Australian Government
Department of Infrastructure and Regional Development
Bureau of Infrastructure, Transport and Regional Economics

Motorcycling Safety

At a glance

- In 2016 there were 248 motorcyclist fatalities (240 riders and 8 pillion passengers), up 22.2 per cent on 2015. This was almost one in five road deaths.
    - In 2016 motorcyclist deaths increased in Victoria, Western Australia and Queensland, and decreased or stayed constant in other jurisdictions.
    - The 2016 total represents an increase of 7.4 per cent on the National Road Safety Strategy base period (2008-2010).
- Exposure has increased significantly over the last ten years, with motorcycle registrations increasing by approximately 5 per cent per year and estimated kilometres travelled up by 4 per cent per year.
- While the number of motorcyclist fatalities today is similar to ten years ago, increased exposure (particularly for riders over 25) means that fatality rates have decreased by 40 per cent. In 2012 the fatality rate per kilometre for riders aged 15-24 remained substantially above other age groups.
- Most motorcyclist deaths (93 per cent) are male. Over the last 10 years the age profile for deaths has changed significantly:
    - Young riders (17-25) now comprise approximately one in five motorcyclist deaths, down from one in four deaths.
    - In 2016 less than half of motorcyclist fatalities were aged under 40 years, down from approximately two thirds in 2007.
    - Ten years ago, the average age of a fatally injured motorcyclist was 36. Today it is 40.
- In terms of hospitalised injury, motorcyclists accounted for just under 1 in 4 and passenger car vehicle occupants just under 1 in 2 cases of traffic hospitalised injury in 2013.
- For every motorcyclist killed, 35 more are hospitalised due to traffic related crashes. This ratio is far higher than that for pedestrians (1:16), or for vehicle occupants (1:18).
- Crashes involving a motorcycle fatality peak in the day (9am to 3pm) and evening (3pm to 9pm). One third of fatal motorcycle crashes occur on a weekend between 9am Saturday and 9pm Sunday.
- Deaths under 40 are skewed towards urban areas while deaths for over 40s are skewed towards non-urban locations. Non-urban fatal crashes are particularly skewed towards the weekend.
- In urban areas, more than 30 per cent of crashes involving a motorcyclist fatality are on local roads, whereas in non-urban areas arterial and sub-arterial roads predominate.
- In the four years to 2015 there has been a shift in the proportion of crashes involving a motorcyclist fatality from major cities to regional and remote areas.
- While national trends in motorcyclist fatality rates per registered vehicle and kilometre travelled have improved, the number of motorcyclist deaths is similar to 10 years ago. This underpins the need to identify further improvements and focus efforts on reducing fatalities and hospitalised injuries.

Introduction

This information sheet provides a broad overview of the current status of motorcycling safety in Australia. First, data definitions and sources are outlined, then a brief summary and background of key issues for motorcycling safety is provided.

The crash and casualty analysis section presents statistics and analysis of motorcycle safety and crash characteristics covering both Australia and the international context.

Data definitions

A 'motorcyclist' is a rider or a pillion passenger of two wheeled and three wheeled powered vehicles, including scooters and mopeds.

A 'road death/fatality' is a person who dies within 30 days of a road crash as a result of injuries received in that crash, excluding deaths from deliberate acts and natural causes.

A 'road crash' is an unpremeditated event reported to police or other authority which results in death, injury or property damage and is attributable to the movement of a road vehicle on a public road.

A 'hospitalised injury' is defined as a person admitted to hospital from a crash occurring 'in traffic'. Traffic excludes off-road and unknown location. There is no nationally agreed definition of serious injury in Australia (BITRE 2016a).

Data sources

The Australian Road Deaths Database (ARDD) is collated from fatality data provided each month by Australian states and territories.
Data is available for download here: http://bitre.gov.au/statistics/safety/fatal_road_crash_database.aspx

The National Crash Database (NCD) was developed by BITRE for the purposes of monitoring statistical targets in the National Road Safety Strategy. It is a collation of state and territory road crash data, and contains information on reported road traffic crashes resulting in an injury or fatality.

Due to the timing differences in the data receipt and ongoing validation by data providers, there are minor data differences between the ARDD and the NCD.

International fatality and exposure data were sourced from the International Road Traffic Accident Database (IRTAD 2016). IRTAD is maintained by the Joint Transport Research Centre of the Organisation for Economic Co-operation and Development (OECD) and the International Transport Forum.

Traffic crash hospitalisation injury data are sourced from the National Hospital Morbidity database managed by the Australian Institute of Health and Welfare (AIHW). This series excludes crashes in unknown locations.

Australian data for population and registered vehicles were obtained from the Australian Bureau of Statistics (ABS 2016a and ABS 2016b).

Vehicle kilometres travelled (VKT) estimates were sourced from BITRE (unpublished).

Motorcycling safety

Motorcycling is a popular form of transport in Australia and worldwide. There are a wide range of reasons people choose to ride, including cost, practicality, thrill and adventure. Compared to light passenger vehicles, motorcycles are fuel and space-efficient and low-cost, making motorcycling the choice of many, and particularly in highly congested cities and low-income countries.

In Australia, the two main uses of motorcycles are for daily commuting and leisure/recreation. Growing popularity has resulted in greater exposure over the last ten years, with motorcycle registrations increasing approximately 5 per cent per year and estimated kilometres travelled up 4 per cent per year.

While the national trend in motorcyclist fatality rates over the last decade has improved by 40 per cent, the number of motorcyclist deaths is similar to 10 years ago. This underpins the need to identify further areas for improvement and focus efforts on reducing motorcyclist fatalities and hospitalised injuries.

Five current safety issues are discussed in this section: protective gear, road design and infrastructure; safety campaigns; motorcycle rider training and education; and motorcycle safety technology.

Protective gear

In contrast to a vehicle occupant, who is protected by panels, pillars, seatbelts and airbags, the motorcyclist is protected only by their clothing, related protective gear and helmet. Issues related to motorcyclist protective equipment and the availability and sources of objective consumer-oriented information are provided in a report by de Rome et al (2012) for the Motor Accidents Authority. Several Australian agencies and community groups provide advice and discussion on protective gear. See the Australian Motorcycle Council (AMC) 2017a, Spokes (Transport Accident Commission 2017), the Good Gear Guide (Department of Infrastructure and Regional Development 2009) and The Consumer Rating and Assessment of Safety Helmets (Crash 2017).

All other things being equal in the event of a crash, the better the protective gear, the less severe the injuries. Besides injury prevention, motorcycle clothing should offer protection from the cold and rain, and allow cooling in hot weather as well as visibility. It is important that the protective gear fits well. Uncomfortable clothing or helmets will be (at minimum) a distraction.

Road design and infrastructure

A key design principle of road infrastructure is that it should accommodate every road user. There are concerns from motorcyclists however that some of their safety needs are not met sufficiently (AMC 2017b). Specific areas of concern include crash barriers, polished/slippery surfaces, steel manhole covers without skid resistance treatment, intersection design and signage and light pole locations. One of the main concerns relates to crash barriers. See EuroRAP (2008) for background.

In Australia wire rope barriers are extensively used (EuroRAP 2008). Due to their property of absorbing energy, they are very effective in minimising damage in light vehicle collisions. Whilst effective for the majority of road users during a crash, they do not protect motorcyclists in the same way, and indeed can result in more severe injuries to the motorcycle rider. Austroads (2016) discusses a number of case studies concerning motorcyclist-friendly crash barriers: in South Australia the Department of Planning, Transport and Infrastructure installed flexible fabric mesh on existing barriers to provide protection to the motorcyclist during a direct impact with the barrier. Separately, motorcyclist-friendly under-run protection was fitted to existing w-beam barriers as a way of protecting the motorcyclist from breaching the space between the barriers. The resulting study stated that 'no fatal or serious injuries were recorded on both roads involving the barriers'.

It should be noted that barriers are installed to mitigate crash severity once loss of control has occurred. Some, but not all loss-of-control crashes are related to road condition or to the behaviour of other road users, but speed is also often involved. Cairney et al (2015) evaluated VicRoads' Motorcycle Blackspot Program which commenced 2003. Overall the program—which included barrier protection, intersection, loss-of-control and roundabout treatments—was found to be highly effective, with barrier protection having one of the best safety and economic returns.

Safety campaigns

One of the (several) key recommendations from the Motorcycle and Scooter Safety Summit in Canberra 2008 addressed public education strategies. It stated in particular that there should be coordination amongst Australian jurisdictional campaign strategies, and that the messaging should address all road users, not just motorcyclists. In a brief review of safety campaigns, Lennard (2015) lists several campaigns which at best presented mixed messages, or tended to place all responsibility for safety on the rider. As highlighted in the OECD (2008) report Workshop on Motorcycling Safety, as well as in other research, a key message for motorcycling and road safety generally should be that *road safety means road sharing*. Lennard also mentions one well received campaign (the Road's No Place to Race — Motor Accident Commissions), and the Inquiry by the Road Safety Committee of the Victorian Parliament in 2011 and 2012 (Parliament of Victoria, 2012).

Delivery through dedicated websites and social media are used for today's campaigns to augment or replace more conventional delivery methods. The former allow more immediate feedback and greater sharing /circulation. Examples include the Ride to Live campaign launched on 29 October 2014 (NSW Centre for Road Safety 2017) and Join the Drive (Queensland Government Department of Transport and Main Roads 2017).

Motorcycle rider training and education

In all jurisdictions, applicants for a motorcycle licence are required or encouraged to attend a pre-licence training course. See Austroads (2014) discussion paper for a summary of existing requirements in Australia's jurisdictions.

The large increase in numbers of registered motorcycles over the last 15 years suggests that numbers of new (or returning) riders may be increasing. Crash statistics show that, on average, motorcyclists killed in crashes today are significantly older than 10 years ago (Figure 16). It is not clear that returning riders have a higher risk than experienced riders.

Austroads (2014) cites research that suggests that both younger riders and inexperienced riders have increased crash risk. Haworth et al (2012) also provide information on data issues, crash risk and licensing of learner motorcyclists.

Safety technology

A number of new technologies could reduce motorcycle crashes and trauma. These include antilock braking systems (ABS), traction control and motorcycle (and helmet) airbags.

The 2014 NRSS review identified ABS for motorcycles as showing promise for reducing trauma. The Australian and Victorian governments funded research by Monash University Accident Research Centre (MUARC) 2015 to assess the benefits of ABS technology fitted to motorcycles (excluding scooters) using Australian crash data and compared these to published international research. The report found that:

- ABS reduces trauma crashes by 31 per cent and is even more effective for fatal and severe crashes. Benefits varied according to the crash type, whether it was a single or multi vehicle crash, and whether the road was wet or dry.
- There was good consistency of findings with international research.
- There will be marked savings in fatalities and injuries over the next 10 years; this could be enhanced by efforts to increase fitment rates and could be accelerated by mandating fitment of ABS technology for all new LC category motorcycles greater than 125 cc.

While ABS technology is common in passenger cars sold in Australia, only around 20 per cent of new motorcycles are sold with it (Fletcher 2015). Subject to ADR approval processes, the current proposal is that Australia adopt Global Technical Regulation 3/UN Regulation 78 (MUARC 2015) relating to systems to prevent wheel lock up under braking of motorcycles. This is listed as a priority in the 2015-2017 National Road Safety Action Plan.

Crash and casualty analysis

This section presents an overview of motorcyclist safety and motorcycle usage in OECD countries, as well as an overview for Australia of fatalities, hospitalisations, usage (registrations and VKTs), and casualty rates.

Detailed analyses are presented of Australian casualty characteristics and crash characteristics. Several figures compare motorcyclist casualty crashes with passenger car casualty crashes.

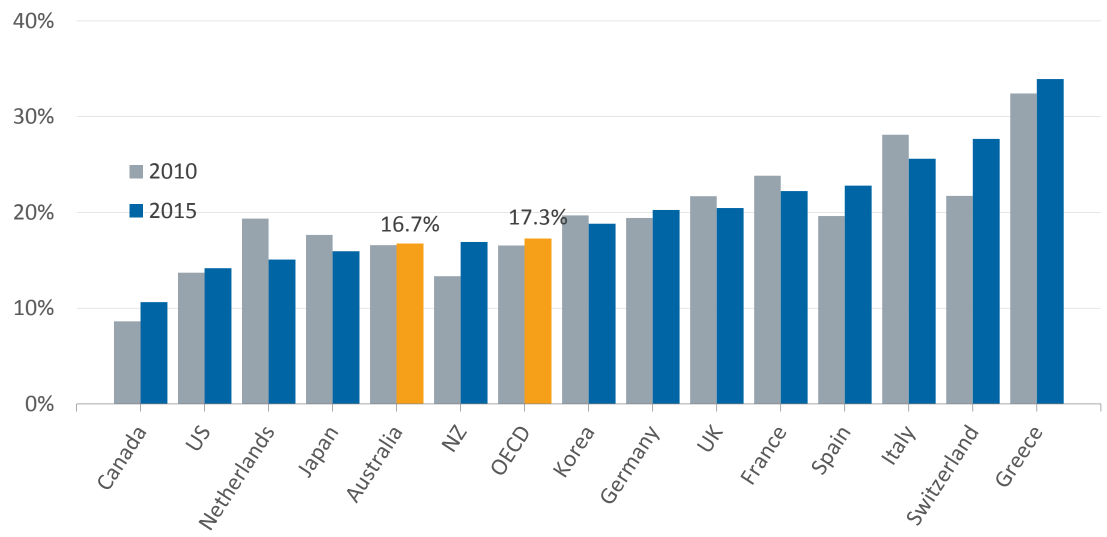
International overview

Figure 1 shows motorcyclist fatalities as a proportion of total road crash fatalities for selected OECD countries, both in 2010 and 2015.

In 2015, there were 13,560 motorcycle fatalities reported in the OECD[1]. This is a reduction of 1.9 per cent from 2010.

In most OECD countries, the proportion of total road deaths accounted for by motorcyclists increased between 2010 and 2015. Australia is similar to the OECD as a whole.

Figure 1 Motorcyclist fatalities as a proportion of total, selected OECD countries[2]



1 The IRTAD database did not contain data from the following OECD countries: Turkey, Mexico, Latvia, Estonia and the Slovak Republic.

2 Countries are selected to be broadly representative of the OECD. The OECD total includes estimates for the year 2015 for several countries.

Figure 2 shows the motorisation level (registrations per population) for selected OECD countries.

Compared to the OECD, Australia has a low motorcycle motorisation rate (34 registrations per 1,000 people). During the five years to 2015, this rate in Australia increased by 13.3 per cent.

Figure 2 Motorcycle registrations per 1,000 population – selected OECD countries

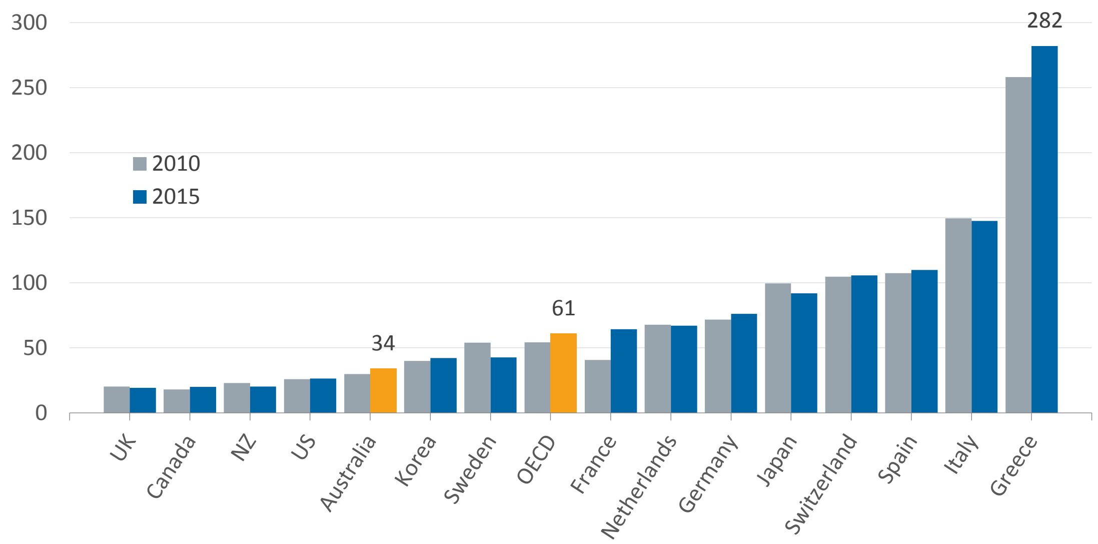
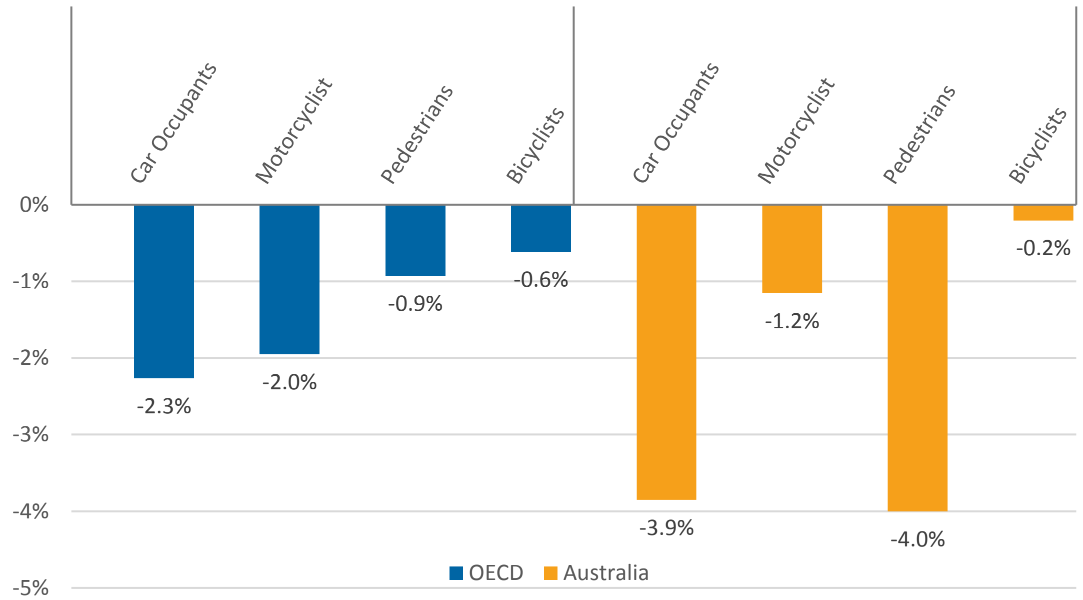


Figure 3 presents trend change (annual per cent change) over the last five years in fatalities for Australia and OECD, categorised by road user type. Most OECD member countries achieved consistent reductions in motorcyclist fatalities over the past five years. Australia's average trend reduction per year was -1.2 per cent.

Figure 3 Annual per cent change (2011–2015) in fatality counts by road user type, OECD[3] and Australia



[3] The OECD total includes estimates for a small number of countries where data was unavailable.

Australian casualty analysis

This section presents an overview of Australia's motorcyclist casualties. Figure 4 presents fatalities and Figure 5 the trend changes by jurisdiction over the last ten years. Motorcyclist hospitalisations are presented in Figure 6.

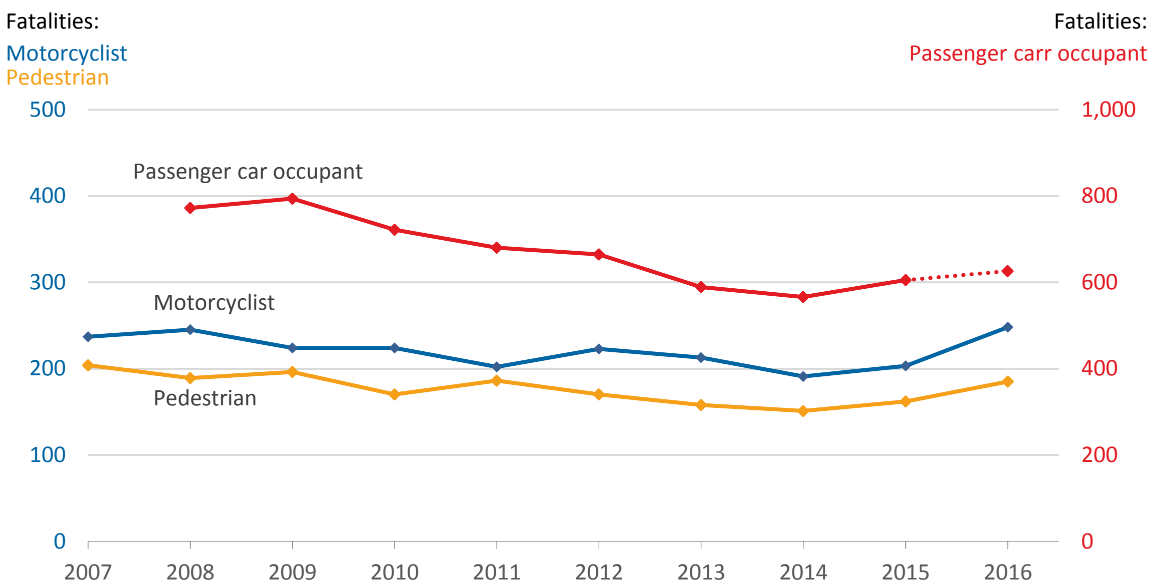
In 2016, there were 248 motorcyclist fatalities (240 riders and 8 pillion passengers). Motorcyclist fatalities comprised 19.1 per cent of road deaths, up 22.2 per cent on 2015. Deaths increased in Victoria, Western Australia and Queensland, and decreased or stayed constant in other jurisdictions.

Fatality counts for most road user groups consistently declined between 2008 and 2014, with the exception of pedal cyclists. Since 2014 however there have been significant increases in motorcyclist, vehicle driver and pedestrian fatalities, and declines in pedal cyclist fatalities.

Preliminary data indicates fatalities to passenger car occupants (drivers and passengers - dotted line) and light commercial vehicle occupants (not shown in Figure 4) also increased in 2016.

Over the last three years, motorcyclist deaths accounted for 17 per cent of total road deaths, and passenger car occupant deaths accounted for approximately 50 per cent of the total.

Figure 4 Annual fatalities by selected road user type, 2007–2016



Note: Data for car occupants are sourced from the NCD, which covers the years 2008 to 2015.

Figure 5 presents the ten-year trend (annual per cent change) in motorcyclist fatalities by jurisdiction. Tasmania, the ACT and the Northern Territory are grouped into Other as the trends are unreliable for low count data.

Over the last ten years in Australia, there was an estimated trend reduction in motorcycle fatalities of 1.1 per cent per year. There were particularly large trend reductions in Queensland and South Australia of 3.5 per cent per annum, while NSW increased by 1.2 per cent per annum.

Figure 5 Average per annum (per cent) change in motorcyclist fatalities, 2007–2016

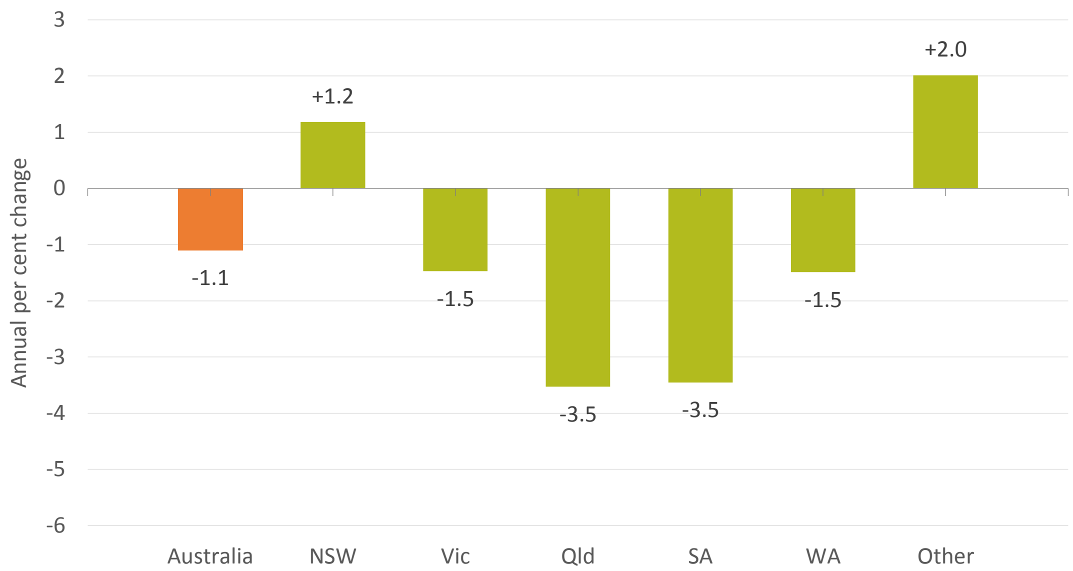
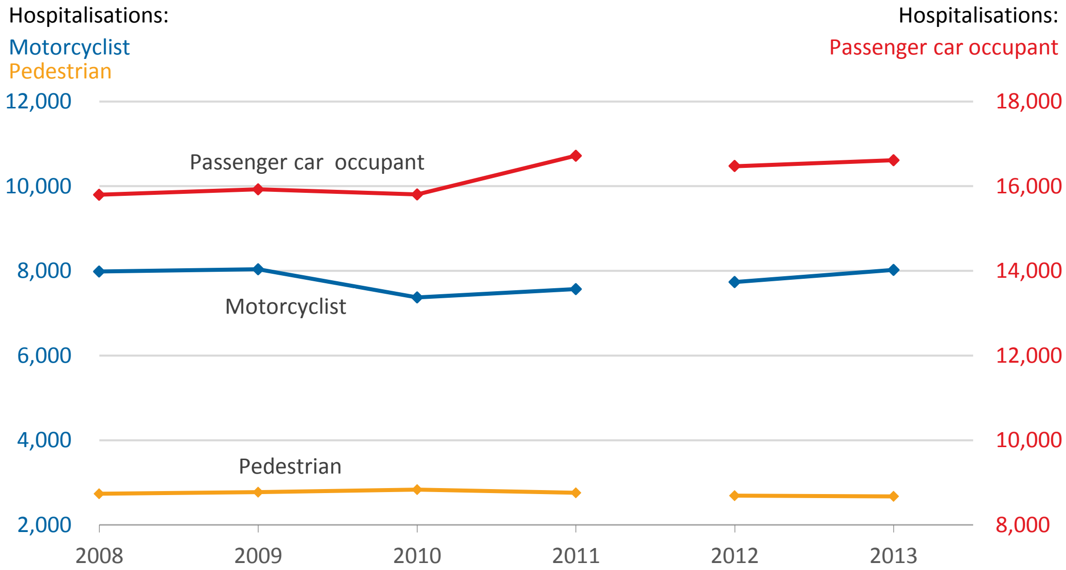


Figure 6 presents traffic-related hospitalisations for selected road user groups. In 2013 (the latest year of data), motorcyclists accounted for 23 per cent of road traffic hospitalisations. Passenger car occupants accounted for 47 per cent. For every motorcyclist killed, 35 more are hospitalised due to traffic related crashes. This ratio is far higher than that for pedestrians (1:16), or for vehicle occupants (1:18).

Figure 6 Annual traffic hospitalisations by selected road user group, 2008–2013



Note: 2012 calendar year data is not directly comparable with previous years due to a break in the series. A large jurisdiction changed case inclusion criteria from 1 July 2012. NISU estimates that this has decreased admitted case counts in Australia by 2000 cases (-5.6 per cent). The estimated decrease in calendar 2012 was approximately 1000 cases, or (-2.8 per cent), with the reduction likely to differ by road user group.

Motorcycle usage in Australia

Figures 7 to 9 present Australia's motorcycle registrations, VKT and Journey-To-Work (JTW). Passenger car data is also provided for comparison.

Exposure has increased significantly over the last ten years, with motorcycle registrations increasing by approximately 5 per cent per year.

Ten-year per annum trends are shown in Figures 7 and 8. In 2016 there are 17 passenger cars for every motorcycle. Ten years ago this ratio was 22:1.

Estimated motorcycle VKT showed strong growth of 4 per cent per annum over the last ten years. Per vehicle, passenger cars travel on average an estimated 3.5 times further than motorcycles.

Figure 7 Vehicle registrations (000s), motorcycles and passenger cars

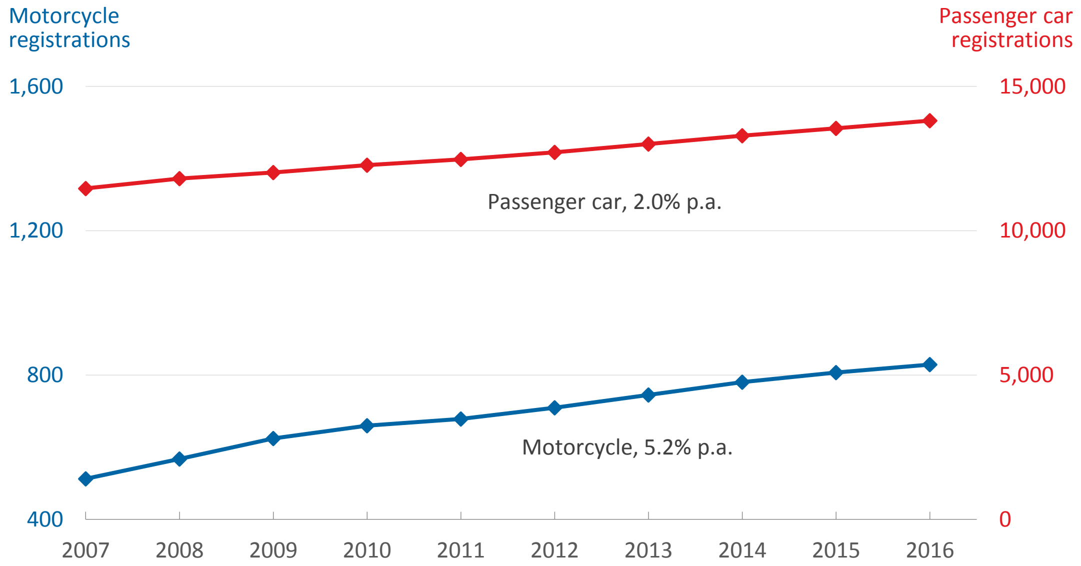


Figure 8 Estimated VKT (billions), motorcycles and passenger cars

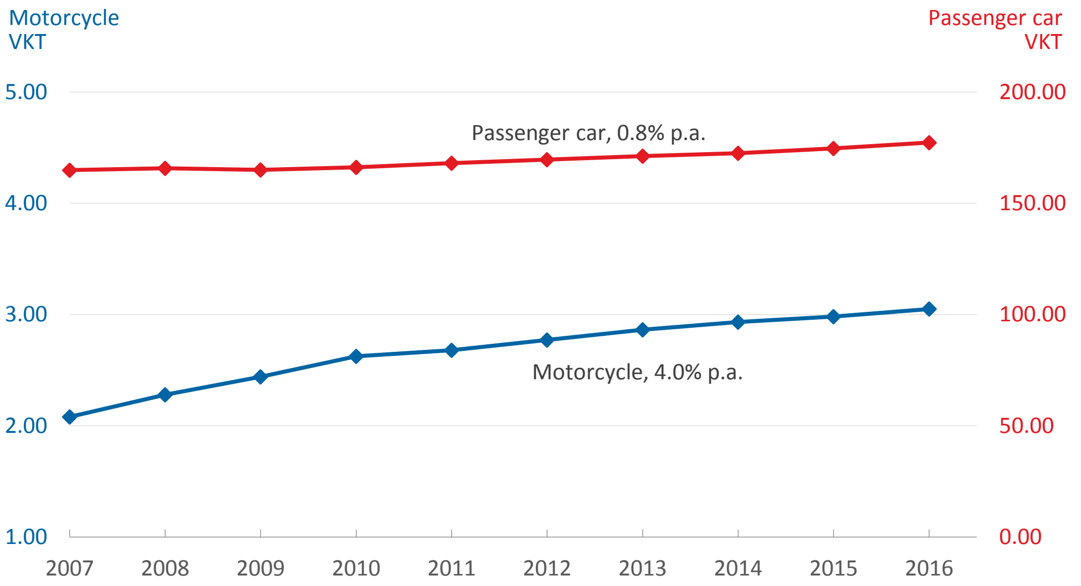
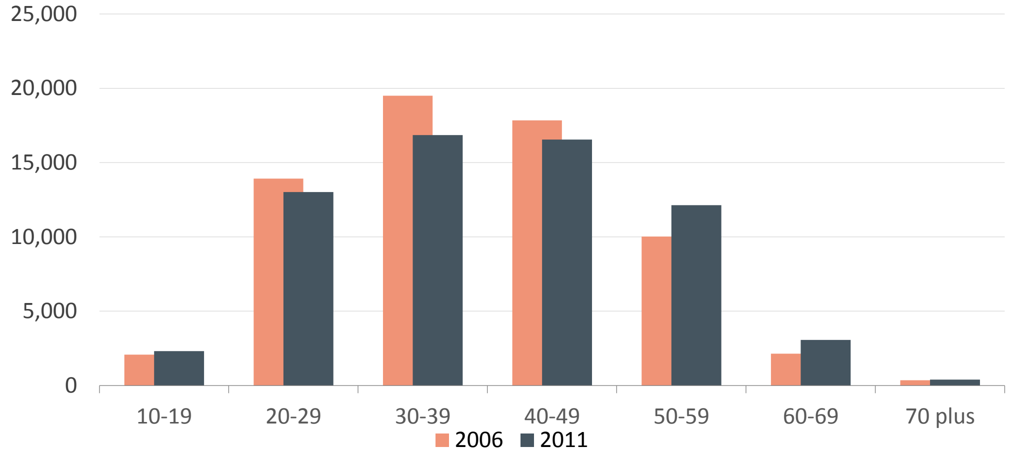


Figure 9 shows motorcycle and scooter journey-to-work trips by age group. Shown are counts of trips where any journey segment involved a motorcycle (most are single mode trips). The 50+ age groups show an increase in motorcycle usage, but for younger adults (20-49), there has been a decrease.

Figure 9 Journey-to-work trips by motorcycle/scooter, Australia, 2006 and 2011



Australian fatality rates

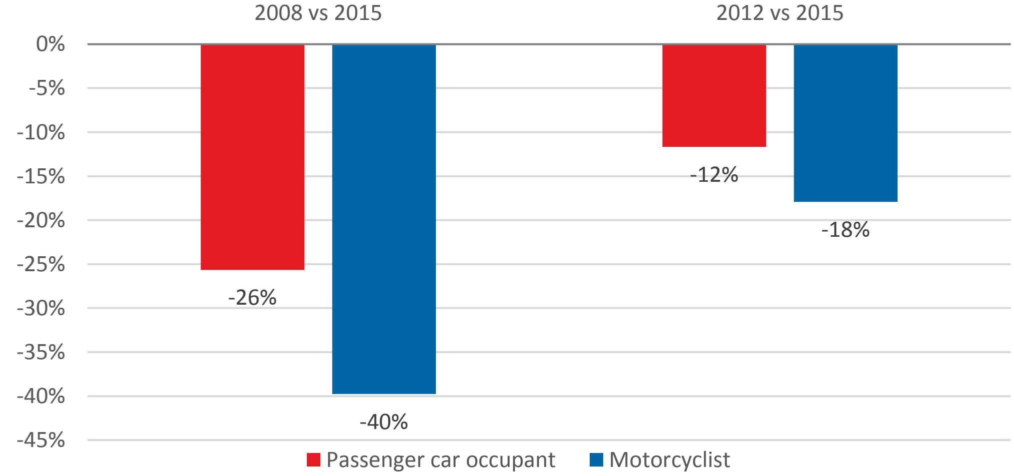
While the number of motorcyclist fatalities today is similar to ten years ago, increased exposure (particularly for riders over 25) means that fatality rates have decreased by 40 per cent. In 2012 the fatality rate per kilometre for riders aged 15-24 remained substantially above other age groups.

The decrease was greater than for passenger car occupant since 2008:

- The motorcyclist fatality rate was 64.7 deaths per billion VKT and 2.5 per 10,000 registered motorcycles in 2015, reductions of 40 per cent and 42 per cent respectively.
- The passenger car occupants fatality rates in 2015 of 3.5 deaths per billion VKT and 4.5 per 10,000 registered passenger cars, reductions of 26 per cent and 32 per cent respectively.

VKT by riders in the 25 year and older age groups increased substantially in the ten years to 2012, while the trend for young riders (15-24 years) is less clear[4]. In 2012, the young rider fatality rate was 3.2 deaths per billion VKT, significantly higher than for riders in the 25-54 age group (1.2 deaths per billion VKT) and the 55 and over age group (0.8 deaths per billion VKT).

Figure 10 Percentage change in fatalities per VKT



[4] ABS Survey of Motor Vehicle Use, various years (unpublished). Individual age groupings in some years are subject to large standard errors.

Figure 11 Annual fatalities per 10,000 registered vehicles, 2007–2016

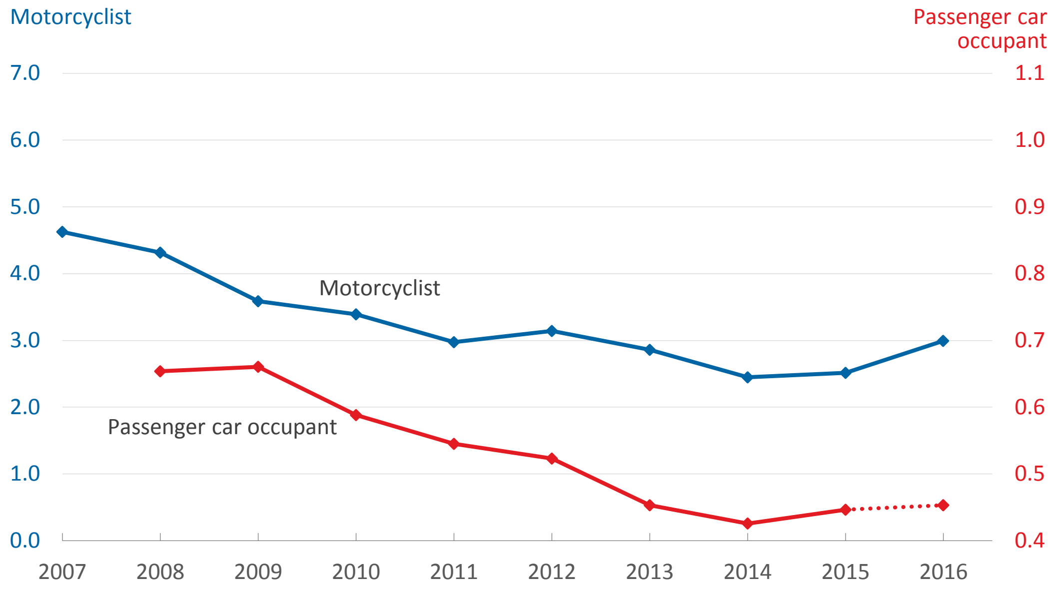
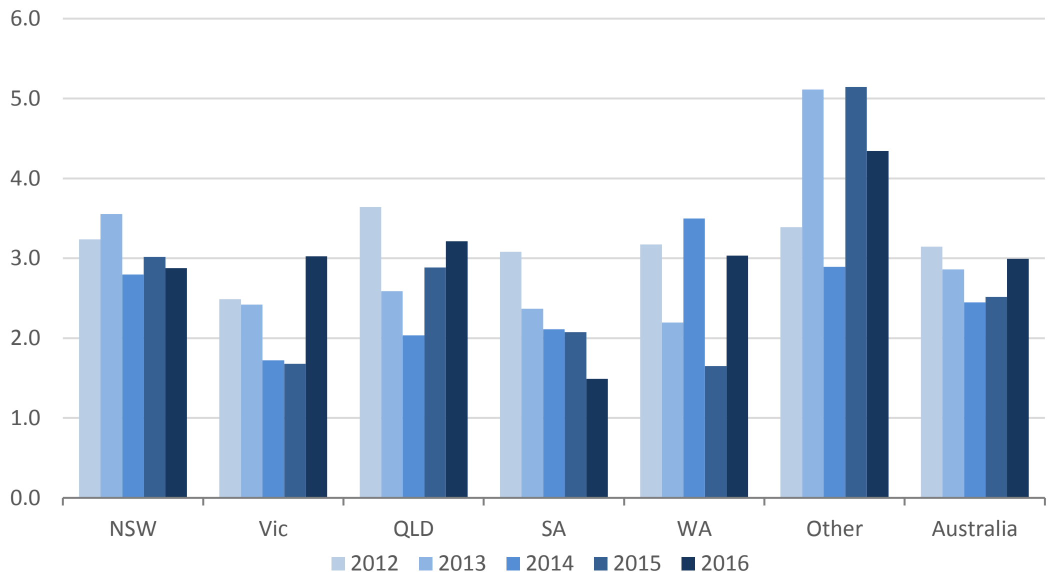


Figure 12 looks at the fatality rate per registered motorcycle by jurisdiction over the last five years. The reductions seen for most jurisdictions occurred in 2013 and 2014. Since then the rate has increased for the majority of jurisdictions.

Figure 12 Annual motorcyclist fatalities per 10,000 registered motorcycles by jurisdiction, 2012–2016



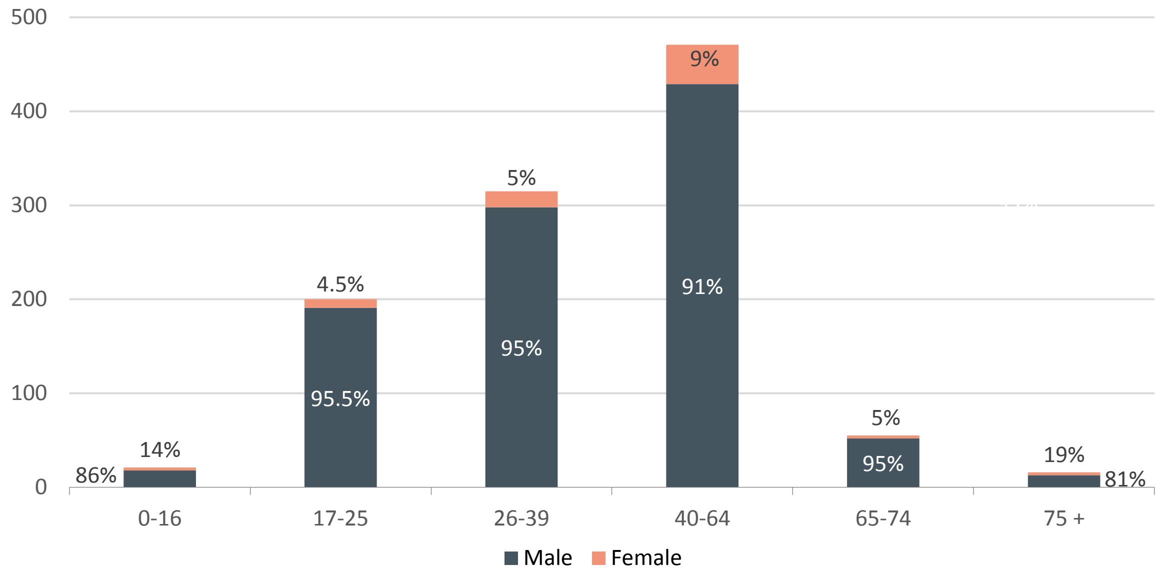
Australian casualty demographics and characteristics

This section presents analysis of the riders (and passengers) who are killed or hospitalised. Figures 13 to 16 examine the age profile of motorcyclist casualties in some detail, followed by a brief analysis of helmet wearing rates and licence-validity.

Key demographics for motorcyclist fatalities include:

- Motorcyclist fatalities are mostly male (93 per cent). In comparison, passenger car occupant fatalities have a gender distribution of 60 per cent male and 40 per cent female.
- Of pillion passenger fatalities, approximately 60 per cent are female.
- Motorcyclist fatalities in the 17-25 year age-group accounted for over 18 per cent of total motorcyclist deaths in 2016, or just under one in five, down from one in four deaths ten years ago.
- In 2016 less than half (46.4 per cent) of motorcyclist fatalities were aged under 40 years, down from approximately two thirds (65 per cent in 2007).
- Ten years ago, the average age of a fatally injured motorcyclist was 36. Today it is 40.
- Analysis by age and weekday showed no differences between ages for weekday and weekend crashes.

Figure 13 Motorcyclist fatalities – gender percentages and counts by age group, 2012–2016 combined



The age/gender distribution of motorcyclists hospitalised as the result of a traffic crash is similar but not identical to that of fatally injured motorcyclists: the 17-25 year age-group accounts for 26 per cent of hospitalisations.

Figure 14 looks in more detail at the ages of killed motorcyclists over the last five years of available data, and compares these with passenger car occupant deaths.

Motorcyclist deaths peak in the 20s and again in the ages between 40 and 50, then decline sharply from the mid-50s. This is markedly different to passenger car occupant deaths, which peak around the age of 18 to 20, decline until the early 30s and are evenly spread out from 35 to 80.

Figure 14 Age distribution (single year) for killed road users 2012–2015, smoothed

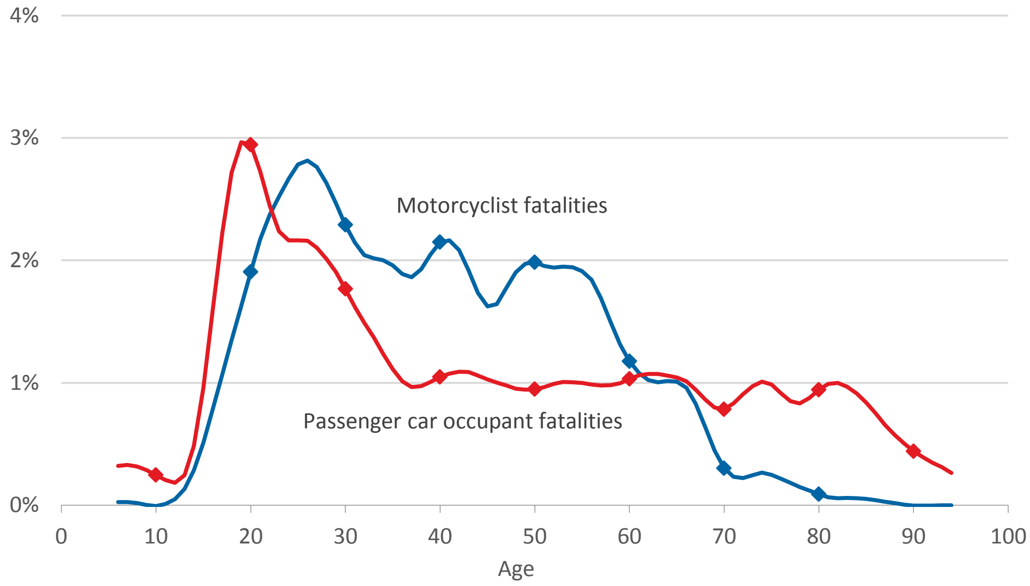


Figure 15 categorises motorcyclist deaths by age and by location (urban/non-urban) for the last five years of available data. 'Urban' relates to ABS Significant Urban Area (see ABS 2013a). Deaths of under 40 motorcyclists are skewed towards urban areas, while deaths for over 40s are skewed towards non-urban locations.

Figure 15 Age distribution of killed motorcyclists by urban/non-urban crash location, 2012–2015, smoothed

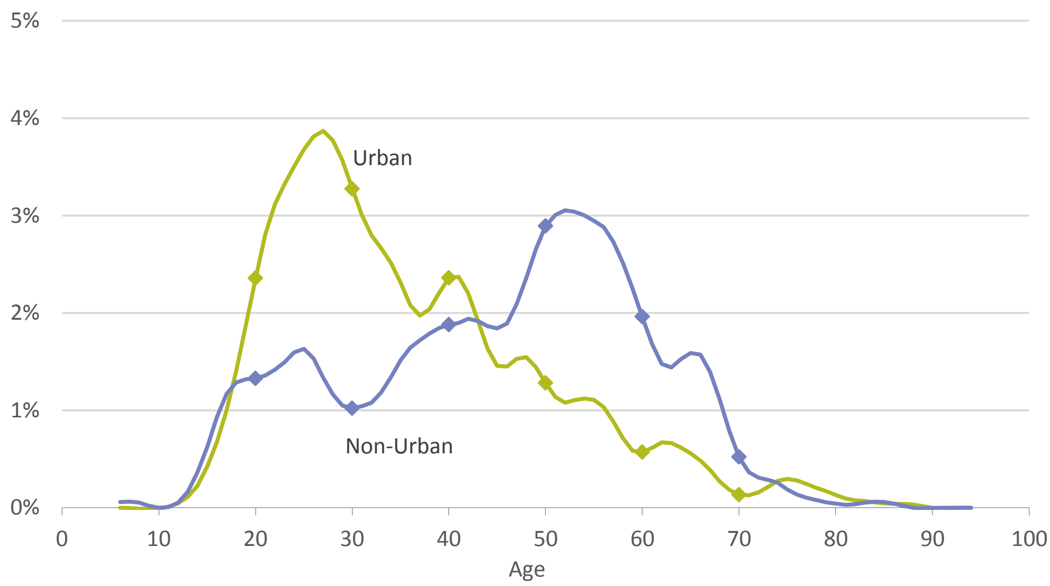


Figure 16 compares the age distribution of motorcyclist fatalities over the last 5 years with 10 years ago. Although the number of motorcyclist fatalities is similar to ten years ago, the ages of those killed have become significantly older.

Figure 16 Age distribution of killed motorcyclists, today and ten years ago

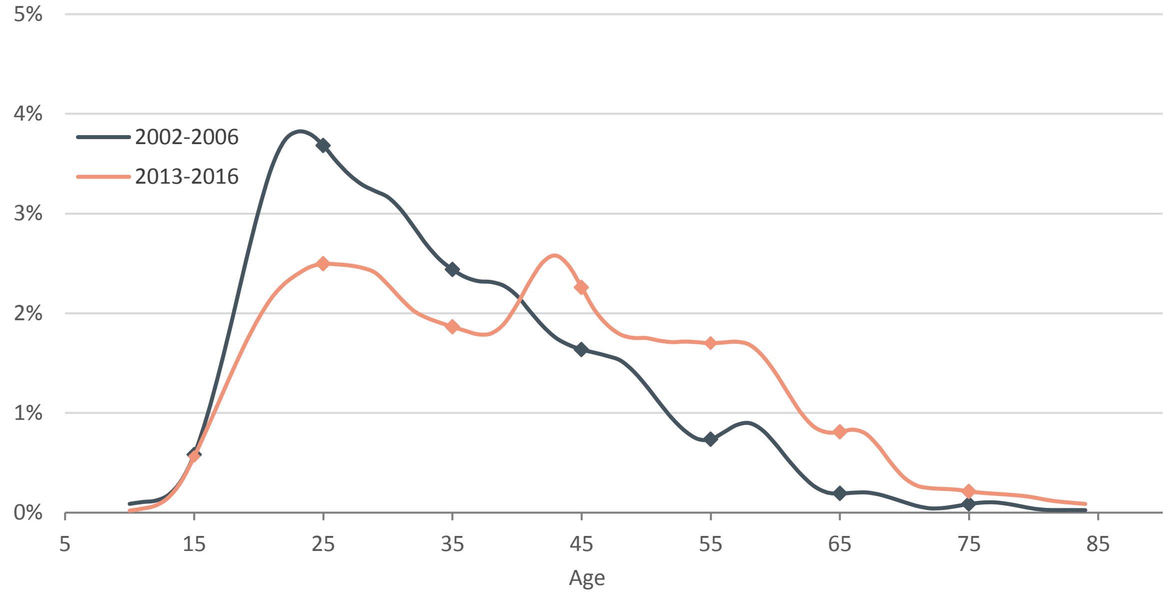
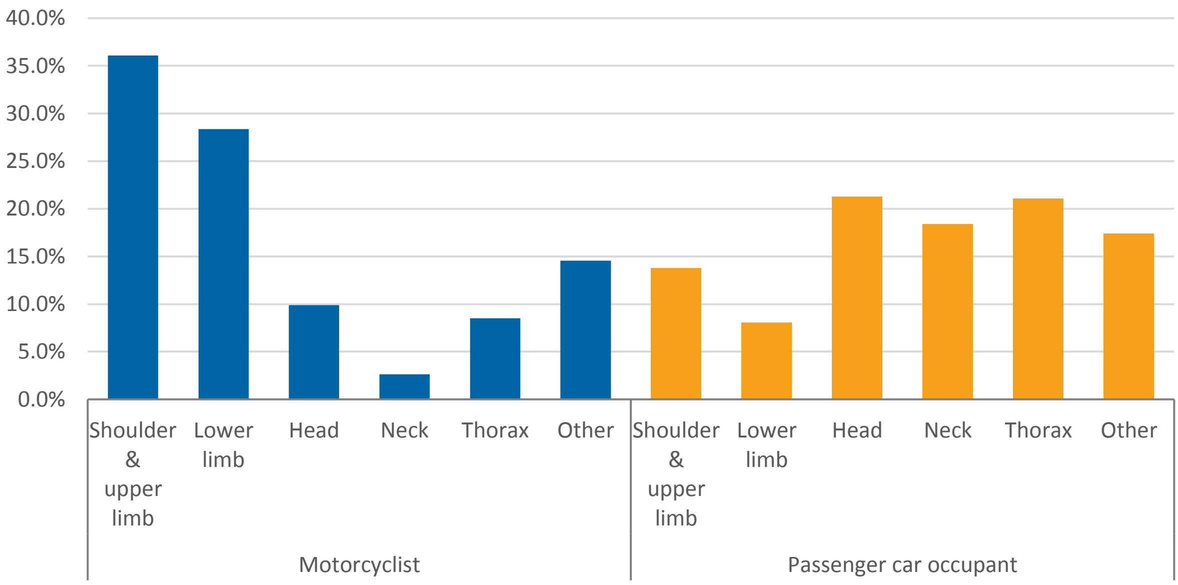


Figure 17 categorises injuries for motorcyclists and passenger car occupants by body region. This data excludes fatally injured road users. As shown, upper and lower limb injuries predominate for hospitalised motorcyclists. For in-depth research on injury profiles see Chen et al (2012) or Austroads (2015).

Figure 17 Hospitalised injury by road user group and body region injured, 2009–2013



Helmet wearing rates for killed motorcyclists are approximately 93 per cent. There are no significant differences between the individual jurisdictional rates.

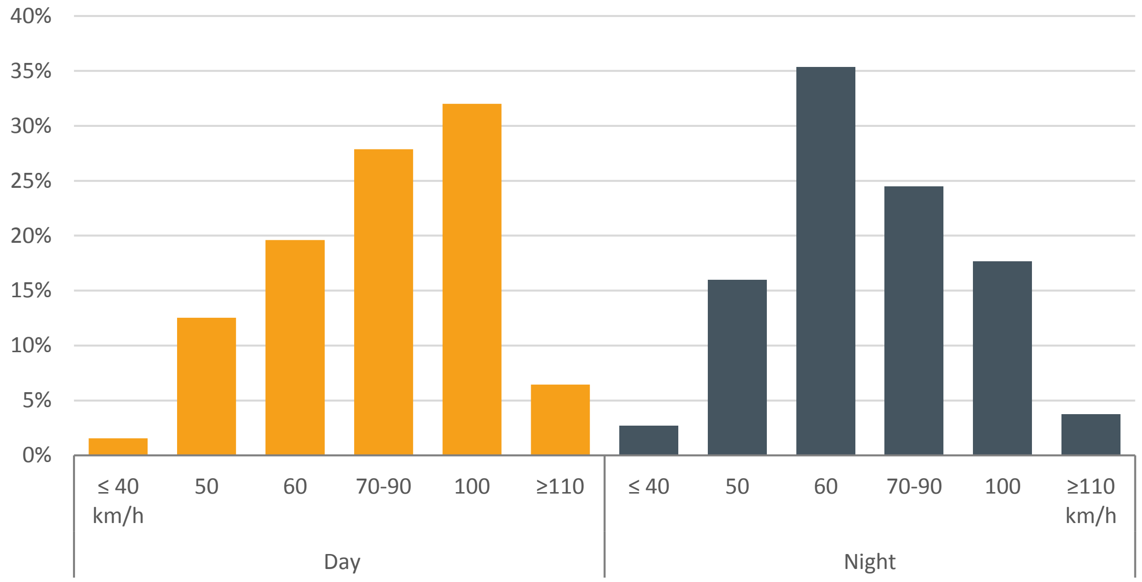
Almost three out of four (72 per cent) motorcycle rider fatalities had a valid licence, with only 12 per cent having an invalid licence. The status of the remaining 16 per cent is unknown. Single vehicle fatal motorcycle crashes had a slightly higher incidence of having an invalid licence.

Crash characteristics in Australia

This section examines characteristics of motorcycle crashes, using the latest of available crash data. The analysis includes the number of vehicles involved, location, posted speed limit, road type and crash type.

Figure 18 categorises crashes by posted speed limit and time of day. During the day, most fatal motorcycle crashes occur in higher speed zones. During the night, 60 km/h zones predominate.

Figure 18 Crashes involving a motorcyclist fatality by posted speed limit and time of day, 2012–2016



Note: ‘Day’ refers to 6am to 6pm. ‘Night’ is 6pm to 6am.

Figure 19 splits crashes by posted speed limit and location. Non-urban crashes are skewed towards higher speed zones with over half in 100 km/hour zones. In urban areas 60 km/h zones predominate although 50 km/h and 70-90 km/h zones are heavily represented.

Figure 19 Crashes involving a motorcyclist fatality by posted speed limit and urban/non-urban location, 2011–2015

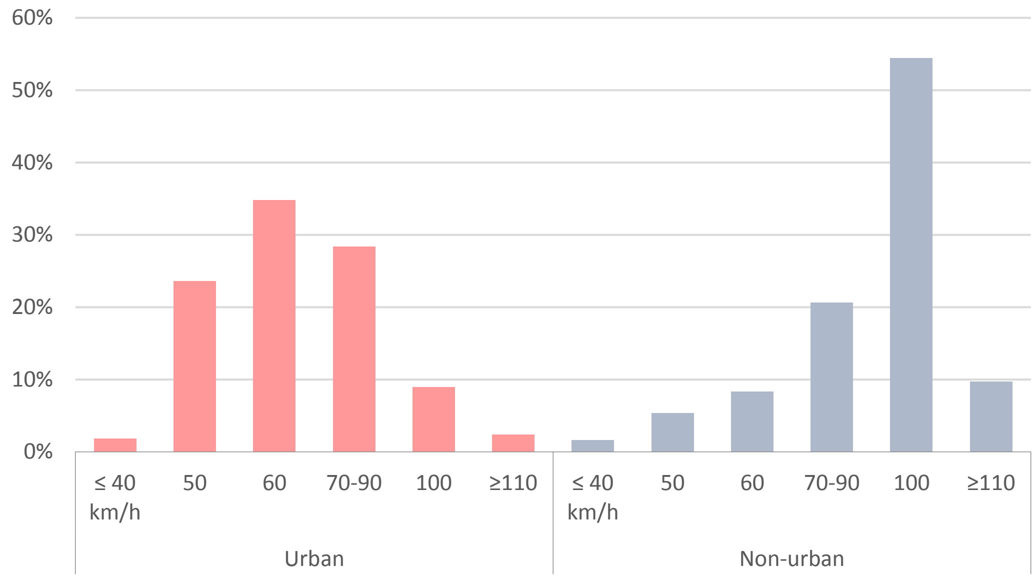
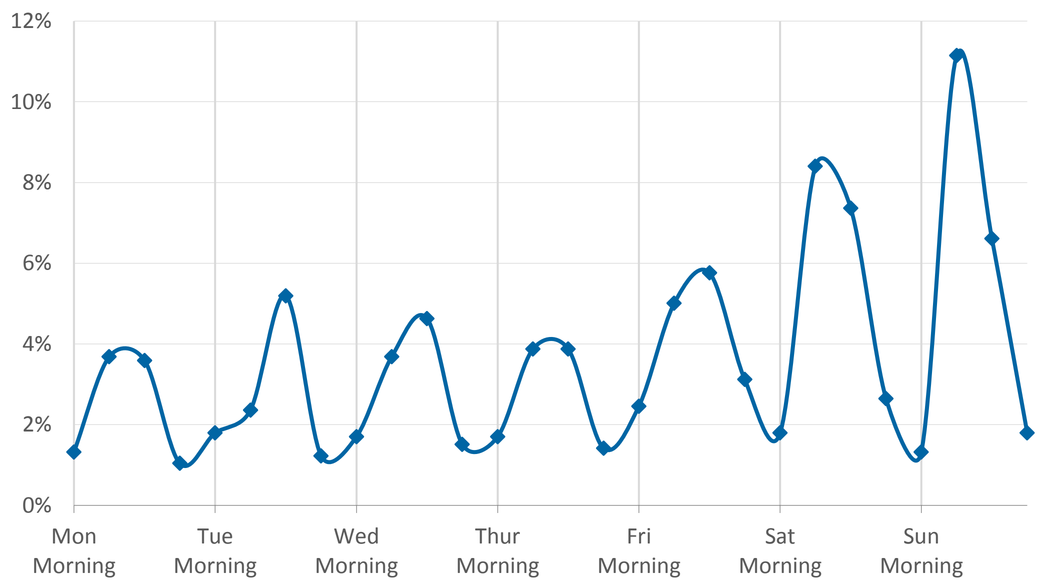


Figure 20 examines crashes involving a motorcyclist fatality by day of week and time of day and Figure 21 shows the weekly distribution of fatal crashes by urban/non-urban location.

Across the week there are peaks in the number of crashes in the day and evening periods.

Crashes are skewed towards the weekend, with one third of all fatal crashes between 9am Saturday and 9pm Sunday. This is particularly evident for non-urban crashes (Figure 21).

Figure 20 Crashes involving a motorcyclist fatality by weekly time block, 2012–2016



The horizontal axis is divided into seven days and further into six-hourly periods:
Morning 3am to 9am; Day 9am to 3pm; Evening 3pm to 9pm; Night 9pm to 3am

Figure 21 Urban and non-urban crashes involving a motorcyclist fatality by weekly time block, 2011–2015

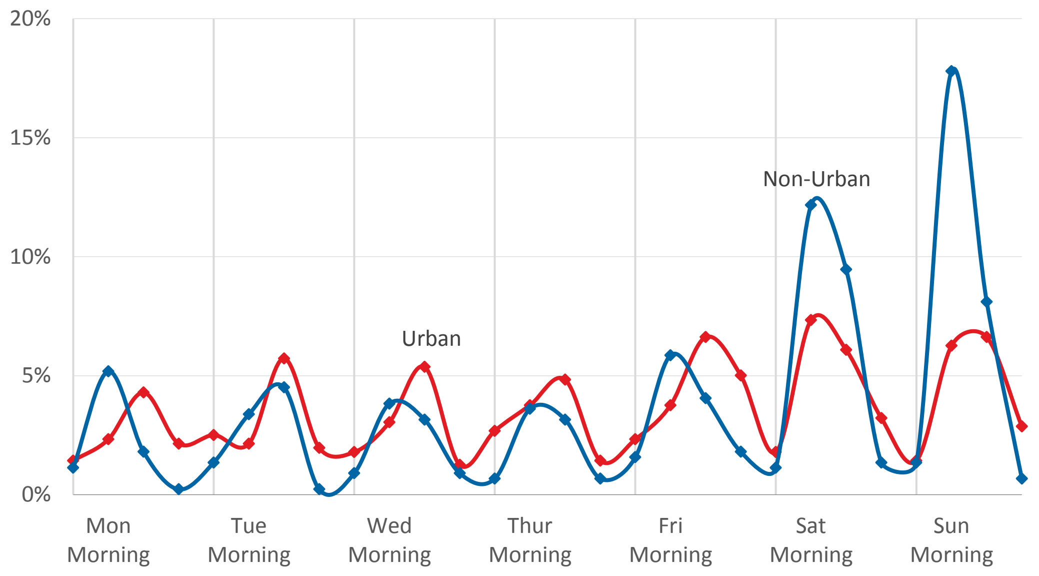


Figure 22 studies the number of vehicles involved in fatal crashes. Motorcycle crashes are compared to passenger car crashes. Half of all fatal motorcycle crashes involve another vehicle.

Figure 22 Numbers of vehicles involved: crashes involving a motorcyclist fatality and crashes involving passenger car occupant fatality, 2011–2015

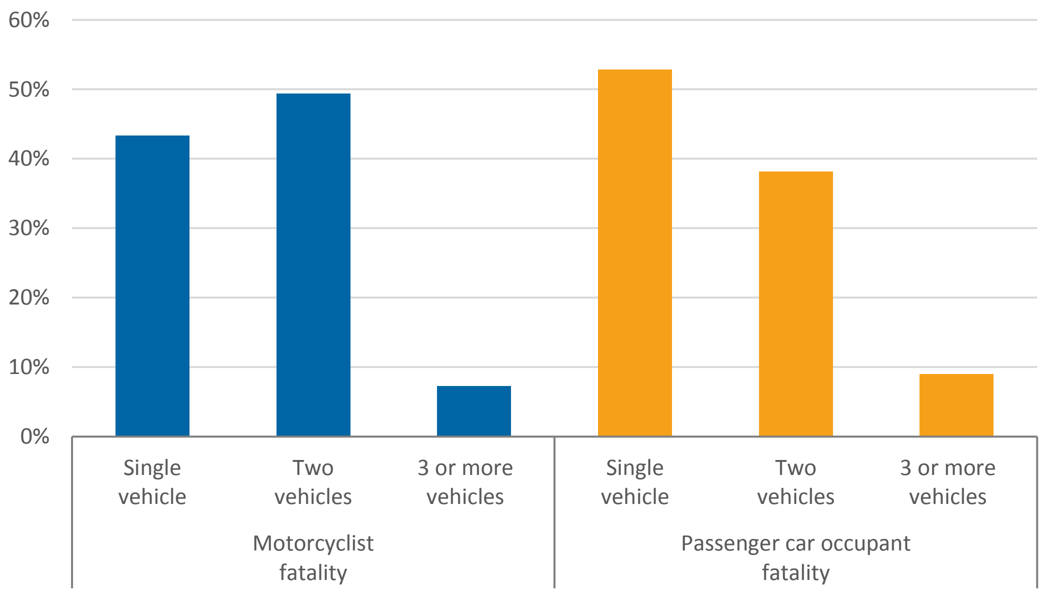


Figure 23 shows the major fatal crash type groups for crashes involving a motorcyclist fatality and Figure 24 categorises injury crashes. Crash types groups are based on the crash coding using either Definitions for Classifying Accidents/Definitions for Coding Accidents (DCA) or Road User Movement (RUM) (Austroads 2009).

Figure 23 Common crash type groups for crashes involving a motorcyclist fatality, 2013–2015

Single vehicle fatal crashes

Main Crash Type	Proportion	Sub-group		
Non-collision (Curve)	65%	 -Off Car/way at right bend	 -Off Car/way at left bend	 -Out of Control
Non-collision (Straight)	27%	 -Off Left	 -Out of Control	 -Off Right
On Path	4%	 -Object /Animal		
Other	4%	 -Out of Control		

Two vehicle fatal crashes

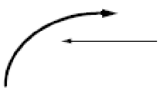
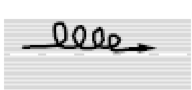
Main Crash Type	Proportion	Sub-group		
Opposing directions	39%	-Head on	 -Right thru	
Adjacent directions	19%	 -Right near	 -Cross traffic	
Same direction	12%	-Rear end	 -Side swipe	
Non-collision (Straight)	8%	 -Out of Control	 -Off Left	
Other	21%			

Figure 24 Common crash types groups for crashes involving a motorcyclist injury, 2013–2015

Single vehicle injury crashes

Main Crash Type	Proportion	Sub-group		
Non-collision (Straight)	47%	 -Out of Control	 -Off Left	 -Off Right
Non-collision (Curve)	39%	 -Out of Control	 - Off Car/way at right bend	 -Off Car/way at left bend
On Path	10%	 -Object /Animal		
Other	4%			

Two vehicle injury crashes

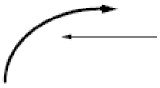
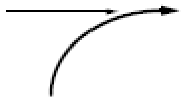
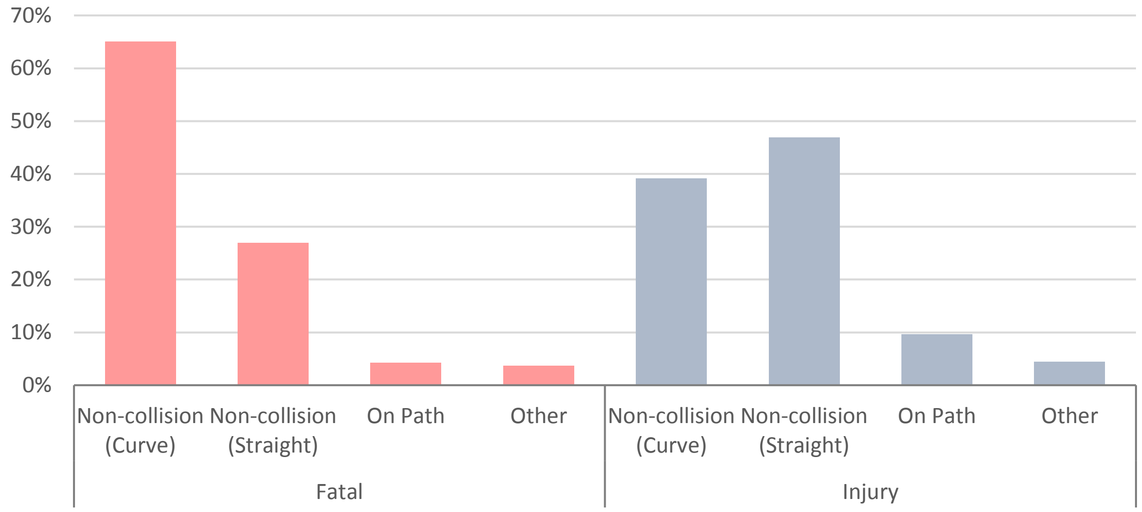
Main Crash Type	Proportion	Sub-group		
Same direction	33%	-Rear end	 -Side swipe	 -Turning side swipe
Opposing directions	22%	 -Right thru	-Head on	 -Right/Left
Adjacent directions	21%	 -Right near	 -Cross traffic	 -Right far
Non-collision (Straight)	6%	 -Out of Control	 -Off Left	 -Off Right
Other	19%			

Figure 25 shows DCA crash type for single vehicle crashes, comparing fatal crashes with injury crashes.

For both fatal and injury single vehicle crashes, 'non-collisions' comprise approximately 90 per cent of the total. Fatal crashes however are more likely to occur on a curve.

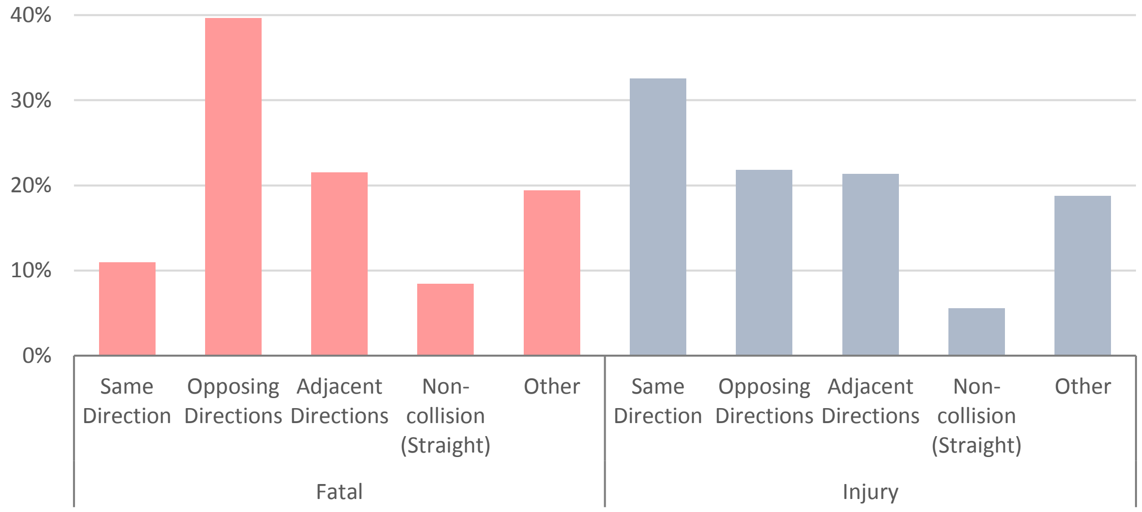
When there are two vehicles involved (Figure 26), vehicles in opposing directions comprise the bulk of fatal crashes. For injury crashes, 'same direction' crashes predominate.

Figure 25 Crash type for crashes involving a motorcyclist casualty: single vehicle crashes, 2013–2015



Note: Injury crash data excludes Queensland.

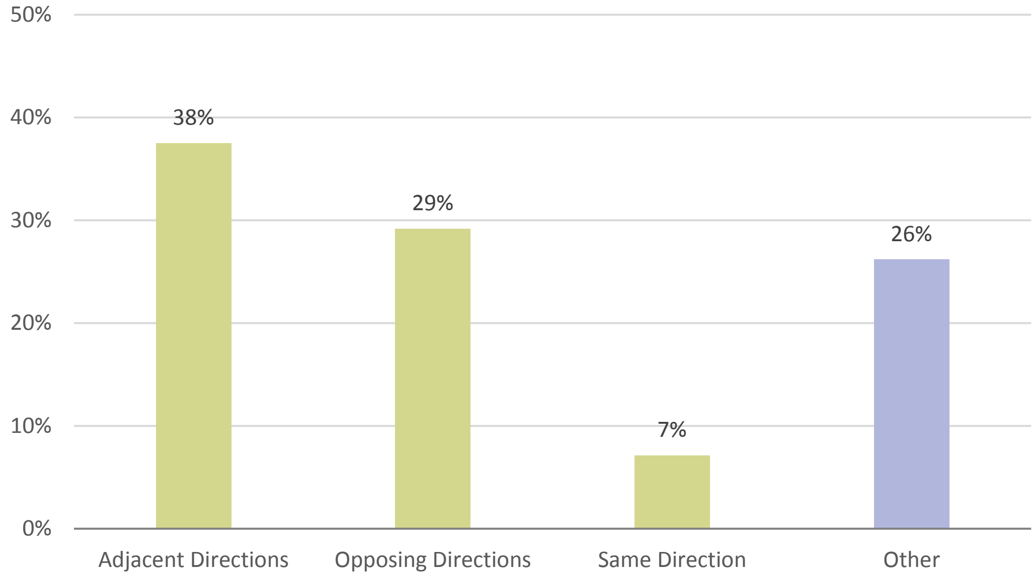
Figure 26 Crash type for crashes involving a motorcyclist casualty: two vehicle crashes, 2013–2015



Note: Injury crash data excludes Queensland.

Figure 27 shows that crashes involving a motorcyclist fatality at intersections are predominantly adjacent-direction and opposing-direction, with a minority coded as same direction crashes.

Figure 27 Crashes involving a motorcyclist fatality at intersections, 2013–2015



The final analyses provide a breakdown of fatal crashes by location and road type. Crashes are categorised by ABS Remoteness Area (ABS 2013b) into major city, regional (includes inner and outer regional areas) and remote (includes remote and very remote areas). The most recent four years are compared with the previous four years.

Figure 28 shows a slight shift in the location of crashes from major cities to regional and remote, which now account for a combined 59 per cent of crashes involving a motorcyclist fatality (up from 53 per cent in 2008–2011). Crashes in major cities comprise just over 40 per cent of the crashes involving a motorcyclist fatality (down from 47 per cent in 2008–2011).

Figure 28 Crashes involving a motorcyclist fatality by Remoteness Area 2008–2011 and 2012–2015

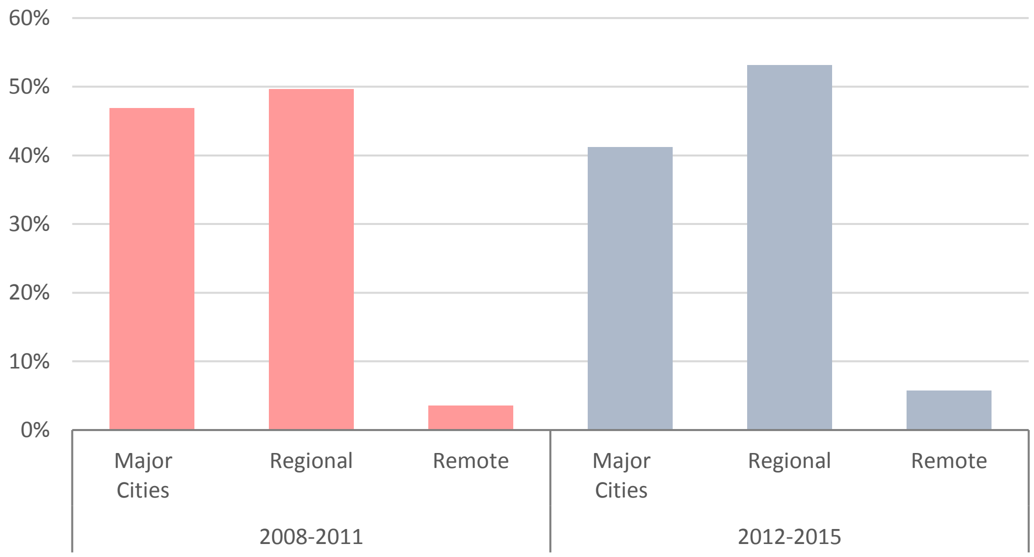
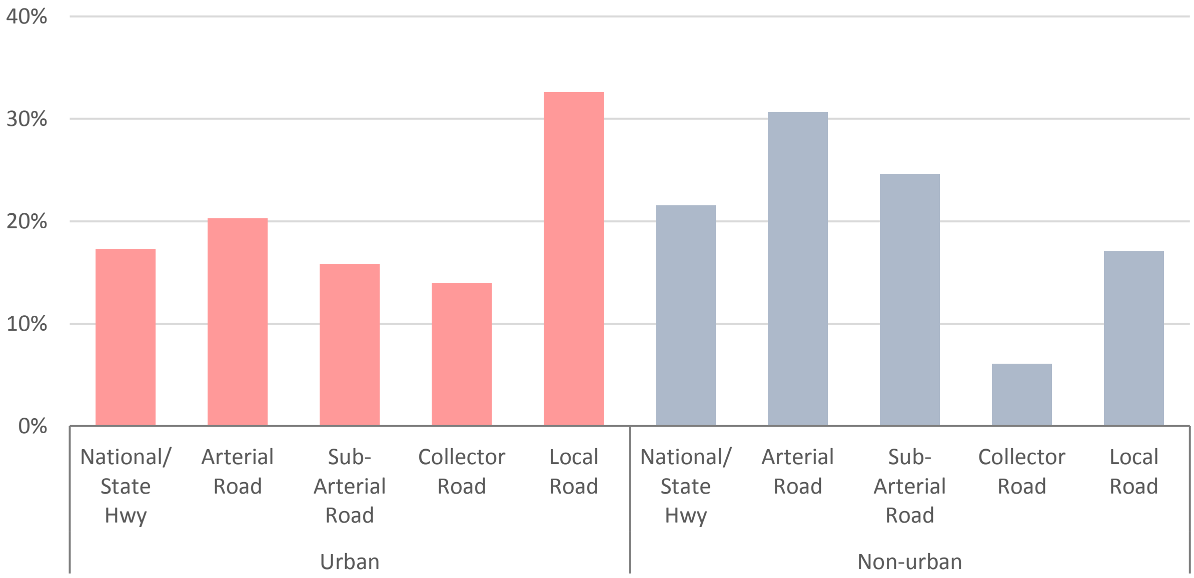


Figure 29 presents counts of fatal crashes, classified by urban/non-urban and by road type for the latest 5 years of data (PSMA 2015). Preliminary analysis showed little change over time in location and road type.

In urban areas more than 30 per cent of crashes involving a motorcyclist fatality are on local roads, whereas in non-urban areas arterial and sub-arterial roads predominate.

Figure 29 Road type by urban/non-urban location for crashes involving a motorcyclist fatality, 2011–2015



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Use of the Coat of Arms

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