

# 7 Injury

This chapter discusses mortality due to the broad category of injury and poisoning (ICD-10 chapter 20, codes V01–Y98). It then provides further analysis of types of injury within this broad category. The injuries included are:

1. motor vehicle accidents;
2. suicide;
3. interpersonal violence;
4. accidental shooting;
5. other injuries.

These were chosen either because they are frequent causes of death (as in the case of motor vehicle accidents and suicide) or because they exhibit substantial inter-regional variation (interpersonal violence and accidental shooting). Occupational injuries were not listed separately because they cannot be reliably identified using ICD-10 codes and because of the difficulty identifying the size of the population in each occupation. ‘Other’ injuries (which include a wide range of external causes including drowning, burns, falls and electrocution) sometimes account for a substantial proportion of ‘excess’ deaths, and deserve further investigation.

## Summary of findings

The overall mortality of Australians due to injury and poisoning increased with increasing remoteness. Compared to those in Major Cities, death rates from injury and poisoning were:

- 1.2–1.4 times as high in regional areas; and
- 1.5–2.4 times as high in remote areas.

This broad observation does not take into account two factors previously stated on page 33, namely the likely effect on rates of high Indigenous mortality coupled with their greater representation outside Major Cities, and the possible effect of the migration of the frail aged.

Indigenous mortality from injury is almost 4 times as high as that for non-Indigenous people who live in Major Cities, strongly influencing rates for the total population in remote areas. In most age groups, rates were between 3 and 4 times the rates for similar aged non-Indigenous people from Major Cities.

For non-Indigenous males and females respectively, death rates in:

- regional areas were 1.3–1.4 and 1.2–1.3 times as high as in Major Cities;
- remote areas were 1.5–1.7 and 1.2 times as high as in Major Cities (although not significantly different for females from Very Remote areas).

When analysis is restricted to data on non-Indigenous Australians under the age of 65 years, the pattern remains similar. For Indigenous people of this age, the pattern is very similar to that for the total Indigenous population.

Death rates varied a little from year to year, but the trend between 1992 and 1999 was for rates of death to remain basically unchanged or to have risen slightly for most groups. There was a slight increase in the injury death rate for males in Major Cities (of less than 1% per annum) and for people from Inner Regional areas (of about 2% per annum).

Injury accounts for a relatively small proportion (about 6%) of all deaths, and about 16% of Indigenous deaths. However, injury accounts for a much larger proportion (24%) of all 'excess' deaths, the second largest proportion after circulatory disease (which accounts for 42% of 'excess' deaths). Of additional importance is the fact that people who die as a result of injury are considerably younger, on average, than those who die as a result of circulatory disease. Consequently, injury makes a substantial contribution to the total number of years of potential life lost outside Major Cities. Also, as mentioned above, death rates due to injury are steady or rising, whereas death rates due to circulatory disease are falling. This makes injury an important target for intervention.

## **Summary/discussion of individual causes of death reviewed in this chapter**

### **Total population**

Motor vehicle accidents, suicide and 'other' injuries were the most common causes of injury death outside Major Cities, responsible for 25%, 31% and 40% of all injury deaths respectively in these areas (Table 7.1). Interpersonal violence accounted for another 3% of injury deaths.

There were 1.7-3.6, 1.2-1.6 and 1.1-2.1 times as many deaths due to motor vehicle accidents, suicide and 'other' injuries as expected in the four areas outside Major Cities (death rates increased with remoteness). The patterns for interpersonal violence and accidental shooting were more extreme, with 0.8-5.4 and 3.7-15.5 times as many deaths in these areas as expected (Table 7.2).

Even though motor vehicle accidents were not responsible for the greatest number of deaths amongst these causes, they were responsible for the greatest number of 'excess' deaths (368 more deaths of people who lived outside Major Cities than expected each year, 47% of the total injury 'excess'). There were also substantially more deaths than expected annually due to 'other' injuries (214) and suicide (184).

Because of its relative importance as a cause of death, 'other' injuries (including occupational injury, drowning, falls and others) requires further investigation.

**Table 7.1: Summary table of deaths due to injury and poisoning for all persons, 1997–1999**

Cause	Annual deaths outside Major Cities			Annual 'excess' deaths outside Major Cities			Age groups in which the 'excess' occurs
	No.	%	% male	No.	%	% male	
Motor vehicle accidents	815	25%	70%	368	47%	71%	70%: 15–44
Suicide	984	31%	83%	184	23%	100%	95%: 15–64
Inter-personal violence	112	3%	64%	9	1%	10%	20–29, some older
Accidental shooting	16	<1%	88%	12	2%	100%	All age groups
'Other' injuries	1,287	40%	63%	214	27%	70%	Young children 15–49 males 85+ females
<b>Total injury</b>	<b>3,213</b>	<b>100%</b>	<b>71%</b>	<b>788</b>	<b>100%</b>	<b>76%</b>	<b>70%: 15–49</b>

*Note:* Descriptions of the age groups within which the 'excess' occurs apply only to the total population.

*Source:* AIHW National Mortality Database.

For most causes, there were more deaths of males than females; on average 71% of deaths and 76% of 'excess' deaths were of males.

Much, but not all, of the 'excess' death occurred amongst the young. For example, 70% of the 'excess' deaths due to motor vehicle accidents occurred amongst age groups between 15 and 44 years. However, the 'excess' death due to suicide (almost all of whom were male) was relatively evenly distributed amongst all age groups between 15 and 64 years (with slightly higher representation amongst younger people). 'Other' injuries include a wide range of specific causes, and consequently the 'excess' is broadly spread amongst all ages. However, a considerable percentage of the 'excess' does appear to be contributed by young children, working age males and elderly women.

Interpersonal violence appears to be more of a problem in remote areas, where there were 20 more deaths than expected, than in regional areas, where there were 12 fewer deaths than expected. For accidental shooting, the 'excess' is almost entirely in regional areas, and is entirely a non-Indigenous issue.

### **Indigenous population**

Mortality of Indigenous people as a result of injury was 3.5 times as high as for non-Indigenous people from Major Cities. For the main causes of injury death, namely motor vehicle accidents, suicide and 'other' injuries, the rates for Indigenous people were respectively 4.1, 2.9 and 3.3 times those for non-Indigenous people who lived in Major Cities.

There were no reported Indigenous deaths due to accidental shooting during the study period. Death rates for Indigenous people due to interpersonal violence, on the other hand, were over 7 times as high as for their non-Indigenous counterparts from Major Cities.

**Table 7.2: The ratio of observed deaths from injury and poisoning to those expected if Major Cities<sup>(a)</sup> rates applied in each ASGC Remoteness area, 1997–1999**

Cause	Population	IR	OR	R <sup>(b)</sup>	VR <sup>(b)</sup>	National <sup>(c)</sup>
Motor vehicle accidents	All persons	<b>*1.7</b>	<b>*1.9</b>	<b>*2.4</b>	<b>*3.6</b>	n.p.
	Non-Indigenous	<b>*1.7</b>	<b>*1.9</b>	<b>*2.1</b>	<b>*2.2</b>	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*1.8</b>	<b>*2.0</b>	<b>*2.1</b>	<b>*2.4</b>	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*4.1</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*4.2</b>
Suicide	All persons	<b>*1.2</b>	<b>*1.2</b>	<b>*1.4</b>	<b>*1.6</b>	n.p.
	Non-Indigenous	<b>*1.2</b>	<b>*1.2</b>	<b>*1.2</b>	1.0	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*1.3</b>	<b>*1.2</b>	1.2	1.0	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*2.9</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*3.0</b>
Inter-personal violence	All persons	<b>*0.8</b>	1.0	<b>*2.0</b>	<b>*5.4</b>	n.p.
	Non-Indigenous	<b>*0.8</b>	0.9	1.3	<b>*2.2</b>	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*0.8</b>	0.8	1.2	<b>*2.3</b>	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*7.4</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*7.6</b>
Accidental shooting	All persons	<b>*3.7</b>	<b>*4.6</b>	<b>*7.7</b>	<b>*15.5</b>	n.p.
	Non-Indigenous	<b>*3.7</b>	<b>*4.7</b>	<b>*8.3</b>	<b>*22.3</b>	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*4.1</b>	<b>*4.3</b>	<b>*8.9</b>	<b>*19.0</b>	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*0.0</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*0.0</b>
Other injuries	All persons	<b>*1.1</b>	<b>*1.3</b>	<b>*1.6</b>	<b>*2.1</b>	n.p.
	Non-Indigenous	<b>*1.1</b>	<b>*1.2</b>	<b>*1.4</b>	<b>*1.6</b>	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*1.1</b>	<b>*1.3</b>	<b>*1.5</b>	<b>*1.9</b>	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*3.3</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*3.6</b>
Total injury	All persons	<b>*1.2</b>	<b>*1.4</b>	<b>*1.7</b>	<b>*2.4</b>	n.p.
	Non-Indigenous	<b>*1.2</b>	<b>*1.3</b>	<b>*1.5</b>	<b>*1.5</b>	n.p.
	Non-Indigenous (aged 0–64 years)	<b>*1.3</b>	<b>*1.4</b>	<b>*1.5</b>	<b>*1.7</b>	n.p.
	Indigenous	n.a.	n.a.	n.a.	n.a.	<b>*3.5</b>
	Indigenous (aged 0–64 years)	n.a.	n.a.	n.a.	n.a.	<b>*3.7</b>

(a) While the number of expected deaths for the total population is based on the death rates of the total population from Major Cities, the expected number of deaths for the non-Indigenous population is based on the death rates of the non-Indigenous population from Major Cities. Because non-Indigenous people comprise the overwhelming majority (99%) of the population in Major Cities, these two standards are very similar, but not identical. This means that the ratios for the five population groups are not strictly comparable.

(b) Ratios calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution.

(c) The ratios for Indigenous persons are for SA, WA, NT and Qld combined.

Note: Bold text and asterisk indicates that ratios are significantly different from 1 at the 95% level.

Source: AIHW National Mortality Database.

Annually there were 61, 68, 79 and 26 deaths of Indigenous people due to motor vehicle accidents, suicide, 'other' injuries and interpersonal violence. Of these, 46, 44, 55 and 23 respectively were in 'excess' of the number expected. These deaths were of Indigenous people from South Australia, Western Australia, the Northern Territory and Queensland only (where identification during this period was more reliable). The numbers for Australia would be greater.

### **Non-Indigenous population**

The high mortality of Indigenous people is influential in elevating injury death rates in remote areas. However, for all causes investigated, rates for non-Indigenous people remained elevated outside Major Cities, and indeed tended to increase with increasing remoteness. It is possible that misidentification of Indigenous people as non-Indigenous in the database may artificially elevate some of the non-Indigenous rates in remote areas. The absolute size of this potential effect is unknown, but it appears unlikely to substantially alter the pattern described here.

Whereas overall death rates due to chronic diseases (such as ischaemic heart disease) can be greatly affected by relatively low death rates of the elderly in remote areas, this does not appear to be an issue for injury deaths. In other words, the ratio of observed to expected deaths is much the same for the total non-Indigenous population as it is for those non-Indigenous people younger than 65 years.

Death rates for non-Indigenous people due to:

- motor vehicle accidents were high throughout regional and remote areas, ranging from 1.7 to 2.2 times those in Major Cities;
- suicide were 20% (1.2 times) higher outside Major Cities;
- other injuries ranged from 1.1 to 1.6 times those in Major Cities.

For the two other causes of death responsible for relatively few deaths, rates for non-Indigenous people due to:

- interpersonal violence were lower (0.8 times) in regional areas but double in Very Remote areas;
- accidental shooting were 4 times as high in regional areas and over 20 times as high in Very Remote areas.

## 7.1 Overview—injury

Between 1997 and 1999, an annual average of 8,143 Australians died as a result of an injury or poisoning, comprising 5,678 males and 2,465 females (Table 7.3). Most of these (4,930) occurred in Major Cities, with a further 2,861 in Inner and Outer Regional areas, and the remaining 352 in Remote and Very Remote areas.

Injury and poisoning were responsible for 6% of all deaths nationally, and 24% of the ‘excess’ deaths in areas outside Major Cities.

**Table 7.3: Average annual deaths due to injury and poisoning, 1997–1999**

	MC	IR	OR	R	VR	Total
Males (no.)	3,390	1,270	750	155	113	5,678
Females (no.)	1,540	556	285	48	36	2,465
<b>Persons (no.)</b>	<b>4,930</b>	<b>1,826</b>	<b>1,035</b>	<b>203</b>	<b>149</b>	<b>8,143</b>
Non-Indigenous males <sup>(a)</sup> (per cent)	98	98	93	81	47	96
Non-Indigenous females <sup>(a)</sup> (per cent)	99	99	92	73	25	97
<b>Non-Indigenous persons<sup>(a)</sup> (per cent)</b>	<b>99</b>	<b>98</b>	<b>93</b>	<b>79</b>	<b>42</b>	<b>96</b>
Non-Indigenous males (0–64 yrs) (no.)	3,335	1,227	648	90	34	5,334
Non-Indigenous females (0–64 yrs) (no.)	2,950	975	472	57	19	4,473
<b>Non-Indigenous persons (0–64 yrs) (no.)</b>	<b>6,285</b>	<b>2,202</b>	<b>1,120</b>	<b>147</b>	<b>53</b>	<b>9,807</b>
<b>Indigenous persons<sup>(b)</sup> (no.)</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>234</b>

(a) Percentages and counts are rounded to the nearest whole number.

(b) The number of Indigenous deaths is the average annual number registered in SA, WA, NT and Qld, 1997–1999. An average of a further 69 were registered annually in the other jurisdictions. Counts of deaths have not been reported for Indigenous people by area because of concerns about data accuracy.

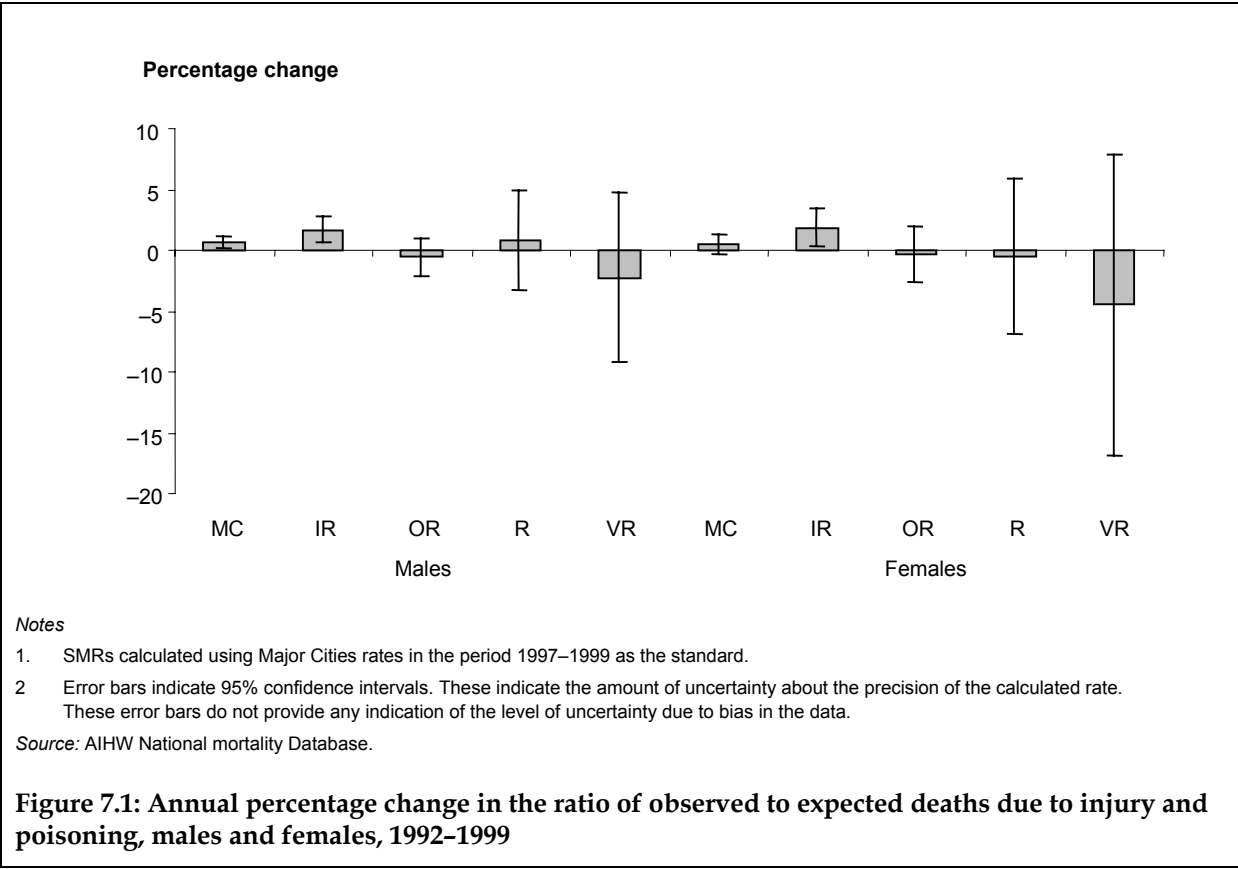
Source: AIHW National Mortality Database.

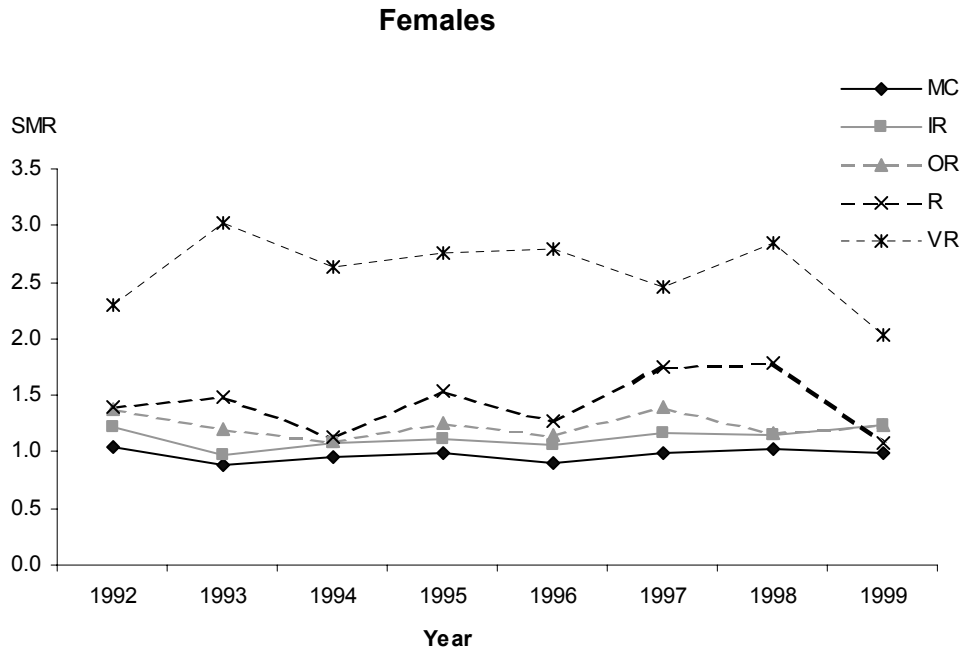
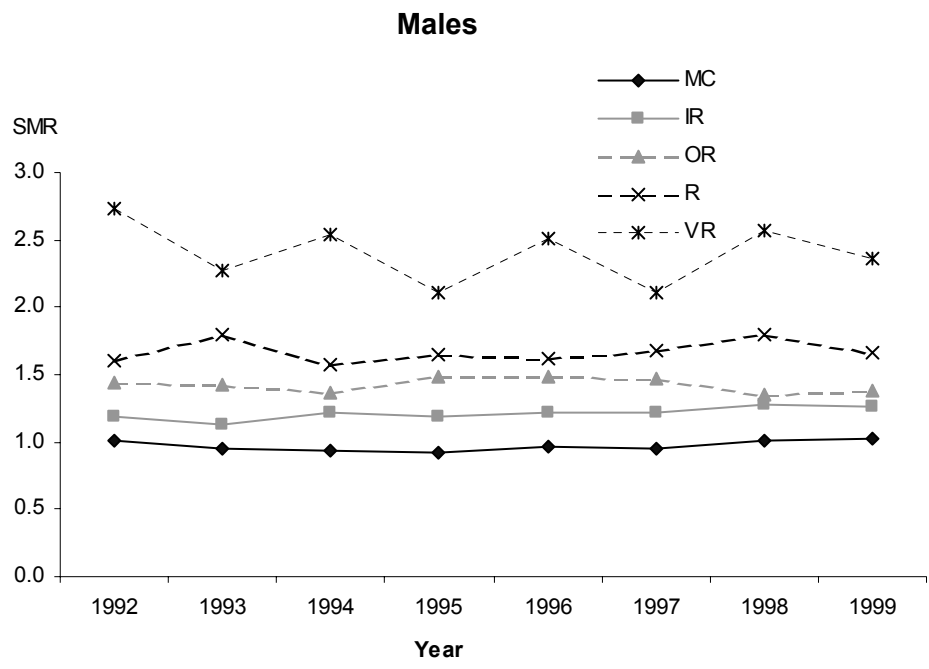
### Trends in mortality due to injury and poisoning

Death rates due to injury and poisoning have fluctuated from year to year, but have either not changed significantly or have tended to increase very slightly between 1992 and 1999 (Figures 7.1 and 7.2).

Only for males and females living in Inner Regional areas, and males living in Major Cities, did rates of death due to injury clearly change, though not substantially (increasing by slightly less than 2% and less than 1% per annum respectively over the period 1992–1999).

Because of the small size of changes in mortality (and the small increase in Inner Regional areas), essentially none of the decrease in overall mortality has been due to changes in injury mortality; indeed these slight increases in the rate of injury mortality have slowed the overall rate of decrease in most of the areas.





Note: SMRs calculated using Major Cities rates in the period 1997–1999 as the standard.  
 Source: AIHW National Mortality Database.

**Figure 7.2: Trends in SMRs, injury and poisoning, males and females, 1992–1999**



## Death rates due to injury and poisoning

Mortality due to injury and poisoning was higher for people living outside Major Cities, with death rates increasing with increasing remoteness.

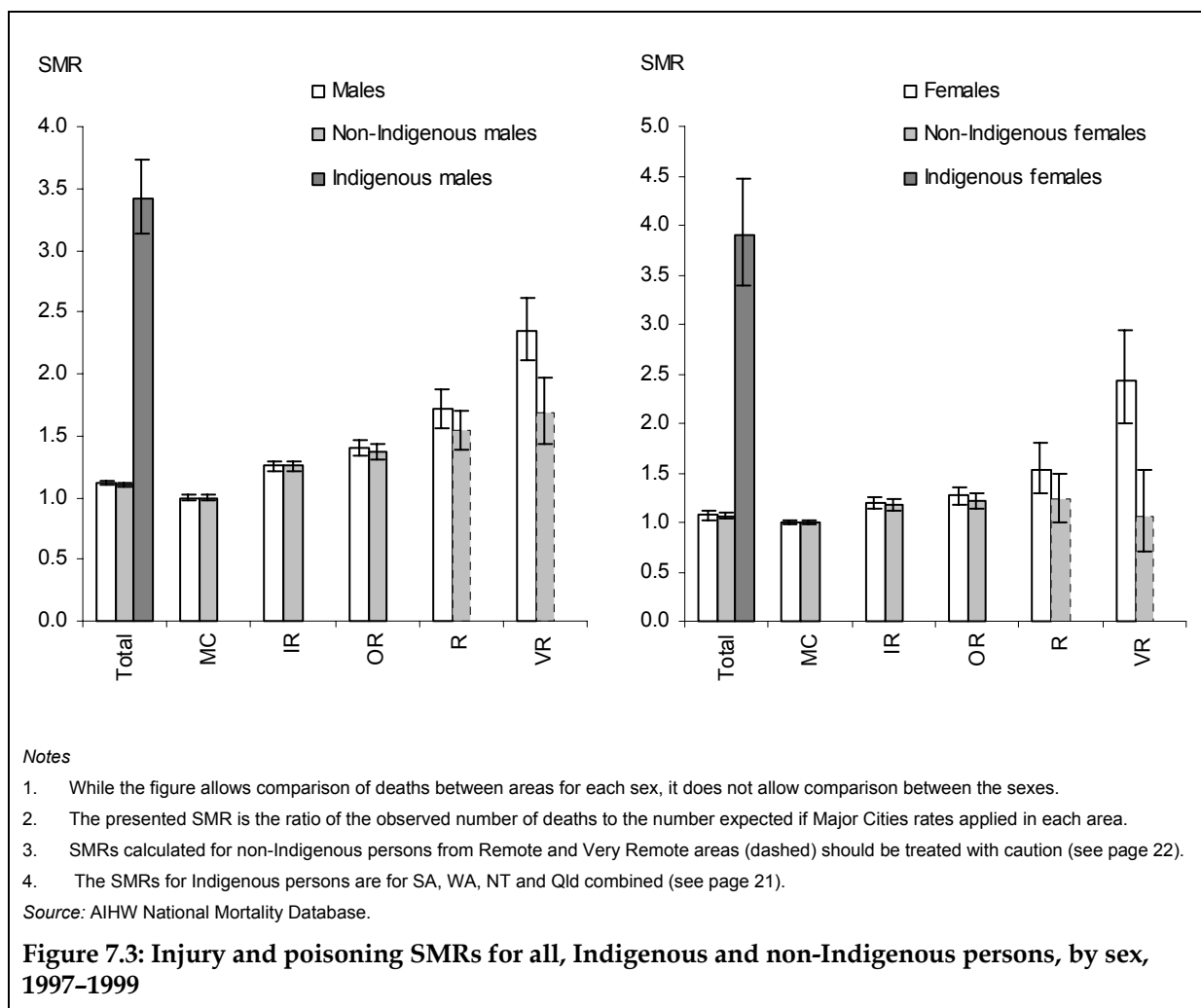


Figure 7.3, and Tables 7.4 and 7.5 show that:

- For males, death rates in Inner and Outer Regional, Remote and Very Remote areas were 1.3, 1.4, 1.7 and 2.4 times the rates for males who live in Major Cities.
- For females, death rates in Inner and Outer Regional, Remote and Very Remote areas were 1.2, 1.3, 1.5 and 2.4 times the rates for females who live in Major Cities.
- Mortality for Indigenous people is substantially higher (almost four times as high) than for non-Indigenous people from Major Cities and certainly higher than for non-Indigenous people from any of the areas. This higher mortality substantially raises the average death rate, especially in the more remote areas.

These figures would appear, on the surface, to show that mortality as a result of injury increases with increasing remoteness.

The above rates for the total population are influenced by the number of Indigenous people living outside Major Cities and the high overall mortality of Indigenous people. Without examining the mortality of the Indigenous and non-Indigenous populations separately, therefore, it is premature to draw the conclusion that remoteness is a factor influencing the mortality of Australians due to injury.

### **Mortality of Indigenous people**

Based on 1997–1999 death registrations, injury and poisoning was the second most common cause of death for Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland. This accounted for 16% of Indigenous deaths in these jurisdictions. Injury and poisoning was one of the leading causes of death among the Australian population as a whole, accounting for 6% of all deaths. However, Indigenous males and females have higher death rates from this cause than the total population (Figure 7.3 and Table 7.5).

In 1997–1999, there were almost four times as many deaths in the Indigenous population than expected if rates for non-Indigenous people from Major Cities had applied (3.4 times more deaths for Indigenous males and 3.9 times more deaths for Indigenous females). Of all deaths of Indigenous people resulting from injury or poisoning, 29% were attributable to suicide, 26% to motor vehicle accidents, 11% to interpersonal violence and 34% to ‘other’ injuries. It is likely that, amongst other things, these rates are influenced by high alcohol consumption (Indigenous people are twice as likely as non-Indigenous people to consume alcohol in hazardous quantities (ABS 2002)). However, the whole range of disadvantages experienced by many Indigenous people (such as poverty, lack of control over one’s own life, reduced sense of hope, and so on (ABS 2001c)) would also contribute to these higher rates.

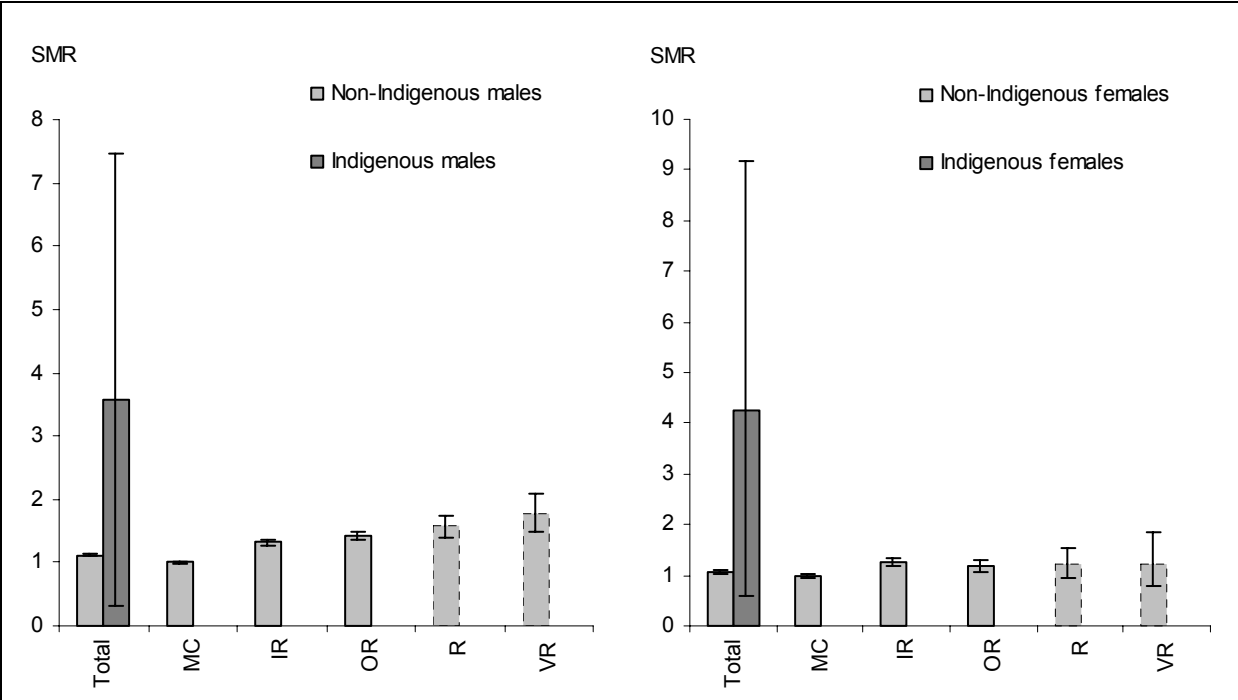
As discussed on page 21, uncertainty about the accuracy of identification of Indigenous deaths prevents reporting of Indigenous mortality in rural and remote areas.

### **Mortality of non-Indigenous people**

As was the case for the total population, mortality of the non-Indigenous population as a result of injury and poisoning increased with increasing remoteness, although rates in the most remote areas were lower than for the total population (Figure 7.3 and Table 7.5).

- For non-Indigenous males, death rates in Inner and Outer Regional, Remote and Very Remote areas were 1.3, 1.4, 1.5 and 1.7 times the rates for non-Indigenous males who live in Major Cities. Rates in regional areas were similar to rates for the total population, but were lower than for the total population in Remote and especially Very Remote areas.
- For non-Indigenous females, death rates in Inner and Outer Regional and Remote areas were 1.2 times the rates for non-Indigenous females who live in Major Cities. Rates for females in Very Remote areas were not significantly different from rates in Major Cities.

**Mortality of people aged 0-64 years**



*Notes*

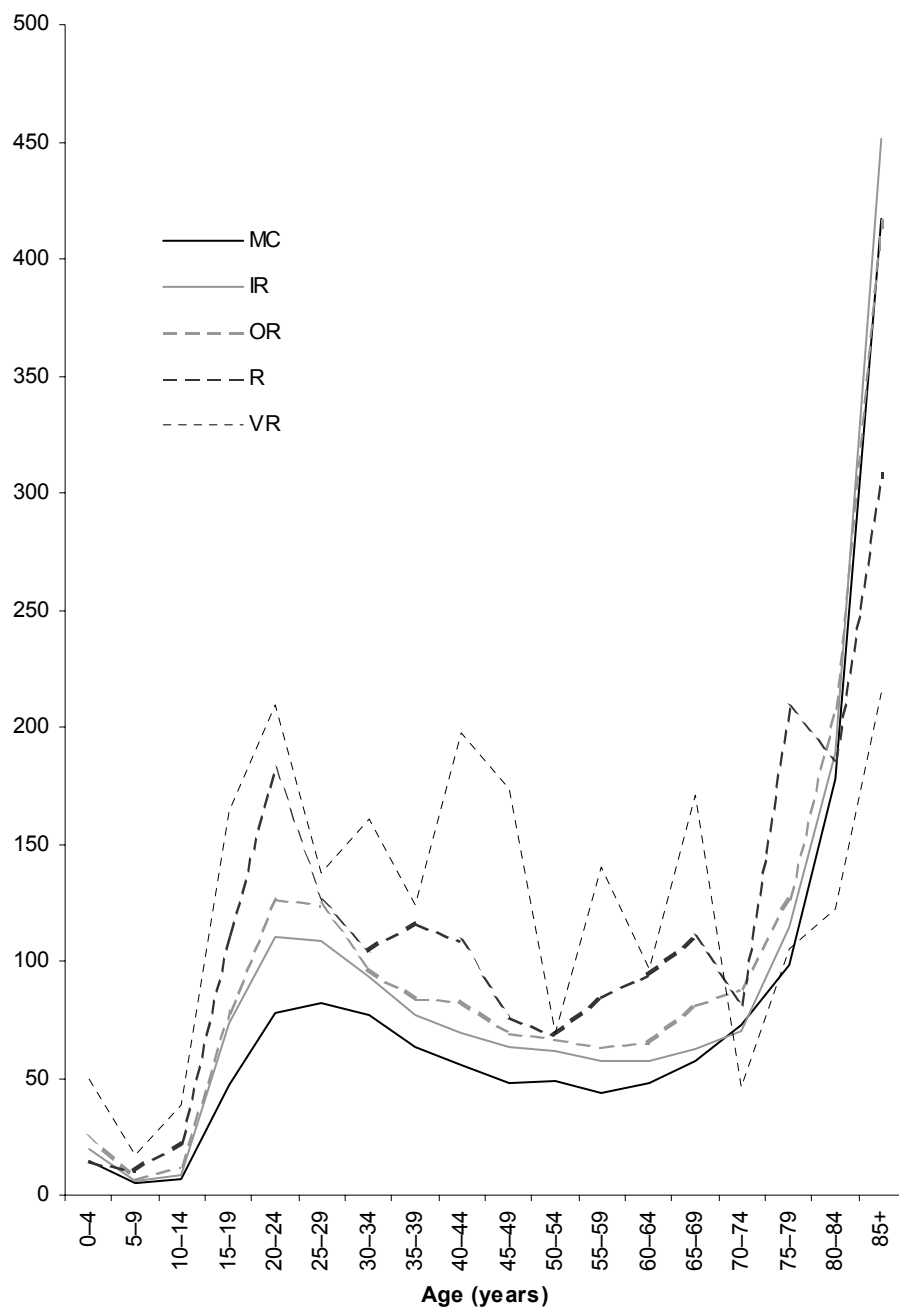
1. While the figure allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes.
2. The presented SMR is the ratio of the observed number of deaths to the number expected if Major Cities rates applied in each area.
3. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas (dashed) should be treated with caution (see page 22).
4. The SMRs for Indigenous persons are for SA, WA, NT and Qld combined (see page 21).

Source: AIHW National Mortality Database.

**Figure 7.4: Injury and poisoning SMRs for Indigenous and non-Indigenous persons aged 0-64 years, by sex, 1997-1999**

For other causes, death rates of older non-Indigenous people from remote and very remote areas are frequently found to be substantially lower than those of similar aged people living in other areas, possibly reflecting a movement of older people with known health conditions moving into more populated areas to receive treatment, and eventually dying there. These lower rates can substantially affect the summary statistic described for non-Indigenous people above. However, this effect is much less likely to be an issue for injury.

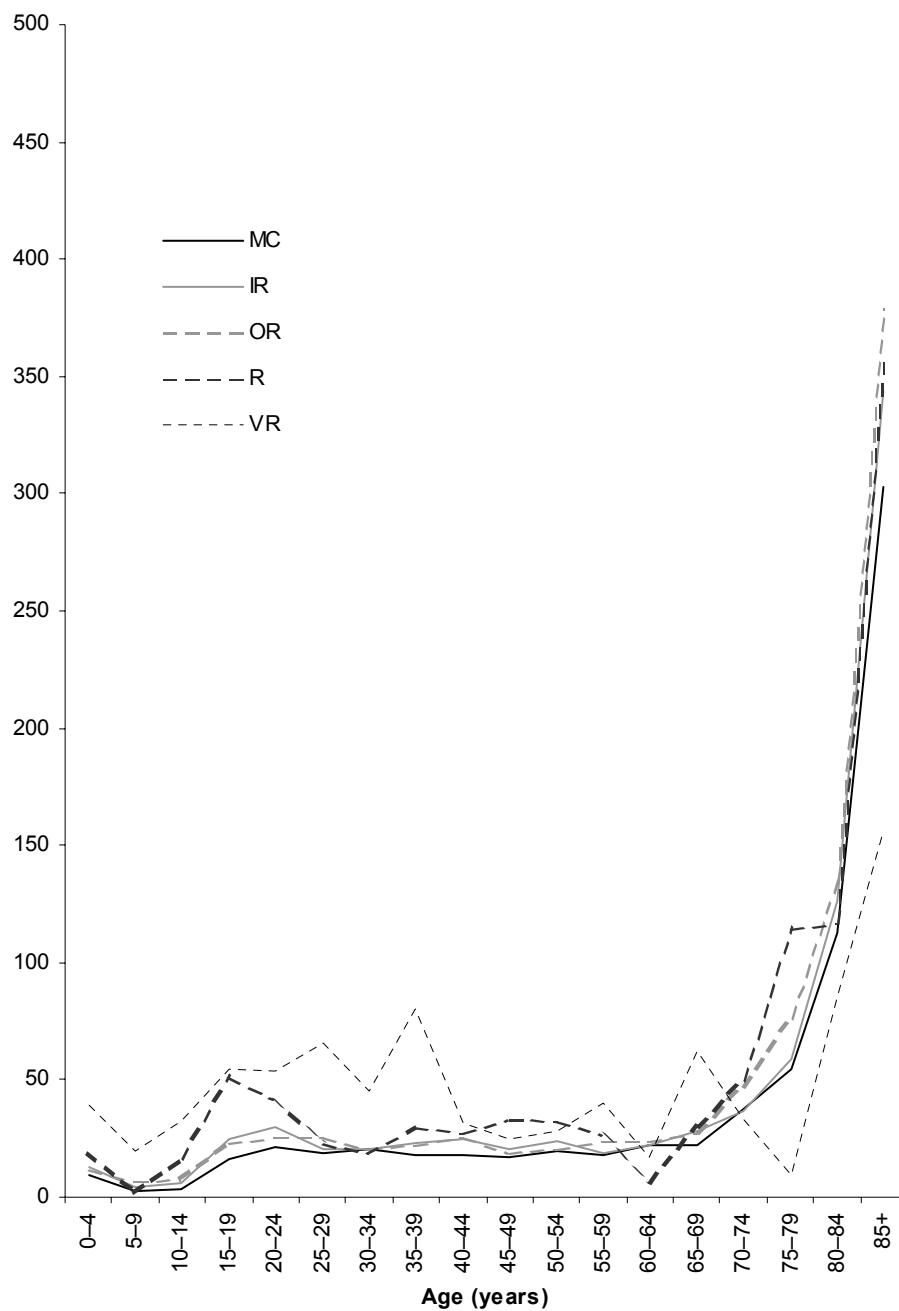
**Deaths per 100,000 population**



Source: AIHW National Mortality Database.

**Figure 7.5: Age-specific death rates due to injury and poisoning, by ASGC Remoteness area for males, 1997-1999**

**Deaths per 100,000 population**



Source: AIHW National Mortality Database.

**Figure 7.6: Age-specific death rates due to injury and poisoning, by ASGC Remoteness area for females, 1997-1999**

Death rates from injury and poisoning for Indigenous males and females who are younger than 65 years were approximately 4 times as high as rates for non-Indigenous males and females of the same age from Major Cities – similar to the differential for the total Indigenous population described earlier.

Death rates due to injury and poisoning for non-Indigenous males younger than 65 years were 1.3, 1.4, 1.6 and 1.8 times as high in the four areas outside Major Cities, than for similar males in Major Cities. For non-Indigenous females in this age group, the rates were 1.3 and 1.2 times as high in Inner and Outer Regional areas, but, although elevated, were not significantly higher in Remote and Very Remote areas than in Major Cities. This pattern is similar to that for the total non-Indigenous population described earlier.

### **Variation by age group: injury and poisoning**

An analysis of age-specific death rates gives more detailed information about each age group to confirm and supplement findings resulting from the broad analysis above using age-standardised rates.

#### **Age-specific rates**

Death rates in 1997–1999 from injury were higher for both sexes for almost all age groups in most regional and remote areas than in Major Cities, and there is a clear trend for the size of the difference to increase with remoteness. Unlike many of the other causes of death, injury is a substantial cause of death for children younger than 5 years old and also from age 15, and then particularly for those who are 75 years and older.

In the various age groups for males younger than 65 years, there were respectively 1.3–1.5, 1.4–1.8, 1.6–2.8 and 2.2–4.8 times as many deaths as expected in Inner and Outer Regional, Remote and Very Remote areas. This includes death rates for 0–4-year-old boys that were 1.4–3.5 times those in Major Cities (Figures 7.5 and 7.6 and Table 7.5).

For males aged 65–74 years, there were 1.3–1.5 times as many deaths as expected in Outer Regional and Remote areas.

For males who were 75 years and older, there were 1.1 times as many deaths as expected in Inner Regional areas, and more (but not significantly more) deaths than expected in the other areas.

There were more deaths of females from areas outside Major Cities than expected, particularly in the younger age groups.

- There were 1.4 and 4.3 times as many deaths of young girls (0–4 years) as expected in Inner Regional and Very Remote areas.
- For 5–44-year-old females, rates were elevated and increased with remoteness, with 1.2–1.7, 1.3–2.6, 2.4–3.0 and 2.8–9.4 times as many deaths as expected in individual age groups in Inner and Outer Regional, Remote and Very Remote areas respectively.
- For females 45–74 years old, death rates were higher, but were only significantly higher for 45–64-year-old females from Inner Regional areas (1.15 times the Major Cities rate).
- There were 1.1 and 1.3 times as many deaths of females older than 75 years in Inner and Outer Regional areas, but numbers in Remote and Very Remote areas were not significantly different to those in Major Cities.

**Table 7.4: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness area, injury and poisoning, males and females, 1997–1999**

Age group (years)	Male					Female				
	MC rate	IR	OR	R	VR	MC rate	IR	OR	R	VR
		(ratio)					(ratio)			
0–4	14	*1.38	*1.77	0.99	*3.50	9	*1.44	1.31	2.07	*4.33
5–14	6	*1.31	*1.62	*2.82	*4.76	3	*1.74	*2.57	*2.98	*9.38
15–24	63	*1.48	*1.64	*2.35	*2.95	19	*1.46	*1.31	*2.44	*2.84
25–44	70	*1.25	*1.39	*1.64	*2.17	19	*1.20	*1.26	1.32	*3.04
45–64	47	*1.29	*1.41	*1.68	*2.63	19	*1.14	1.13	1.45	1.49
65–74	64	1.03	*1.31	*1.54	1.91	30	1.08	1.25	1.33	1.75
75+	178	*1.10	1.13	1.19	0.68	136	*1.12	*1.26	1.29	0.52
Total	..	*1.25	*1.40	*1.71	*2.35	..	*1.19	*1.27	*1.53	*2.44

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

*Notes*

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

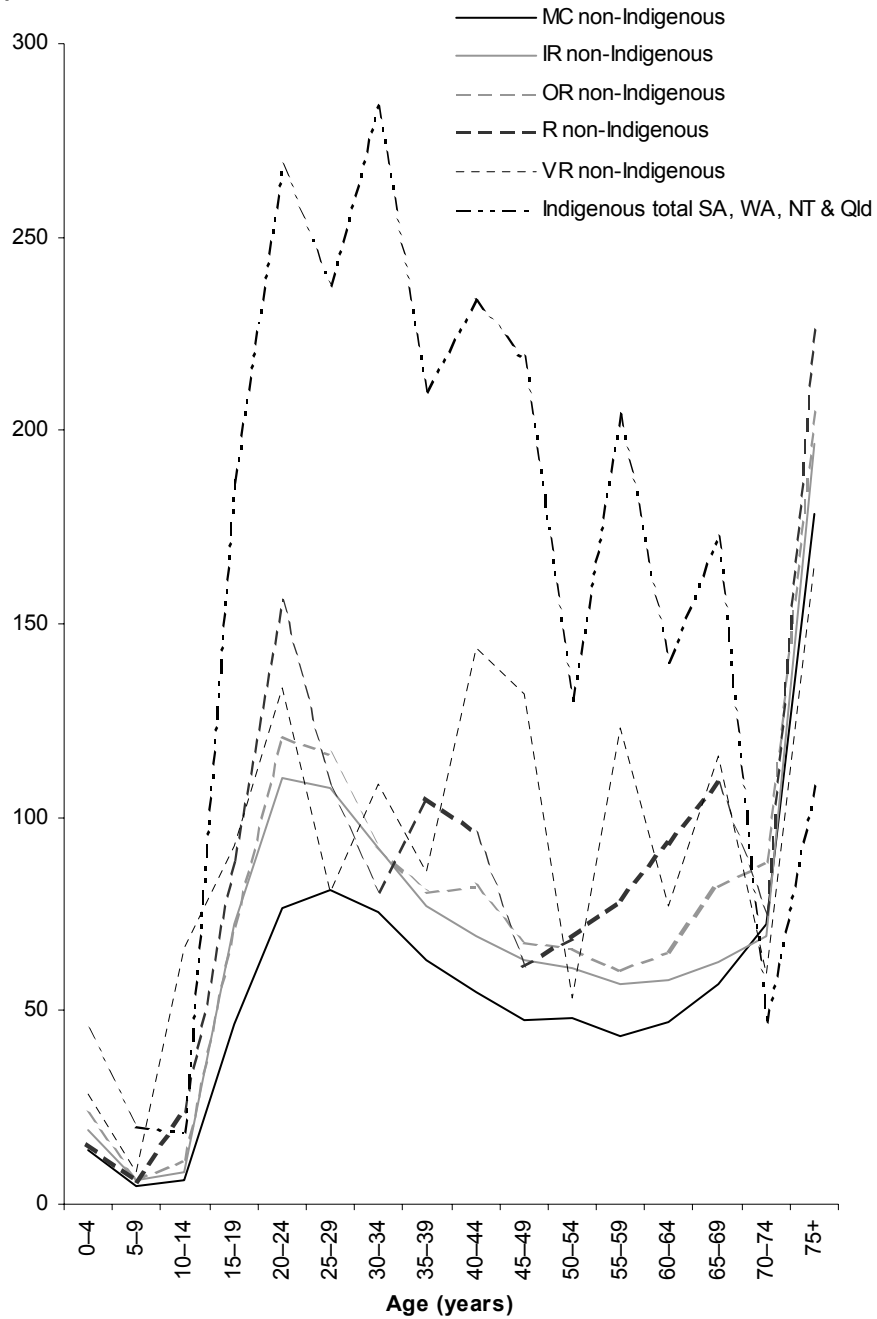
Source: AIHW National Mortality Database.

### Age-specific rates for Indigenous people

Death rates of Indigenous people are much greater than for non-Indigenous people (Figures 7.7 and 7.8 and Table 7.5).

Age-specific death rates were higher for Indigenous males and females than for Major Cities non-Indigenous males and females in almost every age group, with rates for those 65 years and older not significantly different. Although there were some differences between the age groups, rates of death for Indigenous people were typically between three and four times the rates for non-Indigenous people from Major Cities, in all age groups 0–64 years (although for females, the ratios in some age groups were higher).

Deaths per 100,000 population

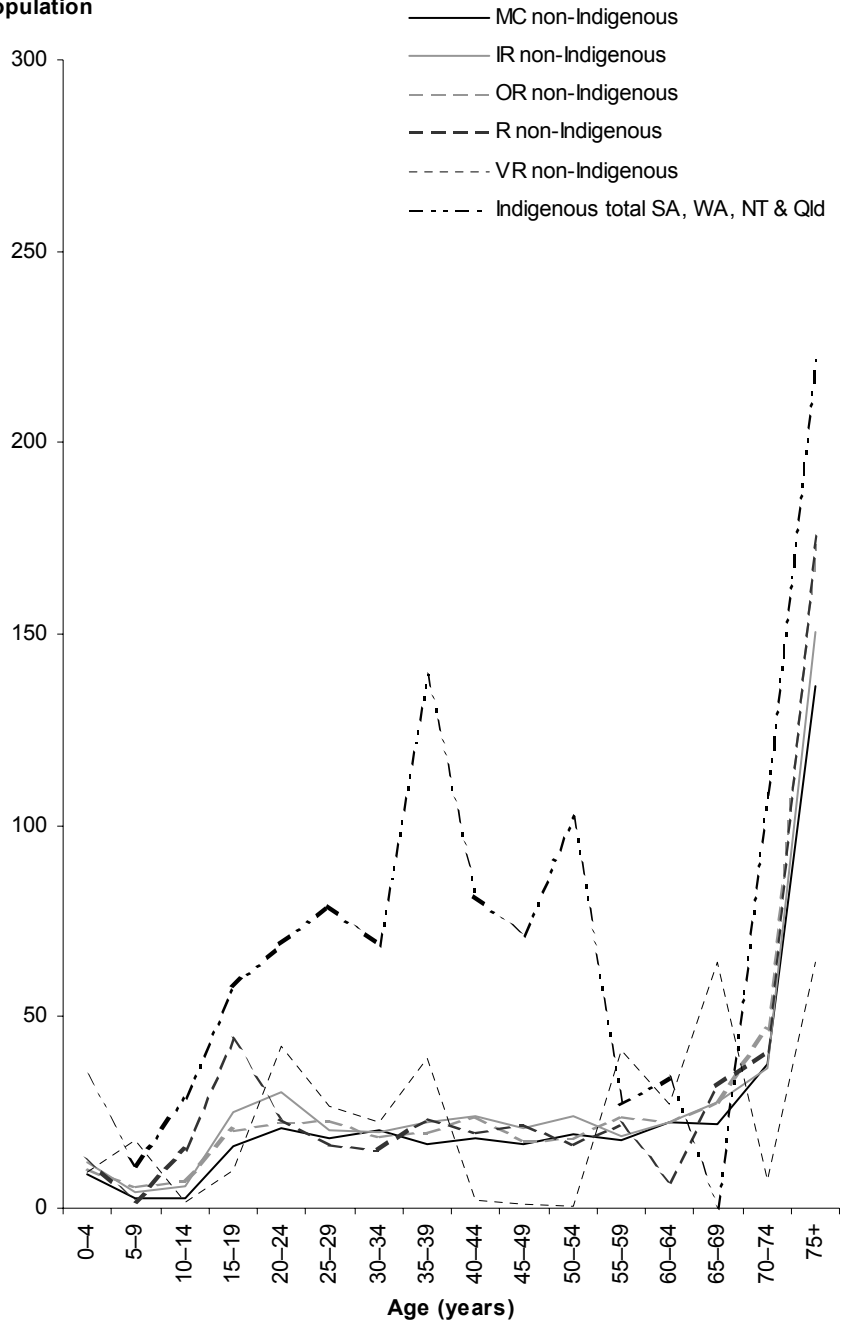


Source: AIHW National Mortality Database.

Figure 7.7: Age-specific death rates due to injury and poisoning, by ASGC Remoteness area for non-Indigenous males and for SA, WA, NT and Qld Indigenous males, 1997-1999



Deaths per 100,000 population



Source: AIHW National Mortality Database.

Figure 7.8: Age-specific death rates due to injury and poisoning, by ASGC Remoteness area for non-Indigenous females and for SA, WA, NT and Qld Indigenous females, 1997-1999

## Age-specific rates for non-Indigenous people

As for the total population, death rates due to injury for non-Indigenous males outside Major Cities are higher than those for similar people in Major Cities although the differences were smaller than for the total population (Figures 7.7 and 7.8 and Table 7.5).

**Table 7.5: The ratio of observed deaths to those expected as a result of injury and poisoning if Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness area and to the Indigenous population, 1997–1999**

Age group (years)	Male						Female					
	MC rate	Non-Indigenous				Indig-enous	MC rate	Non-Indigenous				Indig-enous
		IR	OR	R	VR			(ratio)	IR	OR	R	
0–4	14	*1.39	*1.69	1.11	2.05	*3.3	9	*1.35	1.15	1.44	1.05	*3.8
5–14	5	*1.32	*1.61	*2.63	*6.31	*3.6	3	*1.86	*2.46	2.95	4.09	*7.3
15–24	62	*1.49	*1.57	*1.99	*1.80	*3.7	19	*1.49	1.15	1.76	1.58	*3.4
25–44	69	*1.26	*1.35	*1.42	*1.50	*3.4	18	*1.19	*1.17	1.02	1.27	*4.9
45–64	47	*1.29	*1.39	*1.56	*2.10	*3.8	19	*1.15	1.07	0.96	0.69	*3.5
65–74	64	1.03	*1.33	1.48	1.47	2.0	30	1.08	1.24	1.23	1.34	1.5
75+	178	*1.10	*1.15	1.27	0.93	0.6	136	*1.10	*1.27	1.28	0.47	1.6
Total	..	*1.26	*1.37	*1.54	*1.68	*3.4	..	*1.18	*1.21	*1.23	1.06	*3.9
0–64	..	*1.32	*1.42	*1.57	*1.77	*3.6	..	*1.26	*1.17	1.21	1.24	*4.3

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

For non-Indigenous males 0–14 years, death rates in Inner and Outer Regional areas are 1.3–1.4 times and 1.6–1.7 times the rate for non-Indigenous males from Major Cities. Rates in remote areas were, or tended to be, higher still (to 6.3 times Major Cities rates).

For non-Indigenous males 15–64 years, death rates were 1.3–1.5, 1.3–1.6, 1.4–2 and 1.5–2.1 times as high in the four areas outside Major Cities as for similar aged non-Indigenous males from Major Cities.

Although statistical significance was frequently not reached, death rates for non-Indigenous females in almost all areas and for all age groups were higher than for similar aged non-Indigenous females in Major Cities. In Inner Regional areas, death rates were 40% (1.4 times) higher for 0–4-year-olds, 1.5–1.9 times for 5–24-year-olds, and 1.15–1.2 times as high for 25–64-year-olds. Death rates in Outer Regional areas were 2.5 times and 1.2 times as high respectively for 5–14 and 25–44-year-old non-Indigenous females than for their counterparts

from Major Cities. Rates for those in Remote and Very Remote areas tended to be higher than in Major Cities, but small numbers obscure the details.

For non-Indigenous males and females older than 65 years, the difference frequently failed to reach statistical significance, but where it did, rates were between 10% (1.1 times) and 30% (1.3 times) higher outside Major Cities than they were for similar non-Indigenous people who lived in Major Cities.

When the effects of the possible movement of the frail aged to more populated areas and the mortality of Indigenous people are taken into account, death rates due to injury and poisoning clearly increased with remoteness (or for females, were higher outside Major Cities).

### **'Excess' deaths due to injury and poisoning**

'Excess' deaths are defined as 'how many more observed deaths occurred than would be expected, if death rates in Major Cities are applied to the populations in each area outside Major Cities'.

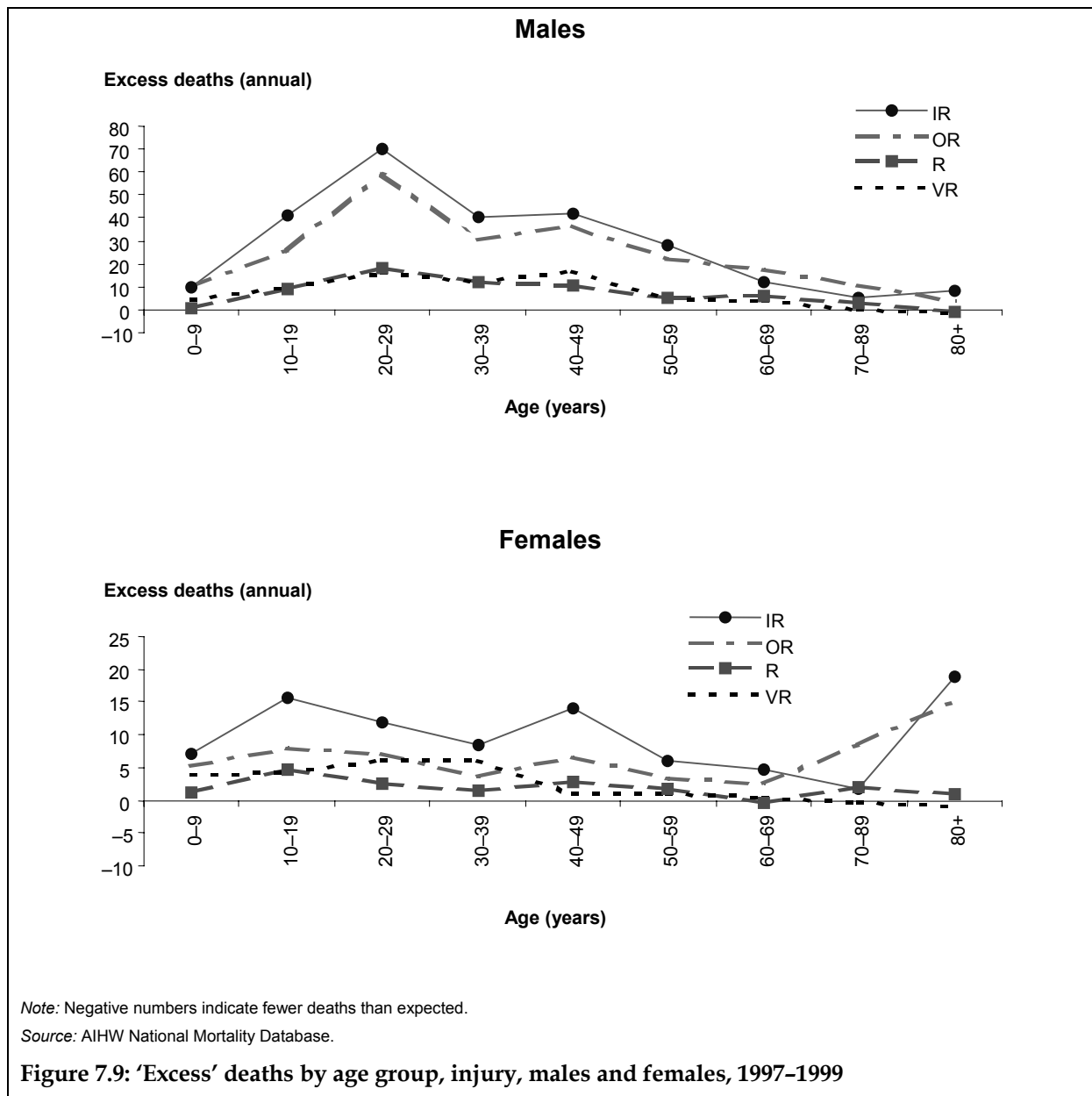
'Excess' deaths gives a measure of the absolute number of 'extra' people who died outside Major Cities, and places these in perspective against the ratios shown in Tables 7.4 and 7.5. For example, although the ratio of observed to expected deaths may have been relatively high in a particular area, it may not have involved a large number of people. Conversely, a low rate ratio in another area may translate into a relatively large number of 'excess' deaths because of a larger base population.

#### **Annual 'excess' deaths**

Annually between 1997 and 1999, there were 602 'excess' deaths of males and 186 'excess' deaths of females from injury and poisoning across all areas outside Major Cities.

Unlike other causes of death, injury has a proportionally greater effect on the younger rather than on the older age groups; certainly the younger age groups make a substantial contribution to the overall number of 'excess' deaths (Figure 7.9).

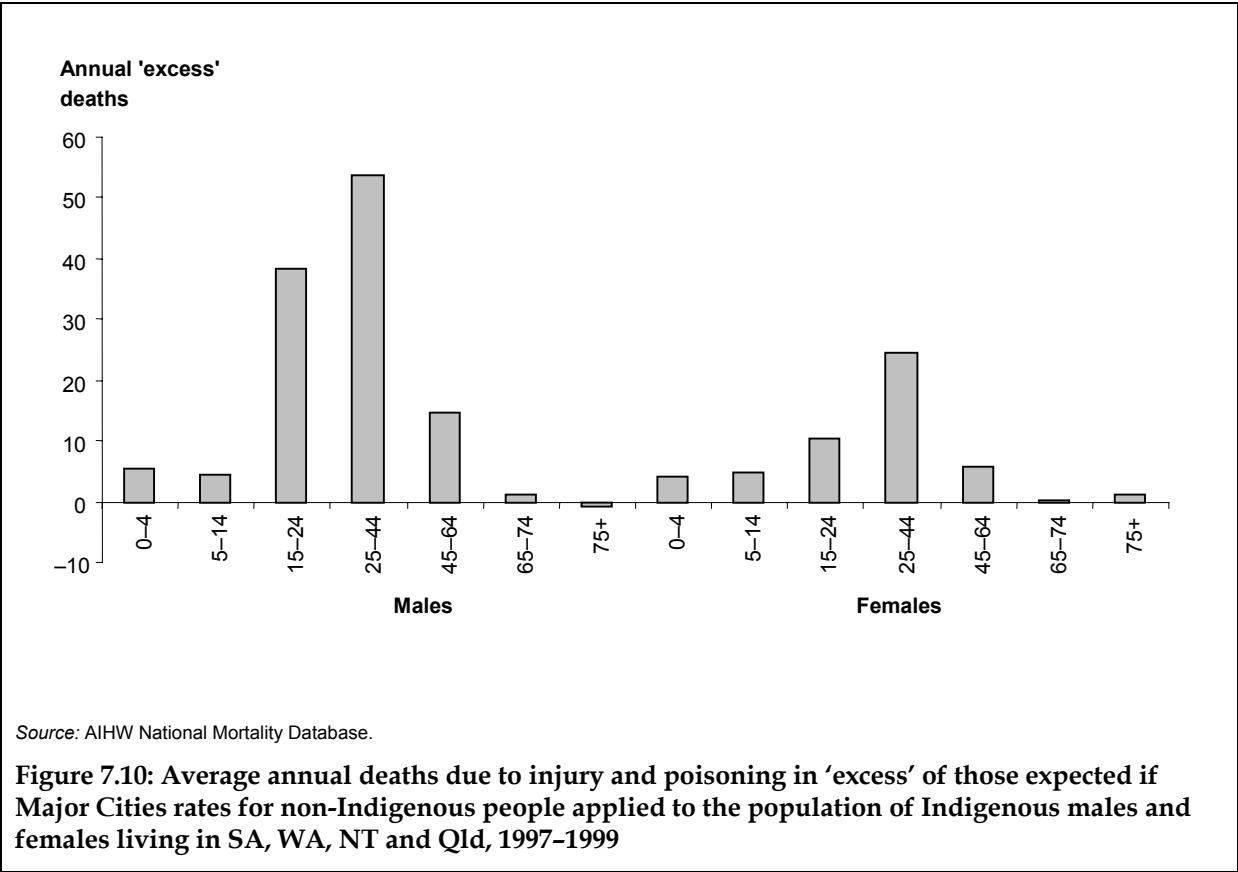
There were 257, 215, 64 and 65 'excess' deaths of males in the four areas outside Major Cities and 88, 60, 17 and 21 'excess' female deaths in those areas. For males, 6% of 'excess' deaths occurred in boys less than 15 years, 73% in males 15–49 years, and 17% in males 50–64 years. For females, 15% of 'excess' deaths occurred in girls younger than 15 years, 50% in females 15–49 years, 10% in females 50–69 years, and 25% in females 70 years or older. Overall, there were very few age groups and areas where there were fewer than expected deaths due to injury and poisoning.



### Annual 'excess' deaths of Indigenous people

In the Indigenous population there were 117 'excess' deaths of males and 51 'excess' deaths of females in total, resulting from injury and poisoning annually. These were calculated on the basis that Major Cities rates for non-Indigenous people had applied to the Indigenous population living in South Australia, Western Australia, the Northern Territory and Queensland. It is most likely that there were also 'excess' deaths of Indigenous people resulting from injury in the other jurisdictions for which identification is considered less accurate (New South Wales, Victoria, Tasmania, the Australian Capital Territory).

These 'excess' deaths occurred mainly among young and very young people (Figure 7.10). For males, 9% were younger than 14 years, 79% were 15-44 years (33% were 15-24 years, 46% were 25-44 years), 13% were 45-64 years. For females, 18% were younger than 14 years, 68% were 15-44 years (20% were 15-24 years, 48% were 25-44 years), 11% were 45-64 years.

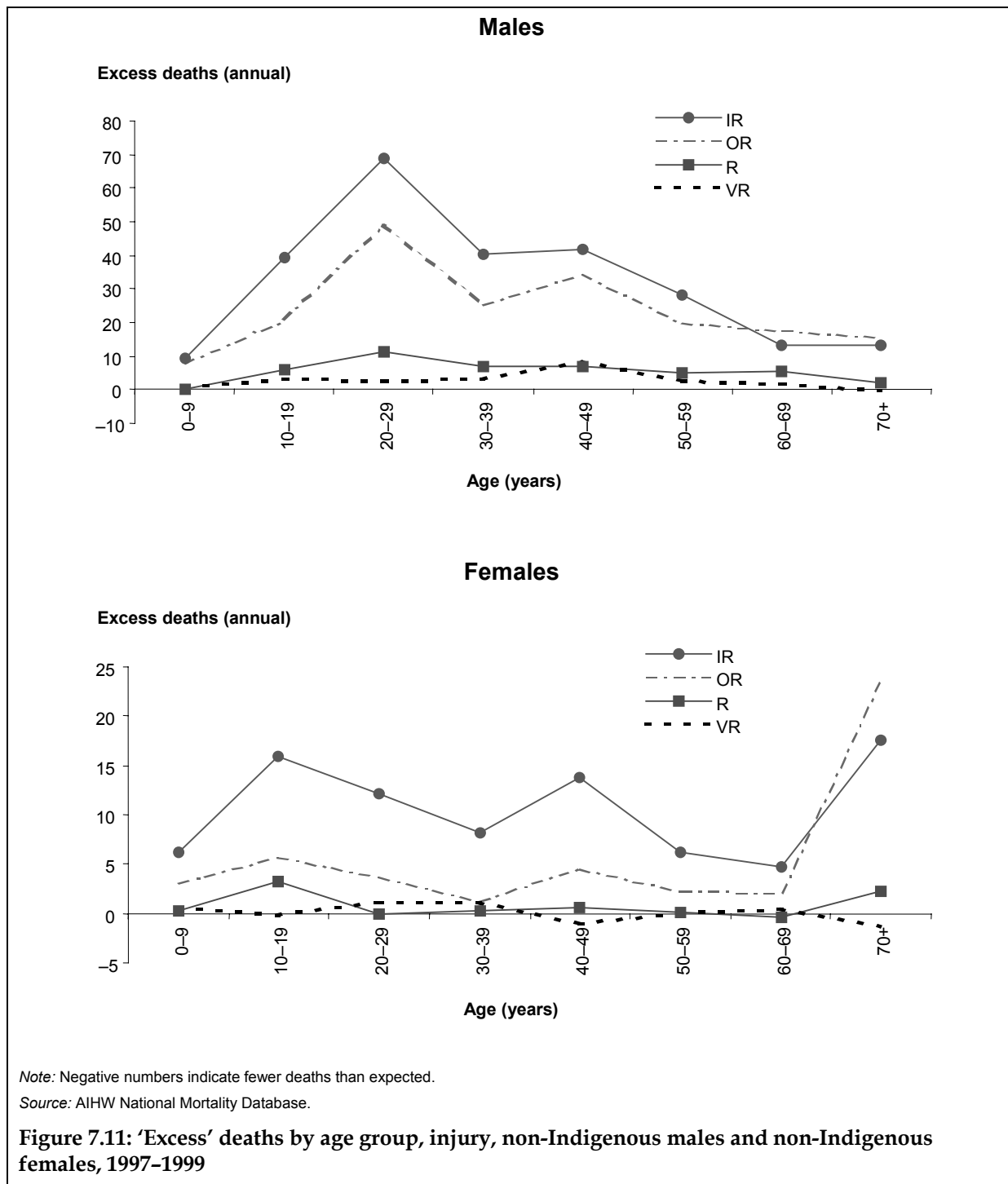


**Annual 'excess' deaths of non-Indigenous people**

Annually between 1997 and 1999, there were 510 'excess' deaths of non-Indigenous males and 138 'excess' deaths of non-Indigenous females from injury and poisoning across all areas outside Major Cities.

There were 254, 190, 44 and 21 'excess' deaths of males in the four areas outside Major Cities and 85, 46, 6 and 1 'excess' female deaths in those areas. For males, 70% of the 'excess' deaths occurred in those 15-49 years, and 15% in those 50-64 years (and just 5% were 75 years or older). For females, 7% of the 'excess' deaths were 0-9 years, 26% were 10-24 years, 18% were 35-44 years and 29% were aged 75 years or older (Figure 7.11).

Although it is not appropriate to subtract 'excess' deaths for non-Indigenous people from that for the total population, it is clear that a very large proportion of the 'excess' injury death in Remote and Very Remote areas involves the death of (mainly young) Indigenous people.



## 7.2 Motor vehicle accidents

Motor vehicle accidents (MVA) (ICD-10 codes are listed in Appendix D) in this report include accidents that occur on public roads and that involve a motor vehicle. For example, a car occupant, pedestrian or cyclist struck by a motor vehicle on a public road would be included, as would a car occupant killed on collision with a train. However, a car occupant killed in an off-road accident, or a cyclist killed after falling off a bicycle are not included. A motor vehicle can include motor bikes, cars, vans and utilities, trucks or buses.

The rate of death due to off-road accidents that may typically occur on farms has not been included under MVA, but has been included with 'other injuries' in a later section.

### Summary of findings

Annually, motor vehicle accidents were responsible for the deaths of 1,729 people (1,205 males and 524 females); 815 of these people came from areas outside Major Cities. Of these 1,729 deaths, 61 deaths were of Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

Death rates due to motor vehicle accidents rose rapidly with remoteness. There were 1.7, 1.9, 2.3–2.4 and 3.1–3.8 times as many deaths of males and females as expected in the four areas outside Major Cities.

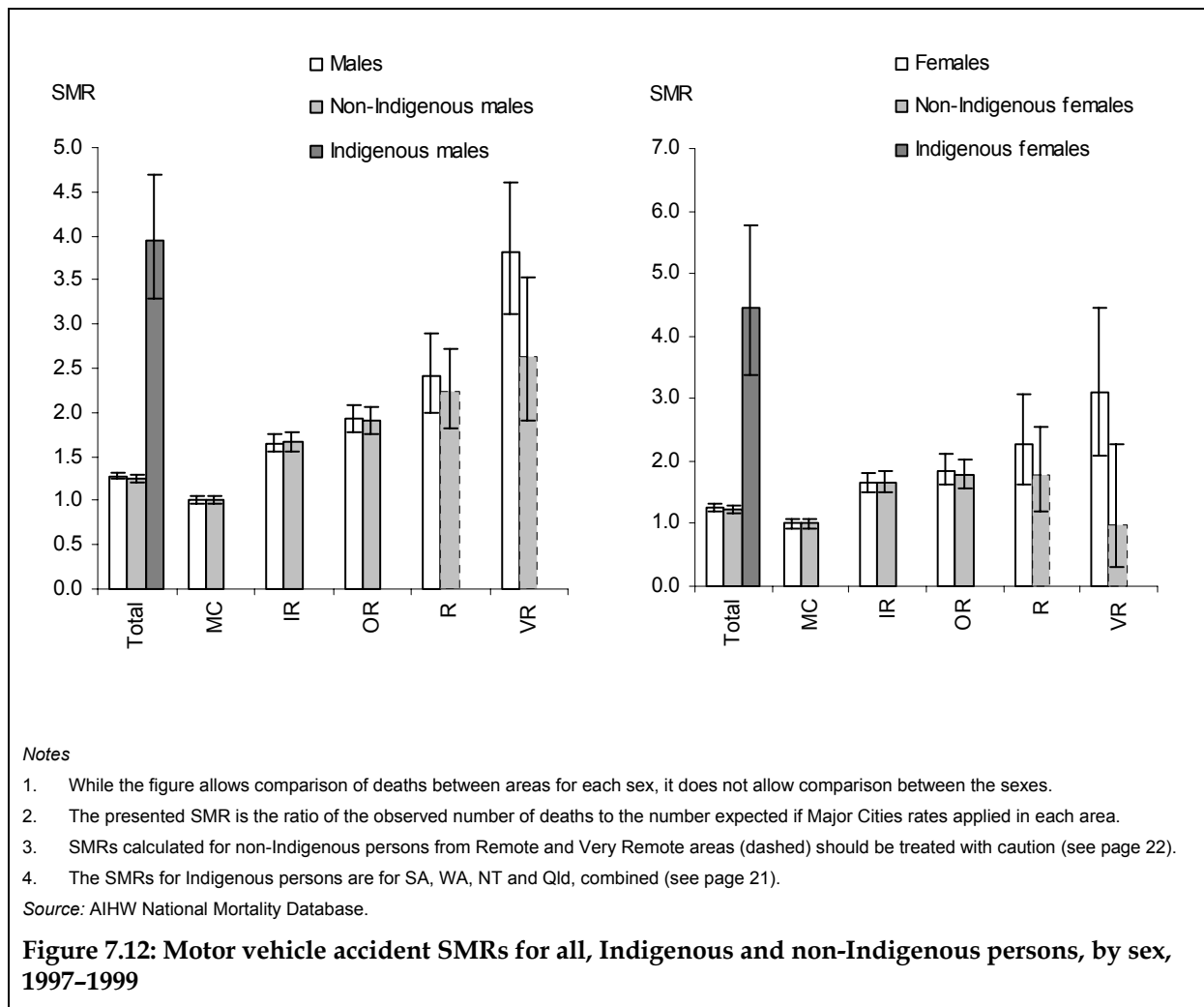
There were about 4 times as many deaths of Indigenous people as expected from motor vehicle accidents.

For non-Indigenous people, there were about twice as many deaths as expected in regional and Remote areas. In Very Remote areas there were 2.6 times as many deaths of non-Indigenous males, while the number of deaths of females in this area due to this cause was not significantly different to that expected. The pattern for those younger than 65 years old was similar.

Annually, there were 368 'excess' deaths due to motor vehicle accidents outside Major Cities (178, 127, 32 and 32 in each of the four areas; 263 were males, 106 were females). About 70% of this 'excess' occurred among 15–44-year-olds.

## Overall mortality due to motor vehicle accidents

Annually, there were 632, 309, 189, 40 and 35 deaths of males and 282, 141, 77, 14 and 10 deaths of females in the five areas respectively as a result of MVA.



Death rates due to MVA rose rapidly with remoteness (Figure 7.12 and Table 7.6).

- There were 1.7, 1.9, 2.4 and 3.8 times as many deaths of males as expected in the four areas outside Major Cities.
- There were 1.7, 1.9, 2.3 and 3.1 times as many deaths of females as expected in the four areas outside Major Cities.
- There were about 4-5 times as many deaths of Indigenous people due to MVA as expected.



**Table 7.6: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness area, motor vehicle accidents, males and females, 1997–1999**

Age group (years)	Male					Female				
	MC rate	IR	OR	R	VR	MC rate	IR	OR	R	VR
		(ratio)					(ratio)			
0–4	3	1.34	1.72	0.00	2.80	2	<b>*1.86</b>	1.38	1.67	4.90
5–14	2	<b>*1.50</b>	<b>*2.05</b>	2.59	<b>*4.06</b>	1	1.61	<b>*2.66</b>	1.80	<b>*9.60</b>
15–24	20	<b>*1.78</b>	<b>*2.17</b>	<b>*2.99</b>	<b>*2.98</b>	7	<b>*2.07</b>	<b>*2.04</b>	<b>*3.53</b>	<b>*2.96</b>
25–44	11	<b>*1.87</b>	<b>*2.06</b>	<b>*2.52</b>	<b>*4.48</b>	3	<b>*1.82</b>	<b>*2.26</b>	<b>*2.47</b>	<b>*3.30</b>
45–64	7	<b>*1.64</b>	<b>*1.89</b>	<b>*1.80</b>	<b>*5.19</b>	4	<b>*1.57</b>	<b>*1.68</b>	1.67	1.83
65–74	12	1.23	1.30	<b>*3.21</b>	<b>*3.78</b>	7	1.27	<b>*2.03</b>	1.41	0.00
75+	21	1.18	1.36	0.89	0.03	10	1.30	0.87	1.70	0.00
Total	..	<b>*1.65</b>	<b>*1.93</b>	<b>*2.42</b>	<b>*3.81</b>	..	<b>*1.65</b>	<b>*1.85</b>	<b>*2.27</b>	<b>*3.10</b>

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

*Notes*

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

Death rates for males are highest for those aged 15–29 years (about 20 per 100,000 per year) and again for those older than 75 years (20–30 per 100,000 per year). For females, rates were lower, but the pattern across age groups was similar to that for males.

Death rates in all age groups as a result of MVA were substantially higher for both males and females living outside Major Cities than for those living inside Major Cities (Table 7.5). Rates increased with remoteness. Within each area, the ratios of observed to expected deaths in each five-year age group between 5–74 years were similar. There were 1.5–1.9, 1.9–2.2, 1.8–3.2 and 3.0–5.2 times as many deaths of 15–64-year-old males as expected, and 1.6–2.1, 1.7–2.3, 2.5–3.5 and about 3.3 times as many deaths of 15–64-year-old females as expected in the four areas respectively.

There were 122, 91, 24 and 26 ‘excess’ deaths of males annually, and 56, 36, 8 and 7 ‘excess’ deaths of females annually in the four areas outside Major Cities. Eighty percent of the ‘excess’ for males occurs between the ages of 10 and 50 years; 80% of the ‘excess’ for females occurs between the ages of 10 and 60 years.

### Indigenous population

Annually in the period 1997–1999, there were 61 deaths of Indigenous people (42 males and 19 females) in South Australia, Western Australia, the Northern Territory and Queensland as a result of MVA. There would also have been a number of deaths due to this cause in the other jurisdictions where identification is less reliable. Of these 61 deaths, there were 46 (31 males and 15 females) more than expected.

There were 3.9 and 4.5 times as many deaths of Indigenous males and females as expected (Table 7.7). For males, about 30% and 45% of the ‘excess’ deaths occurred amongst those who were aged 15–24 and 25–44 years, with another 20% amongst those aged 45–64 years. For

females, 25% of the 'excess' was in girls aged 0–14 years, about 25% in females aged 15–24 years, and about 40% was in those aged 25–44 years.

### Non-Indigenous population

Annually, there were 623, 305, 178, 33 and 15 deaths of non-Indigenous males and 278, 139, 71, 10 and 2 deaths of non-Indigenous females in the five areas respectively as a result of MVA.

The death rate due to MVA rose rapidly with remoteness for males and was higher in regional areas for females (Table 7.7).

- There were 1.7, 1.9, 2.2 and 2.6 times as many deaths of non-Indigenous males in the four areas outside Major Cities.
- There were 1.7, 1.8 and 1.8 times as many deaths of non-Indigenous females as expected in Inner and Outer Regional and Remote areas. The number of deaths in Very Remote areas was not significantly different to the number expected.

**Table 7.7: The ratio of observed deaths to those expected as a result of motor vehicle accidents if Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness area and to the Indigenous population, 1997–1999**

Age group (years)	Male						Female					
	MC rate	Non-Indigenous				Indig-enous	MC rate	Non-Indigenous				Indig-enous
		IR	OR	R	VR			IR	OR	R	VR	
0–4	3	1.37	1.51	0.10	0.00	2.8	2	<b>*1.86</b>	1.30	1.66	0.00	3.8
5–14	2	<b>*1.65</b>	<b>*2.13</b>	3.30	7.65	2.2	1	<b>*1.65</b>	<b>*2.74</b>	1.87	0.02	<b>*6.8</b>
15–24	20	<b>*1.77</b>	<b>*2.10</b>	<b>*2.69</b>	<b>*3.26</b>	<b>*2.9</b>	7	<b>*2.11</b>	<b>*2.00</b>	<b>*2.92</b>	2.11	<b>*3.2</b>
25–44	11	<b>*1.90</b>	<b>*2.05</b>	<b>*2.40</b>	<b>*2.53</b>	<b>*4.9</b>	3	<b>*1.83</b>	<b>*2.07</b>	1.62	1.09	<b>*6.1</b>
45–64	7	<b>*1.66</b>	<b>*1.86</b>	1.35	2.31	<b>*8.2</b>	4	<b>*1.60</b>	<b>*1.62</b>	1.16	0.97	<b>*4.6</b>
65–74	11	1.25	1.33	<b>*3.38</b>	2.72	4.8	7	1.28	<b>*2.05</b>	1.47	0.02	0.0
75+	21	1.18	1.38	0.95	0.05	0.0	11	1.28	0.88	1.76	0.00	2.6
Total	..	<b>*1.67</b>	<b>*1.90</b>	<b>*2.24</b>	<b>*2.63</b>	<b>*3.9</b>	..	<b>*1.66</b>	<b>*1.78</b>	<b>*1.79</b>	0.98	<b>*4.5</b>
0–64	..	<b>*1.78</b>	<b>*2.02</b>	<b>*2.25</b>	<b>*2.78</b>	<b>*4.0</b>	..	<b>*1.82</b>	<b>*1.93</b>	<b>*1.83</b>	1.17	<b>*4.7</b>

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

#### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

Age-specific death rates for non-Indigenous people living in Major Cities were similar to those for the total population living in Major Cities.

The pattern exhibited by age-specific death rates is similar for non-Indigenous people to that for the total population. The major differences are that death rates for 25–64-year-old males and females in Very Remote areas are lower than for the total population.

As a result of MVA, there were 123, 84, 18 and 9 'excess' deaths of non-Indigenous males annually, and 55, 31, 4 and 0 'excess' deaths of non-Indigenous females annually in the four areas outside Major Cities. Sixty to seventy per cent of the 'excess' occurred between the ages of 10 and 40 years, with contribution declining with age thereafter.

## **Mortality for those aged 0–64 years**

### **Indigenous population**

Annually there were 60 (41 male, 19 female) deaths of Indigenous people younger than 65 years in South Australia, Western Australia, the Northern Territory and Queensland as a result of MVA. There would also have been a number of deaths due to this cause in the other jurisdictions. Of these 60 deaths, there were 45 (31 males and 15 females) more than expected.

For Indigenous males and females who were younger than 65 years old, there were 4 and 5 times as many deaths as expected as a result of MVA (Table 7.7).

### **Non-Indigenous population**

Annually, there were 526, 262, 156, 29 and 14 deaths of non-Indigenous males younger than 65 years and 203, 107, 56, 8 and 2 deaths of non-Indigenous females younger than 65 years in the five areas respectively as a result of MVA.

There were substantially more deaths of 0–64-year-old males and females outside Major Cities than expected (Table 7.7).

As a result of MVA:

- there were respectively 1.8, 2.0, 2.2 and 2.8 times as many deaths of 0–64-year-old non-Indigenous males in the four areas as expected; and
- there were 1.8–1.9 times as many deaths of 0–64-year-old non-Indigenous females as expected in all but Very Remote areas (where there were about as many deaths as expected).

As a result of MVA, there were 115, 78, 16 and 9 'excess' deaths of non-Indigenous males younger than 65 years annually, and 49, 27, 4 and 0 'excess' deaths of non-Indigenous females younger than 65 years annually in the four areas outside Major Cities. Contribution is predominantly in young adulthood (that is, older than 15 years), but older age groups also make substantial contributions.

## 7.3 Suicide

Suicide is represented in this report by ICD-10 codes X60–X84 and Y87.0.

### Summary of findings

Annually, suicide was responsible for the deaths of 2,631 people (2,099 males and 532 females); 984 of these people came from areas outside Major Cities. Of these 2,631 deaths, 68 were of Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

There were 1.3, 1.3, 1.5 and 1.7 times as many deaths of males and about as many deaths of females as expected in the four areas outside Major Cities.

There were about 3 and 2 times as many deaths of Indigenous males and females as expected from suicide.

Compared to rates for their counterparts in Major Cities, death rates due to suicide for non-Indigenous males were 1.2 to 1.3 times as high outside Major Cities. For females in each of the areas, rates were similar to those in Major Cities.

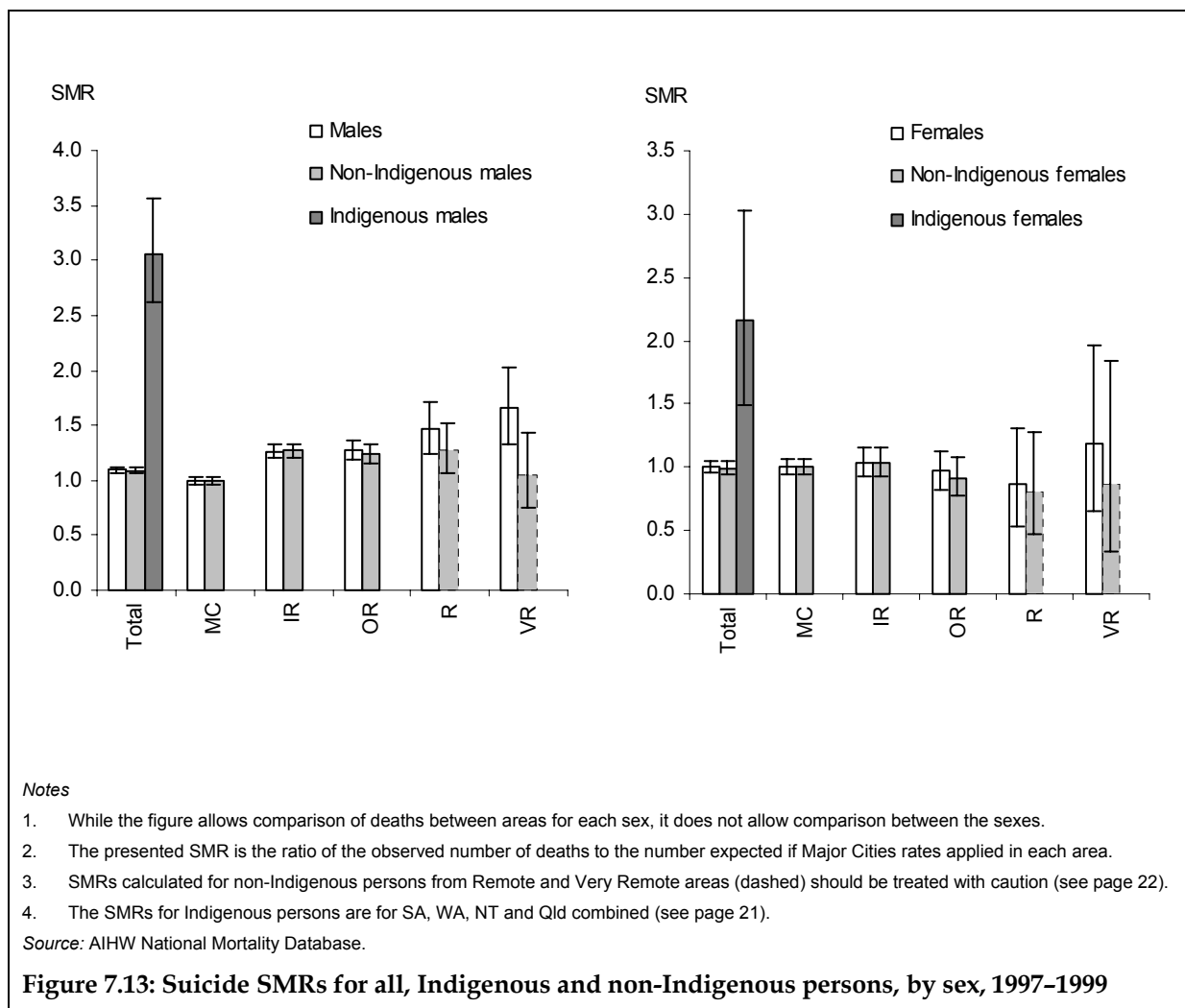
Annually, there were 184 'excess' deaths due to suicide outside Major Cities (103, 52, 15 and 13 in each of the four areas). Essentially all the 'excess' was of males, for whom 29% was amongst 15–24-year-olds, and 21%, 17%, 15% and 12% were among 25–34, 35–44, 45–54, 55–64-year-olds respectively. High rates of suicide mortality amongst Indigenous people are likely to have contributed significantly to the 'excess' in remote areas. For non-Indigenous males, the 'excess' was distributed throughout adult life; for Indigenous males the 'excess' was largely confined to those aged 15–44 years.

### Overall mortality due to suicide

Annually, there were 1,287, 474, 255, 52 and 31 deaths of males and 360, 109, 51, 7 and 5 deaths of females in the five areas respectively, as a result of suicide.

The death rate due to suicide for males increased with remoteness (Figure 7.13 and Table 7.8).

- There were 1.3, 1.3, 1.5 and 1.7 times as many deaths of males as expected in the four areas as a result of suicide.
- There were about as many deaths of females as expected in areas outside Major Cities as a result of suicide.
- There were about 2–3 times as many deaths of Indigenous people due to suicide as expected.



In Major Cities, death rates of males due to suicide tend to be highest amongst 20–39-year-olds (30 per 100,000 per year or higher), with rates half to two thirds this value in older ages, rising again to the same levels in old age. For females, rates were largely similar throughout adulthood (about 5–9 per 100,000 per year).

Death rates for males as a result of suicide were higher outside Major Cities. Typically, for 15–64-year-old males, there were 1.2–1.5 times more deaths than expected in regional areas. There tended to be more deaths than expected in remote areas, and significantly more than expected in some age groups; 2.4 and 3.7 times as many as expected for 15–24-year-old males in Remote and Very Remote areas, and 1.5 times as many deaths of 45–64-year-olds living in Remote areas. For males 65 years and older, only those aged 65–74 years from Outer Regional areas had rates significantly higher than those in Major Cities.

Death rates for younger females tended to be higher outside Major Cities (but the difference did not reach statistical significance for individual age groups). While rates for older females tended to be lower, the difference failed to reach statistical significance for almost all groups (although there were 0.7 times as many deaths of 45–64-year-old females as expected from Outer Regional areas).

**Table 7.8: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness area, suicide, males and females, 1997–1999**

Age group (years)	Male					Female				
	MC rate	IR	OR	R	VR	MC rate	IR	OR	R	VR
		(ratio)					(ratio)			
0–4	0	..	..	..	..	0	..	..	..	..
5–14	<1	1.65	1.75	4.78	9.97	<1	2.14	2.14	1.31	19.75
15–24	23	<b>*1.41</b>	<b>*1.45</b>	<b>*2.43</b>	<b>*3.66</b>	6	1.14	1.17	1.09	1.64
25–44	32	<b>*1.25</b>	<b>*1.22</b>	1.19	1.16	8	1.02	1.12	0.84	1.20
45–64	21	<b>*1.36</b>	<b>*1.26</b>	<b>*1.47</b>	1.25	7	1.08	<b>*0.68</b>	0.84	0.00
65–74	22	0.90	<b>*1.38</b>	0.98	1.44	6	0.89	0.52	0.91	0.00
75+	29	1.14	1.15	2.07	0.54	6	0.78	1.23	0.32	3.30
Total	..	<b>*1.27</b>	<b>*1.27</b>	<b>*1.47</b>	<b>*1.65</b>	..	1.03	0.97	0.86	1.18

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

*Notes*

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

Annually, as a result of suicide, there were 100, 54, 17 and 12 ‘excess’ deaths of males, and 3, –2, –1 and 1 ‘excess’ deaths of females in the four areas outside Major Cities. Eighty to ninety percent of the ‘excess’ for males in most areas outside Major Cities occurred between the ages of 20 and 70 years. In Very Remote areas however, 90% of the ‘excess’ occurred before age 30 years. Of the small ‘excess’ which exists for females, the bulk occurred before age 50 years; in those older than 50 years, there were generally fewer deaths than expected.

### Indigenous population

Annually in the period 1997–1999, there were 68 deaths of Indigenous people by suicide (56 males and 11 females) in South Australia, Western Australia, the Northern Territory and Queensland. There would also have been a number of deaths due to this cause in the other jurisdictions where identification is less reliable. Of these 68 deaths, there were 44 (38 males and 6 females) more than expected.

Overall, there were 3.1 and 2.2 times as many deaths of Indigenous males and females as expected (Table 7.9). About 100% and 90% of ‘excess’ suicide deaths of males and females occurred amongst 15–44-year-olds.

- Although the numbers of deaths were very small, there were about 8 and 30 times as many deaths of Indigenous boys and girls aged 5–14 years by suicide as expected.
- There were also 5 and 3 times as many deaths of 15–24-year-old males and females as expected, and about 3 and 2 times as many deaths of 25–44-year-old males and females as expected.
- For those older than 45 years, there were either negligible deaths or about as many deaths as expected.

## Non-Indigenous population

Annually, there were 1,271, 466, 239, 41 and 13 deaths of non-Indigenous males and 357, 108, 47, 6 and 2 deaths of non-Indigenous females in the five areas respectively as a result of suicide.

Death rates due to suicide for males were higher outside Major Cities, but differences were not significant for females (Table 7.9).

- There were between 1.2 and 1.3 times as many deaths of non-Indigenous males as expected in regional and Remote areas due to suicide. In Very Remote areas, the number of observed deaths was not significantly different to that expected.
- There were about as many deaths of non-Indigenous females as expected in each of the areas outside Major Cities.

**Table 7.9: The ratio of observed deaths to those expected as a result of suicide if Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness area and to the Indigenous population, 1997-1999**

Age group (years)	Male						Female					
	MC rate	Non-Indigenous				Indigenous	MC rate	Non-Indigenous				Indigenous
		IR	OR	R	VR			IR	OR	R	VR	
0-4	0	..	..	..	..	..	0	..	..	..	..	..
5-14	<1	1.42	1.33	2.72	20.95	<b>*8.2</b>	<1	3.25	3.44	2.35	0.00	<b>*29.2</b>
15-24	23	<b>*1.42</b>	<b>*1.34</b>	<b>*1.84</b>	1.09	<b>*5.1</b>	6	1.18	0.86	0.79	1.06	<b>*3.1</b>
25-44	32	<b>*1.26</b>	<b>*1.18</b>	1.04	0.77	<b>*2.6</b>	8	1.01	1.09	0.86	1.05	<b>*2.0</b>
45-64	21	<b>*1.36</b>	<b>*1.27</b>	1.44	1.41	1.3	7	1.08	<b>*0.69</b>	0.73	0.00	0.4
65-74	22	0.90	<b>*1.39</b>	0.84	1.85	0.0	6	0.89	0.53	0.95	0.00	0.0
75+	29	1.14	1.16	2.19	0.72	0.0	6	0.78	1.24	0.33	4.19	0.0
Total	..	<b>*1.27</b>	<b>*1.24</b>	<b>*1.28</b>	1.05	<b>*3.1</b>	..	1.04	0.92	0.80	0.87	<b>*2.2</b>
0-64	..	<b>*1.32</b>	<b>*1.23</b>	<b>*1.27</b>	1.02	<b>*3.2</b>	..	1.08	0.93	0.82	0.78	<b>*2.3</b>

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

Age-specific rates for non-Indigenous people living in Major Cities were similar to those for the total population living in Major Cities.

The situation for non-Indigenous males is more or less similar to that for the total population, except that for those aged 15-24 years, the rates were lower in Outer Regional and remote areas than was the case for the total population (however, rates still tend to be higher than in Major Cities). In regional and remote areas, rates of death for non-Indigenous

males as a result of suicide are elevated, not only for 15–24-year-olds, but also for older males – to 64 years in most areas, and to 74 years in Outer Regional areas.

For non-Indigenous females from regional and remote areas, age-specific rates of death due to suicide were similar to those for the total population of females described previously.

As a result of suicide, there were 98, 46, 9 and 1 ‘excess’ deaths of non-Indigenous males annually, and 4, -4, -1 and 0 ‘excess’ deaths of non-Indigenous females annually in the four areas outside Major Cities. Sixty to seventy per cent of the ‘excess’ occurred in males aged 20–50 years, with most of the rest in adjoining age groups. There were very few ‘excess’ deaths of females. Almost all of the ‘excess’ deaths in Very Remote areas and a substantial proportion in Remote areas were as the result of suicide of Indigenous males.

## **Mortality for those aged 0–64 years**

### **Indigenous population**

Annually there were 68 (56 male, 11 female) deaths of Indigenous people younger than 65 years in South Australia, Western Australia, the Northern Territory and Queensland as a result of suicide (virtually all suicide deaths of Indigenous people occurred in those younger than 65 years). There would also have been a number of deaths due to this cause in the other jurisdictions. Of these 68 deaths, there were 45 (39 males and 6 females) more than expected.

For Indigenous males and females who were younger than 65 years, there were 3.2 and 2.3 times as many deaths as expected as a result of suicide (Table 7.9).

### **Non-Indigenous population**

Annually, there were 1,113, 408, 204, 37 and 12 deaths of males younger than 65 years and 305, 93, 40, 5 and 2 deaths of females younger than 65 years in the five areas respectively as a result of suicide.

There were 1.2–1.3 times as many deaths of 0–64-year-old non-Indigenous males in all areas (except Very Remote areas where there were about as many deaths as expected). There were about as many (or slightly fewer) deaths of 0–64-year-old non-Indigenous females as expected in all areas (Table 7.9).

As a result of suicide, there were 98, 38, 8 and 0 ‘excess’ deaths of non-Indigenous males younger than 65 years annually, and 7, -3, -1 and -1 ‘excess’ deaths of non-Indigenous females younger than 65 years annually in the four areas outside Major Cities. The ‘excess’ deaths for males were distributed throughout adult life.



## 7.4 Interpersonal violence

Interpersonal violence (ICD-10 codes X85–Y09, Y87.1, Y35–Y36, Y89.0 and Y89.1) describes the killing of one person by another in an act of homicide (which includes both situations in which the intent may, and may not have been, to kill the person).

### Summary of findings

Annually, interpersonal violence was responsible for the deaths of 319 people (214 males and 105 females); 112 of these people came from areas outside Major Cities. Of these 319 deaths, 26 were of Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

There were fewer (0.8 times as many deaths of males in Inner Regional areas) or similar numbers of deaths than expected due to interpersonal violence in regional areas. However, there were substantially more than expected (2.9 and 4–9 times as many) in Remote and Very Remote areas, although the actual numbers of deaths were relatively small.

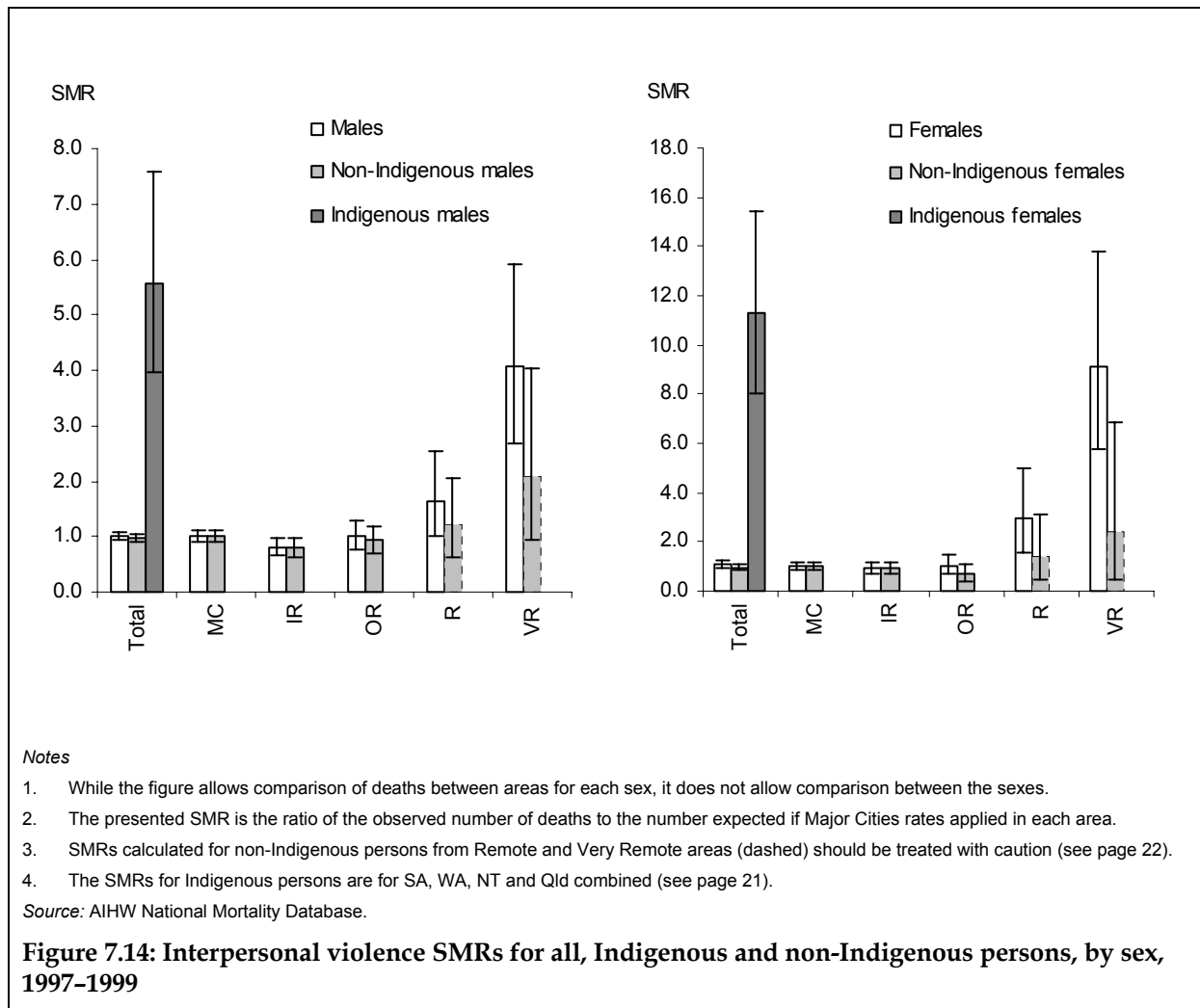
There were about 6 and 11 times as many deaths of Indigenous males and females as expected from interpersonal violence.

For non-Indigenous people in most of the areas, death rates due to interpersonal violence were similar to the Major Cities rate, but for males in Inner Regional areas the rate was 0.8 times the Major Cities rate (that is, lower).

Annually, there were 9 'excess' deaths due to interpersonal violence outside Major Cities (10 fewer and 0, 6 and 13 'excess' deaths in the four areas). A substantial proportion of the 'excess' deaths are Indigenous people.

## Overall mortality due to interpersonal violence

Annually, there were 142, 33, 23, 7 and 9 deaths of males and 65, 18, 10, 5 and 7 deaths of females in the five areas respectively as a result of interpersonal violence.



There were fewer or similar numbers of deaths than expected due to interpersonal violence in regional areas, but substantially more than expected in Remote and Very Remote areas, although the actual numbers of deaths were relatively small (Figure 7.14 and Table 7.10).

- There were 0.8 times as many deaths of males due to interpersonal violence as expected in Inner Regional areas, and similar numbers to that expected in Outer Regional areas. The pattern was similar for females, with about as many deaths as expected in these regional areas.
- In remote areas, there were more deaths than expected, with 4.1 times as many deaths of males in Very Remote areas, and 2.9 and 9.1 times as many deaths of females as expected in Remote and Very Remote areas respectively.
- There were respectively about 6 and 11 times as many deaths of Indigenous males and females due to interpersonal violence as expected.

**Table 7.10: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness area, interpersonal violence, males and females, 1997–1999**

Age group (years)	Male					Female				
	MC rate	IR	OR	R	VR	MC rate	IR	OR	R	VR
		(ratio)					(ratio)			
0–4	2	0.81	0.35	0.30	2.24	1	0.49	2.06	3.17	5.42
5–14	1	0.33	0.29	0.00	2.63	<1	2.74	1.33	0.00	0.00
15–24	2	1.17	1.12	2.02	<b>*6.05</b>	2	0.81	0.64	3.18	4.31
25–44	4	<b>*0.72</b>	0.92	1.62	<b>*3.42</b>	1	1.01	1.03	<b>*3.12</b>	<b>*15.07</b>
45–64	2	0.77	1.21	2.56	<b>*6.29</b>	1	1.09	0.68	2.10	<b>*8.11</b>
65–74	1	1.09	1.88	0.62	0.00	1	0.32	0.84	6.66	0.00
75+	1	1.14	1.95	0.00	0.00	1	0.63	2.19	0.00	0.00
Total	..	<b>*0.80</b>	1.00	1.64	<b>*4.06</b>	..	0.91	1.02	<b>*2.94</b>	<b>*9.13</b>

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

*Notes*

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

In Major Cities, death rates for males and females tended to be relatively low, with rates highest for males between ages 25 and 40 years (3.5–4.5 per 100,000 per year). Rates were lower for females (maximum of 1.6 per 100,000 per year), the pattern roughly following that for males.

As a result of interpersonal violence, there were -8, 0, 3 and 7 ‘excess’ deaths of males annually, and -2, 0, 3 and 7 ‘excess’ deaths of females annually in the four areas outside Major Cities. Of the relatively small ‘excess’ that occurs in Remote and Very Remote areas, almost all occurs before age 50 years.

### Indigenous population

Annually in the period 1997–1999, there were 26 deaths of Indigenous people (13 males and 13 females) in South Australia, Western Australia, the Northern Territory and Queensland as a result of interpersonal violence. There would also have been a number of deaths due to this cause in the other jurisdictions where identification is less reliable. Of these 26 deaths, there were 23 (11 males and 12 females) more than expected.

There were about 6 and 11 times as many deaths of Indigenous males and females as expected due to this cause (Table 7.11). For males, 55% of the ‘excess’ occurred amongst those aged 25–44-years, and about 20% each in those aged 15–24 and 45–64 years. For females, about 65% of the ‘excess’ was amongst those 25–44 years, about 20% amongst those aged 15–24 years and 10% amongst those aged 45–64 years. A little less than 10% of the ‘excess’ occurred in Indigenous children younger than 5 years. Overall, there were between 5 and 20 times as many deaths as expected of Indigenous males and females in individual age groups between 15 and 64 years.

## Non-Indigenous population

Annually, there were 136, 31, 19, 4 and 3 deaths of non-Indigenous males and 64, 17, 6, 2 and 1 deaths of non-Indigenous females in the five areas respectively as a result of interpersonal violence.

Death rates due to interpersonal violence were similar across most of the areas, but for males in Inner Regional areas the rate was 0.8 times the Major Cities rate (Table 7.11).

- For males there were 0.8 times as many deaths of non-Indigenous males as expected in Inner Regional areas, and about as many as expected in the other areas due to this cause.
- There were about as many deaths of non-Indigenous females as expected in each of the areas due to this cause.

**Table 7.11: The ratio of observed deaths to those expected as a result of interpersonal violence if Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness area and to the Indigenous population, 1997–1999**

Age group (years)	Male						Female					
	MC rate	Non-Indigenous				Indig-enous	MC rate	Non-Indigenous				Indig-enous
		IR	OR	R	VR			IR	OR	R	VR	
0–4	2	0.74	0.18	0.00	0.00	3.7	1	0.50	1.78	0.47	7.83	5.3
5–14	1	0.38	0.35	0.00	6.48	1.5	<1	2.78	0.00	0.00	0.00	6.7
15–24	2	1.25	1.02	2.13	2.68	<b>*5.4</b>	2	0.77	0.22	0.01	0.00	<b>*6.6</b>
25–44	3	<b>*0.68</b>	0.79	0.68	1.94	<b>*6.2</b>	1	1.03	0.63	1.93	2.06	<b>*20.0</b>
45–64	2	0.74	1.17	2.67	2.24	<b>*9.6</b>	1	1.10	0.52	1.02	3.94	<b>*11.1</b>
65–74	1	1.10	1.90	0.64	0.00	0.0	1	0.32	0.85	6.95	0.00	0.0
75+	1	1.14	1.96	0.00	0.00	0.0	1	0.64	2.21	0.00	0.00	0.0
Total	..	<b>*0.79</b>	0.92	1.20	2.10	<b>*5.6</b>	..	0.91	0.71	1.39	2.40	<b>*11.3</b>
0–64	..	<b>*0.76</b>	0.86	1.23	2.18	<b>*5.7</b>	..	0.99	0.61	1.10	2.59	<b>*11.6</b>

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

Age-specific rates for non-Indigenous people living in Major Cities were similar to those for the total population living in Major Cities.

As a result of interpersonal violence, there were -8, -2, 1 and 2 'excess' deaths of non-Indigenous males annually, and -2, -3, 1 and 1 'excess' deaths of non-Indigenous females annually in the four areas outside Major Cities. There were fewer 'excess' deaths for most ages younger than 60 years in regional areas, with little or no 'excess' in the older age groups.

## **Mortality for those aged 0–64 years**

### **Indigenous population**

Annually there were 26 (13 male, 13 female) deaths of Indigenous people younger than 65 years in South Australia, Western Australia, the Northern Territory and Queensland as a result of interpersonal violence (virtually all deaths of Indigenous people as a result of interpersonal violence occurred in those younger than 65 years). There would also have been a number of deaths due to this cause in the other jurisdictions. Of these 26 deaths, there were 23 (11 males and 12 females) more than expected.

For Indigenous males and females who were younger than 65 years, there were 6 and 12 times as many deaths as expected as a result of interpersonal violence (Table 7.11).

### **Non-Indigenous population**

Annually, there were 129, 28, 17, 4 and 3 deaths of non-Indigenous males younger than 65 years and 56, 16, 5, 1 and 1 deaths of non-Indigenous females younger than 65 years in the five areas as a result of interpersonal violence.

The numbers of deaths of 0–64-year-old non-Indigenous males and females in the areas outside Major Cities were not significantly different from the numbers expected, except that there were fewer (0.8 times as many) deaths of males than expected in Inner Regional areas (Table 7.11).

As a result of interpersonal violence, there were -9, -3, 1 and 2 'excess' deaths of non-Indigenous males younger than 65 years annually, and 0, -3, 0 and 1 'excess' deaths of non-Indigenous females younger than 65 years annually in the four areas outside Major Cities.

## 7.5 Accidental shooting

Accidental shooting (ICD-10 codes W32–W34) was included because of the possibility of higher rates in more remote areas as a result of a likely higher per capita availability of firearms.

### Summary of findings

Annually, between 1997 and 1999, accidental shooting was responsible for the deaths of 23 people (21 males and 2 females); 16 of these people came from areas outside Major Cities. Of these 23 deaths, none were identified as Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

There were 3, 4, 7 and 16 times as many deaths of males as expected in the four areas outside Major Cities due to this cause (however, the number of deaths was relatively small). There were very few deaths of females due to accidental shooting.

For non-Indigenous males, death rates in the four areas outside Major Cities due to accidental shooting were 3, 4, 7 and 22 times as high as for their counterparts from Major Cities, however, the numbers of deaths (and especially of females) were relatively small.

Annually, there were 12 'excess' deaths due to accidental shooting outside Major Cities (6, 4, 1 and 1 in each of the four areas). The 'excess' deaths were distributed throughout all age groups.

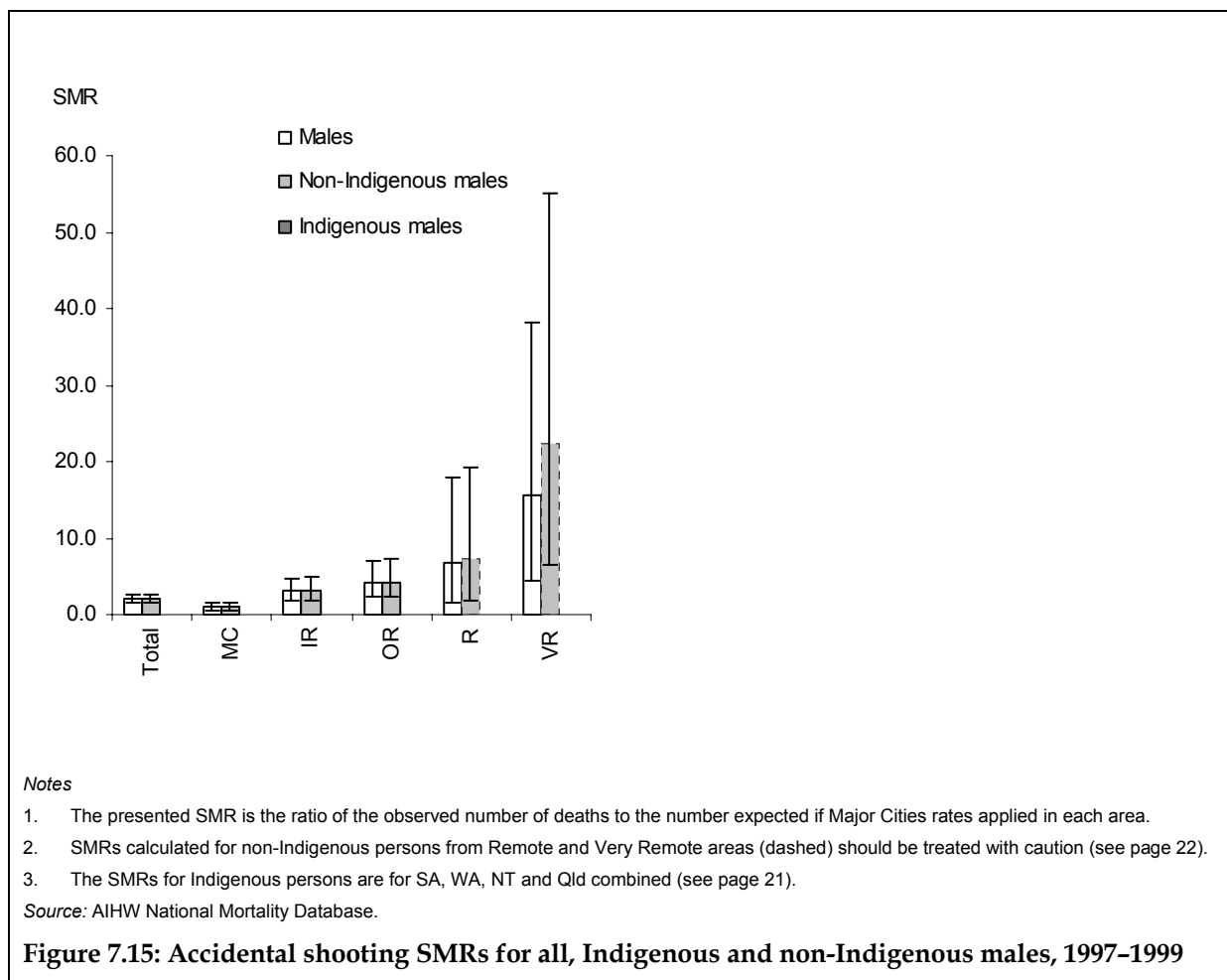
### Overall mortality due to accidental shooting

Annually, there were 7, 7, 5, 1 and 1 deaths of males and 0, 1, 1, 0 and 0 deaths of females in the five areas respectively as a result of accidental shooting.

Death rates for males due to accidental shooting were substantially higher outside Major Cities (particularly in remote areas) however, the number of deaths was relatively small (Figure 7.15 and Table 7.12).

- There were 3.1, 4.2, 6.7 and 15.5 times as many deaths of males as expected in the four areas outside Major Cities.
- There were very few deaths of females due to accidental shooting.
- There were no deaths of Indigenous people due to accidental shooting registered in the period 1997–1999.

It is difficult to comment on age-specific death rates for accidental shooting because of the relatively small numbers of deaths for both sexes.



As a result of accidental shooting, there were 4, 4, 1 and 1 'excess' deaths of males annually, and 1, 1, 0 and 0 'excess' deaths of females annually in the four areas outside Major Cities.

**Table 7.12: The ratio of observed deaths of males to those expected if Major Cities rates applied in each ASGC Remoteness area, accidental shooting<sup>(a)</sup>, 1997-1999**

	IR	OR	R	VR
	(ratio)			
<b>Total</b>	<b>*3.08</b>	<b>*4.17</b>	<b>*6.72</b>	<b>*15.50</b>

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

(a) Small numbers of deaths make age-specific rates especially volatile and potentially misleading. Consequently the ratio of total observed to total expected deaths only are shown.

Note: Caution should be used when making inferences about ratios that are not significantly different from 1.

Source: AIHW National Mortality Database.

## Indigenous population

Annually in the period 1997–1999, there were virtually no deaths of Indigenous people registered in South Australia, Western Australia, the Northern Territory and Queensland due to accidental shooting.

## Non-Indigenous population

Annually, there were 7, 7, 5, 1 and 1 deaths of non-Indigenous males and 0, 1, 1, 0 and 0 deaths of non-Indigenous females in the five areas respectively as a result of accidental shooting.

**Table 7.13: The ratio of observed deaths to those expected as a result of accidental shooting if Major Cities non-Indigenous rates applied to the non-Indigenous male population in each ASGC Remoteness area and to the Indigenous male population, 1997–1999**

	Non-Indigenous				Indigenous
	IR	OR	R	VR	
	(ratio)				
Total	<b>*3.10</b>	<b>*4.27</b>	<b>*7.24</b>	<b>*22.27</b>	0.0
0–64 years	<b>*3.34</b>	<b>*3.72</b>	<b>*7.72</b>	<b>*19.01</b>	0.0

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. Ratios for Indigenous people are for SA, WA, NT and Qld.
3. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

Death rates for males due to accidental shooting were substantially higher outside Major Cities, however, the numbers of deaths were relatively small (Table 7.13).

- There were 3.1, 4.3, 7.2 and 22.3 times as many deaths of non-Indigenous males as expected due to accidental shooting in the four areas outside Major Cities.
- There were very few deaths of non-Indigenous females due to this cause.

Practically all deaths due to accidental shooting were deaths of non-Indigenous people, and almost all of them were male and less than 65 years of age.

It is difficult to comment on age-specific death rates for accidental shooting because of the relatively small numbers of deaths for both sexes.

As a result of accidental shooting, there were 4, 4, 1 and 1 'excess' deaths of non-Indigenous males annually, and 1, 1, 0 and 0 'excess' deaths of non-Indigenous females annually in the four areas outside Major Cities.



## **Mortality for those aged 0–64 years**

### **Indigenous population**

Annually in the period 1997–1999, there were virtually no deaths of Indigenous people registered in South Australia, Western Australia, the Northern Territory and Queensland as a result of accidental shooting.

### **Non-Indigenous population**

Annually, there were 6, 6, 3, 1 and 1 deaths of non-Indigenous males younger than 65 years and very few deaths of non-Indigenous females younger than 65 years in the five areas respectively as a result of accidental shooting.

There were significantly more deaths of 0–64-year-old non-Indigenous males than expected due to accidental shooting in all areas outside Major Cities. Death rates for males due to accidental shooting increased with remoteness (Table 7.13). There were very few deaths of females due to this cause.

In the four areas outside Major Cities, there were 3, 4, 8 and 19 times as many deaths of 0–64 year-old non-Indigenous males as expected due to accidental shooting.

As a result of accidental shooting, there were 4, 3, 1 and 1 ‘excess’ deaths of non-Indigenous males younger than 65 years annually, and 1, 1, 0 and 0 ‘excess’ deaths of non-Indigenous females younger than 65 years annually in the four areas outside Major Cities.

## 7.6 'Other' injury

Other injuries (ICD-10 codes V00–Y98, excluding the injuries already described in this report) are included because, as a group, they are responsible for a substantial proportion of injury deaths. Differences in death rates across areas for this range of causes may suggest further work to identify potential targets for intervention. Some of the specific causes of death included in this group are off-road driving accidents, drownings, falls, burns, electrocution, accidental poisonings and medical and surgical misadventure.

### Summary of findings

Annually, 'other' injury was responsible for the deaths of 3,441 people (2,138 males and 1,303 females); 1,287 of these people came from areas outside Major Cities. Of these 3,441 deaths, 79 were of Indigenous people living in South Australia, Western Australia, the Northern Territory and Queensland.

Death rate due to 'other' injuries rose steadily with remoteness, such that there were 1.1, 1.2–1.3, 1.4–1.6 and 2.1 times as many deaths of males and females as expected in the four areas outside Major Cities due to this cause.

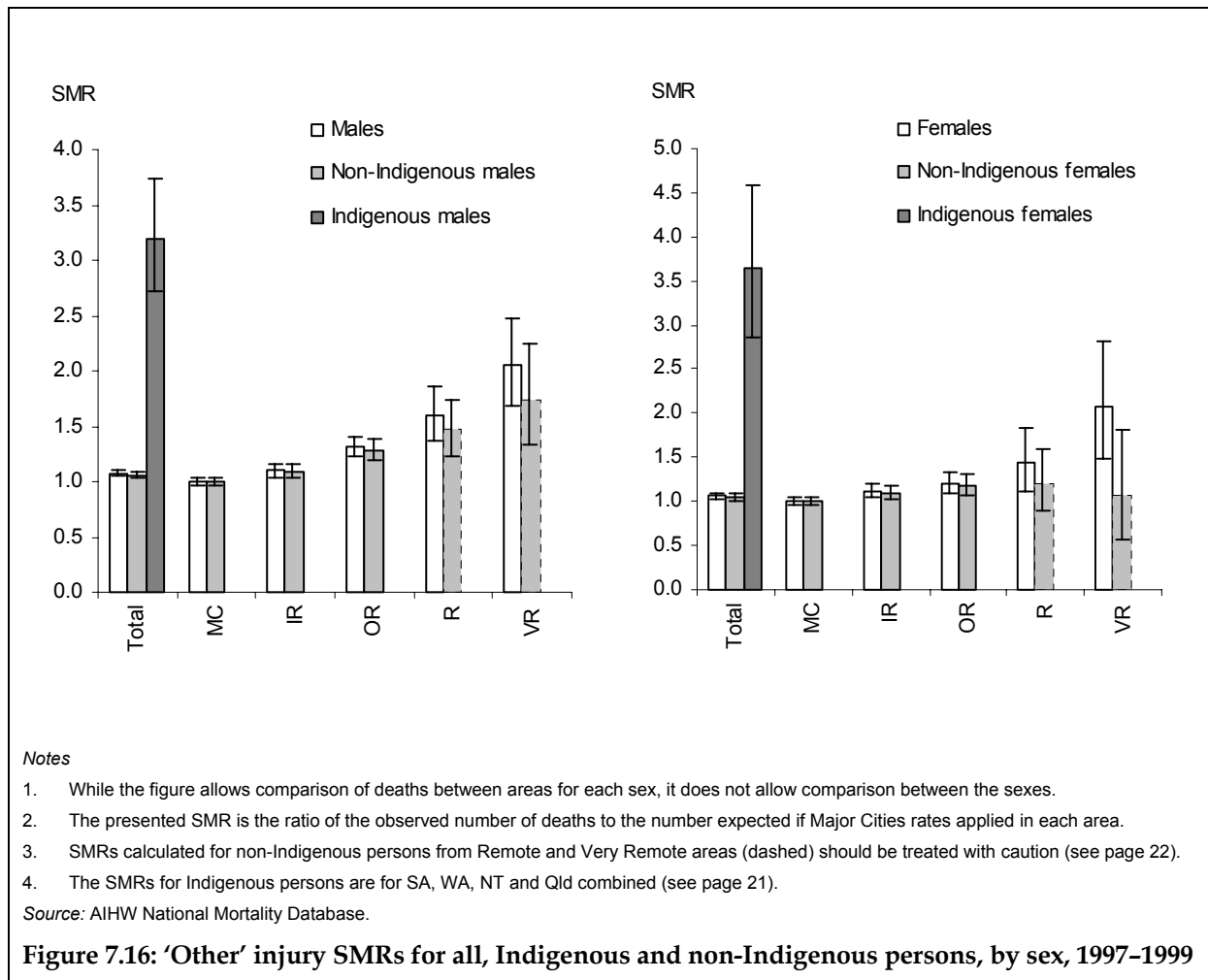
There were about 3 and 4 times as many deaths of Indigenous males and females as expected from 'other' injuries.

For non-Indigenous people, death rates due to 'other' injuries tended to increase with remoteness. Compared with rates for their counterparts in Major Cities, rates for non-Indigenous people were 1.1 and 1.2–1.3 times as high in Inner and Outer Regional areas respectively, and 1.5 and 1.7 times as high in Remote and Very Remote areas for males (but not significantly different in remote areas for non-Indigenous females). The higher rates for non-Indigenous females from Inner and Outer Regional areas were largely influenced by the higher rates among those aged 75 years and older in those areas, with rates for younger females frequently indistinguishable from those in Major Cities.

Annually, there were 214 'excess' deaths due to 'other' injury outside Major Cities (69, 92, 27 and 26 in each of the four areas). Over 70% of these are deaths of males. The 'excess' deaths are distributed throughout all ages.

## Overall mortality due to 'other' injuries

Annually, there were 1,321, 448, 278, 55 and 36 deaths of males and 833, 287, 147, 22 and 14 deaths of females in the five areas as a result of 'other' injuries.



Death rate due to 'other' injuries rose steadily with remoteness (Figure 7.16 and Table 7.14).

- There were 1.1, 1.3, 1.6 and 2.1 times as many deaths of males as expected in the four areas outside Major Cities.
- There were 1.1, 1.2, 1.4 and 2.1 times as many deaths of females as expected in the four areas outside Major Cities.
- There were about 3-4 times as many deaths of Indigenous people due to 'other' injury as expected.

**Table 7.14: The ratio of observed deaths to those expected if Major Cities rates applied in each ASGC Remoteness area, 'other' injury, males and females, 1997-1999**

Age group (years)	Male					Female				
	MC rate	IR	OR	R	VR	MC rate	IR	OR	R	VR
		(ratio)					(ratio)			
0-4	10	*1.49	*2.03	1.37	*3.92	6	*1.46	1.13	2.00	*3.89
5-14	2	1.28	1.62	*3.61	*4.38	1	1.65	*2.78	*6.16	*8.14
15-24	17	*1.24	1.25	1.53	1.57	5	1.14	0.62	2.38	*3.78
25-44	23	1.05	*1.39	*1.76	*2.16	6	1.09	0.91	0.85	*2.85
45-64	16	1.07	*1.42	*1.79	*2.80	7	0.92	1.30	1.87	1.86
65-74	29	1.02	1.24	1.34	1.27	15	1.12	1.20	1.09	3.49
75+	127	1.08	1.06	1.04	0.82	119	*1.13	*1.29	1.31	0.44
Total	..	*1.10	*1.31	*1.60	*2.05	..	*1.11	*1.21	*1.44	*2.08

\* Significantly different from 1 (that is, rates are significantly different from those in Major Cities).

*Notes*

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.

Source: AIHW National Mortality Database.

In Major Cities, death rates for males due to 'other' injury were highest in those older than 74 years (60-380 per 100,000 per year), with rates for most age groups 20-50 per 100,000 per year. For females the pattern was similar, with rates lower (to 290 per 100,000 per year in the oldest age groups).

Age-specific death rates were higher in regional and remote areas in practically all age groups. Rates for 0-4-year-old males are 1.5, 2 and 3.9 times as high in Inner Regional, Outer Regional and Very Remote areas than in Major Cities, with a similar pattern for similar aged females. Although individual age-specific rates were frequently not significantly higher in older age groups, they increased with remoteness to between 2 and 3 times Major Cities rates in Very Remote areas, and higher to 8 times in one age group.

As a result of 'other' injuries, there were 40, 66, 21 and 19 'excess' deaths of males annually, and 30, 25, 7 and 7 'excess' deaths of females annually in the four areas outside Major Cities. The 'excess' for males in Inner Regional areas was largely in those younger than 30 years, while in the other areas contribution is from all age groups younger than 70 years. For females, a very large amount of the 'excess' occurs in those older than 70 years (although in Very Remote areas, the 'excess' is largely in those younger than 40 years).

### Indigenous population

Annually in the period 1997-1999, there were 79 deaths of Indigenous people (54 males and 25 females) in South Australia, Western Australia, the Northern Territory and Queensland. There would also have been a number of deaths due to this cause in the other jurisdictions where identification is less reliable. Of these 79 deaths, there were 55 (37 males and 18 females) more than expected.

There were 3.2 and 3.7 times as many deaths of Indigenous males and females as expected (Table 7.15).

- About 10% of the 'excess' is among children younger than 5 years.
- About 80% of the 'excess' is among those aged 15–64 years (45–50% is in those aged 25–44 years).

### Non-Indigenous population

Annually, there were 1,299, 437, 260, 45 and 20 deaths of non-Indigenous males and 826, 283, 139, 17 and 4 deaths of non-Indigenous females in the five areas respectively as a result of 'other' injuries.

Death rates due to 'other' injuries tended to increase with remoteness (Table 7.15).

- There were 1.1, 1.3, 1.5 and 1.7 times as many deaths of non-Indigenous males as expected in the four areas outside Major Cities due to this cause.
- There were 1.1 and 1.2 times as many deaths of non-Indigenous females as expected in Inner and Outer Regional areas due to this cause. There were about as many deaths of non-Indigenous females due to this cause as expected in remote areas.

**Table 7.15: The ratio of observed deaths to those expected as a result of 'other' injury if Major Cities non-Indigenous rates applied to the non-Indigenous population in each ASGC Remoteness area and to the Indigenous population, 1997–1999**

Age group (years)	Male						Female							
	MC rate	Non-Indigenous				Indigenous	MC rate	Non-Indigenous				Indigenous		
		IR	OR	R				VR	IR	OR	R		VR	
				(ratio)							(ratio)			
0–4	9	*1.50	*1.99	1.60	3.00	*3.3	6	1.33	0.97	1.62	0.06	*3.6		
5–14	2	1.19	1.57	2.82	0.70	*4.7	1	1.76	2.25	5.70	13.33	4.2		
15–24	17	*1.24	1.23	1.36	1.04	*2.6	5	1.17	0.60	1.94	2.03	*2.8		
25–44	23	1.05	*1.33	*1.52	*1.80	*3.5	6	1.07	0.85	0.63	1.51	*5.1		
45–64	16	1.07	*1.37	*1.67	*2.91	*4.4	7	0.93	1.18	1.07	0.74	*5.0		
65–74	29	1.02	1.26	1.26	0.29	2.6	15	1.13	1.18	0.82	2.65	3.0		
75+	127	1.08	1.08	1.12	1.13	0.8	119	*1.11	*1.29	1.29	0.34	1.6		
Total	..	*1.09	*1.28	*1.47	*1.74	*3.2	..	*1.10	*1.18	1.21	1.07	*3.7		
0–64	..	*1.11	*1.37	*1.57	*1.99	*3.4	..	1.08	0.98	1.17	1.52	*4.3		

\* Significantly different from 1 (that is, rates are significantly different from those for non-Indigenous people in Major Cities).

#### Notes

1. Caution should be used when making inferences about ratios that are not significantly different from 1.
2. MC rates for non-Indigenous persons are expressed as deaths per 100,000 population per year. Total (crude) MC rate is largely meaningless and is not included.
3. Ratios for Indigenous people are for SA, WA, NT and Qld.
4. While the table allows comparison of deaths between areas for each sex, it does not allow comparison between the sexes or age groups.
5. SMRs calculated for non-Indigenous persons from Remote and Very Remote areas should be treated with caution (see page 22).

Source: AIHW National Mortality Database.

Age-specific rates for non-Indigenous people living in Major Cities were similar to those for the total population living in Major Cities.

As a result of 'other' injuries, there were 37, 57, 14 and 9 'excess' deaths of non-Indigenous males annually, and 26, 21, 3 and 0 'excess' deaths of non-Indigenous females annually in the four areas outside Major Cities. The 'excess' for males in Inner Regional areas is largely in those younger than 30 years, while in the other areas contribution is from all age groups. For females, a very large proportion of the 'excess' occurs in those older than 70 years.

## **Mortality for those aged 0–64 years**

### **Indigenous population**

Annually there were 73 (52 male, 21 female) deaths of Indigenous people younger than 65 years in South Australia, Western Australia, the Northern Territory and Queensland as a result of 'other' injury. There would also have been a number of deaths due to this cause in the other jurisdictions. Of these 73 deaths, there were 53 (36 males and 16 females) more than expected.

For Indigenous males and females who were younger than 65 years, there were 3.4 and 4.3 times as many deaths as expected as a result of 'other' injury and poisoning (Table 7.15).

### **Non-Indigenous population**

Annually, there were 872, 276, 180, 36 and 18 deaths of non-Indigenous males younger than 65 years and 271, 86, 39, 7 and 3 deaths of non-Indigenous females younger than 65 years in the five areas, respectively, as a result of 'other' injuries.

Death rates for males due to 'other' injuries increased with remoteness. For females there were few differences across the areas (Table 7.15).

- There were 1.1, 1.4, 1.6 and 2.0 times as many deaths of 0–64-year-old non-Indigenous males as expected in each of the areas outside major Cities due to 'other' injuries.
- There were about as many deaths of 0–64-year-old non-Indigenous females as expected due to 'other' injuries in the areas outside Major Cities.

As a result of 'other' injuries, there were 28, 48, 13 and 9 'excess' deaths of non-Indigenous males younger than 65 years annually, and 7, -1, 1 and 1 'excess' deaths of non-Indigenous females younger than 65 years annually in the four areas outside Major Cities. For males, the contribution in Inner Regional areas was largely from 15–29 year-olds; in Outer Regional areas, from throughout life, but mainly in older age groups; in Remote and Very Remote areas, from throughout life, but perhaps with heavier contribution from 35–44 year-olds.