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Impact of improvements to Indigenous identification in hospital data on patterns of hospitalised injury



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**Australian Institute of
Health and Welfare**

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Impact of improvements to Indigenous identification in hospital data on patterns of hospitalised injury

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Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australian Standard Geographical Classification
ATSIIPAC	Aboriginal and Torres Strait Islander Injury Prevention Action Committee
ICD-10-AM	International Classification of Disease – Australian Modification
NCCH	National Centre for Classification in Health
NHMD	National Hospital Morbidity Database
NISU	National Injury Surveillance Unit
NPHP	National Public Health Partnership
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
SLA	Statistical Local Area
Vic	Victoria
WA	Western Australia
WHO	World Health Organization

Symbols

–	nil or rounded to zero
..	not applicable
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

Summary

This report examines the effects of improvements in Indigenous identification in hospitals data on patterns of hospitalised injury among Aboriginal and Torres Strait Islander people. These improvements have resulted in the inclusion of hospital separation data from New South Wales and Victoria in addition to data from the Northern Territory, Western Australia, South Australia and Queensland in analyses of hospitalised injury.

Key findings

The primary difference between the demographic profiles of Aboriginal and Torres Strait Islander people from New South Wales and Victoria (referred in this report as the ‘two state group’) compared with those from the Northern Territory, Western Australia, South Australia and Queensland (referred as the ‘four state group’) is the distribution by remoteness. Aboriginal and Torres Strait Islander people from Northern Territory, Western Australia, South Australia and Queensland live predominantly in more regional and remote locations compared with those from New South Wales and Victoria.

The inclusion of hospitalisation data from New South Wales and Victoria has led to a change in the injury profile of Aboriginal and Torres Strait Islander people. Much of the change appears to be driven by the differences in the proportion of Aboriginal and Torres Strait Islander people by remoteness between the two groupings.

Overall, age-standardised rates of injury were lower in the two state group (2,528 per 100,000 population) compared with the four state group (4,120). Hence, the effect of combining the two groups generally was a lowering of hospitalised injury rates (six state group: 3,523 per 100,000) compared with rates for the four state group for all but a small number of age ranges, for males, females and all persons.

An analysis of four of the priority Aboriginal and Torres Strait Islander injury issues identified within The National Aboriginal and Torres Strait Islander Safety Promotion Strategy – social and emotional wellbeing, child and young people’s safety, violence affecting families and individuals, and land transport – revealed the extent of the impact of the inclusion of cases from New South Wales and Victoria on the pattern of injury.

Rates of injury for assault and transport in Aboriginal and Torres Strait Islander people decreased with the inclusion of cases from New South Wales and Victoria. In contrast, the rate of hospitalised self-harm increased (four state group: 233 cases per 100,000 population; six state group: 248 per 100,000). For Aboriginal and Torres Strait Islander children rates of hospitalised injury decreased with the inclusion of cases from New South Wales and Victoria; 2,053 cases per 100,000 population compared with 1,826 respectively.

The message

Patterns of hospitalised injury for Aboriginal and Torres Strait Islanders based on analyses of the data for the six states were different from patterns based on analyses based on data for the four state group. Users of the data will need to exercise caution in comparing changes over time if the number of states used in data analysis has changed.

1 Introduction

1.1 Purpose

Injury is a significant health issue for Aboriginal and Torres Strait Islander people (Ivers et al. 2008) with rates of injury for specific causes many times that of the non-Aboriginal and Torres Strait Islander population (AIHW 2011; Berry et al. 2009). In the past, the ability to accurately quantify the incidence and prevalence of injury in the Aboriginal and Torres Strait Islander population was limited by the incomplete and varying quality of Indigenous status data in data sets such as the National Hospital Morbidity Database (NHMD).

Before 2007, the data for only four jurisdictions were considered to have adequate Indigenous identification to inform an accurate description of the hospitalised injury of Aboriginal and Torres Strait Islander peoples (AIHW 2005). These were Northern Territory (NT), Western Australia (WA), South Australia (SA) and Queensland (Qld), where approximately 60% of Australia's Indigenous population live, according to Australian Bureau of Statistics (ABS) experimental population estimates (ABS 2008).

Since 2007, improvements in Indigenous identification in hospital records in New South Wales (NSW) and Victoria (Vic) have broadened Indigenous population coverage to 96% and allowed a more comprehensive analysis of hospitalised injury in Aboriginal and Torres Strait Islander people. With injury being a significant health issue for Aboriginal and Torres Strait Islander people (Helps & Harrison 2006), any changes to the methods by which injury incidence is estimated need to be examined carefully in order to understand whether changes seen are real or an artefact of changed methodologies.

The purpose of this report is to examine effects on patterns of hospitalised injury among Aboriginal and Torres Strait Islander people of improvements in the ascertainment of Indigenous status and subsequent inclusion of cases from New South Wales and Victoria.

The effect of the inclusion of separations from New South Wales and Victoria on Aboriginal and Torres Strait Islander injury profiles is unknown. However, it is reasonable to speculate that the inclusion of jurisdictions with different Indigenous population profiles may have an effect on measures of incidence and rates of injury.

1.2 Overview of report

This report comprises five main sections. This section describes the changes to the jurisdictional inclusion criteria for analysis of Aboriginal and Torres Strait Islander people hospital separations data, in particular the evidence of quality of ascertainment.

The second section uses population data to look at the demographic profile of Aboriginal and Torres Strait Islander people in New South Wales and Victoria and compares this with that of the Northern Territory, Western Australia, South Australia and Queensland.

The third section compares the two groups on key indicators of injury hospitalisations while the fourth section examines a number of key Indigenous injury topics and the effects of the addition of data from New South Wales and Victoria. Particular attention is paid to the influence of remoteness on the injury experiences of Aboriginal and Torres Strait Islander people.

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

1.3 Terminology

We have used the term Aboriginal and Torres Strait Islander to refer to persons identified, or self-identified, as such in Australian hospital separations data and population data collections. Aboriginal and Torres Strait Islander people is our preferred term, and is used for all table and chart headings, and where appropriate in the text. The term 'Indigenous' is also used and refers to persons identified, or self-identified, as such in Australian hospital separations data and population data collections.

1.4 Aboriginal and Torres Strait Islander identification in hospital separations data

In 2007 and 2008 the Australian Institute of Health and Welfare (AIHW) conducted a series of studies designed to investigate the quality of Indigenous identification in hospital separations data in Australia (AIHW 2010). Before this, guidelines for analysis of Indigenous hospital separations data were based on the 2005 report *Improving the quality of Indigenous identification in hospital separations data* (AIHW 2005). This report recommended use of data only for the Northern Territory, Western Australia, South Australia and Queensland.

The 2010 report noted that for the purposes of data analysis, levels of Indigenous identification should be above 80%. It found that estimates of completeness for Indigenous identification were sufficiently high for the data to be used in data analysis in all states and territories apart from Tasmania and the Australian Capital Territory – see Table 1.1 for more information.

Table 1.1: Estimates of completeness and correction factors from the Indigenous identification audit project (2007 and 2008 data) and the ACT Hospital Data Linkage project (2002–03 data), by state and territory

Jurisdiction	Completeness	Weighted ^(a) Completeness	95% confidence interval ^(b)
New South Wales	93%	88%	84%–93%
Victoria ^(c)	84%	84%	75%–100%
Queensland	88%	86%	82%–89%
Western Australia	98%	97%	95%–99%
South Australia	93%	87%	80%–100%
Tasmania ^(d)	45%	48%	34%–82%
Australian Capital Territory ^(e)	59%	n.a.	n.a.
Northern Territory	98%	96%	95%–98%
Total^(f)	93%	89%	87%–91%

Notes

- (a) The weighted completeness percentages presented in the table were estimated using a weighting system and therefore will be different to the crude proportion of patients identified as Indigenous in both the interview and hospital admission records.
- (b) The 95% confidence intervals were calculated using the Normal approximation method, except for Victoria, South Australia and Tasmania. For those three states, they were calculated using Wilson's score interval to accommodate the small number of Indigenous patients at interview.
- (c) Estimated results for Victoria were based on an alternative method as detailed in the text.
- (d) Estimates for Tasmania were based on audit results from Inner regional and Outer regional hospitals only.
- (e) Estimates for the Australian Capital Territory were based on the ACT Hospital Data Linkage project which used data from the 2002–03 collection period.
- (f) The total excludes data for the Australian Capital Territory

Source: Table 4.4 Indigenous identification in hospital separations data: quality report (AIHW 2010).

Table 1.2 reproduces the results of the estimates of completeness for Indigenous identification by remoteness area (see Table 4.5 *Indigenous identification in hospital separations data* (AIHW 2010)). Estimates of completeness are sufficiently high for analysis purposes for all remoteness zones.

Table 1.2: Adjusted estimates of completeness and adjusted correction factors, by remoteness area, audit results^(a)

Remoteness zone	Completeness	Weighted ^(b) Completeness	95% confidence interval ^(c)
Major cities	78%	80%	76%–86%
Inner regional	90%	87%	82%–91%
Outer regional	93%	94%	91%–96%
Remote and very remote	97%	97%	96%–98%
Audit total	93%	89%	87%–91%

Notes

- (a) Includes data for 2007 for New South Wales, Victoria, Queensland, Western Australia, South Australia and Tasmania and for 2008 for the Northern Territory.
- (b) The weighted completeness percentages presented in the table were estimated using a weighting system and therefore will be different to the crude proportion of Indigenous patients identified in both the interview and hospital admission records.
- (c) The 95% confidence intervals were calculated using the Normal approximation method.

Source: Table 4.5 Indigenous identification in hospital separations data: quality report (AIHW 2010).

The 2010 report on quality of Aboriginal and Torres Strait Islander Indigenous identification in hospital separations data made a number of recommendations that alter the way in which Aboriginal and Torres Strait Islander hospital separations are analysed (AIHW 2010), compared with previously (AIHW 2005). For state and territory data:

- When using Indigenous status information for analytical purposes, the data for only New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only) should be used, individually or in aggregate.
- It is also acceptable to use data from hospitals in all states and territories to undertake analyses by the state or territory of the patient's area of usual residence, for patients usually resident in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.
- Analyses based on data for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory in aggregate should be accompanied by caveats about limitations imposed by jurisdictional differences in data quality, and about the data not necessarily being representative of the jurisdictions that are not included.
- Caution should be exercised in time series analysis of data for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only) (individually or in aggregate). Caveats should include the possible contribution of changes in ascertainment of Indigenous status for Indigenous patients to changes in hospitalisation rates for Indigenous people.

For the use of regional data:

- Analysis of data by remoteness area of the hospital's location can be undertaken for New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory (public hospitals only), in aggregate.
- It is also acceptable to use data from hospitals in all states and territories to undertake analysis by the remoteness area of the patient's area of usual residence, for patients usually resident in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory, in aggregate.
- Analyses based on remoteness area should be accompanied by caveats about limitations imposed by jurisdictional differences in data quality, and about the data not necessarily being representative of the jurisdictions that are not included.

The improvement in the quality of Indigenous identification is an important step forward for the analysis of hospital separations data. The inclusion of data from New South Wales and Victoria will increase the coverage of data for analysis of injury-related hospital separations and improve the reliability and validity of reporting.

The recommendations for use of regional data suggest that analyses based on remoteness area should only be carried out for the jurisdictions in aggregate. However, given the importance of remoteness in relation to the prevalence and type of injuries sustained by Aboriginal and Torres Strait Islander people and, as will be shown in the next chapter, the different remoteness profiles among the states and territories, this report provides an analysis by remoteness for New South Wales and Victoria compared with Queensland, Western Australia, South Australia and the Northern Territory.

2 Indigenous population data

This study uses the experimental estimates (estimated resident population) of Aboriginal and Torres Strait Islander Australians as at June 2006 provided by the Australian Bureau of Statistics (ABS 2008). The four jurisdictions (Northern Territory, Western Australia, South Australia and Queensland) previously deemed to have adequate ascertainment of Indigenous status represent 59.6% of Australia's Indigenous population using these estimates. The addition of New South Wales and Victoria population data results in approximately 95.6% coverage.

This section explores the differences and similarities between the two state (New South Wales and Victoria) and four state (Northern Territory, Western Australia, South Australia and Queensland) population bases.

2.1 Age and sex

The table below presents the experimental estimates of the population of Aboriginal and Torres Strait Islander people by state and sex as at June 2006 (Table 2.1) (ABS 2008). The inclusion of Aboriginal and Torres Strait Islander people from New South Wales and Victoria adds 186,202 individuals to the population base. There was very little difference in the proportion of male and female Indigenous people between the two state and four state groupings.

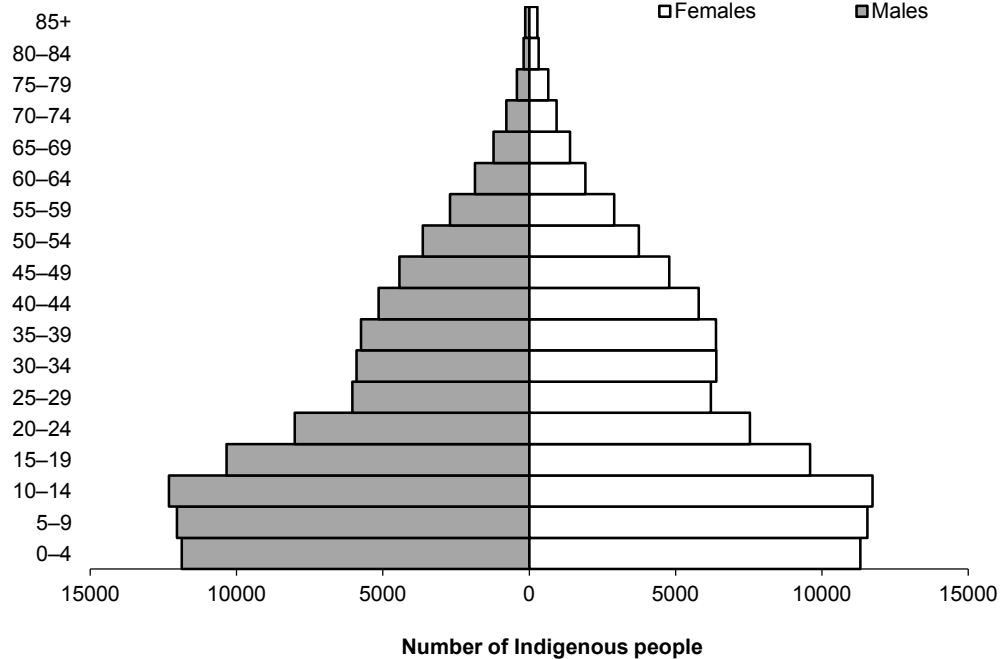
Table 2.1: Population of Aboriginal and Torres Strait Islander people, by sex, state and territory inclusion comparison, 2007–08

Jurisdiction	Males		Females		Persons	
	Number	Per cent	Number	Per cent	Number	Per cent
New South Wales	76,229	49.9	76,456	50.1	152,685	100
Victoria	16,581	49.5	16,936	50.5	33,517	100
Two state total	92,810	49.8	93,392	50.2	186,202	100
Queensland	71,950	49.7	72,935	50.3	144,885	100
South Australia	13,790	49.2	14,265	50.8	28,055	100
Western Australia	35,775	50.4	35,191	49.6	70,966	100
Northern Territory	31,514	49.2	32,491	50.8	64,005	100
Four state total	153,029	49.7	154,882	50.3	307,911	100

Source: Experimental Estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006 (ABS 2008).

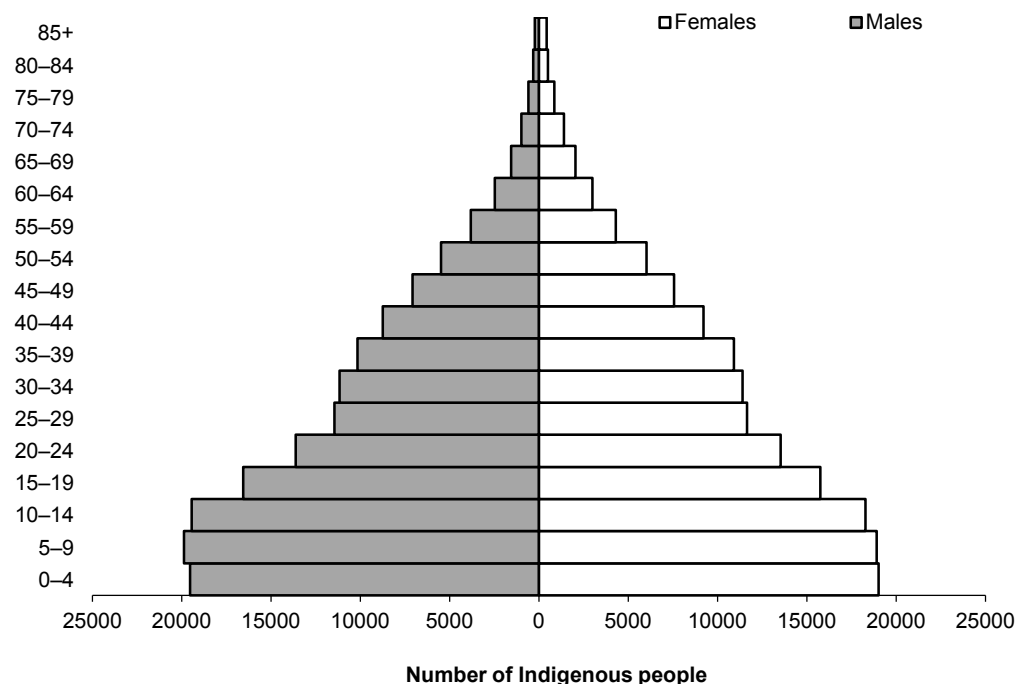
The age distribution of Aboriginal and Torres Strait Islander people in the two state and four state groupings were not dissimilar. Figure 2.1 presents population pyramids for the two groupings. There was a greater proportion of children and young people in the two state group in comparison to the four state group resulting in a narrowing of the population pyramid from around age 20. Both pyramids differ from the Australian population as a whole, which was more heavily weighted towards an older population profile.

Age group



Two states group (NSW, Vic)

Age group



Four states group (Qld, SA, WA, NT)

Figure 2.1: Population pyramids of Aboriginal and Torres Strait Islander people, by age and sex, state and territory inclusion comparison, Australia 2007-08

2.2 Remoteness

The most significant effect of the addition of New South Wales and Victoria to the number of jurisdictions considered to have adequate Indigenous ascertainment is on the number and proportion of Indigenous people by remoteness zone. Past research has demonstrated that remoteness is significantly associated with patterns and rates of injury for both Indigenous and non-Indigenous Australians (Eades et al. 2010; Helps & Harrison 2006).

The table below (Table 2.2) presents the experimental estimates of the population of Aboriginal and Torres Strait Islander people by state and remoteness as at June 2006 (ABS 2008). New South Wales and Victoria have a much greater number of Indigenous people living in *Major cities* and *Inner regional* areas than the jurisdictions in the four state grouping.

Table 2.2: Population of Aboriginal and Torres Strait Islander people, by remoteness zone, state and territory inclusion comparison, Australia 2007–08

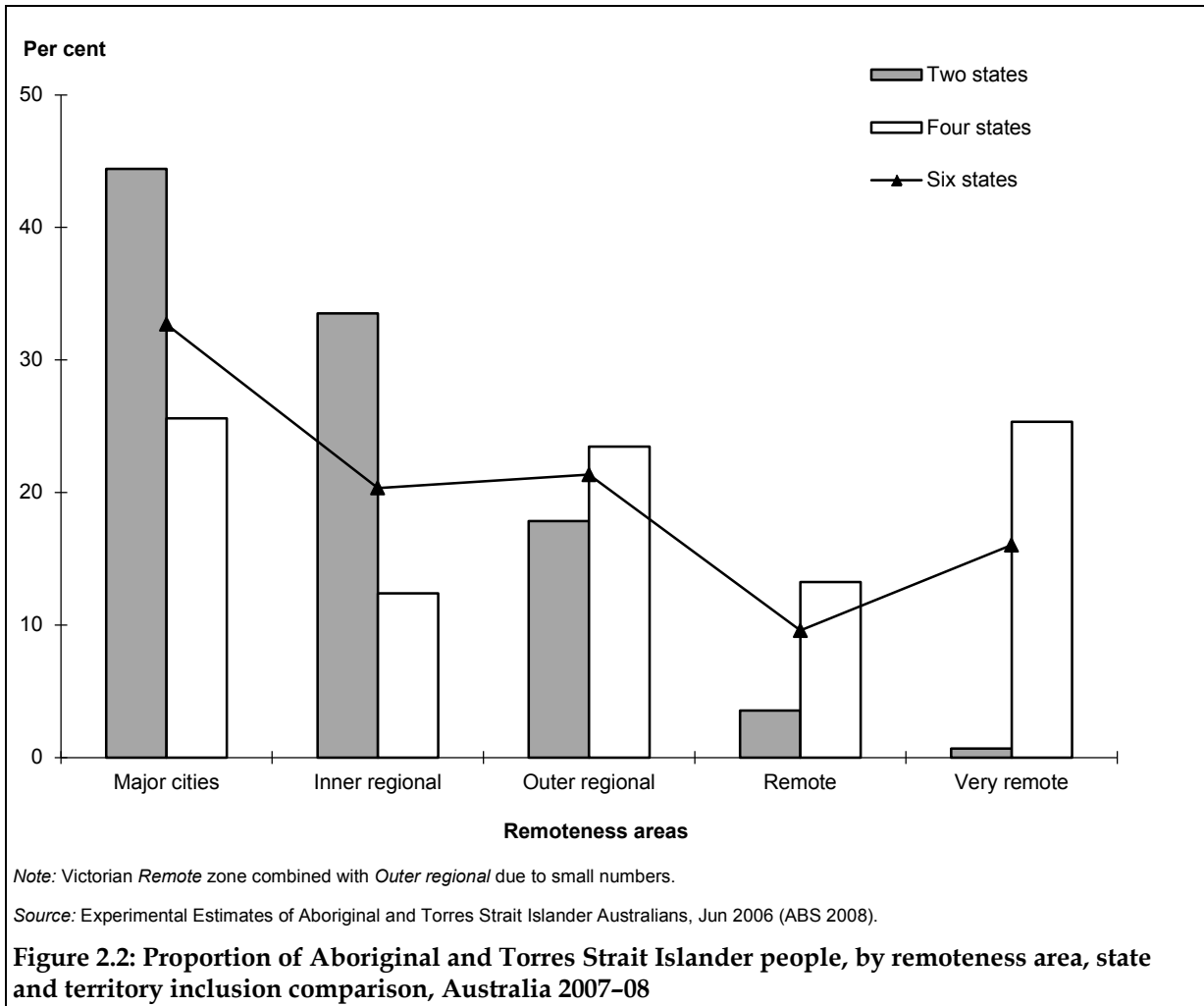
Jurisdictions	Major cities	Inner regional	Outer regional	Remote	Very remote	Total
New South Wales	66,068	50,705	28,046	6,616	1,250	152,685
Victoria ^(a)	16,629	11,694	5,194	—	—	33,517
Two state total	82,697	62,399	33,240	6,616	1,250	186,202
Queensland	40,685	29,831	42,160	12,410	19,799	144,885
South Australia	13,714	2,568	6,534	1,200	4,039	28,055
Western Australia	24,429	5,711	10,601	12,159	18,066	70,966
Northern Territory	—	—	12,951	14,985	36,069	64,005
Four state total	78,828	38,110	72,246	40,754	77,973	307,911

(a) *Outer regional* and *Remote* zones combined for confidentiality reasons by the ABS.

Source: Experimental Estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006 (ABS 2008).

This difference is highlighted in Figure 2.2. Within the four state group 62% of Indigenous people live in *Outer regional*, *Remote* and *Very remote* areas, in contrast to only 22% of Indigenous people in the two state group. More than three-quarters of Indigenous people in the two state group live in *Major* or *Inner regional* cities.

When the two groups were combined into the six state group, the population distribution is skewed to *Major cities* (Figure 2.2).



3 Key indicators of injury hospitalisation

3.1 Overview

This section compares the results of a number of injury analyses for Indigenous people in the two state and territory groups. It does not contain any comparisons with non-Indigenous Australians.

Case selection criteria

The data underpinning this report were hospital-admitted patient records for the financial year 2007–08 for the six jurisdictions, extracted from the National Hospital Morbidity Database (NHMD). Diagnoses and information on external causes of injury for episodes of admitted patient care (separations) in Australian hospitals in 2007–08 were coded to the sixth edition of the Australian Modification of the International Classification of Diseases (ICD-10-AM) (NCCH 2006).

Community injury separations have been defined in this report as records with a principal diagnosis of an injury or poisoning in the code range S00–T75 or T79 (Berry & Harrison 2007). These injuries were generally sustained in the community setting – for example, the home, the workplace, an educational institution, the street or the natural environment.

Separations for which the mode of admission was recorded as being by transfer from another acute-care hospital have been excluded on the grounds that such cases were likely to result in double counting. Their removal allows for an estimation of the number of hospitalised cases as opposed to separations. This method for avoiding multiple counting of cases was approximate and should allow for cases involving transfer between or within hospitals. It cannot allow for readmissions that meet the project's selection criteria.

In summary, records that met the following criteria were included in this report:

- Australian hospital separations occurring 1 July 2007 to 30 June 2008, coded according to the sixth edition of ICD-10-AM (NCCH 2006)
- Principal diagnosis in the ICD-10-AM range S00–T75 or T79 using Chapter XIX Injury, poisoning and certain other consequences of external causes codes
- Mode of admission has any value except the one indicating that transfer from another acute-care hospital has occurred
- Place of usual residence was recorded as Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria.

The 6 jurisdictions account for 98% of national hospital separations reported as being for Aboriginal and Torres Strait Islander people (AIHW 2010).

Confidence intervals were provided in some figures to show non-sampling variation, which was largest where case counts were small. Further information is provided in Appendix: Data issues.

Additional information about the methodology and data used in this report can be found in Appendix: Data issues.

3.2 Key injury indicators

Table 3.1 presents the key indicators for hospitalised injury in Aboriginal and Torres Strait Islander people by state and territory group. Overall the age-standardised rate of community injury was higher in the four state group for males, females and all persons compared with the two state group. The effect of combining the two groups can be seen in Table 3.2, which shows that the net result of the addition of New South Wales and Victoria injury cases was a decrease in the rate of hospitalised injury.

Table 3.1: Key indicators for hospital separations for Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, 2007–08

Key indicators	Two state			Four state		
	Males	Females	Persons ^(a)	Males	Females	Persons ^(a)
All hospital separations 2007–08	5,147	4,110	9,257	13,380	12,123	25,503
Community injury separations ^(b)	3,050	1,884	4,934	7,192	5,590	12,782
Estimated community injury cases ^(c)	2,713	1,705	4,418	6,590	5,249	11,839
As percentage of all hospital separations	52.7	41.5	47.7	49.3	43.3	46.4
As percentage of all community injury separations	89.0	90.5	89.5	91.6	93.9	92.6
Age-standardised rate of community injury cases	3,036	2,023	2,528	4,493	3,737	4,120

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

(b) Community injury separations include separations where the principal diagnosis was in the range S00–T75 or T79.

(c) Community injury cases were separations excluding transfers from another acute-care hospital.

Table 3.2: Key indicators for hospital separations for Aboriginal and Torres Strait Islander people, six state and territory inclusion group, 2007–08

Key indicators	Six state		
	Males	Females	Persons ^(a)
All hospital separations 2007–08	18,527	16,233	34,760
Community injury separations ^(b)	10,242	7,474	17,716
Estimated community injury cases ^(c)	9,303	6,954	16,257
As percentage of all hospital separations	55.3	46.0	51.0
As percentage of all community injury separations	90.8	93.0	91.8
Age-standardised rate of community injury cases	3,944	3,096	3,523

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

(b) Community injury separations include separations where the principal diagnosis was in the range S00–T75 or T79.

(c) Community injury cases were separations excluding transfers from another acute-care hospital.

Age and sex distribution

An analysis of estimated cases by age group reveals differences between the two state and four state groups. Readers are cautioned that the youngest and oldest age categories contain small numbers of cases. As can be seen in Figure 3.1, age-specific rates for the four state group were higher for all age groups than the two state group. The differences were more pronounced from about the 20–24 age range through to the 45–49 age group. A second point of divergence was seen from about age 80 to 84. The largest difference in age-specific rates between the two state and four state group was for the 40–44 age group, where the age-specific rate for injury in the four state group was 5,845 per 100,000 population compared with just 2,888 for the two state group.

As a result of the inclusion of New South Wales and Victoria data the rate of injury in Aboriginal and Torres Strait Islander people will appear to have decreased compared with previous years when only Indigenous people from Queensland, Western Australia, South Australia and the Northern Territory were included in analyses.

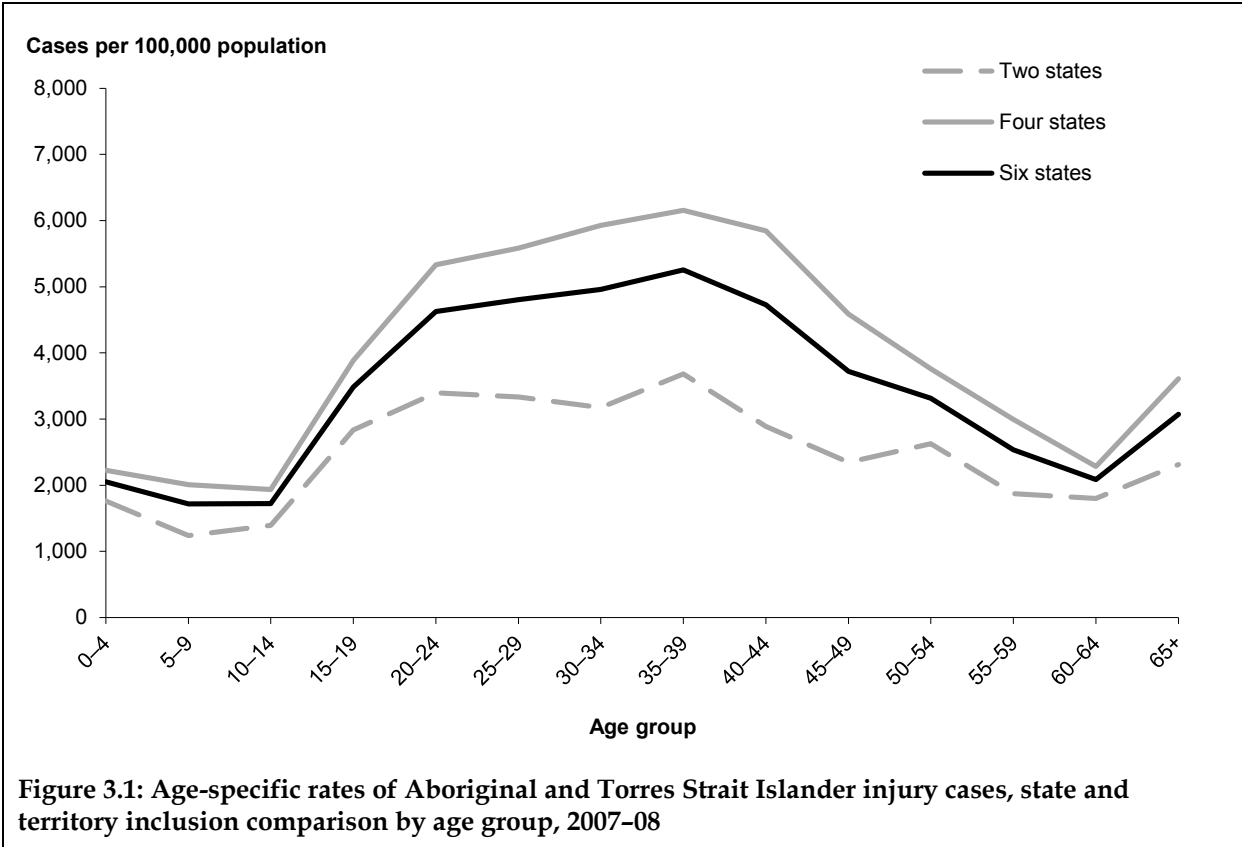
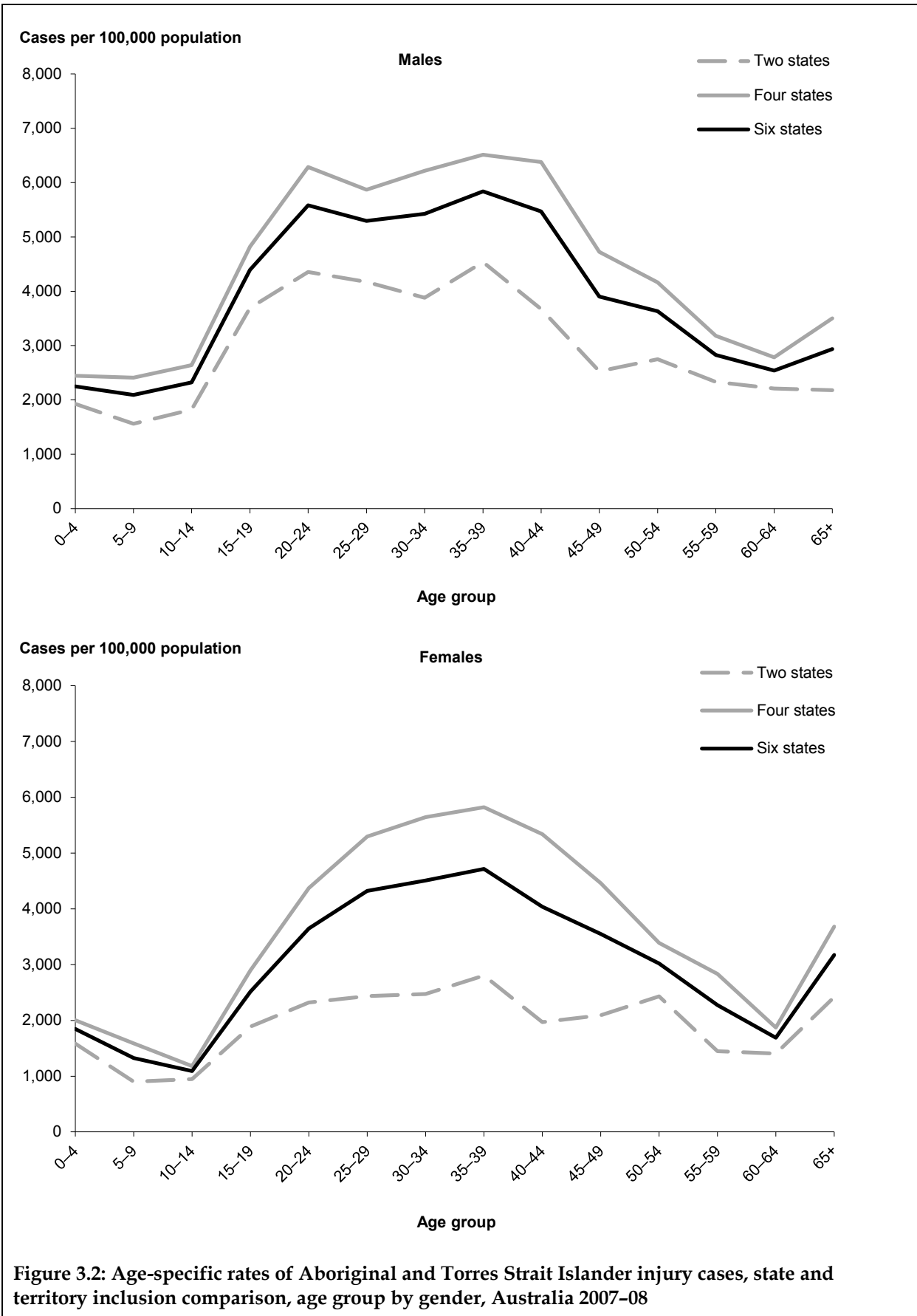


Figure 3.1: Age-specific rates of Aboriginal and Torres Strait Islander injury cases, state and territory inclusion comparison by age group, 2007–08

The pattern of differences between the two state and four state groups was also present when age-specific rates by sex were examined. As can be seen in Figure 3.2, both males and females from the four state group have higher rates of injury in every age category when compared with the two state group.



Indigenous categories

The majority of results presented in this report were for the aggregate category of 'Aboriginal and Torres Strait Islander' people. This category consists of individuals who were identified in the hospital records as Aboriginal, Torres Strait Islander, or Aboriginal and Torres Strait Islander. As can be seen in Table 3.3 and 3.4 below, the proportion of Torres Strait Islanders in the four state group was slightly higher than in the two state group.

Table 3.3: Proportion of estimated injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by sex, Australia 2007–08

	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
Aboriginal	93.6	93.5	93.6	92.1	94.8	93.3
Torres Strait Islander	2.0	2.3	2.1	4.7	3.3	4.1
Aboriginal and Torres Strait Islander	4.5	4.1	4.3	3.2	1.9	2.6

Table 3.4: Proportion of estimated injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by sex, Australia 2007–08

	Six state		
	Males	Females	Persons
Aboriginal	92.6	94.5	93.4
Torres Strait Islander	3.9	3.1	3.5
Aboriginal and Torres Strait Islander	3.6	2.5	3.1

External cause

There are a few notable differences in the proportion of types of external cause injuries between the four state group and the two state group (Table 3.5). There are higher proportions of poisonings by pharmaceuticals, falls, other unintentional injuries and intentional self-harm hospitalisations in the two state group compared with the four state group. The proportion of self-harm injuries in the two state group (11%) is almost twice that of the four state group (6%). Assault was the only external cause category in which the proportion of cases was much higher in the four state group (34%) compared with the two state group (18%).

The effects of combining the two state groups can be seen in Table 3.6. Compared with the four state group, the six state group showed a slight decline in the proportion of assault cases and a slight increase in the proportion of intentional self-harm cases.

Table 3.5: External cause of injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, 2007–08

External cause	Two state		Four state	
	Number	Per cent	Number	Per cent
Transport	480	10.9	1,142	9.7
Drowning and near drowning	n.p.	n.p.	n.p.	n.p.
Poisoning, pharmaceuticals	108	2.5	167	1.4
Poisoning, other substances	28	0.6	62	0.5
Falls	1,020	23.1	2,250	19.0
Smoke, fire, heat and hot substances	122	2.8	338	2.9
Other unintentional injuries	1,244	28.2	2,984	25.2
Intentional self-harm	481	10.9	691	5.8
Assault	813	18.4	3,961	33.5
Undetermined intent	7	0.2	17	0.1
Other and missing ^(a)	n.p.	n.p.	n.p.	n.p.
Total	4,408	100.0	11,824	100.0

(a) Includes cases coded to medical misadventure, complications, etc.

Table 3.6: External cause of injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, six state group, 2007–08

External cause	Six state	
	Number	Per cent
Transport	1,622	10.0
Drowning and near drowning	19	0.1
Poisoning, pharmaceuticals	275	1.7
Poisoning, other substances	90	0.6
Falls	3,270	20.1
Smoke, fire, heat and hot substances	460	2.8
Other unintentional injuries	4,228	26.0
Intentional self-harm	1,172	7.2
Assault	4,774	29.4
Undetermined intent	298	1.8
Other and missing ^(a)	24	0.0
Total	16,232	100.0

(a) Includes cases coded to medical misadventure, complications, etc.

Sex

The overall ratio of male-to-female cases was higher for the two state group than for the four state group (Table 3.7). This was reflected in higher male-to-female ratios for most external cause categories for the two state group compared with the four state group. This means that, for example, there were relatively more females injured in the four state group than in the two state group for assault, poisoning and transport injuries.

Table 3.7: External causes of injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by sex, 2007–08

External cause	Two state			Four state		
	Males	Females	M:F ratio	Males	Females	M:F ratio
Transport	343	137	2.5	778	364	2.1
Drowning and near drowning	n.p.	n.p.	n.p.	10	5	2.0
Poisoning, pharmaceuticals	58	50	1.2	78	89	0.9
Poisoning, other substances	20	8	2.5	38	24	1.6
Falls	575	445	1.3	1,197	1,053	1.1
Smoke, fire, heat and hot substances	83	39	2.1	216	122	1.8
Other unintentional injuries	868	376	2.3	2,019	965	2.1
Intentional self-harm	196	285	0.7	297	394	0.8
Assault	499	314	1.6	1,844	2,117	0.9
Undetermined intent	57	44	1.3	96	101	1.0
Other and missing ^(a)	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Total	2,706	1,702	1.6	6,580	5,244	1.3

(a) Includes cases coded to medical misadventure, complications, etc.

Age

There were a number of differences in the frequency of external causes between the two state groups on the basis of age. A ranking of external cause groups by age comparing the two state and four state groups is presented in Table 3.8. The number one ranked cause in each age group differed according to the state grouping, except for the oldest group (65+) for which falls was the most commonly reported cause for both state groups. Assault was the number one ranked external cause for 3 out of 5 age categories in the four state group. In contrast there was more diversity in terms of the number one ranked cause according to age in the two state group.

Table 3.8: Ranked external causes of injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by age, 2007-08

External cause	0-14		15-19		20-34		35-64		65+	
	Two state	Four state	Two state	Four state	Two state	Four state	Two state	Four state	Two state	Four state
Transport	3	3	3	3	5	4	5	4	3	4
Drowning and near drowning	10	10				10	10	10		9
Poisoning, pharmaceuticals	5	6	9	9	7	8	7	8	6	5
Poisoning, other substances	8	7	8	8	9	9	9	9	4	8
Falls	1	2	5	4	4	3	1	3	1	1
Smoke, fire, heat and hot substances	4	4	6	7	8	7	8	6		6
Other unintentional injuries	2	1	1	2	1	2	2	2	2	2
Intentional self-harm	7	8	4	5	3	5	4	5	7	7
Assault	6	5	2	1	2	1	3	1	5	3
Undetermined intent	9	9	7	6	6	6	6	7		

Note: Shaded cell indicates the top-ranked external cause for each column; blank cells represent instances where no external cause of that type was recorded.

Remoteness

The defining difference between the two state and four state group populations was the distribution by remoteness. As previously described, the proportion of Aboriginal and Torres Strait Islander people living in urban centres was greater in New South Wales and Victoria combined compared with the four other states combined. This was expected to have an influence on the pattern of injury experienced by Indigenous people in each of the state groups.

The proportion of cases of injury by remoteness of usual residence for the state groupings can be seen in Tables 3.9 and 3.10. A greater proportion of injuries was found in the *Remote* and *Very remote* regions of Australia in the four state group; the reverse was true in the two state group. The overall effect of combining the two and four state groups was a smoothing of the distribution of injury cases by remoteness (Table 3.11).

Table 3.9: Proportion of injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
Major cities	32.7	31.4	32.2	16.5	13.2	15.1
Inner regional	38.0	36.5	37.4	10.5	7.3	9.1
Outer regional	22.1	22.6	22.3	21.9	18.4	20.4
Remote	5.8	7.6	6.5	21.7	22.7	22.2
Very remote	1.3	1.8	1.5	29.4	38.3	33.3
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0

(a) Remoteness was not reported in 41 two state cases and 10 four state cases.

Table 3.10: Proportion of Aboriginal and Torres Strait Islander people injury cases, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Six state		
	Males	Females	Persons
Major cities	21.2	17.7	19.7
Inner regional	18.4	14.5	16.7
Outer regional	22.0	19.5	20.9
Remote	17.1	19.0	17.9
Very remote	21.3	29.3	24.7
Total^(a)	100.0	100.0	100.0

(a) Remoteness was not reported in a total of 51 cases.

The interaction between remoteness and injury by state and territory inclusion is illustrated in Figure 3.3 using the proportion of cases in each region. Apart from the proportion of injuries occurring in *Outer regional* areas, the proportion varies dramatically by remoteness of usual residence and state and territory inclusion. The largest proportion of injuries in the two state group occurred within *Inner regional* areas, closely followed by *Major cities*. Within the *Inner regional* areas the proportion of cases in the two state group was four times higher (two state group = 37%; four state group = 9%). However, the biggest difference in the proportion of cases by state group was in *Very remote* regions, where 33% of the four state group injuries occurred compared with just 2% in the two state group.

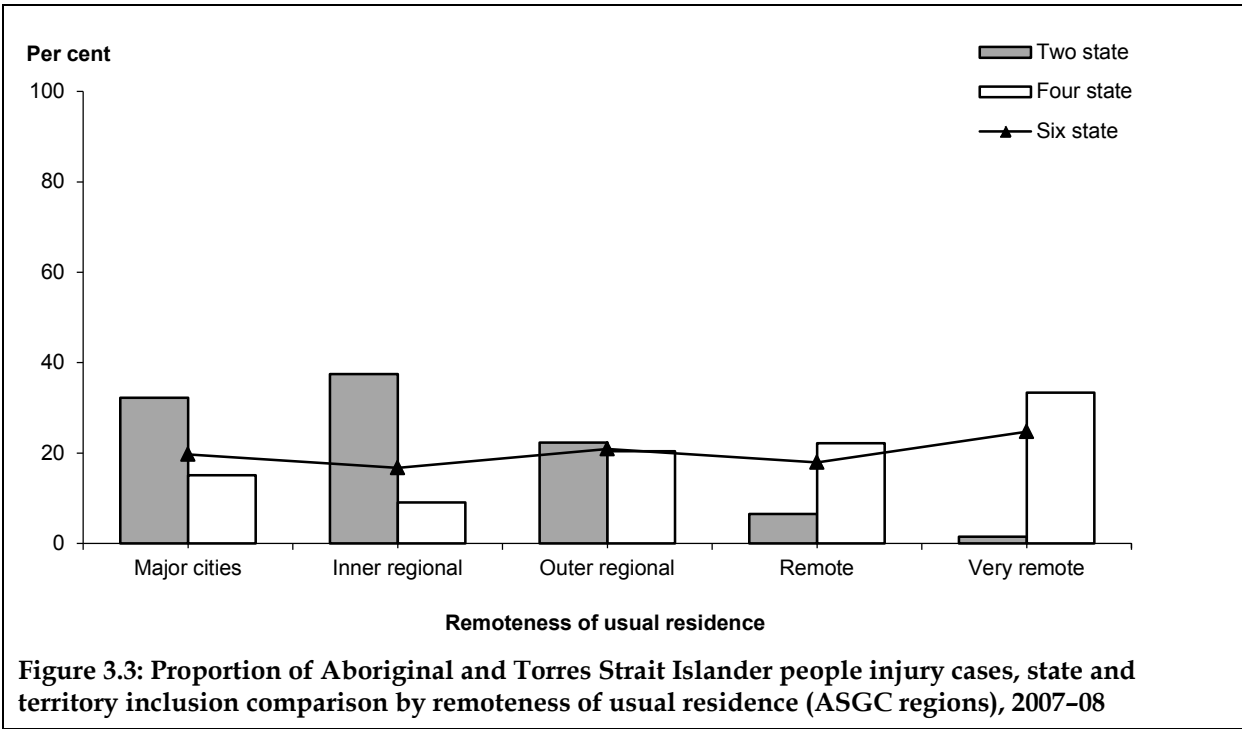
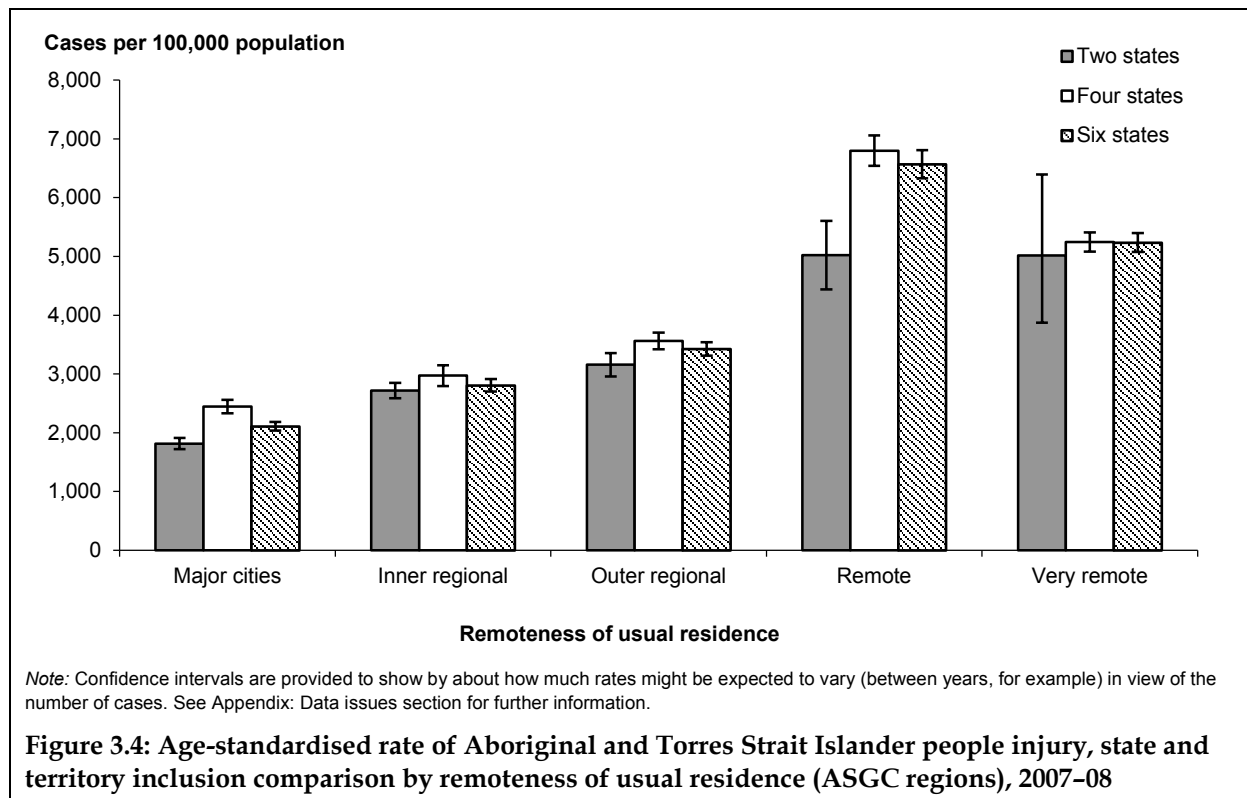


Figure 3.3: Proportion of Aboriginal and Torres Strait Islander people injury cases, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Population rates of injury

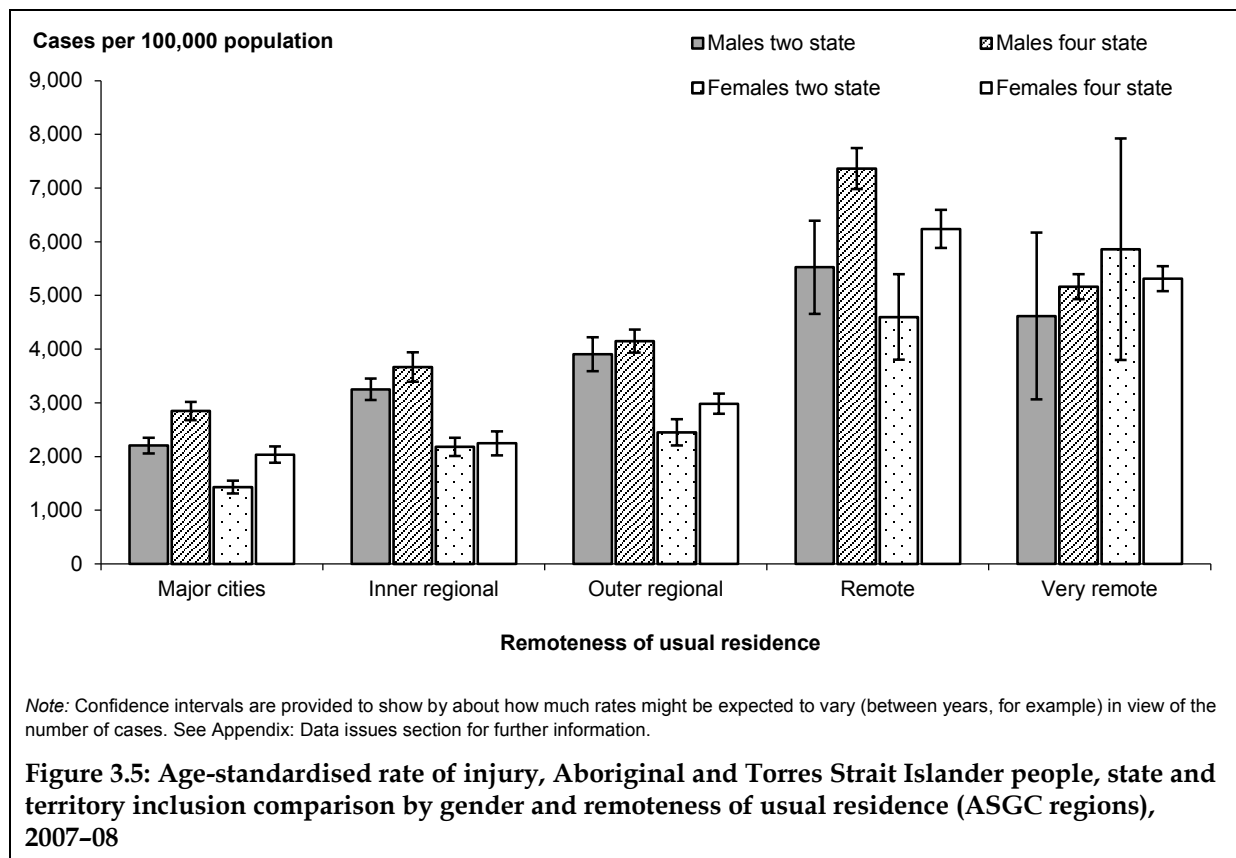
Figure 3.4 presents the age-standardised rates of injury for the different state and territory inclusions by remoteness of usual residence. The greatest difference between the two state and four state groups can be seen in the rate of injury in the *Remote* area. Differences were also apparent in *Major cities* and *Outer regional* areas.

Under the revised state and territory inclusion criteria it will appear as if rates of injury for Aboriginal and Torres Strait Islander people in those areas have declined. It is important to note that the Indigenous identification in hospital separations data quality report (AIHW 2010) found lower levels of Indigenous ascertainment in *Major cities* and readers are advised to view these results with caution.



Sex and remoteness

An analysis of sex by remoteness reveals a consistent difference in the age-standardised rate of males and females by state group (Figure 3.5). Both males and females have lower age-standardised rates of injury in the two state group in *Major cities* and *Remote* areas compared with the four state group.



External cause and remoteness

A breakdown of external cause types by remoteness for the two state groupings results in small case counts for many of the combinations of remoteness by external cause. As a result this section focuses on the 5 external causes of injury for which there were sufficient case numbers for analysis.

Transport

There were very few cases of hospitalised transport injury for residents of the *Remote* and *Very remote* regions of the two state group (Table 3.11). In contrast, a higher proportion of hospitalised transport injury cases occur for residents of these remote regions in the four state group (Table 3.11). The overall result of including cases from the two state group was an increase in the proportion of transport injury cases for residents of *Major cities* and *Inner regional* areas of Australia.

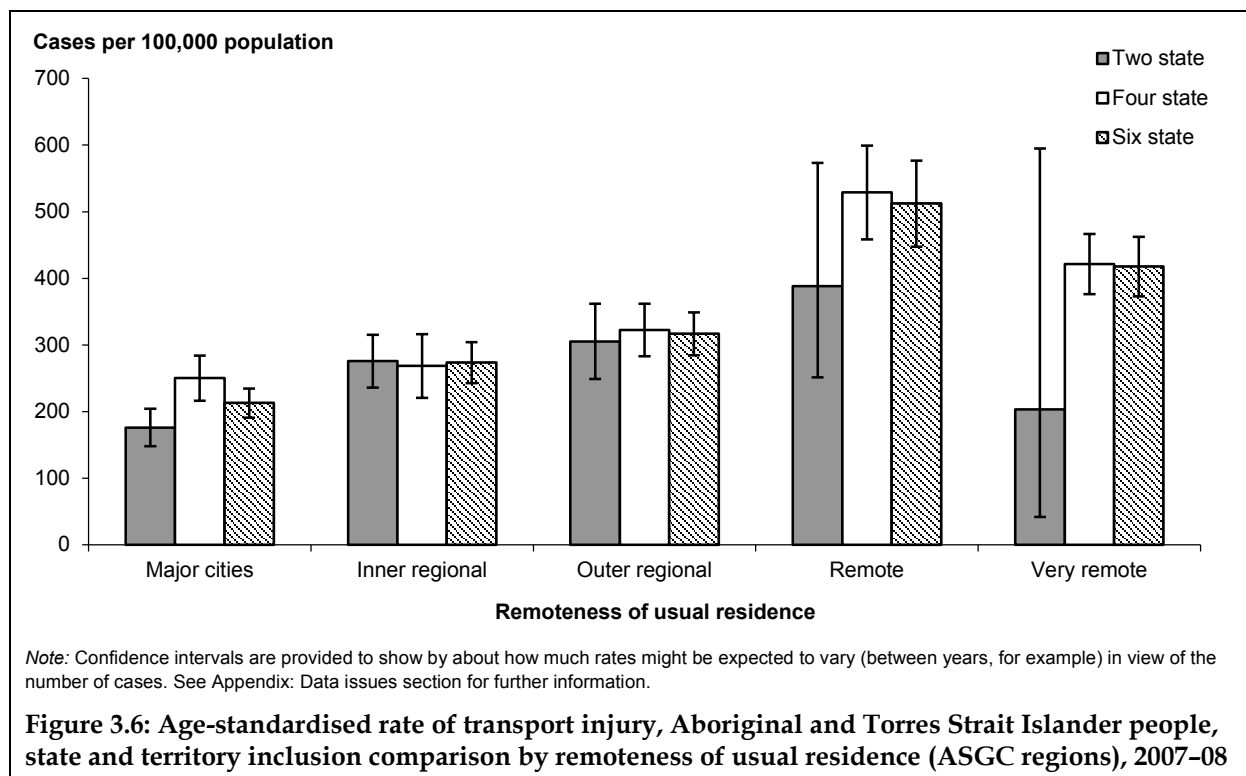
The rise in rates of hospitalised transport injury with increasing remoteness for all state groups can be seen in Figure 3.6. The impact of the addition of cases from the two state group on rates of transport injury was not substantial.

Table 3.11: Number and proportion of transport injuries, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Two state		Four state	
	Number	Per cent	Number	Per cent
Major cities	151	31.6	212	18.6
Inner regional	186	38.9	121	10.6
Outer regional	113	23.6	258	22.6
Remote	n.p.	n.p.	217	19.0
Very remote	n.p.	n.p.	334	29.2
Total^(a)	478	100.0	1,142	100.0

(a) Remoteness was not reported in 2 two state cases.

Note: Transport injury cases include those with a first external cause code in the range V01–V99.



Falls

The distribution of fall injuries was similar to that of transport injuries with higher numbers of cases for residents of the remote regions of the four state group compared with the two state group (Table 3.12). The highest number of falls occurred in the *Very remote* region of the four state group with almost twice as many falls compared with the *Major cities*.

The rise in hospitalised fall injury rates with increasing remoteness for all state groups can be seen in Figure 3.7. There were distinct differences in the rate of falls between the two state and four state groups for most remoteness zones. For example, for *Major cities* the rate of fall hospitalisations for the two state group was 297 per 100,000 population compared with 702 for the four state group. Similarly for the *Inner regional* areas, the rate of fall hospitalisations

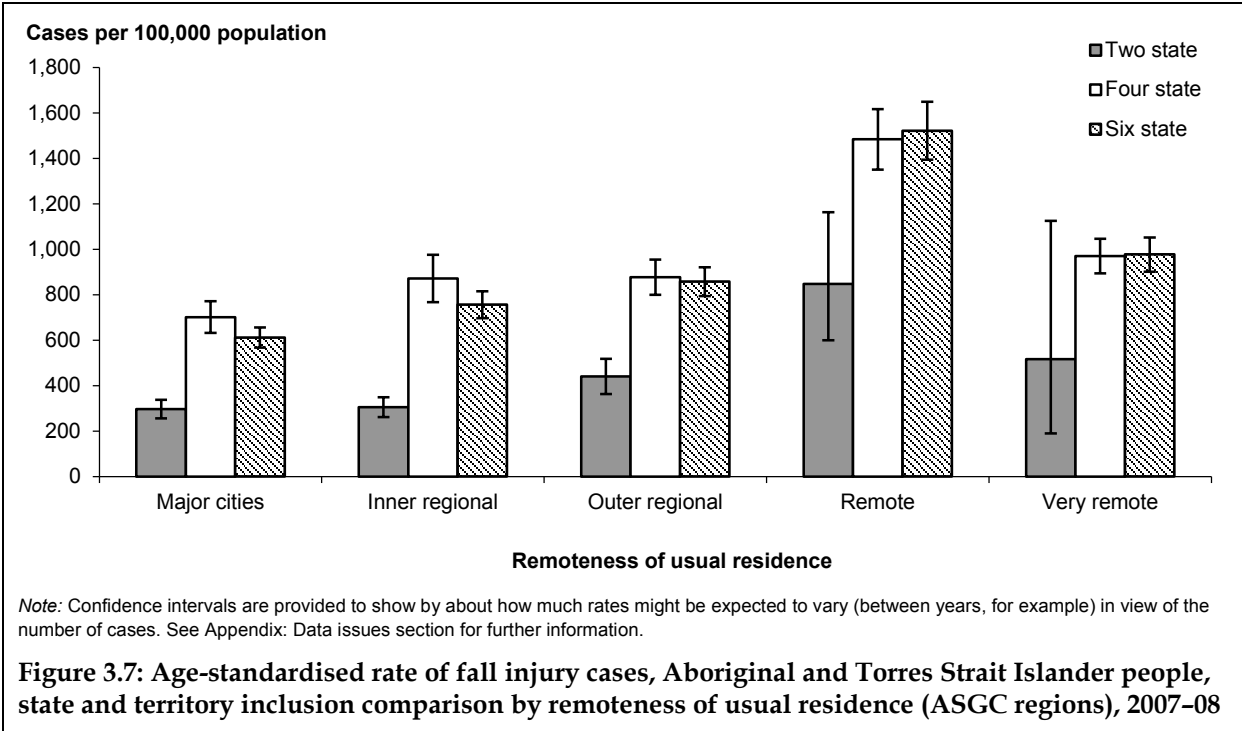
for the two state group was 305 per 100,000 population compared with 872 for the four state group. The addition of cases from New South Wales and Victoria results in little change from the remoteness distribution of the four state group.

Table 3.12: Number and proportion of fall injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Major cities	204	36.0	385	17.1	728	22.3
Inner regional	193	34.1	269	12.0	629	19.3
Outer regional	125	22.1	490	21.8	714	21.9
Remote	38	6.7	477	21.2	548	16.8
Very remote	6	1.1	627	27.9	639	19.6
Total^(a)	566	100.0	2,248	100.0	3,258	100.0

(a) Remoteness was not reported in 9 two state cases and 2 four state cases.

Note: Fall injury cases include those with a first external cause code in the range W00-W19.



Other unintentional injuries

Other unintentional injury is a broad category that encompasses a wide range of injury types including, for example, *Exposure to inanimate mechanical forces* (W20–W49), *Exposure to animate mechanical forces* (W50–W64), *Other accidental threats to breathing* (W75–W84), *Contact with venomous animals and plants* (X20–X29) and *Exposure to forces of nature* (X30–X39).

The distribution of other unintentional injuries was similar to that of all the injury types reviewed so far with higher numbers of cases in the remote regions of the four state group compared with the two state group (Table 3.13). As with fall injuries, the highest number of other unintentional injuries occurred for residents of the *Very remote* region of the four state group with more than twice as many unintentional injuries compared with the *Major cities*.

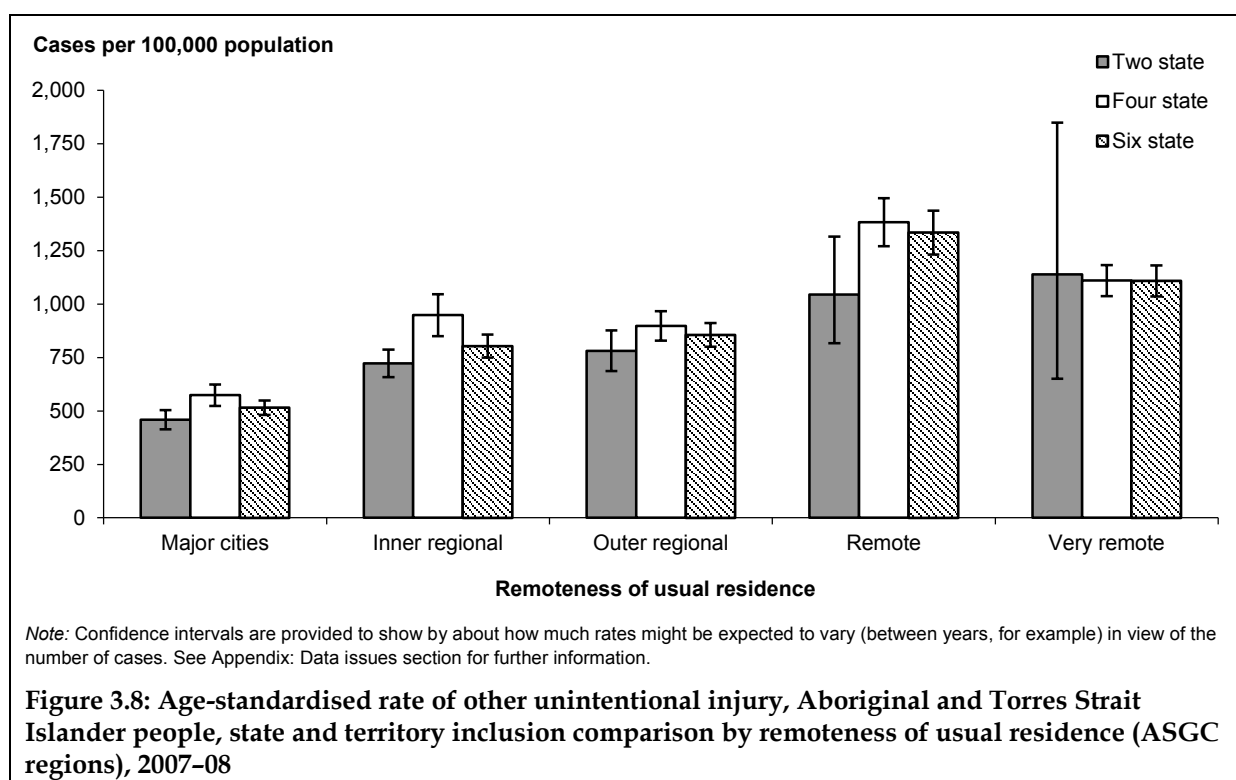
The rise in hospitalised other unintentional injury rates with increasing remoteness for all state groups can be seen in Figure 3.8. With respect to the *Major cities* and *Inner regional* areas there was a difference in rates between the two state and four state groups. For *Major cities* the rate of other unintentional injury hospitalisations for the two state group was 459 per 100,000 population compared with 573 for the four state group. Similarly for the *Inner regional* areas, the rate of other unintentional hospitalisations for the two state group was 722 per 100,000 population compared with 948 for the four state group. The inclusion of New South Wales and Victoria cases resulted in a decrease overall in other unintentional injury rates.

Table 3.13: Number and proportion of other unintentional injuries, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Major cities	398	32.3	498	16.7	896	21.2
Inner regional	489	39.6	360	12.0	849	20.1
Outer regional	259	21.0	660	22.0	919	21.8
Remote	72	5.8	581	19.4	653	15.5
Very remote	16	1.3	884	29.5	900	21.3
Total^(a)	1,234	100.0	2,983	99.6	4,217	100.0

(a) Remoteness was not reported in 10 two state cases and 1 four state case.

Note: Other unintentional injury cases include those with a first external cause code in the ranges W20–W64, W75–W99, X20–X39, and X50–X59.



Intentional self-harm

There was a higher proportion of cases of intentional self-harm in more remote areas in the four state group than the two state group (Table 3.14). When the two groups were combined the trend towards increasing numbers of cases of intentional self-harm with remoteness was no longer present.

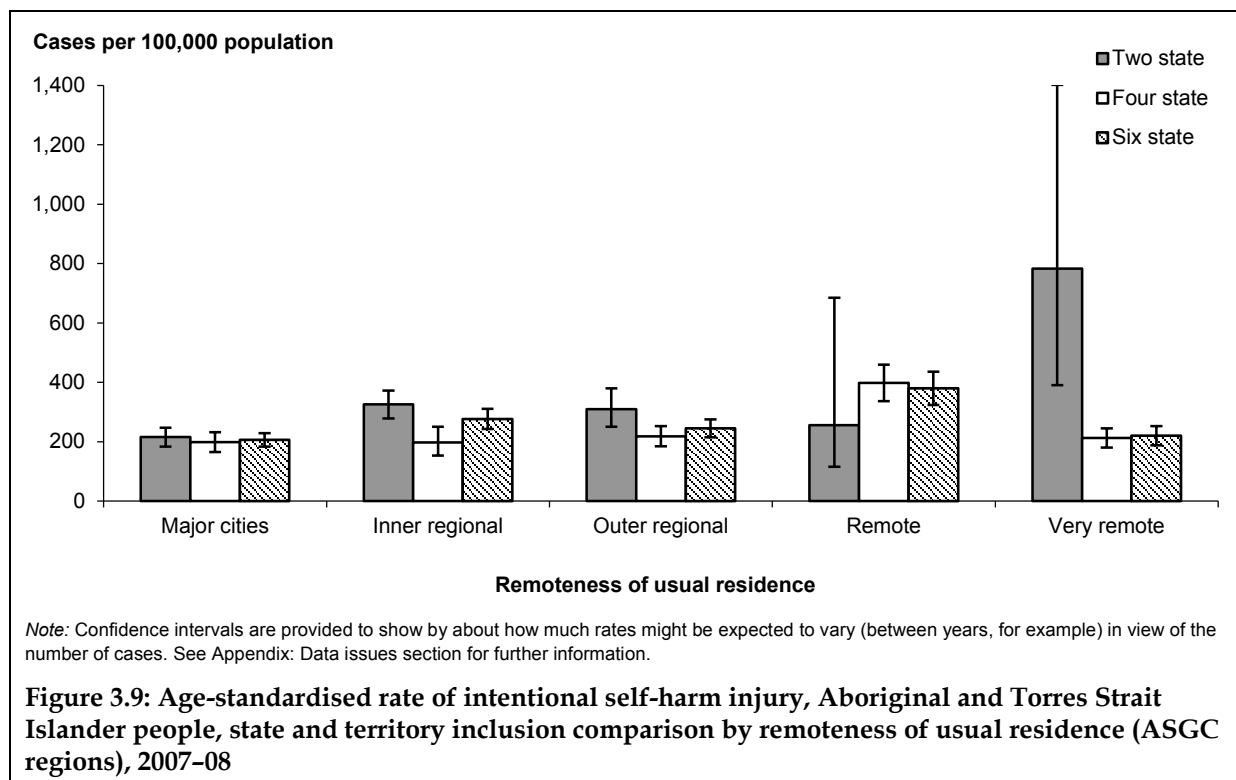
The rise in hospitalised intentional self-harm injury rates with increasing remoteness was not as pronounced as for other injury types (Figure 3.9). The inclusion of New South Wales and Victoria cases resulted in a slight increase in *Inner regional* areas in the intentional self-harm injury rate, compared with the rate for the four state group. The largest change in rates of intentional self-harm injury was seen in *Very remote* regions where the rate of self-harm injury was much less in the six state group compared with the two state group.

Table 3.14: Number and proportion of intentional self-harm injuries, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Major cities	173	36.3	138	20.0	311	26.6
Inner regional	186	39.0	68	9.8	254	21.7
Outer regional	93	19.5	158	22.9	251	21.5
Remote	14	2.9	161	23.3	175	15.0
Very remote	11	2.3	166	24.0	177	15.2
Total^(a)	477	100.0	691	100.0	1,168	100.0

(a) Remoteness was not reported in 4 two state cases.

Note: Intentional self-harm cases include those with a first external cause code in the range X60–X84, and Y87 Sequelae of intentional self-harm.



Assault

Assault injuries were more common in *Major cities* and regional areas in the two state group, but in *Remote* and *Very remote* areas in the four state group. The addition of cases from New South Wales and Victoria resulted in slightly higher proportions of cases in *Major cities* and *Inner regional* areas in the six state group.

Figure 3.10 shows the rise in hospitalised assault rates with increasing remoteness for all state groups. Rates of assault injury were many times higher in *Remote* and *Very remote* regions compared with *Major cities* in both two state and four state groups. The highest rate of assault was found in the *Remote* region within the four state group (2,597 per 100,000 population) while the lowest rate occurred in *Major cities* within the two state group (280).

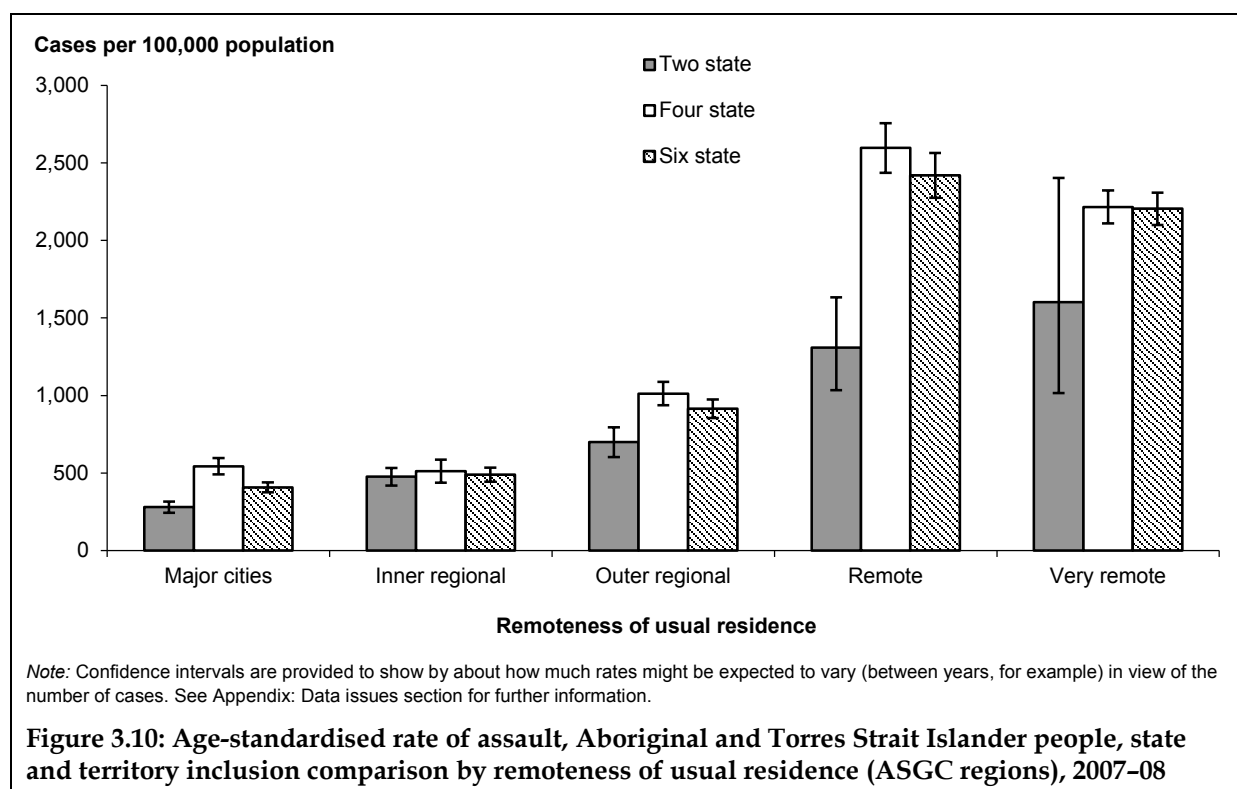
Rates of assault injury on average were 1.5 times higher in the four state group compared with the two state group. The biggest difference in assault rates between the two groups were in the *Remote* regions of Australia where the rate of assault was 1,309 per 100,000 population for the two state group compared with 2,597 in the four state group. The addition of cases from New South Wales and Victoria had the most effect on rates of assault in *Major cities*.

Table 3.15: Number and proportion of assault injuries, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Major cities	228	28.5	406	10.3	634	13.3
Inner regional	269	33.6	179	4.5	448	9.4
Outer regional	203	25.3	688	17.4	891	18.7
Remote	78	9.7	1,006	25.4	1,084	22.8
Very remote	23	2.9	1,675	42.4	1,698	35.7
Total^(a)	801	100.0	3,954	100.0	4,755	100.0

(a) Remoteness was not reported in 12 two state cases and 7 four state cases.

Note: Assault cases include those with a first external cause code in the range X85–Y09, Y35–Y36.



4 Priority Indigenous injury issues

The National Aboriginal and Torres Strait Islander Safety Promotion Strategy (NPHP 2005) was developed by the Aboriginal and Torres Strait Islander Injury Prevention Action Committee (ATSIIIPAC) under the auspices of the Aboriginal and Torres Strait Islander Working Group of the National Public Health Partnership (NPHP) group.

The strategy identifies 6 priority areas chosen after extensive consultation with Indigenous people. These 6 priority areas are:

- social and emotional wellbeing
- child and young people's safety
- violence affecting families and individuals
- land transport
- water safety
- workplace safety.

This section examined hospitalisations relevant to these priority areas and identifies differences (compared with the four state group) resulting from the addition of cases from New South Wales and Victoria.

As there were a relatively small number of cases of hospitalisations for drowning and near drowning (19 cases) it was not possible to examine water safety. Workplace safety was also not examined due to small numbers. Land transport was examined briefly in the context of the effects of the addition of two additional states. Comprehensive coverage of land transport injury has recently been published by the AIHW (Henley & Harrison 2010).

4.1 Social and emotional wellbeing

Within hospital separations data, it was possible to identify cases of self-harm through ICD-10 coding although it was not possible to distinguish between cases of self-harm with or without suicidal intent, nor to use the data to shed light on factors that may contribute to self-harm behaviour.

Overview

Cases of intentional self-harm make up 11% of injury cases in the two state group compared with 6% for the four state group (Table 4.1). The age-standardised rate of intentional self-harm was higher in the two state group compared with the four state group, overall and for males and females. More Indigenous females than males were hospitalised for intentional self-harm for both state groups. The result of the inclusion of intentional self-harm cases from New South Wales and Victoria was an increase in the proportion of injury cases that were for self-harm and an increase in the overall age-adjusted rate of hospitalised intentional self-harm (Table 4.2).

Table 4.1: Key indicators for intentional self-harm hospital cases for Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, 2007–08

Key indicators	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
All community injury cases ^(a)	2,713	1,705	4,418	6,590	5,249	11,839
Estimated intentional self-harm cases ^(b)	196	285	481	297	394	691
As percentage of all community injury cases	7.2	16.7	10.9	4.5	7.5	5.8
Age-standardised rate of intentional self-harm cases	238	309	273	206	260	233

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

(b) Intentional self-harm cases include those with a first external cause code in the range X60–X84, and Y87 Sequelae of intentional self-harm.

Table 4.2: Key indicators for intentional self-harm hospital cases for Aboriginal and Torres Strait Islander people, six state and territory group, 2007–08

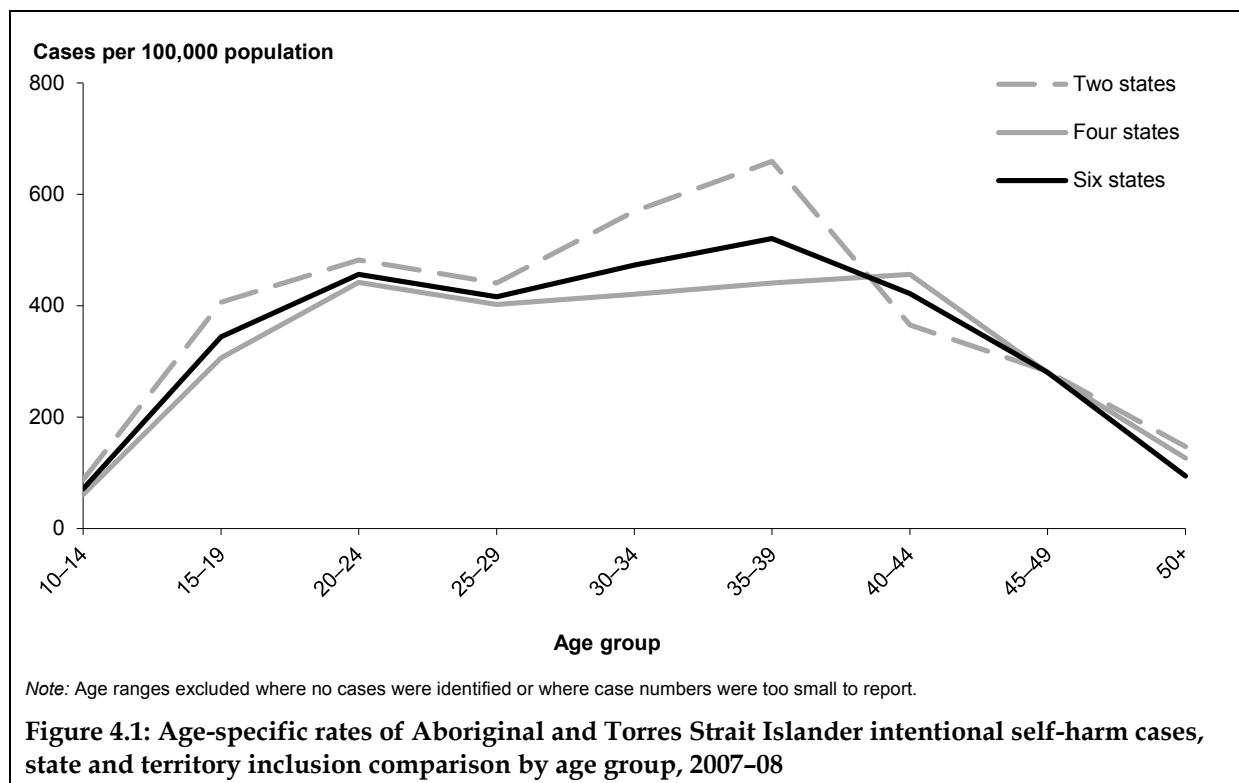
Key indicators	Six state		
	Males	Females	Persons
All community injury cases ^(a)	9,303	6,954	16,257
Estimated intentional self-harm cases ^(b)	493	679	1,172
As percentage of all community injury cases	5.3	9.8	7.2
Age-standardised rate of intentional self-harm cases	219	278	248

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

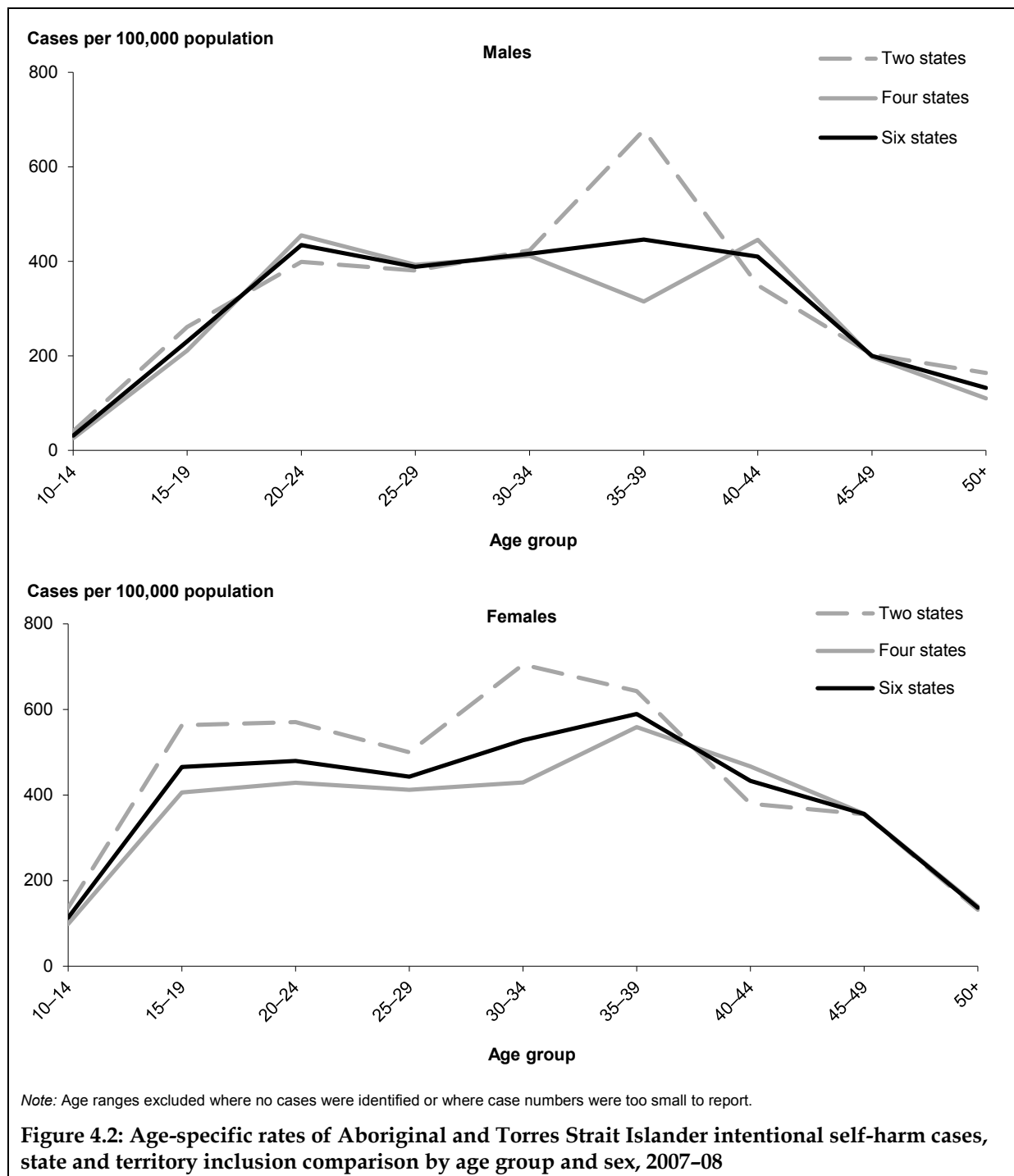
(b) Intentional self-harm cases include those with a first external cause code in the range X60–X84, and Y87 Sequelae of intentional self-harm.

Age and sex distribution

As can be seen in Figure 4.1 the distribution of intentional self-harm cases shows a similar pattern for both the two state and four state groups. The highest rate of intentional self-harm in the two state group occurred in the 35–39 aged group (659 cases per 100,000 population) and in the 40–44 year age group for the four state group (456 cases).



An analysis by sex and age reveals a number of differences between males and females in the rate of hospitalised intentional self-harm (Figure 4.2). While the pattern of hospitalised intentional self-harm by age was similar in females the higher rates were seen in older age groups compared with males.



Mechanism of injury

There were differences between the two state and four state groups in terms of the mechanism of intentional self-harm. As can be seen in Table 4.3 the two most common mechanisms of intentional self-harm across all three groups were *Intentional self-poisoning* and *Intentional self-harm by sharp object*. Intentional self-harm by poisoning (by any means) was far more common in the two state group compared with the four state group, accounting for over 70% of all intentional self-harm cases in New South Wales and Victoria.

Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified was the most common mechanism of self-poisoning within the two state group with 45% of intentional self-harm cases. This was followed by *Intentional self-harm by sharp object* (19%) and *Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics* (11%).

Within the four state group *Intentional self-harm by sharp object* was the most common mechanism (30%) followed by *Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified* (24%) and *Intentional self-harm by hanging, strangulation and suffocation* (15%).

Table 4.3: Proportion of intentional self-harm cases by state and territory inclusion, 2007–08

ICD-10 code	Description	Two state	Four state	Six state
X60–X69	Intentional self-poisoning by and exposure to:	72.3	49.9	59.1
X60	nonopioid analgesics, antipyretics and antirheumatics	11.2	11.1	11.2
X61	antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	44.7	24.2	32.6
X62	narcotics and psychodysleptics [hallucinogens], not elsewhere classified	6.9	2.5	4.3
X63	other drugs acting on the autonomic nervous system	0.6	1.0	0.9
X64	other and unspecified drugs, medicaments and biological substances	6.0	7.8	7.1
X65	alcohol	1.7	1.0	1.3
X66	organic solvents and halogenated hydrocarbons and their vapours	0.2	0.7	0.5
X67	other gases and vapours	0.0	0.1	0.1
X68	pesticides	0.2	0.7	0.5
X69	other and unspecified chemicals and noxious substances	0.8	0.7	0.8
X70	Intentional self-harm by hanging, strangulation and suffocation	5.0	14.8	10.8
X74	Intentional self-harm by other and unspecified firearm discharge	0.0	0.1	0.1
X76	Intentional self-harm by smoke, fire and flames	0.0	0.7	0.4
X77	Intentional self-harm by steam, hot vapours and hot objects	0.0	0.1	0.1
X78	Intentional self-harm by sharp object	19.3	29.5	25.3
X79	Intentional self-harm by blunt object	0.6	1.3	1.0
X80	Intentional self-harm by jumping from a high place	0.0	0.7	0.4
X81	Intentional self-harm by jumping or lying before moving object	0.4	0.4	0.4
X82	Intentional self-harm by crashing of motor vehicle	0.2	0.4	0.3
X83	Intentional self-harm by other specified means	1.2	1.0	1.1
X84	Intentional self-harm by unspecified means	0.6	0.9	0.8
Y87	Sequelae of intentional self-harm	0.2	0.0	0.1
Total		100.0	100.0	100.0

Remoteness

An analysis of intentional self-harm cases by remoteness was broadly covered in Chapter 3. The distribution of cases by sex and remoteness is shown in Tables 4.4 and 4.5. Overall there were higher proportions of intentional self-harm cases for both males and females in *Major cities* and *Inner regional* areas in the two state group. Conversely, proportions of hospitalised

intentional self-harm were higher in *Remote* and *Very remote* regions in the four state group. In both groupings there were higher proportions of females in *Major cities* and *Outer regional areas*.

The addition of cases from New South Wales and Victoria results in a distribution of cases by remoteness that reflects higher numbers in the *Major cities* and *Inner regional* areas than was previously the case using the four state group (Table 4.5).

Table 4.4: Proportion of intentional self-harm injuries, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
Major cities	35.8	36.6	36.3	16.8	22.3	20.0
Inner regional	43.0	36.3	39.0	9.8	9.9	9.8
Outer regional	17.6	20.8	19.5	21.2	24.1	22.9
Remote	2.1	3.5	2.9	25.9	21.3	23.3
Very remote	1.6	2.8	2.3	26.3	22.3	24.0
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0

(a) Remoteness was not reported in 4 two state cases.

Table 4.5: Proportion of intentional self-harm injuries of Aboriginal and Torres Strait Islander people injury cases, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Six state		
	Males	Females	Persons
Major cities	24.3	28.3	26.6
Inner regional	22.9	20.9	21.7
Outer regional	19.8	22.7	21.5
Remote	16.5	13.9	15.0
Very remote	16.5	14.2	15.2
Total^(a)	100.0	100.0	100.0

(a) Remoteness was not reported in a total of 4 cases.

Population rates

The age-standardised rates of intentional self-harm cases by remoteness zone were presented in Chapter 3 (Figure 3.13). The greatest difference between the two state (784 per 100,000) and four state (213) groups can be seen in the rate of injury in *Very remote* areas. The largest change in rates of intentional self-harm injury after the inclusion of cases from New South Wales and Victoria was seen in *Very remote* regions where the rate of self-harm injury was much less in the six state group compared with the two state group.

4.2 Child and young people's safety

Overview

Almost three and a half thousand Aboriginal and Torres Strait Islander children aged 0–14 were hospitalised as a result of an injury across the 6 states in 2007–08 (Table 4.7). When comparing the two state groupings, cases of children hospitalised for injury make up 23% of all two state hospitalisations in the period compared with 20% of all four state hospitalisations (Table 4.6). A lower proportion of girls were hospitalised as a result of an injury in the four state group (17%) compared with the two state group (23%).

The age-standardised rate of injury in the four state group (2,053 per 100,000) was much higher than that of the two state group (1,459). Overall, the highest rate of childhood injury occurred in boys (2,499 per 100,000 population) in the four state group (Table 4.6). The result of the inclusion of child injury cases from New South Wales and Victoria was a decline in the age-standardised rate of hospitalised injury but there was little change in the proportion of injury cases that were for children (Table 4.7).

Table 4.6: Key indicators of hospital cases for Aboriginal and Torres Strait Islander children (0–14), state and territory inclusion comparison, 2007–08

Key indicators	Two state			Four state		
	Boys	Girls	Children	Boys	Girls	Children
All community injury cases ^(a)	2,713	1,705	4,418	6,590	5,249	11,839
Estimated child cases	641	394	1,035	1,469	897	2,366
As percentage of all community injury cases	23.6	23.1	23.4	22.3	17.1	20.0
Age-standardised rate: children	1,767	1,135	1,459	2,499	1,583	2,053

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

Table 4.7: Key indicators of hospital cases for Aboriginal and Torres Strait Islander children (0–14), six state and territory group, 2007–08

Key indicators	Six state		
	Boys	Girls	Children
All community injury cases ^(a)	9,303	6,954	16,257
Estimated child cases	2,110	1,291	3,401
As percentage of all community injury cases	22.7	18.6	20.9
Age-standardised rate: children	2,220	1,413	1,826

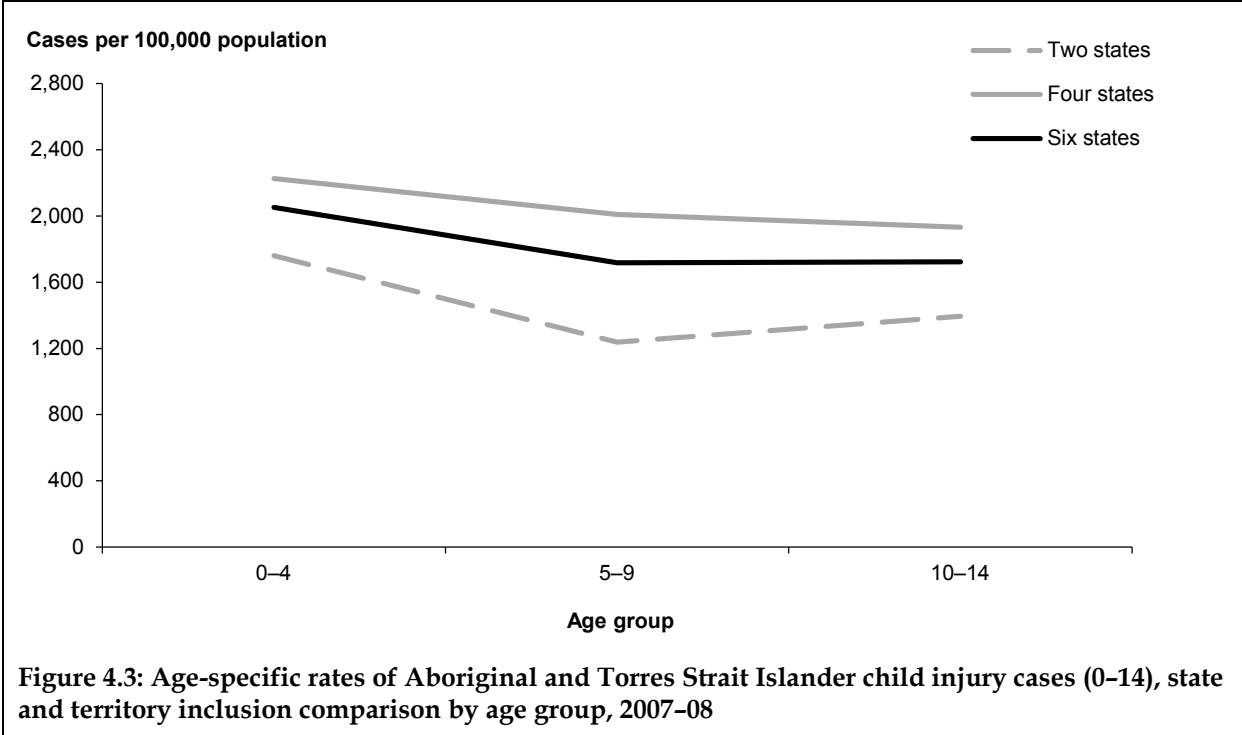
(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

Age and sex distribution

An analysis of estimated cases by age group reveals differences between the two state and four state groups at each of the 3 age ranges. As can be seen in Figure 4.3, age-specific rates for the four state group were higher for all age groups than the two state group. Rates were

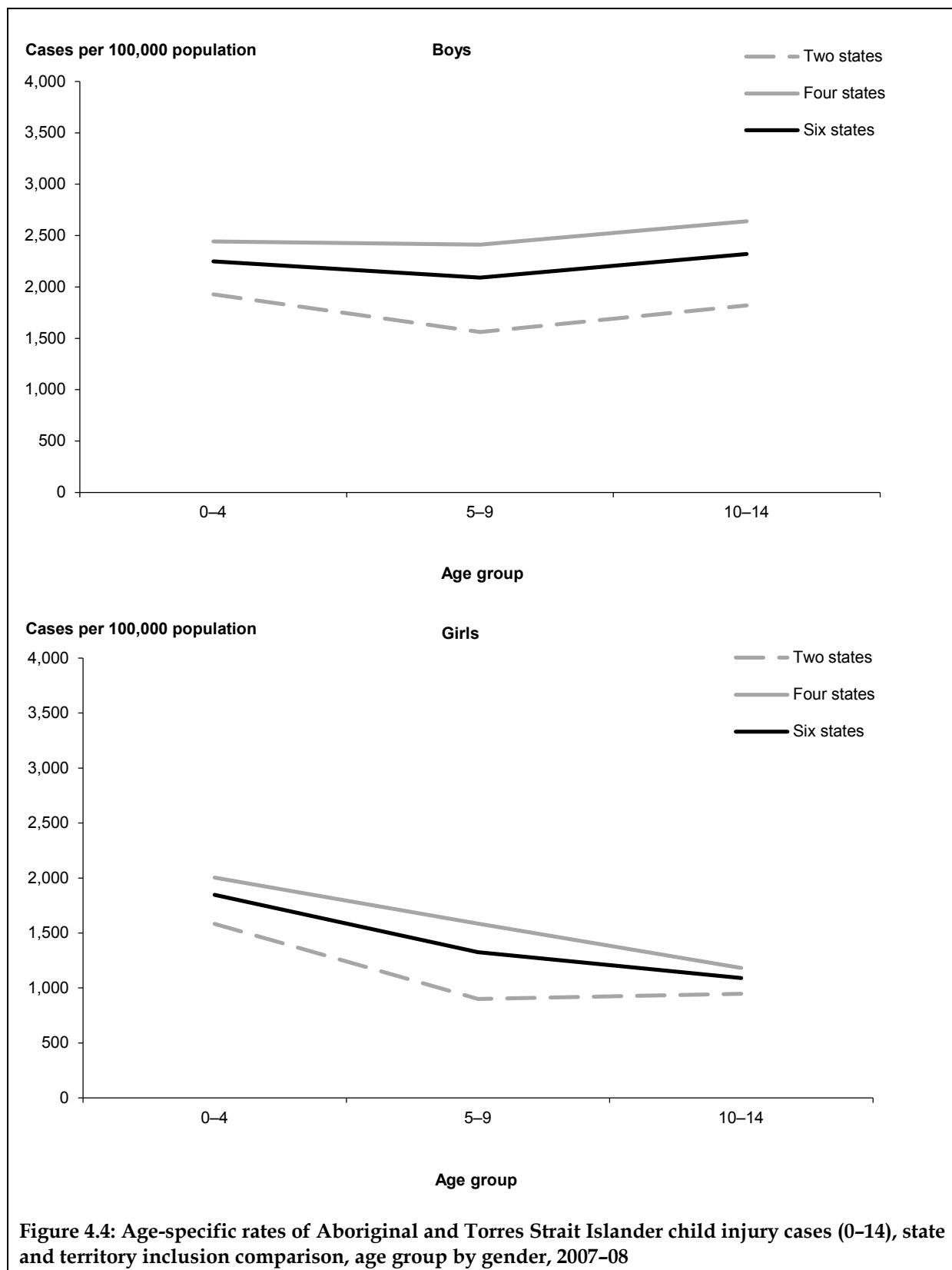
highest in both state groupings for 0-4, and 0-4 in the four state group recorded the highest rate of injury (2,226 cases per 100,000 population) of all age groups within both state groupings.

As a result of the inclusion of New South Wales and Victoria data the rate of injury in children will appear to have decreased compared with previous years when only children from Queensland, Western Australia, South Australia and the Northern Territory were included in analyses.



Rates of hospitalised injury in children were higher in the four state group regardless of sex or age range (Figure 4.4). The highest rate of injury was seen in boys aged 10-14 in the four state group (2,639 per 100,000 population).

In contrast to the boys, rates of injury in girls decrease gradually in the four state group over each of the age ranges. A similar decrease was seen in girls in the two state group between the 0-4 and 5-9 age groups. The inclusion of cases from New South Wales and Victoria results in an overall decrease in the rates of Aboriginal and Torres Strait Islander childhood injury compared with rates based on four states.



External cause

The patterns of external causes of injury were similar for the two state groups (Table 4.8). For both groups, the most commonly reported external causes were falls (33% for both) and other unintentional causes (33% for the two-state group and 35% for the four-state group). There were some differences for less common causes. For example, poisoning by pharmaceuticals was relatively more common in the two-state group (4.6% of all cases) than in the four state group (3.1%).

Table 4.8: External cause of injury cases, Aboriginal and Torres Strait Islander children (0-14), state and territory inclusion comparison, 2007-08

External cause	Two state		Four state	
	Number	Per cent	Number	Per cent
Transport	136	13.2	283	12.0
Drowning & near drowning	n.p.	n.p.	n.p.	n.p.
Poisoning, pharmaceuticals	48	4.6	74	3.1
Poisoning, other substances	13	1.3	35	1.5
Falls	343	33.2	778	32.9
Smoke, fire, heat and hot substances	80	7.7	166	7.0
Other unintentional injuries	339	32.8	830	35.1
Intentional self-harm	21	2.0	25	1.1
Assault	41	4.0	139	5.9
Undetermined intent	n.p.	n.p.	n.p.	n.p.
Total^(a)	1,033	100.0	2,366	100.0

(a) Total includes cases coded to medical misadventure, complications, etc.

The effects of combining the two state groups can be seen in Table 4.9. Compared with the four state group, this six state group showed very little change other than a slight increase in the proportion of transport injuries.

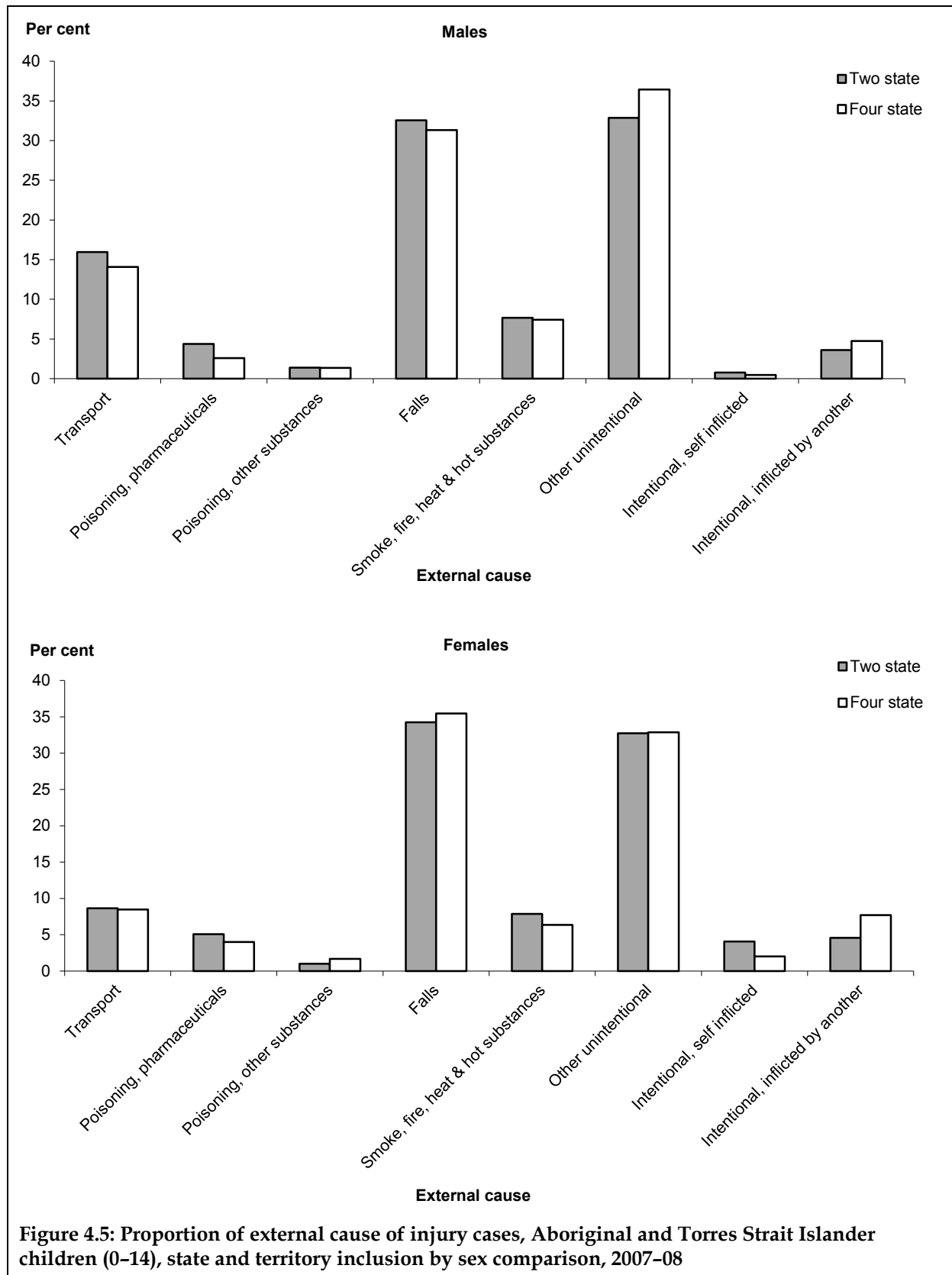
Table 4.9: External cause of injury cases, Aboriginal and Torres Strait Islander children (0–14), state and territory inclusion comparison, six state group, 2007–08

External cause	Six state	
	Number	Per cent
Transport	419	12.3
Drowning and near drowning	n.p.	n.p.
Poisoning, pharmaceuticals	122	3.6
Poisoning, other substances	48	1.4
Falls	1,121	33.0
Smoke, fire, heat and hot substances	246	7.2
Other unintentional injuries	1,169	34.4
Intentional self-harm	46	1.4
Assault	180	5.3
Undetermined intent	n.p.	n.p.
Total^(a)	3,399	100.0

(a) Total includes cases coded to medical misadventure, complications, etc.

Sex and age

Aboriginal and Torres Strait Islander boys and girls have similar external cause profiles (Figure 4.5). There were minor differences between the two state groupings according to sex. Boys in the two state group have slightly higher proportions of transport, poisoning by pharmaceuticals and falls injuries and lower proportions of unintentional injuries and assaults compared with boys from the four state group. For girls, there were lower proportions of poisonings, burns and intentional self-harm cases in the four state group but a higher proportion of assault cases in the two state group.



The injury profile of children according to age was very similar between the two state and four state groups (Table 4.10). The top three ranked causes of injury in each group was the same regardless of state group. Differences in ranking in each age category between states for lower ranked external causes were minor and were likely affected by small case numbers.

Table 4.10: Ranked external causes of injury cases, Aboriginal and Torres Strait Islander children (0–14), state and territory inclusion comparison by age, 2007–08

External cause	0–4		5–9		10–14	
	Two state	Four state	Two state	Four state	Two state	Four state
Transport	5	6	3	3	3	3
Poisoning, pharmaceuticals	4	4	5	6	8	8
Poisoning, other substances	7	7	7	7	9	9
Falls	2	2	1	1	2	2
Smoke, fire, heat and hot substances	3	3	4	4	6	6
Other unintentional injuries	1	1	2	2	1	1
Intentional self-harm				8	4	5
Assault	6	5	6	5	5	4

Note: Shaded cell indicates the top ranked external cause for each column; blank cells represent instances where no external cause of that type was recorded. Ranking for drowning and near drowning and undetermined intent are not shown due to small case numbers.

The largest differences between the two state groups in external cause rankings were seen in the 10–14 age group. Proportions of transport injuries, falls and intentional self-harm injuries were higher in children from the two state group, while other unintentional injuries and assault injuries were lower (Table 4.11).

Table 4.11: External cause of injury cases, Aboriginal and Torres Strait Islander children (10–14), state and territory inclusion comparison, 2007–08

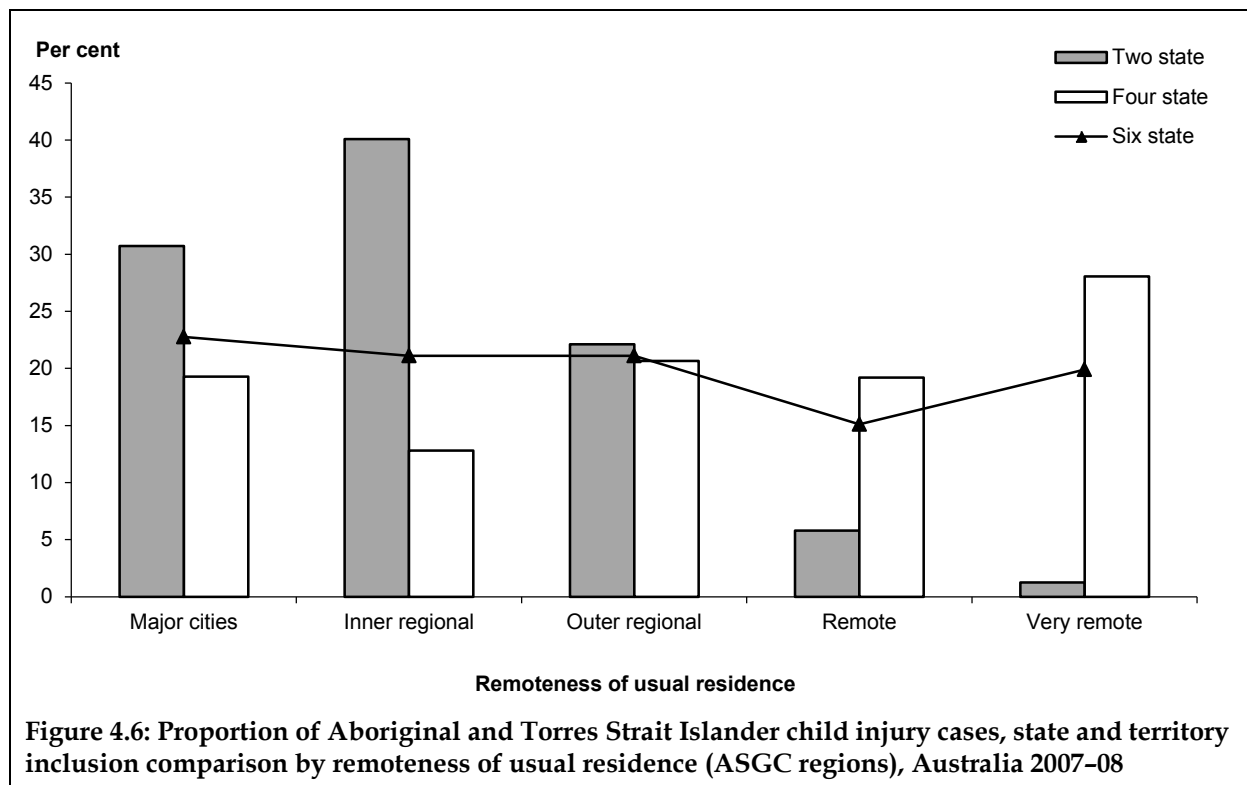
External cause	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Transport	79	23.6	150	20.6	229	21.5
Drowning and near drowning	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Poisoning, pharmaceuticals	n.p.	n.p.	n.p.	n.p.	10	0.9
Poisoning, other substances	n.p.	n.p.	n.p.	n.p.	7	0.7
Falls	93	27.8	181	24.8	274	25.8
Smoke, fire, heat and hot substances	12	3.6	22	3.0	34	3.2
Other unintentional injuries	99	29.6	265	36.4	364	34.2
Intentional self-harm	21	6.3	23	3.2	44	4.1
Assault	18	5.4	64	8.8	82	7.7
Undetermined intent	7	2.1	11	1.5	18	1.7
Total^(a)	335	100.0	729	100.0	1064	100.0

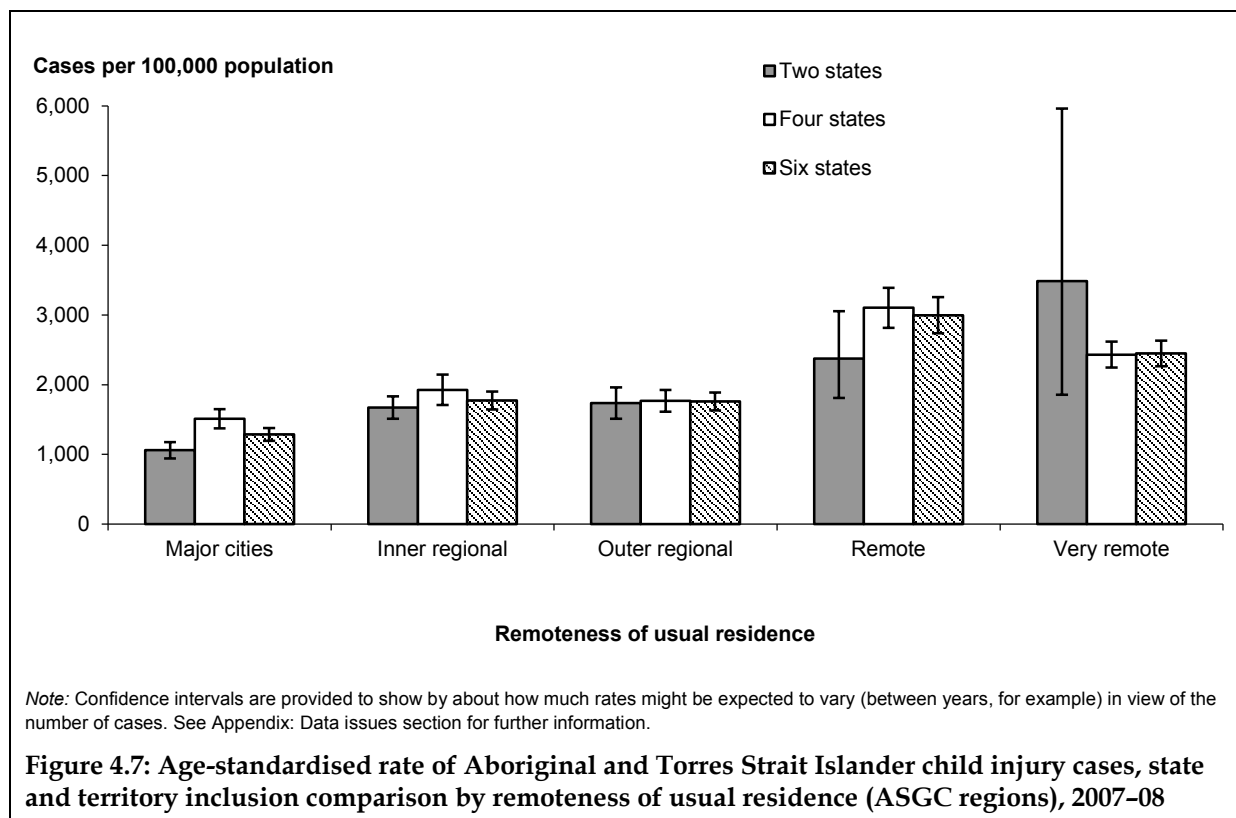
(a) Total includes cases coded to medical misadventure, complications, etc and cases with missing information.

Remoteness

The proportion of child injury cases centred on *Major cities* and *Inner regional* areas of the two state group (Figure 4.6) with 40% occurring for residents of *Inner regional* areas. In contrast, the four state group showed a much more even spread of child injury cases across remoteness zones. In the four state group the highest proportion of injury cases (28%) occurred in *Very remote* areas. The net effect of adding cases from New South Wales and Victoria was decreases in the proportions of cases recorded for *Remote* and *Very remote* regions and increases in the proportion of child injuries in *Major cities* and *Inner regional* areas. Very little change was evident in *Outer regional* areas.

Figure 4.7 presents age-standardised rates of injury for the different state and territory inclusions by remoteness of usual residence. Both state groups trend towards increasing rates of injury by remoteness. The only significant difference between the two state groups was seen in the rate of child injury in *Major cities* where children from the four state group (1,512 per 100,000 population) were injured at a much higher rate than children from the two state group (1,060).





4.3 Violence affecting families and individuals

Overview

This section provides additional information to that presented in Chapter 3 on hospitalised assault cases.

Cases of assault make up 18% of hospitalised injuries in the two state group compared with 34% for the four state group (Table 4.12). The proportion of hospitalised assault injuries in females was much higher compared with males in the four state group. Hospitalised assault injuries in females in the four state group were also higher than the rates of assault injury in both males and females in the two state group.

As with the proportion of assault injuries, the age-standardised rate of assault in the four state group (1,380 per 100,000) was much higher than that of the two state group (582), and females in the four state group have the highest rate of hospitalised assault (1,430). The result of the inclusion of assault cases from New South Wales and Victoria was a decrease in the proportion of injury cases and the age-standardised rate of hospitalised assault (Table 4.13).

Table 4.12: Key indicators for assault hospital cases for Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, 2007–08

Key indicators	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
All community injury cases ^(a)	2,713	1,705	4,418	6,590	5,249	11,839
Estimated assault cases ^(b)	499	314	813	1,844	2,117	3,961
As percentage of all community injury cases	18.4	18.4	18.4	28.0	40.3	33.5
Age-standardised rate of assault cases	588.8	351.5	466.8	1,321.4	1,418.1	1,366.0

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

(b) Assault cases include those with a first external cause code in the range X85–Y09, Y35–Y36.

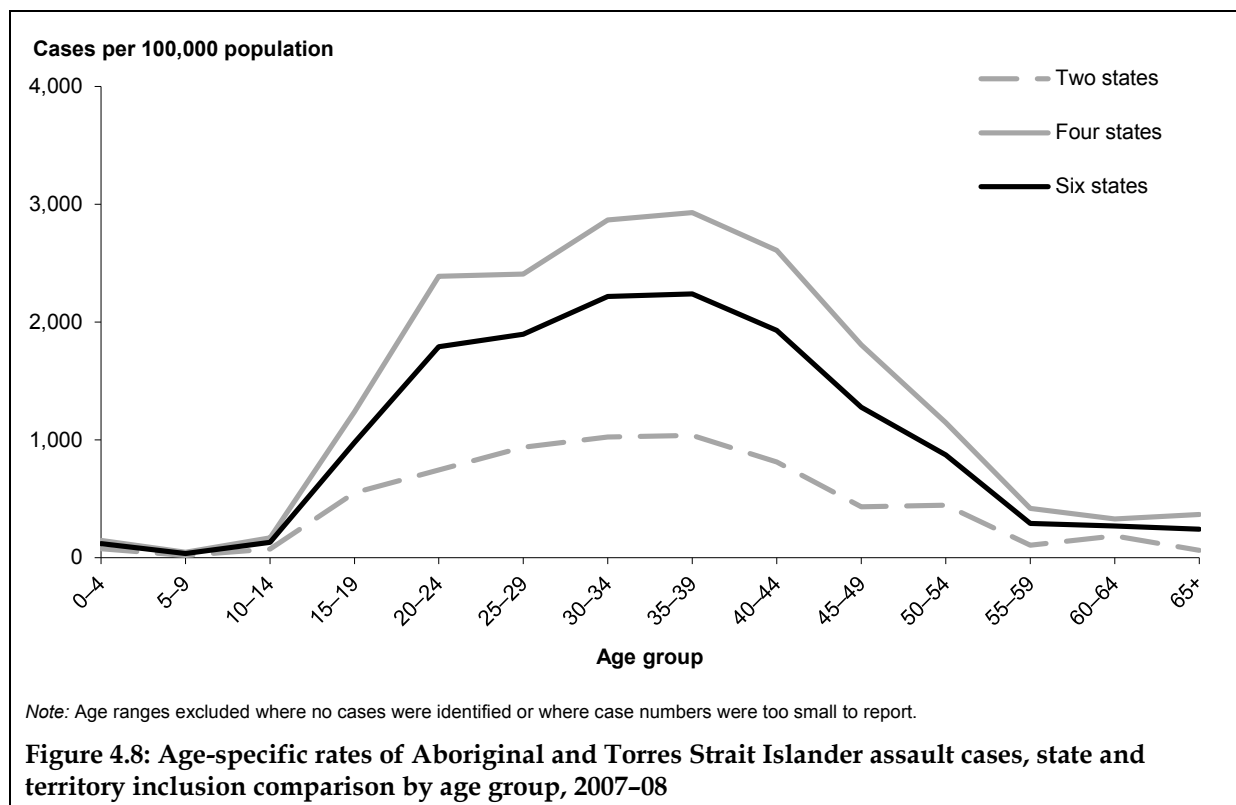
Table 4.13: Key indicators for assault hospital cases for Aboriginal and Torres Strait Islander people, six state and territory group, 2007–08

Key indicators	Six state		
	Males	Females	Persons
All community injury cases ^(a)	9,303	6,954	16,257
Estimated assault cases	2,343	2,431	4,774
As percentage of all community injury cases	25.2	35.0	29.4
Age-standardised rate of assault	1,047.2	1,023.5	1,032.7

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

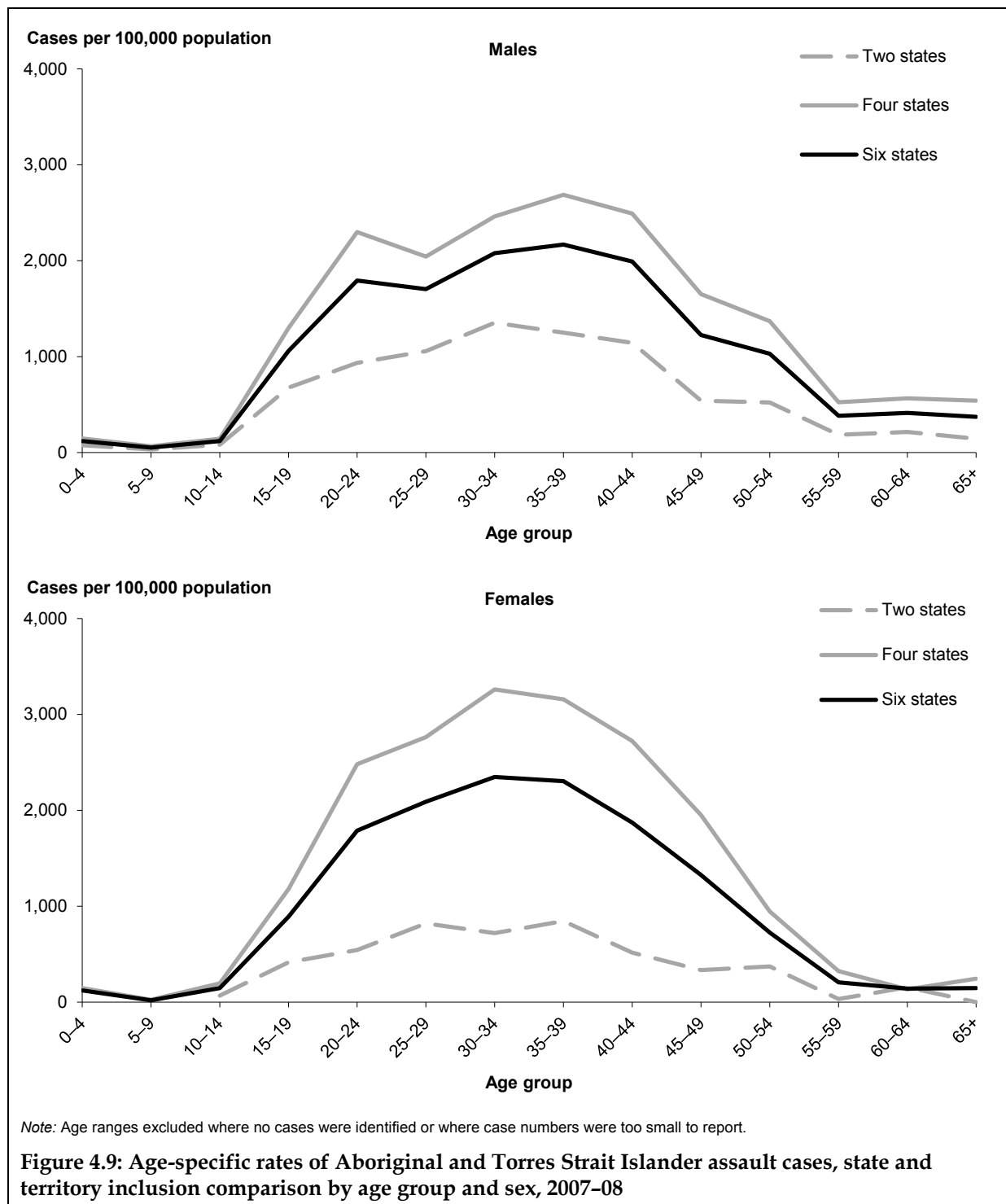
Age and sex distribution

An analysis of the rate of hospitalised assault by age group reveals major differences between the two state and four state groups. As can be seen in Figure 4.8, the rate of assault in the four state group was much higher in age groups above 20–24 years. The rate of hospitalised assault (2,931 per 100,000 population) in the four state group was highest in 35–39 year olds. The 35–39 year olds in the two state group also had the highest rate of assault at 1,038 per 100,000 population. Much lower rates of assault were evident from about 55–59 for both state groups but due to the small numbers the results should be viewed with caution.



An analysis by sex and age reveals a broadly similar pattern in hospitalised assault between males and females (Figure 4.9). The rate of assault in males was similar to the overall distribution described above. The highest rate of assault occurred in the 35-39 year age range in the four state group (2,687 per 100,000) and the 30-34 year age range in the two state group (1,355). There were very few cases of hospitalised assault over the age of 60, for males or females.

The age for which hospitalised assault in Aboriginal and Torres Strait Islander females was highest was 30-34 (3,261 per 100,000) in the four state group. The rate of assault in females in the two state group was lower at that age. Rates of assault were lower in the six state group once cases from New South Wales and Victoria were added although the pattern by age and sex remains broadly similar to the four state group.



Mechanism of injury

There were differences between the two state and four state groups in terms of the mechanism of assault (Table 4.14). Four types of assault accounted for 94% of all assaults in each of the jurisdictional groupings: *Assault by sharp object*, *Assault by blunt object*, *Assault by bodily force* and *Assault by unspecified means*. Higher proportions of assault by sharp and blunt

objects can be seen in the four state group compared with the two state group. In contrast, a higher proportion of *Assault by bodily force* cases can be seen in the two state group.

Table 4.14: Number and proportion^(a) of assault cases, by mechanism and state and territory inclusion, 2007–08

ICD-10 code	Description of mechanism	Two state		Four state		Six state	
		Number	Per cent	Number	Per cent	Number	Per cent
X97	Assault by smoke, fire and flames	n.p.	n.p.	n.p.	n.p.	16	0.3
X98	Assault by steam, hot vapours and hot objects	n.p.	n.p.	n.p.	n.p.	14	0.3
X99	Assault by sharp object	117	14.5	685	17.3	802	16.8
Y00	Assault by blunt object	112	13.9	961	24.3	1,073	22.5
Y04	Assault by bodily force	448	55.5	1,625	41.0	2,073	43.5
Y05	Sexual assault by bodily force	5	0.6	31	0.8	36	0.8
Y06	Neglect and abandonment	7	0.9	31	0.8	38	0.8
Y07	Other maltreatment syndromes	13	1.6	52	1.3	65	1.4
Y08	Assault by other specified means	16	2.0	75	1.9	91	1.9
Y09	Assault by unspecified means	78	9.7	453	11.4	531	11.1
Total^(b)		807	100.0	3,961	100.0	4,768	100.0

(a) Proportion based on all codes included at total.

(b) Includes X85, X86, X90, X91, X92, X95, Y01, and Y03 not shown due to small case counts; there were 21 cases in total for the six state group.

An analysis of the top four assault cases by sex reveals further differences. As can be seen in Table 4.15 the male-to-female ratio of cases differs greatly between the two state and four state groups. The male-to-female ratio was higher in all assault types in the two state group compared with the four state group. This means that there were relatively more females than males hospitalised because of assault in the four state group than in the two state group, for all types of assault, and particularly for assault by sharp and blunt objects.

Table 4.15: Number of assault cases, by mechanism, sex and state and territory inclusion, 2007–08

ICD-10 code	Description	Two state			Four state		
		Males	Females	M:F ratio	Males	Females	M:F ratio
X99	Assault by sharp object	90	27	3.3	344	341	1.0
Y00	Assault by blunt object	75	37	2.0	376	585	0.6
Y04	Assault by bodily force	256	192	1.3	842	783	1.1
Y09	Assault by unspecified means	51	27	1.9	184	269	0.7
Total		472	283	1.7	1,746	1,978	0.9

By proportion, there were more cases of assault by sharp and blunt object in males and females in the four state group compared with the two state group (Table 4.16). The proportion of assault injuries for females caused by blunt object in the four state group was higher (29%) compared with the two state group (13%). Overall, the largest difference (in percentage point terms) across all four assault types and sex was between females in the two state (68%) and four state group for *Assault by bodily force* (40%).

Table 4.16: Proportion of assault cases, by gender and state and territory inclusion, 2007–08

ICD-10 code	Description	Two state			Four state		
		Males	Females	Persons	Males	Females	Persons
X99	Assault by sharp object	19.1	9.5	15.5	19.7	17.2	18.4
Y00	Assault by blunt object	15.9	13.1	14.8	21.5	29.6	25.8
Y04	Assault by bodily force	54.2	67.8	59.3	48.2	39.6	43.6
Y09	Assault by unspecified means	10.8	9.5	10.3	10.5	13.6	12.2
Total		100.0	100.0	100.0	100.0	100.0	100.0

Perpetrator

The following results should be interpreted with caution. For many reasons victims of assault may choose not to identify a perpetrator to hospital staff, and the perpetrator was not reported for a high proportion of the assault cases in all three groups.

The main differences between the four state and two state groups can be seen in the proportions of known versus unknown perpetrators (Table 4.17). There was a higher proportion of familial perpetrator identified within the four state group with *Spouse or domestic partner*, *Parent* and *Other family member* combined accounting for 38% of all perpetrators compared with 26% for the two state group. In contrast there was a higher proportion of *Person unknown to the victim* combined with *Multiple persons unknown to the victim* in the two state group (9%) compared with the four state group (4%).

Table 4.17: Number and proportion of assault cases, by reported perpetrator by state and territory inclusion, 2007–08

Perpetrator	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Spouse or domestic partner	137	17.0	992	25.1	1,129	23.7
Parent	18	2.2	75	1.9	93	2.0
Other family member	56	7.0	448	11.3	504	10.6
Carer	n.p.	n.p.	n.p.	n.p.	5	0.1
Acquaintance or friend	52	6.5	103	2.6	155	3.3
Official authorities	n.p.	n.p.	n.p.	n.p.	12	0.3
Person unknown to the victim	40	5.0	47	1.2	87	1.8
Multiple persons unknown to the victim	33	4.1	101	2.6	134	2.8
Other specified person	27	3.4	101	2.6	128	2.7
Unspecified person	435	54.1	2,078	52.5	2,513	52.8
Total^(a)	804	100.0	3,956	100.0	4,760	100.0

(a) Excludes 14 cases with missing information.

Remoteness

An analysis of assault cases by remoteness reveals a similar pattern of differences to the overall injury by remoteness distribution between the state and territory groupings

(Table 4.18). There was a larger number of cases of assault in the four state group compared with the two state group in the more remote locations.

The highest male-to-female ratio of assault cases was seen in *Major cities* of both the two state group and the four state group. Relatively more females than males were hospitalised for assault injury in all remoteness areas (apart from *Outer regional*) in the four state group compared with the two state group. The effect of the inclusion of cases from New South Wales and Victoria can be seen in Table 4.19.

Table 4.18: Number of assault cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Two state			Four state		
	Males	Females	M:F ratio	Males	Females	M:F ratio
Major cities	154	74	2.1	248	158	1.6
Inner regional	170	99	1.7	107	72	1.5
Outer regional	112	91	1.2	378	310	1.2
Remote	39	39	1.0	452	554	0.8
Very remote	13	10	1.3	654	1,021	0.6
Total^(a)	488	313	1.6	1,839	2,115	0.9

(a) Remoteness was not reported in 12 two state cases and 7 four state cases.

Table 4.19: Number of assault cases, Aboriginal and Torres Strait Islander people, six state and territory group by remoteness of usual residence (ASGC regions), 2007-08

Remoteness of usual residence	Six state		
	Males	Females	M:F ratio
Major cities	402	232	1.7
Inner regional	277	171	1.6
Outer regional	490	401	1.2
Remote	491	593	0.8
Very remote	667	1,031	0.6
Total^(a)	2,327	2,428	1.0

(a) Remoteness was not reported in a total of 19 cases.

Additional information about the interaction between remoteness and assault by state and territory inclusion was presented in Chapter 3. To recap, rates of assault injury on average were 1.5 times higher in the four state group compared with the two state group. The biggest difference in assault rates between the two groups was in the *Remote* regions of Australia where the rate of assault was 1,309 per 100,000 population for the two state group compared with 2,597 in the four state group. The addition of cases from New South Wales and Victoria has the most effect on rates of assault in *Major cities*.

4.4 Land transport

Overview

Cases of transport injury make up 11% of two state injury cases, which was very similar to the four state group (10%) (Table 4.20). The proportions of all community injury hospitalisations that were transport injuries in Aboriginal and Torres Strait Islander males and females in the state groups were also very similar.

The age-standardised rate of transport injuries in the four state group (353 per 100,000) was much higher than that of the two state group (240), and males in the four state group have the highest rate (486). The result of the inclusion of transport injury cases from New South Wales and Victoria was a decrease in the age-standardised rate (Table 4.21).

Table 4.20: Key indicators for transport injury cases for Aboriginal and Torres Strait Islander people, state and territory inclusion comparison, 2007–08

Key indicators	Two state			Four state		
	Males	Females	Persons	Males	Females	Persons
All community injury cases ^(a)	2,713	1,705	4,418	6,590	5,249	11,839
Estimated transport cases ^(b)	343	137	480	778	364	1,142
As percentage of all community injury cases	12.6	8.0	10.9	11.8	6.9	9.6
Age-standardised rate of transport cases	331	148	240	486	227	353

(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

(b) Transport cases include those with a first external cause code in the range V01–V99.

Table 4.21: Key indicators for transport injury cases for Aboriginal and Torres Strait Islander people, six state and territory group, 2007–08

Key indicators	Six state		
	Males	Females	Persons
All community injury cases ^(a)	9,303	6,954	16,257
Estimated transport cases ^(b)	1121	501	1,622
As percentage of all community injury cases	12.0	7.2	10.0
Age-standardised rate of transport cases	427	199	311

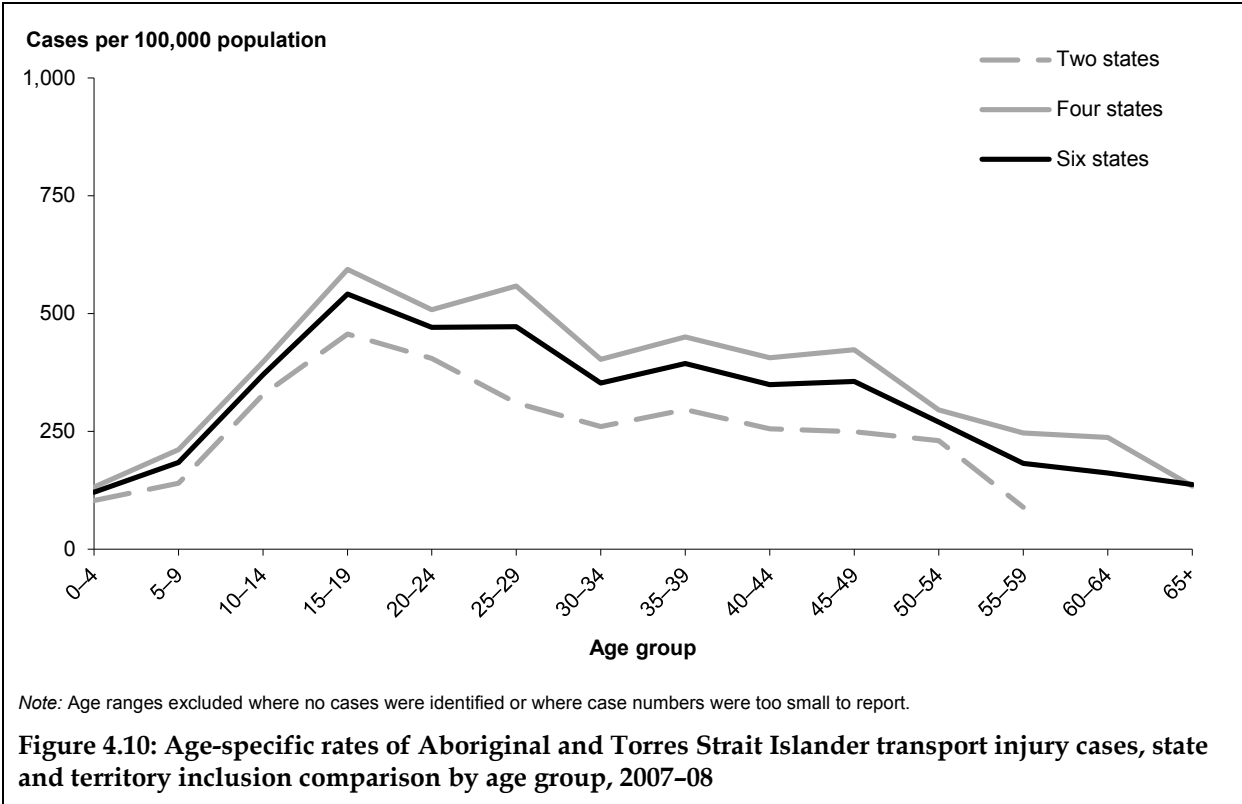
(a) Community injury cases were separations excluding transfers from another acute-care hospital and include separations where the principal diagnosis was in the range S00–T75 or T79.

(b) Transport cases include those with a first external cause code in the range V01–V99.

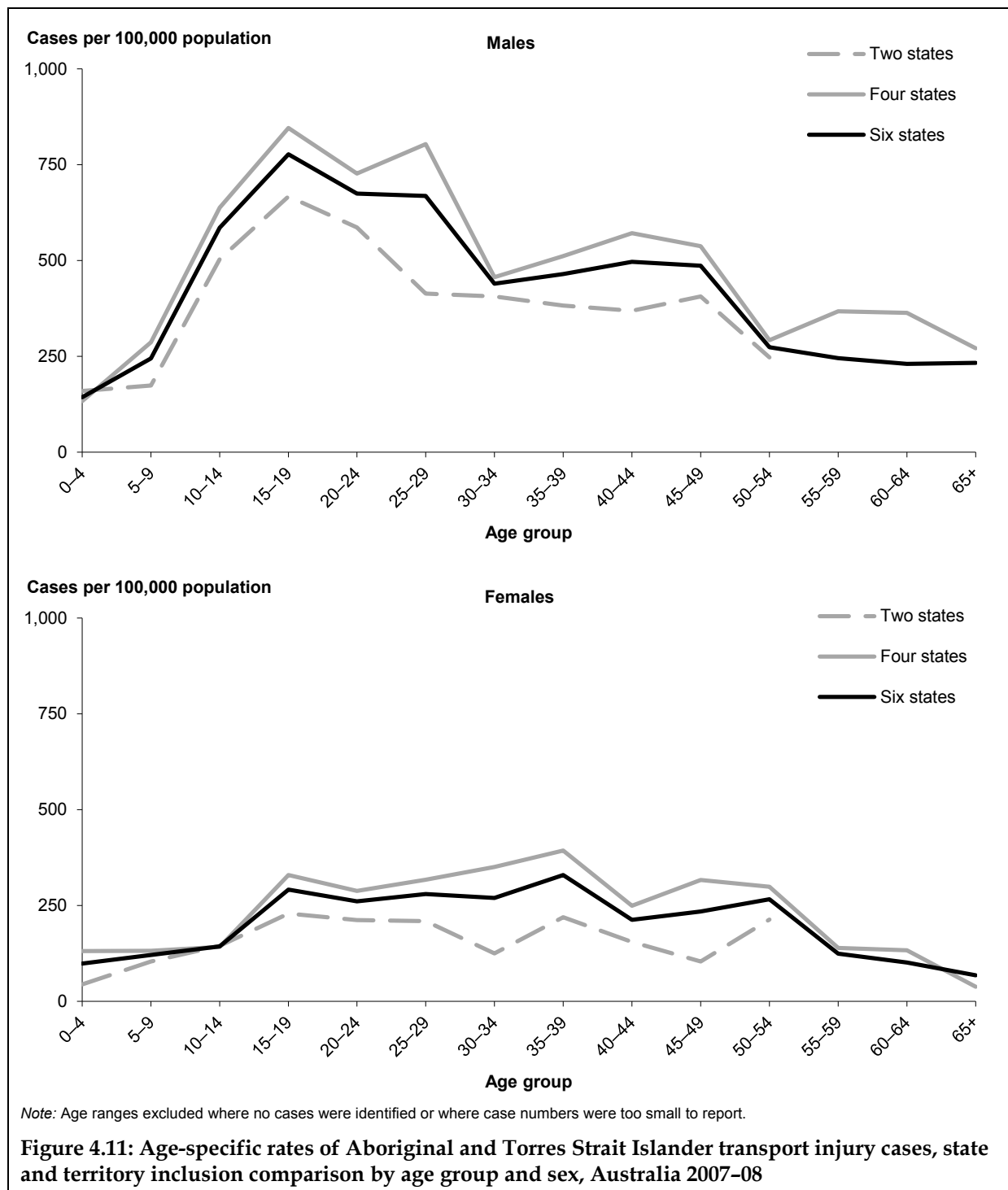
Age and sex distribution

An analysis of hospitalised transport injury cases by age group reveals some differences in rates between the two state and four state groups. As can be seen in Figure 4.10, the rate of transport injury in the four state group was higher for almost all age categories than in the two state group. There were small numbers of transport injuries above age 40 in the two state group and age 50 in the four state group so caution should be exercised in any

comparison for those age groups. For both state groups transport injuries were highest at age 15-19. The rate of hospitalised transport injury in 15-19 year olds in the two state group was 457 per 100,000 compared with 594 in the four state group.



An analysis of sex by age reveals a different pattern in hospitalised transport injuries between Aboriginal and Torres Strait Islander males and females (Figure 4.11). The rate of transport injury in males was more similar to the overall distribution described above. The highest rate of transport injury occurred in the 15-19 year age range in the four state group and two state group. For both the two state group and the four state group, highest case rates for females were in the 35-39 year age range. Again there were very few cases of hospitalised transport injury over the age of about 50, making interpretation of the rise and fall in rates above this age unreliable.



Mechanism of injury

Transport injury cases were examined in terms of the type of road user at the time of the incident. Type of road user was derived from transport codes that were directly related to motor vehicles and so exclude a small number of transport accidents of the non-vehicle type (for example, horse-drawn carriage).

There were differences between the two state and four state groups in terms of the road user type (Table 4.22). Motorcyclists were the most frequent user group (25%) in the two state group to be hospitalised for injury. In contrast passengers travelling in motor vehicles were the most frequently hospitalised in the four state group (25%).

Table 4.22: Number and proportion of road vehicle transport injury cases, by road user type and state and territory inclusion, 2007–08

Road user type	Two state		Four state		Six state	
	Number	Per cent	Number	Per cent	Number	Per cent
Pedestrian	74	15.7	151	13.4	225	14.1
Pedal cyclist	100	21.2	164	14.5	264	16.5
Motorcyclist	119	25.3	173	15.3	292	18.3
Driver of motor vehicle	73	15.5	201	17.8	274	17.1
Passenger in motor vehicle	54	11.5	286	25.3	340	21.3
Occupant of motor vehicle	30	6.4	83	7.4	113	7.1
Other or unknown	21	4.5	71	6.3	92	5.8
Total^(a)	480	100.0	1,142	100.0	1,622	100.0

(a) Excludes cases not involving a motor vehicle (V80–V89) n = 22.

Other differences between the two groups can be more clearly seen in Figure 4.12. The effects of the addition of cases from New South Wales and Victoria was seen in each of these categories in the six state group with relatively small rises in the cases of pedal cyclist and motorcyclist injuries and a decrease in motor vehicle passenger injuries.

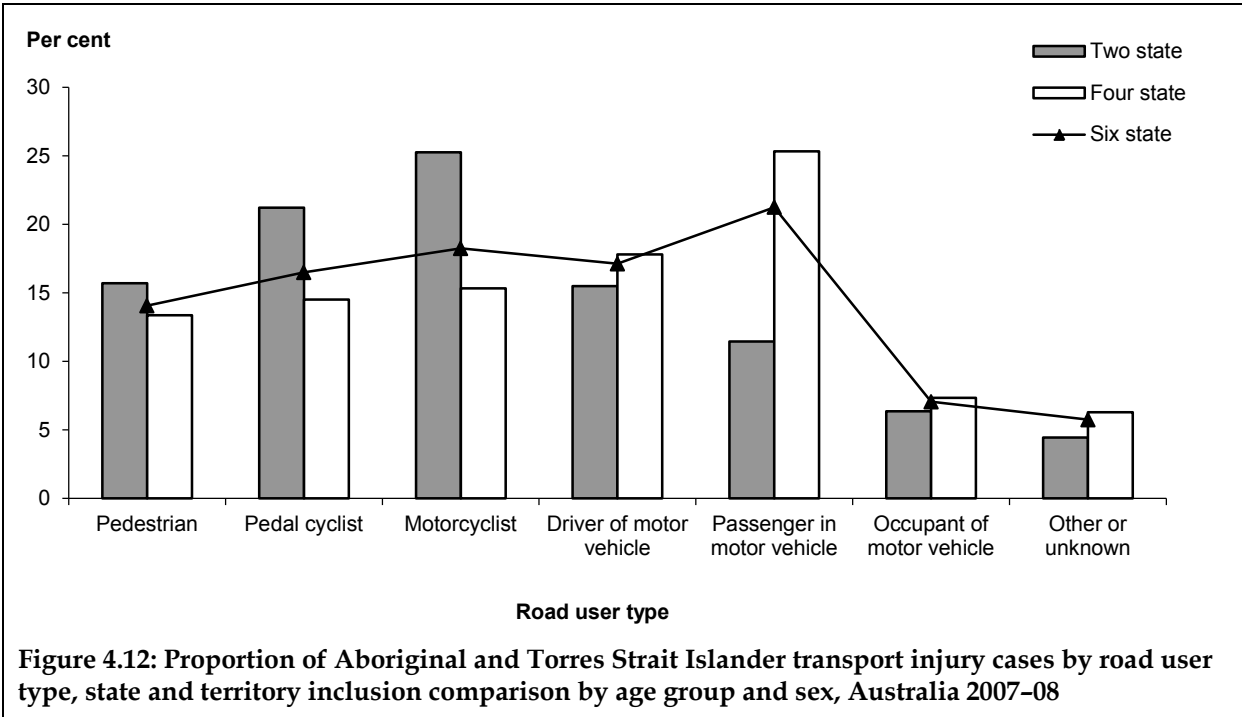


Figure 4.12: Proportion of Aboriginal and Torres Strait Islander transport injury cases by road user type, state and territory inclusion comparison by age group and sex, Australia 2007–08

Remoteness

An analysis of transport injury cases by remoteness was dealt with briefly in Chapter 3. This section presents some additional information on sex differences by remoteness.

For Aboriginal and Torres Strait Islander males living in New South Wales and Victoria the highest proportion of transport injuries occurred in *Inner regional* areas (Table 4.23). In contrast, for males in the four state group the highest proportion of transport injuries occurred in *Very remote* regions. A similar pattern was observed for women. The largest difference between the two groups was seen in *Outer regional* areas where the ratio of males to females was much higher in the two state group compared with the four state group. The addition of injury cases from New South Wales and Victoria resulted in changes to the pattern of transport injury (Table 4.24).

Table 4.23: Number of transport injury cases, Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Two state			Four state		
	Males	Females	M:F ratio	Males	Females	M:F ratio
Major cities	105	46	2.3	150	62	2.4
Inner regional	127	59	2.2	85	36	2.4
Outer regional	91	22	4.1	186	72	2.6
Remote	n.p.	n.p.	n.p.	147	70	2.1
Very remote	n.p.	n.p.	n.p.	210	124	1.7
Total^(a)	341	137	2.5	778	364	2.1

(a) Remoteness was not reported in 2 two state cases.

Table 4.24: Number of transport injury cases of Aboriginal and Torres Strait Islander people, state and territory inclusion comparison by remoteness of usual residence (ASGC regions), 2007–08

Remoteness of usual residence	Six state		
	Males	Females	M:F ratio
Major cities	255	108	2.4
Inner regional	212	95	2.2
Outer regional	277	94	2.9
Remote	165	77	2.1
Very remote	210	127	1.7
Total^(a)	1,119	501	2.2

(a) Remoteness was not reported in a total of 2 cases.

4.5 Summary

The analysis of 4 of the priority Aboriginal and Torres Strait Islander injury issues identified within The National Aboriginal and Torres Strait Islander Safety Promotion Strategy (NPHP 2005) revealed the extent of the impact of the inclusion of cases from New South Wales and Victoria on the pattern of injury. For self-harm a rise in the rate of Aboriginal and Torres Strait Islander cases was seen when all 6 states were included in any analysis. The rate of self-harm in the four state group was 233 per 100,000 population compared with 248 in the

six state group. Changes were also apparent in the type of mechanism of self-harm reported. The proportion of cases of *Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified* rose from 24% to 33% due to the larger proportion of these types of self-harm occurring in New South Wales and Victoria. In contrast, decreases were seen in the proportion of *Intentional self-harm by hanging* cases from 15% to 11%, and *Intentional self-harm by sharp object* cases from 30% to 25%.

A drop in the overall rate of injuries in Aboriginal and Torres Strait Islander children was apparent with the inclusion of cases from New South Wales and Victoria. In the four state group the rate of injury was 2,053 per 100,000 population, while in the six state group the rate decreased to 1,826. The change was most evident within *Major cities*, with a decrease in the rate of injuries seen when cases from New South Wales and Victoria were included.

The rate of assault injuries in Aboriginal and Torres Strait Islander people decreased as a result of the inclusion of cases from New South Wales and Victoria. The rate of assault injuries was 1,366 per 100,000 population in the four state group compared with just 1,033 in the six state group. This decrease was most apparent in Aboriginal and Torres Strait Islander women with the rate of assault injury dropping from 1,418 per 100,000 population to 1,024 after the inclusion of cases from New South Wales and Victoria.

Little change was evident in the proportion of assault cases by mechanism with *Assault by bodily force* continuing to be the most common means of assault. Similarly there was little change in the type of perpetrator identified.

Again, the large differences between the two state groups in the proportion of assault cases by remoteness of usual residence have affected the six state pattern of assault injury. The rate of assault in Aboriginal and Torres Strait Islander people decreased in the *Major cities* and *Outer regional* areas of Australia with the inclusion of cases from New South Wales and Victoria.

Finally, for transport injuries a decrease in the overall rate of transport injury in Aboriginal and Torres Strait Islander people was evident with the four state rate of 353 per 100,000 population decreasing to 311 with the addition of cases from New South Wales and Victoria. Changes were also apparent in the mechanism of injury, with small increases seen in the proportion of pedal cycle and motorcycle injuries and a decrease in motor vehicle passenger injuries. A slight decrease in the rate of transport injuries was evident in *Major cities* with the inclusion of cases from New South Wales and Victoria.

Appendix: Data issues

Hospital separations data

National hospital separations data were provided by the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (NHMD). A separation was defined as:

A formal, or statistical process, by which an episode of care for an admitted patient ceases (AIHW 2001).

Population denominators

Indigenous rates in this report were calculated using, as the denominator, ABS experimental population estimates of the Aboriginal and Torres Strait Islander population in the Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria which were based on the 2006 Census (ABS 2008). Aboriginal and Torres Strait Islander population numbers by ASGC remoteness structure of Australia were also calculated using experimental population estimates of the Aboriginal and Torres Strait Islander population in the Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria which were based on the 2006 Census.

ICD-10-AM

This report was based on hospital separations data coded according to the fifth edition of the Australian clinical modification of ICD-10, the ICD-10-AM (NCCH 2006).

Selection criteria

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

- Australian hospital separations occurring 1 July 2007 to 30 June 2008, coded according to the fifth edition of ICD-10-AM (NCCH 2006)
- Principal Diagnosis in the ICD-10-AM range S00–T98 using Chapter XIX *Injury, poisoning and certain other consequences of external causes* codes
- Mode of admission has any value except the one indicating that transfer from another acute-care hospital has occurred
- Place of usual residence was recorded as the Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria).

Diagnoses S00–T75 or T79 have been used to specify ‘community injury’ in recent National Injury Surveillance Unit (NISU) reports (for example, Bradley & Harrison 2007). Selection has been based on principal diagnosis because this refers to the condition chiefly accounting for the episode in hospital.

In cases where data were disaggregated by external cause, the first reported external cause code was used as this was considered to be most highly correlated with principal diagnosis.

Selection criteria for reporting on specific external causes followed the method set out in Berry and Harrison (2007).

Inward transfers from other acute hospitals were omitted from incidence estimates as this reduces multiple counting of cases that generate more than one separation record. NHMD unit records were de-identified and do not contain specific information relating to a separation's place in a sequence of hospital episodes. As such, a sequence of separations in which an individual was admitted to hospital and then transferred to another hospital results in two (un-linked) unit records. Further, readmissions relating to the same case were not flagged, again generating multiple entries in the database. As such, the number of hospital separations meeting our definition of injury overestimates the number of injury cases that led to hospitalisation.

Place of usual residence was used to classify cases by jurisdiction. It should be noted that data quality as reported in the Indigenous identification in hospital separations data-quality report was based on the state of the hospital. It was therefore possible that some data included in this report may differ from the quality benchmarks outlined in Chapter 1.

Classification of remoteness area

Remoteness area in this report refers to the place of usual residence of the person who was admitted to hospital. The remoteness areas were specified according to the ABS Australian Standard Geographical Classification (ASGC) (ABS 2001). Remoteness was defined in a manner based on the Accessibility/Remoteness Index of Australia (ARIA). According to this method, remoteness was an index applicable to any point in Australia, based on road distance from urban centres of 5 sizes. The ABS has provided tables that specify the proportion of the population of each Statistical Local Area (SLA) in Australia whose place of residence was in each of 5 segments of the remoteness index. These segments are:

- *Major cities*, with ARIA index value of 0 to 0.2
- *Inner regional*, with ARIA index value of >0.2 and ≤2.4
- *Outer regional*, with ARIA index value of >2.4 and ≤5.92
- *Remote*, with ARIA index value of >5.92 and ≤10.53
- *Very remote*, with average ARIA index value of >10.53.

These tables were used to assign records to the 5 areas, on the basis of the SLA of usual residence of the person.

Most SLAs lie entirely within one of the 5 areas. If this was so for all SLAs, then each record could simply be assigned to the area in which its SLA lies. However, some SLAs overlap two or more of the areas. Records with these SLAs were assigned to remoteness areas in proportion to the area-specific distribution of the resident population of the SLA according to the 2001 census.

Quantifying variability in the counts presented in this report

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

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

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

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

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

Confidence intervals

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

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

understanding and decision making. As a consequence, the type of information reported in future editions of this publication may change.

Suppression of small cell numbers in data tables

In some instances, cell numbers 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. The abbreviation 'n.p.' has been used in these tables to denote these suppressions. For these tables, the totals include the suppressed information.

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This report examines the effects of improvements in Indigenous identification in hospitals data on patterns of hospitalised injury among Aboriginal and Torres Strait Islander people. The inclusion of hospitalisation data from New South Wales and Victoria has led to a change in the injury profile of Aboriginal and Torres Strait Islander people, which appears to be driven by the differences in remoteness between the two groupings.