Road traffic injury mortality

This factsheet presents statistics for deaths caused by road traffic injuries in New Zealand.

Key facts

In 2019, there were 352 traffic-related fatalities in New Zealand. 2019 was the first year since 2013 to have a lower road toll than the previous year.

In 2014–16, mortality rates were highest for males (especially those aged 15–24), Māori, older adults, people living in more deprived areas and those living outside main urban areas.

In terms of deaths per time spent travelling and distance travelled, motorcyclists were at a 96- and 45-times greater risk of death (respectively) than non-motorcyclists.

The lowest mortality rates in 2012–16 occurred in Capital & Coast and Auckland DHBs.

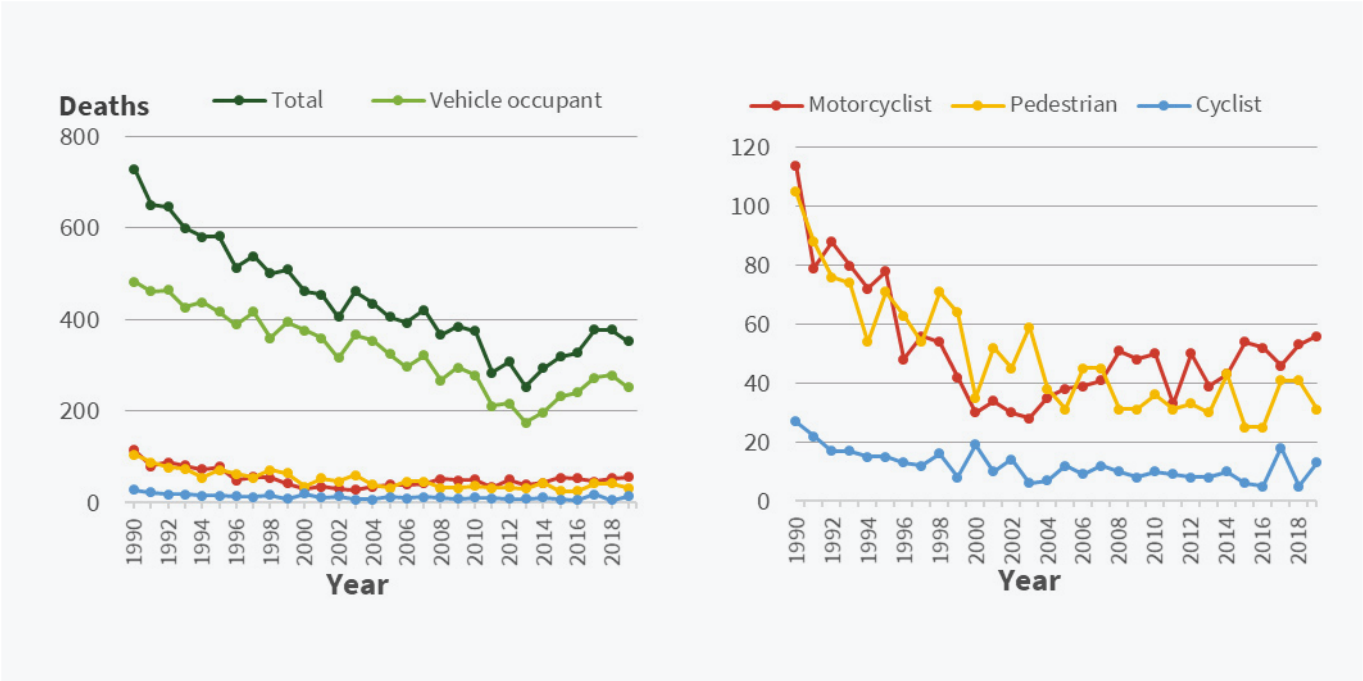
The health impact of road traffic accidents

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).

The road toll increased steadily from 2013 to 2019

In 2019, there were 352 road deaths due to traffic injuries (Figures 1a & 1b). The road toll decreased from 1990 (730 deaths) to 2013 (253 deaths) but increased from 2013 to 2018. 2019 was the first year since 2013 to have a lower road toll than the previous year. Most of the recent increase is due to a rise in the number of vehicle occupant deaths and to a lesser degree, an increase in motorcyclist fatalities since 2003. Among the 352 deaths in 2019, 251 were vehicle occupants (71%), 56 were motorcyclists (16%), 31 were pedestrians (9%) and 13 were cyclists (4%).

Figure 1a & 1b: Annual road toll, by mode of transport, 1990–2019



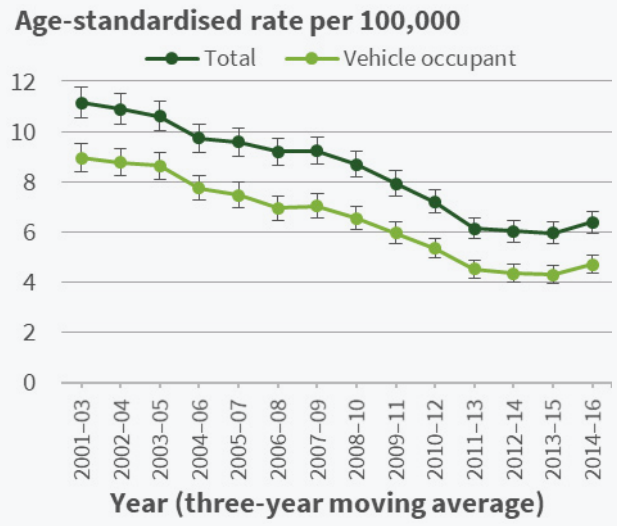
Source: Annual road toll (Ministry of Transport).

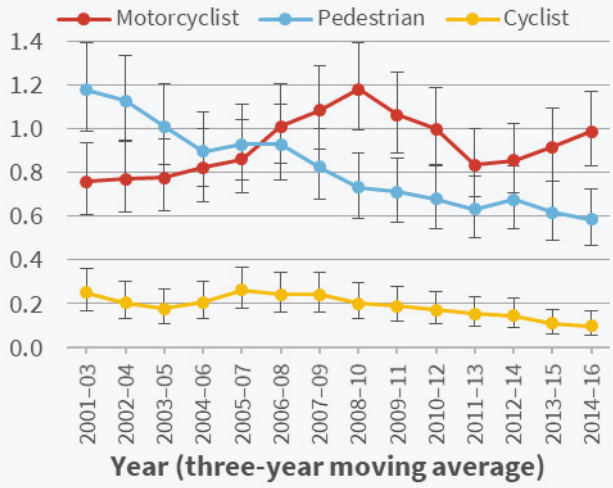
The increasing road toll has been linked to several major factors: an increase in alcohol consumption or being on a learner's license as a causal factor in crashes, and a regional effect associated with increasing crash rates in Auckland (Walton, Jenkins, Thoreau, Kingham & Keall, 2020) as well as an increase in kilometres travelled by vehicle (Deloitte 2017).

Declining mortality rates for most road user types

The overall road traffic injury mortality rates decreased between 2001–03 and 2014–16, as did the rates for vehicle occupants, pedestrians and cyclists, though the overall rate has increased from 2013 onwards, in line with the increasing road toll. The rate for motorcyclists initially increased, peaking in 2008–10, at which point it was significantly higher than in 2001–03. The rate in 2014–16 was no different from either the 2008–10 peak, or the 2001–03 rate.

Figure 2a & 2b: Road traffic injury mortality rates, by mode of transport, 2001–03 to 2014–16





Source: New Zealand Mortality Collection.

Motorcyclists were most at risk of death

Though travel by motorcycle only represents a very small proportion of the time and distance New Zealanders travel every year, the risk of fatal injury per time and distance travelled was substantially higher for motorcyclists than any other mode of transport (Table 1). Compared to non-motorcyclists, the risk was 96 times greater in terms of deaths per million hours and 45 times greater in terms of deaths per million kilometres.

Table 1: Road traffic injury mortality risk by mode of transport, 2015–18

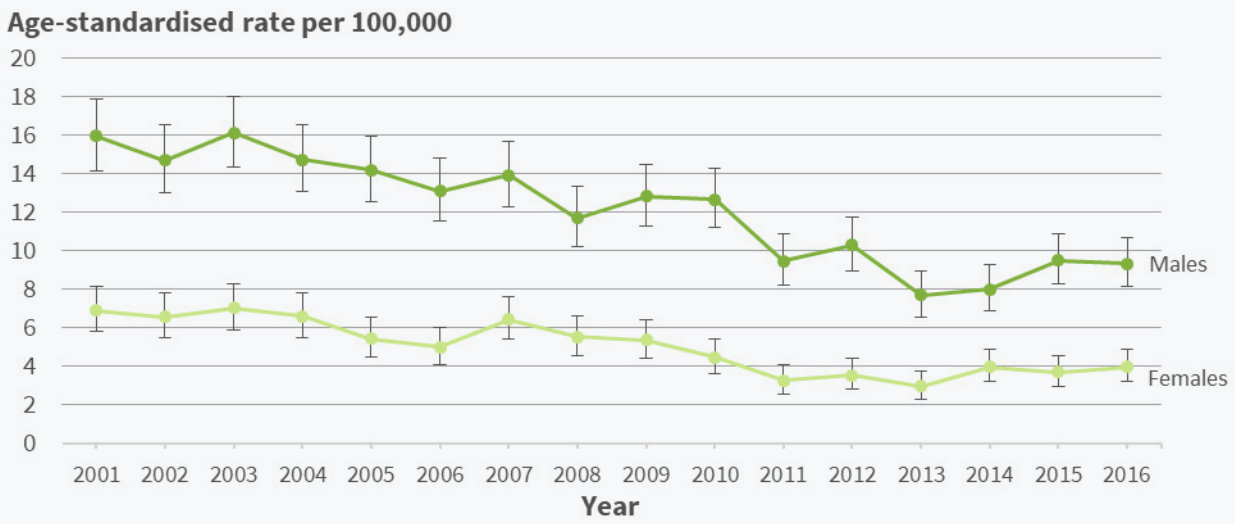
	Vehicle occupant	Motorcyclist	Pedestrian	Cyclist	All traffic
Million hours travelled	1232.8	2.7	143.2	21.9	**1400.6**
Million kilometres travelled	47886.7	113.2	666.5	304.2	**48970.5**
Number of deaths	236	51	9	33	**328**
Deaths per million hours	**0.2**	**19.2**	**0.1**	**1.5**	**0.2**
Deaths per million kilometres	**<0.01**	**0.45**	**0.01**	**0.15**	**0.01**

Note: The annual average number of deaths for the four-year period 2015–2018 from the annual Road Toll was calculated based on calendar year (January–December), while the annual average time and distance travelled (from the 2015–2018 Household Travel Survey) was based on the financial year (July–June). These are the intervals for which the data is recorded in each source.
Source: Annual Road Toll (Ministry of Transport, 2019) and New Zealand Household Travel Survey (2015–18).

Mortality rates for both sexes have decreased

Despite the slight increase in overall road traffic injury mortality rates since 2013, the rates for both sexes were still lower in 2016 than they were in 2001. The mortality rate for males was consistently higher than the rate for females throughout this period - in 2016, the male mortality rate was approximately double the female rate (9.4 deaths per 100,00 vs. 4.0 deaths per 100,000).

Figure 3: Road traffic injury mortality rates, by sex, 2001–16

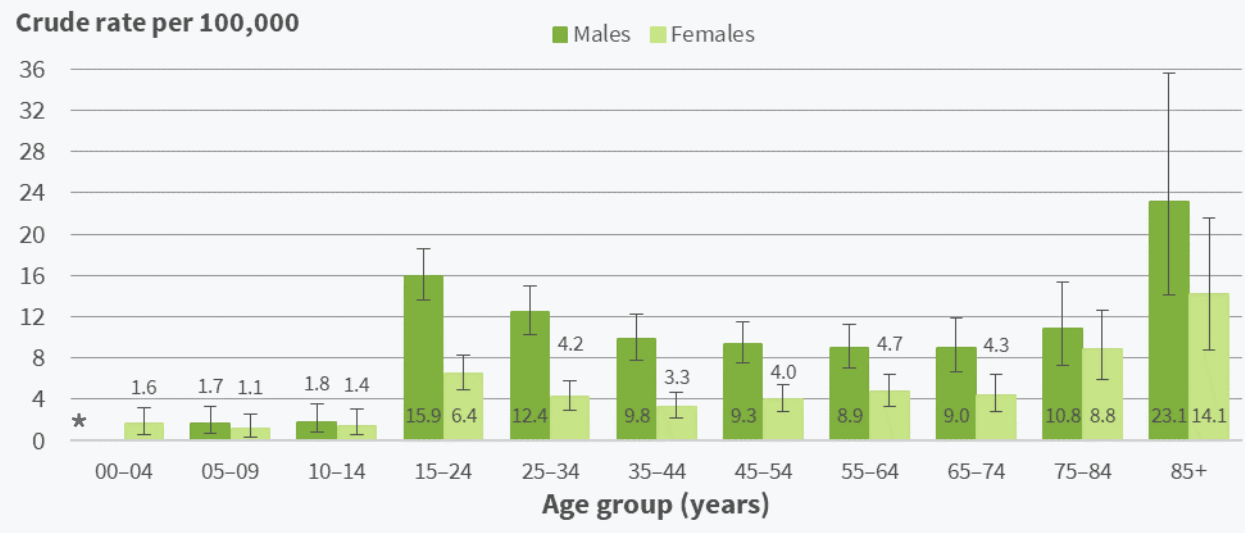


Source: New Zealand Mortality Collection.

The highest mortality rates were among males and all older adults

Males aged 15–24 years old, and all adults aged 85 years and over had the highest road traffic injury mortality rates in 2014–16. For all groups between 15–74 years of age, males had significantly higher rates than females (Figure 4).

Figure 4: Road traffic injury mortality rates, by age group and sex, 2014–16

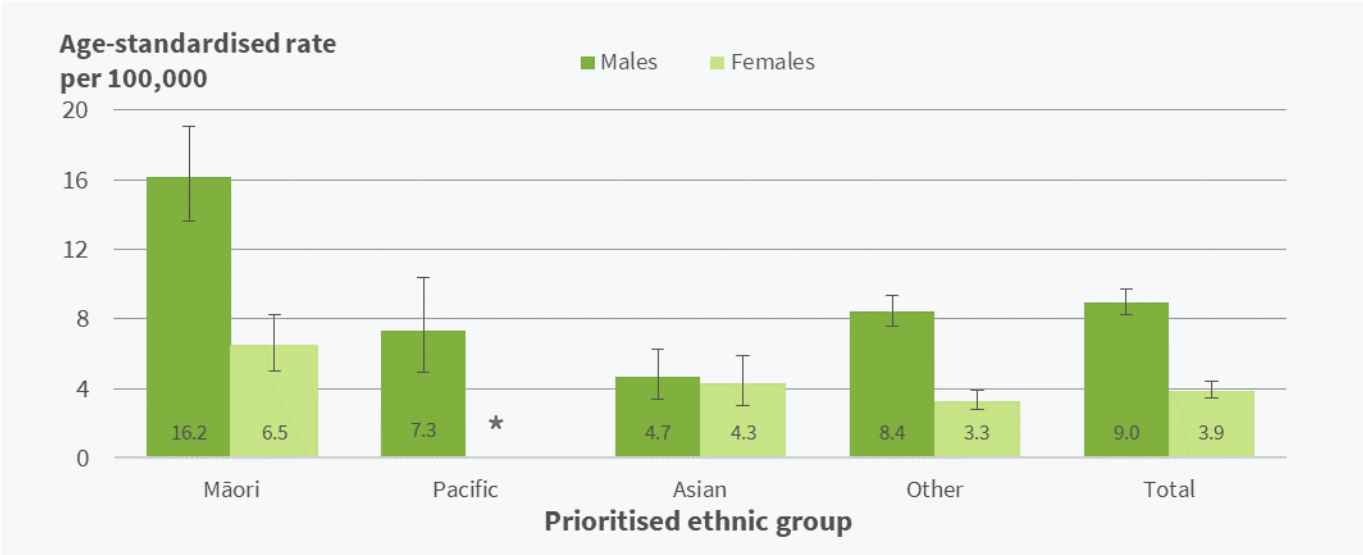


Note: * = There were no deaths in this age group during this period.
Source: New Zealand Mortality Collection.

Māori had higher traffic injury mortality rates

In 2014–16, Māori had the highest mortality rate for traffic injuries of any ethnic group, with the rate for Māori males being especially high. The mortality rate among females was much lower than the rate for males in all ethnic groups except for Asians.

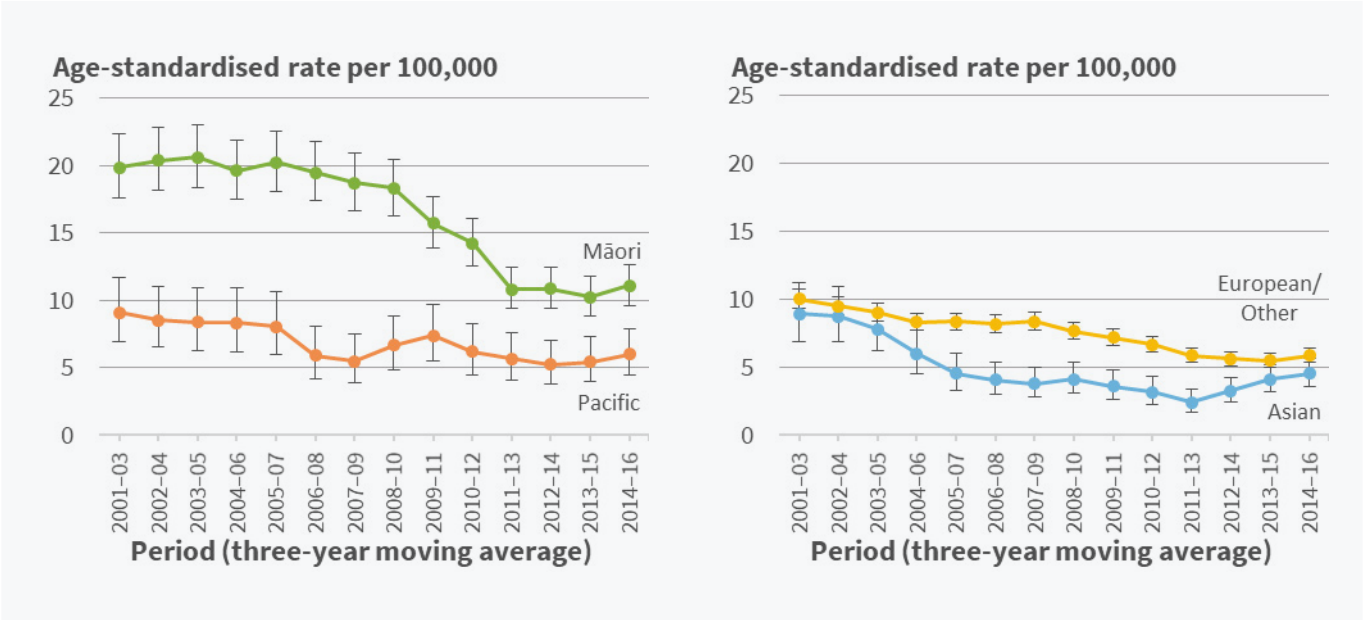
Figure 5: Road traffic injury mortality rate, by ethnic group (prioritised), 2014–16



Note: * = Rate suppressed due to a low count of deaths (<20).
Source: New Zealand Mortality Collection.

Though it remains high compared to other ethnicities, the overall mortality rate for Māori declined by almost half between 2001–03 and 2014–16 (Figure 6a & 6b). Pacific people were the only group whose mortality rate did not decline to a statistically significant degree during this period.

Figure 6a & 6b: Road traffic injury mortality rate, by ethnic group (prioritised), 2001–03 to 2014–16

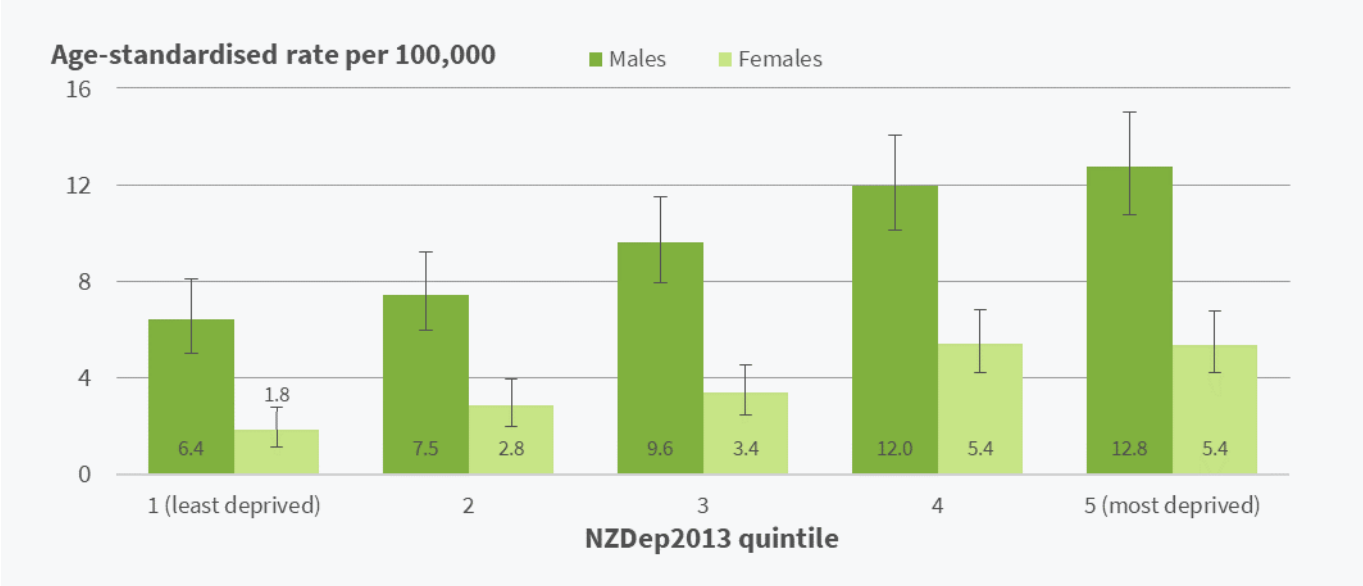


Source: New Zealand Mortality Collection.

People living in more deprived areas had higher mortality rates

Road traffic injury mortality rates in the most deprived areas (NZDep2013 quintile 5) were much higher than those in the least deprived areas (quintile 1) in 2014–16, for both sexes (Figure 7). Standardising for age, people living in the most deprived areas were twice as likely to die as the result of a road traffic injury than those in the least deprived areas (standardised rate ratio = 2.2, 95% confidence interval 1.7–2.8).

Figure 7: Road traffic injury mortality rates, by NZDep2013 quintile and sex, 2014–16

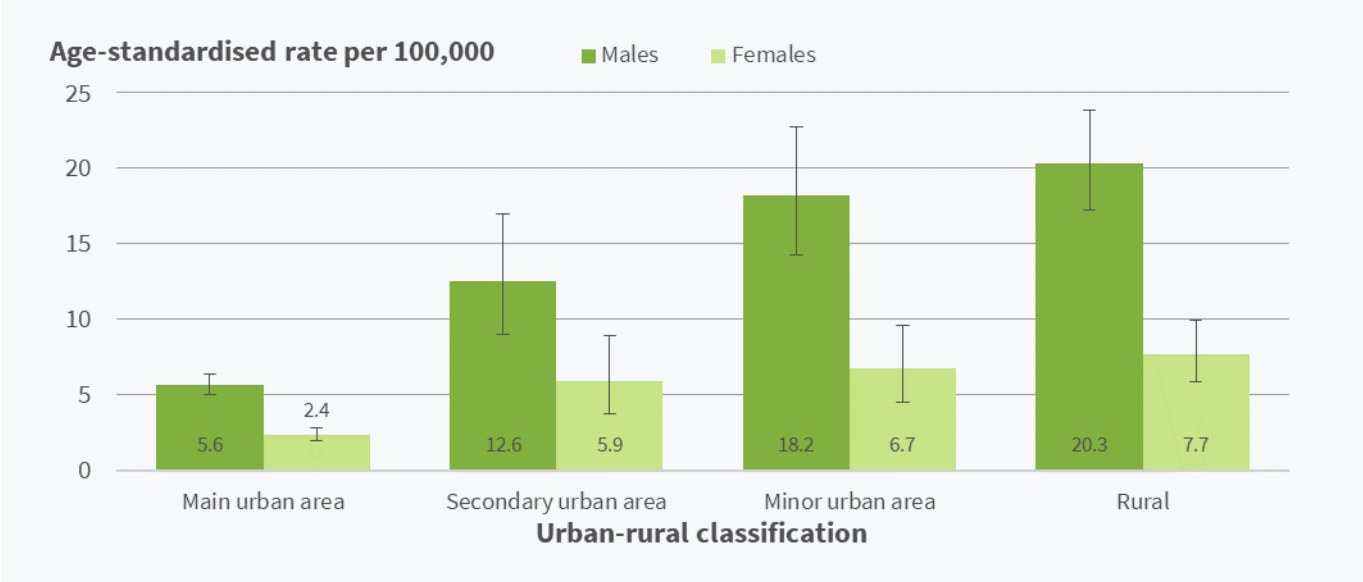


Source: New Zealand Mortality Collection.

People living in main urban areas had lower mortality rates

In 2014–16, people living main urban areas had much lower mortality rates for road traffic injuries than people living in rural areas (Figure 8). The rate for males was also significantly lower in secondary areas than in rural ones.

Figure 8: Road traffic injury mortality rates, by urban-rural classification and sex, 2014–16



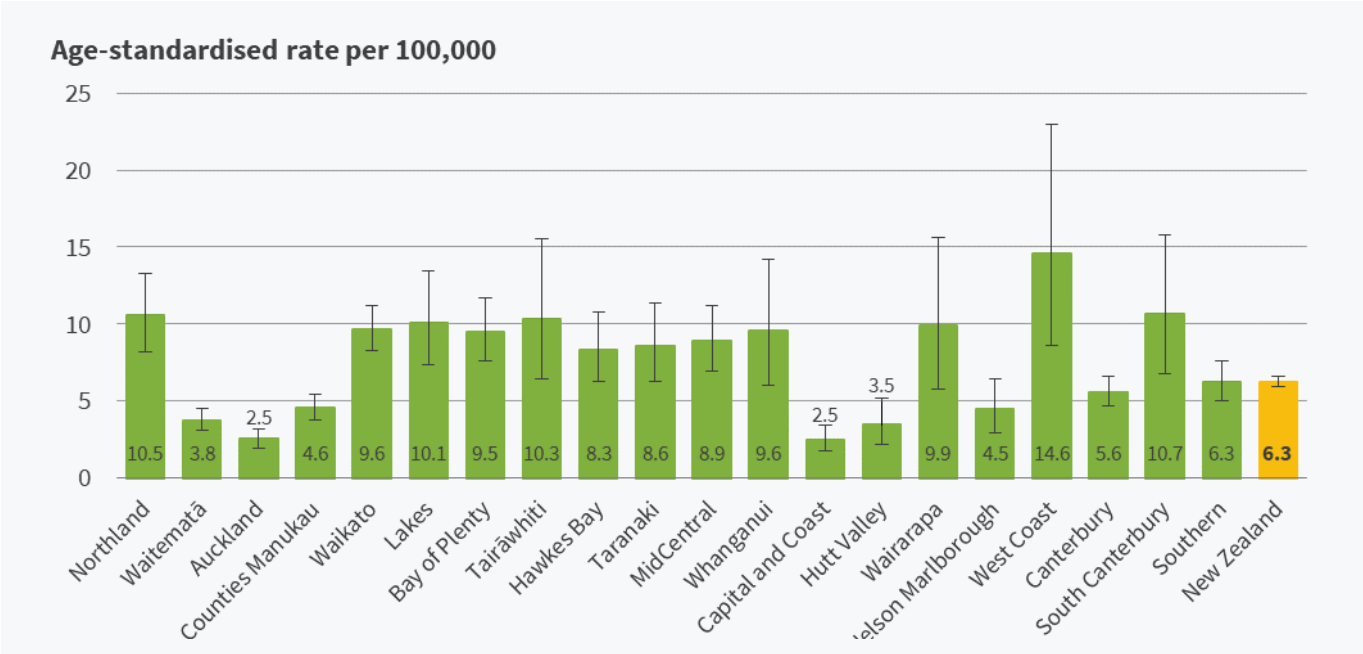
Note: Urban/rural classification is for 2013. Main urban areas refer to major towns and cities with a population of 30,000 or more. Secondary urban areas are smaller towns with a population of 10,000–29,999 people. Minor urban areas are towns with a population of 1,000–9,999 people. Rural areas include rural centres, and rural areas outside of these.

Source: New Zealand Mortality Collection.

The lowest mortality rates were in Auckland and Wellington

In 2012–16, the lowest road traffic injury mortality rates were in the Auckland region (represented by Waitemata, Auckland and Counties Manukau District Health Boards) and the Wellington region (Capital & Coast and Hutt Valley District Health Boards).

Figure 9: Road traffic injury mortality rates, by District Health Board, 2012–16

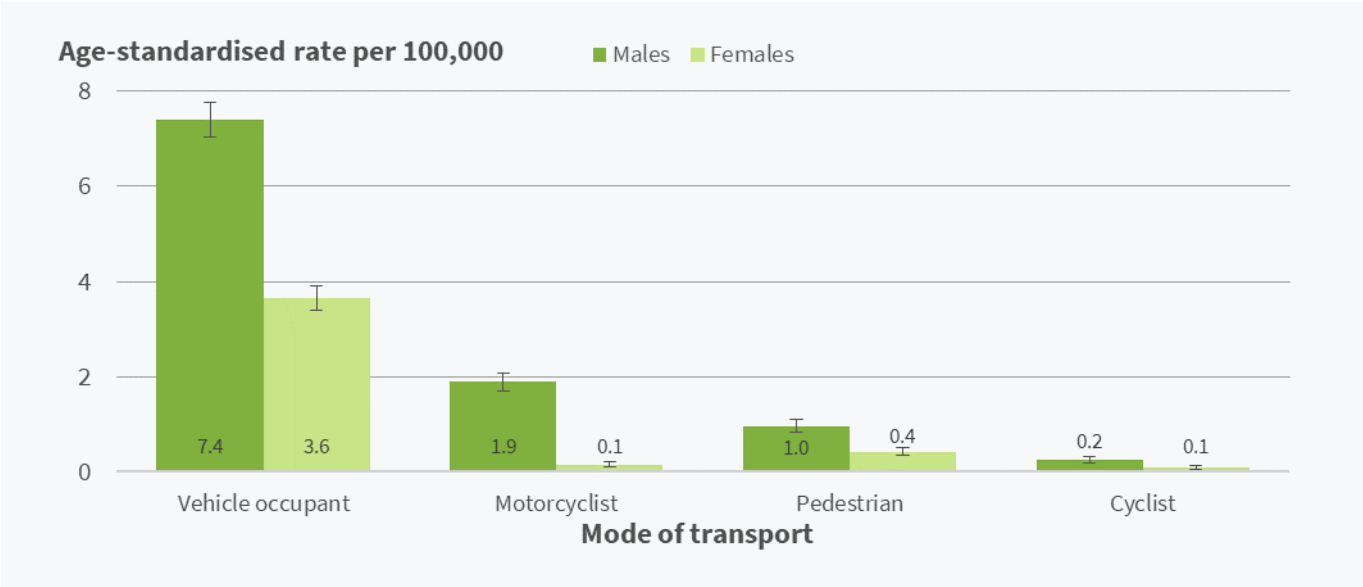


Source: New Zealand Mortality Collection.

Mortality statistics by road user type

In 2007–16, males had significantly higher mortality rates for all modes of transport (Figure 10). The contrast was especially strong between male and female motorcyclists.

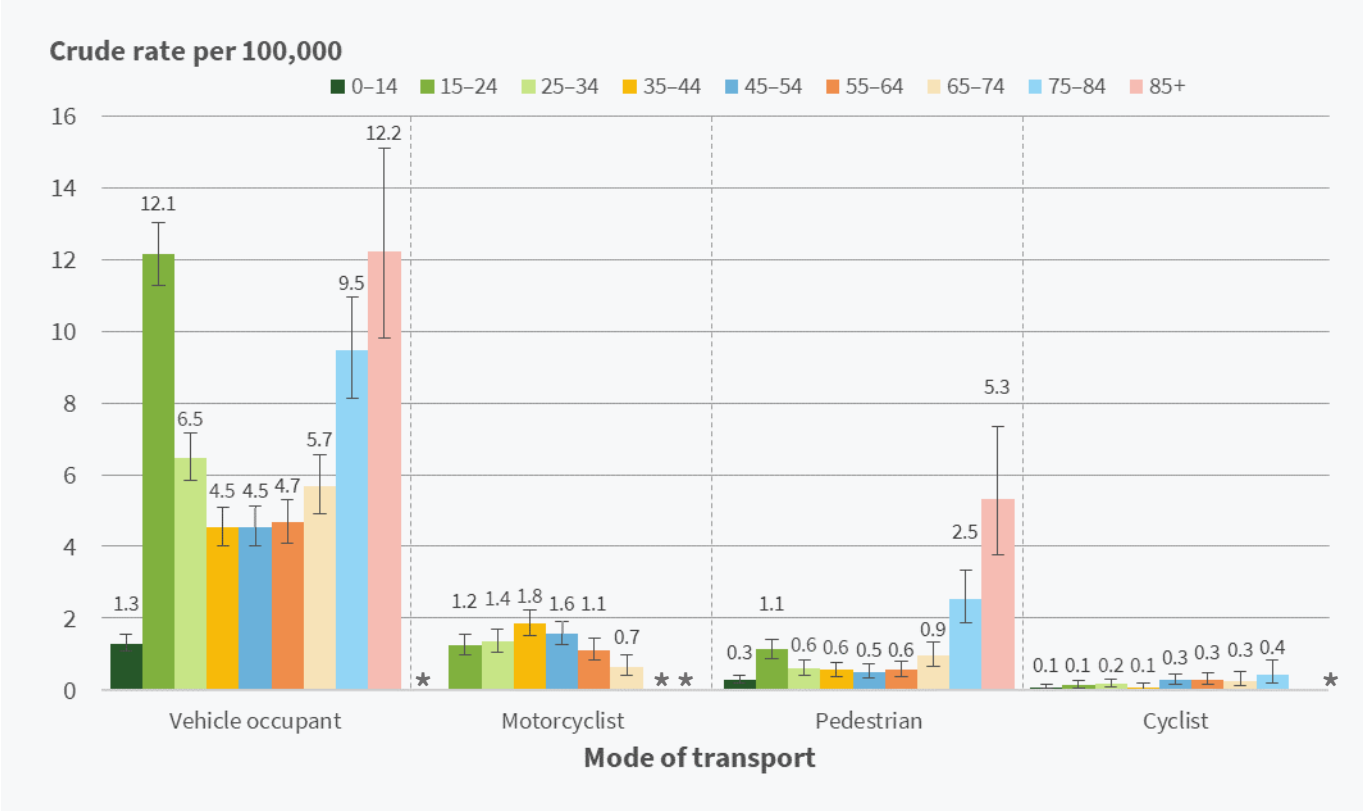
Figure 10: Road traffic injury mortality rates, by mode of transport and sex, 2007–16



Note: All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.
Source: New Zealand Mortality Collection.

Younger adults (15–24 years) and older adults (75+ years) had higher mortality rates for vehicle occupant injury. Mortality rates among pedestrians were also highest in older adults. By contrast, motorcyclists had higher mortality rates in the middle years, with younger and older adults having generally lower rates. Rates for cyclists did not differ between age groups (Figure 11).

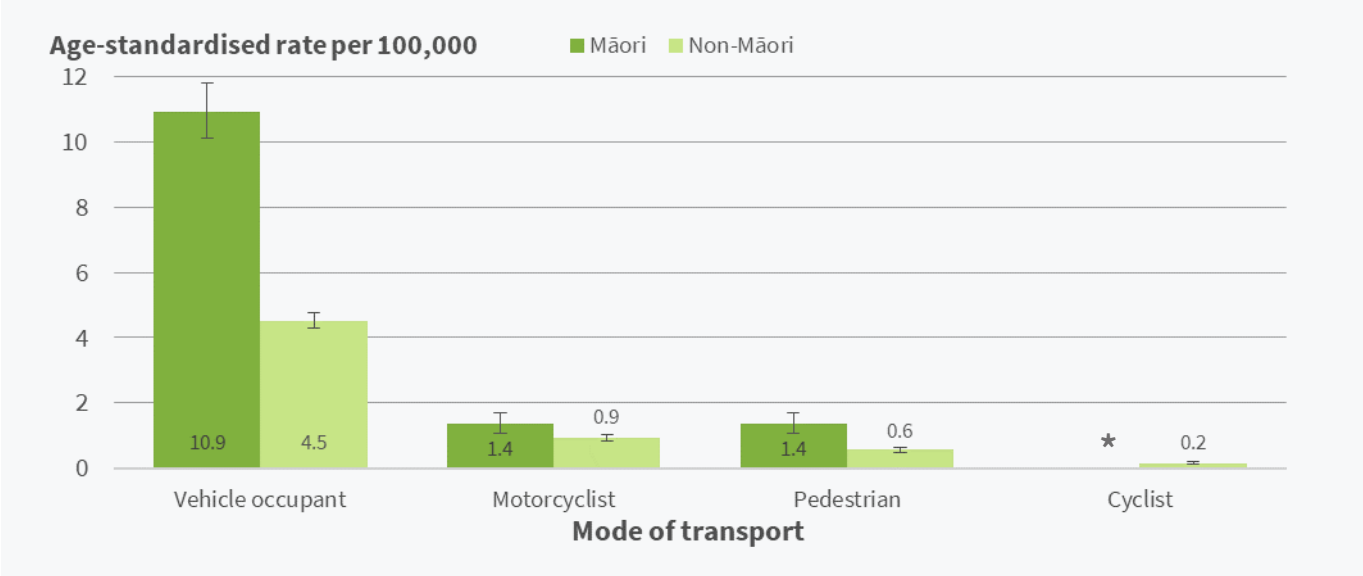
Figure 11: Road traffic injury mortality rates, by mode of transport and age group, 2007–16



Note: * = rates suppressed due to a low count of deaths (<5). All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.
Source: New Zealand Mortality Collection.

Māori had higher mortality rates than non-Māori for all modes of transport except for cycling (Figure 12). The contrast was particularly strong among vehicle occupants, where the Māori rate was more than double the non-Māori rate.

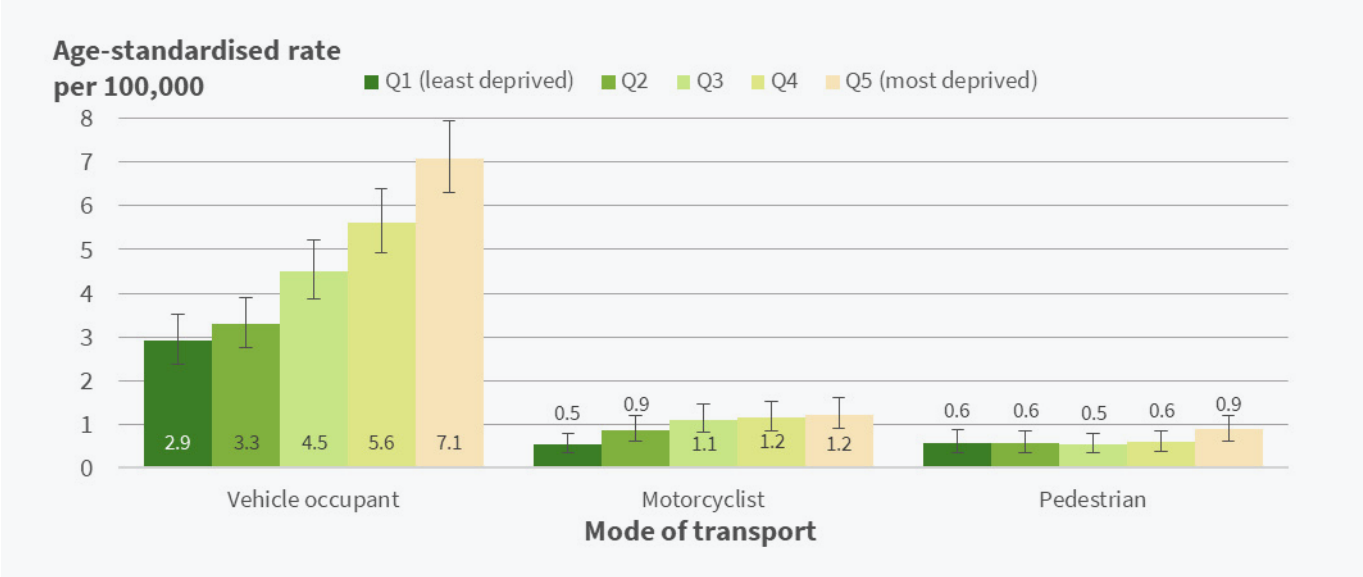
Figure 12: Road traffic injury mortality rates, by mode of transport and Māori/non-Māori ethnicity, 2007–16



Note: * = Rates suppressed due to a low count of deaths (<20). All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.
Source: New Zealand Mortality Collection.

In 2007–16, the mortality rates for vehicle occupants increased with socioeconomic deprivation, with the most deprived quintiles having higher rates than the least deprived. Motorcyclist mortality was also higher in the most deprived areas, in contrast to the rate in the least deprived. Pedestrian mortality rates were broadly similar across all quintiles (Figure 13).

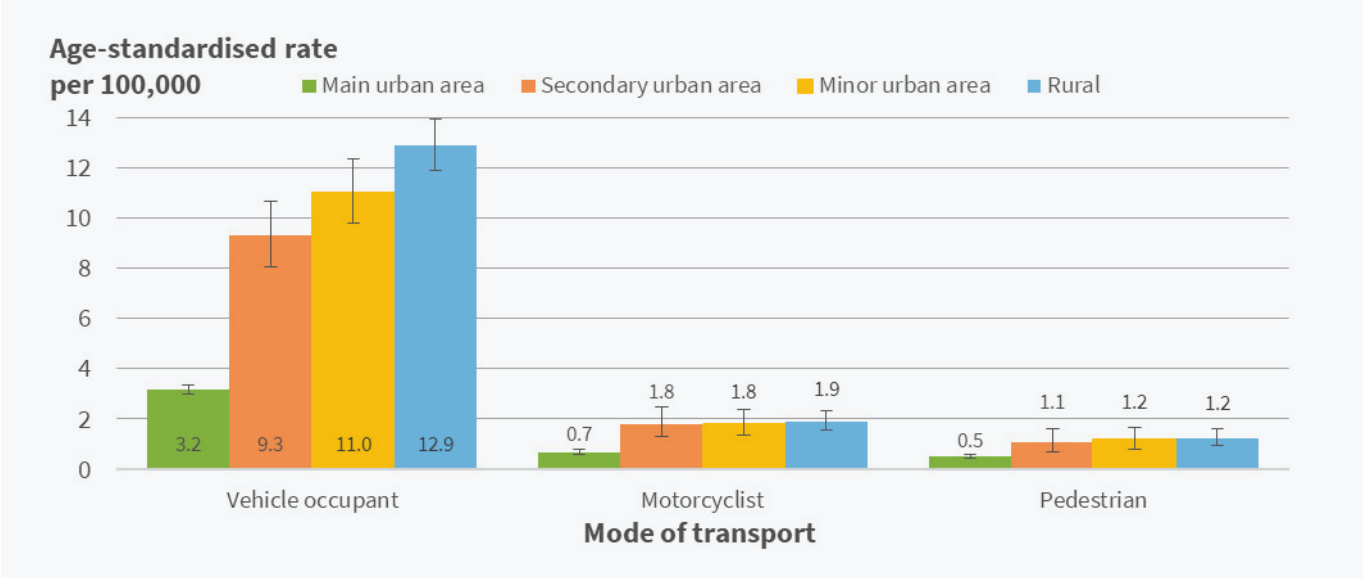
Figure 13: Road traffic injury mortality rates, by mode of transport and NZDep2013 quintile, 2007–2016



Note: The age-standardised mortality rates for cyclists have been excluded from this graph as there were few deaths in every quintile. All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.
Source: New Zealand Mortality Collection.

The mortality rates for all transport types were lowest in main urban areas (Figure 14).

Figure 14: Road traffic injury mortality rates, by mode of transport and urban-rural classification, 2007–2016



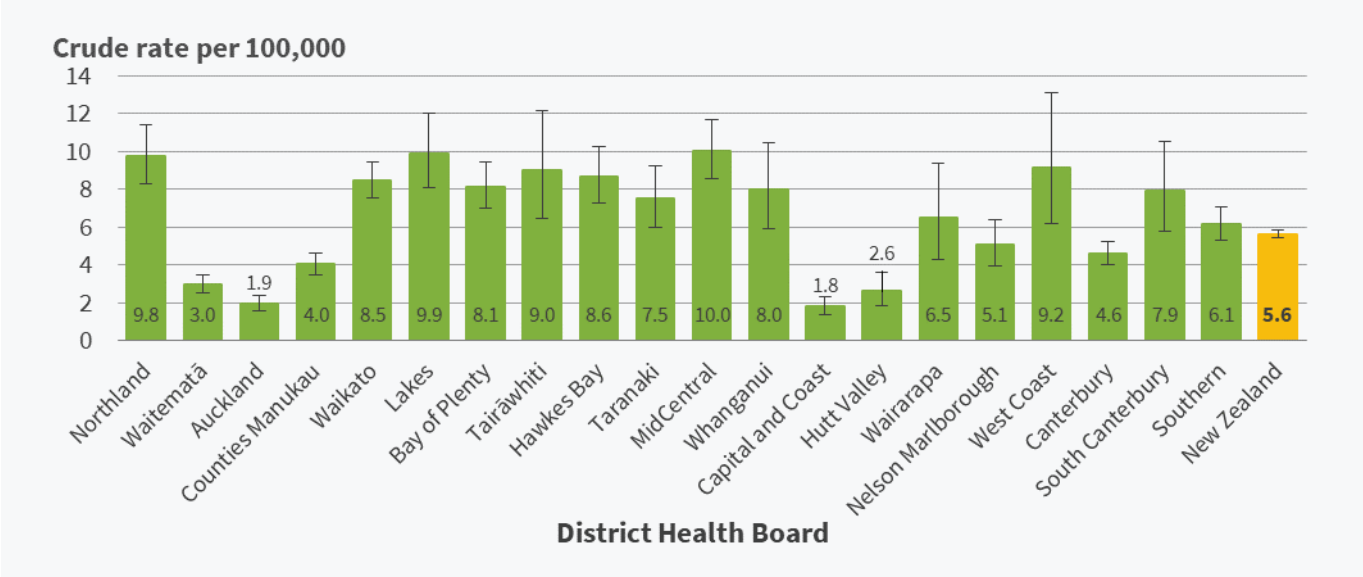
Note: The mortality rates for cyclists have been excluded from this graph as there were fewer than 20 deaths in most categories. Only main urban areas had enough cyclist deaths to calculate an age-standardised rate (0.1 per 100,000). All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.
Source: New Zealand Mortality Collection.

Large DHB differences in traffic injury mortality by mode of transport

The following graphs present crude rates, rather than age-standardised rates, due to low numbers. This means that the results do not consider the differing population age structures in the different DHBs. All rates are per 100,000 persons, not per 100,000 users of the relevant mode of transport.

In 2007–16, the vehicle occupant mortality rates for most North Island DHBs were generally higher than those in the South Island (Figure 15). However, the lowest rates occurred in Capital & Coast and Auckland DHBs.

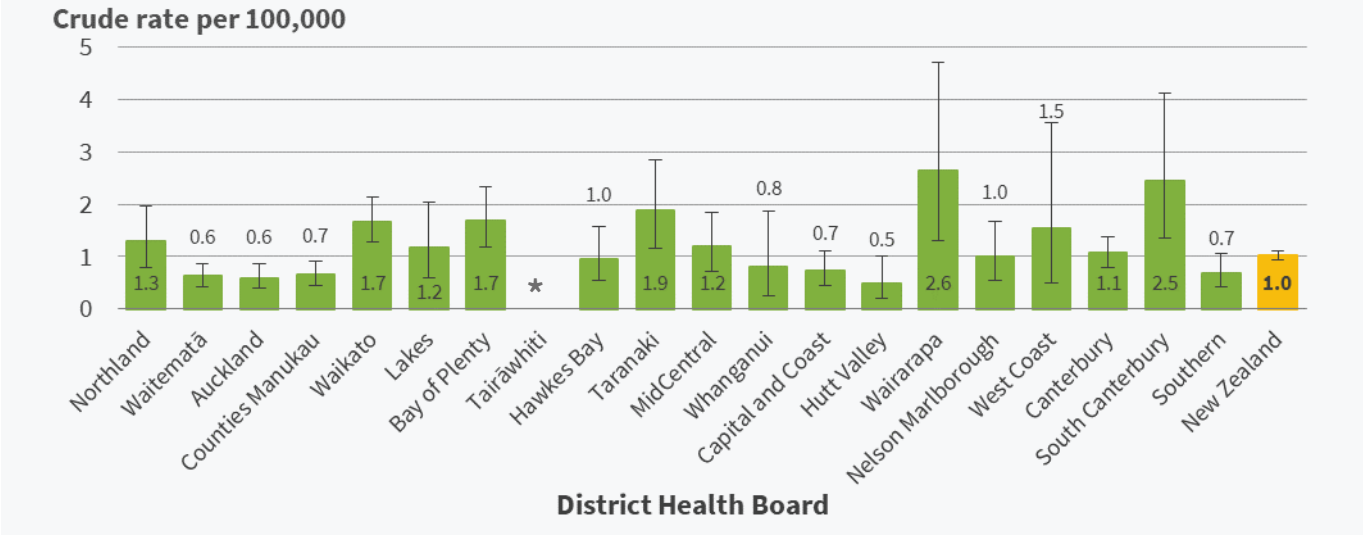
Figure 15: Vehicle occupant injury mortality rates, by DHB, 2007–16



Source: New Zealand Mortality Collection.

The highest motorcycle mortality rates were in Wairarapa and South Canterbury DHBs (Figure 16). Rates were generally lower in DHBs within the Auckland and Wellington region (excluding Wairarapa).

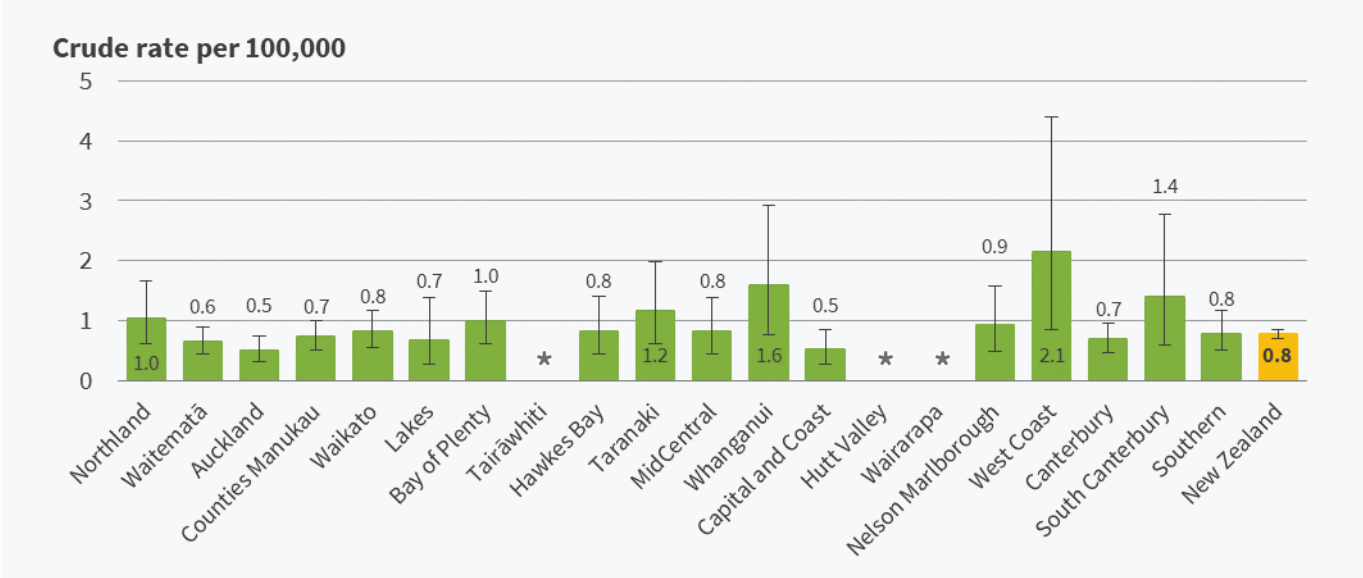
Figure 16: Motorcyclist injury mortality rates, by DHB, 2007–16



Note: * = The crude rate was suppressed due to low counts (<5).
Source: New Zealand Mortality Collection.

Pedestrian mortality rates were broadly similar across most DHBs (Figure 17).

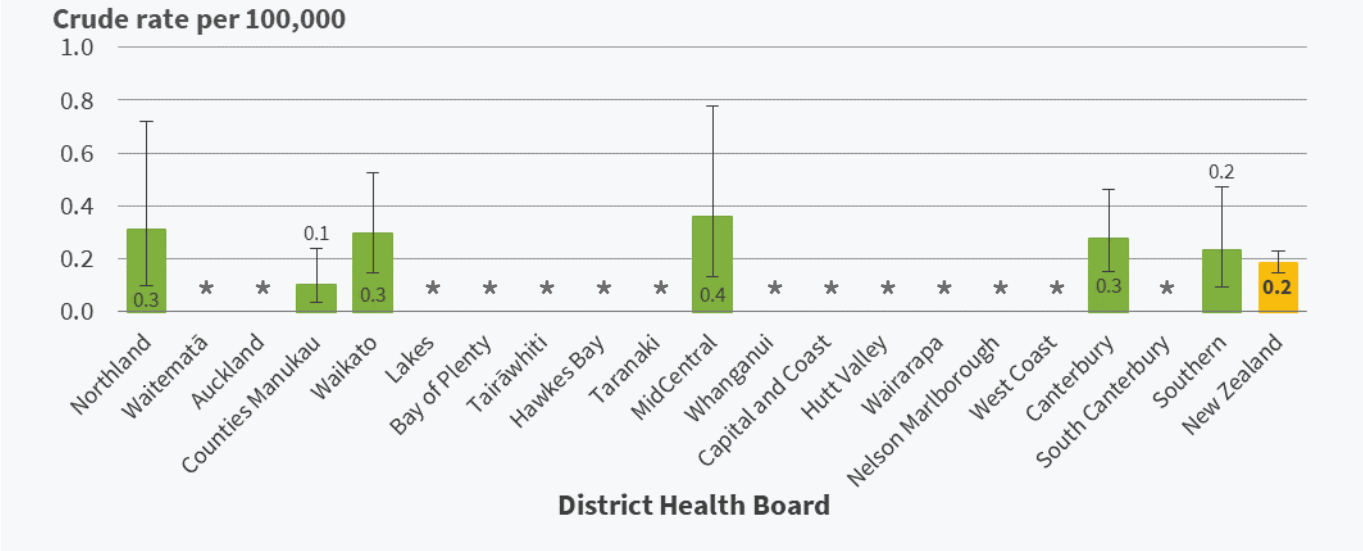
Figure 17: Pedestrian injury mortality rates, by DHB, 2007–16



Note: * = The crude rate was suppressed due to low counts (<5).
Source: New Zealand Mortality Collection.

Most DHBs had too few cyclist deaths to allow a crude mortality rate to be calculated (Figure 18). Of those where rates could be calculated, there was no clear difference between any two DHBs.

Figure 18: Cyclist injury mortality rates, by DHB, 2007–16



Note: * = The crude rate was suppressed due to low counts (<5).
Source: New Zealand Mortality Collection.

Data for this indicator

This factsheet includes two primary sources of data on road transport mortality. The annual road toll statistics (1990–2019) from the Ministry of Transport and more in-depth data from the New Zealand Mortality Collection (2001–2016). Some supporting data is from the New Zealand Household Travel Survey, also produced by the Ministry of Transport.

The following ICD–10AM codes were used to identify relevant cases from the mortality collection:

- 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). Age-standardised rates have been presented where possible, to account for the population age structures of different population groups. For additional information, see the metadata link below.

95% confidence intervals have been presented as error bars on graphs. Unless otherwise stated, all differences mentioned in the text between two values are statistically significant at the 5% level or less.

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Further information

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