

# Road traffic injury hospitalisations

This report presents statistics for hospitalisations caused by road traffic injuries in Aotearoa New Zealand.

## Key facts

- The 2022 traffic injury hospitalisation rate was 80.1 per 100,000 people, similar to the rate prior to the COVID-19 pandemic.
- Road traffic injury hospitalisation rates were highest for males, Māori, people aged 15–24 and 85+ years, and people living in more deprived areas.
- The rate of hospitalisations for Māori has increased significantly since 2014.
- Motorcyclists had a much greater risk of injury than users of other modes of transport, taking into account time spent travelling and distance travelled.
- The highest road traffic injury hospitalisation rate occurred in the Northland district. The lowest hospitalisation rate was in the Capital and Coast district.

## The health impact of road traffic accidents

Traffic-related deaths and injuries are the main health impact of road transport in New Zealand (Briggs et al 2016). Traffic injuries may affect all types of road users, though pedestrians, cyclists and motorcyclists are particularly vulnerable as they tend to suffer more severe injuries from collisions, due to lack of personal protection. By comparison, vehicle occupants are protected by the vehicle body and fitted safety features (such as seatbelts or airbags). Vehicle injury may be related to speed, vehicle type and the age of the vehicle, as newer models often have more and better safety features.

## Road traffic injury hospitalisations in 2022 were similar to pre-COVID-19 levels

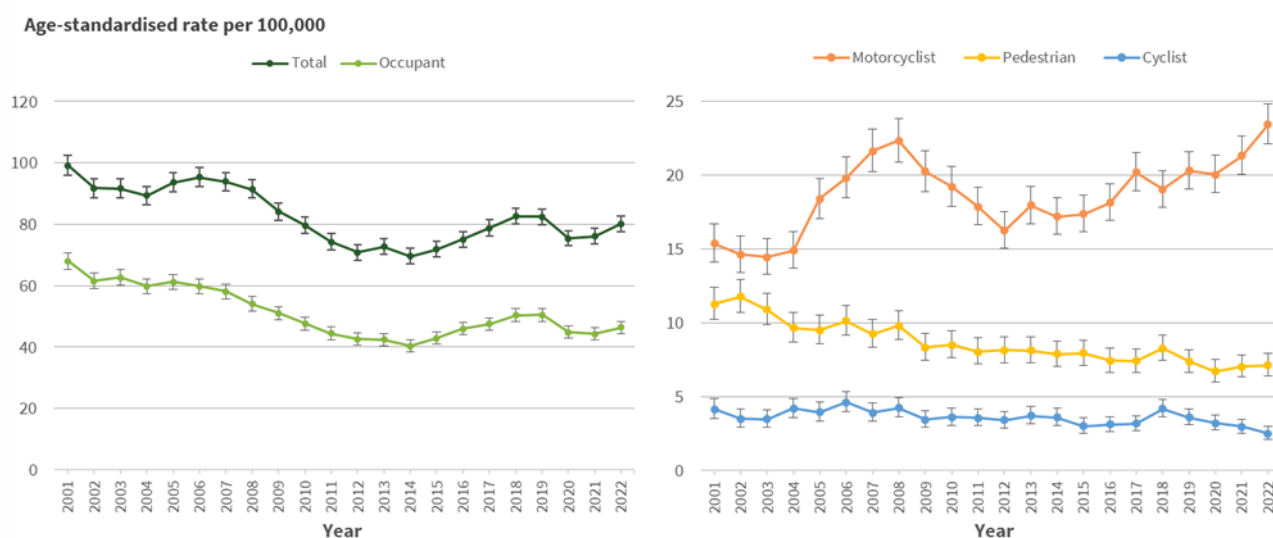
In 2022, there were 4,280 hospitalisations for traffic injuries in New Zealand. The majority of these were for motor vehicle occupants (57.9%, 2,478 hospitalisations). A further 29.2% (1,250 hospitalisations) were motorcyclists, while 8.7% (371 hospitalisations) were pedestrians and 3.4% (146 hospitalisations) were cyclists. The remaining 35 hospitalisations were for other modes of transport.

Transport injury hospitalisations decreased markedly from 2019 (82.4 per 100,000) to 2020 (75.4 per 100,000), which coincided with COVID-19 restrictions (such as border closures, self-isolation requirements and stay-at-home orders). Aside from this time period, the age-standardised rate for all traffic injury hospitalisations increased from 69.6 per 100,000 in 2014 to 80.1 per 100,000 in 2022. This change was

primarily driven by higher hospitalisation rates for vehicle occupants and motorcyclists (Figures 1a and 1b).

The hospitalisation rate for pedestrians decreased from 11.3 per 100,000 in 2001 to 7.1 per 100,000 in 2022. The rate for cyclists has fluctuated over the past 20 years but appears to have decreased between 2018 and 2022 (Figure 1b).

**Figures 1a and 1b: Road traffic injury hospitalisation rates, by mode of transport, 2001–2022**



Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset

## Motorcyclists were most at risk of injury

Travel by motorcycle carries a substantially higher risk of injury hospitalisations compared to other modes of transport. In 2019–22, there were 866.7 hospitalisations for motorcycle injuries for every million hours travelled by motorcycle annually. This is much a higher risk than for cyclists (5.3 hospitalisations per million hours cycling), pedestrians (2.1 hospitalisations per million hours walking) and vehicle occupants (1.8 hospitalisations per million hours travelled as a vehicle occupant) (Table 1).

**Table 1: Road traffic injury hospitalisation risk, by mode of transport 2019–22**

	Vehicle occupant	Motorcyclist	Pedestrian	Cyclist	All traffic
Million hours travelled	1,398.9	1.3	177.9	32.8	1,708.2
Million kilometres travelled	52,430.7	45.1	705.1	414.8	58,865.8
Number of hospitalisations	2,453.8	1,118.8	374.5	174.5	4,152.0
<b>Hospitalisations per million hours</b>	<b>1.8</b>	<b>866.7</b>	<b>2.1</b>	<b>5.3</b>	<b>2.4</b>
<b>Hospitalisations per million kilometres</b>	<b>&lt;0.1</b>	<b>24.8</b>	<b>0.5</b>	<b>0.4</b>	<b>&lt;0.1</b>

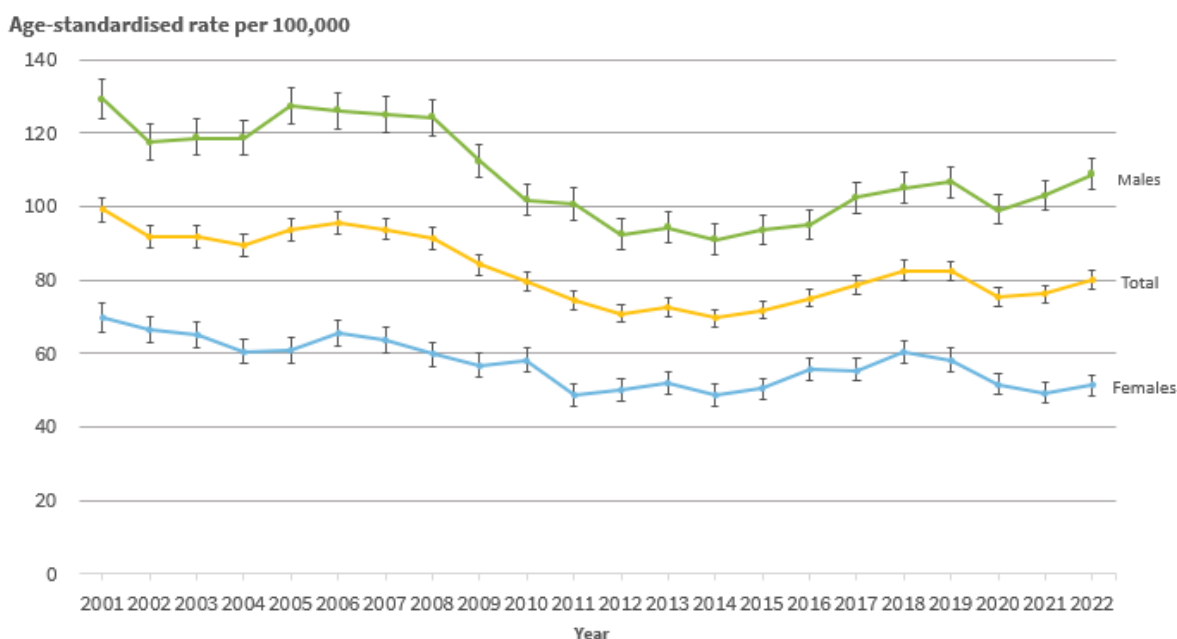
Note: The annual average injury hospitalisations was based on calendar years (January 2019–December 2022), while the annual average time and distance travelled was based on the financial year (July–June).  
 Source: National Minimum Dataset (Ministry of Health) and the New Zealand Household Travel Survey (Ministry of Transport)

## Hospitalisation rates for males appear to be increasing

The 2022 injury hospitalisation rate for females (51.3 per 100,000) was similar to 2014 but the rate for males appears to be increasing (Figure 2). Despite a decrease for both sexes in 2020, coinciding with COVID-19 restrictions, the 2022 injury hospitalisation rate for males (108.8 per 100,000) was substantially higher than the previous low point in 2014 (93.6 per 100,000).

The rate for males has been consistently higher than that for females. In 2022, males were twice as likely to be hospitalised with a road traffic injury as females (rate ratio = 2.1, 95% confidence interval 2.0-2.3).

**Figure 2: Road traffic injury hospitalisation rates, by sex, 2001–22**

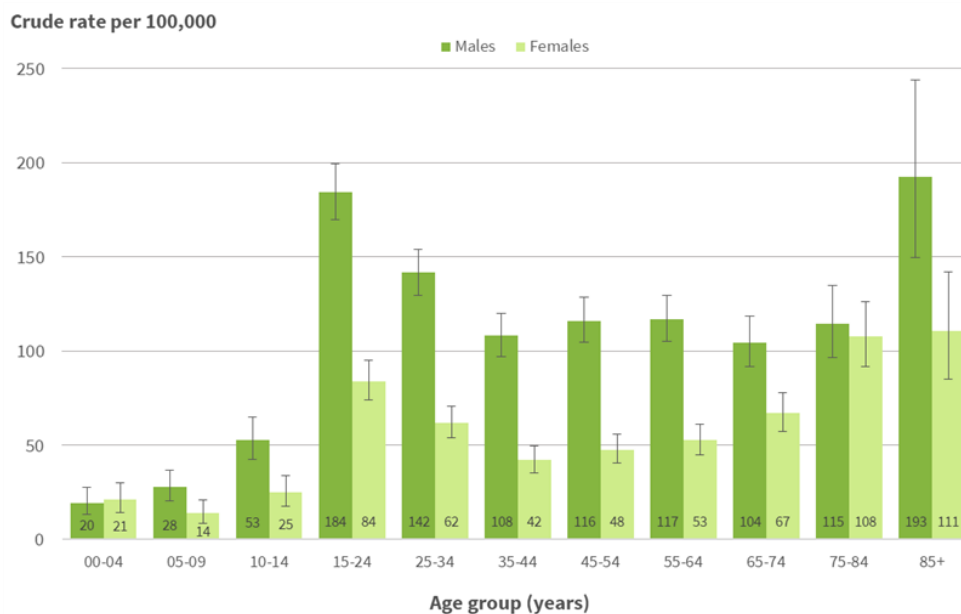


Note: 95% confidence intervals have been presented as error bars.  
 Source: National Minimum Dataset

## The highest hospitalisation rates were among 15–24 year olds and 85+ year olds

Males aged 15–24 years old and 85 years and over had the highest road traffic injury hospitalisation rates in 2022, followed by 25–34 year olds. For all age groups except 0–9 years and 75–84 years, males had substantially higher rates than females (Figure 3).

**Figure 3: Road traffic injury hospitalisation rates, by age-group and sex, 2022**



Note: 95% confidence intervals have been presented as error bars.

Source: National Minimum Dataset

## Māori had higher road traffic injury hospitalisation rates

In 2022, Māori had higher age-standardised hospitalisation rates for traffic injuries than other ethnic groups, both overall as well for males and females (Figure 4). Males had higher hospitalisation rates than females in all ethnic groups except Asians, where the difference appeared to be much smaller.

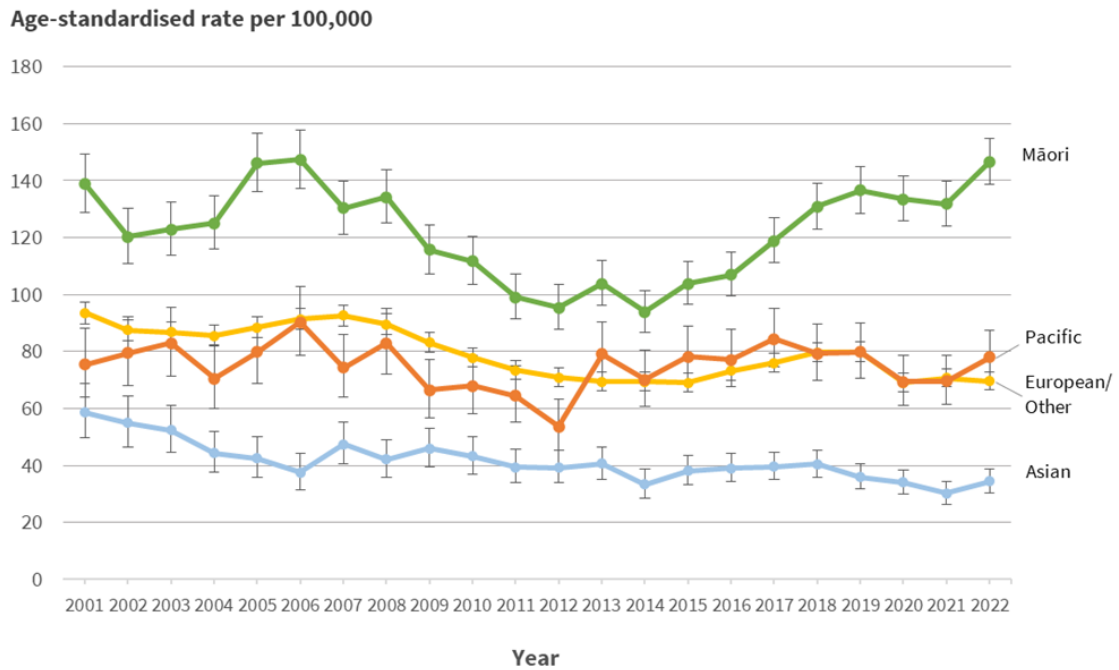
**Figure 4: Road traffic injury hospitalisation rates, by ethnic group (prioritised) and sex, 2022**



Note: 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

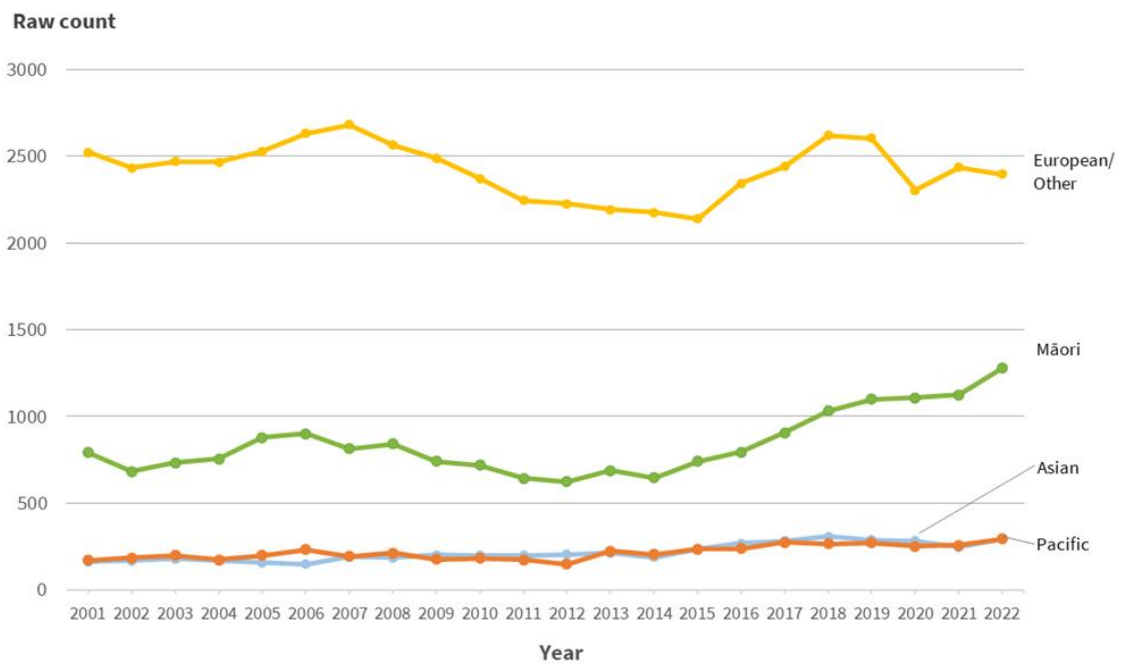
The hospitalisation rate for Māori was consistently higher than for any other ethnic group from 2001 onwards, and increased significantly between 2014 (93.9 per 100,000, 95% CI 86.6–101.5) and 2022 (146.6 per 100,000, 95% CI 138.6–154.9) (Figure 5). The raw counts that underlie these rates are shown in Figure 6. The raw number of traffic injury hospitalisations for Māori was 1278 in 2022, nearly double the 647 hospitalisations for 2014.

**Figure 5: Road traffic injury hospitalisation rates, by ethnic group (prioritised), 2001–22**



Note: 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

**Figure 6: Road traffic injury hospitalisation counts, by ethnic group (prioritised), 2001–22**

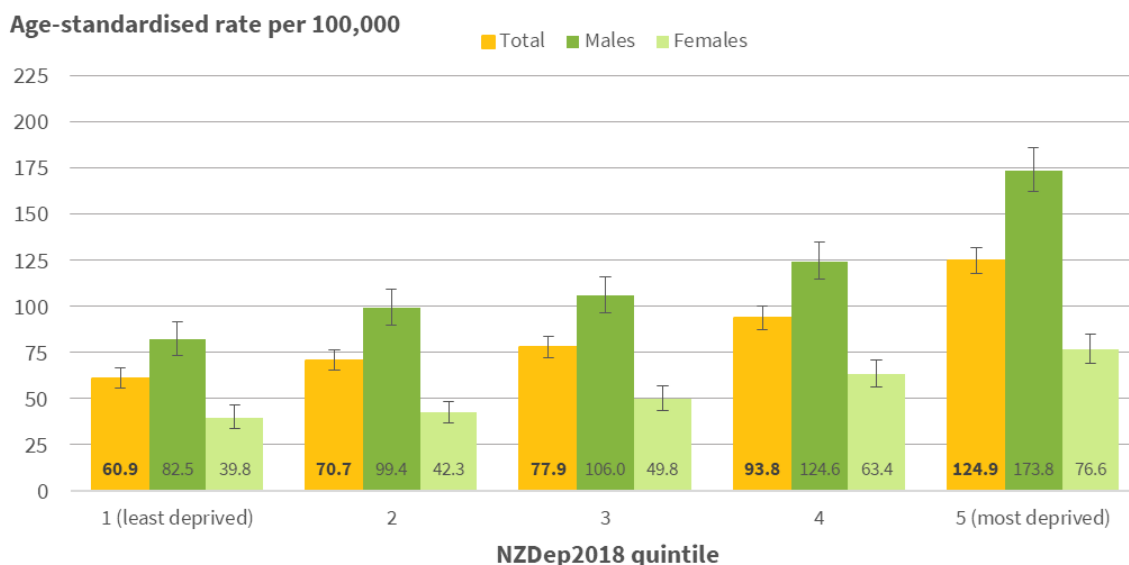


Source: National Minimum Dataset

## People living in more deprived areas had higher hospitalisation rates for road traffic injuries

Hospitalisation rates in 2022 were much higher in the most socioeconomically deprived areas (NZDep2018 quintile 5) than the least deprived areas (quintile 1), for both males and females (Figure 7). Standardising for age, people living in the most deprived areas were twice as likely to be hospitalised for a road traffic injury than those in the least deprived areas (standardised rate ratio = 2.1, 95% CI 1.8–2.3).

**Figure 7: Road traffic injury hospitalisation rates, by NZDep2018 quintile and sex, 2022**



Note: 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

## Higher rates of traffic injury hospitalisation for residents of rural areas

Traffic injury hospitalisation rates for 2022 were higher for residents of rural areas (117.3 per 100,000) than residents of main urban areas (68.3 per 100,000) (Figure 8). This equates to residents of rural areas being 1.7 times more likely to have a traffic injury requiring hospitalisation (95% CI 1.6–1.9).

There was a clear difference between male and female rates across all urban/rural categories. The rate for males in each category was either close to, or more than twice that of females. The difference between male and female rates appears to be greatest for residents of rural areas.

**Figure 8: Road traffic injury hospitalisation rates, by sex and urban/rural classification, 2022**



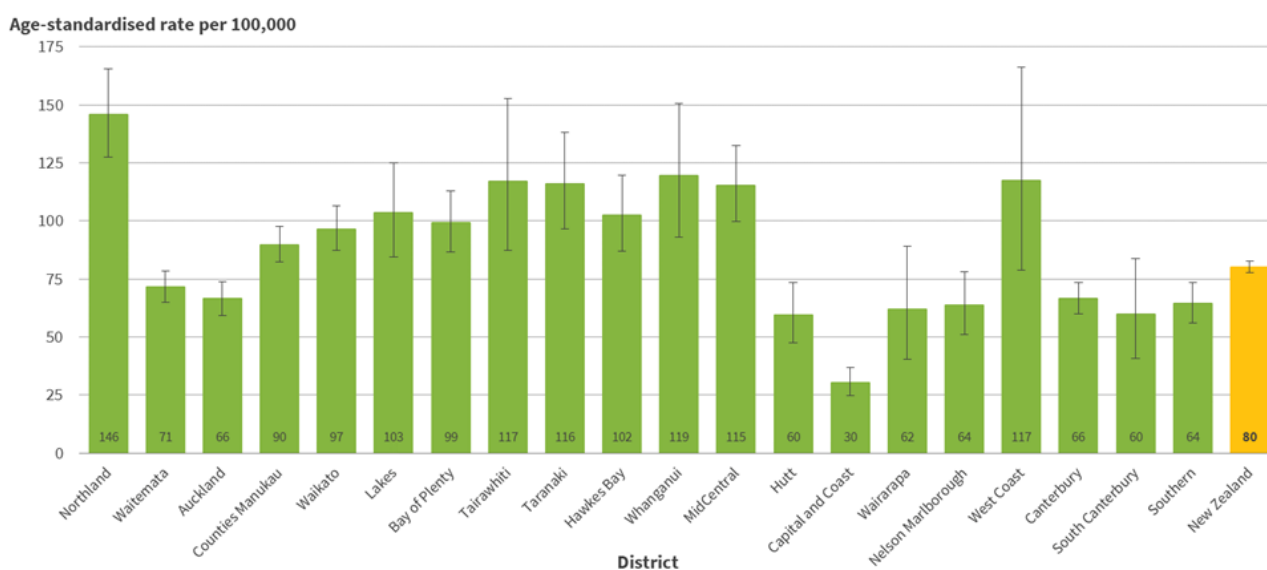
Note: 95% confidence intervals have been presented as error bars. The Statistics New Zealand urban-rural classification for 2013 has been used. Main urban areas are major towns and cities with a population of 30,000 or more. Secondary urban areas are smaller towns with a population of 10,000–29,999 people. Minor urban areas are towns with a population of 1,000–9,999. Rural areas include rural centres and rural areas outside of these.

Source: National Minimum Dataset

## High road traffic injury rate in Northland district

In 2022, Northland district had a high hospitalisation rate for all forms of traffic injury (146 per 100,000). Capital and Coast district had a low rate (30 per 100,000) (Figure 9).

**Figure 9: Road traffic injury hospitalisation rates, by district, 2022**



Note: Districts refer to areas formerly known as DHBs. 95% confidence intervals have been presented as error bars.

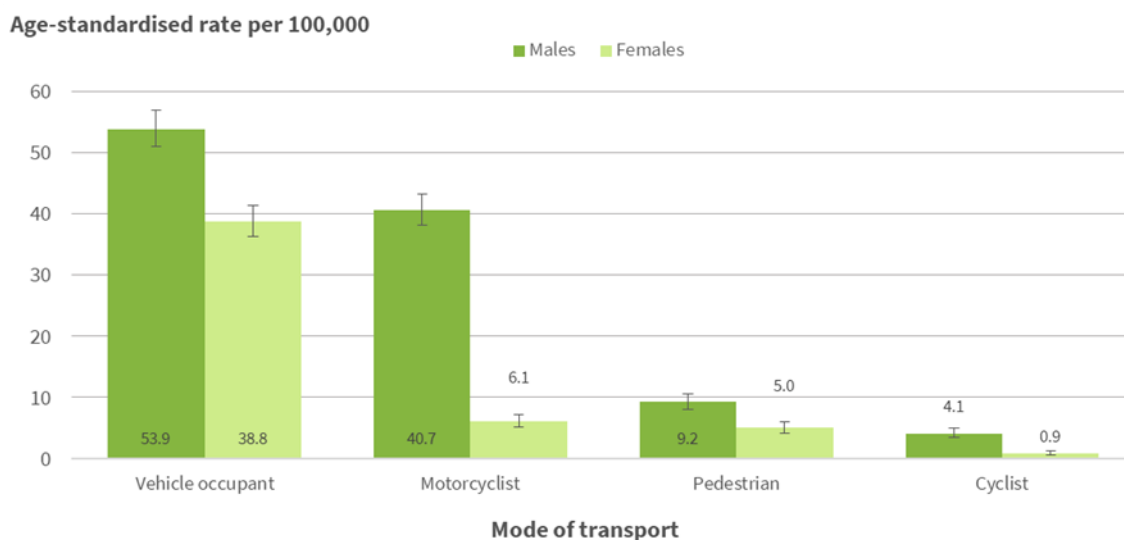
Source: National Minimum Dataset



## Road traffic injury hospitalisation rates by road user type

In 2022, males had significantly higher hospitalisation rates than females across all modes of transport (Figure 10). The contrast between males and females was especially strong among motorcyclists.

**Figure 10: Road traffic injury hospitalisation rates, by mode of transport and sex, 2022**



Note: 95% confidence intervals have been presented as error bars.

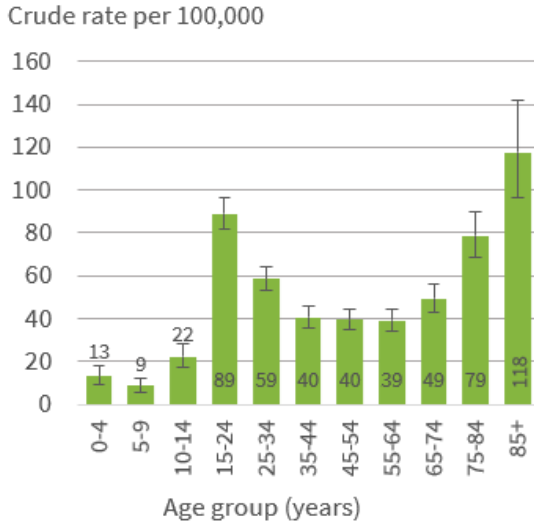
Source: National Minimum Dataset

For vehicle occupant injuries, young adults (15–24 years) and older people (75 years and over) had the highest hospitalisation rates (Figure 11a). Motorcyclist hospitalisation rates were high among most age groups of legal driving age with the exception of those 75 years and over (Figure 11b). For pedestrian injuries, the highest hospitalisation rates were among people aged 75 years and over (Figure 11c).

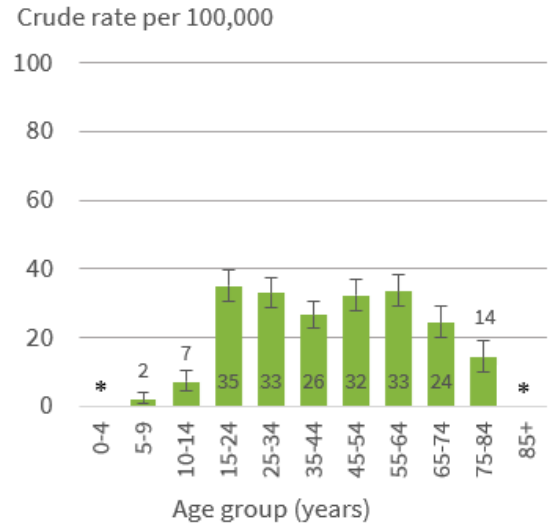
Cyclist injury hospitalisation rates fluctuate from year to year due to the lower numbers involved. This uncertainty is shown by the wider 95% confidence intervals for these rates (represented by error bars on the graphs). For 2022, the highest rates were among people aged 55–64 and 75–84 years (Figure 11d).

**Figures 11a – Road traffic injury hospitalisation rates, by age-group and mode of transport, 2022**

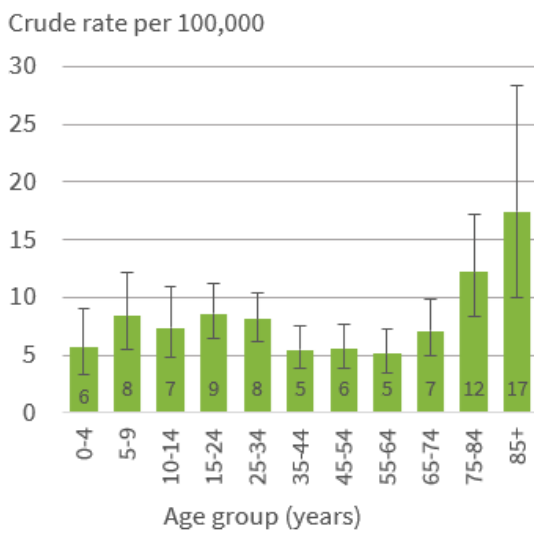
*Figure 11a: Vehicle occupant hospitalisations*



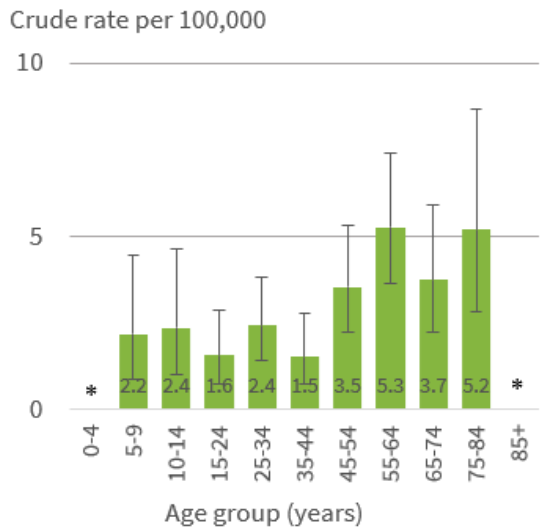
*Figure 11b: Motorcyclist hospitalisations*



*Figure 11c: Pedestrian hospitalisations*



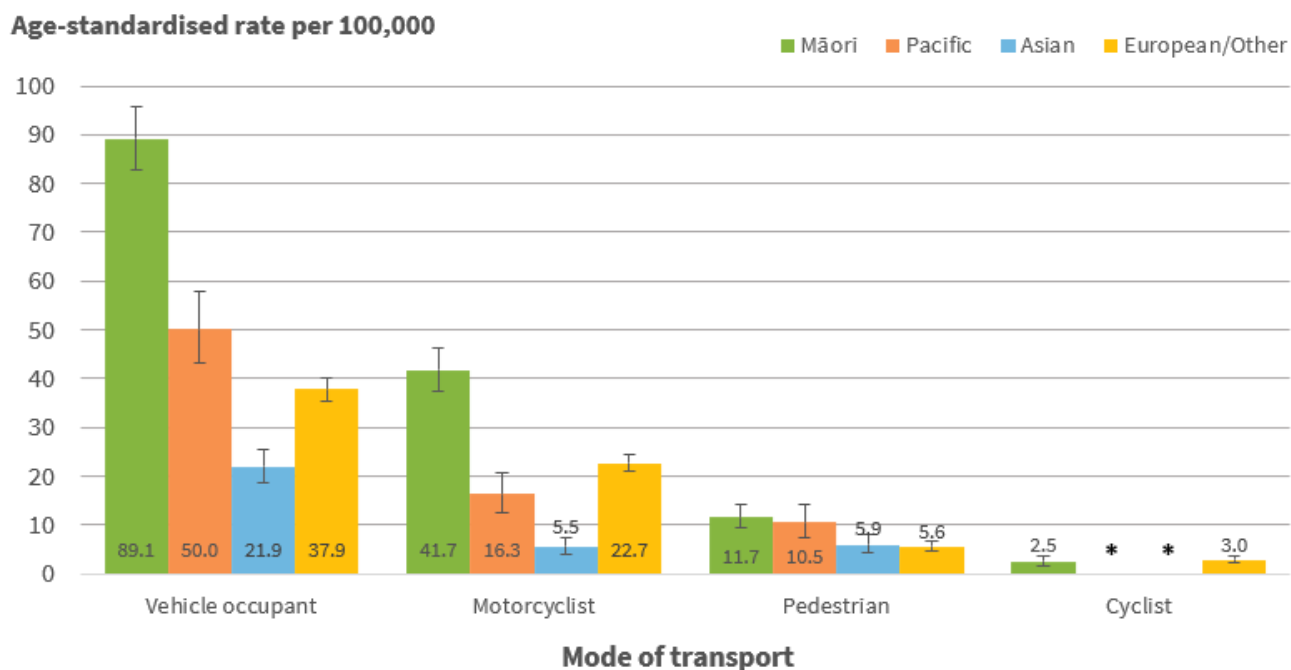
*Figure 11d: Cyclist hospitalisations*



Note: An asterisk (\*) shows that the rate has been suppressed due to low numbers. 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

In 2022, Māori had substantially higher hospitalisation rates for vehicle occupant and motorcyclist injuries than other ethnic groups (Figure 12).

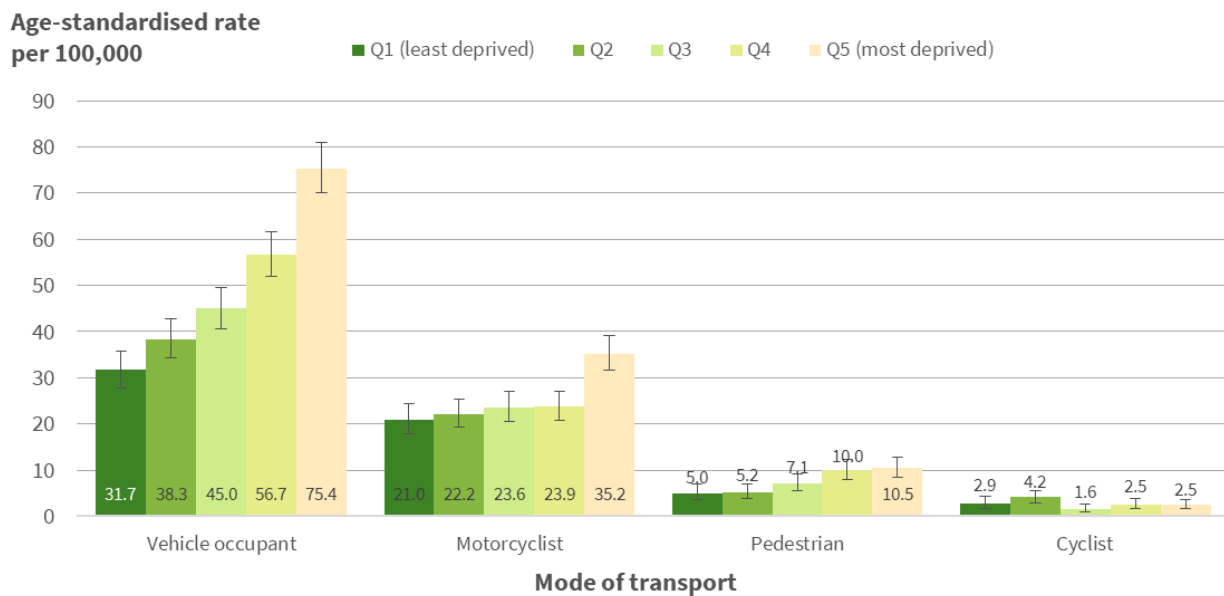
**Figure 12: Road traffic injury hospitalisation rates, by ethnic group (prioritized) and mode of transport, 2022**



Note: An asterisk (\*) shows that the rate has been suppressed due to low numbers. 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

In 2022, the hospitalisation rates for motor vehicle occupants, motorcyclists and pedestrians were all higher for people living in the most socioeconomically deprived areas (NZDep2018 quintile 5) than for those living in least deprived areas (quintile 1). There was a particularly large difference in hospitalisation rates for vehicle occupants between the least and most deprived quintiles (standardised rate ratio=2.4, 95% CI 2.1-2.8). There was no clear trend for cyclists (Figure 13).

**Figure 13: Road traffic injury hospitalisation rates, by NZDep2018 quintile and mode of transport, 2022**



Note: 95% confidence intervals have been presented as error bars.  
Source: National Minimum Dataset

## Summary

Aside from the drop coinciding with COVID-19 restrictions in 2020, total traffic injury hospitalisation rates have increased in recent years. These changes were not spread evenly, with Māori rates increasing more than other groups. In terms of time and distance spent travelling, motorcyclists have a much greater risk of injury than other transport modes. Much of the increase in the total hospitalisation rate for 2022 was due to motorcycle injuries, together with vehicle occupants.

## Data for this indicator

Data for this indicator comes from the National Minimum Dataset, published by the Ministry of Health. The indicator includes all injury hospital discharges (ie, those with a principal diagnosis of ICD-10AM S00-T78), with the following external causes of injuries:

- Vehicle occupant [V30–V79] (.4–.9), [V83–V86] (.0–.3);
- Motorcyclist V20-V28[.3-.9], V29[.4-.9];
- Pedal cyclist V12-V14[.3-.9], V19[.4-.6];
- Pedestrian V02-V04[.1-.9], V09.2;
- Other V80[.3-.5], V81.1, V82.1;
- Unspecified V87[.0-.8], V89.2.

These ICD codes are consistent with the classification of external cause of injury used by the Centers for Disease Control and Prevention (2002). Hospitalisations have excluded deaths, day cases, short Emergency Department stays, transfers, overseas visitors, and readmissions (Langley et al, 2002; Ministry of Health, 2006, 2015).

Age-standardised rates (using the WHO population) have been presented, where possible, to account for the population age structures of different population groups.

For additional information, see the [Metadata](#) sheet.

## References

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