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Injury of Aboriginal and Torres Strait Islander people due to transport, 1999–00 to 2003–04

Jesia G Berry, Danielle M Nearmy, James E Harrison



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**Injury of Aboriginal and Torres
Strait Islander people due to
transport, 1999–00 to 2003–04**

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Executive summary

This report looks at the injury, both fatal and non-fatal, of Indigenous persons in the Northern Territory, Western Australia, South Australia and Queensland due to transport accidents in the five-year period 1999–00 to 2003–04. Sixty per cent of the Indigenous population of Australia and 38% of the total Australian population reside in these four jurisdictions. The main findings of the report are that:

- Accidents involving road vehicles accounted for 99% of transport-related injury to Indigenous persons in this period.
- On a population basis, Indigenous persons had more than twice the rate of fatal injury and 1.3 times the rate of serious injury due to transport accidents compared with non-Indigenous persons.
- More than half of both Indigenous persons (52%) and non-Indigenous persons (55%) fatally injured were car occupants. However, 35% of Indigenous persons were pedestrians compared with 13% of non-Indigenous persons and 3% of Indigenous persons were motorcyclists compared with 13% of non-Indigenous persons.
- Among the seriously injured, 47% of Indigenous persons were car occupants compared with 34% of non-Indigenous persons, 17% of Indigenous persons were pedestrians compared with 7% of non-Indigenous persons and 8% of Indigenous persons were motorcyclists compared with 24% of non-Indigenous persons.
- Rates of fatal and serious injury for males, both Indigenous and non-Indigenous, were higher than for females.
- Fatal injury rates, on an age-specific population basis, for non-Indigenous males and females were highest for the 15–19 and 20–24 year age groups, declining thereafter until the 60+ age groups. For Indigenous males and females, on the other hand, fatal injury rates rose in early adulthood and remained elevated through middle age.
- Serious injury rates for Indigenous males and females were fairly similar to corresponding non-Indigenous rates over the age band from 5–29 years and above age 60 (women) or 65 years (men) but Indigenous people had a substantially higher serious injury rate in infancy and in the age bands from 30–59 years.
- The proportion of Indigenous persons among fatal injury cases rose from 3% in major cities to 22% in remote areas and 62% in very remote areas. The proportion of Indigenous persons among serious injury cases rose from 2% in major cities to 13% in remote areas and 38% in very remote areas.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australian Standard Geographical Classification
ATSB	Australian Transport Safety Bureau
GISCA	National Key Centre for Social Applications of Geographic Information Systems
ICD	International Classification of Diseases
ICD-10	International Classification of Diseases, 10th Revision
ICD-10-AM	International Classification of Diseases, 10th Revision, Australian Modification
NCIS	National Coroners Information System
NHMD	National Hospital Morbidity Database
NT	Northern Territory
MFCD	Monthly Fatality Crash Database
Qld	Queensland
SA	South Australia
SLA	Statistical Local Area
UCoD	Underlying Cause of Death
WA	Western Australia

1 Introduction

Transport accidents are a leading cause of injury, both fatal and non-fatal. The primary purpose of this publication is to provide a broad overview of mortality and morbidity among Aboriginal and Torres Strait Islander people involved in transport accidents in Australia in 1999–00 to 2003–04. For the purpose of brevity, Aboriginal and Torres Strait Islander people will be referred to as Indigenous people throughout the report, except when quoting other publications.

The geographic scope of this report is the four jurisdictions, the Northern Territory, Western Australia, South Australia and Queensland. This is because identification of Indigenous cases in the data sources used for this project is considered to be of acceptable quality for these jurisdictions (see Data Issues ‘Ascertainment of Indigenous Status’, p.46).

Due to small case numbers, transport accident data for these jurisdictions have been combined for 1999–00 to 2003–2004 (Table 1.1). The data are likely to underestimate the actual mortality and morbidity burden of Indigenous people, due to the less than complete identification of Indigenous people in hospital and deaths data collections.

Under-ascertainment of Indigenous status will necessarily mean over-estimating non-Indigenous deaths and hospitalisations. This is because some people who could correctly be recorded as Aboriginal and Torres Strait Islander will in fact be recorded as non-Indigenous or Indigenous status ‘not stated’.

Table 1.1: Transport injury by Indigenous status; NT, WA, SA and Qld, 1999–00 to 2003–04

Case numbers	Indigenous	Non-Indigenous*	Total
Deaths	325	3,731	4,056
Persons seriously injured†	4,827	87,625	92,452

* The terms ‘non-Indigenous’ used throughout the report refers to a combined category of persons identified as non-Indigenous and persons for whom Indigenous or non-Indigenous status has not been stated (deaths n=129, serious injury n=3,241).

† In this report ‘seriously injured’ means admitted to hospital due to injury (see Data Issues ‘Serious injury’, p. 45)

2 Main findings

All transport injury

Sixty per cent of the Indigenous population of Australia and 38% of the population of Australia reside in the four jurisdictions, the Northern Territory, Western Australia, Queensland, and South Australia. For Indigenous persons in the four jurisdictions, in the period 1999–00 to 2003–04:

- Over a quarter (27%) of Indigenous deaths due to external causes of injury was due to injury in transport accidents and 99% of these cases came from accidents involving a road vehicle. This was similar to the pattern evident for non-Indigenous persons. However, on a population basis, Indigenous persons had more than twice the rate of fatal injury in transport accidents, 26.1 per 100,000 population compared with 10.7 per 100,000 population for non-Indigenous persons.
- Transport accidents accounted for about 8% of Indigenous persons seriously injured (admitted to hospital) due to external causes of injury and 99% of these cases came from accidents involving a road vehicle. Transport accidents accounted for a higher percentage (12%) of non-Indigenous persons seriously injured due to external causes of injury and 94% of these cases came from accidents involving a road vehicle. Nonetheless, on a population basis, Indigenous persons had 1.3 times the rate of serious injury in transport accidents of non-Indigenous persons, 327.6 per 100,000 population compared with 251.6 per 100,000 population.
- More than half (52%) of Indigenous persons fatally injured in a transport accident were car occupants. Similarly, 55% of non-Indigenous persons fatally injured in a transport accident were car occupants. However, there were significant differences for other modes of transport:
 - 35% of Indigenous persons were pedestrians compared with 13% of non-Indigenous persons;
 - 3% of Indigenous persons were motorcyclists compared with 13% of non-Indigenous persons.
- Among persons seriously injured in transport accidents, there were also significant differences in the mode of transport according to Indigenous status:
 - 47% of Indigenous persons were car occupants compared with 34% of non-Indigenous persons;
 - 17% of Indigenous persons were pedestrians compared with 7% of non-Indigenous persons;
 - 8% of Indigenous persons were motorcyclists compared with 24% of non-Indigenous persons.

Land transport

Focusing on land transport accidents, i.e. those involving road vehicles but also including the smaller number involving trains, it was observed that:

- There were 2.6 times more fatalities and 30% more serious injury cases from land transport accidents among Indigenous people compared to non-Indigenous people (based on age-standardised rates). There were 2.4 times more fatalities and 30% more hospitalisations occurring among Indigenous males compared to non-Indigenous males. There were 3.3 times more fatalities and 40% more hospitalisations occurring among Indigenous females compared to non-Indigenous females.
- The land transport fatal and serious injury rates differed by gender for both Indigenous and non-Indigenous persons. The age-standardised rates of fatal injury for Indigenous and non-Indigenous males were two times and three times greater, respectively, than the corresponding rates for females. The age-standardised rates of serious injury for Indigenous and non-Indigenous males were over two times greater than the corresponding rates for females.
- Fatal injury rates, on an age-specific population basis, for non-Indigenous males and females were highest for the 15–19 and 20–24 year age groups, declining thereafter until the 60+ age groups. For Indigenous males and females, on the other hand, fatal injury rates rose in early adulthood and remained elevated through middle age, although age-specific rates were variable due to small case numbers in each age band.
- Serious injury rates, for Indigenous males and females were fairly similar to corresponding non-Indigenous rates over the age band from 5–29 years and above age 60 (women) or 65 years (men); but Indigenous people had a substantially higher serious injury rate in infancy, and in the age bands from 30–59 years.
- The proportion of Indigenous persons among fatal injury cases rose from 3% in major cities to 22% in remote areas and 62% in very remote areas. The proportion of Indigenous persons among serious injury cases rose from 2% in major cities to 13% in remote areas and 38% in very remote areas.
- On a population basis, age-standardised rates of fatal and serious injury increased according to remoteness of usual residence from an urban centre for both Indigenous and non-Indigenous persons. About three-quarters of Indigenous persons fatally (76%) and seriously (74%) injured in land transport accidents resided in outer regional, remote or very remote areas. By contrast, over two-thirds of non-Indigenous persons fatally (69%) and seriously injured (68%) resided in major cities or inner regional areas.
- Taking into account the Indigenous and non-Indigenous populations in each of the remoteness zones, Indigenous persons living in major cities had fatal injury rates that were 2.3 times greater than for non-Indigenous persons. In inner and outer regional Australia, the rates of fatal injury were similar for Indigenous and non-Indigenous persons. In remote and very remote zones, the fatality rates for Indigenous persons were 2.1 times and 2.3 times greater, respectively, than for non-Indigenous persons.

- Indigenous persons living in major cities had serious injury rates that were 1.4 times greater than for non-Indigenous persons. In inner regional Australia, the rates of serious injury were similar for Indigenous and non-Indigenous persons. Non-Indigenous persons had higher rates of serious injury than Indigenous persons in outer regional Australia, (1.2 times) and in very remote zones (1.3 times). This latter observation is largely due to the fact that non-Indigenous persons had higher rates of serious injury in land transport accidents in non-traffic conditions, many of them off-road motorcycle accidents, and motorcyclist serious injury rates increased according to remoteness of usual residence from an urban centre. In all remoteness zones in traffic conditions, Indigenous persons had higher rates of serious injury than non-Indigenous persons.
- The three most common mechanisms accounting for almost 70% of fatal injuries in Indigenous land transport crashes were 1) a pedestrian injured in a collision with a car, pick-up truck or van (26%), 2) a car occupant injured in a non-collision transport accident (25%), and 3) a car occupant injured in a collision of the car with a fixed or stationary object (16%).
- The four most common mechanisms accounting for almost 60% of serious injury cases in Indigenous land transport crashes were 1) a car occupant injured in a non-collision transport accident (25%), 2) a pedestrian injured in a collision with a car, pick-up truck or van (14%), 3) a pedal cyclist injured in a non-collision transport accident (10%), and 4) a car occupant injured in a collision of the car with a fixed or stationary object (9%).
- The incidence (age-standardised) of car occupant deaths was 2.3 times higher for Indigenous persons (14 per 100,000 population) than for non-Indigenous (6 per 100,000). The ratio was 1.6 for drivers and 3.2 for passengers.
- The incidence of pedestrians being killed was 7.1 times greater for Indigenous persons (10 per 100,000) than for non-Indigenous pedestrians (1 per 100,000).
- The incidence of car occupants seriously injured was 1.9 times higher for Indigenous persons (166 per 100,000) than for non-Indigenous (85 per 100,000). The ratio was 1.1 for drivers and 3.0 for passengers.
- The incidence of Indigenous pedestrians being seriously injured was 3.7 times greater for Indigenous persons (61 per 100,000) than for non-Indigenous persons (17 per 100,000).
- Most Indigenous car occupants were positioned inside the vehicle at the time of the accident for both fatal (87%) and serious (78%) injury cases involving car occupants. Riding on the outside of the car accounted for only 5% of fatal and 2% of serious injuries (though location was unknown for 8% of the fatally injured car occupants and 18% of those seriously injured). Riding on the outside of pick-up trucks or vans and heavy transport vehicles (i.e. in open load spaces) accounted for no fatalities and only a small proportion of serious injury cases.
- The higher proportion of car passengers relative to car drivers being killed or seriously injured among Indigenous persons, suggests a higher average number of passengers per vehicle compared to non-Indigenous persons, resulting in more persons injured per crash. National surveys have determined that Indigenous people are more likely than non-Indigenous people to have difficulty getting to places, due to a lack of access to a motor vehicle or public transport, and that the Indigenous households most likely to be without a vehicle were those in remote and very remote areas.

3 Injury of Indigenous people due to transport, 1999–00 to 2003–04

Transport injury comprises fatal and non-fatal injury due to road transport, railway, water and air transport. Road and rail transport includes traffic (occurring on a public road), non-traffic and unspecified as to whether traffic or non-traffic. This definition of transport injury excludes injury recorded as being due to intentional self harm, assault or undetermined intent.

From 1999–00 to 2003–04, transport was the second leading cause of fatal injury for Indigenous people (27.3%) and non-Indigenous people (24.9%) in the Northern Territory (NT), Western Australia (WA), South Australia (SA) and Queensland (Qld). Suicide was the leading cause of fatal injury for Indigenous (30.3%) and non-Indigenous (31.0%) people in the four jurisdictions (Table 3.1).

From 1999–00 to 2003–04, transport was the fourth^a leading cause of serious injury for Indigenous people (8.4%) and the third^a leading cause of serious injury for non-Indigenous people (12.0%). The leading cause of serious injury for Indigenous people was assault (31.8%) whereas for non-Indigenous people it was falls (27.1%). The second and third ranked leading causes of serious injury for Indigenous people were fall injuries and complications of surgical and medical care. Transport accidents accounted for 8.8% of all injury hospital separations for Indigenous people and 12.5% for non-Indigenous people. The number of persons seriously injured is shown in Table 3.1 and is estimated by omitting inward transfers from one hospital to another.

(a) Other unintentional injury was not included in the ranking, as it comprised a heterogenous group of injury types that did not fit within the other specified injury groupings.

Table 3.1: Fatal injury*and serious injury† due to external causes of injury and poisoning; NT, WA, SA and Qld, 1999–00 to 2003–04

External cause of injury	Fatally injured**						Seriously injured***(b)					
	Indigenous			Non-Indigenous			Indigenous			Non-Indigenous		
	Count	Per cent	Rate‡	Count	Per cent	Rate‡	Count	Per cent	Rate‡	Count	Per cent	Rate‡
Unintentional												
Transportation	325	27.3	26.1	3,731	24.9	10.7	4,827 ^(c)	8.4	327.6	87,625	12.0	251.6
Drowning & immersion	45	3.8	3.5	447	3.0	1.3	83	0.1	3.8	933	0.1	2.7
Poisoning, pharmaceuticals	50	4.2	3.6	1,030	6.9	3.0	1,066	1.8	72.7	16,142	2.2	46.7
Poisoning, other substances	13	1.1	0.9	136	0.9	0.4	409	0.7	27.2	6,315	0.9	18.2
Falls	41	3.4	9.3	2,591	17.3	7.6	8,436	14.6	742.3	198,747	27.1	577.4
Fires/burns/scalds	23	1.9	3.7	161	1.1	0.5	1,386	2.4	98.8	10,520	1.4	30.4
Other unintentional ^(d)	154	12.9	12.9	1,316	8.8	3.8	13,514	23.4	969.7	212,282	29.0	610.0
Intentional												
Self inflicted	361	30.3	25.5	4,635	31.0	13.3	3,152	5.5	233.3	39,928	5.5	114.6
Assault	150	12.6	11.7	452	3.0	1.3	18,398	31.8	1,408.0	28,960	4.0	83.1
Undetermined intent	14	1.2	1.0	139	0.9	0.4	665	1.2	52.1	3,348	0.5	9.6
Complications of surg & med care												
	15	1.3	2.9	329	2.2	1.0	5,726	9.9	677.9	126,680	17.3	364.9
No external cause	0	0.0	0.0	0	0.0	0	124	0.2	10.7	589	0.1	1.7
Total	1,191	100.0	101.7	14,967	100.0	43.1	57,786	100.0	4,624.1	732,069	100.0	2,110.5

* Deaths are five-year totals occurring during 1999–00 to 2003–04 for which an 'external cause' was coded as the Underlying Cause of Death (ICD-10 V01–V99).

† Cases are five-year totals for 1999–00 to 2003–04 and include cases where Principal Diagnosis was coded to ICD-10-AM S00–T98.

** ICD-10-AM External Causes codes aggregated as in (Henley et al. 2007).

*** ICD-10-AM External Causes codes aggregated as in (Berry & Harrison 2007).

Rates are averages of annual rates over the five years 1999–00 to 2003–04.

‡ Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

In 1999–00 to 2003–04, 52.0% of Indigenous persons fatally injured in a transport accident were occupants of a car. Another 34.8% were pedestrians, 2.8% were motorcyclists, 2.5% were occupants of a pick-up truck or van and only 0.9% were pedal cyclists (Table 3.2). Of Indigenous persons seriously injured in a transport accident, 47.0% were occupants of a car. Another 16.9% were pedestrians, nearly 15.8% were pedal cyclists and 8.0% were motorcyclists (Table 3.3). The profile for non-Indigenous persons showed some differences for serious injury; 34% of non-Indigenous persons were occupants of a car, 23.9% were motorcyclists, 17% were pedal cyclists and 7.5% were animal riders or occupants of an animal-drawn vehicle. For fatal injury, 55.2% were car occupants, only 12.8% were pedestrians and 12.6% were motorcyclists.

(b) The number of persons seriously injured is estimated by omitting inward transfers from one hospital to another.

(c) In total, there were 103,528 admissions (5,543 Indigenous and 97,985 non-Indigenous) to hospital for transport injury for an estimated 93,127 people (4,861 Indigenous and 88,266 non-Indigenous), of whom 675 persons (34 Indigenous) died while in hospital (0.7%). These deaths are represented in the national mortality data collection and thus are omitted from the seriously injured counts in Table 3.1 and throughout the report.

(d) Other unintentional injury was not included in the ranking, as it comprised a heterogenous group of injury types that did not fit within the other specified injury groupings.

Table 3.2: Mode of transport for fatal injury; NT, WA, SA and Qld, 1999-00 to 2003-04

Fatally injured person	Indigenous			Non-Indigenous			Rate Ratio: Indig: non-Indig†
	Count	Per cent	Rate‡	Count	Per cent	Rate‡	
Car occupant	169	52.0	13.5	2,060	55.2	5.9	2.3
traffic	159	48.9	12.8	2,026	54.3	5.8	2.2
non-traffic	8	2.5	0.5	29	0.8	0.1	6.6
Motorcyclist	9	2.8	0.5	469	12.6	1.3	0.4
traffic	8	2.5	0.5	414	11.1	1.2	0.4
non-traffic	0	0.0	0.0	55	1.5	0.2	0.0
Pedal cyclist	*	*	*	80	2.1	0.2	*
traffic	*	*	*	78	2.1	0.2	*
non-traffic	0	0.0	0.0	*	*	*	*
Pedestrian	113	34.8	9.8	479	12.8	1.4	7.1
traffic	101	31.1	8.9	415	11.1	1.2	7.4
non-traffic	12	3.7	0.9	47	1.3	0.1	6.8
Occupant of pick-up truck or van	8	2.5	0.5	86	2.3	0.2	1.9
traffic	8	2.5	0.5	83	2.2	0.2	2.0
non-traffic	0	0.0	0.0	*	*	*	*
Occupant of heavy transport vehicle	*	*	*	85	2.3	0.2	0.2
traffic	0	0.0	0.0	82	2.2	0.2	0.0
non-traffic	0	0.0	0.0	*	*	*	*
Bus occupant	*	*	*	10	0.3	0.0	*
traffic	*	*	*	10	0.3	0.0	*
non-traffic	0	0.0	0.0	0	0.0	0.0	0.0
Animal rider or occupant of animal-drawn vehicle	0	0.0	0.0	22	0.6	0.1	0.0
Occupant of a special all-terrain or off-road motor vehicle	0	0.0	0.0	27	0.7	0.1	0.0
Occupant of three-wheeled motor vehicle	0	0.0	0.0	*	*	*	*
Occupant of a tram	0	0.0	0.0	*	*	*	*
Occupant of a train	*	*	*	*	*	*	*
Occupant of a special industrial vehicle	*	*	*	11	0.3	0.0	*
Occupant of a special agricultural vehicle	0	0.0	0.0	53	1.4	0.2	0.0
Occupant of a special construction vehicle	0	0.0	0.0	4	0.1	0.0	0.0
Occupant of watercraft	*	*	*	74	2.0	0.2	*
Occupant of aircraft	*	*	*	133	3.6	0.4	*
Other and unspecified	15	4.6	1.1	134	3.6	0.4	2.9
Total	325	100.0	26.1	3,731	100.0	10.7	2.4

Note: Shading denotes the 2 or 3 highest figures for a column.

* Small counts are omitted.

'Mode of transport' here means the vehicle the person was travelling in at the time of being injured in a transport accident. 'Other and unspecified' includes V87, V88, V89, V98, and V99 for ICD-10 (deaths).

A traffic accident is any vehicle accident occurring on a public road [i.e. originating on, terminating on, or involving a vehicle partially on the road]. A non-traffic accident is any vehicle accident that occurs entirely on any place other than a public road. For a certain proportion of cases, whether an accident was traffic or non-traffic was unknown. These cases are included in the totals for each mode of transport and this is the reason the sum of traffic and non-traffic cases is sometimes less than the total for each mode.

† Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or not stated).

‡ Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

Table 3.3: Mode of transport for serious injury; NT, WA, SA and Qld, 1999-00 to 2003-04

Seriously injured person	Indigenous			Non-Indigenous			Rate Ratio: Indig: non-Indig [†]
	Count	Per cent	Rate [‡]	Count	Per cent	Rate [‡]	
Car occupant	2,270	47.0	166.0	29,753	34.0	85.4	1.9
traffic	1,787	37.0	132.1	24,387	27.8	70.0	1.9
non-traffic	382	7.9	26.9	4,392	5.0	12.6	2.1
Motorcyclist	387	8.0	23.5	20,961	23.9	60.1	0.4
traffic	158	3.3	9.9	9,946	11.4	28.5	0.3
non-traffic	222	4.6	13.3	10,414	11.9	29.9	0.4
Pedal cyclist	762	15.8	37.5	14,849	17.0	42.7	0.9
traffic	275	5.7	14.8	6,017	6.9	17.3	0.9
non-traffic	450	9.3	21.2	8,303	9.5	23.9	0.9
Pedestrian	815	16.9	61.4	5,785	6.6	16.7	3.7
traffic	579	12.0	45.4	3,543	4.0	10.2	4.4
non-traffic	128	2.7	5.7	1,592	1.8	4.6	1.7
Occupant of pick-up truck or van	81	1.7	5.4	1,008	1.2	2.9	1.9
traffic	40	0.8	2.8	521	0.6	1.5	1.9
non-traffic	34	0.7	2.2	375	0.4	1.1	2.0
Occupant of heavy transport vehicle	21	0.4	2.3	1,327	1.5	3.8	0.6
traffic	11	0.2	1.2	714	0.8	2.0	0.6
non-traffic	5	0.1	0.6	421	0.5	1.2	0.5
Bus occupant	30	0.6	2.8	585	0.7	1.7	1.6
traffic	16	0.3	1.3	200	0.2	0.6	2.3
non-traffic	5	0.1	0.5	119	0.1	0.3	1.4
Animal rider or occupant of animal-drawn vehicle	235	4.9	14.4	6,607	7.5	18.9	0.8
Occupant of a special all-terrain or off-road motor vehicle	26	0.5	1.2	1,104	1.3	3.2	0.4
Occupant of three-wheeled motor vehicle	12	0.3	0.6	258	0.3	0.7	0.8
Occupant of a tram	7	0.2	0.6	78	0.1	0.2	2.7
Occupant of a train	6	0.1	0.3	99	0.1	0.3	1.0
Occupant of a special industrial vehicle	4	0.1	0.3	275	0.3	0.8	0.3
Occupant of a special agricultural vehicle	13	0.3	1.0	439	0.5	1.3	0.8
Occupant of a special construction vehicle	4	0.1	0.3	163	0.2	0.5	0.6
Occupant of watercraft	30	0.6	2.0	1,868	2.1	5.3	0.4
Occupant of aircraft	0	0.0	0.0	453	0.5	1.3	0.0
Other and unspecified	124	2.6	7.9	2,013	2.3	5.8	1.4
Total	4,827	100.0	327.6	87,625	100.0	251.6	1.4

Note: Shading denotes the 3 highest figures for a column.

'Mode of transport' here means the vehicle the person was travelling in at the time of being injured in a transport accident. 'Other and unspecified' includes V87, V88, V89, V98, and V99 for ICD-10-AM (hospitals).

A traffic accident is any vehicle accident occurring on a public road [i.e. originating on, terminating on, or involving a vehicle partially on the road]. A non-traffic accident is any vehicle accident that occurs entirely on any place other than a public road. For a certain proportion of cases, whether an accident was traffic or non-traffic was unknown. These cases are included in the totals for each mode of transport and this is the reason the sum of traffic and non-traffic cases is sometimes less than the total for each mode.

[†] Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (i.e. non-Indigenous or not stated).

[‡] Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

Rates of fatal injury by mode of transport

Rates of fatal injury were highest among car occupants for both Indigenous (14 fatally injured per 100,000 population) and non-Indigenous persons (6 per 100,000) (Table 3.2). The age-standardised rate ratio was 2.3 indicating that the Indigenous fatality rate was over twice that of non-Indigenous persons after accounting for any differences in age composition of the two groups. Most Indigenous (94%) and non-Indigenous (98%) fatalities among car occupants occurred in traffic conditions (i.e. on public roads).

The second most common mode of transport injury was being a pedestrian for both Indigenous (10 fatally injured per 100,000) and non-Indigenous persons (1.4 per 100,000). Overall, the age-standardised rate ratio for pedestrians indicates that there was a seven-fold greater fatality rate among Indigenous people compared to non-Indigenous people after accounting for any differences in age (Table 3.2). The majority of Indigenous (89%) and non-Indigenous (87%) pedestrian fatalities occurred in traffic conditions (i.e. on public roads).

The third and fourth most common modes of transport for fatal injury among Indigenous persons were motorcyclists and occupants of pick-up truck or van, respectively, but the fatal injury rate was low; 0.5 per 100,000 for each. The third most common mode of transport for fatal injury among non-Indigenous persons was as a motorcyclist (1.3 fatally injured per 100,000). The fatality rate among motorcyclists was much lower for Indigenous people than for non-Indigenous people (age-standardised rate ratio of 0.4).

Rates of serious injury by mode of transport

Rates of serious injury were highest among car occupants for both Indigenous (166 seriously injured per 100,000) and non-Indigenous persons (85 per 100,000) (Table 3.3). The age-standardised rate ratio was 1.9 indicating that the Indigenous hospitalisation rate was almost twice that of non-Indigenous persons after accounting for any differences in age composition of the two groups. About 80% of Indigenous and non-Indigenous serious injury cases among car occupants occurred in traffic conditions (i.e. on public roads).

The second most common mode of transport injury for Indigenous persons was being a pedestrian (61 seriously injured per 100,000), but pedestrian injuries were fourth most common among non-Indigenous persons (17 per 100,000). The age-standardised rate ratio indicated an almost four-fold greater hospitalisation rate of Indigenous pedestrians compared to non-Indigenous pedestrians after accounting for any differences in age (Table 3.3). The majority of Indigenous (71%) and non-Indigenous (61%) pedestrians seriously injured occurred in traffic conditions (i.e. on public roads).

The second most common mode of transport for non-Indigenous persons was being a motorcyclist (60 seriously injured per 100,000), but motorcyclist injuries were fourth most common among Indigenous persons (24 injuries per 100,000) with an age-standardised rate ratio of 0.4. Over half (57%) of seriously injured Indigenous motorcyclists and 50% of seriously injured non-Indigenous motorcyclists were in non-traffic conditions.

The third most common mode of transport for seriously injured persons was being a pedal cyclist, for both Indigenous people (38 seriously injured per 100,000) and non-Indigenous people (43 per 100,000), although the hospitalisation rate was lower for Indigenous people than for non-Indigenous people (rate ratio=0.9). At least half the seriously injured cyclists incurred their injuries in non-traffic conditions and this did not differ according to Indigenous status.

For Indigenous and non-Indigenous persons, the fifth most common mode of transport for serious injury was being an animal rider or occupant of an animal-drawn vehicle (Table 3.3). The hospitalisation rate for Indigenous people (14 per 100,000) was lower than for non-Indigenous people (19 per 100,000) with an age-standardised rate ratio of 0.8.

4 Indigenous land transport injury, 1999–00 to 2003–04

This section examines the fatal and non-fatal injury of Indigenous people due to road transport, including traffic (occurring on a public road), non-traffic, unspecified as to whether traffic or non-traffic and railway. This definition of land transport injury excludes injury given an external cause of intentional self harm, assault or undetermined intent.

Most Indigenous transport deaths (99%) and serious injury cases (99%) were known to have involved land transport. Ninety-four per cent of non-Indigenous transport deaths (n=3,523) and 96% of serious injury cases (n=84,249) were known to have involved land transport. The great majority of Indigenous land transport cases involved road vehicles, or vehicles that can be driven on roads (e.g. off-road motor vehicles). An exception is the small number of cases (a small count for death and 6 persons seriously injured) in which the injured person was a train occupant. A partial further exception is the small number of occupants of special vehicles for use in industry, agriculture or construction, some of which may not have been road vehicles (see Tables 3.2 and 3.3). Injury resulting from collisions between trains and pedestrians or road vehicles was not uncommon (see Tables 4.7 and 4.8). For this reason, and to avoid an arbitrary distinction between 'road accidents' and 'rail accidents', the two are here considered together as land transport accidents. This definition also includes special industry, agriculture or construction vehicles.

From 1999–00 to 2003–04, land transport accidents accounted for 27% of fatal injury cases for Indigenous people and 8.7% of all injury hospitalisations for Indigenous people. The age-standardised rate of land transport injury was 26 deaths per 100,000 Indigenous persons and 324 admissions to hospital per 100,000 Indigenous persons.

There were 2.6 times more fatalities and 30% more serious injury cases from land transport accidents among Indigenous people compared to non-Indigenous people (based on age-standardised rates). There were 2.4 times more fatalities and 30% more hospitalisations occurring among Indigenous males compared to non-Indigenous males. There were 3.3 times more fatalities and 40% more hospitalisations occurring among Indigenous females compared to non-Indigenous females (Table 4.1).

Most Indigenous land transport fatalities (92%) and nearly two-thirds of serious injury cases (61%) occurred in traffic conditions (Table 4.1). In 30% of serious injury cases, the injured person was discharged on the same day as they were admitted (29% for traffic and 32% for non-traffic conditions).

From 1999–00 to 2003–04 in the four jurisdictions, there were 204,678 injury-related Indigenous patient days in hospital, with a mean length of stay of 3.5 days. Land transport injury accounted for 13% (n=26,380) of these patient days, with a mean length of stay of 5.5 days. The mean length of stay was higher for injuries that occurred in traffic conditions (6.7 days) compared with those occurring in non-traffic conditions (3.4 days).

Table 4.1: Key indicators for land transport injury; NT, WA, SA and Qld, 1999–00 to 2003–04

Indicator	Indigenous males	Indigenous Females	Indigenous Persons**		
			Traffic	Non-traffic	Total§
Fatally injured*					
Deaths	214	108	296	21	322
Percentage of all deaths due to injury	25.6	30.3	24.9	1.8	27.0
Crude rate per 100,000 population***	31.6	15.6	21.6	1.5	23.5
Adjusted rate per 100,000 population****	36.5	17.0	24.4	1.6	26.3
Ratio of age-standardised rates: Indigenous: non-Indigenous†	2.4	3.3	2.6	2.5	2.6
Seriously injured† (e)					
Persons admitted to hospital (f)	3,241	1,520	2,922	1,288	4,761
Percentage of all Indigenous hospital separations due to injury	10.8	6.2	5.4	2.3	8.7
Same day hospitalisations	991	451	849	412	1,442
Mean length of stay in hospital (days)€	5.4	5.8	6.7	3.4	5.5
Total patient days (including same day and deaths in hospital)	17,556	8,824	19,660	4,412	26,380
Crude rate/100,000 population***	478.4	219.1	213.1	93.9	347.2
Age-standardised rate/100,000 population****	452.0	203.8	211.6	76.4	324.0
Ratio of age-standardised rates: Indigenous: non-Indigenous†	1.3	1.4	1.6	1.0	1.3

§ This includes 5 deaths, 551 hospital cases (181 were same day) and 2,308 patient days where it is unspecified as to whether the crash occurred in traffic or non-traffic conditions.

* Deaths are five-year totals, occurring during 1999–00 to 2003–04 for which an 'external cause' was coded as the Underlying Cause of Death (ICD-10 V01–V89.9).

† Cases are five-year totals for 1999–00 to 2003–04 and include cases where Principal Diagnosis was coded to ICD-10-AM S00–T98.

** Includes cases where sex is missing or indeterminate.

*** Rates are averages of annual rates over the five years 1999–00 to 2003–04.

**** Adjusted by direct standardisation to the Australian population in June 2001.

† Ratio of age-standardised rate for Indigenous to the equivalent rate for non-Indigenous and Indigenous status not stated.

€ This is the average number of days a person is likely to stay in hospital when seriously injured.

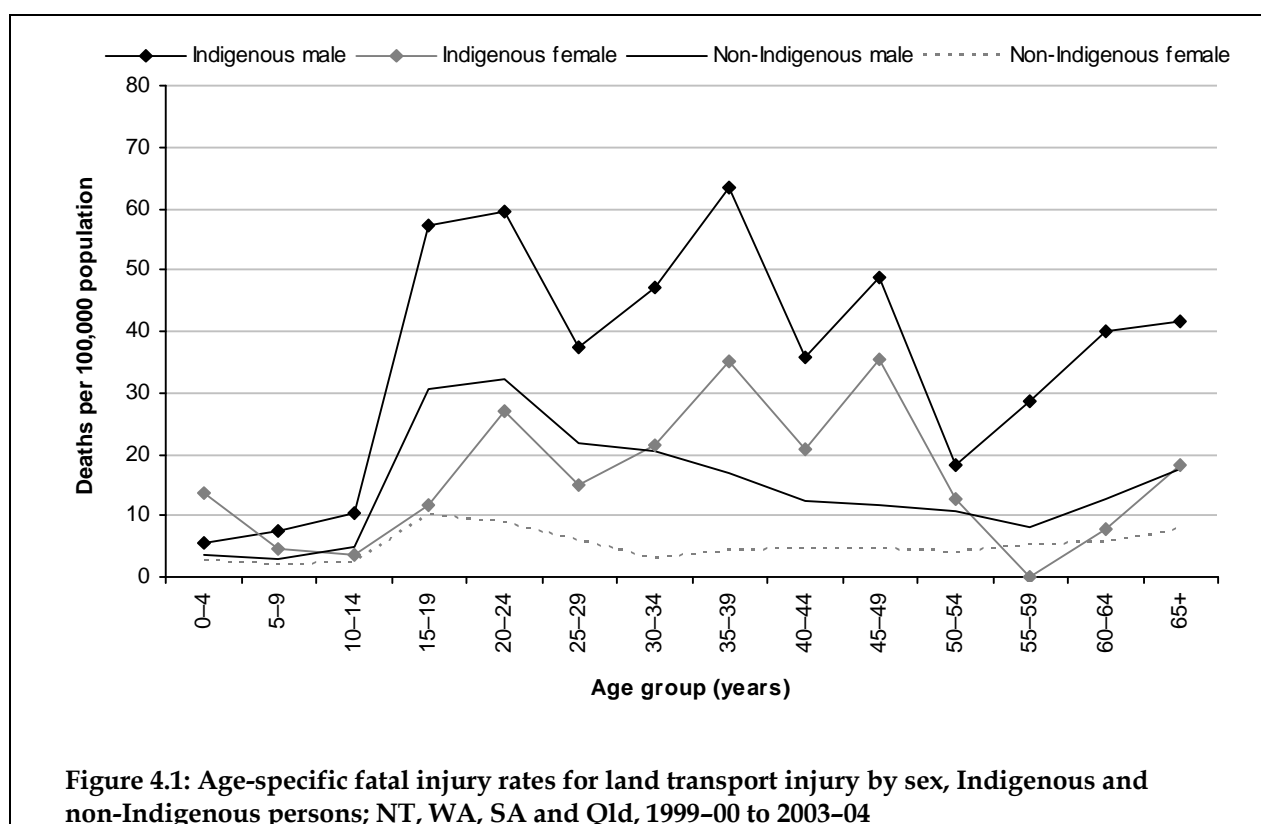
(e) The term *seriously injured* and *hospitalisation* are used interchangeably and represent a person being admitted to hospital for injury and subsequently discharged alive, either on the same day or after one or more nights stay in a hospital bed (i.e. deaths are excluded). Discharge from hospital can include transfer to home, to another acute care hospital and to another form of care (e.g. rehabilitation). In this report, a method has been used to reduce over-counting of injury cases by omitting separations in which the mode of admission is recorded as being by transfer from another acute-care hospital, on the grounds that such cases are likely to result in two or more separation records for the same injury.

(f) In total, there were 99,697 (5,464 Indigenous and 94,233 non-Indigenous) admissions to hospital for land transport injury for an estimated 89,674 persons (4,795 Indigenous and 84,879 non-Indigenous), of which 664 persons (34 Indigenous) died while in hospital (0.7%). These deaths are represented in the national mortality data collection, and are therefore omitted from the serious injury case counts in Table 4.1 and throughout the report. The estimate of total patient days includes separations in which the person died in hospital.

Age and sex distribution

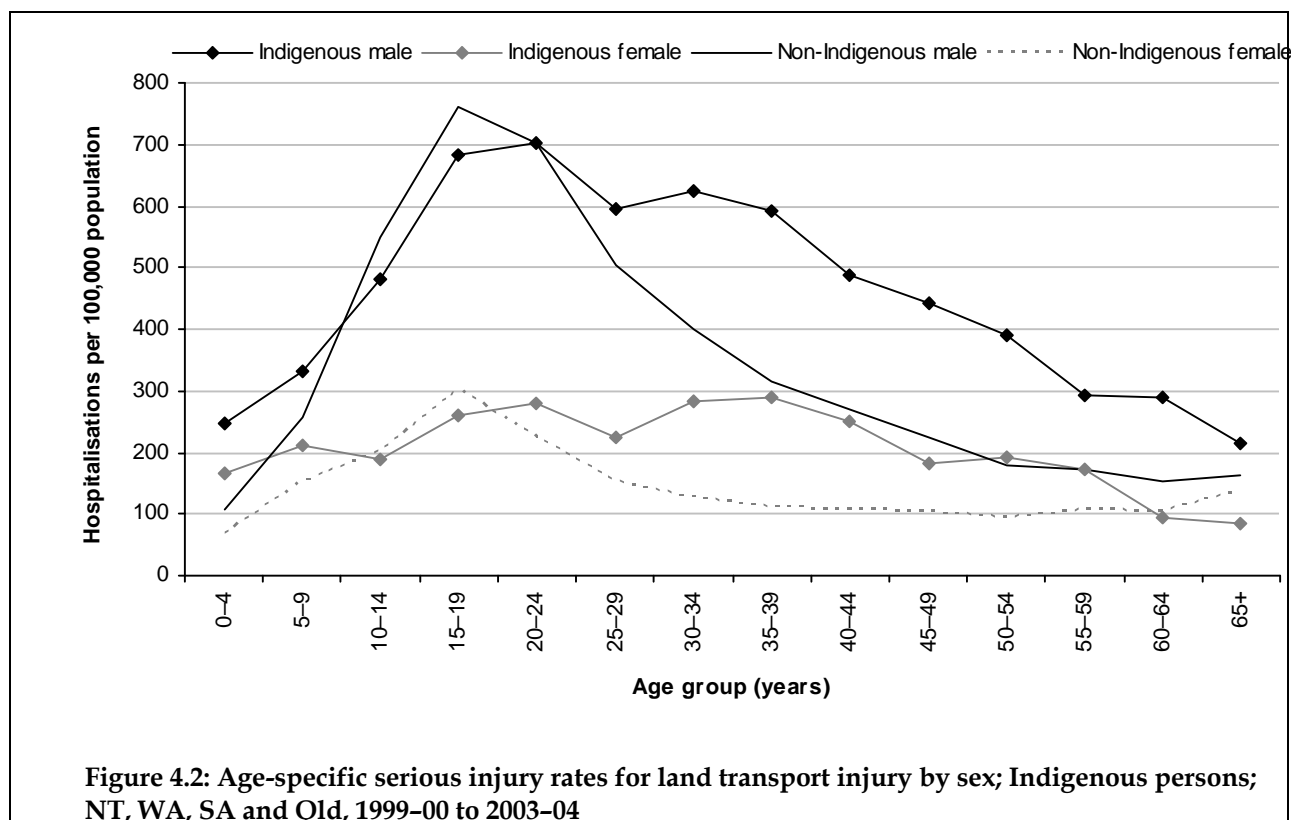
Indigenous males accounted for two-thirds (66%; n=214) of Indigenous land transport injury deaths in 1999–00 to 2003–04 with a M:F rate ratio of 2.1:1.0 (Figure 4.1).

Fatal injury rates, on an age-specific population basis, for non-Indigenous males and females were highest for the 15–19 and 20–24 year age groups, declining thereafter until the 60+ age groups. For Indigenous males and females, fatal injury rates rose in early adulthood and remained elevated through middle age, although age-specific rates were variable due to small case numbers in each age band. Fatal injury rates for Indigenous males were substantially higher than non-Indigenous rates across all ages, except for infants aged 0–4 years. The highest fatality rate for infants aged 0–4 years occurred among Indigenous females (14 deaths per 100,000). For females, Indigenous and non-Indigenous fatal injury rates were quite similar in the age-bands from 5–19 years and 55–64 years; but Indigenous females had a substantially higher death rate than non-Indigenous females in infancy, and over the age bands from 20–54 years.



Indigenous males accounted for two-thirds (68%; n=3,241) of Indigenous land transport serious injury in 1999–00 to 2003–04 with a M:F rate ratio of 2.2:1.0.

Figure 4.2 shows that for both males and females, Indigenous serious injury rates were fairly similar to non-Indigenous rates over the age band from 5–29 years and above age 60 (women) or 65 years (men); but Indigenous people had a substantially higher serious injury rate in infancy, and in the age bands from 30–59 years.



The land transport fatal and serious injury rates differed by gender for both Indigenous and non-Indigenous persons (Table 4.2). The age-standardised rates of fatal injury for Indigenous and non-Indigenous males were two times and three times greater, respectively, than the corresponding rates for females. The age-standardised rates of serious injury for Indigenous and non-Indigenous males were over two times greater than the corresponding rates for females.

For fatal injury, the age-specific rate for Indigenous males peaked at ages 20–24 years at 60 deaths per 100,000 and at ages 35–39 years with 63 deaths per 100,000. Indigenous female rates peaked at 35–39 years at 35 deaths per 100,000 and at 45–49 years with 36 deaths per 100,000. For non-Indigenous males and females, fatality rates were high at ages 15–24 years (males: 31 per 100,000 among 15–19 years olds and 32 per 100,000 among 20–24 year olds, females: 10 per 100,000 among 15–19 years olds and 9 per 100,000 among 20–24 year olds).

For serious injury, the age-specific rate for Indigenous males was high at ages 15–24 years (682 per 100,000 among 15–19 years olds and 704 per 100,000 among 20–24 year olds). For Indigenous females, the age-specific rate of serious injury was high at ages 30–39 years (282 per 100,000 among 30–34 year olds and 289 per 100,000 among 35–39 year olds). For non-Indigenous males and females, rates were high at ages 15–24 years (males: 762 per 100,000 among 15–19 year olds and 703 per 100,000 among 20–24 year olds, females: 302 per 100,000 among 15–19 years olds and 225 per 100,000 among 20–24 year olds).

Table 4.2: Age-specific and age-standardised rates due to fatal and serious land transport injury; NT, WA, SA and Qld, 1999–00 to 2003–04

Indicator	Age group (years)														All ages (crude)	Age Std*
	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+		
Fatal injury																
Indigenous male	5.5	7.4	10.4	48.6	59.7	37.4	41.3	63.4	35.8	48.9	18.3	28.6	30.0	41.5	31.6	36.5
Non-Indigenous male	3.6	2.8	5.0	30.6	32.1	21.9	20.6	16.9	12.2	11.8	10.9	8.3	12.6	17.5	15.1	15.1
<i>Male rate ratio: Indigenous: non-Indigenous</i>	1.6	2.7	2.1	1.6	1.9	1.7	2.0	3.8	2.9	4.2	1.7	3.4	2.4	2.4	2.1	2.4
Indigenous female	13.6	4.5	3.7	11.6	27.0	15.0	21.4	35.1	20.8	35.5	12.8	0.0	7.9	18.1	15.6	17.0
Non-Indigenous female	2.7	1.9	2.3	10.1	8.7	5.8	3.1	4.3	4.6	4.5	3.9	5.2	5.5	7.7	5.2	5.1
<i>Female rate ratio: Indigenous: non-Indigenous</i>	5.0	2.4	1.6	1.1	3.1	2.6	7.0	8.2	4.5	7.8	3.3	0.0	1.4	2.4	3.0	3.3
<i>Rate ratio: Indigenous: non-Indigenous</i>	3.1	2.6	1.9	1.5	2.1	1.9	2.7	4.6	3.4	5.1	2.1	2.2	2.1	2.4	2.3	2.6
Serious injury																
Indigenous male	248.0	332.3	481.9	682.0	703.6	594.6	624.1	591.4	486.9	443.4	389.3	292.8	289.6	213.3	478.4	452.0
Non-Indigenous male	106.9	257.9	548.0	762.0	702.6	504.3	398.4	314.5	270.0	223.1	179.1	170.9	153.1	162.8	341.2	338.3
<i>Male rate ratio: Indigenous: non-Indigenous</i>	2.3	1.3	0.9	0.9	1.0	1.2	1.6	1.9	1.8	2.0	2.2	1.7	1.9	1.3	1.4	1.3
Indigenous female	166.8	210.9	188.7	260.2	279.8	224.4	282.1	289.3	249.8	180.7	191.7	171.2	95.2	86.0	219.1	203.8
Non-Indigenous female	66.8	151.4	201.9	302.1	224.8	154.3	125.3	111.4	108.0	104.4	95.2	107.4	103.2	137.9	143.2	143.5
<i>Female rate ratio: Indigenous: non-Indigenous</i>	2.5	1.4	0.9	0.9	1.2	1.5	2.3	2.6	2.3	1.7	2.0	1.6	0.9	0.6	1.5	1.4
<i>Rate ratio: Indigenous: Non-Indigenous</i>	2.4	1.3	0.9	0.9	1.0	1.2	1.7	2.0	1.9	1.9	2.1	1.6	1.4	0.9	1.4	1.3

Rates are averages of annual rates over the five years 1999–00 to 2003–04.
 * Adjusted by direct standardisation to the Australian population in June 2001.

Car occupants and pedestrians were the two modes of transport resulting in the largest number of cases of death or serious injury for Indigenous people (Tables 3.2 and 3.3).

Table 4.3 depicts age-standardised rates of fatal and serious injury, by gender, and according to mode of transport. Fatal injury among car occupants was 2.3 times higher among Indigenous compared to non-Indigenous persons. Indigenous male drivers had nearly twice the fatality rate of non-Indigenous male drivers. Both male and female Indigenous car passengers had fatality rates that were more than three times higher than fatality rates for non-Indigenous car passengers of the same sex. Likewise, serious injury among car occupants was 1.9 times higher among Indigenous compared to non-Indigenous persons. Female Indigenous car passengers had serious injury rates more than twice that of female non-Indigenous car passengers and male Indigenous car passengers had serious injury rates nearly four times that of male non-Indigenous car passengers.

The fatality rate for male Indigenous pedestrians was over six times that for male non-Indigenous pedestrians while the fatality rate for female Indigenous pedestrians was nearly ten times that for female non-Indigenous pedestrians. The serious injury rates for male and female Indigenous pedestrians were nearly four times higher than serious injury rates for non-Indigenous pedestrians of the same sex.

Figure 4.3 depicts age-specific death rates in traffic conditions and by mode of transport. Non-traffic death rates for non-Indigenous males and females scarcely left the zero line (Appendix A5), and therefore data were too sparse to be charted. Figures 4.4 and 4.5 depict age-specific serious injury rates by traffic and non-traffic conditions and by mode of transport. Tabulations of the age-specific and all-ages rates by mode of transport for Figures 4.3 to 4.5 are included as Tables A4, A6 and A7 in the Appendix.

Fatal and serious injury rates for Indigenous people in traffic conditions do not follow the pattern of peak in early adulthood, and decline thereafter as is observed for non-Indigenous people. Instead, Indigenous rates for pedestrians, car passengers and car drivers in particular, tend to rise in early adulthood and remain elevated through middle age.

For traffic accidents (i.e. occurring on a public road), the fatality rate for Indigenous pedestrians peaked in the 35–39 year age group for males (age-specific rate of 25 per 100,000) and for females in the 35–39 year (17 per 100,000) and 45–49 year age groups (16 per 100,000) (Figure 4.3). For male and female Indigenous car drivers, multiple peaks in fatality rates were evident, with various age groups from 20–24 years to 60–64 years affected (Figure 4.3). The car passenger fatality rate among Indigenous males peaked in the 20–24 year age group (23 per 100,000). The car passenger fatality rate for Indigenous females peaked in the 45–49 year age group (10 per 100,000).

Table 4.3: Mode of land transport for fatal and serious injury; NT, WA, SA and Qld, 1999-00 to 2003-04

Mode of transport	Males (Rate ‡)		Female (Rate ‡)		Persons				
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous		Non-Indigenous		Rate Ratio†
					Count	Rate ‡	Count	Rate ‡	
Fatal injury									
Car occupant	19.1	8.1	8.4	3.7	169	13.5	2,060	5.9	2.3
– Driver	10.2	5.6	2.7	2.1	75	6.3	1,337	3.8	1.6
– Passenger (inside/outside of vehicle)	7.1	2.3	5.2	1.6	81	6.1	671	1.9	3.2
– Unspecified or boarding or alighting	1.8	0.2	0.4	0.1	13	1.1	52	0.1	7.3
Motorcyclist	1.0	2.5	0.0	0.2	9	0.5	469	1.3	0.4
Pedal cyclist	*	0.4	0.0	0.0	*	*	80	0.2	*
Pedestrian	13.0	2.1	6.9	0.7	113	9.8	479	1.4	7.1
Animal or occupant of animal-drawn vehicle	0.0	0.1	0.0	0.1	0	0.0	22	0.1	0.0
Serious injury									
Car	217.0	95.3	118.6	75.6	2,270	166.0	29,753	85.4	1.9
– Driver	78.1	56.6	28.6	38.9	663	52.3	16,597	47.6	1.1
– Passenger (inside/outside of vehicle)	97.2	26.5	65.4	27.7	1,163	80.8	9,463	27.2	3.0
– Unspecified or boarding or alighting	41.6	12.2	24.7	9.0	444	32.9	3,693	10.6	3.1
Motorcyclist	44.2	109.9	3.7	9.5	387	23.5	20,961	60.1	0.4
Pedal cyclist	57.5	67.7	18.2	17.0	762	37.5	14,849	42.7	0.9
Pedestrian	82.4	21.5	42.2	11.8	815	61.4	5,785	16.7	3.7
Animal or occupant of animal-drawn vehicle	23.1	16.2	6.2	21.9	235	14.4	6,607	18.9	0.8

Note: Shading denotes the highest 2 figures for a column by fatal and serious injury.

* Small counts are omitted.

'Mode of transport' here means the vehicle the person was travelling in at the time of being injured in a transport accident.

Rates are averages of annual rates over the five years 1999–00 to 2003–04.

‡ Per 100,000 population, adjusted by direct standardisation to the Australian population in June 2001.

† Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (non-Indigenous and not stated).

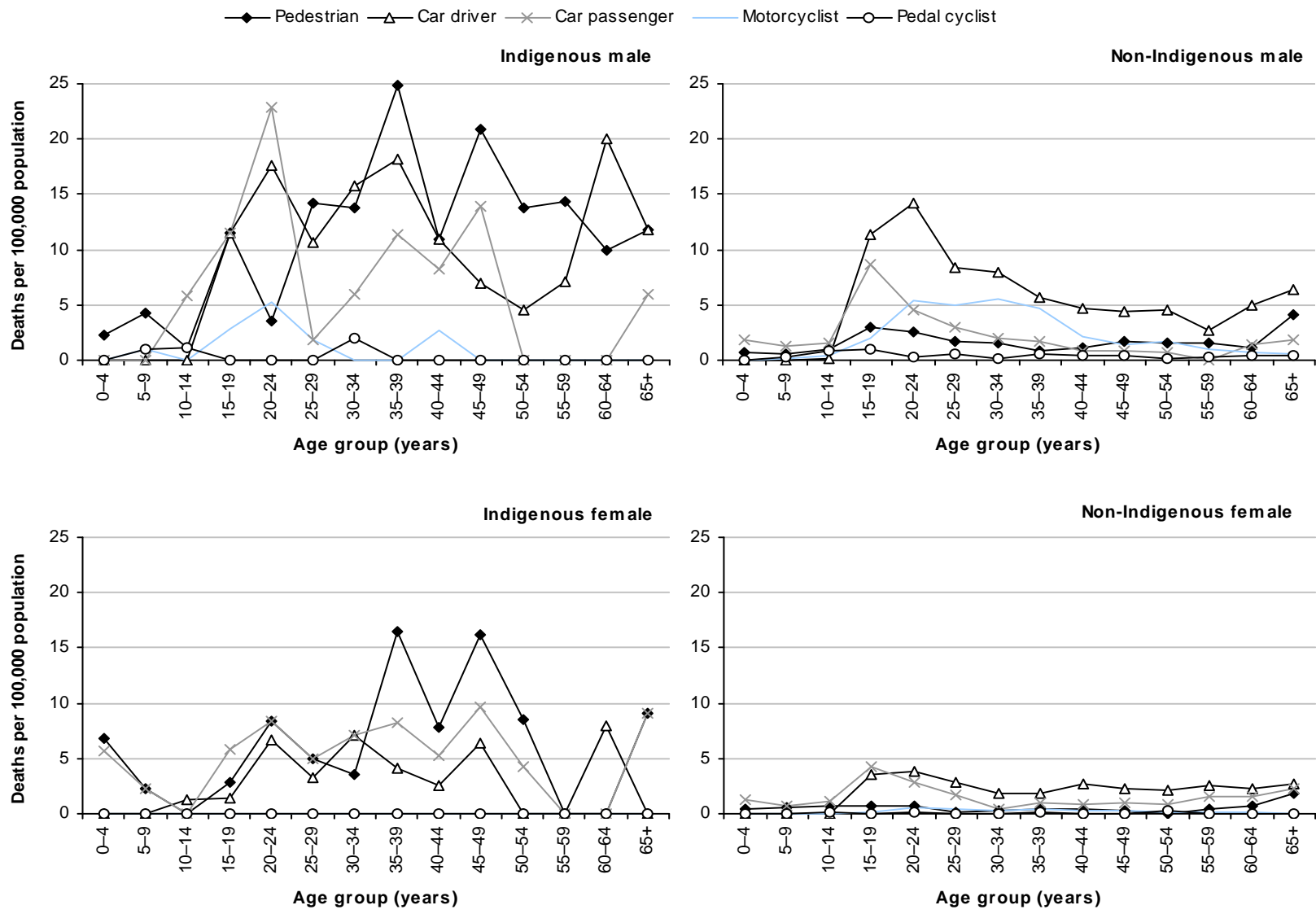


Figure 4.3: Traffic deaths – age-specific death rates by mode of transport; NT, WA, SA and Qld, 1999-00 to 2003-04

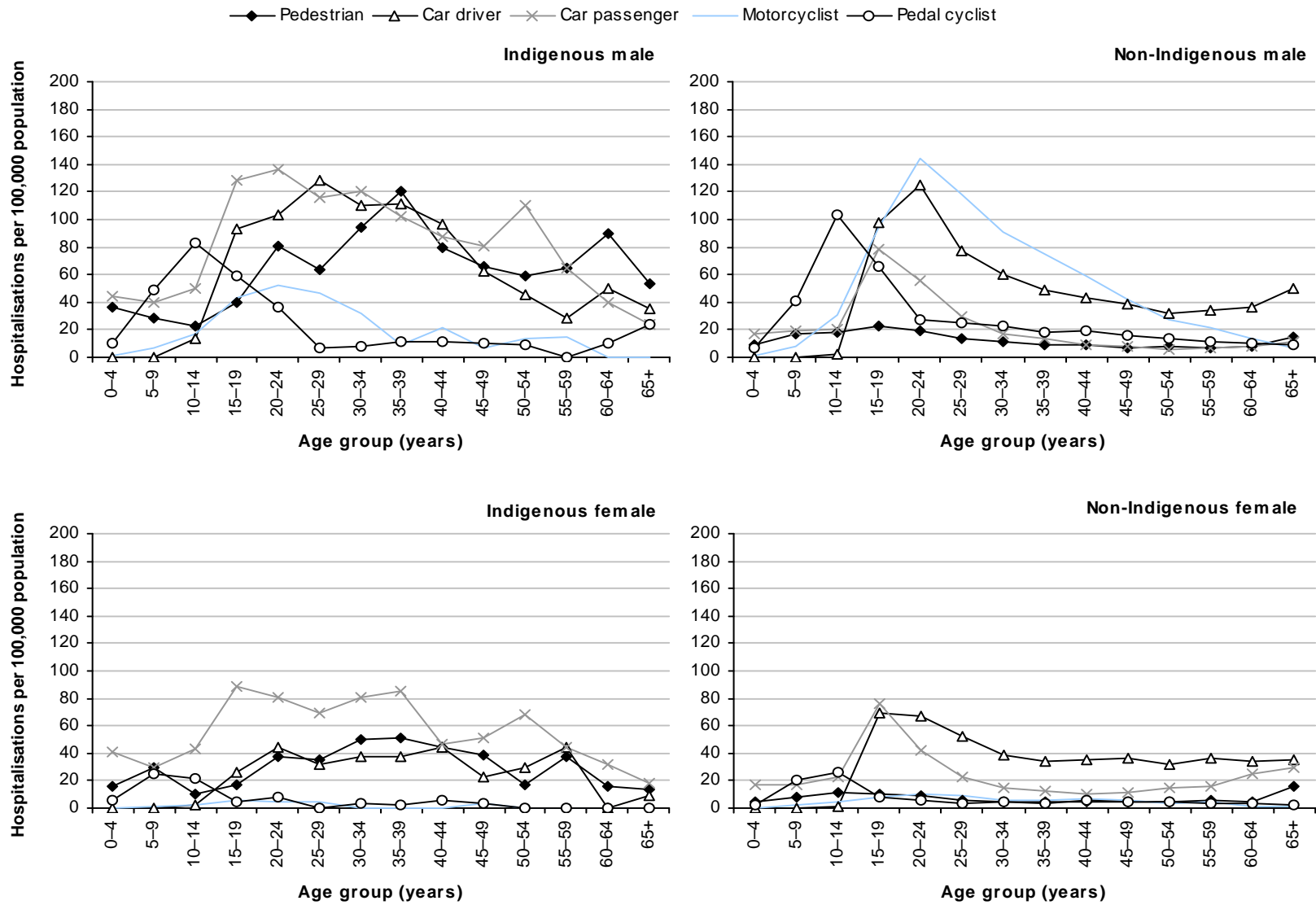


Figure 4.4: Traffic serious injury – age-specific serious injury rates by mode of transport; NT, WA, SA and Qld, 1999–00 to 2003–04

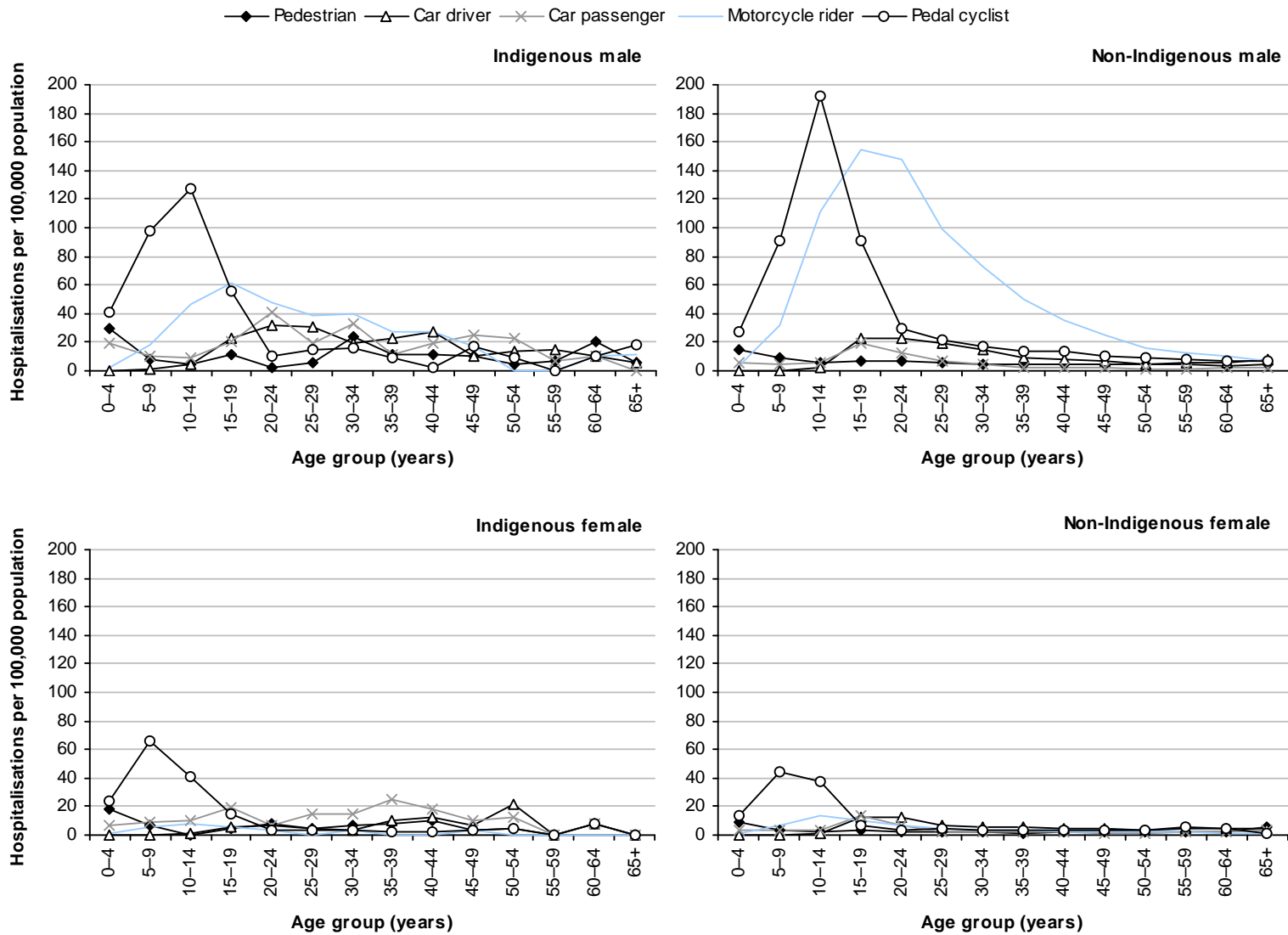


Figure 4.5: Non-traffic serious injury – age-specific serious injury rates by mode of transport; NT, WA, SA and Qld, 1999-00 to 2003-04

Figures 4.4 and 4.5 depict age-specific serious injury rates by traffic and non-traffic conditions and by mode of transport. For traffic accidents (i.e. occurring on a public road) (Figure 4.4), car passengers were most commonly injured among Indigenous people – the serious injury rate peaked in the 20–24 year age group for males (age-specific rate of 137 per 100,000) and in the 15–19 year age group for females (88 per 100,000). Car drivers were the second most commonly injured for Indigenous males, with the injury rate peaking in the 25–29 year age group (128 per 100,000). For Indigenous females, the second most commonly injured group was pedestrians with the highest injury rates occurring at ages 30–34 and 35–39 years (50 per 100,000 and 52 per 100,000, respectively).

For non-Indigenous males, motorcyclists were most commonly injured in traffic conditions with the serious injury rate peaking in the 20–24 year age group (144 serious injury cases per 100,000), followed by car drivers, with the highest rate occurring in the 20–24 year age group (125 per 100,000 for car drivers). For non-Indigenous females, the group most commonly injured in traffic conditions was car drivers, with the highest rate occurring in the 15–19 year age group (69 per 100,000), followed by car passengers with the highest rate also occurring in the 15–19 year age group (77 per 100,000).

For non-traffic accidents (Figure 4.5), pedal cyclists were most commonly injured among Indigenous people – serious injury rates peaked in 10–14 year age group for males (age-specific rate of 127 per 100,000) and in the 5–9 year age group for females (65 per 100,000). For Indigenous males, the second group most commonly injured was motorcyclists, with the highest rate occurring in the 15–19 year age group (62 per 100,000). For Indigenous females, the second group most commonly injured was car passengers, with the highest rate occurring in the 35–39 year age group (25 per 100,000).

For non-Indigenous males, motorcyclists were most commonly injured in non-traffic conditions with the serious injury rate peaking in the 15–19 year age group (155 serious injury cases per 100,000), followed by pedal cyclists, with the highest rate occurring in the 10–14 year age group (193 per 100,000). For non-Indigenous females, the most commonly injured group in non-traffic conditions was pedal cyclists with the highest rate occurring in the 5–9 year age group (44 per 100,000), followed by car drivers with a rate of 12 per 100,000 occurring in both the 15–19 year age and the 20–24 year age group.

Remoteness zones

Remoteness zones in this report refer to the place of usual residence of the person who died or was admitted to hospital. The remoteness zones reported here are as specified in the ABS Australian Standard Geographical Classification (ASGC) (ABS 2001). Remoteness is defined in a manner based on the Accessibility/Remoteness Index of Australia (ARIA), which was developed for the Commonwealth Department of Health and Aged Care by the National Key Centre for Social Applications of Geographic Information Systems (GISCA), Adelaide University. According to this method, remoteness is an index applicable to any point in Australia, based on road distance from urban centres of five 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 is in each of five 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 five zones, on the basis of the SLA of usual residence of the person.

Most SLAs lie entirely within one of the five zones. If this was so for all SLAs, then each record could simply be assigned to the zone in which its SLA lies. However, some SLAs include areas in two or more of the zones. Records with these SLAs were assigned to remoteness zones in proportion to the zone-specific distribution of the resident population of the SLA according to the 2001 census. Following usual AIHW practice, different methods were used to assign records in the two data sources.

For deaths, a proportion of each record was assigned to each remoteness zone represented in the SLA. The sum of the proportions for one of the zones is the overall estimate of cases in that zone. Note that the resulting value is not normally an integer. For purposes of this report, these values have been rounded to integers for tabulation. However, the unrounded values have been used to calculate other statistics, such as column percentages.

For hospitalisations, each record in the set having a particular SLA code was assigned to one or other of the zones probabilistically, in proportion to the resident population of that SLA. The resulting values are integers.

In this report, fatal injury cases by remoteness of a person's usual residence are presented for the five-year period of 1999–00 to 2003–04 (Tables 4.4 and 4.5). Remoteness of a person's usual residence was not available for hospital records for 1999–00 (Indigenous n=958, non-Indigenous n=17,401). Therefore, serious injury cases by remoteness of a person's usual residence are presented for the four-year period of 2001–02 to 2003–04 (Tables 4.4 and 4.5).

The deaths and hospital datasets used in this report do not contain information on the crash location; therefore it is not possible to determine if the injury was sustained also in a remote and very remote area. However, it is likely that people who reside in remote and very remote areas are injured in transport crashes that occur in the vicinity of where they live or work.

Age-standardised rates of fatal and serious injury increased according to remoteness of the person's usual residence from an urban centre for Indigenous and non-Indigenous persons (Table 4.5 and Figure 4.6). About three-quarters of Indigenous persons fatally (76%) and seriously (74%) injured in road crashes (traffic and non-traffic) resided in outer regional, remote or very remote areas (Table 4.4). By contrast, over two-thirds of non-Indigenous persons fatally (69%) and seriously injured (68%) resided in major cities or inner regional areas.

Taking into account the Indigenous and non-Indigenous populations in each of the remoteness zones, Indigenous persons living in major cities had fatal injury rates that were 2.3 times greater than for non-Indigenous persons. In inner and outer regional Australia, the rates of fatal injury were similar for Indigenous and non-Indigenous persons. In remote and very remote zones, the fatality rates for Indigenous persons were 2.1 times and 2.3 times greater, respectively, than for non-Indigenous persons.

Indigenous persons living in major cities had serious injury rates that were 1.4 times greater than for non-Indigenous persons. In inner regional Australia, the rates of serious injury were similar for Indigenous and non-Indigenous persons. Non-Indigenous persons had higher rates of serious injury than Indigenous persons in outer regional Australia (1.2 times) and in very remote zones (1.3 times). This latter observation is largely due to the fact that non-Indigenous persons had higher rates of serious injury in land transport accidents in non-traffic conditions (see Figure 4.7), many of them off-road motorcycle accidents, and motorcyclist serious injury rates increased according to remoteness of usual residence from an urban centre (see Tables A8 to A11).

Indigenous male rates of fatal and serious injury were (at least) twice the rate observed for Indigenous females in each remoteness zone (with one exception: only 1.3 times more males than females dwelling in a remote area died in a land transport crash), and non-Indigenous male rates were also (at least) twice the rate observed for non-Indigenous females in each remoteness zone.

Table 4.4: Land transport fatal injury cases and serious injury cases by remoteness zone of residence and Indigenous status for persons involved in land transport accidents; NT, WA, SA and Qld, 1999–00 to 2003–04

ASGC remoteness zone of residence	Indigenous				Non-Indigenous				% Indigenous cases per remoteness zone
	Male	Female	Persons	Per cent	Male	Female	Persons	Per cent	
	Count	Count	Count		Count	Count	Count		
Fatal injury									
Major cities	35	14	49	15%	1,162	379	1,541	44%	3%
Inner regional	16	5	21	7%	640	249	888	25%	2%
Outer regional	24	19	43	13%	515	171	686	19%	6%
Remote	30	23	53	16%	143	42	184	5%	22%
Very remote	108	42	150	46%	73	17	90	3%	62%
Total*	214	108	322	100%	2,619	904	3,523	100%	8%
Serious injury †									
Major cities	417	194	611	16%	20,765	9,225	29,990	45%	2%
Inner regional	255	110	365	10%	10,818	4,778	15,596	23%	2%
Outer regional	542	274	816	21%	10,588	3,975	14,564 ^(a)	22%	5%
Remote	456	208	664	17%	3,286	1,156	4,442	7%	13%
Very remote	910	427	1,337	35%	1,588	557	2,145	3%	38%
Total †	2,588	1,215	3,803	100%	47,119	19,728	66,848^(a)	100%	5%

* ASGC remoteness zone of residence not reported for 6 Indigenous (male=1, female=5) and 133 non-Indigenous (male=86, female=47) persons.

† Remoteness of a person's usual residence was not available for hospital records for 1999–00. Therefore, serious injury cases by remoteness of a person's usual residence are presented for the four-year period of 2001–02 to 2003–04.

‡ ASGC remoteness zone of residence not reported for 10 Indigenous (male=8, female=2) and 111 non-Indigenous (male=74, female=37) persons.

(a) Gender not stated for 1 non-Indigenous person.

Table 4.5: Age-standardised fatal and serious injury rates by remoteness zone of residence and Indigenous status for persons involved in land transport accidents; NT, WA, SA and Qld, 1999–00 to 2003–04

ASGC remoteness zone of residence	Age-standardised rate per 100,000 population (95% CI)					
	Indigenous			Non-Indigenous		
	Male	Female	Persons	Male	Female	Persons
Fatal injury						
Major cities	26 (16–40)	8 (4–14)	16 (11–23)	11 (10–12)	3 (3–4)	7 (7–7)
Inner regional	26 (14–45)	7 (2–18)	16 (9–25)	21 (19–23)	8 (7–9)	14 (13–15)
Outer regional	22 (12–39)	9 (6–15)	15 (10–22)	20 (18–21)	7 (6–8)	13 (12–14)
Remote	37 (23–56)	29 (17–47)	33 (24–45)	24 (20–28)	7 (5–10)	16 (14–18)
Very remote	63 (50–77)	25 (17–35)	44 (36–51)	27 (21–34)	9 (5–15)	19 (15–24)
Serious injury †						
Major cities	289 (245–333)	105 (88–122)	187 (168–205)	194 (191–196)	84 (82–85)	138 (137–140)
Inner regional	346 (292–401)	151 (111–190)	244 (211–278)	350 (343–357)	150 (146–154)	250 (246–254)
Outer regional	311 (282–341)	154 (134–175)	230 (212–247)	397 (389–405)	159 (154–164)	282 (277–286)
Remote	489 (439–538)	236 (200–272)	363 (332–393)	529 (511–548)	216 (203–228)	383 (372–395)
Very remote	492 (456–528)	230 (205–254)	359 (338–381)	612 (581–643)	278 (255–302)	465 (445–486)

† Remoteness of a person's usual residence was not available for hospital records for 1999–00. Therefore, age-standardised rates are calculated using serious injury cases by remoteness of a person's usual residence for the four-year period of 2001–02 to 2003–04.

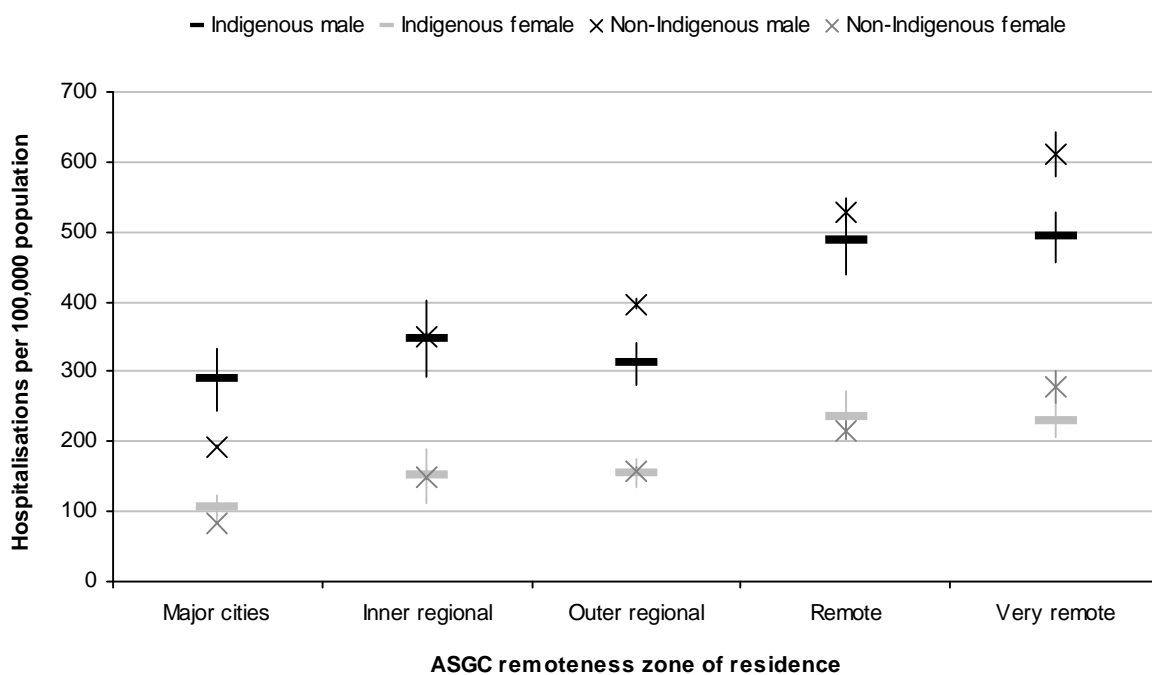
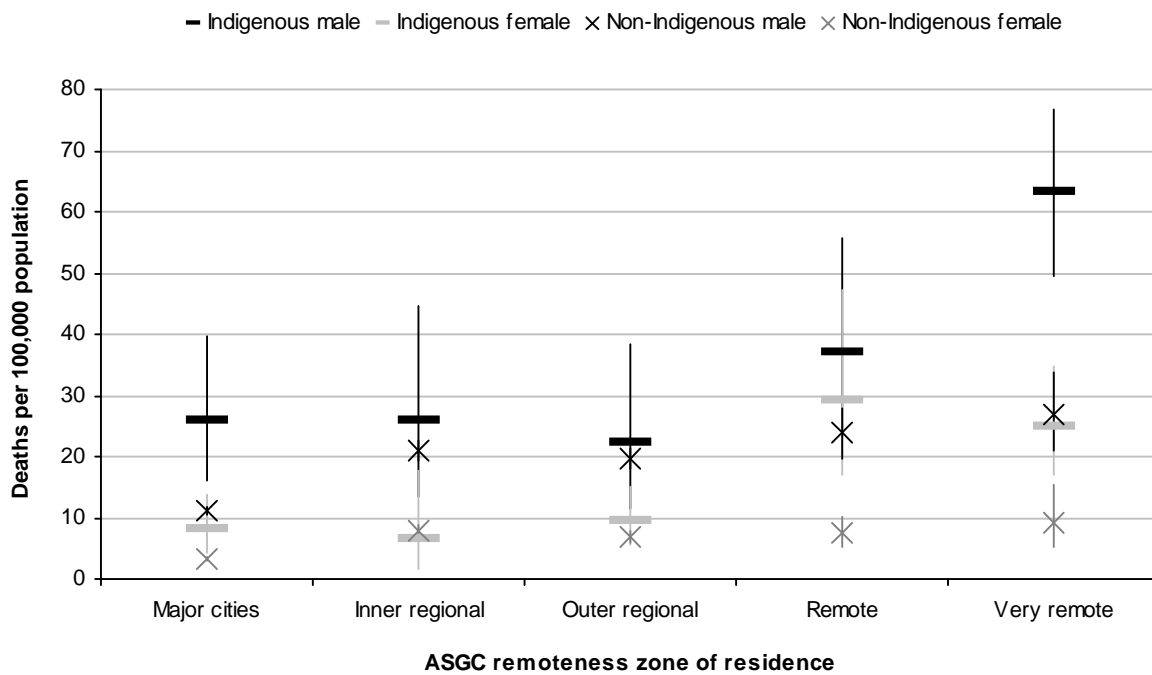


Figure 4.6: Age-standardised death and hospitalisation rates for land transport injury by remoteness zone and Indigenous status for persons involved in land transport accidents; NT, WA, SA and Qld, 1999–00 to 2003–04

The numbers of deaths stratified by remoteness zone are sparse and therefore preclude a more detailed examination of the nature and circumstances of land transport deaths by remoteness zone. The following analyses are therefore restricted to hospitalisation data only.

A pattern emerges when hospitalisation rates are distinguished by whether they resulted from traffic or non-traffic conditions (Table 4.6 and Figure 4.7). In traffic conditions, Indigenous males and females had higher rates of hospitalisation (based on age-standardised rates) across all remoteness zones, compared to non-Indigenous persons of the same sex. For Indigenous and non-Indigenous males and females, the hospitalisation rate from traffic injury increased by remoteness of the person's usual residence. In each remoteness zone, hospitalisation rates for traffic injury for Indigenous males ranged from almost twice to three times the rate observed for Indigenous females, and a similar finding was observed for non-Indigenous males compared to non-Indigenous females.

In non-traffic conditions, hospitalisation rates for Indigenous males and non-Indigenous males were similar for major cities. However, rates of hospitalisation for non-Indigenous and Indigenous males diverged from each other as the location of the person's usual residence became more remote. There was a four-fold increase in the hospitalisation rate for non-Indigenous males in very remote zones compared to major cities. This increase by remoteness did not occur to the same extent for Indigenous males, which resulted in rates for non-Indigenous males between two and three times higher than for Indigenous males in outer regional, remote and very remote zones. A similar pattern occurred for females, with a five-fold increase in the hospitalisation rate for non-Indigenous females in very remote zones compared to major cities. This increase by remoteness did not occur to the same extent for Indigenous females, which resulted in rates for non-Indigenous females 1.8 times higher than for Indigenous females in very remote zones. In each remoteness zone, hospitalisation rates for non-traffic injury for Indigenous males range from twice to almost five times the rate observed for Indigenous females and a similar finding was observed for non-Indigenous males compared non-Indigenous females.

Table 4.6: Age-standardised hospitalisation rates by remoteness zone of residence and Indigenous status for persons involved in land transport accidents; NT, WA, SA and Qld, 2000–01 to 2003–04

ASGC remoteness zone of residence	Age-standardised rate per 100,000 population (95% CI)			
	Indigenous male	Non-Indigenous male	Indigenous female	Non-Indigenous female
Traffic				
Major cities	207 (165–249)	116 (114–118)	73 (58–89)	57 (55–58)
Inner regional	213 (172–253)	186 (181–191)	103 (79–133)	85 (82–88)
Outer regional	204 (179–228)	193 (187–198)	108 (90–126)	87 (83–91)
Remote	279 (240–318)	191 (180–202)	153 (123–182)	93 (85–102)
Very remote	342 (312–373)	232 (213–252)	157 (137–178)	110 (95–125)
Non-traffic				
Major cities	64 (52–77)	65 (63–66)	22 (15–30)	15 (15–16)
Inner regional	107 (81–138)	132 (127–136)	23 (14–36)	27 (25–28)
Outer regional	72 (58–87)	163 (159–168)	35 (26–44)	34 (33–37)
Remote	139 (114–164)	265 (252–278)	60 (44–79)	60 (54–67)
Very remote	96 (82–111)	276 (255–297)	45 (36–57)	82 (69–94)

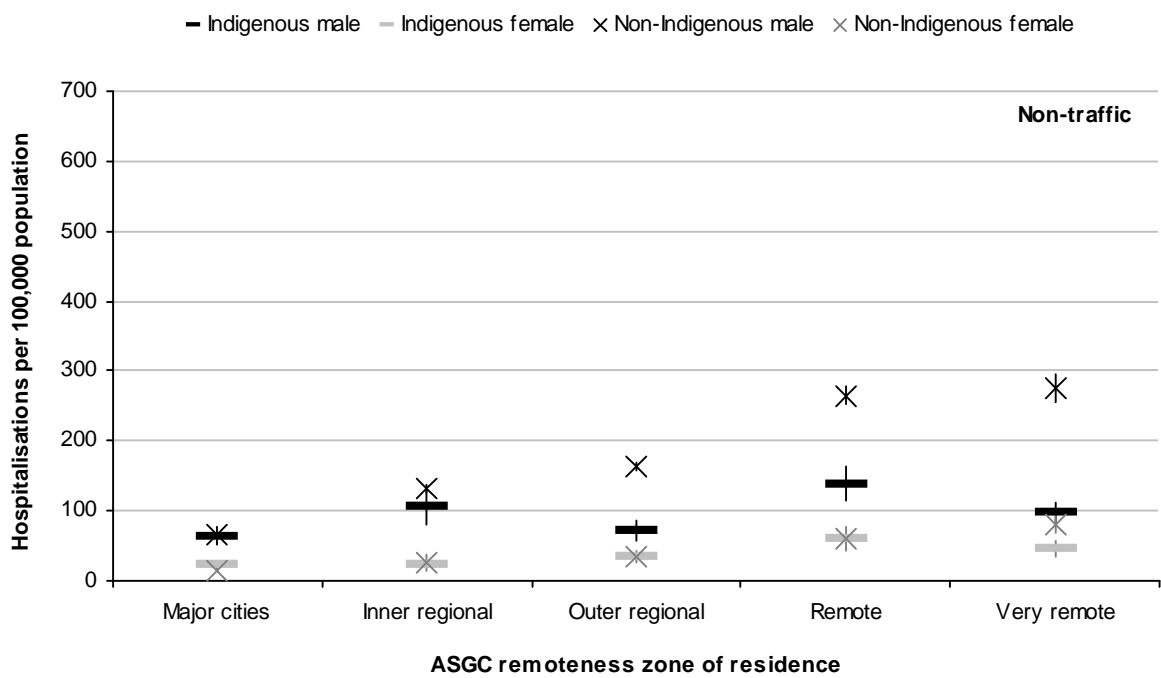
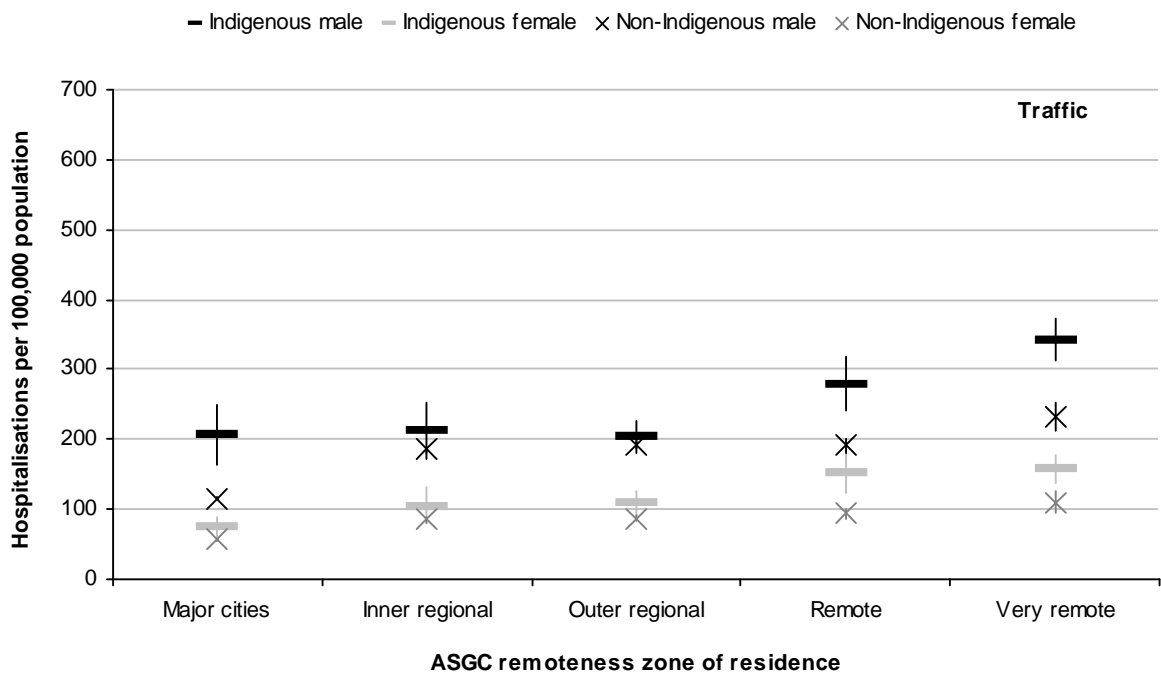


Figure 4.7: Age-standardised hospitalisation rates by remoteness zone and Indigenous status for persons involved in land transport accidents; NT, WA, SA and Qld, 2000-01 to 2003-04

Remoteness zones by injured person's vehicle and Indigenous status

Figures 4.8 to 4.10 depict age-specific injury rates (traffic and non-traffic combined) by the remoteness of the injured person's usual place of residence. Data are stratified by remoteness of residence, gender, age and mode of transport. As a result of stratification, case numbers for Indigenous persons are often small and susceptible to chance variation. While broad patterns are likely to be meaningful, little weight should be put on fluctuations in age-specific rates from one age-group to the next. Most serious injury for pedal cyclists and motorcyclists occurred in non-traffic conditions. This is shown for one remoteness zone – Figures 4.11 and 4.12 depict age-specific injury rates for traffic and non-traffic conditions in remote and very remote locations. Tabulations of the age-specific rates and all-ages rates by mode of transport for Figures 4.8 to 4.12 are included as Tables A8 to A12 in the Appendix.

Major cities

In major cities, the highest all-ages rate among Indigenous males was for pedal cyclists, with the highest rate observed in the 10–14 year age group (189 per 100,000), followed by injuries to Indigenous male pedestrians aged 40–44 (174 per 100,000). Overall, in major cities, injury rates for most types of transport were higher for Indigenous males than for non-Indigenous males, with one exception; more non-Indigenous males were injured while riding motorcycles in major cities than Indigenous males. For non-Indigenous males, motorcyclists were most commonly injured with the highest rate observed for those aged 20–24 years (145 per 100,000). The second most commonly injured group was pedal cyclists, for which non-Indigenous males aged 10–14 years had the highest injury rate (180 per 100,000).

For Indigenous females, pedestrians were most commonly injured with the serious injury rate peaking in the 40–44 year age group (119 per 100,000), followed by car passengers with the highest rates observed for females aged 0–4 years (64 per 100,000) and 15–19 years (63 per 100,000). Car drivers were the most commonly injured for non-Indigenous females and rates were high at ages 15–24 years (45 per 100,000 for 15–19 year olds and 46 per 100,000 for 20–24 year olds). High injury rates were also observed for non-Indigenous female car passengers, with the highest rate in the 15–19 year age group (56 per 100,000).

Inner and outer regional

Indigenous males in this region were most commonly injured as pedal cyclists, with the highest rate occurring in the 10–14 year age group (265 per 100,000). Pedestrians were the second most commonly injured and rates were high for males at ages 30–39 years (112 per 100,000 for 30–34 year olds and 106 per 100,000 for 35–39 year olds). For non-Indigenous males, motorcyclists were the most commonly injured with the highest rate in the 15–19 year age group (411 per 100,000). Although the serious injury rate was also the highest in this age group for Indigenous male motorcyclists (119 per 100,000 among 15–19 year olds), the non-Indigenous rates was over three times higher than that observed for Indigenous motorcyclists. The second most commonly injured group for non-Indigenous males was pedal cyclists, with the highest rate occurring in those aged 10–14 years (323 per 100,000). For Indigenous and non-Indigenous males living in inner and outer regional areas, the pattern of injury for pedal cyclists is similar to that observed for those living in major cities, but with one major difference. Although the injury rates in both zones are highest at ages 10–14 years, in inner and outer regional zones it is non-Indigenous males who have the higher overall rate compared with Indigenous males.

For Indigenous females, car passengers were most commonly injured, with the highest rate in those aged 35–39 years (109 per 100,000). Pedal cyclists also had high rates of injury, with the highest rate in those aged 5–9 years (101 per 100,000). For non-Indigenous females, car drivers were most commonly injured, with the highest rate at ages 15–19 years (114 per 100,000). The second most commonly injured group was car passengers, with the highest rate in those aged 15–19 years (113 per 100,000).

Remote and very remote

In remote and very remote regions, the highest all-ages rate for Indigenous males was for car passengers, with the highest rate observed in the 30–34 year age group (259 per 100,000), followed by car drivers, with the highest rate at ages 40–44 years (210 per 100,000). For non-Indigenous males, motorcyclists were most commonly injured, with the highest rate occurring in those aged 15–19 years (755 per 100,000). The injuries to non-Indigenous male motorcyclists aged 15–19 years in this region, were eight times greater than those recorded for Indigenous male motorcyclists of the same age, and were far higher than injuries observed for any other vehicle type. The second most commonly injured group for non-Indigenous males was car drivers and rates were high at ages 15–24 years (151 per 100,000 for 15–19 year olds and 143 per 100,000 for those aged 20–24 years).

As for Indigenous males, car passengers were most commonly injured for Indigenous females, with the highest rate observed in the 35–39 year age group (173 per 100,000). The second most commonly injured group was pedestrians, with the highest rate at ages 40–44 years (90 per 100,000). For non-Indigenous females, car drivers were most commonly injured, with the highest rate observed in the 15–19 year age group (147 per 100,000), followed by car passengers, with the highest rate at ages 15–19 years (109 per 100,000) and motorcyclists with the highest rate at ages 15–19 years (104 per 100,000).

In remote and very remote regions, the majority of serious injury cases for car drivers and car passengers occurred in traffic conditions for both Indigenous and non-Indigenous males and females. The majority of Indigenous male and female pedestrians sustained their injuries on public roads. Serious injury rates were particularly high for Indigenous pedestrians aged in the 30s. Half of non-Indigenous pedestrians sustained their injuries in non-traffic conditions, and serious injury rates were highest among teenagers and young adults. Fifty-five per cent of Indigenous motorcyclists and 65% of non-Indigenous motorcyclists sustained their injuries in non-traffic conditions, and about 90% of those injured were male. About two-thirds of pedal cyclists sustained their injuries in non-traffic conditions for both Indigenous and non-Indigenous males and females.

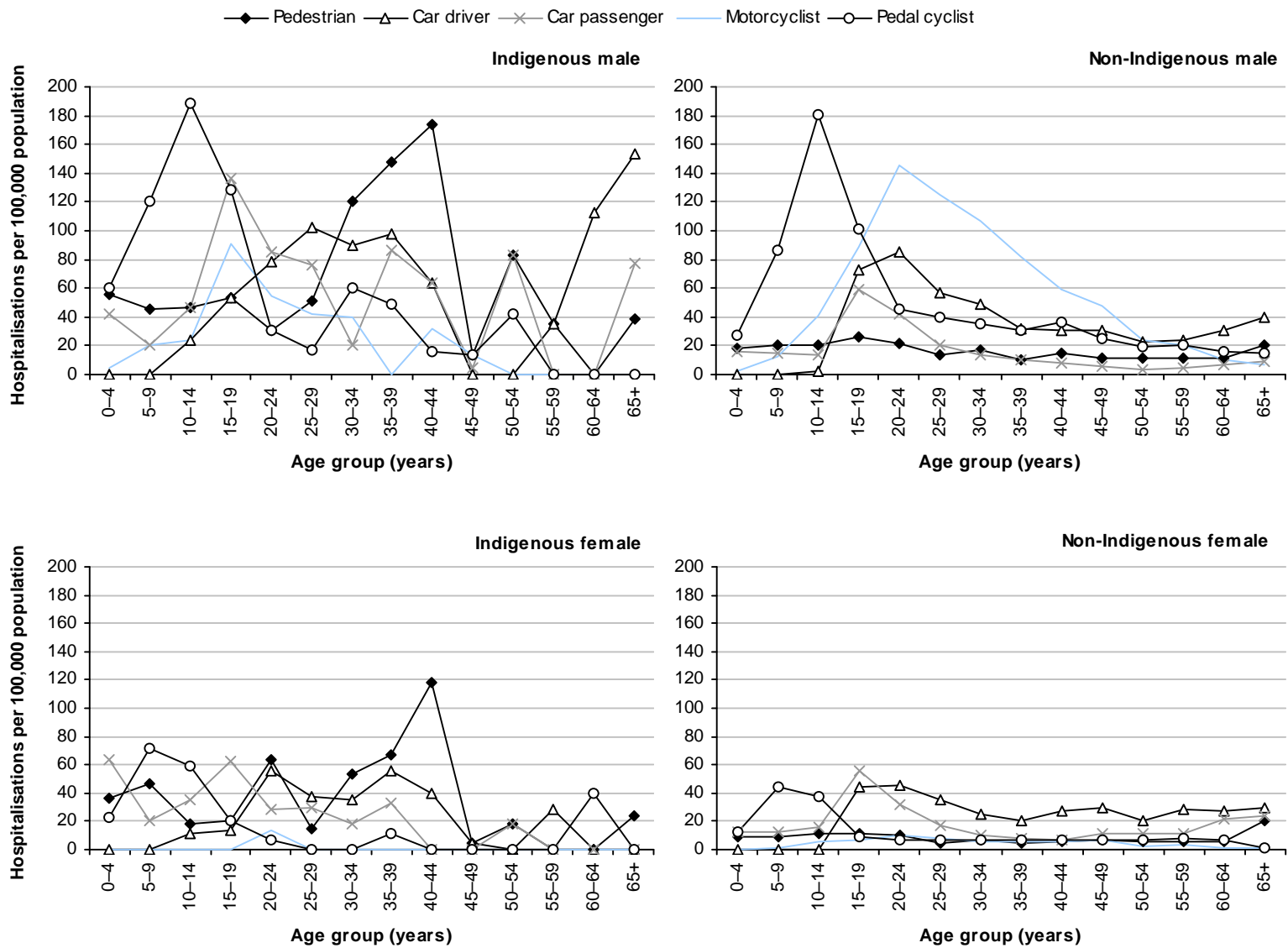


Figure 4.8: Remoteness zones by seriously injured person's vehicle and age: Major cities; NT, WA, SA and Qld, 2000-01 to 2003-04

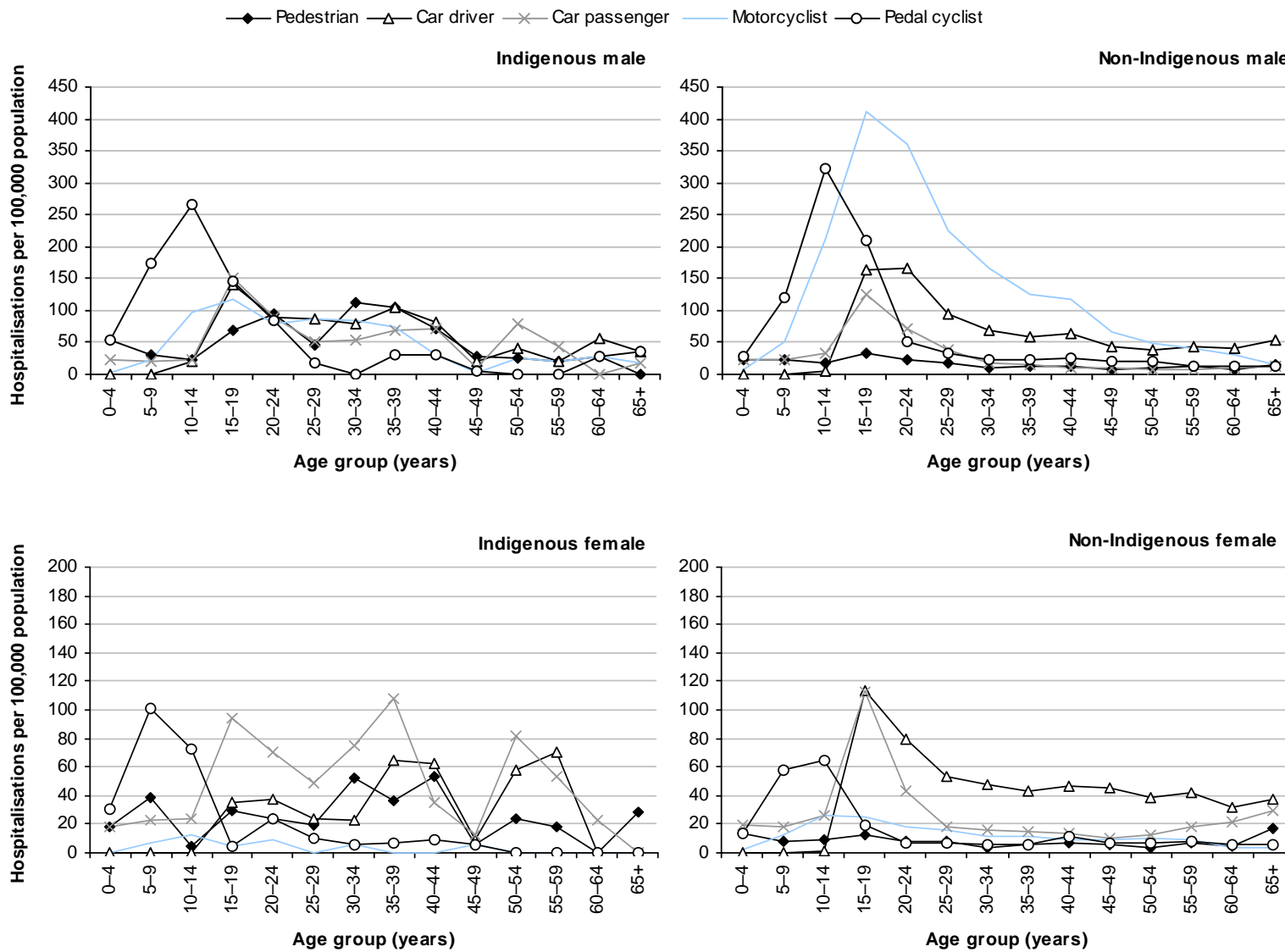


Figure 4.9: Remoteness zones by seriously injured person's vehicle and age: Inner and outer regional; NT, WA, SA and Qld, 2000-01 to 2003-04

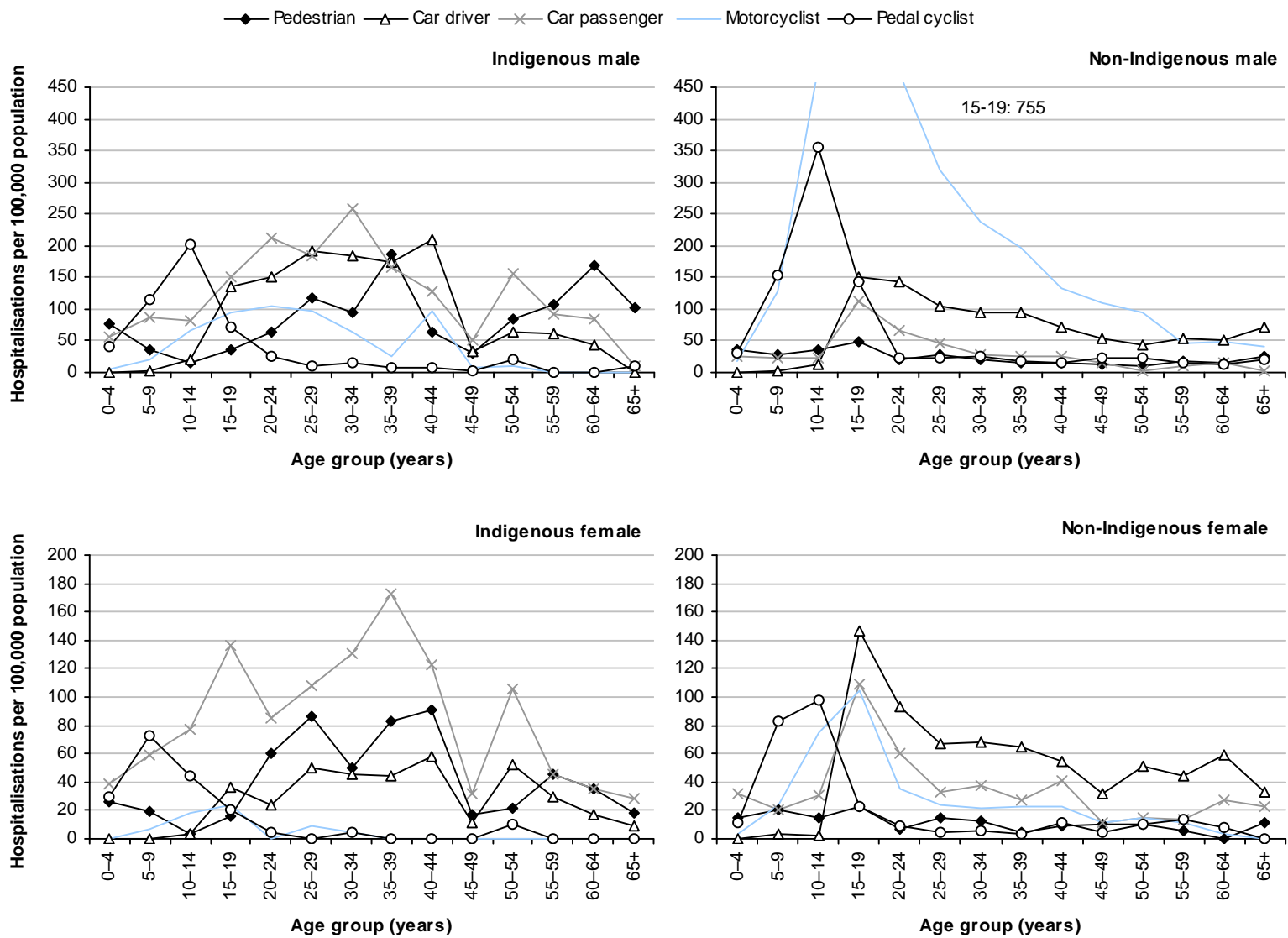


Figure 4.10: Remoteness zones by injured person's vehicle: Remote and very remote; NT, WA, SA and Qld, 2000-01 to 2003-04

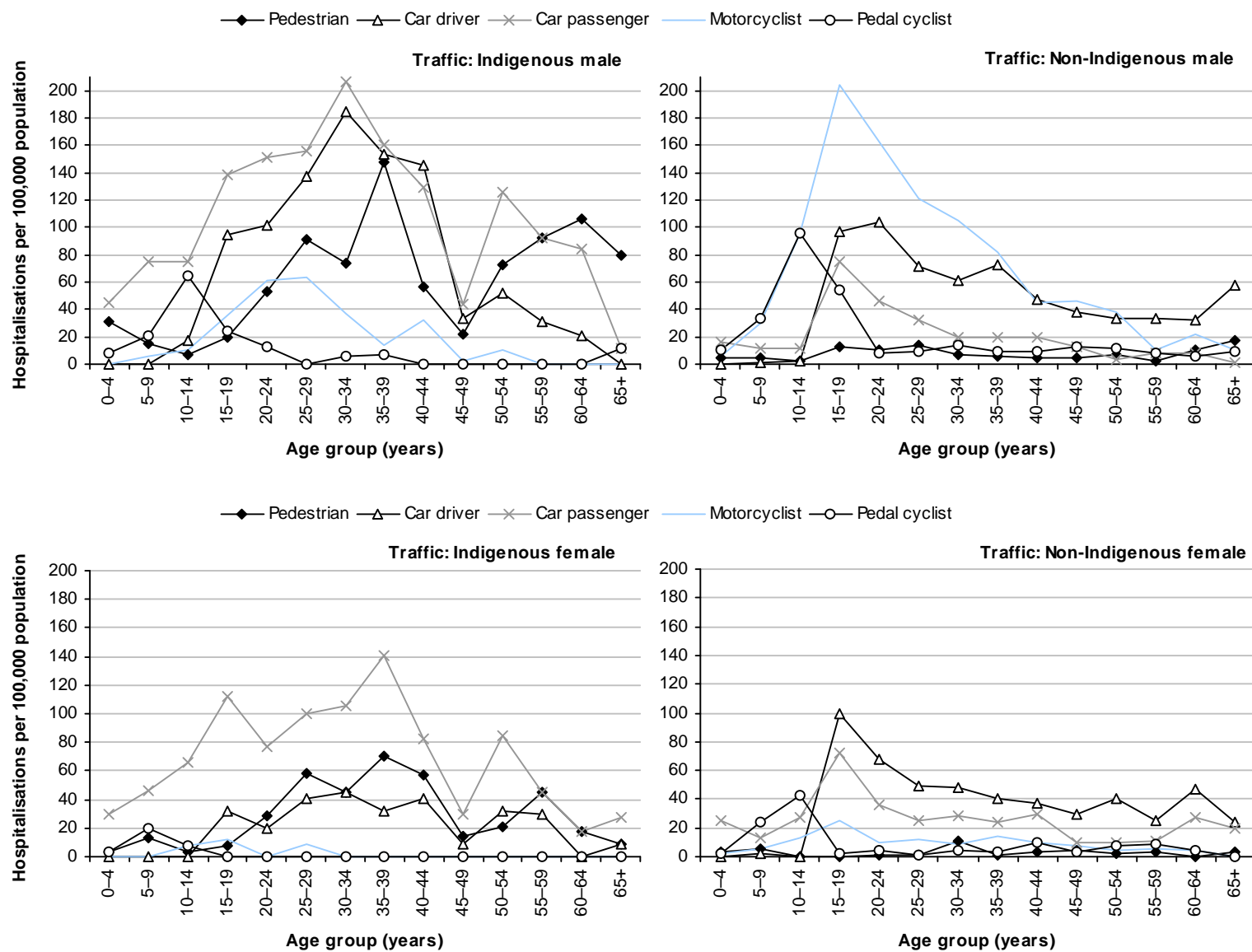


Figure 4.11: Traffic serious injury – remoteness zones by injured person’s vehicle: Remote and very remote; NT, WA, SA and Qld, 2000–01 to 2003–04

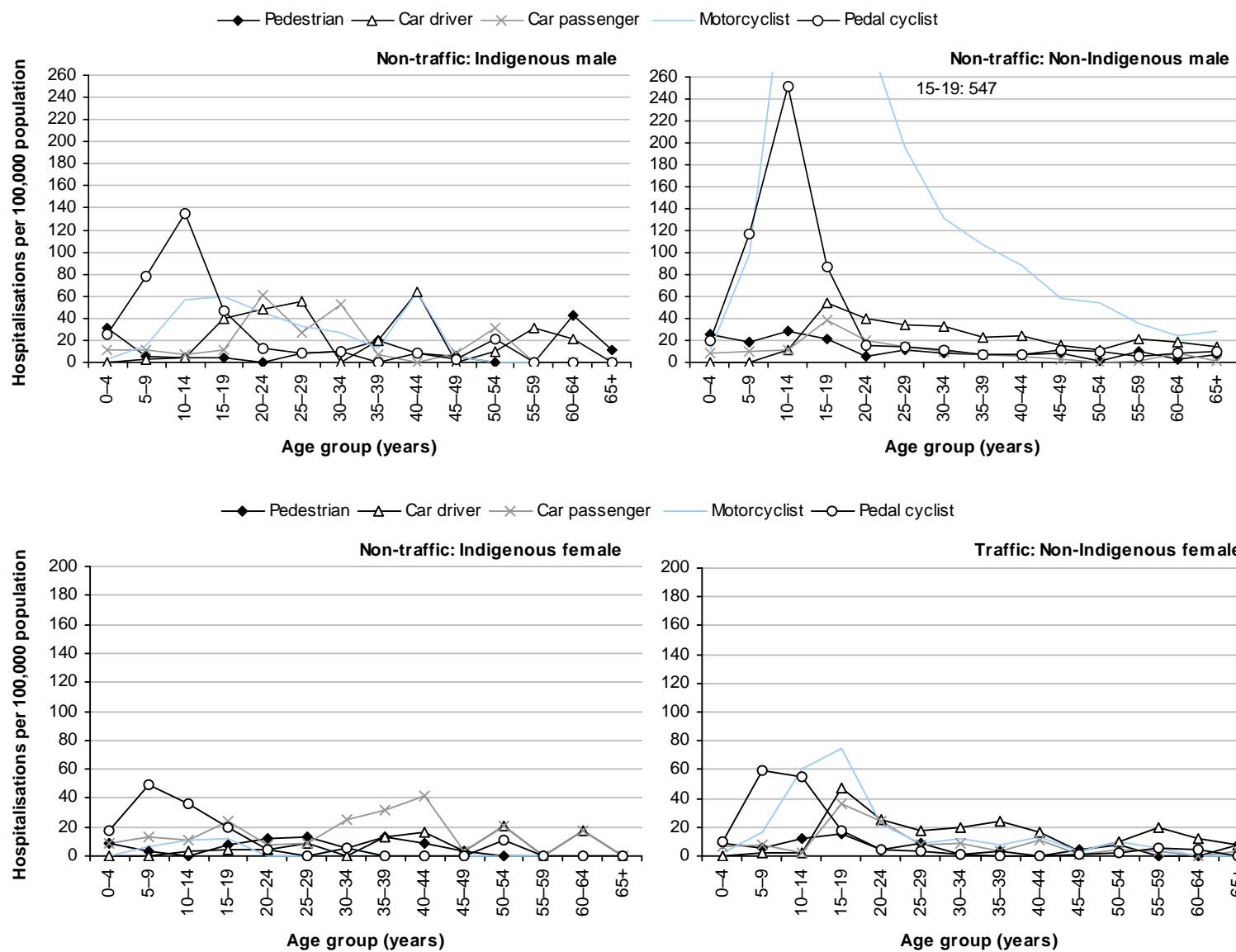


Figure 4.12: Non-traffic serious injury – remoteness zones by injured person’s vehicle: Remote and very remote; NT, WA, SA and Qld, 2000-01 to 2003-04

Mechanism of injury

Many injuries result from a collision between a person's mode of transport and another vehicle, or collision with some other object. In this report, the other vehicle or object is called the counterpart. The counterpart in land transport crashes that result in the death or serious injury of Indigenous persons is specified in Tables 4.7 and 4.8, respectively. Note that ICD-10 (deaths) and ICD-10-AM (hospitals) do not allow 'heavy transport vehicle' to be distinguished from 'bus' as a counterpart.

Table 4.7: Mechanism of injury for Indigenous persons fatally injured in land transport accidents; NT, WA, SA and Qld, 1999–00 to 2003–04

Injured person	Counterpart in collision										Total
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident†	Other and unspecified transport accidents	
Car occupant	18	0	0	*	11	*	0	51	80	5	169
Motorcyclist	*	*	0	0	0	0	0	4	*	*	9
Pedal cyclist	*	0	0	0	*	0	0	0	0	0	*
Pedestrian	84	*	0	0	15	*	0	0	0	9	113
Occupant of pick-up truck or van	0	0	0	0	*	0	0	*	5	0	8
Occupant of heavy transport vehicle	0	0	0	0	0	0	0	0	0	*	*
Bus occupant	0	0	0	0	0	*	0	0	0	0	*
Remainder	0	0	0	0	0	0	0	0	0	*	*
Unknown	0	0	0	0	0	0	0	0	4	11	15
Total	105	*	0	*	28	6	0	57	90	30	322

Note: Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

Shading denotes the 3 highest figures in the table.

* Small counts are omitted.

Deaths are five-year totals, occurring during 1999–00 to 2003–04 for which an 'external cause' was coded as the Underlying Cause of Death (ICD-10 V01–V89.9).

† Includes non-collision accidents such as overturning, falling or being thrown from a vehicle. It is possible this category may have been used as a residual (i.e. 'dump') code for cases lacking information on whether the accident involved a collision with a counterpart, despite the provision of the *other and unspecified* category for this purpose.

Table 4.8: Mechanism of injury for Indigenous persons seriously injured in land transport accidents; NT, WA, SA and Qld, 1999–00 to 2003–04

Injured person	Counterpart in collision										Total
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident†	Other and unspecified transport accidents	
Car occupant	281	*	0	33	43	0	*	413	1,175	321	2,270
Motorcyclist	20	9	0	6	*	0	*	46	227	76	387
Pedal cyclist	64	*	8	0	0	*	*	28	474	183	762
Pedestrian	659	14	12	0	31	7	8	0	0	84	815
Occupant of pick-up truck or van	*	0	0	0	0	0	*	6	60	12	81
Occupant of heavy transport vehicle	*	0	0	*	*	*	0	0	9	5	21
Bus occupant	*	0	0	0	*	0	0	*	18	6	30
Animal rider or occupant of animal-drawn vehicle	0	0	0	*	0	0	*	*	205	25	235
Occupant of special all-terrain or off-road vehicle	0	0	0	0	0	0	0	0	0	26	26
Occupant of three-wheeled motor vehicle	*	0	0	*	0	0	0	5	*	4	12
Occupant of a tram	0	0	0	0	0	0	0	0	0	7	7
Occupant of a train	0	0	0	0	0	0	0	0	0	6	6
Occupant of special agricultural or industrial or construction vehicle	0	0	0	0	0	0	0	0	0	21	21
Unknown	0	0	0	0	0	0	0	0	29	59	88
Total	1,032	27	20	44	80	9	13	503	2,198	835	4,761

Note: Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

Shading denotes the 4 highest figures in the table.

* Small counts are omitted.

Cases are five-year totals for 1999–00 to 2003–04 and include cases where Principal Diagnosis was coded to ICD-10-AM S00–T98.

† Includes non-collision accidents such as overturning, falling or being thrown from a vehicle. It is possible this category may have been used as a residual (i.e. 'dump') code for cases lacking information on whether the accident involved a collision with a counterpart, despite the provision of the *other and unspecified* category for this purpose.

The three most common mechanisms (Table 4.9) accounting for almost 70% of fatal injuries in Indigenous land transport crashes were 1) a pedestrian injured in a collision with a car, pick-up truck or van (26%), 2) a car occupant injured in a non-collision transport accident (25%), and 3) a car occupant injured in a collision of the car with a fixed or stationary object (16%).

The four most common mechanisms accounting for almost 60% of serious injury in Indigenous land transport crashes were 1) a car occupant injured in a non-collision transport accident (25%), 2) a pedestrian injured in a collision with a car, pick-up truck or van (14%), 3) a pedal cyclist injured in a non-collision transport accident (10%), and 4) a car occupant injured in a collision of the car with a fixed or stationary object (9%).

The five most common mechanisms accounting for 65% of fatal injuries in non-Indigenous land transport crashes are shown in Table 4.9. The three most common involved a car occupant injured 1) in a collision with a fixed or stationary object (22%), 2) in a collision with a car, pick-up truck or van (16%), and 3) in a non-collision car accident (11%). Pedestrians hit by a car, pick-up truck or van constituted only 9% of fatalities.

The five most common mechanisms accounting for over a half of serious injury in non-Indigenous land transport crashes were 1) a motorcyclist injured in a non-collision transport accident (12%), 2) a car occupant injured in a collision with a car, pick-up truck or van (12%), 3) a pedal cyclist injured in a non-collision transport accident (10%), 4) a car occupant injured in a non-collision transport accident (10%), and 5) a car occupant injured in a collision with a fixed or stationary object (8%).

In most fatal (87%) and serious injury (78%) cases involving Indigenous car occupants, the person was reported to be positioned inside the vehicle at the time of the accident. Riding on the outside of the car accounted for only 5% of fatal and 2% of serious injuries (though location was unknown for 8% of the fatally injured car occupants and 18% of those seriously injured) (Tables 4.10 and 4.11). For Indigenous occupants of a pick-up truck or van or a heavy transport vehicle, there were 9 fatalities and 102 serious injury cases in total; however, no fatalities and only 20 serious injury cases were from riding on the outside of the vehicle (though occupant position was unknown for one fatality and 22 persons seriously injured). Most non-Indigenous car occupants were positioned inside the vehicle at the time of the accident for both fatal (96%) and serious (86%) injury.

For non-Indigenous persons, about twice as many drivers compared with passengers were fatally and seriously injured (Tables 4.11 and 4.12). Only a few more car passengers than car drivers were killed among Indigenous persons, but nearly twice as many passengers were seriously injured compared to car drivers. The higher proportion of car passengers relative to car drivers being killed or seriously injured among Indigenous persons, suggests a higher average number of passengers per vehicle compared to non-Indigenous persons, resulting in more persons injured per crash.

Table 4.9: Most common mechanisms of injury for land transport; NT, WA, SA and Qld, 1999–00 to 2003–04

Type of collision	Traffic	Non-Traffic	Total**	Per cent ‡
Fatal injury—Indigenous (n=322)				
Pedestrian injured in a collision with a car, pick-up truck or van		9	84	26.1%
Car occupant injured in a non-collision transport accident	76	4	80	24.8%
Car occupant injured in a collision with a fixed or stationary object	48	*	51	15.8%
Total of the most common mechanisms	199	16	215	66.8%
Serious injury—Indigenous (n=4,761)				
Car occupant injured in a non-collision transport accident	857	279	1,175	24.7%
Pedestrian injured in a collision with a car, pick-up truck or van	508	75	659	13.8%
Pedal cyclist injured in a non-collision transport accident	110	364	474	10.0%
Car occupant injured in a collision with a fixed or stationary object	349	63	413	8.7%
Total of the most common mechanisms	1,824	781	2,721	57.2%
Fatal injury—non-Indigenous (n=3,523)				
Car occupant injured in a collision with a fixed or stationary object	774	8	782	22.2%
Car occupant injured in a collision with a car, pick-up truck or van	561	4	566	16.1%
Car occupant injured in a non-collision transport accident	353	16	372	10.6%
Pedestrian injured in a collision with a car, pick-up truck or van	286	27	315	8.9%
Car occupant injured in a collision with a heavy transport vehicle	270	0	270	7.7%
Total of the most common mechanisms	2,244	55	2,305	65.4%
Serious injury—non-Indigenous (n=84,249)				
Motorcyclist injured in a non-collision transport accident	3,333	7,088	10,464	12.4%
Car occupant injured in a collision with a car, pick-up truck or van	9,926	286	10,274	12.2%
Pedal cyclist injured in a non-collision transport accident	1,907	6,442	8,382	9.9%
Car occupant injured in a non-collision transport accident	5,549	2,369	8,326	9.9%
Car occupant injured in a collision with a fixed or stationary object	5,446	1,310	6,798	8.1%
Total of the most common mechanisms	26,161	17,495	44,244	52.5%

Note: Shading denotes whether the mechanism occurs more frequently in traffic or non-traffic conditions.

* Small counts are omitted.

** This includes cases where it is unspecified as to whether the crash occurred in traffic or non-traffic conditions.

‡ Per cent of total fatal injuries or serious injuries for the relevant group.

Table 4.10: Mechanism of fatal injury for car occupants; NT, WA, SA and Qld, 1999–00 to 2003–04

Injured person	Counterpart in collision									Total	
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident [†]		Other and unspecified transport accidents
Fatal injury—Indigenous (n=322)											
Car occupant	18	0	0	*	11	*	0	51	80	5	169
• Driver	6	0	0	*	6	*	*	28	32	*	75
• Passenger (inside of vehicle)	12	0	0	*	4	0	0	21	32	*	72
• Passenger (outside of vehicle)	0	0	0	0	0	0	*	*	7	0	9
• Boarding or alighting	0	0	0	0	0	0	0	0	0	0	0
• Unspecified	0	0	0	0	*	0	0	0	9	*	13
Fatal injury—non-Indigenous (n=3,523)											
Car occupant	566	4	*	9	270	13	*	782	372	42	2,060
• Driver	381	*	0	6	189	9	*	554	185	9	1,337
• Passenger (inside of vehicle)	177	*	0	*	77	4	*	212	156	13	643
• Passenger (outside of vehicle)	*	0	0	0	0	0	0	0	*	0	4
• Boarding or alighting	*	0	0	0	0	0	*	3	24	0	28
• Unspecified	6	0	0	*	4	0	*	13	4	20	48

Note: Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

*Small counts are omitted.

Deaths are five-year totals, occurring during 1999–00 to 2003–04 for which an 'external cause' was coded as the Underlying Cause of Death (ICD-10 V01–V89.9).

[†] Includes non-collision accidents such as overturning, falling or being thrown from a vehicle. It is possible this category may have been used as a residual (i.e. 'dump') code for cases lacking information on whether the accident involved a collision with a counterpart, despite the provision of the *other and unspecified* category for this purpose.

Table 4.11: Mechanism of serious injury for car occupants; NT, WA, SA and Qld, 1999–00 to 2003–04

Injured person	Counterpart in collision										Total
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident†	Other and unspecified transport accidents	
Serious injury—Indigenous (n=4,761)											
Car occupant	281	*	0	33	43	0	*	413	1,175	321	2,270
• Driver	97	*	0	10	16	0	*	169	358	11	663
• Passenger (inside of vehicle)	173	0	0	20	25	0	0	229	643	26	1,116
• Passenger (outside of vehicle)	0	0	0	0	0	0	*	*	39	0	40
• Boarding or alighting	*	0	0	0	*	0	*	*	41	0	47
• Unspecified	9	0	0	*	*	0	*	12	94	284	404
Serious injury—non-Indigenous (n=84,249)											
Car occupant	10,274	66	5	248	851	53	37	6,798	8,326	3,095	29,753
• Driver	6,424	44	*	155	598	36	20	4,497	4,411	409	16,597
• Passenger (inside of vehicle)	3,562	20	*	74	232	14	14	2,133	2,781	300	9,132
• Passenger (outside of vehicle)	62	*	0	*	5	*	*	42	408	0	522
• Boarding or alighting	26	*	0	10	*	*	*	24	266	0	331
• Unspecified	200	0	*	7	14	*	*	102	460	2,386	3,171

Note: Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

* Small counts are omitted.

Cases are five-year totals for 1999–00 to 2003–04 and include cases where Principal Diagnosis was coded to ICD-10-AM S00–T98.

† Includes non-collision accidents such as overturning, falling or being thrown from a vehicle. It is possible this category may have been used as a residual (i.e. 'dump') code for cases lacking information on whether the accident involved a collision with a counterpart, despite the provision of the *other and unspecified* category for this purpose.

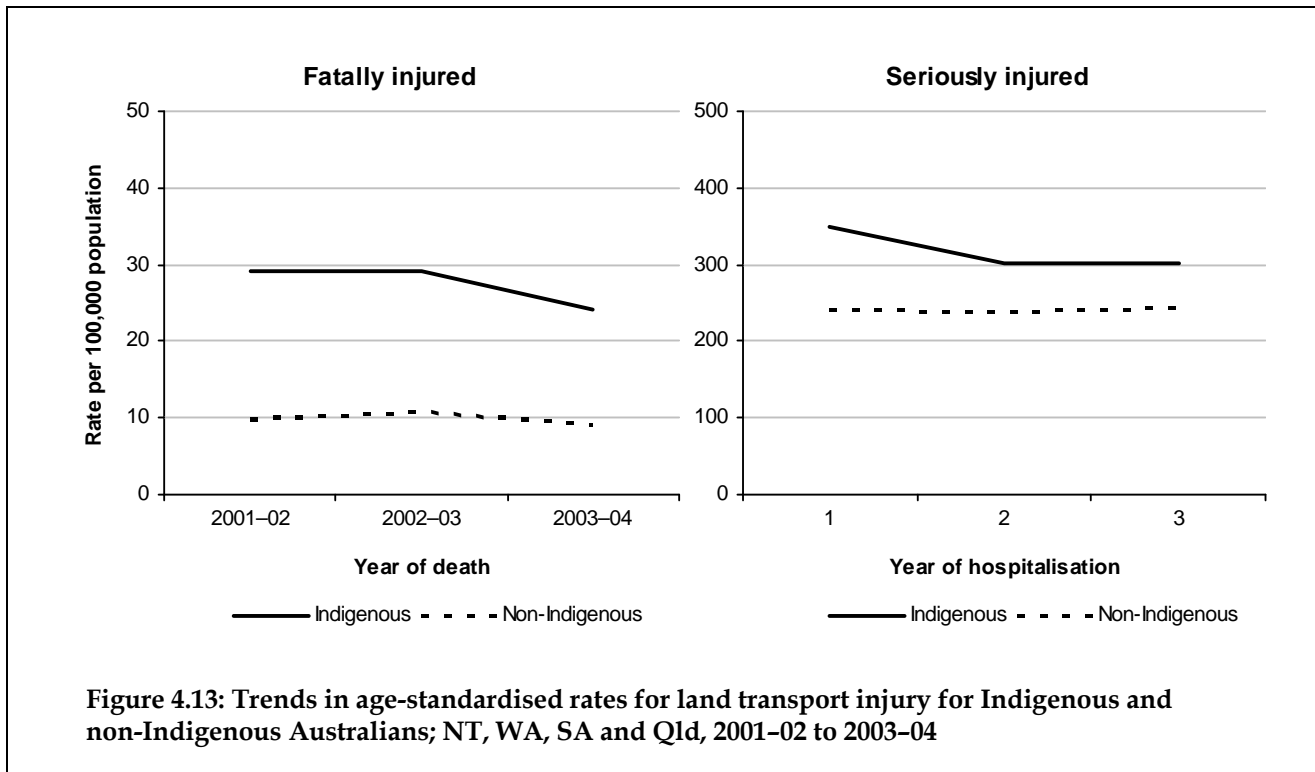
Time trends

Table 4.12 and Figure 4.13 depict age-standardised rates of serious and fatal injury over three years (2001–02 to 2003–04) for which both injury case numbers and population numbers were available by age and gender. Results must be interpreted with caution as it is possible that any trends in fatal or serious injury rates for Indigenous people may be influenced by changing levels of ascertainment of Indigenous status or injury deaths over time. This issue is discussed in 'Data issues' in the Appendix.

Table 4.12: Trends in age-standardised rates of fatal and serious injury by Indigenous status; NT, WA, SA and Qld, 2001–02 to 2003–04

	Age-standardised rate per 100,000 population (95% CI)					
	Fatally injured			Seriously injured		
	2001–02	2002–03	2003–04	2001–02	2002–03	2003–04
Indigenous						
Males	33 (22–48)	37 (27–51)	39 (25–59)	495 (452–538)	433 (394–471)	402 (362–442)
Females	26 (17–38)	21 (13–33)	11 (6–18)	211 (185–238)	177 (154–201)	210 (184–236)
Persons	29 (22–38)	29 (22–38)	24 (17–33)	344 (325–374)	301 (279–324)	302 (279–325)
Non-Indigenous						
Males	15 (13–16)	16 (15–17)	13 (12–15)	139 (135–143)	143 (139–147)	141 (137–145)
Females	5 (4–6)	6 (5–6)	5 (4–5)	342 (335–348)	334 (327–340)	345 (339–352)
Persons	10 (9–10)	11 (10–12)	9 (8–10)	241 (237–245)	239 (236–243)	244 (240–248)

Age-standardised rates of fatal injury due to land transport crashes declined among Indigenous people from 29 per 100,000 in 2001–02 to 24 per 100,000 in 2003–04. Rates of serious injury due to land transport crashes declined among Indigenous people from 344 per 100,000 in 2001–02, to 302 per 100,000 in 2003–04. The 95% confidence intervals overlap for both fatal and serious injury when comparing 2001–02 with 2003–04, so the difference is unlikely to be statistically significant. Fatal injury rates for Indigenous males increased, whereas serious injury rates for Indigenous males declined from 2001–02 to 2003–04 (Table 4.12). Fatal injury rates for Indigenous females declined, whereas serious injury rates for Indigenous females stayed relatively constant. Non-Indigenous rates of fatal and serious injury due to land transport crashes were constant over the three year period (Table 4.12).



Trends in the age-standardised rates of fatal and serious injury over three years and by mode of transport are shown in Figure 4.14. The different profiles of land transport injury for Indigenous people compared with non-Indigenous people are depicted. Small numbers for Indigenous people meant that confidence intervals were wide for each mode of transport, with the implication being that sample sizes were not large enough to determine whether a trend was statistically significant or influenced by random variation. However, although caution must be taken in interpretation, there appeared to be a decreasing trend in the rate of fatal and serious injury for Indigenous pedestrians since 2001-02. Furthermore, there did not appear to be an increase in the rate of serious injury among Indigenous people for any mode of transport since 2001-02. As further years of data become available, it will be possible to see whether these trends continue or whether they are in fact, chance fluctuations or effects of data issues. For non-Indigenous people during the period 2001-02 to 2003-04, there appeared to be a slight increase in the age-standardised rate of serious injury for motorcyclists.

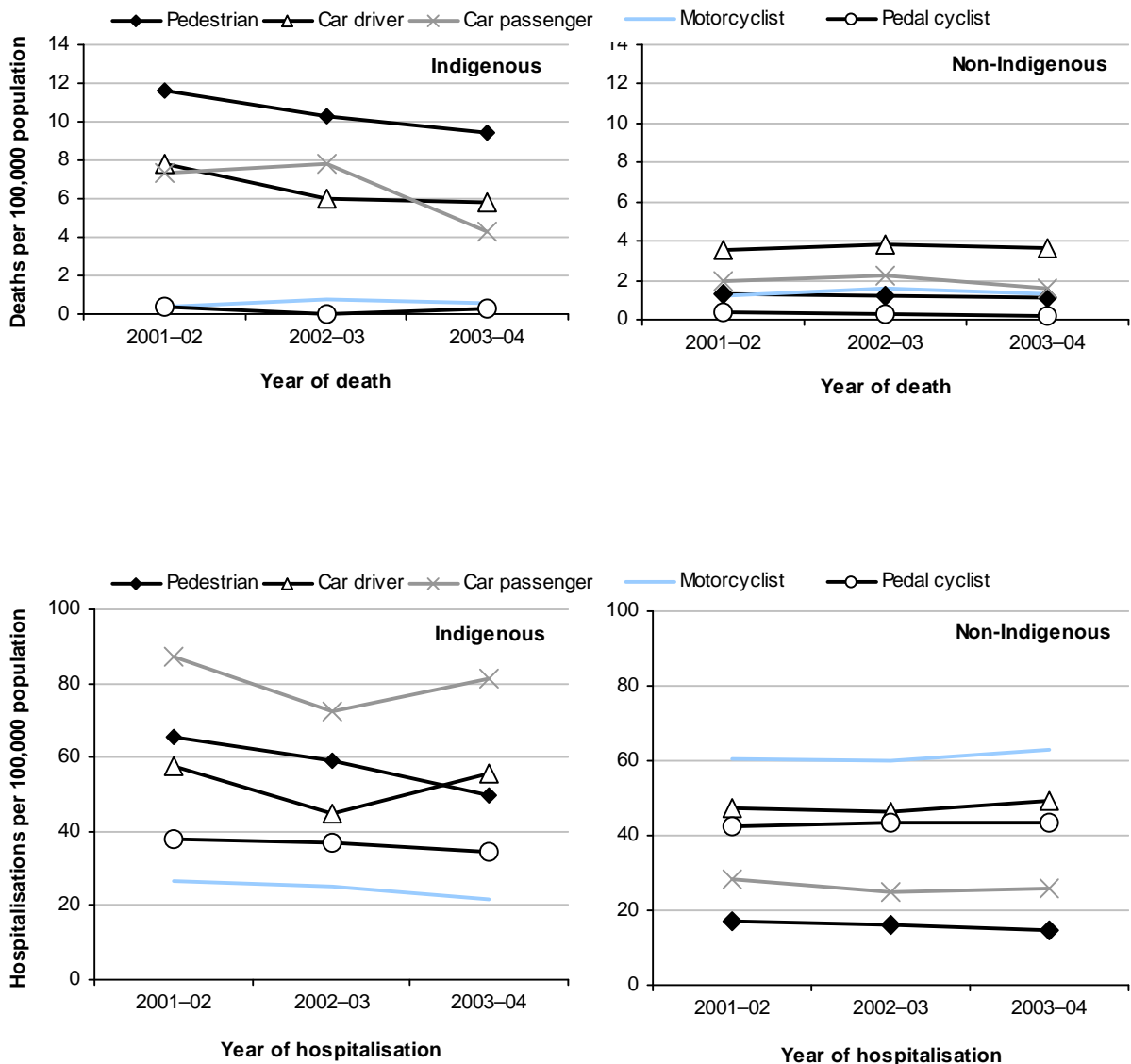


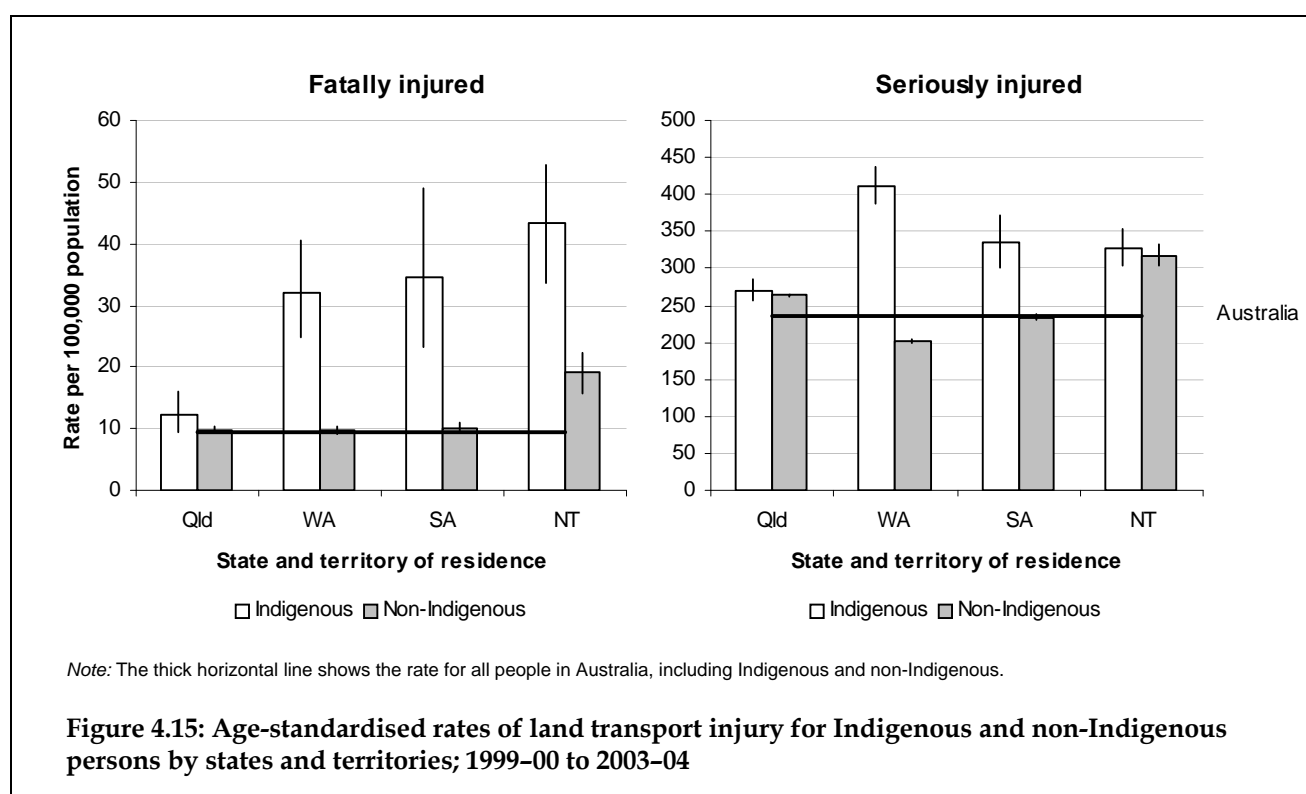
Figure 4.14: Trends in age-standardised rates of fatal and serious injury by mode of transport; NT, WA, SA and Qld, 2001-02 to 2003-04

State and territory differences

In Western Australia, South Australia and the Northern Territory, the Indigenous age-standardised rate of fatal injury due to land transport crashes was significantly higher than the national rate (the rate for all people in Australia) (Figure 4.15). In Queensland, the Indigenous rate of fatal injury was 32% higher than the national rate but the 95% confidence intervals overlap those of the national rate. The rate of fatal injury among non-Indigenous persons in Queensland was similar to the national rate. In Western Australia and South Australia, the Indigenous rates of fatal injury were 3.4 and 3.7 times greater than the national rate, respectively. The rates of fatal injury among non-Indigenous persons in Western Australia and South Australia were similar to the national rate. In the Northern Territory, the Indigenous rate of fatal injury was 4.6 times greater than the national rate and the rate of fatal injury among non-Indigenous persons was twice the national rate.

The Indigenous age-standardised rates of serious injury due to land transport crashes were significantly higher than the national rate for all four jurisdictions (Figure 4.15). In Queensland, the age-standardised rates of serious injury were similar for Indigenous and non-Indigenous persons and were 14% and 12% above the national rate, respectively. In Western Australia, the Indigenous rate was 74% higher than the national rate, whereas the non-Indigenous rate was 15% below the national rate. In South Australia, the Indigenous rate of serious injury was 42% above the national rate whereas the rate of serious injury among non-Indigenous persons was similar to the national rate. In the Northern Territory, the age-standardised rates of serious injury were similar for Indigenous and non-Indigenous persons and were 39% and 35% above the national rate, respectively.

The Indigenous rates of fatal and serious injury appear to be lower in Queensland compared to Western Australia, South Australia and the Northern Territory. However, there is evidence that completeness of ascertainment of Indigenous status in deaths and hospitalisation data differs between the four jurisdictions and is lowest in Queensland (see 'Data issues' in the Appendix). This may partly explain the apparently much lower fatality and serious injury rates in Queensland.



Other literature

The 2002 National Aboriginal and Torres Strait Islander Social Survey (ABS 2004a) is a survey of 9,400 Indigenous people aged 15 years and over. On the subject of motor vehicle access and difficulties with transport, the survey revealed that Indigenous people were more likely than non-Indigenous people to have difficulty getting to the places that they needed to get to. Whilst 85% of non-Indigenous Australians aged 18 years and above had access to a motor vehicle to drive, only around 60% of Indigenous Australians had such access. Only 4% of non-Indigenous Australians reported that they couldn't get around, or had trouble doing so, whereas the percentage of Indigenous Australians with such transport difficulties was 12%. Transport difficulties were a larger problem for Indigenous persons compared to non-Indigenous persons, irrespective of the state or territory of residence in Australia.

A joint report by the Australian Bureau of Statistics (ABS) and the Australian Institute of Health and Welfare (AIHW) presented data for the 2001 Census which revealed that 23% of Indigenous households were without a motor vehicle in 2001, whereas only 10% of non-Indigenous households had no vehicle (ABS and AIHW 2005). In terms of remoteness of residence, the Indigenous households most likely to be without a vehicle were those in remote and very remote areas. The ABS/AIHW report surmised that the greater access of non-Indigenous people to personal transport and the assistance provided by public transport in certain areas, placed them at an advantage for obtaining health services. Given the information from the National Aboriginal and Torres Strait Islander Social Survey and the ABS/AIHW report, it is likely that transport difficulties arising from the lack of access to a motor vehicle for Indigenous Australians in remote and very remote areas, may be further exacerbated by a lack of public transport in such regions.

Appendix: Data issues

Comparability with other ATSB reports

National cause of death data (mortality data) are collected in Australia by the Australian Bureau of Statistics (ABS) and classified in accordance with an international standard classification called the International Statistical Classification of Diseases (ICD). Australian hospitals also use ICD when compiling data on persons injured and subsequently admitted to hospital (morbidity data). This conjuncture provides a basis for consolidation of mortality and morbidity data.

ICD provides a nationally consistent basis for looking at mortality and morbidity due to transport accidents of all kinds (road, rail, water and air) taken together. However, it is not necessarily consistent with the approach taken by the Australian Transport Safety Bureau (ATSB) or others in looking at safety in each transport mode individually. For example, road safety statistics compiled by the ATSB are focused on crashes on public roads, whereas ICD covers road crashes both on and off public roads. Aviation statistics compiled by the ATSB do not cover hang-gliders, gliders and other forms of non-powered aircraft, whereas ICD does. For national road deaths, therefore, readers should refer to the 'road safety/statistics' part of the ATSB website at <www.atsb.gov.au>, where road death statistics are published on a monthly basis. Similarly, for details on marine, rail and air safety (aviation death statistics are published monthly), the relevant part of the ATSB website should be consulted. The purpose here is to provide a general overview rather than to focus on each mode in detail.

Deaths

Deaths data in this report are from the ABS mortality unit record data collection. Data are presented according to the year in which the deaths occurred (this is different from previous reports that have reported deaths according to year of registration).

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

- Date of death occurring 1 July 1999 to 30 June 2004 and registered by 31 December 2004 (received from the ABS in March 2006);
- The Underlying Cause of Death (UCoD) is classified to ICD-10 (WHO, 1992) external cause codes in the range V01-V99 (i.e. the 'Transport Accidents' section of Chapter XX *External causes of morbidity and mortality*); and
- Place of usual residence is recorded as the Northern Territory (NT), Western Australia (WA), South Australia (SA) or Queensland (Qld).

The ICD-10 classification system excludes any death from being coded in the V01-V99 range if the death is attributable to injuries sustained during a transport accident, but the death occurred one year or more after the originating event. Such cases are coded as Y85 '*Sequelae* ['late effects'] *of transport accidents*'.

Deaths were defined as being due to transportation if they contained a Chapter 20 underlying cause of death code for 'Transport Accidents' (ICD-10 range V01-V99). Cases in which a code in this range appears only as a multiple cause of death (2nd or subsequent codes) were excluded on the grounds that transport was not recorded as the main reason for death (Table A1). Almost all records (99%) contained an injury code (S00-T98) as a multiple cause of death in the 2nd or subsequent codes. Deaths were included regardless of whether or not they had a multiple cause of death of injury (S00-T98), resulting in a starting file of 4,056 records.

Table A1: Selection criteria for death records of transport injury

Record occurring from 1 July 1999 to 30 June 2004	Indigenous	Non-Indigenous	Total
Records with an ICD-10 'Transport Accident' code (V01–V99) as underlying cause, or multiple cause of death (i.e. transportation coded anywhere in the record)*	326	3,766	4,092
Records with a 'Transport Accident' as underlying cause of death†, and	325	3,731	4,056
• Injury (S00–T98) as a multiple cause of death anywhere in the record	322	3,678	4,000

* There were 43 records (all but a few records were non-Indigenous) with another underlying cause of death (e.g. suicide, homicide) or no external cause (n=40; of which 32 had an injury code elsewhere in the record).

† Included were 7 records (all but a few records were non-Indigenous) with an underlying cause of death being 'R99, other ill-defined and unspecified causes of mortality' which were identified using the National Coroners Information System as transport-related and recoded as such.

Serious injury

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

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

Hospital cases were defined as being due to transportation if they contained a first reported Chapter 20 external cause code in the ICD-10-AM range V01–V99. Cases with a Principal Diagnosis other than injury and cases in which an external cause code for transportation only appears as an Additional Diagnosis were excluded on the grounds that injury due to a transport accident was not recorded as being the main reason for admission to hospital (Table A2), resulting in a starting file of 103,528 records.

Table A2: Selection criteria for hospital records of transport injury

Record occurring from 1 July 1999 to 30 June 2004	Indigenous	Non-Indigenous	Total
Records with an ICD-10-AM 'Transport Accident' code (V01–V99) as external cause anywhere in the record*	6,242	109,711	115,953
Records with a 'Transport Accident' as first reported external cause†, and	6,186	108,797	114,965
• Injury as a Principal Diagnosis (S00–T98)	5,543	97,985	103,528

* There were 988 records (74 Indigenous and 914 non-Indigenous) with a first reported external cause code of another type of injury (e.g. complications of surgical and medical care, other unintentional injuries, falls, intentional self-harm etc.) but a 2nd or subsequent external cause code of transportation.

† There were 11,437 cases (625 Indigenous and 10,812 non-Indigenous) with a first reported external cause code of transportation but a Principal Diagnosis outside of the injury range (S00–T98). For Indigenous persons, the most common Principal Diagnoses were *care involving use of rehabilitation procedure, unspecified* (n=134), *examination and observation following transport accident* (n=96) and *cellulitis of lower limb* (n=37). For non-Indigenous persons, the most common Principal Diagnoses were *care involving use of rehabilitation procedure, unspecified* (n=2,411), *examination and observation following transport accident* (n=1,018), *care involving use of other rehabilitation procedures* (n=961), *other physical therapy* (n=408) and *other specified orthopaedic follow-up care* (n=405).

Seriously injured is defined for this report as an injury which results in the person being admitted to hospital, and subsequently discharged alive either on the same day or after one or more nights stay in a hospital bed (i.e. deaths are excluded). The terms *seriously injured* and *hospitalisations* are used interchangeably in the report. As discharge from hospital can include transfer to home, to another acute care hospital and to another form of care (e.g. rehabilitation), a method has been used in this report to reduce over-counting of injury cases by omitting separations in which the mode of admission is recorded as being by transfer from another acute-care hospital, on the grounds that such cases are likely to result in two or more separation records for the same injury.

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

- Australian hospital separations occurring 1 July 1999 to 30 June 2004, coded according to the first, second and third edition of ICD-10-AM (NCCH 1998; 2000; 2002);
- Principal Diagnosis in the ICD-10-AM range S00-T98 using Chapter XIX *Injury, poisoning and certain other consequences of external causes* codes;
- First (left-most) external cause of morbidity in ICD-10-AM range V01-V99 (i.e. the 'Transport Accidents' section of Chapter XX *External causes of morbidity and mortality*);
- Mode of admission has any value except the one indicating that transfer from another acute-care hospital has occurred;
- Mode of separation has any value except the one indicating that the person died while in hospital; and
- Place of usual residence is recorded as the NT, WA, SA and Qld.

The calculation of transport accidents as a percentage of all injury hospital separations and the calculation of total patient days (including same day, which are assigned a stay of one day) requires the inclusion of all hospital separations (i.e. not omitting separations in which the mode of admission is recorded as being by transfer from another acute-care hospital or separations in which the person died in hospital).

Ascertainment of Indigenous status

The ABS and the AIHW recommend that Indigenous statistics only be reported for jurisdictions with a sufficient level of Indigenous identification (ABS and AIHW 2005; AIHW 2005b). For deaths data, these jurisdictions are the NT (94%), WA (72%), SA (66%) and Qld (53%) (ABS 2005a).

For hospitalisation data, the level of completeness of identification of Indigenous status is assessed annually by each jurisdiction and provided to the AIHW. For the period 2001-04, only the NT, WA and SA reported that the quality of Indigenous status was acceptable (AIHW 2003a; AIHW 2005a). However, the AIHW recommend that Qld be included with the NT, WA and SA in analyses of hospital separations data, as the four jurisdictions, in aggregate, better reflect the diversity of social and economic circumstances in the Indigenous and non-Indigenous populations than the three jurisdictions (NT, WA and SA) in aggregate (AIHW 2005b). The four jurisdictions account for 75% of national hospital separations reported as being for Indigenous people and 39% of national hospital separations. Similarly, they account for 60% of the Indigenous population of Australia and 38% of the population of Australia (AIHW 2005b). The same AIHW publication advises caution be exercised in time series analyses for these four jurisdictions, and findings should include a caveat about the possible contribution to changes in hospitalisation rates for Indigenous people of changes in ascertainment of Indigenous status for Indigenous patients (AIHW 2005b).

Analyses of Indigenous mortality trends must be undertaken with care, because of the limited understanding of the ways in which changes in the recording of Indigenous status on death registrations have affected the recorded numbers of deaths (AIHW 2005b). In a recent AIHW publication, longer term mortality trends for 1991-02 were reported for only three jurisdictions (SA, WA and the NT) as it was decided these were the only jurisdictions with 12 years of reasonable coverage of Indigenous deaths registrations (ABS and AIHW 2005).

Estimates of the extent to which Indigenous Australians are identified in mortality data ('coverage') are determined by the ABS for each state and territory by comparing the number of deaths from all causes registered as Indigenous with expected numbers calculated from census-based population estimates and projections (ABS, 2005a). Implied coverage of Indigenous status in deaths data from 1999-04 is shown in Table A3. Coverage appears to be reasonable for the four jurisdictions over the time-period 1999-04 that will be the subject of this report.

Table A3: Implied coverage† of Indigenous deaths

Jurisdiction	1999*	2000–04**
Western Australia	68%	72%
South Australia	57%	66%
Northern Territory	83%	94%
Queensland	55%	53%
New South Wales	43%	46%
Australian Capital Territory	27%	(a)
Victoria	59%	35%
Tasmania	8%	(a)

† The implied coverage of Indigenous deaths is a comparison of the number of deaths from all causes registered as Indigenous with the census-based estimates and projections of Indigenous deaths.

* 1996 census-based (ABS, 2002). **2001 census based (ABS, 2005a).

(a) Not calculated due to small numbers.

Hospital separations and deaths for which Indigenous status was ‘not stated’ are amalgamated with the separations for the non-Indigenous people. This approach is consistent with the approach taken by the AIHW which have observed that the number of such cases is small and the demographic profile of the ‘not stated’ cases is similar to the non-Indigenous cases (AIHW 2005b).

Under-ascertainment of Indigenous status will necessarily mean over-estimating non-Indigenous deaths and hospitalisations. This is because some people who could correctly be recorded as Aboriginal and Torres Strait Islander will in fact be recorded as non-Indigenous or Indigenous status ‘not stated’. This is unlikely to have a significant impact on the calculation of rates in major cities and inner and outer regional areas where a small proportion of the population is Indigenous, but a report by the AIHW highlights that misclassification is likely to be a greater problem in remote areas (where a much larger proportion of a smaller population is Indigenous) (AIHW 2003b). The exact magnitude of this error is unknown, as there is a body of work suggesting that ascertainment of Indigenous status may be better in remote areas compared to urban areas (AIHW 2003b).

In summary, this report presents mortality and morbidity statistics for the four jurisdictions, Queensland, South Australia, Western Australia and the Northern Territory. Indigenous persons are compared to non-Indigenous people (includes non-Indigenous and not stated) in the same four jurisdictions. The reported mortality and morbidity burden of Indigenous people due to transport injury is likely to be an underestimate, due to the less than complete identification of Indigenous people in hospital and deaths data collections in these jurisdictions.

Data quality

The aspects of the quality of mortality data most pertinent to this project are the completeness of the set of death records available for analysis, the identification and coding of causes of death, and the identification and coding of Indigenous status. The last of these issues is discussed above. The others are considered here.

The ABS mortality data result from a process in which that agency obtains data from state and territory Registrars of Death which, in turn, obtain information from the doctor or coroner who certifies each death, and from a relative or other person who knew the deceased person. The ABS codes causes of death according to the 10th revision of the International Classification of Diseases (ICD-10). If a death was due to an injury, the ICD-10 requires coding of the ‘external cause’ of the injury. Doing this requires additional information, which the ABS normally seeks from the National Coroners Information System (NCIS), a national electronic repository of data on coroner cases.

For most deaths, this process results in a record in an annual ABS mortality data file that summarises characteristics of the person (e.g. age, sex and Indigenous status) and his or her death (e.g. date, jurisdiction, causes). There are some circumstances in which this does not occur, and this can result in some deaths being recorded in a way that leads to under- or over-estimation of deaths from a particular cause, such as transport injury, and perhaps to omission of some deaths. Since the ABS practice is not to update mortality data files once released, such cases will remain missing or misclassified.

The main type of problem that has been identified occurs when the ABS is aware of a death, but does not have complete and final information on its causes by the time of the ABS processing cut-off date for the relevant annual data file. This can occur if a coroner is still investigating the death, or if information about it has not been entered into the NCIS. Under these circumstances, the ABS applies ICD-10 coding rules to the limited information on hand. If no information is available about the cause of death, then the case will be coded to R99, 'Other ill-defined and unspecified causes of death'. If a death is known to be due to an injury, but the cause of the injury is not known, then ICD-10 rules dictate that it should be coded to X59, 'Exposure to unspecified factor'.

Late in preparation of this project report, addition of certain data from the ABS to the NCIS made it possible for us to begin to assess these and related potential problems with deaths data for most of the study period. This development occurred too late to allow comprehensive assessment for this project. Limited analysis was undertaken, focusing on deaths coded to ICD-10 code R99, to check whether any of these are, on the basis of information available on the NCIS site in December 2006, in-scope for this project. We found 182 closed cases coded to R99 in NCIS with dates of notification up to the end of 2004, which occurred in the NT, WA, SA or Qld, and had been recorded in the NCIS as due to an external cause. After inspecting NCIS records, we concluded that 17 of these were due to transport injuries. Most of these (n=10) occurred in the latter part of 2004, after the end point for this project (deaths to 30 June 2004), but 7 were in-scope. We assigned appropriate ICD-10 codes to these cases, in place of R99, and conducted analysis on this basis.

Further work of this type will benefit future editions of this report and other reports based on mortality data. In particular, we anticipate finding deaths truly due to transport injury among cases coded to X59. Preliminary indications are that the number will be similar to the number of transport deaths coded to R99.

These preliminary investigations of mortality data quality provide a basis for concluding that while the data source provides an adequate basis for routine mortality statistics, there is room for improvement. Recent developments of the NCIS enable a new way to achieve such improvements, by reviewing and revising data supplied by the ABS to make use of information that comes available after the ABS cut-off dates. In addition, the ABS and the NCIS are engaged in collaborative efforts to improve the quality of the data initially released by the ABS.

Assessment of mortality data completeness

About 86% of cases in the file used for this project are recorded as being due to traffic accidents. The numbers of traffic fatalities in the project file should be similar to numbers of deaths reported in the ATSB Monthly Fatality Crash Database (MFCD).

Figure A1 shows counts from these two sources by financial year and jurisdiction. Note that there are differences in the definition of data from the two systems. 'Year' is year of crash in the MFCD and year of death in the project data. For the MFCD, jurisdiction is the one in which the crash occurred, while for project data it is the place of usual residence of the deceased person.

Despite these conceptual differences, counts of traffic fatalities according to the two sources are very similar.

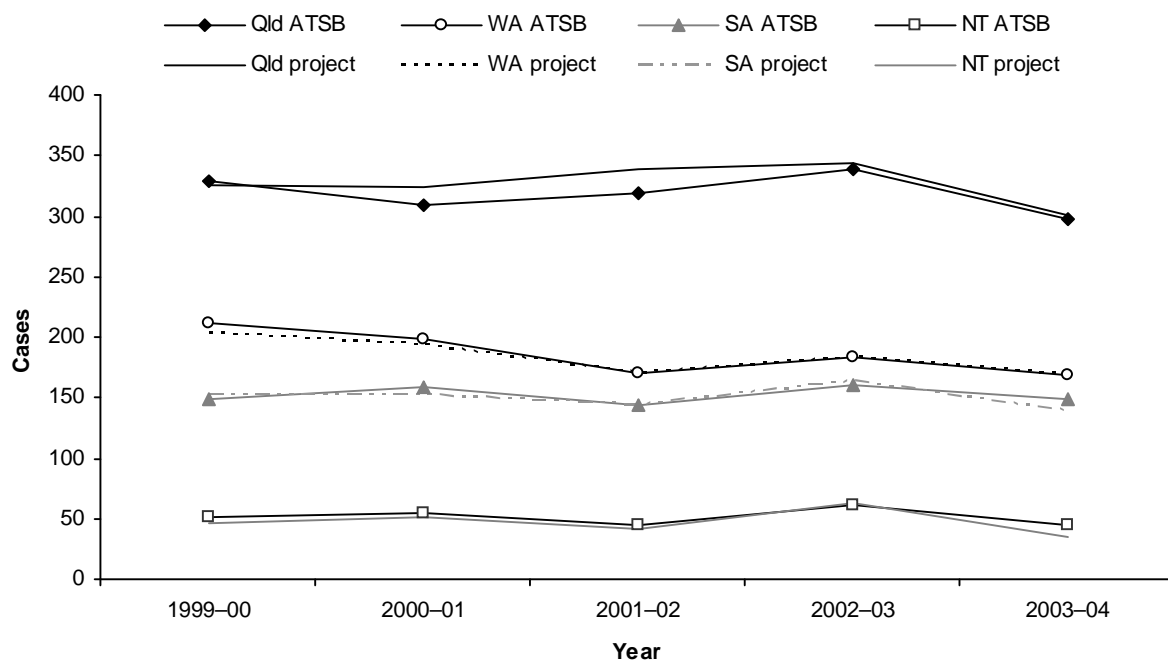


Figure A1: Road traffic fatality case numbers in the study jurisdictions according to ABS data and the ATSB Monthly Fatality Crash Database

Population and other denominators

All Indigenous rates in this report were calculated using, as the denominator, the 'low series' ABS experimental population projections of the Indigenous population in the NT, WA, SA and Qld and were based on the 2001 Census (ABS 2004b). Non-Indigenous rates were derived using, as the denominator, non-Indigenous population numbers that were calculated by subtracting Indigenous numbers from the total population for these jurisdictions (ABS 2005c).

Remoteness zones in this report refer to the place of usual residence of the person who died or was admitted to hospital (see p. 20). The remoteness zones were specified according to the ABS Australian Standard Geographical Classification (ASGC) (ABS, 2001). Population numbers by ASGC remoteness structure of Australia were obtained as an unpublished data file from the ABS. Indigenous and non-Indigenous rates for each remoteness zone were calculated using the respective population numbers for each remoteness zone. Direct standardisation was used to age-standardise rates, using the Australian population in 2001 as the standard (ABS 2003). Confidence intervals (95%; based on a Poisson distribution) were calculated using a method elsewhere described (Anderson & Rosenburg 1998).

ABS datasets such as the motor vehicle census (ABS 2005b) and the survey of motor vehicle use (ABS 2005d) did not contain any information on Indigenous status. Therefore it was not possible to report Indigenous injury rates using the kilometres travelled or number of vehicles registered as denominators.

Suppression of small cell counts in tables

Cell counts in tables that are three 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. In the instances where only one cell in a row or column has a count three or less, counts of one or more other cells in the same row or column have generally also been suppressed.

Table A4: Age specific death rates by mode of transport for traffic conditions; NT, WA, SA and Qld, 1999–00 to 2003–04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist						
Male						Male					
0–4	2.2	0.0	0.0	0.0	0.0	0–4	0.7	0.0	1.9	0.0	0.0
5–9	4.2	0.0	0.0	1.1	*	5–9	0.6	0.0	1.3	0.1	0.2
10–14	1.2	0.0	5.8	0.0	*	10–14	1.0	0.1	1.5	0.4	0.8
15–19	11.4	11.4	11.4	2.9	0.0	15–19	2.9	11.4	8.7	2.0	1.0
20–24	3.5	17.5	22.8	5.3	0.0	20–24	2.6	14.2	4.6	5.4	0.3
25–29	14.2	10.7	1.8	1.8	0.0	25–29	1.8	8.4	3.0	4.9	0.6
30–34	13.8	15.7	5.9	0.0	*	30–34	1.6	7.9	2.0	5.5	0.2
35–39	24.9	18.1	11.3	0.0	0.0	35–39	0.9	5.7	1.7	4.7	0.5
40–44	11.0	11.0	8.3	2.8	0.0	40–44	1.2	4.7	0.9	2.1	0.4
45–49	20.9	7.0	14.0	0.0	0.0	45–49	1.7	4.4	0.9	1.4	0.4
50–54	13.7	4.6	0.0	0.0	0.0	50–54	1.6	4.6	0.7	1.7	0.2
55–59	14.3	7.1	0.0	0.0	0.0	55–59	1.6	2.7	0.0	0.9	0.3
60–64	10.0	20.0	0.0	0.0	0.0	60–64	1.2	5.0	1.5	0.7	0.4
65+	11.8	11.8	5.9	0.0	0.0	65+	4.1	6.4	1.8	0.6	0.5
All ages	9.0	7.7	6.3	1.2	*	All ages	1.8	5.5	2.2	2.2	0.4
Female						Female					
0–4	6.8	0.0	5.7	0.0	0.0	0–4	0.4	0.0	1.3	0.0	0.0
5–9	2.3	0.0	2.3	0.0	0.0	5–9	0.6	0.0	0.8	0.0	0.0
10–14	0.0	1.2	0.0	0.0	0.0	10–14	0.7	0.0	1.2	0.0	0.1
15–19	2.9	1.4	5.8	0.0	0.0	15–19	0.7	3.5	4.2	0.1	0.0
20–24	8.4	6.7	8.4	0.0	0.0	20–24	0.7	3.8	2.8	0.5	0.1
25–29	5.0	3.3	5.0	0.0	0.0	25–29	0.2	2.8	1.7	0.5	0.0
30–34	3.6	7.1	7.1	0.0	0.0	30–34	0.2	1.8	0.5	0.3	0.0
35–39	16.5	4.1	8.3	0.0	0.0	35–39	0.4	1.9	1.0	0.4	0.1
40–44	7.8	2.6	5.2	0.0	0.0	40–44	0.4	2.7	0.8	0.2	0.0
45–49	16.1	6.5	9.7	0.0	0.0	45–49	0.3	2.3	1.0	0.3	0.0
50–54	8.5	0.0	4.3	0.0	0.0	50–54	0.0	2.2	0.8	0.1	0.3
55–59	0.0	0.0	0.0	0.0	0.0	55–59	0.4	2.5	1.5	0.1	0.0
60–64	0.0	7.9	0.0	0.0	0.0	60–64	0.7	2.3	1.5	0.1	0.0
65+	9.0	0.0	9.0	0.0	0.0	65+	1.8	2.7	2.3	0.0	0.0
All ages	5.8	2.6	5.0	0.0	0.0	All ages	0.6	2.1	1.6	0.2	0.0

*Small counts are omitted.

Table A5: Age specific death rates by mode of transport for non-traffic conditions; NT, WA, SA and Qld, 1999-00 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	3.3	0.0	0.0	0.0	0.0	0-4	0.4	0.0	0.0	0.1	0.0
5-9	0.0	1.1	0.0	0.0	0.0	5-9	0.2	0.0	0.0	0.2	0.0
10-14	0.0	0.0	*	0.0	0.0	10-14	0.1	0.0	0.1	0.7	0.0
15-19	1.4	1.4	0.0	0.0	0.0	15-19	0.1	0.1	0.2	1.3	*
20-24	0.0	0.0	*	0.0	0.0	20-24	0.0	0.1	0.1	0.5	0.0
25-29	1.8	1.8	*	0.0	0.0	25-29	0.0	0.2	0.1	0.4	0.0
30-34	0.0	0.0	0.0	0.0	0.0	30-34	0.1	0.2	0.2	0.4	0.0
35-39	4.5	0.0	0.0	0.0	0.0	35-39	0.2	0.0	0.1	0.4	0.0
40-44	2.8	0.0	0.0	0.0	0.0	40-44	0.1	0.0	0.0	0.2	0.0
45-49	0.0	7.0	0.0	0.0	0.0	45-49	0.3	0.1	0.1	0.2	0.0
50-54	0.0	0.0	0.0	0.0	0.0	50-54	0.2	0.1	0.0	0.0	0.0
55-59	0.0	0.0	0.0	0.0	0.0	55-59	0.0	0.0	0.0	0.0	0.0
60-64	0.0	0.0	0.0	0.0	0.0	60-64	0.1	0.1	0.0	0.0	0.0
65+	5.9	0.0	0.0	0.0	0.0	65+	0.5	0.2	0.1	0.0	*
All ages	1.3	0.7	*	0.0	0.0	All ages	0.2	0.1	0.1	0.3	*
Female						Female					
0-4	*	0.0	0.0	0.0	0.0	0-4	0.7	0.0	0.0	0.0	0.0
5-9	0.0	0.0	0.0	0.0	0.0	5-9	0.0	0.0	*	0.0	0.0
10-14	0.0	0.0	0.0	0.0	0.0	10-14	0.0	0.0	0.0	0.0	0.0
15-19	0.0	0.0	0.0	0.0	0.0	15-19	0.0	0.0	*	0.0	0.0
20-24	0.0	0.0	0.0	0.0	0.0	20-24	0.0	0.0	0.0	0.0	0.0
25-29	*	0.0	0.0	0.0	0.0	25-29	0.0	0.0	0.0	0.0	0.0
30-34	0.0	0.0	0.0	0.0	0.0	30-34	0.0	0.0	0.0	0.0	0.0
35-39	0.0	0.0	0.0	0.0	0.0	35-39	0.0	0.0	0.0	0.0	0.0
40-44	*	0.0	0.0	0.0	0.0	40-44	0.0	*	0.0	0.0	0.0
45-49	0.0	0.0	0.0	0.0	0.0	45-49	0.1	0.0	0.0	0.0	0.0
50-54	0.0	0.0	0.0	0.0	0.0	50-54	0.0	*	0.0	0.0	0.0
55-59	0.0	0.0	0.0	0.0	0.0	55-59	0.2	0.0	0.0	0.0	0.0
60-64	0.0	0.0	0.0	0.0	0.0	60-64	0.0	0.0	0.0	0.0	0.0
65+	0.0	0.0	0.0	0.0	0.0	65+	0.1	0.0	0.0	0.0	0.0
All ages	*	0.0	0.0	0.0	0.0	All ages	0.1	*	*	0.0	0.0

*Small counts are omitted.

Table A6: Age specific serious injury rates by mode of transport for traffic conditions; NT, WA, SA and Qld, 1999-00 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	36.5	0.0	44.3	1.1	10.0	0-4	8.8	0.3	17.4	1.6	6.7
5-9	28.4	0.0	40.0	7.4	49.4	5-9	17.2	0.4	18.8	7.6	41.0
10-14	23.2	13.9	49.8	17.4	83.4	10-14	17.8	2.2	20.7	30.6	102.9
15-19	40.0	92.9	128.7	42.9	58.6	15-19	22.9	98.0	78.1	94.2	65.7
20-24	80.7	103.5	136.9	52.6	36.8	20-24	19.0	124.9	56.1	144.4	27.4
25-29	64.1	128.2	115.7	46.3	7.1	25-29	13.5	77.7	29.2	118.7	24.9
30-34	94.5	110.2	120.1	31.5	7.9	30-34	11.9	59.9	17.4	90.7	22.3
35-39	120.1	111.0	102.0	9.1	11.3	35-39	9.6	48.8	13.9	74.7	18.0
40-44	79.8	96.3	88.0	22.0	11.0	40-44	8.7	42.7	9.6	59.1	19.8
45-49	66.3	62.8	80.3	7.0	10.5	45-49	7.0	39.2	8.2	41.5	15.8
50-54	59.5	45.8	109.9	13.7	9.2	50-54	7.9	32.3	5.2	27.2	14.1
55-59	64.3	28.6	64.3	14.3	0.0	55-59	7.3	34.1	6.9	21.2	11.7
60-64	89.9	49.9	39.9	0.0	10.0	60-64	8.5	36.7	7.5	13.7	10.7
65+	53.3	35.5	23.7	0.0	23.7	65+	15.3	50.3	10.8	6.5	8.9
All ages	55.9	57.7	82.1	21.3	32.0	All ages	12.8	47.0	21.5	52.5	27.9
Female						Female					
0-4	15.9	0.0	40.9	0.0	5.7	0-4	4.6	0.1	16.9	0.3	2.3
5-9	29.3	0.0	29.3	1.1	24.8	5-9	7.9	0.4	16.8	2.1	20.8
10-14	9.9	2.5	43.4	2.5	21.1	10-14	11.0	0.6	22.7	4.2	26.1
15-19	17.3	26.0	88.2	5.8	4.3	15-19	10.6	69.2	76.5	7.9	7.6
20-24	37.1	43.8	80.9	5.1	8.4	20-24	8.8	67.2	42.4	10.3	5.2
25-29	34.9	31.6	69.8	5.0	0.0	25-29	5.4	51.7	22.3	8.8	3.8
30-34	50.0	37.5	80.3	0.0	3.6	30-34	4.3	38.6	14.9	6.0	4.1
35-39	51.7	37.2	84.7	0.0	2.1	35-39	4.7	34.4	12.6	6.2	3.8
40-44	44.2	44.2	46.8	0.0	5.2	40-44	4.5	34.8	10.7	6.3	5.3
45-49	38.7	22.6	51.6	3.2	3.2	45-49	4.2	36.2	11.8	5.9	4.4
50-54	17.0	29.8	68.2	0.0	0.0	50-54	4.4	31.4	14.5	3.8	4.7
55-59	38.0	44.4	44.4	0.0	0.0	55-59	5.3	36.5	15.6	4.2	3.9
60-64	15.9	0.0	31.7	0.0	0.0	60-64	4.8	33.9	25.3	1.2	2.9
65+	13.6	9.0	18.1	0.0	0.0	65+	16.2	35.5	29.7	1.0	2.3
All ages	28.8	20.8	57.5	2.0	8.4	All ages	7.5	34.0	24.0	4.8	6.7

Table A7: Age specific serious injury rates by mode of transport for non-traffic conditions; NT, WA, SA and Qld, 1999–00 to 2003–04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0–4	29.9	0.0	18.8	2.2	41.0	0–4	14.6	0.3	5.7	3.7	27.4
5–9	8.4	1.1	10.5	17.9	97.8	5–9	8.7	0.2	4.6	31.9	90.9
10–14	4.6	4.6	9.3	46.3	127.4	10–14	6.1	2.7	5.5	111.3	192.5
15–19	11.4	22.9	20.0	61.5	55.8	15–19	6.8	22.5	19.1	154.8	91.4
20–24	1.8	31.6	40.4	47.4	10.5	20–24	6.5	22.3	13.0	147.5	29.0
25–29	5.3	30.3	19.6	39.2	14.2	25–29	6.0	19.0	7.2	98.8	21.6
30–34	23.6	19.7	33.5	39.4	15.7	30–34	4.2	14.4	4.3	73.2	16.5
35–39	11.3	22.7	11.3	27.2	9.1	35–39	4.2	8.7	2.6	50.5	13.5
40–44	11.0	27.5	19.3	27.5	2.8	40–44	4.7	7.8	1.9	35.7	14.0
45–49	10.5	10.5	24.4	17.5	17.5	45–49	4.5	6.6	2.2	24.9	10.7
50–54	4.6	13.7	22.9	0.0	9.2	50–54	5.1	5.0	1.2	15.7	8.9
55–59	7.1	14.3	7.1	0.0	0.0	55–59	4.7	5.7	1.2	13.0	8.5
60–64	20.0	10.0	10.0	10.0	10.0	60–64	3.3	5.4	1.7	10.0	6.9
65+	5.9	5.9	0.0	11.8	17.8	65+	5.0	7.4	2.2	6.4	7.0
All ages	11.8	14.2	18.6	29.7	46.8	All ages	6.0	9.3	5.2	55.7	38.5
Female						Female					
0–4	18.2	0.0	6.8	1.1	23.8	0–4	8.7	0.0	3.8	1.2	13.5
5–9	6.8	0.0	9.0	5.6	65.4	5–9	3.6	0.2	3.4	6.3	44.2
10–14	0.0	1.2	9.9	7.4	41.0	10–14	2.0	0.9	3.6	13.7	37.3
15–19	4.3	5.8	18.8	5.8	14.5	15–19	2.9	12.4	13.7	10.7	7.1
20–24	8.4	6.7	6.7	3.4	3.4	20–24	2.1	12.1	6.8	6.9	3.8
25–29	5.0	5.0	15.0	0.0	3.3	25–29	2.1	6.6	2.7	4.9	4.3
30–34	7.1	3.6	14.3	3.6	3.6	30–34	2.3	6.2	2.1	3.5	3.2
35–39	8.3	10.3	24.8	0.0	2.1	35–39	1.6	5.3	2.2	3.5	3.6
40–44	10.4	13.0	18.2	0.0	2.6	40–44	1.8	5.0	2.1	2.4	3.9
45–49	3.2	6.5	9.7	3.2	3.2	45–49	2.1	4.9	1.4	2.5	2.9
50–54	4.3	21.3	12.8	0.0	4.3	50–54	2.2	3.8	1.5	2.1	3.8
55–59	0.0	0.0	0.0	0.0	0.0	55–59	2.2	4.7	2.3	1.9	5.7
60–64	7.9	7.9	7.9	0.0	7.9	60–64	1.8	4.4	2.3	1.0	4.0
65+	0.0	0.0	0.0	0.0	0.0	65+	5.9	4.6	3.7	1.0	1.3
All ages	6.9	4.6	11.8	3.0	19.2	All ages	3.1	5.1	3.7	4.3	9.3

Table A8: Remoteness zone by seriously injured person's vehicle: Major cities; NT, WA, SA and Qld, 2000-01 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	55.8	0.0	41.8	4.6	60.4	0-4	18.0	0.1	16.0	1.8	26.9
5-9	45.2	0.0	20.1	20.1	120.5	5-9	20.3	0.0	15.2	12.7	86.9
10-14	47.1	23.6	47.1	23.6	188.5	10-14	20.1	1.9	13.2	40.6	180.3
15-19	53.1	53.1	136.5	91.0	128.9	15-19	26.6	72.8	58.7	88.6	101.7
20-24	31.2	78.0	85.8	54.6	31.2	20-24	21.7	85.4	41.7	145.0	44.9
25-29	51.1	102.1	76.6	42.6	17.0	25-29	13.9	57.1	20.5	125.5	40.3
30-34	120.4	90.3	20.1	40.1	60.2	30-34	16.5	48.7	13.5	106.4	35.6
35-39	147.3	98.2	85.9	0.0	49.1	35-39	10.2	31.4	10.6	82.2	30.1
40-44	173.9	63.2	63.2	31.6	15.8	40-44	14.2	31.2	7.7	59.4	36.3
45-49	13.1	0.0	4.4	13.1	13.1	45-49	11.0	30.5	5.5	47.9	25.5
50-54	83.4	0.0	83.4	0.0	41.7	50-54	11.9	23.0	3.3	23.9	19.0
55-59	35.6	35.6	0.0	0.0	0.0	55-59	11.7	24.0	4.8	20.1	20.3
60-64	0.0	112.4	0.0	0.0	0.0	60-64	11.5	30.6	7.1	10.1	15.9
65+	38.4	153.7	76.9	0.0	0.0	65+	20.1	39.9	8.9	6.3	15.1
All ages	57.9	39.2	50.8	27.0	69.4	All ages	16.7	35.4	16.7	57.0	49.3
Female						Female					
0-4	36.6	0.0	64.1	0.0	22.9	0-4	8.9	0.0	12.4	0.2	12.3
5-9	46.3	0.0	20.6	0.0	72.0	5-9	9.6	0.1	12.9	1.6	44.1
10-14	17.7	11.8	35.5	0.0	59.1	10-14	11.3	0.4	15.5	5.9	37.8
15-19	21.0	14.0	62.9	0.0	21.0	15-19	11.2	44.8	55.8	6.9	9.0
20-24	63.3	56.2	28.1	*	7.0	20-24	10.5	46.0	31.5	10.2	7.3
25-29	14.9	37.2	29.8	0.0	0.0	25-29	4.9	35.5	16.9	8.5	6.5
30-34	53.6	35.7	17.9	0.0	0.0	30-34	6.4	25.3	10.3	6.1	6.5
35-39	66.8	55.7	33.4	0.0	11.1	35-39	5.0	20.8	8.2	5.7	6.9
40-44	118.5	39.5	0.0	0.0	0.0	40-44	5.9	27.1	7.0	6.1	6.9
45-49	4.8	4.8	0.0	0.0	0.0	45-49	7.0	29.0	11.2	6.5	6.5
50-54	18.6	0.0	18.6	0.0	0.0	50-54	6.1	20.8	11.2	2.3	6.4
55-59	0.0	28.9	0.0	0.0	0.0	55-59	5.8	28.1	11.1	3.5	8.4
60-64	0.0	0.0	0.0	0.0	40.0	60-64	5.7	26.8	21.8	1.6	6.9
65+	23.8	0.0	0.0	0.0	0.0	65+	20.3	29.1	24.2	1.0	1.7
All ages	35.3	18.8	28.6	*	21.3	All ages	9.4	24.5	18.5	4.7	11.2

*Small counts are omitted.

Table A9: Remoteness zone by seriously injured person's vehicle: Inner and outer regional; NT, WA, SA and Qld, 2000-01 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	53.4	0.0	23.7	3.0	53.4	0-4	22.5	0.5	22.7	6.8	29.1
5-9	30.2	0.0	21.1	24.1	174.9	5-9	23.6	1.1	23.2	52.0	120.6
10-14	24.1	20.1	24.1	96.5	265.4	10-14	17.6	4.7	32.6	212.8	322.8
15-19	70.0	140.0	150.8	118.5	145.4	15-19	32.2	162.8	125.7	410.7	209.5
20-24	95.8	90.5	90.5	79.9	85.2	20-24	22.4	166.9	70.8	360.3	50.8
25-29	46.6	87.4	52.4	87.4	17.5	25-29	17.9	93.5	39.2	226.0	34.4
30-34	111.5	78.7	52.5	85.3	0.0	30-34	9.1	67.9	16.9	167.4	23.3
35-39	105.5	105.5	67.8	75.4	30.1	35-39	12.3	59.1	15.5	126.1	24.0
40-44	70.6	80.7	70.6	30.3	30.3	40-44	13.0	63.6	11.4	117.7	26.0
45-49	27.9	19.5	11.2	2.8	5.6	45-49	8.2	42.8	10.4	66.1	19.2
50-54	26.7	40.1	80.2	26.7	0.0	50-54	10.9	38.9	6.9	49.3	21.6
55-59	21.3	21.3	42.6	21.3	0.0	55-59	14.0	42.8	7.9	41.0	11.6
60-64	28.5	57.0	0.0	28.5	28.5	60-64	7.0	41.6	9.1	30.0	12.9
65+	0.0	36.0	18.0	18.0	36.0	65+	14.4	52.6	13.7	14.7	13.1
All ages	51.7	46.3	46.3	48.4	82.7	All ages	15.9	57.6	27.1	126.3	63.1
Female						Female					
0-4	18.6	0.0	18.6	0.0	30.9	0-4	14.2	0.0	19.3	2.3	13.9
5-9	39.0	0.0	22.8	6.5	100.8	5-9	7.8	0.2	18.4	12.2	58.4
10-14	4.0	0.0	24.1	12.0	72.2	10-14	8.8	1.3	26.3	26.0	64.4
15-19	29.9	34.8	94.5	5.0	5.0	15-19	12.7	113.9	113.0	25.5	19.6
20-24	23.6	37.8	70.8	9.4	23.6	20-24	7.4	80.1	42.8	18.6	7.2
25-29	19.5	24.4	48.9	0.0	9.8	25-29	7.6	53.0	17.8	16.4	7.1
30-34	52.1	23.1	75.2	5.8	5.8	30-34	3.5	48.0	16.0	10.8	5.4
35-39	36.2	65.1	108.5	0.0	7.2	35-39	5.1	43.7	14.5	10.9	5.5
40-44	53.5	62.4	35.7	0.0	8.9	40-44	6.9	46.6	13.5	9.5	11.1
45-49	6.0	9.0	12.0	6.0	6.0	45-49	5.2	45.1	10.6	9.4	6.8
50-54	23.3	58.2	81.5	0.0	0.0	50-54	3.8	38.1	12.5	9.8	7.0
55-59	17.7	70.8	53.1	0.0	0.0	55-59	6.5	41.8	17.8	8.7	8.4
60-64	0.0	0.0	22.8	0.0	0.0	60-64	4.5	32.2	21.7	3.0	5.2
65+	28.1	0.0	0.0	0.0	0.0	65+	17.1	38.0	29.9	2.9	5.4
All ages	24.3	20.7	43.8	4.4	28.7	All ages	8.5	40.5	25.5	11.3	15.6

Table A10: Remoteness zone by seriously injured person's vehicle: Remote and very remote; NT, WA, SA and Qld, 2000-01 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	76.9	0.0	56.9	5.7	39.9	0-4	34.9	0.0	25.8	18.2	31.8
5-9	36.1	3.0	87.2	21.1	114.3	5-9	28.8	1.7	22.0	128.6	152.3
10-14	14.2	21.4	81.9	67.6	202.9	10-14	35.8	13.9	23.9	479.6	354.2
15-19	35.7	134.7	150.5	95.1	71.3	15-19	47.4	151.4	113.1	755.4	144.1
20-24	65.2	150.7	211.7	105.9	24.4	20-24	19.7	143.2	66.0	473.1	23.9
25-29	118.9	192.0	182.9	96.0	9.1	25-29	28.7	105.6	46.9	319.3	23.5
30-34	95.1	185.0	259.0	63.4	15.9	30-34	20.3	93.9	29.2	238.7	25.4
35-39	187.5	174.1	167.4	26.8	6.7	35-39	15.7	95.5	26.2	196.2	17.0
40-44	64.5	209.7	129.0	96.8	8.1	40-44	16.3	71.1	25.2	133.4	16.3
45-49	30.3	33.0	52.3	8.3	2.8	45-49	13.9	53.9	15.4	109.3	23.1
50-54	83.7	62.8	156.9	10.5	20.9	50-54	11.1	44.6	3.2	93.9	22.3
55-59	107.7	61.5	92.3	0.0	0.0	55-59	16.7	54.3	10.5	46.0	14.6
60-64	169.2	42.3	84.6	0.0	0.0	60-64	16.4	52.0	16.4	49.3	13.7
65+	103.1	0.0	11.5	0.0	11.5	65+	26.7	72.7	3.0	41.6	19.3
All ages	68.2	82.4	120.3	46.7	51.4	All ages	23.5	71.1	30.9	221.6	56.9
Female						Female					
0-4	26.5	0.0	38.3	0.0	29.4	0-4	14.9	0.0	31.6	3.3	11.6
5-9	19.8	0.0	59.3	6.6	72.5	5-9	20.4	3.7	20.4	24.1	83.5
10-14	3.7	3.7	76.8	18.3	43.9	10-14	15.1	2.5	30.2	75.5	98.2
15-19	16.0	36.1	136.4	24.1	20.1	15-19	22.6	147.0	108.6	104.0	22.6
20-24	60.6	24.2	84.9	0.0	4.0	20-24	6.3	93.0	59.9	34.7	9.5
25-29	85.9	49.7	108.5	9.0	0.0	25-29	14.9	67.2	32.8	23.9	4.5
30-34	50.2	45.2	130.6	5.0	5.0	30-34	12.0	67.8	37.7	21.1	6.0
35-39	83.2	44.8	172.8	0.0	0.0	35-39	4.9	64.7	27.5	22.6	3.2
40-44	90.4	57.5	123.2	0.0	0.0	40-44	9.3	54.1	41.0	22.4	11.2
45-49	17.5	11.7	32.1	0.0	0.0	45-49	9.7	32.3	11.3	11.3	4.8
50-54	21.0	52.6	105.2	0.0	10.5	50-54	10.2	50.8	14.2	14.2	10.2
55-59	45.0	30.0	45.0	0.0	0.0	55-59	5.6	44.5	13.9	11.1	13.9
60-64	35.0	17.5	35.0	0.0	0.0	60-64	0.0	59.2	27.6	3.9	7.9
65+	18.6	9.3	27.8	0.0	0.0	65+	11.3	32.4	22.7	0.0	0.0
All ages	37.0	22.7	82.0	5.8	18.7	All ages	11.6	51.3	34.1	25.3	18.4

Table A11: Traffic serious injury – remoteness zone by injured person’s vehicle: Remote and very remote; NT, WA, SA and Qld, 2000-01 to 2003-04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0-4	31.3	0.0	45.6	0.0	8.5	0-4	4.5	0.0	16.7	6.1	10.6
5-9	15.0	0.0	75.2	6.0	21.1	5-9	5.1	1.7	11.8	30.5	33.9
10-14	7.1	17.8	74.7	10.7	64.1	10-14	2.0	2.0	11.9	95.5	95.5
15-19	19.8	95.1	138.7	35.7	23.8	15-19	12.8	96.7	74.8	204.4	54.7
20-24	52.9	101.8	150.7	61.1	12.2	20-24	9.8	103.9	46.3	162.8	8.4
25-29	91.4	137.1	155.4	64.0	0.0	25-29	14.3	71.7	32.6	121.2	9.1
30-34	74.0	185.0	206.1	37.0	5.3	30-34	6.3	60.9	19.0	105.4	14.0
35-39	147.3	154.0	160.7	13.4	6.7	35-39	5.2	73.3	19.6	82.4	9.2
40-44	56.5	145.2	129.0	32.3	0.0	40-44	4.4	47.4	19.3	44.5	8.9
45-49	22.0	33.0	44.1	2.8	0.0	45-49	4.6	38.5	12.3	46.2	12.3
50-54	73.2	52.3	125.5	10.5	0.0	50-54	6.4	33.4	3.2	38.2	11.1
55-59	92.3	30.8	92.3	0.0	0.0	55-59	2.1	33.4	8.4	10.5	8.4
60-64	105.7	21.1	84.6	0.0	0.0	60-64	11.0	32.9	8.2	21.9	5.5
65+	80.2	0.0	11.5	0.0	11.5	65+	17.8	57.9	1.5	10.4	8.9
All ages	47.1	64.2	102.1	20.7	14.3	All ages	7.7	49.2	20.9	72.8	19.2
Female						Female					
0-4	2.9	0.0	29.4	0.0	2.9	0-4	3.3	0.0	24.9	1.7	1.7
5-9	13.2	0.0	46.1	0.0	19.8	5-9	5.6	1.9	13.0	5.6	24.1
10-14	3.7	0.0	65.8	7.3	7.3	10-14	0.0	0.0	27.7	12.6	42.8
15-19	8.0	32.1	112.3	12.0	0.0	15-19	0.0	99.5	72.4	24.9	2.3
20-24	28.3	20.2	76.8	0.0	0.0	20-24	1.6	67.8	36.3	9.5	4.7
25-29	58.8	40.7	99.5	9.0	0.0	25-29	1.5	49.3	25.4	11.9	1.5
30-34	45.2	45.2	105.5	0.0	0.0	30-34	10.5	48.2	28.6	9.0	4.5
35-39	70.4	32.0	140.8	0.0	0.0	35-39	1.6	40.4	24.3	14.6	3.2
40-44	57.5	41.1	82.1	0.0	0.0	40-44	3.7	37.3	29.8	9.3	9.3
45-49	14.6	8.8	29.2	0.0	0.0	45-49	4.8	29.1	9.7	8.1	3.2
50-54	21.0	31.6	84.2	0.0	0.0	50-54	2.0	40.7	10.2	4.1	8.1
55-59	45.0	30.0	45.0	0.0	0.0	55-59	2.8	25.0	11.1	5.6	8.3
60-64	17.5	0.0	17.5	0.0	0.0	60-64	0.0	47.4	27.6	3.9	3.9
65+	9.3	9.3	27.8	0.0	0.0	65+	3.2	24.3	19.4	0.0	0.0
All ages	24.1	18.0	68.0	2.5	3.2	All ages	3.2	36.5	25.4	8.6	7.5

Table A12: Non-traffic serious injury – remoteness zone by injured person’s vehicle: Remote and very remote; NT, WA, SA and Qld, 2000–01 to 2003–04

Indigenous	Age-specific rate per 100,000 population					Non-Indigenous	Age-specific rate per 100,000 population				
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
Male						Male					
0–4	31.3	0.0	11.4	2.8	25.6	0–4	25.8	0.0	9.1	12.1	19.7
5–9	6.0	3.0	12.0	15.0	78.2	5–9	18.6	0.0	10.2	98.2	116.8
10–14	3.6	3.6	7.1	56.9	135.3	10–14	27.9	11.9	11.9	374.1	250.7
15–19	4.0	39.6	11.9	59.4	47.5	15–19	21.9	54.7	38.3	547.4	87.6
20–24	0.0	48.9	61.1	44.8	12.2	20–24	5.6	39.3	19.7	301.8	15.4
25–29	9.1	54.9	27.4	32.0	9.1	25–29	11.7	33.9	14.3	195.5	14.3
30–34	10.6	0.0	52.8	26.4	10.6	30–34	8.9	33.0	10.2	130.8	11.4
35–39	20.1	20.1	6.7	13.4	0.0	35–39	6.5	22.2	6.5	107.3	7.8
40–44	8.1	64.5	0.0	64.5	8.1	40–44	7.4	23.7	5.9	88.9	7.4
45–49	5.5	0.0	8.3	5.5	2.8	45–49	9.2	15.4	3.1	58.5	10.8
50–54	0.0	10.5	31.4	0.0	20.9	50–54	1.6	11.1	0.0	54.1	9.5
55–59	0.0	30.8	0.0	0.0	0.0	55–59	10.5	20.9	2.1	35.5	6.3
60–64	42.3	21.1	0.0	0.0	0.0	60–64	2.7	19.2	8.2	24.6	8.2
65+	11.5	0.0	0.0	0.0	0.0	65+	7.4	14.8	1.5	28.2	10.4
All ages	10.0	18.2	18.2	25.7	34.3	All ages	11.6	21.9	10.0	145.5	36.8
Female						Female					
0–4	8.8	0.0	8.8	0.0	17.7	0–4	8.3	0.0	6.6	1.7	10.0
5–9	3.3	0.0	13.2	6.6	49.4	5–9	5.6	1.9	7.4	16.7	59.4
10–14	0.0	3.7	11.0	11.0	36.6	10–14	12.6	2.5	2.5	60.4	55.4
15–19	8.0	4.0	24.1	12.0	20.1	15–19	15.8	47.5	36.2	74.6	18.1
20–24	12.1	4.0	8.1	0.0	4.0	20–24	4.7	25.2	23.6	22.1	4.7
25–29	13.6	9.0	9.0	0.0	0.0	25–29	9.0	17.9	7.5	9.0	3.0
30–34	5.0	0.0	25.1	5.0	5.0	30–34	1.5	19.6	9.0	12.0	1.5
35–39	12.8	12.8	32.0	0.0	0.0	35–39	3.2	24.3	3.2	8.1	0.0
40–44	8.2	16.4	41.1	0.0	0.0	40–44	0.0	16.8	11.2	13.1	0.0
45–49	2.9	2.9	2.9	0.0	0.0	45–49	4.8	3.2	1.6	3.2	1.6
50–54	0.0	21.0	21.0	0.0	10.5	50–54	8.1	10.2	4.1	10.2	2.0
55–59	0.0	0.0	0.0	0.0	0.0	55–59	0.0	19.4	2.8	5.6	5.6
60–64	0.0	17.5	17.5	0.0	0.0	60–64	0.0	11.8	0.0	0.0	3.9
65+	0.0	0.0	0.0	0.0	0.0	65+	8.1	8.1	3.2	0.0	0.0
All ages	6.1	4.7	14.0	3.2	14.0	All ages	5.9	14.8	8.7	15.6	10.6

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This report looks at the death and serious injury of Indigenous persons in Australia due to transport accidents in the five-year period 1999–00 to 2003–04. It focuses on the four jurisdictions of the Northern Territory, Western Australia, South Australia and Queensland and examines variables such as mode of transport, gender, age group and remoteness from an urban centre.

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