

Road traffic injury hospitalisations

This report presents information on hospitalisations caused by road traffic injuries in Aotearoa New Zealand.

Key facts

- The 2023 traffic injury hospitalisation rate was 77.3 per 100,000 people, slightly down from 79.8 hospitalisations per 100,000 people in 2022.
- 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 was statistically significantly higher than other ethnic groups.
- 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

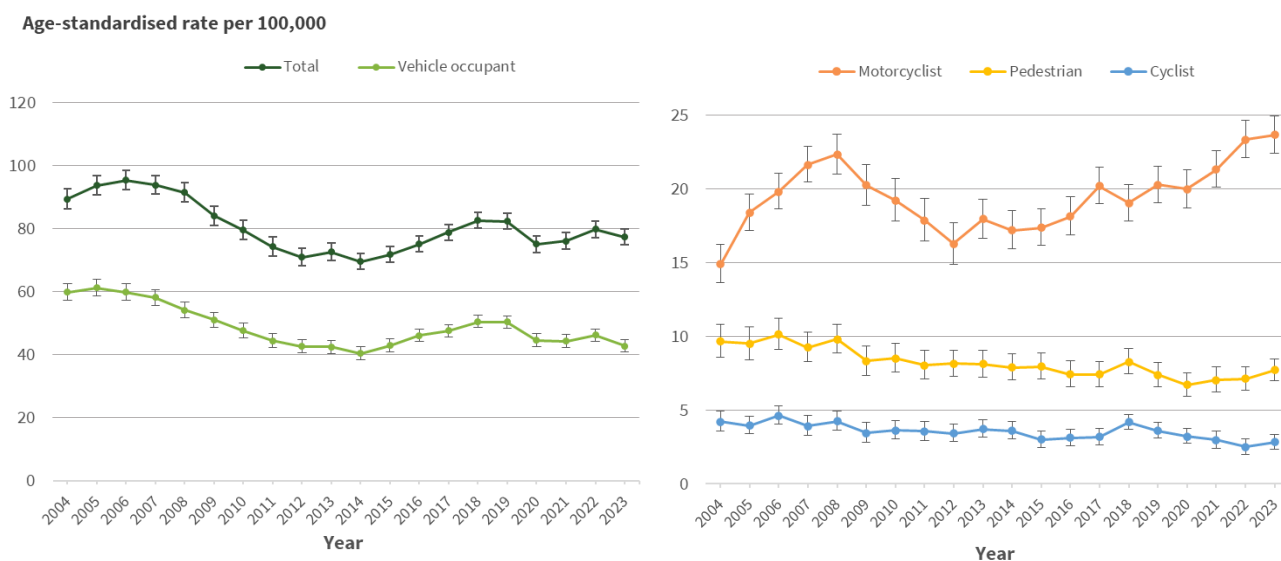
Traffic-related deaths and injuries are the main health impact of road transport in New Zealand (Briggs et al 2016). Traffic injuries may affect all types of road users, although pedestrians, cyclists and motorcyclists are particularly vulnerable as they tend to suffer more severe injuries from collisions, 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 were slightly lower in 2023

In 2023, there were 4,216 hospitalisations for traffic injuries in New Zealand. The majority of these were for motor vehicle occupants (55.6%, 2,345 hospitalisations). A further 30.4% (1,280 hospitalisations) were motorcyclists, while 9.8% (414 hospitalisations) were pedestrians and 3.8% (161 hospitalisations) were cyclists. The remaining 16 hospitalisations were for other modes of transport.

The total traffic injury hospitalisation rate for 2023 was 77.3 per 100,000 people, slightly down from 79.8 hospitalisations per 100,000 in 2022. Traffic injury hospitalisation rates by transport mode have been largely stable since the drop that coincided with COVID-19 restrictions (such as border closures, self-isolation requirements and stay-at-home orders). An exception to this is the rate for motorcyclists, which has increased steadily from 16.3 per 100,000 people in 2012 to 23.7 per 100,000 in 2023 (Figures 1a and 1b).

Figures 1a and 1b: Road traffic injury hospitalisation rates, by mode of transport, 2004–2023



Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

Motorcyclists were most at risk of injury

Travel by motorcycle carries a substantially higher risk of hospitalisation for injury compared to other modes of transport. In 2020–23, there were 587.9 hospitalisations for motorcycle injuries for every million hours travelled by motorcycle annually. This is much a higher risk than for cyclists (4.6 hospitalisations per million hours cycling), pedestrians (2.1 hospitalisations per million hours walking) and vehicle occupants (1.6 hospitalisations per million hours travelled as a vehicle occupant) (Table 1).

Table 1: Road traffic injury hospitalisation risk, by mode of transport 2020–23

	Vehicle occupant	Motorcyclist	Pedestrian	Cyclist	All traffic
Million hours travelled	1,459.0	2.0	184.0	36.0	1,697.0
Million kilometres travelled	52,601.0	61.0	705.1	436.0	56,967.0
Number of hospitalisations	2,379.0	1,175.8	380.8	165.3	4,126.8
Hospitalisations per million hours	1.6	587.9	2.1	4.6	2.4
Hospitalisations per million kilometres	<0.1	19.7	0.5	0.4	<0.1

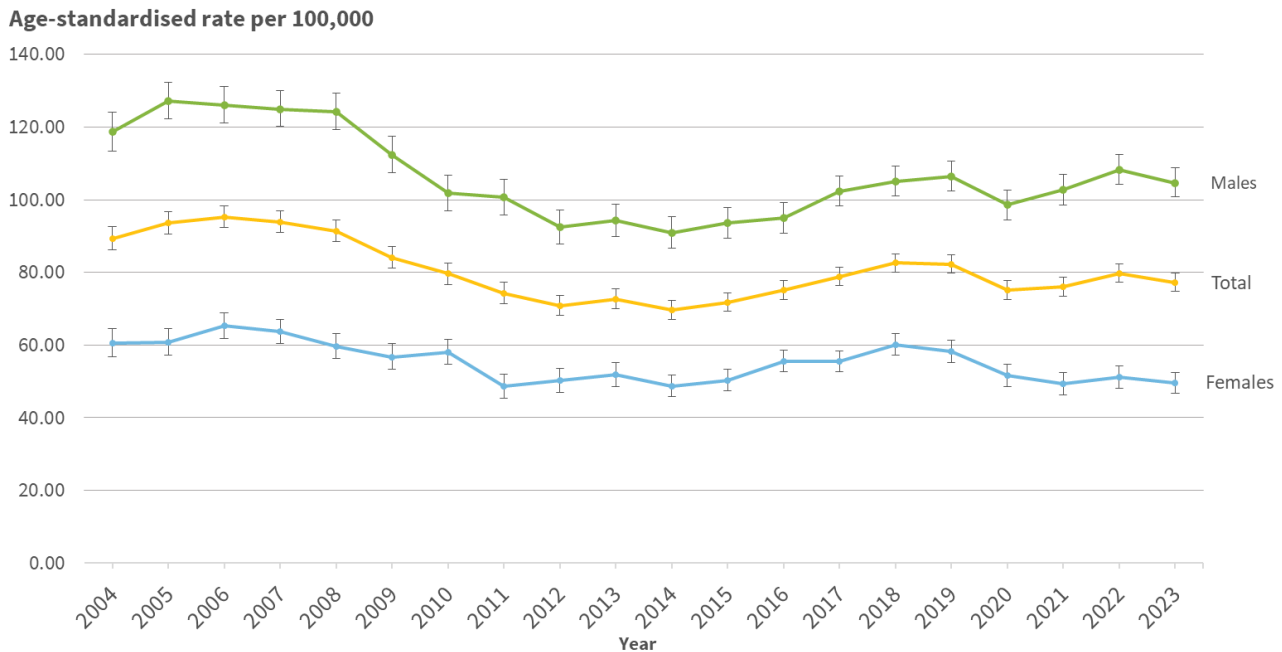
Note: The annual average injury hospitalisations was based on calendar years (January 2020–December 2023), while the annual average time and distance travelled was based on the financial year (July–June).

Source: National Minimum Dataset 2024 (Ministry of Health) and the New Zealand Household Travel Survey 2024 (Ministry of Transport)

Males have consistently higher hospitalisation rates

The 2023 injury hospitalisation rate for males was 104.7 per 100,000, down from 108.2 in 2022. The injury hospitalisation rate for females (49.5 per 100,000) was similar to the previous three years (Figure 2). In 2023, males were twice as likely to be hospitalised with a road traffic injury as females (rate ratio = 2.1, 95%CI 2.0-2.3). The rate for males has been consistently higher than that for females over time.

Figure 2: Road traffic injury hospitalisation rates, by sex, 2004–2023



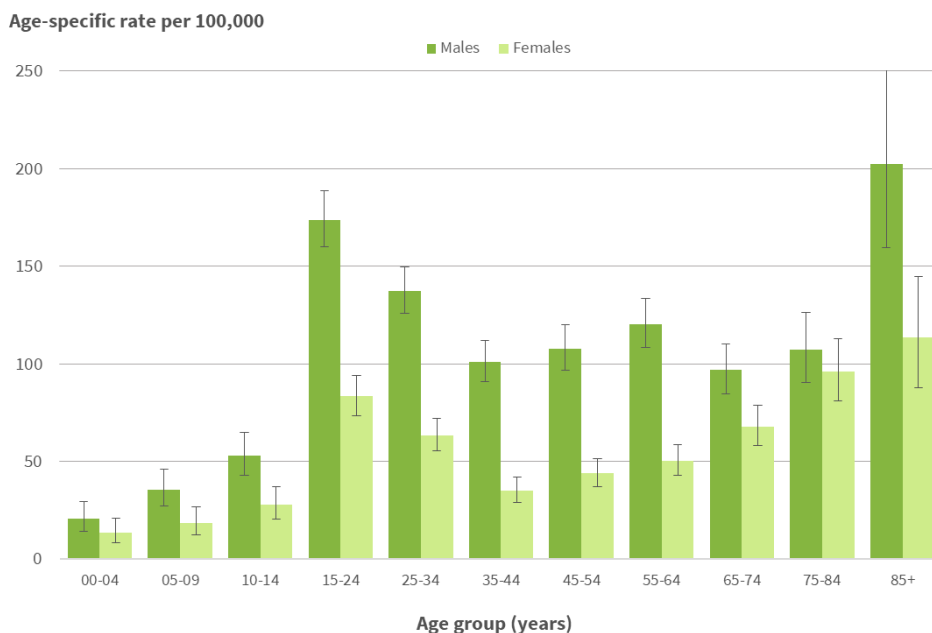
Note: 95% confidence intervals have been presented as vertical bars.

Source: National Minimum Dataset 2024

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 2023, 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, 2023

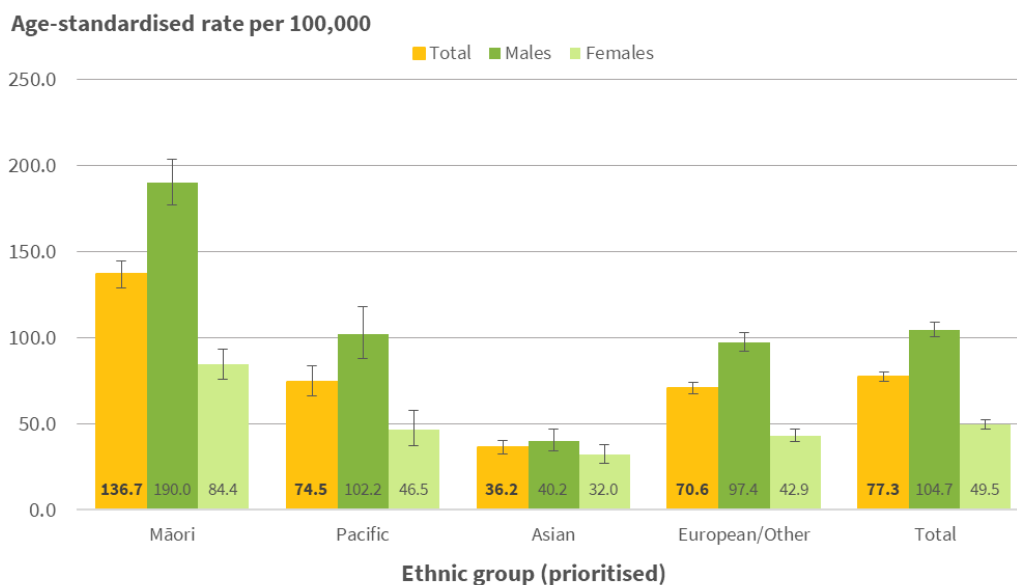


Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

Māori had higher road traffic injury hospitalisation rates

In 2023, Māori had higher age-standardised hospitalisation rates for traffic injuries than other ethnic groups, both overall as well for males and females. Males had statistically higher hospitalisation rates than females in all ethnic groups except Asians (Figure 4).

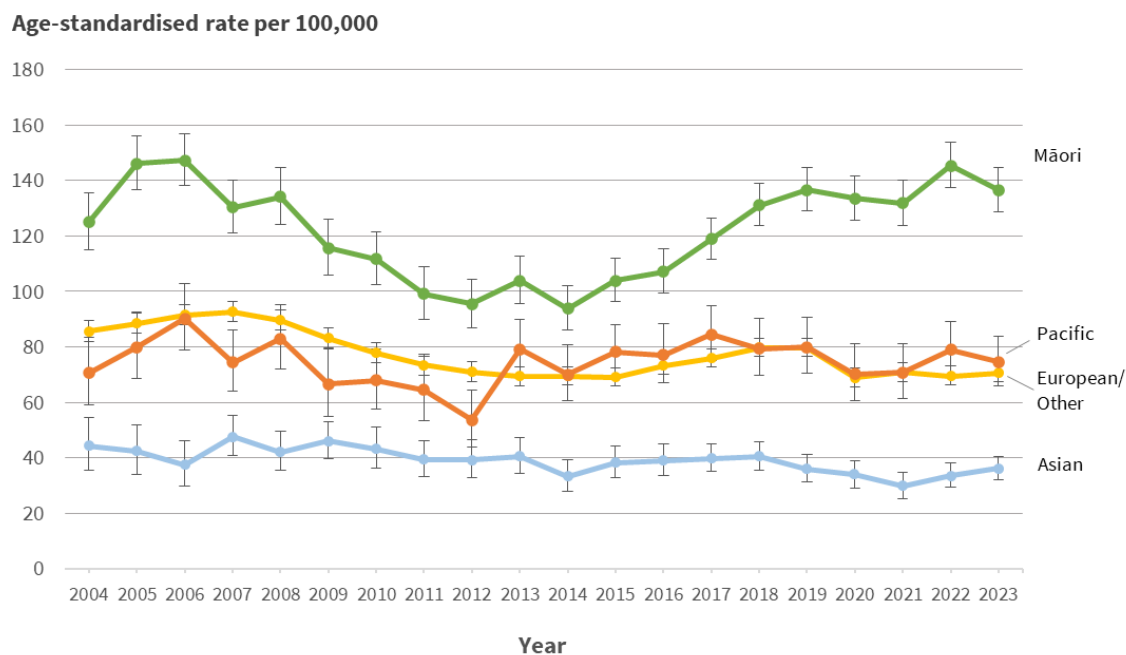
Figure 4: Road traffic injury hospitalisation rates, by ethnic group (prioritised) and sex, 2023



Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

The hospitalisation rate for Māori was consistently higher than for any other ethnic group from 2004 onwards. The rate per 100,000 increased between 2014 (93.9 per 100,000, 95%CI 86.6–101.5) and 2022 (145.3 per 100,000, 95%CI 137.4–153.6) before decreasing in 2023 (136.7 per 100,000, 95%CI 129.0–144.7) (Figure 5).

Figure 5: Road traffic injury hospitalisation rates, by ethnic group (prioritised), 2004–2023

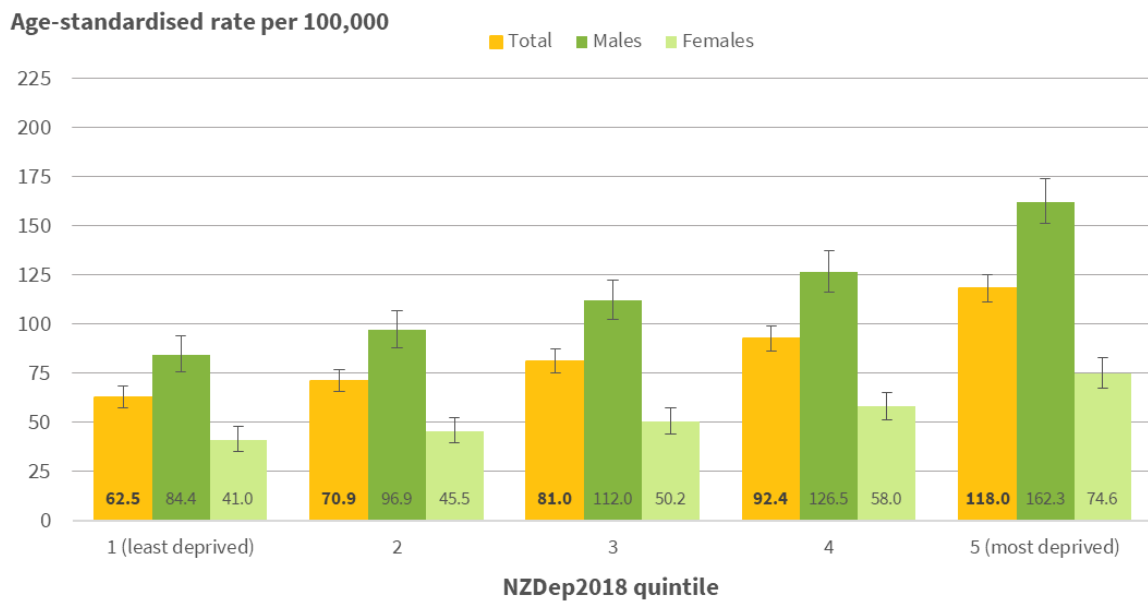


Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

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

Hospitalisation rates for road traffic injuries in 2023 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 6). After standardising for age, people living in the most deprived areas were nearly twice as likely to be hospitalised for a road traffic injury than those in the least deprived areas (rate ratio = 1.9, 95%CI 1.7–2.1).

Figure 6: Road traffic injury hospitalisation rates, by NZDep2018 quintile and sex, 2023



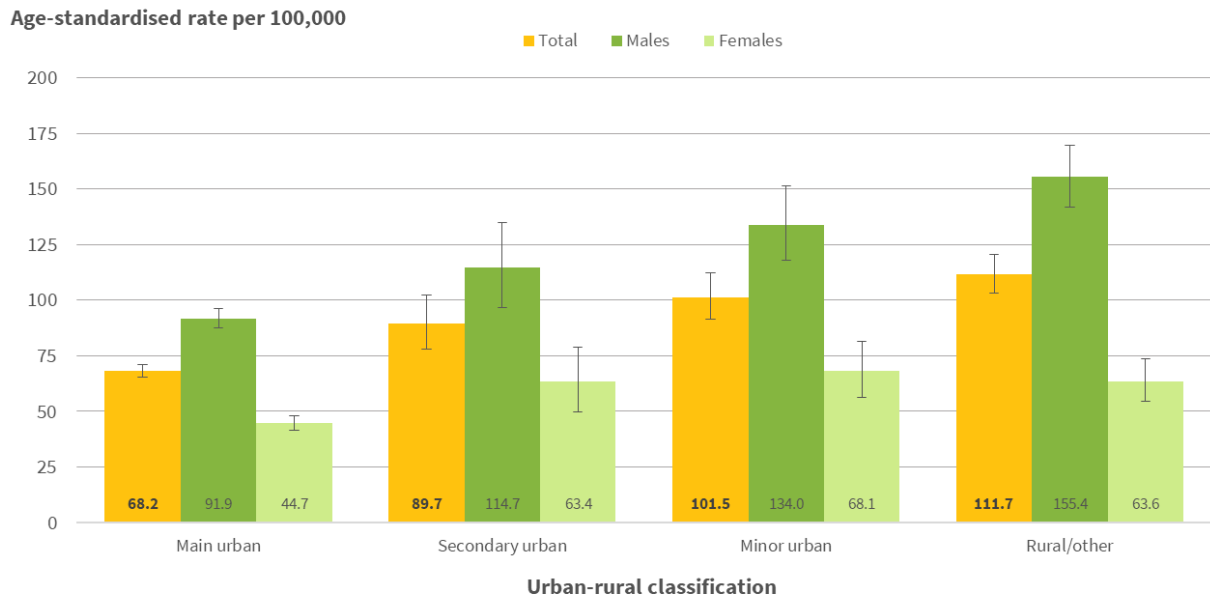
Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

Higher rates of traffic injury hospitalisation for residents of rural areas

Traffic injury hospitalisation rates for 2023 were higher for residents of rural areas (111.7 per 100,000) than residents of main urban areas (68.2 per 100,000) (Figure 7). This equates to residents of rural areas being 1.6 times more likely to have a traffic injury requiring hospitalisation (95% CI 1.5–1.8).

There was a clear difference between male and female rates across all urban/rural categories. The rate for males in all categories except secondary urban was twice or more that of females. The difference between male and female rates appears to be greatest for residents of rural areas (Figure 7).

Figure 7: Road traffic injury hospitalisation rates, by sex and urban/rural classification, 2023



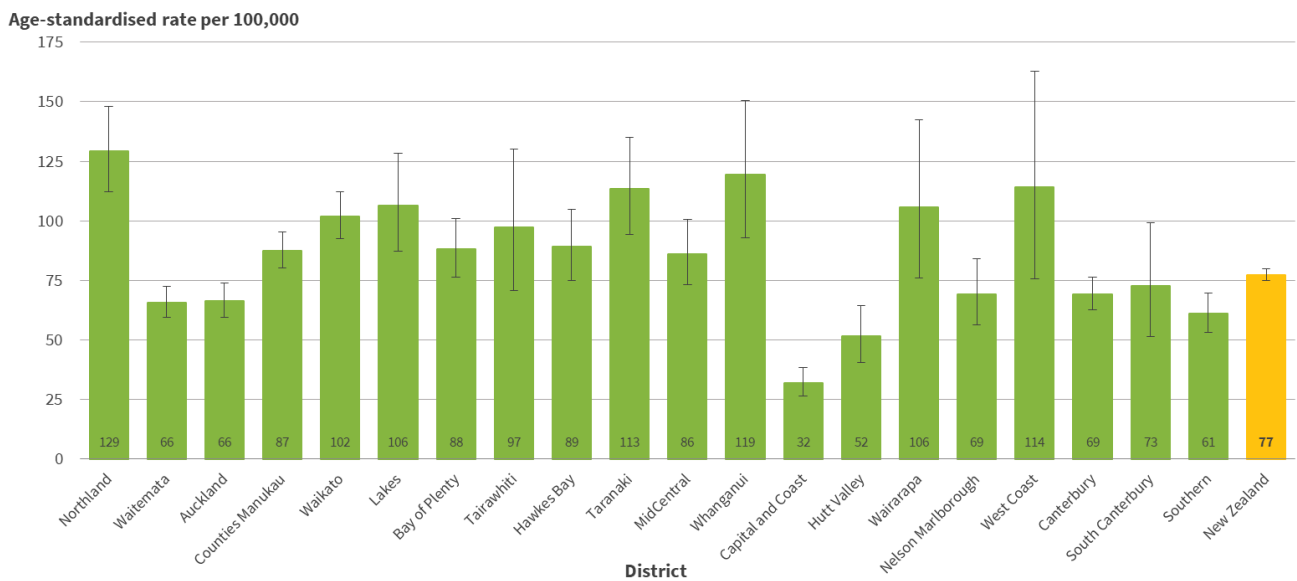
Note: 95% confidence intervals have been presented as vertical bars. The Statistics New Zealand urban-rural classification for 2013 has been used. Main urban areas are major towns and cities with a population of 30,000 or more. Secondary urban areas are smaller towns with a population of 10,000–29,999 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 2024

High road traffic injury rate in Northland district

In 2023, Northland district had a high hospitalisation rate for all forms of traffic injury (129.3 per 100,000). Capital and Coast district had a low rate (31.9 per 100,000) (Figure 8).

Figure 8: Road traffic injury hospitalisation rates, by district, 2023



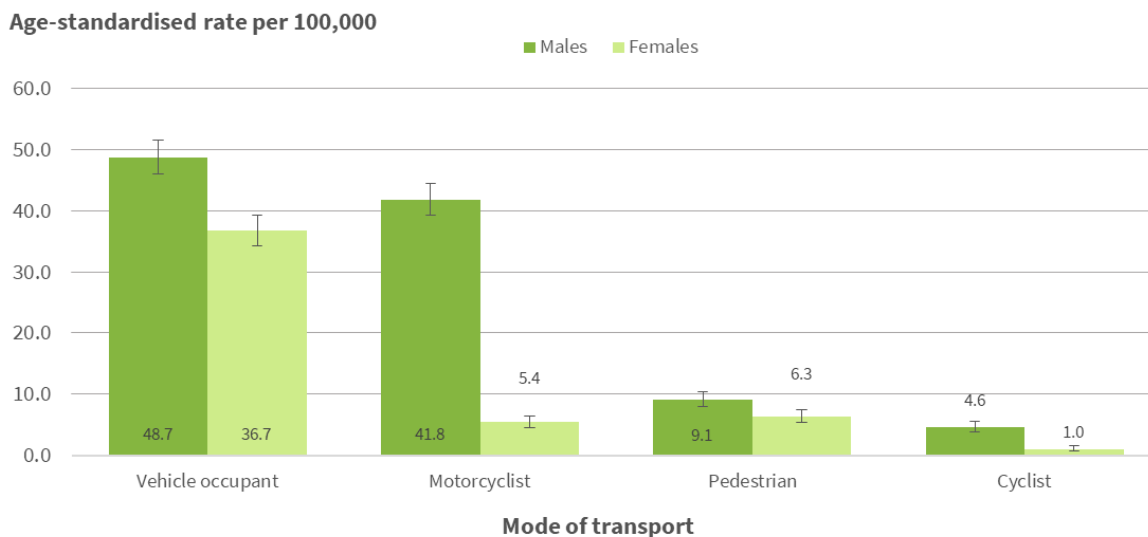
Note: Districts refer to areas formerly known as District Health Boards (DHBs). 95% confidence intervals have been presented as vertical bars.

Source: National Minimum Dataset 2024

Road traffic injury hospitalisation rates by road user type

In 2023, males had statistically significantly higher hospitalisation rates than females across all modes of transport. The contrast between males and females was especially strong among motorcyclists (Figure 9).

Figure 9: Road traffic injury hospitalisation rates, by sex and mode of transport, 2023



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

Source: National Minimum Dataset 2024

For vehicle occupant injuries, young adults (15–24 years) and older people (75 years and over) had the highest hospitalisation rates (Figure 10a). Motorcyclist hospitalisation rates were high among most age groups of legal driving age with the exception of those 75 years and over (Figure 10b). For pedestrian injuries, the highest hospitalisation rates were among people aged 85 years and over (Figure 10c).

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 vertical bars on the graphs). For 2023, the highest rates were for people aged 55–64 years (Figure 10d).

Figures 10a– 10d: Road traffic injury hospitalisation rates, by age group and mode of transport, 2023

Figure 10a: Vehicle occupant hospitalisations

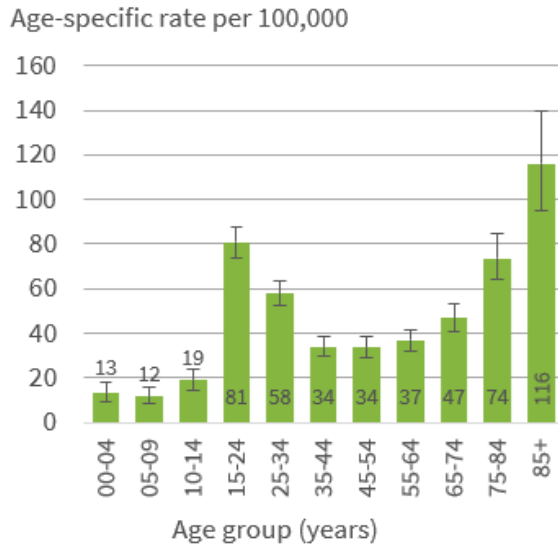


Figure 10b: Motorcyclist hospitalisations



Figure 10c: Pedestrian hospitalisations

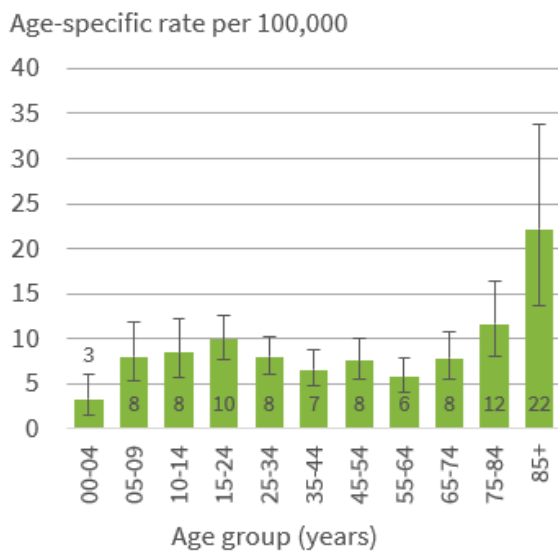
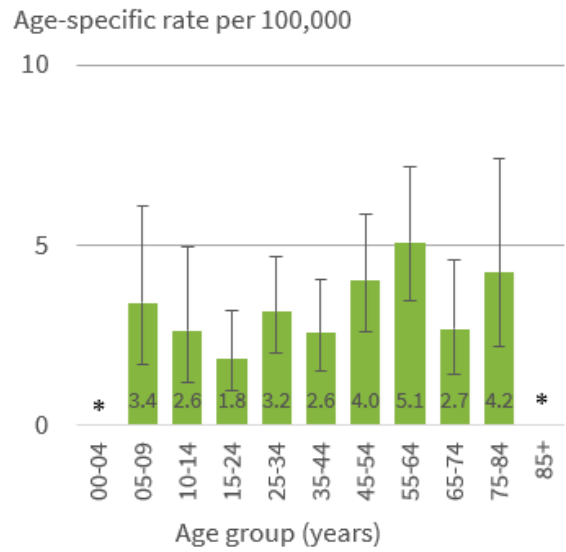


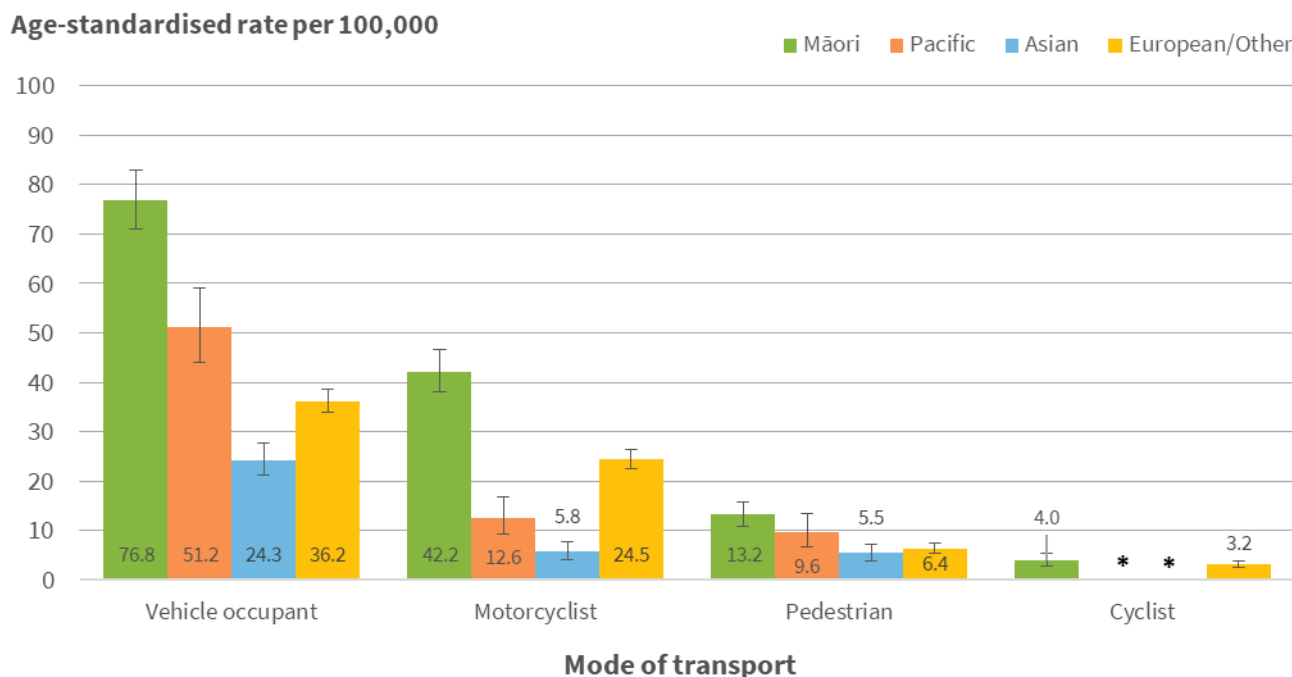
Figure 10d: Cyclist hospitalisations



Note: An asterisk (*) shows that the rate has been suppressed due to low numbers. 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

In 2023, Māori had substantially higher hospitalisation rates for vehicle occupant and motorcyclist injuries than other ethnic groups (Figure 11).

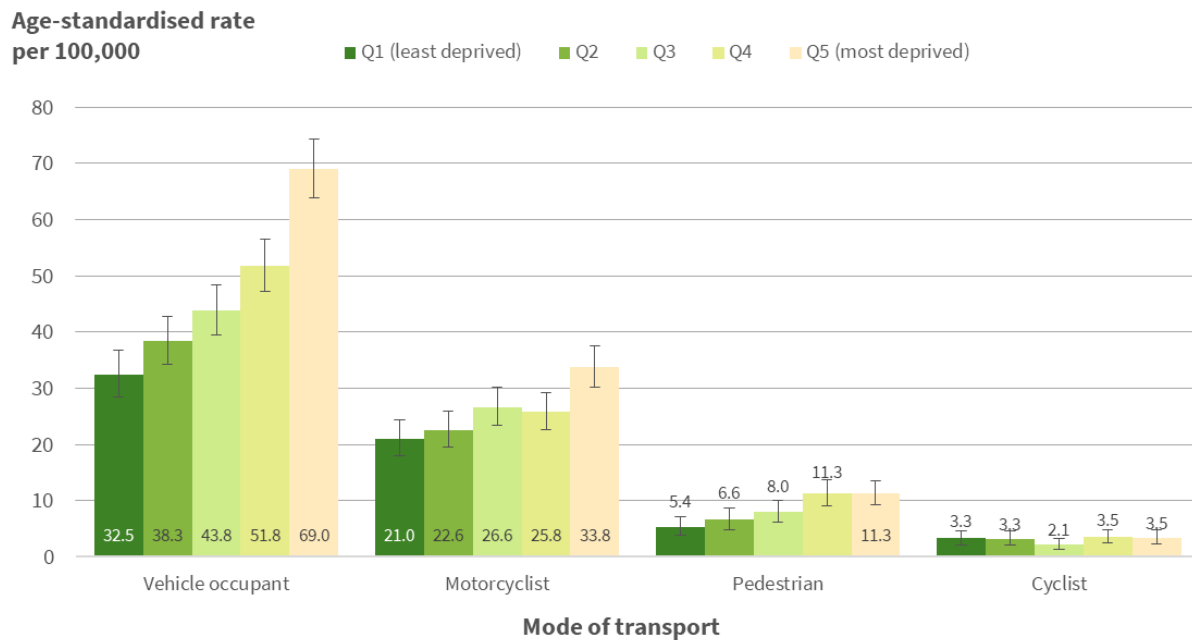
Figure 11: Road traffic injury hospitalisation rates, by ethnic group (prioritised) and mode of transport, 2023



Note: An asterisk (*) shows that the rate has been suppressed due to low numbers. 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

In 2023, 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 the least deprived areas (quintile 1). For both vehicle occupants (rate ratio=2.1, 95%CI 1.8-2.5) and pedestrians (rate ratio=2.1, 95%CI 1.5-3.0), those living in the most deprived areas were more than twice as likely to be hospitalised with a transport injury than those living in the least deprived areas (Figure 12).

Figure 12: Road traffic injury hospitalisation rates, by NZDep2018 quintile and mode of transport, 2023



Note: 95% confidence intervals have been presented as vertical bars.
Source: National Minimum Dataset 2024

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.

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.

Rate ratios provide a way of comparing two rates, and give the size of the relative difference between the two rates. A rate ratio higher than 1 indicates the rate is higher in the group of interest than in the comparison group. We have used 95% confidence intervals to decide if the rate ratio is statistically significantly different from 1 (where 1 indicates no difference because the two rates are the same). If the 95% confidence interval does not include 1, then the rate ratio is statistically significant (at the 5% probability level). For additional information, see the [Metadata](#) sheet.

References

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Author

The author of this report is Kirsty Craig, ehinz@massey.ac.nz

Citation

Environmental Health Intelligence. 2024. *Road traffic injury hospitalisations*. [Surveillance Report]. Wellington: Environmental Health Intelligence NZ, Massey University.

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