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# **Injury of Aboriginal and Torres Strait Islander people due to transport, 2003–04 to 2007–08**

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and  
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Australian Institute of Health and Welfare  
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# Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARIA	Accessibility/Remoteness Index of Australia
ASGC	Australian Standard Geographical Classification
ATSB	Australian Transport Safety Bureau
BITRE	Bureau of Infrastructure, Transport and Regional Economics
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
NISU	National Injury Surveillance Unit
NCIS	National Coroners Information System
NHMD	National Hospital Morbidity Database

# Summary

This publication provides a summary of injury, both fatal and non-fatal, of Aboriginal and Torres Strait Islander people in the Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria due to land transport accidents. Fatal injury is reported over the four-year period from 2003–04 to 2006–07, while non-fatal injury is reported over the five-year period from 2003–04 to 2007–08.

## All transport injury

Transport-related injury was the second leading cause of fatal injury (26%) and the fourth leading cause of serious injury (9%) among Aboriginal and Torres Strait Islander people.

Fifty-six per cent of Aboriginal and Torres Strait Islander people fatally injured and 42% of Aboriginal and Torres Strait Islander people seriously injured in a transport accident were occupants of a car.

## Land transport injury

Land transport accidents accounted for 20% of fatal injury cases and 8% of all injury hospitalisations for Aboriginal and Torres Strait Islander people.

Based on aged-standardised rates, there were 2.7 times more fatalities and 20% more serious injury cases among Aboriginal and Torres Strait Islander people compared to other Australians.

The fatal injury rate among Aboriginal and Torres Strait Islander car occupants was 2.9 times that of other Australian car occupants, while the fatal injury rate among Aboriginal and Torres Strait Islander pedestrians was 5.5 times that of other Australian pedestrians. The equivalent values for serious injury were 1.6 and 2.5 times.

A markedly higher proportion of car passengers relative to car drivers were fatally or seriously injured among Aboriginal and Torres Strait Islander people, than when compared to other Australians.

In general, rates of fatal and serious injury increased according to remoteness of the person's usual residence from an urban centre for Aboriginal and Torres Strait Islander people and other Australians.

For Aboriginal and Torres Strait Islander people, 70% of those fatally injured and 60% of those seriously injured resided in outer regional, remote or very remote areas. By contrast, close to four-fifths of other Australians fatally and seriously injured resided in major cities or inner regional areas.

Fatal injury rates for both Aboriginal and Torres Strait Islander males and females did not change significantly over the period of interest, while for other Australian males and females there were modest decreases in rates.

Serious injury rates for both Aboriginal and Torres Strait Islander and other Australian males rose significantly over the period of interest, with most of this rise being attributable to motorcyclists. For Aboriginal and Torres Strait Islander females and other Australian females there was no significant change in rates.

# 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. For the sake of brevity, the word 'Indigenous' is frequently used in place of 'Aboriginal and Torres Strait Islander' in this report, particularly in tables and figures and their titles. People identified as non-Indigenous or whose Indigenous status was not stated in data sources, are generally referred to as 'other Australians' in this report.

Ideally, the report would cover the whole of Australia. However, the quality of the identification of Indigenous status in the main data sources on which the work depends varies between jurisdictions and is widely considered to be insufficient for reporting in some parts of Australia. Accordingly, the geographic scope of this report covers all jurisdictions except for Tasmania and the Australian Capital Territory. It should be noted that current AIHW practice is to use deaths data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory to provide indicative national information for Aboriginal and Torres Strait Islander people (AIHW 2010a). For reasons outlined in the 'Data Issues' section of this report, deaths data for Aboriginal and Torres Strait Islander people residing in Victoria have also been included in the analyses in this report (see Data Issues 'Ascertainment of Indigenous Status', p. 51).

This coverage differs from the previous two reports in this series which only reported on four jurisdictions, the Northern Territory, Western Australia, South Australia and Queensland<sup>1</sup> (Berry et al. 2007). A comparison of this report to other literature relating to injury of Aboriginal and Torres Strait Islander people due to transport is described in the previous report in this series (Berry & Harrison 2008; Berry et al. 2007).

Due to small case numbers, transport accident data for these jurisdictions have been combined for a four-year observational period from 2003–04 to 2006–07<sup>2</sup> for persons fatally injured and a five-year observational period from 2003–04 to 2007–08 for persons seriously injured (Table 1.1).

The data are likely to underestimate the actual mortality and morbidity burden of Aboriginal and Torres Strait Islander people, due to the less than complete identification of Aboriginal and Torres Strait Islander 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 Indigenous will in fact be recorded as non-Indigenous or Indigenous status 'not stated' (see Data issues 'Ascertainment of Indigenous Status', p. 51).

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1 This scope was in accordance with assessments of data quality when these reports were written.

2 The reporting period 2003–04 to 2007–08 was planned for this publication. However, mortality data for 2008 were not available in time for inclusion.

**Table 1.1: Fatal and serious transport-related injury by Indigenous status**

<b>Case numbers</b>	<b>Indigenous Australians</b>	<b>Other Australians<sup>(a)</sup></b>	<b>Total</b>
Deaths 2003–04 to 2006–07 <sup>(b)</sup>	343	5,905	6,248
Persons seriously injured 2003–04 to 2007–08 <sup>(c)</sup>	7,590	237,120	244,710

- (a) The term 'other Australians' 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  $n = 137$ , serious injury  $n = 6,167$ ).
- (b) Due to the non-availability of deaths data for 2008 at the time this report was produced, the number of deaths is those observed in the four year period from 2003–04 to 2006–07.
- (c) In this report 'seriously injured' means admitted to hospital due to injury (see Data issues 'Serious injury', p. 49)

## 2 Injury of Aboriginal and Torres Strait Islander people due to transport, 2003–04 to 2007–08

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.

In the four years up until 2006–07, transport was the second leading cause of fatal injury for Aboriginal and Torres Strait Islander people (26.3%) and the third leading cause of fatal injury in other Australians (20.4%) in the Northern Territory, Western Australia, South Australia, Queensland, New South Wales and Victoria (Table 2.1). Suicide was the leading cause of fatal injury for Aboriginal and Torres Strait Islander people (26.4%) and other Australians (25.2%) in the six jurisdictions.

In the five years up until 2007–08, transport was the fourth<sup>3</sup> leading cause of serious injury for Aboriginal and Torres Strait Islander people (8.9%) and the third<sup>3</sup> leading cause of serious injury in other Australians (11.6%) in the six jurisdictions of interest (Table 2.1). Assault was the leading cause of serious injury for Aboriginal and Torres Strait Islander people (26.9%) while falls (30.2%) were the leading cause of serious injury in other Australians. On a population basis, Aboriginal and Torres Strait Islander people had 2.6 times the rate of fatal injury in transport accidents and 1.2 times the rate of serious injury compared to other Australians.

Transport injury accounted for 13% ( $n = 38,763$ ) of all Aboriginal and Torres Strait Islander patient days due to injury, with a mean length of stay of 4.5 days and 12% ( $n = 1,058,626$ ) of all other Australians patient days due to injury, with a mean length of stay of 4.1 days (Data not shown).

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<sup>3</sup> Other unintentional injury was not included in the ranking, as it comprised a diverse group of injury types that did not fit within the other specified injury groupings.

**Table 2.1: Fatal and serious injury due to external causes of injury and poisoning**

External cause of injury	Fatally injured (2003–04 to 2006–07)						Seriously injured <sup>(a)</sup> (2003–04 to 2007–08)					
	Indigenous Australians			Other Australians			Indigenous Australians			Other Australians		
	Count	Per cent	Rate <sup>(b)</sup>	Count	Per cent	Rate <sup>(b)</sup>	Count	Per cent	Rate <sup>(b)</sup>	Count	Per cent	Rate <sup>(b)</sup>
<b>Unintentional</b>												
Transportation	343	26.3	19.7	5,905	20.4	7.5	7,590 <sup>(c)</sup>	8.9	290.9	237,120	11.6	246.6
Drowning & immersion	45	3.4	2.5	720	2.5	0.9	108	0.1	2.8	1,961	0.1	2.1
Poisoning, pharmaceuticals	91	7.0	5.6	2,215	7.6	2.9	1,490	1.8	59.2	30,764	1.5	32.1
Poisoning, other substances	29	2.2	1.6	341	1.2	0.4	564	0.7	20.6	14,993	0.7	15.7
Falls	69	5.3	8.8	6,121	21.1	7.5	14,567	17.1	722.4	618,322	30.2	623.3
Fires/burns/scalds	26	2.0	1.9	318	1.1	0.4	2,007	2.4	72.7	24,092	1.2	25.4
Other unintentional	193	14.8	12.4	3,577	12.3	4.5	20,303	23.9	794.9	559,918	27.4	580.0
<b>Intentional</b>												
Self-inflicted	345	26.4	17.7	7,302	25.2	9.3	5,484	6.5	233.7	105,558	5.2	109.7
Assault	102	7.8	5.6	599	2.1	0.8	22,858	26.9	986.4	80,193	3.9	83.7
Undetermined intent	42	3.2	2.5	790	2.7	1.0	1,184	1.4	50.4	18,489	0.9	19.2
<b>Complications of surgical and medical care</b>												
	20	1.5	2.4	1,082	3.7	1.3	8,629	10.1	551.3	353,599	17.3	351.0
<b>No external cause</b>												
	0	0.0	0.0	0	0.0	0.0	232	0.3	11.1	2,191	0.1	2.2
<b>Total</b>	<b>1,305</b>	<b>100.0</b>	<b>80.7</b>	<b>28,970</b>	<b>100.0</b>	<b>36.5</b>	<b>85,016</b>	<b>100.0</b>	<b>3,796.4</b>	<b>2,047,200</b>	<b>100.0</b>	<b>2,090.9</b>

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

(b) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatal injury and over the five years 2003–04 to 2007–08 for serious injury, expressed as per 100,000 population, and adjusted by direct standardisation to the Australian population in June 2001.

(c) In total, there were 271,717 admissions (8,738 Indigenous Australians and 262,979 other Australians) to hospital for transport injury for an estimated 246,440 people (7,636 Indigenous Australians and 238,804 other Australians), of whom 1,730 persons (46 Indigenous Australians) 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.

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

In the four-year period up until 2006–07, more than half of Aboriginal and Torres Strait Islander people (56%) and other Australians (51%) fatally injured in a transport accident were car occupants. The percentage of Aboriginal and Torres Strait Islander people (29%) fatally injured in a transport accident while as a pedestrian was close to double that for other Australians (15%).

In the five-year period up until 2007–08, a higher percentage of Aboriginal and Torres Strait Islander people (42%) than other Australians (35%) were seriously injured in a transport accident while car occupants. As with fatal injury, the percentage of Aboriginal and Torres Strait Islander people (14%) seriously injured in a transport accident while as a pedestrian was close to double that for other Australians (7%).

**Table 2.2: Mode of transport<sup>(a)</sup> for fatal injury, 2003–04 to 2006–07**

Fatally injured person	Indigenous Australians			Other Australians			Rate Ratio <sup>(c)</sup>
	Count	Per cent	Rate <sup>(b)</sup>	Count	Per cent	Rate <sup>(b)</sup>	
Car occupant	191	55.7	11.1	3,025	51.2	3.9	2.9
Traffic <sup>(d)</sup>	179	52.2	10.5	2,937	49.7	3.8	2.8
non-traffic <sup>(e)</sup>	10	2.9	0.5	79	1.3	0.1	4.5
Motorcyclist	13	3.8	0.7	813	13.8	1.1	0.7
traffic <sup>(d)</sup>	12	3.5	0.6	747	12.7	1.0	0.7
non-traffic <sup>(e)</sup>	*	*	*	65	1.1	0.1	*
Pedal cyclist	*	*	*	128	2.2	0.2	*
traffic <sup>(d)</sup>	*	*	*	122	2.1	0.2	*
non-traffic <sup>(e)</sup>	0	0.0	0.0	6	0.1	0.0	0.0
Pedestrian	100	29.2	6.0	861	14.6	1.1	5.5
traffic <sup>(d)</sup>	81	23.6	4.9	703	11.9	0.9	5.5
non-traffic <sup>(e)</sup>	13	3.8	0.8	105	1.8	0.1	6.2
Occupant of pick-up truck or van	5	1.5	0.3	169	2.9	0.2	1.3
Occupant of heavy transport vehicle	*	*	*	137	2.3	0.2	*
Bus occupant	*	*	*	14	0.2	0.0	*
Animal rider or occupant of animal-drawn vehicle	0	0.0	0.0	25	0.4	0.0	0.0
Occupant of special all-terrain or off-road vehicle	*	*	*	44	0.7	0.1	*
Occupant of 3-wheeled motor vehicle	0	0.0	0.0	11	0.2	0.0	1.0
Occupant of tram	0	0.0	0.0	*	*	*	*
Occupant of train	0	0.0	0.0	19	0.3	0.0	0.0
Occupant of special industrial vehicle	0	0.0	0.0	24	0.4	0.0	0.0
Occupant of special agricultural vehicle	0	0.0	0.0	53	0.9	0.1	0.0
Occupant of special construction vehicle	0	0.0	0.0	19	0.3	0.0	0.0
Occupant of watercraft	*	*	*	118	2.0	0.1	*
Occupant of aircraft	*	*	*	155	2.6	0.2	*
Other and unspecified	16	4.7	0.7	288	4.9	0.4	1.8
<b>Total</b>	<b>343</b>	<b>100.0</b>	<b>19.7</b>	<b>5,905</b>	<b>100.0</b>	<b>7.5</b>	<b>2.6</b>

(a) '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).

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

(c) 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).

(d) 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).

(e) 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.

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

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

Small counts ( $n < 5$ ) and percentages and rates related to them are omitted and are indicated by the symbol (\*).

**Table 2.3: Mode of transport<sup>(a)</sup> for serious injury, 2003–04 to 2007–08**

Seriously injured person	Indigenous Australians			Other Australians			Rate Ratio <sup>(c)</sup>
	Count	Per cent	Rate <sup>(b)</sup>	Count	Per cent	Rate <sup>(b)</sup>	
Car occupant	3,167	41.7	134.5	82,321	34.7	84.5	1.6
traffic <sup>(d)</sup>	2,691	35.5	114.4	72,944	30.8	74.9	1.5
non-traffic <sup>(e)</sup>	368	4.8	15.3	6,971	2.9	7.2	2.1
Motorcyclist	1,135	15.0	38.0	58,927	24.9	61.8	0.6
traffic <sup>(d)</sup>	527	6.9	18.7	30,601	12.9	31.9	0.6
non-traffic <sup>(e)</sup>	576	7.6	18.4	26,182	11.0	27.7	0.7
Pedal cyclist	1,265	16.7	35.7	40,164	16.9	42.7	0.8
traffic <sup>(d)</sup>	582	7.7	17.6	19,982	8.4	21.1	0.8
non-traffic <sup>(e)</sup>	635	8.4	16.8	18,844	7.9	20.2	0.8
Pedestrian	1,064	14.0	44.4	16,938	7.1	17.4	2.5
traffic <sup>(d)</sup>	774	10.2	33.5	11,930	5.0	12.3	2.7
non-traffic <sup>(e)</sup>	153	2.0	5.3	3,261	1.4	3.4	1.6
Occupant of pick-up truck or van	119	1.6	5.2	2,334	1.0	2.4	2.2
Occupant of heavy transport vehicle	46	0.6	2.4	3,676	1.6	3.8	0.6
Bus occupant	45	0.6	2.4	2,007	0.8	2.0	1.2
Animal rider or occupant of animal-drawn vehicle	331	4.4	12.2	14,792	6.2	15.5	0.8
Occupant of special all-terrain or off-road vehicle	96	1.3	3.0	3,371	1.4	3.5	0.8
Occupant of 3-wheeled motor vehicle	9	0.1	0.4	339	0.1	0.3	1.1
Occupant of tram	14	0.2	0.7	347	0.1	0.3	2.0
Occupant of train	18	0.2	0.6	544	0.2	0.5	1.1
Occupant of special industrial vehicle	16	0.2	0.9	704	0.3	0.7	1.2
Occupant of special agricultural vehicle	10	0.1	0.3	935	0.4	0.9	0.3
Occupant of special construction vehicle	*	*	*	308	0.1	0.3	0.9
Occupant of watercraft	59	0.8	2.6	3,643	1.5	3.8	0.7
Occupant of aircraft	*	*	*	658	0.3	0.7	*
Other and unspecified	189	2.5	7.2	5,112	2.2	5.3	1.4
<b>Total</b>	<b>7,590</b>	<b>100.0</b>	<b>290.9</b>	<b>237,120</b>	<b>100.0</b>	<b>246.6</b>	<b>1.2</b>

(a) '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).

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

(c) 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).

(d) 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).

(e) 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.

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

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

Small counts ( $n < 5$ ) and percentages and rates related to them are omitted and are indicated by the symbol (\*).

## **Rates of fatal injury by mode of transport**

Rates of fatal injury were highest among car occupants for both Aboriginal and Torres Strait Islander people (11 per 100,000 population) and other Australians (4 per 100,000) (Table 2.2). The age-standardised rate ratio of 2.9 indicated that the Aboriginal and Torres Strait Islander fatality rate was almost three times that of other Australians after accounting for any differences in age composition of the two groups. Almost 97% of Aboriginal and Torres Strait Islander and other Australians fatalities among car occupants occurred in traffic conditions (i.e. on public roads).

The age-standardised rate ratio for pedestrians indicated that there was a 5.5-fold greater fatality rate among Aboriginal and Torres Strait Islander people compared to other Australians after accounting for any differences in age (Table 2.2). More than four-fifths of Aboriginal and Torres Strait Islander and other Australians fatalities among pedestrians occurred in traffic conditions.

## **Rates of serious injury by mode of transport**

Rates of serious injury were highest among car occupants for both Aboriginal and Torres Strait Islander people (135 per 100,000) and other Australians (85 per 100,000) (Table 2.3). Over 88% of Aboriginal and Torres Strait Islander people and other Australians serious injuries among car occupants occurred in traffic conditions.

For pedestrians, rates of serious injury for Aboriginal and Torres Strait Islander people (44 per 100,000) were more than 2.5 times those for other Australians (17 per 100,000). Approximately 70% of Aboriginal and Torres Strait Islander and other Australians serious injuries among pedestrians occurred in traffic conditions, noticeably lower than for car occupants.

Rates of serious injury among motorcyclists were markedly higher for other Australians (62 per 100,000) compared to rates for Aboriginal and Torres Strait Islander people (38 per 100,000). In contrast to car occupants and pedestrians, 44% of other Australians and 51% of Aboriginal and Torres Strait Islander serious injuries among motorcyclists occurred in non-traffic (i.e. off-road) conditions.

### **3 Aboriginal and Torres Strait Islander land transport injury, 2003–04 to 2007–08**

This section examines the fatal and non-fatal injury of Aboriginal and Torres Strait Islander 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 Aboriginal and Torres Strait Islander transport deaths (98%) and serious injury cases (99%) were known to have involved land transport (Tables 2.2 and 2.3). Similarly, 95% of other Australians transport deaths and 97% of serious injury cases were also known to have involved land transport. The great majority of 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 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 (Tables 2.2 and 2.3). Injury resulting from collisions between trains and pedestrians or road vehicles was not uncommon (Tables 3.7 and 3.8). 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.

In the four years up until 2006–07, land transport accidents accounted for 20% of fatal injury cases for Aboriginal and Torres Strait Islander people, while in the five years up until 2007–08, land transport accidents accounted for 8% of all injury hospitalisations for Aboriginal and Torres Strait Islander people (Table 3.1). The age-standardised rate of land transport injury was 19 deaths per 100,000 Aboriginal and Torres Strait Islander persons and 287 admissions to hospital per 100,000 Aboriginal and Torres Strait Islander persons.

Based on age-standardised rates, there were 2.7 times more fatalities and 20% more serious injury cases from land transport accidents among Aboriginal and Torres Strait Islander people compared to other Australians.

Most Aboriginal and Torres Strait Islander land transport fatalities (89%) and nearly two-thirds of serious injury cases (65%) occurred in traffic conditions. The mean length of stay was markedly higher for injuries that occurred in traffic conditions (4.5 days) compared with those occurring in non-traffic conditions (2.5 days). Notably, in almost one-third of serious injury cases, the injured person was discharged on the same day as they were admitted.

**Table 3.1: Key indicators for land transport injury**

Indicator	Indigenous males	Indigenous females	Indigenous Australians <sup>(a)</sup>		
			Traffic	Non-traffic	Total <sup>(b)</sup>
<b>Fatally injured (2003–04 to 2006–07)</b>					
Deaths	235	102	299	26	337
Percentage of all deaths due to injury	20.9	17.8	17.6	1.5	19.8
Crude rate per 100,000 population <sup>(c)</sup>	23.9	10.3	15.1	1.3	17.1
Adjusted rate per 100,000 population <sup>(d)</sup>	27.5	11.8	17.3	1.5	19.3
Ratio of age standardised rates: Indigenous: Other Australians <sup>(e)</sup>	2.6	3.2	2.6	3.0	2.7
<b>Seriously injured (2003–04 to 2007–08)</b>					
Person admitted to hospital <sup>(f)</sup>	5,064	2,417	4,826	1,906	7,481
Percentage of all hospitalisations due to injury	9.5	5.8	5.1	2.0	7.9
Same day hospitalisations	1,620	797	1,527	652	2,417
Mean length of stay in hospital (days) <sup>(g)</sup>	3.7	4.1	4.5	2.5	3.8
Total Patient days (including same day and deaths in hospital)	18,576	9,935	21,541	4,773	28,511
Crude rate per 100,000 population <sup>(c)</sup>	412.0	194.7	195.3	77.1	302.8
Adjusted rate per 100,000 population <sup>(d)</sup>	386.3	189.5	194.7	62.7	286.5
Ratio of age standardised rates: Indigenous: Other Australians <sup>(e)</sup>	1.2	1.3	1.3	0.9	1.2

(a) Includes cases where sex is missing or indeterminate.

(b) This includes 12 deaths, 852 hospital cases (249 were same day) and 3,124 patient days where it is unspecified as to whether the crash occurred in traffic or non-traffic conditions.

(c) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatally injured persons and over the five years 2003–04 to 2007–08 for seriously injured persons.

(d) Adjusted by direct standardisation to the Australian population in June 2001.

(e) Ratio of age-standardised rate for Indigenous to the equivalent rate for other Australians and Indigenous status not stated.

(f) In total, there were 264,186 (8,610 Indigenous Australians and 255,576 other Australians) admissions to hospital for land transport injury for an estimated 239,687 persons (7,527 Indigenous Australians and 232,160 other Australians), of which 1,707 persons (46 Indigenous Australians) 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 3.1 and throughout the report. The estimate of total patient days includes separations in which the person died in hospital.

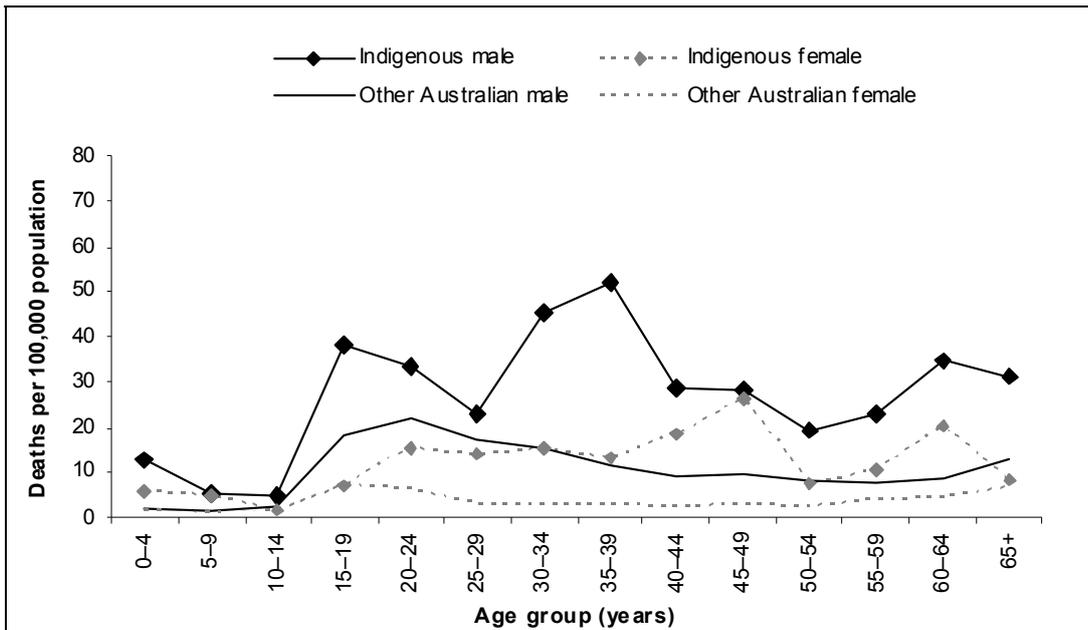
(g) This is the average number of days a person is likely to stay in hospital when seriously injured.

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

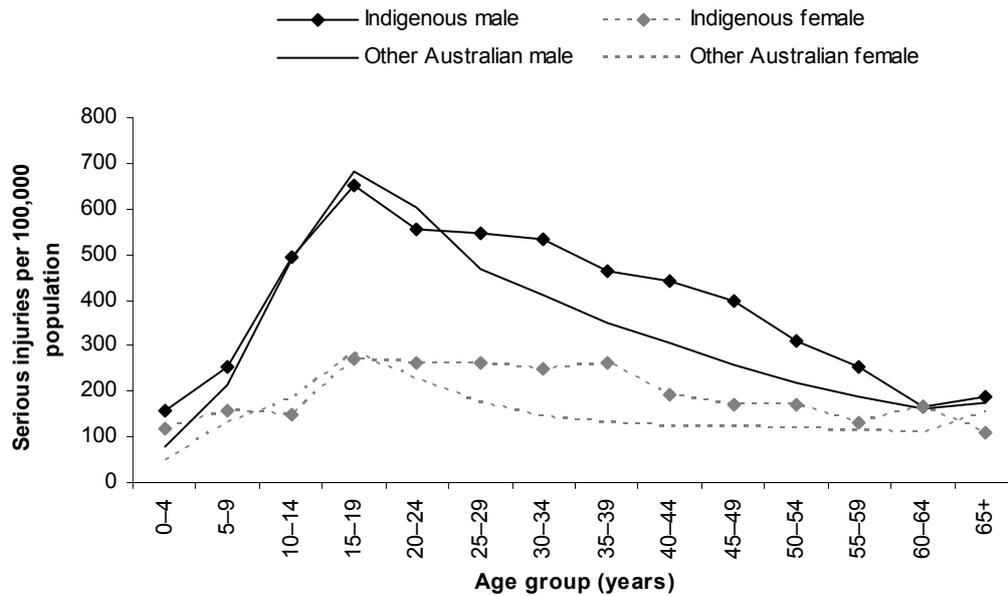
## Age and sex distribution

Fatal injury rates for Aboriginal and Torres Strait Islander males were higher than those for other Australian males across all age groups (Figure 3.1). A similar pattern was observed for females, except for those aged 10–19 years where rates were almost identical.

Serious injury rates for Aboriginal and Torres Strait Islander males and other Australian males were similar up until early adulthood after which Aboriginal and Torres Strait Islander rates were moderately higher throughout most of adulthood (Figure 3.1). A similar pattern was observed for Aboriginal and Torres Strait Islander females and other Australian females.



Note: Rates for fatally injured persons are averages of annual rates over the four years 2003–04 to 2006–07.



Note: Rates for seriously injured persons are averages of annual rates over the five years 2003–04 to 2007–08.

**Figure 3.1: Age-specific fatal (top) and serious injury (bottom) rates for land transport injury by sex and Indigenous status**

The land transport fatal and serious injury rates differed by age group and gender for both Aboriginal and Torres Strait Islander people and other Australians (Table 3.2). Fatal injury rates for Aboriginal and Torres Strait Islander males were higher across all age groups than rates for other Australian males varying from 30% higher for those aged 25–29 years to

almost 6 times as high for children aged 0–4 years. A similar pattern was observed for females where rates for Aboriginal and Torres Strait Islander females varied from being almost identical to those for other Australian females at ages 10–19 years to almost 9 times as high for those aged 45–49 years.

Differences in serious injury rates between Aboriginal and Torres Strait Islander males and other Australian males were moderate across nearly all age groups with the largest difference observed for children aged 0–4 years where the Aboriginal and Torres Strait Islander rate was double the other Australians rate. A similar pattern was observed for females with the largest difference also recorded for children aged 0–4 years where the Aboriginal and Torres Strait Islander rate was 2.4 times the other Australians rate.

**Table 3.2: Age-specific and age-standardised rates<sup>(a)</sup> due to fatal and serious land transport injury**

Indicator	Age group (years)													All ages (crude)	Age Std. <sup>(b)</sup>	
	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+
<b>Fatal injury (2003-04 to 2006-07)</b>																
Indigenous male	12.7	5.5	4.7	38.1	33.5	22.9	45.4	51.8	28.8	28.3	19.2	23.0	34.6	31.1	23.9	27.5
Other Australian male	2.2	1.7	2.5	17.9	22.1	17.3	15.5	11.6	9.1	9.6	8.2	7.5	8.6	13.0	10.8	10.8
Male rate ratio: Indigenous: Other Australian	5.8	3.3	1.9	2.1	1.5	1.3	2.9	4.5	3.2	2.9	2.3	3.1	4.0	2.4	2.2	2.6
Indigenous female	5.8	4.9	1.7	6.9	15.4	14.0	15.5	13.0	18.3	26.3	7.7	10.4	20.3	8.5	10.3	11.8
Other Australian female	2.0	1.0	1.7	7.1	6.0	3.1	3.0	2.9	2.4	3.0	2.7	3.9	4.4	6.5	3.8	3.7
Female rate ratio: Indigenous: Other Australian	2.9	5.1	1.0	1.0	2.6	4.4	5.2	4.5	7.5	8.9	2.8	2.7	4.6	1.3	2.7	3.2
Rate ratio: Indigenous: Other Australian	4.5	3.9	1.5	1.8	1.7	1.8	3.3	4.4	4.1	4.4	2.4	2.9	4.1	1.9	2.3	2.7
<b>Serious injury (2003-04 to 2007-08)</b>																
Indigenous male	156.7	254.5	492.0	650.0	554.8	545.5	532.1	465.0	440.4	398.2	311.6	255.0	166.1	186.4	412.0	386.3
Other Australian male	78.8	215.0	490.1	681.3	603.0	466.8	412.2	351.0	303.9	258.3	220.6	186.5	163.9	176.5	328.4	329.0
Male rate ratio: Indigenous: Other Australian	2.0	1.2	1.0	1.0	0.9	1.2	1.3	1.3	1.4	1.5	1.4	1.4	1.0	1.1	1.3	1.2
Indigenous female	116.1	158.2	150.0	272.9	261.0	262.2	248.4	262.4	193.2	171.5	172.0	133.1	166.8	108.8	194.7	189.5
Other Australian female	47.5	130.3	182.5	284.6	227.8	175.2	142.2	131.8	123.6	121.4	119.2	113.0	109.1	151.0	148.5	148.9
Female rate ratio: Indigenous: Other Australian	2.4	1.2	0.8	1.0	1.1	1.5	1.7	2.0	1.6	1.4	1.4	1.2	1.5	0.7	1.3	1.3
Rate ratio: Indigenous: Other Australian	2.2	1.2	1.0	1.0	1.0	1.2	1.4	1.5	1.5	1.5	1.4	1.3	1.2	0.9	1.3	1.2

(a) Rates are averages of annual rates over the four years 2003-04 to 2006-07 for fatally injured persons and over the five years 2003-04 to 2007-08 for seriously injured persons.

(b) Adjusted by direct standardisation to the Australian population in June 2001.

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

Car occupants and pedestrians were the two modes of transport resulting in the largest number of cases of death for Aboriginal and Torres Strait Islander people (Table 2.2). Car occupants also accounted for the largest number of Aboriginal and Torres Strait Islander people seriously injured, followed in roughly equal numbers by motorcyclists, pedal cyclists and pedestrians (Table 2.3).

The fatal injury rate among Aboriginal and Torres Strait Islander car occupants was 2.9 times that of other Australians car occupants (Table 3.3). Likewise, serious injury among car occupants was 1.6 times as high among Aboriginal and Torres Strait Islander people compared to other Australians. A markedly higher proportion of car passengers relative to car drivers were fatally or seriously injured among Aboriginal and Torres Strait Islander people, than when compared to other Australians.

The fatality rate for pedestrians was 5.5 times as high among Aboriginal and Torres Strait Islander people compared to other Australians. Likewise, the serious injury rate for pedestrians was 2.5 times as high among Aboriginal and Torres Strait Islander people compared to other Australians.

Figures 3.2 and 3.3 depict age-specific death rates in traffic conditions and by mode of transport. Fatal injury rates for Aboriginal and Torres Strait Islander people for pedestrians, car passengers and car drivers in particular, tended to rise in early adulthood and remain elevated through middle age. This pattern contrasted somewhat to that observed for other Australians where rates tended to peak in early adulthood, and decline thereafter.

Figures 3.4 and 3.5 depict age-specific serious injury rates in traffic conditions and by road user group. With the exception of pedestrians, rates for Aboriginal and Torres Strait Islander males in traffic conditions tended to peak in teenage to early adult years before declining thereafter. A similar pattern was observed for other Australians, although rates for pedestrians did not remain elevated throughout adulthood as observed for Aboriginal and Torres Strait Islander males.

Age-specific serious injury rates in non-traffic conditions for Aboriginal and Torres Strait Islander males and other Australian males for motorcyclists peaked in late teenage years before declining sharply thereafter (Figure 3.6). A similar pattern was observed for male pedal cyclists although rates peaked earlier in middle childhood. A similar, but less pronounced pattern in rates for pedal cyclists was seen for Aboriginal and Torres Strait Islander females and other Australian females (Figure 3.7).

Tabulations of the age-specific and all-ages rates by mode of transport for Figures 3.2-3.7 are included as Tables A5, A7 and A8 in the Appendix. Non-traffic death rates for other Australians males and females scarcely left the zero line (Appendix Table A6), and therefore data were too sparse to be charted.

**Table 3.3: Mode of land transport<sup>(a)</sup> for fatal and serious injury**

Mode of transport	Males (Rate <sup>(b)</sup> )			Females (Rate <sup>(b)</sup> )			Indigenous Australians			Other Australians		
	Indigenous Australians	Other Australians	Indigenous Australians	Other Australians	Indigenous Australians	Other Australians	Count	Rate <sup>(b)</sup>	Count	Rate <sup>(b)</sup>	Count	Rate <sup>(b)</sup>
<b>Fatal injury (2003–04 to 2006–07)</b>												
Car occupant	15.4	5.3	7.2	2.4	191	11.1	3,025	3.9	2.9			
Driver	8.7	4.0	3.0	1.3	88	5.6	2,056	2.6	2.1			
Passenger (inside/outside of vehicle)	5.2	1.2	3.9	1.1	86	4.5	881	1.1	4.0			
Unspecified or boarding or alighting	1.5	0.1	0.4	0.1	17	0.9	88	0.1	8.4			
Motorcyclist	1.4	2.0	0.0	0.1	13	0.7	813	1.1	0.7			
Pedal cyclist	0.2	0.3	0.1	0.0	*	*	128	0.2	*			
Pedestrian	8.3	1.5	3.9	0.7	100	6.0	861	1.1	5.5			
Animal or occupant of animal-drawn vehicle	0.0	0.0	0.0	0.0	0	0.0	25	0.0	0.0			
<b>Serious injury (2003–04 to 2007–08)</b>												
Car occupant	157.1	89.7	113.1	79.1	3,167	134.5	82,318	84.5	1.6			
Driver	70.4	58.1	35.4	44.6	1,128	52.2	50,118	51.3	1.0			
Passenger (inside/outside of vehicle)	62.5	22.7	59.1	27.3	1,536	60.9	24,280	25.2	2.4			
Unspecified or boarding or alighting	24.3	8.8	18.6	7.3	503	21.4	7,920	8.1	2.6			
Motorcyclist	67.9	112.1	8.3	10.8	1,135	38.0	58,926	61.8	0.6			
Pedal cyclist	54.3	68.4	16.9	16.3	1,265	35.7	40,163	42.7	0.8			
Pedestrian	61.0	21.3	28.9	13.5	1,064	44.4	16,938	17.4	2.5			
Animal or occupant of animal-drawn vehicle	17.8	10.8	6.9	20.4	331	12.2	14,791	15.5	0.8			

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

(b) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatally injured persons and over the five years 2003–04 to 2007–08 for seriously injured persons expressed as per 100,000 population and adjusted by direct standardisation to the Australian population in June 2001.

(c) Ratio of age-standardised rate for persons specified as Aboriginal and Torres Strait Islander to the equivalent rate for all other persons (non-Indigenous and not stated).

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

Small counts ( $n < 5$ ) and rates related to them are omitted and are indicated by the symbol (\*).

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

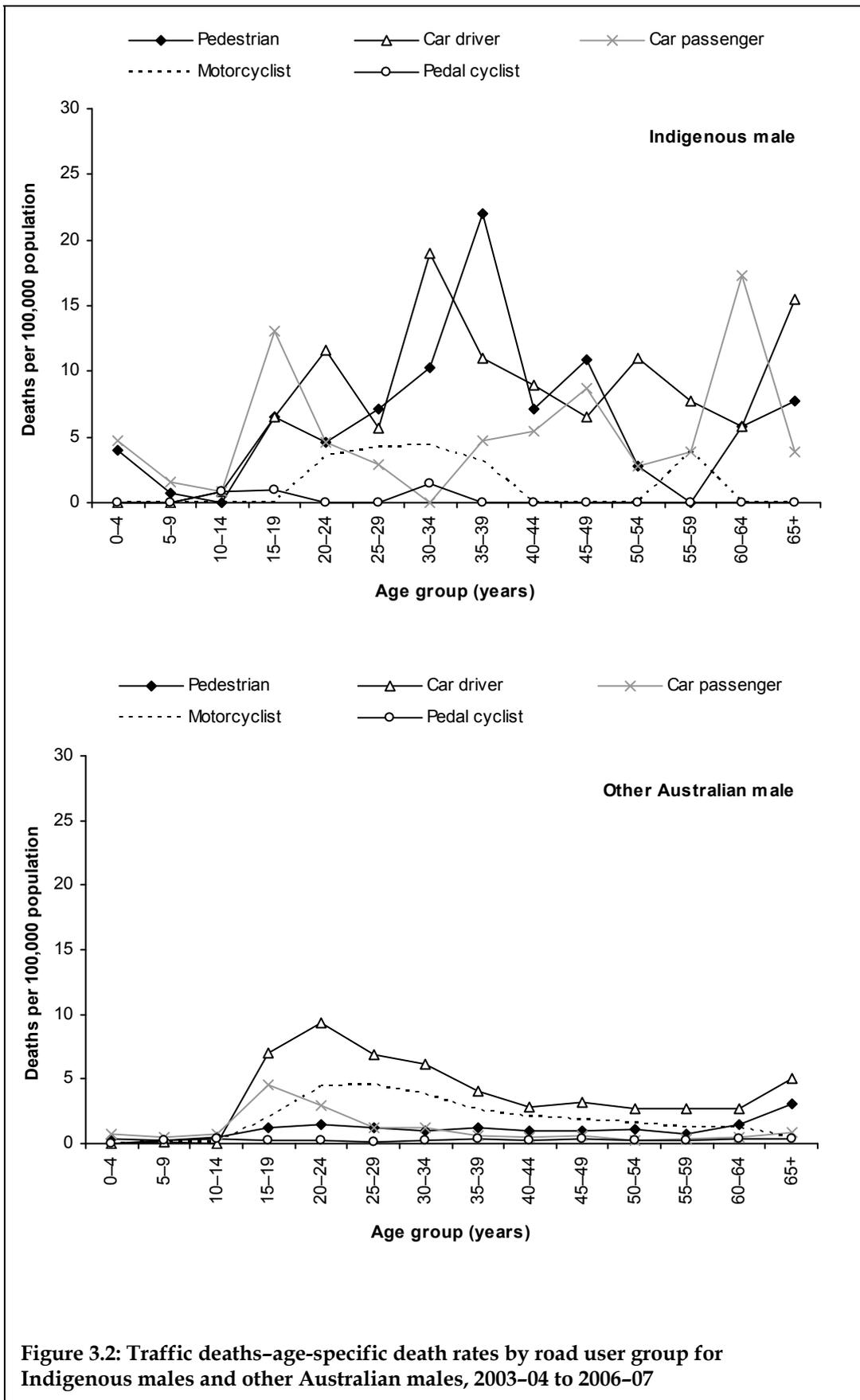
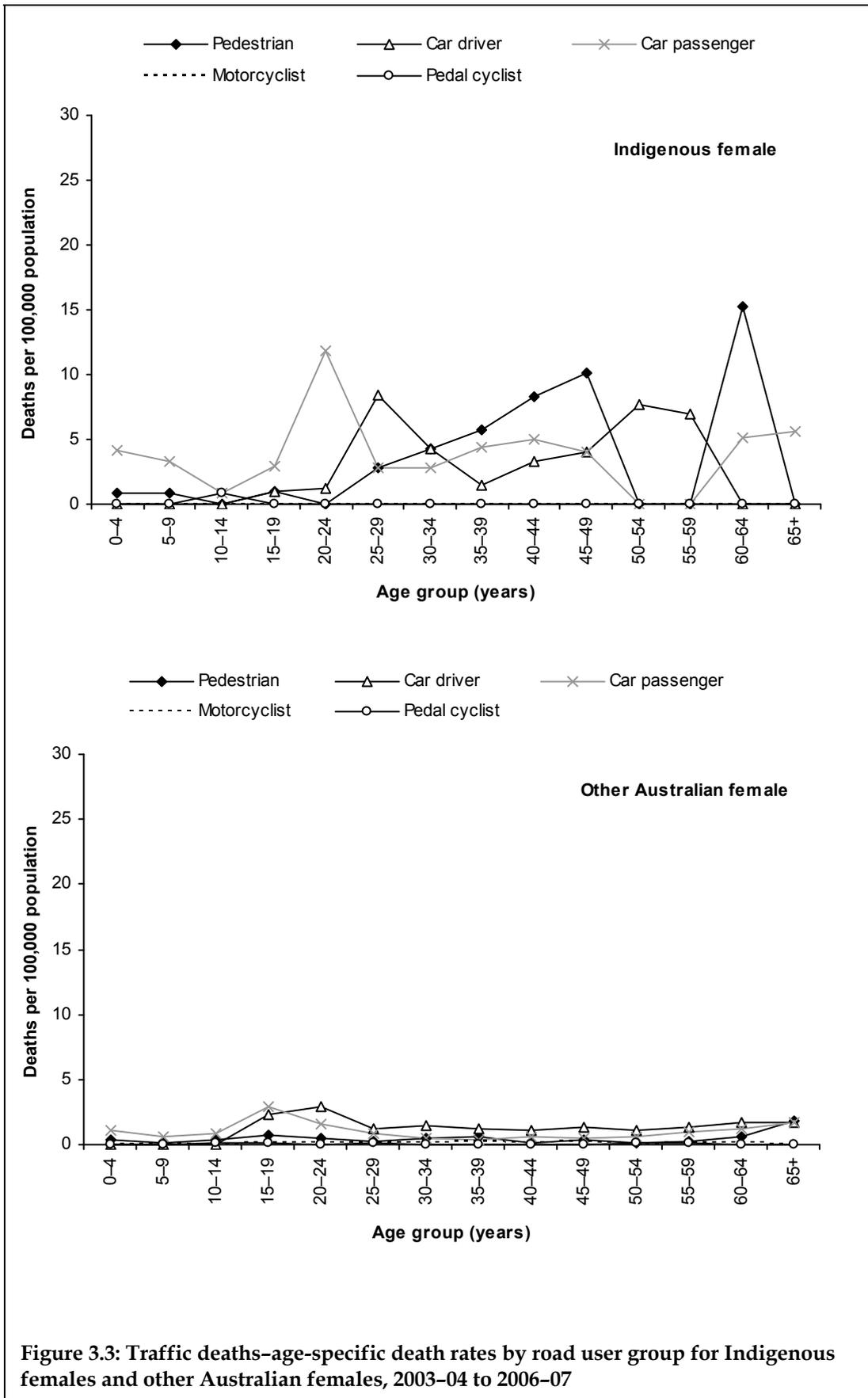


Figure 3.2: Traffic deaths—age-specific death rates by road user group for Indigenous males and other Australian males, 2003-04 to 2006-07



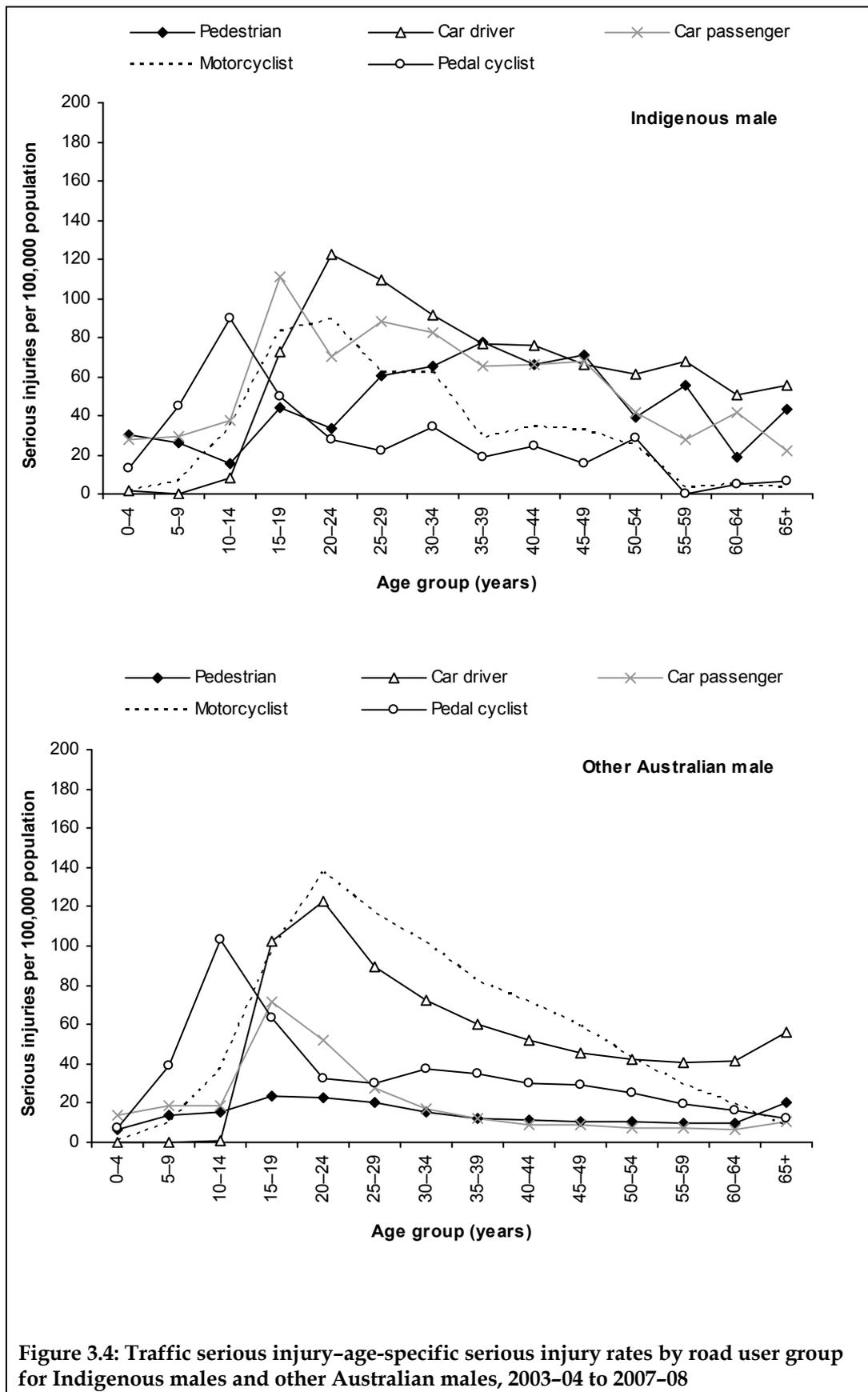
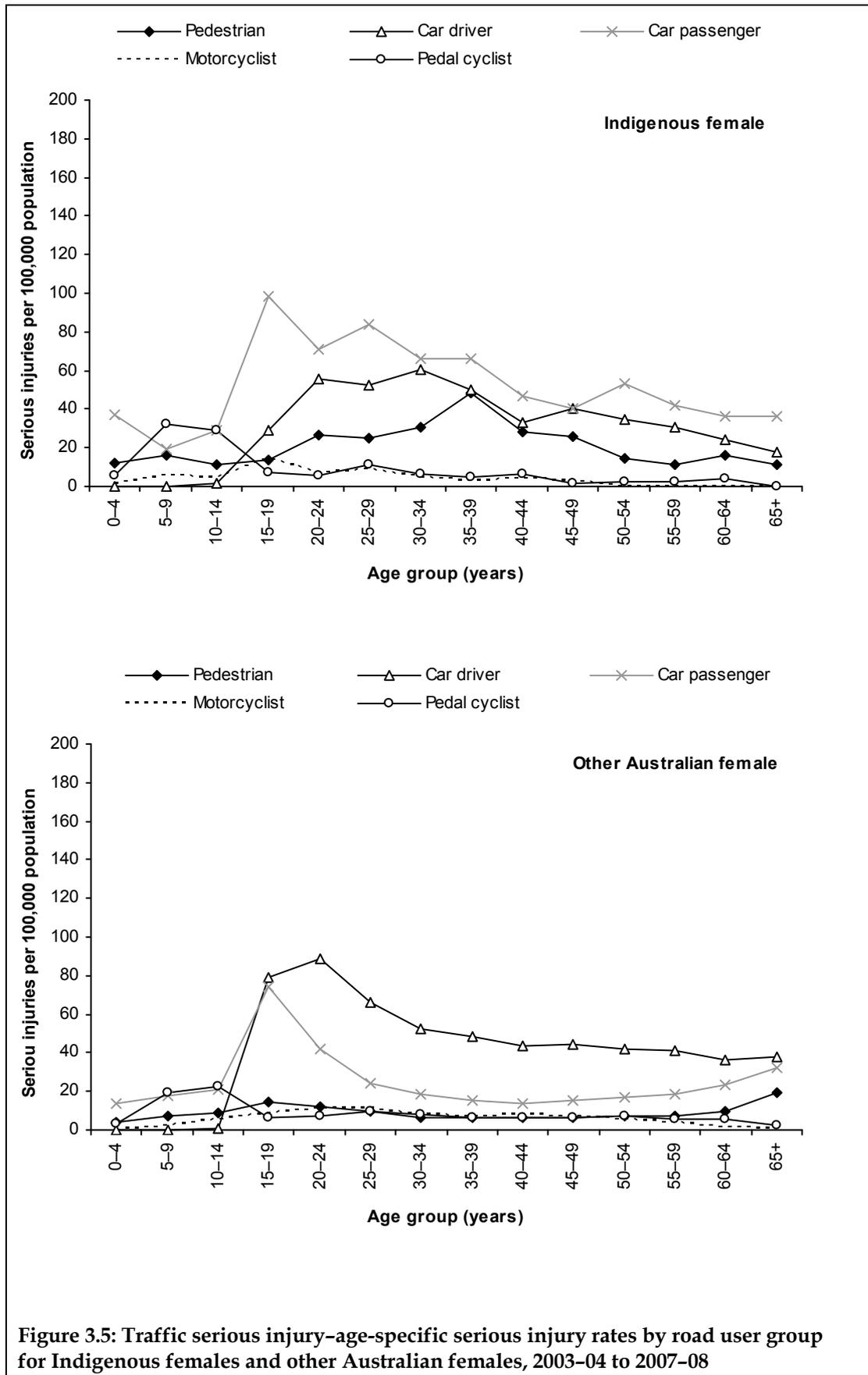


Figure 3.4: Traffic serious injury-age-specific serious injury rates by road user group for Indigenous males and other Australian males, 2003-04 to 2007-08



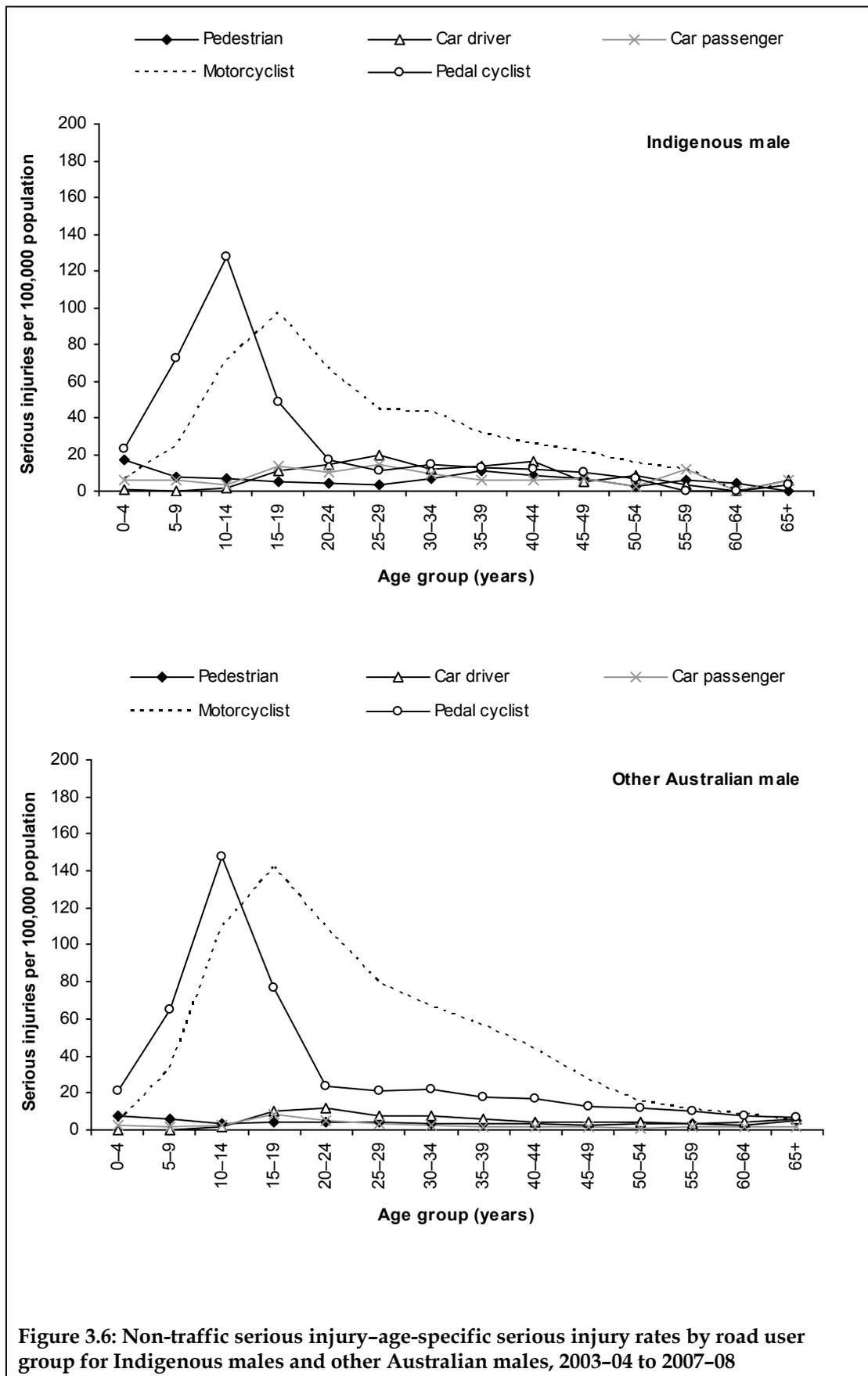


Figure 3.6: Non-traffic serious injury-age-specific serious injury rates by road user group for Indigenous males and other Australian males, 2003-04 to 2007-08

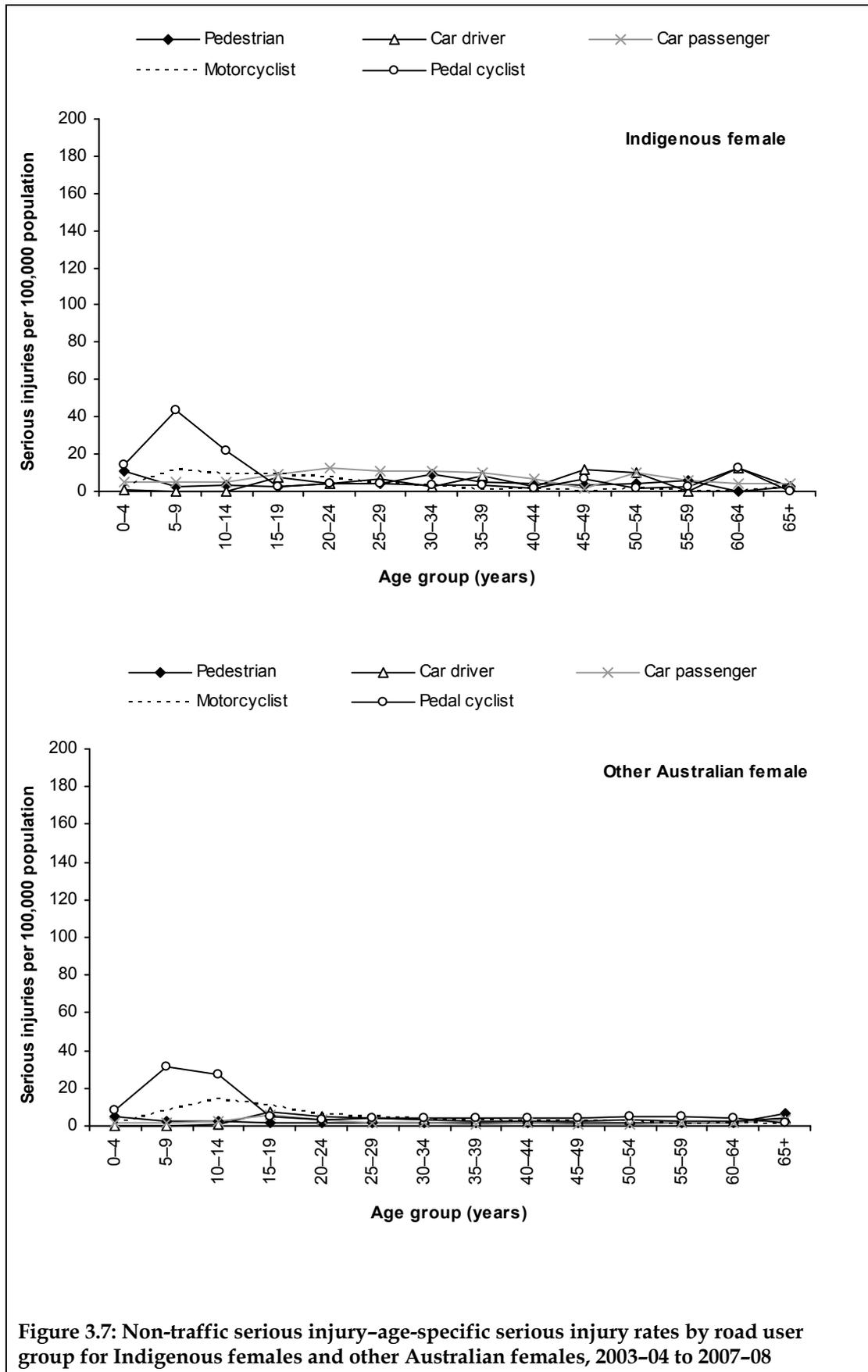


Figure 3.7: Non-traffic serious injury-age-specific serious injury rates by road user group for Indigenous females and other Australian females, 2003-04 to 2007-08

## Remoteness area

In this report, fatal and serious injury cases by remoteness of a person's usual residence are presented for the four-year period of 2003–04 to 2006–07 for fatally injured persons and the five-year period of 2003–04 to 2007–08 for seriously injured persons (Table 3.4).

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 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.

In general, age-standardised rates of fatal and serious injury increased according to remoteness of the person's usual residence from an urban centre for Aboriginal and Torres Strait Islander people and other Australians (Table 3.5 and Figure 3.8). For Aboriginal and Torres Strait Islander people, 70% of those fatally injured and 60% of those seriously injured in road crashes (traffic and non-traffic) resided in outer regional, remote or very remote areas (Table 3.4). By contrast, close to four-fifths of other Australians fatally (79%) and seriously injured (82%) resided in major cities or inner regional areas.

Taking into account the Aboriginal and Torres Strait Islander and other Australians populations in each of the remoteness areas, fatal injury rates for Aboriginal and Torres Strait Islander males were higher than rates for other Australian males across all remoteness zones. However, Aboriginal and Torres Strait Islander rates were only significantly higher in the remote and very remote zones. Fatal injury rates for Aboriginal and Torres Strait Islander females were also higher than rates for other Australian females across all remoteness zones, although this difference was only significant for the remote zone.

Aboriginal and Torres Strait Islander males and females living in major cities had serious injury rates that were similar to that for other Australian males and females. Serious injury rates for other Australian males were significantly higher (1.3 to 1.4 times) than rates for Aboriginal and Torres Strait Islander males for the remaining remoteness zones. Serious injury rates for other Australian females were also higher (1.1 to 1.4 times) than rates for Aboriginal and Torres Strait Islander females for the remaining remoteness zones, although not significantly so for the remote zone.

The generally higher serious injury rates for other Australian persons, especially males, observed in zones outside of major cities is largely due to the fact that other Australians had higher rates of serious injury in land transport accidents in non-traffic conditions (see Figure 3.9), 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).

Aboriginal and Torres Strait Islander male rates of fatal and serious injury were (at least) twice the rate observed for Aboriginal and Torres Strait Islander females in each remoteness area (with one exception: only 1.5 times more males than females dwelling in a remote area died in a land transport crash), and other Australian male rates were also (at least) twice the rate observed for other Australian females in each remoteness area.

**Table 3.4: Land transport fatal injury cases and serious injury cases by remoteness area of residence and Indigenous status for persons involved in land transport accidents**

ASGC remoteness area of residence	Indigenous Australians				Other Australians				Per cent Indigenous cases per remoteness area
	Male	Female	Persons		Male	Female	Persons		
	Count	Count	Count	Per cent	Count	Count	Count	Per cent	
<b>Fatal injury (2003–04 to 2006–07)</b>									
Major cities	37	10	47	14%	2,148	739	2,887	51%	2%
Inner regional	31	13	44	13%	1,143	415	1,558	28%	3%
Outer regional	37	23	60	18%	613	210	823	15%	7%
Remote	29	20	49	15%	118	37	155	3%	24%
Very remote	94	32	126	37%	53	20	73	1%	63%
<b>Total<sup>(a)</sup></b>	<b>235</b>	<b>102</b>	<b>337</b>	<b>100%</b>	<b>4,160</b>	<b>1,472</b>	<b>5,632</b>	<b>100%</b>	<b>6%</b>
<b>Serious injury (2003–04 to 2007–08)</b>									
Major cities	1,132	544	1,676	22%	90,113	43,634	133,750	58%	1%
Inner regional	924	394	1,318	18%	38,786	17,390	56,177	24%	2%
Outer regional	1,183	559	1,742	23%	22,639	8,893	31,533	14%	5%
Remote	640	317	957	13%	4,500	1,570	6,071	3%	14%
Very remote	1,168	600	1,768	24%	1,793	729	2,522	1%	41%
<b>Total<sup>(b)</sup></b>	<b>5,064</b>	<b>2,417</b>	<b>7,481</b>	<b>100%</b>	<b>158,123</b>	<b>72,370</b>	<b>230,499<sup>(c)</sup></b>	<b>100%</b>	<b>3%</b>

(a) ASGC remoteness area of residence not reported for 11 Indigenous Australians (male = 7, female = 4) and 136 other Australians (male = 85, female = 51).

(b) ASGC remoteness area of residence not reported for 20 Indigenous Australians (male = 17, female = 3) and 446 other Australians (male = 292, female = 154).

(c) Gender not stated for 6 other Australians seriously injured.

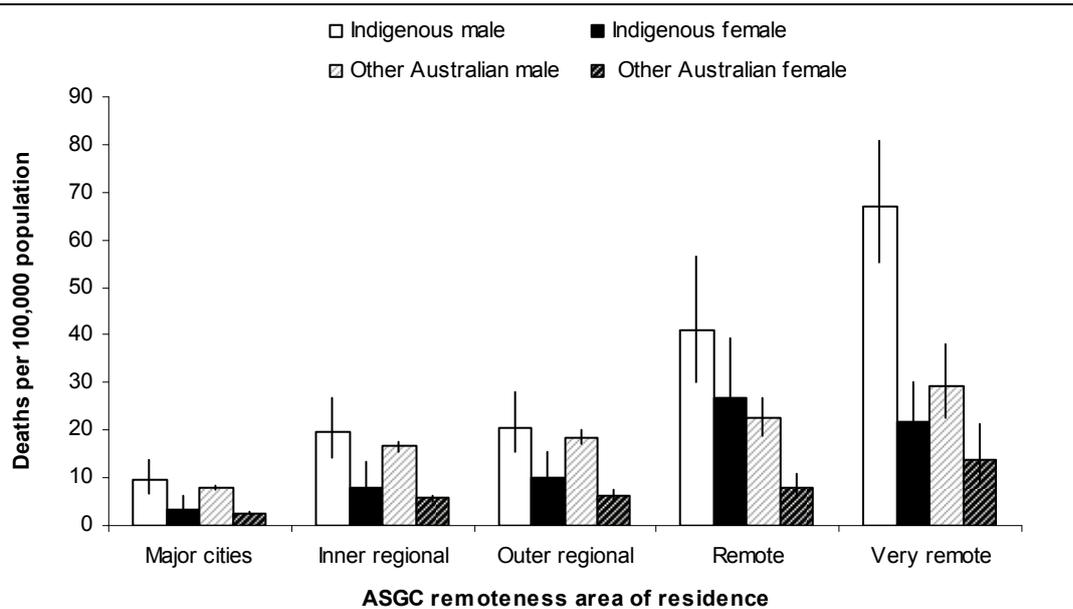
Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

**Table 3.5: Age-standardised fatal and serious injury rates by remoteness area of residence and Indigenous status for persons involved in land transport accidents**

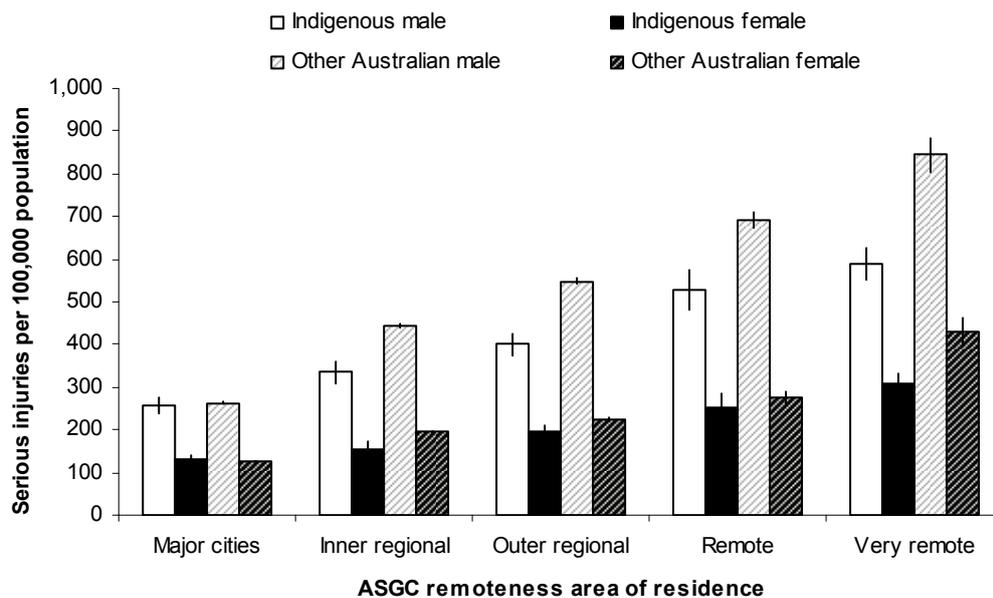
ASGC remoteness area of residence	Age-standardised rate <sup>(a)</sup> per 100,000 population (95% CI)					
	Indigenous Australians			Other Australians		
	Male	Female	Persons	Male	Female	Persons
<b>Fatal injury (2003–04 to 2006–07)</b>						
Major cities	10 (7–14)	3 (2–6)	7 (5–9)	8 (8–8)	3 (2–3)	5 (5–5)
Inner regional	20 (14–27)	8 (5–13)	14 (11–18)	17 (16–18)	6 (5–6)	11 (11–12)
Outer regional	21 (15–28)	10 (7–16)	15 (12–19)	19 (17–20)	6 (6–7)	13 (12–14)
Remote	41 (30–56)	27 (18–39)	33 (26–43)	22 (19–27)	8 (6–11)	16 (13–18)
Very remote	67 (55–81)	22 (16–30)	44 (37–52)	29 (22–38)	14 (9–21)	23 (18–28)
<b>Serious injury (2003–04 to 2007–08)</b>						
Major cities	257 (239–275)	129 (116–142)	192 (181–203)	264 (262–265)	125 (124–126)	194 (193–195)
Inner regional	335 (310–360)	155 (138–173)	246 (230–261)	446 (441–450)	195 (192–198)	321 (319–324)
Outer regional	401 (375–427)	194 (176–212)	296 (281–312)	549 (541–556)	223 (219–228)	392 (387–396)
Remote	528 (480–576)	254 (224–285)	388 (360–416)	691 (671–711)	274 (261–288)	495 (482–507)
Very remote	588 (550–627)	306 (279–333)	444 (421–468)	845 (804–885)	431 (399–463)	659 (632–685)

(a) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatally injured persons and over the five years 2003–04 to 2007–08 for seriously injured persons, adjusted by direct standardisation to the Australian population in June 2001

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).



Note: Rates for fatally injured persons are averages of annual rates over the four years 2003–04 to 2006–07 adjusted by direct standardisation to the Australian population in June 2001.



Note: Rates for seriously injured persons are averages of annual rates over the five years 2003–04 to 2007–08 adjusted by direct standardisation to the Australian population in June 2001.

**Figure 3.8: Age-standardised death (top) and serious injury (bottom) rates by remoteness area and Indigenous status for persons involved in land transport accidents**

## Traffic and non-traffic comparisons

The numbers of deaths stratified by remoteness area are sparse and therefore preclude a more detailed examination of the nature and circumstances of land transport deaths by remoteness area. 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 3.6 and Figure 3.9). In traffic conditions, Aboriginal and Torres Strait Islander people had similar rates of hospitalisation (based on age-standardised rates) to other Australians across all remoteness rates. The only notable differences were for other Australian males living in inner regional zones, where rates were significantly higher than those for Aboriginal and Torres Strait Islander males, and for Aboriginal and Torres Strait Islander females living in remote zones where rates were significantly higher than those for other Australian females. For Aboriginal and Torres Strait Islander people and other Australians, the hospitalisation rate from traffic injury increased by remoteness of the person's usual residence. In each remoteness area, hospitalisation rates for traffic injury for Aboriginal and Torres Strait Islander males ranged from almost twice to over twice the rate observed for Aboriginal and Torres Strait Islander females, and a similar finding was observed for other Australian males compared to other Australian females.

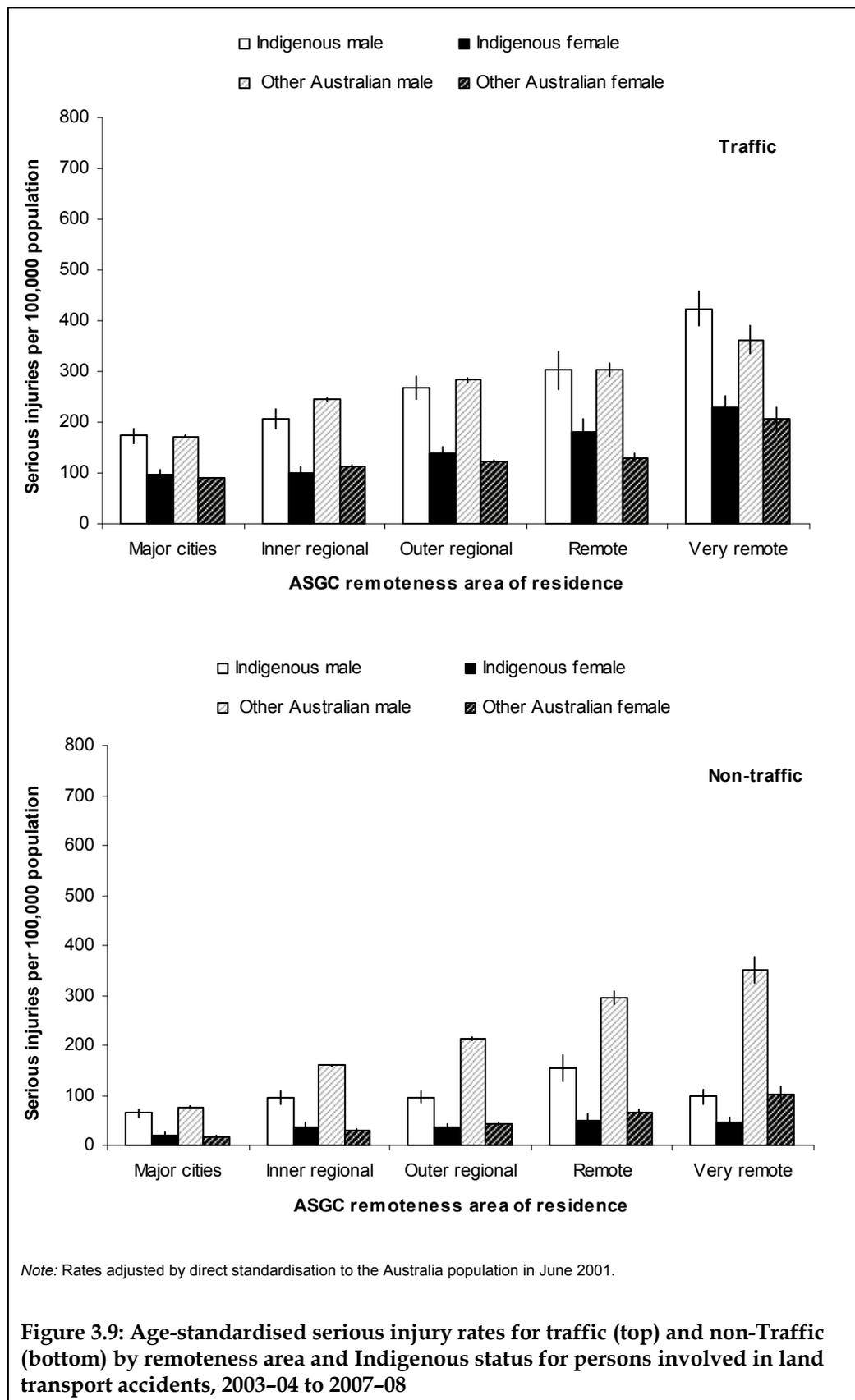
In non-traffic conditions, hospitalisation rates were similar for Aboriginal and Torres Strait Islander males and other Australian males who lived in major cities. However, rates of hospitalisation for other Australians and Aboriginal and Torres Strait Islander males diverged from each other as the location of the person's usual residence became more remote. Rates for other Australian males were around twice as high as the rates for Aboriginal and Torres Strait Islander males in the inner regional, outer regional and remote zones and 3.6 times as high in the very remote zone. Rates for Aboriginal and Torres Strait Islander females and other Australian females were broadly similar across all remoteness zones except for the very remote zone where the other Australians rate was 2.2 times that of the Aboriginal and Torres Strait Islander rate.

**Table 3.6: Age-standardised hospitalisation rates<sup>(a)</sup> by remoteness area of residence and Indigenous status for persons involved in land transport accidents, 2003–04 to 2007–08**

ASGC remoteness area of residence	Age-standardised rate <sup>(a)</sup> per 100,000 population (95% CI)					
	Indigenous Australians			Other Australians		
	Male	Female	Persons	Male	Female	Persons
<b>Traffic</b>						
Major cities	173 (158–188)	97 (86–108)	134 (124–143)	171 (170–173)	90 (89–91)	131 (130–132)
Inner regional	207 (186–227)	100 (85–114)	153 (141–166)	244 (241–247)	113 (111–115)	179 (177–181)
Outer regional	269 (247–292)	138 (122–153)	202 (189–216)	283 (278–288)	122 (118–125)	205 (202–208)
Remote	302 (265–339)	180 (154–206)	240 (217–262)	304 (291–318)	130 (121–140)	222 (214–231)
Very remote	424 (390–458)	229 (206–253)	324 (304–344)	363 (336–389)	205 (183–228)	292 (274–309)
<b>Non-traffic</b>						
Major cities	64 (56–72)	20 (15–25)	42 (38–47)	77 (76–78)	18 (17–18)	48 (47–48)
Inner regional	95 (83–107)	36 (27–46)	66 (59–74)	159 (157–162)	31 (29–32)	96 (94–97)
Outer regional	96 (85–108)	36 (29–43)	66 (60–73)	213 (208–217)	42 (40–45)	130 (128–133)
Remote	154 (128–181)	50 (38–62)	100 (87–114)	295 (281–308)	67 (60–74)	187 (180–195)
Very remote	97 (83–111)	46 (36–57)	71 (63–80)	349 (323–375)	102 (87–118)	238 (222–254)

(a) Rates adjusted by direct standardisation to the Australian population in June 2001.

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).



## **Remoteness areas by injured person's vehicle and Indigenous status**

Figures 3.4 to 3.7 show age and sex specific rates of serious injury by Indigenous status, age, sex, road user role (e.g. driver) and whether injury occurred in traffic or not. Figures 3.10 to 3.15 show similar information except that each figure presents data on serious transport injury for people who usually live in a particular remoteness zone: Major cities (Figures 3.10 and 3.11), Regional areas (Figures 3.12 and 3.13) and Remote areas (Figures 3.14 and 3.15).

Patterns of injury rates were broadly similar between the remoteness zones, though with some exceptions:

- Rates tended to rise with remoteness
- Patterns of rates for Aboriginal and Torres Strait Islander people were most similar to those for other Australians in Major cities, and most different for those in Remote areas. Notable differences in the Remote zone are the high rates of injury of Aboriginal and Torres Strait Islander people as car passengers, and the high rates of other Australian male injury due to motorcycle crashes.
- In all remoteness zones, but especially the most remote, Aboriginal and Torres Strait Islander rates of injury as pedestrians are high throughout adulthood.

Figures 3.16 to 3.19 depict age-specific injury rates for traffic and non-traffic conditions in remote and very remote locations. Notably, Aboriginal and Torres Strait Islander and other Australians rates for child pedal cyclists were higher in non-traffic than traffic conditions.

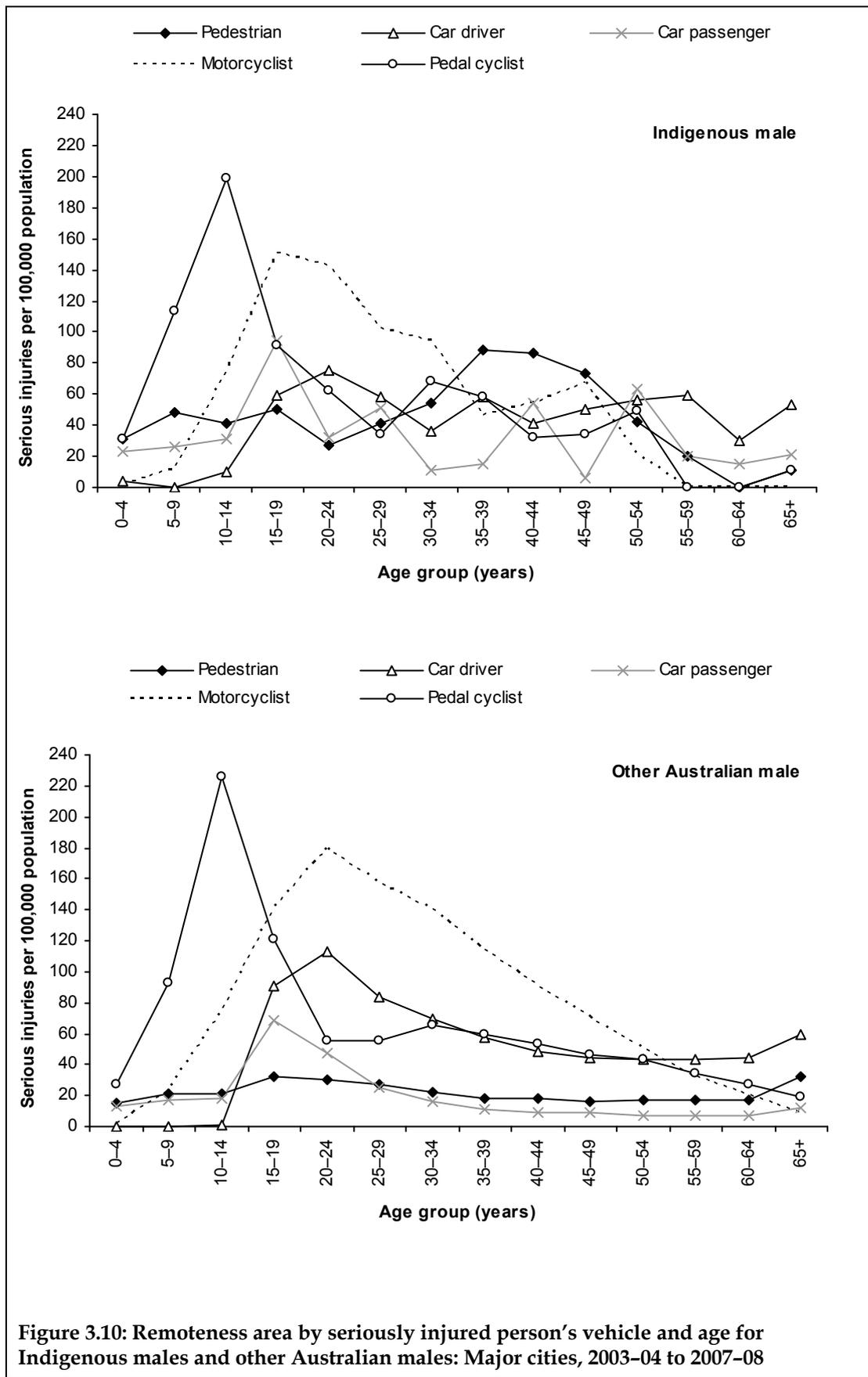


Figure 3.10: Remoteness area by seriously injured person's vehicle and age for Indigenous males and other Australian males: Major cities, 2003-04 to 2007-08

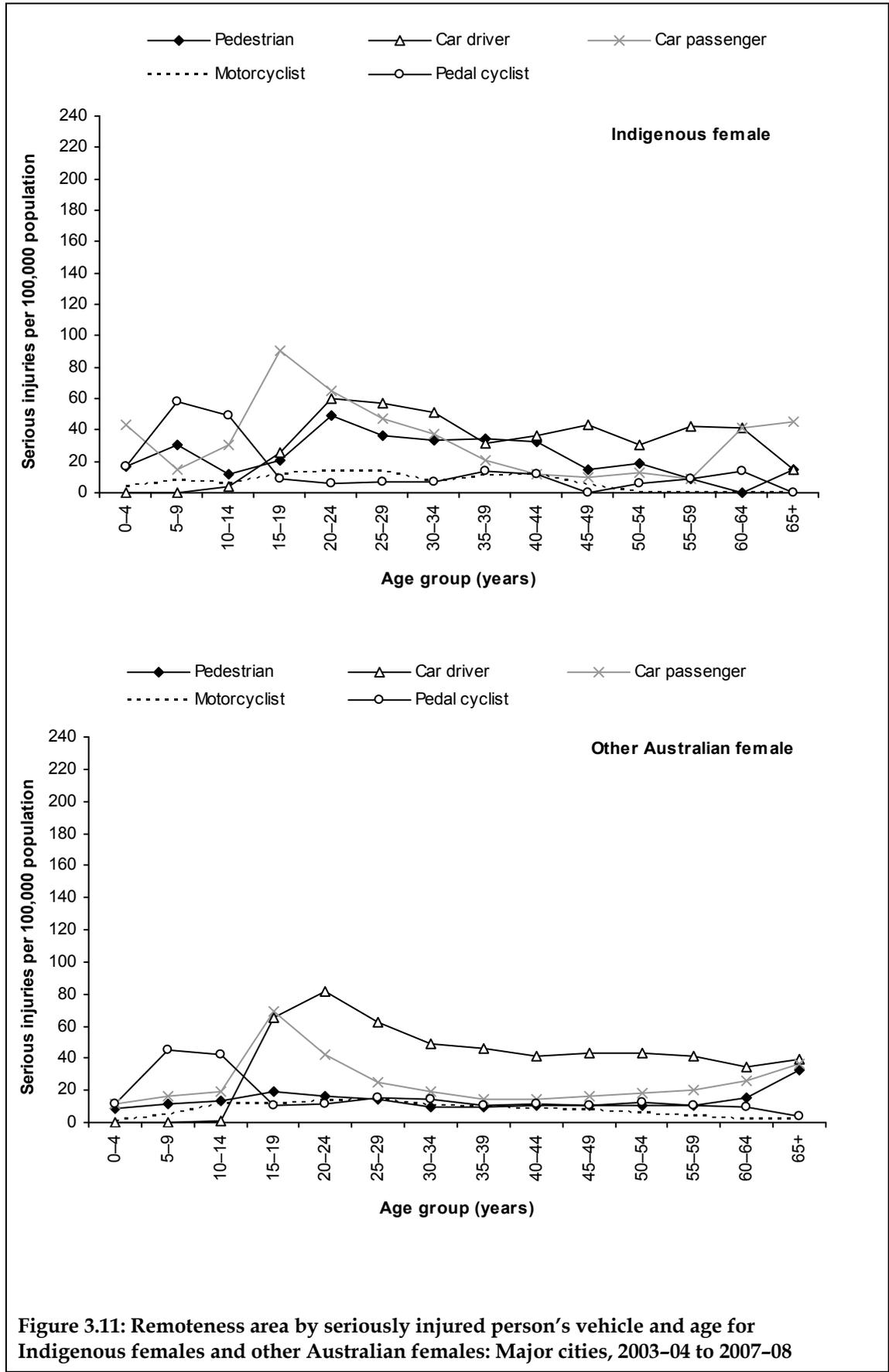


Figure 3.11: Remoteness area by seriously injured person's vehicle and age for Indigenous females and other Australian females: Major cities, 2003-04 to 2007-08

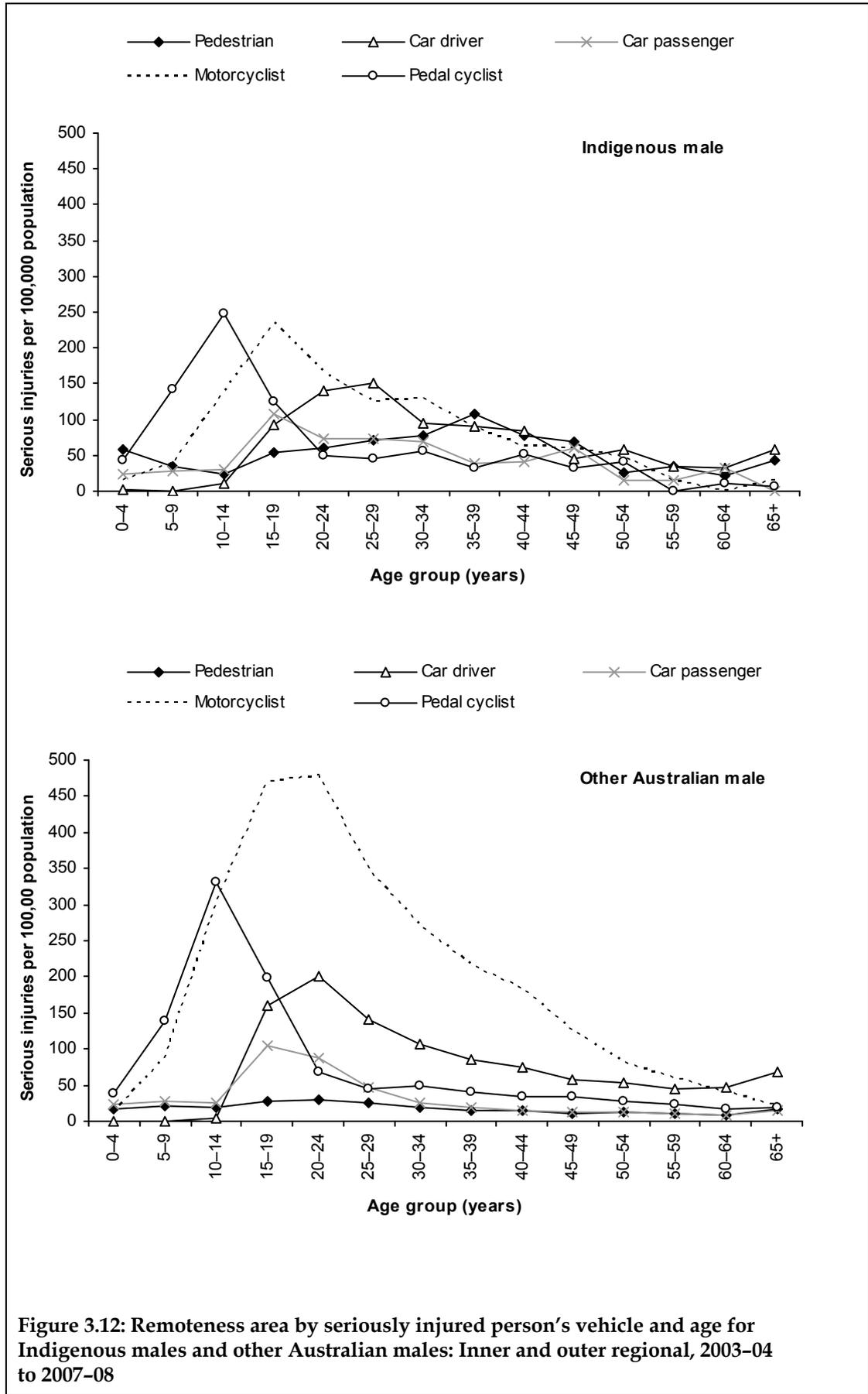


Figure 3.12: Remoteness area by seriously injured person's vehicle and age for Indigenous males and other Australian males: Inner and outer regional, 2003-04 to 2007-08

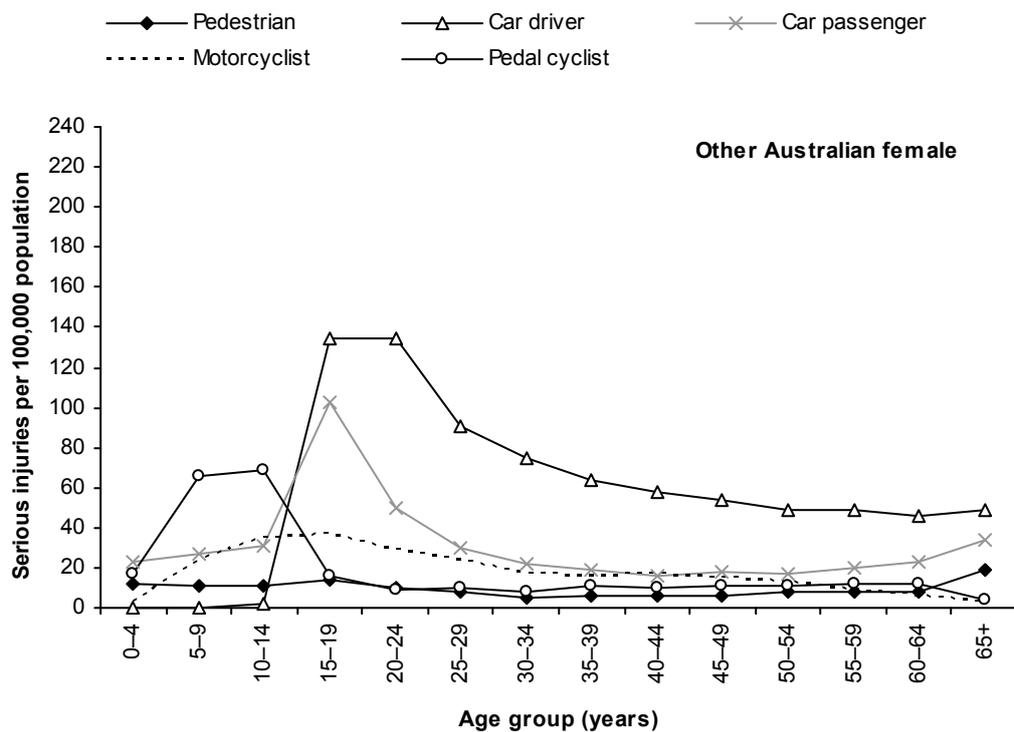
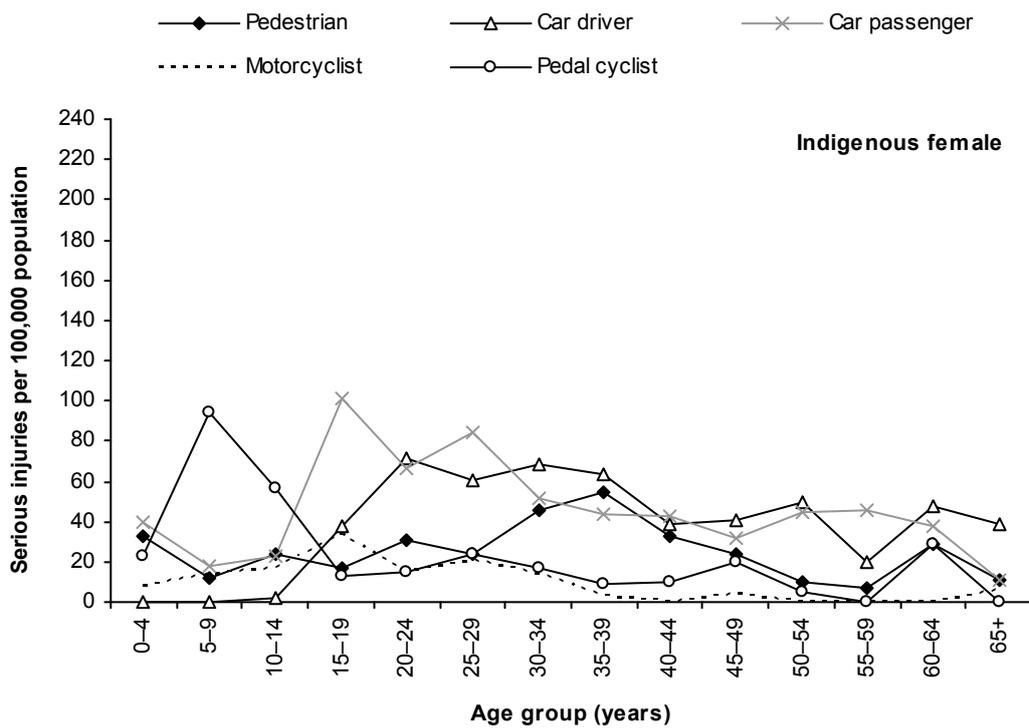


Figure 3.13: Remoteness area by seriously injured person's vehicle and age for Indigenous females and other Australian females: Inner and outer regional, 2003-04 to 2007-08

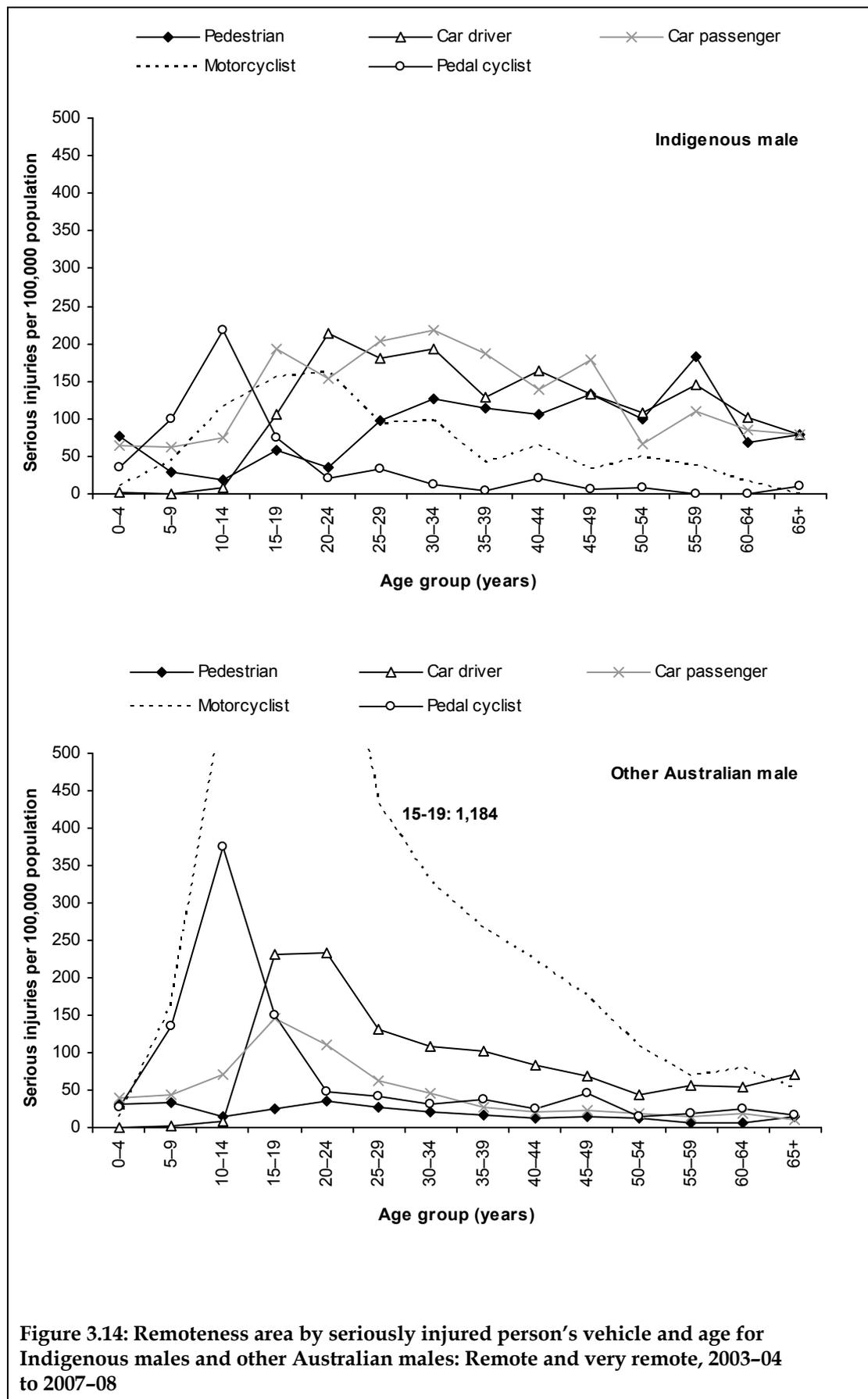


Figure 3.14: Remoteness area by seriously injured person's vehicle and age for Indigenous males and other Australian males: Remote and very remote, 2003-04 to 2007-08

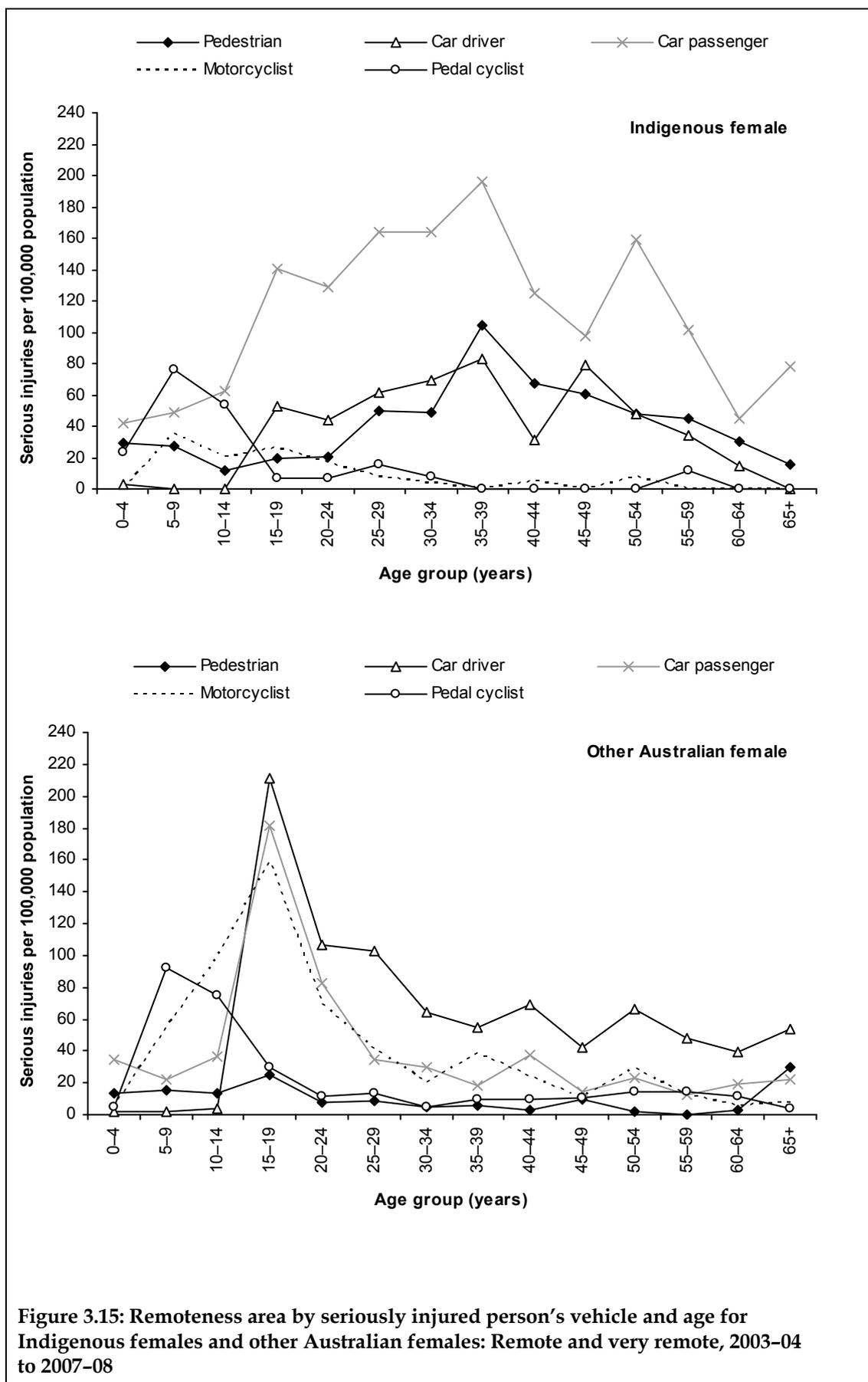


Figure 3.15: Remoteness area by seriously injured person's vehicle and age for Indigenous females and other Australian females: Remote and very remote, 2003-04 to 2007-08

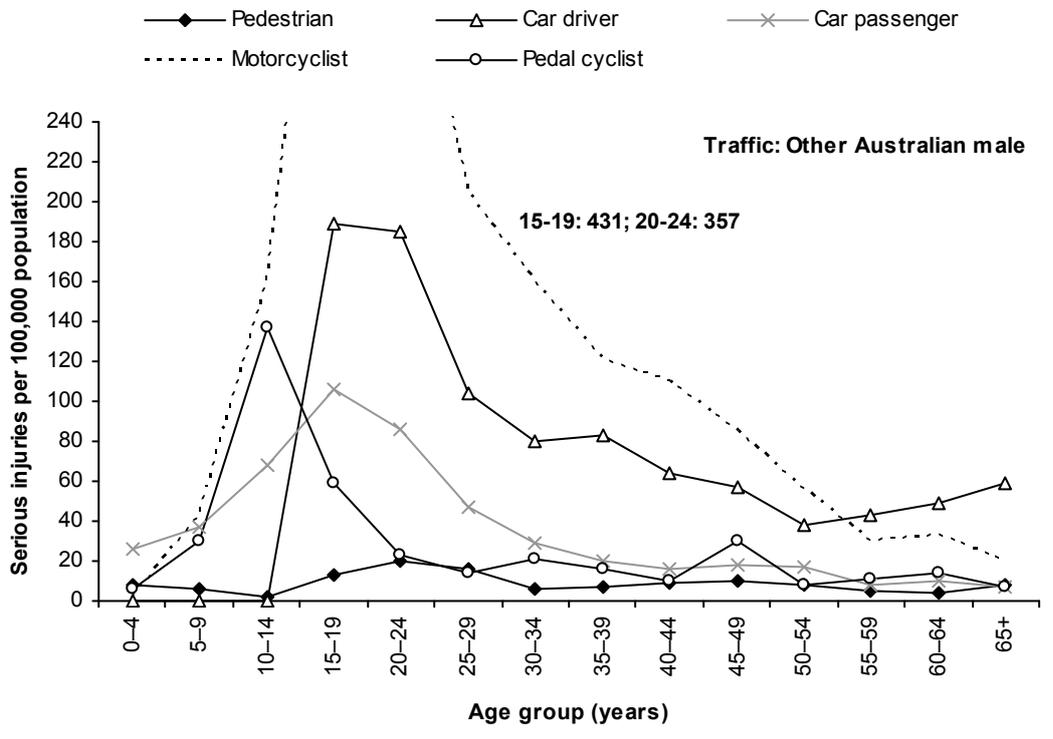
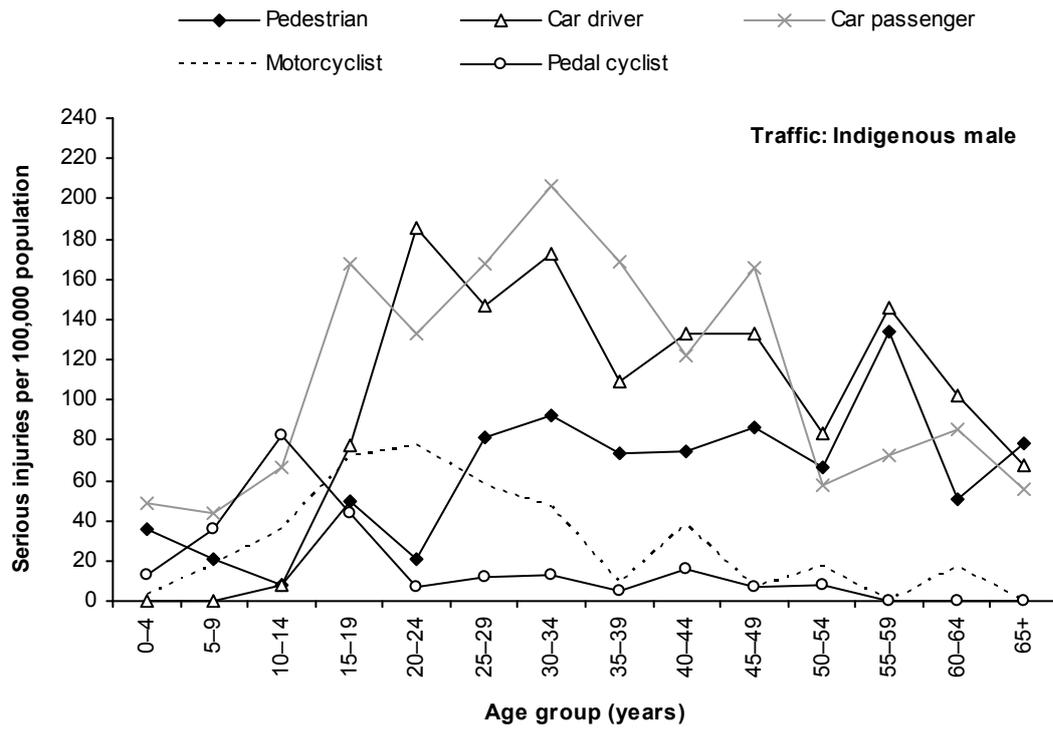


Figure 3.16: Traffic – Remoteness area by seriously injured person’s vehicle and age for Indigenous males and other Australian males: Remote and very remote, 2003-04 to 2007-08

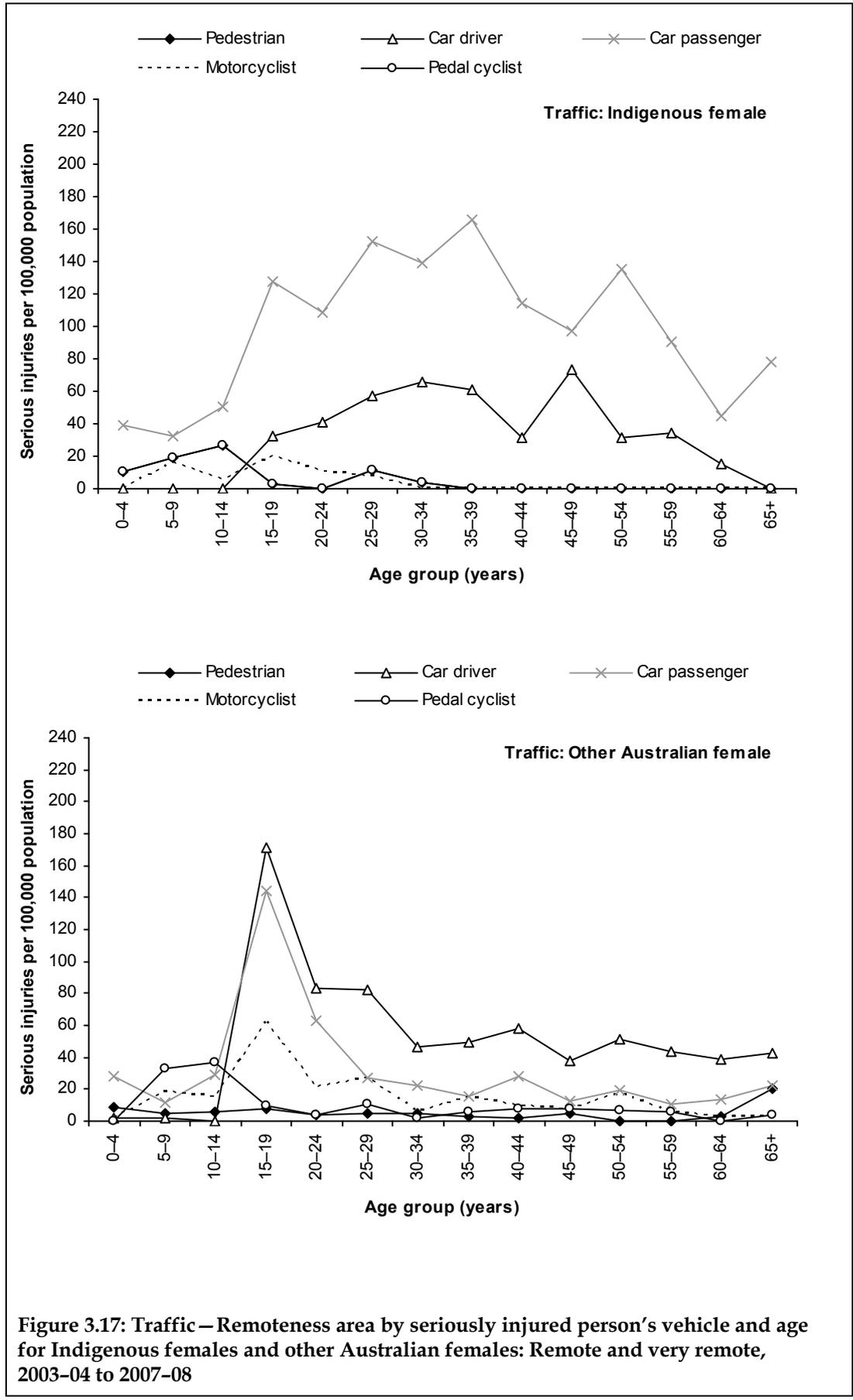
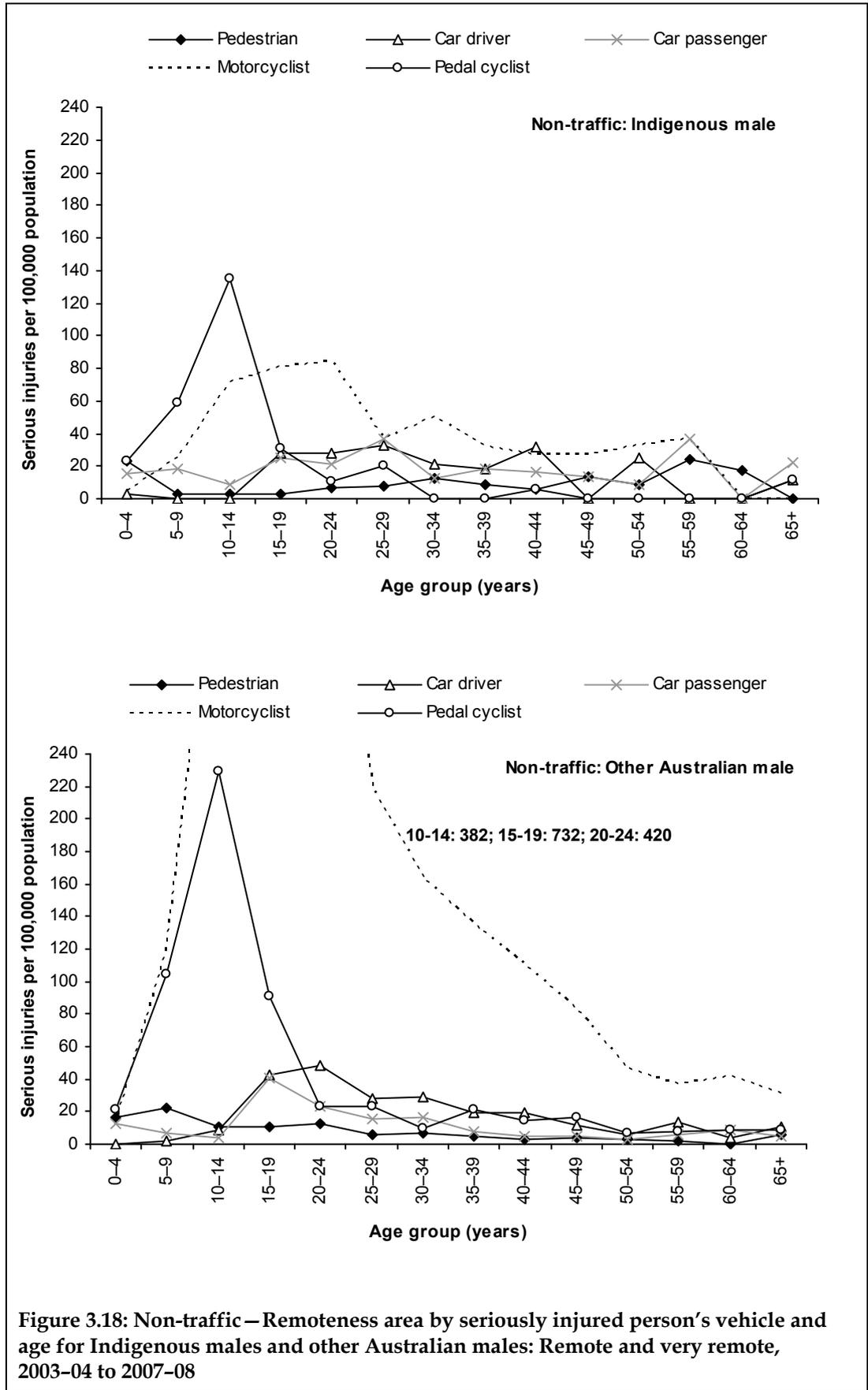


Figure 3.17: Traffic – Remoteness area by seriously injured person’s vehicle and age for Indigenous females and other Australian females: Remote and very remote, 2003-04 to 2007-08



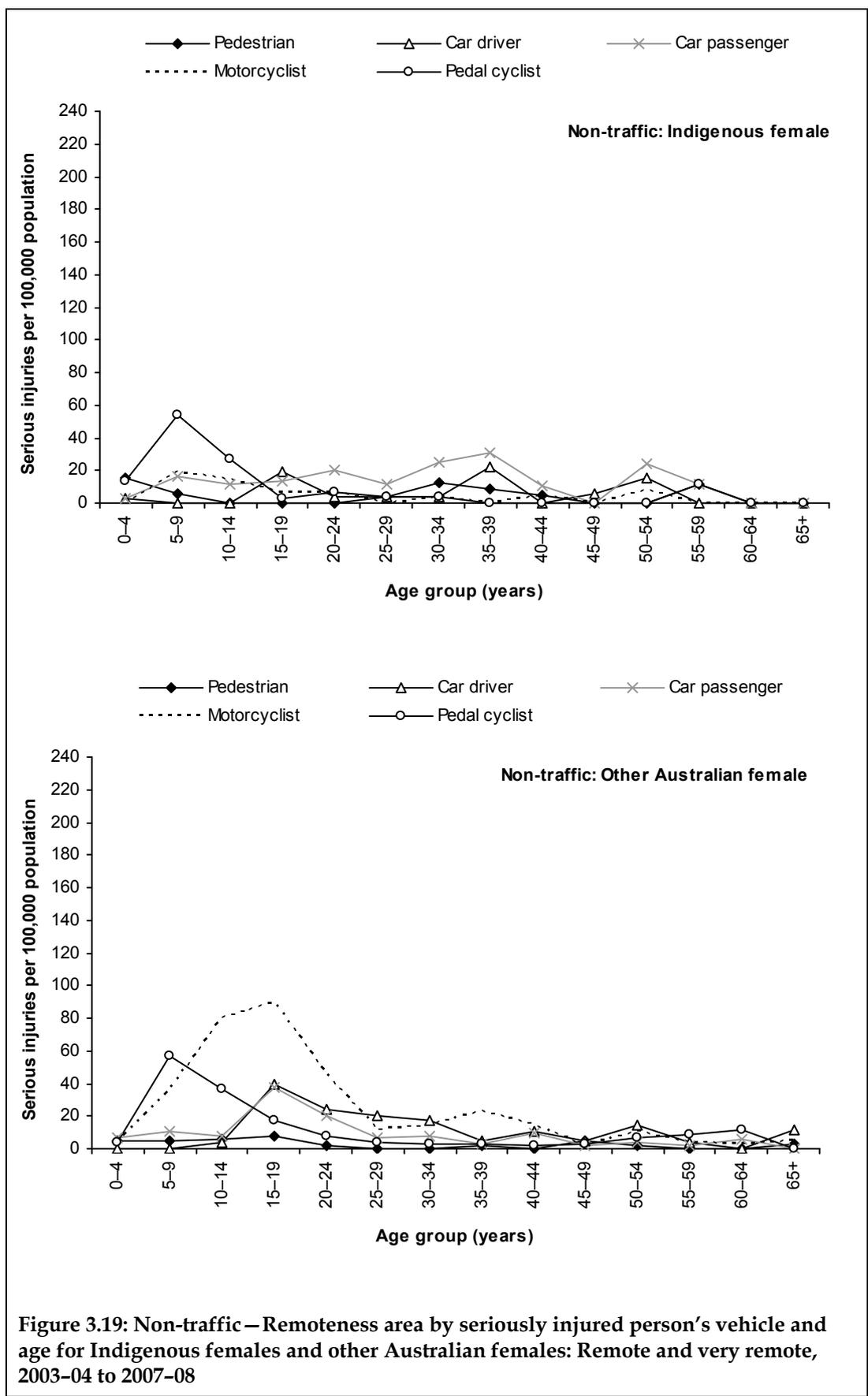


Figure 3.19: Non-traffic – Remoteness area by seriously injured person’s vehicle and age for Indigenous females and other Australian females: Remote and very remote, 2003–04 to 2007–08

## **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 Aboriginal and Torres Strait Islander people is specified in Tables 3.7 and 3.8, 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. For fatally injured Aboriginal and Torres Strait Islander people, the most common counterpart in a collision was a collision with a car, pick-up truck or van (31%), followed by a non-collision transport accident (26%), while for seriously injured Aboriginal and Torres Strait Islander people, the most common counterpart in a collision was a non-collision transport accident (42%), followed by a collision with a car, pick-up truck or van (22%).

**Table 3.7: Mechanism of injury for Indigenous Australians fatally injured in land transport accidents, 2003-04 to 2006-07**

Injured person	Counterpart in collision										Total <sup>(b)</sup>
	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 <sup>(a)</sup>	Other and unspecified transport accidents	
Car occupant	25	0	0	*	11	*	0	59	82	12	191
Motorcyclist	5	0	0	0	0	0	0	*	*	*	13
Pedal cyclist	*	0	0	0	*	0	0	0	*	0	*
Pedestrian	72	0	0	0	13	8	0	0	0	7	100
Occupant of pick-up truck or van	0	0	0	0	*	0	0	*	*	0	5
Occupant of heavy transport vehicle	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	0	16	16
<b>Total</b>	<b>104</b>	<b>0</b>	<b>0</b>	<b>*</b>	<b>28</b>	<b>*</b>	<b>0</b>	<b>65</b>	<b>89</b>	<b>41</b>	<b>337</b>

(a) 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.

(b) Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

Notes: Shading denotes the 3 highest figures in the table.

Small counts ( $n < 5$ ) are omitted and are indicated by the symbol (\*).

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

**Table 3.8: Mechanism of injury for Indigenous Australians seriously injured in land transport accidents, 2003-04 to 2007-08**

Injured person	Counterpart in collision										Total <sup>(b)</sup>
	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 <sup>(a)</sup>	Other and unspecified transport accidents	
Car occupant	570	*	0	39	68	6	*	674	1,449	356	3,167
Motorcyclist	79	33	*	11	5	*	*	155	578	271	1,135
Pedal cyclist	129	*	7	*	5	*	0	54	730	332	1,265
Pedestrian	846	26	14	*	41	5	8	0	0	123	1,064
Occupant of pick-up truck or van	12	0	0	*	*	0	0	14	83	*	119
Occupant of heavy transport vehicle	*	0	0	0	*	*	0	*	27	10	46
Bus occupant	*	0	0	0	*	0	0	*	22	15	45
Animal rider or occupant of animal-drawn vehicle	0	0	*	*	0	0	0	6	260	62	331
Occupant of special all-terrain or off-road vehicle	0	0	0	0	0	0	0	0	0	96	96
Occupant of three-wheeled motor vehicle	0	0	0	0	0	0	0	*	*	*	9
Occupant of a tram	0	0	0	0	0	0	0	0	0	14	14
Occupant of a train	0	0	0	0	0	0	0	0	0	18	18
Occupant of special agricultural or industrial or construction vehicle	0	0	0	0	0	0	0	0	0	31	31
Unknown	0	0	0	0	0	0	0	0	*	118	141
<b>Total</b>	<b>1,643</b>	<b>67</b>	<b>23</b>	<b>57</b>	<b>123</b>	<b>14</b>	<b>11</b>	<b>912</b>	<b>3,174</b>	<b>1,457</b>	<b>7,481</b>

(a) 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.

(b) Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

Notes: Shading denotes the 3 highest figures in the table.

Small counts ( $n < 5$ ) are omitted and are indicated by the symbol (\*).

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

Three of the four most common mechanisms of injury resulting in fatal and serious injury for Aboriginal and Torres Strait Islander people in traffic conditions involved car occupants (Table 3.9). Just over one-quarter (26%) of fatal injuries in Aboriginal and Torres Strait Islander people in traffic conditions involved a car occupant injured in a non-collision transport accident (e.g. rollover), compared to just over 6% for other Australians. A similar pattern was observed for those seriously injured.

The percentage of Aboriginal and Torres Strait Islander pedestrians fatally and seriously injured in a collision with a car, pick-up truck or van was approximately double that for other Australian pedestrians for both traffic and non-traffic conditions. Injury involving non-traffic (off-road) accidents was much more prominent among those seriously injured when compared to those fatally injured for Aboriginal and Torres Strait Islander people and other Australians.

For other Australians, over twice as many drivers compared with passengers were fatally and seriously injured (Tables 3.10 and 3.11). Similar numbers of car drivers and car passengers were killed among Aboriginal and Torres Strait Islander people, but 1.4 times 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 Aboriginal and Torres Strait Islander people, suggests a higher average number of passengers per vehicle compared to other Australians, resulting in more persons injured per crash.

**Table 3.9: Most common mechanisms of injury for land transport by Indigenous status**

Mechanism of injury	Indigenous Australians		Other Australians	
	Traffic (per cent)	Non-traffic (per cent)	Traffic (per cent)	Non-traffic (per cent)
<b>Fatal injury (2003–04 to 2006–07)</b>	(n = 299)	(n = 26)	(n = 5,116)	(n = 382)
Car occupant injured in a non-collision transport accident	25.8	19.2	6.3	8.6
Pedestrian injured in a collision with a car, pick-up truck or van	21.1	26.9	10.1	11.3
Car occupant injured in a collision with a fixed or stationary object	19.1	7.7	24.0	8.1
Car occupant injured in a collision with a car, pick-up truck or van	8.0	3.8	17.3	1.3
All other mechanisms	26.1	42.3	42.3	70.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Serious injury (2003–04 to 2007–08)</b>	(n = 4,826)	(n = 1,906)	(n = 142,461)	(n = 62,680)
Car occupant injured in a non-collision transport accident	24.1	12.5	8.4	5.2
Pedestrian injured in a collision with a car, pick-up truck or van	14.0	4.4	7.1	2.5
Car occupant injured in a collision with a fixed or stationary object	12.2	4.4	12.4	3.7
Car occupant injured in a collision with a car, pick-up truck or van	11.5	0.9	24.5	1.1
Pedal cyclist injured in a non-collision transport accident	4.7	26.3	4.3	22.7
Motorcyclist injured in a non-collision transport accident	4.1	19.9	7.1	28.6
All other mechanisms	29.5	31.6	36.2	36.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

Table 3.10: Mechanism of fatal injury for car occupants, 2003-04 to 2006-07

Injured person	Counterpart in collision										Total <sup>(b)</sup>	Per cent <sup>(c)</sup>
	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 <sup>(a)</sup>	Other and unspecified transport accident		
<b>Fatal injury—Indigenous Australians (n = 337)</b>												
Car occupant	25	0	0	*	11	*	0	59	82	*	191	56.7
Driver	8	0	0	0	7	*	0	36	35	*	88	26.1
Passenger (inside of vehicle)	17	0	0	*	*	0	0	20	37	*	83	24.6
Passenger (outside of vehicle)	0	0	0	0	0	0	0	*	*	0	*	*
Boarding or alighting	0	0	0	0	0	0	0	0	0	0	0	0.0
Unspecified	0	0	0	0	0	0	0	*	9	*	17	5.0
<b>Fatal injury—Other Australians (n = 5,632)</b>												
Car occupant	892	9	0	*	351	21	*	1,257	359	124	3,025	53.7
Driver	629	*	0	*	241	12	*	916	201	46	2,056	36.5
Passenger (inside of vehicle)	254	5	0	*	104	7	*	323	117	36	851	15.1
Passenger (outside of vehicle)	*	0	0	0	0	*	0	*	24	0	30	0.5
Boarding or alighting	0	0	0	0	0	0	0	0	*	0	*	*
Unspecified	*	0	0	0	6	*	0	14	13	42	84	1.5

(a) 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.

(b) Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

(c) Per cent of total fatal injuries for the relevant group.

Notes: Small counts ( $n < 5$ ) are omitted and are indicated by the symbol (\*).

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

**Table 3.11: Mechanism of serious injury for car occupants, 2003-04 to 2007-08**

Injured person	Counterpart in collision										Total <sup>(b)</sup>	Per cent <sup>(c)</sup>
	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 <sup>(a)</sup>	Other and unspecified transport accident		
<b>Serious injury—Indigenous Australians (n = 7,481)</b>												
Car occupant	570	*	0	39	68	6	*	674	1,449	356	3,167	42.3
Driver	230	*	0	9	33	*	*	327	503	21	1,128	15.1
Passenger (inside of vehicle)	330	*	0	19	29	*	*	321	743	29	1,477	19.7
Passenger (outside of vehicle)	*	0	0	*	*	0	0	*	51	0	59	0.8
Boarding or alighting	0	0	0	0	0	0	0	0	49	0	49	0.7
Unspecified	9	0	0	7	5	0	0	24	103	306	454	6.1
<b>Serious injury—Other Australians (n = 230,499)</b>												
Car occupant	35,603	164	32	496	2,675	95	101	20,052	16,544	6,559	82,321	35.7
Driver	23,780	109	18	248	1,925	66	65	14,060	8,904	944	50,119	21.7
Passenger (inside of vehicle)	11,247	47	7	115	714	23	30	5,668	4,989	649	23,489	10.2
Passenger (outside of vehicle)	51	0	*	26	*	*	*	29	680	0	793	0.3
Boarding or alighting	67	*	0	*	*	0	0	27	1,346	0	1,448	0.6
Unspecified	458	6	6	105	28	5	5	268	625	4,966	6,472	2.8

(a) 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.

(b) Includes traffic, non-traffic and unspecified as to whether traffic or non-traffic.

(c) Per cent of total fatal injuries for the relevant group.

Notes: Small counts (n < 5) are omitted and are indicated by the symbol (\*).

The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).

## Time trends

Table 3.12 and Figure 3.20 depict age-standardised rates over five years (2003–04 to 2007–08) for seriously injured persons and over four years (2003–04 to 2006–07) for fatally injured persons 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 trends in fatal or serious injury rates for Aboriginal and Torres Strait Islander 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.

The age-standardised rates of fatal injury due to land transport crashes fluctuated over the four-year period 2003–04 to 2006–07 (Table 3.12). For other Australian females there was an average annual rate of decrease of 8.1% (95% CI: 3.8%, 12.2%), while for other Australian males there was a smaller average annual rate of decrease of 3.2% (95% CI: 0.5%, 5.8%) over the period of interest. Rates for fatally injured Aboriginal and Torres Strait Islander males and females did not change significantly over the four-year period.

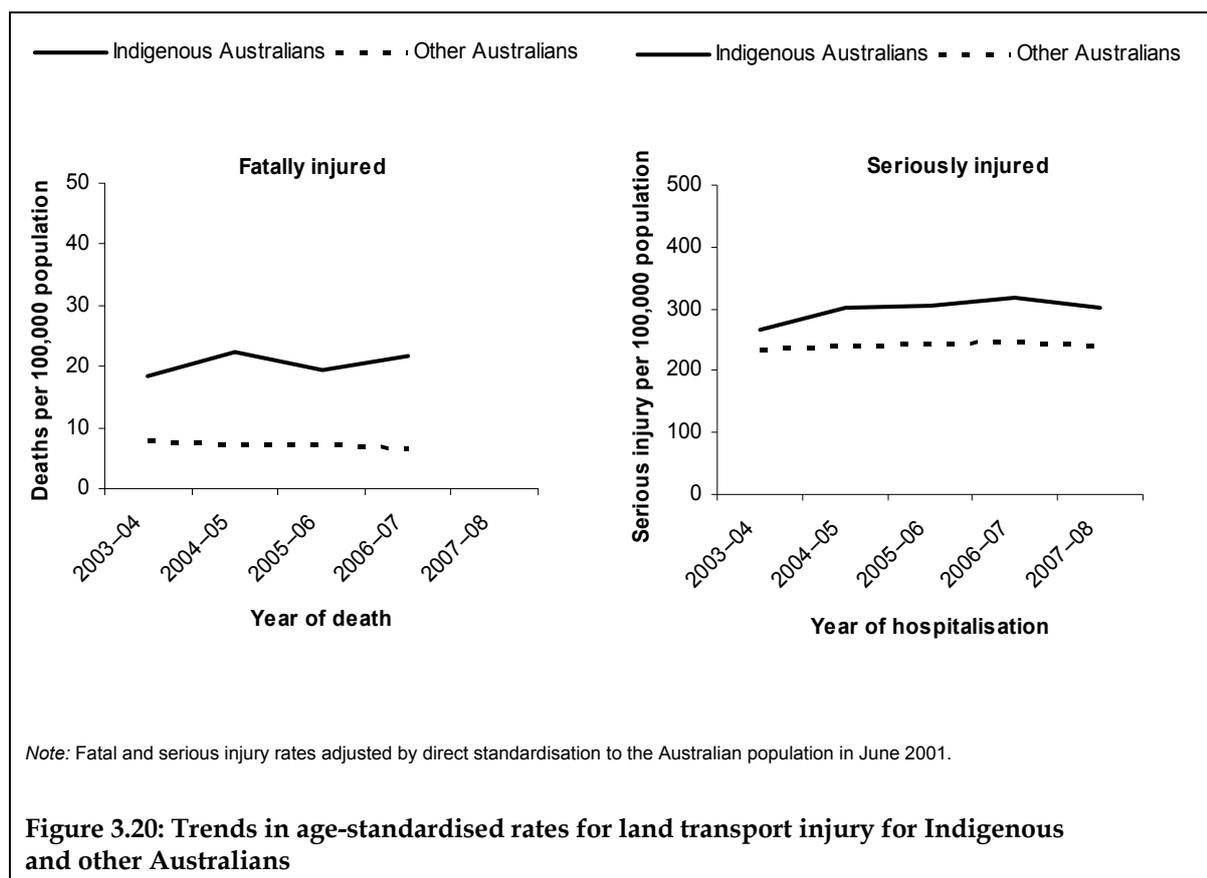
For those who were seriously injured, Aboriginal and Torres Strait Islander males recorded an average annual rate of increase of 4.7% (95% CI: 2.7%, 6.8%), while for other Australian males there was a smaller average annual rate of increase of 1.4% (95% CI: 1.0%, 1.7%) over the period of interest. Rates for seriously injured Aboriginal and Torres Strait Islander females and other Australian females did not change significantly over the five-year period.

**Table 3.12: Trends in age-standardised rates of fatal and serious injury by Indigenous status**

	Age-standardised rate <sup>(a)</sup> per 100,000 population (95% CI)								
	Fatally injured				Seriously injured				
	2003–04	2004–05	2005–06	2006–07	2003–04	2004–05	2005–06	2006–07	2007–08
<b>Indigenous Australians</b>									
Males	28 (19–37)	32 (22–43)	25 (18–32)	32 (22–43)	353 (325–380)	387 (358–417)	419 (388–449)	442 (411–473)	413 (384–442)
Females	10 (6–14)	14 (7–20)	14 (8–20)	12 (7–18)	181 (161–200)	217 (195–239)	195 (174–216)	198 (179–218)	194 (175–213)
Persons	19 (14–23)	22 (16–28)	20 (15–24)	22 (16–27)	265 (248–281)	301 (283–319)	304 (286–323)	317 (299–335)	302 (285–319)
<b>Other Australians</b>									
Males	11 (11–12)	11 (10–12)	11 (11–12)	10 (10–11)	318 (314–321)	328 (325–332)	332 (328–336)	338 (334–342)	335 (331–339)
Females	4 (4–5)	4 (3–4)	4 (3–4)	3 (3–4)	147 (144–149)	153 (150–155)	152 (149–154)	152 (150–155)	144 (142–147)
Persons	8 (7–8)	7 (7–8)	7 (7–8)	7 (6–7)	233 (231–235)	241 (239–243)	242 (240–245)	246 (244–248)	240 (238–243)

(a) Rates are averages of annual rates over the four years 2003–04 to 2006–07 for fatally injured persons and over the five years 2003–04 to 2007–08 for seriously injured persons, adjusted by direct standardisation to the Australian population in June 2001.

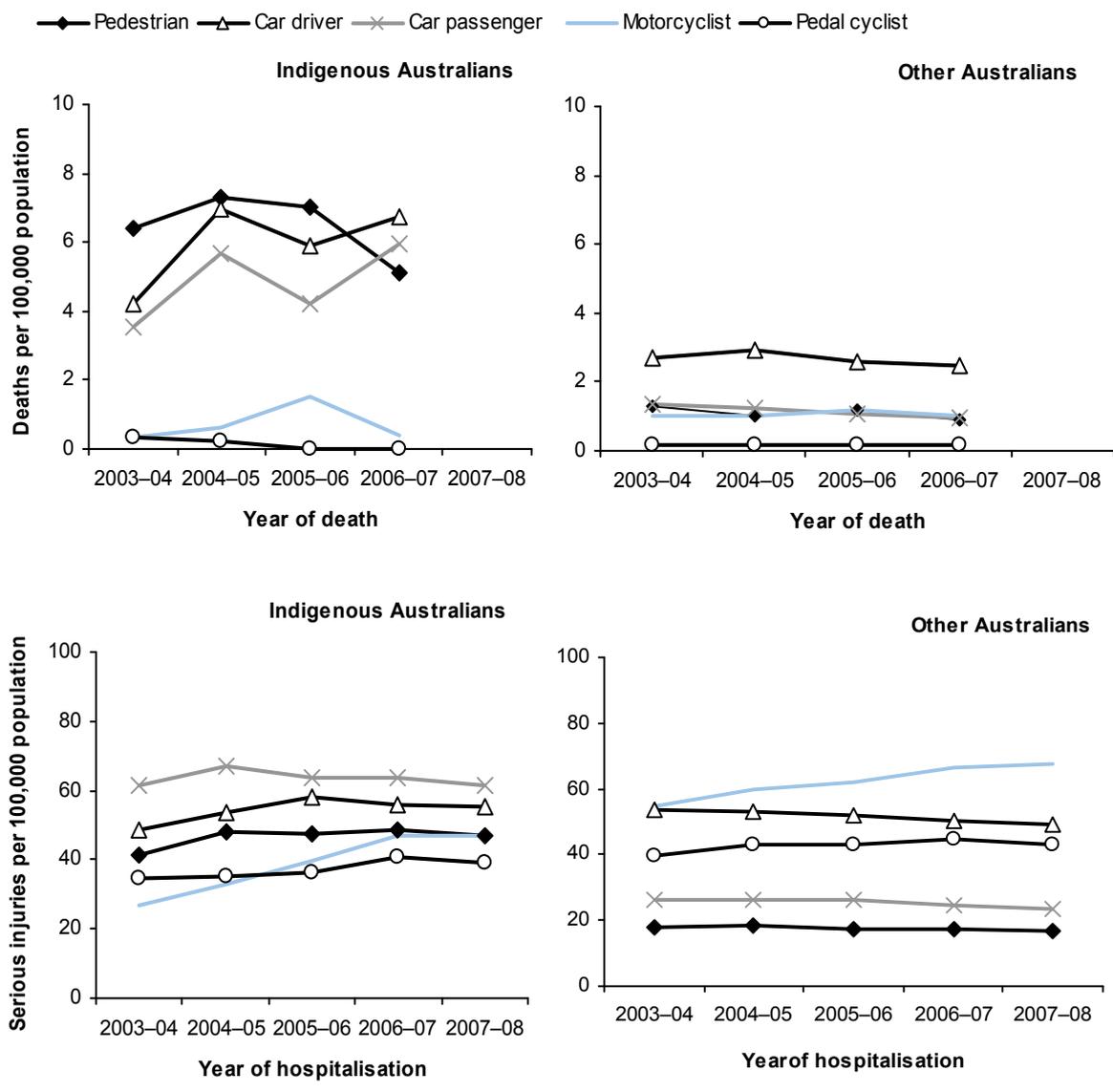
Note: The geographic scope of this table covers all jurisdictions except for Tasmania and the Australian Capital Territory (see Data issues 'Deaths', p. 48 and 'Serious injury', p. 49).



Trends in the age-standardised rates over the four years from 2003-04 to 2006-07 for fatal injury and over the five years from 2003-04 to 2007-08 for serious injury and by road user group are shown in Figure 3.21. The different profiles of land transport injury for Aboriginal and Torres Strait Islander people compared with other Australians are depicted.

For fatally injured Aboriginal and Torres Strait Islander people there were no statistically significant changes in rates over the four-year period for any of the road user groups, while for fatally injured other Australians, there were average annual rates of decreases for car passengers, pedestrians and car drivers of 11.2% (95% CI: 5.8, 16.3), 8.2% (95% CI: 2.5, 13.5) and 4.3% (95% CI: 0.6, 8.0) respectively.

For seriously injured Aboriginal and Torres Strait Islander people, statistically significant trends in rates over the five-year period were seen for none of the road user groups except for motorcyclists. Annual average rates for seriously injured Aboriginal and Torres Strait Islander motorcyclists showed an average increase of 17.4% (95% CI: 12.6%, 22.4%) per year. For seriously injured other Australians, there were slight, but statistically significant decreases in rates over the period of interest for car drivers, car passengers and pedestrians, while motorcyclists and pedal cyclists recorded average annual rates of increase of 5.4% (95% CI: 4.8%, 6.1%) and 1.9% (95% CI: 1.2%, 2.6%) respectively.



Note: Fatal and serious rates adjusted by direct standardisation to the Australian population in June 2001.

Figure 3.21: Trends in age-standardised rates of fatal (top) and serious injury (bottom) by road user group

# Appendix: Data issues

## Comparability with reports by other organisations

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 Bureau of Infrastructure, Transport and Regional Economics (BITRE), 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 BITRE 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, readers should refer to the 'Road statistics' part of the BITRE website at <[www.btre.gov.au](http://www.btre.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 at <[www.atsb.gov.au](http://www.atsb.gov.au)> 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 (rather than reporting deaths according to year of registration).

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

- Date of death occurring 1 July 2003 to 30 June 2007 and registered by 31 December 2007 (received from the ABS in February 2007);
- 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), Queensland (Qld), New South Wales (NSW) or Victoria (Vic).

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 (99.8%) 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 6,248 records.

**Table A1: Selection criteria for death records of transport injury**

Record occurring from 1 July 2003 to 30 June 2007	Indigenous Australians	Other Australians	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) <sup>(a)</sup>	346	6,029	6,375
Records with a 'Transport Accident' as underlying cause of death, and	343	5,905	6,248
<ul style="list-style-type: none"> <li>• Injury (S00–T98) as a multiple cause of death anywhere in the record</li> </ul>	341	5,895	6,236

(a) There were 127 records (all but a few records were other Australians) with another underlying cause of death (e.g. suicide, fires, burns or scalds) or no external cause ( $n = 113$ ; of which 107 had an injury code elsewhere in the record).

## 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 XX external cause code in the ICD-10-AM range V00–V99. Cases with a Principal Diagnosis other than injury and cases in which transportation only appears as an additional external cause code 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 271,717 records.

**Table A2: Selection criteria for hospital records of transport injury**

Record occurring from 1 July 2003 to 30 June 2008	Indigenous Australians	Other Australians	Total
Records with an ICD-10-AM 'Transport Accident' code (V00–V99) as external cause anywhere in the record <sup>(a)</sup>	10,050	301,814	311,864
Records with a 'Transport Accident' as first reported external cause <sup>(b)</sup> , and	9,925	299,191	309,116
• Injury as a Principal Diagnosis (S00–T98)	8,738	262,979	271,717

(a) There were 2,748 records (125 Indigenous Australians and 2,623 other Australians) 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.

(b) There were 37,399 cases (1,187 Indigenous Australians and 36,212 other Australians) 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* (Z50.9, n = 303), *examination and observation following transport accident* (Z04.1, n = 186) and *other specified surgical follow-up care* (Z48.8, n = 53). For other Australians persons, the most common Principal Diagnoses were *care involving use of rehabilitation procedure, unspecified* (Z50.9, n = 15,498), *examination and observation following transport accident* (Z04.1, n = 3,405), *cervicalgia* (M54.2, n = 993), *other specified surgical follow-up care* (Z48.8, n = 866) and *cellulitis of lower limb* (L03.11, n = 750).

*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 2003 to 30 June 2008, coded according to the third, fourth and fifth editions of ICD-10-AM (NCCH 2002, 2004, 2006)
- 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 V00–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 Northern Territory (NT), Western Australia (WA), South Australia (SA), Queensland (Qld), New South Wales (NSW) and Victoria (Vic).

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

For data in the period covered by this report, the ABS and the AIHW recommend that Indigenous statistics only be reported for jurisdictions with a sufficient level of Indigenous identification (ABS and AIHW 2008; AIHW 2005b).

### Hospitalisations

For hospitalisation data, the level of completeness of identification of Indigenous status is assessed annually by each jurisdiction and provided to the AIHW. For 2003–04, only the NT, WA and SA reported that the quality of Indigenous status was ‘acceptable’, (AIHW 2005a). Queensland was included as acceptable in 2004–05 and 2005–06 (AIHW 2006, 2007a), NSW and Vic were included as acceptable in 2006–07 and 2007–08 (AIHW 2008, 2009), although no estimates of the level of completeness of Indigenous identification were provided. In 2005, the AIHW recommended that Qld also be included in the reporting of Indigenous statistics, since the four jurisdictions in aggregate better reflect the diversity of social and economic circumstances in the Indigenous and non-Indigenous populations (AIHW 2005b). In 2010, the AIHW recommended that *“New South Wales and Victorian hospitalisations for Indigenous people (both public and private hospitals) be included in comparative analyses in national reporting, commencing with data collected in 2004–05”* (AIHW 2010b).

The six jurisdictions account for 98% of national hospital separations reported as being for Aboriginal and Torres Strait Islander people and 96% of national hospital separations. Similarly, they account for 96% of the Aboriginal and Torres Strait Islander population of Australia and 96% of the population of Australia. The same AIHW publication advises caution be exercised in time series analyses for these six jurisdictions, and findings should include a caveat about the possible contribution to changes in hospitalisation rates for Aboriginal and Torres Strait Islander people of changes in ascertainment of Indigenous status for Aboriginal and Torres Strait Islander patients (AIHW 2010b).

### Deaths

Analyses of Aboriginal and Torres Strait Islander 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 an AIHW publication, longer term mortality trends for 1991–2002 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 2007). Implied coverage of Indigenous status in deaths data from 2002–06 is shown in Table A3. Overall coverage for the six jurisdictions that were the subject of this report varies from 90% for Northern Territory down to 32% for Victoria.

**Table A3: Implied coverage<sup>(a)</sup> of Indigenous deaths**

Jurisdiction	2002–06 <sup>(b)</sup>
Western Australia	72%
South Australia	62%
Northern Territory	90%
Queensland	51%
New South Wales	45%
Australian Capital Territory <sup>(c)</sup>	
Victoria	32%
Tasmania <sup>(c)</sup>	

(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.

(b) 2001 census based (ABS 2005a).

(c) Not calculated due to small numbers.

Table A4 shows that improvements for Australia in the number of registered Indigenous deaths in the late 1990s were largely driven by improvements for Queensland and New South Wales. In New South Wales the number of registered Indigenous deaths increased in 1998 to much higher levels than previous years. The number of Indigenous deaths registered in South Australia and the Northern Territory have remained relatively constant since 1997, suggesting that identification of deaths of Indigenous persons has been relatively stable in these two jurisdictions. The ABS continues to work with state and territory registrars of Births, Deaths and Marriages and other stakeholders to improve the level of identification of Indigenous deaths in each jurisdiction (ABS 2009b).

### Indigenous deaths in Victoria

Current AIHW policy indicates that deaths data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory should be used to provide indicative national information for Aboriginal and Torres Strait Islander people (AIHW 2010a).

Despite the low rate of implied coverage (32%) of Indigenous deaths in Victoria as indicated in Table A3 above, the decision was made to include these deaths in this report, chiefly for two related reasons.

Inclusion improves comparability between the mortality and morbidity aspects of the report, and, hence, the readability of the report. In the approach used, both sections of the report refer to Australia except Tasmania and the Australian Capital Territory. Alternative approaches would have required non-reporting of Victorian morbidity data or use of dissimilar geographic inclusion criteria for deaths and for hospital data. The latter would complicate the report for readers. It became particularly important to avoid this complication of geographic scope when, late in the production process, it became clear that mortality data for 2008 would not be available, which complicated the time period covered by the report.

Analyses showed that inclusion or exclusion of deaths data from Victoria makes little difference to the sub-national Aboriginal and Torres Strait Islander transport-related mortality rates required for this report. This is because: (1) the Indigenous population estimate for Victoria makes up only 6.8% of the total Indigenous population of the

6 jurisdictions included, and (2) the Indigenous case estimate for Victoria makes up a similarly small proportion (5.0%) of the total Indigenous case count for the 6 jurisdictions. Hence, the lower estimated coverage for Victoria than for the other jurisdictions has only a small impact on the 6-region sub-national rates.

Until such time as the AIHW indicates that the data quality related to Indigenous deaths in Victoria is of an acceptable standard to be included in its reports, it is not envisaged that the future reports in this series will include Indigenous deaths for this jurisdiction.

**Table A4: Indigenous deaths (all causes) by state or territory of usual residence, 1992–2008**

Year of registration	State or territory of usual residence								Australia <sup>(b)</sup>
	NSW	Vic	Qld <sup>(a)</sup>	SA	WA	Tas	NT	ACT	
1992	165	53	np	107	346	np	397	—	1,074
1993	194	50	np	111	386	np	376	9	1,134
1994	207	50	np	123	377	np	380	10	1,153
1995	224	50	np	121	384	np	387	9	1,182
1996	177	49	258	118	370	np	328	np	1,306
1997	88	93	531	132	351	5	458	4	1,666
1998	462	123	593	127	378	13	415	3	2,114
1999	435	130	529	116	350	11	399	6	1,976
2000	473	108	535	144	407	np	450	np	2,127
2001	481	93	565	125	345	np	429	np	2,072
2002	516	64	590	107	371	20	462	4	2,136
2003	485	82	569	137	338	23	435	9	2,079
2004	490	54	579	131	400	20	449	10	2,136
2005	507	71	519	142	406	28	454	11	2,141
2006	530	111	584	124	443	20	452	14	2,279
2007	601	95	594	138	502	24	461	6	2,421
2008	559	97	562	141	605	24	467	16	2,472

(a) Queensland began to register Indigenous deaths as Indigenous in 1996.

(b) Includes Other Territories.

np not available for publication, but included in totals where applicable

Source: ABS, Deaths Australia, 3302.0, 2008 (ABS 2009a).

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 2010b).

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 points out that misclassification is likely to be a greater problem in remote areas, where a larger proportion of a smaller population is Indigenous (AIHW 2007b). The magnitude of this error is unknown, and there is a body of work suggesting that ascertainment of Indigenous status may be better in remote areas compared to urban areas (AIHW 2007b).

In summary, this report presents morbidity statistics for the six jurisdictions, New South Wales, Victoria, Queensland, South Australia, Western Australia and the Northern Territory in the five-year period to 30 June 2008. Mortality statistics are presented for the same jurisdictions in the four-year period to 30 June 2007. The earlier end date was necessary because ABS unit record mortality data for deaths registered in 2008 had not become available to the AIHW in time for inclusion. Aboriginal and Torres Strait Islander people are compared to other Australians (includes non-Indigenous and not stated) in the same six jurisdictions. The reported mortality and morbidity burden of Aboriginal and Torres Strait Islander people due to transport injury is likely to be an underestimate, due to incomplete identification of people as being Indigenous 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.

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 (Walker et al. 2008). If no information is available about the cause of death, then the case is likely to be coded to R99, 'Other ill-defined and unspecified causes of death'. If a death is known to be accidental and 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'. If a

death is known to be due to an injury, but intent is not known, the default in the classification is to code the cause as an accident.

Beginning with deaths registered in 2007, the ABS has adopted a new method in response to the problems outlined above (ABS 2009a). Up until the 2006 death registrations, the ABS practice was not to update mortality data files once released, meaning such cases would remain missing or misclassified. The main aspect of the change that is relevant here is that the cause date for deaths registered in a particular year will be released several times, each based on coroner data as assessed by a particular date. This report is based on first release data for deaths registered in 2007. A second change implemented by the ABS for the 2007 deaths data affected codes with an intent of 'Undetermined intent' (ABS 2009a). Up to 2006, only where there had been an official coronial finding of 'Undetermined intent' were deaths allocated to these codes. Other deaths where either intent was 'not known' or 'blank' on the NCIS record, were coded with an intent of 'accidental'. From 2007, where the NCIS intent field is 'could not be determined', 'unlikely to be known' or 'blank', the death will be coded to an 'undetermined intent' code. This change has resulted in a significant increase in deaths allocated to these codes in 2007. Future reports based on later releases, might show different results.

## **Population and other denominators**

Indigenous rates in this report were calculated using, as the denominator, ABS experimental population estimates of the Indigenous population in the NT, WA, SA, Qld, NSW and Vic which were based on the 2006 Census (ABS 2009c). This document contains estimates for both Indigenous and non-Indigenous populations.

To minimise the impact of small case numbers for cross-tabulations, data were combined for a four year period for fatally injured persons and a five year period for seriously injured persons.

For trends analysis, rates were calculated using, as the denominator, the 'low' series ABS experimental population projections for 2001–2009 based on the 2001 census (ABS 2004). This document only contains population estimates for Indigenous persons, hence population estimates for non-Indigenous persons were obtained by subtracting Indigenous population estimates from total population estimates as supplied as an unpublished file from the ABS.

Remoteness areas in this report refer to the place of usual residence of the person who died or was admitted to hospital (see below). Indigenous population numbers by ASGC remoteness structure of Australia were also calculated using experimental population estimates of the Indigenous population in the NT, WA, SA, Qld, NSW and Vic which were based on the 2006 Census (ABS 2009c).

Direct standardisation was used to age-standardise rates, using the Australian population in 2001 as the standard (ABS 2002). Age-standardised rates and 95% confidence intervals were calculated in Stata version 10.1 statistical software (Stata Corporation 2005) using the `-dstdize-` command. Estimated trends in age-standardised rates were reported as average annual per cent changes obtained using poisson regression modelling performed in Stata.

Datasets such as the motor vehicle census (ABS 2005b) and the survey of motor vehicle use (ABS 2005c) 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.

## Classification of remoteness area

Remoteness area in this report refers to the place of usual residence of the person who died or was admitted to hospital. The remoteness areas were specified according to 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  $\leq 2.4$
- Outer regional, with ARIA index value of  $>2.4$  and  $\leq 5.92$
- Remote, with ARIA index value of  $>5.92$  and  $\leq 10.53$
- Very remote, with average ARIA index value of  $>10.53$

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

Most SLAs lie entirely within one of the five areas. If this was so for all SLAs, then each record could simply be assigned to the area in which its SLA lies. However, some SLAs overlap two or more of the areas. Records with these SLAs were assigned to remoteness areas in proportion to the area-specific distribution of the resident population of the SLA according to the 2001 census. 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 area represented in the SLA. The sum of the proportions for one of the areas is the overall estimate of cases in that area. 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 areas probabilistically, in proportion to the resident population of that SLA. The resulting values are integers.

## Suppression of small cell counts in tables

Cell counts in tables that are four cases or fewer have generally been suppressed, as have rates derived from them, to protect confidentiality and because values based on very small numbers are sometimes difficult to interpret. The exceptions to this practice are the tables in the appendices as the rates in these tables are used in the construction of the graphs in Section 3. In the instances where only one cell in a row or column has a count four or less, counts of one or more other cells in the same row or column have generally also been suppressed.

**Table A5: Age specific death rates by road user group for traffic conditions, 2003-04 to 2006-07**

Indigenous Australians	Age-specific rate per 100,000 population											
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	
<b>Male</b>												
0-4	4.0	0.0	4.8	0.0	0.0	0-4	0.4	0.0	0.8	0.0	0.0	0.0
5-9	0.8	0.0	1.6	0.0	0.0	5-9	0.3	0.1	0.5	0.1	0.2	0.2
10-14	0.0	0.8	0.8	0.0	0.8	10-14	0.5	0.0	0.7	0.2	0.4	0.4
15-19	6.5	6.5	13.0	0.0	0.9	15-19	1.2	7.0	4.6	2.0	0.3	0.3
20-24	4.6	11.6	4.6	3.5	0.0	20-24	1.5	9.3	3.0	4.5	0.3	0.3
25-29	7.1	5.7	2.9	4.3	0.0	25-29	1.3	6.9	1.3	4.5	0.2	0.2
30-34	10.3	19.0	0.0	4.4	1.5	30-34	1.0	6.1	1.2	3.8	0.3	0.3
35-39	22.0	11.0	4.7	3.1	0.0	35-39	1.2	4.1	0.6	2.5	0.4	0.4
40-44	7.2	9.0	5.4	0.0	0.0	40-44	0.9	2.9	0.5	2.1	0.2	0.2
45-49	10.9	6.5	8.7	0.0	0.0	45-49	1.0	3.2	0.6	1.9	0.4	0.4
50-54	2.7	11.0	2.7	0.0	0.0	50-54	1.1	2.7	0.3	1.6	0.2	0.2
55-59	0.0	7.7	3.8	3.8	0.0	55-59	0.8	2.7	0.4	1.2	0.3	0.3
60-64	5.8	5.8	17.3	0.0	0.0	60-64	1.4	2.7	0.5	1.3	0.3	0.3
65+	7.8	15.5	3.9	0.0	0.0	65+	3.0	5.1	0.8	0.4	0.3	0.3
<b>All ages</b>	<b>6.8</b>	<b>8.5</b>	<b>4.9</b>	<b>1.3</b>	<b>0.2</b>	<b>All ages</b>	<b>1.2</b>	<b>3.9</b>	<b>1.1</b>	<b>1.8</b>	<b>0.3</b>	<b>0.3</b>
<b>Female</b>												
0-4	0.8	0.0	4.1	0.0	0.0	0-4	0.3	0.0	1.1	0.0	0.0	0.0
5-9	0.8	0.0	3.3	0.0	0.0	5-9	0.1	0.0	0.6	0.0	0.0	0.0
10-14	0.0	0.0	0.8	0.0	0.8	10-14	0.4	0.0	0.8	0.0	0.1	0.1
15-19	1.0	1.0	3.0	0.0	0.0	15-19	0.8	2.3	3.0	0.1	0.1	0.1
20-24	0.0	1.2	11.9	0.0	0.0	20-24	0.5	2.9	1.6	0.1	0.0	0.0
25-29	2.8	8.4	2.8	0.0	0.0	25-29	0.3	1.2	0.8	0.2	0.1	0.1
30-34	4.2	4.2	2.8	0.0	0.0	30-34	0.5	1.4	0.5	0.1	0.0	0.0
35-39	5.8	1.4	4.3	0.0	0.0	35-39	0.6	1.3	0.4	0.2	0.0	0.0
40-44	8.3	3.3	5.0	0.0	0.0	40-44	0.2	1.1	0.7	0.2	0.0	0.0
45-49	10.1	4.0	4.0	0.0	0.0	45-49	0.4	1.3	0.5	0.2	0.0	0.0
50-54	0.0	7.7	0.0	0.0	0.0	50-54	0.2	1.1	0.7	0.0	0.2	0.2
55-59	0.0	6.9	0.0	0.0	0.0	55-59	0.3	1.3	0.9	0.2	0.1	0.1
60-64	15.3	0.0	5.1	0.0	0.0	60-64	0.6	1.7	1.2	0.1	0.1	0.1
65+	0.0	0.0	5.7	0.0	0.0	65+	1.9	1.7	1.7	0.0	0.0	0.0
<b>All ages</b>	<b>3.1</b>	<b>2.6</b>	<b>3.9</b>	<b>0.0</b>	<b>0.1</b>	<b>All ages</b>	<b>0.6</b>	<b>1.3</b>	<b>1.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>

Note: There is no suppression of rates that are derived from small counts in this table.

**Table A6: Age specific death rates by road user group for non-traffic conditions, 2003-04 to 2006-07**

Indigenous Australians	Age-specific rate per 100,000 population											
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	
<b>Male</b>												
0-4	3.2	0.0	0.0	0.0	0.0	0-4	0.3	0.0	0.1	0.1	0.0	0.0
5-9	1.6	0.8	0.0	0.0	0.0	5-9	0.1	0.0	0.0	0.0	0.0	0.0
10-14	0.8	0.0	0.8	0.0	0.0	10-14	0.0	0.0	0.0	0.2	0.0	0.0
15-19	0.0	0.9	0.9	0.0	0.0	15-19	0.2	0.1	0.2	0.6	0.0	0.0
20-24	0.0	0.0	0.0	0.0	0.0	20-24	0.1	0.2	0.0	0.5	0.0	0.0
25-29	0.0	1.4	0.0	0.0	0.0	25-29	0.2	0.2	0.1	0.3	0.0	0.0
30-34	1.5	0.0	0.0	0.0	0.0	30-34	0.1	0.1	0.1	0.3	0.0	0.0
35-39	1.6	0.0	0.0	1.6	0.0	35-39	0.2	0.1	0.0	0.1	0.0	0.0
40-44	0.0	0.0	0.0	0.0	0.0	40-44	0.2	0.0	0.0	0.2	0.0	0.0
45-49	0.0	0.0	2.2	0.0	0.0	45-49	0.1	0.1	0.1	0.0	0.0	0.0
50-54	0.0	0.0	0.0	0.0	0.0	50-54	0.1	0.0	0.0	0.1	0.0	0.0
55-59	0.0	0.0	0.0	0.0	0.0	55-59	0.0	0.1	0.0	0.0	0.0	0.0
60-64	0.0	0.0	0.0	0.0	0.0	60-64	0.2	0.1	0.0	0.0	0.0	0.1
65+	3.9	0.0	0.0	0.0	0.0	65+	0.5	0.1	0.1	0.0	0.0	0.0
<b>All ages</b>	<b>1.1</b>	<b>0.2</b>	<b>0.3</b>	<b>0.1</b>	<b>0.0</b>	<b>All ages</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>
<b>Female</b>												
0-4	0.8	0.0	0.0	0.0	0.0	0-4	0.3	0.0	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	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	0.0
15-19	0.0	0.0	0.0	0.0	0.0	15-19	0.0	0.0	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	0.0
25-29	0.0	0.0	0.0	0.0	0.0	25-29	0.1	0.0	0.0	0.0	0.0	0.0
30-34	0.0	2.8	0.0	0.0	0.0	30-34	0.0	0.0	0.0	0.0	0.0	0.0
35-39	0.0	0.0	0.0	0.0	0.0	35-39	0.1	0.1	0.0	0.0	0.0	0.0
40-44	0.0	0.0	0.0	0.0	0.0	40-44	0.0	0.0	0.0	0.0	0.0	0.0
45-49	0.0	2.0	0.0	0.0	0.0	45-49	0.0	0.0	0.0	0.0	0.0	0.0
50-54	0.0	0.0	0.0	0.0	0.0	50-54	0.1	0.0	0.0	0.0	0.0	0.0
55-59	3.5	0.0	0.0	0.0	0.0	55-59	0.1	0.0	0.0	0.0	0.0	0.0
60-64	0.0	0.0	0.0	0.0	0.0	60-64	0.2	0.1	0.0	0.0	0.0	0.0
65+	2.8	0.0	0.0	0.0	0.0	65+	0.2	0.1	0.0	0.0	0.0	0.0
<b>All ages</b>	<b>0.6</b>	<b>0.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>All ages</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Note: There is no suppression of rates that are derived from small counts in this table.

**Table A7: Age specific serious injury rates by road user group for traffic conditions, 2003–04 to 2007–08**

Indigenous Australians	Age-specific rate per 100,000 population										
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
<b>Male</b>											
0–4	29.9	1.9	27.4	1.9	12.7	0–4	6.9	0.2	14.0	1.0	7.7
5–9	26.3	0.0	29.5	6.9	45.1	5–9	13.6	0.4	18.6	9.8	39.0
10–14	15.7	8.2	37.8	34.0	89.4	10–14	15.3	0.9	19.0	37.8	103.2
15–19	43.9	72.9	110.8	83.3	49.8	15–19	23.4	102.7	71.7	98.0	63.0
20–24	33.3	122.1	70.3	88.8	27.7	20–24	22.8	122.7	52.3	137.3	32.2
25–29	60.6	109.8	88.1	61.8	21.7	25–29	20.7	89.3	27.5	117.3	29.8
30–34	65.6	91.4	82.0	62.1	34.0	30–34	15.4	72.4	17.0	101.2	37.7
35–39	77.9	76.7	65.4	28.9	18.9	35–39	12.3	59.9	11.9	82.3	34.9
40–44	66.2	76.3	66.2	34.5	24.5	40–44	11.1	51.8	9.1	71.7	29.7
45–49	71.3	66.1	67.8	33.0	15.6	45–49	10.8	45.2	8.8	59.0	29.1
50–54	39.5	61.5	41.7	24.1	28.5	50–54	10.3	42.3	7.7	43.0	24.8
55–59	55.3	67.6	27.7	3.1	0.0	55–59	9.7	40.8	7.1	29.5	19.8
60–64	18.5	50.8	41.5	4.6	4.6	60–64	9.9	41.5	6.7	19.3	16.1
65+	43.5	55.9	21.7	3.1	6.2	65+	19.9	56.4	10.7	8.2	12.1
<b>All ages</b>	<b>47.3</b>	<b>62.0</b>	<b>55.0</b>	<b>33.4</b>	<b>27.0</b>	<b>All ages</b>	<b>15.0</b>	<b>52.9</b>	<b>20.1</b>	<b>57.7</b>	<b>33.8</b>
<b>Female</b>											
0–4	11.9	0.0	36.9	2.0	5.9	0–4	4.1	0.1	13.4	0.3	3.4
5–9	16.4	0.0	19.0	5.3	32.2	5–9	7.5	0.1	17.7	2.5	19.2
10–14	11.3	2.0	29.3	4.7	29.3	10–14	9.1	0.8	21.2	5.3	22.2
15–19	13.4	29.2	98.6	14.2	7.1	15–19	14.1	78.8	74.2	8.6	6.8
20–24	26.6	56.0	71.2	7.6	5.7	20–24	11.9	88.5	41.6	11.2	7.1
25–29	24.7	52.7	84.0	9.0	11.2	25–29	10.0	65.8	24.3	11.3	9.8
30–34	30.3	60.7	66.3	4.5	6.7	30–34	6.1	52.4	18.6	8.3	8.4
35–39	48.5	49.7	65.9	3.5	4.6	35–39	6.8	48.1	15.0	7.6	6.6
40–44	28.0	33.3	46.6	4.0	6.7	40–44	6.5	43.9	13.6	7.9	6.4
45–49	25.9	40.5	40.5	3.2	1.6	45–49	6.8	44.0	15.7	7.2	6.4
50–54	14.3	34.8	53.3	0.0	2.0	50–54	7.5	42.1	16.9	5.9	7.2
55–59	11.1	30.5	41.6	0.0	2.8	55–59	7.1	41.5	18.6	4.2	5.6
60–64	16.3	24.4	36.6	0.0	4.1	60–64	9.7	36.1	23.1	1.7	5.6
65+	11.3	18.1	36.3	0.0	0.0	65+	19.0	38.2	32.4	0.9	2.1
<b>All ages</b>	<b>20.8</b>	<b>30.7</b>	<b>51.8</b>	<b>4.1</b>	<b>8.3</b>	<b>All ages</b>	<b>9.6</b>	<b>41.7</b>	<b>25.1</b>	<b>5.9</b>	<b>8.1</b>

Note: There is no suppression of rates that are derived from small counts in this table.

**Table A8: Age specific serious injury rates by road user group for non-traffic conditions, 2003-04 to 2007-08**

Indigenous Australians		Age-specific rate per 100,000 population										
		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist
<b>Male</b>												
0-4	17.2	0.6	6.4	7.0	22.9	0-4	7.4	0.0	2.7	4.0	20.9	
5-9	7.5	0.0	6.3	24.4	72.7	5-9	5.6	0.2	2.1	32.9	64.6	
10-14	6.9	1.9	3.2	71.8	127.2	10-14	3.3	1.4	2.5	109.3	147.8	
15-19	5.2	11.2	13.4	96.7	48.3	15-19	4.4	10.3	8.8	141.6	76.6	
20-24	4.6	14.8	10.2	66.6	16.6	20-24	4.4	11.4	5.1	109.6	24.0	
25-29	3.4	19.4	14.9	44.6	11.4	25-29	3.8	7.7	3.1	79.5	21.5	
30-34	7.0	11.7	9.4	43.4	14.1	30-34	3.8	7.4	2.4	67.0	21.6	
35-39	11.3	13.8	6.3	31.4	12.6	35-39	3.4	5.9	1.7	56.4	18.0	
40-44	8.6	15.8	5.8	25.9	11.5	40-44	3.8	4.6	1.4	43.6	17.0	
45-49	7.0	5.2	7.0	20.9	10.4	45-49	2.7	4.1	1.4	26.9	12.6	
50-54	2.2	8.8	2.2	15.4	6.6	50-54	3.3	3.9	1.2	15.4	11.9	
55-59	6.1	3.1	12.3	12.3	0.0	55-59	3.3	3.4	1.4	10.7	10.1	
60-64	4.6	0.0	0.0	0.0	0.0	60-64	2.5	4.2	1.3	8.1	7.6	
65+	0.0	6.2	6.2	3.1	3.1	65+	5.2	6.3	2.1	5.1	6.5	
<b>All ages</b>	<b>6.3</b>	<b>8.4</b>	<b>7.5</b>	<b>32.8</b>	<b>25.2</b>	<b>All ages</b>	<b>4.2</b>	<b>5.2</b>	<b>2.7</b>	<b>50.3</b>	<b>32.3</b>	
<b>Female</b>												
0-4	11.2	0.7	4.6	2.6	14.5	0-4	4.8	0.0	1.9	1.1	8.5	
5-9	2.6	0.0	5.3	11.8	43.3	5-9	2.6	0.1	1.7	8.6	31.1	
10-14	3.3	0.0	4.7	9.3	22.0	10-14	2.3	0.5	2.2	13.8	27.1	
15-19	2.4	7.9	9.5	9.5	2.4	15-19	1.9	7.6	6.0	11.1	5.3	
20-24	3.8	3.8	12.3	7.6	3.8	20-24	1.6	4.8	2.9	6.0	3.4	
25-29	4.5	6.7	11.2	4.5	4.5	25-29	1.6	3.8	1.8	5.0	4.2	
30-34	9.0	2.2	11.2	3.4	3.4	30-34	1.3	3.1	1.5	3.6	3.7	
35-39	4.6	8.1	10.4	1.2	3.5	35-39	1.3	2.6	0.9	3.5	3.8	
40-44	4.0	2.7	6.7	1.3	1.3	40-44	1.6	2.7	1.3	2.9	4.2	
45-49	3.2	11.3	1.6	0.0	6.5	45-49	1.8	2.4	1.1	2.4	4.3	
50-54	4.1	10.2	10.2	2.0	2.0	50-54	1.5	2.9	1.1	2.3	4.7	
55-59	5.5	0.0	5.5	0.0	2.8	55-59	1.7	2.1	1.4	1.2	4.9	
60-64	0.0	12.2	4.1	0.0	12.2	60-64	1.8	2.3	1.7	1.2	4.1	
65+	2.3	2.3	4.5	2.3	0.0	65+	6.5	4.2	3.2	1.0	1.4	
<b>All ages</b>	<b>4.3</b>	<b>4.6</b>	<b>7.3</b>	<b>4.0</b>	<b>8.1</b>	<b>All ages</b>	<b>2.5</b>	<b>2.9</b>	<b>2.1</b>	<b>4.5</b>	<b>7.6</b>	

Note: There is no suppression of rates that are derived from small counts in this table.



**Table A10: Remoteness area by seriously injured person's vehicle: Inner and outer regional, 2003-04 to 2007-08**

		Age-specific rate per 100,000 population									
Indigenous		Pedestrian		Car driver		Car passenger		Motorcyclist		Pedal cyclist	
Australians		Other Australians		Pedestrian		Car driver		Car passenger		Motorcyclist	
Male		Pedestrian		Car driver		Car passenger		Motorcyclist		Pedal cyclist	
Australians		Other Australians		Pedestrian		Car driver		Car passenger		Motorcyclist	
0-4	57.5	1.5	24.2	15.1	43.8	0-4	16.3	0.2	24.0	12.2	37.8
5-9	34.2	0.0	28.5	38.5	142.6	5-9	21.7	0.6	27.2	86.8	137.9
10-14	23.9	11.2	30.9	137.8	247.5	10-14	18.6	4.0	26.2	300.8	330.5
15-19	53.2	92.1	108.1	233.9	124.0	15-19	28.4	160.2	105.7	470.6	198.7
20-24	61.3	139.2	73.1	165.1	49.5	20-24	30.0	200.7	88.6	479.4	67.4
25-29	71.1	151.1	74.1	124.4	44.4	25-29	26.3	141.7	47.2	349.1	45.1
30-34	76.8	94.5	67.9	129.9	56.1	30-34	18.4	107.9	26.5	270.4	48.9
35-39	107.2	91.5	37.8	88.3	31.5	35-39	15.9	84.9	18.3	216.7	40.8
40-44	76.9	83.9	41.9	62.9	52.4	40-44	15.0	73.8	14.3	183.8	34.8
45-49	68.9	44.6	60.8	60.8	32.4	45-49	11.7	58.1	12.7	125.5	34.5
50-54	26.0	57.2	15.6	46.8	41.6	50-54	13.0	52.4	11.8	80.4	27.7
55-59	35.2	35.2	14.1	14.1	0.0	55-59	10.5	45.5	11.5	59.4	24.1
60-64	21.8	32.6	32.6	0.0	10.9	60-64	9.0	47.0	8.9	40.4	17.7
65+	43.3	57.7	0.0	14.4	7.2	65+	17.0	67.6	14.9	21.6	19.8
<b>All ages</b>						<b>All ages</b>					
<b>Female</b>		<b>Other Australians</b>		<b>Pedestrian</b>		<b>Car driver</b>		<b>Car passenger</b>		<b>Motorcyclist</b>	
0-4	32.2	0.0	39.9	7.7	23.0	0-4	11.7	0.1	22.6	3.0	16.8
5-9	12.0	0.0	17.9	13.5	94.2	5-9	10.8	0.2	26.7	23.5	65.4
10-14	23.8	1.5	22.3	16.4	56.6	10-14	10.6	2.1	31.0	35.3	69.0
15-19	16.9	37.5	101.3	33.8	13.1	15-19	14.1	134.8	102.6	36.9	16.2
20-24	30.7	71.5	66.4	15.3	15.3	20-24	10.3	134.0	49.7	29.1	9.3
25-29	24.2	60.4	84.6	21.1	24.2	25-29	8.3	91.0	30.2	23.7	9.5
30-34	45.7	68.5	51.4	14.3	17.1	30-34	5.2	74.9	22.0	17.3	8.0
35-39	54.7	63.3	43.2	2.9	8.6	35-39	6.4	63.4	18.5	16.3	10.8
40-44	32.4	38.9	42.2	0.0	9.7	40-44	6.4	57.6	15.6	17.0	10.4
45-49	24.2	40.3	32.2	4.0	20.1	45-49	6.3	53.7	17.7	15.4	11.1
50-54	10.0	49.8	44.8	0.0	5.0	50-54	8.1	48.8	17.3	13.3	11.5
55-59	6.5	19.5	45.5	0.0	0.0	55-59	8.4	48.8	19.5	8.6	11.5
60-64	28.4	47.4	37.9	0.0	28.4	60-64	7.7	45.9	22.7	6.0	11.5
65+	11.1	38.8	11.1	5.5	0.0	65+	18.8	48.4	34.2	2.7	4.2
<b>All ages</b>	<b>25.0</b>	<b>39.0</b>	<b>44.1</b>	<b>9.8</b>	<b>21.4</b>	<b>All ages</b>	<b>10.0</b>	<b>57.7</b>	<b>31.1</b>	<b>17.4</b>	<b>18.3</b>

Note: There is no suppression of rates that are derived from small counts in this table.

**Table A11: Remoteness area by seriously injured person's vehicle: Remote and very remote, 2003-04 to 2007-08**

Indigenous Australians	Age-specific rate per 100,000 population											
	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	
<b>Male</b>												
0-4	76.7	2.6	63.9	10.2	35.8	0-4	30.7	0.0	38.8	14.5	27.5	
5-9	28.1	0.0	61.2	43.4	99.5	5-9	33.3	1.6	42.9	161.9	134.9	
10-14	19.3	8.3	74.5	115.8	217.9	10-14	14.0	8.8	71.8	563.9	374.8	
15-19	58.9	105.4	192.2	155.0	74.4	15-19	25.5	231.3	146.4	1183.8	150.6	
20-24	35.1	213.9	154.3	161.3	21.0	20-24	35.9	233.2	109.4	791.0	48.4	
25-29	98.0	179.7	204.2	94.0	32.7	25-29	26.7	132.1	62.9	433.9	40.9	
30-34	126.0	193.2	218.4	96.6	12.6	30-34	20.7	108.8	45.4	329.1	30.3	
35-39	113.9	127.6	186.8	41.0	4.6	35-39	15.6	103.0	27.4	266.0	36.5	
40-44	106.3	164.7	138.2	63.8	21.3	40-44	13.0	83.0	20.8	223.1	25.9	
45-49	132.7	132.7	179.1	33.2	6.6	45-49	14.2	68.6	23.3	174.7	46.6	
50-54	99.4	107.7	66.3	49.7	8.3	50-54	12.6	43.5	19.6	108.1	15.4	
55-59	182.1	145.7	109.3	36.4	0.0	55-59	6.1	56.4	13.7	68.6	18.3	
60-64	67.9	101.9	84.9	17.0	0.0	60-64	6.2	53.6	18.5	78.3	24.7	
65+	78.2	78.2	78.2	0.0	11.2	65+	15.6	70.0	11.1	52.2	16.7	
<b>All ages</b>	<b>86.4</b>	<b>110.6</b>	<b>129.7</b>	<b>63.8</b>	<b>38.8</b>	<b>All ages</b>	<b>19.6</b>	<b>86.2</b>	<b>45.6</b>	<b>313.8</b>	<b>69.5</b>	
<b>Female</b>												
0-4	28.9	2.6	42.1	0.0	23.7	0-4	13.9	1.7	34.7	5.2	5.2	
5-9	27.1	0.0	48.9	35.3	76.0	5-9	15.4	1.7	22.3	54.9	92.6	
10-14	11.9	0.0	62.3	20.8	53.4	10-14	13.4	3.8	36.3	97.5	74.5	
15-19	19.6	52.3	140.5	26.1	6.5	15-19	24.9	211.5	181.6	159.2	29.9	
20-24	20.4	44.1	129.0	17.0	6.8	20-24	7.9	106.7	83.0	69.2	11.9	
25-29	49.6	61.0	163.9	7.6	15.2	25-29	8.6	102.6	34.2	41.1	13.7	
30-34	49.2	69.7	163.9	4.1	8.2	30-34	4.7	63.9	29.6	20.3	4.7	
35-39	104.7	82.9	196.4	0.0	0.0	35-39	6.2	54.4	18.6	38.8	9.3	
40-44	67.5	31.2	124.6	5.2	0.0	40-44	3.2	69.5	37.9	23.7	9.5	
45-49	60.9	79.2	97.5	0.0	0.0	45-49	9.4	42.4	14.1	11.0	11.0	
50-54	47.7	47.7	158.9	7.9	0.0	50-54	1.8	65.9	23.1	28.5	14.2	
55-59	45.2	33.9	101.8	0.0	11.3	55-59	0.0	47.7	12.4	12.4	14.5	
60-64	29.8	14.9	44.7	0.0	0.0	60-64	2.8	38.9	19.5	5.6	11.1	
65+	15.6	0.0	78.1	0.0	0.0	65+	29.7	54.1	21.9	7.7	3.9	
<b>All ages</b>	<b>40.9</b>	<b>36.3</b>	<b>112.3</b>	<b>8.7</b>	<b>13.8</b>	<b>All ages</b>	<b>11.5</b>	<b>62.4</b>	<b>40.4</b>	<b>40.5</b>	<b>21.1</b>	

Note: There is no suppression of rates that are derived from small counts in this table.

**Table A12: Traffic-Remoteness area by seriously injured person's vehicle: Remote and very remote, 2003-04 to 2007-08**

Indigenous Australians		Age-specific rate per 100,000 population									
		Pedestrian	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Other Australians	Pedestrian	Car driver	Car passenger	Motorcyclist
<b>Male</b>											
0-4	35.8	0.0	48.6	2.6	12.8	0-4	8.1	0.0	25.8	1.6	6.5
5-9	20.4	0.0	43.4	17.9	35.7	5-9	6.3	0.0	36.5	42.9	30.2
10-14	8.3	8.3	66.2	35.9	82.7	10-14	1.8	0.0	68.3	161.1	136.6
15-19	49.6	77.5	167.4	71.3	43.4	15-19	12.7	188.8	106.1	430.7	59.4
20-24	21.0	185.9	133.3	77.2	7.0	20-24	19.7	184.7	86.1	356.9	23.3
25-29	81.7	147.1	167.5	57.2	12.3	25-29	15.7	103.8	47.2	204.4	14.2
30-34	92.4	172.2	205.8	46.2	12.6	30-34	5.5	79.9	28.9	159.7	20.7
35-39	72.9	109.4	168.6	9.1	4.6	35-39	6.5	83.5	19.6	121.3	15.6
40-44	74.4	132.8	122.2	37.2	15.9	40-44	9.1	63.6	15.6	110.3	10.4
45-49	86.3	132.7	165.9	6.6	6.6	45-49	10.4	57.0	18.1	85.4	29.8
50-54	66.3	82.8	58.0	16.6	8.3	50-54	8.4	37.9	16.8	56.1	8.4
55-59	133.5	145.7	72.8	0.0	0.0	55-59	4.6	42.7	7.6	30.5	10.7
60-64	50.9	101.9	84.9	17.0	0.0	60-64	4.1	49.5	10.3	33.0	14.4
65+	78.2	67.0	55.9	0.0	0.0	65+	7.8	58.9	6.7	20.0	6.7
<b>All ages</b>	<b>62.8</b>	<b>95.8</b>	<b>111.3</b>	<b>27.5</b>	<b>17.0</b>	<b>All ages</b>	<b>8.7</b>	<b>68.6</b>	<b>34.5</b>	<b>128.1</b>	<b>27.0</b>
<b>Female</b>											
0-4	10.5	0.0	39.5	0.0	10.5	0-4	8.7	1.7	27.8	1.7	0.0
5-9	19.0	0.0	32.6	16.3	19.0	5-9	5.1	1.7	12.0	18.9	32.6
10-14	26.7	0.0	50.5	5.9	26.7	10-14	5.7	0.0	28.7	15.3	36.3
15-19	3.3	32.7	127.4	19.6	3.3	15-19	7.5	171.7	144.3	62.2	10.0
20-24	0.0	40.7	108.6	10.2	0.0	20-24	4.0	83.0	63.2	21.7	4.0
25-29	11.4	57.2	152.5	7.6	11.4	25-29	5.1	82.1	27.4	27.4	10.3
30-34	4.1	65.6	139.3	0.0	4.1	30-34	4.7	46.8	21.8	6.2	1.6
35-39	0.0	61.1	165.8	0.0	0.0	35-39	3.1	49.7	15.5	15.5	6.2
40-44	0.0	31.2	114.3	0.0	0.0	40-44	1.6	58.5	28.4	9.5	7.9
45-49	0.0	73.1	97.5	0.0	0.0	45-49	4.7	37.7	12.6	7.9	7.9
50-54	0.0	31.8	135.1	0.0	0.0	50-54	0.0	51.6	19.6	17.8	7.1
55-59	0.0	33.9	90.5	0.0	0.0	55-59	0.0	43.5	10.4	6.2	6.2
60-64	0.0	14.9	44.7	0.0	0.0	60-64	2.8	38.9	13.9	2.8	0.0
65+	0.0	0.0	78.1	0.0	0.0	65+	20.6	42.5	21.9	2.6	3.9
<b>All ages</b>	<b>28.5</b>	<b>30.8</b>	<b>99.9</b>	<b>4.1</b>	<b>5.2</b>	<b>All ages</b>	<b>6.2</b>	<b>50.9</b>	<b>32.0</b>	<b>15.2</b>	<b>9.5</b>

Note: There is no suppression of rates that are derived from small counts in this table.



# References

- ABS (Australian Bureau of Statistics) 2001. Australian standard geographical classification. ABS cat. no. 1216.0. Canberra: ABS.
- ABS 2002. Deaths, Australia, 2001. ABS cat. no. 3302.0. Canberra: ABS.
- ABS 2004. Experimental projections of Aboriginal and Torres Strait Islander Australians, ATSI regions, 2001 to 2009 ABS cat. no. 3238.0.55.002. Canberra: ABS.
- ABS 2005a. Deaths, Australia, 2004. ABS cat. no. 3302.0. Canberra: ABS.
- ABS 2005b. Motor vehicle census, Australia. ABS cat. no. 9309.0. Canberra: ABS.
- ABS 2005c. Survey of motor vehicle use, Australia. ABS cat. no. 9208.0. Canberra: ABS.
- ABS 2007. Deaths, Australia, 2006. ABS cat. no. 3302.0. Canberra: ABS.
- ABS 2009a. Causes of death, Australia, 2007. Canberra: ABS.
- ABS 2009b. Deaths, Australia, 2008. ABS cat. no. 3302.0. Canberra: ABS.
- ABS 2009c. Experimental estimates of Aboriginal and Torres Strait Islander Australians, Jun 2006. ABS cat. no. 3238.0.55.001. Canberra: ABS.
- ABS and AIHW (Australian Institute of Health and Welfare) 2005. The health and welfare of Australia's Aboriginal and Torres Strait Islander Peoples. ABS cat. no. 4704.0, Cat. no. IHW14. Canberra: ABS.
- ABS and AIHW 2008. The health and welfare of Australia's Aboriginal and Torres Strait Islander Peoples. ABS cat. no. 4704.0, Cat. no. IHW21. Canberra: ABS.
- AIHW 2001. National health data dictionary, version 10. Cat. no. HWI 30. Canberra: AIHW.
- AIHW 2005a. Australian hospital statistics 2003–04. Cat. no. HSE 37. Canberra: AIHW.
- AIHW 2005b. Improving the quality of Indigenous identification in hospital separations data. Cat. no. HSE 101. Canberra: AIHW.
- AIHW 2006. Australian hospital statistics 2004–05. Cat. no. HSE 41. Canberra: AIHW.
- AIHW 2007a. Australian hospital statistics 2005–06. Cat. no. HSE 50. Canberra: AIHW.
- AIHW 2007b. Rural, regional and remote health: a study on mortality (2nd edition). Cat. no. PHE 95. Canberra: AIHW.
- AIHW 2008. Australian hospital statistics 2006–07. Cat. no. HSE 55. Canberra: AIHW.
- AIHW 2009. Australian hospital statistics 2007–08. Cat. no. HSE 71. Canberra: AIHW.
- AIHW 2010a. Australia's health 2010. Cat. no. AUS 122. Canberra: AIHW.
- AIHW 2010b. Indigenous identification in hospital separations data-quality report. Cat. no. HSE 85. Canberra: AIHW.
- Berry J & Harrison J 2008. Injury of Aboriginal and Torres Strait Islander people due to transport, 2001–02 to 2005–06. Cat. no. INJCAT 120. Adelaide: AIHW.
- Berry J, Nearmy D & Harrison J 2007. Injury of Aboriginal and Torres Strait Islander people due to transport, 1999–00 to 2003–04. Cat. no. INJCAT 100. Canberra: AIHW and the Australian Transport Safety Bureau.

NCCH (National Centre for Classification in Health) 2002. The international statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM). Third edition 1 July 2002. Sydney: University of Sydney.

NCCH 2004. The international statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM). Fourth edition 1 July 2004. Sydney: University of Sydney.

NCCH 2006. The international statistical classification of diseases and related health problems, 10th revision, Australian modification (ICD-10-AM). Fifth edition 1 July 2006. Sydney: University of Sydney.

Stata Corporation 2005. Stata statistical software [computer program] version 9.2. College Station, TX: Stata Corporation.

Walker S, Madden R & Chen L 2008. Deaths due to suicide: the effects of certification and coding practices in Australia. *Aust N Z J Public Health* 32:126-30.

WHO (World Health Organisation) 1992. The international statistical classification of diseases and related health problems, 10th revision (ICD-10). Geneva: WHO.

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