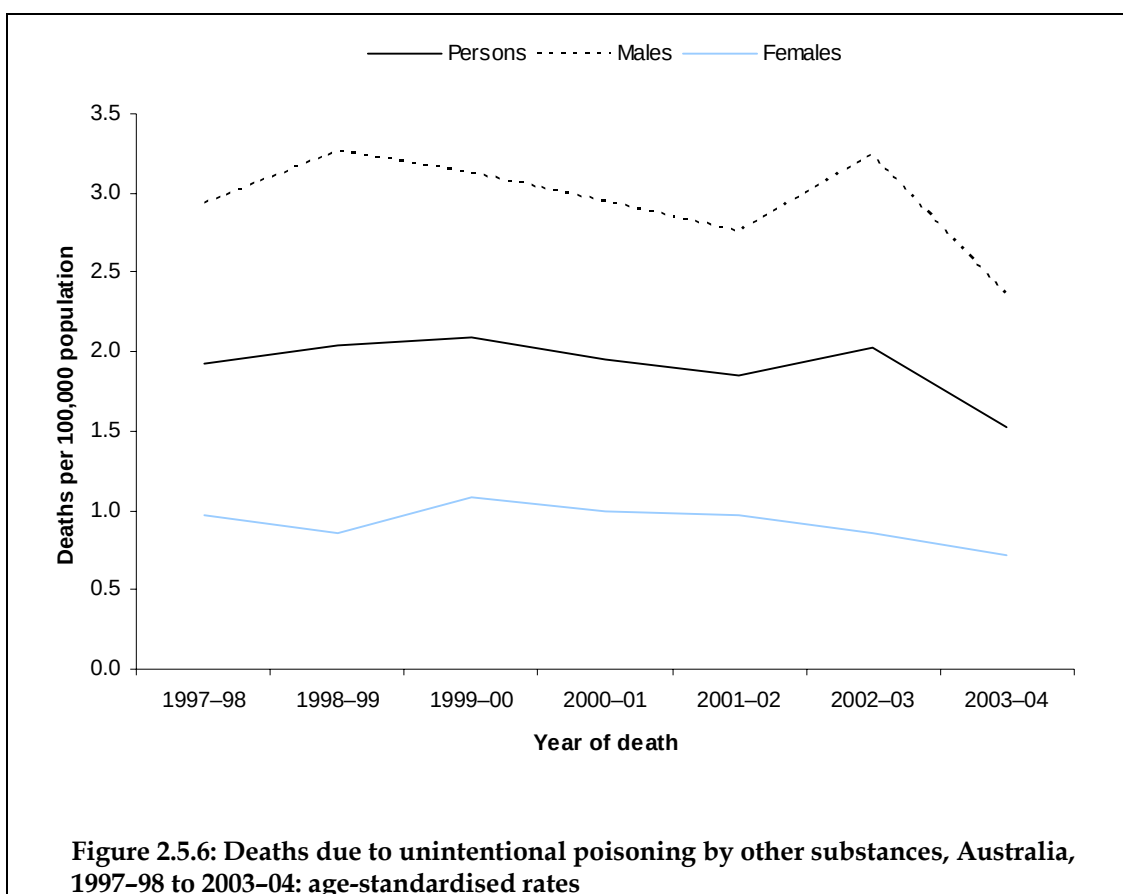
2.5.3.1 Age and sex distribution

Figure 2.5.5 shows age and sex distribution for deaths due to unintentional poisoning by other substances. In 2003–04, males accounted for almost 76% ($n=231$) of all unintentional poisoning deaths due to other substances. Rates were highest for males aged 25–44 and for males aged 75 years and over. The rates for the older age group should be treated with some caution due to low case numbers. Rates for females were consistently low across all age groups with females aged 45–49 and 60–64 recording the highest rate (1.4 deaths per 100,000 population).



2.5.3.2 Trends in deaths rates

Figure 2.5.6 shows trends in deaths due to Unintentional poisoning by other substances for the period from 1997–98 to 2003–04. Overall, there was little change in rates from 1997–98 to 2002–03. There was a 25% decrease in rates between 2002–03 and 2003–04 from 2 deaths per 100,000 population to 1.5 deaths per 100,000 population. It is not yet certain whether trends of this type of case have been affected by the problem discussed in Section 1.4. Rates for males were consistently close to three times those of female rates across the entire period.



2.5.3.3 State and territory rates

Figure 2.5.7 shows death rates due to unintentional poisoning due to other substances in 2003–04 by state or territory of residence. All states or territories recorded rates close to or below the national rate (1.5 deaths per 100,000 population) except for Tasmania and the Northern Territory. The rate for Tasmania (2.8) was almost double the national rate, whilst the rate for the Northern Territory (7.5) was 6 times the national rate although these outcomes should be interpreted with some caution due to low case numbers. Of the 17 deaths occurring in the Northern Territory, 13 were recorded as Aboriginal and/or Torres Strait Islander.

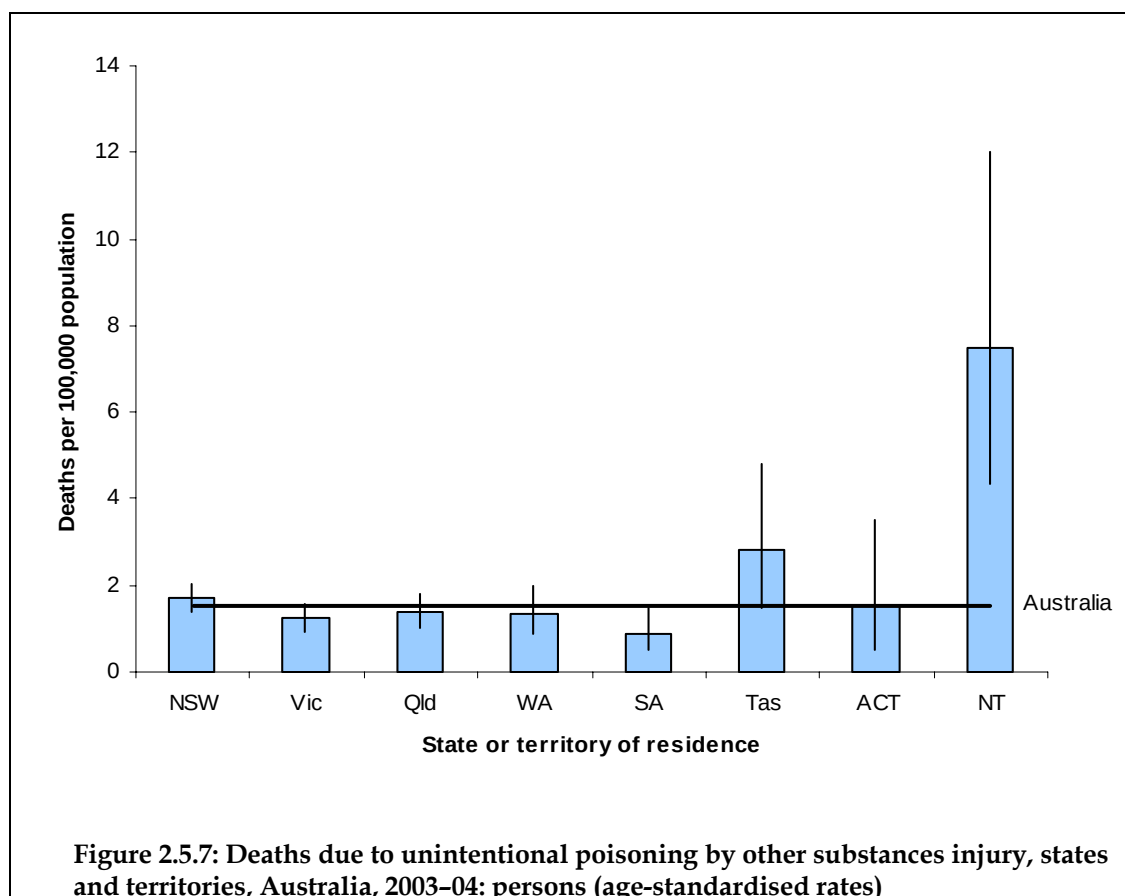


Table 2.5.7: Cases, age-adjusted rates and rate ratios* by state or territory for accidental poisoning by other substances deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	116	61	52	26	14	13	5	17
Adjusted rate (direct)	1.7	1.2	1.4	1.3	0.9	2.8	1.5	7.5
Rate ratio*	1.13	0.82	0.90	0.89	0.59	1.85	0.99	4.94

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.5.3.4 Remoteness of residence

Figure 2.5.8 shows age-adjusted rates for deaths due to poisoning by other substances occurring in 2003–04 by remoteness zone of person's residence. Rates for all remoteness zones except for Very remote were not significantly different from the national rate (1.5 deaths per 100,000). The rate for the Very remote zone (7.6) was just over 6 times the national rate although this result must be interpreted with some caution due to low case numbers.

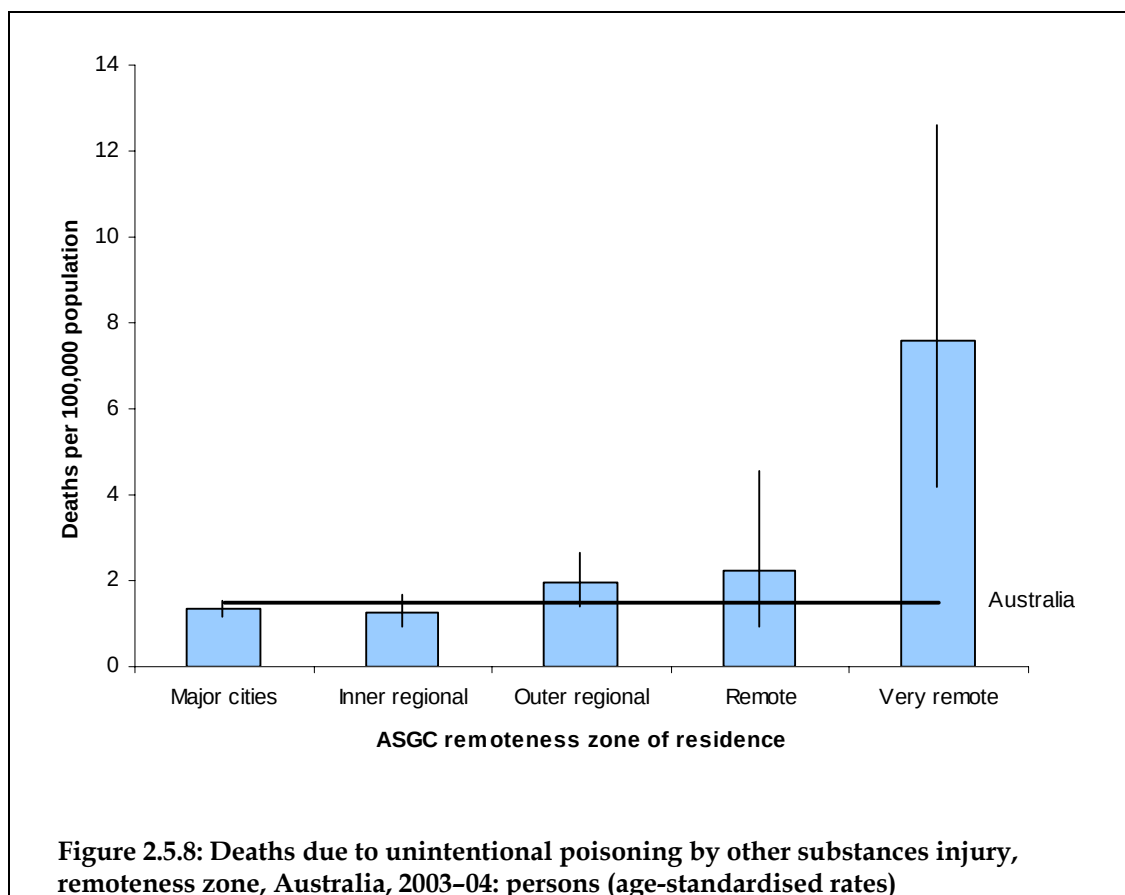


Figure 2.5.8: Deaths due to unintentional poisoning by other substances injury, remoteness zone, Australia, 2003–04: persons (age-standardised rates)

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	181	52	40	7	15
Adjusted rate (direct)	1.3	1.3	1.9	2.2	7.6
Rate ratio*	0.91	0.85	1.32	1.51	5.14

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.5.3.5 Associated factors

Almost 59% ($n=179$) of the cases were coded to the category T51 *Toxic effect of alcohol* (136 males, 43 females). Just over 88% ($n=158$) of these cases were in the age range 20–54.

Just over 15% ($n=46$) of the cases were coded to the category T59 *Toxic effect of other gases, fumes and vapours* (28 males, 18 females) while just over 11% ($n=34$) of the cases were coded to the category T58 *Toxic effect of carbon monoxide* (31 males, 19 females). Eight of these 34 cases were known to be associated with exposure to motor vehicle exhaust.

Almost 7% ($n=21$) of the cases were coded to the category T57 *Toxic effect of other inorganic substances* (21 males, 0 females). All of these cases were in the age range 55 and over.

Of the remaining cases, *toxic effect of metals* resulted in 8 deaths, *toxic effect of pesticides* resulted in 5 deaths, *contact with venomous animals* caused 2 deaths, while *toxic effect of organic solvents* and *toxic effect of noxious substances eaten as food* both resulted in 1 death each. A poisoning agent was not specified in 7 cases.

2.6 Smoke, fire and flames, heat and hot substances deaths, Australia

Multiple Cause of Death: [S00–T75](#), [T79](#) and [X00–X19](#); or

Multiple Cause of Death: [T20–T31](#) and [V01–X59](#); or

Underlying Cause of Death: [X00–X19](#)

Table 2.6.1: Key indicators for accidental exposure to smoke, fire, flames, heat and hot substances deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	84	51	135	55	42	97
Percentage of all injury deaths	1%	1%	1%	1%	2%	1%
Crude rate/100,000 population	0.8	0.5	0.7	0.6	0.4	0.5
Adjusted rate (direct)	0.9	0.5	0.7	0.6	0.4	0.5
Rate ratio*	1.32	0.73		1.20	0.84	
Mean YPLL <75years	27	30	28	24	29	26

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.6.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.6.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a moderate effect on this topic, increasing case numbers by a little over 39%.

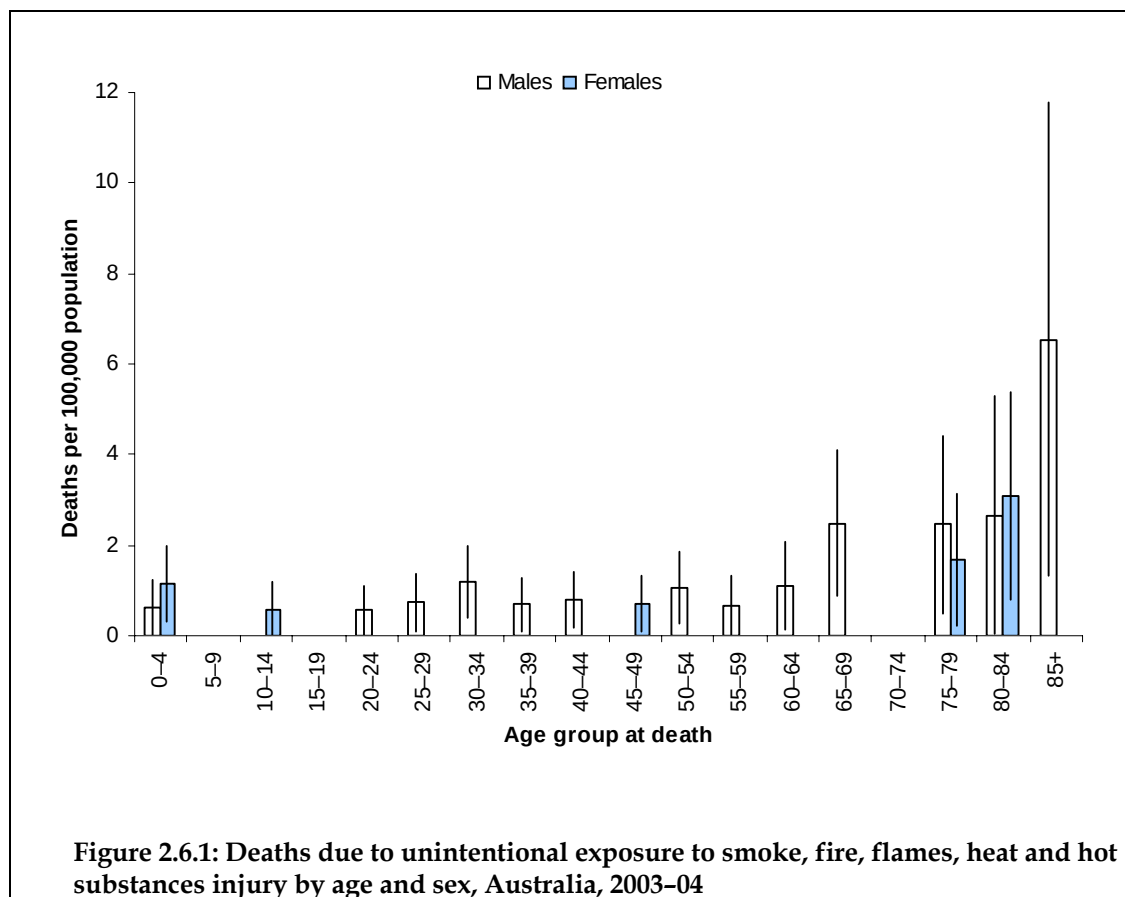
2.6.1 Overview

Of 175 deaths that occurred in 2003–04 as the result of burns, or exposure to smoke, fire or hot substances, 135 (77%) were recorded as unintentional. 12 (16%) of these cases were Indigenous deaths. The remainder were recorded as suicide ($n=35$, 20%), or the outcome of homicide or an injury event of undetermined intent.

Of the 135 deaths recorded as being unintentional, 55 (41%) occurred in a building or structure. The major mechanisms for all deaths in this category are shown in Table 2.6.2.

2.6.2 Age and sex distribution

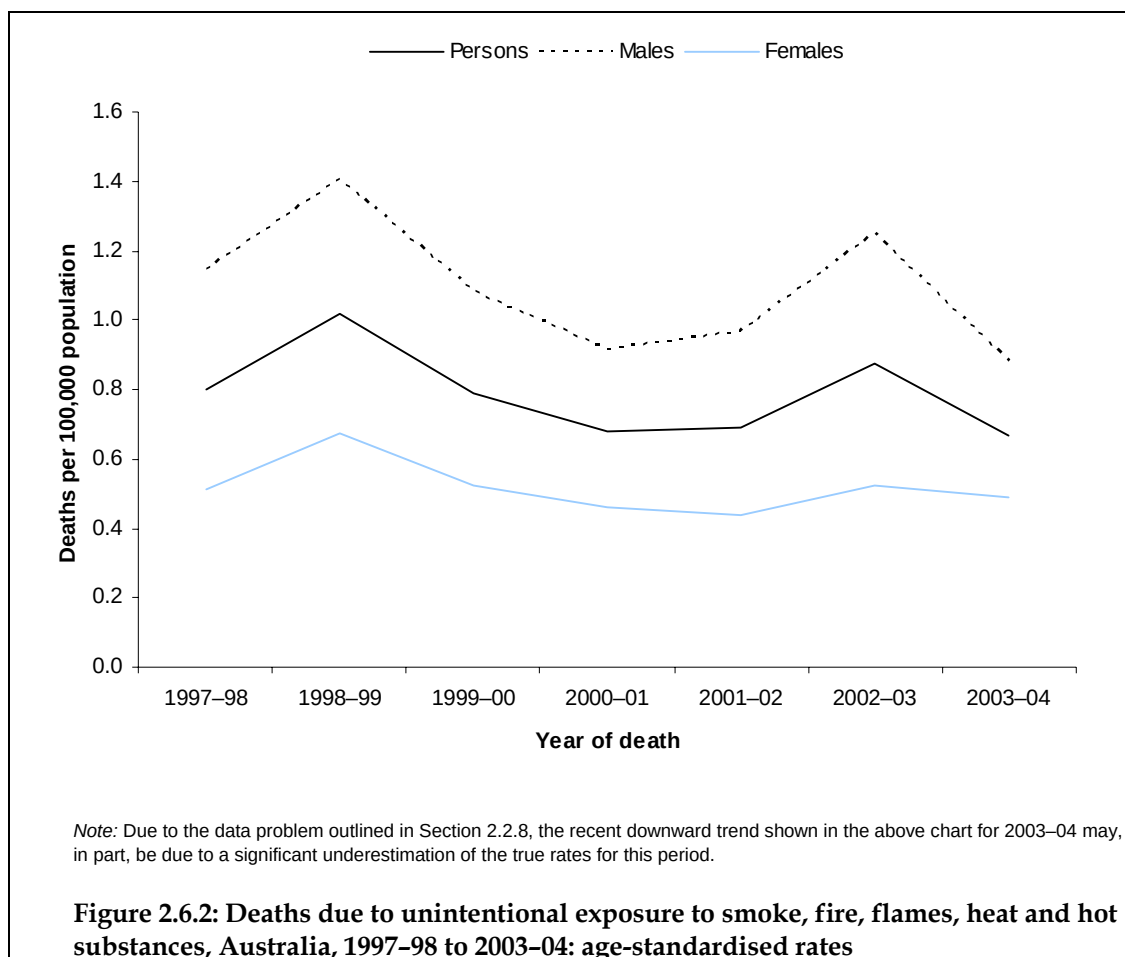
The all-ages male adjusted rate of death due to exposure to smoke, fire, flames, heat and hot substances was 1.7 times the equivalent female rate. Rates were highest in the older age groups.



2.6.3 Trends in death rates

Males had consistently lower rates of deaths due to exposure to smoke, fire, flames, heat and hot substances in all years during the period 1997–98 to 2003–04. Rates peaked slightly in 1998–99 and 2002–03, but were fairly constant over the entire period.

It is not yet clear whether the data issue described in Section 1.4 has contributed to the decline observed in 2003–04.



2.6.4 State and territory rates

Victoria had the lowest age-adjusted rate of deaths due to exposure to smoke, fire, flames, heat and hot substances with a rate of 0.4 deaths per 100,000 population during 2003–04, and Tasmania had the highest (2.3 per 100,000). The rate for both states differed at a statistically significant level from the all Australia rate of 0.7. None of the other rates shown in Figure 2.6.3 differed significantly from the rate for Australia as a whole. The rate of deaths for the Australian Capital Territory and the Northern Territory has been suppressed (see note to table 2.6.2).

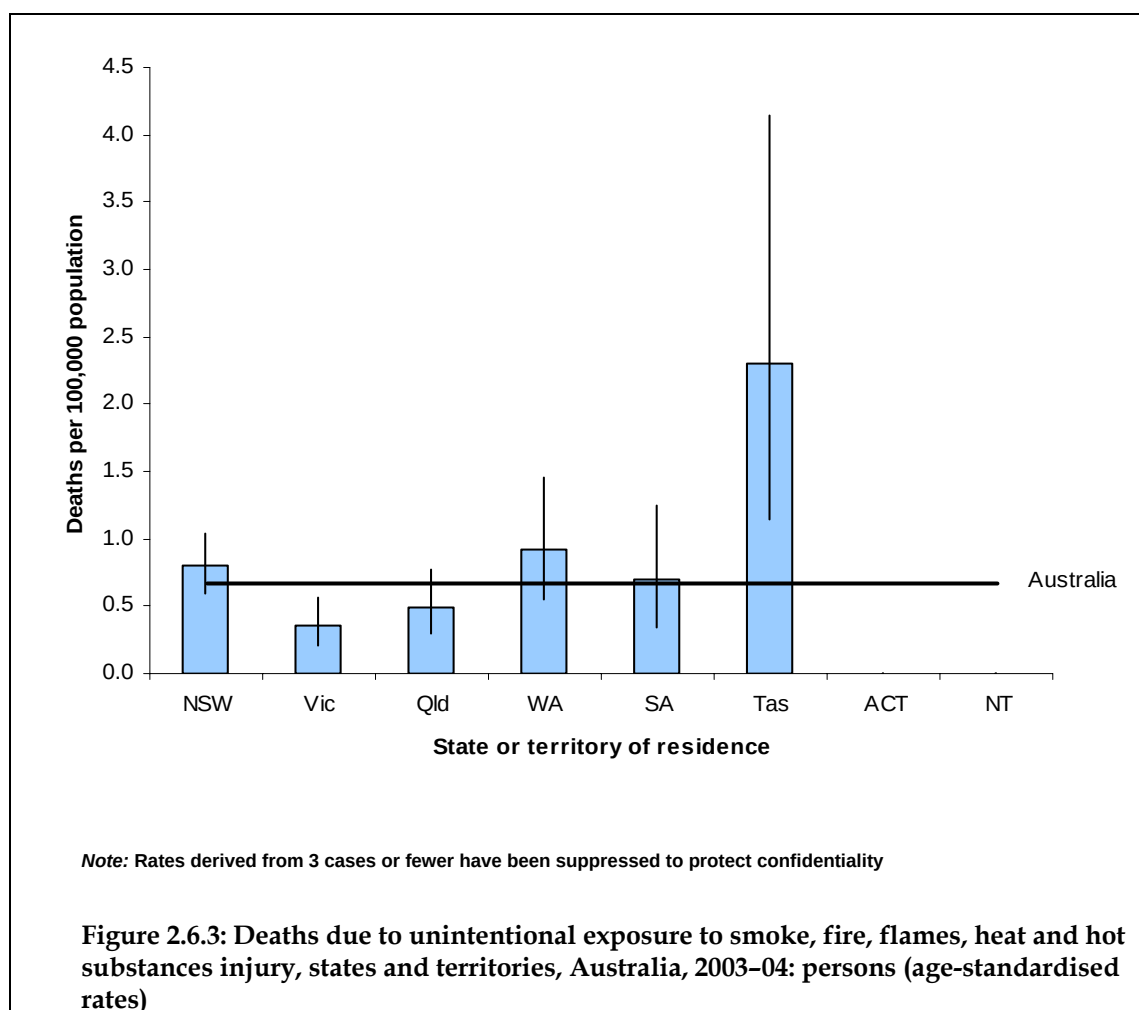


Table 2.6.2: Cases, age-adjusted rates and rate ratios* by state or territory for accidental exposure to smoke, fire, flames, heat and hot substances deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	55	18	19	18	11	11	..	..
Adjusted rate (direct)	0.8	0.4	0.5	0.9	0.7	2.3	..	..
Rate ratio*	1.19	0.53	0.75	1.37	1.04	3.46	..	..

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.6.5 Remoteness of residence

Age-adjusted rates of death due to exposure to smoke, fire, flames, heat and hot substances increased according the remoteness of the deceased person's location. The age-adjusted rate for Very remote areas was 7.6 times that of the age-adjusted rate for Major cities. Rates for all zones, with the exception of Inner regional, differed at a statistically significant level from the rate for Australia as a whole (0.7 deaths per 100,000 population).

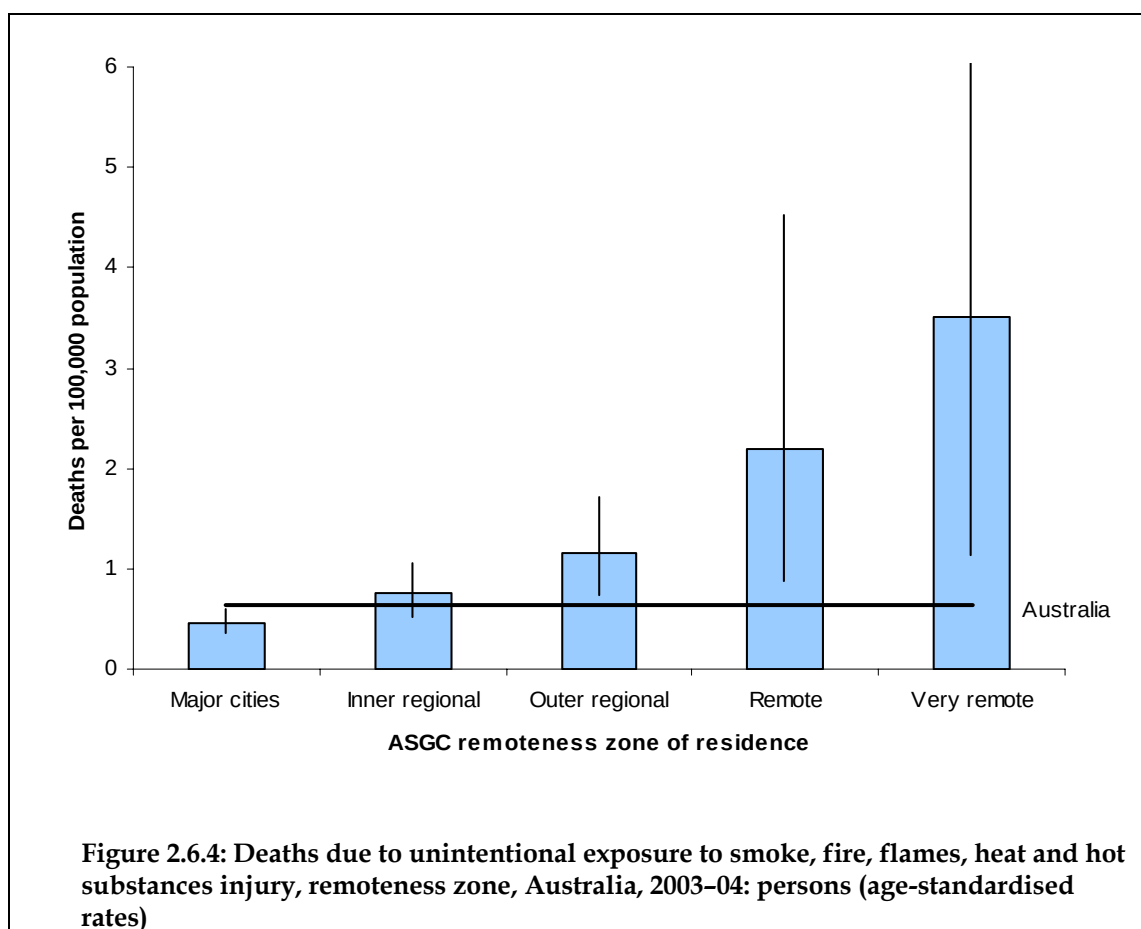


Table 2.6.3: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental exposure to smoke, fire, flames, heat and hot substances deaths, Australia, 2003-04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	62	32	24	7	6
Adjusted rate (direct)	0.5	0.8	1.1	2.2	3.5
Rate ratio*	0.72	1.16	1.78	3.38	5.42

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.6.6 Nature and body region of injury

Where a burn had occurred, the affected body part was not specified in 70 (52%) cases. 27 (20%) cases received a code indicating that burns had been classified according to the extent of the body surface involved. In 22 (81%) of the latter group, burns had involved 90% or more of the body surface.

47 (35%) cases received a code indicating that a Toxic effect of carbon monoxide or other gases, fumes and vapours had contributed to the death.

2.6.7 Associated factors

Table 2.6.4: Deaths as the result of unintentional exposure to smoke, fire, flames, heat and hot substances, Australia, 2003–04

Major mechanism	Persons	
	Cases	Percentage of total deaths in this category (n=135)
Controlled or uncontrolled fire in a building or structure	55	40
Controlled or uncontrolled fire not in a building or structure	7	5
Exposure to ignition of highly flammable material	7	5
Exposure to ignition or melting of nightwear or other clothing	5	4
Exposure to other specified or unspecified smoke, fire and flames	17	13
Contact with hot drinks, food, tap water and other fluids	11	8
Contact with steam, hot vapours, air and gases	0	0
Contact with hot household and heating appliances, machinery and tools, and other hot metals	..	..
Other fire related codes	31	23
Total	136*	100

* The total shown in this table exceeds the total number of cases because some cases may have been assigned more than one external cause code, resulting in the death being counted in more than one category.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.7 Other unintentional injury deaths, Australia

Multiple Cause of Death: S00-T75, T79 and W20-W64, W75-W99, X20-X39, X50-X59 (unless MCoD = fracture), Y85, Y86, Y89.9; or

Underlying Cause of Death: W20-W64, W75-W99, X20-X39, X50-X59 (unless MCoD = fracture), Y85, Y86, Y89.9

This residual category includes injury deaths recorded as 'unintentional' and including external cause codes not covered by one of the previous chapters. As a residual chapter, it includes cases due to a diverse range of external causes of injury.

In 2003-04, a total of 2,392 deaths had a MCoD coded to X59 Exposure to unspecified factor. As was explained in Section 2.3, in cases where a MCoD of X59 appeared in combination with one or more MCoDs indicating that a fracture had been sustained, the death was treated as having been due to an unintentional fall. 1,951 such cases have been included in Section 2.3. The remaining 441 cases with X59 as a MCoD (but not accompanied by a fracture code as a MCoD) are considered in this chapter.

Table 2.7.1: Key indicators for unintentional exposure to other and unspecified external causes, less equivalent to ICD-9 E887 deaths, Australia, 2003-04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,054	600	1,654	556	295	851
Percentage of all injury deaths	17%	16%	17%	11%	11%	11%
Crude rate/100,000 population	10.6	6.0	8.3	5.6	2.9	4.3
Adjusted rate (direct)	11.6	5.1	8.0	5.9	2.5	4.2
Rate ratio*	1.44	0.63		1.42	0.61	
Mean YPLL <75years	18	11	15	24	17	22

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.7.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.7.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01-V99). Adoption of the new criteria has a large effect on this topic, increasing case numbers by a little over 94%.

2.7.1 Overview

The 1,654 unintentional injury deaths included in this group equate to a rate of 8.0 deaths per 100,000 population, and account for 17% of all injury deaths that occurred during 2003-04.

This category covers many types of injury death. Table 2.7.2 below shows the major mechanisms that were responsible for the deaths in this category.

Prominent for their frequency in 2003-04 were *Asphyxiation, suffocation or obstruction of the respiratory tract caused by the inhalation or ingestion of gastric contents, food or other objects* (n=729, 44%), *Exposure to excessive natural or man-made heat or cold, or sunlight* (n=87, 5%), *Unintentional hanging, suffocation or strangling* (n=124, 7%) and *Unintentional discharge of firearms* (n=48, 3%).

Table 2.7.2: Major mechanisms of deaths included in the other unintentional injury category, Australia, 2003–04

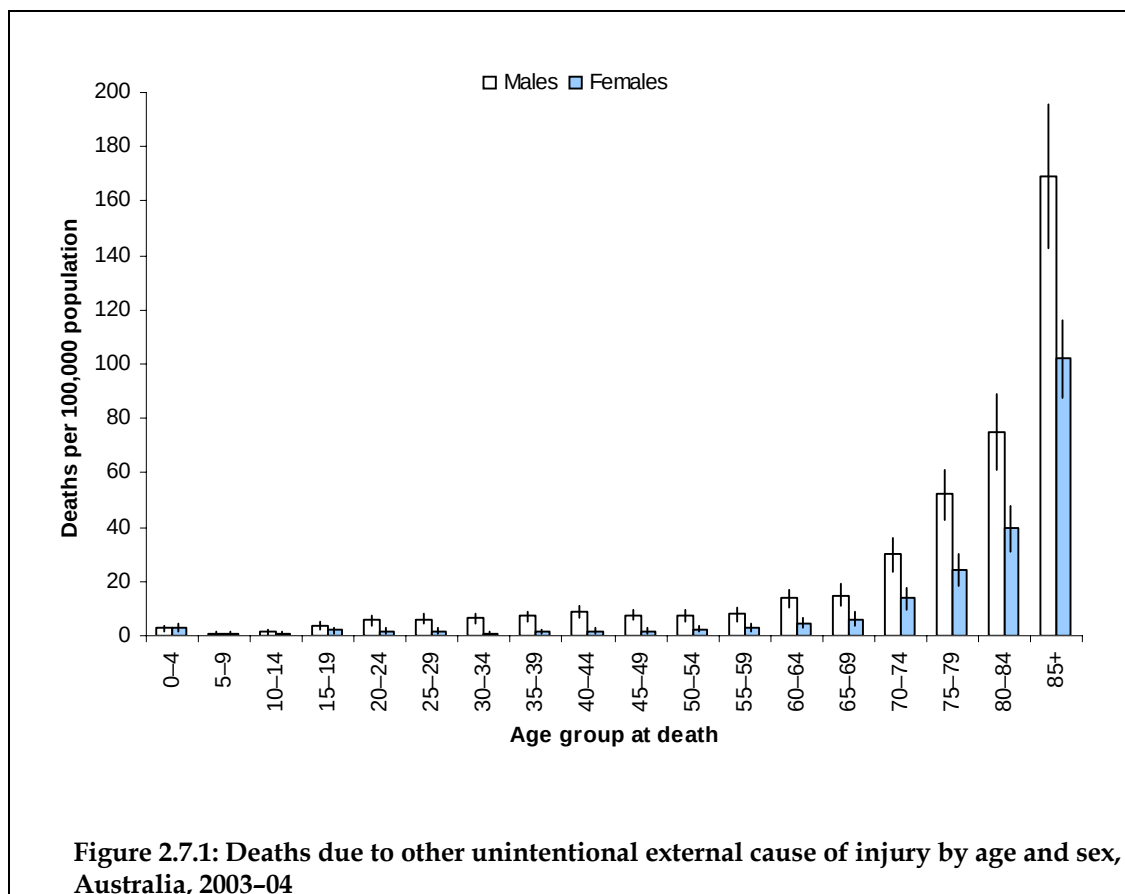
ICD-10 codes	Mechanism	Frequency	Percentage
W20–W22	Struck against or struck by object	25	1.5
W23	Caught, crushed, jammed or pinched in or between objects	9	0.5
W24	Contact with lifting and transmission devices, not elsewhere classified	..	..
W25, W26	Contact with sharp object (includes sharp glass, knife, sword or dagger)	15	0.9
W27–W31	Contact with tools or machinery (includes non-powered or powered hand tools, agricultural machinery, powered lawnmower)	16	1.0
W32–W34	Unintentional discharge of firearms	48	2.9
W35–W40	Unintentional explosions (includes explosion and rupture of boiler, gas cylinder, pressurised tyre, pipe, hose, firework, and other materials)	..	..
W41–W43	Noise or vibration	0	0.0
W44–W45	Foreign body entering into or through eye or natural orifice, or through skin	4	0.2
W49, W64	Exposure to other and unspecified inanimate and animate mechanical forces	5	0.3
W50–W52	Struck by or against another person, or crushed, pushed or stepped on by crowd of people	..	..
W78–W80	Inhalation and ingestion of food, gastric contents, or other objects causing obstruction of respiratory tract	729	44.1
W81–84	Other threats to breathing (includes trapped in a low oxygen environment and asphyxiation, aspiration and suffocation, not otherwise specified)	21	1.3
W85–W87	Electrocution	20	1.2
W88–W91	Radiation	0	0.0
W92–W93, X30–X32	Exposure to excessive natural or man-made heat or cold, or sunlight	87	5.3
W94, W99	Exposure to high and low air pressure and changes in air pressure, and to other and unspecified man-made environmental factors	..	..
W53–W60, X20–X29	Bites and stings by venomous and non-venomous animals and plants	7	0.4
X33–X39	Other forces of nature (includes lightning, earthquake, volcanic eruption, avalanche or landslide, cataclysmic storm, or flood)	8	0.5
X50–X57	Overexertion, travel and privation (includes strenuous or repetitive movements, travel and motion, prolonged stay in weightless environment, lack of food or water)	4	0.2
X58, X59 not accompanied by a Chapter XIX fracture code	Exposure to other or unspecified factors	442	26.7
Y85–Y86, Y89.9	Sequelae of transport and other and unspecified external causes	96	5.8
W75–W77	Unintentional hanging, suffocation and strangling	124	7.5
Total other unintentional occurrences		1,670*	

* The total shown in this table exceeds the total number of cases because some cases have been assigned more than one external cause code, resulting in the death being counted in more than one category.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

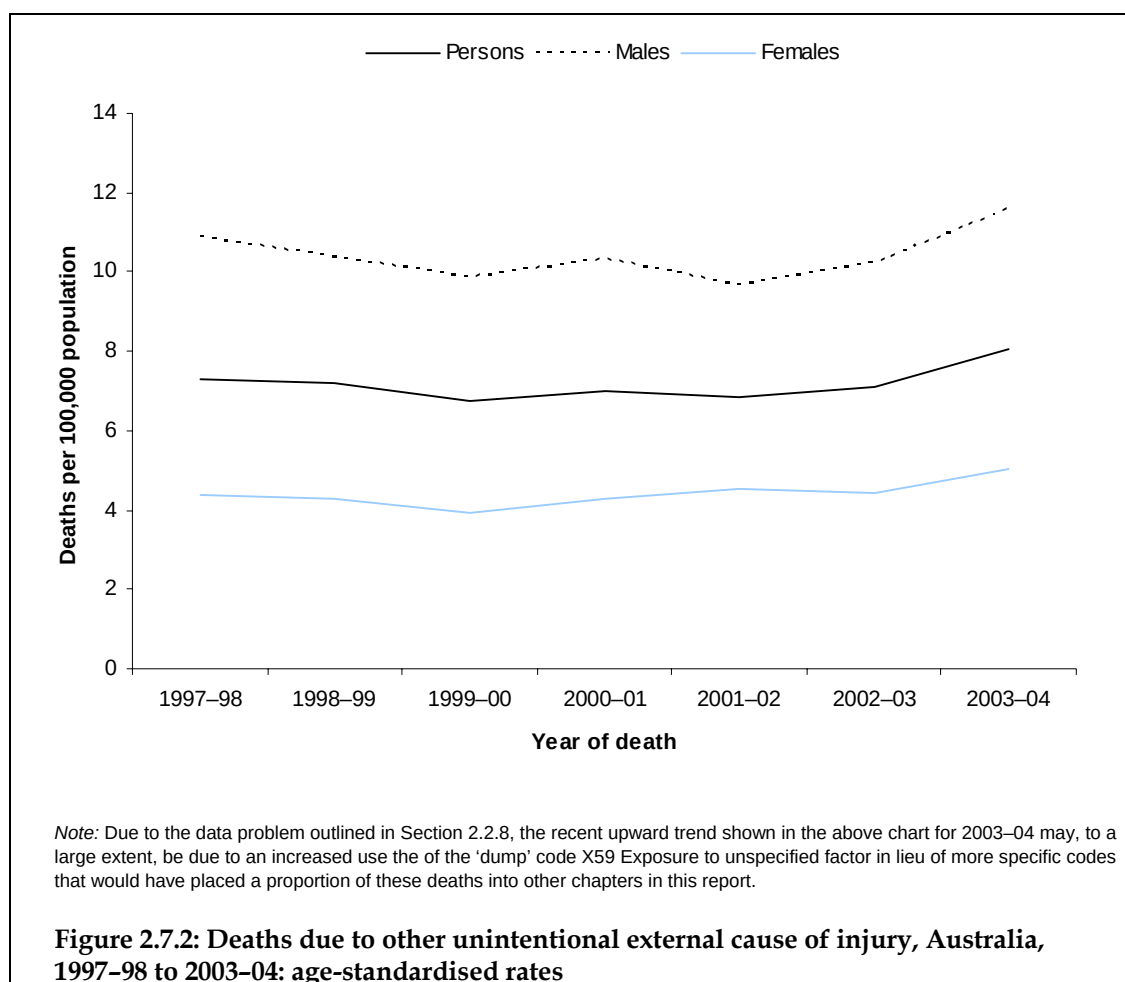
2.7.2 Age and sex distribution

Male rates were higher than female rates for all age groups above 9 years of age. Rates were highest in the older age groups, particularly in the age group 85 years and over where the age-specific rate was 123.0.



2.7.3 Trends in death rates

Rates for persons were fairly constant between 1997–98 and 2002–03, with year to year variation in the range 0.1 to 0.4. There was a notable increase of 0.9 per 100,000 population between 2002–03 and 2003–04. This increase can be attributed to the greater use of the 'dump' code X59 *Exposure to unspecified factor* and certain other codes as the recipients for cases that should have been assigned to other chapters in this report (see Section 1.4 for further information).



2.7.4 State and territory rates

Consistent with most other major external causes of injury, the Northern Territory had the highest age-adjusted rate (24.9 per 100,000 population). Rates for the remaining states and territories were fairly similar, ranging between 5.0 and 9.2 per 100,000. New South Wales, Victoria and the Northern Territory had rates that differed at a statistically significant level from the rate for Australia as a whole (8.04 per 100,000 population).

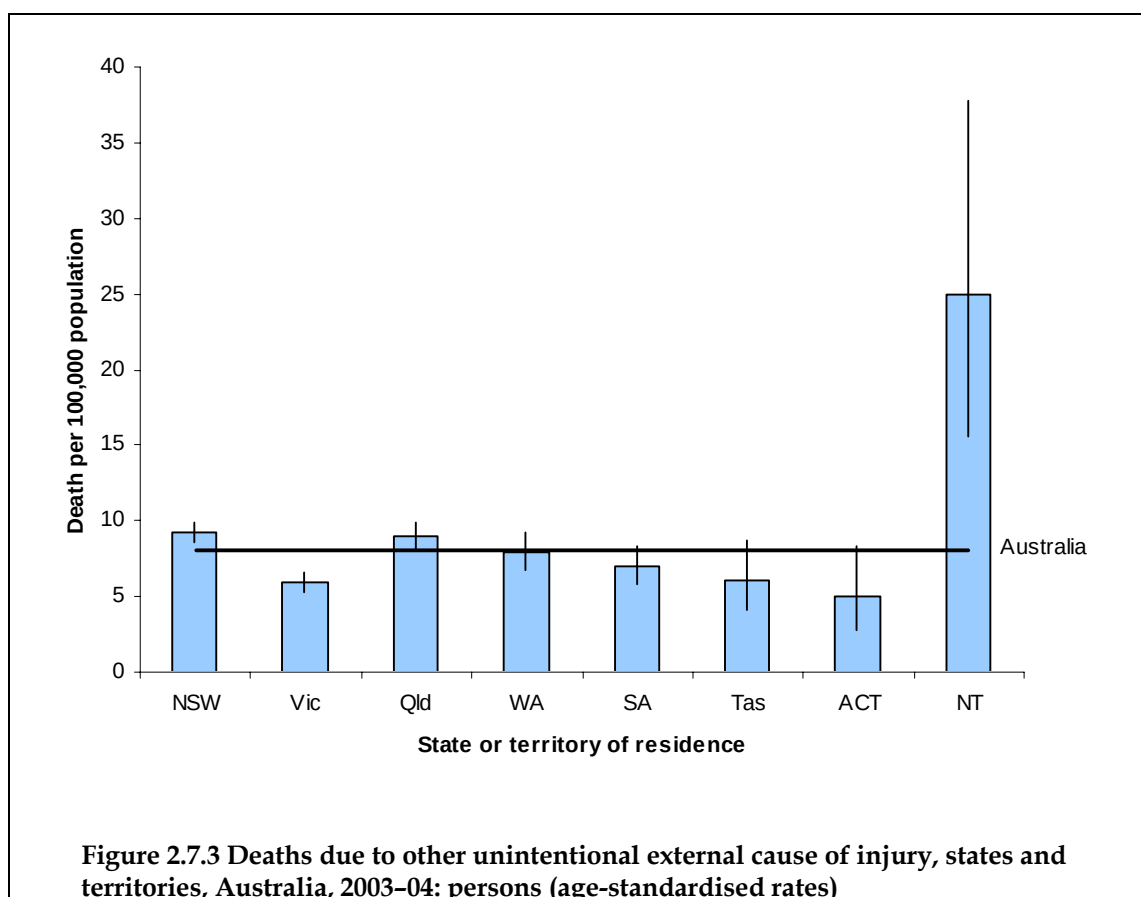


Table 2.7.3: Cases, age-adjusted rates and rate ratios* by state or territory for unintentional exposure to other and unspecified external causes, less equivalent to ICD-9 E887 deaths, Australia, 2003-04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	656	312	336	148	122	31	15	34
Adjusted rate (direct)	9.2	6.0	9.0	8.0	7.0	6.1	5.0	24.9
Rate ratio*	1.15	0.74	1.11	0.99	0.87	0.76	0.62	3.10

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.7.5 Major categories of other unintentional deaths

2.7.5.1 Asphyxiation, suffocation or obstruction of the respiratory tract

The largest group of cases included under the category Other unintentional deaths is that of *Asphyxiation, suffocation or obstruction of the respiratory tract caused by the inhalation or ingestion of gastric contents, food or other objects*. This external cause of injury was responsible for 729 deaths in 2003–04. 439 (60%) of these cases were male, 288 (40%) were female. Cases were concentrated in older age groups. 526 (72%) of deaths due to this cause were of persons aged 65 years and over.

Table 2.7.4: Mechanism of asphyxiation, suffocation or obstruction of the respiratory tract

Mechanism	Frequency	Percentage
Inhalation of gastric contents	180	25%
Inhalation and ingestion of food causing obstruction of respiratory tract	67	9%
Inhalation and ingestion of other objects causing obstruction of respiratory tract	482	66%
Total	729	100%

2.7.5.2 Exposure to excessive natural or man-made heat or cold, or sunlight

87 persons died in 2003–04 as the result of exposure to excessive natural or man-made heat or cold, or sunlight. 51 (59%) of these cases were female, 36 (41%) were male. 72 (83%) of these cases were aged 65 years and over.

46 (53%) cases were due to exposure to excessive natural cold and 41 (47%) to exposure to excessive natural heat. The most commonly coded diagnosis was hypothermia (59%), followed by heatstroke and sunstroke (18%), and heat exhaustion (10%).

2.7.5.3 Unintentional hanging, suffocation or strangling

In 2003–04, 124 persons died as the consequence of unintentional hanging, suffocation or strangling. Cases most commonly involved males ($n=93$, 75%) and were most common between the ages 15–54 ($n=92$, 74%).

The most commonly coded diagnosis was suffocation ($n=121$, 98%). 7 (6%) cases received a code for a neck injury and one case had a code for a foreign body in the respiratory tract.

13 (10%) deaths in this group were the result of suffocation or strangulation in bed and 1 (1%) death resulted from a threat to breathing due to a cave-in, falling earth or other substances. The remaining 110 (89%) deaths were coded to Other accidental hanging and strangulation.

Assessment of 2003 registrations in NCIS suggests that many cases assigned to this category would be reassigned as suicides, on the basis of information available after completion of coroners' inquiries.

2.7.5.3 Unintentional discharge of a firearm

During 2003–04, 48 persons died as the result of an unintentional discharge of a firearm. The majority of these deaths were males ($n=44$, 92%). The cases most frequently involved persons aged 15–64 years ($n=40$, 83%).

2 deaths involved a handgun and 8 a rifle, shotgun or larger firearm. The remaining 38 (79%) cases fell into the category *Other and unspecified firearms*.

The most common diagnosis was a head injury ($n=36$, 75%).

As for the previous category, assessment of 2003 registrations in NCIS suggests that many cases assigned to this category would be reassigned as suicides, on the basis of information available after completion of coroners' inquiries.

Part B: Intentional injuries

2.8 Suicide deaths, Australia

Multiple Cause of Death: [S00-T75, T79](#) and [X60-X84, Y87.0](#); or

Underlying Cause of Death: [X60-X84, Y87.0](#)

Table 2.8.1: Key indicators for intentional self-harm deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,710	463	2,173	1,709	460	2,169
Percentage of all injury deaths	28%	12%	22%	33%	18%	28%
Crude rate/100,000 population	17.2	4.6	10.9	17.2	4.6	10.9
Adjusted rate (direct)	17.4	4.6	10.8	17.4	4.5	10.8
Rate ratio*	1.61	0.42		1.61	0.42	
Mean YPLL <75years	31	31	31	31	31	31

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.8.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.8.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a negligible effect on this topic, increasing case numbers by less than 1%.

It is likely that the numbers of deaths indicated in Table 2.2.7 above represent an underestimate of the true number suicide-related deaths that occurred in 2003–04 (Refer to Section 1.4). The Australian Bureau of Statistics has indicated that there may be a decline in deaths coded to some external cause categories in 2004, largely due to an increase in the number of coroner's cases not closed at the time the ABS finalised the 2004 deaths file (ABS 2005).

Unlike transport and homicide, no comparison source exists for suicide deaths. It was therefore not possible to directly gauge the extent of under-counting for suicide deaths that occurred in 2003–04. Preliminary assessment of 2003 registrations assigned by the ABS to certain ICD codes indicates that a substantial number of deaths due to suicide have been coded to unintentional injury.

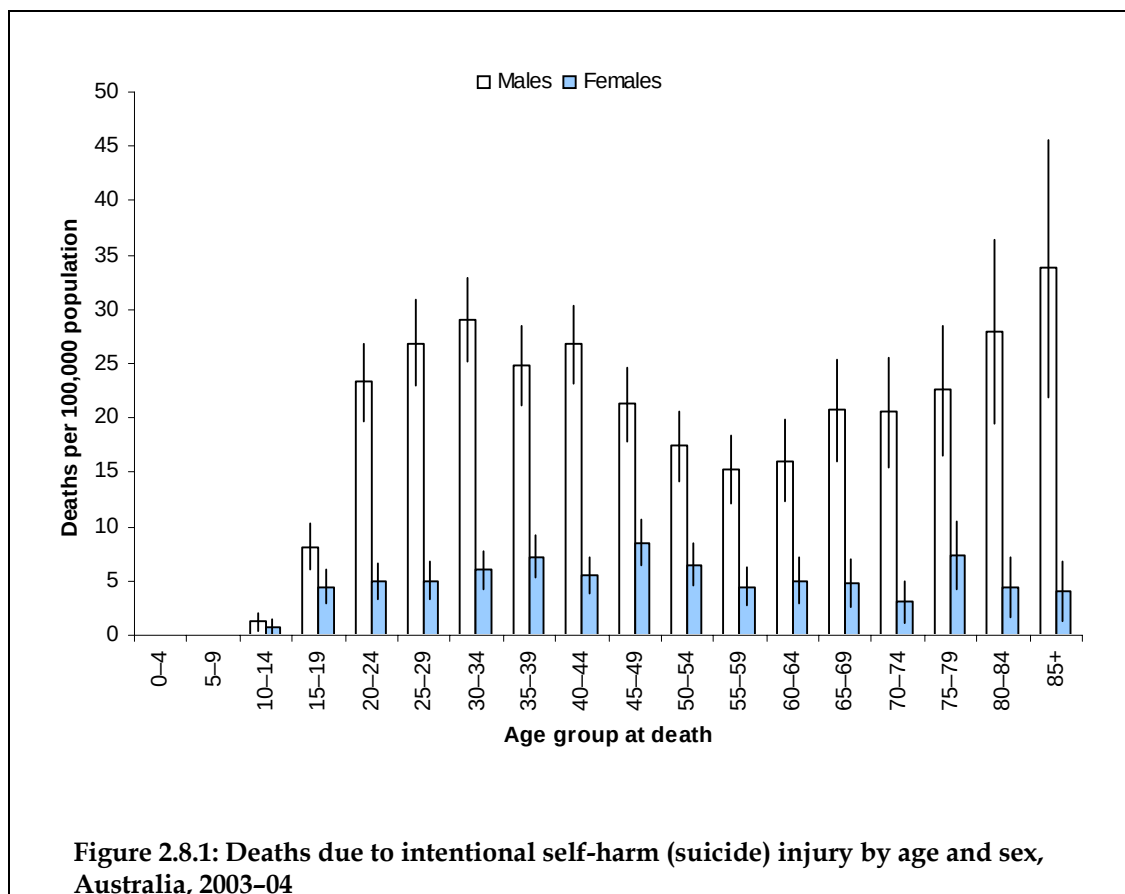
2.8.1 Overview

2,173 deaths that occurred during 2003–04 have been coded as being the result of intentional self-harm. Suicide was responsible for 22% of all injury deaths in 2003–04, at an age-adjusted rate of 10.8 deaths per 100,000. Suicide accounted for more deaths than transport related accidents, which had an age-adjusted rate of 8.6 per 100,000 population. 82 of the people who died by suicide were recorded as being Aboriginal and/or Torres Strait Islander persons.

2.8.2 Age and sex distribution

Males had higher rates than females in all age groups. The overall male age-adjusted rate of 17.4 per 100,000 population in 2003-04 was almost 4 times the female rate of 4.6 deaths per 100,000. The excess of male rates over female rates was greatest for young and middle-aged adults aged 20–44, and in those aged 80 years and over (Figure 2.8.1).

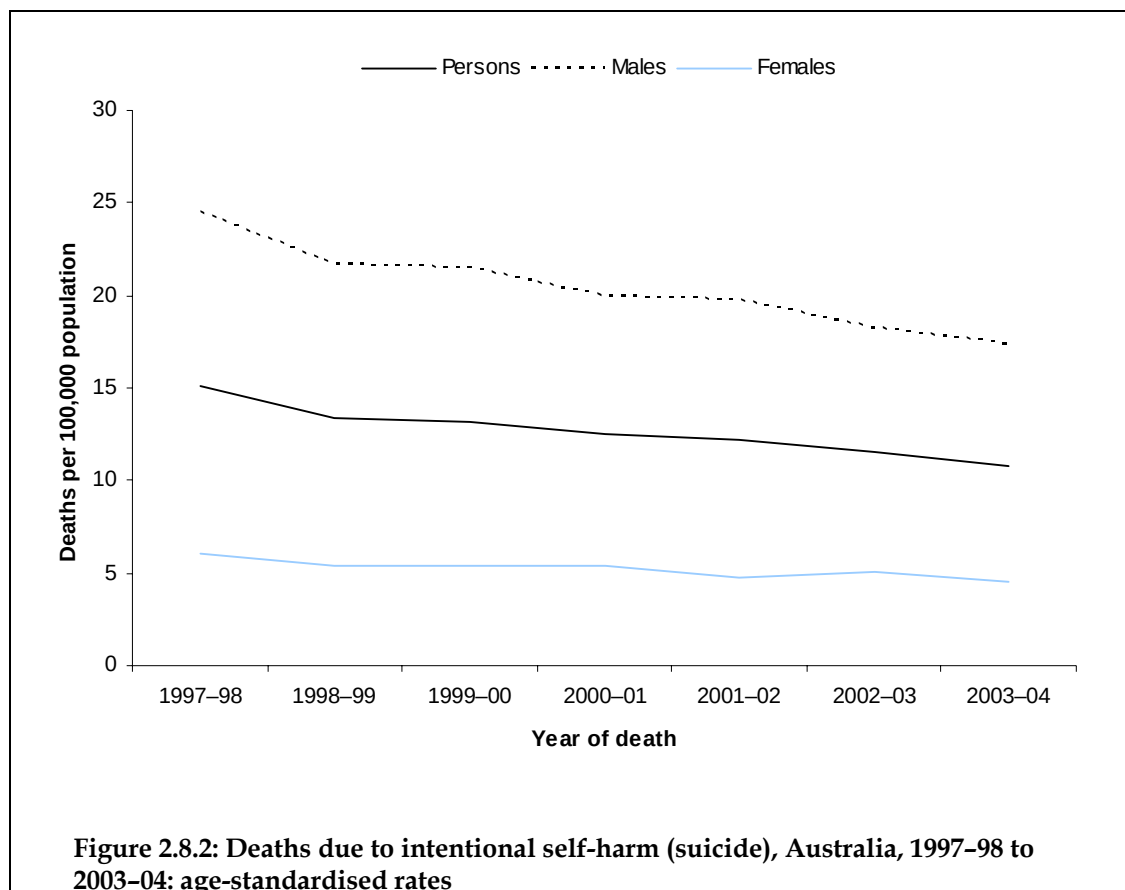
The data issue described in Section 1.4 has contributed to the apparent decline in rates in recent years.



2.8.3 Trends in death rates

Overall, there has been a steady downward trend in the age-adjusted suicide rate for persons between 1997–98 and 2003–04, based on available data. The rate fell from 1.8 per 100,000 population at the beginning of the period to 0.7 per 100,000 in 2003–04 (Figure 2.8.2).

The decline in annual age-adjusted rates was slightly slower for females than for males. Over the period 1997–98 to 2003–04, the male age-adjusted rate fell by 29% and the female rate by 24%



2.8.4 State and territory rates

Age-adjusted rates for Victoria, Queensland, Western Australia and South Australia were fairly similar (between 10.0 and 15.0 per 100,000 population). New South Wales, the most populous state, had the lowest rate at 8.6 per 100,000 population, and Tasmania and the Northern Territory had the highest (17.3 and 24.7 per 100,000 population, respectively) (Figure 2.8.3 and Table 2.8.2).

The rates for New South Wales, Queensland, Tasmania and the Northern Territory differed, at a statistically level, from the rate for Australia as a whole (10.8 per 100,000 population) (Figure 2.8.3).

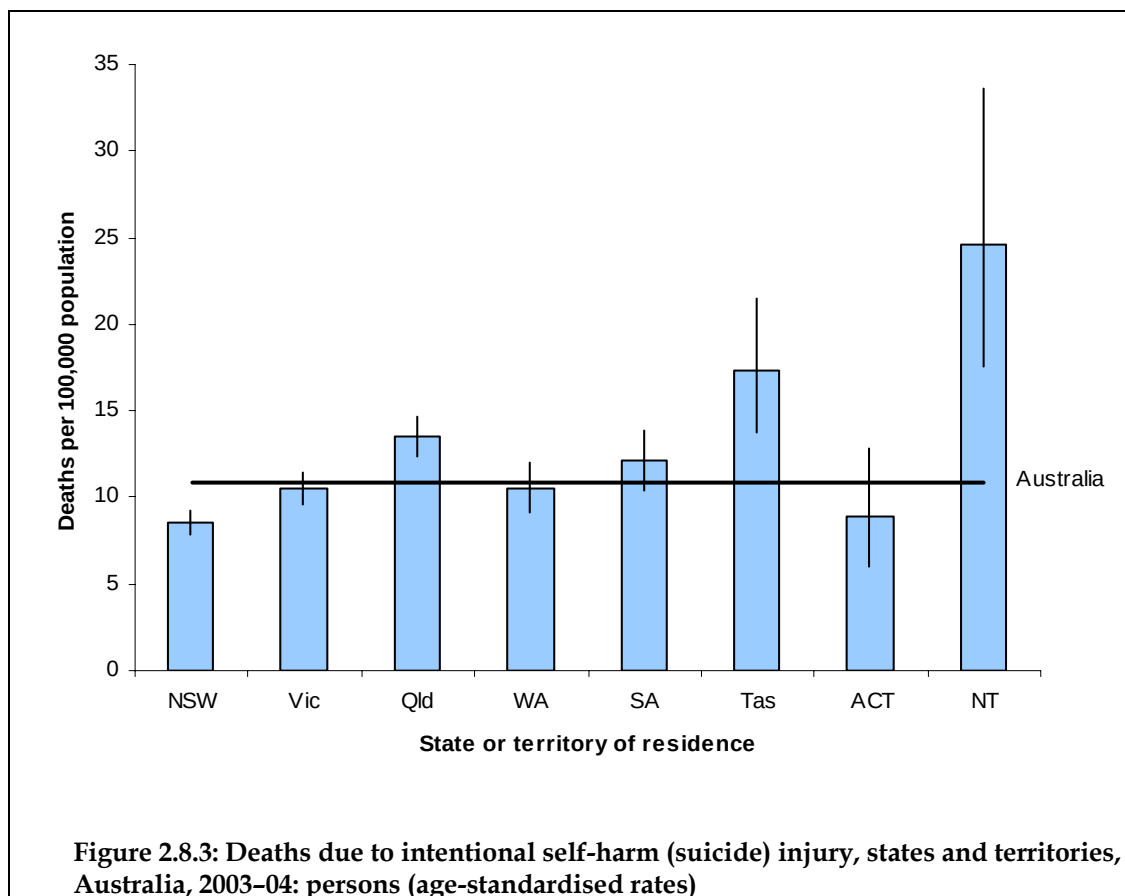


Table 2.8.2: Cases, age-adjusted rates and rate ratios* by state or territory for intentional self-harm (suicide) deaths, Australia, 2003-04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	579	525	515	206	188	81	30	49
Adjusted rate (direct)	8.6	10.5	13.5	10.5	12.1	17.3	9.0	24.7
Rate ratio*	0.79	0.97	1.25	0.97	1.12	1.60	0.83	2.28

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

2.8.5 Remoteness of residence

Age adjusted rates of injury mortality increased according to the remoteness of the deceased person's zone of residence. Major cities had the lowest age-adjusted rate and the Very remote zone had the highest. The age-adjusted rate for the Very remote zone was more than 2.3 times greater than that for major cities (Figure 2.8.4 and Table 2.8.3).

All zones, with the exception of Inner Regional areas, had a rate that differed at a statistically significant level from that for Australia as a whole (10.7 per 100,000 population).

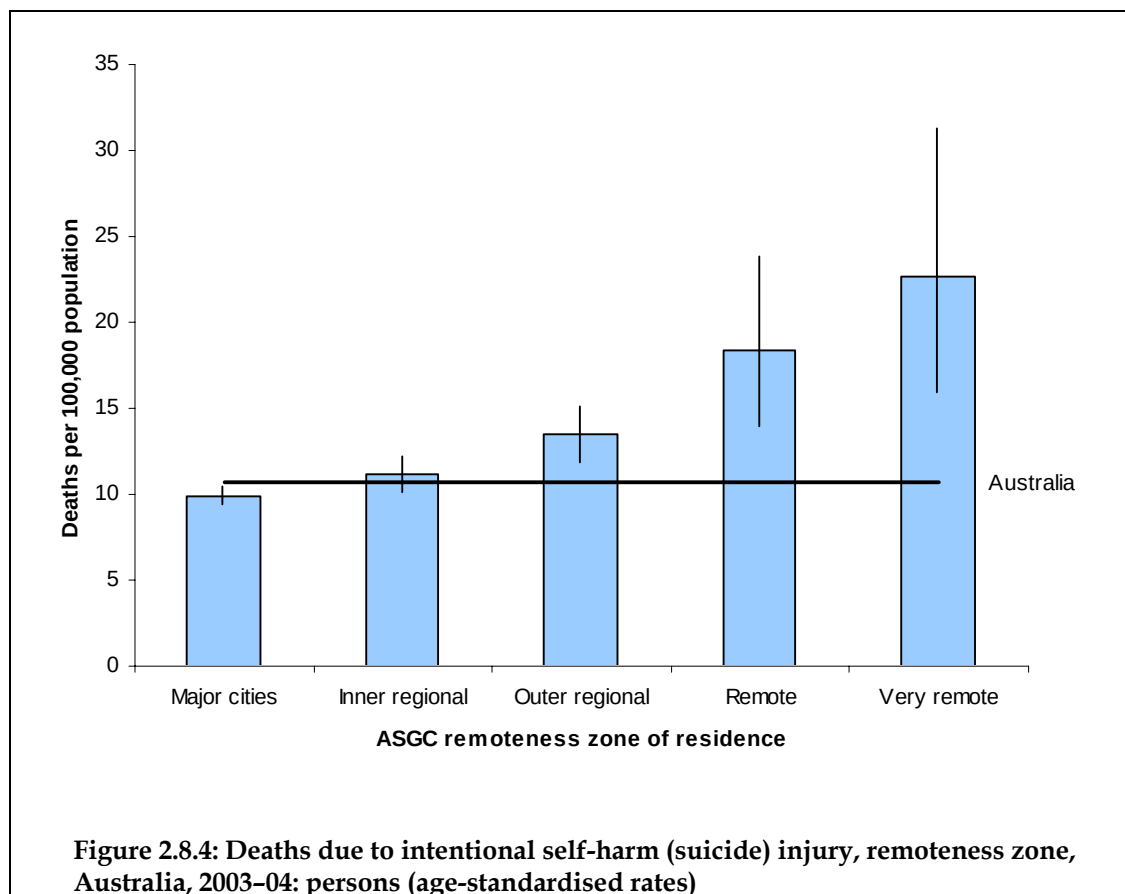


Table 2.8.3: Cases, age-adjusted rates and rate ratios* by remoteness zone for intentional self-harm (suicide) deaths, Australia, 2003-04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	1,339	449	267	58	39
Adjusted rate (direct)	9.9	11.2	13.5	18.4	22.7
Rate ratio*	0.92	1.05	1.26	1.71	2.11

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.8.6 Nature and bodily region of injury

This section is based on analyses of diagnosis codes from ICD-10 Chapter XIX. It should be noted that, because some cases have been assigned more than one diagnosis code, it is possible for them to be included within more than one of the categories used to describe the nature of the injury and/or the body region affected.

The two most commonly coded diagnoses in cases of suicide death were asphyxiation and injuries to the head. 46% of all cases of suicide death had been assigned a diagnosis code indicating that asphyxiation had contributed to the death. 82% of these cases involved males. A head injury diagnosis code was assigned in 10% of suicide cases. 93% of these cases were male.

2.8.7 Associated factors

2.8.7.1 Mechanisms of suicide

The most frequently coded mechanism of suicide in 2003–04 was ICD-10 X70 *Hanging, strangulation and suffocation*. Unlike ICD-9, ICD-10 does not provide a sub-category specifically for suicide by hanging. Under ICD-9, the great majority of suicide deaths by suffocation were attributed to hanging (97% in 1998). It is therefore assumed, in this report, that the majority of the deaths that were assigned the code X70 are deaths by hanging.

46% ($n=1,000$) of all suicide deaths that occurred during 2003–04 received a code indicating that the death had resulted from hanging. 63 (6%) of these cases were recorded as being an Aboriginal and/or Torres Strait Islander person.

The second most frequently recorded type of suicide method in 2003–04 was poisoning accounted for 667 (31%) suicide deaths. 8 of these cases were recorded as being Aboriginal and/or Torres Strait Islander.

In 188 (9%) cases of suicide a firearm was the mechanism of death. Fewer than 4 of these cases were recorded as being an Aboriginal and/or Torres Strait Islander person.

Table 2.8.4: Mechanism of suicide death, Australia, 2003–04

Mechanism of suicide death	No of deaths	Proportion of all suicide deaths
Hanging, strangulation and suffocation	1,000	46.0
Poisoning	667	30.7
Firearms	188	8.7
Jumping from a high place, or jumping or lying before a moving object	167	7.7
Drowning and submersion	68	3.1
Cutting, piercing and blunt objects	61	2.8
Smoke, fire and flames, and hot substances	35	1.6
Crashing of motor vehicle	13	0.6
Other specified mechanisms	15	0.7
Unspecified mechanisms	7	0.3
Total suicide deaths	2,173	100.0

* The total of the values shown in this table for the categories of mechanism, exceeds the total number of cases because some cases may have been assigned more than one external cause code, placing them into more than one category.

Table 2.8.5 lists the type of agent coded for those suicide deaths that resulted from poisoning by drugs or through the toxic effects of some other substance. The table is based on ICD-10 Chapter XIX codes in the range T36–T65 which refer to poisoning by drugs or other substances. This range of codes enables more specific identification of poisoning agents than does the range of Chapter XX External cause codes that relate to poisoning-related suicide (X40–X49).

By far the most common poisoning agent was Carbon monoxide (369 suicide deaths had been assigned a code for carbon monoxide poisoning). This was followed by Antiepileptic, sedative-hypnotic and antiparkinsonism drugs ($n=72$); Psychotropic drugs, nec ($n=72$); and Narcotics and psychodysleptics ($n=69$).

Table 2.8.5: Poisoning-related suicide deaths by type of poisoning agent, Australia, 2003–04

Poisoning agent	No of deaths	Total
Drugs and alcohol:		379
Antiepileptic, sedative-hypnotic and antiparkinsonism drugs	72	
Psychotropic drugs, nec	72	
Narcotics and psychodysleptics [hallucinogens]	69	
Alcohol	26	
Non-opioid analgesics, antipyretics and antirheumatics	25	
Agents primarily affecting the cardiovascular system	11	
Drugs primarily affecting the autonomic nervous system	10	
Other and unspecified drugs, medicaments and biological substances	94	
Substances chiefly nonmedicinal as to source:		400
Carbon monoxide	369	
Pesticides	10	
Other gases, fumes and vapours	9	
Other and unspecified substances	12	
Total number of poisoning suicide deaths*		779

* The total of the values shown in this table for the categories of mechanism, exceeds the total number of cases because some cases may have been assigned more than one Chapter XIX code. In the case of poisoning, for example, a suicide death may have been assigned codes for more than one poisoning agent.

2.8.7.2 Age and sex

Hanging was most common among young and middle-aged adults. For the age group 20–39 the rate was 7.8 per 100,000 population. The majority of cases were male ($n=821$, 82%). The all-ages age-adjusted male rate of 8.3 per 100,000 population compared with the female rate of 1.8 per 100,000. The age-specific rate for males aged 20–39 was 13.3 per 100,000 population.

Around three-quarters ($n=510$, 76%) of cases of suicide by poisoning were aged 20–54 years. Rates were highest in the age band 35–49 (5.9 per 100,000 population). The highest age-specific rate was 11.5 per 100,000 for males 40–44 years. Deaths due to self-inflicted poisoning were predominately male ($n=476$, 71%). The all-ages age-adjusted male rate of 4.8 compared with a female all-ages rate of 1.9 per 100,000 population.

Rates for firearm-related suicide were highest among males aged 60 years and over and particularly so for males aged 70 and over. The age-adjusted rate for males 60 years and over was 4.6 per 100,000 population, and for males 70 years and over 5.6 per 100,000. Under the age of 20, five-year age groups had between 0 and 3 cases.

95% ($n=179$) of cases were male. The all-ages adjusted male rate was 1.8 compared with the female rate of 0.1 per 100,000 population.

2.8.7.3 Trends

Age-adjusted rates fell for suicide due to all major mechanisms over the period 1997–98 to 2003–04: Suicide deaths due to hanging fell by 22%, Poisoning-related suicide by 37%, and firearm-related suicide by 35% (Table 2.8.6).

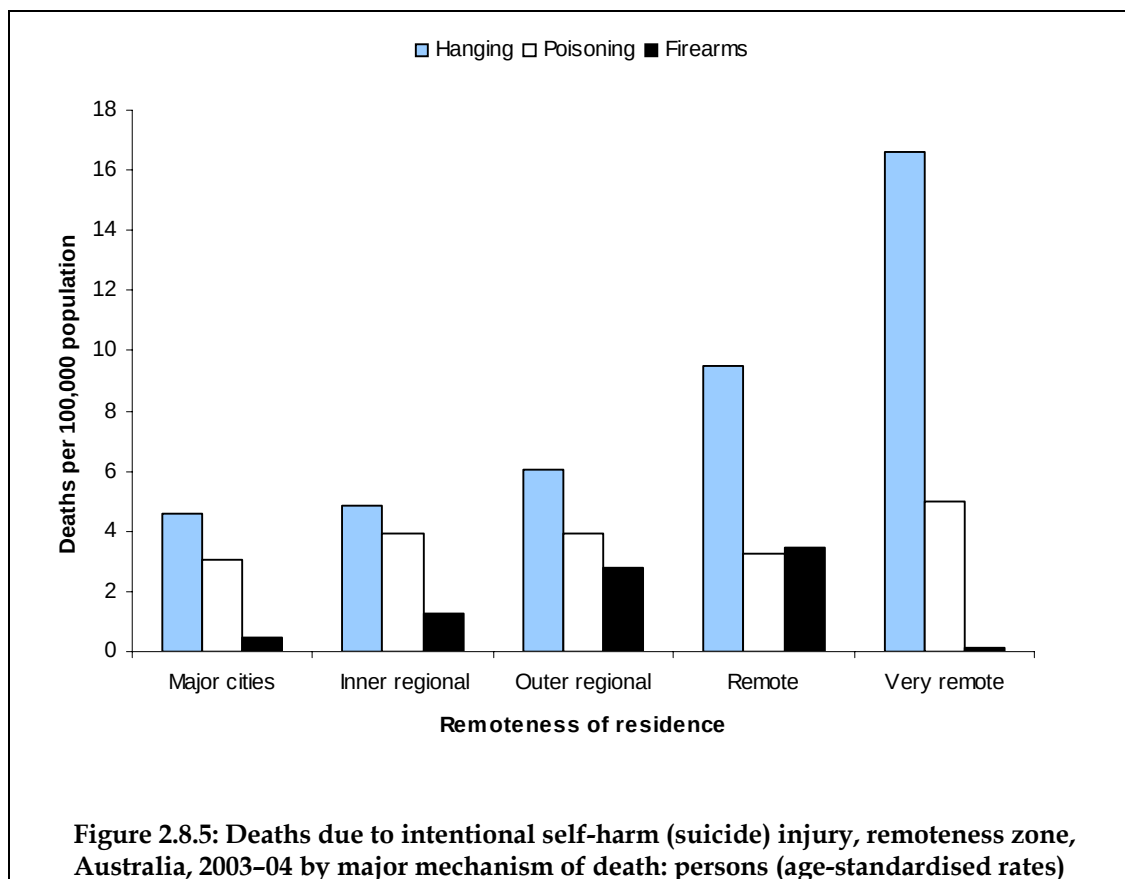
As stated above, the data issue described in Section 1.4 has contributed to the apparent falls in recent years.

Table 2.8.6: Deaths due to intentional self-harm (suicide), Australia, 1997–98 to 2003–04 by major mechanism of death: age-standardised rates

	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04
Suicide due to hanging	6.5	5.7	5.5	5.2	5.5	5.2	5.0
Poisoning-related suicide	5.3	4.6	4.8	4.6	3.8	3.9	3.3
Firearm-related suicide	1.4	1.5	1.3	1.3	1.2	1.0	0.9

2.8.7.4 Remoteness of residence

Age-adjusted rates of suicide increased consistently with the remoteness of the zone of residence of the deceased person. Rates ranged between 9.9 per 100,000 population in Major cities to 22.7 per 100,000 in Very remote areas. There was, however, variation in the distribution of rates between remoteness zones according to the mechanism of death. Self-inflicted hanging deaths were 3.6 times more frequent in Very remote areas than in Major cities. Suicide due to poisoning were 1.6 times more common in Very remote areas than in Major cities. Firearm-related suicide was most common in Outer regional and Remote zones (Figure 2.8.5). 27 of the 39 cases that occurred in Very remote areas were recorded as being Aboriginal and/or Torres Strait Islander persons. 32 cases in Very remote areas were due to hanging, 25 of these were recorded as being Aboriginal and/or Torres Strait Islander persons.



2.9 Homicide deaths, Australia

Multiple Cause of Death: [X85–Y09](#), [Y35–Y36](#), [Y87.1](#), [Y89.0](#), [Y89.1](#) and [S00–T75](#), [T79](#); or
Underlying Cause of Death: [X85–Y09](#), [Y35–Y36](#), [Y87.1](#), [Y89.0](#), [Y89.1](#)

Table 2.9.1: Key indicators for homicide deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	141	74	215	140	74	214
Percentage of all injury deaths	2%	2%	2%	3%	3%	3%
Crude rate/100,000 population	1.4	0.7	1.1	1.4	0.7	1.1
Adjusted rate (direct)	1.4	0.7	1.1	1.4	0.7	1.1
Rate ratio*	1.31	0.68		1.31	0.69	
Mean YPLL <75years	36	39	37	36	39	37

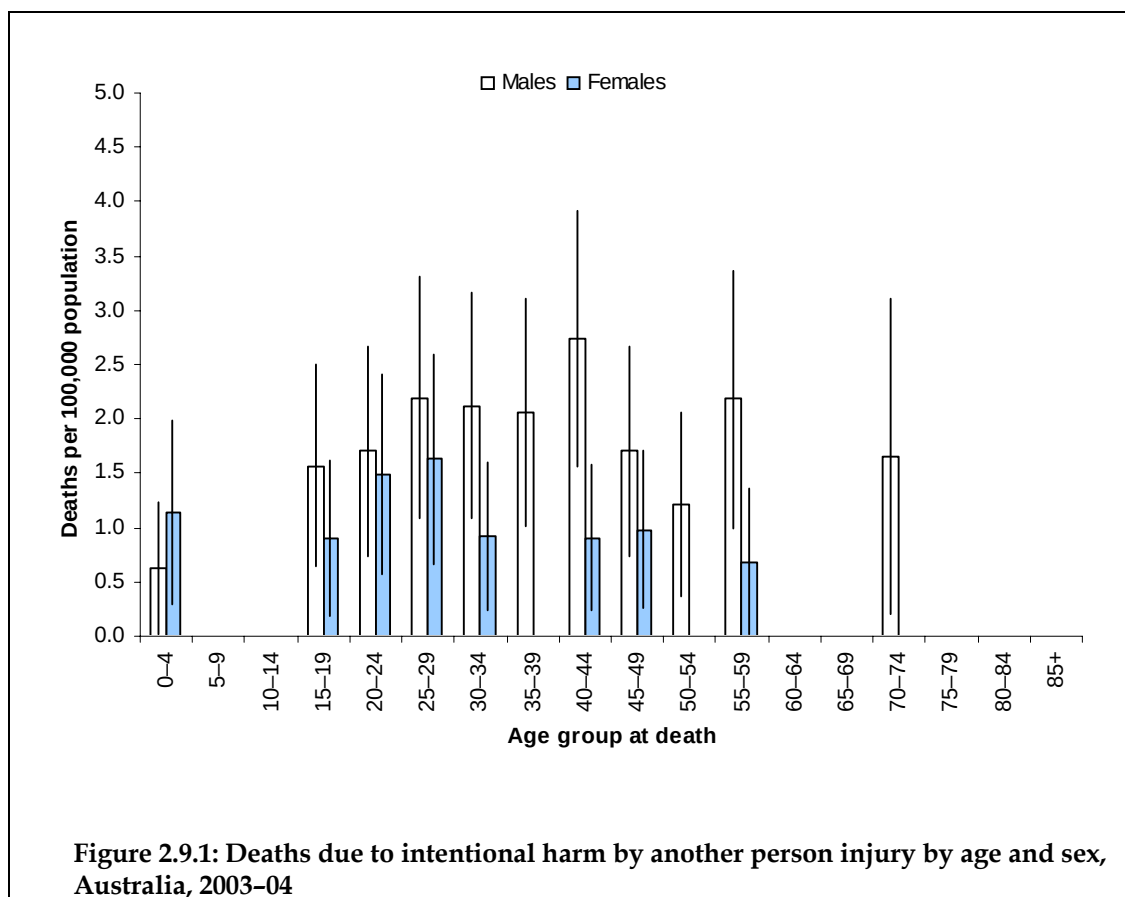
* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 2.9.1 presents summary data for deaths satisfying the selection criteria given above and used throughout this chapter, unless stated otherwise. The right-hand panel of Table 2.9.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has had little effect on this topic, increasing case numbers by less than 1%.

The number of homicide deaths indicated in Table 2.9.1 above is likely to be a significant underestimate of the true number of homicides which occurred in 2003–04 (refer to Section 1.4). The Australian Bureau of Statistics have indicated that there was a significant decline in deaths coded as due to assaults in 2004, largely due to an increase in the number of coroner's cases not closed at the time the ABS finalised the 2004 deaths file (ABS 2005). A report issued by the Australian Institute of Criminology (AIC) has estimated the number of homicides in Australia in 2003–04 to be 304 (195 males, 109 females) (Mouzos J 2005). This number is 41% higher than the 215 homicide deaths indicated above. These differences were not as apparent in previous years. In 2002–03 the ABS reported 272 homicides, 19% lower than the 323 homicides reported by the AIC, while in 2001–02 the number of homicides reported by the ABS was 327, marginally higher than the 317 reported by the AIC. In light of this, the data presented in this chapter should be interpreted with caution.

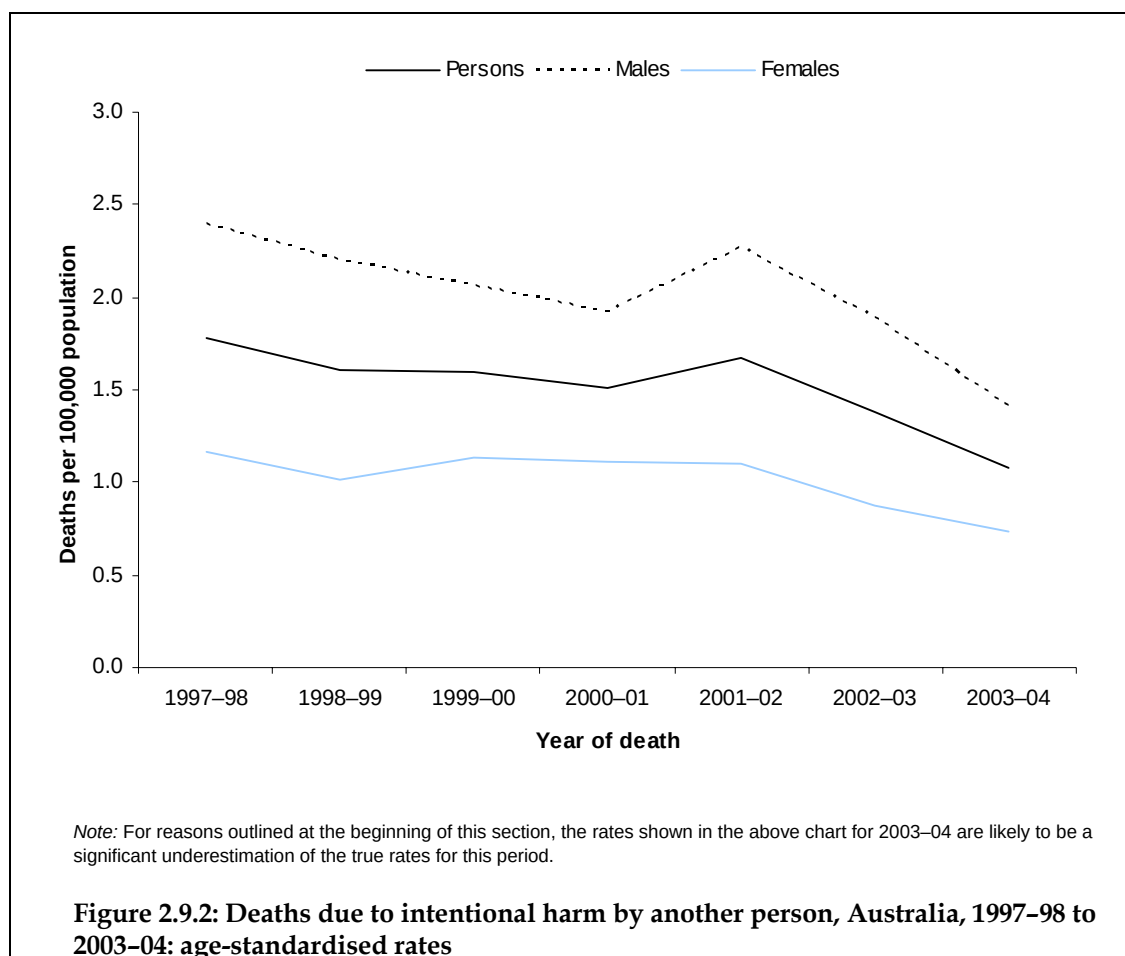
2.9.1 Age and sex distribution

Figure 2.9.1 shows age and sex distribution for deaths due to intentional harm by another person in 2003–04. Persons aged 15–59 accounted for over 83% ($n=179$) of all deaths. Rates for males were markedly higher than female rates in all age groups within this range.



2.9.2 Trends in deaths rates

Figure 2.9.2 shows trends in deaths due to intentional harm by another person for the period from 1997–98 to 2003–04. Overall, there was little change in rates from 1997–98 to 2001–02. Between 2001–02 and 2003–04, rates for all persons dropped by 35% from 1.7 deaths per 100,000 population to 1.1 deaths per 100,000 population. As noted at the start of this chapter, injury deaths due to this cause have been undercounted in ABS data for deaths registered in 2003 and 2004. Data from the AIC suggest that the rate of homicide in 2003–04 was about the same as in 2002–03. Rates for males were consistently more than double those of female rates over the entire period.



2.9.3 State and territory rates

Figure 2.9.3 shows age-adjusted death rates due to intentional harm by another person in 2003–04 by state or territory of residence. The five most populous states all recorded rates close to the national rate (1.1 deaths per 100,000 population). The rates for Tasmania and the Australian Capital Territory are not presented, since both of these jurisdictions recorded 3 deaths or less. The rate for the Northern Territory (5.5) was five times the national average. Of the 12 homicide deaths occurring in the Northern Territory, 10 were recorded as Aboriginal and/or Torres Strait Islander persons.

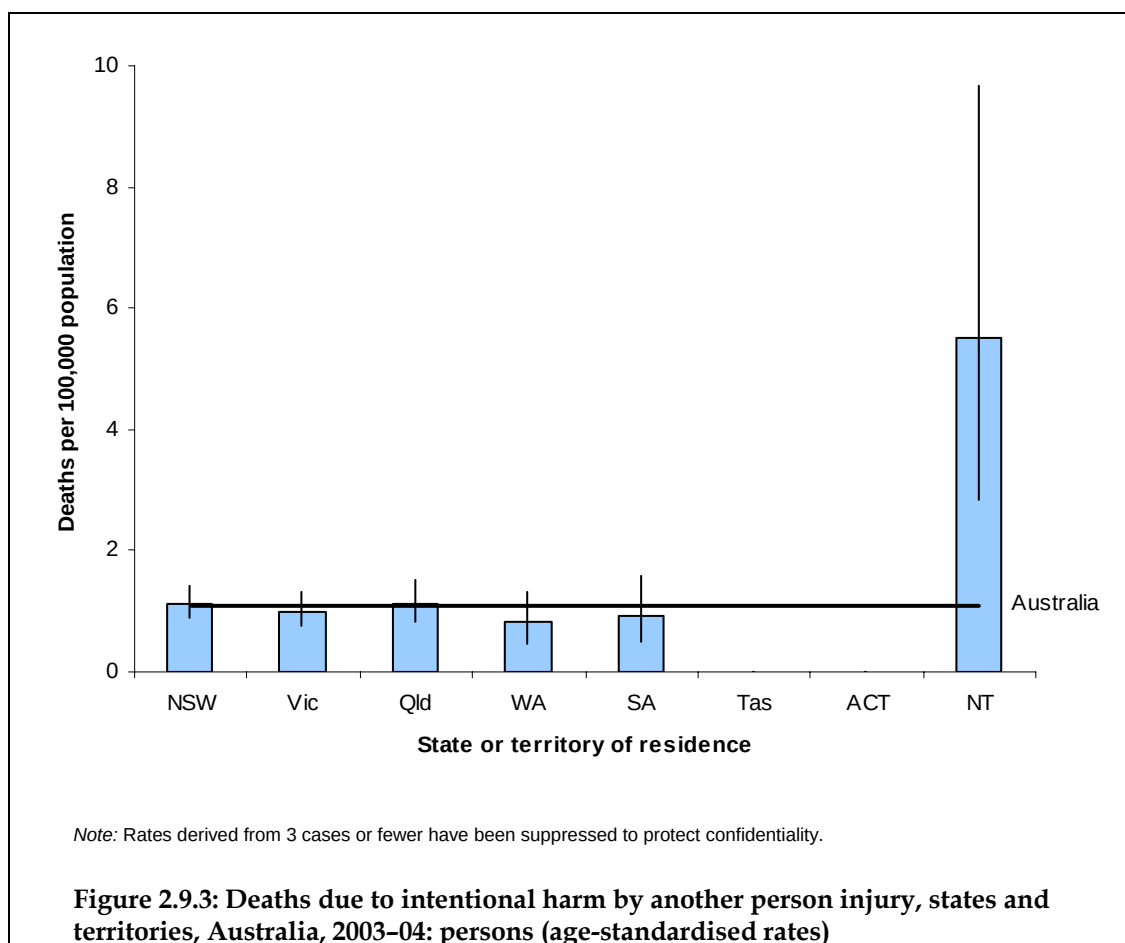


Table 2.9.2: Cases, age-adjusted rates and rate ratios* by state or territory for homicide deaths, Australia, 2003–04

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	75	50	44	16	14	..	..	12
Adjusted rate (direct)	1.1	1.0	1.1	0.8	0.9	..	..	5.5
Rate ratio*	1.05	0.93	1.06	0.76	0.87	..	..	5.13

* Rate ratios are the standardised rate for a state or territory/standardised rate for Australia.

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.9.4 Remoteness of residence

Figure 2.9.4 shows age-adjusted rates for deaths due to intentional harm by another person in 2003–04 by remoteness zone of the person's residence. Rates for Major cities, Inner regional and Outer regional remoteness zones were all close to the national rate (1 death per 100,000 population). The rate for the Remote zone (2.4) was more than double the national rate. The rate for the Very remote zone (5.9) was almost 6 times the national rate.

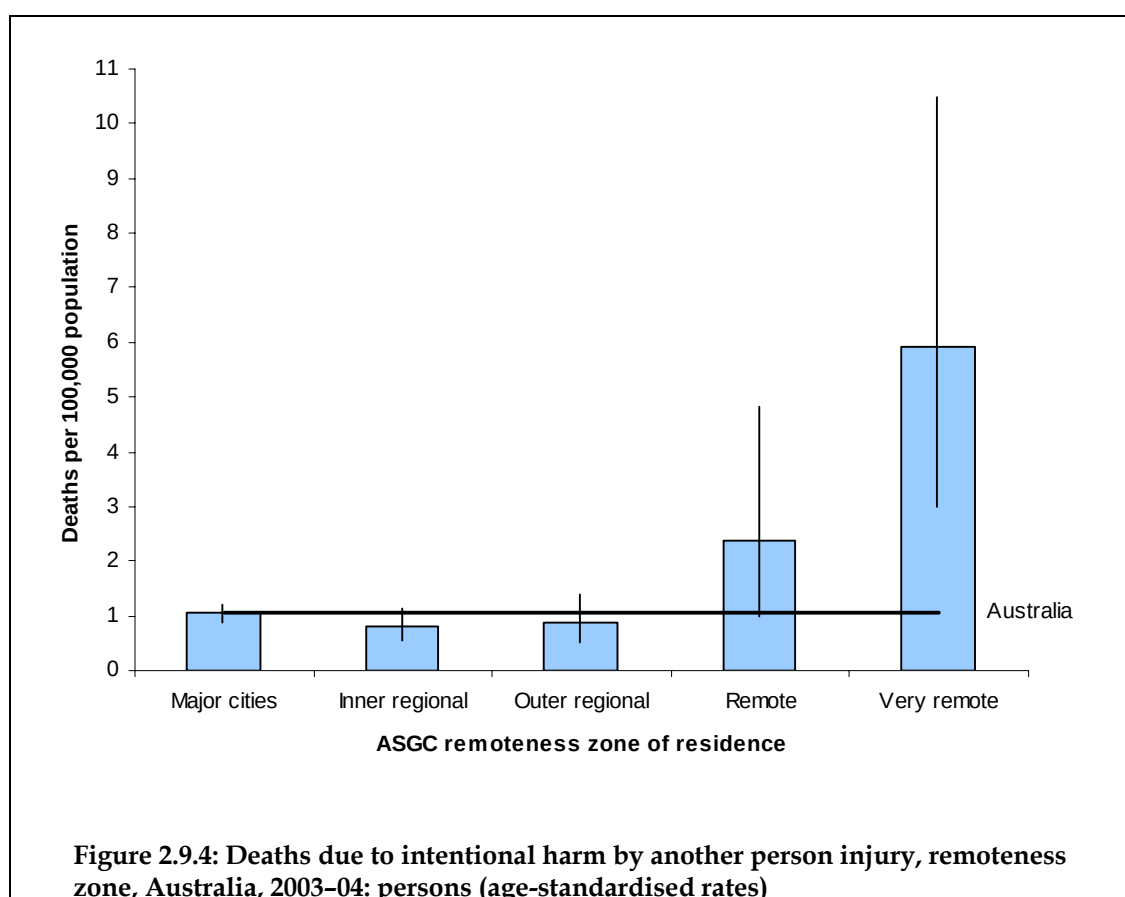


Table 2.9.3: Cases, age-adjusted rates and rate ratios* by remoteness zone for homicide deaths, Australia, 2003–04

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	142	31	18	7	12
Adjusted rate (direct)	1.0	0.8	0.9	2.4	5.9
Rate ratio*	1.00	0.75	0.83	2.26	5.65

* Rate ratios are the standardised rate for a remoteness zone/standardised rate for Australia.

2.9.5 Associated factors

Of the 141 male deaths which occurred in 2002-03, 47% ($n=66$) were due to *Assault by a sharp object*, 17% ($n=24$) were due to *Assault by firearms*, and 13% ($n=18$) resulted from *Assault by bodily force*. Just over 72% ($n=102$) of male homicides were in the age range 15-49 years.

For females, *Assault by a sharp object* accounted for 30% ($n=22$), 18% ($n=13$) resulted from *Hanging, strangulation and suffocation*, and 15% ($n=11$) of homicides were due to *Assault by firearms*. Almost 46% ($n=34$) of female homicides were in the age range 15-34 years.

14 (10%) homicide deaths involved children: 11 were at ages 0-4 years, 2 at ages 5-9 years and 1 at ages 10-14 years.

3 Complications of surgical and medical care deaths, Australia

Multiple Cause of Death: Y40–Y84, Y88 and T80–T88; or

Underlying Cause of Death: Y40–Y84, Y88

Table 3.1: Key indicators for complication of surgical and medical care deaths, Australia, 2003–04

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	992	772	1,764	153	133	286
Crude rate/100,000 population	10.0	7.7	8.8	1.5	1.3	1.4
Adjusted rate (direct)	11.2	6.6	8.5	1.8	1.1	1.4
Rate ratio*	1.32	0.77		1.31	0.82	
Mean YPLL <75years	7.6	6.7	7.2	4.0	7.3	5.5

* Rate ratios are standardised rate for male or female/standardised rate for persons.

The left-hand panel of Table 3.1 presents summary data for deaths satisfying the selection criteria given above and throughout this chapter, unless stated otherwise. The right-hand panel of Table 3.1 is based on cases selected according to the narrower criteria used in previous reports (UCoD V01–V99). Adoption of the new criteria has a very large effect on this topic, increasing case numbers by close to 517%.

3.1 Overview

Deaths with an UCoD code in the range Y40–Y84, Y88 or any MCoD code in the range T80–T88 *Complications of surgical and medical care, not elsewhere classified* provide a rudimentary measure of occurrence of deaths related to medical care. However, the findings of this section should be interpreted with caution as the ICD coding and classification system and the available data have important limitations for this purpose.

Information recorded on Australian death certificates about causes of death may not always be accurate and complete. Adverse event deaths which have been certified by a coroner could be expected to have more accurate information than deaths which are not certified (Hargreaves J 2001). Of the 1,764 deaths reported in this chapter, 23% ($n=408$) were certified by a coroner. Assessing the extent to which adverse events are recorded on death certificates could provide some insight as to the appropriateness of using mortality data to monitor adverse events that are a cause of death.

The scope of this section has been limited to deaths assigned an MCoD code in the range T80–T88 *Complications of medical and surgical care, not elsewhere classified* or a UCoD code Y40–Y84 *Complications of medical and surgical care*, [or Y88 *Sequelae of complications*]. By analogy with the approach used for community injury, we have not

included in this chapter other deaths that include a Multiple cause code in the range Y40–Y84, Y88. This group of deaths is included in Chapter 4.

3.2 Major types of condition

Table 3.2 shows the major types of condition for deaths occurring due to complications of surgical and medical care in 2003–04. Almost 53% ($n=932$) of these deaths were coded to T81, *Complications of procedures, not elsewhere classified*. Of these 932 deaths, 25% ($n=229$) were due to an infection following a procedure, 10% ($n=94$) were due to a haemorrhage or haematoma complicating a procedure and 6% ($n=59$) were due to vascular complications following a procedure. Over 52% ($n=488$) of these deaths had complications of medical procedures which were not defined.

Just over 15% ($n=268$) of all complications related deaths were coded to T82, *Complications of cardiac and vascular prosthetic devices, implants and grafts*. Of these 268 deaths, 16% ($n=44$) resulted from an infection or inflammatory reaction to a vascular or prosthetic device. Over 74% ($n=199$) of these deaths had complications of cardiac and vascular prosthetic devices, implants and grafts which were not defined.

11% ($n=194$) of all complications related deaths were coded to T84, *Complications of internal orthopaedic prosthetic devices, implants and grafts*. Of these 194 deaths, 20% ($n=39$) resulted from an infection or inflammatory reaction to an internal joint prosthesis, with a further 20% ($n=38$) resulting from an infection or inflammatory reaction to an internal fixation device. Over 57% ($n=110$) of these deaths had complications of internal orthopaedic prosthetic devices, implants and grafts which were not defined.

Table 3.2: Major types of injury for complications of surgical and medical care deaths, Australia, 2003–04

Condition code	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
T80-T88 code not present	61	6.1	40	5.2	101	5.7
Complications following infusion, transfusion & therapeutic injection	9	0.9	1	0.1	10	0.6
Complications of procedures, not elsewhere classified	518	52.2	414	53.6	932	52.8
Complications of cardiac and vascular prosthetic devices, implants and grafts	168	16.9	100	13.0	268	15.2
Complications of genitourinary devices, implants and grafts	19	1.9	11	1.4	30	1.7
Complications of internal orthopaedic prosthetic devices, implants and grafts	76	7.7	118	15.3	194	11.0
Complications of other prosthetic devices, implants and grafts	16	1.6	16	2.1	32	1.8
Failure and rejection of transplanted organs and tissues	78	7.9	41	5.3	119	6.7
Complications peculiar to reattachment and amputation	41	4.1	25	3.2	66	3.7
Other complications of surgical and medical care, not elsewhere classified	6	0.6	6	0.8	12	0.7
Total	992	100.0	772	100.0	1,764	100.0

Almost 7% ($n=119$) of all complications related deaths were coded to T86, *Failure and rejection of transplanted organs and tissues*. Of these 119 deaths, 61% ($n=73$) resulted from a bone marrow transplant reaction while 20% ($n=24$) were due to failure and rejection of undefined organs or tissues.

3.3 External causes

Table 3.3 shows the external causes of injury for deaths occurring due to complications of surgical and medical care in 2003–04. Almost 84% ($n=1,474$) of these deaths were coded to Y83, *Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*. Of these 1,474 deaths, 20% ($n=296$) involved a surgical operation with an implant of an artificial internal device, 17% ($n=254$) involved partial or total removal of undefined organs, and 14% ($n=208$) involved a surgical operation with anastomosis, bypass or graft. 22% ($n=323$) involved surgical procedures which were not defined.

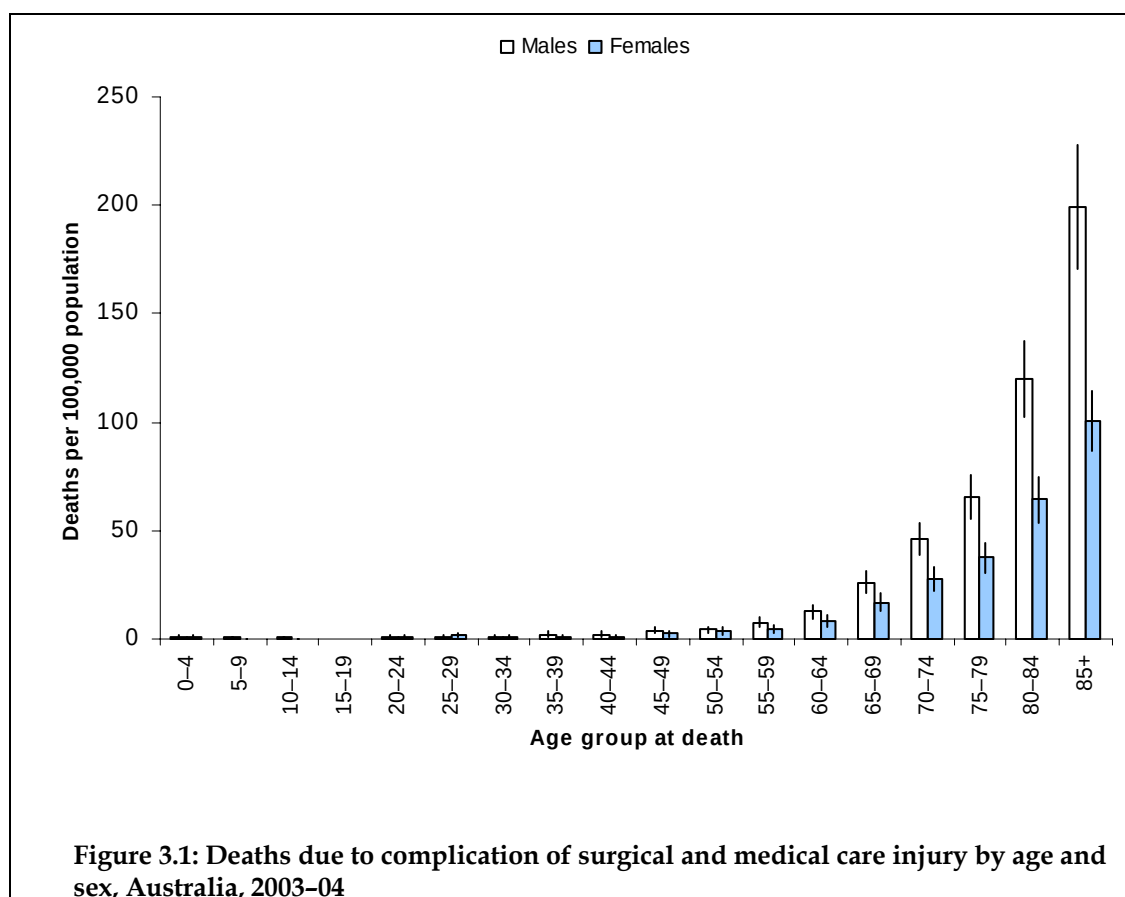
Almost 12% ($n=207$) of all complication related deaths were coded to Y84, *Other medical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*. Of these 207 deaths, 21% ($n=44$) involved urinary catheterisation, and 16% ($n=33$) involved kidney dialysis. 58% ($n=119$) involved medical procedures which were not defined.

Table 3.3: External causes of injury for complications of surgical and medical care deaths, Australia, 2003–04

External cause code	Male		Female		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
No external cause code present	0	0.0	3	0.4	3	0.2
Systemic antibiotics	3	0.3	3	0.4	6	0.3
Agents primarily affecting blood constituents	11	1.1	1	0.1	12	0.7
Analgesics, antipyretics and anti-inflammatory drugs	3	0.3	8	1.0	11	0.6
Other and unspecified drugs and medicaments	6	0.6	4	0.5	10	0.6
Unintentional cut, puncture, perforation or haemorrhage during surgical and medical care	6	0.6	3	0.4	9	0.5
Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	831	83.8	643	83.3	1,474	83.6
Other medical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	115	11.6	92	11.9	207	11.7
Sequelae with surgical and medical care as external cause	7	0.7	3	0.4	10	0.6
Other external cause categories	10	1.0	12	1.6	22	1.2
Total	992	100.0	772	100.0	1,764	100.0

3.4 Age and sex distribution

Figure 3.1 shows age and sex distribution for deaths attributed to complications of surgical and medical care in 2003–04. Higher death rates are concentrated in older age groups and increase almost exponentially in both males and females from about 60 years of age onwards. Male rates are markedly higher than female rates in all age groups from 55–59 years onwards with males in the 80–84 and 85+ age groups having close to double the death rates of females.



4 Residual groups

This chapter reports deaths that do not meet the criteria for inclusion as *Community Injury* (Chapter 2) or *Complications of surgical and medical care* (Chapter 3), but do include at least one code from Chapter XIX or Chapter XX of ICD-10.

Table 4.1 summarises cases where any MCoD code, other than the UCoD code, was in the range V01–Y36, Y85–Y87, Y89 (i.e. community injury) but without any accompanying injury diagnosis code in the range S00–T75, T79. For 2003–04, 61% ($n=192$) of these deaths were coded to W80, *Inhalation and ingestion of other objects causing obstruction of respiratory tract*, 18% ($n=50$) were coded to Y86, *Sequelae of other accidents*, and 12% ($n=39$) were coded to W19, *Unspecified fall*.

Of these 316 cases, 12% ($n=39$) had an UCoD coded to I64 *Stroke, not specified as haemorrhage*, 12% ($n=39$) had an UCoD coded to J69.0 *Pneumonitis due to food and vomit* and 7% ($n=21$) had an UCoD coded to F03 *Unspecified dementia*. 86% ($n=271$) of these cases were aged 70 years and over while 40% ($n=126$) were aged 85 years and over.

Table 4.1: Community injury – case counts and per cent for residual group deaths, Australia, 2003–04

External cause code	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Person injured in unspecified motor-vehicle accident, traffic	2	1.1	3	2.2	5	1.6
Specified fall	1	0.6	1	0.7	2	0.6
Unspecified fall	16	9.0	23	16.5	39	12.3
Inhalation and ingestion of other objects causing obstruction of respiratory tract	110	62.1	82	59.0	192	60.8
Sequelae of motor-vehicle accident ^(a)	5	2.8	2	1.4	7	2.2
Sequelae of other accidents ^(a)	34	19.2	24	17.3	58	18.4
Other external causes	6	3.4	4	2.9	10	3.2
Sequelae of other external causes ^(a)	3	1.7	0	0.0	3	0.9
Total	177	100.0	139	100.0	316	100.0

(a) An injury may lead to death sometime after the injury occurs. The conditions resulting in such deaths may be referred to sequelae of injury, if one year or more after the originating event, as late effects. In 2003–04, 80 deaths occurred which were recorded as sequelae of community injuries. Information on the ABS mortality data file does not record the year in which the injuries occurred.

Table 4.2 summarises cases where any MCoD code, other than the UCoD code, was in the range Y40–Y84, Y88 (i.e. complications of surgical and medical care) but without any accompanying injury diagnosis code in the range T80–T88. 57% ($n=663$) of these 1,166 deaths were coded to the external cause range Y40–Y59 *Drugs, medicaments, and biological substances causing adverse effects in therapeutic use*. 30% ($n=353$) were coded to Y83 *Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*, and 10% ($n=114$) were coded to Y84 *Other medical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*.

Off the 1,166 cases, 9% ($n=110$) had an UCoD coded to C81–C96 *Malignant neoplasms of lymphoid, haematopoietic and related tissue*, 8% ($n=99$) had an UCoD coded to I20–I25 *Ischaemic heart diseases*, 8% ($n=91$) had an UCoD coded to C15–C26 *Malignant neoplasms of digestive organs*, and 7% ($n=76$) had an UCoD coded to I30–I52 *Other forms of heart disease*. 67% ($n=785$) of these case were aged 70 years and over.

Table 4.2: Complications of surgical and medical care – case counts and per cent for residual group deaths, Australia, 2003–04

External cause code	Male		Female		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Drugs, medicaments and biological substances causing adverse effects in therapeutic use ^(a)	356	55.3	307	58.8	663	56.9
Misadventures to patients during surgical and medical care	1	0.2	0	0.0	1	0.1
Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	198	30.7	155	29.7	353	30.3
Other medical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	73	11.3	41	7.9	114	9.8
Sequelae with surgical and medical care as external cause	16	2.5	19	3.6	35	3.0
Total	644	100.0	522	100.0	1,166	100.0

(a) 14 cases in this group also had an external cause coded to Y83 *Surgical operation and other surgical procedures as a cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure*.

There were also 117 cases having a MCoD code in the range T78, T90–T98 but without an UCoD code in the range V01–Y89. 32% ($n=38$) of these cases were coded to T98 *Sequelae of other and unspecified effects of external causes*, and 29% ($n=34$) were coded to T90 *Sequelae of injuries of head*.

5 Discussion

Case counts for 2003–04 and recent trends in injury mortality rates have been affected by the data problem described in Section 1.4 and elsewhere in this report. Information available to us at the time of writing does not enable precise measurement of the extent of the problem, or correction. We anticipate providing such information in a future report.

As described in the introduction, we have changed the criteria used to select deaths for inclusion as ‘injury’ cases for inclusion in the report. These changes in case selection criteria have not in any way contributed to the problem mentioned above, which affects the source data file, and have benefits irrespective of the presence of that problem.

The revised case selection criteria have potential to provide more valid estimates of injury incidence and represents an improvement over previous reports in this series which have tended to underestimate the burden of injury mortality.

Overall, application of the new operational definition of injury as outlined in the Introduction to this report identified 2,058 cases that would not have been included using the selection criteria imposed in previous years. There were increases in the number of cases identified for all major causes of community injury, most notably *Poisoning by other substances* (334%), *Unintentional falls* (92%), *Unintentional poisoning* (37%) and *Other unintentional injury* (94%) (Table 5.1). Although peripheral to this report, the revised method identifies many more deaths with codes in the range *Complications of surgical and medical care*.

Table 5.1: Major causes of Community injury deaths, persons, Australia, 2003–04

Major causes of community injury deaths	Multiple causes of death (cases)	Underlying cause of death (cases)	Percentage increase*
All injury	9,924	7,866	26.2%
Transport	1,724	1,701	1.4%
Transport: motor vehicle traffic	1,482	1,460	1.5%
Unintentional falls	2,960	1,541	92.1%
Drowning	260	201	29.4%
All unintentional poisoning	1,004	735	36.6%
Poisoning by drugs	824	665	23.9%
Poisoning by other substances	304	70	334.3%
Smoke, fire and flames, heat and hot substances	135	97	39.2%
Other unintentional injury	1,654	851	94.4%
Suicide	2,173	2,169	0.2%
Homicide	215	214	0.5%
Complications of surgical and medical care	1,764	286	516.8%

* Increased number of cases using the new operational definition of injury.

The report has drawn heavily on information provided by MCoD information in the form of ICD-10 Chapter XIX diagnosis codes. Some examples from the report of the insights provided by the analysis of diagnosis codes are as follows:

- Diagnosis codes provide a more detailed breakdown of the agents involved in poisoning deaths than do external cause codes. For example, Section 2.5.1.5 reports that methadone had contributed to the death in 74 cases and benzodiazepines to 197 cases.
- Section 2.6.6 reports that 35% of deaths in the category *Smoke, fire and flames, heat and hot substances* were due to the toxic effects of carbon monoxide or other gases, fumes and vapours.
- Sections 2.3.5 and 2.3.6, which report on the nature and bodily location of injury sustained by persons who had a fall which lead to their death, include the information that 73% of cases had a hip fracture, and just over 11% sustained intracranial injuries.

It is hoped that this type of information will be useful for practitioners and policy makers charged with the responsibility for designing and prioritising the use of interventions.

Appendix 1: Data issues

Data sources

Deaths data are from the Australian Bureau of Statistics (ABS) mortality unit record data collection, 1997–2004. Population data were obtained from the ABS.

Selection criteria

This report is intended to describe the population incidence of injuries in Australia that resulted in death. This section describes the criteria that were used to select records to achieve this purpose.

Period

This report is restricted to deaths that occurred in the period 1 July 2003 to 30 June 2004.

Injury

Community injury is the main subject of this report and includes deaths which have a UCoD code in the external cause range V01–Y36, Y85–Y87, Y89 or any MCoD code in the injury diagnosis range S00–T75, T79. Other injuries occur in the context of surgical and medical care, where they are often referred to as complications. These injuries are referred to as *Complications of surgical and medical care* and include deaths which have an UCoD code in the external cause range Y40–Y84, Y88 or any MCoD code in the injury diagnosis range T80–T88.

Multiple causes of death

Until the end of 1996, the ABS coded only one cause for each death. This is the Underlying Cause (UCoD) which the Bureau defines as being ‘the disease or injury which initiated the train of morbid events leading directly to death’ (in keeping with WHO rules). The Underlying Cause is derived from information on the death certificate according to rules that form part of the *International Classification of Diseases*.

Beginning with deaths registered in 1997, other morbid conditions, diseases and injuries entered on the death certificate were also coded as Multiple Causes of Death (MCoDs). Up to 20 MCoDs may be recorded for each death, with one of the MCoDs being a duplicate of the UCoD for that death.

Where they are assigned, MCoD codes can provide additional information about deaths where the UCoD was an External Cause (injury or poisoning). MCoDs also make it possible to identify an additional subset of deaths, namely those where the UCoD was not an External Cause, but where one or more External Causes have been specified on the death certificate as having contributed to the death.

Ascertainment of cases: year of registration or year of death

NISU receives mortality unit record data from the ABS in annual files, each containing records for all deaths *registered* in a particular calendar year, using information known to the ABS by a cut-off date, normally some time towards the end of the follow calendar year.

Some time always passes between the date on which a death occurs and the date on which it is registered. Hence, a file containing records for all deaths *registered* during a given period (e.g. calendar year 2002) will include the deaths that occurred in that period and had been registered by the end of the period, and will not include deaths that occurred in the period but were registered later.

Our investigations focused on deaths occurring during each 12 months to 30 June for recent years, and sought to gauge the proportion that had been registered by 31 December of the same year. While most injury deaths that occurred during a financial year will have been registered by the following 31 December, some will not have been. We have estimated the extent of late reporting of injury deaths by calculating the proportion of injury deaths registered by several periods after the end of the financial year in which they occurred (Table A1.1). More than 99% had been registered within 6 months, but a small number of cases are registered later, sometimes by many years.

Table A1.1: Proportion of injury deaths registered within specified intervals after the financial year in which they occurred

Deaths that occurred within the period 1997–98 to 2002–03	Overall percentage	Range
Registered within same financial year as they occurred	90.9	91.0–92.8
Registered within 6 months after financial year in which they occurred	99.4	99.2–99.5
Registered within 12 months after financial year in which they occurred	99.8	99.6–99.8
Registered within 18 months after financial year in which they occurred	99.9	99.8–99.9

These findings suggest that date-of-death reporting, including deaths registered by 6 months after a year of occurrence, will result in less than one per cent under ascertainment. The expected extent of late registration can be checked when future datasets become available, when cause counts can be revised. Historical patterns of late registration can, if desired, be used as the basis for adjustment of latest-year data.

Although there was some variation between major categories of external causes of injury with respect to the proportion of cases registered within 6 months after the year of occurrence, this variation was minimal (Table A1.2).

Table A1.2: Deaths registered within six months of the end of the financial year during which they occurred, by major category of injury, for the period 1997–98 to 2002–03

Major category of injury	Proportion registered within 6 months of the end of the financial year during which they occurred*	Range
Transportation	99.5	99.3% to 99.8%
Drowning	97.7	96.4% to 98.6%
Poisoning, pharmaceuticals	99.2	98.7% to 99.5%
Poisoning, other substances	99.3	97.5% to 100.0%
Falls	99.9	99.7% to 100.0%
Fires/burns/scalds	99.4	98.9% to 100.0%
Suicide	98.9	99.3% to 99.6%
Homicide	99.5	96.1% to 99.3%
Other unintentional injury	97.9	98.5% to 99.3%
Undetermined intent	98.9	96.7% to 100.0%
Complications of care	99.8	99.2% to 100.0%

* Of all that had been registered by 31 December 2003.

Cause code aggregations

NISU statistical publications have traditionally made use of standard aggregations of the ICD-9 External Cause (E-code) classification. With the introduction of ICD-10 at the beginning of 1999, a map was developed by NISU in order to arrive at an equivalent set of standard aggregations under the new classification scheme (Kreissfeld & Harrison 2005)

Years of potential life lost

This report has applied the method used by the Australian Bureau of Statistics for calculating years of potential life lost (YPLL) with one change. The ABS estimated YPLL for ages 1–75 years, inclusive. We have calculated YPLL for ages 0–74 years, inclusive. The methodology is described in the following extract from the ABS publication 3303.0 *Causes of Death Australia 1999*, with our amendments in italics.

Estimates of YPLL were calculated for deaths of persons aged 0–74 years (*i.e.* <75 years) years based on the assumption that deaths occurring at these ages are untimely. A number of variables are used in these calculations, as described below.

YPLL is derived from:

$$YPLL = \sum_x (D_x (74 - A_x))$$

Where:

A_x = adjusted age at death. As age at death is only available in completed years, the midpoint of the reported age was chosen (e.g. age at death 34 years was adjusted to 34.5).

D_x = registered number of deaths at age x due to a particular cause of death.

Mean YPLL (<75 years) per case was calculated using as the denominator all deaths in the group of interest, irrespective of age at death.

Age adjustment

Most all-ages rates have been adjusted for age to allow comparison of injury risk free from the distortion introduced by one population having a different age distribution to another. Direct standardisation was employed, using the Australian population in 2001 as the standard (ABS 2003) (Table A2). Where crude rates or age-specific rates are reported, this is noted.

Confidence intervals

Nearly all deaths are believed to be included in the sources used for this report, so sampling errors do not apply to these data. However, the time periods used to group the cases (e.g. calendar years) are arbitrary. Use of another period (e.g. April to March) would result in different rates, especially where case numbers are small. The 95% confidence intervals of these rates are based on a Poisson assumption about the number of cases in a time period. Chance variation alone would be expected to lead to a rate outside the 95% confidence interval on 5% of occasions. Confidence intervals were calculated using the methods described by Anderson and Rosenberg (1998). Asymmetrical confidence intervals were calculated for case numbers up to 100. Symmetrical intervals, based on a normal approximation, were calculated where case numbers exceed 100.

Data quality

The reliability of information about cause of death depends on the reliability of ICD codes provided by the ABS. This depends largely on the adequacy of the information provided to the ABS through Registrars of Births, Deaths and Marriages, and originating from coroners and medical practitioners. Little published information is available on the quality of the data resulting from this process, particularly as it applies to injury deaths. Centralisation of mortality coding in the Brisbane office of the ABS since the mid 1990s has reduced the potential for variation due to local differences in coding practice. However, factors affecting information recording, provision, or coding could affect data in different ways for different jurisdictions, periods or population groups. Hence, apparent differences should be interpreted with caution.

Refer to Section 1.4 for a description of the problem of under-identification of at least some specific types external cause of injury death and consequent over-assignment of cases to certain other categories.

Suppression of small cell counts in data tables

In some instances, cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality and because values based on very small numbers are sometimes difficult to interpret.

Appendix 2: Summary data tables

Table A2.1: Counts, age-specific rates and male to female rate ratio of deaths by 5-year age groups for males, females, and persons for community injury, Australia, 2003–04^(a)

Age group (years)	Males		Females		Persons		M:F rate ratio
	Case counts	Rates	Case counts	Rates	Case counts	Rates	
0–4	72	11.1	76	12.4	148	11.7	0.9
5–9	29	4.2	18	2.8	47	3.5	1.6
10–14	52	7.3	37	5.5	89	6.4	1.4
15–19	277	39.6	117	17.5	394	28.8	2.4
20–24	463	65.7	128	19.0	591	42.9	3.6
25–29	476	69.6	105	15.5	581	42.7	4.5
30–34	551	73.0	127	16.6	678	44.6	4.3
35–39	463	63.7	131	17.8	594	40.6	3.5
40–44	471	61.5	139	18.0	610	39.7	3.4
45–49	373	53.0	154	21.6	527	37.2	2.4
50–54	302	46.0	119	18.0	421	32.0	2.5
55–59	259	43.5	108	18.5	367	31.1	2.4
60–64	250	55.8	100	22.8	350	39.4	2.5
65–69	243	67.1	116	31.2	359	48.9	2.1
70–74	311	103.0	155	47.2	466	73.9	2.0
75–79	416	170.4	313	104.2	729	133.9	1.3
80–84	453	301.7	461	204.2	914	243.1	1.0
85 plus	743	809.6	1,315	659.9	2,058	707.1	0.6
No age ^(b)	1				1		
All ages	6,205	66.8	3,719	31.6	9,924	48.5	1.7

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range V01–Y36, Y85–Y87, Y89 or any MCoD code was in the range S00–T75, T79 (ICD–10).

(b) Age was not reported for one case.

Table A2.2: Counts, age-specific rates and male to female rate ratio of deaths by 5-year age groups for males, females, and persons for complications of surgical and medical care, Australia, 2003–04^(a)

Age group (years)	Males		Females		Persons		M:F rate ratio
	Case counts	Rates	Case counts	Rates	Case counts	Rates	
0–4	7	1.08	7	1.14	14	1.11	1.0
5–9	5	0.73	0	0.00	5	0.37	N/A
10–14	5	0.70	0	0.00	5	0.36	N/A
15–19	..	0.43	..	0.45	6	0.44	N/A
20–24	6	0.85	7	1.04	13	0.94	0.9
25–29	8	1.17	12	1.78	20	1.47	0.7
30–34	10	1.33	6	0.78	16	1.05	1.7
35–39	16	2.20	9	1.22	25	1.71	1.8
40–44	17	2.22	10	1.30	27	1.76	1.7
45–49	28	3.98	17	2.38	45	3.17	1.6
50–54	28	4.27	25	3.78	53	4.02	1.1
55–59	46	7.73	27	4.63	73	6.19	1.7
60–64	57	12.72	38	8.65	95	10.70	1.5
65–69	95	26.24	62	16.67	157	21.39	1.5
70–74	139	46.03	91	27.71	230	36.49	1.5
75–79	159	65.13	113	37.63	272	49.96	1.4
80–84	180	119.89	145	64.22	325	86.45	1.2
85 plus	183	199.40	200	100.37	383	131.60	0.9
All ages	992	11.23	772	6.55	1,764	8.49	1.3

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range Y40–Y84, Y88 or any MCoD code was in the range T80–T88 (ICD–10).

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.3: Community injury deaths – counts and age-specific rates for males, females and persons by 5-year age groups for states and territories, Australia, 2003–04^(a)

Age group (years)	NEW SOUTH WALES						VICTORIA					
	Males		Females		Persons		Males		Females		Persons	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	24	10.95	31	15.00	55	12.91	9	5.77	11	7.37	20	6.55
5–9	8	3.52	6	2.77	14	3.16	6	3.63	..	1.28	8	2.49
10–14	23	9.77	6	2.69	29	6.33	7	4.12	9	5.55	16	4.82
15–19	77	33.40	40	18.26	117	26.02	63	37.48	26	16.11	89	27.01
20–24	126	54.50	34	15.42	160	35.43	102	58.39	32	18.88	134	38.93
25–29	149	64.59	37	16.15	186	40.46	116	67.57	29	16.95	145	42.30
30–34	166	65.10	37	14.33	203	39.56	116	61.20	36	18.35	152	39.41
35–39	133	54.83	36	14.82	169	34.81	116	63.67	32	17.10	148	40.08
40–44	165	63.90	40	15.56	205	39.79	98	52.36	37	19.41	135	35.74
45–49	111	47.22	35	14.80	146	30.96	82	47.68	38	21.61	120	34.50
50–54	91	41.81	38	17.46	129	29.63	72	45.56	28	17.20	100	31.17
55–59	67	33.70	42	21.63	109	27.74	58	40.67	30	20.90	88	30.75
60–64	92	60.92	48	32.32	140	46.74	60	55.10	17	15.64	77	35.39
65–69	90	72.54	35	27.30	125	49.55	53	59.22	32	33.87	85	46.20
70–74	96	91.38	53	46.03	149	67.67	73	95.80	35	41.41	108	67.19
75–79	156	182.56	120	113.17	276	144.13	88	141.72	80	102.55	168	119.91
80–84	194	366.46	161	201.73	355	267.42	87	228.69	108	184.99	195	202.23
85+	246	769.03	438	622.53	684	668.31	172	730.04	355	687.26	527	700.66
Total^(b)	2,014	63.93	1,237	30.39	3,251	46.40	1,378	59.58	937	31.00	2,315	44.93

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range V01–Y36, Y85–Y87, Y89 or any MCoD code was in the range S00–T75, T79 (ICD–10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.3 (continued): Community injury deaths – counts and age-specific rates for males, females and persons by 5-year age groups for states and territories, Australia, 2003–04^(a)

Age group (years)	QUEENSLAND						WESTERN AUSTRALIA					
	Males		Females		Persons		Males		Females		Persons	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	23	17.92	20	16.44	43	17.20	7	11.0	4	6.6	11	8.9
5–9	6	4.37	..	2.30	9	3.36	6	8.7	4	6.2	10	7.5
10–14	11	7.71	7	5.17	18	6.48	6	8.3	4	5.8	10	7.1
15–19	64	46.14	19	14.44	83	30.71	32	43.9	19	27.4	51	35.9
20–24	114	82.31	26	19.69	140	51.74	53	74.9	15	22.4	68	49.3
25–29	101	77.37	16	12.37	117	45.02	50	74.1	7	10.7	57	42.9
30–34	118	82.00	28	19.16	146	50.33	54	72.4	10	13.6	64	43.2
35–39	106	77.25	33	23.45	139	50.01	49	67.1	6	8.2	55	37.6
40–44	99	67.89	30	20.15	129	43.77	36	46.6	14	18.1	50	32.4
45–49	93	69.24	32	23.48	125	46.20	41	56.9	19	26.2	60	41.5
50–54	61	48.06	27	21.29	88	34.68	20	29.8	8	12.1	28	21.0
55–59	57	48.46	19	16.77	76	32.92	20	34.0	6	10.8	26	22.7
60–64	51	58.07	19	22.58	70	40.70	19	44.1	8	19.3	27	31.9
65–69	53	77.19	15	22.31	68	50.03	23	67.8	13	37.8	36	52.7
70–74	67	121.51	30	52.21	97	86.15	35	129.3	18	62.1	53	94.5
75–79	77	177.62	57	111.25	134	141.67	41	195.5	28	111.5	69	149.7
80–84	84	313.51	86	223.64	170	260.54	32	254.1	52	278.1	84	268.4
85+	161	974.31	244	728.33	405	809.58	83	1068.5	144	851.6	227	919.9
Total^(b)	1,346	76.82	711	33.74	2,057	54.54	607	69.94	379	35.23	986	52.08

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range V01–Y36, Y85–Y87, Y89 or any MCoD code was in the range S00–T75, T79 (ICD–10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.3 (continued): Community injury deaths—counts and age-specific rates for males, females and persons by 5-year age groups for states and territories, Australia, 2003–04^(a)

Age group (years)	SOUTH AUSTRALIA						TASMANIA					
	Males		Females		Persons		Males		Females		Persons	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	4	8.76	6	13.78	10	11.21	..	6.39	..	6.78	..	6.58
5–9	..	4.04	0	0.00	..	2.07	..	6.01	..	6.32	..	6.16
10–14	..	5.79	..	4.07	5	4.95	0	0.00	6	35.91	6	17.47
15–19	21	39.75	9	17.97	30	29.15	6	34.42	..	11.98	8	23.44
20–24	34	65.71	13	26.77	47	46.86	12	78.28	..	13.83	14	46.99
25–29	32	65.95	6	13.07	38	40.24	11	82.95	4	29.64	15	56.06
30–34	49	90.58	9	16.95	58	54.12	18	118.28	5	30.70	23	73.01
35–39	32	58.48	7	12.92	39	35.82	12	76.57	9	54.03	21	64.96
40–44	31	52.75	12	20.36	43	36.53	20	110.30	..	10.61	22	59.50
45–49	35	63.92	13	23.34	48	43.46	6	34.27	10	56.26	16	45.35
50–54	37	71.48	14	26.35	51	48.62	11	66.25	..	5.96	12	35.95
55–59	28	59.15	9	18.70	37	38.75	16	105.04	..	13.17	18	59.17
60–64	22	61.70	6	16.70	28	39.12	..	16.65	..	8.45	..	12.58
65–69	20	67.42	13	41.41	33	54.05	..	20.50	..	30.34	5	25.45
70–74	22	85.09	11	38.26	33	60.43	14	174.19	6	68.85	20	119.39
75–79	32	143.36	17	60.79	49	97.44	15	233.75	4	51.34	19	133.73
80–84	39	281.49	30	139.92	69	195.49	10	259.30	14	231.12	24	242.08
85+	50	589.59	76	397.19	126	456.27	26	1119.24	45	848.90	71	931.27
Total^(b)	493	65.37	253	26.24	746	44.97	183	83.13	118	40.19	301	60.40

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range V01–Y36, Y85–Y87, Y89 or any MCoD code was in the range S00–T75, T79 (ICD–10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.3 (continued): Community injury deaths—counts and age-specific rates for males, females and persons by 5-year age groups for states and territories, Australia, 2003–04^(a)

Age group (years)	AUSTRALIAN CAPITAL TERRITORY						NORTHERN TERRITORY					
	Males		Females		Persons		Males		Females		Persons	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	..	9.68	0	0.00	..	4.91	..	33.43	..	35.35	6	34.36
5–9	0	0.00	..	9.64	..	4.73	0	0.00	..	12.46	..	5.97
10–14	0	0.00	..	18.54	..	9.03	..	23.80	..	12.82	..	18.51
15–19	..	16.52	0	0.00	..	8.38	12	157.84	..	28.55	14	95.84
20–24	6	42.06	..	22.12	9	32.34	16	185.94	..	41.33	19	119.76
25–29	5	38.96	..	23.70	8	31.38	12	136.03	..	36.65	15	88.20
30–34	9	70.52	0	0.00	9	34.83	21	224.25	..	21.97	23	124.54
35–39	..	25.02	..	24.32	6	24.66	12	136.75	5	63.47	17	102.08
40–44	9	73.85	..	7.79	10	39.96	13	151.44	..	39.78	16	99.22
45–49	..	8.77	5	40.62	6	25.30	4	56.07	..	30.02	6	43.49
50–54	6	54.12	..	8.56	7	30.75	4	59.64	..	34.73	6	48.13
55–59	..	31.38	0	0.00	..	15.66	10	194.44	0	0.00	10	108.70
60–64	..	16.17	..	16.04	..	16.11	..	86.28	0	0.00	..	49.59
65–69	..	22.40	..	42.19	..	32.59	..	50.85	..	202.63	4	116.04
70–74	..	29.23	..	26.60	..	27.85	..	247.12	..	99.90	4	180.59
75–79	..	73.09	6	174.77	8	129.67	4	519.48	..	143.78	5	341.18
80–84	4	235.78	7	280.17	11	262.22	..	853.49	..	652.88	6	739.83
85+	..	231.21	9	439.67	11	377.75	..	1,167.32	4	1,144.49	7	1154.16
No age							1				1	
Total^(b)	56	37.74	45	29.53	101	34.46	127	152.14	39	66.50	166	111.41

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where the UCoD Code was in the range V01–Y36, Y85–Y87, Y89 or any MCoD code was in the range S00–T75, T79 (ICD–10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.4: Community injury deaths – case counts and rates for major causes for males, Australia, 2003–04^(a)

Age group (years)	Transportation V01–V99		Falls W00–W19, X59 plus MCoD fracture code		Drowning W65–W74, (T75.1 and V01–X59)		Poisoning (drugs) X40–X44, (T36–T50 and V01–X59)		Poisoning (other substances) X45–X49, (T51–T65 and V01–X59)	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	24	3.71	0	0.00	22	3.40	0	0.00	5	0.77
5–9	19	2.78	..	0.15	..	0.44	0	0.00	0	0.00
10–14	31	4.37	0	0.00	..	0.42	0	0.00	..	0.28
15–19	147	20.99	7	1.00	11	1.57	13	1.86	7	1.00
20–24	168	23.82	9	1.28	17	2.41	58	8.22	17	2.41
25–29	114	16.67	14	2.05	11	1.61	97	14.18	27	3.95
30–34	132	17.49	12	1.59	22	2.92	94	12.46	34	4.51
35–39	98	13.49	15	2.07	15	2.07	79	10.88	25	3.44
40–44	75	9.79	12	1.57	13	1.70	75	9.79	28	3.65
45–49	70	9.94	15	2.13	10	1.42	49	6.96	20	2.84
50–54	65	9.91	21	3.20	15	2.29	29	4.42	14	2.13
55–59	59	9.91	21	3.53	14	2.35	15	2.52	8	1.34
60–64	58	12.94	29	6.47	13	2.90	7	1.56	11	2.45
65–69	49	13.53	37	10.22	8	2.21	10	2.76	8	2.21
70–74	45	14.90	90	29.80	5	1.66	8	2.65	7	2.32
75–79	53	21.71	157	64.31	9	3.69	6	2.46	8	3.28
80–84	24	15.99	253	168.52	5	3.33	8	5.33	5	3.33
85+	20	21.79	531	578.60	..	2.18	..	2.18	5	5.45
No age			1							
All ages^(b)	1,251	12.64	1,225	15.36	198	2.00	550	5.58	231	2.36

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any MCoD was an external cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.4 (continued): Community injury deaths—case counts and rates for major causes for males, Australia, 2003–04^(a)

Age group (years)	Smoke, fire and flames, heat and hot substances X00–X19, (T20–T32 and V01–X59)		Other unintentional W20–W64, W75–W99, X20– X39, X50–X59, Y85, Y86, Y89.9		Suicide X60–X84, Y87.0		Homicide X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	4	0.62	17	2.62	0	0.00	4	0.62
5–9	..	0.44	4	0.58	0	0.00	..	0.15
10–14	..	0.14	8	1.13	9	1.27	..	0.14
15–19	..	0.14	27	3.86	57	8.14	11	1.57
20–24	4	0.57	41	5.81	164	23.26	12	1.70
25–29	5	0.73	42	6.14	184	26.91	15	2.19
30–34	9	1.19	49	6.49	219	29.02	16	2.12
35–39	5	0.69	51	7.02	180	24.78	15	2.07
40–44	6	0.78	67	8.74	205	26.75	21	2.74
45–49	..	0.43	54	7.67	150	21.30	12	1.70
50–54	7	1.07	47	7.16	114	17.38	8	1.22
55–59	4	0.67	46	7.73	91	15.29	13	2.18
60–64	5	1.12	62	13.83	72	16.06	..	0.67
65–69	9	2.49	54	14.91	75	20.71	..	0.55
70–74	..	0.66	90	29.80	62	20.53	5	1.66
75–79	6	2.46	127	52.02	55	22.53	..	0.41
80–84	4	2.66	113	75.27	42	27.97	..	0.67
85+	6	6.54	155	168.89	31	33.78	0	0.00
All ages^(b)	84	0.88	1,054	11.58	1,710	17.37	141	1.41

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any Multiple Cause of Death was an External Cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.5: Community injury deaths – case counts and rates for major causes for females, Australia, 2003–04^(a)

Age group (years)	Transportation V01–V99		Falls W00–W19, X59 plus MCoD fracture code		Drowning W65–W74, (T75.1 and V01–X59)		Poisoning (drugs) X40–X44, (T36–T50 and V01–X59)		Poisoning (other substances) X45–X49, (T51–T65 and V01–X59)	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	23	3.74	..	0.49	14	2.28	4	0.65	..	0.33
5–9	10	1.54	0	0.00	..	0.46	0	0.00	..	0.15
10–14	19	2.82	..	0.15	..	0.30	0	0.00	4	0.59
15–19	54	8.10	..	0.45	0	0.00	9	1.35	0	0.00
20–24	51	7.58	..	0.30	..	0.30	18	2.67	..	0.30
25–29	17	2.52	..	0.15	4	0.59	21	3.11	..	0.30
30–34	26	3.40	..	0.26	4	0.52	32	4.18	8	1.04
35–39	26	3.54	4	0.54	..	0.27	29	3.95	9	1.22
40–44	29	3.76	4	0.52	..	0.26	37	4.79	9	1.17
45–49	32	4.48	6	0.84	7	0.98	27	3.78	10	1.40
50–54	20	3.03	8	1.21	5	0.76	21	3.18	5	0.76
55–59	34	5.83	13	2.23	..	0.34	16	2.74	..	0.51
60–64	13	2.96	21	4.78	4	0.91	13	2.96	6	1.37
65–69	30	8.07	29	7.80	..	0.54	7	1.88	4	1.08
70–74	23	7.00	62	18.88	4	1.22	6	1.83	..	0.91
75–79	22	7.33	178	59.28	..	0.33	10	3.33	0	0.00
80–84	25	11.07	327	144.82	..	0.44	4	1.77	..	1.33
85+	19	9.54	1,071	537.49	..	1.51	20	10.04	..	1.00
All ages^(b)	473	4.59	1,735	12.95	62	0.62	274	2.65	73	0.71

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any MCoD was an external cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.5 (continued): Community injury deaths—case counts and rates for major causes for females, Australia, 2003–04^(a)

Age-group (Years)	Smoke, fire and flames, heat and hot substances X00–X19, (T20–T32 and V01–X59)		Other unintentional W20–W64, W75–W99, X20– X39, X50–X59, Y85, Y86, Y89.9		Suicide X60–X84, Y87.0		Homicide X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	7	1.14	20	3.25	0	0.00	7	1.14
5–9	..	0.15	4	0.62	0	0.00	..	0.15
10–14	4	0.59	6	0.89	5	0.74	0	0.00
15–19	0	0.00	13	1.95	30	4.50	6	0.90
20–24	..	0.30	11	1.63	33	4.90	10	1.49
25–29	..	0.44	12	1.78	34	5.04	11	1.63
30–34	..	0.13	8	1.04	46	6.01	7	0.91
35–39	..	0.41	12	1.63	53	7.21	..	0.27
40–44	..	0.26	14	1.81	42	5.44	7	0.91
45–49	5	0.70	12	1.68	61	8.55	7	0.98
50–54	..	0.15	17	2.57	43	6.50	..	0.30
55–59	..	0.17	17	2.91	26	4.46	4	0.69
60–64	..	0.68	21	4.78	22	5.01	..	0.23
65–69	..	0.54	23	6.19	18	4.84	..	0.27
70–74	..	0.61	45	13.70	10	3.05	..	0.61
75–79	5	1.67	73	24.31	22	7.33	..	0.67
80–84	7	3.10	89	39.42	10	4.43	..	0.89
85+	..	1.00	203	101.88	8	4.01	..	1.00
All ages^(b)	51	0.49	600	5.06	463	4.56	74	0.74

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any MCoD was an external cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.6: Community injury deaths – case counts and rates for major causes for persons, Australia, 2003–04^(a)

Age group (years)	Transportation V01–V99		Falls W00–W19, X59 plus MCoD fracture code		Drowning W65–W74, (T75.1 and V01–X59)		Poisoning (drugs) X40–X44, (T36–T50 and V01–X59)		Poisoning (other substances) X45–X49, (T51–T65 and V01–X59)	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	47	3.72	..	0.24	36	2.85	4	0.32	7	0.55
5–9	29	2.17	..	0.07	6	0.45	0	0.00	..	0.07
10–14	50	3.61	..	0.07	5	0.36	0	0.00	6	0.43
15–19	201	14.70	10	0.73	11	0.80	22	1.61	7	0.51
20–24	219	15.89	11	0.80	19	1.38	76	5.51	19	1.38
25–29	131	9.64	15	1.10	15	1.10	118	8.68	29	2.13
30–34	158	10.39	14	0.92	26	1.71	126	8.29	42	2.76
35–39	124	8.48	19	1.30	17	1.16	108	7.39	34	2.33
40–44	104	6.76	16	1.04	15	0.98	112	7.28	37	2.41
45–49	102	7.19	21	1.48	17	1.20	76	5.36	30	2.12
50–54	85	6.45	29	2.20	20	1.52	50	3.80	19	1.44
55–59	93	7.89	34	2.88	16	1.36	31	2.63	11	0.93
60–64	71	8.00	50	5.63	17	1.92	20	2.25	17	1.92
65–69	79	10.76	66	8.99	10	1.36	17	2.32	12	1.64
70–74	68	10.79	152	24.11	9	1.43	14	2.22	10	1.59
75–79	75	13.78	335	61.54	10	1.84	16	2.94	8	1.47
80–84	49	13.03	580	154.28	6	1.60	12	3.19	8	2.13
85+	39	13.40	1,602	550.45	5	1.72	22	7.56	7	2.41
All ages^(b)	1,724	8.58	2,960	14.00	260	1.30	824	4.13	304	1.52

continued

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any MCoD was an external cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Table A2.6 (continued): Community injury deaths—case counts and rates for major causes for persons, Australia, 2003–04^(a)

Age group (years)	Smoke, fire and flames, heat and hot substances X00–X19, (T20–T32 and V01–X59)		Other unintentional W20–W64, W75–W99, X20– X39, X50–X59, Y85, Y86, Y89.9		Suicide X60–X84, Y87.0		Homicide X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1	
	Case counts	Rates	Case counts	Rates	Case counts	Rates	Case counts	Rates
0–4	11	0.87	37	2.93	0	0.00	11	0.87
5–9	4	0.30	8	0.60	0	0.00	..	0.15
10–14	5	0.36	14	1.01	14	1.01	..	0.07
15–19	..	0.07	40	2.93	87	6.36	17	1.24
20–24	6	0.44	52	3.77	197	14.29	22	1.60
25–29	8	0.59	54	3.97	218	16.04	26	1.91
30–34	10	0.66	57	3.75	265	17.43	23	1.51
35–39	8	0.55	63	4.31	233	15.94	17	1.16
40–44	8	0.52	81	5.27	247	16.06	28	1.82
45–49	8	0.56	66	4.65	211	14.88	19	1.34
50–54	8	0.61	64	4.86	157	11.92	10	0.76
55–59	5	0.42	63	5.34	117	9.93	17	1.44
60–64	8	0.90	83	9.35	94	10.59	4	0.45
65–69	11	1.50	77	10.49	93	12.67	..	0.41
70–74	4	0.63	135	21.42	72	11.42	7	1.11
75–79	11	2.02	200	36.74	77	14.14	..	0.55
80–84	11	2.93	202	53.73	52	13.83	..	0.80
85+	8	2.75	358	123.01	39	13.40	..	0.69
No age								
All ages^(b)	135	0.67	1,654	8.04	2,173	10.82	215	1.08

.. Cell counts in tables that are 3 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

(a) Deaths occurring in 2003–04 where any MCoD was an external cause code in the range V00–Y36, Y85–Y87, Y89 or a Diagnosis code in the range S00–T75, T79 (ICD-10).

(b) Total rates are age-standardised rates, while the others in this table are age-specific.

Appendix 3: Injury deaths by intent and mechanism, Australia 2003–04

Mechanism/cause	Manner/intent					Total
	Unintentional	Suicide	Homicide	Undetermined	Other	
Cut/pierce	19	54	90	1		164
Drowning	201	63	3	8		275
Fall	797	103		3		903
Fire/ hot object or substance	97	34	2	2		135
Fire/flame	83	34	2	2		121
Hot object/substance	14					14
Firearm	48	188	35	3	3	277
Machinery	14					14
All transportation	1,701	12	3			1,716
<i>Motor vehicle traffic:</i>	<i>1,460</i>					<i>1,460</i>
<i>Occupant</i>	<i>929</i>					<i>929</i>
<i>Motorcyclist</i>	<i>182</i>					<i>182</i>
<i>Pedal cyclist</i>	<i>27</i>					<i>27</i>
<i>Pedestrian</i>	<i>214</i>					<i>214</i>
<i>Unspecified</i>	<i>108</i>					<i>108</i>
<i>Pedal, other</i>	<i>9</i>					<i>9</i>
<i>Pedestrian, other</i>	<i>64</i>					<i>64</i>
<i>Other land transport</i>	<i>86</i>					<i>86</i>
<i>Other Transport</i>	<i>82</i>					<i>82</i>
Natural /environmental	60					60
Poisoning	735	637	2	29		1,403
Struck by or against	26	1	36			63
Suffocation ^(a)	287	996	17	14		1,314
Other specified, classifiable	56	64	0	3		123
Other specified, nec	69	13	3	2		87
Unspecified	1,014	4	23	5		1,046
Complications of medical and surgical care:	286					286
Drugs	57					57
Medical care	229					229
All injury*	5,410	2,169	214	70	3	7,866

* This table shows those cases selected from the *Community injury* dataset where the UCoD was an external cause code from ICD-10 Chapter XX.

Note: The shaded cells in the above table represent combinations of mechanism and intent which cannot be distinguished in the ICD-10 External Cause classification.

nec Not elsewhere classified.

(a) Includes hanging.

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INJURY RESEARCH & STATISTICS

This report describes injury mortality in Australia during 2003–04. It includes information about the major causes of injury such as transport-related deaths, suicide and accidental falls. The data provided in relation to each cause include age and sex, state and territory differences, remoteness of residence, trends over time, and other associated factors.

The report will be relevant to anyone interested in gaining an insight into patterns of injury mortality and the burden it imposes on the Australian community.

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