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Injury deaths, Australia 2004–05

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**Please note that there is the potential for minor revisions of data in this report.
Please check the online version at <www.aihw.gov.au> for any amendments.**

Contents

Abbreviations used

ABS	Australian Bureau of Statistics
AIC	Australian Institute of Criminology
AIHW	Australian Institute of Health and Welfare
DITRDLG	Department of Infrastructure, Transport, Regional Development and Local Government
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
NCIS	National Coroners Information System
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

Summary

A total of 9,775 community injury deaths occurred in Australia in 2004–05, 62% of which were males. The age-adjusted rate of 63.9 deaths per 100,000 population for males was more than double the rate for females (30.3). Age-specific rates were relatively steady for both males and females from early adulthood through to the late sixties, rising rapidly from age 70 years onwards.

A slight downward trend in injury deaths, evident over the past few years, continued in 2004–05. This trend was more marked for males than females. Under-ascertainment of injury deaths in the source data file may have contributed to this.

Just over a quarter of all injury deaths involved some type of fracture, with just on two-thirds of these deaths having incurred a hip fracture. Injuries to the head were also common with just over 17% of all deaths sustaining this type of injury. Of these, 40% sustained some form of intracranial injury.

The most common cause of injury death was *Unintentional falls*, which accounted for 29% of all community injury deaths that occurred in 2004–05. Persons aged 70 years and over accounted for almost 90% of all deaths in this group.

Other common causes of injury deaths included *Suicide* and *Transport* which accounted for 24% and 18% of all injury deaths respectively. Males were close to four times more likely than females to commit suicide, while males aged 20–54 years accounted for over 57% of all deaths in this group.

Similarly for *Transport* deaths, males were close to three times more likely than females to die as a result of a transport accident, while males aged 15–34 years accounted for almost 33% of all deaths in this group. Almost 87% of all transport-related deaths were as a result of a motor vehicle traffic accident, while for 65% of these deaths, the victim was an occupant of a motor vehicle.

The age-adjusted rate of 97.2 deaths per 100,000 population for the Northern Territory was the highest of all the jurisdictions, with Tasmania having the next highest rate (60.0). The Australian Capital Territory had the lowest age-adjusted rate (43.7), which was only marginally lower than the national rate (46.7).

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

When using ABS data, there was strong evidence of undercounting of cases in some external cause categories on 2004–05 and similar over enumeration of cases in other categories. This was particularly evident in the sections related to transport, suicide and homicide where the reported totals were significantly less than those estimated using the National Coroners Information System, and in the case of transport and homicide, less than those reported by other agencies. The ABS has revised the concepts and processes which underlie injury mortality data, which will improve data reliability for deaths registered in 2007 and subsequently.

The trend in death rate for total community injury cases remained relatively unchanged, the undercounting in the external cause categories mentioned above largely being compensated for by over-counting in other external cause categories. This was evident for the sections on *Poisoning* and *Other unintentional* deaths.

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.

As in the previous report in the series (2003–04), we have implemented a method of reporting injury mortality in which:

1. Deaths for inclusion in the report were selected according to a published *Operational definition of injury* (Kreisfeld & Harrison 2006).

2. Deaths are reported according to when they occurred rather than when they were registered.

3. Financial year (i.e. July to June), rather than calendar years are used as the reporting period.

A detailed explanation of this approach is included in the report *Injury deaths, Australia 2003–04* (Henley et al. 2007).

This report, more than previous ones in the series, makes use of data from sources additional to the ABS mortality collection. In the main, these sources have been used to compare case counts with those based on the ABS mortality collection (see Section 1.2). Three sources have been used: the National Coroners Information System (NCIS), road death data from the road safety statistics section of the Department of Infrastructure, Transport, Regional Development and Local Government (DITRDLG) and homicide statistics from the Australian Institute of Criminology (AIC).

1.1   Major causes of injury

For most chapters in this report, ICD-10 external cause codes continue to be used for the purpose of assigning deaths according to major cause groups, which are the same as those used in previous reports. However, whereas reports before 2002–03 focused only on the external cause code that appears as the UCoD, this report classifies cases on the basis of ICD-10 Chapter XX codes anywhere in the record. In some cases, this results in individual deaths appearing in more than one section of the report because they have been assigned more than one external cause code. However, each death is only counted once in overall counts (e.g. Section 2.1)

This report differs from the approach used for the 2003–04 report for chapters where misclassification of ICD-10 external cause codes is a major concern (see Section 1.2). Hence, for chapters describing transport deaths (Section 2.2), suicide deaths (Section 2.8) and homicide deaths (Section 2.9), assignment of cases to a particular external cause group is based primarily upon data contained within selected variables in NCIS, rather than upon ICD-10 codes within the ABS mortality data. ABS data are provided for comparative purposes.

1.2 Reliability of injury death case numbers

Explanatory notes in the ABS Cause of Death publication for deaths registered in 2004 and 2005 caution that care should be taken in interpreting results in recent years for External causes of morbidity and mortality (ABS 2006; ABS 2007a). Information from the ABS and our own investigations indicate that case counts for injury deaths in the ABS mortality data in recent years are subject to noteworthy misclassification (ABS 2007b; De Leo 2007; Henley et al. 2007; Walker et al. 2008; Elnour & Harrison 2009).

A separate investigation, focusing on suicide statistics, provides insights into the nature and magnitude of this data problem (Harrison et al. 2009). In summary, some injury deaths in the period covered by this report were assigned an Underlying Cause of Death code in the ABS mortality data which, when reviewed in the light of data that became available at a later date, is not correct. This occurred due to an interaction of three main factors.

1. <u>Slow completion and documentation of some coroner cases</u>. In recent years, including the period covered by this report, the ABS has relied upon the NCIS as the main source for information on the external causes of deaths. While most coroner cases are completed within months of the date of death, some remain open for years. In addition, in some cases there has been a delay between case completion by the coroner and entry of case data by coroners' staff into the NCIS.

2. <u>A deadline for coding each death</u>. For deaths registered before 2007, the ABS operated according to an annual processing cycle which required that every death registered in a given calendar year should be processed before publication of the annual cause of death report and data file for that year. In recent years, including the period covered by this report, publication by the ABS occurred about 15 months after the end of a calendar year. Due to the slow closure of some deaths as described in point 1, information in the NCIS about some deaths was lacking or incomplete by this deadline. Hence, ABS coders had to code some deaths on the basis of incomplete information.

3. <u>Coding rules for cases with incomplete information</u>. The ABS codes causes of death according to the International Classification of Diseases, 10th revision (ICD-10). This classification provides rules that apply to the coding of cases with incomplete information. If no information about cause is available to the coder (as might occur for an injury death not added to the NCIS until after the ABS deadline) then the case will be assigned a residual code (usually R99), and will not be reported as an injury death. If information is available about the mechanism of injury (e.g. hanging, shooting) but definitive information is not available about the role of human intent (i.e. suicide, homicide or unintentional), then the death will be coded as unintentional.

The net effect of this is misclassification of the cause of some injury deaths in the period. Note that misclassification does not imply error on the part of ABS coders. In other work we found that the quality of the coding appears to have been good (Harrison et al. 2009). Rather, the misclassification resulted from an interaction of the three factors described above.

The main effects of the misclassification are that:

1. Some injury deaths were not assigned an external cause code, but were instead assigned 'residual' codes (R98 and R99).

2. Some deaths due to suicide and homicide were assigned an external cause code for 'unintentional' injury. These were generally assigned to the unintentional category corresponding to the correct mechanism of injury (e.g. suicide by hanging assigned to unintentional suffocation or hanging). This has the effect of undercounting the intentional category and over-counting the corresponding unintentional category.

Where possible, we examined alternative data sources as a way to validate case counts according to the ABS mortality collection. Separate sources were available for road deaths and homicides. In addition, we used data from the NCIS for comparisons with many categories of deaths. While the NCIS is the same source that was used by the ABS as the main basis for external cause coding, we used NCIS data as they were in 2008, long after the ABS had coded the data reported here. Hence, we had the benefit of additional and finalised data for many NCIS cases that had been incomplete when the deaths were coded by ABS officers. We examined the NCIS data, including ABS-originated cause of death codes that were available for most NCIS cases, and produced estimates of case numbers for many of the types of cases covered in this report. These estimates based on NCIS in 2008 are compared with logically equivalent data from the ABS mortality data in a section near the start of most chapters. We found numerous injury deaths which, if coded on the basis of data available in NCIS at the time we did the assessment, would be assigned different ICD codes to those that had been assigned by the ABS at an earlier date, and generally on the basis of less information. Note that these are comparisons of summary data, and were not based on record linkage. The method is described further in Appendix 1 and in the separate report on suicide statistics (Harrison et al. 2009).

We have also:

1. Examined trends in numbers of many types of deaths during the period 1997–05, 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 if no information or incomplete information was available to the coder. Findings supported the suspicion that such assignments had occurred in 2004 and 2005.

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 on motor vehicle traffic injury deaths from the from the road safety statistics section of the Department of Infrastructure, Transport, Regional Development and Local Government (see Sections 2.2.1 and 2.2.9) and data on homicides from the Australian Institute of Criminology (see Section 2.9.1). 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.

The information available to us has enabled us to confirm the concern announced by the ABS and others. The following points provide an overview assessment of the effect of this and more detailed information is provided in later chapters. Based on our assessment we conclude that the main effects of this data problem for deaths that occurred in 2004–05 are as follows:

Underestimates
- total 'external causes' deaths appear to be underestimated by a small proportion
- motor vehicle traffic accidents, especially in New South Wales, were underestimated
- suicide
- homicide

Overestimates
- unintentional injury by mechanisms that are common among suicides and homicides (e.g. hanging and shooting)

We are not sure when misclassification commenced, nor how it has varied over time. However, there are reasons to think that it emerged, or has worsened, since 2002. Evidence for this is:

- This is the period during which the ABS has relied heavily upon data in the NCIS when coding the causes of injury deaths
- Divergence between the ABS estimates and estimates for homicides and road deaths from other sources have emerged since about then
- Indications of mechanism-specific coding shifting from suicide or homicide to unintentional in this period

Precise measurement of the extent of misclassification and the provision of revised estimates would require recoding of cases using NCIS, with permission to record-link data from the two sources. The work done for this report and for the separate project on suicide statistics indicates that it is technically feasible, but would be time-consuming.

In the absence of the findings of such a project, we conclude that trends based on ABS injury mortality data for the period commencing about 2002 until the introduction by the ABS of new procedures (for deaths registered in 2007) must be interpreted with great caution. This warning applies especially to trends for suicide and homicide.

Commencing with deaths registered in 2007, the ABS has begun to apply a revised cause of death reporting process. The most important change, for present purposes, is that cause of death information for a case can be reviewed and changed for at least two years longer than was allowed under the previous system. Hence, there is now a much longer window of time for a coroner case to be closed, and for information about it to be entered into the NCIS, and for this information to be available to guide cause of death coding. Expected consequences of this change are that 'final' cause of death data for injury deaths in Australia will be more complete and reliable than in recent years, but final data for a particular year will not be available for several years after a reference year.

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 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	6,096	3,679	9,775	5,220	2,569	7,789
Percentage of all injury deaths	100%	100%	100%	100%	100%	100%
Crude rate / 100,000 population	60.6	36.2	48.4	51.9	25.3	38.5
Adj rate (direct)	63.9	30.3	46.7	53.8	22.0	37.6
Rate ratio*	1.37	0.65		1.43	0.59	
Mean YPLL <75y	25	13	21	29	18	25

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

2.1.1 Overview

131,110 deaths from all causes occurred in Australia in 2004–05. The total number of deaths fell slightly between 1997–98 and 1998–99, and then rose steadily until 2003–04, before dropping again in 2004–05. Overall, the number of deaths between 1997–98 and 2004–05 increased by 1,852 (1.5%).

There were 9,775 community injury deaths during 2004–05 where the case had been assigned one or more multiple causes of death from the ranges specified at the beginning of this chapter. In 363 (4%) of these cases, the deceased person is recorded as having been Aboriginal or Torres Strait Islander[1].

Community injury accounted for 7.5% of all deaths that occurred during 2004–05.

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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).

2.1.2 Age and sex distribution

Male rates were consistently higher than female rates. The ratio between male and female age-adjusted rates was 2.1 in 2004–05. The ratio fluctuated slightly from year to year. The highest ratio during the period 1997–98 to 2004–05 was 2.3. The rate has remained constant at 2.1 for the past four 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. Male rates were around 4 to 5 times higher than female rates at ages 20–34 years. The rate ratio was lowest for children up to 14 years and in the oldest age groups, 75 years and over (around 1.1–1.5).

Those aged 75 years and older accounted for 38% (*n* = 3,701) of all injury deaths, while young adults, in the age range 20–39 years, accounted for a further 24% (*n* = 2,343). Young males in this age range accounted for 19% of all community injury cases.

Figure 2.1.1: Deaths due to community injury by age and sex, Australia 2004–05
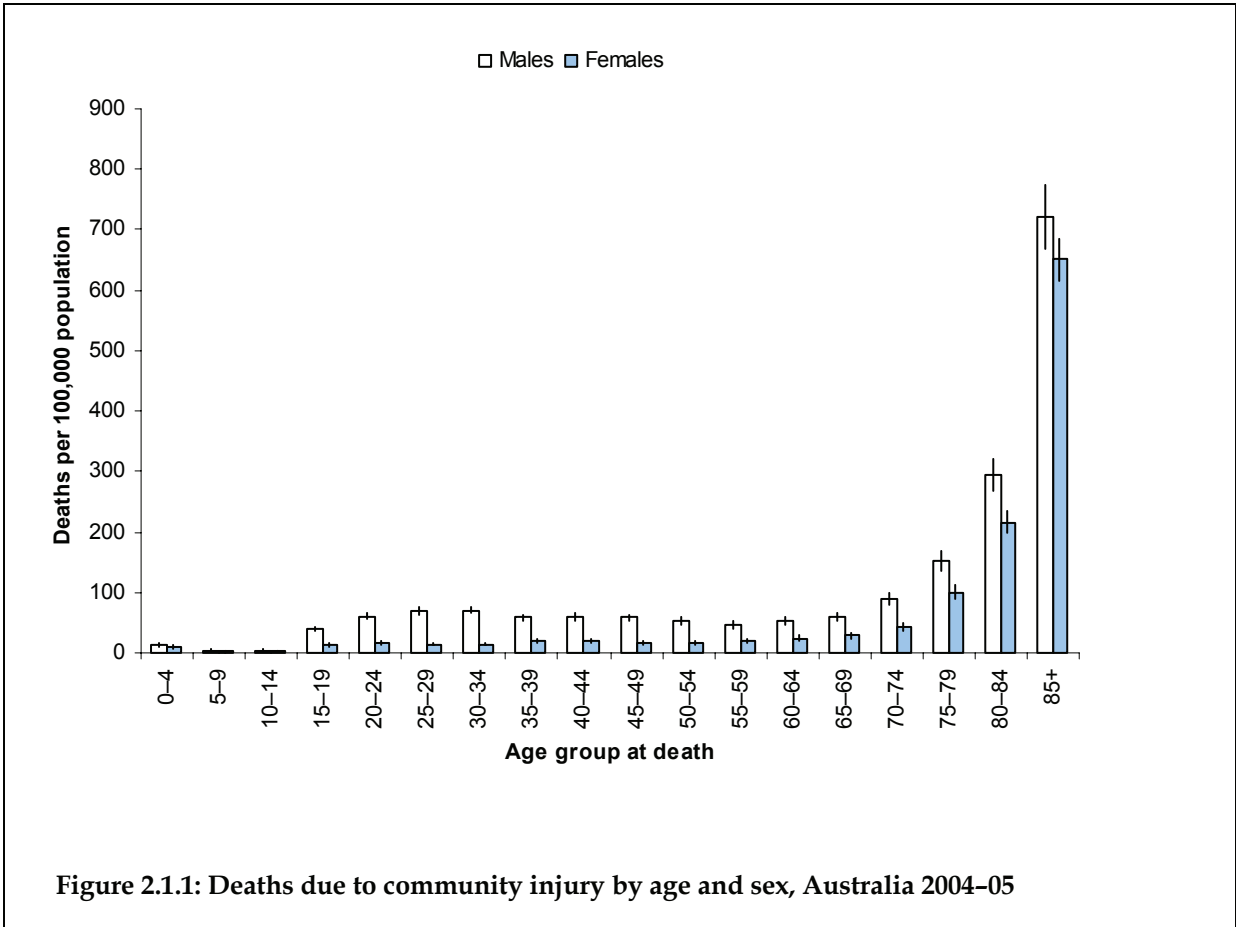
2.1.3 Trends in death rates

Figure 2.1.2 shows age adjusted injury mortality rates for males, females and persons for the period 1997–98 to 2004–05. Rates of reported cases for males and females fell during the period. Male rates fell by 22% from 82.4 in 1997–98 to 63.9 in 2004–05. Female rates fell by 20% from 37.8 to 30.3 over the same period.

The case identification problem described in Section 1.2 may have contributed slightly to this decline.

Figure 2.1.2: Deaths due to community injury, Australia 1997–98 to 2004–05: age-standardised rates
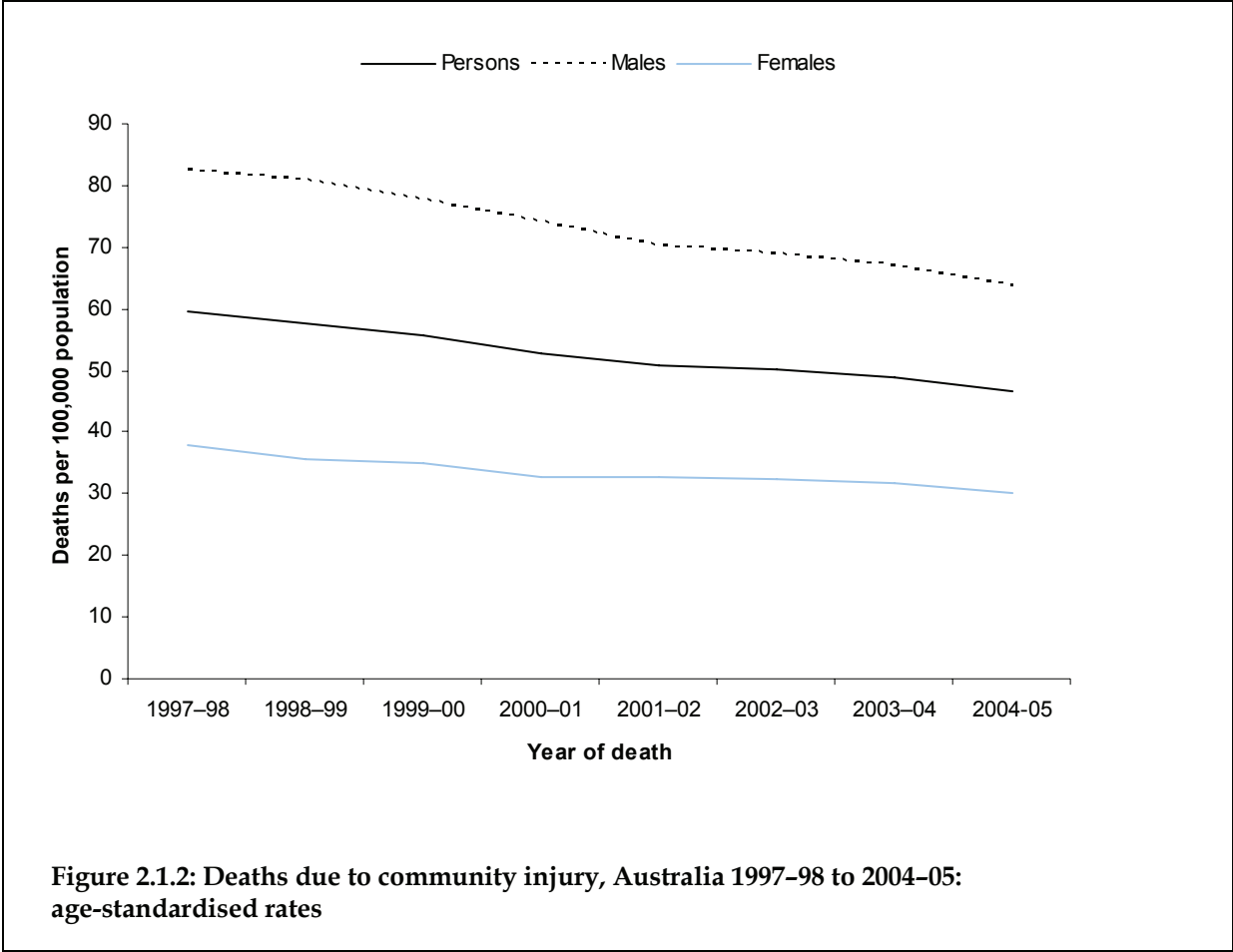
2.1.4 State and territory rates

All jurisdictions except for Tasmania and Northern Territory had injury mortality rates close to the national rate of 46.7 deaths per 100,000 population (Figure 2.1.3 and Table 2.1.2). Of these, Queensland was the only jurisdiction with a rate significantly above the national rate whilst the rates for New South Wales and Victoria were significantly below the national rate.

Rates were highest for the Northern Territory and Tasmania, which had age-adjusted rates of 97.2 and 60.0 deaths per 100,000 population respectively.

Figure 2.1.3: Deaths due to Community injury, states and territories, Australia 2004–05: persons (age-standardised rates)
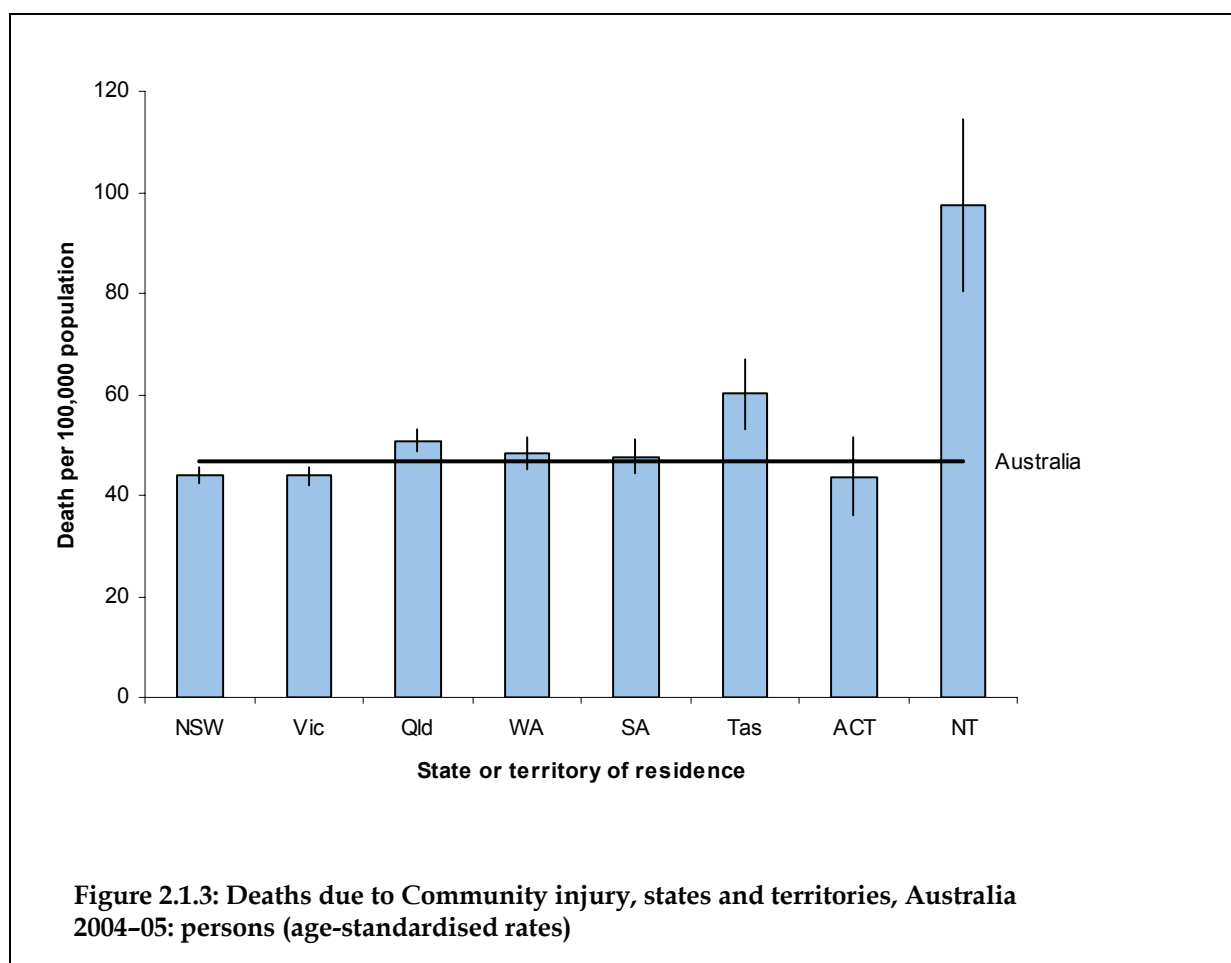
Table 2.1.2: Cases, age-adjusted rates and rate ratios* by state or territory for community injury deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	3,132	2,319	1,982	943	794	303	126	176
Adj rate (direct)	43.9	43.9	50.9	48.3	47.6	60	43.7	97.2
Rate ratio*	0.94	0.94	1.09	1.03	1.02	1.28	0.94	2.08

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

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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 (45.5 per 100,000 population).

Figure 2.1.4: Deaths due to Community injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
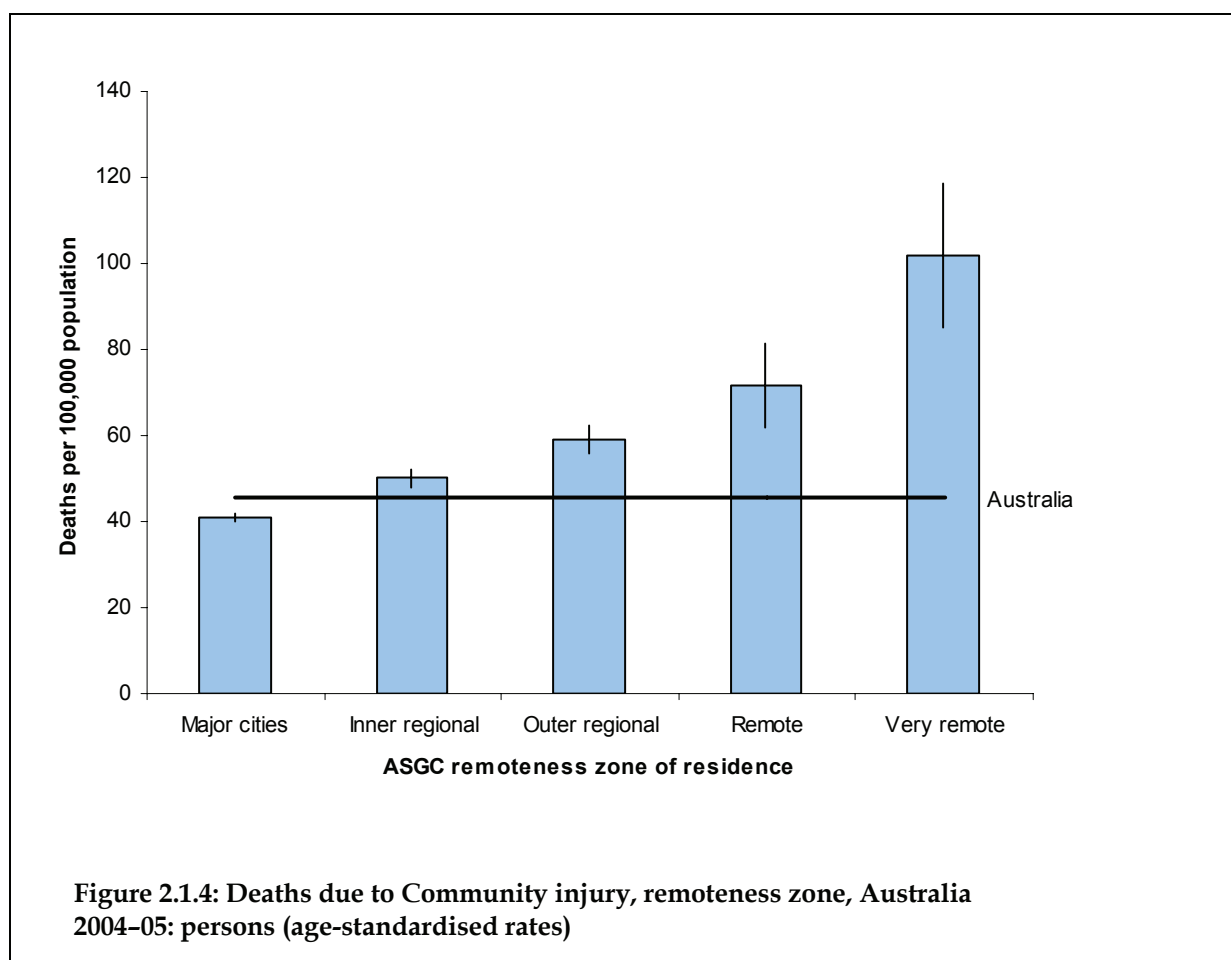
Table 2.1.3: Cases, age-adjusted rates and rate ratios* by remoteness zone for community injury deaths, Australia 2004–05

	Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**
Cases	5,722	2,220	1,216	210	159
Adjusted rate (direct)	41.0	50.0	59.1	71.5	101.9
Rate ratio*	0.90	1.10	1.30	1.57	2.24

* 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. Almost 4 times as many males as females died as the result of suicide; almost 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.

* Counts for *Transport*, *Suicide* and *Homicide* are based on estimates using NCIS data, while all other counts are based upon ABS data

It should be noted that the sum of the deaths in all categories exceeds the total number of community injury deaths during 2004–05. This is because some cases had been assigned more than one external cause code and therefore the same case could appear in more than one cause category.

Figure 2.1.5: Major types of injury death, Australia 2004–05

2.1.7 Nature and bodily region of injury

This section is based on analyses of injury diagnosis codes from ICD-10 Chapter XIX. It should be noted that, because some cases were assigned more than one diagnosis code, such cases may be included in more than one of the categories used to describe the nature of the injury and the body region affected.

Almost 26% (*n* = 2,514) of all community injury cases had been assigned a diagnosis code indicating that a fracture contributed to the death (Table 2.1.4). Fractures were more common among females, contributing to 41% (*n* = 1,507) of deaths, compared to only 17% (*n* = 1,007) of deaths in males. Fractures of the femur were the most prominent type of fracture, being present in 60% (*n* = 599) of males and 71% (*n* = 1,071) of females who had sustained at least one type of fracture (refer to Section 2.3 for further information).

Injuries to the lower extremities, head injuries, and asphyxiation were also common (18%, 17% and 12% of all injury deaths, respectively). Almost 40% of head injuries involved some form of intracranial injury, with females more likely to sustain this type of injury than males. Females (31%) were also much more likely than men (11%) to have sustained an injury to the lower extremities. Asphyxiation was the most common diagnosis for male suicide deaths (see Sections 2.8.6 and 2.8.7).

Table 2.1.4: Nature and bodily region of injury for community injury deaths, Australia 2004–05

Nature and bodily or region of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head injury (S00– S09)	1,172	19.2	505	13.7	1,677	17.2
Intracranial injury (S06)	*404*	*34.5*	*268*	*53.1*	*672*	*40.1*
Fracture (S*2, T02, T08, T10, T12, T14.2)	1,007	16.5	1,507	41.0	2,514	25.7
Hip fracture (S72)	*599*	*59.5*	*1,071*	*71.1*	*1,670*	*66.4*
Injuries to the neck (S10–S19)	241	4.0	119	3.2	360	3.7
Injuries to the thorax (S20–S29)	485	8.0	176	4.8	661	6.8
Injuries to the abdomen, lower back, lumbar spine and pelvis (S30–S39)	207	3.4	177	4.8	384	3.9
Injuries to the upper limbs (S40–S69)	82	1.3	153	4.2	235	2.4
Injuries to the lower limbs (S70–S99)	641	10.5	1,130	30.7	1,771	18.1
Injuries involving multiple body regions (T00–T07)	726	11.9	284	7.7	1,010	10.3
Foreign body in respiratory tract (T17)	436	7.2	327	8.9	763	7.8
Aspyxiation (T71)	969	15.9	214	5.8	1,183	12.1
Total	**6,096**		**3,679**		**9,775**	

Part A: Unintentional injury

2.2 Transport deaths, Australia

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. For this reason, comparisons were made between the number of transport deaths obtained using the ABS mortality unit record data collection and the number of deaths obtained using data supplied by the National Coroners Information System (NCIS). 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 coded as intentional.

2.2.1 Case selection criteria for data sources

ABS data

Multiple Cause of Death: S00–T75, T79 and V01–V99; or

Underlying Cause of Death Code: V01–V99

Coroners' data

Selection based upon criteria outlined in Table A1.3 of this report.

2.2.2 Comparison of data sources

Overview

Using data provided by the NCIS produced a significantly higher estimate of transport deaths when compared to data provided by the ABS (Table 2.2.1). The NCIS-derived figure of 1,796 deaths was 120 more than ABS-derived figure using Multiple Causes of Death for the period of interest. If deaths certified by a doctor are taken into account (n = 21), the difference between the two data sources increases to 141 deaths.

Table 2.2.1: Key indicators for transport deaths by data source, Australia 2004–05

		ABS	
Indicator	NCIS	Multiple Causes of Death	Underlying Causes of Death
Cases	1,796	1,676*	1,645**
Crude rate/100,000 population	8.8	8.3	8.1
Adjusted rate (direct)	8.8	8.2	8.1

* Includes 21 cases certified by a doctor (m=18, f=3).

** Includes 11 cases certified by a doctor (m=10, f=1).

State and Territory

NSW cases were largely responsible for this apparent undercounting of deaths, with a difference of 138 deaths between the NCIS estimated value of 559 and the ABS recorded value of 421 (Table 2.2.2). In contrast, the number of transport deaths reported by the ABS in Queensland was a little higher than that estimated using the NCIS. The NCIS value for Queensland may have been affected by the presence of more than 200 open cases during 2004–05 for which there was insufficient information to determine either the mechanism or the intent of the death. A pro-rata method based on the distribution of external causes of injury cases in other jurisdictions suggests that approximately 50 of these open cases may be transport-related deaths (this estimate cannot be confirmed until the cases are closed). The differences in the estimated number of deaths between the two data sources showed only minor variations for the other jurisdictions.

The number of road deaths recorded by the Australian Transport Safety Bureau (ATSB) in 2004 and 2005 exceeded the total number of road deaths recorded by the ABS for these years by 9% and 18%, strongly indicating a significant underestimate of transport deaths in the ABS data (see Section 2.2.11).

Table 2.2.2: Comparison of transport deaths using ABS and NCIS data sources by State of registration/Case state and sex, Australia 2004–05

State of registration/ Case state	Males		Females		Persons		Difference NCIS - ABS
	ABS	NCIS	ABS	NCIS	ABS	NCIS	
NSW	314	407	107	152	421	559	138
VIC	267	284	114	107	381	391	10
QLD	276	246	86	78	362	324	-38
SA	132	137	38	42	170	180	10
WA	137	144	53	57	190	201	11
TAS	48	51	15	13	63	64	1
NT	30	36	14	17	44	53	9
ACT	17	17	7	7	24	24	0
Total	**1,221**	**1,322**	**437**	**473**	**1,655***	**1,796**	**141**

* Excludes 21 cases certified by a doctor (m=18, f=3).

Since data provided by the NCIS appeared to produce a better estimate of transport deaths, the rest of this chapter, excluding the trends chart (Figure 2.2.2), is based upon data from this source.

2.2.3 Key indicators

Transport-related deaths accounted for 22% of all injury deaths for males and 13% of all injury deaths for females (Table 2.2.3). The rate for males of 13.2 deaths per 100,000 population was almost three times that of the female rate.

Table 2.2.3: Key indicators for transport deaths, Australia 2004–05

Indicator	Males	Females	Persons*
Cases	1,322	473	1,796
Percentage of all injury deaths	22%	13%	18%
Crude rate per 100,000	13.1	4.6	8.8
Adjusted rate (direct)	13.2	4.5	8.8
Rate ratio**	1.50	0.51	
Mean YPLL < 75 years	35	30	34

* Includes one case where sex was not determined.

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

2.2.4 Overview

Table 2.2.4: Major mechanism of injury for transport deaths, Australia 2004–05

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	1,134	426	1,560
Other pedestrian and pedal cycle	Transport related cases where no motor vehicle was involved	42	15	57
Other motor vehicle non-traffic	Includes all fatalities due to off-road accidents in which a motor vehicle was involved	44	8	53*
Other land transport		36	..	..
Water transport		24	..	..
Air transport		23	..	..
Unspecified mode of transport		21	12	33
Total		**1,322**	**473**	**1,796**

* Includes one case where sex was not determined.

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

Of the 1,796 transport-related deaths in 2004–05, 87% (*n* = 1,560) resulted from on-road accidents involving a motor vehicle (Table 2.2.4). These deaths are covered in more detail in Section 2.2.11 of this report. Of the remaining deaths, 4% (*n* = 57) were transport-related deaths where no motor vehicle was involved, 2% (*n* = 53) were off-road accidents involving motor vehicles and 3.2% (*n* = 40) involved other forms of land transport. Water-related transport accounted for almost 2% (*n* = 25) of all transport deaths, while air transport accounted for almost 2.7% (*n* = 28) of all transport deaths.

2.2.5 Age and sex distribution

Figure 2.2.1 shows age-specific death rates for all transport–related deaths in 2004–05. Males accounted for 74% (*n* = 1,322) of all transport-related deaths during this period. Males in the 15–34 year age range accounted for 33% (*n* = 587) of all transport-related deaths in 2004–05 while females in the same age range accounted for a further 8% (*n* = 147). Adolescents, young adults and the elderly had the highest death rates. Male age-specific rates were significantly higher than female rates for all age groups except for children age 14 years and under.

Figure 2.2.1: Deaths due to unintentional transport injury by age and sex, Australia 2004–05
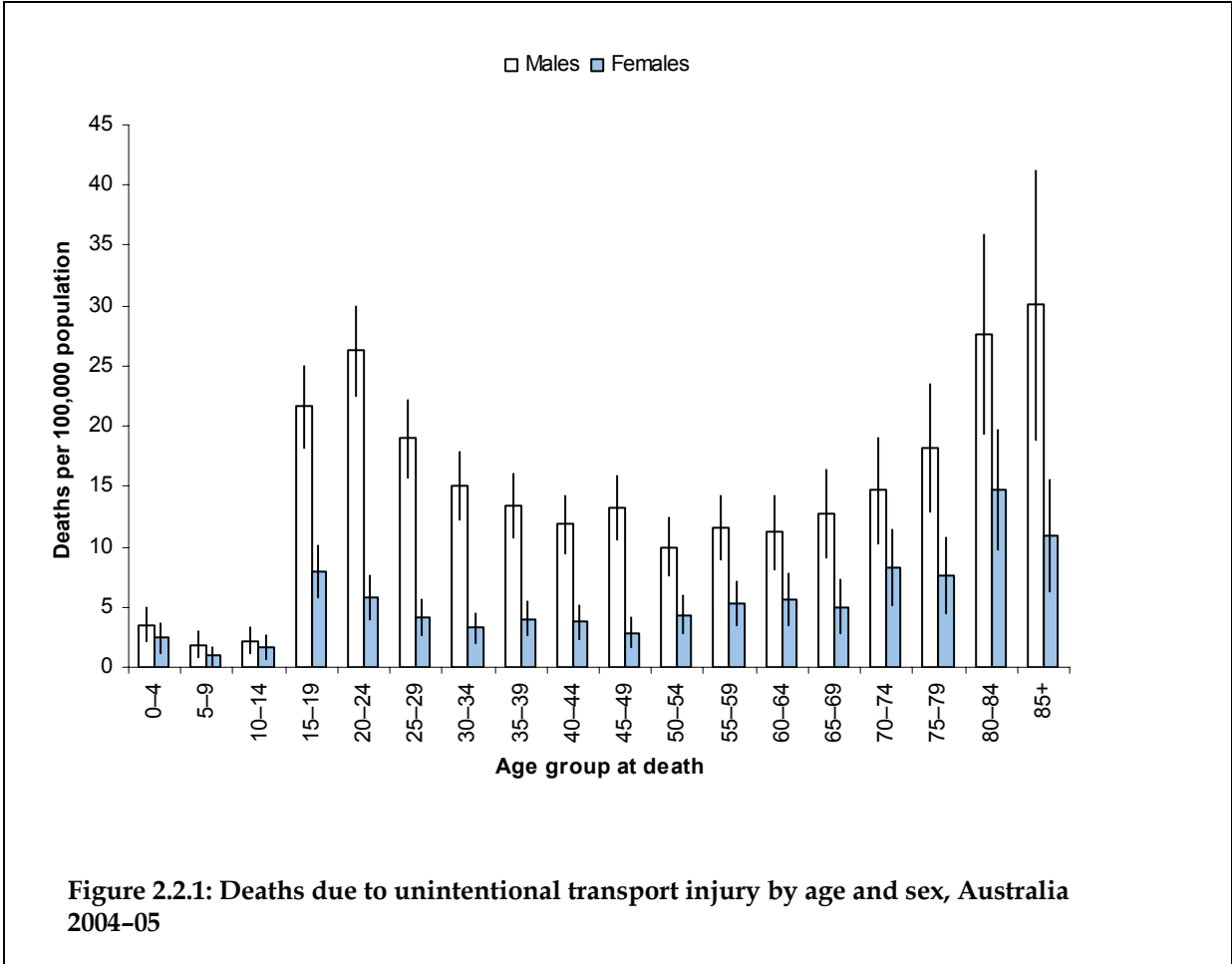
2.2.6 Trends in deaths rates

Figure 2.2.2 shows age-adjusted rates for all transport-related deaths for the period from 1997–98 to 2004–05. Overall, ABS-derived age-adjusted rates for persons fell by 24% from 10.8 to 8.2 deaths per 100,000 population during this period. Age-adjusted rates for males remained relatively steady from 1997–98 to 2001–02 before falling by 17% between 2001–02 and 2004–05. Age-adjusted rates for females experienced a steadier decline falling by 31% from 6.0 to 4.2 over the entire period.

NCIS-derived age-adjusted rates are shown for 2004–05. Using these rates suggests that age-adjusted rates for persons fell by an estimated 19% (compared to the 24% using ABS data) during the period of interest.

Figure 2.2.2: Deaths due to unintentional transport injury, Australia 1997–98 to 2004–05: age-standardised rates
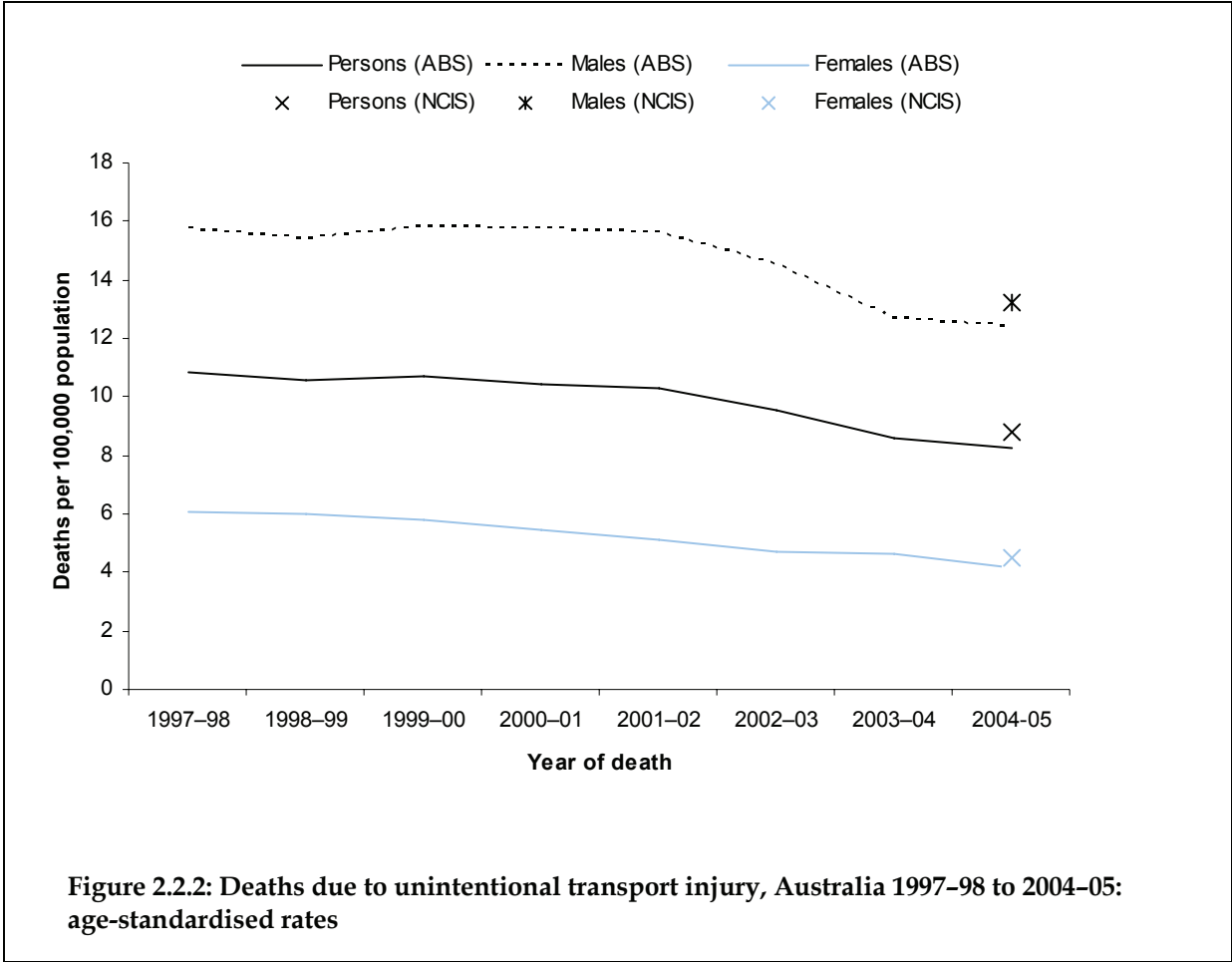
2.2.7 State and territory rates

Figure 2.2.3 shows age-adjusted rates for all transport-related deaths by state or territory of residence for 2004–05. New South Wales, Victoria, Queensland and the Australian Capital Territory all recorded rates lower than the national rate of 8.8 deaths per 100,000 population, although only the Queensland rate was not significantly lower. All other jurisdictions recorded rates higher than the national rate, although the rate for Western Australia was not significantly higher. The Northern Territory rate of 23.6 was more than 2.5 times that of the national average, while Tasmania's rate of 13.0 was almost 50% higher than the national rate.

Figure 2.2.3: Deaths due to unintentional transport injury, states and territories, Australia 2004–05: persons (age-standardised rates)
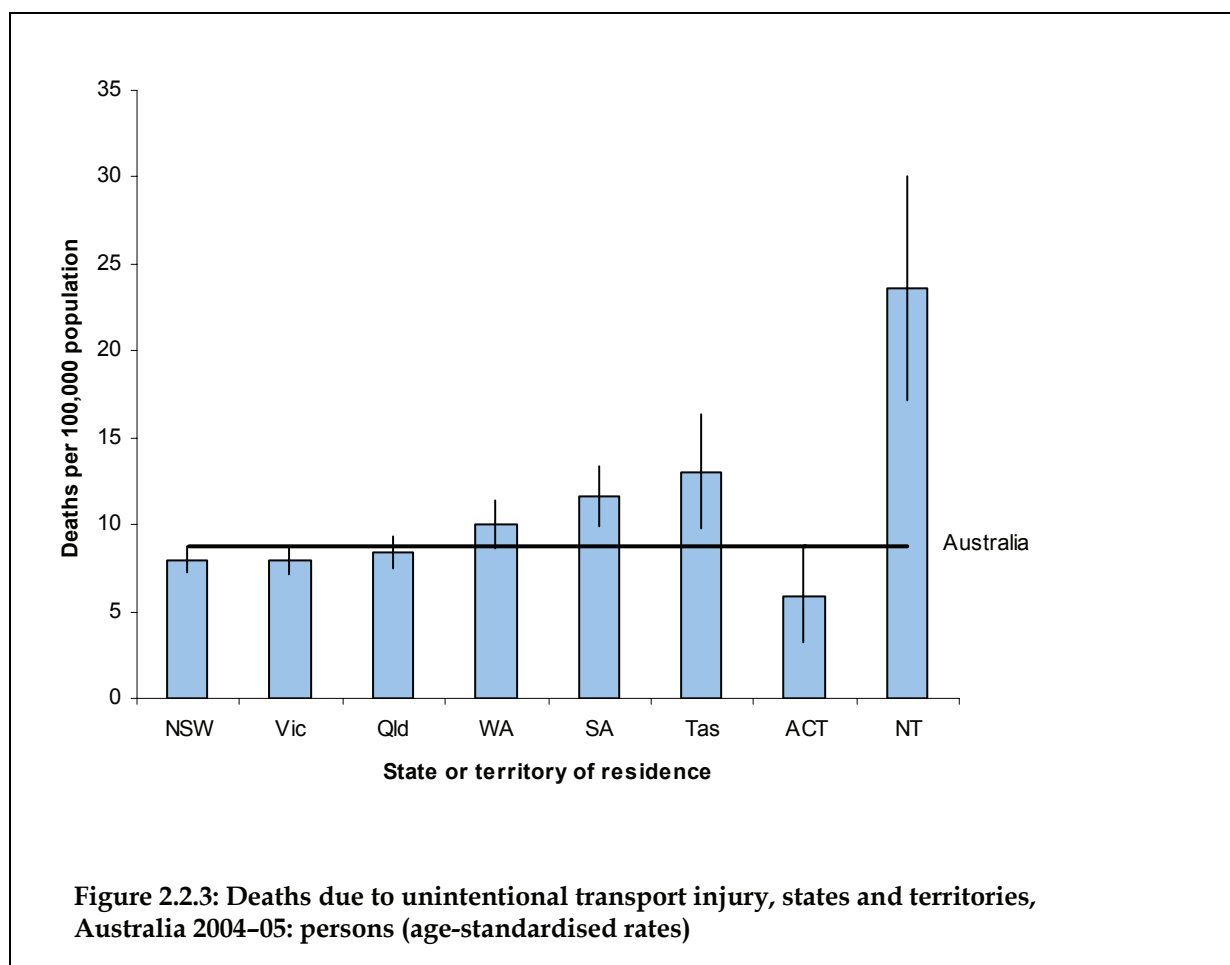
Table 2.2.5: Cases, age-adjusted rates and rate ratios* by state or territory for transportation deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	547	402	330	201	179	63	19	52
Adjusted rate (direct)	8.0	7.9	8.4	10.0	11.6	13.0	5.9	23.6
Rate ratio*	0.91	0.90	0.95	1.14	1.32	1.48	0.67	2.68

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

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2.2.8 Remoteness of residence

Figure 2.2.4 shows age-adjusted rates for all transport-related injury deaths by remoteness zone of residence for 2004–05. Rates increased with the remoteness of the person's usual residence. Rates for Major cities (6.4 deaths per 100,000 population) were significantly lower than the rate for Australia (8.8). Rates for the Inner regional, Outer regional and Remote zones were all significantly higher than the national rate varying from 11.4 deaths per 100,000 population for Inner regional to 19.5 deaths per 100,000 population for the Remote zone. The rate for the Very remote zone (36.6) was more than four times higher than the national rate.
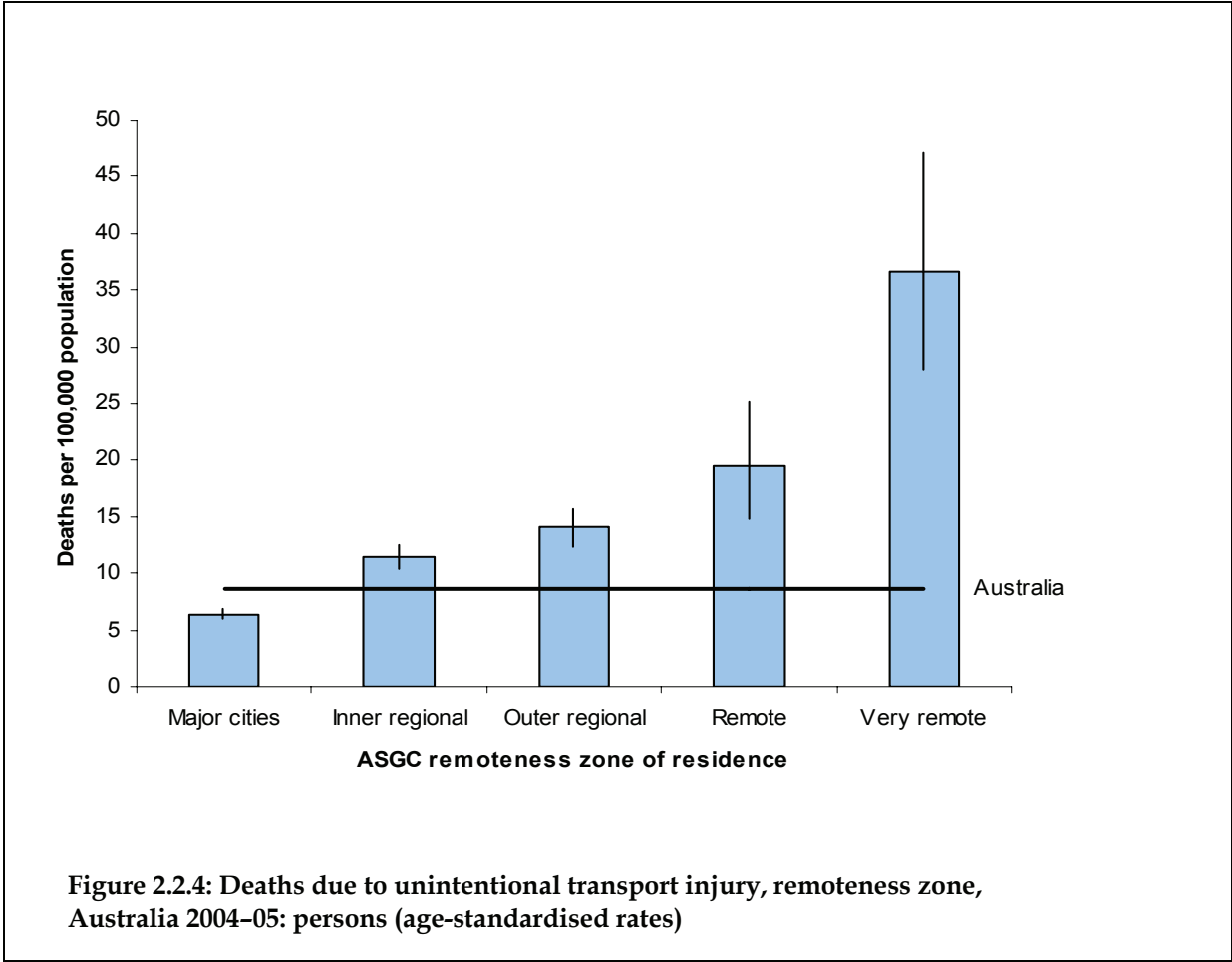
Figure 2.2.4: Deaths due to unintentional transport injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)

Table 2.2.6: Cases, age-adjusted rates and rate ratios* by remoteness zone for transportation deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	877	473	278	59	64
Adjusted rate (direct)	6.4	11.4	14.0	19.5	36.6
Rate ratio*	0.75	1.33	1.63	2.27	4.27

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

2.2.9　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 2.2.7 shows the number of cases in which some more specific types of trauma were coded. This table suggests that the most common types of injury sustained were fractures and intracranial injury.

Table 2.2.7: Transport deaths, by sex and nature of injury, Australia 2004–05

Nature of injury	Males	Females	Persons
Fracture	161	66	227
Intracranial injury	96	39	135
Burn	20	6	26
All transport injury deaths	**1,322**	**473**	**1,796**

2.2.10　Bodily location of injury

Almost 34% (n = 603) of motor vehicle fatalities in 2004–05 were reported as having sustained at least one injury to the head (Table 2.2.8). Eighteen percent (n = 324) sustained at least one injury to the thorax, 7% (n = 133) sustained at least one injury to the neck while 7% (n = 118) sustained at least one injury to the abdominal region. Just over 44% (n = 796) of motor vehicle fatalities were reported as having sustained injuries to more than one body region.

Table 2.2.8: Transport deaths, by sex and bodily location of injury, Australia 2004–05

	Males		Females		Persons	
Bodily location of injury	Count	Per cent	Count	Per cent	Count	Per cent
Head injury (S00–S09)	457	34.6	146	30.9	603	33.6
Injuries of the neck (S10–S19)	89	6.7	44	9.3	133	7.4
Injuries of the thorax (S20–S29)	249	18.8	74	15.6	324	18.0
Injuries to the abdomen, lower back, lumbar spine and pelvis (S30–S39)	92	7.0	26	5.5	118	6.6
Injuries to the upper limbs (S40–S69)	11	0.8	..	..	..	..
Injuries to the lower limbs (S70–S99)	32	2.4	7	1.5	39	2.2
Injuries involving multiple body regions (T00–T07)	578	43.7	218	46.1	796	44.3
All transport injury deaths	**1,322**		**473**		**1,796**	

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

2.2.11   Transport deaths: motor vehicle traffic

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. For this reason, comparisons were made between the number of motor vehicle traffic deaths obtained using the ABS mortality unit record data collection and the number of deaths obtained using data supplied by the National Coroners Information System (NCIS).

2.2.11.1   Case selection criteria for data sources

ABS data

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), *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

Coroners' data

Selection based upon criteria outlined in Table A1.4 of this report.

2.2.11.2   Comparison of data sources

Using data provided by the NCIS produced a significantly higher estimate of motor vehicle traffic deaths when compared to data provided by the ABS (Table 2.2.9). The NCIS-derived figure of 1,560 deaths was 118 more than ABS-derived figure using Multiple Causes of Death and only 22 less than the number of road deaths recorded by the road safety statistics section of the Department of Infrastructure, Transport, Regional Development and Local Government (DITRDLG) for the period of interest. If deaths certified by a doctor are taken into account (*n* = 18), the difference between the ABS and NCIS data sources increases to 136 deaths. When death counts are compared between the ABS and DITRDLG data sources from 1997–98 onwards, there is reasonable similarity between the two sources up until 2001–02. However, from 2002–03 onwards there is a marked divergence with the ABS source recording increasingly fewer deaths than the DITRDLG source.

Table 2.2.9: Key indicators for motor vehicle traffic deaths by data source, Australia 2004–05

Indicator	NCIS	ABS		DITRDLG
		Multiple Causes of Death	**Underlying Causes of Death**	
Cases	1,560	1,442*	1,417**	1,582
Crude rate/100,000 population	7.7	7.1	7.0	7.8
Adjusted rate (direct)	7.6	7.1	7.0	–

* Includes 18 cases certified by a doctor (m=15, f=3).

** Includes 9 cases certified by a doctor (m=8, f=1).

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Since data provided by the NCIS appeared to produce a better estimate of motor vehicle traffic deaths, the rest of this chapter, excluding the trends chart (Table 2.2.6), is based upon data from this source.

2.2.11.3   Key Indicators

Motor vehicle traffic-related deaths accounted for 19% of all injury deaths for males and 12% of all injury deaths for females (Table 2.2.10). The rate for males of 11.3 deaths per 100,000 population was almost three times that of the female rate.

Table 2.2.10: Key indicators for motor vehicle traffic deaths, Australia 2004–05

Indicator	Males	Females	Persons
Cases	1,134	426	1,560
Percentage of all injury deaths	19%	12%	16%
Crude rate per 100,000	11.2	4.2	7.7
Adjusted rate (direct)	11.3	4.0	7.6
Rate ratio*	1.49	0.53	
Mean YPLL < 75 years	36	30	35

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

2.2.11.4   Age and sex distribution

Figure 2.2.5 shows age-specific death rates for all motor vehicle traffic deaths in 2004–05. Males accounted for 73% (*n* = 1,132) of all deaths in this group, while males aged 15–29 years or 80 years and older recorded the highest rates. Males aged 15–34 years accounted for 35% (*n* = 542) of all motor vehicle traffic deaths. Male age-specific rates were markedly higher than female rates for all ages 15 and over.

Figure 2.2.5: Deaths due to unintentional motor vehicle traffic injury by age and sex, Australia 2004–05
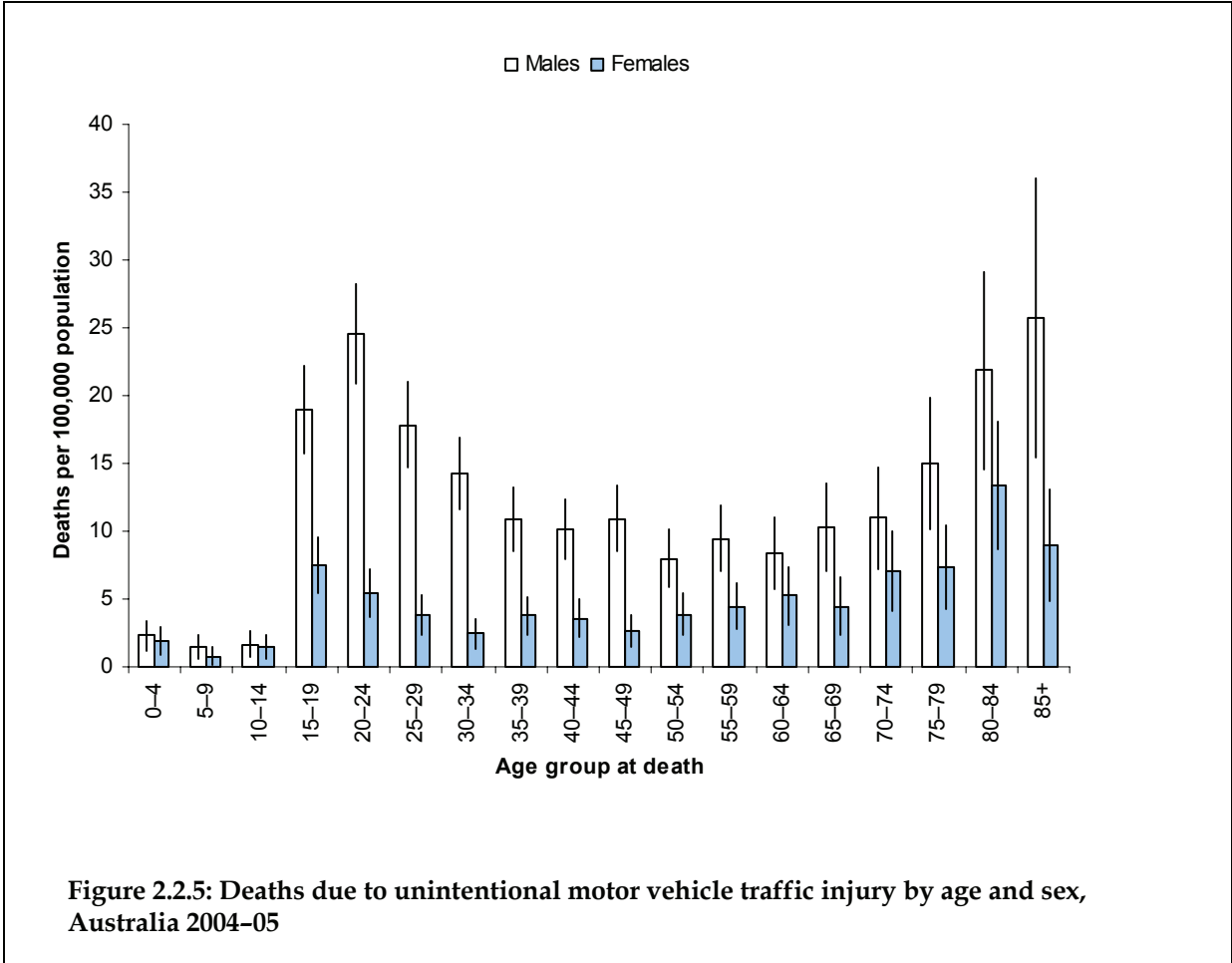
2.2.11.5 Trends in deaths rates

Figure 2.2.6 shows age-adjusted rates for all motor vehicle traffic deaths for the period from 1997–98 to 2004–05. When looking at ABS-derived figures, rates for persons fell by 22% during this period from 9.0 to 7.1 deaths per 100,000 population. Rates for males increased slightly by 4% from 1997–98 to 2001–02, before falling markedly by 21% between 2001–02 and 2004–05 from 13.3 to 10.5 Rates for females experienced a steady decline falling by 11% from 1997–98 to 2001–02, before falling more dramatically by 22% from 2001–02 to 2004–05 from 4.8 to 3.7.

NCIS-derived age-adjusted rates are shown for 2004–05. Using these rates suggests that age-adjusted rates for persons fell by an estimated 16% (compared to the 22% using ABS data) during the period of interest.

Figure 2.2.6: Deaths due to unintentional motor vehicle traffic, Australia 1997–98 to 2004–05: age-standardised rates
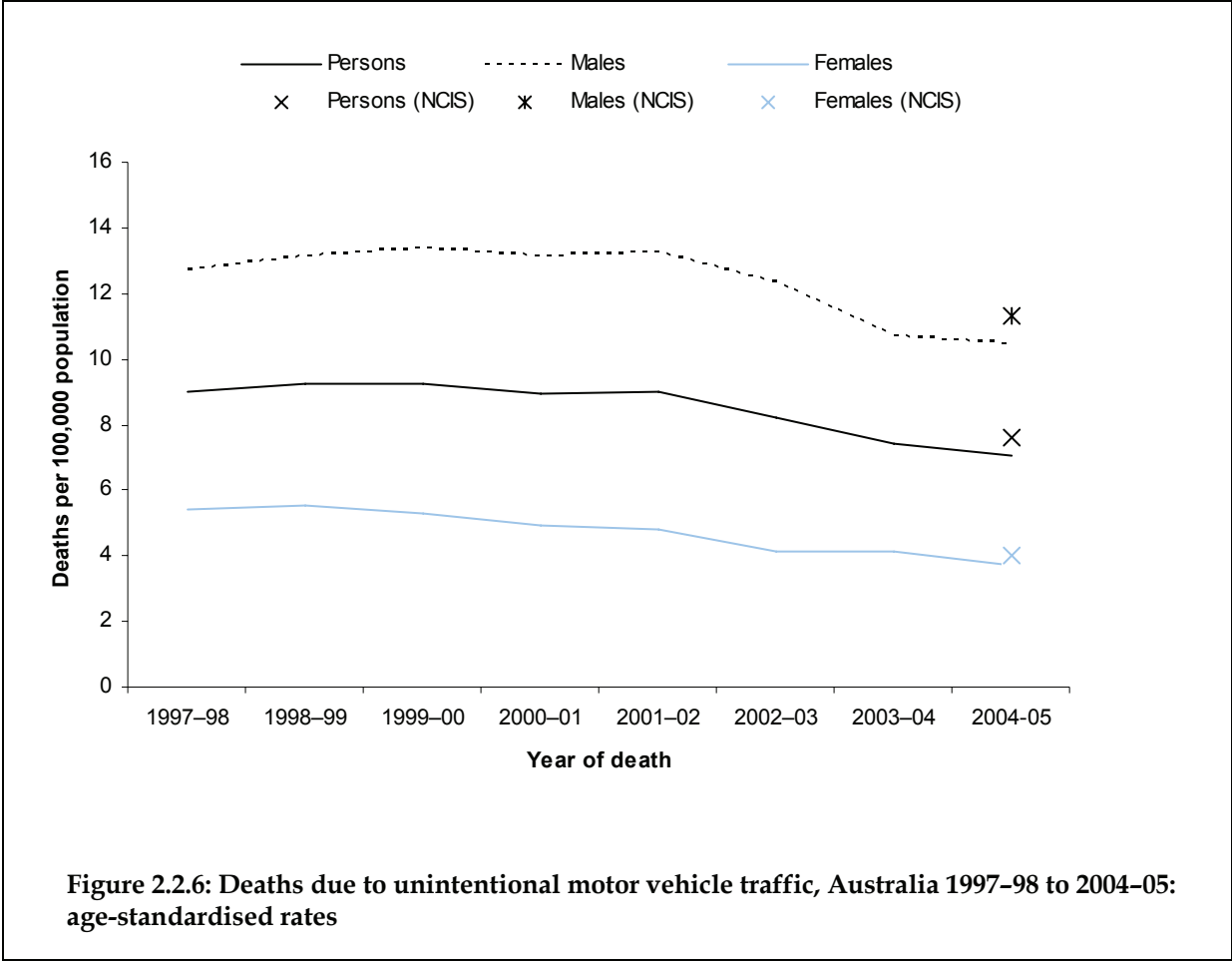
2.2.11.6　State and territory rates

Figure 2.2.7 shows age-adjusted rates for all motor vehicle traffic deaths by state or territory of residence for 2004–05. New South Wales, Victoria, Queensland and the Australian Capital Territory all recorded rates lower than the national rate of 7.6 deaths per 100,000 population, although only the Australian Capital Territory rate was significantly lower. All other jurisdictions recorded rates higher than the national rate, although the rate for Western Australia was not significantly higher. The Northern Territory rate of 20.6 was more than 2.5 times that of the national average, while Tasmania's rate of 11.3 was almost 50% higher than the national rate.
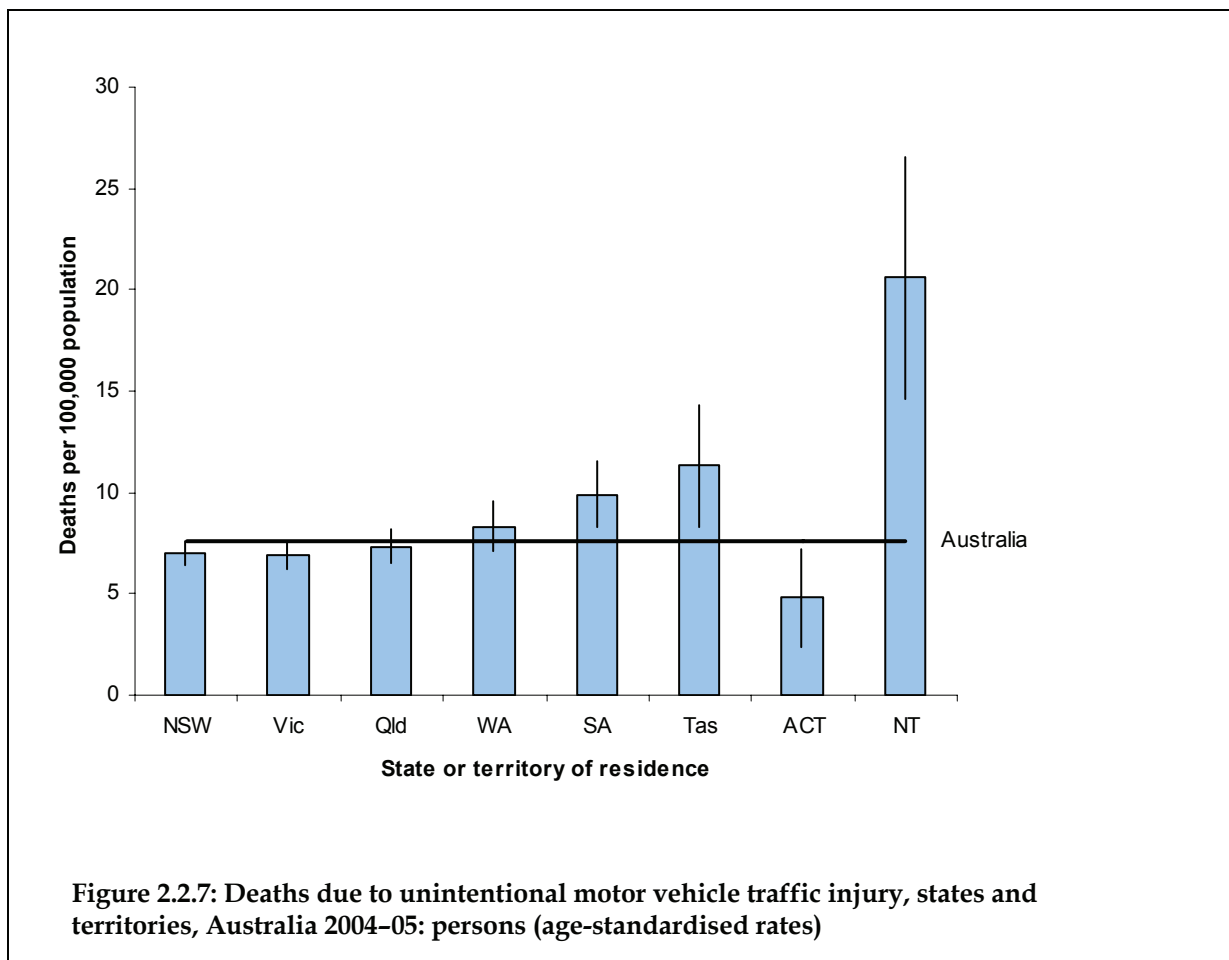

Figure 2.2.7: Deaths due to unintentional motor vehicle traffic injury, states and territories, Australia 2004–05: persons (age-standardised rates)

Table 2.2.11: Cases, age-adjusted rates and rate ratios* by state or territory for motor vehicle traffic crash deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	478	352	289	168	153	54	16	46
Adjusted rate (direct)	7.0	6.9	7.3	8.3	9.9	11.3	4.8	20.6
Rate ratio*	0.92	0.91	0.96	1.09	1.30	1.49	0.63	2.71

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

2.2.11.7 Remoteness of residence

Figure 2.2.8 shows age-adjusted rates for all motor vehicle traffic deaths by remoteness zone of residence for 2004–05. Rates increased with the remoteness of the person's usual residence. Rates for Major cities (5.5 deaths per 100,000 population) were significantly lower than the national rate (7.6). Rates for Inner regional, Outer regional and Remote zones were all significantly higher than the national rate varying from 10.1 deaths per 100,000 population for Inner regional to 16.4 deaths per 100,000 population for Remote zones. The rate for Very remote zones (30.2) was just over four times higher than the national rate.

Figure 2.2.8: Deaths due to unintentional motor vehicle traffic injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
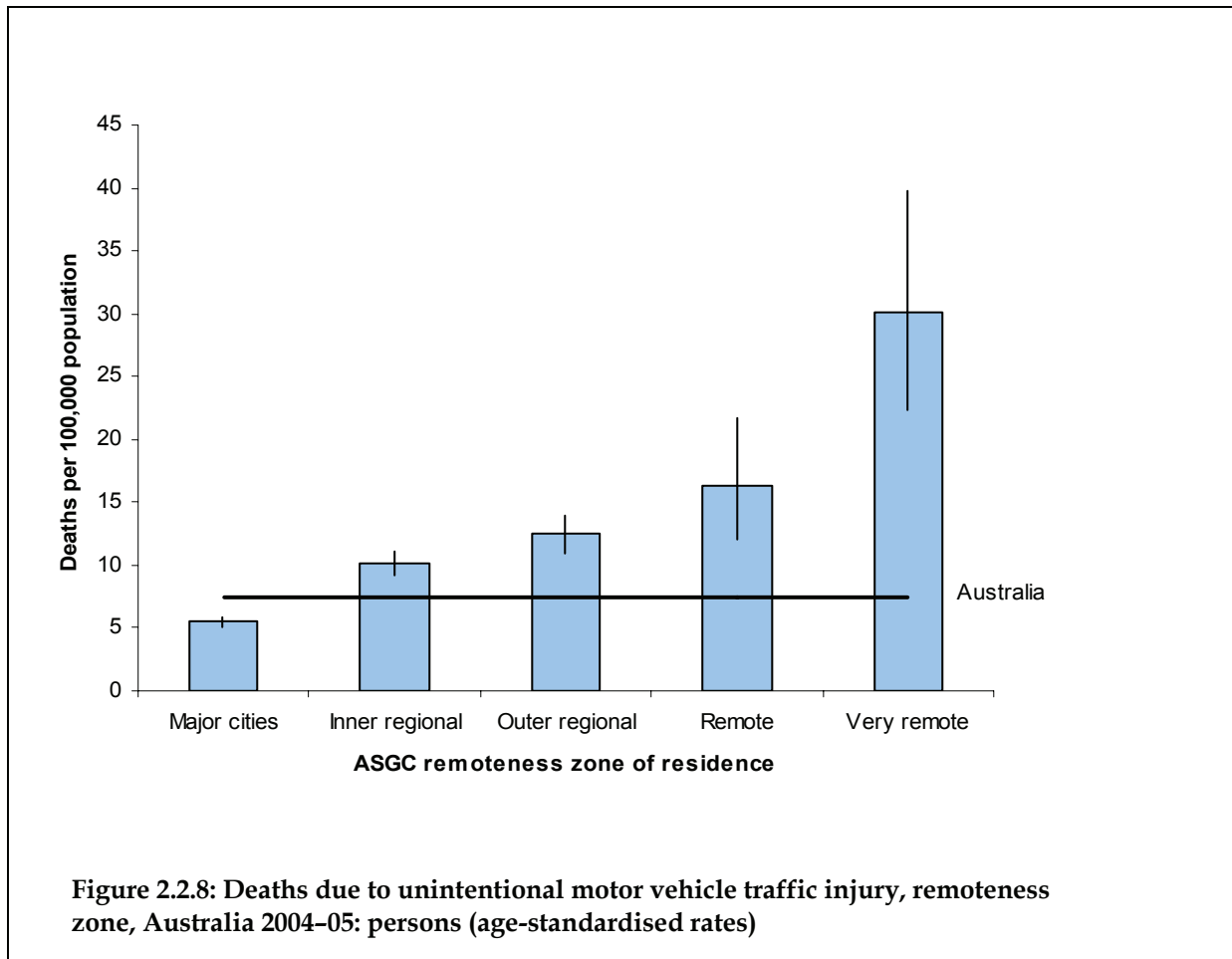
Table 2.2.12: Cases, age-adjusted rates and rate ratios* by remoteness zone for motor vehicle traffic crash deaths, Australia 2004–05

	Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**
Cases	753	419	246	50	53
Adjusted rate (direct)	5.5	10.1	12.4	16.4	30.2
Rate ratio*	0.74	1.36	1.67	2.19	4.04

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

2.2.11.8 Road user type

Of the 1,560 motor vehicle traffic deaths in 2004–05, 65% (n = 1,016) were motor vehicle occupants (Table 2.2.13). Motorcyclists accounted for 12% (n = 188); pedestrians for 12% (n = 179) and pedal cyclists for 2% (n = 37) respectively. Notably for 7% (n = 103) of deaths, there was insufficient information to determine the type of road user.

Table 2.2.13: Motor vehicle traffic deaths, by road user type and sex, Australia 2004–05

Road user type	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Pedestrian	119	10.5	60	14.1	179	11.5
Pedal cycle	31	2.7	6	1.4	37	2.4
Motor cycle	175	15.4	13	3.1	188	12.1
Occupant	714	63.0	302	70.9	1,016	65.1
Other specified	23	2.0	14	3.3	37	2.4
Unspecified	72	6.3	31	7.3	103	6.6
Total	**1,134**	**100**	**426**	**100**	**1,560**	**100**

2.2.11.9 Occupant type

Drivers represented the largest group of vehicle occupant deaths 68% (n = 693), reflecting the fact that the driver is the sole occupant of many vehicles (Table 2.2.14). Just over 78% of the drivers were males, compared with 52% of passengers, probably reflecting different gender-specific patterns of usage.

Table 2.2.14: Motor vehicle occupant deaths, by sex and type of occupant, Australia 2004–05

Occupant type	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Driver	544	76.2	149	49.3	693	68.2
Passenger	157	22.0	146	48.3	303	29.8
Unspecified occupant	13	1.8	7	2.3	20	2.0
Total	**714**	**100**	**302**	**100**	**1,016**	**100**

2.2.11.10 Vehicle type

By far the largest proportion of vehicle occupants died while travelling in a car (81%). The high proportion of males among fatally injured occupants of heavy transport vehicles and pickup trucks or vans was also very evident (Table 2.2.15).

Table 2.2.15: Motor vehicle occupant deaths, by sex and type of vehicle occupied, Australia 2004–05

	Males		Females		Persons	
Occupant type	Count	Per cent	Count	Per cent	Count	Per cent
Three-wheeled motor vehicle	..	..	..	..	..	..
Car	557	78.0	268	88.7	825	81.2
Pickup truck or van	68	9.5	12	4.0	80	7.9
Heavy transport vehicle	41	5.7	..	..	..	..
Bus	0	0.0	..	..	..	..
Special industrial vehicle	0	0.0	0	0.0	0	0.0
Special agricultural vehicle	..	..	0	0.0	..	..
Special construction vehicle	..	..	0	0.0	..	..
All-terrain or off-road vehicle	42	5.9	17	5.6	59	5.8
Total	**714**	**100**	**302**	**100**	**1,016**	**100**

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

2.2.11.11 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 2.2.16 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 2.2.16: Motor vehicle deaths, by sex and nature of injury, Australia 2004–05

Nature of injury	Males	Females	Persons
Fracture	141	62	203
Intracranial injury	83	32	115
Burn	16	..	..
All transport injury deaths	**1,134**	**426**	**1,560**

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

2.2.11.12 Bodily location of injury

Almost 34% (*n* = 529) of motor vehicle fatalities in 2004–05 were recorded as having sustained at least one injury to the head (Table 2.2.17). Almost 18% (*n* = 280) sustained at least one injury to the thorax, 8% (*n* = 123) sustained at least one injury to the neck while 7% (*n* = 102) sustained at least one injury to the abdominal region. Almost 47% (*n* = 732) of motor vehicle fatalities were reported as having sustained multiple injuries, which may have involved more than one body region.

Table 2.2.17: Motor vehicle deaths, by sex and bodily location of injury, Australia 2004–05

Bodily location of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head injury (S00–S09)	397	35.0	132	31.0	529	33.9
Injuries of the neck (S10–S19)	80	7.1	43	10.1	123	7.9
Injuries of the thorax (S20–S29)	214	18.9	66	15.5	280	17.9
Injuries to the abdomen, lower back, lumbar spine and pelvis (S30–S39)	78	6.9	24	5.6	102	6.5
Injuries to the upper limbs (S40–S69)	11	1.0	..	..	..	..
Injuries to the lower limbs (S70–S99)	26	2.3	..	..	..	..
Injuries involving multiple body regions (T00–T07)	524	46.2	208	48.8	732	46.9
Total	**1,134**		**426**		**1,560**	

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

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 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	1,151	1,730	2,881	669	913	1,582
Percentage of all injury deaths	19%	47%	29%	13%	36%	20%
Crude rate/100,000 population	11.4	17.0	14.3	6.7	9.0	7.8
Adjusted rate (direct)	13.7	12.5	13.1	7.9	6.6	7.2
Rate ratio*	1.04	0.95		1.09	0.92	
Mean YPLL <75years	4	1	3	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* (Kreisfeld & Harrison 2005). In order to achieve good comparability with previous practice, a revised approach has been adopted to specifying 'unintentional falls'. This has been used for NISU reports of deaths in 2003–04 and since then. The rationale for this 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' (Kreisfeld & Harrison 2005)

The left-hand panel of Table 2.3.1 presents summary data for deaths satisfying the selection criteria given above and used in this chapter, unless stated otherwise. These 2,881 fall-related cases accounted for about 29% of all injury deaths that occurred in 2004–05 (male 19%, female 47%).

The right-hand panel of Table 2.3.1 shows cases selected according to the narrower criteria used in reports for deaths before 2003–04 (UCoD W00–W19 or X59 with a multiple cause code for fracture). Adoption of the wider criteria has a large effect on this topic, increasing case numbers by around 82%.

Some deaths involving a fall are not included in these definitions. These are cases involving falls and found to be suicides, homicides, or of undetermined intent; cases in which a fall was associated with a vehicle, falls from burning structures and falls into water which resulted in drowning. An overview of all deaths detectable as involving a fall, including these types, is given in Section 2.3.1, but the rest of the chapter is restricted to unintentional falls as defined above.

2.3.1 Overview of total falls deaths

All falls-related deaths which occurred in Australia in 2004–05 and are detectable in the ABS mortality data are summarised in Table 2.3.2. The remainder of this Section focuses on the 2,881 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* = 91) of all falls were suicide-related. These falls are included in Section 2.8 of this report.

The scope of inclusion of the first four rows in Table 2.3.2 is as follows. The first (UCoD W00–W19) includes only cases for which the Underlying Cause of Death code was in the range meaning unintentional fall. As has been shown in previous reports, this omits many fall-related deaths, especially those at age older than about 70 years. The second row (UCoD X59 + fracture) includes the deaths known to have involved a fracture, but where information about the external cause was not available to the coder. These are largely doctor-certified deaths of people aged older than 70 years. They are the type of case coded to E887 under ICD-9 and to X59.0 under ICD-10 (2007). The third and fourth categories add injury cases in which a fall, a fracture or both are mentioned, but not as the Underlying Cause of Death, which are often similar to the first two types.

**Table 2.3.2: All identifiable falls, Australia 2004–05**

ICD-10 codes	ICD Category	Males	Females	Persons
UCoD W00–W19		437	496	933
UCoD X59 + fracture	Unintentional falls	232	417	649
MCoD W00–W19 and S00–T75,T79		113	130	243
MCoD X59 + fracture and S00–T75,T79		369	687	1,056
Total unintentional falls deaths		*1,151*	*1,730*	*2,881*
V80.0	Unintentional transport-related falls	..	..	7
V81.6		..	..	..
W66, W68, W70	Unintentional drowning-related falls	27	12	39
Total other unintentional falls deaths		*32*	*16*	*48*
X80	Suicide-related falls	62	29	91
Y01	Homicide-related falls	..	..	..
Y30	Falls, undetermined intent	9	..	11
Total intentional deaths		*72*	*32*	*104*
MCoD W00–W19 but without MCoD S00–T75,T79	Other[a]	22	30	52
Total falls deaths		**1,255**	**1,778**	**3,033**

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

2.3.2 Age and sex distribution

Figure 2.3.1 shows age-specific death rates for falls for males and females during 2004–05. 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 the 70–74 to 80–84 age groups, but not significantly so for the latter two of these age groups.

Figure 2.3.1: Deaths due to unintentional fall injury by age and sex, Australia 2004–05
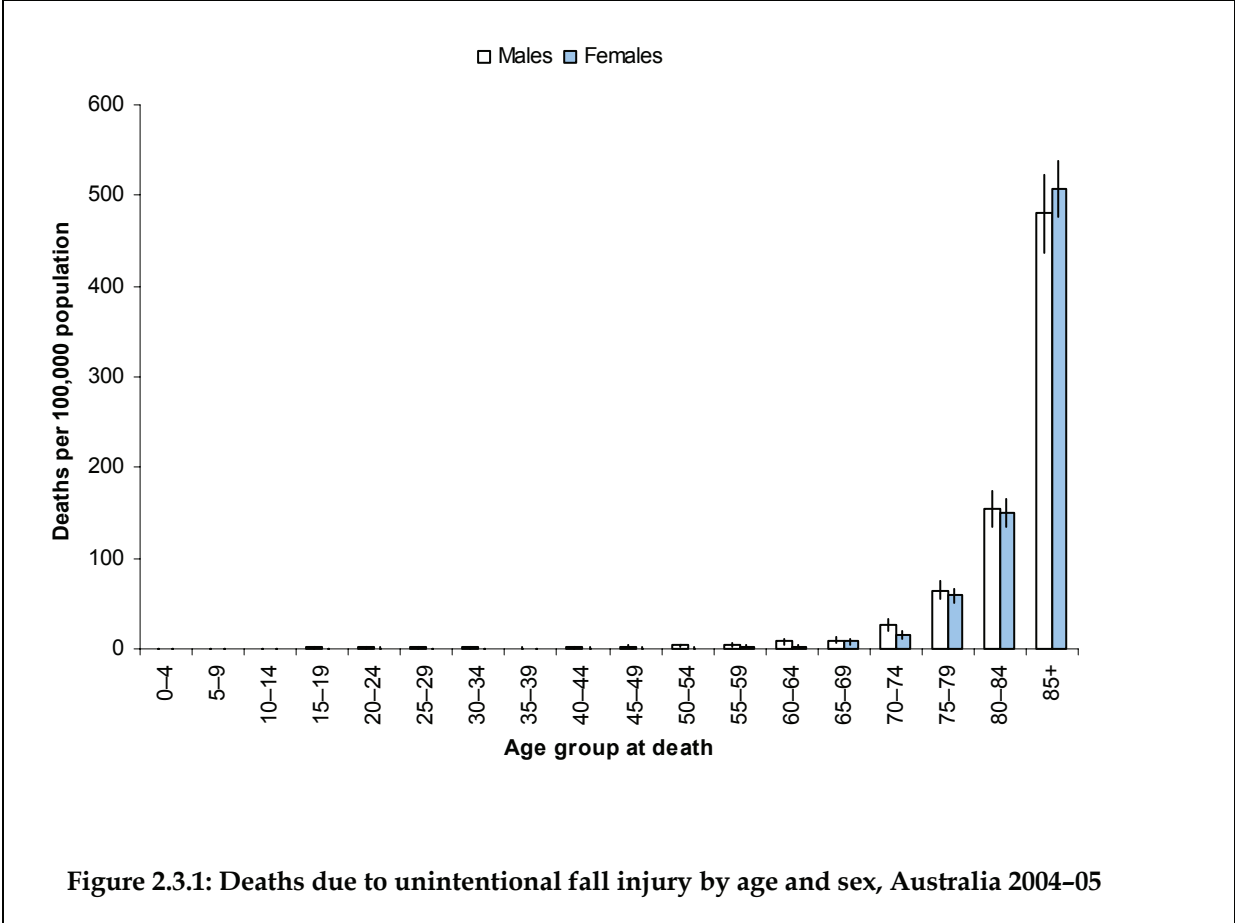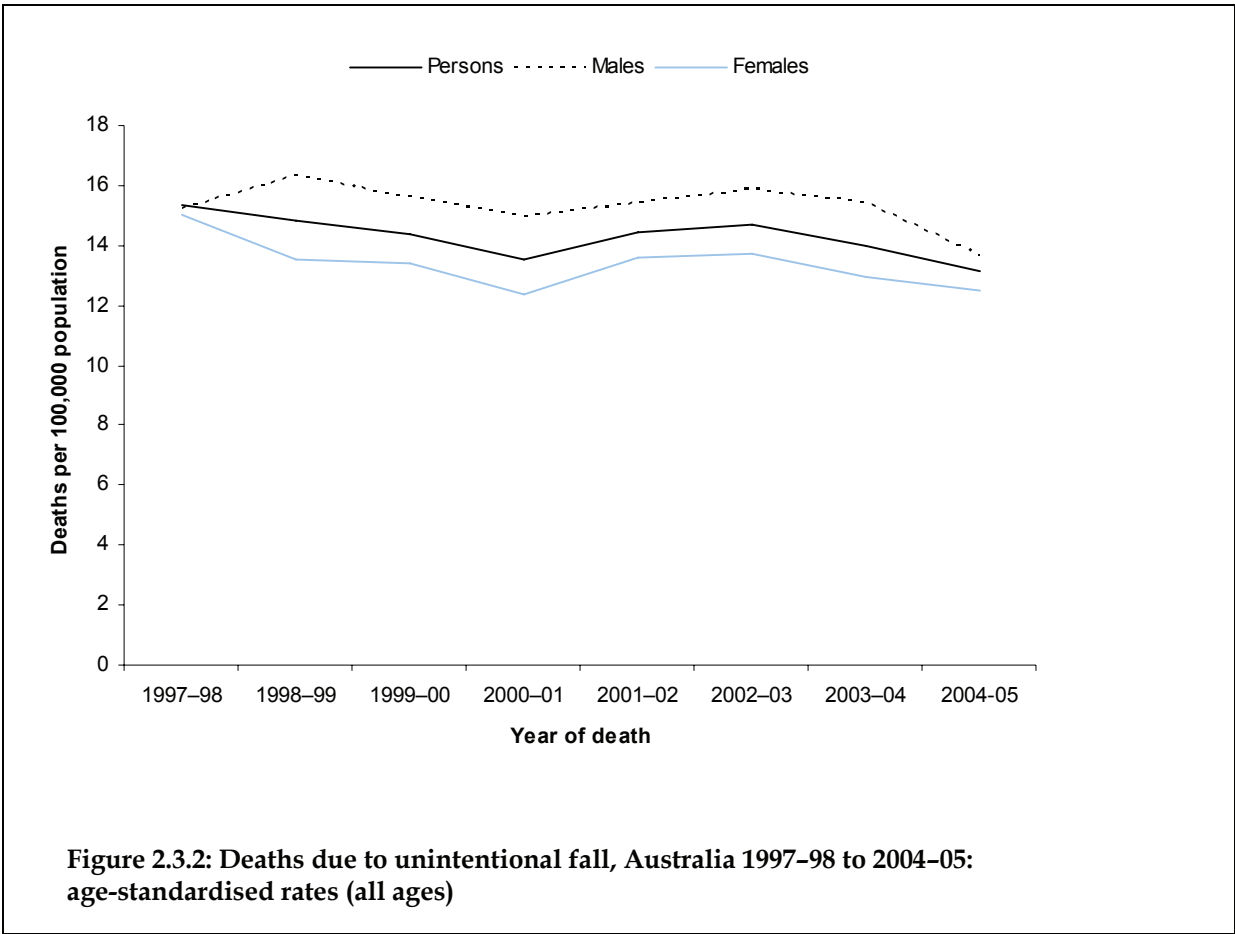
2.3.3 Trends in deaths rates

Figures 2.3.2 and 2.3.3 indicate age-adjusted rates of fall deaths in Australia for the period 1997–98 to 2004–05. 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 14% from 1997–98 to 2004–05, although some fluctuations in rates were observed during this period. Similarly, rates for persons aged 65 years and over fell by 13% from 1997–98 to 2004–05, also with some fluctuations in rates observed during this period.

It is also important to note that although there was a marked increase of 16% in the number of fall-related deaths (3,830 to 4,446) for persons aged 65 years and over, between 2000–01 and 2004–05, the age-adjusted rates did not change much, reflecting 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 1.2, because only a minority of falls deaths are certified by coroners. However, an administrative change in Victoria with potential to affect these data should be mentioned. Commencing with deaths in 2003, all deaths in that state where the medical certificate mentions a fall are now referred to a coroner for verification (ABS 2006). This has led to an increase in the number of deaths assigned external cause codes in the range W00–W19 in 2003 and 2004 in Victoria. This has little effect on the trends reported here (Figures 2.3.2 and 2.3.3), because our inclusion of cases with code X59 plus a code for a fracture includes most of the deaths affected by this change.
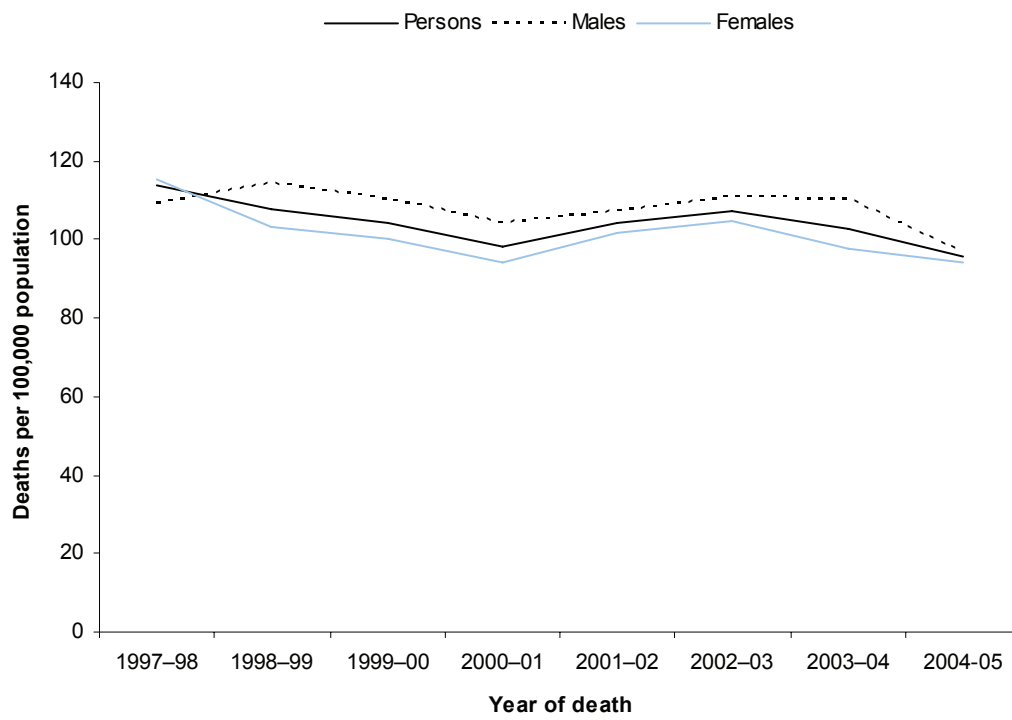

Figure 2.3.2: Deaths due to unintentional fall, Australia 1997–98 to 2004–05: age-standardised rates (all ages)

Figure 2.3.3: Deaths due to unintentional fall, Australia 1997–98 to 2004–05: 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 2004–05 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, and Tasmania, where rates were close to the national rate (13.1 deaths per 100,000 population). All other jurisdictions, except for South Australia, show rates moderately higher than the national rate, although only the rates for Queensland and Western Australia were significantly higher. South Australia recorded the lowest rate (7.9). A similarly low rate was found for SA in the previous report. Data issues may contribute to this: rates of hospitalised fall injury in South Australia for the same period are lower than the national rate, but the difference is smaller than that shown for deaths in Figure 2.3.4 (Berry & Harrison 2006).
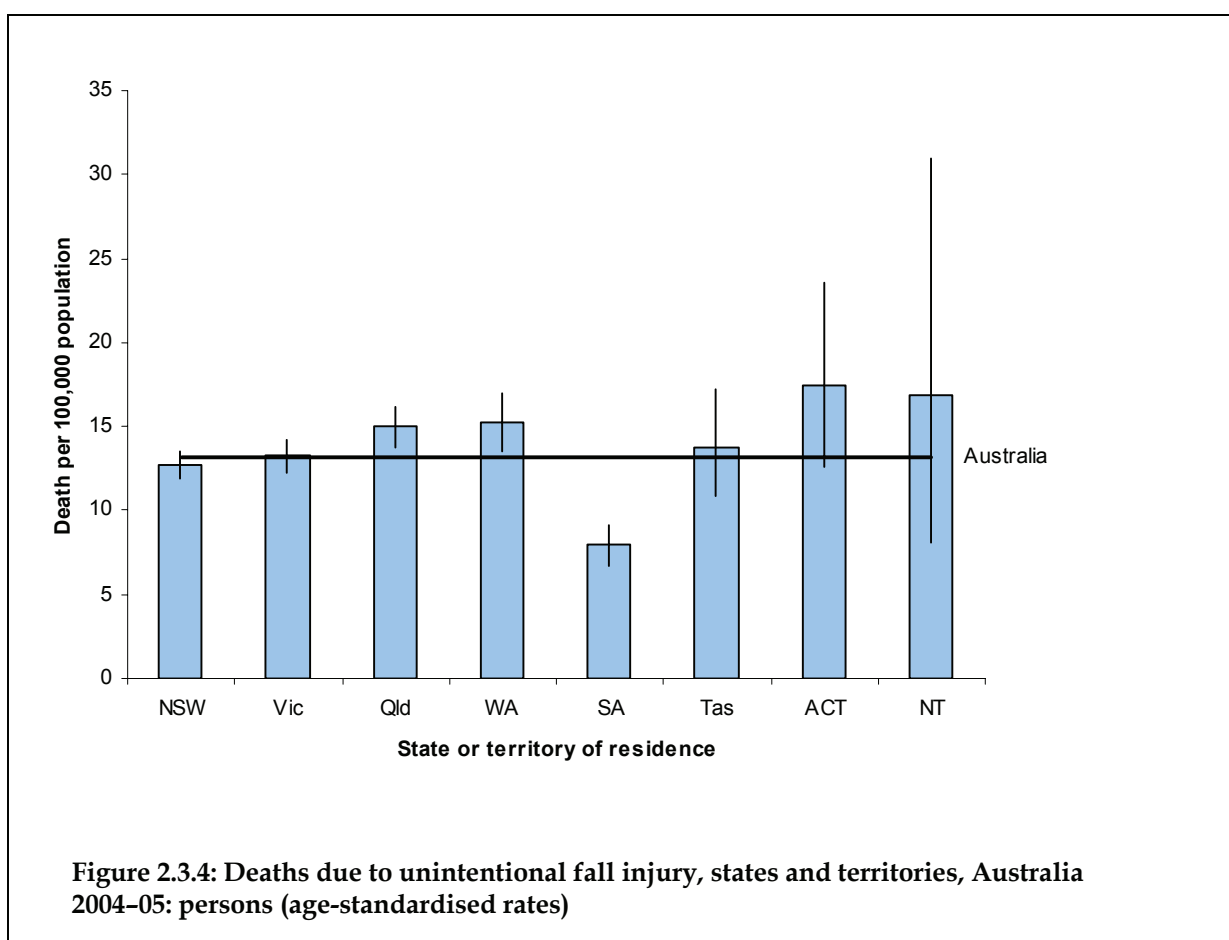

Figure 2.3.4: Deaths due to unintentional fall injury, states and territories, Australia 2004–05: persons (age-standardised rates)

Table 2.3.3: Cases, age-adjusted rates and rate ratios* by state or territory for accidental falls (including X59 + fracture) deaths, Australia, 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	971	746	580	289	160	78	43	14
Adjusted rate (direct)	12.7	13.2	15.0	15.3	7.9	13.8	17.5	16.9
Rate ratio*	0.97	1.01	1.14	1.16	0.60	1.05	1.33	1.28

* 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 2004–05 by remoteness zone of person's residence. Rates do not appear to be strongly associated with remoteness. All zones, apart from the Outer regional and Remote zones, recorded rates very close to the national rate (13 deaths per 100,000 population). Only the Outer regional zone recorded a rate (14.9) which was significantly higher than the national rate.
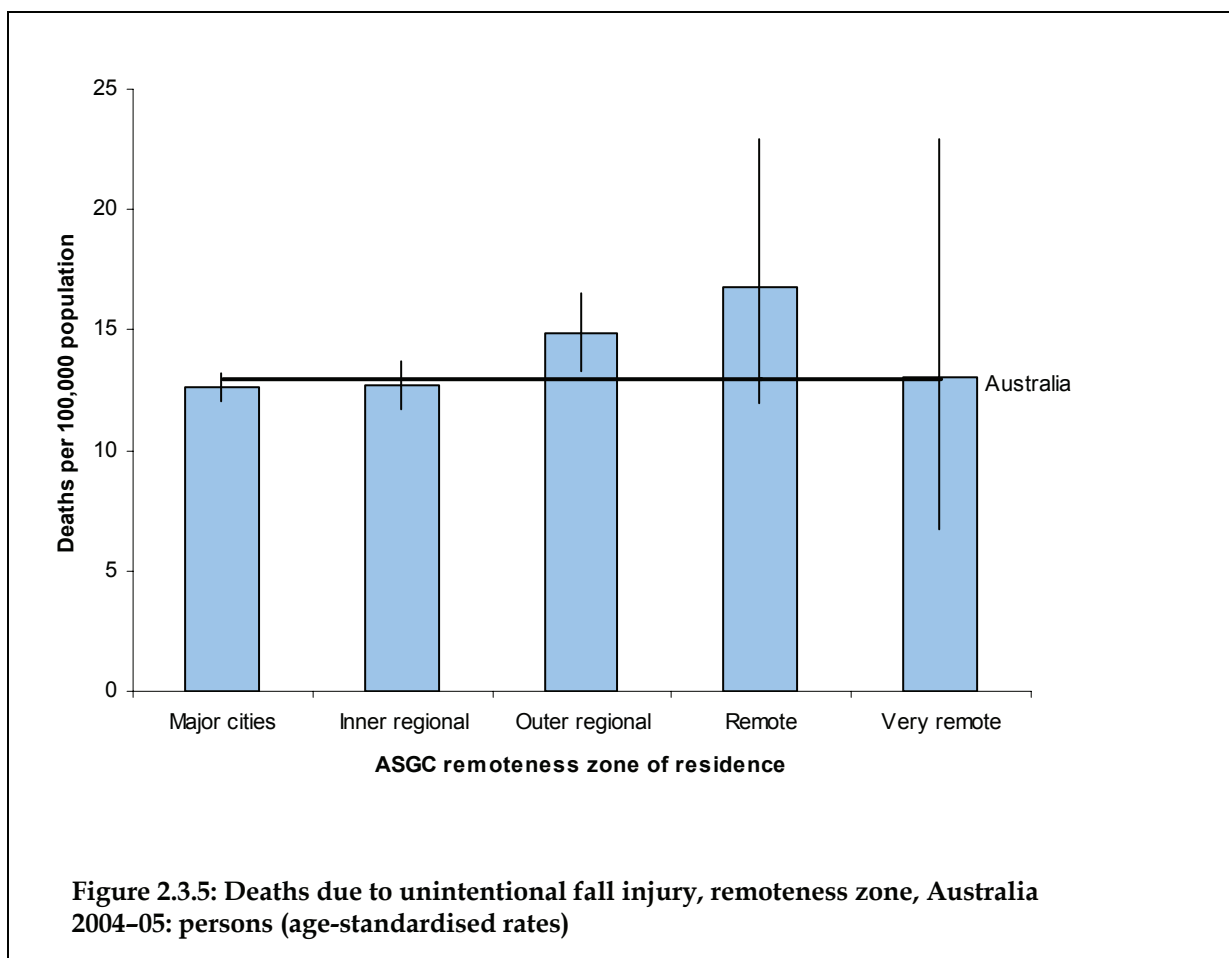

Figure 2.3.5: Deaths due to unintentional fall injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)

Table 2.3.4: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental falls (including X59 + fracture) deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	1,824	635	325	39	13
Adjusted rate (direct)	12.6	12.7	14.9	16.8	13.1
Rate ratio*	0.98	0.98	1.15	1.30	1.01

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

2.3.6 Nature of injury

During 2004–05, over 79% (*n* = 2,288) of falls fatalities were recorded as having sustained at least one fracture. Of those who sustained a fracture, almost 72% (*n* = 1,645) sustained a hip fracture. Almost 12% of falls fatalities were recorded as having sustained intracranial injuries.

Table 2.3.5: Falls deaths, by sex and nature of injury, Australia 2004–05

Nature of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
All fractures	839	72.9	1,449	83.8	2,288	79.4
Hip fracture	581	50.5	1,064	61.5	1,645	57.1
Intracranial	163	14.2	170	9.8	333	11.6
All injury	**1,151**		**1,730**		**2,881**	

2.3.7 Bodily location of injury

Almost 18% (*n* = 517) of falls fatalities in 2004–05 were recorded as having sustained at least one injury to the head. Almost 7% (*n* = 193) sustained at least one injury to the abdominal region, 6% (*n* = 165) 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 2004–05

Bodily location of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head	278	24.2	239	13.8	517	17.9
Neck	43	3.7	41	2.4	84	2.9
Thorax	99	8.6	66	3.8	165	5.7
Abdomen, lower back, lumbar spine and pelvis	66	5.7	127	7.3	193	6.7
Upper limb	51	4.4	138	8.0	189	6.6
Lower limb	599	52.0	1104	63.8	1703	59.1
Multiple	28	2.4	17	1.0	45	1.6
All injury	**1,151**		**1,730**		**2,881**	

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 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	174	62	236	136	51	187
Percentage of all injury deaths	3%	2%	2%	3%	2%	2%
Crude rate/100,000 population	1.7	0.6	1.2	1.4	0.5	0.9
Adjusted rate (direct)	1.7	0.6	1.2	1.4	0.5	0.9
Rate ratio*	1.49	0.52		1.47	0.53	
Mean YPLL <75years	35	36	35	38	33	36

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

NISU mortality reports for deaths in years before 2003–04 restricted the scope of the chapter on unintentional drowning deaths to cases 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 includes cases of drowning that were associated with other external causes, such as some transport crashes.

While the focus of this chapter is on *Unintentional drownings* in 2004–05, some information has also been included on *Total drownings* during that year (Section 2.4.2 and Table 2.4.3). "Total drowings" includes 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 reports for deaths before 2003–04 (UCoD W65–W74). Adoption of the wider criteria had a moderate effect on this topic, increasing case numbers by just over 26%.

2.4.1 Coroners' data

As explained in Section 1.2 of this report, several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. However, comparisons of the number of drowning deaths obtained using the ABS mortality unit record data collection and the number of deaths estimated using data supplied by the National Coroners Information System (NCIS) produced similar numbers of drowning deaths (Table 2.4.2). This result suggests that the ABS data provides a reasonably complete and reliable estimate of the number of drowning deaths in this period.

Table 2.4.2: Comparison of drowning deaths using ABS and NCIS data sources, Australia 2004–05

State of registration/ Case state	Males		Females		Persons	
	ABS	**NCIS**	**ABS**	**NCIS**	**ABS**	**NCIS**
NSW	61	54	25	27	86	81
VIC	33	36	9	12	42	48
QLD	42	39	16	13	58	52
SA	11	12	..	..	..	..
WA	13	12	..	..	..	..
TAS	8	7	..	..	..	..
NT	..	..	..	..	..	..
ACT	..	..	0	..	..	..
Total	**174**	**163**	**61**	**63**	**235***	**226**

* Excludes one female case certified by a doctor.

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

2.4.2 Overview of total drowning

236 *Unintentional drowning* deaths occurred in 2004–05. The *Unintentional drowning* deaths that occurred during 2004–05 accounted for 2% of all injury deaths. In 12 cases, the person was recorded as being Aboriginal or Torres Strait Islander[2].

Table 2.4.3: All identifiable drowning cases in 2004–05

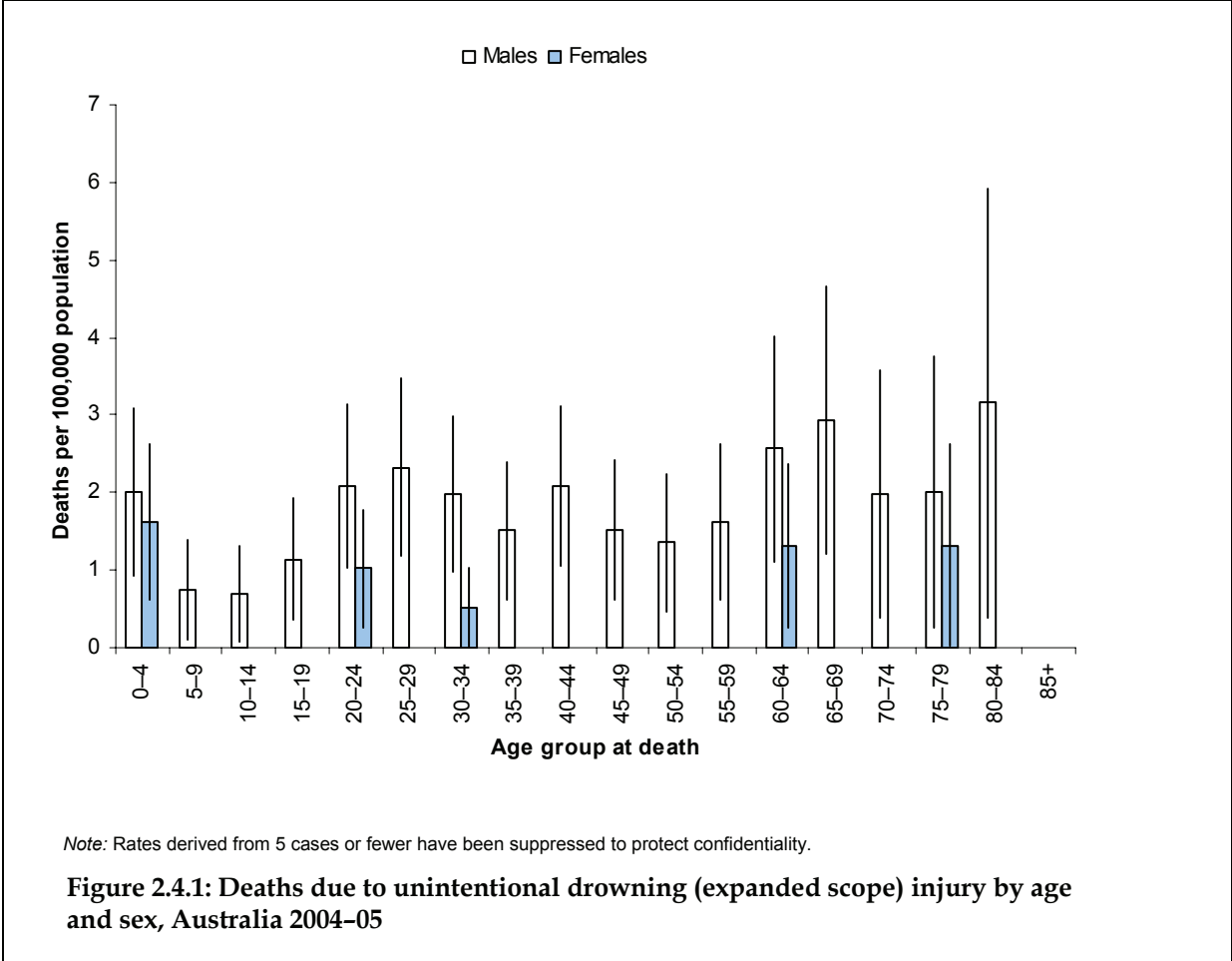| Number of cases in 2004–05	Percentage of all drowning cases in 2004–05	ICD-10 codes	ICD Category	Coverage in this report	Terminology in this report
236	78.7%	MCoD S00–T75,T79 and W65–W74; or MCoD T75.1 and V01–X59; or UCoD W65–W74	Unintentional drowning and submersion (includes water transport accidents and road transport related drownings)	Drowning	Unintentional drowning
236	*78.7%*				*Total unintentional drowning deaths*
45	15.0%	T75.1 and X60–X84	Intentional self-harm by drowning and submersion	Suicide	Other drowning identified by external cause codes
..	..	T75.1 and X85–Y09	Assault by drowning and submersion	Homicide	
16	5.3%	T75.1 and Y10–Y34	Drowning and submersion, undetermined intent	Undetermined intent	
64	*21.3%*				*Total intentional drowning deaths*
0	0.0%	MCoD V90,V92,X71,X92,Y21 and no T75.1,T79) and (no UCoD W65–W74)	Other		
300	*100.0%*				*Total drowning deaths*

Note: Versions of this table in data years before 2003–04 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.

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

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[2] 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).

2.4.3 Age and sex distribution

2.8 times as many men as women drowned during 2004–05 (Males 174; Females 62). Ten per cent (*n* = 23) of Unintentional drowning deaths occurred to children aged 0–4 years.

Note: Rates derived from 5 cases or fewer have been suppressed to protect confidentiality.

Figure 2.4.1: Deaths due to unintentional drowning (expanded scope) injury by age and sex, Australia 2004–05

2.4.4 Trends in death rates

Overall, the age-adjusted rate fell by 36% between 1997–98 and 2004–05. This continues a general downward trend since at least 1920 (Bordeaux & Harrison 1998). Between 2002–03 and 2004–05, the age-adjusted rate fell by 21%.

It is not yet clear whether trends for this type of case have been affected by the issue discussed in Section 1.2. The similarity of case numbers form the two sources in 2004–05 (Table 2.4.2) suggests that such effect, if present, is small.

Figure 2.4.2: Deaths due to unintentional drowning, Australia 1997–98 to 2004–05: age-standardised rates
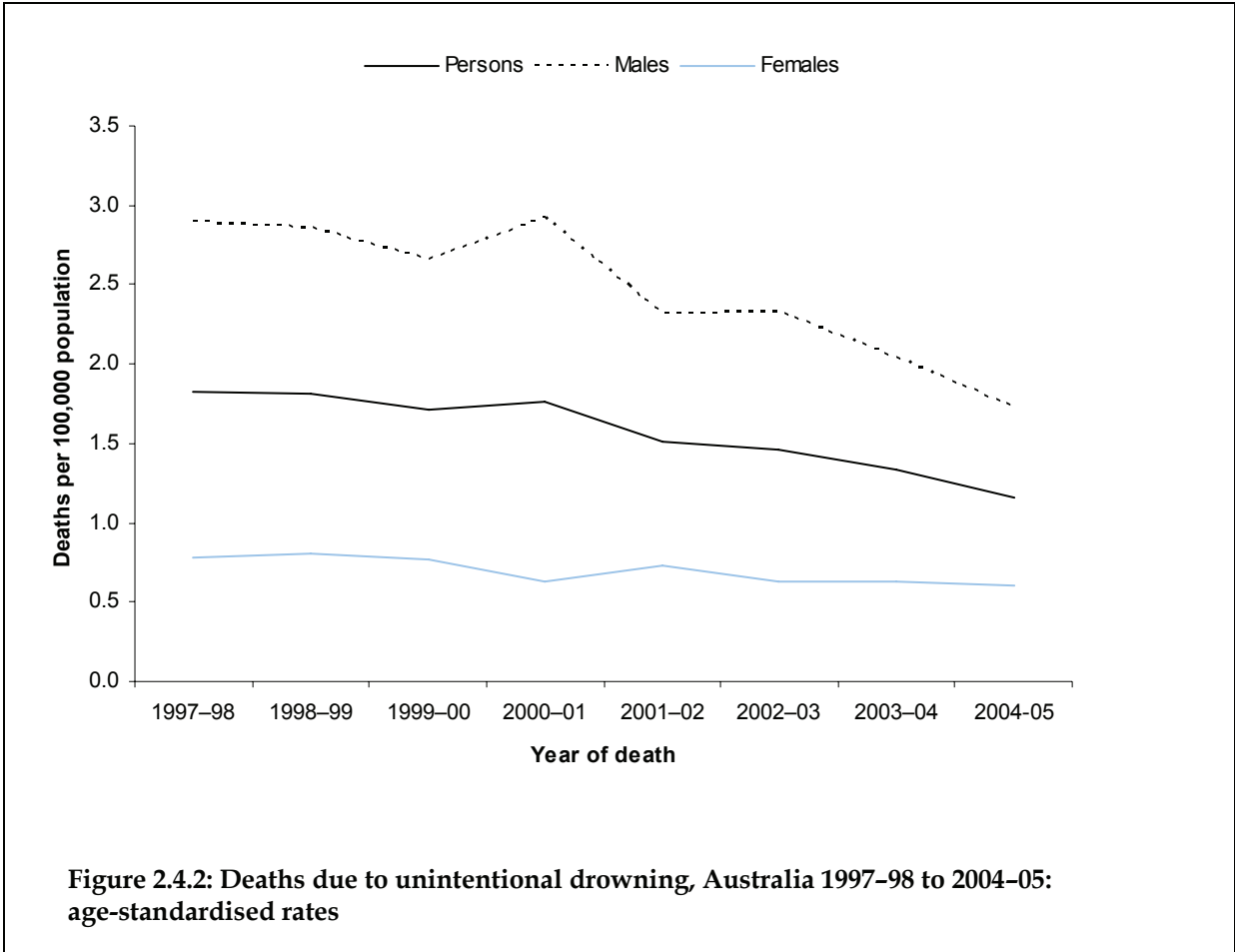
2.4.5 State and territory rates

Two states, Victoria (low) and Tasmania (high) had rates that differ from the rate for Australia as a whole (1.1 per 100,000 population) to a statistically significant extent. The rates for the Australian Capital Territory and the Northern Territory have been suppressed due to small case numbers.

Note: Rates derived from 3 cases or fewer have been suppressed to protect confidentiality.

Figure 2.4.3: Deaths due to unintentional drowning injury, states and territories, Australia 2004–05: persons (age-standardised rates)
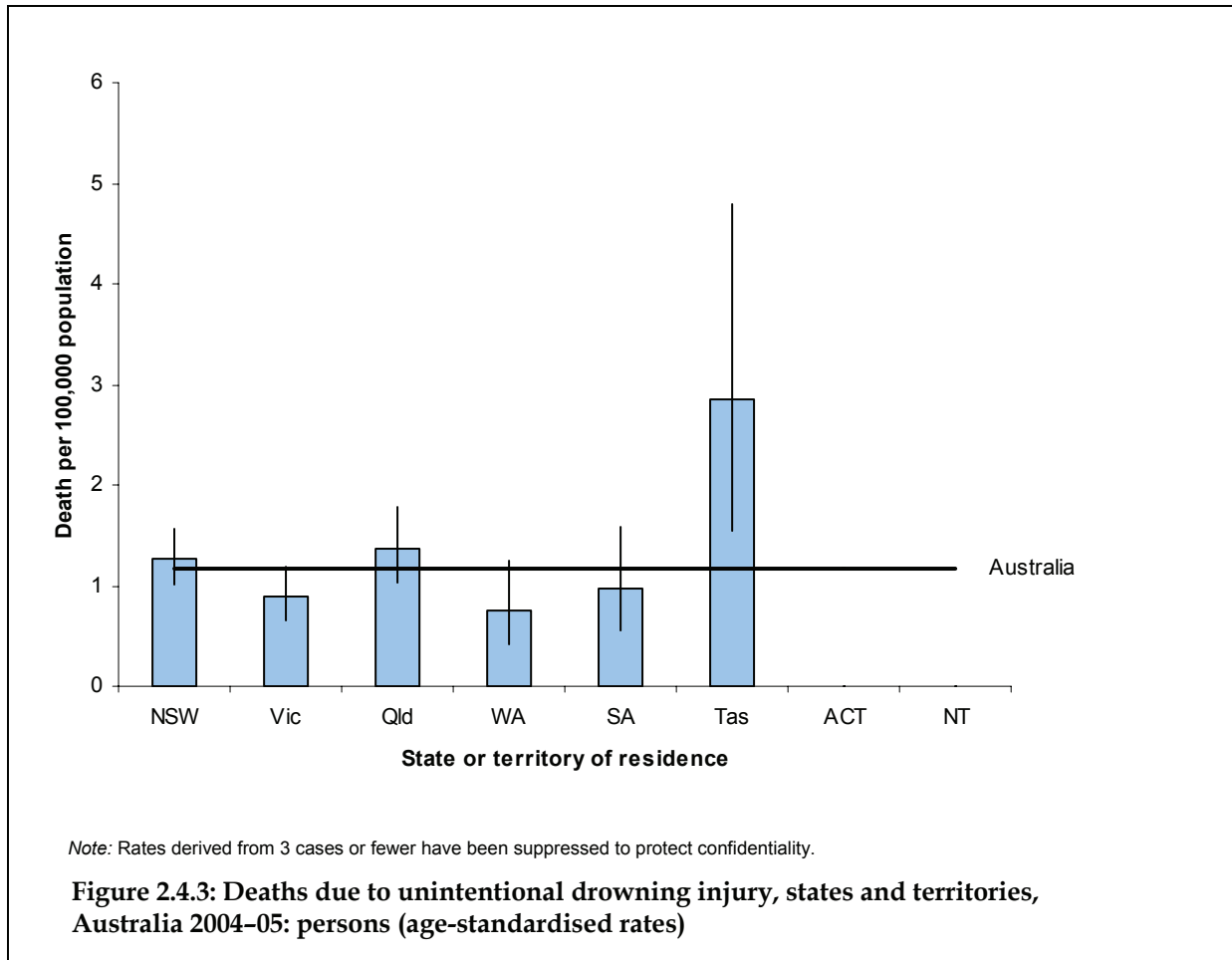
Table 2.4.4: Cases, age-adjusted rates and rate ratios* by state or territory for accidental drowning and submersion (expanded scope) deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	86	45	54	15	16	14	..	..
Adjusted rate (direct)	1.3	0.9	1.4	0.8	1.0	2.8	..	..
Rate ratio*	1.08	0.76	1.18	0.65	0.84	2.45	..	..

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.4.6 Remoteness of residence

Age-adjusted rates rose according to the remoteness of the deceased person's residence. The rate for drownings in the Very remote zone has been suppressed due to small case numbers.
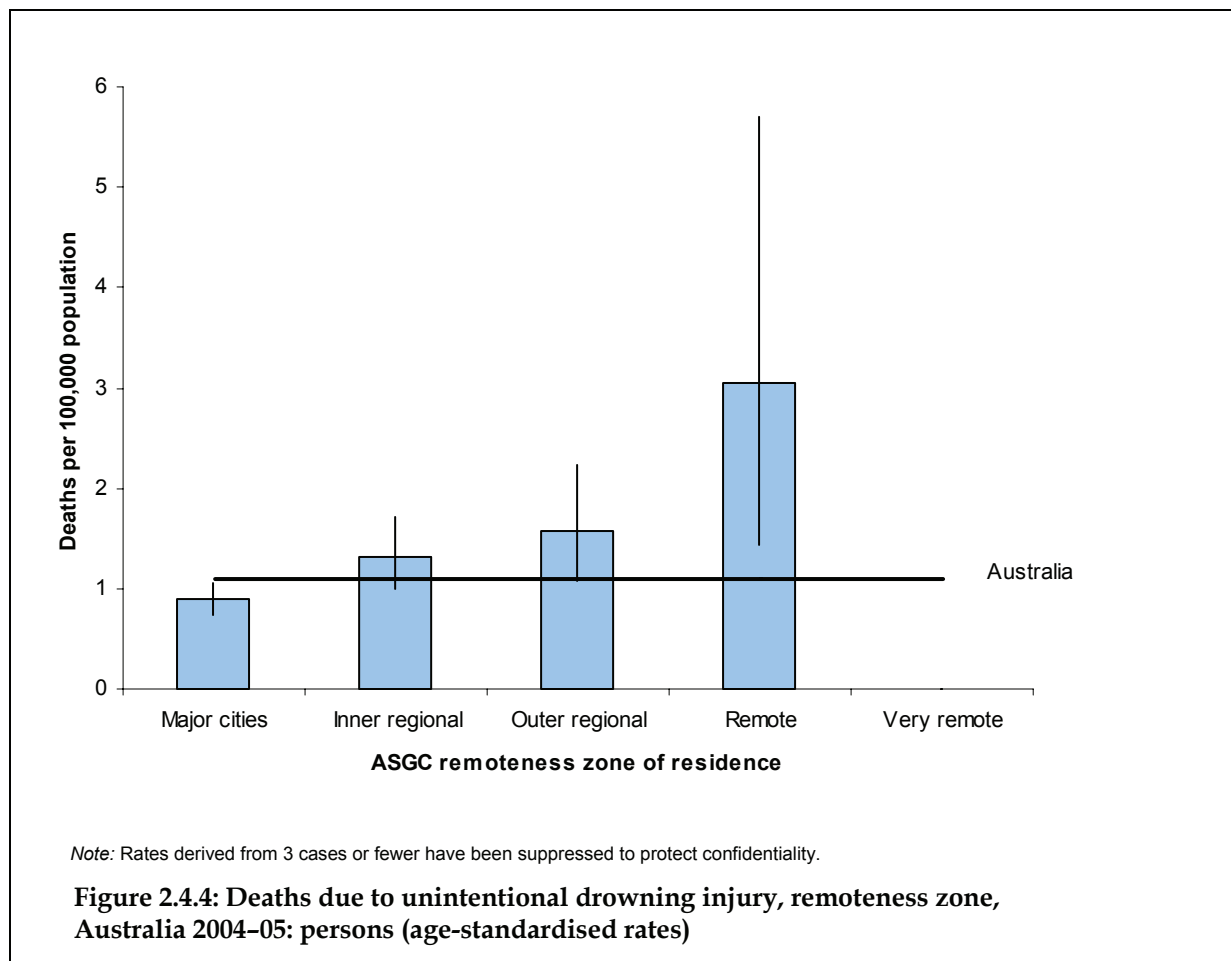

Note: Rates derived from 3 cases or fewer have been suppressed to protect confidentiality.

Figure 2.4.4: Deaths due to unintentional drowning injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)

Table 2.4.5: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental drowning and submersion (expanded scope) deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	122	56	32	10	..
Adjusted rate (direct)	0.9	1.3	1.6	3.1	..
Rate ratio*	0.82	1.21	1.44	2.79	..

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.4.7 Associated factors

2.4.7.1 Drowning in natural water

95 (40%) of deaths were the result of drowning while in a body of natural water. The majority of deaths in this group involved males (n = 77, 81%).

In 68 (72%) cases, the person drowned while in the water. In the remaining 27 (28%) cases, the drowning occurred after the person fell into a body of natural water.

2.4.7.2 Drowning in bathtubs

12 (5%) of the drowning deaths occurred in a bathtub. 8 (67%) of these cases were female and only one involved a child aged 0–4 years.

In 11 (91%) cases the person died while in the bathtub, while for one case, the death occurred after the person fell into the bath.

2.4.7.3 Transport-related drownings

31 (13%) cases of drowning were related to transport, either motor vehicle or watercraft. Just over half of these cases (n = 16, 51%) involved persons aged 40–64 years. 87% of cases were male.

In 7 (23%) 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 13 (42%) 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 11 cases were related to various types of motor vehicle accident (e.g. drowning when a car ends up submerged in water after a crash).

2.4.7.4 Drowning in swimming pools

In 30 (13%) cases, the drowning occurred in a swimming pool. 9 (30%) of these cases involved children aged less than five years. Across all ages, male cases were more frequent (n = 17, 57%) than female cases (n = 13, 43%). The all-ages rate for swimming pool drownings was 0.2 deaths per 100,000 population.

In 19 (63%) of these cases, the deceased person was already in the swimming pool when they drowned. In the remaining 11 (37%) of cases, they drowned after falling into the pool.

Children aged 0–4 years

The rate of death by drowning in a swimming pool for children aged 0–4 years was 0.7 per 100,000 population. This was the lowest rate over the period from 1997–98 to 2004–05, the previous lowest rate being in 2000–01 (0.9). Notably, all states and territories had 3 or fewer cases.

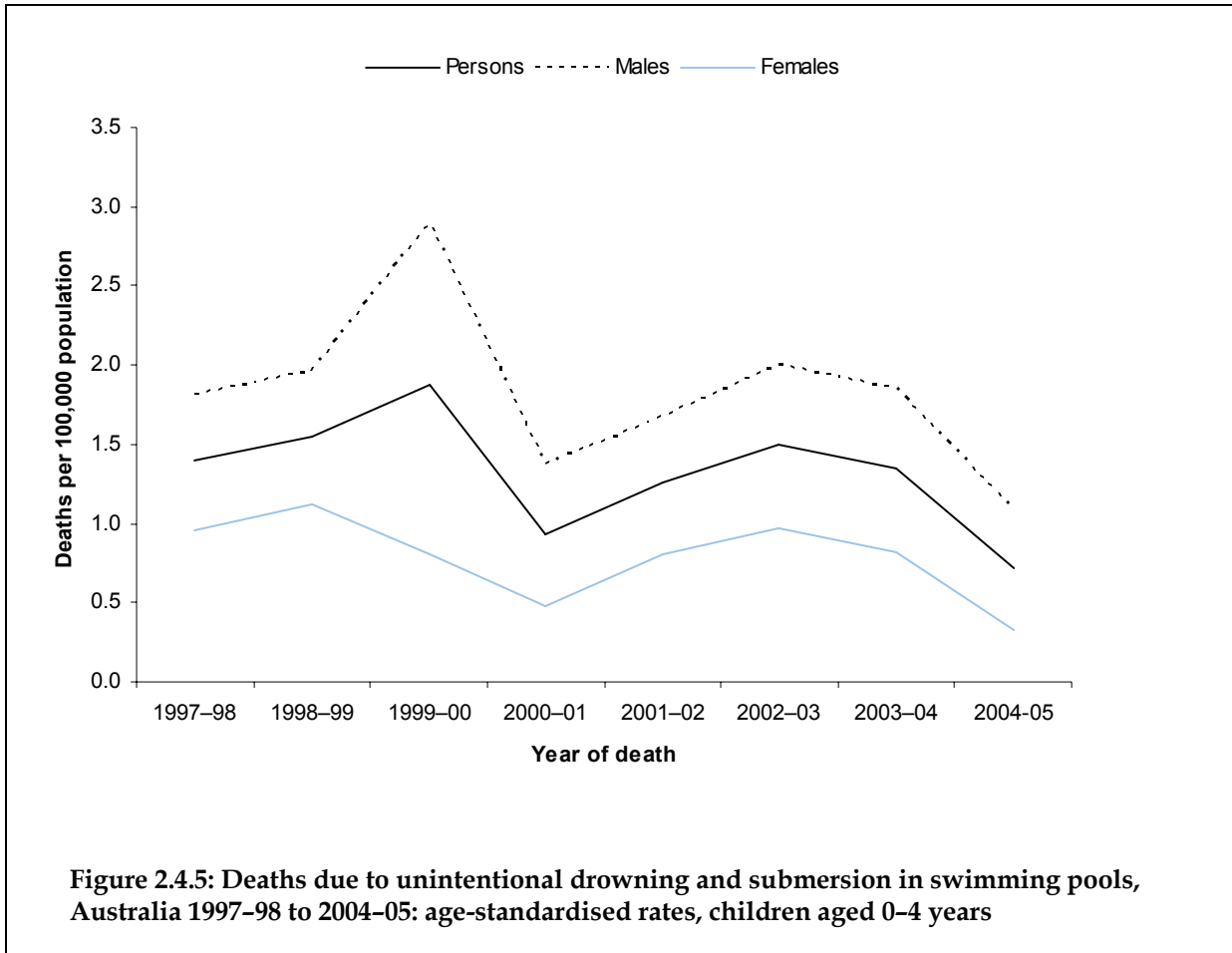Annual rates have fluctuated, partly as a consequence of fairly small case numbers (Figure 2.4.5).

Figure 2.4.5: Deaths due to unintentional drowning and submersion in swimming pools, Australia 1997–98 to 2004–05: age-standardised rates, children aged 0–4 years

Table 2.4.6: Swimming pool drownings among children aged 0–4 years, Australia 1997–98 to 2004–05

Year of death registration	Cases	Age-specific rate
1997–98	18	1.4
1998–99	20	1.6
1999–00	24	1.9
2000–01	12	0.9
2001–02	16	1.3
2002–03	19	1.5
2003–04	17	1.4
2004–05	9	0.7

2.5 Poisoning deaths, Australia

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. For this reason, comparisons were made between the number of poisoning deaths obtained using the ABS mortality unit record data collection and the number of deaths obtained using data supplied by the National Coroners Information System (NCIS).

2.5.1 Case selection criteria for data sources

ABS data

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

Coroners' data

Selection based upon criteria outlined in Table A1.5 of this report.

2.5.2 Comparison of data sources

Overview

Using data provided by the NCIS produced a significantly lower estimate of accidental poisoning deaths when compared to data provided by the ABS (Table 2.5.1). The NCIS-derived figure of 746 deaths was 195 less than the ABS-derived figure using Multiple Causes of Death for the period of interest.

Determining intent for poisoning deaths tends to present more difficulties than other external causes of death, especially for drug overdoses, in which it is sometimes difficult to determine whether the person intended to take his or her own life. In other cases, the death may have been found to be due to natural causes, despite the detection of potentially toxic substances following a toxicological examination.

It should be noted that the ABS-derived figure included 81 deaths which were certified by a doctor. Consequently, these deaths would not appear in the NCIS. Since poisoning is a commonly used method in suicide, the problem of misclassification as outlined in Section 1.2 of this report, is likely to be a significant factor when estimating the true number of unintentional poisoning-related deaths. Investigations indicate that at least 70 deaths identified using the ABS- provided data are likely to be suicides.

Table 2.5.1: Key indicators for poisoning deaths by data source, Australia 2004–05

Indicator	NCIS	ABS Multiple Causes of Death	ABS Underlying Causes of Death
Cases	746	941*	718
Crude rate/100,000 population	3.7	4.7	3.6
Adjusted rate (direct)	3.7	4.6	3.5

* Includes 81 deaths certified by a doctor.

State and territory

When looking at differences between jurisdictions, the most noticeable differences were recorded for Queensland, Northern Territory and New South Wales, while Western Australia was the only jurisdiction where the number of estimated poisoning deaths was higher for the NCIS data source (Table 2.5.2).

Table 2.5.2: Comparison of poisoning deaths by State of registration/Case state using ABS and NCIS data sources, Australia 2004–05

State of registration/ Case state	Males ABS	Males NCIS	Females ABS	Females NCIS	Persons ABS	Persons NCIS	Difference NCIS-ABS
NSW	221	188	89	78	310	266	-44
VIC	156	150	68	56	224	206	-18
QLD	91	68	38	29	129	97	-32
SA	47	38	26	19	73	58	-15
WA	46	51	13	23	59	74	15
TAS	19	16	8	8	27	24	-3
NT	17	..	..	..	..	..	-13
ACT	15	10	..	..	..	..	-4
Total	**611**	**526**	**249**	**219**	**860***	**746**	**-114**

 * Excludes 81 cases certified by a doctor (m=40, f=41).

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

Given that the NCIS does not include poisoning-related deaths which are certified by a doctor, the tables and charts included in the rest of this section are based upon ABS-provided data. However, given the problem of misclassification as indicated above, it should be noted that the figures provided are likely to be an overestimation of the true number of accidental poisoning deaths.

2.5.3 Key indicators

Table 2.5.3: Key indicators for accidental poisoning deaths, Australia 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	651	290	941	495	223	718
Percentage of all injury deaths	11%	8%	10%	9%	9%	9%
Crude rate/100,000 population	6.5	2.9	4.7	4.9	2.2	3.6
Adjusted rate (direct)	6.5	2.7	4.6	4.9	2.1	3.5
Rate ratio*	1.41	0.59		1.40	0.60	
Mean YPLL <75years	33	26	31	35	27	32

* 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 2.5.4 provides an overview of all poisoning deaths, irrespective of intent.

Unintentional poisoning deaths can be divided into two main types, *Poisoning by drugs* (ICD-10 X40–X44 or (T36–T50 and V01–X59) and *Poisoning by other substances* (ICD-10 X45–X49 or (T51–T65 and V01–X59). In 2004–05, 748 and 307 deaths, respectively, were coded to these two categories. 114 deaths were assigned codes for both *Poisoning by drugs* and *Poisoning by other substances*. These two types of cases are considered separately in Subsections 2.5.5 and 2.5.6.

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 reports for deaths before 2003–04 (UCoD X40–X49). Adoption of the wider criteria has a substantial effect on this topic, increasing case numbers by almost 31%. This is discussed further in Section 2.5.4.
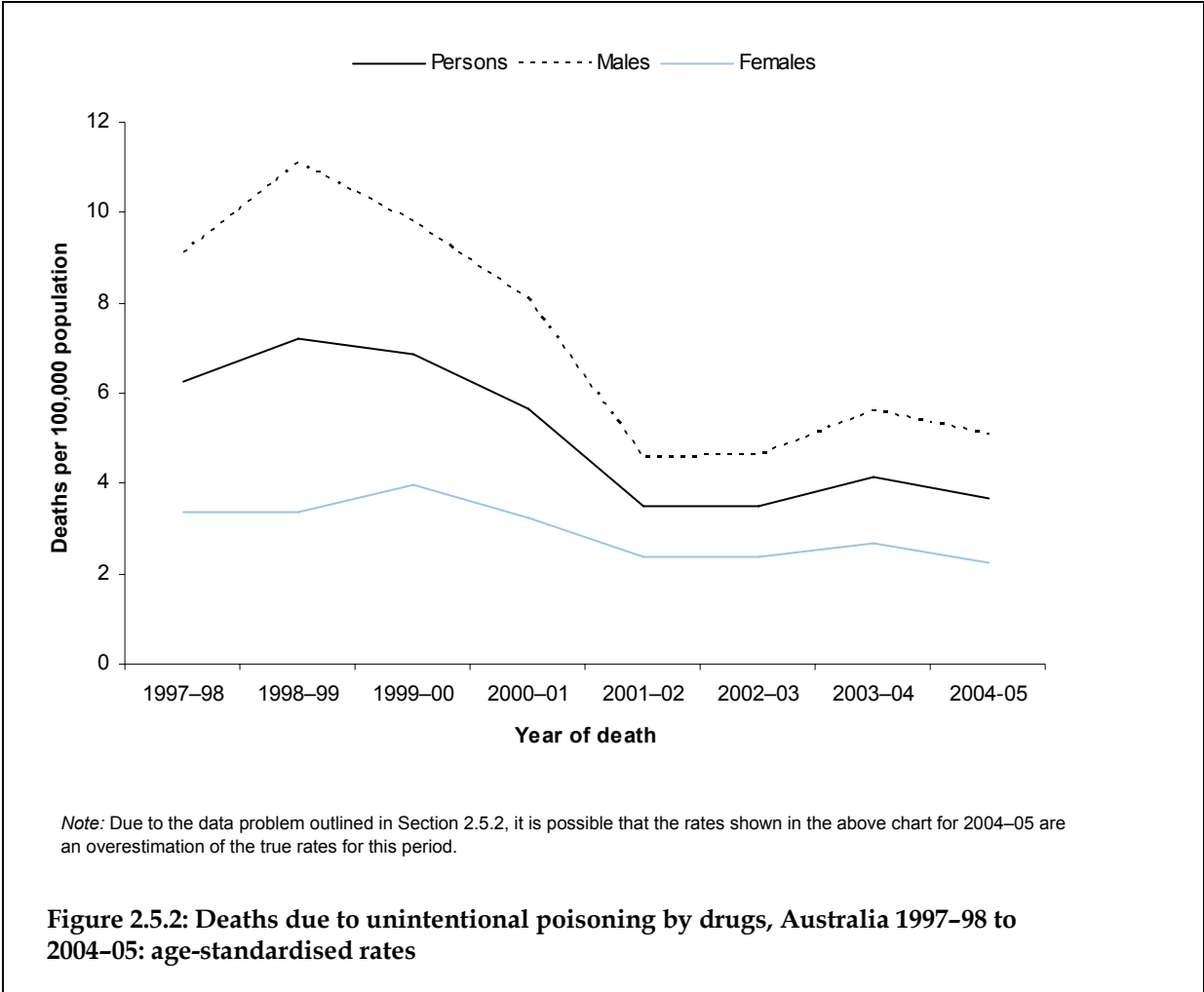
2.5.4 Overview of total poisoning deaths

All deaths identifiable as being due to poisoning, which occurred in Australia in 2004–05 are summarised in Table 2.5.4, according to the ICD code ranges assigned as MCoD.

Table 2.5.4: Deaths with Multiple cause codes for poisoning*, Australia 2004–05

Multiple Cause of Death	Males	Females	Persons
Unintentional Poisoning (X40–X49) or (T36–T65 and V01–X59)	651	290	941
Intentional self-harm (X60–X84,Y87.0) and (T36–T65)	476	180	656
Intentional harm by another person (X85–Y09,Y36–Y36,Y87.1,Y89.0,Y89.1) and (T36–T65)	..	..	7
Undetermined intent (Y10–Y34,Y87.2) and (T36–T65)	25	16	41
Other (Y40–Y84) and (T36–T65)	8	8	16
Total	**1,165**	**496**	**1,661**

* 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.

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

Of the total poisoning deaths which occurred in 2004–05, 57% (*n* = 941) were unintentional and 40% (*n* = 656) were as a result of intentional self-harm. Only 7 poisoning deaths were as a result of intentional harm by another person while a further 2.5% (*n* = 41) were of undetermined intent.

The remainder of this section focuses on the 941 deaths that were due to unintentional poisoning. Section 2.5.5 reports on unintentional poisonings that were due to drugs while Section 2.5.6 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.

2.5.5 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 2.5.5: Key indicators for accidental poisoning by drugs deaths, Australia 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	509	239	748	427	201	628
Percentage of all injury deaths	8%	6%	8%	8%	8%	8%
Crude rate/100,000 population	5.1	2.4	3.7	4.2	2.0	3.1
Adjusted rate (direct)	5.1	2.2	3.7	4.3	1.9	3.1
Rate ratio*	1.38	0.61		1.38	0.62	
Mean YPLL <75years	34	26	31	26	27	33

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

The left-hand panel of Table 2.5.5 presents summary data for deaths satisfying the selection criteria given above and used throughout this section, unless stated otherwise. The right-hand panel of Table 2.5.5 is based on cases selected according to the narrower criteria used in reports for deaths before 2003–04 (UCoD X40–X44). Adoption of the wider criteria has a moderate effect on this topic, increasing case numbers by around 19%.

2.5.5.1 Age and sex distribution

Figure 2.5.1 shows age and sex distribution for deaths due to unintentional poisoning by drugs. In 2004–05, males accounted for almost 68% (n = 509) of Unintentional poisoning deaths due to drugs. Rates were highest for males aged 25–49 years with this age group accounting for 71% of all male unintentional drug deaths. Males between 20 and 39 years had rates 2 to 6 times higher than females in the equivalent age group.

Figure 2.5.1: Deaths due to unintentional poisoning by drugs injury by age and sex, Australia 2004–05
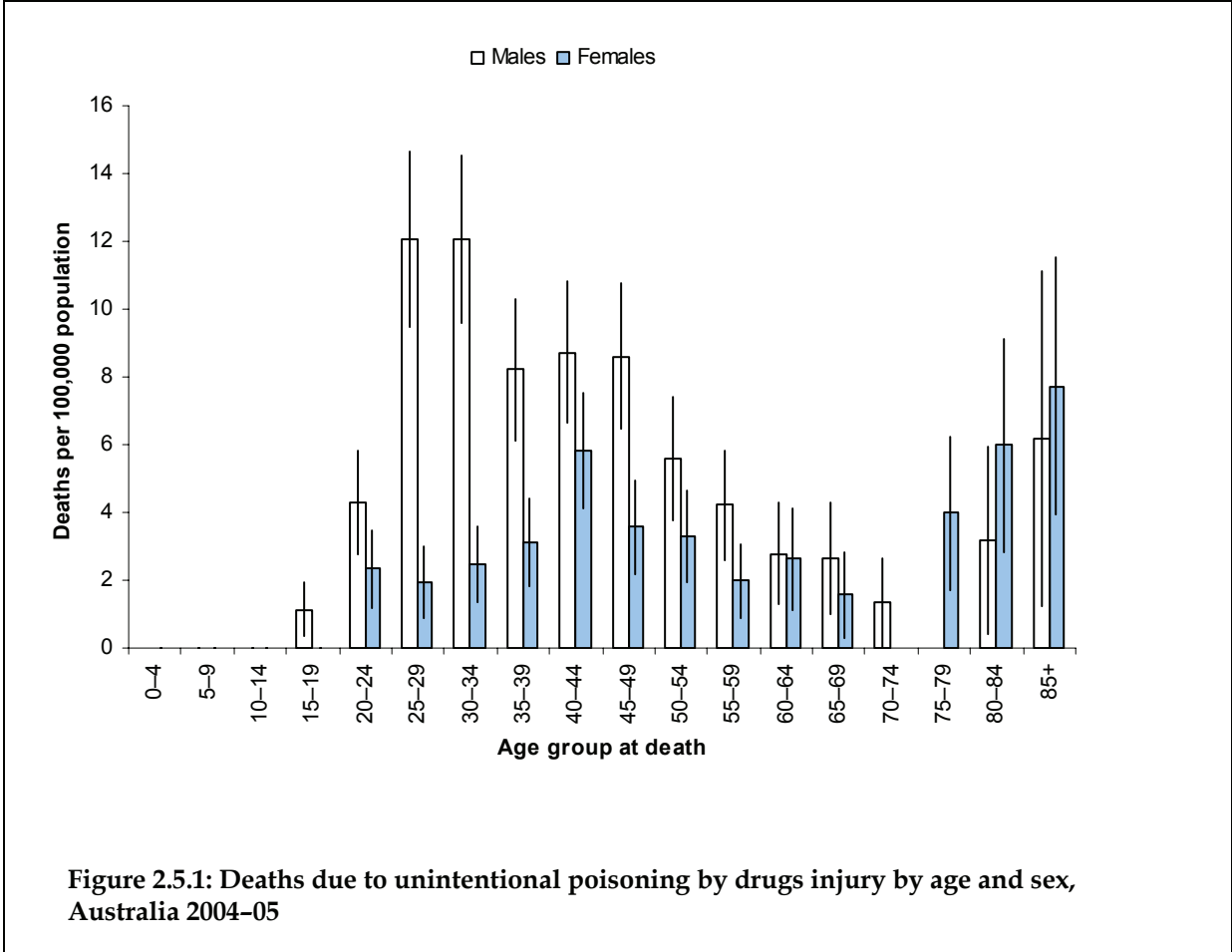
2.5.5.2 Trends in deaths rates

Figure 2.5.2 shows trends in deaths due to Unintentional poisoning by drugs for the period from 1997–98 to 2004–05. 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 relatively steady between 2001–02 and 2004–05.

Note: Due to the data problem outlined in Section 2.5.2, it is possible that the rates shown in the above chart for 2004–05 are an overestimation of the true rates for this period.

Figure 2.5.2: Deaths due to unintentional poisoning by drugs, Australia 1997–98 to 2004–05: age-standardised rates

2.5.5.3 State and territory rates

Figure 2.5.3 shows age-adjusted death rates due to unintentional poisoning in 2004–05 by state or territory of residence. Queensland and Western Australia had rates which were significantly lower, although only slightly, than the national rate (3.7 deaths per 100,000 population). All other jurisdictions except for the Australian Capital Territory had rates higher than the national rate, although not significantly so.
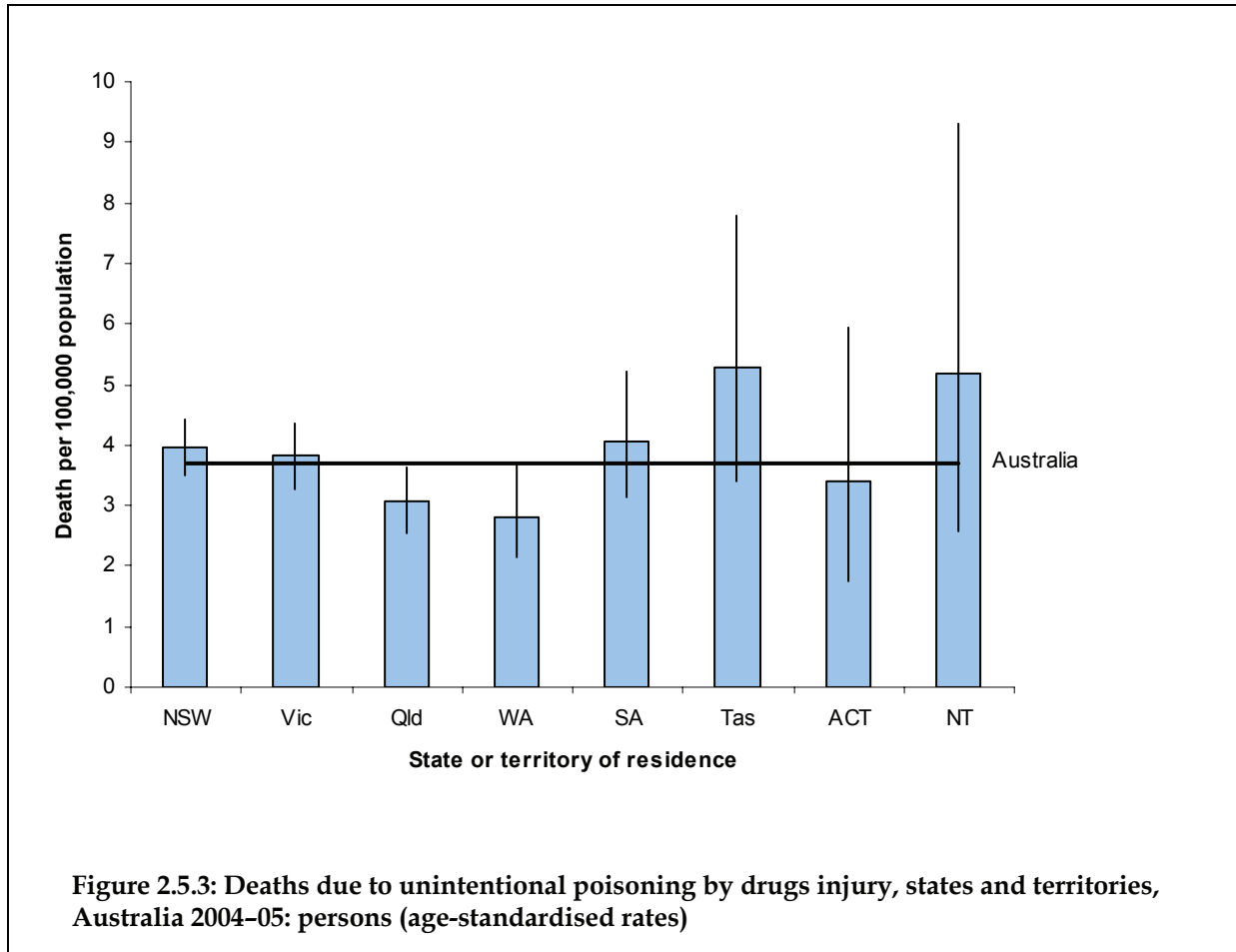
Figure 2.5.3: Deaths due to unintentional poisoning by drugs injury, states and territories, Australia 2004–05: persons (age-standardised rates)

Table 2.5.6: Cases, age-adjusted rates and rate ratios* by state or territory for accidental poisoning by drugs deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	268	193	120	56	63	25	12	11
Adjusted rate (direct)	4.0	3.8	3.1	2.8	4.1	5.3	3.4	5.2
Rate ratio*	1.07	1.03	0.83	0.76	1.10	1.43	0.92	1.41

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

2.5.5.4 Remoteness of residence

Figure 2.5.4 shows age-adjusted rates for poisoning by drugs deaths occurring in 2004–05 by remoteness zone of person's residence. Persons living in Major cities and Outer regional regions recorded rates which were higher, although not significantly so, than the national rate (3.7 deaths per 100,000 population).

Figure 2.5.4: Deaths due to unintentional poisoning by drugs injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
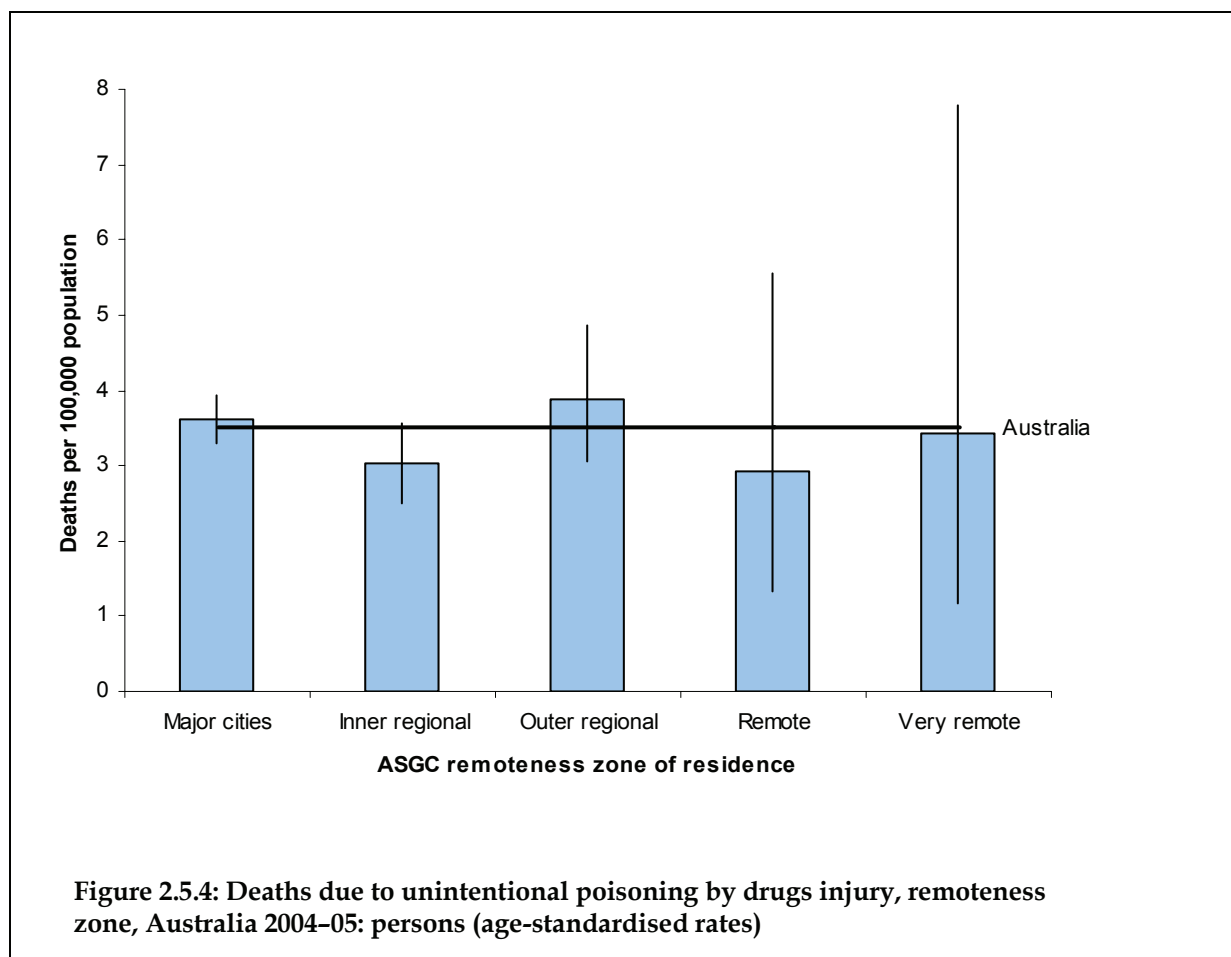
Table 2.5.7: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental poisoning by drugs deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	497	124	77	9	6
Adjusted rate (direct)	3.6	3.0	3.9	2.9	3.4
Rate ratio*	1.03	0.86	1.11	0.83	0.98

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

2.5.5.5 Types of drugs

Almost 56% (*n* = 415) of the cases were coded to the category T40 *Poisoning by narcotics and psychodysleptics [hallucinogens]* (319 males, 96 females). Of these cases, 28% (*n* = 128) were exposed to poisoning by heroin, 34% (*n* = 153) were exposed to poisoning by other opioids, and 22% (*n* = 97) were exposed to poisoning by methadone. Almost 83% (*n* = 344) of these cases were in the age range 20–49.

Just over 22% (*n* = 160) of the cases were coded to the category T42 *Poisoning by antiepileptic, sedative-hypnotic and antiparkinsonism drugs* (112 males, 48 females). Of these cases, 94% (*n* = 150) were exposed to poisoning by benzodiazepines. Just over 80% (*n* = 128) of these cases were in the age range 20–49.

Just over 26% (*n* = 193) of the cases were coded to the category T43 *Poisoning by psychotropic drugs, not elsewhere classified* (121 males, 72 females). Of these cases, 61% (*n* = 118) were exposed to poisoning by antidepressants. Just over 74% (*n* = 143) of these cases were in the age range 20–49.

2.5.6 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 2.5.8: Key indicators for accidental poisoning by other substances deaths, Australia 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	227	80	307	68	22	90
Percentage of all injury deaths	4%	2%	3%	1%	1%	1%
Crude rate/100,000 population	2.3	0.8	1.5	0.7	0.2	0.4
Adjusted rate (direct)	2.3	0.7	1.5	0.7	0.2	0.4
Rate ratio*	1.51	0.49		1.55	0.47	
Mean YPLL <75years	35	26	32	28	28	28

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

The left-hand panel of Table 2.5.8 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 2.5.8 is based on cases selected according to the narrower criteria used in reports for deaths before 2003–04 (UCoD X45–X49). Adoption of the wider criteria has a large effect on this topic, increasing case numbers by 341%. About half of the additional cases included by the wider criteria involved poisoning by alcohol.

2.5.6.1 Age and sex distribution

Figure 2.5.5 shows age and sex distribution for deaths due to unintentional poisoning by other substances. In 2004–05, males accounted for almost 74% (*n* = 227) of all unintentional poisoning deaths due to other substances. Rates were highest for males aged 25–49 and for males aged 80–84 years. 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 most age groups with females aged 85 years and over recording the highest rate (4.3 deaths per 100,000 population).

Figure 2.5.5: Deaths due to unintentional poisoning by other substances injury by age and sex, Australia 2004–05
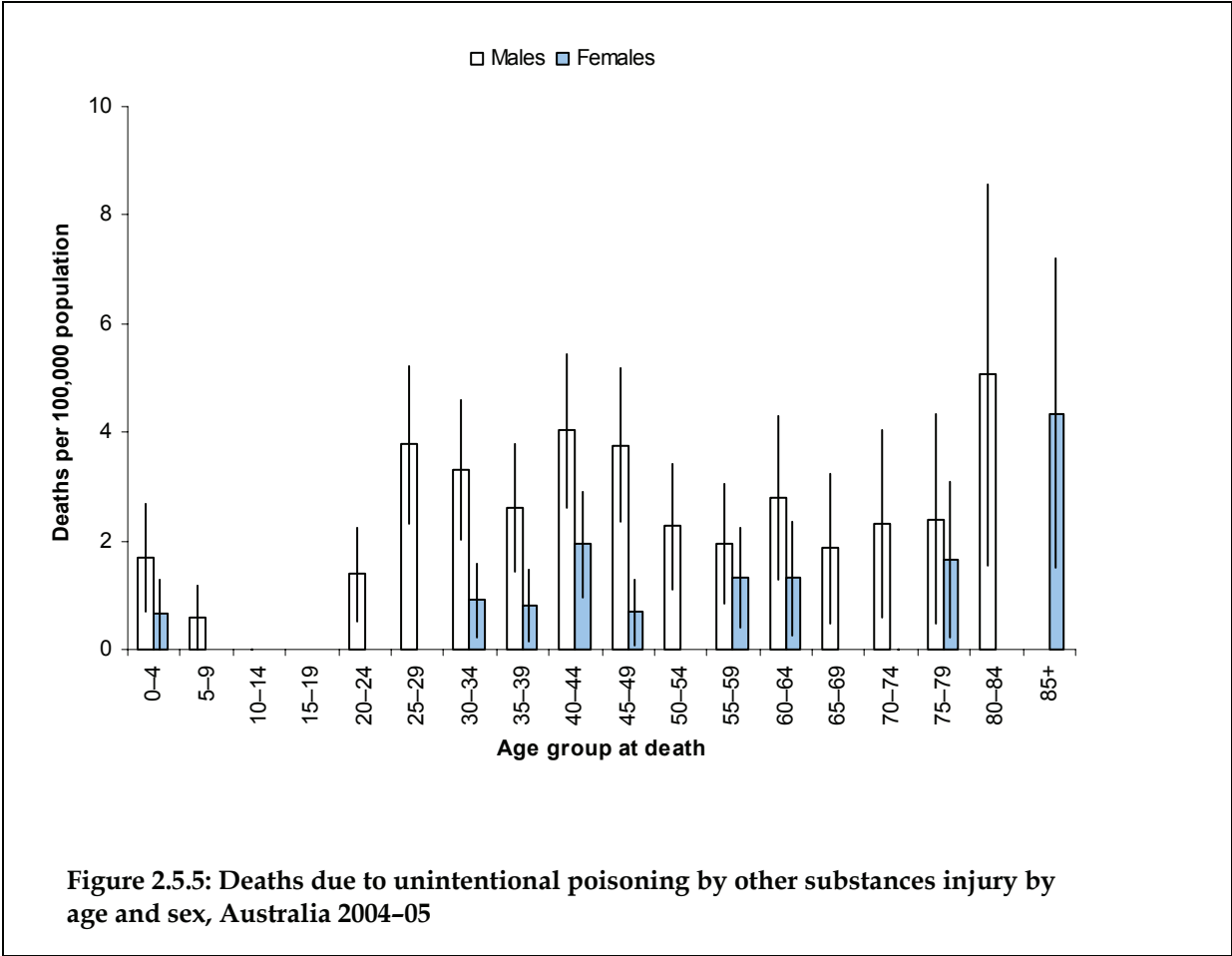
2.5.6.2 Trends in deaths rates

Figure 2.5.6 shows trends in deaths due to Unintentional poisoning by other substances for the period from 1997–98 to 2004–05. 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. There was little change between 2003–04 and 2004–05. It is not yet certain whether trends of this type of case have been affected by the problem discussed in Section 1.2. Rates for males were consistently close to three times those of female rates across the entire period.

Figure 2.5.6: Deaths due to unintentional poisoning by other substances, Australia 1997–98 to 2004–05: age-standardised rates
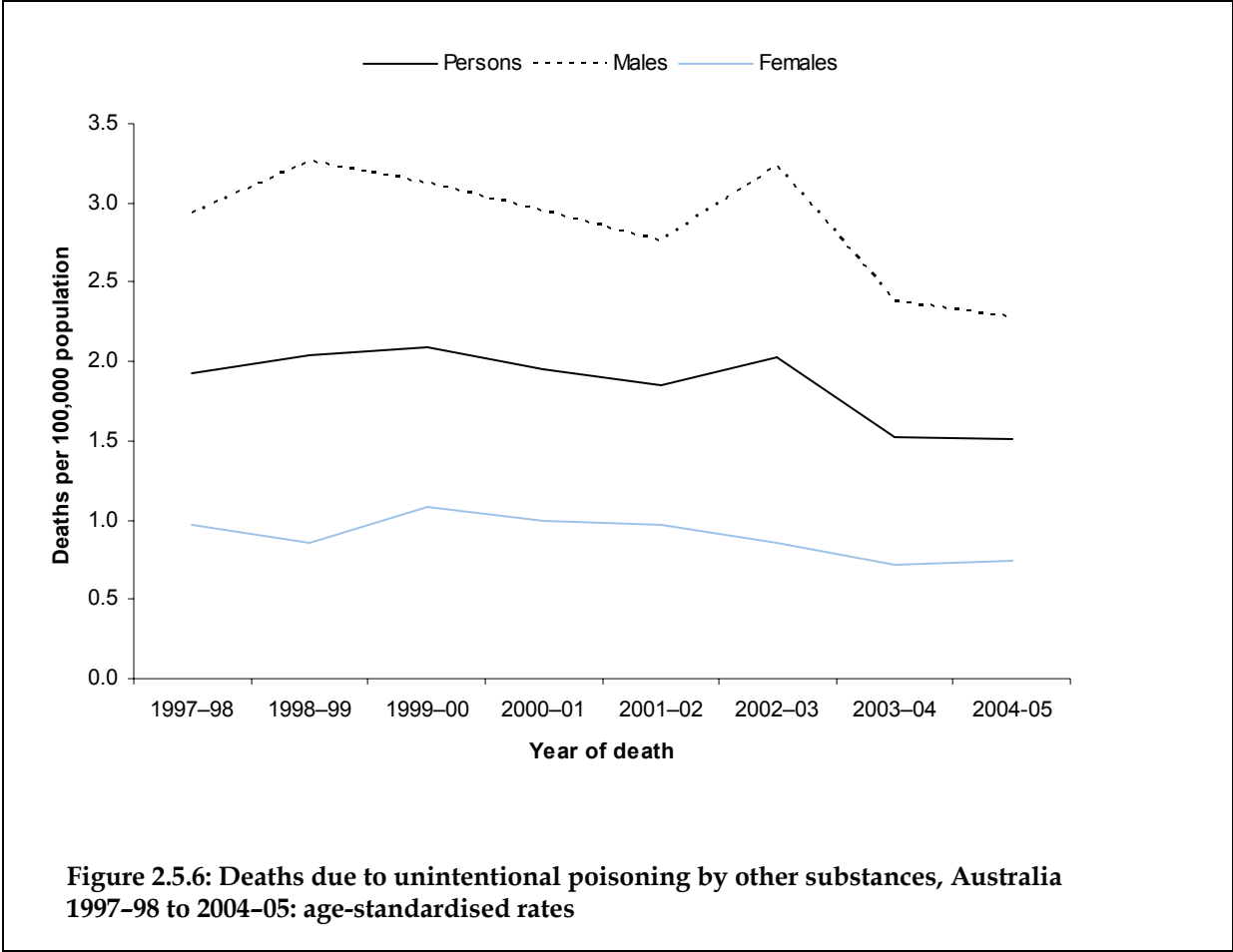
2.5.6.3 State and territory rates

Figure 2.5.7 shows death rates due to unintentional poisoning due to other substances in 2004–05 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 the Northern Territory. Only Queensland recorded a rate which was significantly lower than the national rate. The rate for the Northern Territory (4.9) was more than 3 times the national rate although these outcomes should be interpreted with some caution due to low case numbers. Of the 11 deaths occurring in the Northern Territory, 8 were recorded as being of Aboriginal and/or Torres Strait Islander people.

Figure 2.5.7: Deaths due to unintentional poisoning by other substances injury, states and territories, Australia 2004–05: persons (age-standardised rates)
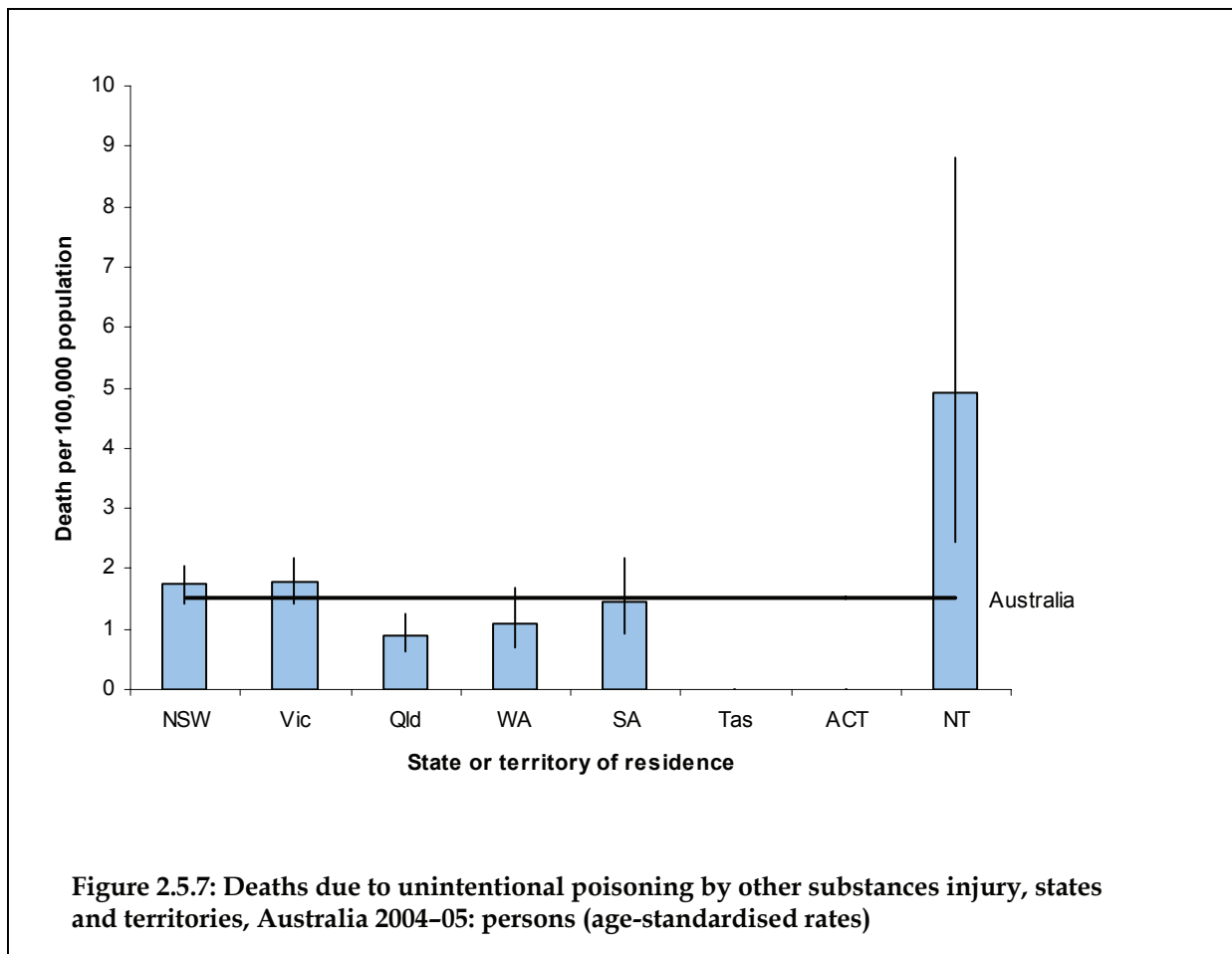
Table 2.5.9: Cases, age-adjusted rates and rate ratios* by state or territory for accidental poisoning by other substances deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	118	91	35	22	23	..	..	11
Adjusted rate (direct)	1.7	1.8	0.9	1.1	1.4	..	..	4.9
Rate ratio*	1.15	1.18	0.60	0.73	0.96	..	..	3.26

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.5.6.4 Remoteness of residence

Figure 2.5.8 shows age-adjusted rates for deaths due to poisoning by other substances occurring in 2004–05 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 (4.6) was just over 3 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 2004–05: persons (age-standardised rates)
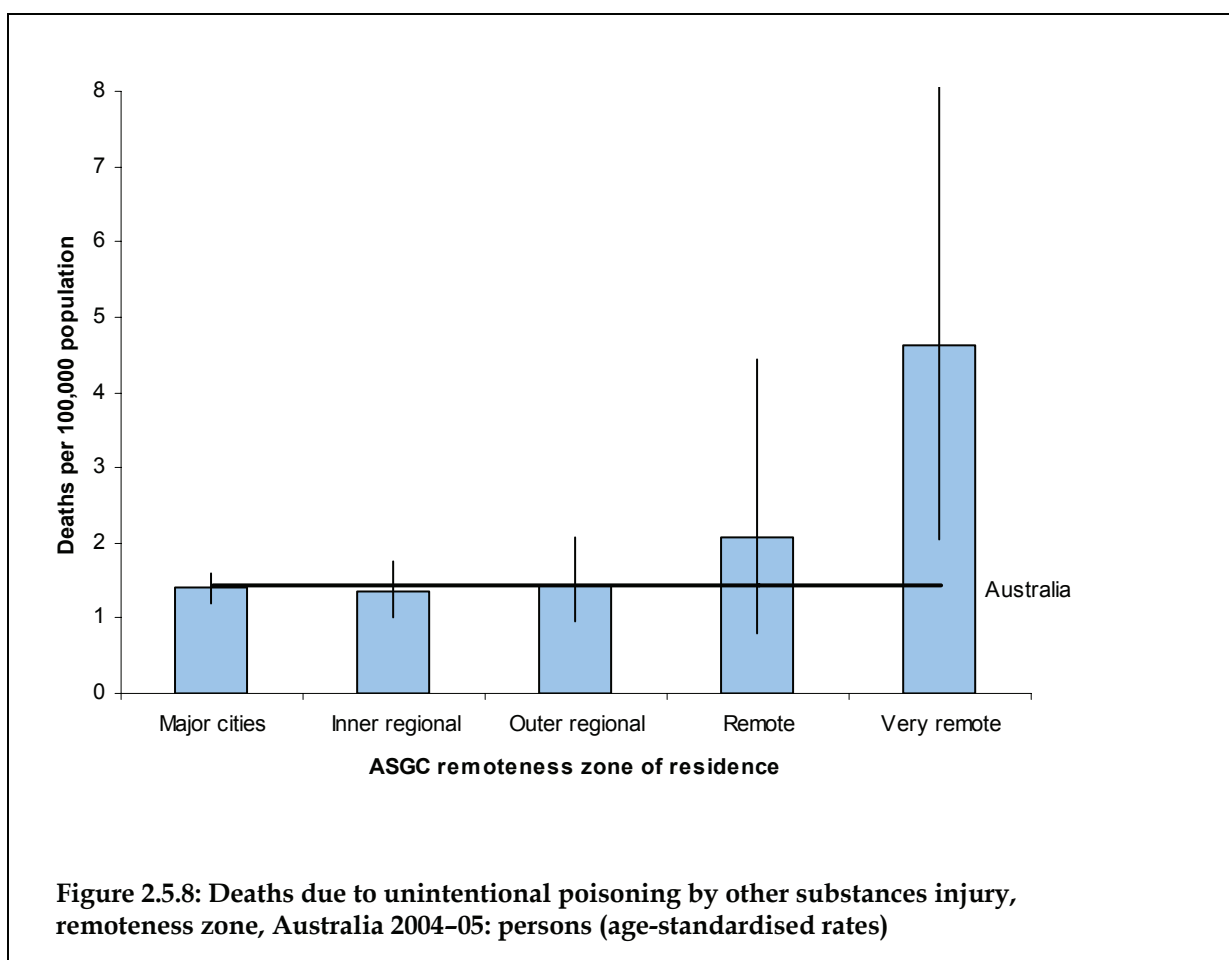
Table 2.5.10: Deaths due to unintentional poisoning by other substances injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	192	57	28	6	8
Adjusted rate (direct)	1.4	1.3	1.4	2.1	4.6
Rate ratio*	0.98	0.94	1.00	1.45	3.22

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

2.5.6.5 Associated factors

Almost 53% (*n* = 162) of the cases were coded to the category T51 *Toxic effect of alcohol* (123 males, 39 females). Just over 72% (*n* = 117) of these cases were in the age range 25–49.

Just over 24% (*n* = 74) of the cases were coded to the category T59 *Toxic effect of other gases, fumes and vapours* (51 males, 23 females) while just over 11% (*n* = 35) of the cases were coded to the category T58 *Toxic effect of carbon monoxide* (27 males, 8 females).

Eight of these 35 cases were known to be associated with exposure to motor vehicle exhaust.

Of the remaining cases, *toxic effect of metals* resulted in 9 deaths, *toxic effect of other inorganic substances* resulted in 5 deaths, *toxic effect of organic solvents*, *toxic effect of corrosive substances*, and *toxic effect of pesticides* resulted in 3 deaths each, *toxic effect of halogen derivatives* and *toxic effect of contact with venomous animals* resulted in 2 deaths each, while *toxic effect of cyanides* and *toxic effect of strychnine and its salts* resulted in one death each. A poisoning agent was not specified in 8 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 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	Females	Persons	Males	Females	Persons
Cases	103	53	156	73	42	115
Percentage of all injury deaths	2%	1%	2%	1%	2%	1%
Crude rate/100,000 population	1.0	0.5	0.8	0.7	0.4	0.6
Adjusted rate (direct)	1.0	0.5	0.8	0.8	0.4	0.6
Rate ratio*	1.38	0.62		1.34	0.67	
Mean YPLL <75years	32	22	28	31	24	29

* 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 reports for deaths before 2003–04 (UCoD V01–V99). Adoption of the wider criteria has a moderate effect on this topic, increasing case numbers by a little over 36%.

2.6.1 Coroners' data

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. However, comparisons of the number of deaths due to unintentional exposure to smoke, fire, flames heat and hot substances obtained using the ABS mortality unit record data collection and the number of deaths estimated using data supplied by the National Coroners Information System (NCIS) produced similar numbers of deaths (Table 2.6.2). This result suggests that the ABS data provides a reasonably accurate estimate of the number of deaths from these causes.

Table 2.6.2: Comparison of deaths due to unintentional exposure to smoke, fire, flames, heat and hot substances using ABS and NCIS data sources, Australia 2004–05

State of registration/ Case state	Males		Females		Persons	
	ABS	NCIS	ABS	NCIS	ABS	NCIS
NSW	37	37	18	19	55	56
VIC	22	25	8	8	30	33
QLD	11	9	..	..	..	..
SA	9	12	8	6	17	18
WA	12	9	..	..	..	..
TAS	..	..	..	..	..	..
NT	..	..	..	..	..	..
ACT	0	..	0	..	0	..
Total	**97**	**99**	**45**	**44**	**142***	**143**

Excludes 14 cases certified by a doctor (m=6, f=8).

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

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 double the equivalent female rate. Rates were highest in the older age groups.

Figure 2.6.1: Deaths due to unintentional exposure to smoke, fire, flames, heat and hot substances injury by age and sex, Australia 2004–05
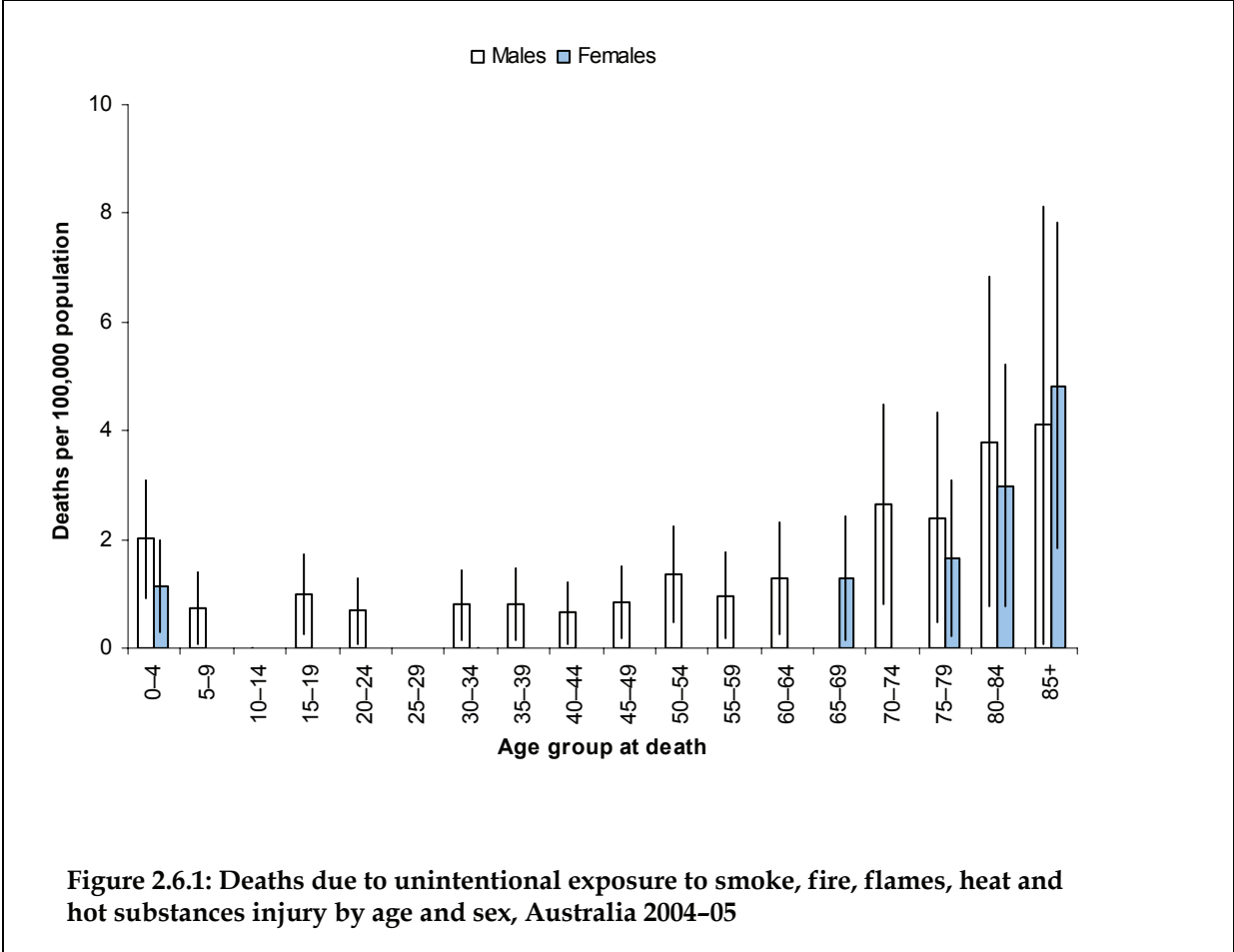
2.6.3 Trends in death rates

Males had consistently higher rates of deaths than females due to exposure to smoke, fire, flames, heat and hot substances in all years during the period 1997–98 to 2004–05. Rates peaked slightly in 1998–99 and 2002–03, but were fairly constant over the entire period.

Note: Due to the data problem outlined in Section 2.2.8, the recent downward trend shown in the above chart for 2004–05 may, in part, be due to a significant underestimation of the true rates for this period.

Figure 2.6.2: Deaths due to unintentional exposure to smoke, fire, flames, heat and hot substances, Australia 1997–98 to 2004–05: age-standardised rates
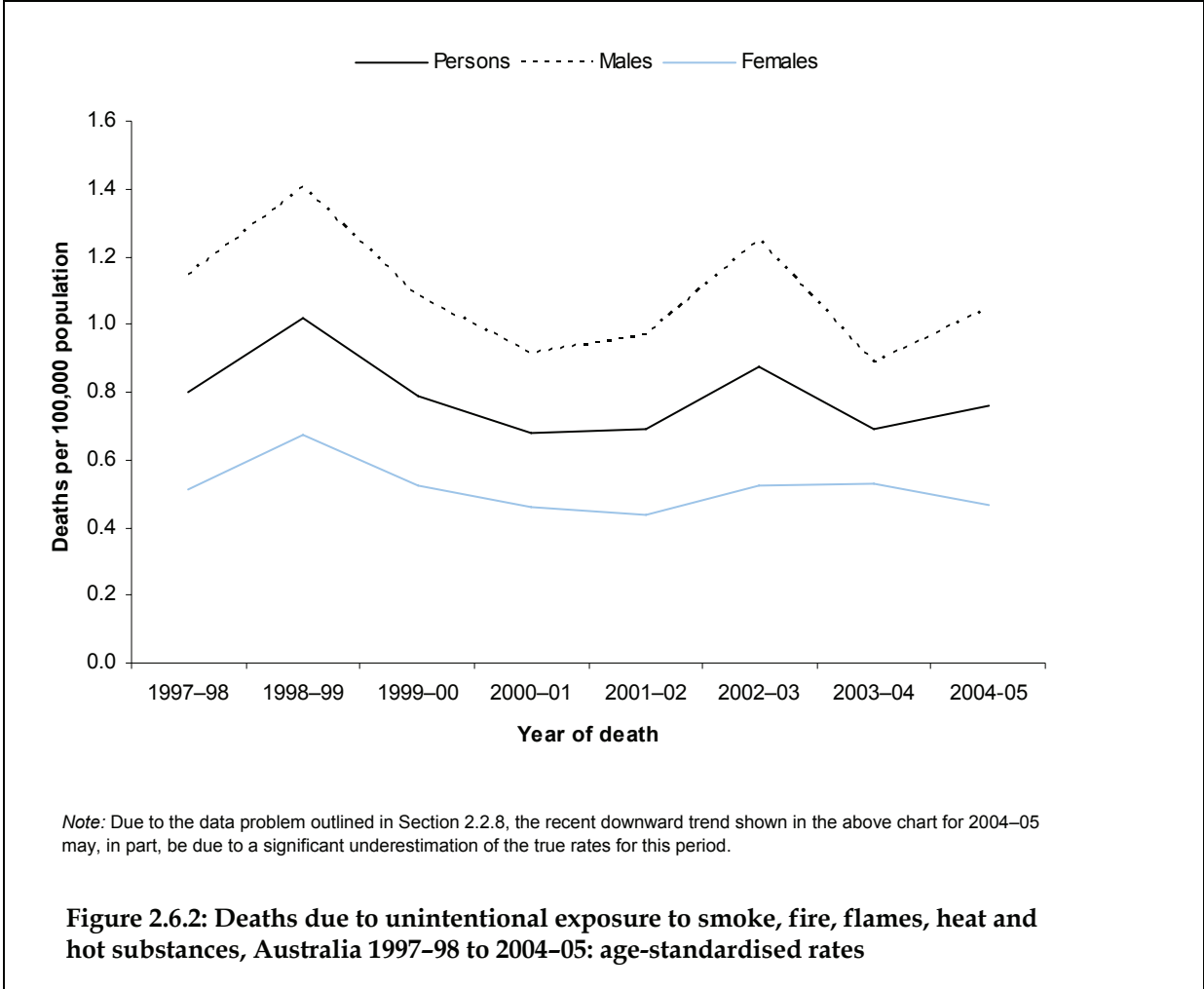
2.6.4 State and territory rates

The age-adjusted rates of deaths due to exposure to smoke, fire, flames, heat and hot substances for all jurisdictions did not differ significantly from the national rate of 0.76 deaths per 100,000 population. The death rates for Tasmania, the Australian Capital Territory and the Northern Territory have been suppressed (see note to Table 2.6.3).

Note: Rates derived from 5 cases or fewer have been suppressed to protect confidentiality

Figure 2.6.3: Deaths due to unintentional exposure to smoke, fire, flames, heat and hot substances injury, states and territories, Australia 2004–05: persons (age-standardised rates)
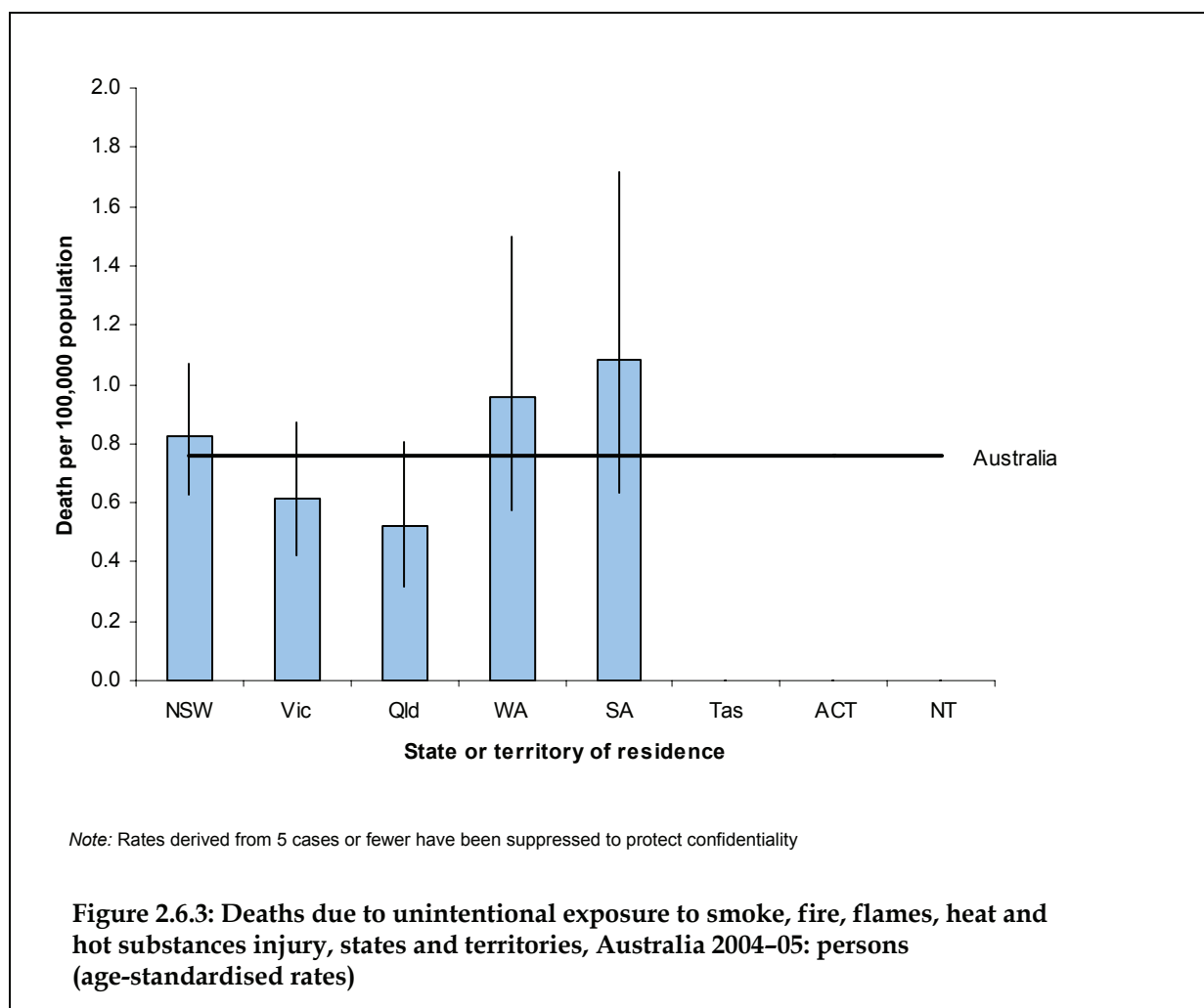
Table 2.6.3: Cases, age-adjusted rates and rate ratios* by state or territory for accidental exposure to smoke, fire, flames, heat and hot substances deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	57	32	20	19	18	..	..	..
Adjusted rate (direct)	0.8	0.6	0.5	1.0	1.1	..	..	..
Rate ratio*	1.09	0.81	0.69	1.26	1.43	..	..	..

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

.. Cell counts in tables that are 5 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 were generally higher for residents of the mote remote locations. The age-adjusted rate for Remote and Very remote areas were 10 and 7.6 times that of the age-adjusted rate for Major cities respectively. Rates for all zones, with the exception of Inner regional and Outer regional, differed at a statistically significant level from the rate for Australia as a whole (0.74 deaths per 100,000 population).

Figure 2.6.4: Deaths due to unintentional exposure to smoke, fire, flames, heat and hot substances injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
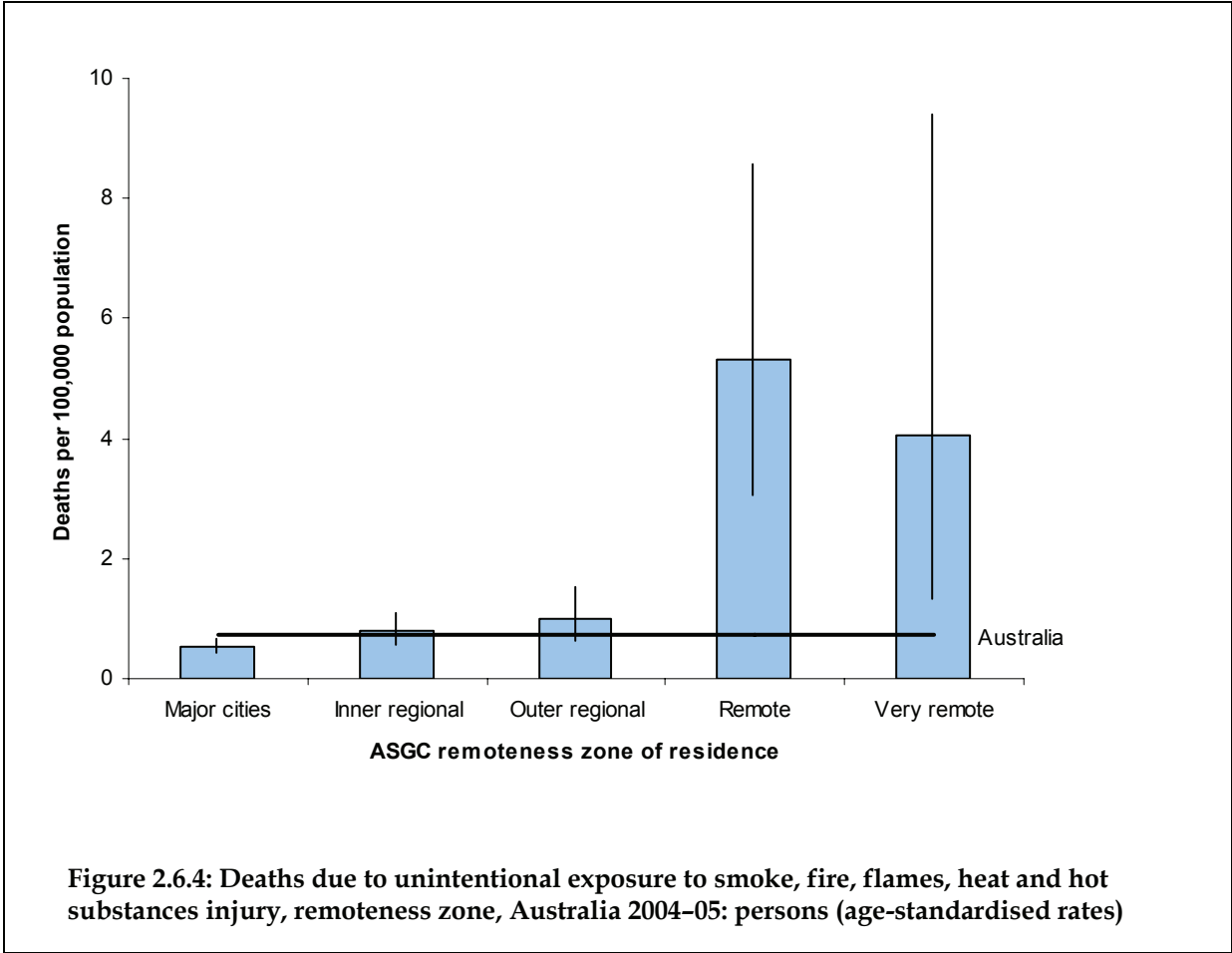
Table 2.6.4: Cases, age-adjusted rates and rate ratios* by remoteness zone for accidental exposure to smoke, fire, flames, heat and hot substances deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	73	36	21	17	6
Adjusted rate (direct)	0.5	0.8	1.0	5.3	4.0
Rate ratio*	0.72	1.07	1.36	7.18	5.46

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

2.6.6 Nature and body region of injury

There were 82 deaths where a burn injury was specified. For 67 (82%) of these cases, the affected body part was not specified. 29 (35%) of these cases received a code indicating that burns had been classified according to the extent of the body surface involved. In 25 (86%) of the latter group, burns had involved 90% or more of the body surface.

61 (39%) 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

58 (37%) of deaths in this category were due to exposure to a fire inside a building or structure.

Table 2.6.5: Deaths as the result of unintentional exposure to smoke, fire, flames, heat and hot substances, Australia 2004–05

Major mechanism	Persons	
	Cases	Percentage of total deaths in this category
Controlled or uncontrolled fire in a building or structure	58	37
Controlled or uncontrolled fire not in a building or structure	7	4
Exposure to ignition of highly flammable material	6	4
Exposure to ignition or melting of nightwear or other clothing	11	7
Exposure to other specified or unspecified smoke, fire and flames	37	24
Contact with hot drinks, food, tap water and other fluids	6	4
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 and unspecified heat and hot substances	..	..
Total	**156**	

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages 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 2004–05, a total of 2,276 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, and 1,707 such cases have been included
in Chapter 2.3. The remaining 569 cases with X59 as a MCoD (but not accompanied by a
fracture code as a MCoD) are included 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 2004–05**

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	1,162	661	1,823	704	290	994
Percentage of all injury deaths	19%	18%	19%	13%	11%	13%
Crude rate/100,000 population	11.6	6.5	9.0	7.0	2.9	4.9
Adjusted rate (direct)	12.4	5.4	8.7	7.3	2.5	4.8
Rate ratio*	1.43	0.63		1.53	0.52	
Mean YPLL <75years	18	10	15	26	18	24

* 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
reports for deaths before 2003–04, as defined in the second of the definitions given at the top
of the page. Adoption of the wider criteria has a large effect on this topic, increasing case
numbers by a little over 83%.

2.7.1 Coroners' data

The ICD codes included in this category include several that are likely destinations for misclassified cases. Hanging is the most common means of suicide, and this category includes the ICD-10 categories for death by this mechanism that are not found to be intentional. The 'Other unintentional' category also includes the 'unintentional' categories for injury by firearms (common among suicide and homicide cases) and injury due to contact with a sharp object (common among homicide cases).

This was confirmed by our assessment, using NCIS data, of cases assigned to this category on the basis of ICD-10 codes (Table 2.7.2). Of the 137 cases which were assigned an ICD-10 code related to unintentional hanging, suffocation and strangulation (i.e. W75–W77), 116 were estimated to be suicide, while for the 48 cases assigned a code related to an unintentional firearms injury (i.e. W32–W34), 20 were estimated to be suicide and 6 estimated to be homicide.

When looking at the 271 cases coded to other and unspecified external causes (i.e. X58–X59), 103 were estimated to be transport-related deaths, 16 estimated both for suicide and homicide and two estimated to be poisoning-related deaths. The high number of transport-related deaths is likely to be a reflection of misclassification among NSW cases as discussed in Section 2.2.2 of this report. Of the 186 coroner-certified cases assigned unintentional external cause codes which were not among the five code ranges listed in Table 2.7.2, only 22 were estimated to have been misclassified.

Table 2.7.2: Estimated number of deaths recorded by the ABS reassigned from unintentional to selected external cause categories, Australia 2004–05

Code range	Description	ABS count*	NCIS count	ABS/ NCIS	Estimated cases (adjusted)				
					Suicides[†]	Homicides[†]	Poisonings[†]	Transport[†]	Corrected count[‡]
W25–W26	Contact with sharp object	21	15	1.40	3	7	0	0	11
W32–W34	Firearm discharge	48	38	1.26	20	6	0	0	21
W75–W77	Hanging, suffocation and strangulation	137	109	1.26	116	0	0	0	21
W78–W80	Inhalation - obstruction of respiratory tract	216	201	1.07	6	0	27	0	183
X58–X59	Other and unspecified external cause	271	231	1.17	16	16	2	103	133
Other		*186*	*141*	*1.32*	*13*	*4*	*1*	*4*	*164*
Total		**879**	**735**		**175**	**34**	**31**	**107**	**533**

* Excludes cases certified by a doctor (m=500, f=444).

[†] Estimated number of cases for these external cause groups was obtained by multiplying the estimated number of cases in the NCIS data obtained by using the method described in Appendix 1, by the correction factor (ABS/NCIS), which allows for cases in the NCIS for which UCoD was not available.

[‡] Corrected count was obtained by subtracting the estimated cases for the listed external cause groups from the ABS count. This is an estimate of cases assignable to these categories after allowing for misclassification.

2.7.2 Overview

The 1,823 unintentional injury deaths included in this group equate to a rate of 8.7 deaths per 100,000 population, and account for 19% of all injury deaths that occurred during 2004–05.

This category covers many types of injury death. Table 2.7.3 below shows the major mechanisms that were responsible for the deaths in this category.

Prominent for their frequency in 2004–05 were I*nhalation and ingestion of gastric contents, food or other objects causing obstruction of respiratory tract* (*n* = 764, 42%), *Unintentional hanging, suffocation or strangling* (*n* = 138, 8%), *Exposure to forces of nature* (*n* = 62, 3%) and *Unintentional discharge of firearms* (*n* = 49, 3%).

Table 2.7.3: Major mechanisms of deaths included in the other unintentional injury category, Australia 2004–05

ICD-10 codes	Mechanism	Count	Per cent
W20–W22	Struck against or struck by object	37	2.0
W23	Caught, crushed, jammed or pinched in or between objects	7	0.4
W24	Contact with lifting and transmission devices, nec	..	..
W25–W26	Contact with sharp object (includes sharp glass, knife, sword or dagger)	21	1.2
W27–W31	Contact with tools or machinery (includes non-powered or powered hand tools, agricultural machinery, powered lawnmower	13	0.7
W32–W34	Unintentional discharge of firearms	49	2.7
W35–W40	Unintentional explosions (includes explosion and rupture of boiler, gas cylinder, pressurised tyre, pipe, hose, firework, and other materials)	..	..
W44–W45	Foreign body entering into or through eye or natural orifice, or through skin	..	..
W49	Exposure to other and unspecified inanimate mechanical forces	6	0.3
W50–W52	Struck by or against another person, or crushed, pushed or steeped on by crowd of people	..	..
W53–W59	Bitten, struck, stung, crushed or contact with mammals, marine animals, insects or reptiles	12	0.7
W75–W77	Unintentional hanging, suffocation and strangling	138	7.6
W78–W80	Inhalation and ingestion of gastric contents, food or other objects causing obstruction of the respiratory tract	764	41.9
W81–W84	Other threats to breathing (includes trapped in a low oxygen environment, asphyxiation, aspiration and suffocation, nec)	22	1.2
W85–W87	Electrocution	29	1.6
W92–W99	Exposure to environmental factors (includes heat or cold of man-made origin and exposure to high and low air pressure)	..	..
X20–X29	Contact with venomous animals and plants	..	..
X30–X39	Exposure to forces of nature (includes natural heat or cold, lightning, earthquake, flood, avalanche or landslide)	62	3.4
X50–X57	Overexertion, travel and privation	..	..
X58–X59[**]	Exposure to other or unspecified factors	565	31.0
Y85–Y86, Y89.9	Sequelae of transport and other and unspecified external causes	87	4.8
Total		**1,823**[*]	

* 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.

** Excludes X59 accompanied by a Chapter XIX fracture code.

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

2.7.3 Trends in death rates

Figure 2.7.1 shows trends in age-adjusted rates for both commonly misclassified cases and the remainder of other unintentional cases by Underlying Cause of Death (UCoD) code and Multiple Cause of Death (MCoD) codes. Rates for commonly misclassified cases remained steady between 1997–98 and 2001–02 before rising sharply from 2002–03 onwards, suggesting that misclassification of these cases has become an increasing problem from 2003 onwards. In contrast, rates for the remainder of other unintentional cases have shown a mild decline over the period of interest. The reason for this decline is unclear.

Commonly misclassified cases are defined as cases which contain an ICD-10 code in any of the ranges W25–W26, W32–W34, W75–W80 and X58–X59.
Remainder 'Other unintentional' cases are defined as cases which contain any ICD-10 code in an unintentional external cause range other than any of the code ranges stipulated for commonly misclassified cases.

Figure 2.7.1: Deaths due to other unintentional external cause of injury, Australia 1997–98 to 2004–05: age-standardised rates

2.7.4 Major categories of other unintentional deaths

2.7.4.1 Asphyxiation, suffocation or obstruction of the respiratory tract.

The largest group of cases included under the category Other unintentional deaths is that of *Inhalation and ingestion of gastric contents, food or other objects causing obstruction of respiratory tract*. This external cause of injury was responsible for 764 deaths in 2004–05 with 436 (57%) of these cases being male (Table 2.7.4). Cases were concentrated in older age groups with 562 (74%) of deaths due to this cause being persons aged 65 years and over. Almost 72% (*n* = 548) of these cases were certified by a doctor.

As indicated in Table 2.7.2 of this chapter, of the 216 coroner-certified cases, 27 were estimated to be due to accidental poisoning and 6 were estimated to be suicide.

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

| | Certified by | | | |
Mechanism	Coroner	Doctor	Total	Per cent
Inhalation of gastric contents	89	60	149	19.5
Inhalation and ingestion of food causing obstruction of respiratory tract	56	25	81	10.6
Inhalation and ingestion of other objects causing obstruction of respiratory tract	71	463	534	69.9
Total	**216**	**548**	**764**	**100**

2.7.6.2 Unintentional hanging, suffocation or strangling

In 2004–05, 138 persons were coded as dying as the consequence of unintentional hanging, suffocation or strangling. Cases most commonly involved males (*n* = 110, 80%) and were most common between the ages 15–49 (*n* = 108, 78%).

12 (9%) cases received a code for a neck injury and one case had a code for a thorax injury.

3 (2%) deaths in this group were the result of suffocation or strangulation in bed and 1 death resulted from a threat to breathing due to a cave-in, falling earth or other substances. The remaining 134 (97%) deaths were coded to Other accidental hanging and strangulation.

As indicated in Table 2.7.2 of this chapter, of the 137 coroner-certified cases, 116 were estimated to be due to suicide.

2.7.6.3 Unintentional discharge of a firearm

According to the ABS data on deaths during 2004–05, 49 persons died as the result of an unintentional discharge of a firearm, with the majority of these deaths being males (*n* = 43, 88%). The cases most frequently involved persons aged 20–44 years (*n* = 27, 55%).

8 (16%) deaths involved a rifle, shotgun or larger firearm, while the remaining 41 (84%) cases fell into the category *Other and unspecified firearms*.

The most common diagnosis was a head injury (*n* = 36, 73%).

As indicated in Table 2.7.2 of this chapter, of the 48 coroner-certified cases, 20 were estimated to be due to suicide and 6 were estimated to be due to homicide.

2.7.6.4 Exposure to forces of nature

62 persons died in 2004–05 as the result of exposure to forces of nature with 33 (53%) of these cases being female. 38 (61%) of these cases were aged 65 years and over, with 24 (39%) aged 85 years and over.

48 (77%) cases were due to exposure to excessive natural cold and 10 (16%) to exposure to excessive natural heat. The most commonly coded diagnoses were hypothermia (76%) and heatstroke and sunstroke (11%).

Part B: Intentional injuries

2.8 Suicide deaths, Australia

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. For this reason, comparisons were made between the number of suicides obtained using the ABS mortality unit record data collection and the number of suicides obtained using data supplied by the National Coroners Information System (NCIS). More detailed information on suicide data for deaths in 2004 has been published elsewhere (Harrison et al. 2009)

2.8.1 Case selection criteria for data sources

ABS data

Multiple Cause of Death: S00–T75, T79 and X60–X84, Y87.0; or

Underlying Cause of Death: X60–X84, Y87.0

Undetermined intent cases (Y10–Y34) were not included in this chapter. ABS data include 94 injury deaths in 2004–05 with a UCoD in this range. See Appendix 1 for notes concerning this group of cases.

Coroners' data

Selection based upon criteria outlined in Table A1.6 of this report.

2.8.2 Comparison of data sources

Overview

Using data provided by the NCIS produced a significantly higher estimate of suicides when compared to data provided by the ABS (Table 2.8.1). The NCIS-derived figure of 2,341 deaths was 308 more than ABS-derived figure using Multiple Causes of Death for the period of interest.

Table 2.8.1: Key indicators for suicides by data source, Australia 2004–05

Indicator	NCIS	ABS	
		Multiple Causes of Death	**Underlying Causes of Death**
Cases	2,341	2,033*	2,031
Crude rate/100,000 population	11.5	10.1	10.0
Adjusted rate (direct)	11.5	10.0	10.0

* Includes 11 cases certified by a doctor (m=8, f=3).

State and territory

The recorded number of suicides of 2,022 (excluding 11 cases certified by a doctor) for the ABS data was 16% lower than that estimated using the NCIS (n = 2,341). The estimated number of suicides using NCIS data was higher than that based on ABS mortality data for all jurisdictions. The most marked differences occurred in New South Wales, Queensland and Western Australia.

Table 2.8.2: Comparison of suicides using ABS and NCIS data sources by State of registration/ Case state and sex, Australia 2004–05

State of registration/ Case state	Males		Females		Persons		Difference NCIS-ABS
	ABS	NCIS	ABS	NCIS	ABS	NCIS	
NSW	442	545	111	142	553	687	134
VIC	350	382	116	126	466	508	42
QLD	364	425	85	107	449	532	83
SA	162	171	35	41	197	212	15
WA	160	194	39	45	199	239	40
TAS	62	62	16	17	78	79	1
NT	45	46	9	8	54	55	1
ACT	20	22	6	8	26	30	4
Total	**1,605**	**1,847**	**417**	**494**	**2,022**	**2,341**	**319**

* Excludes 11 cases certified by a doctor (m=8, f=3).

Since data provided by the NCIS appeared to produce a better estimate of the number of suicides, the rest of this chapter, excluding the trends chart (Figure 2.8.2), is based upon data from this source.

2.8.3 Key indicators

Suicides accounted for 30% of all injury deaths for males and 13% of all injury deaths for females (Table 2.8.3). The age-adjusted rate for males of 18.5 deaths per 100,000 population was almost four times that of the female rate.

Table 2.8.3: Key indicators for intentional self-harm deaths, Australia 2004–05

Indicator	Males	Females	Persons
Cases	1,847	494	2,341
Percentage of all injury deaths	30%	13%	24%
Crude rate per 100,000	18.3	4.8	11.5
Adjusted rate (direct)	18.5	4.8	11.5
Rate ratio*	1.61	0.42	
Mean YPLL < 75 years	32	31	32

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

2.8.4 Age and sex distribution

Males recorded significantly higher rates of suicide than females in all age groups except for children aged 10–14 (Figure 2.8.1). The overall male age-adjusted rate of 18.5 deaths per 100,000 population in 2004–05 was almost 4 times the female rate of 4.8. The excess of male rates over female rates was greatest for young and middle-aged adults aged 20–54, and in those aged 70 years and over. Males aged 20–54 years accounted for 57% (*n* = 1,344) of all deaths in this group.

Figure 2.8.1: Deaths due to intentional self-harm (suicide) injury by age and sex, Australia 2004–05
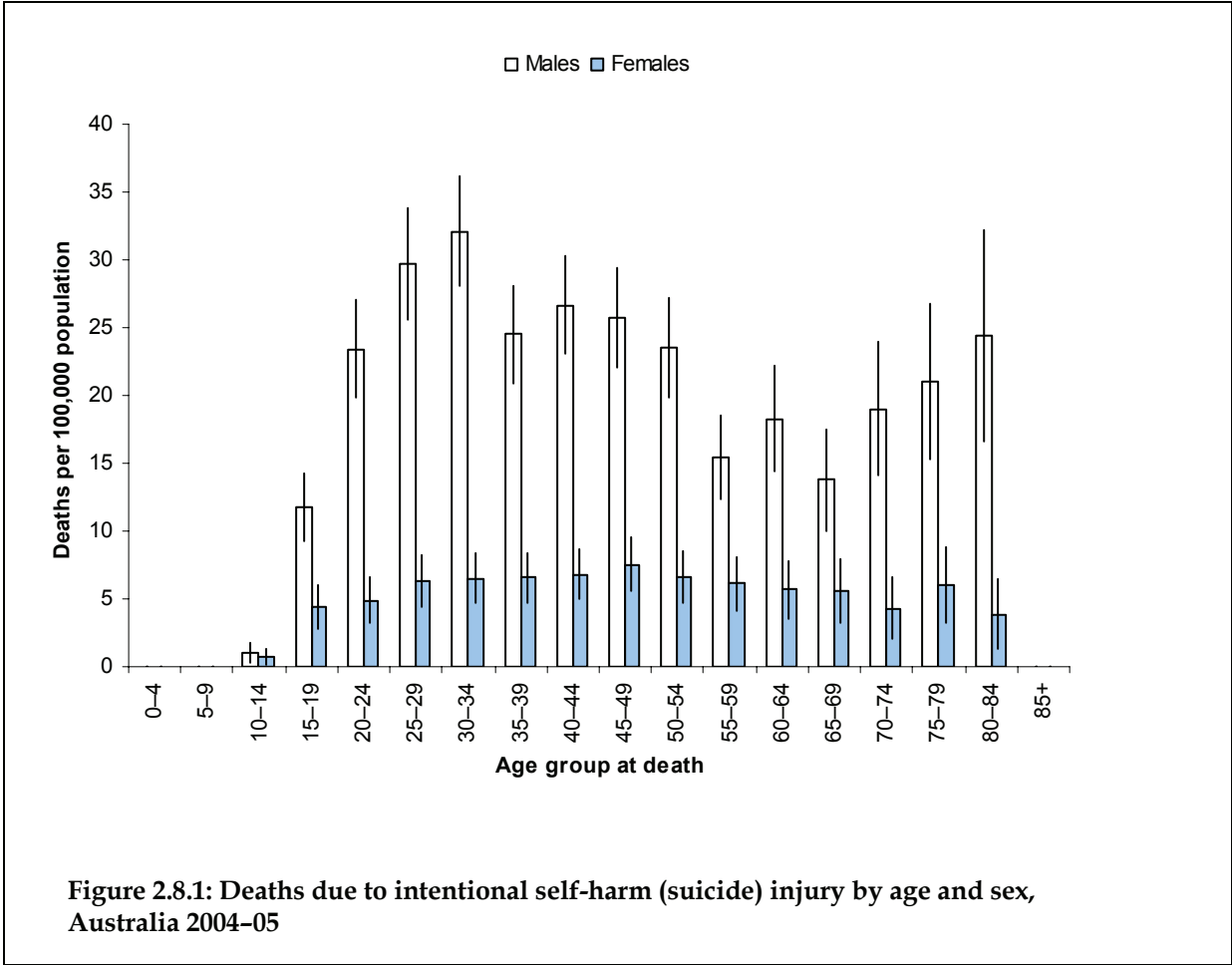
2.8.5 Trends in death rates

Overall, there was a downward trend in the ABS-derived age-adjusted suicide rate for persons between 1997–98 and 2004–05 (Figure 2.8.2). The rate over this period fell from 15.1 to 10.0 deaths per 100,000 population, representing a decrease of 34%. Over the reported period, the male rate fell by 34% from 24.5 to 16.2 deaths per 100,000 population, while the female rate fell by 32% from 6.0 to 4.6 deaths per 100,000 population.

NCIS-derived age-adjusted rates are shown for 2004–05. Using these rates suggests that age-adjusted rates for persons fell by an estimated 24% (compared to 34% using ABS data) during the period charted.

Figure 2.8.2: Deaths due to intentional self-harm (suicide), Australia 1997–98 to 2004–05: age-standardised rates
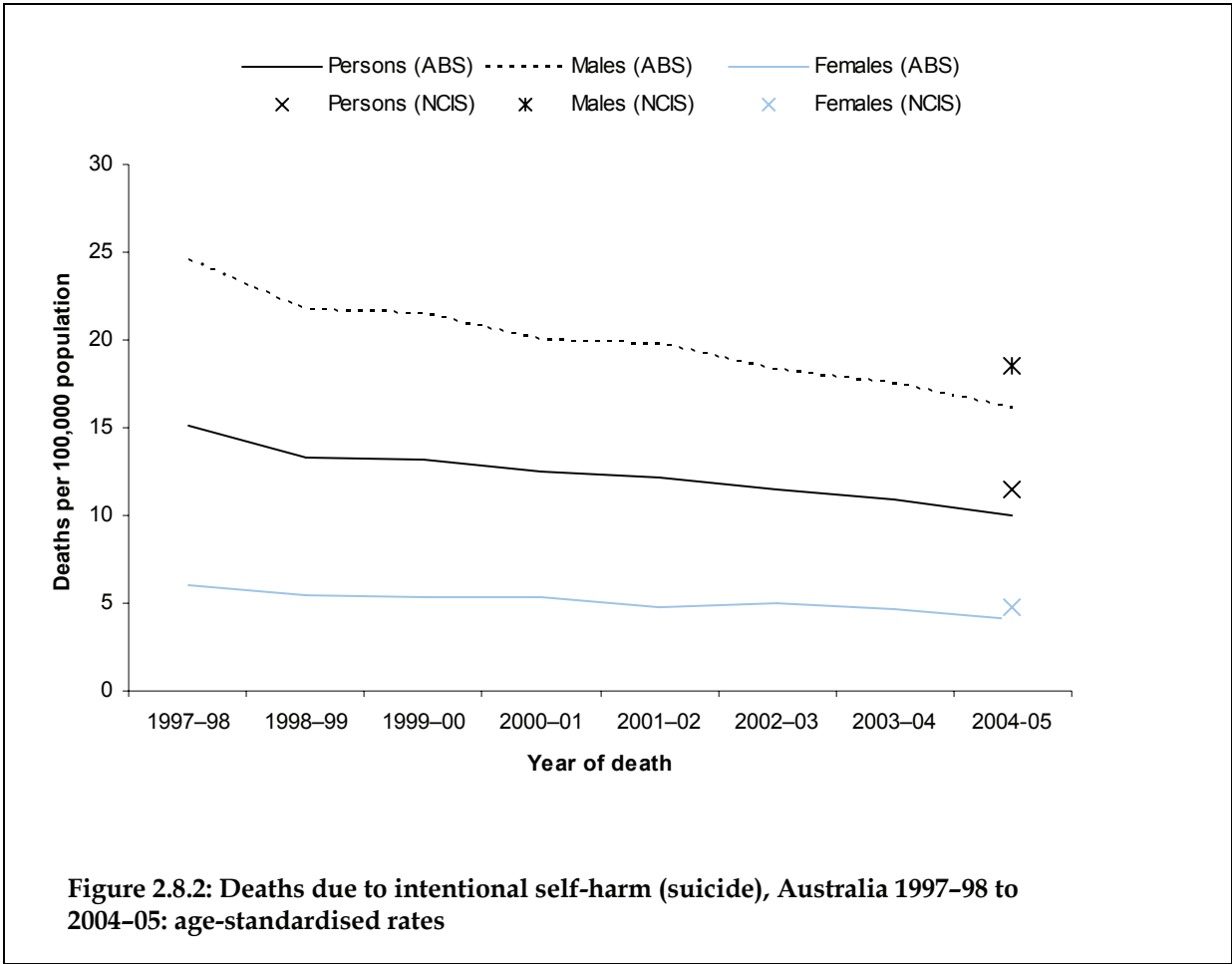
2.8.6 State and territory rates

Age-adjusted rates for New South Wales, Victoria, and the Australian Capital Territory were lower than the national rate of 11.5 deaths per 100,000 population (Figure 2.8.3 and Table 2.8.4), although only New South Wales and Victoria recorded rates which were significantly lower. Queensland (13.6) and South Australia (13.4) recorded rates moderately above, although significant from, the national rate. The Northern Territory recorded the highest rate of 24.9, which was more than double the national rate, while the rate for Tasmania of 16.5 was over 40% higher than the national rate.

Figure 2.8.3: Deaths due to intentional self-harm (suicide) injury, states and territories, Australia 2004–05: persons (age-standardised rates)
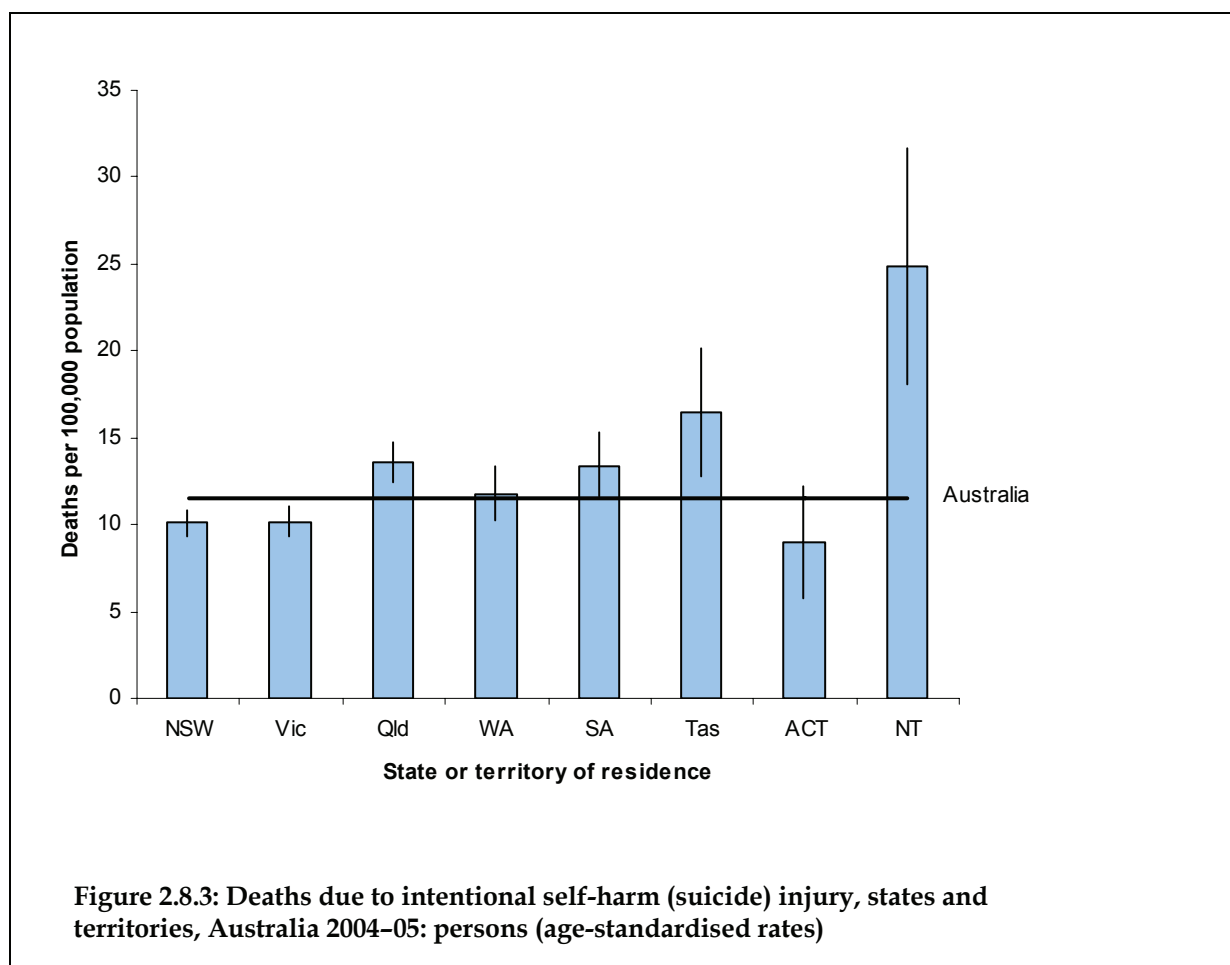
Table 2.8.4: Cases, age-adjusted rates and rate ratios* by state or territory for intentional self-harm (suicide) deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	684	514	533	236	208	79	30	54
Adjusted rate (direct)	10.1	10.1	13.6	11.8	13.4	16.5	9.0	24.9
Rate ratio*	0.88	0.88	1.18	1.03	1.17	1.43	0.78	2.17

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

2.8.7 Remoteness of residence

Major cities was the only remoteness zone to record an age-adjusted rate lower than the national rate of 11.5 deaths per 100,000 population (Figure 2.8.4 and Table 2.8.5). Inner regional, Outer regional and Remote zones all recorded rates that were moderately higher than the national rate, although the rates for the Inner Regional zones were not significantly higher. The rate for the Very remote zone of 27.4 was more than 2.4 times greater than the national rate.

Figure 2.8.4: Deaths due to intentional self-harm (suicide) injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
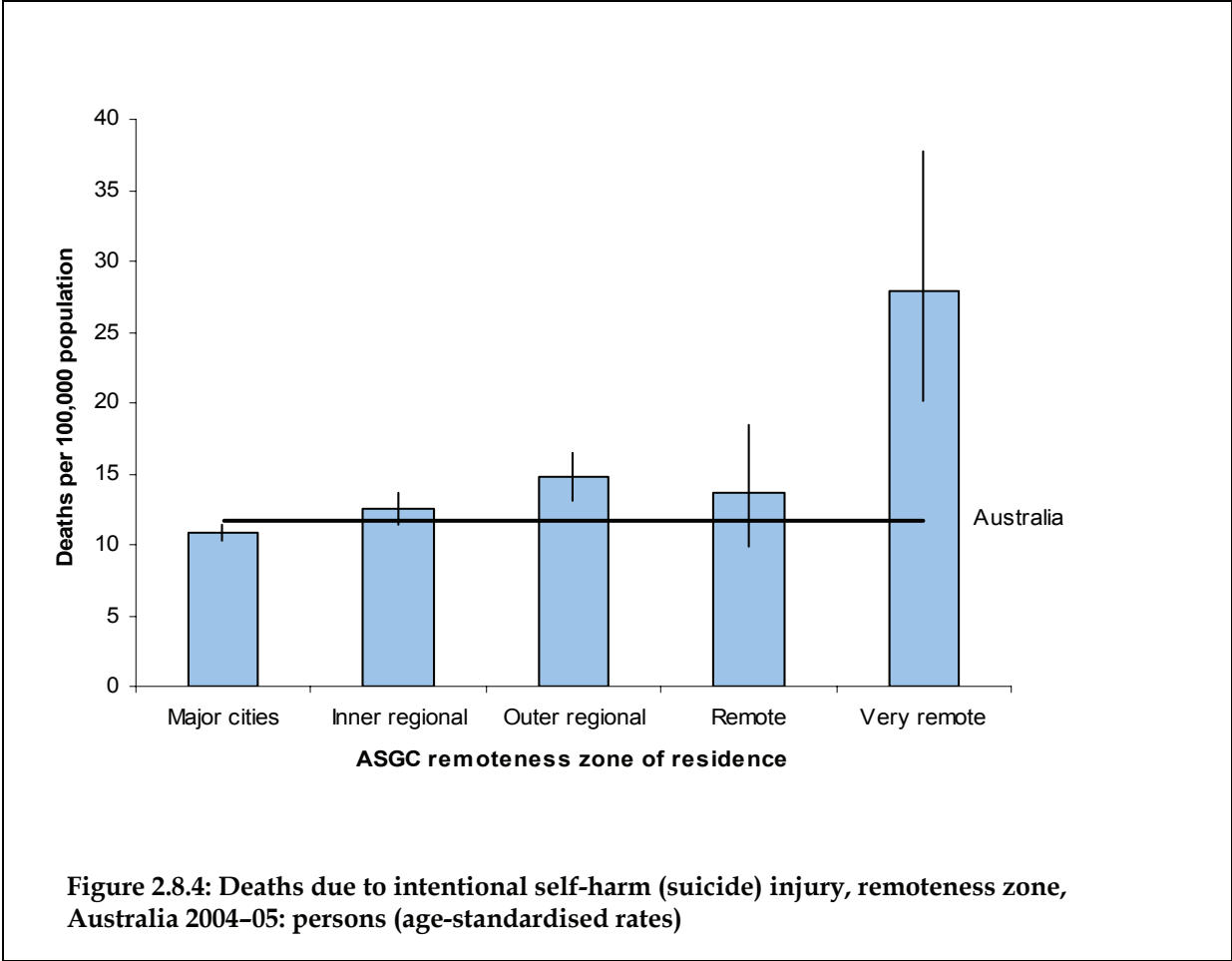
Table 2.8.5: Cases, age-adjusted rates and rate ratios* by remoteness zone for intentional self-harm (suicide) deaths, Australia 2004–05

	Major cities	Inner regional	Outer regional	Remote	Very remote
Cases	1,438	498	286	43	45
Adjusted rate (direct)	10.5	12.1	14.5	14.1	27.4
Rate ratio*	0.93	1.06	1.27	1.24	2.41

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

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2.8.8 Nature and bodily region of injury

By far the most common nature of injury in cases of suicide was asphyxiation
($n = 1,121$; 48%) (Table 2.8.6). In terms of bodily region of injury , 9% ($n = 204$) of suicide
cases sustained a head injury, while 8% of cases ($n = 191$) sustained injuries to multiple body
regions.

Table 2.8.6: Nature and bodily region of injury for suicides, Australia 2004–05

Nature and bodily region of injury	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Head injury (S00–S09)	182	9.9	22	4.5	204	8.7
Intracranial (S06)	58	3.1	22	4.5	80	3.4
Fracture (S*2, T02, T08, T10, T12, T14.2)	15	0.8	..	..	..	..
Injuries of the neck (S10–S19)	114	6.2	15	3.0	129	5.5
Injuries of the thorax (S20–S29)	45	2.4	9	1.8	54	2.3
Injuries to the upper limbs (S40–S69)	20	1.1	..	..	..	..
Injuries involving multiple body regions (T00–T07)	137	7.4	54	10.9	191	8.2
Burns (T20–T31)	15	0.8	8	1.6	23	1.0
Asphyxiation (T71)	929	50.3	192	38.9	1,121	47.9
All suicides	**1,847**		**494**		**2,341**	

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect
confidentiality.

2.8.9 Associated factors

2.8.9.1 Mechanisms of suicide

The most frequently recorded mechanism of suicide was hanging, strangulation and suffocation which accounted for 49% (*n* = 1,140) of deaths (Table 2.8.7). Males were more likely to use this method, which accounted for 51% (*n* = 942) of cases, compared to only 40% (*n* = 198) of female cases. An examination of the mechanism of suicide field in NCIS suggested that the vast majority of these deaths (approx. 90%) were due to hanging, with only small proportions attributable to either strangulation or suffocation.

The second most frequently recorded type of suicide method was poisoning, which accounted for 762 (33%) of suicides. Females were almost 1.5 times more likely to die from this method.

In 178 (8%) cases of suicide, a firearm was the mechanism of death. Males were almost 3.8 times more likely to die from this method.

Table 2.8.7: Mechanism of suicide, Australia 2004–05

Mechanism of suicide	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Hanging, strangulation and suffocation	942	51.0	198	40.1	1,140	48.7
Poisoning	549	29.7	213	43.1	762	32.6
Firearms	166	9.0	12	2.4	178	7.6
Jumping from a high place, or lying before a moving object	111	6.0	48	9.7	159	6.8
Cutting, piercing and blunt objects	50	2.7	9	1.8	59	2.5
Drowning and submersion	34	1.8	22	4.5	56	2.4
Smoke, fire and flames, and hot substances	22	1.2	10	2.0	32	1.4
Other specified mechanisms	42	2.3	8	1.6	50	2.1
Unspecified mechanisms	16	0.9	..	..	..	..
Crashing of motor vehicle	7	0.4	0	0.0	7	0.3
Total suicides	**1,847**		**494**		**2,341**	

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.

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

Table 2.8.8 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. By far the most common poisoning agent was *Carbon monoxide* which accounted for almost 70% (*n* = 340) of all suicide deaths where the poisoning agent was non-medicinal as to source. In relation to drugs, medicaments and biological substances, the most common poisoning agents leading to death were *Psychotropic drugs, nec* (*n* = 90), *Antieplipetic, sedative-hypnotic and antiparkinsonism drugs* (*n* = 83) and *Narcotics and psychodyleptics [hallucinogens]* (*n* = 71).

Table 2.8.8: Poisoning-related suicide deaths by type of poisoning agent, Australia 2004–05

Poisoning agent	No of deaths	Per cent
Drugs, medicaments and biological substances	*316*	*42.7*
Psychotropic drugs, nec	90	28.5
Antiepileptic, sedative-hypnotic and antiparkinonism drugs	83	26.3
Narcotics and psychodysleptics [hallucinogens]	71	22.5
Nonopioid analgesics, antipyretics and antirheumatics	30	9.5
Drugs primarily systemic and haematological agents	13	4.1
Hormones and their synthetic substitutes and antagonists, nec	9	2.8
Drugs primarily affecting the autonomic nervous system	12	3.8
Other and unspecified drugs, medicaments and biological agents	91	28.8
Substances chiefly non medicinal as to source	*488*	*65.9*
Carbon monoxide	340	69.7
Alcohol	40	8.2
Corrosive substances	..	..
Pesticides	..	..
Other and unspecified substances	29	5.9
Total number of poisoning suicide deaths[*]	**740**	

* 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.

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

2.8.9.2 Age and sex

For suicides due to hanging, males recorded significantly higher rates than females in all age groups from 15–19 years onwards. The overall male age-adjusted rate of 9.4 deaths per 100,000 population in 2004–05 was almost 5 times the female rate of 1.9. Male rates tended to increase from 15–19 years onwards until 30–34 years (19.0) before dropping steadily until 65–69 years. Rates for females displayed much less variance across age groups peaking at 20–24 years (3.3). Those aged 20–39 years accounted for almost 50% of all male deaths and 43% of all female deaths in this group. Males accounted for 83% of all suicides due to hanging.

Rates for male suicides due to poisoning were higher than female rates across all age groups, although not always significantly so. The overall male age-adjusted rate of 5.5 deaths per 100,000 population in 2004–05 was more than 2.7 times the female rate of 2.1. Rates for males were highest for those aged 30–54 years and those age 80–84 years. There was moderate variability for female rates across age groups with those aged 45–49 years experiencing the highest rate of 3.8 deaths per 100,000 population. Those aged 25–54 years accounted for 69% of all male deaths and 63% of all female deaths in this group. Males accounted for 72% of all suicides due to poisoning.

Rates for firearm-related suicide were highest among males aged 40–54 years and those aged 65 and over. The rate for males aged 75–79 years of 6.9 deaths per 100,000 population was more than double the next highest rate of 3.2 for those aged 85 years and over. The overall male rate of 1.7 deaths per 100,000 population was more than 14 times the female rate of 0.12. Males accounted for 93% of all firearm-related suicide due to poisoning.

2.8.9.3 Trends

ABS derived age-adjusted rates fell for suicide due to all major mechanisms over the period 1997–98 to 2004–05: Suicides due to hanging fell by 25%, Poisoning-related suicide by 41%, and firearm-related suicide by 46% (Table 2.8.9).

The figures in brackets represent NCIS derived age-adjusted rates for 2004–05. Using these rates the estimated decreases in rates over the period of interest was 14% for suicide due to hanging, 30% for poisoning-related suicide and 36% for firearm-related suicide.

Table 2.8.9: Deaths due to intentional self-harm (suicide) by major mechanism of death, Australia 1997–98 to 2004–05: age-standardised rates

Mechanism of death	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Suicide due to hanging	6.5	5.7	5.5	5.2	5.5	5.2	5.1	4.9 *(5.6)*
Poisoning-related suicide	5.3	4.6	4.8	4.6	3.8	3.9	3.3	3.1 *(3.7)*
Firearm-related suicide	1.4	1.5	1.3	1.3	1.2	1.0	0.9	0.8 *(0.9)*

2.8.9.4 Remoteness of residence

There was a marked variation in the distribution of rates between remoteness zones according to the mechanism of death (Figure 2.8.5). For suicides due to hanging, rates tended to increase with remoteness, rising from 5.0 deaths per 100,000 population for those living in Major cities to 7.7 for those living in Remote zones. There was a marked jump to a rate of 19.7 for those living in Very remote zones, this rate being almost 4 times that of the rate for Major cities.

Rates for poisoning-related suicides displayed lesser variability between remoteness regions ranging from 2.5 deaths per 100,000 population for Remote zones to 5.4 for Very remote zones. Rates for firearm-related suicides increased with remoteness, rising from 0.4 deaths per 100,000 in Major cities to 5.9 in Very remote zones.

Figure 2.8.5: Deaths due to intentional self-harm (suicide) injury by major mechanism of death by remoteness zone, Australia 2004–05: persons (age-standardised rates)
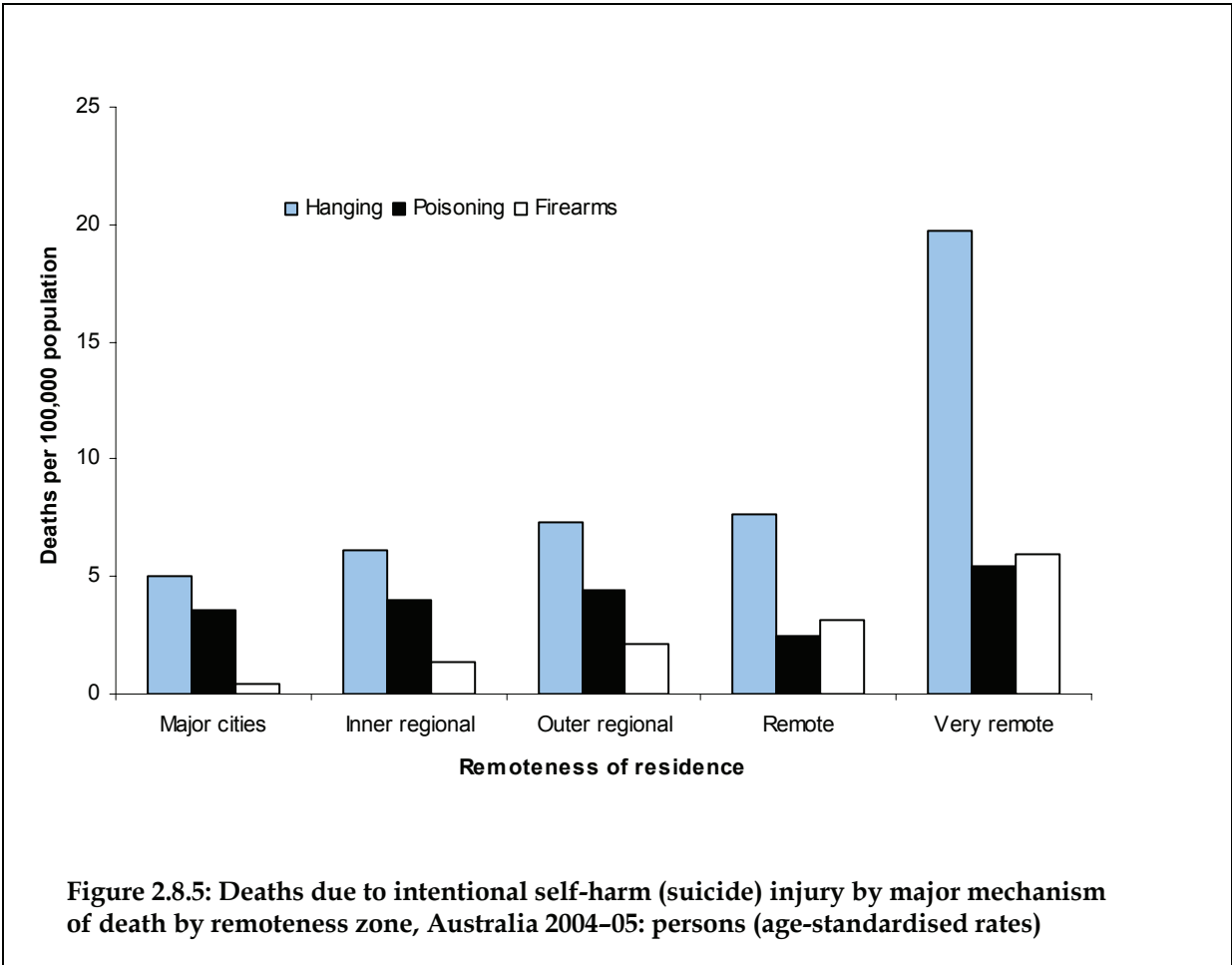
2.9 Homicide deaths, Australia

As explained in Section 1.2 of this report, information from several sources indicate that some estimates of numbers of injury deaths in 2004–05, based on ABS mortality data, are falsely low. The ABS 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 2007a). For this reason, comparisons were made between the number of homicides obtained using the ABS mortality unit record data collection and the number of homicides obtained using data supplied by the National Coroners Information System (NCIS).

2.9.1 Case selection criteria for data sources

ABS data

Multiple Cause of Death: S00–T75, T79 and X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1; or

Underlying Cause of Death: X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1

Coroners' data

Selection based upon criteria outlined in Table A1.7 of this report.

2.9.2 Comparison of data sources

Overview

Using data provided by the NCIS produced a significantly higher estimate of homicides when compared to data provided by the ABS (Table 2.9.1). The NCIS-derived figure of 220 deaths was 47 more than ABS-derived figure using Multiple Causes of Death. However, this estimate was still 47 less than the number of homicides recorded by the Australian Institute of Criminology (AIC) for the period of interest (Mouzos 2006) .

The differences in the number of reported suicides between the ABS and the AIC for 2004–05 were more apparent than in previous years. In 2003–04 the ABS reported 215 homicides, was 41% lower than the 304 homicides reported by the AIC, while in 2002–03 the number of homicides reported by the ABS was 272, 19% lower than the 323 reported by the AIC.

Table 2.9.1: Key indicators for homicides by data source, Australia 2004–05

| | | ABS | | |
Indicator	NCIS	Multiple Causes of Death	Underlying Causes of Death	AIC
Cases	220	173	167	267
Crude rate/100,000 population	1.1	0.9	0.8	1.3
Adjusted rate (direct)	1.1	0.9	0.8	–

State and territory

The estimated number of homicides using the NCIS was higher than the ABS figure for all jurisdictions. The most marked differences were for New South Wales and Western Australia. The number of homicides recorded by the AIC was higher than NCIS estimated figure for all jurisdictions except South Australia . The notable difference of 22 homicide deaths between the number estimated by the NCIS and that reported by the AIC for Queensland may in part be a reflection of the high number of open cases during this period as discussed in Section 2.2.1 of this report.

Table 2.9.2: Comparison of homicides using ABS, NCIS and AIC data sources, Australia 2004–05

State of registration/ Case state	Males			Females			Persons		
	ABS	NCIS	AIC	ABS	NCIS	AIC	ABS	NCIS	AIC
NSW	38	47	55	20	26	26	58	73	81
VIC	26	33	39	9	10	16	35	43	55
QLD	24	23	39	6	10	16	30	33	55
SA	9	14	12	8	10	8	17	24	20
WA	10	16	17	5	9	12	15	25	30[*]
TAS	6	8	8	..	..	..	..	..	..
NT	..	6	7	..	..	..	7	..	..
ACT	0	..	..	0	0	..	0	..	..
Total	**116**	**148**	**178**	**55**	**72**	**87**	**171**[†]	**220**	**267**

* AIC total for WA includes one case of unknown sex.

† Excludes two female cases certified by a doctor.

.. Cell counts in tables that are 5 cases or fewer have been suppressed to protect confidentiality.

Since data provided by the NCIS appeared to produce a better estimate of homicides, the rest of this chapter, excluding the trends chart (Figure 2.9.2), is based upon data from this source.

2.9.3 Key indicators

Homicides accounted for 2% of all injury deaths for both males and females (Table 2.9.3). The age-adjusted rate for males of 1.5 deaths per 100,000 population was almost just over double that of the female rate.

Table 2.9.3: Key indicators for homicide deaths, Australia 2004–05

Indicator	Males	Females	Persons
Cases	148	72	220
Percentage of all injury deaths	2%	2%	2%
Crude rate per 100,000	1.5	0.7	1.1
Adjusted rate (direct)	1.5	0.7	1.1
Rate ratio*	1.36	0.64	
Mean YPLL < 75 years	38	41	39

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

2.9.4 Age and sex distribution

Figure 2.9.1 shows age and sex distribution for deaths due to intentional harm by another person in 2004–05. Persons aged 15–59 accounted for over 79% (*n* = 174) of all deaths. Rates for males were markedly higher than female rates in all age groups within this range.

Note: Rates derived from 5 cases or fewer have been suppressed to protect confidentiality.

Figure 2.9.1: Deaths due to intentional harm by another person injury by age and sex, Australia 2004–05
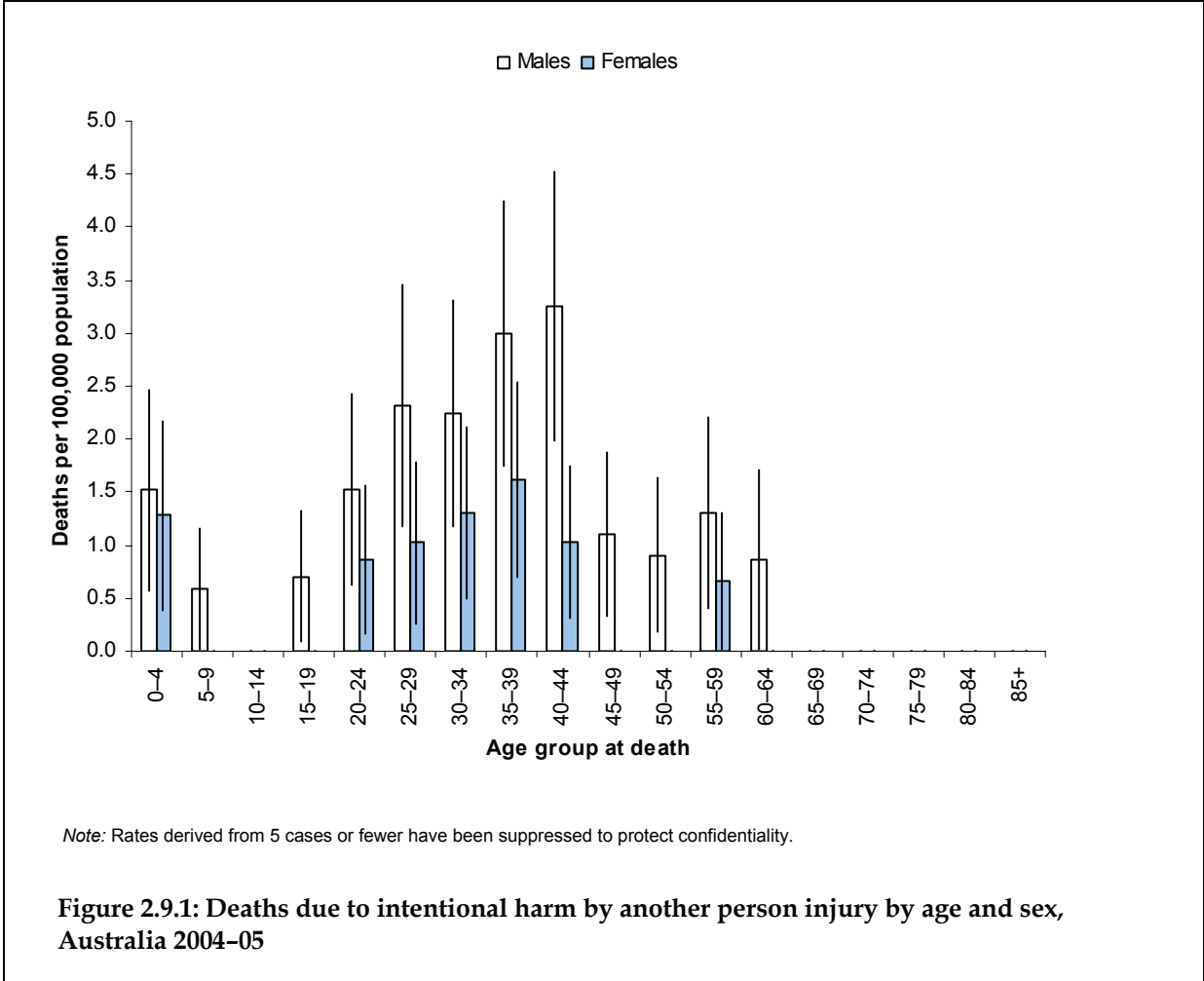
2.9.5 Trends in deaths rates

Figure 2.9.2 shows trends in deaths due to intentional harm by another person for the period from 1997–98 to 2004–05. Overall, there was little change in ABS derived age-adjusted rates from 1997–98 to 2001–02. Between 2001–02 and 2004–05, rates for all persons dropped by 48% from 1.7 deaths per 100,000 population to 0.9 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 the period from 2003 to 2005. Rates for males were consistently more than double those of female rates over the entire period.

NCIS-derived age-adjusted rates are shown for 2004–05. Using these rates suggests that age-adjusted rates for persons fell by an estimated 34% (compared to 48% using ABS data) during the period from 2001–02 to 2004–05.

Note: For reasons outlined at the beginning of this section, the rates shown in the above chart for 2004–05 are likely to be a significant underestimation of the true rates for this period.

Figure 2.9.2: Deaths due to intentional harm by another person, Australia 1997–98 to 2004–05: age-standardised rates
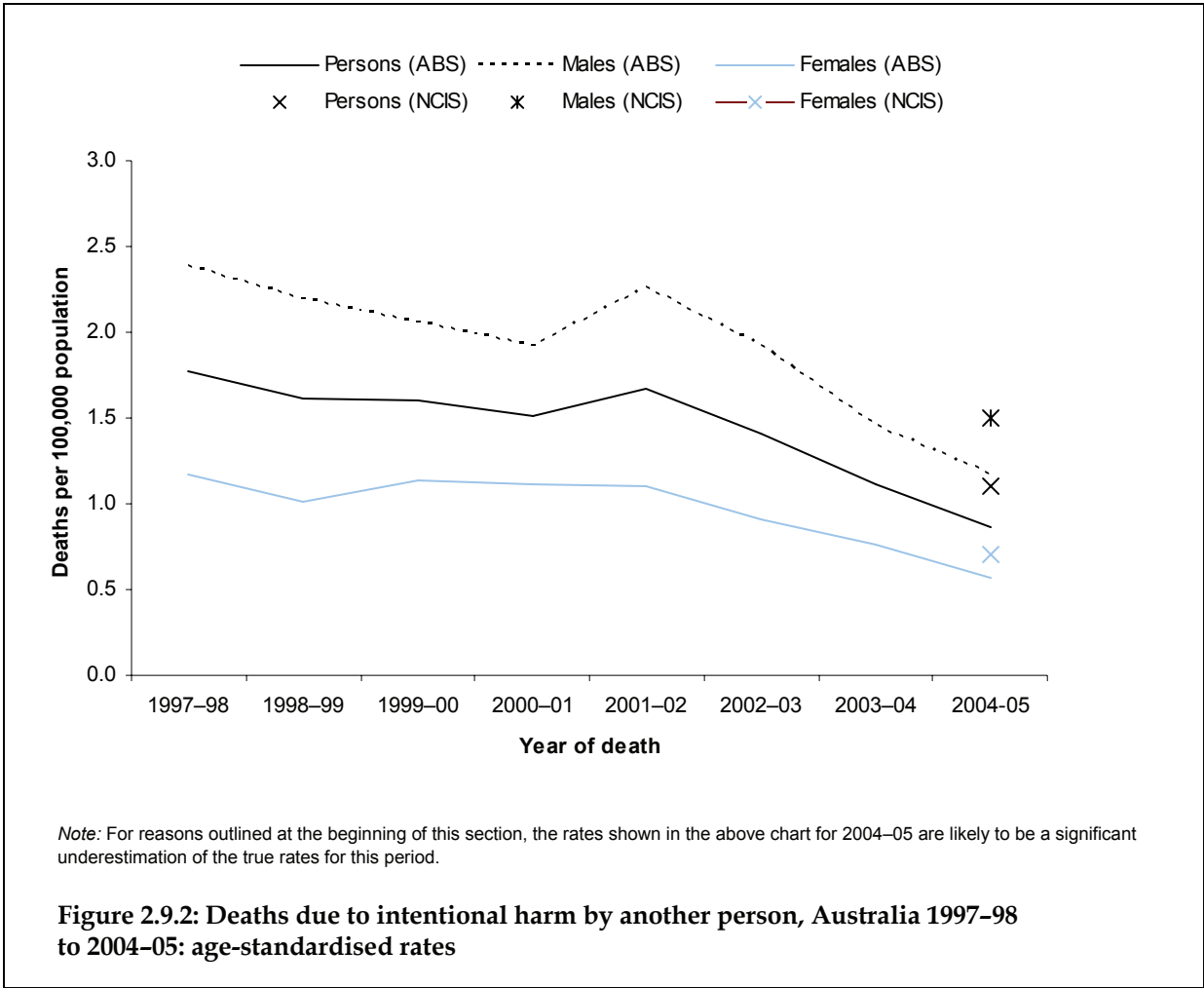
2.9.6 State and territory rates

Figure 2.9.3 shows age-adjusted death rates due to intentional harm by another person in 2004–05 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). Although rate for Tasmania was almost double the national rate, this difference in rates was not significant. The rate for the Northern Territory (4.5) was just over 4 times the national rate.

Figure 2.9.3: Deaths due to intentional harm by another person injury, states and territories, Australia 2004–05: persons (age-standardised rates)
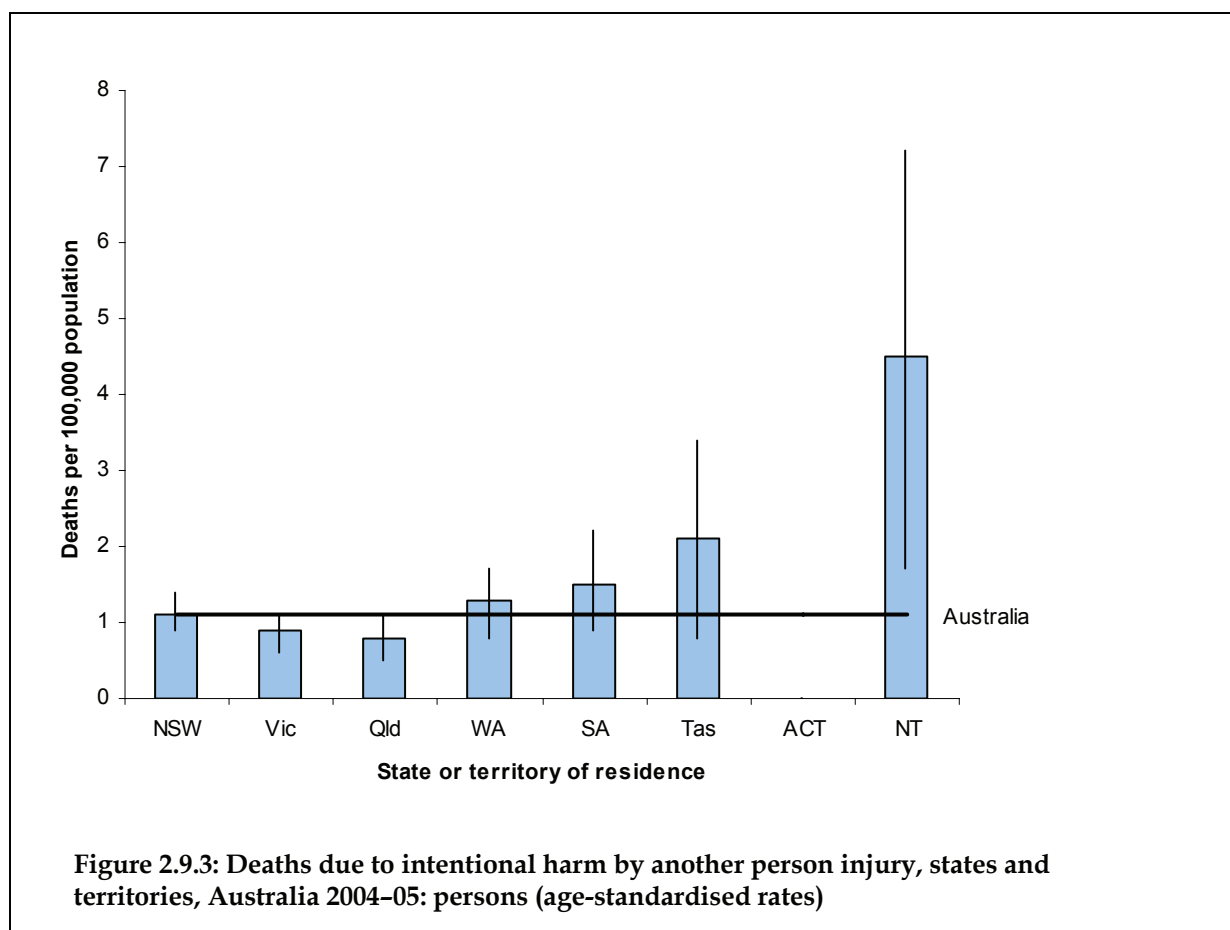
Table 2.9.4: Cases, age-adjusted rates and rate ratios* by state or territory for homicide deaths, Australia 2004–05

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Cases	75	43	33	25	23	10	..	10
Adjusted rate (direct)	1.1	0.9	0.8	1.3	1.5	2.1	..	4.5
Rate ratio*	1.00	0.82	0.73	1.18	1.36	1.91	..	4.09

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

2.9.7 Remoteness of residence

Figure 2.9.4 shows age-adjusted rates for deaths due to intentional harm by another person in 2004–05 by remoteness zone of the person's residence. Rates for Major cities and Inner regional remoteness zones were close to the national rate (1.1 deaths per 100,000 population). The rates for the Outer Regional and Remote zones were 53% and 75% higher than the national rate, although only the rate for the Outer regional zone was significantly different. The rate for the Very remote zone (8.5) was almost 8 times the national rate.

Figure 2.9.4: Deaths due to intentional harm by another person injury, remoteness zone, Australia 2004–05: persons (age-standardised rates)
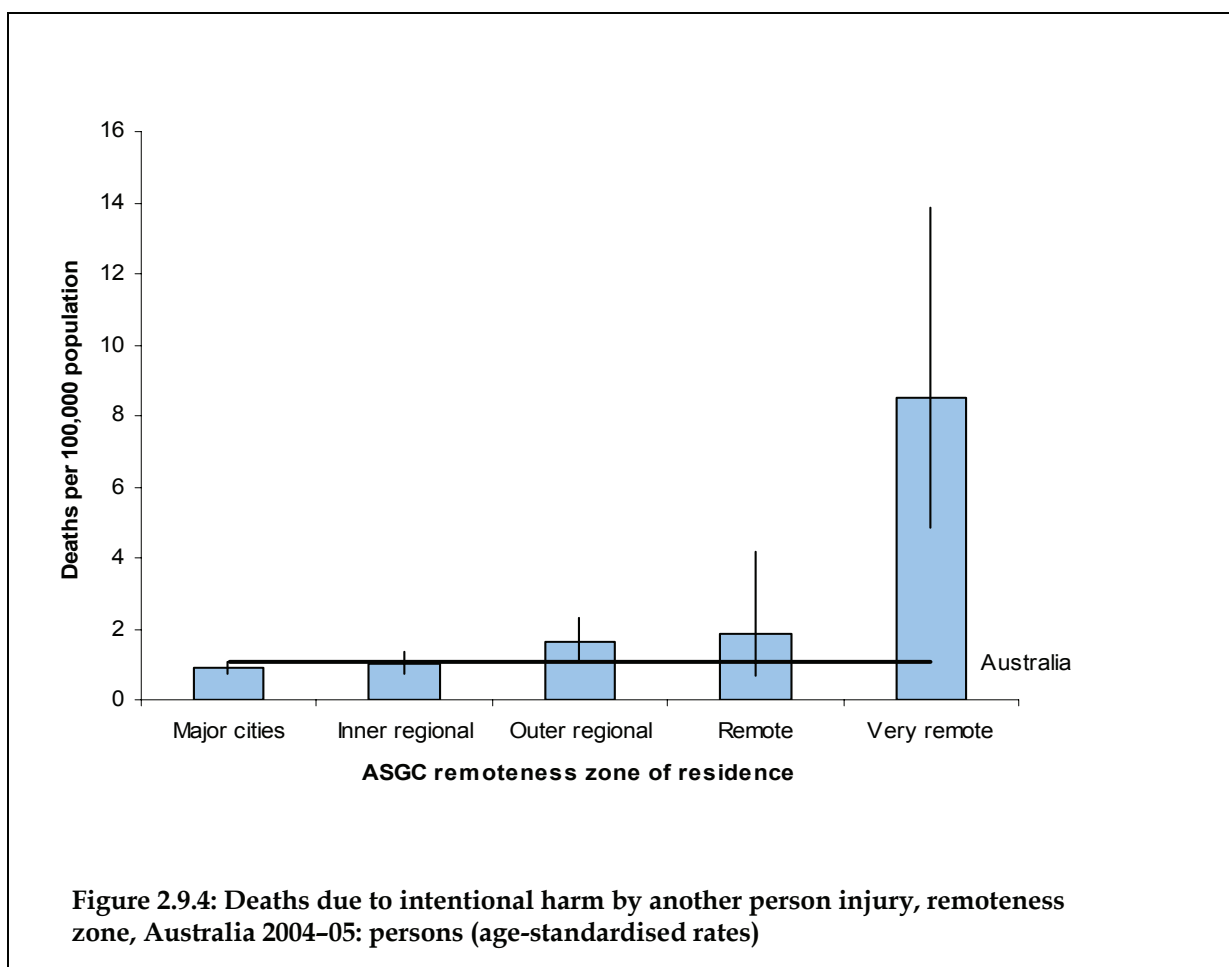
Table 2.9.5: Cases, age-adjusted rates and rate ratios* by remoteness zone for homicide deaths, Australia 2004–05

	Major cities	**Inner regional**	**Outer regional**	**Remote**	**Very remote**
Cases	120	41	32	6	16
Adjusted rate (direct)	0.9	1.0	1.6	1.9	8.5
Rate ratio*	0.83	0.94	1.53	1.75	7.94

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

2.9.8 Associated factors

Of the 148 male deaths which occurred in 2004–05, 24% ($n = 40$) were due to *Assault by a sharp object*, 17% ($n = 28$) were due to *Assault by bodily force* and 13% ($n = 22$) were due to *Assault by firearms.* Just over 54% ($n = 80$) of male homicides were in the age range 25–44 years.

For the 72 female deaths, *Assault by a sharp object* accounted for 39% ($n = 28$), while 21% ($n = 15$) resulted from *Assault by blunt object* and 18% ($n = 13$) resulted from both *Assault by hanging, strangulation and suffocation.* Just over 40% ($n = 29$) of female homicides were in the age range 25–39 years.

18 (8%) of homicide deaths involved children aged 0–4 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 2004–05

Indicator	Multiple Causes of Death			Underlying Cause of Death		
	Males	**Females**	**Persons**	**Males**	**Females**	**Persons**
Cases	995	814	1,809	135	121	256
Crude rate/100,000 population	9.9	8.0	8.9	1.3	1.2	1.3
Adjusted rate (direct)	10.7	6.7	8.5	1.5	1.0	1.2
Rate ratio*	1.27	0.79		1.24	0.83	
Mean YPLL <75years	7.4	6.6	7.1	5.4	3.9	4.7

* 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 reports for deaths before 2003–04 (UCoD V01–V99). Adoption of the wider criteria has a very large effect on this topic, increasing case numbers by over 7 fold.

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 2001). Of the 1,809 deaths reported in this chapter, 23% (*n* = 422) 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 2004–05. Over 57% (*n* = 1,038) of these deaths were coded to T81, *Complications of procedures, not elsewhere classified*. Of these, 24% (*n* = 247) were due to an infection following a procedure, 9% (*n* = 98) were due to a haemorrhage or haematoma complicating a procedure and 6% (*n* = 63) were due to vascular complications following a procedure. Over 53% (*n* = 553) of these deaths had complications of medical procedures which were not defined.

Just over 16% (*n* = 289) of all complications related deaths were coded to T82, *Complications of cardiac and vascular prosthetic devices, implants and grafts*. Of these, 18% (*n* = 51) resulted from an infection or inflammatory reaction to a vascular or prosthetic device. Close to 74% (*n* = 214) of these deaths had complications of cardiac and vascular prosthetic devices, implants and grafts which were not defined.

Just over 9% (*n* = 167) of all complications related deaths were coded to T84, *Complications of internal orthopaedic prosthetic devices, implants and grafts*. Of these, 21% (*n* = 35) resulted from an infection or inflammatory reaction to an internal joint prosthesis, with a further 14% (*n* = 23) resulting from an infection or inflammatory reaction to an internal fixation device. Over 64% (*n* = 107) of these deaths had complications of internal orthopaedic prosthetic devices, implants and grafts which were not defined.

Almost 5% (*n* = 83) of all complications related deaths were coded to T86, *Failure and rejection of transplanted organs and tissues*. Of these 83 deaths, 61% (*n* = 51) resulted from a bone marrow transplant reaction while 17% (*n* = 14) were due to failure and rejection of undefined organs or tissues.

Table 3.2: Major types of injury for complications of surgical and medical care deaths, Australia 2004–05

Condition code	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Complications following infusion, transfusion & therapeutic injection	..	..	..	..	..	..
Complications of procedures, not elsewhere classified	576	57.9	462	56.8	1,038	57.4
Complications of cardiac and vascular prosthetic devices, implants and grafts	182	18.3	107	13.1	289	16.0
Complications of genitourinary devices, implants and grafts	26	2.6	14	1.7	40	2.2
Complications of internal orthopaedic prosthetic devices, implants and grafts	63	6.3	104	12.8	167	9.2
Complications of other prosthetic devices, implants and grafts	23	2.3	12	1.5	35	1.9
Failure and rejection of transplanted organs and tissues	48	4.8	35	4.3	83	4.6
Complications peculiar to reattachment and amputation	27	2.7	20	2.5	47	2.6
Other complications of surgical and medical care, not elsewhere classified	..	..	..	..	12	0.7
No T80–T88 code present	44	4.4	50	6.1	94	5.2
Total	**995**	**100**	**814**	**100**	**1,809**	**100**

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

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 2004–05. Just over 84% (*n* = 1,522) 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 1,522 deaths, 18% (*n* = 276) involved partial or total removal of undefined organs, 17% (*n* = 258) involved a surgical operation with an implant of an artificial internal device, and 17% (*n* = 257) involved a surgical operation with anastomosis, bypass or graft. 10% (*n* = 156) involved surgical procedures which were not defined.

Almost 11% (*n* = 192) 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 192 deaths, 26% (*n* = 50) involved urinary catheterisation, and 14% (*n* = 26) involved kidney dialysis. 50% (*n* = 95) involved medical procedures which were not defined.

Table 3.3: External causes of injury for complications of surgical and medical care deaths, Australia 2004–05

Type of complication	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Primarily systemic agents	..	..	..	..	10	0.6
Agents primarily affecting blood constituents	8	0.8	11	1.4	19	1.1
Other and unspecified drugs and medicaments	7	0.7	8	1.0	15	0.8
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	839	84.3	683	83.9	1,522	84.1
Other medical procedures as a cause of abnormal reaction of the patient, or later complication, without mention of misadventure at the time of the procedure	115	11.6	77	9.5	192	10.6
Sequelae with surgical and medical care as external cause	..	..	9	1.1	..	..
Other external cause categories	16	1.6	17	2.1	33	1.8
No external cause code present	..	..	..	..	..	..
Total	**995**	**100**	**814**	**100**	**1,809**	**100**

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

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 2004–05. 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.

Figure 3.1: Deaths due to complication of surgical and medical care injury by age and sex, Australia 2004–05
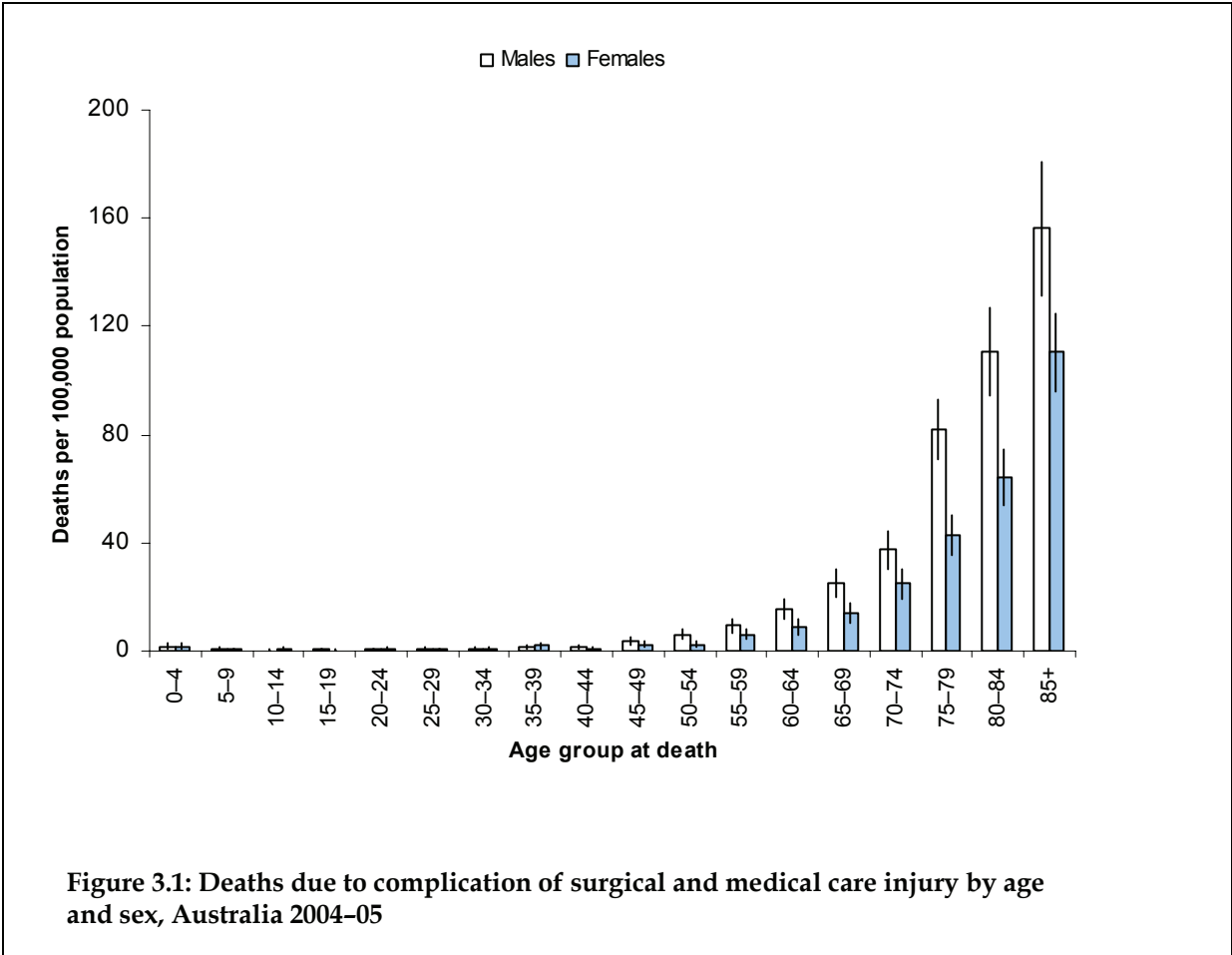
4 Residual groups

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 2004–05, 58% (*n* = 203) of these deaths were coded to W80, *Inhalation and ingestion of other objects causing obstruction of respiratory tract*, 22% (*n* = 76) were coded to Y86, *Sequelae of other accidents*, and 14% (*n* = 50) were coded to W19, *Unspecified fall*.

Of these 353 cases, 13% (*n* = 46) had an UCoD coded to J69.0 *Pneumonitis due to food and vomit,* and 9% (*n* = 33) had an UCoD coded to I64 *Stroke, not specified as haemorrhage.* 88% (*n* = 310) of these cases were aged 65 years and over while 43% (*n* = 153) were aged 85 years and over.

Table 4.1: Community injury—case counts and per cent for residual group deaths, Australia 2004–05

External Cause	Males Count	Males Per cent	Females Count	Females Per cent	Persons Count	Persons Per cent
Unspecified fall	22	11.1	28	18.1	50	14.2
Inhalation and ingestion of other objects causing obstruction of respiratory tract	112	56.6	91	58.7	203	57.5
Other and unspecified external cause	..	..	7	4.5	..	..
Sequelae of motor vehicle accident[a]	..	..	..	..	7	2.0
Sequelae of other accidents[a]	51	25.8	25	16.1	76	21.5
Sequelae of other external causes[a]	6	3.0	0	0.0	6	1.7
Total	**198**	**100**	**155**	**100**	**353**	**100**

(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 2004–05, 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.

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have percentages derived from them, to protect confidentiality.

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. Over 47% (*n* = 583) of these 1,231 deaths were coded to the external cause range Y40–Y59 *Drugs, medicaments, and biological substances causing adverse effects in therapeutic use,* 40% (*n* = 496) 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 9% (*n* = 109) 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 1,234 cases, 12% (*n* = 152) had an UCoD coded to I20–I25 *Ischaemic heart diseases*, 8% (*n* = 101) had an UCoD coded to C81–C96 *Malignant neoplasms of lymphoid, haematopoietic and related tissue*, and 7% (*n* = 86) had an UCoD coded to I30–I52 *Other forms of heart disease.* 69% (*n* = 846) 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 2004–05

External Cause	Males		Females		Persons	
	Count	Per cent	Count	Per cent	Count	Per cent
Drugs, medicaments and biological substances causing adverse effects in therapeutic use	326	47.7	257	47.0	583	47.4
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	272	39.8	224	41.0	496	40.3
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	62	9.1	47	8.6	109	8.9
Sequelae of surgical medical procedures as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	24	3.5	19	3.5	43	3.5
Total	**684**	**100**	**547**	**100**	**1,231**	**100**

There were also 145 cases having a MCoD code in the range T78, T90–T98 but without an UCoD code in the range V01–Y89. 38% (*n* = 51) of these cases were coded to T98 *Sequelae of other and unspecified effects of external causes*, and 20% (*n* = 29) were coded to T90 *Sequelae of injuries of head*.

Appendix 1: Data issues

ABS data

Data sources

Deaths data are from the Australian Bureau of Statistics (ABS) mortality unit record data collection, 1997–2005. 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 2004 to 30 June 2005.

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 following 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 2003–04	Overall percentage	Range
Registered within same financial year as they occurred	84.6	84.2–85.4
Registered within 6 months after financial year in which they occurred	99.6	99.4–99.7
Registered within 12 months after financial year in which they occurred	99.8	99.7–99.8
Registered within 18 months after financial year in which they occurred	99.9	99.9–100

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 2003–04

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 99.7%
Drowning	97.2	96.8% to 97.7%
Poisoning, pharmaceuticals	99.4	99.1% to 99.6%
Poisoning, other substances	99.3	97.9% to 100%
Falls	99.9	99.8% to 100%
Fires/burns/scalds	99.2	96.4% to 100%
Suicide	99.5	99.2% to 99.7%
Homicide	97.5	95.8% to 99.3%
Other unintentional injury	99.5	99.2% to 100%
Complications of care	99.9	99.7% to 100%

* Of all that had been registered by 31 December 2004.

Undetermined intent

The ICD-10 code range Y10–Y34 is provided to allow coding of deaths which, after investigation by relevant authorities, remain undetermined as to the role of human intent. Cases in this code range are often treated as suicides for statistical purposes, except for child cases, which may be homicides (Walker et al. 2008). The number of deaths in Australia coded to this range has varied between 51 (2000) and 135 (1998 and 2006) per year (Harrison et al. 2009). Of 77 deaths in 2004 coded as Undetermined intent in ABS data , 24 (31%) met a definition of Intentional self-harm based on data in NCIS as at early 2008 (Table 7.2, Harrison et al. 2009). This group warrants further investigation, though it was not large enough in the study period, to have a major influence. In this report, Undetermined intent cases were included in Section 2.1 of this report, but not elsewhere. A much higher number in 2007 reflects a change in the use of this code range.

Coroners' data

Requested data

In order to make comparisons between the numbers of deaths for various external causes recorded by the Australian Bureau of Statistics (ABS) and numbers of deaths estimated by the National Coroners Information System (NCIS), a NCIS data extract was requested. This extract, in the form of an Excel file, included all NCIS records where the date of death was 1 January 2004 to 30 June 2006. Since some NCIS records lack date of death, the file also included records where date of death was missing and date of notification was 1 January 2004 to 30 July 2006. The extra month at the end of inclusion was to allow for delay between death and notification. All fields that the NCIS was able to supply were requested other than fields related to the persons name. Attached text documents were also not requested.

Processing of data

The requested Excel file was then uploaded into the SPSS Version 14.0 software. Using this SPSS file, a series a variables were then created in order to estimate the number of deaths for various external causes. Variables which were created included:

- <u>Age group</u>—records were divided into age groups on the basis of the age at death and age unit information contained within the unit record data.

- <u>Financial year of death</u>—This was initially assigned based on the date of death, and if this was not available, the incident date. If date of death or incident date were not available, then the date of death was assigned based on combinations of case state, case year, state sequence and case status.

- <u>Major group based on ABS UCoD Code</u>—Each record was assigned to a major external cause group based upon the ABS Underlying Cause of Death (UCoD) Code present in the record. If this field was blank, the Major group variable was set to zero.

Assignment to major external cause groups using NCIS data

Each record was assigned to a major external cause group using all available data in NCIS. This process was done in several stages, each using a particular range of NCIS variables and a particular method, as detailed below. Major NCIS variables utilised included:

- Intent at completion
- Case type at completion
- Case status
- Primary and secondary mechanism
- Primary and secondary object
- Incident location
- Activity level
- Cause of Death text

For a small proportion of cases, the ABS Underlying Cause of Death Code contained within NCIS, in conjunction with other NCIS variables, was used as the basis for assignment of cases to various external groups.

At each level, records in the pool which were eligible for processing, were assessed in terms of two sets of criteria: The first were inclusive criteria, the presence of which favours assignment of the cases as belonging to a particular external cause group, e.g. Suicide. The second were exclusive criteria, the presence of which favours assignment of the case as being due to a cause of death other than a particular external cause e.g. not suicide. For the purposes of this report, cases were only included in analyses if death occurred in the period from 1 July 2004 to 30 June 2005 and excluded if death occurred in a country other than Australia.

For chapters in this report relating to external cause groups where misclassification was a significant problem (i.e. *Transport*, *Suicide* and *Homicide*), descriptive analyses were based primarily upon data obtained from NCIS. However, since NCIS data was only available from 1 January 2004 to 30 June 2006, trends data in these chapters were based upon data supplied by the ABS. A detailed method of assignment is outlined for each of these groups below. For all other chapters, descriptive analyses were based upon data supplied by the ABS.

Since misclassification is also a significant problem in relation to *Poisoning*, a detailed method of assignment for this group is also included below. However, due to the fact that a significant number of poisoning-related deaths were certified by a doctor, descriptive analyses for this chapter were based primarily upon data obtained from the ABS.

The NCIS-based estimates presented in this report were produced using an extract from the NCIS database as it was early in 2008. Some injury deaths that occurred in 2004–05 still had Open status at the date of the extraction, and limited information was available to us on many of these cases. Reanalysis when these cases have Closed status might result in different assignment of these cases.

Transport

Table A1.3 below details the method of assignment for all transport-related deaths using NCIS variables. It should be noted that the exclusion criteria apply across all stages for this group.

Table A1.3: Inclusion and exclusion criteria for assignment of cases as transport-related deaths using NCIS variables

Stage	Criteria for inclusion	Criteria for exclusion
1. Intent on Completion & Primary mechanism	Intent on completion = 1, 3, 4 & Primary Mechanism = 1.01	Underlying Cause of Death code = A00 to R94
2. Intent on Completion & Secondary mechanisms	Intent on completion = 1 & Mechanism (Secondary1 or Secondary2) = 1.01	or
3. Activity level	ActivityLevel2 = 1.1, 1.2, 2.1, 2.2, 8.1 or 8.2	Primary mechanism = 8 (Exposure to weather, natural disaster, or other force of nature)
		or
4. String searches (confirmed by manual review of records)	(CaseStatus = 'O' & presence in extract of text strings 'traffic', 'vehicle', 'mva', 'motorcycle', 'bicycle' or 'road') or	Presence in extract of text string 'flood'
	(CaseStatus = 'C' & Primary Mechanism = 1.01 & presence in extract of text strings 'traffic', 'vehicle', 'mva', 'motorcycle', 'bicycle' or 'road')	
5. ABS Underlying Cause of Death Code	Underlying Cause of Death Code V00 to V99 & (Major Group in NCIS = unintentional or undefined)	

Motor Vehicle Transport

Table A1.4 below details the method of assignment for all motor vehicle transport-related deaths using NCIS variables. Since these cases were drawn from the set of cases assigned as transport cases in Table A1.3 above, no exclusion criteria were required.

Table A1.4: Inclusion and exclusion criteria for assignment of cases as motor vehicle transport-related deaths using NCIS variables

Stage	Criteria for inclusion
1. Incident location	Incident location = 6
2. String searches (confirmed by manual review of records)	Presence in extract of text strings 'traffic', 'vehicle', 'mva', or 'road')
3. Underlying Cause of Death Code	Underlying Cause of Death Code is Motor Vehicle Accident & (Major Group in NCIS = unintentional or undefined) or (Incident location = 7.4, 12.2 or 98.2)

Poisoning

Table A1.5 below details the method of assignment for all poisoning-related deaths using NCIS variables.

Table A1.5: Inclusion and exclusion criteria for assignment of cases as poisoning-related deaths using NCIS variables

Stage	Criteria for inclusion	Criteria for exclusion
1. Intent on Completion & Primary mechanism	Intent on completion = 1 & Primary mechanism = 6 & Case type at completion = 2	Presence in extract of text strings 'mesothelioma' or 'asbestos'
2. Intent on Completion & Secondary mechanisms	Intent on Completion = 1 & MechanismLevel1 (Secondary1 or Secondary2) = 6 & Case type at completion = 2 & Primary Mechanism = '4.01.6' or '5.01.4'	Presence in extract of text strings 'mesothelioma' or 'asbestos'
3. String searches (confirmed by manual review of records)	Presence in extract of text strings 'overdose', 'poison', 'toxicity', 'drug' or 'inhalation' & (Intent on completion = 1 or undefined) & (Case type at completion = 2 or undefined) & Primary Mechanism = '4.01.6' or '5.01.4' or undefined)	Presence in extract of text strings 'mesothelioma' or 'asbestos' & ActivityLevel2 ~= 98.1
4. Intent on Completion & Primary mechanism	(Intent on Completion = 1 or undefined) & Primary mechanisml1 = 6 & (Case type at completion = 2 or undefined)	Presence in extract of text strings 'mesothelioma' or 'asbestos' & ActivityLevel2 ~= 98.1
5. Underlying Cause of Death Code	Underlying Cause of Death Code X40 to X49 & Intent on Completion = 1 & Case type at completion = 2 & Primary mechanism = 6, 4.01.6 or 5.01.4	Presence in extract of text strings 'mesothelioma' or 'asbestos'

Suicide

Table A1.6 below details the method of assignment for all suicides using NCIS variables. This is similar to the approach used in a recent analysis of suicide deaths in 2004 (Table 5.2, Harrison et al. 2009).

Table A1.6: Inclusion and exclusion criteria for assignment of cases as suicides using NCIS variables

Stage	Criteria for inclusion	Criteria for exclusion
1. Intent on Completion	Intent on Completion = 2	
2. Other NCIS variables	CaseStatus= 'O' & (ActivityLevel2 = 98.1 or Intent on Notification = 2)	ActivityLevel2 = 98.3 or Intent on Completion = 3 (assault/homicide)
		ActivityLevel2 = 1.1, 1.2, 2.1, 2.2, 8.1, 8.2 (transport)
		Cast Type at completion = 1 and Mechanism (Primary, Secondary1 or Secondary2 = 1.05 (unintentional fall)
		Intent on completion = 999 and Case Type at completion = 2 (unlikely to be known)
3. String searches (confirmed by manual review of records)	Presence in extract of text strings 'suicid', 'self-harm', 'self harm', 'hanging', 'self-inflict' or 'self inflict'	(Intent on completion = 1, 3, 4, 5, 6, 7, 8 or 999) or (Case type at completion = 1,3, or 999)
4. Underlying Cause of Death Code	Underlying Cause of Death Code X60 to X84	(Intent on completion = 1, 3, 4, 5, 6, 7, 8 or 999) or (Case type at completion = 1,3, or 999)

Homicide

Table A1.7 below details the method of assignment for all homicides using NCIS variables.

Table A1.7: Inclusion and exclusion criteria for assignment of cases as homicides using NCIS variables

Stage	Criteria for inclusion	Criteria for exclusion
1. Intent on Completion	Intent on Completion = 3, 4, 5	Case state = 5 & Underlying Cause of Death Code V00–V99
2. Activity level	ActivityLevel2 = 98.3 or Intent on Notification = 3	Case type at completion = 1 or Intent on completion = 999
3. String searches (confirmed by manual review of records)	Presence in extract of text string 'assault'	Case type at completion = 1 or Intent on completion = 999
4. Underlying Cause of Death Code	Underlying Cause of Death Code X85 to Y09, Y35, Y36, Y87.1, Y89.0, Y89.1 & Intent on completion = 3, 4, 5 or undefined	Case type at completion = 1

Other data sources

Data on road deaths compiled by the Federal Government were available from the road safety statistics section of the Department of Infrastructure, Transport, Regional Development and Local Government (DITRDLG) at <www.infrastructure.gov.au/roads/safety/publications/publications_list.aspx?mode= Road> . Data on homicides were available from the Australian Institute of Criminology (AIC) at <www.aic.gov.au/about_aic/research_programs/nmp/0001.aspx>.

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 (Kreisfeld & 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*.

> 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 (Anderson & 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 1.2 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

Cell counts in tables that are 5 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 2004–05[a]

Age group (years)	Males Case counts	Rates	Females Case counts	Rates	Persons Case counts	Rates	M:F rate ratio
0–4	81	12.5	58	9.4	139	11.0	1.3
5–9	28	4.1	13	2.0	41	3.1	2.0
10–14	31	4.3	24	3.5	55	4.0	1.2
15–19	278	39.4	93	13.9	371	27.0	2.8
20–24	440	60.9	111	16.2	551	39.2	3.8
25–29	479	69.7	100	14.8	579	42.5	4.7
30–34	536	71.0	111	14.6	647	42.6	4.9
35–39	426	58.3	140	19.0	566	38.5	3.1
40–44	454	59.1	146	18.9	600	38.9	3.1
45–49	421	58.5	123	16.9	544	37.6	3.5
50–54	348	52.6	120	17.9	468	35.2	2.9
55–59	287	46.6	121	19.9	408	33.3	2.3
60–64	247	52.9	113	24.7	360	38.9	2.1
65–69	225	59.9	111	28.9	336	44.2	2.1
70–74	270	89.6	139	42.5	409	65.0	2.1
75–79	380	152.1	304	100.7	684	123.9	1.5
80–84	464	293.2	505	215.7	969	247.0	1.4
85 plus	701	720.7	1,347	650.7	2,048	673.1	1.1
All ages[b]	**6,096**	**63.9**	**3,719**	**30.3**	**9,775**	**46.7**	**2.1**

(a) Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

(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 2004–05[a]

Age group (years)	Males Case counts	Rates	Females Case counts	Rates	Persons Case counts	Rates	M:F rate ratio
0–4	11	1.7	10	1.6	21	1.7	1.0
5–9	..	..	..	..	7	0.5	..
10–14	..	..	..	..	6	0.4	..
15–19	..	..	..	..	..	..	..
20–24	..	..	..	..	9	0.6	0.8
25–29	7	1.0	..	..	..	..	..
30–34	6	0.8	7	0.9	13	0.9	0.9
35–39	11	1.5	14	1.9	25	1.7	0.8
40–44	11	1.4	8	1.0	19	1.2	1.4
45–49	26	3.6	18	2.5	44	3.0	1.5
50–54	41	6.2	17	2.5	58	4.4	2.4
55–59	58	9.4	38	6.2	96	7.8	1.5
60–64	73	15.6	41	8.9	114	12.3	1.7
65–69	94	25.0	54	14.1	148	19.5	1.8
70–74	113	37.5	81	24.7	194	30.9	1.5
75–79	205	82.1	130	43.0	335	60.7	1.9
80–84	175	110.6	150	64.1	325	82.8	1.7
85 plus	152	156.3	229	110.6	381	125.2	1.4
All ages	**995**	**10.7**	**814**	**6.7**	**1,809**	**8.5**	**1.6**

(a)　Deaths occurring in 2004–05 where the UCoD Code was in the range Y40–Y84, Y88 or any MCoD code was in the range T80–T88 (ICD–10). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

.. Cell counts in tables that are 5 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 2004–05[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	19	8.7	25	12.2	44	10.4	12	7.7	7	4.7	19	6.2
5–9	11	4.9	..	..	..	..	..	..	..	..	6	1.9
10–14	9	3.8	..	..	..	..	..	..	6	3.7	..	..
15–19	76	32.8	26	11.8	102	22.6	44	26.0	23	14.2	67	20.2
20–24	121	51.6	31	13.9	152	33.2	100	56.1	22	12.8	122	34.8
25–29	133	57.7	25	11.0	158	34.5	114	66.0	20	11.7	134	39.0
30–34	171	67.1	42	16.3	213	41.6	124	65.8	32	16.4	156	40.7
35–39	119	49.4	47	19.4	166	34.4	88	47.8	32	16.9	120	32.2
40–44	137	53.2	42	16.4	179	34.9	103	54.9	40	20.9	143	37.7
45–49	139	58.2	45	18.7	184	38.4	87	49.4	23	12.8	110	30.9
50–54	109	49.8	34	15.5	143	32.6	83	52.0	37	22.5	120	37.0
55–59	89	43.6	34	16.9	123	30.3	64	43.3	27	18.0	91	30.6
60–64	78	49.7	35	22.7	113	36.3	54	47.9	26	23.1	80	35.5
65–69	72	56.3	33	25.1	105	40.5	59	63.9	29	29.9	88	46.5
70–74	99	94.9	57	50.0	156	71.4	62	81.7	41	48.7	103	64.3
75–79	122	139.8	115	108.2	237	122.4	98	154.3	64	81.6	162	114.2
80–84	138	247.9	188	227.4	326	235.6	131	325.4	130	214.1	261	258.5
85+	234	687.9	469	643.1	703	657.3	188	758.8	338	630.2	526	670.9
Total[b]	**1,876**	**58.3**	**1,256**	**29.9**	**3,132**	**43.9**	**1,419**	**60.2**	**900**	**28.9**	**2,319**	**43.9**

(continued)

(a) Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

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 2004–05(a)

Age group (years)	QUEENSLAND Males Case counts	Rates	QUEENSLAND Females Case counts	Rates	QUEENSLAND Persons Case counts	Rates	WESTERN AUSTRALIA Males Case counts	Rates	WESTERN AUSTRALIA Females Case counts	Rates	WESTERN AUSTRALIA Persons Case counts	Rates
0–4	24	18.5	11	8.9	35	13.8	9	14.1	4	6.6	13	10.5
5–9	..	..	..	..	6	2.2	..	..	..	..	6	4.5
10–14	8	5.5	8	5.8	16	5.7	..	..	..	..	..	..
15–19	66	46.8	21	15.7	87	31.6	39	53.0	10	14.3	49	34.2
20–24	88	61.0	25	18.4	113	40.3	50	68.9	10	14.6	60	42.6
25–29	115	86.6	21	16.1	136	51.7	46	67.6	17	25.8	63	47.1
30–34	108	73.8	14	9.5	122	41.5	43	57.6	7	9.6	50	33.8
35–39	100	71.4	26	18.2	126	44.5	41	55.3	11	14.9	52	35.2
40–44	93	62.8	28	18.5	121	40.5	35	45.0	11	14.2	46	29.6
45–49	83	59.8	17	12.1	100	35.8	42	57.0	15	20.3	57	38.6
50–54	74	57.5	27	20.9	101	39.2	30	44.2	11	16.3	41	30.3
55–59	68	55.6	29	24.4	97	40.2	24	39.0	11	18.7	35	29.1
60–64	59	63.6	22	24.7	81	44.5	22	48.7	12	27.7	34	38.4
65–69	50	69.1	24	34.0	74	51.8	24	67.4	12	33.6	36	50.4
70–74	44	79.1	19	32.9	63	55.6	31	113.5	8	27.2	39	68.7
75–79	81	181.7	58	111.7	139	144.0	39	180.0	27	105.5	66	139.7
80–84	100	355.7	82	205.9	182	267.9	43	321.5	49	253.0	92	281.0
85+	134	761.6	249	711.5	383	728.3	63	765.2	136	770.9	199	769.1
Total(b)	**1,299**	**71.2**	**683**	**31.2**	**1,982**	**50.9**	**590**	**65.0**	**353**	**31.8**	**943**	**48.3**

(continued)

(a) Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

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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 2004–05(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	6	13.3	..	..	..	..	..	..	0	0.0	..	..
5–9	..	0.0	0	0.0	..	..	..	..	..	..	..	..
10–14	..	..	..	..	8	7.9	..	..	0	0.0	..	..
15–19	28	53.1	7	14.0	35	34.1	10	57.3	..	..	..	..
20–24	39	73.5	14	28.2	53	51.6	20	127.1	..	..	..	..
25–29	43	88.4	7	15.4	50	53.1	9	67.6	..	..	..	..
30–34	53	99.9	9	17.3	62	59.0	13	87.7	..	..	..	..
35–39	36	66.2	13	24.2	49	45.3	19	121.2	..	..	..	..
40–44	53	90.8	8	13.7	61	52.2	19	105.8	9	48.1	28	76.4
45–49	39	70.1	10	17.7	49	43.6	10	55.9	6	33.1	16	44.4
50–54	29	56.0	8	15.0	37	35.2	13	77.6	..	..	..	..
55–59	21	42.8	10	20.0	31	31.3	13	82.4	..	..	..	..
60–64	22	59.5	11	29.5	33	44.5	7	56.0	..	..	..	..
65–69	8	26.3	9	27.9	17	27.1	..	..	..	..	6	29.3
70–74	18	70.6	7	24.7	25	46.4	13	161.5	..	..	..	..
75–79	30	132.4	24	86.1	54	106.8	7	107.0	12	154.1	19	132.6
80–84	32	219.9	32	144.2	64	174.2	14	344.8	13	209.0	27	262.6
85+	56	622.6	96	485.8	152	528.6	17	706.3	36	657.7	53	672.5
Total(b)	**520**	**68.9**	**274**	**27.2**	**794**	**47.6**	**193**	**84.3**	**110**	**36.7**	**303**	**60.0**

(continued)

(a) Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

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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 2004–05(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	..	..	..	..	..	..	6	66.9	..	..	..	..
5–9	0	0.0	0	0.0	0	0.0	..	..	..	..	..	..
10–14	0	0.0	0	0.0	0	0.0	0	0.0	..	..	..	..
15–19	..	..	0	0.0	..	.	11	142.4	..	..	..	..
20–24	9	62.1	0	0.0	9	32.1	13	147.4	..	..	..	..
25–29	..	..	..	..	8	31.3	14	160.2	..	..	..	..
30–34	9	70.2	0	0.0	9	35.0	15	160.0	..	..	..	..
35–39	..	..	0	0.0	..	..	19	216.0	6	75.1	25	148.9
40–44	8	65.9	..	..	..	..	6	68.9	7	92.9	13	80.0
45–49	7	61.2	..	..	..	..	14	192.6	..	..	..	..
50–54	..	..	..	..	..	..	8	118.2	0	0.0	8	63.2
55–59	..	..	..	..	8	40.0	..	..	..	..	7	71.6
60–64	..	..	..	..	..	..	..	..	..	..	6	94.0
65–69	..	..	..	..	6	62.4	..	..	..	..	..	..
70–74	..	..	..	..	..	..	..	..	0	0.0	0	0.0
75–79	..	..	..	..	7	113.0	0	0.0	0	0.0	0	0.0
80–84	..	..	8	303.4	..	303.4	..	..	..	..	..	..
85+	7	733.8	21	964.9	28	894.4	..	..	..	..	..	..
Total(b)	**75**	**53.5**	**51**	**32.7**	**126**	**43.7**	**124**	**126.1**	**52**	**64.4**	**176**	**97.2**

(a) Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.4: Community injury deaths — case counts and rates for major causes for males, Australia 2004–05[a]

Age group (years)	Transportation V01–V99 Case counts	Rates	Falls W00–W19, X59 plus MCoD fracture code Case counts	Rates	Drowning W65–W74, (T75.1 and V01–X59) Case counts	Rates	Poisoning (drugs) X40–X44, (T36–T50 and V01–X59) Case counts	Rates	Poisoning (other substances) X45–X49, (T51–T65 and V01–X59) Case counts	Rates
0–4	23	3.5	..	..	13	2.0	..	..	11	1.7
5–9	13	1.9	..	..	..	..	0	0.0	..	..
10–14	16	2.2	0	0.0	..	..	0	0.0	0	0.0
15–19	153	21.6	8	1.1	8	1.1	8	1.1	..	..
20–24	189	26.2	10	1.4	15	2.1	31	4.3	10	1.4
25–29	131	19.0	8	1.2	16	2.3	83	12.1	26	3.8
30–34	114	15.1	11	1.5	15	2.0	91	12.1	25	3.3
35–39	98	13.3	8	1.1	11	1.5	60	8.2	19	2.6
40–44	91	11.8	13	1.7	16	2.1	67	8.7	31	4.0
45–49	96	13.3	18	2.5	11	1.5	62	8.6	27	3.8
50–54	66	9.9	22	3.3	9	1.4	37	5.6	15	2.3
55–59	71	11.6	26	4.2	10	1.6	26	4.2	12	1.9
60–64	52	11.2	37	7.9	12	2.6	13	2.8	13	2.8
65–69	47	12.7	36	9.6	11	2.9	10	2.7	7	1.9
70–74	44	14.7	79	26.2	6	2.0	..	..	7	2.3
75–79	45	18.2	161	64.4	..	..	..	..	6	2.4
80–84	43	27.6	245	154.8	..	..	..	..	8	5.1
85+	28	30.1	467	480.2	..	..	6	6.2	..	..
All ages[b]	**1,320**	**13.2**	**1,151**	**13.7**	**174**	**1.7**	**509**	**5.1**	**227**	**2.3**

(continued)

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.4 (continued): Community injury deaths—case counts and rates for major causes for males, Australia 2004–05[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	13	2.0	20	3.1	0	0.0	10	1.5
5–9	..	..	8	1.2	0	0.0	..	..
10–14	0	0.0	10	1.4	7	1.0	..	..
15–19	7	1.0	39	5.5	83	11.7	..	..
20–24	..	..	56	7.8	169	23.5	11	1.5
25–29	..	..	63	9.2	205	29.7	16	2.3
30–34	6	0.8	73	9.7	243	32.1	17	2.2
35–39	6	0.8	54	7.4	180	24.5	22	3.0
40–44	..	..	68	8.9	205	26.7	25	3.3
45–49	6	0.8	46	6.4	186	25.7	8	1.1
50–54	9	1.4	59	8.9	156	23.5	6	0.9
55–59	6	1.0	64	10.4	95	15.5	8	1.3
60–64	6	1.3	52	11.1	85	18.3	..	..
65–69	..	..	69	18.4	51	13.8	..	..
70–74	8	2.7	75	24.9	57	19.0	..	..
75–79	6	2.4	114	45.6	52	21.1	..	..
80–84	6	3.8	122	77.1	38	24.4	..	..
85+	..	..	170	174.8	31	33.3	..	..
All ages[b]	103	1.0	1,162	12.4	1,843	18.5	148	1.5

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.5: Community injury deaths—case counts and rates for major causes for females, Australia 2004–05[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	15	2.4	..	..	10	1.6	0	0.0	..	..
5–9	6	0.9	..	..	..	..	0	0.0	..	..
10–14	11	1.6	..	..	..	..	0	0.0	..	..
15–19	54	8.0	..	..	..	..	0	0.0	..	..
20–24	40	5.8	..	..	7	1.0	16	2.3	..	..
25–29	28	4.1	..	..	..	..	13	1.9	..	..
30–34	25	3.3	..	..	..	..	19	2.5	7	0.9
35–39	30	4.0	..	..	..	..	23	3.1	6	0.8
40–44	29	3.7	7	0.9	..	..	45	5.8	15	1.9
45–49	21	2.9	8	1.1	..	..	26	3.6	..	..
50–54	29	4.3	6	0.9	..	..	22	3.3	..	..
55–59	32	5.3	17	2.8	..	..	12	2.0	8	1.3
60–64	26	5.7	15	3.3	6	1.3	12	2.6	6	1.3
65–69	19	5.0	32	8.3	..	..	6	1.6	..	..
70–74	27	8.3	48	14.7	..	..	..	..	0	0.0
75–79	23	7.7	177	58.6	..	..	12	4.0	..	..
80–84	34	14.7	350	149.5	..	..	14	6.0	..	..
85+	22	10.9	1,050	507.3	..	..	16	7.7	9	4.3
All ages[b]	471	4.5	1,730	12.5	62	0.6	239	2.2	80	0.7

(continued)

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.5 (continued): Community injury deaths—case counts and rates for major causes for females Australia, 2004–05[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	1.1	24	3.9	0	0.0	8	1.3
5–9	..	..	..	..	0	0.0	..	..
10–14	..	..	..	..	..	..	..	..
15–19	..	..	14	2.1	30	4.4	..	..
20–24	..	..	15	2.2	34	4.9	6	0.9
25–29	..	..	7	1.0	43	6.3	7	1.0
30–34	0	0.0	..	..	50	6.5	10	1.3
35–39	..	..	18	2.4	49	6.6	12	1.6
40–44	..	..	18	2.3	53	6.8	8	1.0
45–49	..	..	14	1.9	55	7.5	..	..
50–54	..	..	20	3.0	44	6.6	..	..
55–59	..	..	20	3.3	37	6.1	..	..
60–64	..	..	27	5.9	26	5.7	..	..
65–69	..	..	31	8.1	21	5.5	..	..
70–74	..	..	43	13.1	14	4.3	0	0.0
75–79	..	..	67	22.2	18	6.0	..	..
80–84	7	3.0	93	39.7	9	3.9	..	..
85+	10	4.8	240	115.9	6	3.0	0	0.0
All ages[b]	**53**	**0.5**	**661**	**5.4**	**494**	**4.8**	**72**	**0.7**

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.6: Community injury deaths—case counts and rates for major causes for persons, Australia 2004–05[a]

Age group (years)	Transportation V01–V99 Case counts	Rates	Falls W00–W19, X59 plus MCoD fracture code Case counts	Rates	Drowning W65–W74, (T75.1 and V01–X59) Case counts	Rates	Poisoning (drugs) X40–X44, (T36–T50 and V01–X59) Case counts	Rates	Poisoning (other substances) X45–X49, (T51–T65 and V01–X59) Case counts	Rates
0–4	38	3.0	..	..	23	1.8	..	..	15	1.2
5–9	19	1.4	..	..	8	0.6	0	0.0	..	..
10–14	27	1.9	..	..	8	0.6	0	0.0	..	..
15–19	207	15.0	10	0.7	10	0.7	8	0.6	..	..
20–24	229	16.2	14	1.0	22	1.6	47	3.3	11	0.8
25–29	159	11.6	10	0.7	18	1.3	96	7.1	29	2.1
30–34	140	9.1	15	1.0	19	1.3	110	7.3	32	2.1
35–39	128	8.7	11	0.7	12	0.8	83	5.7	25	1.7
40–44	120	7.8	20	1.3	18	1.2	112	7.3	46	3.0
45–49	117	8.0	26	1.8	14	1.0	88	6.1	32	2.2
50–54	95	7.1	28	2.1	12	0.9	59	4.4	18	1.4
55–59	103	8.5	43	3.5	11	0.9	38	3.1	20	1.6
60–64	78	8.4	52	5.6	18	1.9	25	2.7	19	2.1
65–69	66	8.8	68	9.0	14	1.8	16	2.1	10	1.3
70–74	71	11.3	127	20.2	8	1.3	7	1.1	7	1.1
75–79	68	12.5	338	61.2	9	1.6	15	2.7	11	2.0
80–84	77	19.9	595	151.6	8	2.0	19	4.8	10	2.5
85+	50	17.0	1,517	498.6	..	..	22	7.2	12	3.9
All ages[b]	**1,792**	**8.8**	**2,881**	**13.1**	**236**	**1.2**	**748**	**3.7**	**307**	**1.5**

(continued)

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

Table A2.6 (continued): Community injury deaths—case counts and rates for major causes for persons, Australia 2004–05[a]

Age group (years)	Smoke, fire and flames, heat and hot substances X00–X19, (T20–T32 and V01–X59) Case counts	Rates	Other unintentional W20–W64, W75–W99, X20–X39, X50–X59, Y85, Y86, Y89.9 Case counts	Rates	Suicide X60–X84, Y87.0 Case counts	Rates	Homicide X85–Y09, Y35–Y36, Y87.1, Y89.0, Y89.1 Case counts	Rates
0–4	20	1.6	44	3.5	0	0.0	18	1.4
5–9	6	0.5	11	0.8	0	0.0	..	..
10–14	..	..	13	0.9	12	0.9	..	..
15–19	8	0.6	53	3.9	113	8.2	8	0.6
20–24	6	0.4	71	5.0	203	14.4	17	1.2
25–29	..	..	70	5.1	248	18.1	23	1.7
30–34	6	0.4	77	5.1	293	19.2	27	1.8
35–39	7	0.5	72	4.9	229	15.5	34	2.3
40–44	8	0.5	86	5.6	258	16.7	33	2.1
45–49	7	0.5	60	4.1	241	16.6	11	0.8
50–54	10	0.8	79	5.9	200	15.0	9	0.7
55–59	8	0.7	84	6.9	132	10.8	12	1.0
60–64	9	1.0	79	8.5	111	12.0	6	0.6
65–69	8	1.1	100	13.2	72	9.6	..	..
70–74	10	1.6	118	18.8	71	11.3	..	..
75–79	11	2.0	181	32.8	70	12.8	..	..
80–84	13	3.3	215	54.8	47	12.1	..	..
85+	14	4.6	410	134.8	37	12.6	..	..
All ages[b]	**156**	**0.8**	**1,823**	**8.7**	**2337**	**11.5**	**220**	**1.1**

(a)   Deaths occurring in 2004–05 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). Data in this table are as reported in ABS data and have not been adjusted for misclassification.

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

.. Cell counts in tables that are 5 cases or fewer have been suppressed, as have rates derived from them, to protect confidentiality.

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