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Injury of Aboriginal and Torres Strait Islander people due to transport 2005–06 to 2009–10

Geoff Henley and James E Harrison

INJURY RESEARCH AND STATISTICS SERIES NO. 85



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*Authoritative information and statistics
to promote better health and wellbeing*

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Canberra

Cat. no. INJCAT 161

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This publication is part of the Australian Institute of Health and Welfare's Injury research and statistics series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 1444-3791

ISBN 978-1-74249-461-6

Suggested citation

AIHW: Henley G & Harrison JE 2013. Injury of Aboriginal and Torres Strait Islander people due to transport, 2005–06 to 2009–10. Injury research and statistics series no. 85. Cat. no. INJCAT 161. Canberra: AIHW.

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Published by the Australian Institute of Health and Welfare

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

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Acknowledgments

The Australian Institute of Health and Welfare (AIHW) acknowledges the financial and project support for this publication provided by the Australian Government Department of Infrastructure and Transport (DIT). This report was produced by the AIHW National Injury Surveillance Unit at Flinders University.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARIA	Accessibility/Remoteness index of Australia
ASGC	Australian Standard Geographical Classification
BITRE	Bureau of Infrastructure, Transport and Regional Economics
DIT	Department of Infrastructure and Transport
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
NHMD	National Hospital Morbidity Database
WHO	World Health Organization

Symbols

n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
..	not applicable

Summary

This publication provides a summary of fatal and serious injury of Aboriginal and Torres Strait Islander people in Australia due to land transport accidents over the five-year period from 2005–06 to 2009–10. Due to data quality issues, Tasmania and the Australian Capital Territory were not included.

All transport injury

Transport-related injury was the second leading cause of fatal injury (27%) and the fourth leading cause of serious injury (9%) for Aboriginal and Torres Strait Islander people. More than 98% of the fatal and non-fatal transport injury cases involved land transport.

Land transport injury

Land transport accidents accounted for 26% of all fatal injury cases and 9% of all serious injury cases for Aboriginal and Torres Strait Islander people. The age-standardised rate for Aboriginal and Torres Strait Islander people was 2.8 times the rate for Other Australians for fatal cases and 1.3 times the rate for Other Australians for serious injuries.

Aboriginal and Torres Strait Islander people who were fatally or seriously injured in land transport accidents were less likely to have been drivers and more likely to have been passengers and pedestrians than Other Australians. Sixty-one per cent of Aboriginal and Torres Strait Islander people fatally injured in land transport accidents, and 41% of those seriously injured, were occupants of cars.

The age-standardised fatal injury rate for Aboriginal and Torres Strait Islander people as a car occupant was 3.3 times that of Other Australians (driver 2.3 times; passenger 5.8 times) and the fatal injury rate for Aboriginal and Torres Strait Islander people as a pedestrian was 5.2 times that of Other Australians. Equivalent ratios for serious injury were 1.2 (car driver), 2.6 (passenger) and 2.8 (pedestrian).

In general, rates of fatal and serious land transport injury increased greatly with the remoteness of the person's usual residence from an urban centre. This was seen for Aboriginal and Torres Strait Islander people and Other Australians.

Fatal injury rates for Aboriginal and Torres Strait Islander people were 1.1 to 2.3 times those for Other Australians for residents of the five remoteness areas, while serious injury rates were lower for Aboriginal and Torres Strait Islander people than for Other Australians in all remoteness areas except *Major cities*, where their rate was a little higher.

Fatal injury rates for Aboriginal and Torres Strait Islander people and Other Australians declined over the five-year period at estimated rates of 8.1% and 5.8% per year.

Serious injury rates for Aboriginal and Torres Strait Islander people rose over the five-year period (2.3% per year), while serious injury rates for Other Australians declined in the same period (1.1% per year). For Aboriginal and Torres Strait Islander people and Other Australians, rates of serious injury as a motorcyclist rose over the period and fell for Other Australians as car drivers, car passengers and pedestrians.

1 Introduction

Transport crashes are a leading cause of injury, both fatal and non-fatal. The primary purpose of this publication is to provide an overview of fatal and serious non-fatal injury of Aboriginal and Torres Strait Islander people involved in transport accidents in Australia.

This is the fourth in a series of reports dealing with injury to Aboriginal and Torres Strait Islander people due to transport (Berry & Harrison 2008; Berry et al. 2007; Henley & Harrison 2010). The main focus of the report is unintentional injury due to land transport. Section 2 has wider scope, putting land transport injury into the context of all causes of injury and injury due to all types of transport. Detailed data are presented in the tables and charts in chapter 4, and data for the charts are presented in Appendix B.

For the sake of brevity, the word 'Indigenous' is sometimes 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 referred to as 'Other Australians' in this report.

Data sources

Data for this report were extracted from nationally held databases. Data on fatal cases are from the Australian Bureau of Statistics (ABS) mortality unit record collection, while data on non-fatal cases are from the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (NHMD), which includes records of nearly all episodes in which a person was admitted to hospital in Australia. Details of the criteria used to select records from these sources are stated in Appendix A. In this report, the term *serious injury* refers to an injury which resulted in the person being admitted to hospital and subsequently discharged alive, either on the same day or after one or more night's stay in a hospital bed. Deaths in hospital are excluded from the serious injury data.

Quality of Indigenous status data

Ideally, the report would cover the whole of Australia. However, the quality of the identification of Indigenous status in the main data sources varies between jurisdictions and is considered to be insufficient for reporting in some parts of Australia in the period covered by this report. Accordingly, the scope of the report is the Northern Territory and all Australian states except Tasmania. As in previous reports in the series, the place of usual residence variables in the case data sources were used to apply this restriction. Cases where place of usual residence was recorded as Tasmania, the Australian Capital Territory, Other Territories of Australia or anywhere else were excluded.

Usual AIHW practice is to use mortality 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, mortality data for Aboriginal and Torres Strait Islander people residing in Victoria have also been included in the analyses in this report.

The data as presented are likely to underestimate transport-related fatal and serious injury of Aboriginal and Torres Strait Islander people, due to the incomplete identification of Aboriginal and Torres Strait Islander people in hospital and deaths data collections. Counts

of fatal and non-fatal injury for Other Australians are likely to be over-estimated because some people who could correctly be recorded as Indigenous will have been recorded as non-Indigenous or with unstated Indigenous status (see Appendix A). The effect of this on rates for Other Australians will be small overall, because Aboriginal and Torres Strait Islander people comprise a small proportion of the population of Australia, but could be larger for remote areas, where Indigenous people are a larger proportion of the population.

Methods

Due to small annual numbers of some case types, fatal injury and serious injury data for the six jurisdictions have been combined for a 5-year period from 2005–06 to 2009–10, except in the section that presents trends in rates per year for broad types of cases.

The denominators used to calculate rates for the whole study period are the sum of the relevant estimated population at the mid-point of each of the five years 2005–06 to 2009–10. All rates have been age-standardised unless they are age-specific or stated to be crude rates.

Confidence intervals around estimates are provided in some tables and figures to show variability due to small case counts. Confidence intervals are also provided for the model-based estimates of trends in annual rates. In both instances, variation can be large when case numbers are small. More information on data and methods is provided in Appendix A.

2 Injury of Aboriginal and Torres Strait Islander people due to transport, 2005–06 to 2009–10

Transport injury, as defined here, includes unintentional (or accidental) injury related to transport. It does not include transport-related injury recorded as being due to intentional self-harm or assault or where the intent was undetermined. Further information on *transport* and related terms is provided in Appendix A.

Unintentional injury related to transport was the second leading cause of fatal injury for Aboriginal and Torres Strait Islander people (27.1% of cases), behind suicide, and the third leading cause of fatal injury for Other Australians (19.4%), behind suicide and falls (Table 4.1.1). Transport was the fourth specified leading cause of serious injury for Aboriginal and Torres Strait Islander people (9.0%) and the third leading cause of serious injury for Other Australians (11.1%) (Table 4.1.1). Assault was the leading cause of serious injury for Aboriginal and Torres Strait Islander people (25.9%) while falling (30.8%) was the leading cause of serious injury for Other Australians.

Age-standardised rates of transport injury for Aboriginal and Torres Strait Islander people were 2.7 times higher for fatal cases and 1.3 times higher for serious injuries than the equivalent rates for Other Australians (Table 4.1.1).

Mode of transport

The way in which a person was travelling when injured (for example, in a car; on a bicycle; riding a horse; walking; travelling in a watercraft) is referred to as their *mode of transport*, in keeping with the International Classification of Diseases (ICD). Cars, other motor vehicles, pedal cycles and being a pedestrian are the modes involved in the great majority of transport injury cases. These modes, with rail and certain special types of vehicles, are referred to as *land transport*. Land transport injury is the subject of this report except for this section, which has wider scope. Over 98% of fatal and non-fatal transport injury cases for Aboriginal and Torres Strait Islander people involved land transport.

Water transport and air transport are the main modes of transport that are not land transport. Air transport accounted for such small numbers of injury deaths and serious injuries for Aboriginal and Torres Strait Islander people that the values have had to be suppressed. Water transport accounted for 1.5% of fatal transport injury cases for Aboriginal and Torres Strait Islander people and an even smaller proportion of transport-related serious injury (Tables 4.1.2 and 4.1.3).

Traffic and non-traffic cases

Land transport cases that involved at least one vehicle and occurred at least partly on a road accessible to the public are referred to as *traffic* cases, in keeping with the ICD. *Non-traffic* cases involved at least one vehicle and occurred entirely off-road. Traffic and non-traffic cases are distinguished for the most frequently reported modes of transport (Tables 4.1.2 and 4.1.3). For both Aboriginal and Torres Strait Islander people and Other Australians, traffic

cases were much more frequent than non-traffic cases if the mode of transport at the time of fatal or serious injury was a car or being a pedestrian (Tables 4.1.2 and 4.1.3). Where the mode of transport was a pedal cycle or motor cycle, however, the number of non-traffic serious injury cases was broadly similar to the number of traffic serious injury cases, for both Aboriginal and Torres Strait Islander people and Other Australians.

Car occupants

Car occupants were prominent among fatal transport injury cases, accounting for almost 60% of transport injury deaths of Aboriginal and Torres Strait Islander people and almost half of transport injury deaths of Other Australians (Table 4.1.2). Cars were also the most prominent mode of transport when serious injury occurred, both for Aboriginal and Torres Strait Islander people (40%) and for Other Australians (33%) (Table 4.1.3). Fatally and seriously injured Aboriginal and Torres Strait Islander people were more likely than Other Australians to have been a pedestrian at the time of injury and less likely to have been a motorcyclist.

Considered in terms of age-standardised rates of transport injury, Aboriginal and Torres Strait Islander people were more than three times as likely as Other Australians to be fatally injured as a car occupant and more than five times as likely as Other Australians to be fatally injured as a pedestrian (Table 4.1.2). Conversely, Aboriginal and Torres Strait Islander people were a little over half as likely as Other Australians to be fatally injured as a motorcyclist.

Similar patterns were observed for serious injury rates, although the differences between the two groups are not as great as those observed for fatal injury rates (Table 4.1.3).

3 Injury of Aboriginal and Torres Strait Islander people due to land transport, 2005–06 to 2009–10

This section examines the fatal and non-fatal injury of Aboriginal and Torres Strait Islander people due to land transport. Further information on *land transport* and related terms is provided in Appendix A.

Land transport injuries make up over 98% of all fatal and serious transport injuries of Aboriginal and Torres Strait Islander people. Hence, the rates of land transport injury (Table 4.2.1) are similar to the rates of transport injury. Ratios of the age-standardised rates of land transport injury for Aboriginal and Torres Strait Islander people to the rates for Other Australians are almost the same as those for all land transport: 2.8 for fatal cases and 1.3 for serious injuries (Table 4.2.1).

Over 90% of Aboriginal and Torres Strait Islander land transport fatalities occurred in traffic as did about two-thirds of serious injury cases (Table 4.2.1). The mean length of stay in hospital for Aboriginal and Torres Strait Islander people was almost twice as long for serious injuries that occurred in traffic (6.0 days) as for non-traffic cases (3.1 days).

Age and sex distribution

The land transport fatal and serious injury rates differed by age group and sex for both Aboriginal and Torres Strait Islander people and Other Australians (Table 4.2.2 and Figure 4.2.1).

Fatal injury rates for Aboriginal and Torres Strait Islander people tended to be high for age 15–19 through to middle age while rates for Other Australians were generally lower and with a peak restricted to early adult ages, highest at 15–24 years. Rates for Aboriginal and Torres Strait Islander males were 3–4 times as high as rates for Other Australian males in several age groups. A similar pattern was observed for females.

Compared with fatal cases, age-specific rates of serious injury of Aboriginal and Torres Strait Islander people were more similar to the rates for Other Australians, though somewhat higher at most ages. The difference in rates was greatest in the age range 25–29 to 45–49. Serious injury rates were highest at 15–19 years for Aboriginal and Torres Strait Islander males and females and for Other Australians of both sexes (Figure 4.2.1).

The number of cases underlying some age-specific rates of fatal injury is low, particularly for Aboriginal and Torres Strait Islander males and females in the youngest and oldest age groups. It should be expected that these rates will differ from period to period due to fluctuation of small case numbers.

Mode of transport

Car occupant (61%) and pedestrian (26%) were the two modes of land transport associated with the largest number of fatal land transport injuries for Aboriginal and Torres Strait Islander people (Table 4.2.3). Car occupant (41%) was also the type associated with the largest number of serious injuries.

The rates of fatal and serious injury of Aboriginal and Torres Strait Islander people as car occupants were 3.3 times and 1.7 times the equivalent rates for Other Australians (Table 4.2.3).

Passengers comprised a much larger proportion of car occupant cases for Aboriginal and Torres Strait Islander people than for Other Australians (Table 4.2.3). For Aboriginal and Torres Strait Islander people, the rate of fatal injury as a car driver (5.8 deaths per 100,000 population per year) was similar to the rate of fatal injury as a car passenger (6.0 deaths). For Other Australians, by contrast, the rate of fatal injury as a car driver was more than twice the rate of fatal injury as a car passenger. A similar pattern was present for serious injuries.

The rate of fatal injury as a pedestrian was more than five times as high for Aboriginal and Torres Strait Islander people as for Other Australians, while the rate of serious injury as a pedestrian was almost three times as high for Aboriginal and Torres Strait Islander people as for Other Australians (Table 4.2.3).

Figures 4.2.2 and 4.2.3 show age and sex specific rates of serious injury in traffic by Indigenous status for the five most numerous types of serious injury cases reported in Table 4.2.3: car drivers, car passengers, pedestrians, motorcyclists and pedal cyclists. Rates of serious injury as car passengers and pedestrians tended to be higher for Aboriginal and Torres Strait Islander people than for Other Australians across most age groups.

Figure 4.2.4 provides similar information on male non-traffic cases. The pattern of age-specific rates of non-traffic serious injury for Aboriginal and Torres Strait Islander men was similar to that for Other Australian men for the case-types presented. Rates were highest in both groups for pedal cyclist cases at age 10–14 years and for motorcyclist cases at age 15–19.

A figure showing female non-traffic serious injury cases is not presented due to small case numbers for Aboriginal and Torres Strait Islander women. Age-specific death rates by mode of transport are not provided due to small numbers. However, it was found that fatal injury rates for Aboriginal and Torres Strait Islander people as pedestrians, car passengers and car drivers tended to be highest at middle-ages, a pattern which differed somewhat from that observed for Other Australians where rates tended to be highest in early adulthood.

All charts in Figures 4.2.2 to 4.2.4 have the same vertical scale, to aid comparison. Tables of the rates shown in these figures are provided in Appendix B.

Remoteness areas

The mortality and morbidity datasets do not contain information on the location of crashes. The data are reported, instead, by the remoteness area of the injured person's usual residence.

Place of usual residence was a Major city for 15% of Aboriginal and Torres Strait Islander people with a fatal land transport injury and 23% of those with a serious injury, while over half of Other Australians with a fatal or serious land transport injury lived in a Major city (Table 4.2.4). Conversely, more than half of fatally injured Aboriginal and Torres Strait Islander people lived in a *Remote* or *Very remote* area, as did over one in three who sustained serious injury. Only 4% of Other Australians with fatal or serious land transport injury lived in *Remote* or *Very remote* areas.

Age-standardised rates of fatal and serious land transport injury generally increased markedly with the remoteness of the person's area of usual residence. Rise of rates with

increased remoteness was seen for both Aboriginal and Torres Strait Islander people and Other Australians, for males and females and for both sexes together (Table 4.2.5 and Figure 4.2.5).

A limited exception to this pattern is that most rates for Aboriginal and Torres Strait Islander residents of *Very Remote* areas were somewhat lower than rates for Aboriginal and Torres Strait Islander residents of *Remote* areas while for Other Australians rates were highest for residents of *Very Remote* areas. However, all rates for residents of the remote areas were higher than those for residents of any of the less remote areas.

The age-standardised rate of fatal land transport injury for Aboriginal and Torres Strait Islander people who lived in each remoteness area was higher than the rate for Other Australians who lived in the same remoteness area (Table 4.2.5 and Figure 4.2.5). Rates for Aboriginal and Torres Strait Islander people were around double those of Other Australians for the *Remote* and *Very remote* areas. Differences between the groups were smaller for the less remote areas: the age-standardised rates for Aboriginal and Torres Strait Islander residents were about 1.7, 1.1 and 1.4 times the rates for other residents of the *Major cities*, *Inner regional* and *Outer regional* areas, respectively.

Age-standardised rates of serious injury were lower for Aboriginal and Torres Strait Islander people than for Other Australians among the residents of every remoteness area except *Major cities*, where the rate for Aboriginal and Torres Strait Islander people was about 1.1 times that of Other Australians (Table 4.2.5 and Figure 4.2.5). The age-standardised rates for Aboriginal and Torres Strait Islander residents were about 0.9, 0.8, 0.9 and 0.6 times the rates for other residents of the *Inner regional*, *Outer regional*, *Remote* and *Very remote* areas respectively.

As reported in Table 4.2.1 and elsewhere, the overall rate of fatal land transport injury for Aboriginal and Torres Strait Islander people was 2.8 times that for Other Australians. This rate ratio is larger than that for the residents of any of the remoteness areas. Similarly, the overall rate of serious land transport injury for Aboriginal and Torres Strait Islander people was about 1.3 times that for Other Australians, a ratio larger than that for the residents of any of the remoteness areas.

The overall rate ratios are larger than the ratios for any of the remoteness areas because:

- Rates of fatal and serious land transport injury were much higher for residents of remote areas than for residents of less remote areas. This was so for Aboriginal and Torres Strait Islander people and for other residents; and
- A much larger proportion of Aboriginal and Torres Strait Islander people (25%) than of Other Australians (2.4%) lived in the *Remote* and *Very remote* areas, where the land transport injury rates were high for both Aboriginal and Torres Strait Islander residents and for other residents.

Traffic and non-traffic cases

The number of fatal cases in some remoteness areas was small, precluding a detailed examination of land transport deaths by remoteness area. Analysis comparing traffic and non-traffic cases is therefore restricted to serious injury (Table 4.2.6 and Figure 4.2.6).

Considering serious injuries that occurred in traffic, Aboriginal and Torres Strait Islander residents of each remoteness area had rates that were broadly similar to those for Other Australians resident in the same remoteness area, though rates for Aboriginal and Torres

Strait Islander people were higher to a moderate extent for residents of *Major cities* and *Remote* areas (Table 4.2.6).

In contrast, rates of non-traffic serious injury were lower for Aboriginal and Torres Strait Islander people than for Other Australians in every remoteness area. The differences in rates between the two groups tended to increase with remoteness, being insignificant for residents of *Major cities* and more than three-fold for residents of *Very remote* areas (Table 4.2.6).

As shown in Table 4.2.1, there was essentially no difference between the overall age-standardised rate of non-traffic serious injury for Aboriginal and Torres Strait Islander people and the equivalent rate for Other Australians. As explained above, this pattern occurs because: (i) rates rose with remoteness; and (ii) a much larger proportion of Aboriginal and Torres Strait Islander people than Other Australians lived in the more remote areas, where rates were highest for both groups.

Mode of transport

Figures 4.2.7 to 4.2.12 show similar information on serious land transport injury to that shown in Figures 4.2.2 and 4.2.3, except that traffic and non-traffic cases are combined and each pair of figures presents data for the residents of a remoteness area: *Major cities* (Figures 4.2.7 and 4.2.8), *Regional* areas (Figures 4.2.9 and 4.2.10) and *Remote* areas (Figures 4.2.11 and 4.2.12). The *Inner* and *Outer Regional* areas were combined, as were the *Remote* and *Very remote* areas, because of small case numbers in some groups. To aid comparisons, the vertical axes of the charts in this group were set to a maximum of 250 cases per 100,000, except for males in *Regional* and *Remote* areas whose higher rates required a maximum of 500.

Patterns of injury rates were broadly similar between the remoteness areas, though with these differences:

- For Aboriginal and Torres Strait Islander people, rates tended to rise with remoteness for most modes of transport. This effect was most pronounced for car passengers for most age groups and to a lesser extent for males injured as car drivers. For Other Australians, the increase of rates with remoteness was mainly confined to younger age groups, particularly those aged 15–19 injured as car passengers and motorcyclists and those aged 10–14 injured as pedal cyclists.
- For those injured as pedestrians, rates for Aboriginal and Torres Strait Islander people were markedly higher than rates for Other Australians across all remoteness zones, increasing from just over twice as high in *Major cities* to four times as high in *Remote* and *Very Remote* areas.
- A similar pattern was observed for those injured as car passengers with rates for Aboriginal and Torres Strait Islander people around three times as high as those for Other Australians in the *Remote* and *Very Remote* areas.
- For those injured as motorcyclists, rates for both groups were similar in the less remote zones, while for *Remote* and *Very Remote* areas, rates for Other Australians were around three times the rates for Aboriginal and Torres Strait Islander people.

Mechanism of injury

Many land transport injuries result from a collision between the vehicle in which a person is travelling and another vehicle or another object, or collision between a pedestrian and a vehicle. In this report, the other vehicle or object is called the *counterpart*. The combination of

the injured person's mode of transport and the counterpart is referred to here as the mechanism of injury.

Some vehicle crashes do not involve a well-defined counterpart (for example, a car rolls over but does not strike another vehicle or a fixed object). These cases are included as *Non-collision transport accidents*.

The counterparts in land transport crashes that resulted in the death or serious injury of Aboriginal and Torres Strait Islander people are summarised in Tables 4.2.7 and 4.2.8.

The most common mechanism of injury for Aboriginal and Torres Strait Islander people with fatal land transport injuries was as a car occupant in a non-collision accident (for example, rollover) (Table 4.2.9). This was so whether the injury occurred in traffic or in non-traffic circumstances.

Being a car occupant in a non-collision accident was also the most common mechanism for Aboriginal and Torres Strait Islander people seriously injured in traffic accidents.

Two other mechanisms resulted in the largest number of serious injuries of Aboriginal and Torres Strait Islander people in non-traffic conditions: *pedal cyclists injured in non-collision events*, followed by *motor cyclists injured in non-collision events*.

Car occupants

The ICD-10 classification distinguishes several roles of vehicle occupants, the most common being driver and passenger. The numbers of cases involving each combination of type of counterpart and role of car occupant are presented for fatal cases (Table 4.2.10) and serious injury cases (Table 4.2.11).

Nearly all fatally injured car occupants (97%) were either a driver or a passenger, the proportion being the same for Aboriginal and Torres Strait Islander car occupant cases and Other Australian car occupant cases. Drivers and passengers comprise a somewhat lower proportion of seriously injured car occupants: 83% of Aboriginal and Torres Strait Islander cases and 89% of Other Australian cases.

However, the relative number of drivers and passengers differed between the groups. Of Aboriginal and Torres Strait Islander people fatally or seriously injured as car occupants, more were passengers than drivers. In contrast, more than twice as many Other Australians fatally or seriously injured as car occupants were drivers as were passengers.

The higher proportion of car passengers relative to car drivers among Aboriginal and Torres Strait Islander people fatally or seriously injured as car occupants suggests a higher average number of occupants per vehicle in which such cases occurred, compared with Other Australians.

Time trends

Rates of fatal land transport injury for both Aboriginal and Torres Strait Islander people and Other Australians declined over the five-year period from 2005–06 to 2009–10 (Table 4.2.12 and Figure 4.2.13). Modelling of age-adjusted annual rates for Aboriginal and Torres Strait Islander people resulted in an estimated annual rate of decrease of 8.1% (95% CI: 1.9%, 14.0%), while for Other Australians the estimated annual rate of decline was 5.8% (95% CI: 4.4%, 8.0%). The relatively small annual numbers of Aboriginal and Torres Strait Islander cases accounts for the wide 95% confidence interval around the estimated trend for that group.

The rates of serious land transport injury for Aboriginal and Torres Strait Islander people increased over the five-year period at an estimated annual rate of 2.3% (95% CI: 0.8%, 3.9%) while the rate for Other Australians tended to decrease at an estimated rate of 1.1% per year (95% CI: 0.8%, 1.4%) (Table 4.2.12 and Figure 4.2.13).

For fatally injured Aboriginal and Torres Strait Islander people, a statistically significant downward trend in rates was found for cases that involved a pedestrian. The rate of fatal land transport injury of Aboriginal and Torres Strait Islander people injured as pedestrians decreased by an average estimated as 13.2% per year, though with a wide confidence interval (95% CI: 1.2%, 23.7%). Rates for Other Australians fatally injured as pedestrians, car drivers and car passengers also declined, at estimated rates of 6.0% (95% CI: 1.9, 9.9), 5.0% (95% CI: 2.4, 7.6) and 7.4% (95% CI: 3.3, 11.3) per year, respectively (Figure 4.2.14).

For seriously injured Aboriginal and Torres Strait Islander people, a statistically significant upward trend in rates was found for persons injured as motorcyclists, with an estimated annual increase of 4.7% (95% CI: 0.9%, 8.6%) per year (Figure 4.2.15). Statistically significant trends were not found for any of the other groups examined.

For Other Australians with serious land transport injuries, statistically significant decreases occurred in rates of cases involving car drivers, car passengers and pedestrians, while motorcyclist cases showed an upward trend estimated at 1.0% (95% CI: 0.5%, 1.6%) per year.

Trend 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 fatal injury over time. This issue is discussed in Appendix A. The interpretability of trends can also be influenced by changes in hospital admission practices and of the effects of treatment on survival. Trends are only presented for broad types of case due to relatively small numbers of cases for Aboriginal and Torres Strait Islander people. Small case numbers also result in wide confidence intervals around modelled trend estimates, especially for fatal cases.

4 Tables and charts

4.1 Injury of Aboriginal and Torres Strait Islander people due to transport, 2005–06 to 2009–10

Table 4.1.1: Fatal and serious injury by Indigenous status and external causes, 2005–06 to 2009–10

External cause of injury	Fatal injury						Serious injury ^(a)					
	Indigenous Australians			Other Australians			Indigenous Australians			Other Australians		
	Count	Per cent	Rate ^(b)	Count	Per cent	Rate ^(b)	Count	Per cent	Rate ^(b)	Count	Per cent	Rate ^(b)
Unintentional												
Transportation	458	27.1	20.1	7,464	19.4	7.4	8,460	9.0	316.0	245,278	11.1	247.3
Drowning and immersion	50	3.0	1.7	889	2.3	0.9	100	0.1	2.6	2,052	0.1	2.1
Poisoning, pharmaceuticals	152	9.0	7.2	3,318	8.6	3.3	1,499	1.6	58.7	29,635	1.3	29.8
Poisoning, other substances	42	2.5	1.7	407	1.1	0.4	567	0.6	19.4	14,317	0.7	14.4
Falls	88	5.2	8.1	8,886	23.0	8.3	16,535	17.6	798.4	676,790	30.8	658.1
Fires/burns/scalds	18	1.1	1.0	505	1.3	0.5	2,184	2.3	77.3	24,998	1.1	25.5
Other unintentional	116	6.9	6.6	2,892	7.5	2.8	22,289	23.8	844.9	596,088	27.1	598.0
Intentional												
Self-inflicted	491	29.0	19.4	10,139	26.3	10.0	6,194	6.6	253.8	109,879	5.0	110.6
Assault	167	9.9	7.6	986	2.6	1.0	24,272	25.9	1,016.0	85,892	3.9	86.7
Undetermined intent	93	5.5	4.0	1,914	5.0	1.9	1,490	1.6	61.2	23,175	1.1	23.3
Complications of surgical and medical care	18	1.1	1.6	1,165	3.0	1.1	10,042	10.7	609.1	391,242	17.8	374.9
No external cause	..	..	..	..	..	..	163	0.2	1.5	1,513	0.1	1.5
Total	1,693	100.0	79.1	38,565	100.0	37.5	93,795	100.0	4,064.7	2,200,859	100.0	2,172.2

.. Not applicable.

(a) The number of persons seriously injured was estimated by omitting records of inward transfers from acute care hospitals.

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

Notes

In total, there were 280,842 admissions (9,659 Indigenous Australians and 271,183 Other Australians) to hospital for transport injury and an estimated 255,446 cases (8,512 Indigenous Australians and 246,934 Other Australians), of whom 1,708 persons (52 Indigenous Australians) died while in hospital (0.7%). These deaths should be represented in the national mortality data collection and thus are omitted from the serious injury counts in this table and throughout the report.

The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.1.2: Mode of transport for transport-related fatal injury by Indigenous status, 2005–06 to 2009–10

Mode of transport	Indigenous			Non-indigenous			Rate ratio ^(b)
	Count	Per cent	Rate ^(a)	Count	Per cent	Rate ^(a)	
Car occupant ^(c)	274	59.8	11.9	3,682	49.3	3.6	3.3
traffic ^(d)	262	57.2	11.5	3,571	47.8	3.5	3.3
non-traffic ^(e)	11	2.4	0.4	97	1.3	0.1	4.2
Motorcyclist	17	3.7	0.7	1,169	15.7	1.2	0.6
traffic ^(d)	14	3.1	0.6	1,062	14.2	1.1	0.5
non-traffic ^(e)	n.p.	n.p.	n.p.	106	1.4	0.1	n.p.
Pedal cyclist	n.p.	n.p.	n.p.	177	2.4	0.2	n.p.
traffic ^(d)	n.p.	n.p.	n.p.	157	2.1	0.2	n.p.
non-traffic ^(e)	0	0.0	0.0	19	0.3	0.0	0.0
Pedestrian	117	25.5	5.4	1,053	14.1	1.0	5.2
traffic ^(d)	106	23.1	4.9	863	11.6	0.8	5.8
non-traffic ^(e)	9	2.0	0.4	170	2.3	0.2	2.5
Occupant of pick-up truck or van	13	2.8	0.5	300	4.0	0.3	1.6
Occupant of heavy transport vehicle	n.p.	n.p.	n.p.	210	2.8	0.2	n.p.
Bus occupant	n.p.	n.p.	n.p.	20	0.3	0.0	n.p.
Animal rider or occupant of animal-drawn vehicle	n.p.	n.p.	n.p.	30	0.4	0.3	n.p.
Occupant of special all-terrain or off-road vehicle	n.p.	n.p.	n.p.	57	0.8	0.1	n.p.
Occupant of 3-wheeled motor vehicle	0	0.0	0.0	17	0.2	0.0	0.0
Occupant of tram	0	0.0	0.0	0	0.0	0.0	0.0
Occupant of train	0	0.0	0.0	18	0.2	0.0	0.0
Occupant of special industrial vehicle	0	0.0	0.0	28	0.4	0.0	0.0
Occupant of special agricultural vehicle	n.p.	n.p.	n.p.	54	0.7	0.1	n.p.
Occupant of special construction vehicle	n.p.	n.p.	n.p.	28	0.4	0.0	n.p.
Occupant of watercraft	7	1.5	0.3	173	2.3	0.2	1.9
Occupant of aircraft	n.p.	n.p.	n.p.	189	2.5	0.2	n.p.
Other and unspecified	13	2.8	0.6	259	3.5	0.3	2.5
Total	458	100.0	20.1	7,464	100.0	7.4	2.7

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

(b) Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (specified as non-Indigenous plus indigenous status not stated).

(c) 'Mode of transport' is how a person was being conveyed when injured. Mode is a type of vehicle or being a pedestrian.

(d) 'Traffic' refers to cases in which injury was due to a vehicle accident that occurred on a public road, entirely or partly.

(e) 'Non-traffic' refers to case in which injury was due to a vehicle accident that occurred entirely in any place other than a public road.

Notes

The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Cases that were not specified as traffic or non-traffic are included in the total for each mode of transport. Hence the sum of traffic and non-traffic cases may be less than the total for a mode.

Table 4.1.3: Mode of transport for transport-related serious injury by Indigenous status, 2005–06 to 2009–10

Mode of transport	Indigenous			Non-indigenous			Rate ratio ^(b)
	Count	Per cent	Rate ^(a)	Count	Per cent	Rate ^(a)	
Car occupant ^(c)	3,392	40.1	140.0	81,102	33.1	80.4	1.7
traffic ^(d)	2,913	34.4	119.3	72,484	29.6	71.9	1.7
non-traffic ^(e)	350	4.1	14.1	5,940	2.4	5.9	2.4
Motorcyclist	1,445	17.1	47.7	64,394	26.3	65.5	0.7
traffic ^(d)	717	8.5	24.9	34,781	14.2	35.1	0.7
non-traffic ^(e)	697	8.2	21.8	27,685	11.3	28.5	0.8
Pedal cyclist	1,326	15.7	37.4	42,261	17.2	43.7	0.9
traffic ^(d)	649	7.7	19.7	22,438	9.1	23.0	0.9
non-traffic ^(e)	629	7.4	16.5	18,661	7.6	19.5	0.8
Pedestrian	1,169	13.8	46.9	16,849	6.9	16.8	2.8
traffic ^(d)	884	10.4	36.4	12,119	4.9	12.0	3.0
non-traffic ^(e)	161	1.9	5.6	3,224	1.3	3.2	1.7
Occupant of pick-up truck or van	93	1.1	3.9	2,074	0.8	2.1	1.9
Occupant of heavy transport vehicle	55	0.7	2.5	3,629	1.5	3.6	0.7
Bus occupant	69	0.8	4.4	2,212	0.9	2.1	2.1
Animal rider or occupant of animal-drawn vehicle	387	4.6	13.6	14,749	6.0	15.0	0.9
Occupant of special all-terrain or off-road vehicle	143	1.7	4.4	4,233	1.7	4.3	1.0
Occupant of 3-wheeled motor vehicle	n.p.	n.p.	n.p.	301	0.1	0.3	n.p.
Occupant of tram	10	0.1	0.4	365	0.1	0.3	1.3
Occupant of train	19	0.2	0.7	521	0.2	0.5	1.5
Occupant of special industrial vehicle	16	0.2	0.7	729	0.3	0.7	1.0
Occupant of special agricultural vehicle	13	0.2	0.4	997	0.4	1.0	0.5
Occupant of special construction vehicle	8	0.1	0.4	305	0.1	0.3	1.3
Occupant of watercraft	68	0.8	2.8	4,330	1.8	4.3	0.6
Occupant of aircraft	n.p.	n.p.	n.p.	673	0.3	0.7	n.p.
Other and unspecified	242	2.9	9.6	5,554	2.3	5.6	1.7
Total	8,460	100.0	316.0	245,278	100.0	247.3	1.3

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

(b) Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (specified as non-Indigenous plus indigenous status not stated).

(c) 'Mode of transport' is how a person was being conveyed when injured. Mode is a type of vehicle or being a pedestrian.

(d) 'Traffic' refers to cases in which injury was due to a vehicle accident that occurred on a public road, entirely or partly.

(e) 'Non-traffic' refers to case in which injury was due to a vehicle accident that occurred entirely in any place other than a public road.

Notes

The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Cases that were not specified as traffic or non-traffic are included in the total for each mode of transport. Hence the sum of traffic and non-traffic cases may be less than the total for a mode.

4.2 Injury of Aboriginal and Torres Strait Islander people due to land transport, 2005–06 to 2009–10

Table 4.2.1: Key indicators of land transport injury, 2005–06 to 2009–10

Indicator	Indigenous males	Indigenous females	Indigenous Australians		
			Traffic	Non-traffic	Total ^(a)
Fatal injury					
Deaths	307	143	419	27	450
Percentage of all deaths due to injury ^(b)	26.2	26.8	24.6	1.6	26.4
Crude rate ^(c)	24.2	11.2	16.4	1.1	17.6
Adjusted rate ^(d)	27.1	12.8	18.4	1.1	19.7
Age standardised rate ratios: Indigenous: non-indigenous ^(e)	2.6	3.6	2.9	2.1	2.8
Serious injury					
Cases ^(f)	5,735	2,594	5,466	2,041	8,329
Percentage of estimated cases of injury ^(g)	10.9	6.3	5.8	2.2	8.8
Mean length of stay in hospital (days) ^(h)	5.0	5.3	6.0	3.1	5.1
Total patient days	28,633	13,777	32,527	6,290	42,410
Crude rate ^(c)	451.6	202.4	214.2	80.0	326.4
Adjusted rate ^(d)	425.0	199.7	213.0	65.1	310.8
Age standardised rate ratios: Indigenous: non-indigenous ^(e)	1.3	1.4	1.4	1.0	1.3

(a) Includes 4 deaths, 822 cases and 3,593 patient days where it was not specified whether the crash occurred in traffic or non-traffic conditions.

(b) Cases with Underlying Cause of Death in the range V01–V89 divided by cases with Underlying Cause of Death in the range V01–Y98.

(c) Crude rate of cases per 100,000 population per year.

(d) Cases per 100,000 population per year, adjusted by direct standardisation to the Australian population in June 2001.

(e) Ratio of age-standardised rate for persons specified as Indigenous to the equivalent rate for all other persons (specified as non-Indigenous plus indigenous status not stated).

(f) Includes 2,762 cases (m = 1,906; f = 856) where the person was admitted and discharged on the same day. Excludes records of inward transfers from other acute care hospitals.

(g) Cases with Principal Diagnosis in the range S00–T98 and first external cause code in the range V00–V89 divided by all cases with Principal Diagnosis in the range S00–T98.

(h) The average number of days a person stayed in hospital with serious transport injury. Denominator includes bed-days for inward transfers.

Notes

In total, there were 272,664 (9,511 Indigenous Australians and 263,153 Other Australians) admissions to hospital for land transport injury for an estimated 248,085 cases (8,381 Indigenous Australians and 239,704 Other Australians), of which 1,681 persons (52 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 this table and throughout the report. The estimate of total patient days excludes separations in which the person died in hospital.

The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

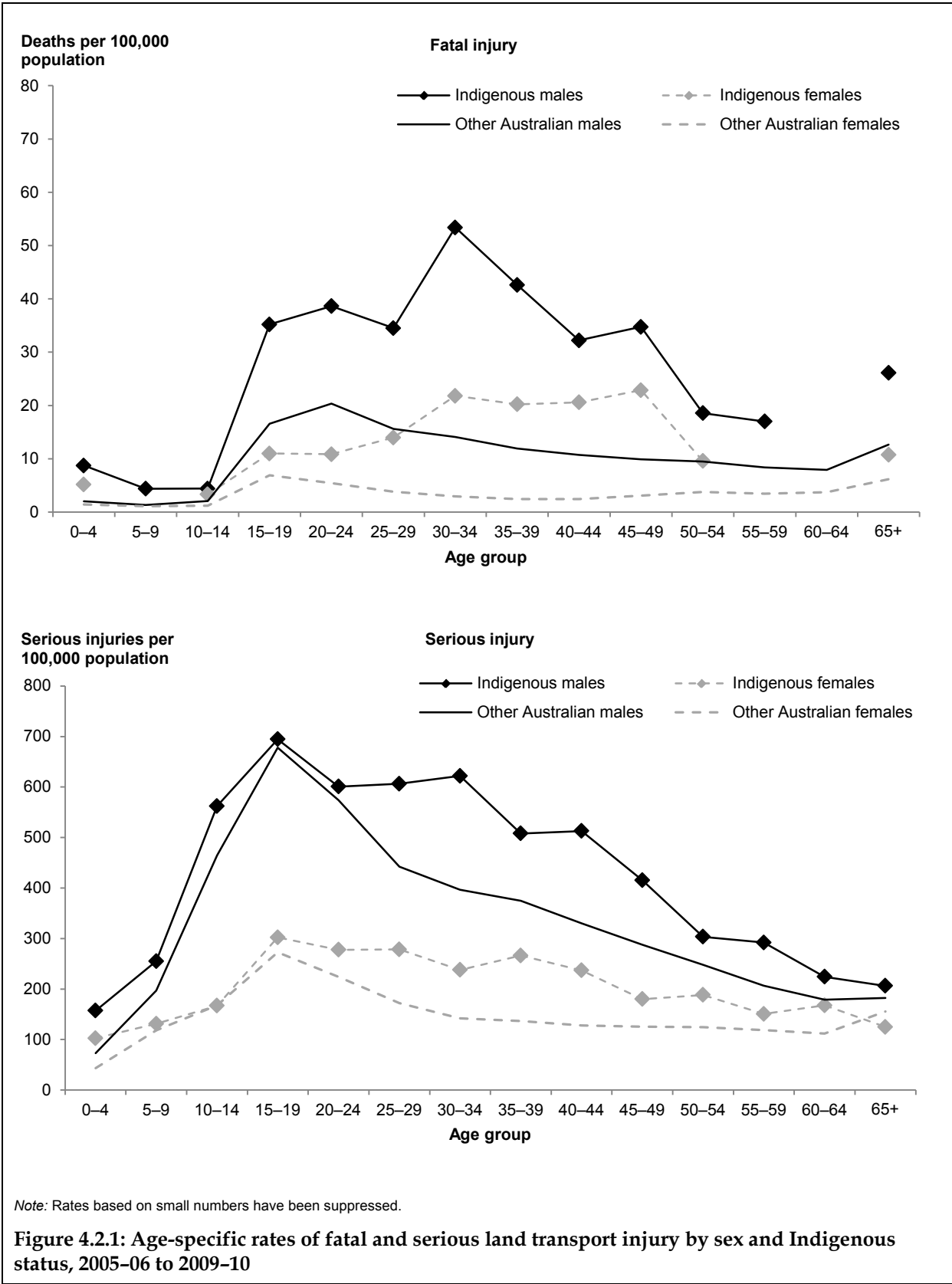


Table 4.2.2: Age-specific and age-standardised rates due to fatal and serious land transport injury, 2005–06 to 2009–10

Indicator	Age group														All ages (crude)	Age Std. ^(a)
	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65+		
Fatal injury																
Indigenous males	8.7	4.4	4.4	35.2	38.6	34.5	53.4	42.6	32.2	34.8	18.6	17.0	n.p.	26.1	24.2	27.1
Other Australian males	2.0	1.4	2.1	16.6	20.4	15.6	14.1	11.9	10.7	9.9	9.5	8.4	7.9	12.7	10.6	10.5
Male rate ratio: Indigenous: Other Australian	4.3	3.2	2.1	2.1	1.9	2.2	3.8	3.6	3.0	3.5	2.0	2.0	n.p.	2.1	2.3	2.6
Indigenous females	5.2	n.p.	3.3	11.0	10.9	14.0	21.8	20.2	20.6	22.9	9.6	n.p.	n.p.	10.8	11.2	12.8
Other Australian females	1.4	1.1	1.2	6.9	5.4	3.8	3.0	2.4	2.4	3.1	3.8	3.5	3.7	6.2	3.7	3.6
Female rate ratio: Indigenous: Other Australian	3.7	n.p.	2.7	1.6	2.0	3.7	7.4	8.3	8.5	7.4	2.5	n.p.	n.p.	1.7	3.0	3.6
Rate ratio: Indigenous: Other Australian	4.0	2.9	2.4	2.0	1.9	2.5	4.4	4.3	4.0	4.4	2.1	2.3	2.7	1.9	2.5	2.8
Serious injury																
Indigenous males	157.2	255.0	562.1	694.6	600.8	606.3	621.9	507.9	512.8	415.4	303.4	292.0	224.1	206.3	451.6	425.0
Other Australian males	73.2	196.8	464.8	677.7	574.1	442.2	396.6	374.6	330.2	287.9	247.9	206.8	178.9	182.2	330.3	330.6
Male rate ratio: Indigenous: Other Australian	2.1	1.3	1.2	1.0	1.0	1.4	1.6	1.4	1.6	1.4	1.2	1.4	1.3	1.1	1.4	1.3
Indigenous females	102.5	131.1	166.8	302.2	277.6	278.5	237.8	266.2	236.9	179.9	188.2	150.5	167.6	124.9	202.4	199.7
Other Australian females	43.5	118.0	167.9	272.5	224.2	171.9	141.9	136.5	127.8	125.4	124.2	118.5	111.9	155.8	147.7	147.8
Female rate ratio: Indigenous: Other Australian	2.4	1.1	1.0	1.1	1.2	1.6	1.7	2.0	1.9	1.4	1.5	1.3	1.5	0.8	1.4	1.4
Rate ratio: Indigenous: Other Australian	2.2	1.2	1.2	1.0	1.1	1.4	1.6	1.5	1.6	1.4	1.3	1.3	1.3	1.0	1.4	1.3

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

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.3: Mode of transport for fatal and serious land transport injury by Indigenous status, 2005–06 to 2009–10

Mode of transport ^(a)	Males (Rate ^(b))		Females (Rate ^(b))		Persons				
	Indigenous Australians	Other Australians	Indigenous Australians	Other Australians	Indigenous Australians		Other Australians		Rate ratio ^(c)
					Count	Rate ^(b)	Count	Rate ^(b)	
Fatal injury									
Car occupant	16.5	4.9	7.7	2.4	274	11.9	3,682	3.6	3.3
Driver	9.3	3.7	2.6	1.4	122	5.8	2,560	2.5	2.3
Passenger	7.1	1.1	4.9	0.9	148	6.0	1,038	1.0	5.8
Other and unspecified ^(d)	0.1	0.1	0.1	0.0	n.p.	n.p.	84	0.1	n.p.
Motorcyclist	1.3	2.2	0.0	0.1	17	0.7	1,169	1.2	0.6
Pedal cyclist	0.1	0.3	0.0	0.0	n.p.	n.p.	177	0.2	n.p.
Pedestrian	7.0	1.4	3.9	0.6	117	5.4	1,053	1.0	5.2
Animal or occupant of animal-drawn vehicle	0.1	0.0	0.0	0.0	n.p.	n.p.	30	0.0	n.p.
Other land transport	2.0	1.6	1.2	0.4	39	1.6	988	1.0	1.7

(continued)

Table 4.2.3 (continued): Mode of transport for fatal and serious land transport injury by Indigenous status, 2005–06 to 2009–10

Mode of transport ^(b)	Males (Rate ^(a))		Females (Rate ^(a))		Persons				
	Indigenous Australians	Other Australians	Indigenous Australians	Other Australians	Indigenous Australians		Other Australians		Rate ratio ^(c)
					Count	Rate ^(a)	Count	Rate ^(a)	
Serious injury									
Car occupant	164.5	83.8	116.5	76.7	3,392	140.0	81,102	80.4	1.7
Driver	77.7	54.8	38.4	43.4	1,287	57.3	49,646	49.0	1.2
Passenger	63.7	21.1	58.2	26.1	1,599	61.0	23,697	23.8	2.6
Other and unspecified ^(d)	23.1	7.9	19.8	7.3	506	21.6	7,759	7.6	2.8
Motorcyclist	84.4	118.1	11.3	12.0	1,445	47.7	64,393	65.5	0.7
Pedal cyclist	60.1	70.2	14.7	16.6	1,326	37.4	42,260	43.7	0.9
Pedestrian	63.7	20.5	31.3	12.9	1,169	46.9	16,849	16.8	2.8
Animal or occupant of animal-drawn vehicle	18.2	10.2	9.5	20.1	387	13.6	14,748	15.0	0.9
Other land transport	34.2	27.7	16.5	9.3	610	25.1	18,720	18.6	1.4

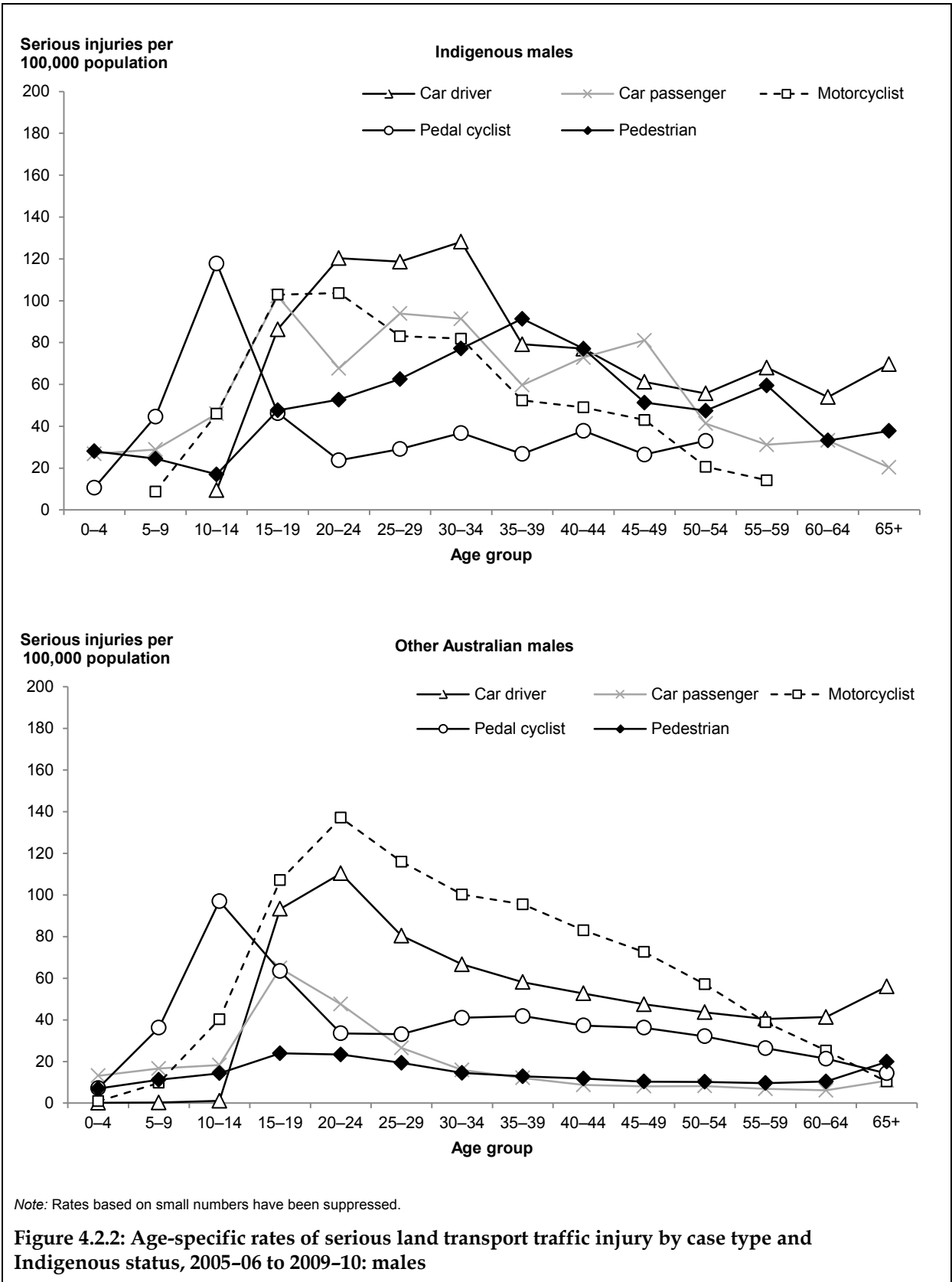
(a) Per 100,000 population per year, adjusted by direct standardisation to the Australian population in June 2001.

(b) 'Mode of transport' is how a person was being conveyed when injured. Mode is a type of vehicle or being a pedestrian.

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

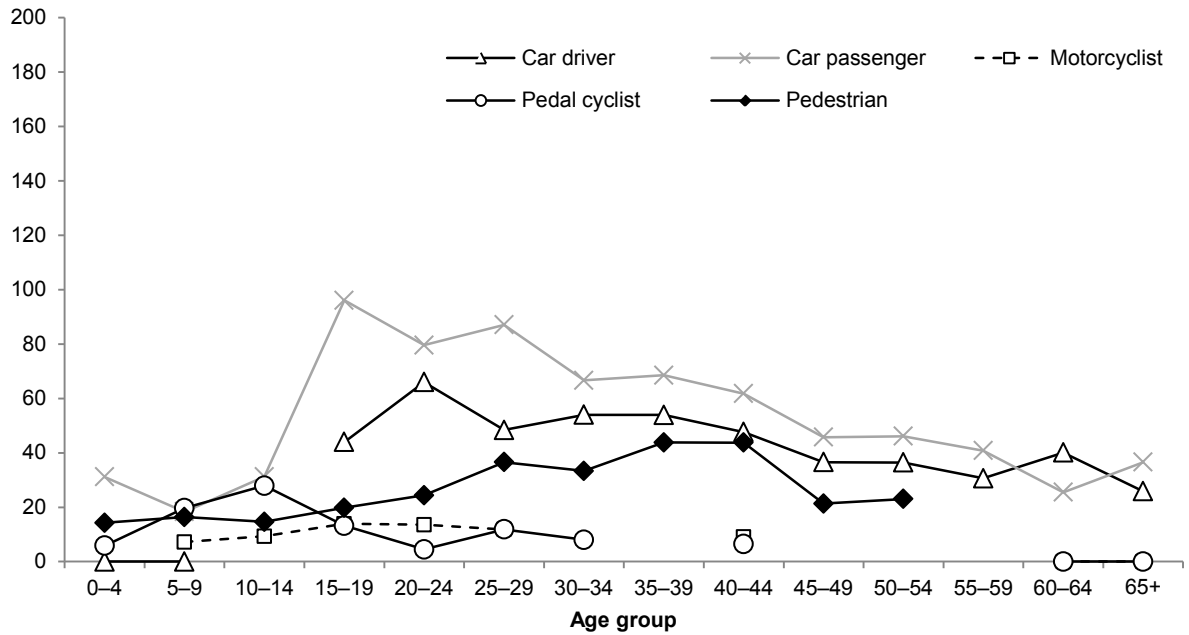
(d) Includes unspecified occupants inside of vehicle, persons injured while on the outside of vehicle and persons injured while boarding or alighting from a vehicle.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).



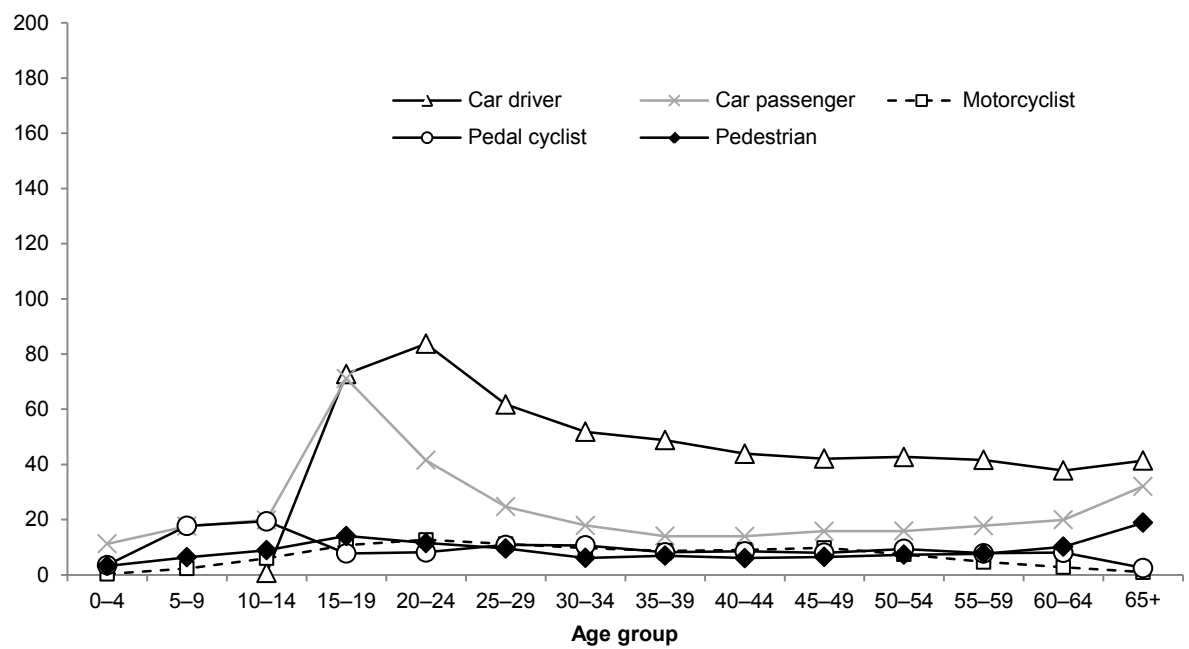
Serious injuries per 100,000 population

Indigenous females



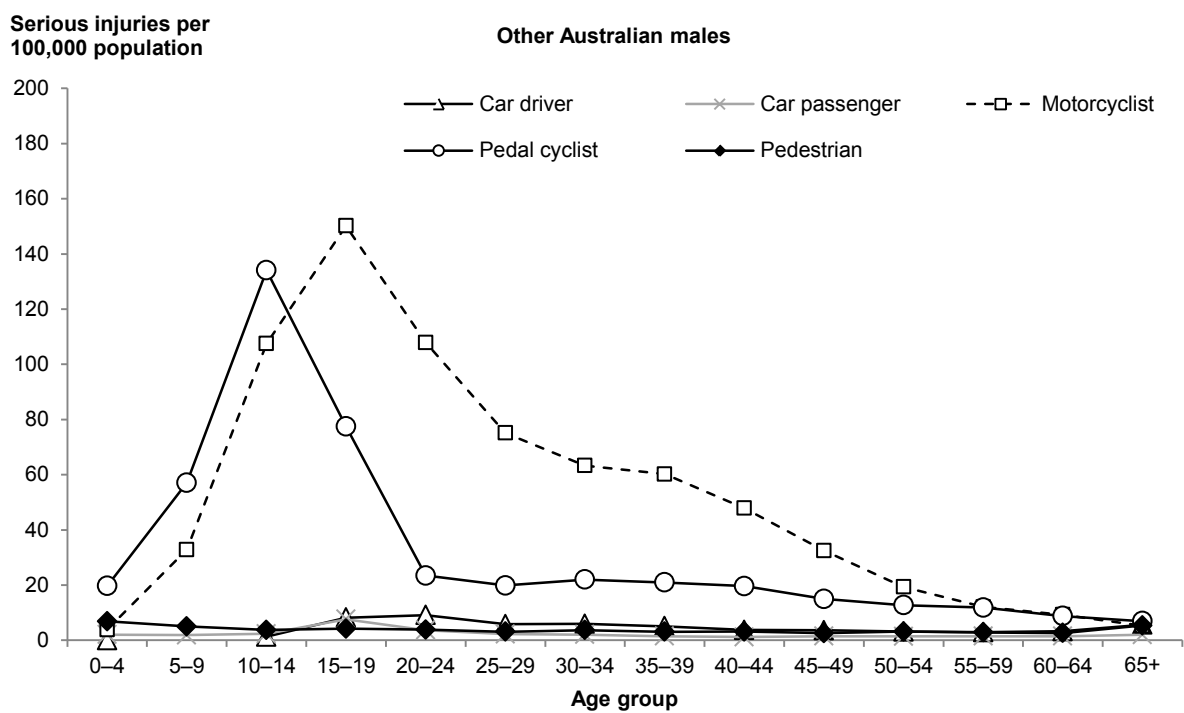
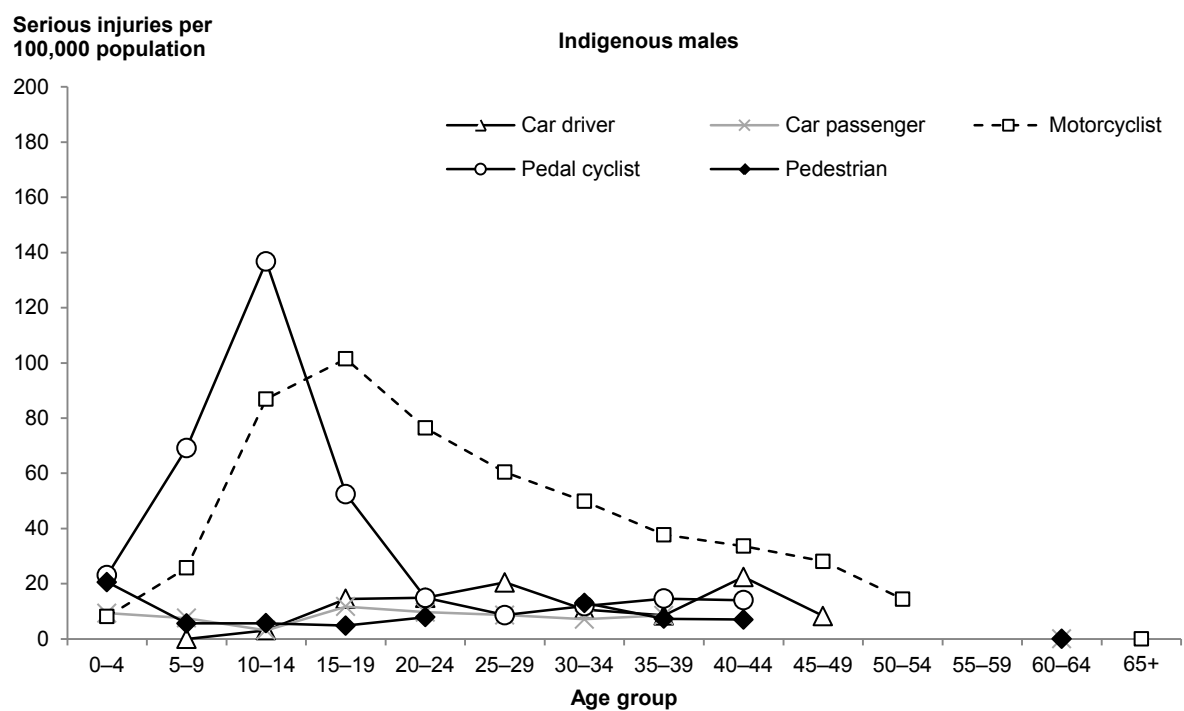
Serious injuries per 100,000 population

Other Australian females



Note: Rates based on small numbers have been suppressed.

Figure 4.2.3: Age-specific rates of serious land transport traffic injury by case type and Indigenous status, 2005-06 to 2009-10: females



Note: Rates based on small numbers have been suppressed.

Figure 4.2.4: Age-specific rates of serious land transport non-traffic injury by case type and Indigenous status, 2005-06 to 2009-10: males

Table 4.2.4: Fatal and serious land transport injury cases by sex, remoteness area of usual residence and Indigenous status, 2005–06 to 2009–10

ASGC remoteness area of usual residence	Indigenous Australians				Other Australians			
	Males	Females	Persons	Per cent	Males	Females	Persons	Per cent
	Count	Count	Count		Count	Count	Count	
Fatal injury								
Major cities	48	19	66	15	2,675	923	3,598	51
Inner regional	40	23	63	14	1,442	532	1,975	28
Outer regional	60	21	81	18	823	263	1,087	15
Remote	52	28	80	18	173	50	223	3
Very remote	102	50	152	34	62	20	81	1
Total^(a)	307	143	450	100	5,261	1,838	7,099	100
Serious injury								
Major cities	1,281	609	1,890	23	94,052	44,968	139,021	58
Inner regional	1,139	462	1,601	19	40,498	17,745	58,244	24
Outer regional	1,352	566	1,918	23	22,770	8,955	31,726	13
Remote	757	381	1,138	14	4,612	1,579	6,192	3
Very remote	1,199	575	1,774	21	1,852	752	2,604	1
Total^(b)	5,735	2,594	8,329	100	163,977	74,094	238,075^(c)	100

(a) ASGC remoteness area of residence not reported for 8 Indigenous Australians (males = 6, females = 2) and 135 Other Australians (males = 86, females = 49).

(b) ASGC remoteness area of residence not reported for 8 Indigenous Australians (males = 7, females = 1) and 288 Other Australians (males = 193, females = 95).

(c) Sex not stated for 4 Other Australians seriously injured.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.5: Age-standardised fatal and serious land transport injury rates by remoteness area of usual residence and Indigenous status, 2005–06 to 2009–10

ASGC remoteness area of usual residence	Age-standardised rate ^(a) (95% CI)					
	Indigenous Australians			Other Australians		
	Males	Females	Persons	Males	Females	Persons
Fatal injury						
Major cities	13 (10–17)	7 (5–10)	10 (8–12)	9 (9–10)	3 (3–3)	6 (6–6)
Inner regional	21 (16–28)	11 (8–16)	16 (13–20)	20 (19–21)	7 (7–8)	14 (13–14)
Outer regional	33 (27–41)	12 (9–17)	22 (19–26)	24 (23–25)	8 (7–9)	16 (15–17)
Remote	63 (51–79)	37 (28–50)	50 (42–60)	32 (28–37)	11 (8–14)	22 (20–25)
Very remote	67 (56–79)	31 (24–40)	48 (42–56)	33 (27–41)	14 (9–20)	25 (20–30)
Overall^(b)	27 (23–31)	13 (10–15)	20 (18–22)	11 (10–11)	4 (3–4)	7 (7–7)
Serious injury						
Major cities	289 (270–308)	146 (133–160)	216 (205–228)	266 (265–268)	124 (123–126)	196 (195–197)
Inner regional	395 (368–421)	180 (161–199)	288 (272–305)	450 (445–454)	192 (189–195)	322 (320–325)
Outer regional	452 (424–480)	192 (175–210)	320 (304–336)	536 (529–543)	220 (215–224)	383 (379–387)
Remote	613 (562–664)	300 (268–333)	453 (424–483)	697 (677–717)	270 (256–283)	496 (483–508)
Very remote	586 (548–623)	283 (258–308)	432 (409–454)	857 (816–897)	436 (404–468)	667 (641–694)
Overall^(b)	425 (412–438)	200 (191–208)	311 (303–318)	331 (329–332)	148 (147–149)	240 (239–241)

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

(b) All remoteness areas combined. Age-standardised; not standardised for remoteness.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

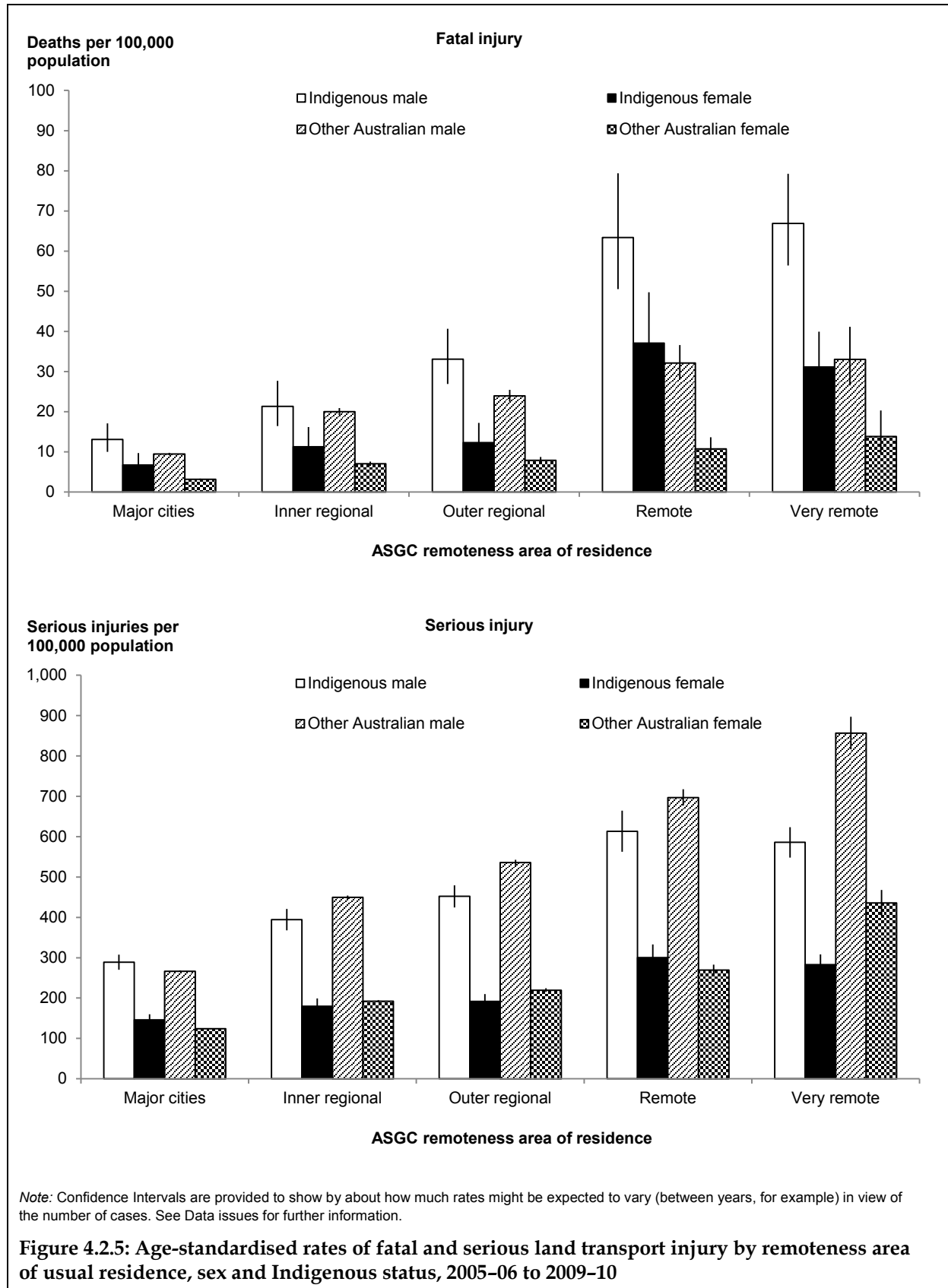


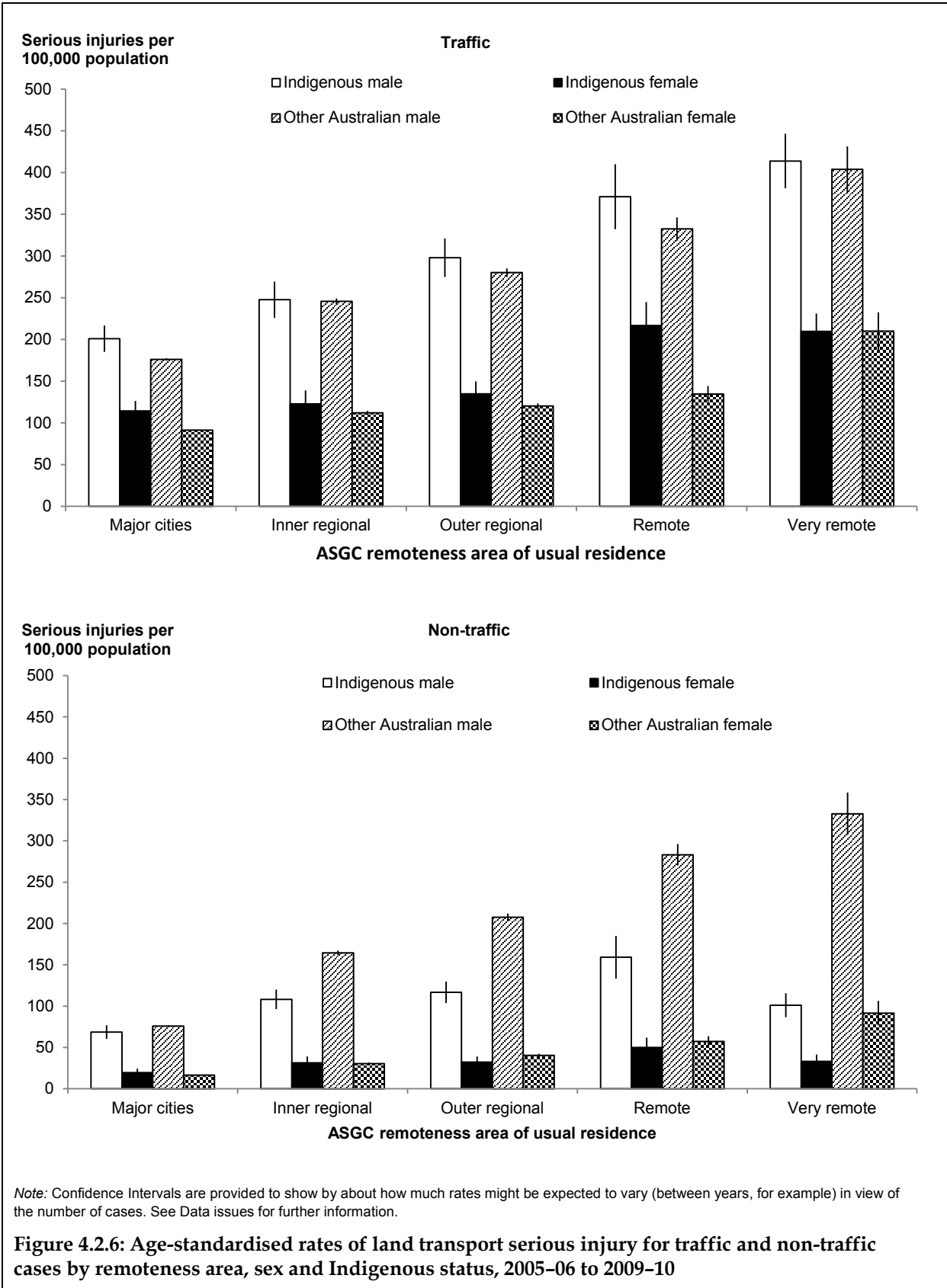
Table 4.2.6: Age-standardised land transport serious rates by remoteness area of usual residence by Indigenous status by traffic setting, 2005–06 to 2009–10

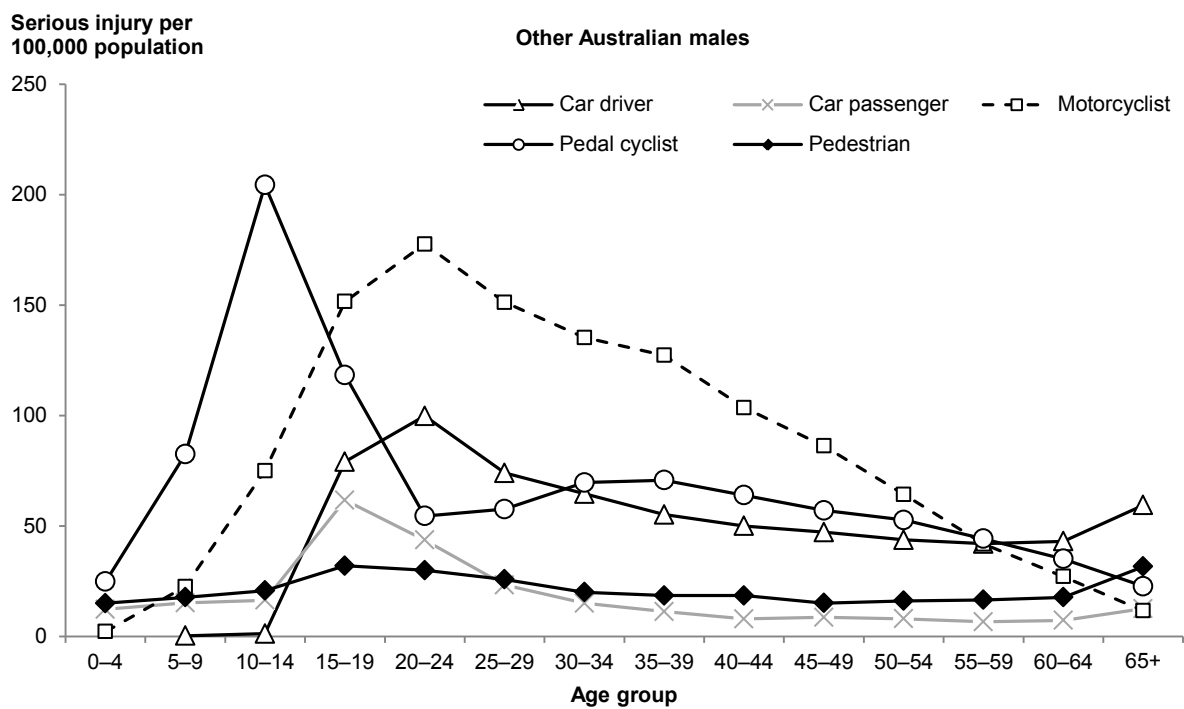
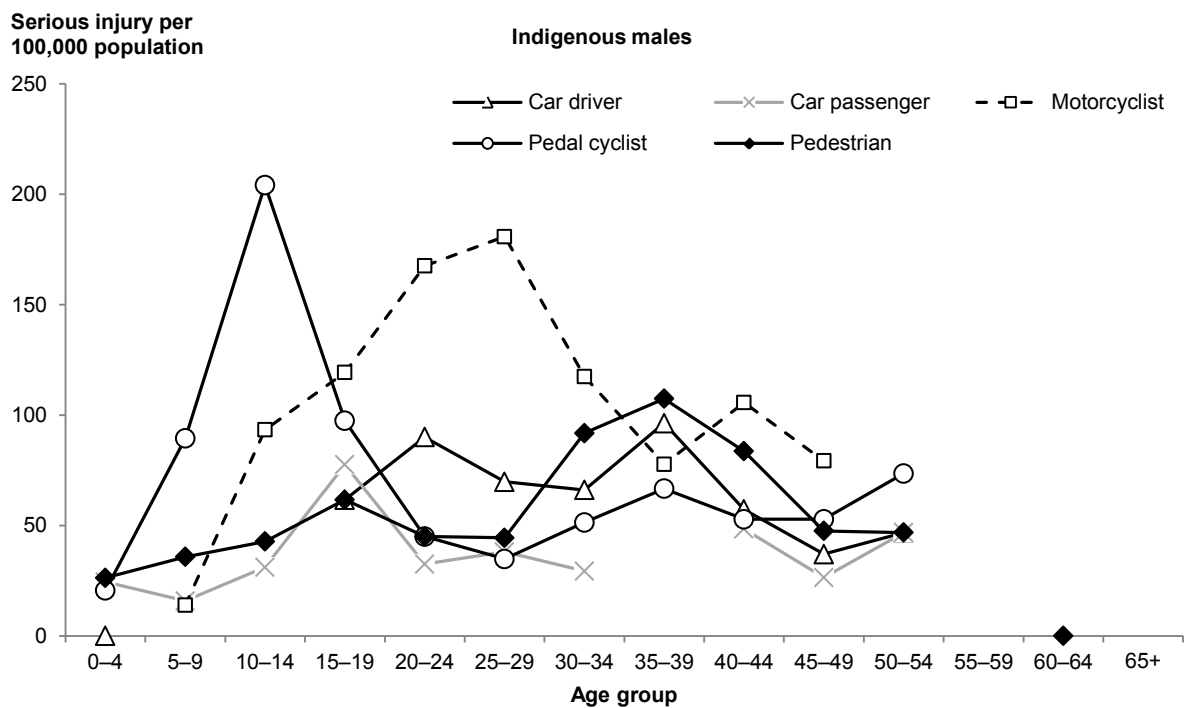
ASGC remoteness area of usual residence	Age-standardised rate ^(a) (95% CI)					
	Indigenous Australians			Other Australians		
	Males	Females	Persons	Males	Females	Persons
Traffic						
Major cities	201 (185–217)	114 (102–126)	157 (147–167)	176 (175–177)	91 (90–92)	134 (133–135)
Inner regional	248 (226–270)	123 (107–139)	186 (172–199)	246 (243–249)	112 (110–114)	180 (178–182)
Outer regional	298 (275–321)	135 (120–150)	215 (201–228)	280 (275–285)	120 (117–124)	203 (200–206)
Remote	371 (332–410)	217 (188–245)	293 (269–316)	332 (318–346)	135 (125–144)	239 (231–248)
Very remote	414 (381–446)	210 (188–231)	309 (290–328)	404 (376–431)	210 (188–233)	317 (299–335)
Overall^(b)	282 (271–293)	146 (138–153)	213 (206–219)	200 (198–201)	98 (97–99)	149 (149–150)
Non-traffic						
Major cities	68 (60–77)	19 (15–24)	44 (39–48)	76 (75–77)	17 (16–17)	47 (46–47)
Inner regional	108 (96–120)	31 (24–39)	71 (63–78)	165 (162–167)	31 (29–32)	98 (97–100)
Outer regional	117 (104–130)	32 (26–39)	74 (67–82)	208 (203–212)	40 (38–42)	127 (125–129)
Remote	159 (133–185)	50 (38–62)	103 (90–117)	283 (270–296)	57 (51–64)	177 (169–184)
Very remote	101 (87–116)	33 (25–41)	67 (59–75)	333 (307–358)	92 (77–107)	224 (208–239)
Overall^(b)	101 (95–107)	30 (26–33)	65 (62–68)	107 (106–108)	22 (22–22)	65 (65–66)

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

(b) All remoteness areas combined. Age-standardised; not standardised for remoteness.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).



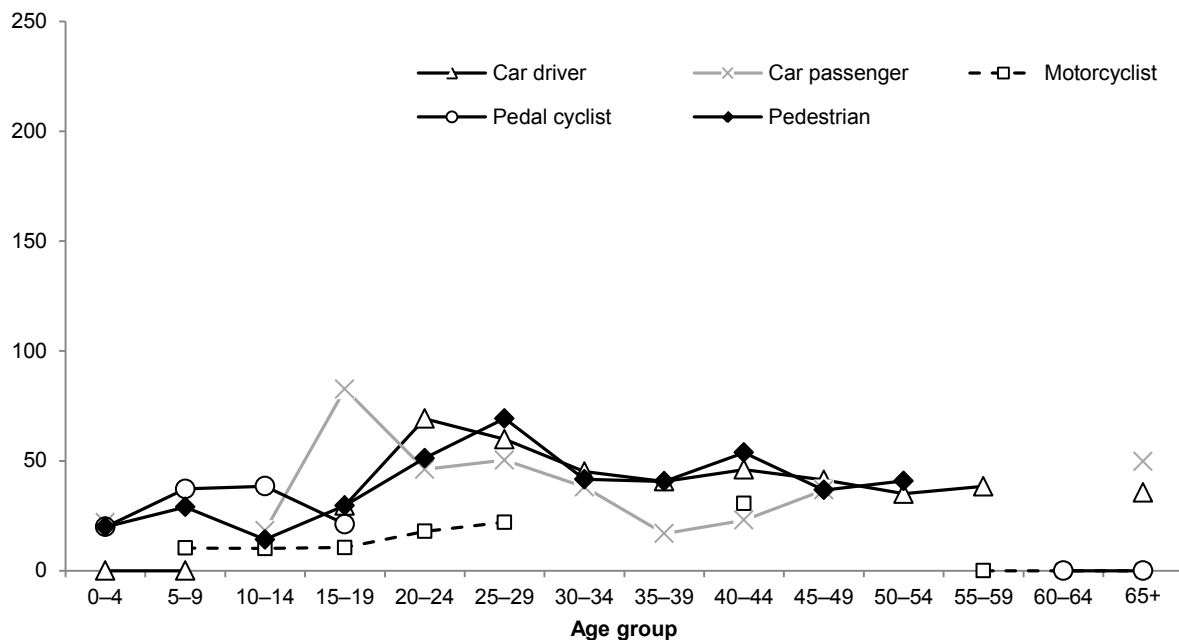


Note: Rates based on small numbers have been suppressed.

Figure 4.2.7: Age-specific rates of serious injury by case type for Indigenous males and Other Australian males: residents of Major cities, 2005-06 to 2009-10

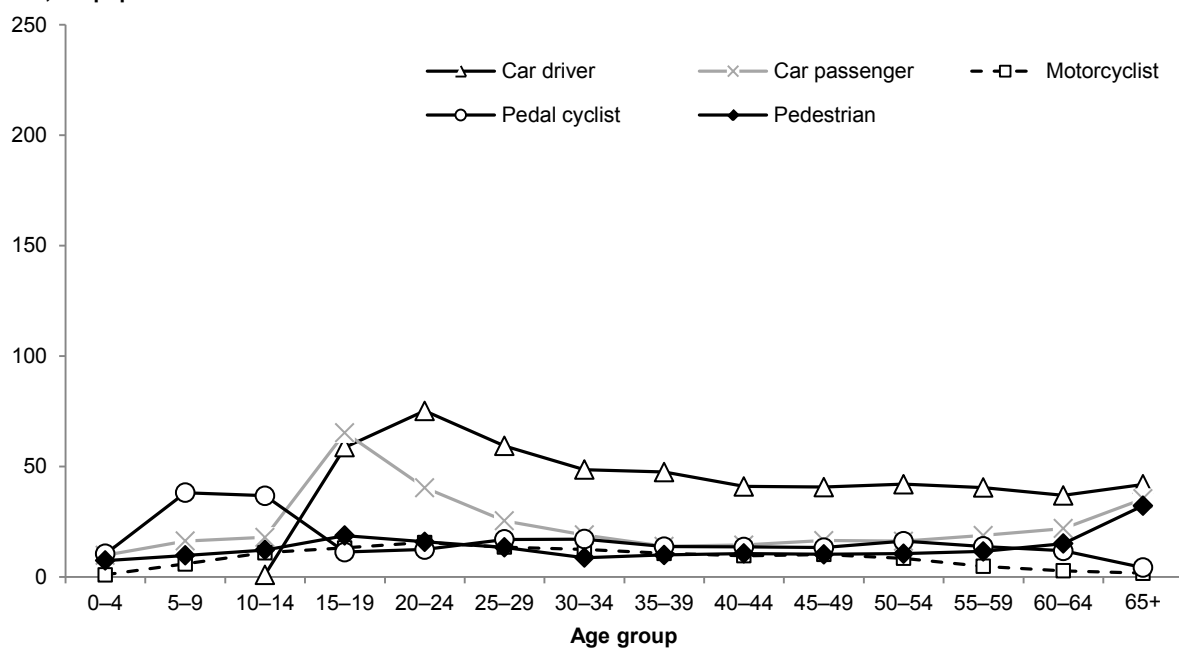
Serious injury per 100,000 population

Indigenous females



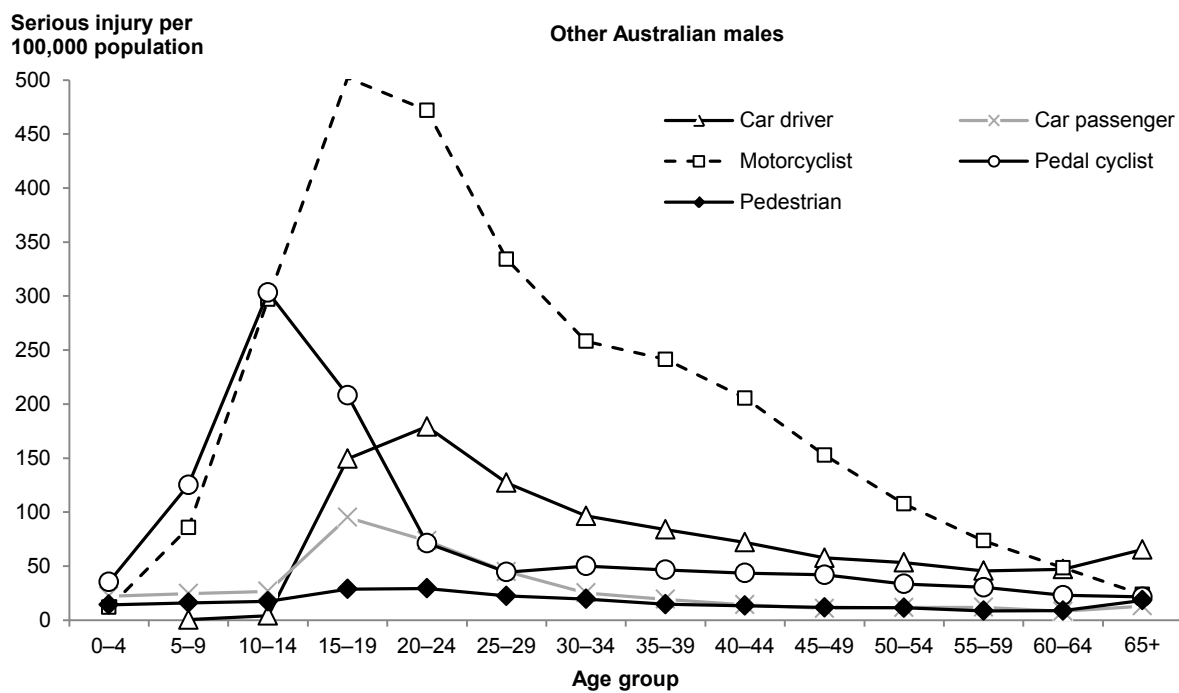
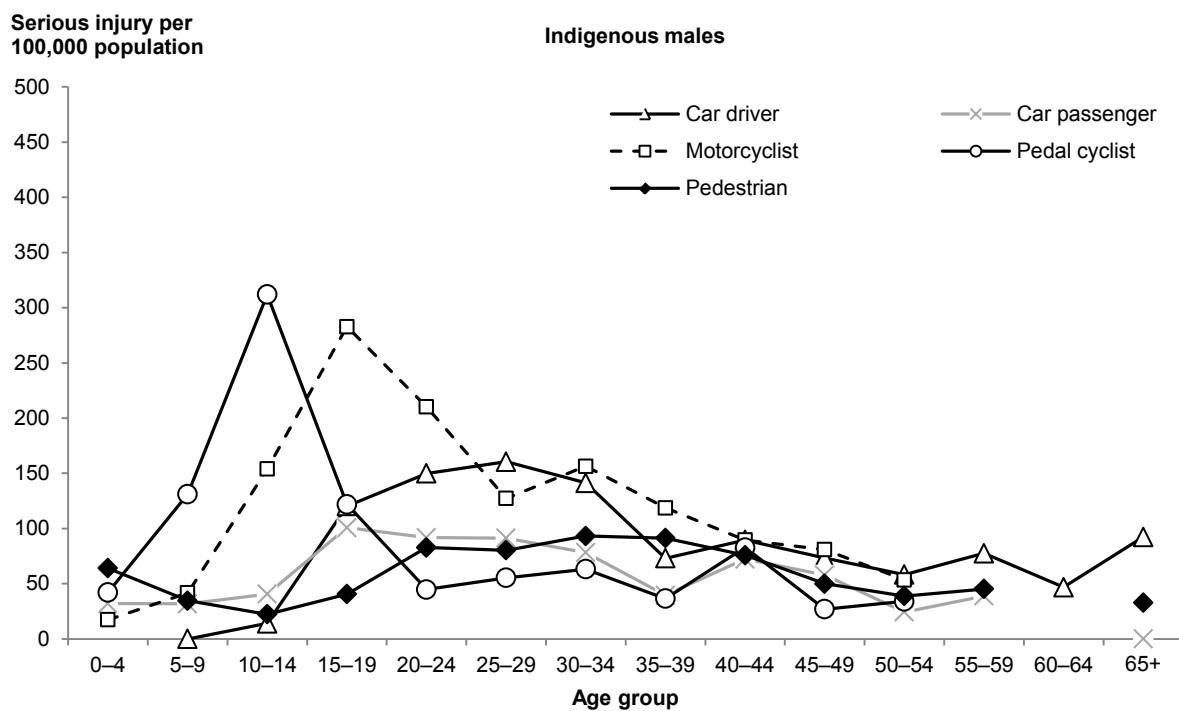
Serious injury per 100,000 population

Other Australian females



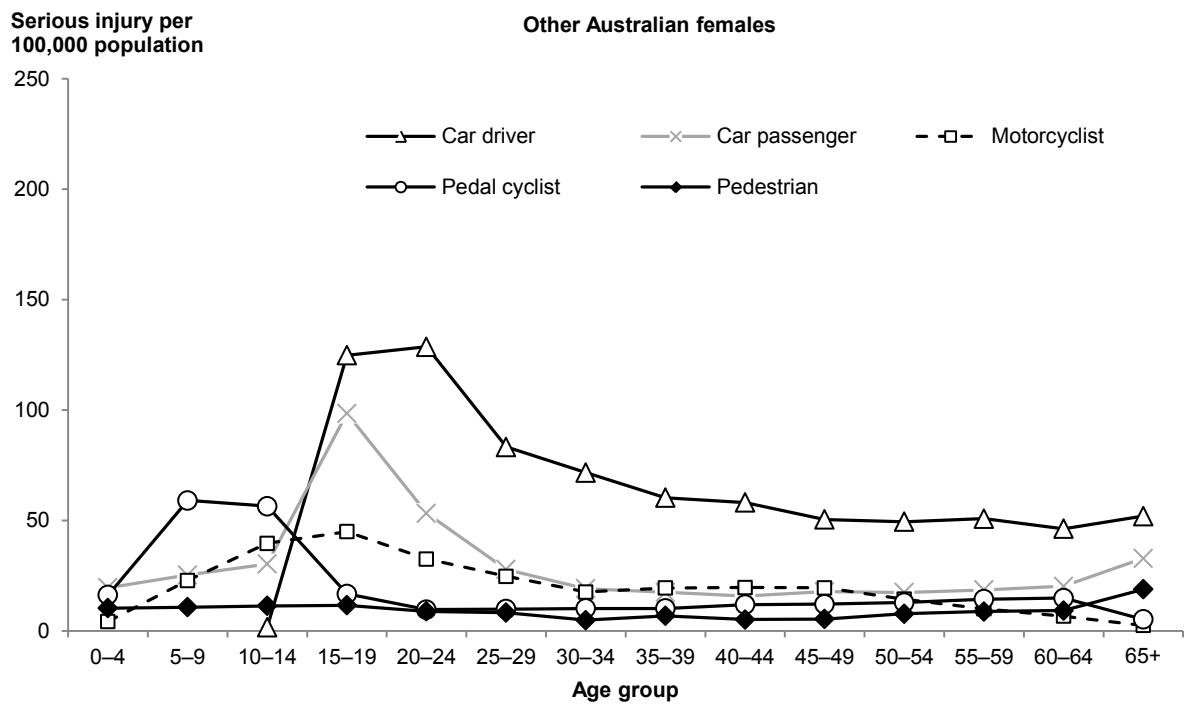
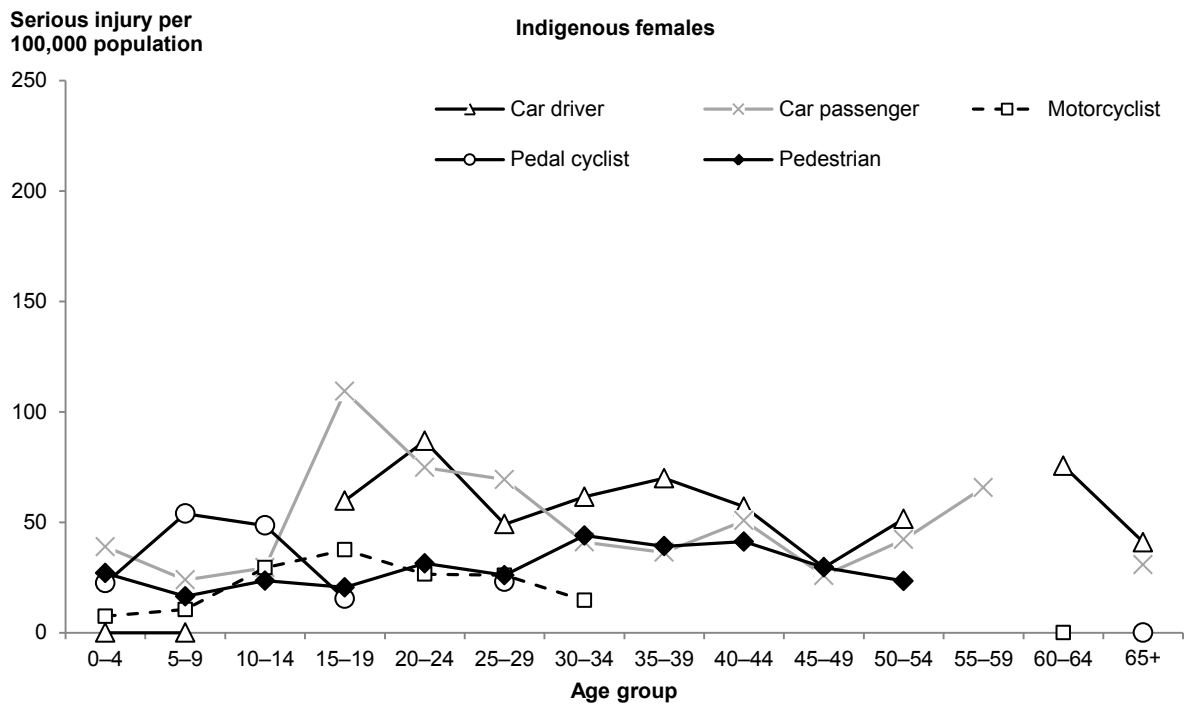
Note: Rates based on small numbers have been suppressed.

Figure 4.2.8: Age-specific rates of serious injury by case type for Indigenous females and Other Australian females: residents of Major cities, 2005-06 to 2009-10



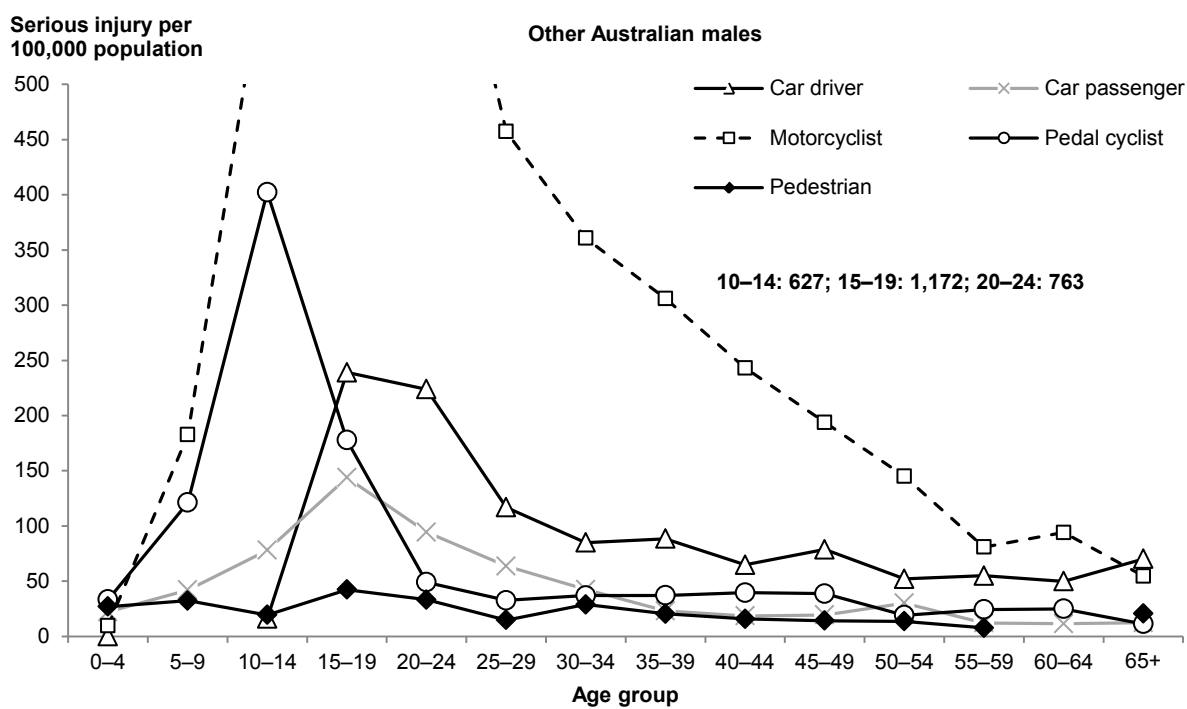
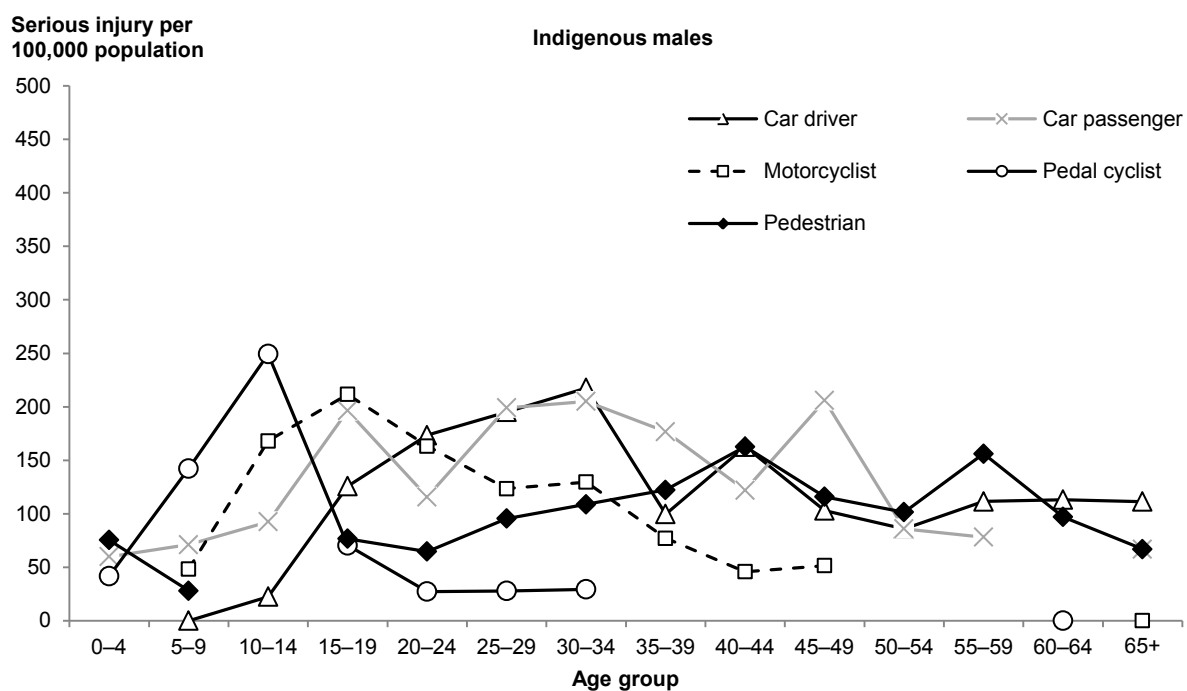
Note: Rates based on small numbers have been suppressed.

Figure 4.2.9: Age-specific rates of serious injury by case type for Indigenous males and Other Australian males: residents of Inner and Outer regional areas, 2005-06 to 2009-10



Note: Rates based on small numbers have been suppressed.

Figure 4.2.10: Age-specific rates of serious injury by case type for Indigenous females and Other Australian females: residents of Inner and Outer regional areas, 2005-06 to 2009-10

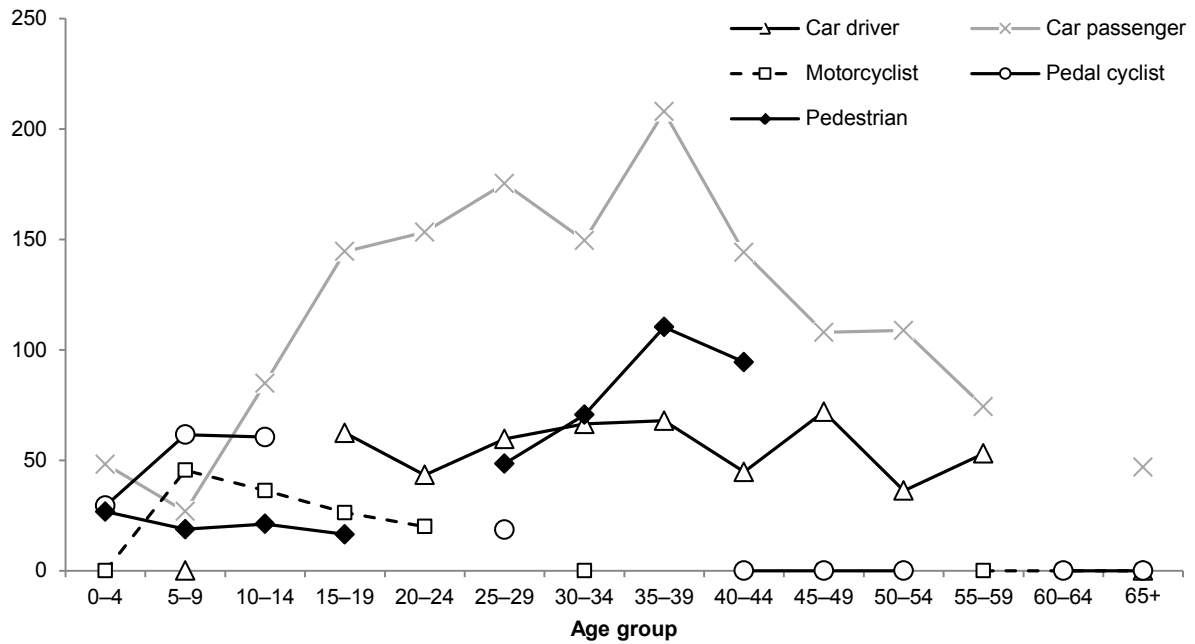


Note: Rates based on small numbers have been suppressed.

Figure 4.2.11: Age-specific rates of serious injury by case type for Indigenous males and Other Australian males: residents of Remote and Very remote areas, 2005-06 to 2009-10

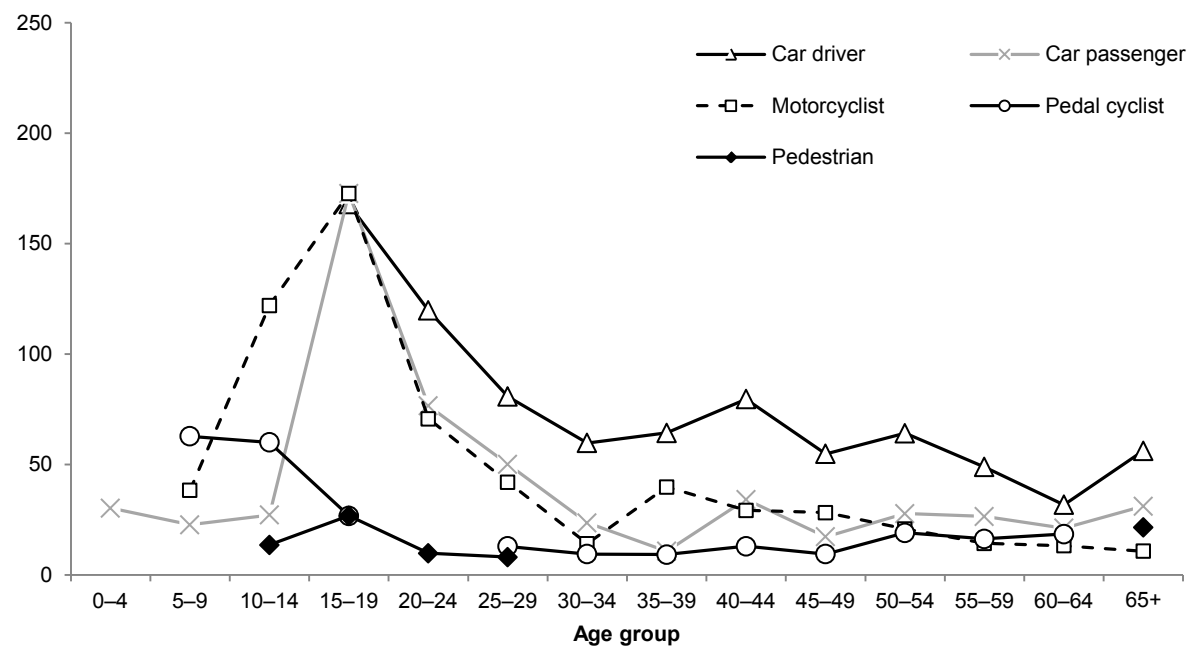
Serious injury per 100,000 population

Indigenous females



Serious injury per 100,000 population

Other Australian females



Note: Rates based on small numbers have been suppressed.

Figure 4.2.12: Age-specific rates of serious injury by case type for Indigenous females and Other Australian females: residents of Remote and Very remote areas, 2005-06 to 2009-10

Table 4.2.7: Mechanism of injury for Indigenous Australians fatally injured in land transport accidents, 2005–06 to 2009–10

Mode of transport	Counterpart in collision										Total
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident ^(a)	Other and unspecified transport accident ^(b)	
Car occupant	32	0	0	n.p.	15	n.p.	0	94	123	n.p.	274
Motorcyclist	7	n.p.	0	0	0	0	0	5	n.p.	n.p.	17
Pedal cyclist	n.p.	0	0	0	n.p.	0	0	n.p.	0	0	n.p.
Pedestrian	84	0	0	n.p.	18	8	n.p.	0	0	6	117
Occupant of pick-up truck or van	n.p.	0	0	0	0	0	0	n.p.	8	0	13
Occupant of heavy transport vehicle	n.p.	0	0	0	n.p.	0	0	0	n.p.	0	n.p.
Bus occupant	0	0	0	0	0	n.p.	0	0	n.p.	0	n.p.
Other specified	0	0	0	0	0	0	0	0	n.p.	n.p.	7
Unknown	0	0	0	0	0	0	0	0	0	13	13
Total	128	n.p.	0	n.p.	35	10	n.p.	101	140	30	450

(a) No counterpart. Includes events such as a vehicle overturning, and a rider falling or being thrown from a motorcycle or pedal cycle without antecedent collision.

(b) Includes collisions with other and unspecified motor vehicles, injury occurring in other specified ways (such as being trapped by the door or other part of a car) and transport injury occurring in an unspecified way.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.8: Mechanism of injury for Indigenous Australians seriously injured in land transport accidents, 2005–06 to 2009–10

Mode of transport	Counterpart in collision										Total
	Car, pick-up truck or van	2- or 3-wheeled motor vehicle	Pedal cycle	Pedestrian or animal	Heavy transport vehicle or bus	Train	Other non-motor vehicle	Fixed or stationary object	Non-collision transport accident ^(a)	Other and unspecified transport accident ^(b)	
Car occupant	635	4	0	51	72	8	6	791	1,476	349	3,392
Motorcyclist	92	44	n.p.	23	n.p.	0	n.p.	196	734	348	1,445
Pedal cyclist	121	6	15	n.p.	5	n.p.	n.p.	51	831	294	1,326
Pedestrian	952	32	18	6	50	6	5	n.p.	n.p.	100	1,169
Occupant of pick-up truck or van	6	0	0	n.p.	n.p.	0	0	n.p.	74	6	93
Occupant of heavy transport vehicle	n.p.	0	n.p.	n.p.	n.p.	n.p.	0	7	31	11	55
Bus occupant	n.p.	0	0	0	5	0	0	n.p.	49	9	69
Animal rider or occupant of animal-drawn vehicle	0	0	0	n.p.	0	0	0	9	304	73	387
Occupant of special all-terrain or off-road vehicle	0	0	0	0	0	0	0	0	0	143	143
Occupant of three-wheeled motor vehicle	0	0	0	0	0	0	0	0	n.p.	0	n.p.
Occupant of tram	0	0	0	0	0	0	0	0	0	10	10
Occupant of train	0	0	0	0	0	0	0	0	0	19	19
Occupant of special agricultural or industrial or construction vehicle	0	0	0	0	0	0	0	0	0	37	37
Unknown	0	0	0	0	0	0	0	0	33	150	183
Total	1,811	86	35	85	140	16	14	1,060	3,533	1,549	8,329

(a) No counterpart. Includes events such as a vehicle overturning, and a rider falling or being thrown from a motorcycle or pedal cycle without antecedent collision.

(b) Includes collisions with other and unspecified motor vehicles, injury occurring in other specified ways (such as being trapped by the door or other part of a car) and transport injury occurring in an unspecified way.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.9: Most common mechanisms for land transport injury by Indigenous status, 2005–06 to 2009–10

Mechanism of injury	Indigenous Australians		Other Australians	
	Traffic (Per cent)	Non-Traffic (Per cent)	Traffic (Per cent)	Non-Traffic (Per cent)
Fatal injury	(n = 419)	(n = 27)	(n = 6,452)	(n = 553)
Car occupant injured in a non-collision transport accident	27.9	22.2	6.7	6.5
Pedestrian injured in a collision with a car, pick-up truck or van	19.1	11.1	10.4	15.2
Car occupant injured in a collision with a fixed or stationary object	21.7	11.1	24.5	7.2
Car occupant injured in a collision with a car, pick-up truck or van	7.6	0.0	16.4	1.4
All other mechanisms	23.6	55.6	42.0	69.6
Total of most common mechanisms	100.0	100.0	100.0	100.0
Serious injury	(n = 5,466)	(n = 2,041)	(n = 149,434)	(n = 63,605)
Car occupant injured in a non-collision transport accident	22.1	10.3	8.0	4.2
Pedestrian injured in a collision with a car, pick-up truck or van	14.2	4.3	7.0	2.7
Car occupant injured in a collision with a fixed or stationary object	11.1	1.3	12.1	3.1
Car occupant injured in a collision with a car, pick-up truck or van	12.9	4.2	23.0	1.1
Pedal cyclist injured in a non-collision transport accident	5.5	26.0	5.4	22.6
Motorcyclist injured in a non-collision transport accident	4.8	22.8	8.4	30.9
All other mechanisms	29.4	31.2	36.1	35.3
Total of most common mechanisms	100.0	100.0	100.0	100.0

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.10: Mechanism of fatal injury for car occupants, 2005–06 to 2009–10

Injured person	Counterpart in collision										Total	Per cent ^(c)
	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 ^(a)	Other and unspecified transport accident ^(b)		
Fatal injury—Indigenous (n = 450)												
Car occupant	32	0	0	n.p.	15	n.p.	0	94	123	n.p.	274	60.9
Driver	17	0	0	n.p.	7	0	0	48	47	n.p.	122	27.1
Passenger	15	0	0	n.p.	8	n.p.	0	44	73	0	144	32.0
Person on outside of vehicle	0	0	0	0	0	0	0	n.p.	n.p.	0	n.p.	0.9
Person boarding or alighting	0	0	0	0	0	0	0	0	0	0	0	0.0
Unspecified	0	0	0	0	0	0	0	n.p.	n.p.	n.p.	n.p.	0.9
Fatal injury—Other Australians (n = 7,099)												
Car occupant	1,069	7	n.p.	10	400	28	n.p.	1,623	474	66	3,682	51.9
Driver	746	5	n.p.	8	291	15	n.p.	1,181	278	32	2,560	36.1
Passenger	312	n.p.	0	n.p.	104	10	n.p.	415	152	12	1,009	14.2
Person on outside of vehicle	n.p.	0	0	n.p.	0	n.p.	0	n.p.	21	0	29	0.4
Person boarding or alighting	n.p.	n.p.	0	0	0	0	0	n.p.	8	0	11	0.2
Unspecified	8	0	0	n.p.	5	n.p.	0	21	15	22	73	1.0

(a) No counterpart. Includes events such as a vehicle overturning, and a rider falling or being thrown from a motorcycle or pedal cycle without antecedent collision.

(b) Includes collisions with other and unspecified motor vehicles, injury occurring in other specified ways (such as being trapped by the door or other part of a car) and transport injury occurring in an unspecified way.

(c) Percentage of all fatal injury due to land transport accidents.

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

Table 4.2.11: Mechanism of serious injury for car occupants, 2005–06 to 2009–10

Injured person	Counterpart in collision										Total	Per cent ^(c)
	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 ^(a)	Other and unspecified transport accident ^(b)		
Serious injury—Indigenous (n = 8,329)												
Car occupant	635	n.p.	n.p.	51	72	8	6	791	1,476	349	3,392	40.7
Driver	284	n.p.	0	15	34	n.p.	n.p.	407	520	21	1,287	15.5
Passenger	333	n.p.	0	29	32	6	n.p.	358	743	31	1,537	18.5
Person on outside of vehicle	6	0	0	n.p.	0	0	n.p.	n.p.	53	0	62	0.7
Person boarding or alighting	n.p.	0	0	0	0	0	0	n.p.	59	0	60	0.7
Unspecified	n.p.	0	n.p.	n.p.	6	n.p.	0	25	101	297	446	5.4
Serious injury—Other Australians (n = 238,075)												
Car occupant	35,221	156	31	576	2,675	79	124	20,141	16,325	5,774	81,102	34.1
Driver	23,524	98	21	275	1,957	45	90	14,218	8,570	848	49,646	20.9
Passenger	10,907	52	5	138	684	26	29	5,613	4,841	526	22,821	9.6
Person on outside of vehicle	121	n.p.	0	35	n.p.	n.p.	n.p.	36	676	0	876	0.4
Person boarding or alighting	146	n.p.	0	n.p.	n.p.	0	n.p.	32	1,670	0	1,858	0.8
Unspecified	523	5	5	n.p.	25	n.p.	n.p.	242	568	4,400	5,901	2.5

(a) No counterpart. Includes events such as a vehicle overturning, and a rider falling or being thrown from a motorcycle or pedal cycle without antecedent collision.

(b) Includes collisions with other and unspecified motor vehicles, injury occurring in other specified ways (such as being trapped by the door or other part of a car) and transport injury occurring in an unspecified way.

(c) Percentage of all fatal injury due to land transport accidents.

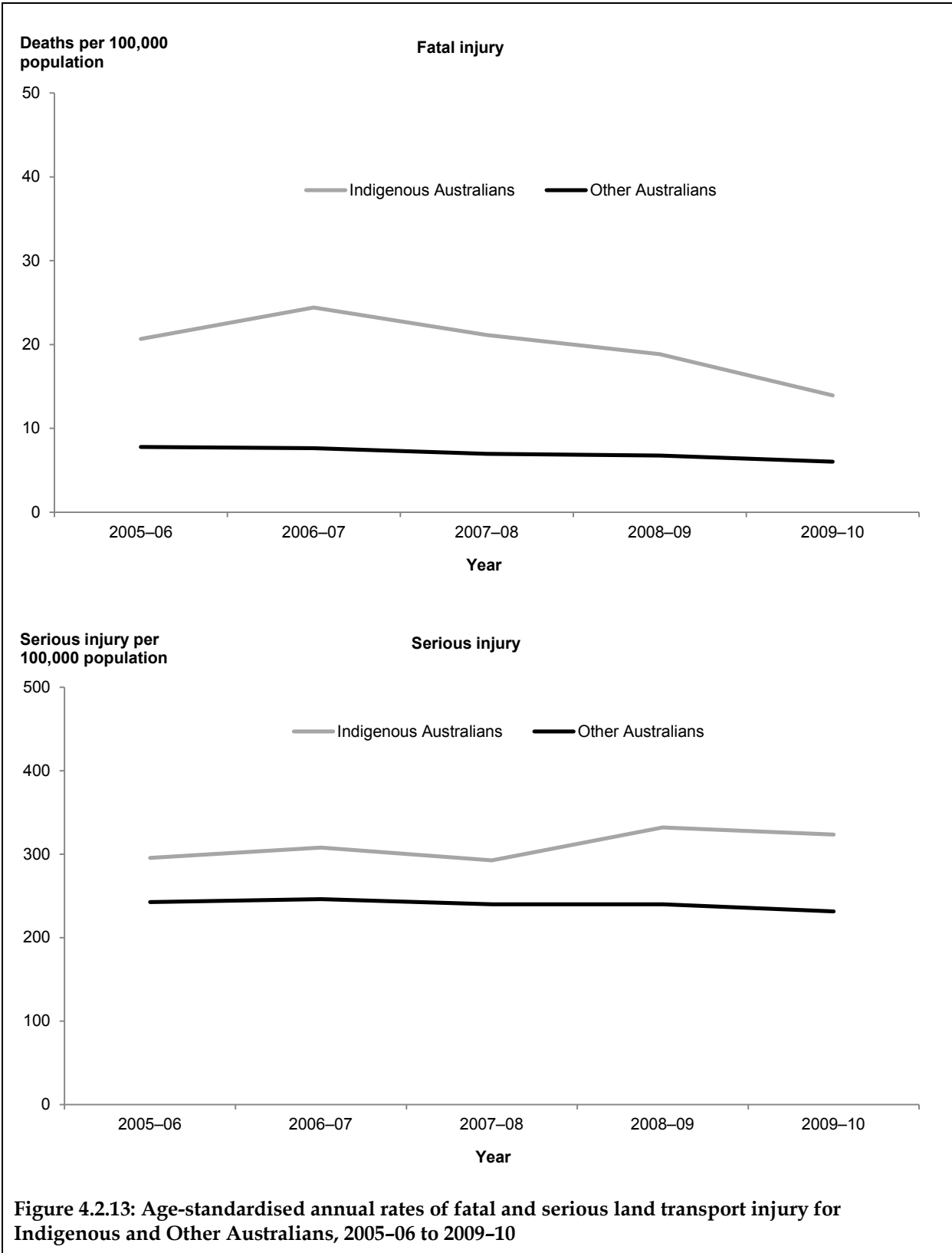
Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).

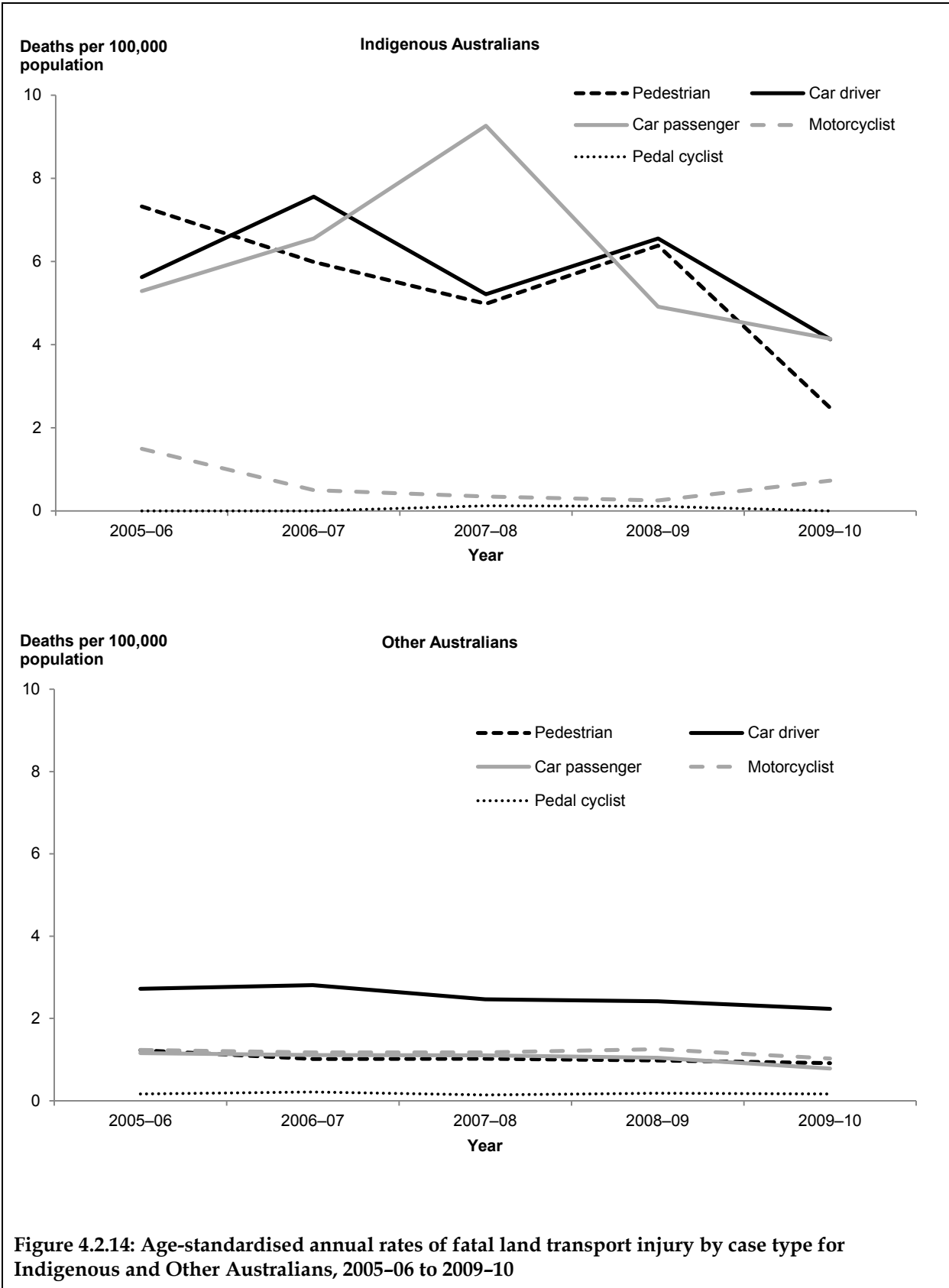
Table 4.2.12: Trends in age-standardised rates for fatal and serious injury by Indigenous status, 2005–06 to 2009–10

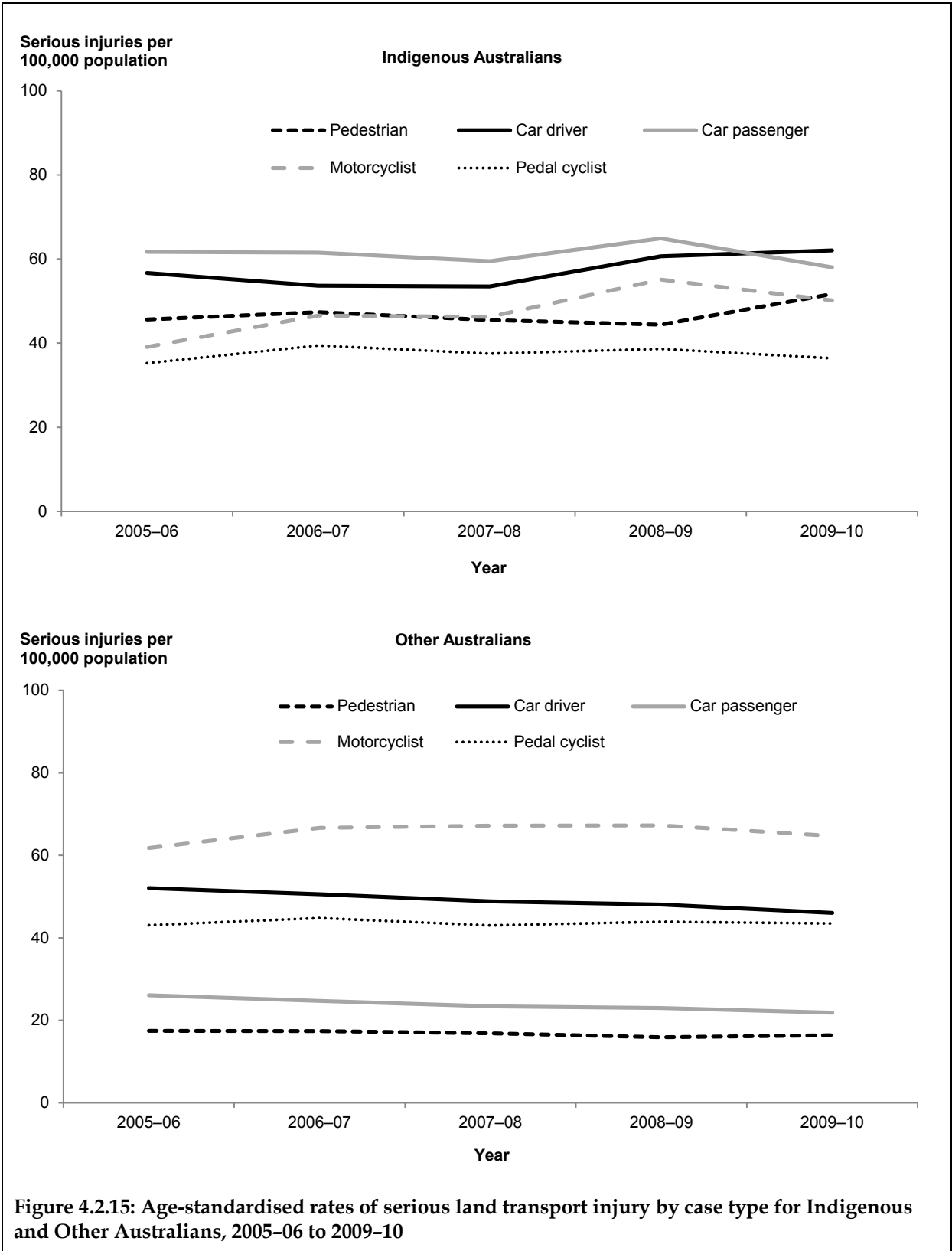
	Age-standardised rate ^(a) (95% CI)									
	Fatal injury					Serious injury				
	2005–06	2006–07	2007–08	2008–09	2009–10	2005–06	2006–07	2007–08	2008–09	2009–10
Indigenous Australians										
Males	27 (19–35)	34 (25–44)	30 (22–39)	25 (18–32)	19 (12–26)	406 (377–435)	428 (398–457)	399 (372–427)	466 (436–495)	425 (398–452)
Females	15 (9–20)	15 (9–21)	12 (7–17)	13 (8–18)	9 (5–13)	188 (169–208)	193 (174–212)	188 (170–207)	204 (185–223)	222 (202–243)
Persons	21 (16–26)	24 (19–30)	21 (16–26)	19 (15–23)	14 (10–18)	296 (278–313)	308 (291–325)	293 (276–309)	332 (315–350)	323 (307–340)
Other Australians										
Males	12 (11–12)	12 (11–12)	10 (10–11)	10 (9–11)	9 (8–10)	332 (328–335)	338 (335–342)	334 (331–338)	332 (329–336)	317 (314–321)
Females	4 (4–4)	4 (3–4)	4 (3–4)	3 (3–4)	3 (3–3)	152 (149–154)	152 (150–155)	144 (142–147)	146 (144–148)	145 (142–147)
Persons	8 (7–8)	8 (7–8)	7 (7–7)	7 (6–7)	6 (6–6)	243 (240–245)	246 (244–248)	240 (238–242)	240 (238–242)	232 (230–234)

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

Note: The geographic scope of this table is the Northern Territory and all Australian states except Tasmania (see Appendix A).







Appendix A: Data issues

Comparability with reports by other organisations

National cause of death data (mortality data) are compiled by the Australian Bureau of Statistics (ABS) and classified in accordance with an international standard, the International Classification of Diseases (ICD) (WHO). Australian hospitals use the Australian clinical modification of the ICD when coding data on persons injured and subsequently admitted to hospital (morbidity data). This provides a basis for reporting mortality and morbidity data according to the same cause categories.

The ICD provides a nationally consistent basis for looking at fatal and serious injuries 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 focus on crashes on public roads, whereas the ICD and the data sources used here cover 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 the ICD does. For national road deaths, readers should refer to the 'Road statistics' part of the BITRE website at <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> should be consulted. The purpose of this report is to provide a general overview rather than to focus on each mode in detail.

Fatal injury data

Data in this report on fatal injuries are from the ABS mortality unit record data collection. Data are presented according to the year in which each death occurred, not according to year of registration.

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

- a) Date of death 1 July 2005 to 30 June 2010 and registered by 31 December 2010;
- b) Underlying Cause of Death (UCoD) classified to an ICD-10 external cause code in the range V01-V99 (that is, the 'Transport Accidents' section of Chapter XX External causes of morbidity and mortality); and
- c) Place of usual residence recorded as the Northern Territory, Western Australia, South Australia, Queensland, New South Wales or Victoria.

Use of these criteria resulted in the inclusion of 7,922 transport-related deaths.

Table 4.1.1 includes all deaths with UCoD classified to any ICD-10 external cause code (that is, V01-Y98), rather than using criterion b).

As in previous editions of the report, some types of records in the ABS cause of death files that include ICD codes referring to transport were not included:

- Records in which an ICD-10 code for Transport accident (V01-V99) was present, but as an Additional Cause of Death and not as the UCoD ($n = 171$ including $n = 5$ Indigenous).

In 45% of these cases, the UCoD was an ischaemic heart disease. A wide range of other diseases accounted for another 47%. In 8% of these excluded cases ($n = 13$), the UCoD was another external cause of injury (for example, fall; poisoning).

- Records coded to Y85 Sequelae of transport accidents ($n = 85$). This category is for use if a death was due to a condition that was reported as being a sequela of a transport accident, or a late effect occurring one year or more after a transport accident.
- Deaths coded as being due to intentional self-harm ($n = 90$) or assault ($n = 21$) by crashing a motor vehicle, and those involving crashing a motor vehicle but where it could not be determined whether the death was unintentional or was due to intentional self-harm or assault ($n = 167$).

Coding of deaths data

The ABS mortality data files result from a process in which that agency obtains data from state and territory death registers 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, such as a car crash of a particular type. Most injury deaths, including almost all deaths due to road injury, are certified by a coroner. For these cases, the ABS seeks additional information required to code external causes from the National Coronial Information System (NCIS), a national electronic repository of data on coroner cases. The result of this process is a record in an annual ABS mortality data file that summarises characteristics of the person who died (for example, age, sex and Indigenous status) and characteristics of his or her death (for example, causes, date, place at which the person usually lived).

Certain aspects of the method used by the ABS have differed according to the registration year of deaths during the period covered by this project. Reasons for making the changes and their nature have been reported by the ABS (ABS 2009a). The changes are described here because of their potential to affect injury death statistics, including those in this report.

Deaths registered to the end of 2005: Each death was assessed only once by an ABS officer, within about one year after the end of the year in which it was registered. For most injury deaths, coronial investigation had ended and information was available through NCIS by the ABS' cut-off date. For some injury deaths, however, information was lacking in the NCIS when the death was assessed by an ABS officer. This could occur if a coroner was still investigating the death, or if information about it had not been entered into the NCIS. As with all deaths, the ABS applied ICD rules when selecting cause codes for these deaths. However, the agency came to the conclusion that the assignment of cause codes was problematic. The cause code assigned sometimes differed importantly from the cause code that would have been assigned had the data in NCIS been complete when the ABS ceased coding an annual set of data in order to finalise the file for reporting and release. Deaths due to suicide and homicide were most affected because the records for these causes tended to take longer than others to be finalised in NCIS. However, a study of deaths that occurred in the year to 30 June 2005 found that other external causes were also affected; it was concluded that deaths in that year due to transport accidents were under-enumerated in the ABS cause of death data (Henley & Harrison 2009).

Deaths registered in 2006: The initial version of this set of records, released in 2008, was affected in much the same way as the file of deaths registered in 2005. The ABS made a second release of this file in 2012, coded on the basis of information that was in the NCIS by 2011 (that is, up to three years after the cut-off date for the initial release), and applied certain other changes, as described below (ABS 2012). The second release file of 2006 registrations was used in this project.

Deaths registered in 2007 to 2010: The ABS introduced several changes in response to the problems outlined above, which have been applied to deaths registered in 2007 and subsequent years (ABS 2009a). The most important aspect of the changes was to make three releases of the data concerning deaths registered in each calendar year: *Preliminary* (released a little over one year after the end of the registration year), *Revised* (one year after that) and *Final* (two years after *Preliminary*). Information that appears in NCIS too late to be used by the ABS for one release can inform later releases, with the result that cause codes for some deaths change between releases. In this report, we used *Final* release data for deaths registered in 2007 and 2008, *Revised* release data for deaths registered in 2009 and *Preliminary* release data for deaths registered in 2010, which were the latest data available. Also introduced when processing deaths registered in 2007 were changes to coding practice, the most notable being use of the ICD-10 *Undetermined intent* categories for certain cases for which information in NCIS might change or become more complete later (ABS 2009a).

Further changes were implemented by the ABS for deaths registered in 2008 and later. For both open and closed coroner cases, more time has been spent investigating part 2 of the Medical Certificate of Death when a non-specifying cause was shown in part 1. Also, increased resources have been used and more time spent investigating coroners' reports to identify specific causes of death. This involved making increased use of police reports, toxicology reports, autopsy reports and coroners findings for both open and closed cases to minimise the use of non-specific causes and intents (ABS 2010, 2011a, 2012).

Due to the multiple release process, future reports based on later releases of cause of death data might show different results.

Further information on effects of the matters discussed in this section on estimates of injury mortality, including mortality due to transport injury, will be provided in a forthcoming AIHW report *Injury death statistics in Australia*.

Serious injury data

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).

Serious injury 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 night's stay in a hospital bed (that is, deaths in hospital were excluded).

Records that meet all of the following criteria were included in this report:

- a) Separation from an Australian hospital occurring 1 July 2005 to 30 June 2010;
- b) Principal Diagnosis is any code in ICD-10-AM Chapter XIX *Injury, poisoning and certain other consequences of external causes* codes (S00-T98);

- c) First reported external cause of morbidity is any code in the 'Transport Accidents' section of Chapter XX *External causes of morbidity and mortality* of ICD-10-AM (V00–V99);
- d) Mode of admission field has any value except the one indicating that transfer from another acute-care hospital had occurred;
- e) Mode of separation field has any value except the one indicating that the person died while in hospital; and
- f) Place of usual residence is recorded as the Northern Territory, Western Australia, South Australia, Queensland, New South Wales or Victoria.

Use of these criteria selected 253,738 records, which is the estimated number of unintentional serious injury cases due to transport in the study period.

Diagnoses and external causes of injury during the study period were coded according to the fourth, fifth and sixth editions of ICD-10-AM (NCCH 2004, 2006, 2008). Separations in which the mode of admission is recorded as being by transfer from another acute-care hospital were omitted on the grounds that such cases are likely to result in two or more separation records for the same injury, resulting in over-estimation of injury cases. However, the bed-days reported in these separation records were included when calculating total patient days related to serious transport injury (Table 4.2.1). Deaths in hospital due to transport injuries were excluded to reduce multiple counting, on the grounds that these cases should be included in the ABS cause of death data.

Table 4.1.1 includes all injury cases, irrespective of the external cause code, and hence criterion c) does not apply.

As in previous editions of this report, certain types of NHMD separation records in which transport is mentioned are not included:

- First-reported external cause code in the Transport accident range (V00-V99) but the Principal diagnosis code was not from the ICD injury chapter (S00-T98): 43,851 separation records including 1,366 for Indigenous Australians. For Indigenous persons, the most common Principal Diagnoses were Care involving use of rehabilitation procedure, unspecified (Z50.9, $n = 369$), Examination and observation following transport accident (Z04.1, $n = 225$) and Cellulitis of the lower limb (L03.11, $n = 61$). For Other Australians, the most common Principal Diagnoses were Care involving use of rehabilitation procedure, unspecified (Z50.9, $n = 21,372$), Examination and observation following transport accident (Z04.1, $n = 4,058$), Other specified surgical follow-up care (Z48.8, $n = 838$), Cellulitis of lower limb (L03.11, $n = 807$) and Cervicalgia (M54.2, $n = 685$). These records were excluded because the main reason for the episode in hospital was not coded as being an injury.
- Transport accident (V00-V99) appears as an additional external cause code but not as the first-reported external cause code ($n = 2,620$ separation records including $n = 95$ for Indigenous Australians). These were excluded on the grounds that injury due to a transport accident was not recorded as being the main reason for the episode in hospital. Cases coded as being due to intentional self-harm ($n = 305$) or assault ($n = 124$) by crashing a motor vehicle, and those involving crashing a motor vehicle but where it could not be determined whether the death was unintentional or due to intentional self-harm or assault ($n = 7$).

Definitions of transport injury and related terms

Transport injury

Transport injury includes fatal injuries with an Underlying Cause of Death code classified to ICD-10 (WHO) external cause codes in the range V01–V99 and non-fatal serious injuries with a first-reported external cause of morbidity in ICD-10-AM range V00–V99. These code ranges include the whole of the *Transport Accidents* block of ICD-10 and ICD-10-AM.

These code ranges include cases of unintentional injury where the person was, when injured, a pedestrian or was being conveyed by a pedal cycle, motor cycle, three-wheeled motor vehicle, car, bus, light or heavy goods vehicle, tram, train, animal or animal-drawn vehicle, special vehicle used in agriculture, industry or construction, a special all-terrain vehicle or an unknown means of land transport. Also in-scope are injured occupants of watercraft, aircraft and spacecraft.

Transport injury cases are the subject of Section 2 and tables 4.1.2 and 4.1.3 in this report.

Land transport

Land transport includes all of the modes of transport listed above except watercraft, aircraft and spacecraft. The corresponding code ranges are ICD-10 V01–V89 for fatal injuries and V00–V89 for serious injuries.

These code ranges include traffic cases (those occurring at least partly on a public road), non-traffic cases and cases unspecified as to whether they are traffic or non-traffic. They include occupants of vehicles (drivers; passengers) as well as persons on the outside and persons boarding or alighting from vehicles.

Land transport cases are the subject of Section 3 and the tables and figures in Section 4.2.

Modes of transport and types of vehicle occupant

Mode of transport refers to the type of transport the injured person was travelling in or on at the time of injury. Being a pedestrian is included as a mode of transport.

Car as defined in the ICD-10 refers to any four-wheeled passenger vehicle designed to carry up to 10 people and not requiring a special driver's licence. *Motorcycle* refers to two-wheeled motor vehicles (motor-cycles with a side-car are included). A *Pedal cycle* is any land transport vehicle operated solely by pedals. *Pedestrian* includes people on foot and users of pedestrian conveyances, such as skateboards and wheelchairs.

The number of Indigenous cases involving some modes of transport was too small to allow their inclusion in some parts of the analysis. Figures 4.2.2 to 4.2.4, 4.2.7 to 4.2.12, 4.2.14 and 4.2.15 report only the four most frequently reported modes of transport (that is, car, motorcycle, pedal cycle and pedestrian). Car occupant cases were sufficiently frequent to allow them to be split into car drivers and car passengers. A car *driver* is an occupant of a car who is operating or intending to operate it and a car *passenger* is any occupant other than the driver or a person on the outside of the car. A person occupying a space intended for the transport of property is included as a passenger. Tables 4.2.10 and 4.2.11 include only car occupants.

Data for other land transport vehicles such as buses, trains, trams, heavy transport vehicles, industrial vehicles and other special-purpose vehicles have not been included in these tables and figures due to the small number of cases, particularly fatal cases for Indigenous people. However, overall numbers of cases involving these types of vehicles are shown in Tables 4.1.2 and 4.1.3 except where suppressed due to the smallness of the total.

Indigenous status data

For data in the period covered by this report, the ABS and the AIHW have recommended that Indigenous statistics only be reported for jurisdictions with a sufficient level of Indigenous identification (ABS & AIHW 2008; AIHW 2010b).

Indigenous status in deaths data

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 2005).

Estimates of the extent to which Indigenous Australians are identified in mortality data ('coverage') have been 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, 2009e).

Implied coverage of Indigenous status in deaths data from 2002–06 is shown in Table A1, and are based on the 2001 census. Implied coverage for the six jurisdictions that were the subject of this report ranged from 32% for Victoria to 90% for the Northern Territory.

Table A1: Implied coverage^(a) of Indigenous deaths

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

(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.

The extent of under-identification of Indigenous deaths in death registrations was estimated in the Indigenous mortality Quality Study, by linking 2006 census data with deaths registered from 9 August 2006 to 30 June 2007 (ABS 2009e). Indigenous status as recorded in the two collections was compared and identification rates were calculated by comparing the number of deaths according to death registrations with the expected number of Indigenous

deaths as determined by the census. Identification rates and their reciprocals are shown in Table A2. Identification rates were less than 1.0, indicating under-identification of Indigenous deaths in death registrations, for New South Wales, Queensland and the group that includes the other jurisdictions (notably in the present context, South Australia and Victoria). The opposite is seen for Western Australia and the Northern Territory, indicating an over-representation of Indigenous deaths in death registrations relative to the census.

Table A2: Indigenous deaths identification rates by state and territory, Australia

State or territory	Identification rate ^(a)	Adjustment factor ^(b)
New South Wales	0.87	1.15
Queensland	0.94	1.06
Western Australia	1.11	0.90
Northern Territory	1.09	0.92
Other states/territories	0.65	1.54
Australia ^(c)	0.92	1.09

(a) Calculated by dividing the number of Indigenous deaths according to death registrations by the expected number of deaths as determined by the census.

(b) Calculated as the reciprocal of the identification rate.

(c) Includes all states and territories.

Note: Deaths registered 9 August 2006 to 30 June 2007.

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

AIHW policy applicable to the deaths data reported here is that 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 shown in Table A1, it was decided to include these deaths in the report, chiefly for two related reasons. Inclusion improves comparability between the fatal and serious injury aspects of the report, and, hence, the readability of the report. In the approach used, the entire report refers to Australia except Tasmania and the Australian Capital Territory. Other approaches would have required non-reporting of Victorian hospital morbidity data or the use of different geographic inclusion criteria for deaths and for hospital data, which would complicate 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 in this report. This is because: (1) the estimated Indigenous population 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 (3.1%) 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.

Late and revised registration of Indigenous deaths

Incomplete and potentially varying completeness of Indigenous identification for registered deaths is not the only reason for variation in the number of indigenous deaths registered.

Unusual fluctuation in the initially reported number of deaths of Aboriginal and Torres Strait Islander people in Western Australia after the 2006 data year prompted investigation by the ABS and the Western Australian Registry of Births, Deaths and Marriages. This revealed a system error that led to some non-Indigenous deaths being recorded as Aboriginal and/or Torres Strait Islander deaths in 2007 and 2008 and perhaps also in 2009 (ABS 2011b). The Western Australia data used for this report have been corrected by the ABS.

The ABS has reported that a substantial rise in the number of Indigenous deaths registered in Queensland in 2010 was due to the late registration of certain deaths that occurred in earlier years (ABS 2011b). The ABS has recommended that statistical reporting should be undertaken in a way that avoids giving the false impression that Indigenous mortality rose in 2010. The special method recommended by the ABS is not required for this report, because data are reported here by year of death, not year of death registration. The late-registered deaths were included in the unit record files used for the present report.

Indigenous status in hospitalisations data

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). Until then, the Northern Territory, Western Australia, South Australia and Queensland were the only jurisdictions considered to have a level of Indigenous identification sufficient for reporting purposes.

The audit of 2007–08 cases presented in that report found that the percentage of Indigenous people whose hospital admission records correctly identified them as being Indigenous in these six jurisdictions ranged from 84% for Victoria to 98% for the Northern Territory and Western Australia (AIHW 2010b). These 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 publication advises caution in time series analyses for these six jurisdictions, recommending that 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).

The report of a more recent study of Indigenous identification in administrative records of hospitalisations in public hospitals in Australia was published in May 2013, when this project was almost complete (AIHW 2013). The study was conducted in 2011 and 2012. The report advises that *“Data for all states and territories may be used for analysis of hospitalisations by Indigenous status. All data that are reported should be accompanied by appropriate data quality information based on the study reported in this publication.”*

Table A3: Indigenous identification in hospital separations data^(a)

Jurisdiction	Correctly recorded as Indigenous (%) ^(b)
New South Wales	93
Victoria	84
Queensland	88
Western Australia	98
South Australia	93
Northern Territory	98

(a) Source: AIHW (2010b), Table 4.1. Studies conducted between 2006 and 2008.

(b) Proportion of Indigenous people correctly identified as such in the admission record.

Weighting of fatal and serious injury cases

In principle, fatal and serious injury cases values presented in this report could be weighted to allow for imperfect identification of Indigenous status in the data sources used for this report. Weighting has not been applied for reasons given here.

Fatal injury. First, the implied coverage estimates are for deaths from all causes. The deaths that are due to transport differ from most deaths in the way data are collected, which might affect Indigenous identification: most deaths are certified by a doctor while nearly all transport deaths are reported by police to a coroner. Second, the two available sets of coverage estimates refer to the period 2002 to 2006, and to 2006–07 whereas this report covers the period to 2009–10, for which coverage may be different. Third, coverage estimates are not available by remoteness area, which is an important variable for this report. Taken together, these considerations cast doubt on the reliability of the available coverage estimates as weighting factors for the fatal transport injuries reported here.

Serious injury. The latest AIHW report on Indigenous identification in hospitals data recommends application of correction factors, but only for data years commencing with 2010–11, after the end of the period included in this report, and not for data at the diagnosis level (AIHW 2013). Hence, the applicability of the factors to injury data is not known.

Indigenous and non-Indigenous cases

Fatal and serious injury records for people identified in the data sources as being Indigenous were compared with all other cases represented in the data for the same six jurisdictions. The latter group, referred to as *Other Australians*, includes people specified as being non-Indigenous and those whose Indigenous status was not stated. It has been reported by the AIHW that the proportion of 'not stated' cases in the NHMD is small and the demographic profile of these cases is similar to the non-Indigenous cases (AIHW 2010b).

Under-counting of Indigenous fatal cases and non-fatal serious injury cases because of incomplete Indigenous identification will necessarily result in over-estimation of non-Indigenous cases. This is because Aboriginal and Torres Strait Islander people will be incorrectly recorded as non-Indigenous or have Indigenous status 'not stated'. The size of this error is unknown; however it has been speculated that the ascertainment of Indigenous status may be better in areas where Indigenous Australians comprise a relatively large proportion of the population, such as the Very Remote area (AIHW 2007).

Population data and the calculation of rates

Rates for Aboriginal and Torres Strait Islander people were calculated using as denominators values from the ABS Series B experimental population estimates and projections of the Indigenous population, based on the 2006 Census (ABS 2009c, 2009d). The denominators were restricted to persons usually residing in New South Wales, Victoria, Queensland, South Australia, Western Australia and the Northern Territory.

Population estimates for Other Australians were obtained by subtracting Indigenous population estimates from corresponding estimates of the usually resident population, supplied by the ABS to the AIHW as an unpublished file.

Case data were cumulated (except in the section presenting trends) for the five-year period ending 30 June 2010, to reduce the impact of small case numbers. Corresponding population denominators were calculated by linear interpolation of adjacent estimates for 30 June to obtain estimates for 31 December, then adding values for the five years 2005 to 2009, inclusive.

The Indigenous population of each of the five ASGC remoteness areas (see *Classification of remoteness area*, below) for the study period was obtained from the Series B Indigenous population projections (ABS 2009c), used in conjunction with more detailed estimates, only available for mid-2006 (ABS 2009d). The population estimates for mid-2006 (restricted to the six included jurisdictions; for each of the five remoteness areas, by age-group and sex) were adjusted according to the Series B projections to allow for population change during the five-year study period. Adjustment was specific to each combination of age-group, sex and the three remoteness areas that are distinguished in the Indigenous population projections (Major cities; Inner and Outer Regional; Remote and Very Remote). Corresponding populations of Other Australians were calculated as stated above.

The Series B estimates and projections of the Indigenous population were also used to provide annual denominators for analysis of trend in rates (ABS 2009c). Corresponding populations of Other Australians were calculated as stated above.

Rates were age-standardised by the direct method, using the Australian population in 2001 as the standard (ABS 2002). Age-standardised rates and 95% confidence intervals were calculated in Stata version 12.1 statistical software (StataCorp 2012) 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.

Quantifying variability

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

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

Identified or suspected non-random errors large enough to materially affect findings are mentioned in reports.

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

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

In this situation, and similar ones, guidance is provided to readers concerning how much variation of values can be expected due to random variation of small counts. Confidence Intervals (CIs) are calculated for this purpose. In this report CIs were calculated using the Stata `-dstdize-` command (CIs around single estimates) and `-poisson-` command (CIs around slope of trend) (Statacorp 2011).

Confidence intervals

The AIHW is undertaking a review to assess the provision of confidence intervals and statistical tests when data arise from sources that provide information on all subjects, rather than from a sample survey. This review will include analysis of the methods used to calculate confidence intervals, as well as the appropriateness of reporting confidence intervals and undertaking statistical testing for such data. This review aims to ensure that statistical methods used in AIHW reports remain robust and appropriately inform understanding and decision making. As a consequence, the type of information reported in future editions of this publication may change.

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). According to this classification, 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:

- a) Major cities, with ARIA index value of 0 to 0.2
- b) Inner regional, with ARIA index value of >0.2 and ≤ 2.4
- c) Outer regional, with ARIA index value of >2.4 and ≤ 5.92
- d) Remote, with ARIA index value of >5.92 and ≤ 10.53
- e) 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 values

Cell counts in tables that are four cases or fewer (but not zero) have been suppressed, as have rates derived from them, to protect confidentiality and because values based on small numbers are sometimes difficult to interpret. 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.

Appendix B: Data for figures presented in this report

Data for figures for which data are not presented in the body of the report

Table B1: Age-specific rates of serious land transport traffic injury rates by case type, sex and Indigenous status, 2005–06 to 2009–10

Indigenous Australians	Age-specific rate per 100,000 population						Other Australians					
	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Car driver		Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	
Males							Males					
0–4	n.p.	26.8	n.p.	10.6	28.1	0–4	0.2	13.1	0.9	7.1	7.0	
5–9	n.p.	28.9	8.8	44.6	24.5	5–9	0.3	16.6	9.7	36.2	11.2	
10–14	9.5	46.0	46.0	117.8	17.0	10–14	1.1	18.3	40.3	97.0	14.3	
15–19	86.3	102.2	102.9	46.3	47.6	15–19	93.3	64.8	107.1	63.4	23.9	
20–24	120.3	67.6	103.6	23.7	52.7	20–24	110.4	47.5	137.1	33.5	23.4	
25–29	118.7	93.9	83.1	29.1	62.6	25–29	80.4	26.5	116.0	33.1	19.3	
30–34	128.2	91.4	81.9	36.8	77.1	30–34	66.6	15.9	100.2	41.0	14.5	
35–39	79.2	59.7	52.4	26.8	91.4	35–39	58.1	12.1	95.5	41.8	12.9	
40–44	77.1	72.9	49.0	37.8	77.1	40–44	52.7	8.7	83.0	37.3	11.8	
45–49	61.2	81.1	43.0	26.5	51.3	45–49	47.4	8.1	72.6	36.2	10.3	
50–54	55.7	41.3	20.6	33.0	47.5	50–54	43.7	8.2	57.1	32.1	10.2	
55–59	68.0	31.2	14.2	n.p.	59.5	55–59	40.5	6.9	38.9	26.4	9.6	
60–64	53.9	33.2	n.p.	n.p.	33.2	60–64	41.4	6.2	25.2	21.4	10.4	
65+	69.7	20.3	n.p.	n.p.	37.8	65+	56.0	10.8	10.4	14.3	19.9	
All ages^(a)	67.7	56.5	44.2	31.6	50.9	All ages^(a)	50.5	18.8	63.1	36.7	14.7	

(continued)

Table B1 (continued): Age-specific rates of serious land transport traffic injury rates by case type, sex and Indigenous status, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Females						Females					
0–4	0.0	31.1	n.p.	5.8	14.3	0–4	n.p.	11.3	0.4	3.5	3.2
5–9	0.0	18.4	7.2	19.7	16.4	5–9	n.p.	17.6	2.3	17.7	6.4
10–14	n.p.	31.2	9.3	27.9	14.6	10–14	0.7	19.9	6.0	19.4	9.0
15–19	44.0	96.1	13.9	13.2	19.8	15–19	72.8	71.2	10.7	7.8	14.1
20–24	66.0	79.6	13.6	4.5	24.4	20–24	83.7	41.5	12.7	8.2	11.5
25–29	48.4	87.1	11.8	11.8	36.6	25–29	61.8	24.7	11.2	10.9	9.6
30–34	54.0	66.6	n.p.	8.0	33.3	30–34	51.8	17.9	9.7	10.7	6.2
35–39	53.9	68.5	n.p.	n.p.	43.8	35–39	48.8	14.0	8.7	8.2	7.0
40–44	47.6	61.8	9.0	6.4	43.8	40–44	43.9	14.0	9.1	8.5	6.1
45–49	36.6	45.7	n.p.	n.p.	21.3	45–49	42.1	15.9	9.8	8.0	6.5
50–54	36.5	46.1	n.p.	n.p.	23.0	50–54	42.7	15.9	7.4	9.4	7.3
55–59	30.6	40.8	n.p.	n.p.	n.p.	55–59	41.6	17.8	4.7	7.8	7.6
60–64	40.1	25.5	0.0	0.0	n.p.	60–64	37.8	19.9	2.8	8.1	10.2
65+	25.8	36.6	0.0	0.0	n.p.	65+	41.4	32.1	1.0	2.5	18.9
All ages^(a)	34.5	52.9	5.8	7.9	23.0	All ages^(a)	41.0	24.4	6.8	9.0	9.3

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

Table B2: Age-specific rates of serious land transport non-traffic injury rates by case type, sex and Indigenous status, 2005-06 to 2009-10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Males						Males					
0-4	n.p.	9.4	8.1	23.1	20.6	0-4	0.0	2.1	3.9	19.7	6.8
5-9	0.0	7.5	25.8	69.1	5.7	5-9	n.p.	1.9	32.9	57.1	5.0
10-14	3.2	3.2	87.0	136.7	5.7	10-14	1.3	2.4	107.5	134.1	3.7
15-19	14.5	11.7	101.5	52.5	4.8	15-19	8.2	7.6	150.2	77.5	4.2
20-24	14.9	9.7	76.4	14.9	7.9	20-24	9.1	3.7	107.9	23.5	3.8
25-29	20.5	8.6	60.4	8.6	n.p.	25-29	5.8	2.2	75.2	19.9	3.1
30-34	10.7	7.1	49.8	11.9	13.1	30-34	5.9	2.1	63.3	22.0	3.7
35-39	8.5	8.5	37.8	14.6	7.3	35-39	5.1	1.5	60.2	21.0	3.1
40-44	22.4	n.p.	33.6	14.0	7.0	40-44	3.7	1.2	47.9	19.6	3.2
45-49	8.3	n.p.	28.1	n.p.	n.p.	45-49	3.6	1.5	32.5	15.0	2.6
50-54	n.p.	n.p.	14.4	n.p.	n.p.	50-54	3.2	1.4	19.3	12.7	3.1
55-59	n.p.	n.p.	n.p.	n.p.	n.p.	55-59	2.9	1.5	12.1	11.8	2.9
60-64	n.p.	0.0	n.p.	n.p.	0.0	60-64	3.3	1.5	9.2	8.8	2.6
65+	n.p.	n.p.	0.0	n.p.	n.p.	65+	5.6	2.0	5.3	6.9	5.3
All ages^(a)	10.0	7.2	38.4	26.5	6.5	All ages^(a)	4.3	2.3	51.5	31.6	3.9

(continued)

Table B2 (continued): Age-specific rates of serious land transport non-traffic injury rates by case type, sex and Indigenous status, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Females						Females					
0–4	n.p.	4.5	n.p.	16.9	7.8	0–4	0.0	1.6	1.5	7.8	4.3
5–9	0.0	n.p.	11.8	28.8	n.p.	5–9	n.p.	1.4	8.8	25.5	2.6
10–14	n.p.	6.6	14.6	17.9	n.p.	10–14	0.5	2.0	14.5	22.6	2.2
15–19	5.9	11.7	11.0	n.p.	n.p.	15–19	5.9	4.9	12.5	4.9	1.1
20–24	n.p.	6.3	8.1	n.p.	n.p.	20–24	3.5	2.4	6.8	3.3	1.6
25–29	7.5	6.5	7.5	5.4	n.p.	25–29	3.1	1.6	4.9	4.1	1.6
30–34	n.p.	n.p.	n.p.	n.p.	10.3	30–34	2.3	1.3	3.4	4.6	1.0
35–39	5.6	6.7	n.p.	n.p.	6.7	35–39	2.3	0.8	4.1	4.2	1.4
40–44	n.p.	n.p.	n.p.	0.0	9.0	40–44	2.4	1.2	3.2	4.3	1.7
45–49	7.6	n.p.	0.0	n.p.	n.p.	45–49	1.6	1.0	2.9	4.6	1.6
50–54	n.p.	n.p.	n.p.	n.p.	n.p.	50–54	1.9	0.8	2.3	5.3	1.6
55–59	0.0	n.p.	0.0	n.p.	n.p.	55–59	2.1	1.1	1.4	5.5	1.8
60–64	n.p.	0.0	0.0	n.p.	n.p.	60–64	2.0	1.4	1.2	4.5	1.8
65+	n.p.	n.p.	n.p.	0.0	0.0	65+	3.8	2.5	0.9	1.8	6.9
All ages^(a)	3.9	5.3	5.1	6.4	4.7	All ages^(a)	2.4	1.8	4.8	7.1	2.5

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

Table B3: Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Major cities, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Males						Males					
0–4	0.0	24.4	0.0	20.7	26.3	0–4	n.p.	12.2	2.2	24.8	15.0
5–9	n.p.	15.9	13.9	89.4	35.8	5–9	0.3	15.2	22.5	82.5	17.7
10–14	n.p.	31.1	93.4	204.2	42.8	10–14	1.3	16.4	75.1	204.5	20.8
15–19	61.7	77.6	119.3	97.5	61.7	15–19	79.1	61.7	151.6	118.4	32.0
20–24	90.0	32.5	167.6	45.0	45.0	20–24	99.8	43.6	177.7	54.5	30.0
25–29	69.8	38.1	180.9	34.9	44.4	25–29	74.0	23.3	151.3	57.6	25.8
30–34	66.1	29.4	117.5	51.4	91.8	30–34	64.6	15.0	135.4	69.7	20.0
35–39	96.3	n.p.	77.8	66.7	107.4	35–39	55.2	11.2	127.3	70.7	18.5
40–44	57.2	48.4	105.7	52.8	83.7	40–44	50.0	7.9	103.6	63.9	18.5
45–49	37.0	26.4	79.3	52.9	47.6	45–49	47.2	8.6	86.3	57.1	15.1
50–54	46.8	46.8	n.p.	73.6	46.8	50–54	43.7	7.9	64.3	52.7	16.1
55–59	n.p.	n.p.	n.p.	n.p.	n.p.	55–59	41.9	6.6	41.8	44.2	16.5
60–64	n.p.	n.p.	n.p.	n.p.	0.0	60–64	43.0	7.2	27.1	35.1	17.7
65+	n.p.	n.p.	n.p.	n.p.	n.p.	65+	59.4	12.5	11.6	22.7	31.6
All ages^(a)	46.8	31.8	73.3	58.1	50.9	All ages^(a)	48.3	17.9	83.4	67.4	21.8

(continued)

Table B3 (continued): Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Major cities, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Females						Females					
0–4	0.0	21.9	n.p.	19.9	19.9	0–4	n.p.	9.8	0.9	10.5	7.4
5–9	0.0	n.p.	10.3	37.3	29.0	5–9	n.p.	16.3	5.9	38.1	9.7
10–14	n.p.	18.2	10.1	38.5	14.2	10–14	0.9	17.9	10.9	36.8	12.2
15–19	29.7	82.6	10.6	21.2	29.7	15–19	58.7	65.3	13.1	11.2	18.7
20–24	69.2	46.1	17.9	n.p.	51.2	20–24	75.2	40.4	15.6	12.4	15.9
25–29	59.8	50.4	22.0	n.p.	69.3	25–29	59.3	25.4	13.5	17.0	13.3
30–34	45.1	38.1	n.p.	n.p.	41.6	30–34	48.6	19.0	12.4	17.1	8.7
35–39	40.6	16.9	n.p.	n.p.	40.6	35–39	47.5	13.9	10.7	13.7	9.9
40–44	46.1	23.0	30.7	n.p.	53.7	40–44	40.9	14.4	9.6	13.5	10.6
45–49	41.3	36.7	n.p.	n.p.	36.7	45–49	40.7	16.5	10.2	13.3	10.2
50–54	35.1	n.p.	n.p.	n.p.	40.9	50–54	42.0	16.1	8.4	16.2	10.5
55–59	38.4	n.p.	0.0	n.p.	n.p.	55–59	40.5	18.8	4.8	13.8	11.6
60–64	n.p.	n.p.	0.0	0.0	n.p.	60–64	36.9	21.9	2.8	11.8	15.0
65+	35.5	49.8	0.0	0.0	n.p.	65+	41.9	35.4	1.7	4.2	32.2
All ages^(a)	34.4	32.6	9.1	12.2	32.7	All ages^(a)	38.5	24.3	8.5	15.9	14.3

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

Table B4: Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Inner and Outer regional areas, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Males						Males					
0–4	n.p.	32.0	17.5	42.2	64.0	0–4	n.p.	22.2	11.9	35.4	14.3
5–9	0.0	31.7	41.8	131.1	34.6	5–9	0.5	24.6	85.7	125.2	16.0
10–14	14.0	40.6	153.9	312.0	22.4	10–14	4.2	26.7	297.1	303.3	17.3
15–19	120.3	100.8	282.8	121.9	40.6	15–19	149.4	95.2	501.9	208.2	28.7
20–24	149.9	91.7	210.2	44.7	82.8	20–24	179.2	73.6	471.9	71.2	29.3
25–29	160.5	91.3	127.3	55.3	80.2	25–29	127.1	44.9	334.1	44.5	22.4
30–34	141.4	78.2	156.4	63.2	93.3	30–34	96.4	25.2	258.2	50.1	19.6
35–39	73.1	39.6	118.7	36.5	91.3	35–39	83.9	19.2	241.3	46.6	14.7
40–44	89.6	72.4	89.6	82.7	75.8	40–44	72.0	14.3	205.5	43.6	13.4
45–49	73.2	57.8	80.9	27.0	50.1	45–49	57.6	10.9	152.8	42.0	11.7
50–54	58.3	24.3	53.4	34.0	38.9	50–54	53.3	11.7	107.6	33.4	11.5
55–59	77.6	38.8	n.p.	n.p.	45.3	55–59	45.6	11.8	73.5	30.4	8.6
60–64	46.8	n.p.	n.p.	n.p.	n.p.	60–64	47.2	8.1	48.5	23.0	8.8
65+	92.3	0.0	n.p.	n.p.	33.0	65+	65.4	13.1	23.7	21.5	18.3
All ages^(a)	80.9	50.3	97.1	69.1	56.4	All ages^(a)	71.4	28.5	198.8	75.8	17.2

(continued)

Table B4 (continued): Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Inner and Outer regional areas, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Females						Females					
0–4	0.0	39.0	7.5	22.5	17.0	0–4	n.p.	19.5	4.3	16.2	10.3
5–9	0.0	24.0	10.5	53.9	9.1	5–9	n.p.	25.3	22.8	59.1	10.7
10–14	n.p.	29.4	29.4	48.5	14.4	10–14	1.6	30.3	39.6	56.5	11.3
15–19	59.8	109.3	37.6	15.4	11.6	15–19	124.8	98.5	44.9	16.7	11.6
20–24	86.9	74.8	26.5	n.p.	18.2	20–24	128.7	53.3	32.5	9.6	8.8
25–29	49.1	69.4	26.0	23.1	13.5	25–29	83.3	27.8	24.7	9.9	8.2
30–34	61.6	41.0	14.7	n.p.	26.5	30–34	71.7	19.1	17.6	10.2	4.8
35–39	69.9	36.4	n.p.	n.p.	23.2	35–39	60.3	17.5	19.4	10.2	6.8
40–44	57.1	50.7	n.p.	n.p.	23.9	40–44	58.2	15.7	19.7	11.9	5.2
45–49	29.6	25.9	n.p.	n.p.	14.8	45–49	50.4	17.8	19.5	12.1	5.4
50–54	51.6	42.2	n.p.	n.p.	9.8	50–54	49.4	17.4	14.4	12.8	7.8
55–59	n.p.	65.8	n.p.	n.p.	n.p.	55–59	50.8	18.6	10.0	14.4	8.8
60–64	75.6	n.p.	0.0	n.p.	n.p.	60–64	46.3	20.2	6.7	14.9	9.2
65+	41.0	30.7	n.p.	0.0	n.p.	65+	52.0	32.8	2.5	5.3	18.9
All ages^(a)	42.6	46.7	13.5	16.8	25.8	All ages^(a)	55.9	30.0	19.5	17.8	9.6

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

Table B5: Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Remote and Very remote areas, 2005–06 to 2009–10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Males						Males					
0–4	n.p.	59.8	n.p.	41.6	75.4	0–4	0.0	22.2	9.5	33.3	27.0
5–9	0.0	71.2	48.3	142.3	28.0	5–9	n.p.	42.0	182.7	121.3	32.3
10–14	22.4	92.5	168.1	249.3	n.p.	10–14	16.0	78.0	627.4	402.3	19.5
15–19	125.8	196.3	211.7	70.6	76.7	15–19	239.1	143.9	1172.2	177.7	42.3
20–24	173.5	115.7	163.3	27.2	64.6	20–24	223.9	94.5	762.6	49.0	33.2
25–29	195.1	199.1	123.4	27.9	95.6	25–29	116.9	63.6	457.2	32.6	14.8
30–34	217.5	205.0	129.7	29.3	108.8	30–34	85.0	42.5	360.7	37.0	28.8
35–39	99.7	176.7	77.0	n.p.	122.3	35–39	88.4	23.1	306.1	37.1	20.5
40–44	162.6	122.0	45.7	n.p.	162.6	40–44	64.8	18.5	243.2	39.6	15.9
45–49	102.9	205.9	51.5	n.p.	115.8	45–49	78.8	19.4	193.8	38.8	14.2
50–54	85.9	85.9	n.p.	n.p.	101.5	50–54	52.0	30.1	145.0	19.2	13.7
55–59	111.5	78.1	n.p.	n.p.	156.1	55–59	54.9	12.2	80.9	24.4	7.6
60–64	113.2	n.p.	n.p.	0.0	97.0	60–64	49.9	11.5	94.1	25.0	0.0
65+	111.4	66.8	0.0	n.p.	66.8	65+	70.1	12.4	54.7	11.3	20.6
All ages^(a)	110.3	124.2	78.9	47.9	89.8	All ages^(a)	82.3	43.2	330.7	73.1	21.6

(continued)

Table B5 (continued): Age-specific rates of serious injury by case type, sex and Indigenous status: residents of Remote and Very remote areas, 2005-06 to 2009-10

Age-specific rate per 100,000 population											
Indigenous Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian	Other Australians	Car driver	Car passenger	Motorcyclist	Pedal cyclist	Pedestrian
Females						Females					
0-4	n.p.	48.2	0.0	29.4	26.8	0-4	n.p.	30.2	n.p.	n.p.	n.p.
5-9	0.0	26.8	45.5	61.6	18.8	5-9	n.p.	22.7	38.4	62.8	n.p.
10-14	n.p.	84.8	36.3	60.6	21.2	10-14	n.p.	27.1	122.0	60.0	13.6
15-19	62.4	144.5	26.3	n.p.	16.4	15-19	167.9	172.8	172.8	26.8	26.8
20-24	43.3	153.3	20.0	n.p.	n.p.	20-24	119.8	76.6	70.7	n.p.	9.8
25-29	59.7	175.3	n.p.	18.7	48.5	25-29	80.7	50.1	42.0	12.9	8.1
30-34	66.5	149.5	0.0	n.p.	70.6	30-34	59.7	23.6	14.2	9.4	n.p.
35-39	67.9	207.9	n.p.	n.p.	110.3	35-39	64.3	10.7	39.8	9.2	n.p.
40-44	44.7	144.1	n.p.	0.0	94.4	40-44	79.6	34.1	29.2	13.0	n.p.
45-49	72.0	107.9	0.0	0.0	n.p.	45-49	54.8	17.2	28.2	9.4	n.p.
50-54	36.3	108.8	n.p.	0.0	n.p.	50-54	64.2	27.8	20.8	19.1	n.p.
55-59	53.1	74.3	0.0	n.p.	n.p.	55-59	48.9	26.5	14.2	16.3	n.p.
60-64	n.p.	n.p.	0.0	0.0	n.p.	60-64	31.7	21.2	13.2	18.5	n.p.
65+	0.0	46.9	0.0	0.0	n.p.	65+	56.2	31.1	10.8	n.p.	21.5
All ages^(a)	37.0	108.7	11.0	14.6	37.7	All ages^(a)	60.5	40.7	43.7	18.5	9.4

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

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Related publications

The following AIHW publications are previous reports in this series related to Aboriginal and Torres Strait Islander people transport injury.

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. Canberra: 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 & Australian Transport Safety Bureau.

Henley G & Harrison J 2010. Injury of Aboriginal and Torres Strait Islander people due to transport, 2003-04 to 2007-08. Cat. no. INJCAT 134. Canberra: AIHW.

This report looks at death and serious injury of Aboriginal and Torres Strait Islander people in Australia due to transport accidents in the five-year period 2005–06 to 2009–10. Land transport accidents accounted for 26% of all fatal injury cases and 9% of all serious injury cases for Aboriginal and Torres Strait Islander people. The age-standardised rate for Aboriginal and Torres Strait Islander people was 2.8 times the rate for Other Australians for fatal cases and 1.3 times the rate for Other Australians for serious injuries.