Road traffic injuries in children aged 0–14 years

This factsheet presents indicators of the number of deaths and hospitalisations from road traffic injuries in children aged 0 to 14 years.

Key facts

In 2016, 12 children aged 0–14 years old died from traffic-related injuries. The mortality rate for such injuries remained mostly unchanged between 2010 and 2016.

In 2019, 269 children were hospitalised for traffic-related injuries. The hospitalisation rate has been stable since 2012.

In 2019, vehicle occupants represented roughly half of all non-fatal injuries among children and two-thirds of all deaths in 2016.

Māori children had traffic injury mortality rates which were three times higher than those of children of other ethnicities and represented 52% of all traffic-related deaths between 2007–16.

Half of all DHBs had fewer than five child deaths in the ten years between 2007–16. The highest mortality rate occurred in Hawke's Bay DHB, while Whanganui DHB had the highest hospitalisation rate.

The health impact of road transport accidents on children

Traffic-related deaths and injuries are the primary health impact of road transport in New Zealand (Briggs et al 2016). This is evidenced by transport injuries being among the top ten leading causes of health loss in children aged 0–14 years in 2013 (Ministry of Health 2013). There are several factors that place children at special risk of traffic-related injury (World Health Organisation 2007):

- **Physical development** – Children's bodies are less resilient to damage than those of adults. For instance, a child's ribs tend to bend inwards rather than break when pressure is applied, which results in the force of a collision being transferred directly to the heart and lungs. This risk is often compounded by seatbelts designed for adults failing to properly restrain a child. As a child's body is relatively top-heavy, there is also a greater disposition towards head injuries among children.

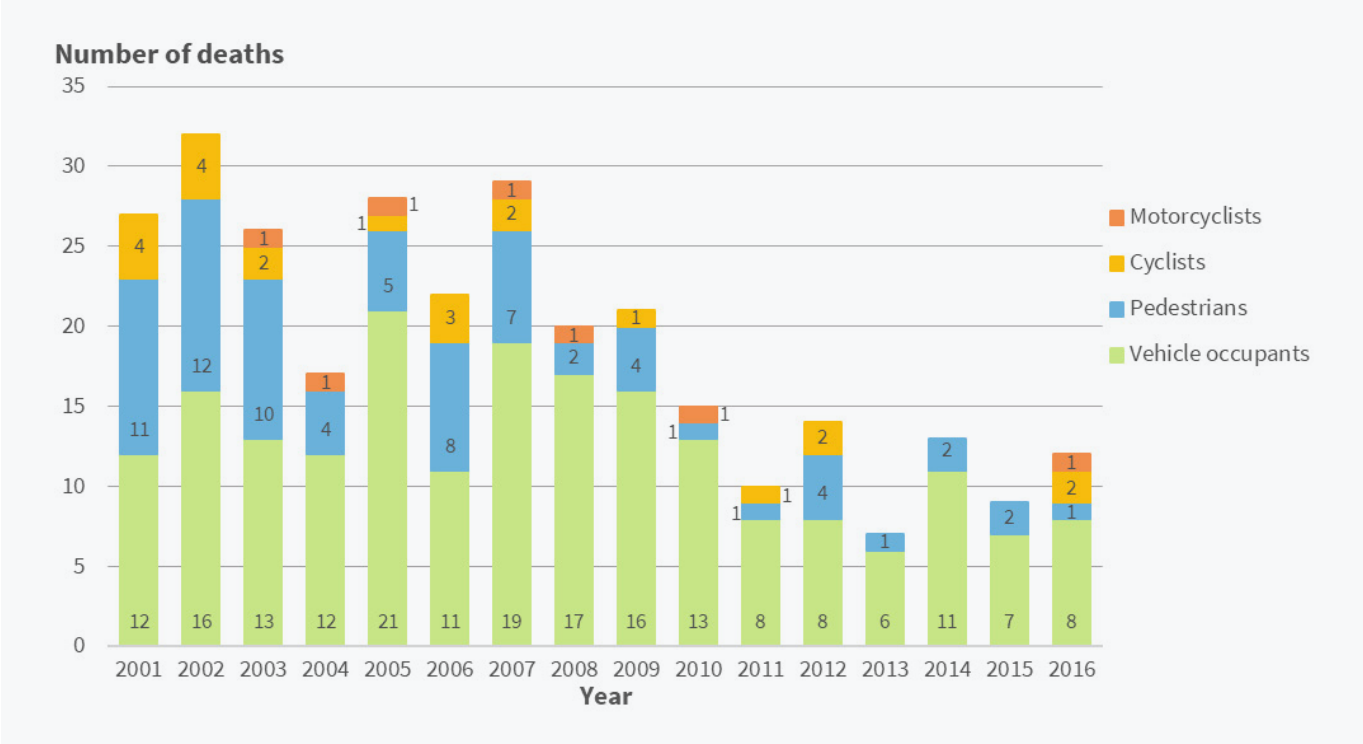
- **Awareness** – As they are smaller than adults, children may have difficulty viewing nearby traffic or being seen by other road users. Children are less able to judge distances and speeds of moving objects and cannot judge the direction from which a vehicle is approaching based on the sound it produces as easily.
- **Judgement** - Children under 11 years of age are less able to assess risk and make safe decisions on the road (Peden et al 2008). Meanwhile, older children are more likely to knowingly engage in risky behaviour, whether as the result of peer-pressure or as the consequence of the sensation-seeking behaviour common to adolescents.

Road traffic injury mortality among children

Traffic injury deaths among children have marginally decreased

In 2016, 12 children aged 0–14 years died from road traffic injuries (Figure 1). In 2016, as in every other year, most deaths were vehicle occupants (8 out of 12 deaths).

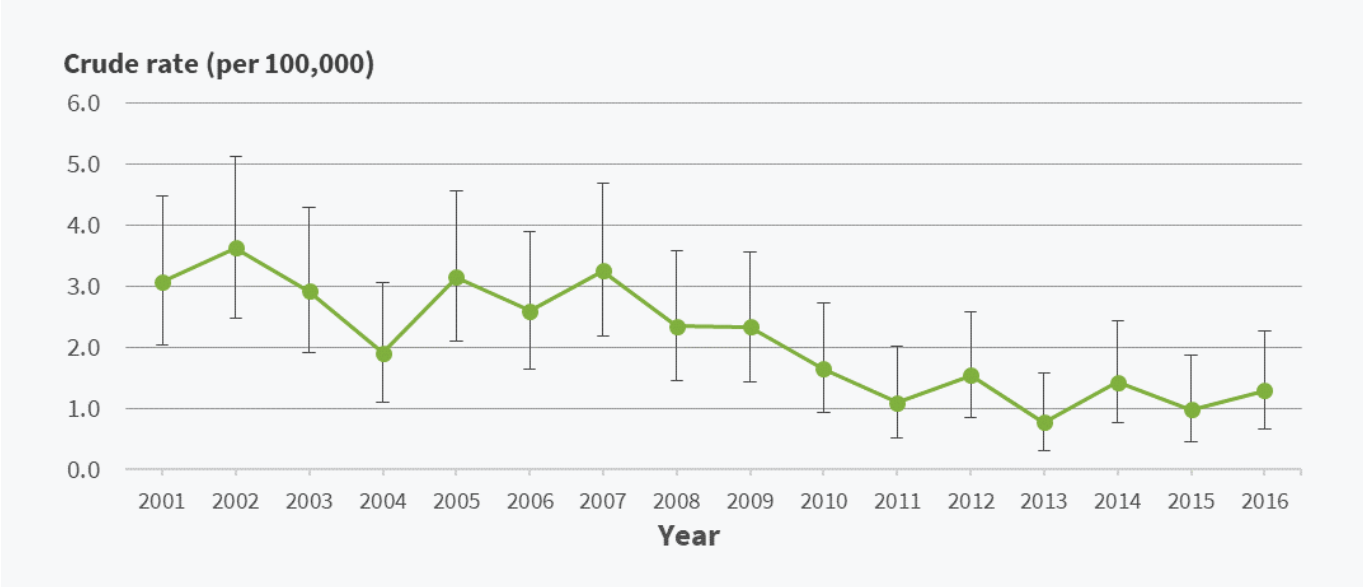
Figure 1: Number of road traffic injury deaths for children aged 0–14 years, 2001–16



Source: New Zealand Mortality Collection

The mortality rate for such injuries among children fell slightly between 2001 and the early 2010s but has shown little variation in the most recent five years of data (Figure 2).

Figure 2: Road traffic injury mortality rates for children aged 0–14 years, 2001–16

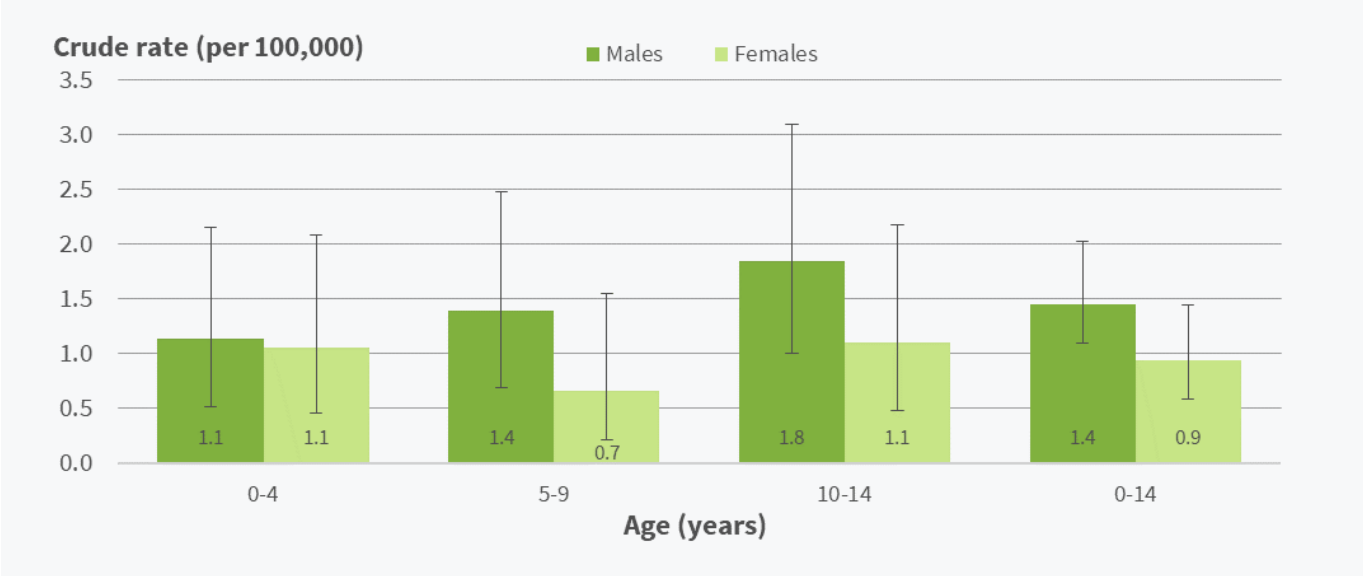


Source: New Zealand Mortality Collection

Traffic injury deaths were higher among older children

In 2012–16, the rate of road traffic injury deaths increased with age and was highest for 10–14-year olds (1.5 per 100,000) (Figure 3).

Figure 3: Traffic injury mortality rates for children aged 0–14 years, by age and sex, 2012–16

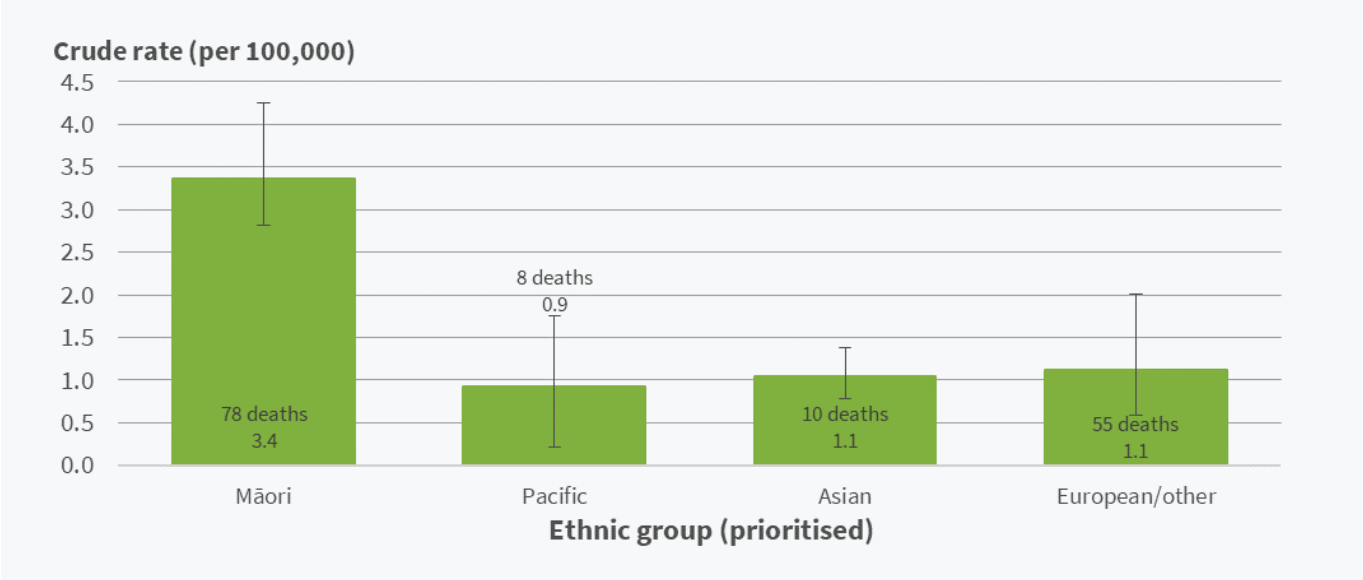


Source: New Zealand Mortality Collection

Traffic injury mortality rates were three times as high among Māori

In 2007–16, Māori children had far higher traffic injury mortality rates than other children (Figure 4). In this period, the crude mortality rate among Māori children was triple that of other ethnic groups, while 52% (78 out of 151) of all traffic-related deaths among children were among Māori.

Figure 4: Traffic injury mortality rates for children aged 0–14 years, by ethnic group (prioritised), 2007–16

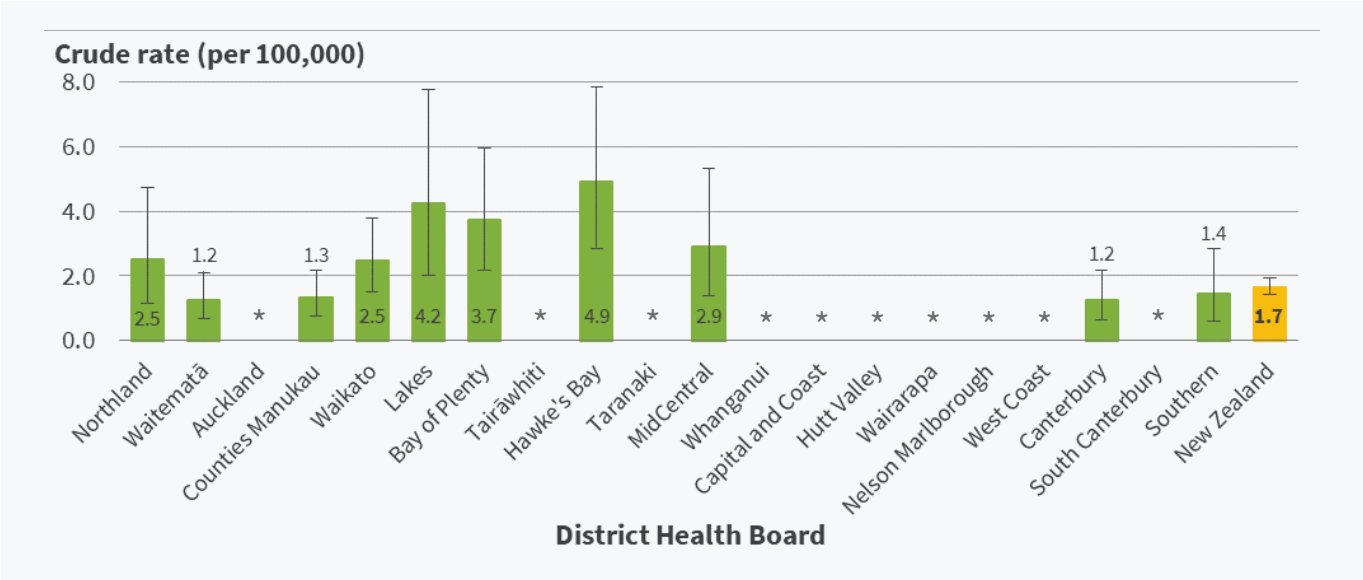


Source: New Zealand Mortality Collection

Traffic injury mortality rates were highest in Hawke's Bay

In 2007–16, the highest road traffic injury mortality rates among children occurred in Hawke's Bay District Health Board (DHB) (Figure 5).

Figure 5: Traffic injury mortality rates for children aged 0–14 years, by DHB, 2007–16



Notes: An asterisk (*) indicates a suppressed rate due to a low count of deaths (<5). The statistical test for differences between rates in the above graph uses a multiple testing adjustment. Please note that the adjusted values used for multiple testing may not be reflected in the above graph.

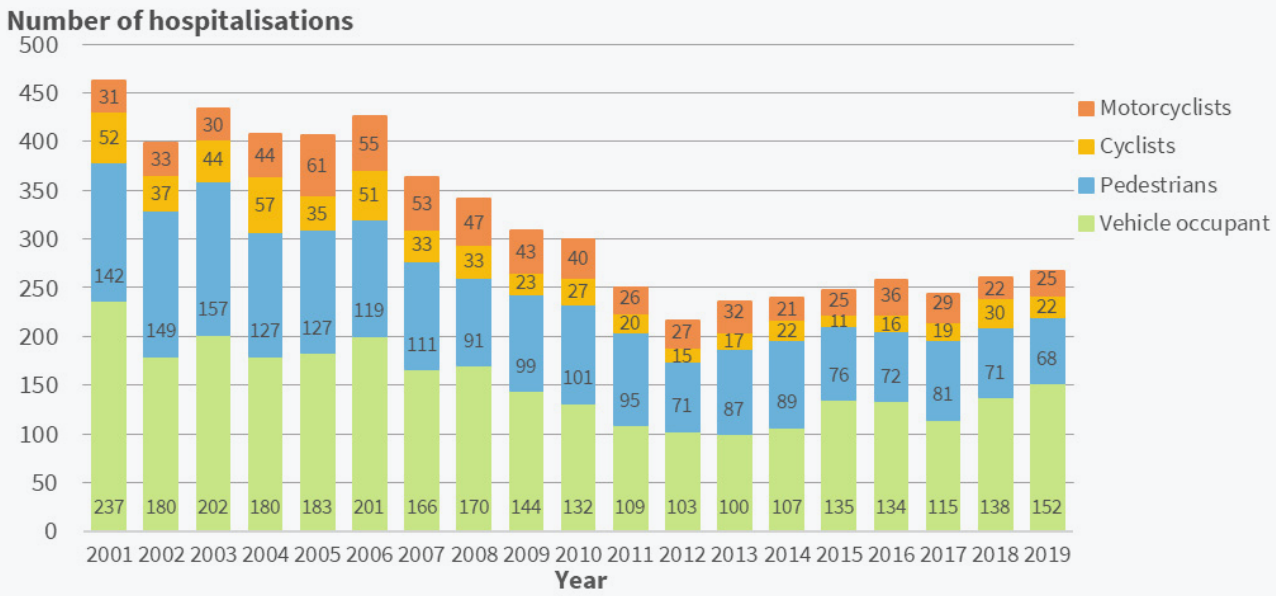
Source: New Zealand Mortality Collection

Road traffic injury hospitalisation rates among children

Traffic injury hospitalisations in children decreased between the early 2000s and early 2010s

In 2019, 269 children were hospitalised for injuries arising from road traffic incidents (Figure 6). Of these, 56.5% were vehicle occupants (152 out of 269). A further 25.3% (68 hospitalisations) were pedestrians, 8.2% were cyclists (22 hospitalisations) and 9.3% (25 hospitalisations) were motorcyclists. Two hospitalisations related to modes of transport not shown in the graph below.

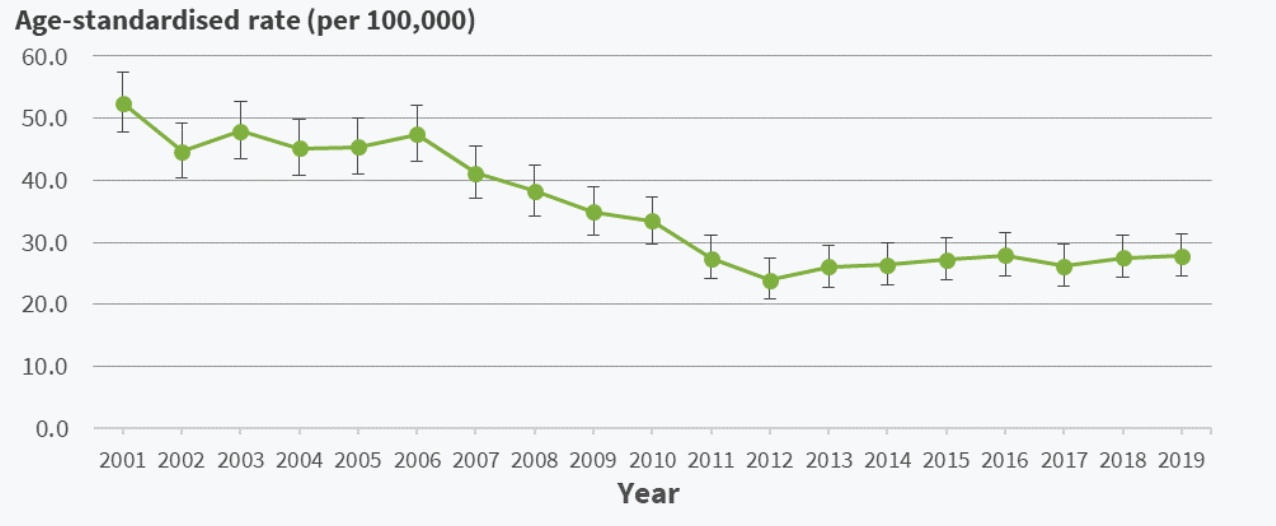
Figure 6: Number of traffic injury hospitalisations for children aged 0–14 years, 2001–19



Source: National Minimum Dataset

The hospitalisation rate for traffic injuries among children dropped by around 50% between 2001 and the early 2010s and remained fairly stable throughout the decade. (Figure 7).

Figure 7: Traffic injury hospitalisation rates for children aged 0–14 years, 2001–19

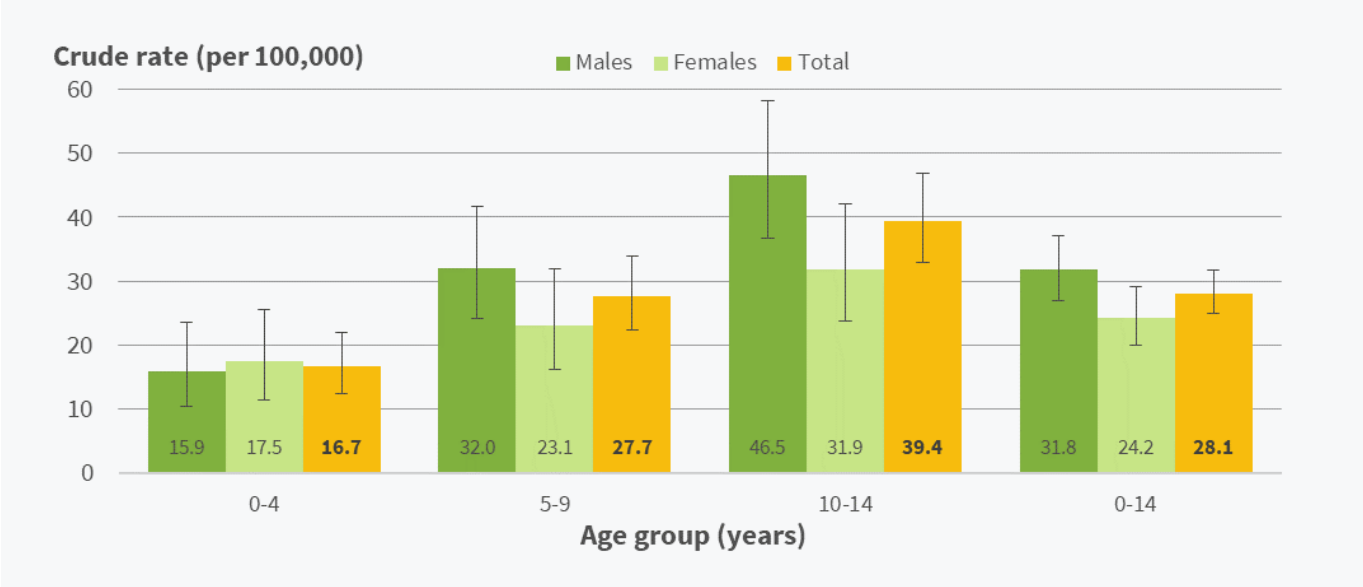


Source: National Minimum Dataset

The highest hospitalisation rates occurred among older children and males

In 2019, the rate of road traffic injury hospitalisations among children was highest for 10–14-year olds (39.4 per 100,000). Overall, male children had higher hospitalisation rates than females (Figure 8).

Figure 8: Traffic injury hospitalisation rates for children aged 0–14 years, by age and sex, 2019

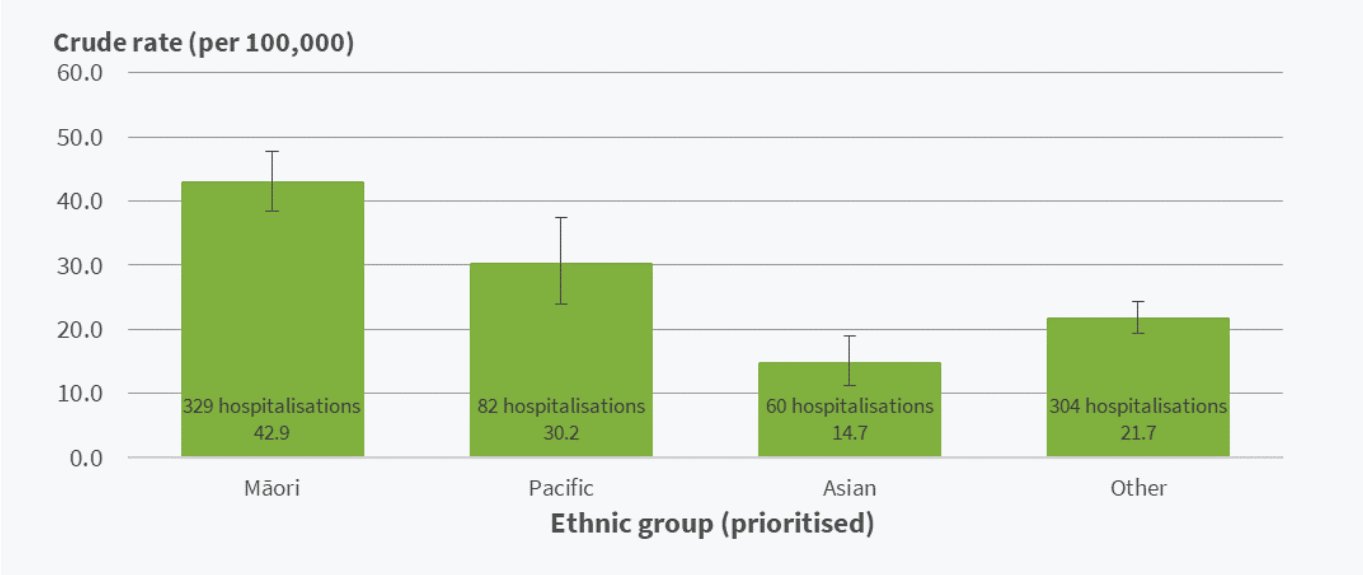


Source: National Minimum Dataset

Traffic injury hospitalisation rates were higher among Māori and Pacific people

In 2017–19, Māori and Pacific children of both sexes had higher traffic injury hospitalisation rates than children in other ethnic groups (Figure 9). The rate among Māori children was particularly high, being roughly one-and-a-half times greater the rate for Pacific children, twice that of European/Other children and triple that of Asian children.

Figure 9: Traffic injury hospitalisation rates for children aged 0–14 years, by ethnic group (prioritised), 2017–19

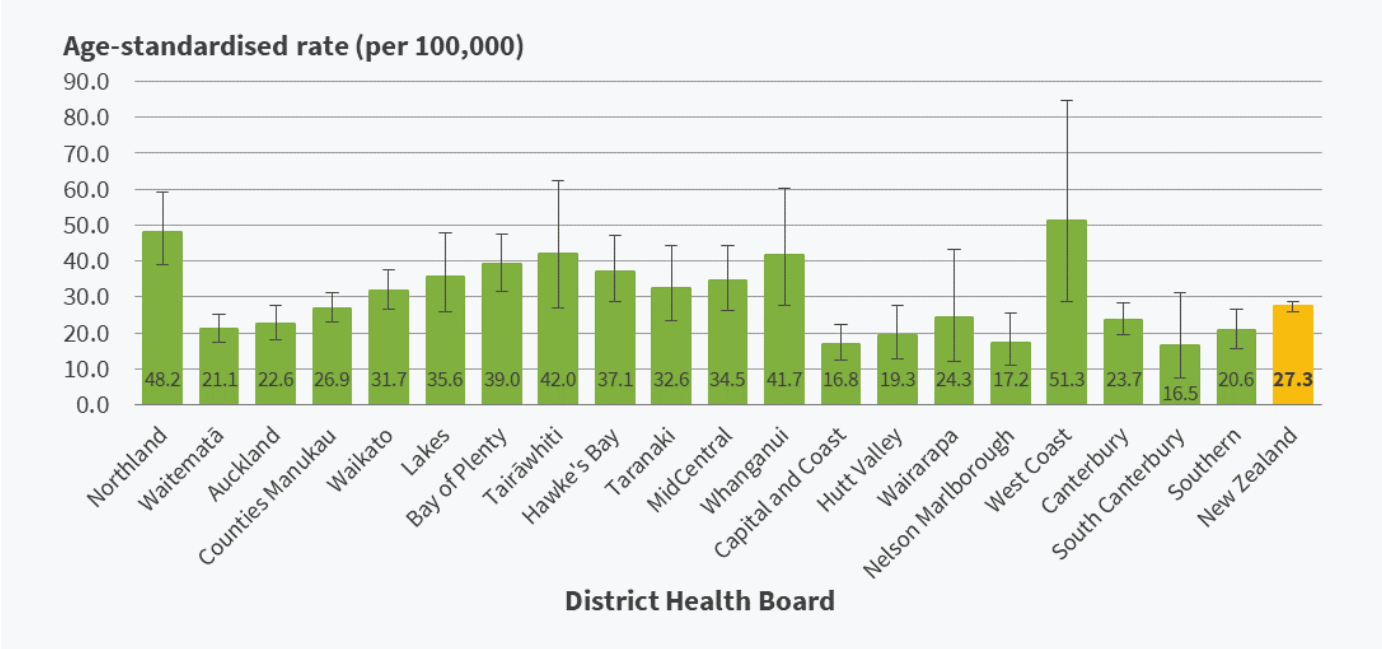


Source: National Minimum Dataset

Traffic injury hospitalisation rates were highest in Northland DHB

In 2015–19, the highest traffic injury hospitalisation rates among children occurred in Northland DHB (Figure 10).

Figure 10: Traffic injury hospitalisation rates for children aged 0–14 years, by DHB, 2015–19



Note: The statistical test for differences between rates in the above graph uses a multiple testing adjustment. Please note that the adjusted values used for multiple testing may not be reflected in the above graph.

Source: National Minimum Dataset

Data for this indicator

This factsheet includes data on road transport injuries in children aged 0–14 years. Data are firstly presented for traffic injury deaths, from the New Zealand Mortality Collection (2001–2016), and then for traffic injury hospitalisations, from the National Minimum Dataset (2001–2019).

The following ICD–10 AM codes were used to extract relevant statistics from the datasets:

- 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).

'All traffic injuries' includes occupant injury (injuries of driver or passenger of three or four-wheeled motor vehicles), motorcyclist injury, pedestrian injury, cyclist injury, other injury and unspecified injury. Hospitalisations have excluded short-stay Emergency Department visits, day cases, deaths, transfers between or within hospitals, overseas visitors, and readmissions.

All 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. For additional information, see the metadata link below.

References

Briggs D, Mason K, Borman B. 2016. Rapid assessment of environmental health impacts for policy support: The example of road transport in New Zealand. *International Journal of Environmental Research and Public Health* 13: 61.

Centers for Disease Control and Prevention. 2002. *ICD Framework: External Cause of Injury Mortality Matrix.* Retrieved 18/03, 2015, from **http://www.cdc.gov/nchs/injury/ice/matrix10.htm**

Ministry of Health. 2013. *Health Loss in New Zealand 1990–2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study.* Wellington: Ministry of Health.

Peden M, Oyegbite K, Ozanne-Smith J, et al, (Eds). 2008. *World report on child injury prevention.* Geneva: World Health Organization. Available from: **https://www.ncbi.nlm.nih.gov/books/NBK310641/**

World Health Organization. 2007. *Youth and Road Safety.* Geneva: World Health Organisation.

Other related topics include:

Road traffic injury deaths and hospitalisations (all ages)
Number of motor vehicles
Main mode of transport to work
Active transport to and from school
Household travel time by mode of transport
Unmet GP need due to transport

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Further information

For descriptive information about the data **Road traffic mortality** **Road traffic hospitalisations**

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