

**BICYCLE  
NETWORK®**

# **Bike rider fatality report 1998-2017**

**Bicycle Network**

**March 2018**

*This report is dedicated to the 742 people who lost their lives riding a bike on Australian roads from 1998 to 2017.*

*We know your family and friends miss you every day. While we can't fix the tragic loss of your life, our aim in compiling this report is to try and prevent further loss.*



## 1. Executive Summary – every death is one too many

When a person riding a bike is killed on our roads, it often attracts significant attention. Beyond the immediate and devastating impact for loved ones, every death ripples throughout the entire bike riding community, striking at the core of why we ride.

At a quick glance, 2017 appeared to be one of the worst years in recent memory for bike rider fatalities. With news of every tragic death, bike riders from across Australia became more and more nervous, with many [Bicycle Network](#) members expressing concern.

As a result, Bicycle Network has taken a closer look at the available national data and trends over the last 20 years to help us paint a clearer picture on whether fatalities for people riding bikes on our roads are increasing.

Here are our six key findings:

1. The total number of bike rider deaths in 2017 was only slightly above the annual average of fatalities – 38 deaths in 2017 against the 20-year average of 37 deaths;
2. Virtually no progress has been made in reducing bike rider fatalities over the last 20 years, while total fatalities among other road user groups has been declining;
3. People riding bikes are killed in crashes with other motor vehicles (83%), with trucks and buses posing a significant risk (24%);
4. The higher the speed, the more likely the crash will be fatal, with 95.2% of bike rider fatalities happening in speed zones of 50km/h or more;
5. Middle aged men are the most likely group to be killed while riding a bike;
6. More bike rider fatalities occur during peak hour in warmer months

While we acknowledge that there are some limitations in the data, one thing is clear – not enough is being done to reduce fatalities for people who ride bikes on our roads.

Based on the safe systems approach to improving road safety, Bicycle Network is recommending 12 key actions, many of which are consistent with or complement the [National Road Safety Strategy 2011-2020](#) goals of reducing Australia's annual number of road deaths and serious injuries by at least 30 per cent.

These actions are summarised on page 21 of this report and include improving the road environment, lowering speed limits, introducing supportive policies and laws, mandatory equipment for heavy vehicles, additional training for heavy vehicle drivers and a behaviour change program to increase bike riding participation.

Every person that dies while riding a bike is one too many. We believe that the findings and recommendations contained in this report will help Australia reach a time when everyone comes home from a bike ride.



## 2. 20 years of bike riding fatality data

In January and February 2018, Bicycle Network analysed national data from the Australian Road Deaths Database published by the [Bureau of Infrastructure, Transport and Regional Economics \(BITRE\)](http://www.bitre.gov.au) (www.bitre.gov.au) which includes information on all on-road bike rider fatalities from 1998 to 2017. [1]

The data included information on when the fatal crash happened, which state or territory the crash occurred, the speed limit of the road, whether the crash involved another vehicle and if that vehicle was a truck or bus. Age and sex information of the bike rider is also given.

There were 742 bike rider fatalities between 1998 and 2017. This is an average of 37 per year.

The data does not give any indication of where the specific crash occurred, who may have been at fault or what caused the incident leading to the bike rider's death.

- **Recommendation 1:** that BITRE data be expanded to include details of the cause of the crash to help decision makers specifically address problem areas.

### 3. No change in the number of bike rider fatalities

#### 3.1 The number of bike rider fatalities has been the same for 20 years

While the total number of bike rider deaths in Australia fluctuates each year, there's no evidence to suggest a total reduction in fatalities for people who ride over the past 20 years.

2013 was the worst year in the past two decades for bike rider fatalities when 50 people riding bikes on our roads lost their lives. 2003 was the year with the least total number of bike rider fatalities, when there were 26 deaths.

In 2017, 38 bike riders were killed on our roads. This is one death more than the 20-year annual average of 37 deaths. However, after consistent years of below average bike rider deaths in 2015 and 2016, a return to the 20-year average is extremely concerning and upsetting.

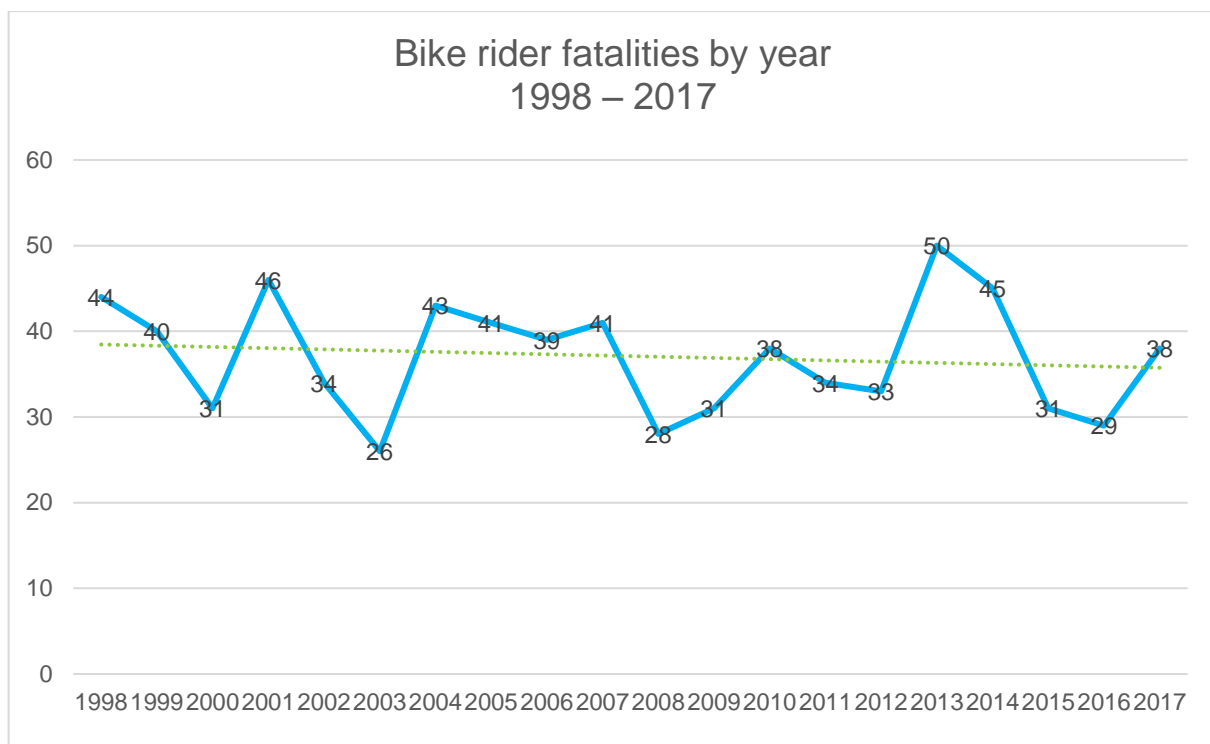


Fig 1: Bike rider fatalities in Australia 1998 – 2017 with trend line. [1]

#### 3.2 Other road user fatalities are decreasing

The total number of all road user fatalities in the same 20-year period has been trending down.

The highest number was in 2000, when 1,817 people lost their lives on our roads and the lowest was 2014 when 1,150 fatalities occurred.



The average number of fatalities over the last five years was 1,213 deaths, which is significantly lower than 20-year average of 1,487, despite an increase in road deaths over 2015 and 2016.

When comparing overall road-user fatality numbers to bike rider fatality numbers, it's clear that improvements assisting other road users have been much more effective than those assisting bike riders. However, these stats do not account for growth in motor vehicle usage when compared with bike riding participation figures.

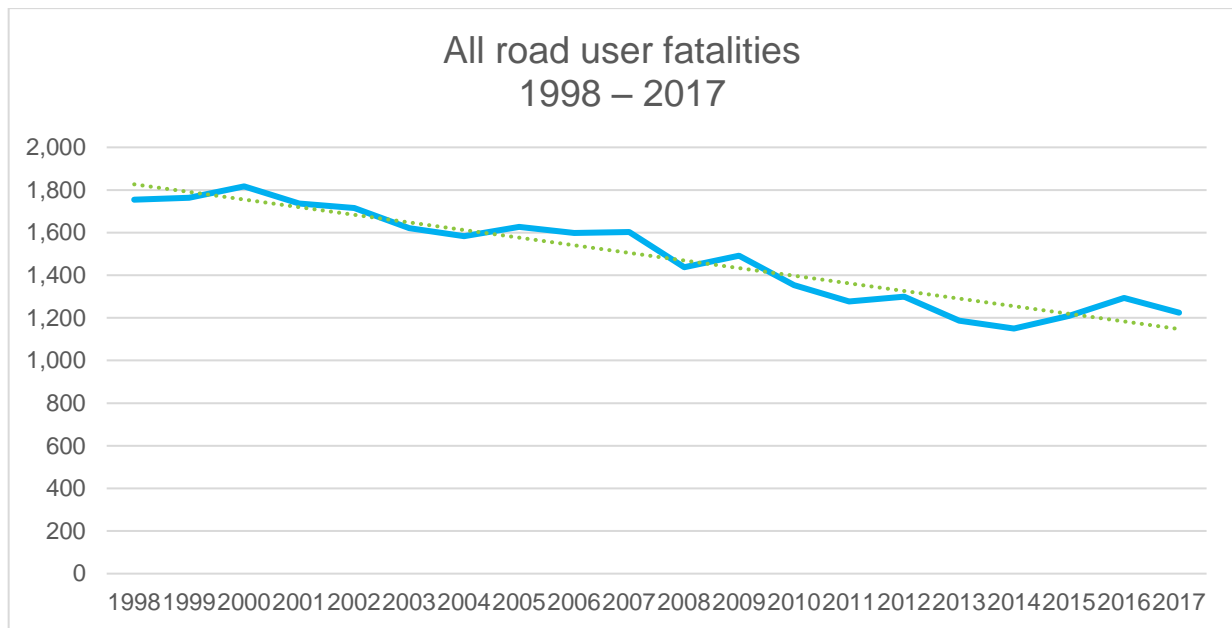


Fig 2: All road-user fatalities in Australia 1998 – 2017 with trend line. [2]

- **Recommendation 2: Conduct an urgent inquiry into why road safety fatality measures have been less successful for people riding bikes.**

### 3.3 There is limited information on the number of bike riders

While conjecture and available cycling participation data suggests there's been an increase in numbers since 1998, there is no clear or comparable data to show the total number of people riding bikes each year.

National Cycling Participation Survey data was collected biennially from 2011 to 2017. This data shows fluctuating bike rider numbers. The survey was established to track the National Cycling Strategy to double cycling participation between 2011 and 2016. [3]

Year	Weekly bike riders
2011	4,000,000
2013	3,600,000
2015	4,000,000
2017	3,740,000

Fig 3: Number of weekly bike riders in Australia. [3]



Bike commuter numbers are also captured through Census data which records journeys to work.

Year	Journey to work by bicycle
2006	90,117
2011	103,913
2016	107,756

Fig 4: Census Journey to Work data (JTW) [4]

However, the ABS flags limitations in its own journey to work (JTW) data beyond 2001, stating that “The JTW Study Areas and Destination Zones have been redefined for each Census to take into account changes and growth in the States and Territories. Consequently, JTW data are not comparable across Censuses.” [4]

Over the past 10 years, Bicycle Network has also collected its own data to help specific councils track rider numbers and movements through its Super Tuesday Bike Count.

If all levels of governments are truly committed to reducing fatalities and serious injuries for people riding bikes, we need an ongoing and centralised measure to track participation year on year.

A centralised and ongoing measure of cycling participation would allow governments to appropriately assess whether fatality numbers are increasing or decreasing as a proportion of total bike riding numbers.

- **Recommendation 3: The Federal Government to commission the ABS or an appropriate private operator to report on the number of people riding bikes at least every two years.**

## 4. Heavy vehicle fatalities are starting to decline

### 4.1 83% of bike rider fatalities involve another vehicle

Of the 742 bike rider fatalities between 1998 and 2017, 83% involved another vehicle while only 17% involved the bike rider alone.

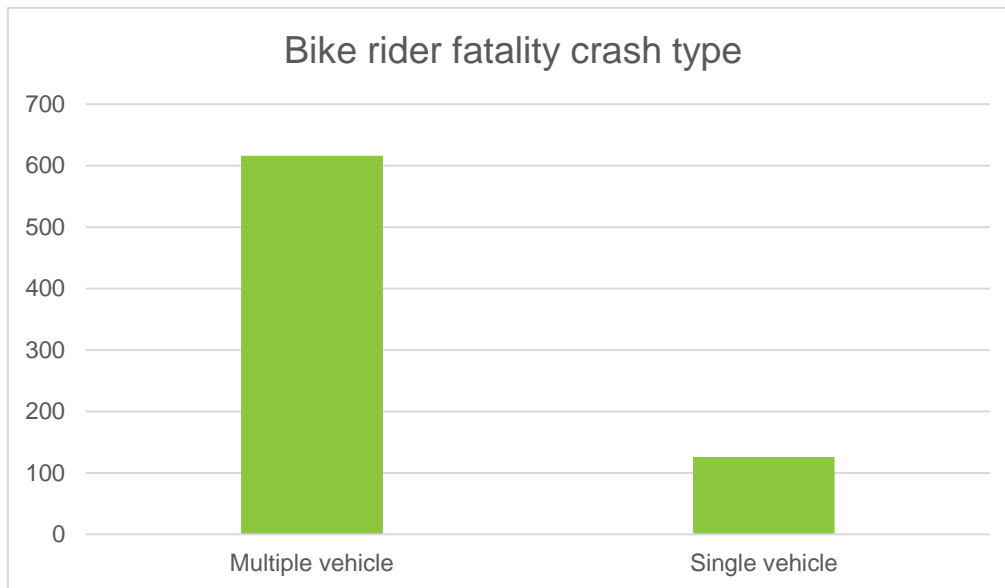


Fig 5: Breakdown of bike rider fatalities by number of vehicles involved in crashes between 1998 and 2017. [1]

- **Recommendation 4:** Prioritise investment to accelerate the construction of separated, protected bike lanes on all roads with high numbers of people riding bikes, consistent with a Safe Systems approach.
- **Recommendation 5:** Introduce a package of uniform laws throughout Australia supporting bike riders including reverse onus of proof (drivers must prove they weren't at fault) and minimum passing distance laws.

## 4.2 Bike rider fatalities involving trucks and buses are declining

While data on all types of other vehicles involved in bike rider fatalities is not available, it is noted if a heavy vehicle such as a rigid truck, articulated truck or a bus is involved in an incident.

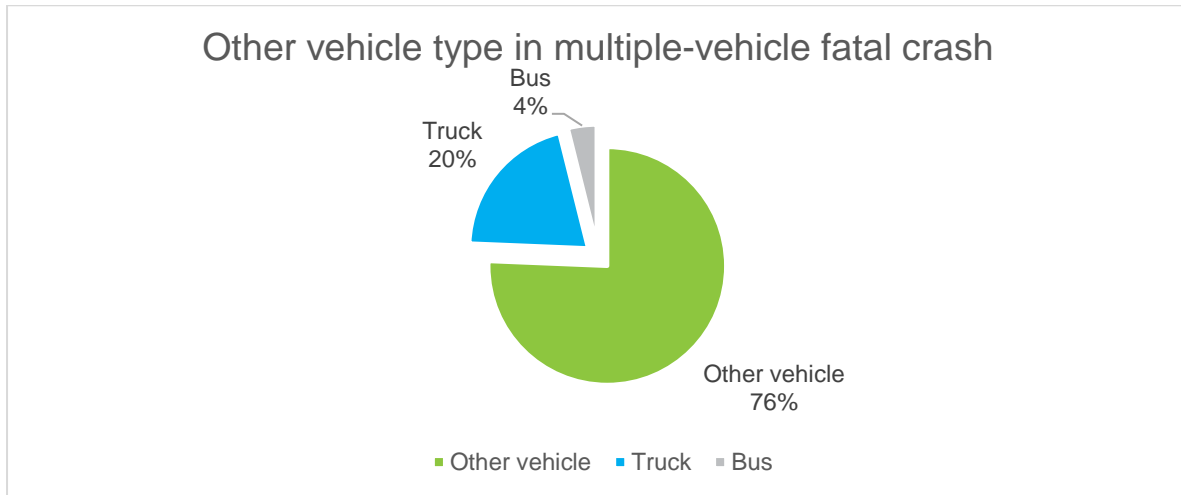


Fig 6: Type of other vehicle involved in multiple-vehicle fatal crash between 1998 and 2017. [1]

These fatality statistics mirror the mode share of motor vehicles on our roads. According to the Census, there are 18.8 million registered motor vehicles in Australia. [4] While passenger vehicles made up 75.4% of total vehicles, 19.5% are freight vehicles (light commercial vehicles, rigid trucks and articulated trucks). The remaining 5.1% comprises of buses, motorcycles and freight carrying trucks. [6]

At the same time, the number of buses and trucks involved in multiple vehicle fatalities is also declining. Over 20 years, on average, heavy vehicles were involved in 20% of total multiple vehicle crashes that resulted in a bike rider fatality. As of 2017, trucks (articulated and rigid) and buses only made up 11% of crashes resulting in bike rider fatalities.

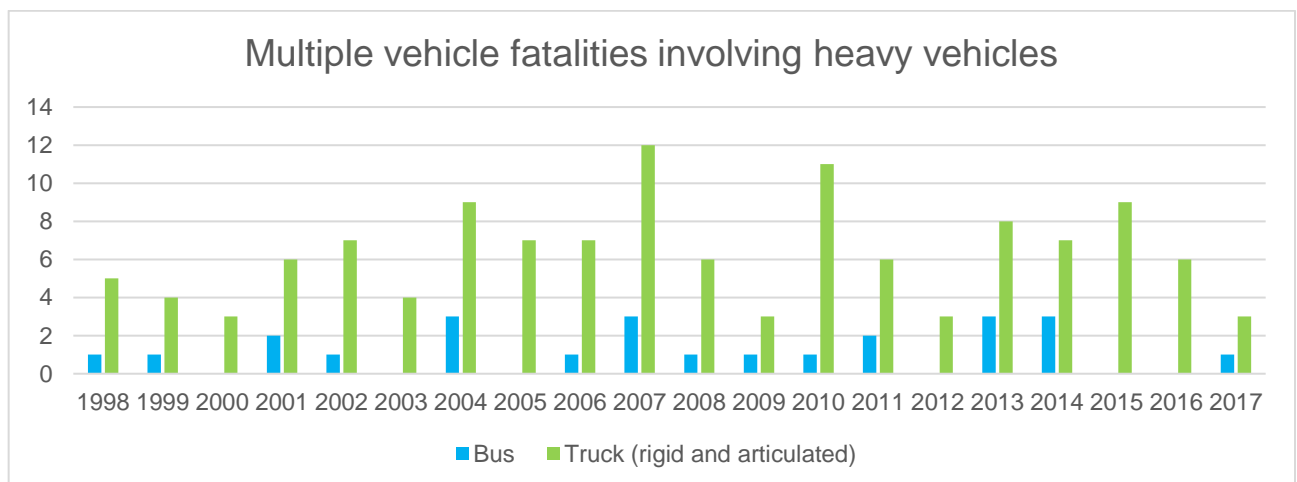


Fig 7: Multiple vehicle crashes causing bike rider fatalities involving a truck or a bus between 1998 and 2017. [1]





It's important to recognise that while bike rider fatalities involving trucks and buses have been trending downwards over the past five years, left-turning heavy vehicles still pose a significant risk to vulnerable road users, particularly on suburban streets.

In recognising the risk of left turning trucks and buses, mitigation measures have now been mandated across Europe such as side under-run protection rails, blind spot detection mirrors and low driver cabs.

Bicycle Network recognises the efforts of some governments and the private sector in upgrading truck fleets, along with upskilling drivers to reduce the risks of trucks to vulnerable road users.

The Melbourne Metro Rail Authority (MMRA) continues to work on the development of world's best safety practices, design standards, compliance and systems for their trucks to keep biker riders and pedestrians out of harm's way.

However, the Federal Government appears reluctant to mandate proven truck safety measures.

- **Recommendation 6: Introduce mandatory equipment and design standards on all new trucks from 1 July 2018 and all trucks from 1 July 2025 that include:**
  - **blind spot reduction designs including lowering the driver cab, more windows and mirrors and reconfiguring passenger and driver doors**
  - **driver assist technology that takes out human error such as left-turn warning systems, brake assist and lane-keep should also be prioritised for all motor vehicles, not just trucks**
  - **side under-run protection rails.**
- **Recommendation 7: Vulnerable road user training be provided for all drivers of heavy vehicles.**

*Nb: BITRE notes that information for heavy rigid truck involvement in crashes earlier than 2004 is incomplete.*

## 5. The higher the speed, the more likely a crash will be fatal

95.2% of bike rider fatalities occur in streets with speed limits of 50km/h or above. This includes:

- 54.6% of bike rider fatalities in streets with speed limits between 50km/h and 75km/h
- 25.1% of bike rider fatalities in streets with speed limits above 100km/h.

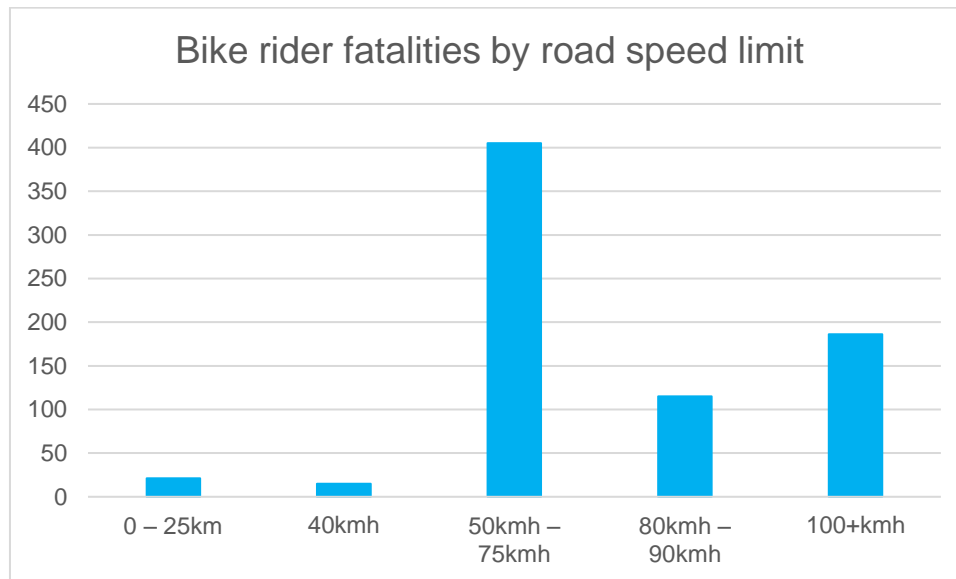


Fig 8: Bike rider fatalities in Australia by speed limit between 1998 and 2017. [1]

While it is rational to conclude that the reason more bike rider fatalities occur on roads with 50km/h+ speed limits is because it reflects the average speed on our roads, we clearly need to do more to reduce the risk. Further, the over-representation of fatalities in high-speed, 100km/h zones is a significant concern.

Speed is a critical factor in crashes and it is well accepted that vehicle speeds affect both the risk and severity of a crash. [7] The chance of a person riding a bike surviving a crash increases substantially when vehicle speeds are slower.

Reducing the average travel speeds across road networks along with separated infrastructure are some of the most effective and swift ways to reduce road trauma.

- **Recommendation 8:** Make a rideable shoulder (including a buffer and clearance to the barrier) compulsory on high-speed roads of 80km/h+.
- **Recommendation 9:** Accelerate the introduction of speed limits as low as 30km/h in high density and built up urban areas.

## 6. No state or territory is preventing bike rider fatalities

A state-by-state analysis of bike rider fatalities doesn't clearly show whether one state or territory is worse off than another.

In summary:

- NSW has the highest number of fatalities with an average of 10.1 per year, but has a downward trend over the 20-year period
- 2017 was a terrible year for Victoria with 12 bike rider deaths against the national average of 8.7
- Queensland and South Australia both account for a higher proportion of total bike rider fatalities than they do population
- Western Australia has an upward trend in bike rider fatality figures

### 6.1 There are more bike rider fatalities in New South Wales than anywhere else

New South Wales recorded more bike rider fatalities than any other state, with a total of 203 from 1998 to 2017. Victoria and Queensland were the next two states with the most bike rider fatalities with 173 and 167 respectively.

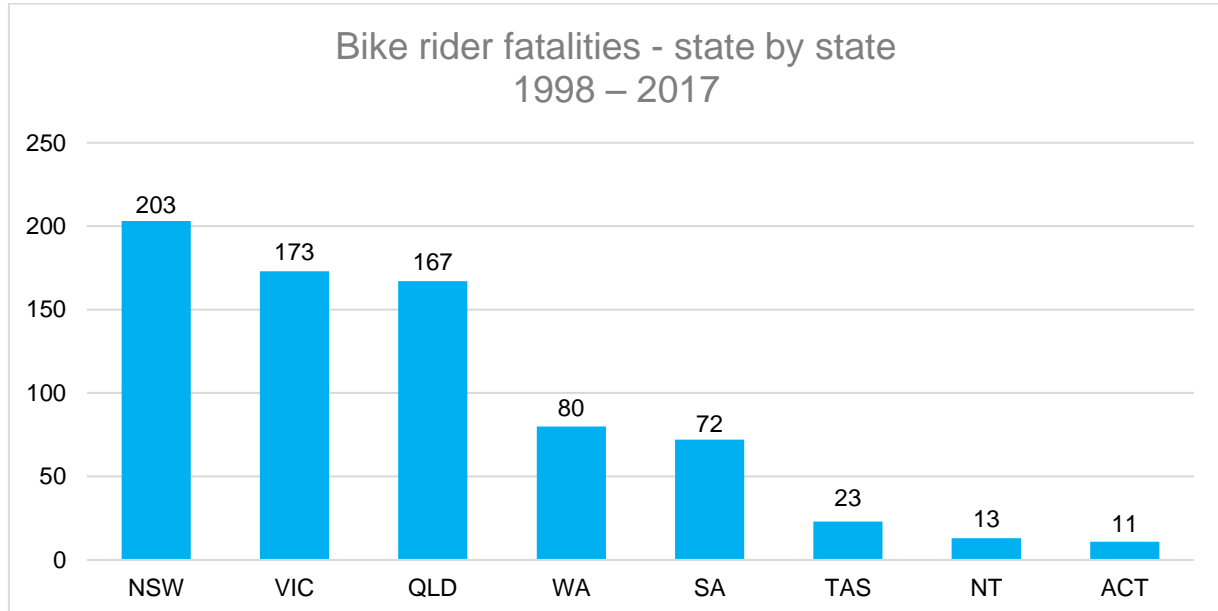


Fig 9: Number of bike rider fatalities in each Australian state. [1]

However, when we compare the percentage of bike rider fatalities in each state with the percentage of the Australian population in each state, the proportion of fatalities compared to the proportion of population is greater in Queensland and South Australia.

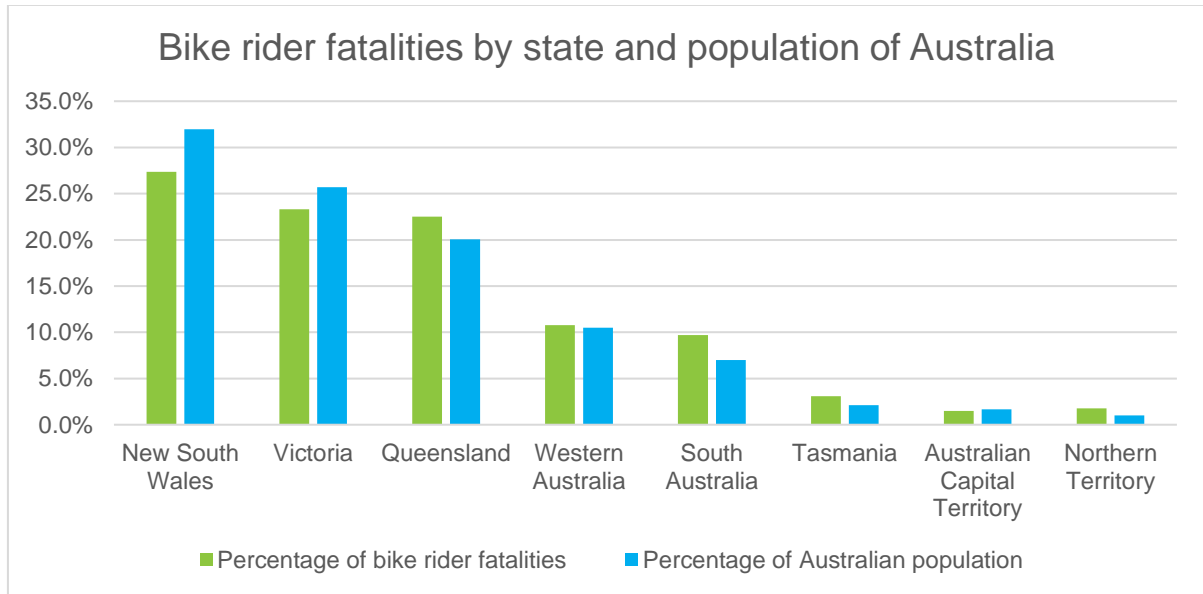


Fig 10: Percentage of bike rider fatalities in each Australian state compared with percentage of Australian population that lives in each state.

## 6.2 Bike rider fatalities are falling in NSW but increasing in WA

For most states and territories, there is no significant change in the trend of annual bike rider fatalities over 20 years. However, the following graphs show a slightly declining trend in NSW and an increasing trend in WA.

The following graphs of bike rider fatalities by state and territory should be treated with caution given the figures for some are low, specifically the ACT, NT and Tasmania.

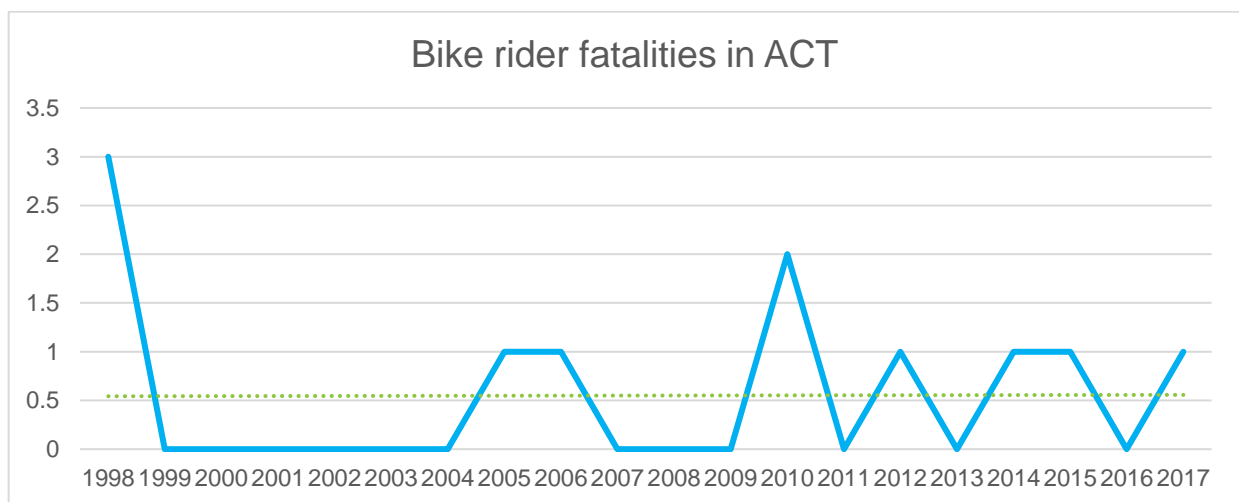
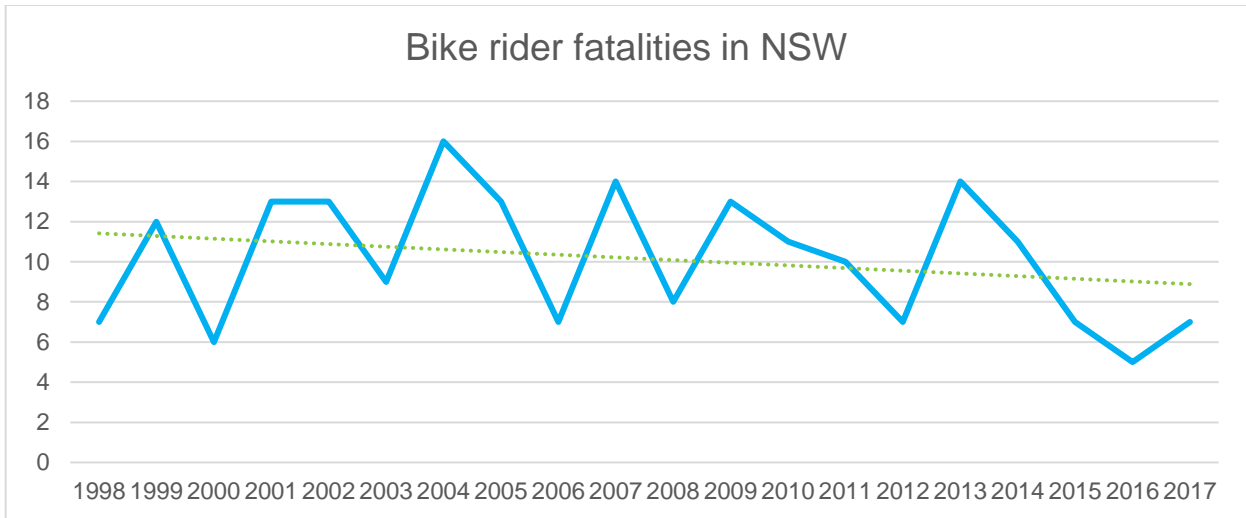
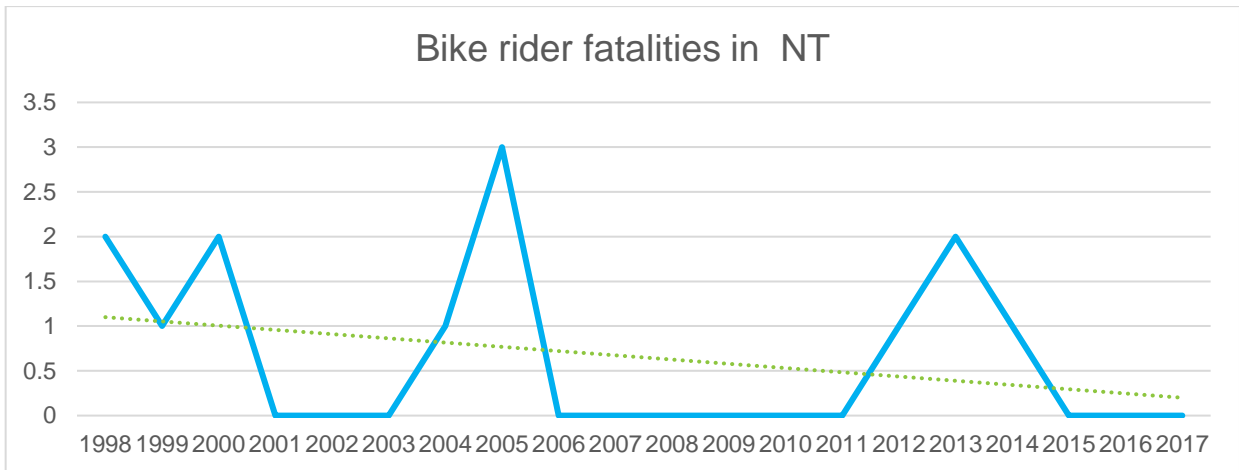


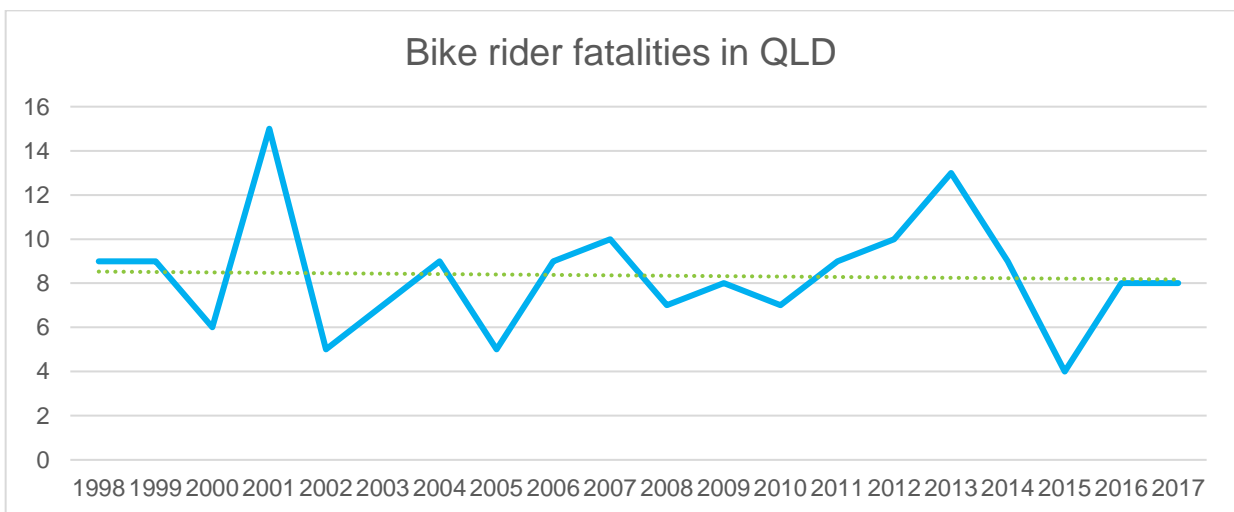
Fig 11: Annual bike rider fatalities in the Australian Capital Territory with trend line.



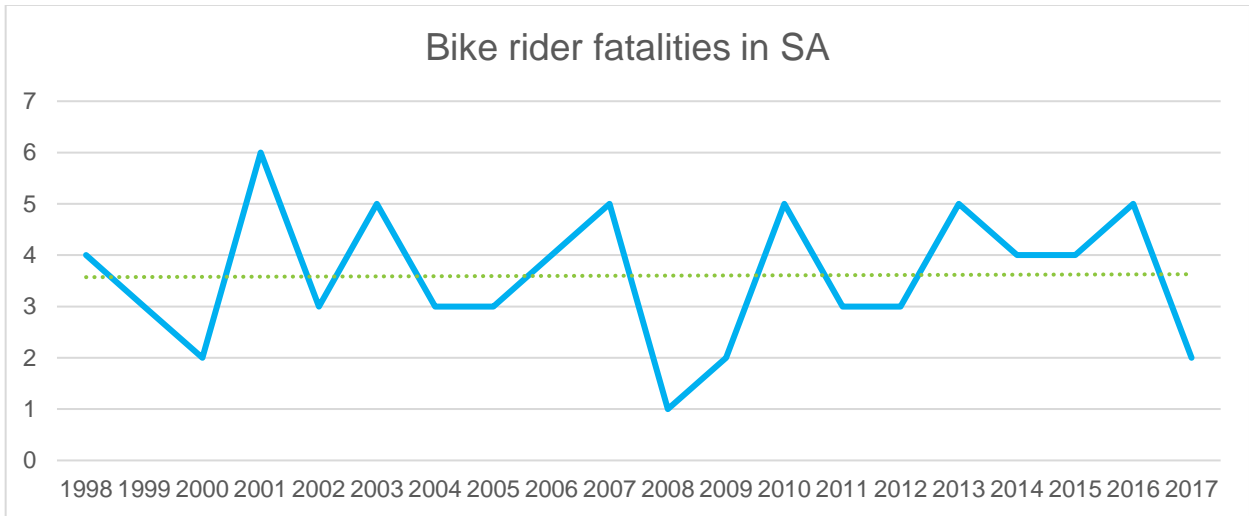
*Fig 12: Annual bike rider fatalities in New South Wales with trend line.*



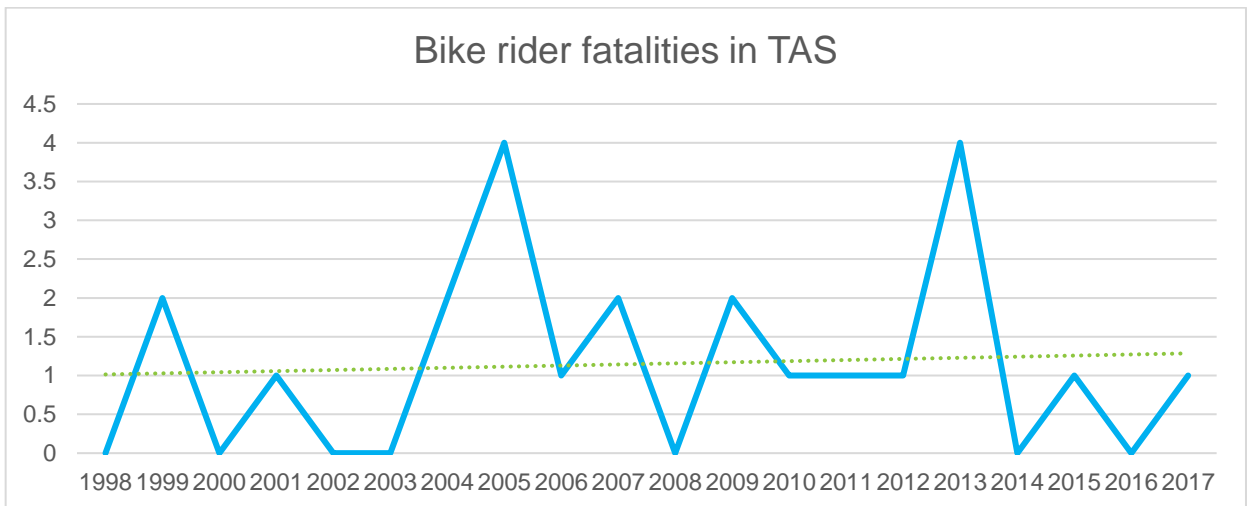
*Fig 13: Annual bike rider fatalities in the Northern Territory with trend line.*



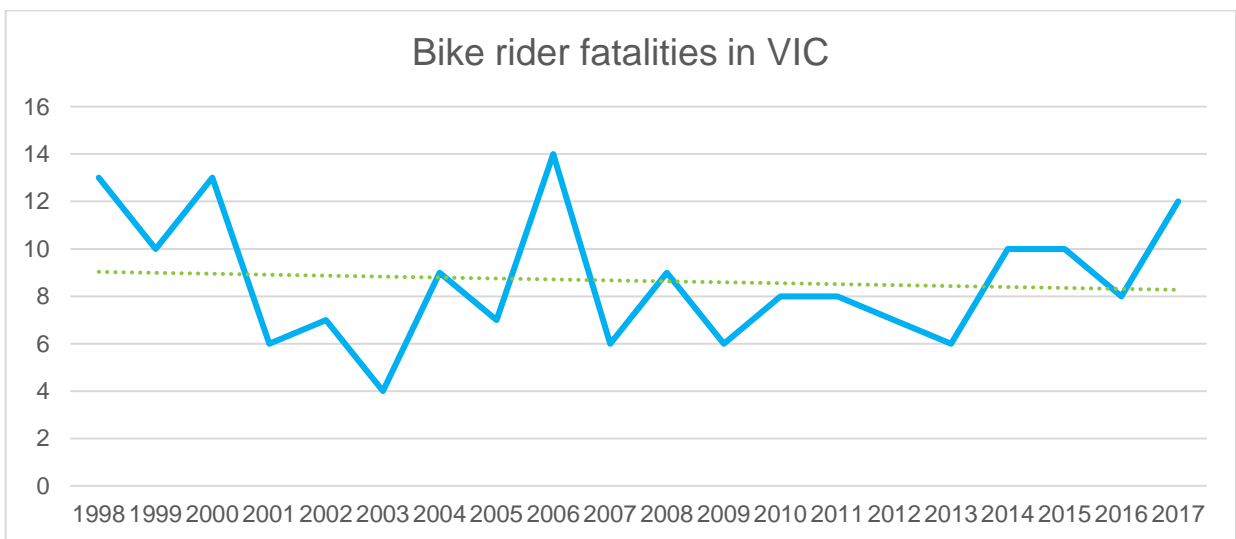
*Fig 14: Annual bike rider fatalities in Queensland with trend line.*



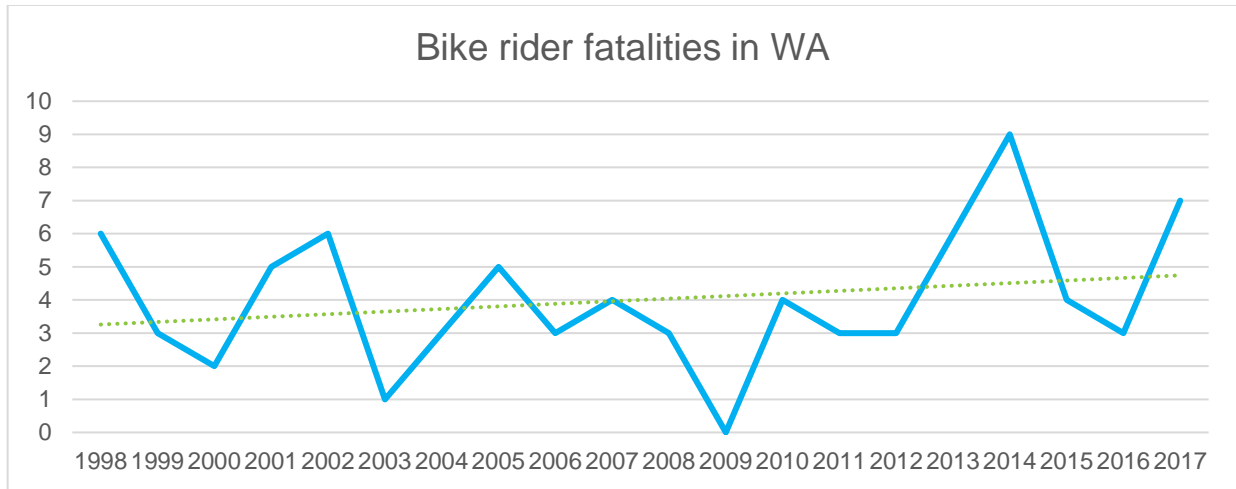
*Fig 15: Annual bike rider fatalities in South Australia with trend line*



*Fig 16: Annual bike rider fatalities in Tasmania with trend line*



*Fig 17: Annual bike rider fatalities in Victoria with trend line*



*Fig 18: Annual bike rider fatalities in Western Australia with trend line*

## 7. Middle aged men are most likely to be involved in a bike fatality

### 7.1 Most bike riders involved in fatalities are male

86.7% of all bike riders who have died since 1998 are males.

When breaking the data into five-year clusters it shows that there has been no change in the percentage of males and females involved in bike rider fatalities. While there is no truly accurate data on how many males and females are riding, it is well regarded that overall, fewer females ride bikes in Australia than males, particularly in areas such as high-speed zones.



Fig 19: Bike rider fatalities by sex in Australia 1989 – 2017. [1]

### 7.2 Most bike riders involved in fatalities are middle aged

Middle aged bike riders are most likely to be involved in a fatality, with 44.5% of bike riders involved in fatalities aged between 30 years old and 59 years old.

More specifically, the age group with the most fatalities was 40 to 49 years old who represented 16.5% of total bike riding fatalities.



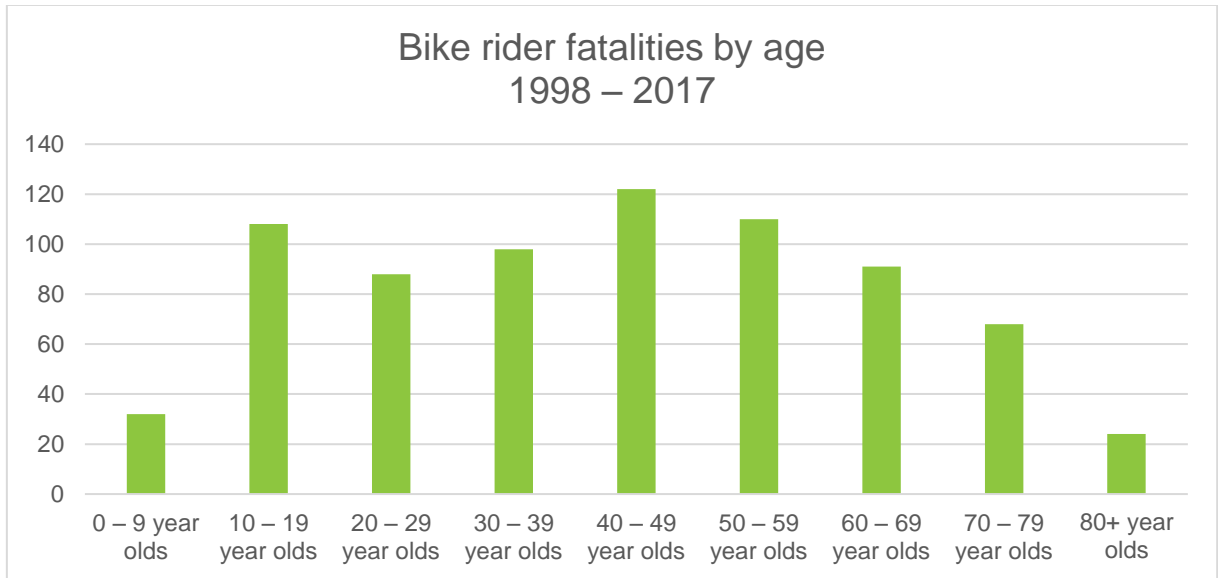


Fig 20: Bike rider fatalities by age in Australia 1998 – 2017. [1]

When looking at overall data between 1998 and 2017, it appears that those aged 10 – 19 are highly represented, however, this is skewed by a large amount of fatalities in the 1990s. Since then, the number of fatalities of bike riders aged 10 – 19 has fallen significantly.

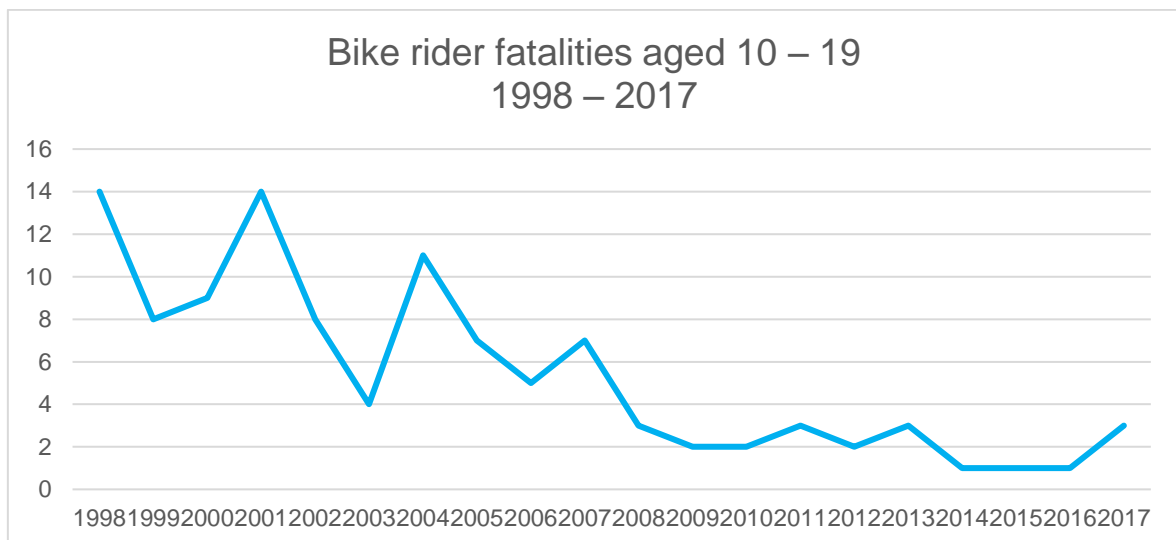


Fig 21: Bike rider fatalities aged between 10 and 19 years old from 1998 to 2017. [1]

Nb: one bike rider fatality from 2002 was listed with an unknown age.

- **Recommendation 10:** Introduce a ‘how to reduce your risks while riding’ program targeted at middle aged men.
- **Recommendation 11:** Legalise footpath riding in Victoria and New South Wales.

## 8. Most fatal crashes happen in peak hour

Crashes resulting in the death of a person riding a bike are most likely to occur during peak hour in warmer months.

### 8.1 Peak hour is the most common time of day

Peak traffic times saw more bike rider fatalities than other times when both bicycle and vehicle traffic volumes are their highest. The four-hour afternoon peak saw slightly more bike rider fatalities than the four-hour morning peak, with 226 recorded between 3:00pm and 7:00pm and 216 recorded between 6:00am and 10:00am.

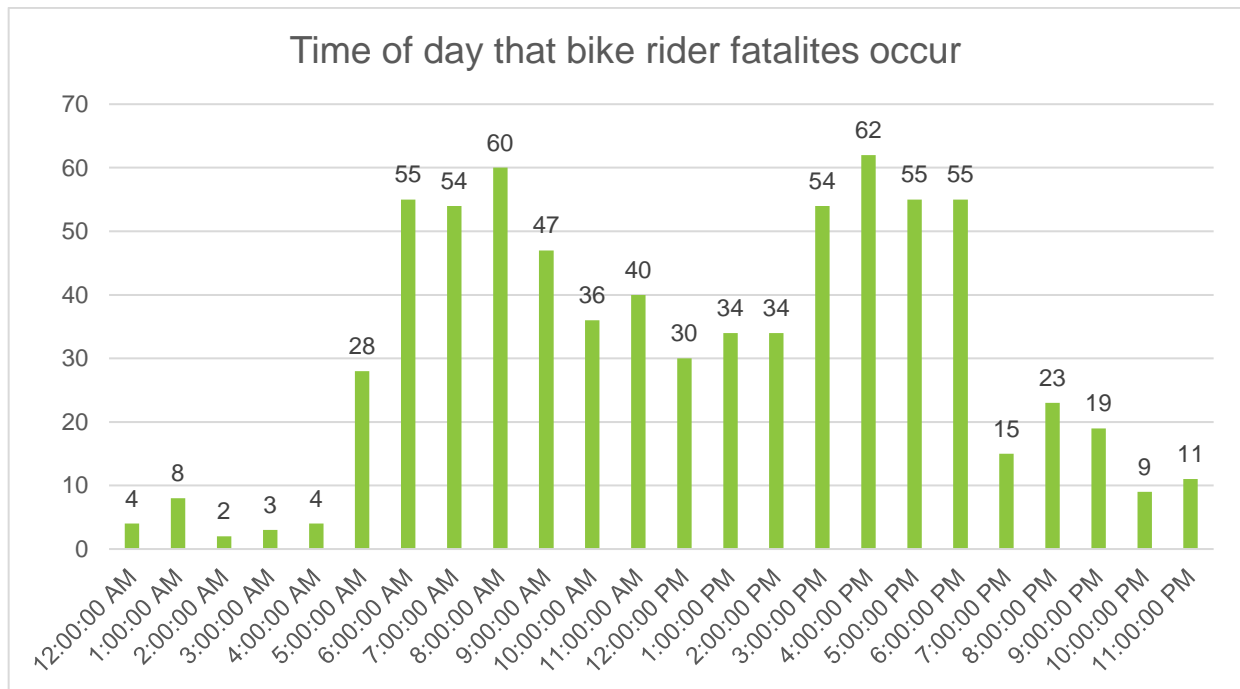


Fig 22: Time of day that bike rider fatalities occur [1]

However, this data is contrasted with Bicycle Network’s crash report (covering serious and non-serious injury) which showed that the morning peak recorded almost double the amount of bicycle crashes than the afternoon peak. [8]

The cause of the difference between morning peak and afternoon peak is unclear from the data collected. While assumptions can be made regarding concentration of traffic and impatience of drivers in the morning, it’s clear that this area requires more research and investigation to reduce risks for people who commute by bike in the morning.

## 8.2 Warmer months recorded more bike rider fatalities than winter months

More bike rider fatalities occurred during warmer months than cooler months. More people are inclined to ride a bike when the weather is warmer.

The most common month for bike rider fatalities was March – 86. The least common month for bike rider fatalities was September – 46.

The trend is similar to Bicycle Network’s own crash report which tallied crashes of any severity as reported by Bicycle Network members [8]. Both sets of sets of data show a trough in winter and peaks in March and October.

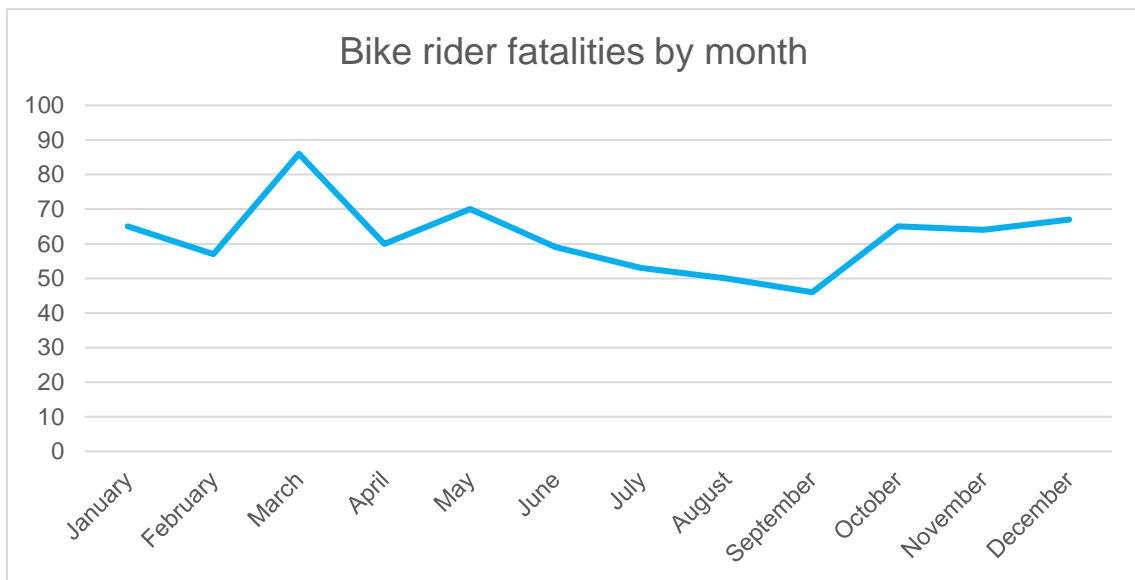


Fig 23. Bike rider fatalities in Australia by month between 1998 and 2017 [1]

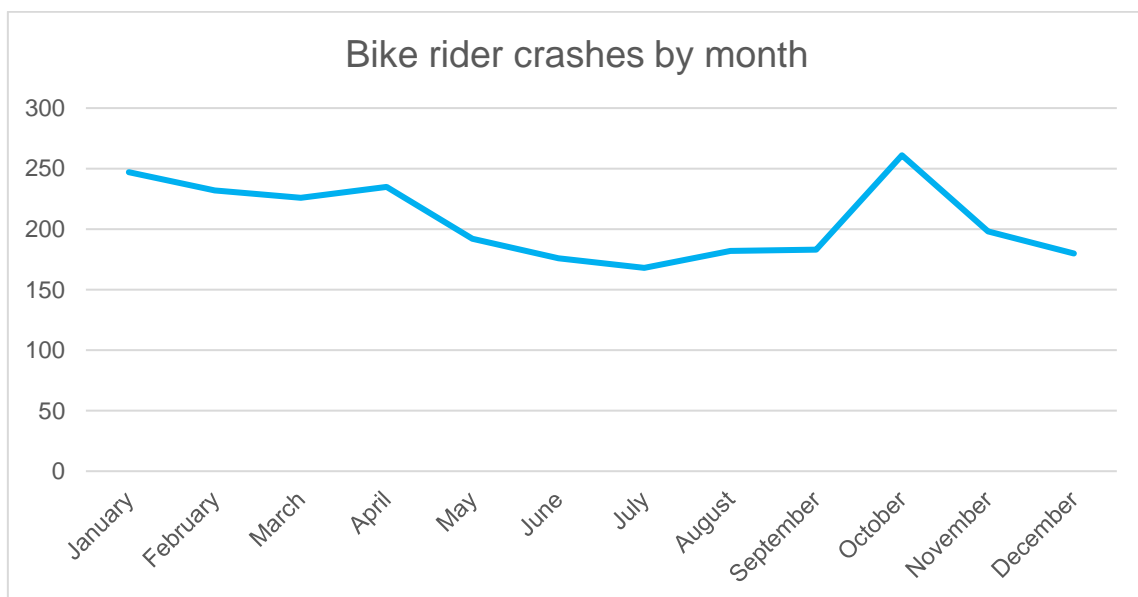


Fig 24: Bike rider crashes of any type in Australia by month between 2012 and 2016. [8]

### 8.3 Day of week is not really a factor in bike rider fatalities

No one day of the week had significantly more or fewer fatalities than another.

Tuesdays, Fridays and Saturdays recorded the most fatalities with 111 (14.9%) each, while Mondays recorded the fewest with 97 fatalities, giving a range of 14. The median day for fatalities was Sunday with 109.

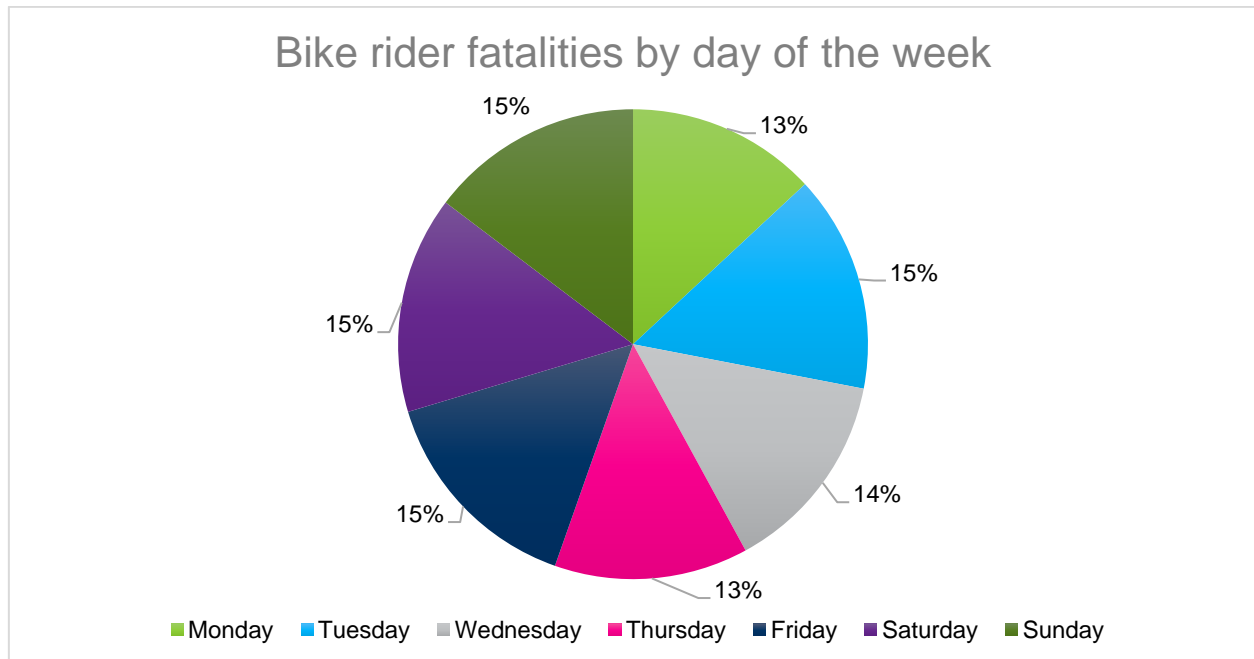


Fig 25: Bike rider fatalities by day of the week between 1998 and 2017. [1]

- **Recommendation 12:** Introduce an Australia-wide behaviour change program aimed at reducing the number of motor vehicles during peak hours and increasing the number of bike riders.
- **Recommendation 13:** Abolish the fringe benefit tax exemption for private vehicles and business car parking
- **Recommendation 14:** Extend the fringe benefit tax exemption to private bicycle and ebike use.



## 9. Conclusion: Something needs to be done now

It is unacceptable that there has been no significant decrease in bike rider fatalities in two decades. The number of fatalities among other road users has fallen and it should also be falling for bike riders.

This 20-year analysis of bike rider fatality data across Australia highlights that bike riders will continue to die on our roads unless urgent action is taken by all levels of government to invest in infrastructure, reduce speed and improve safety measures across all heavy vehicles.

Many of the 14 recommendations made in this report are consistent with a safe systems approach to improving road safety for all road users and reducing fatalities for people who ride bikes. This includes safe roads, safe speeds, safe vehicles and safe people.

Safe roads	Safe speeds
<p><b>Recommendation 4:</b> Prioritise investment to accelerate the construction of separated, protected bike lanes on all roads with high numbers of people riding bikes, consistency with a Safe Systems approach.</p> <p><b>Recommendation 5:</b> Introduce a package of uniform laws throughout Australia supporting bike riders including reverse onus of proof (drivers must prove they weren't at fault) and minimum passing distance laws.</p> <p><b>Recommendation 8:</b> Make a rideable shoulder (including a buffer and clearance to the barrier) compulsory on high-speed roads of 80km/h+.</p> <p><b>Recommendation 11:</b> Legalise footpath riding in Victoria and New South Wales.</p>	<p><b>Recommendation 9:</b> Accelerate the introduction of speed limits as low as 30km/h in high density and build up, urban areas.</p>

Safe people	Safe vehicles
<p><b>Recommendation 1:</b> that BITRE data be expanded to include details of the cause of the crash to help decision makers specifically address problem areas.</p> <p><b>Recommendation 2:</b> Conduct an urgent inquiry into why road safety fatality measures have been less successful for people riding bikes.</p> <p><b>Recommendation 3:</b> The Federal Government to commission the ABS or an appropriate private operator to report on the number of people riding bikes at least every two years.</p> <p><b>Recommendation 7:</b> Vulnerable road user training be provided for all drivers of heavy vehicles.</p> <p><b>Recommendation 10:</b> Introduce a how to reduce your risks while riding program targeted at middle aged men.</p> <p><b>Recommendation 12:</b> Introduce an Australia-wide behaviour change program aimed at reducing the number of motor vehicles during peak hours and increasing the number of bike riders.</p> <p><b>Recommendation 13:</b> Abolish the fringe benefit tax exemption for private vehicles and business car parking</p> <p><b>Recommendation 14:</b> Extend the fringe benefit tax exemption to private bicycle and e-bike use.</p>	<p><b>Recommendation 6:</b> Introduce mandatory equipment and design standards on all new trucks from 1 July 2018 and all trucks from 1 July 2025 that include:</p> <ul style="list-style-type: none"> <li>• blind spot reduction designs including lowering the driver cab, more windows and mirrors and reconfiguring passenger and driver doors</li> <li>• driver assist technology that takes out human error such as left-turn warning systems, brake assist and lane-keep should also be prioritised for all motor vehicles, not just trucks</li> <li>• side under-run protection rails.</li> </ul>

Currently, 15 million Australians don't meet the minimum guidelines for physical activity. As a result, millions of Australians will suffer a major preventable disease such as heart disease, type-2 diabetes, breast cancer or colon cancer.



It is vital that we reduce the risk of bike rider fatalities to encourage more people ride a bike every day and make sure that every one of them comes home.

## Bicycle Network

With nearly 50,000 members, Bicycle Network is one of the top five member-based bike riding organisations in the world. With a proud history reaching back more than 40 years in Victoria, we are committed to improving the health and wellbeing of all Australians by making it easier for people to ride a bike.

Operating nationally, we have a measurable and large-scale impact in community participation and the promotion of healthy lifestyles through bike riding.

We achieve this through:

- Improving the bike riding environment by working with government at all levels to provide better infrastructure, legislation, data, policies and regulations
- Delivering successful, large-scale and measurable behaviour change programs such as [Ride2School](#) and [Ride2Work](#)
- Providing services that support bike riders through membership
- Running mass participation bike riding events such as [Around the Bay](#)
- Being a key spokesperson on issues related to cycling and physical activity

If you need our help to turn Victoria into Australia's healthiest and happiest state, please contact us.



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