

Road traffic injuries (children aged 0–14 years)

HIGHLIGHTS

- In 2014, 13 children aged 0–14 years died from traffic injury, the majority as vehicle occupants (11 deaths). The mortality rate for traffic injuries for children halved from 2001 to 2014.
- Children with higher mortality rates of traffic injuries included boys, Māori children, and children living in the most deprived areas (NZDep2013 quintile 5).
- In 2016, there were 259 hospitalisations for traffic injuries for children, most of which were for vehicle occupant injuries (52%) or pedestrian injuries (28%). The overall traffic injury hospitalisation rate increased slightly from 2012 to 2016.
- Traffic injury hospitalisation rates were higher among Māori and Pacific children, children living in more deprived areas, and children living outside of main urban areas.



The health impact of road transport accidents on children

Traffic-related deaths and injuries are the main health impact of road transport in New Zealand (Briggs et al 2016). Children are particularly vulnerable to transport injuries, as they may live close to a road, and use it for playing, walking, cycling and transport; children under 11 years of age are also less able to make safe decisions on the road (Peden et al 2008). In New Zealand, transport injuries were among the top ten leading causes of health loss in children aged 0–14 years in 2013 (Ministry of Health 2013).

Data for this indicator

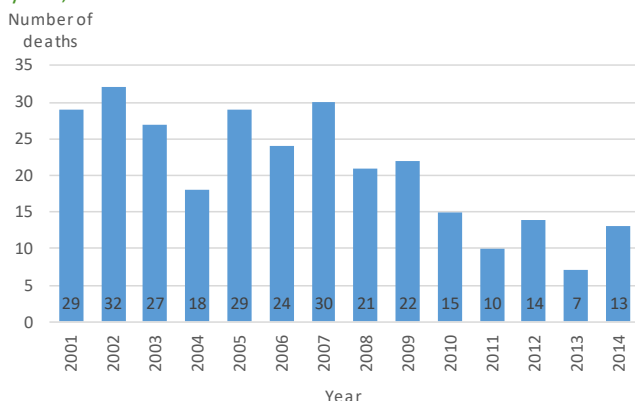
This factsheet includes data on road transport injuries in children aged 0–14 years. Data are firstly presented for traffic injury deaths, from the New Zealand Mortality Collection (2001–2014), and then for traffic injury hospitalisations, from the National Minimum Dataset (2001–2016). Where possible, results are presented by year, sex, age group, ethnic group, socioeconomic deprivation (NZDep2013 quintiles), urban/rural classification, District Health Board (DHB), and transport mode. Rates are presented per population (100,000 children, or 100,000 children per year when multiple years of data have been combined). Age-standardised rates are presented where numbers allow. 'All traffic injuries' include 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.

Road traffic injury deaths for children

Traffic injury deaths have decreased for children since 2007

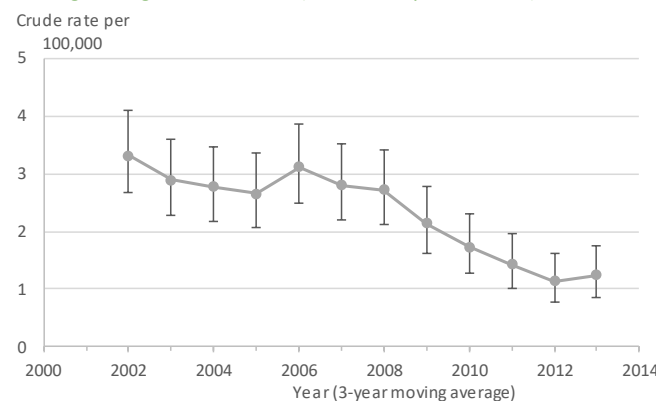
In 2014, 13 children aged 0–14 years died from traffic injuries (Figure 1). The mortality rate for traffic injuries for children halved from 2001 to 2014 (Figure 2). In 2014, most of the deaths were vehicle occupants (11 out of 13, 85%). In the five years 2010–14, 78% of the deaths were vehicle occupants (46 deaths out of 59), 15% were pedestrians (9 deaths), 5% were cyclists (3 deaths) and 2% were motorcyclists (1 death).

Figure 1: Number of traffic injury deaths in children aged 0–14 years, 2001–2014



Source: New Zealand Mortality Collection

Figure 2: Traffic injury deaths in children aged 0–14 years, three-year moving averages, 2001–2014 (crude rate per 100,000)



Source: New Zealand Mortality Collection

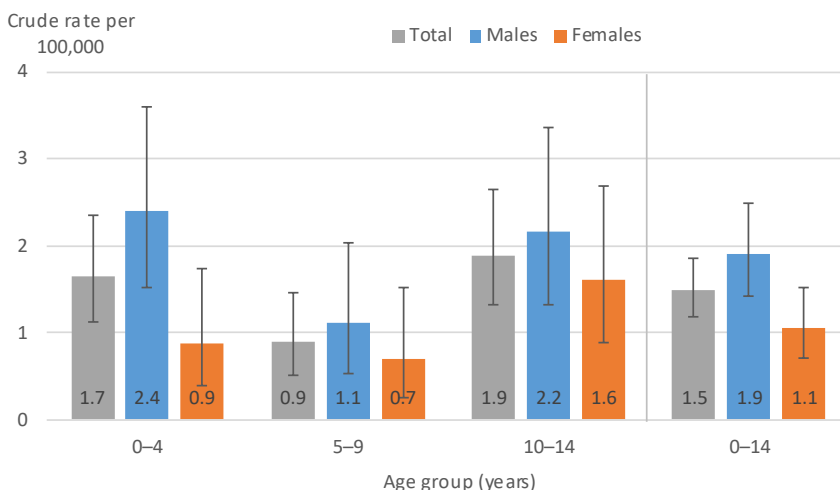
Road traffic injuries (children aged 0–14 years)

Boys, and children aged 0–4 and 10–14 years, had higher mortality rates

In 2009–2014, the rate of road traffic injury deaths was highest for 10–14 year olds (1.9 per 100,000) and 0–4 year olds (1.7 per 100,000).

Among all children aged 0–14 years, the traffic injury mortality rate was higher for boys (1.9 per 100,000) than girls (1.1 per 100,000).

Figure 3: Road traffic injury deaths in children aged 0–14 years, by age group and sex, 2009–2014 (crude rate per 100,000)

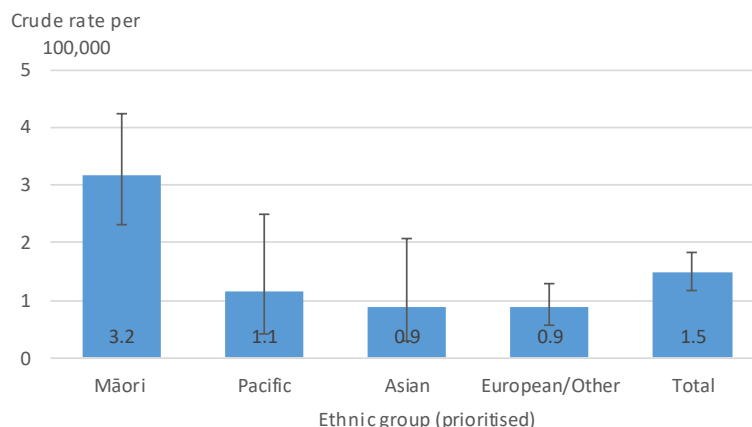


Source: New Zealand Mortality Collection

Māori children had the highest mortality rate

Māori children had a significantly higher traffic injury mortality rate than children in other ethnic groups in 2009–2014 (Figure 4).

Figure 4: Road traffic injury deaths in children aged 0–14 years, by ethnic group, 2009–2014 (crude rate per 100,000)



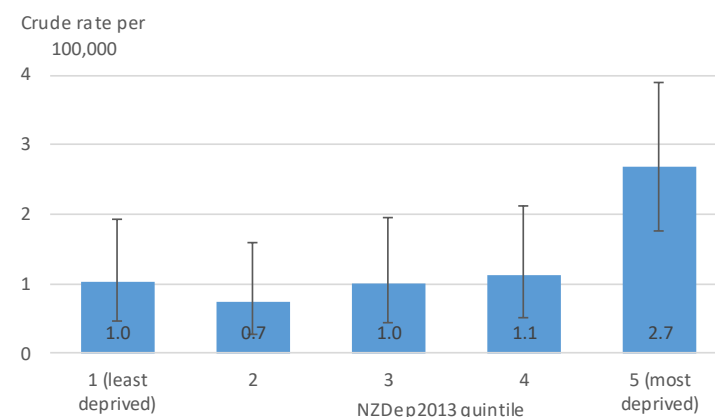
Source: New Zealand Mortality Collection

Children in the most deprived areas had the highest traffic injury mortality rate

Children living in the most socioeconomically deprived areas (NZDep2013 quintile 5) had a much higher traffic injury mortality rate than other children in 2010–14 (Figure 5).

In 2010–14, children living in the most deprived areas (quintile 5) were 2.6 times as likely to die in traffic crashes than children living in the least deprived areas (quintile 1) (standardised rate ratio = 2.63, 95% confidence interval 1.23–5.61).

Figure 5: Road traffic injury deaths in children aged 0–14 years, by NZDep2013 quintiles, 2010–2014 (crude rate per 100,000)



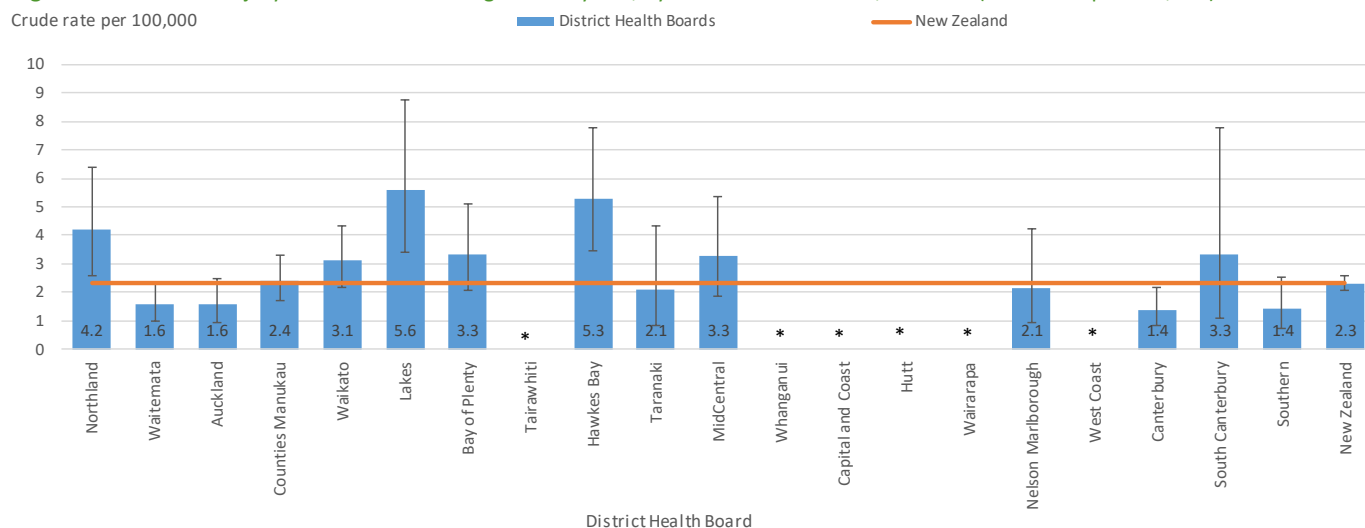
Source: New Zealand Mortality Collection

Road traffic injuries (children aged 0–14 years)

Highest child traffic injury mortality rates in Lakes, Hawke's Bay and Northland DHBs

In 2001–14, there was considerable variation by District Health Board (DHB) in the children's mortality rate for traffic injuries. In this time period, the following DHBs had significantly higher rates than others: Lakes, Hawke's Bay and Northland DHBs (Figure 6).

Figure 6: Road traffic injury deaths in children aged 0–14 years, by District Health Board, 2001–14 (crude rate per 100,000)



Note: An asterisk (*) shows that the rate has been suppressed due to counts less than five.

Source: New Zealand Mortality Collection

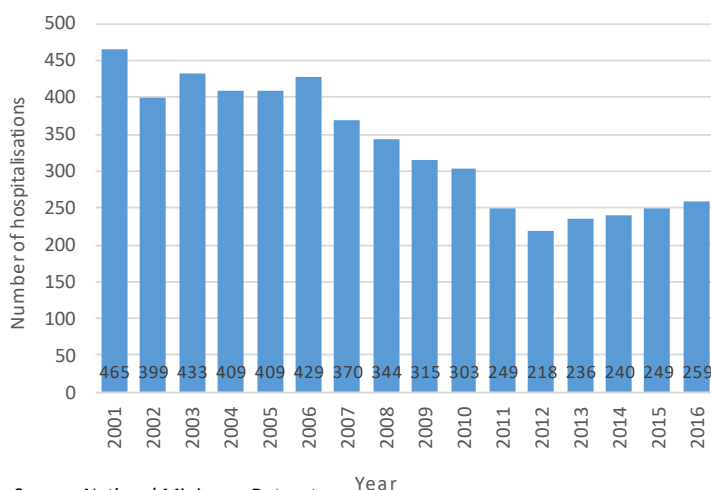
Road traffic injury hospitalisations for children

Declining children's hospitalisation rate for traffic injuries, but slight increase since 2012

The number of traffic injury hospitalisations for children aged 0–14 years decreased from 2006 to 2012, but increased slightly each year from 2012–2016 (Figure 7). A similar picture is seen when looking at the age-standardised rate per 100,000 children, with a slight increase since 2012 (Figure 8).

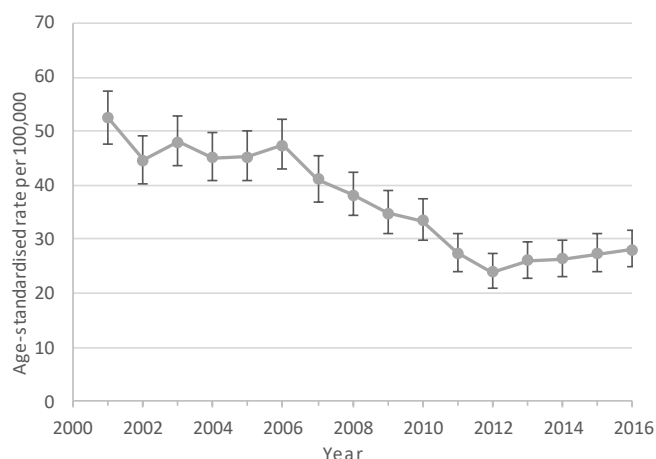
In 2016, about half of all traffic injury hospitalisations for children were for vehicle occupant injuries (52%, 134 out of 259 hospitalisations), 28% were for pedestrian injuries (72 hospitalisations), 14% were for motorcyclist injuries (36 hospitalisations) and 6% were for cyclist injuries (16 hospitalisations).

Figure 7: Number of road traffic injury hospitalisations in children aged 0–14 years, 2001–2016 (crude rate per 100,000)



Source: National Minimum Dataset

Figure 8: Road traffic injury hospitalisations in children aged 0–14 years, 2001–2016 (age-standardised rate per 100,000)



Source: National Minimum Dataset

Road traffic injuries (children aged 0–14 years)

Decreases in hospitalisation rates for pedestrians and cyclists

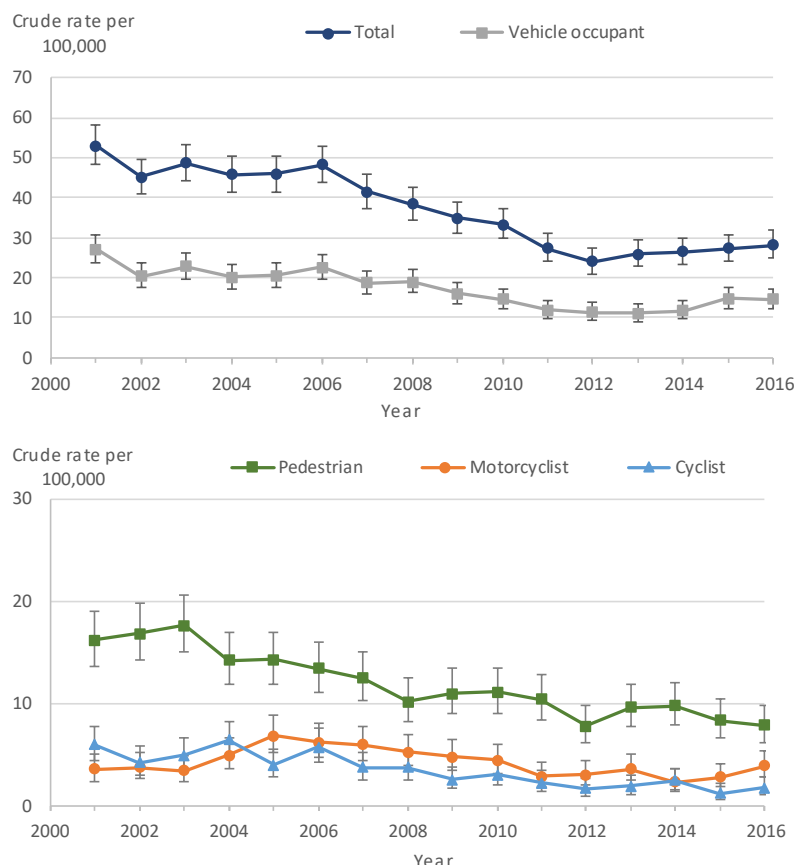
For children aged 0–14 years, the hospitalisation rate decreased for vehicle occupant injuries from 2001 to 2013, but increased slightly from 2013 to 2016 (Figure 9).

For child pedestrian injuries, the hospitalisation rate decreased markedly from 2003 to 2016 (Figure 10).

The child motorcyclist injury hospitalisation rate decreased from 2005 to 2014, but increased slightly from 2014 to 2016 (Figure 10).

The child cyclist injury hospitalisation rate also decreased from 2001 to 2016 (Figure 10).

Figures 9 and 10: Road traffic injury hospitalisations in children aged 0–14 years, by road user type, 2001–2016 (crude rate per 100,000)



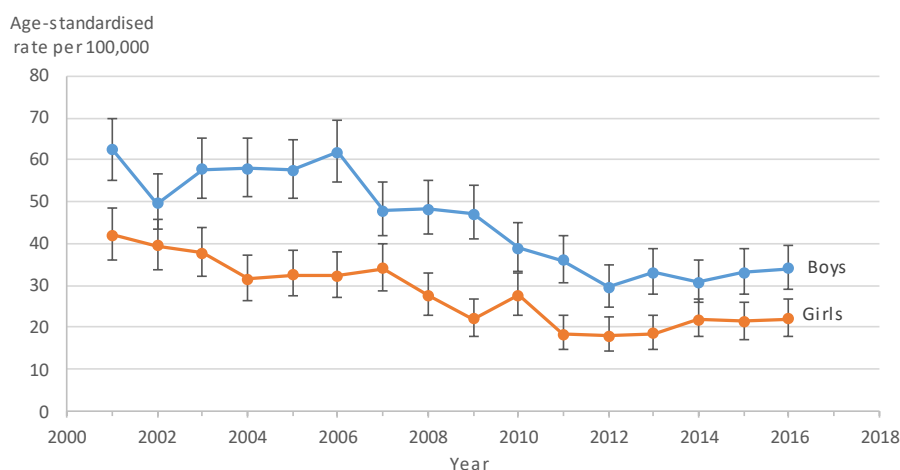
Source: National Minimum Dataset

Boys had higher hospitalisation rates for traffic injuries than girls

Boys had higher hospitalisation rates than girls from 2001 to 2016, after standardising for age (Figure 11).

The hospitalisation rate for traffic injuries decreased for both boys and girls from 2001 to 2012, but stayed relatively stable since then.

Figure 11: Road traffic injury hospitalisations in children aged 0–14 years, by sex, 2001–16 (age-standardised rate per 100,000)



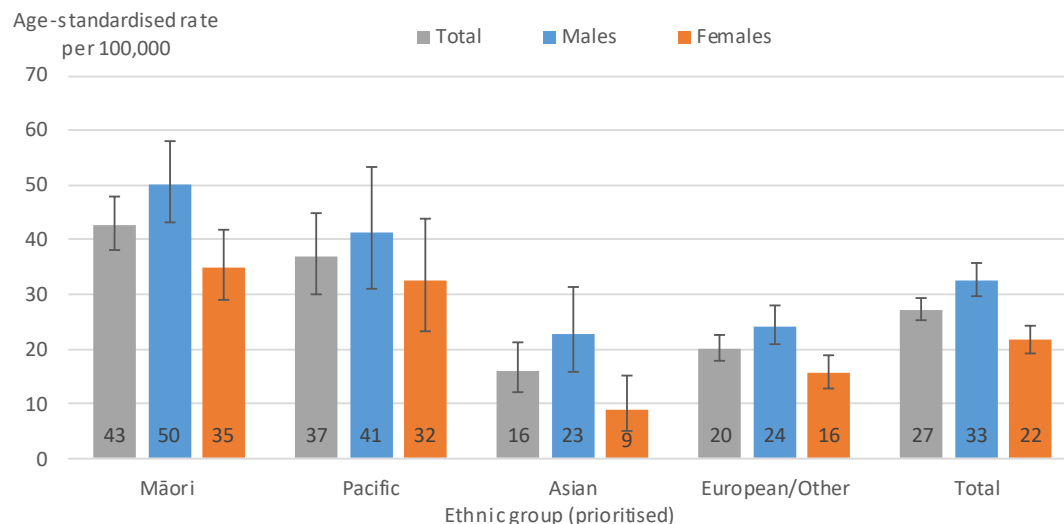
Source: National Minimum Dataset

Road traffic injuries (children aged 0–14 years)

Māori and Pacific children have the highest traffic injury hospitalisation rates

In 2014–16, the highest traffic injury hospitalisation rates were in Māori children (43 per 100,000) and Pacific children (37 per 100,000), standardising for age (Figure 12). Traffic injury hospitalisation rates were much lower for Asian children (16 per 100,000) and European/Other children (20 per 100,000). Boys had a significantly higher hospitalisation rate than girls for all ethnic groups except Pacific (which had overlapping confidence intervals).

Figure 12: Road traffic injury hospitalisations in children aged 0–14 years, by ethnic group and sex, 2014–16 (age-standardised rate per 100,000)



Note: Prioritised ethnic groups have been used.

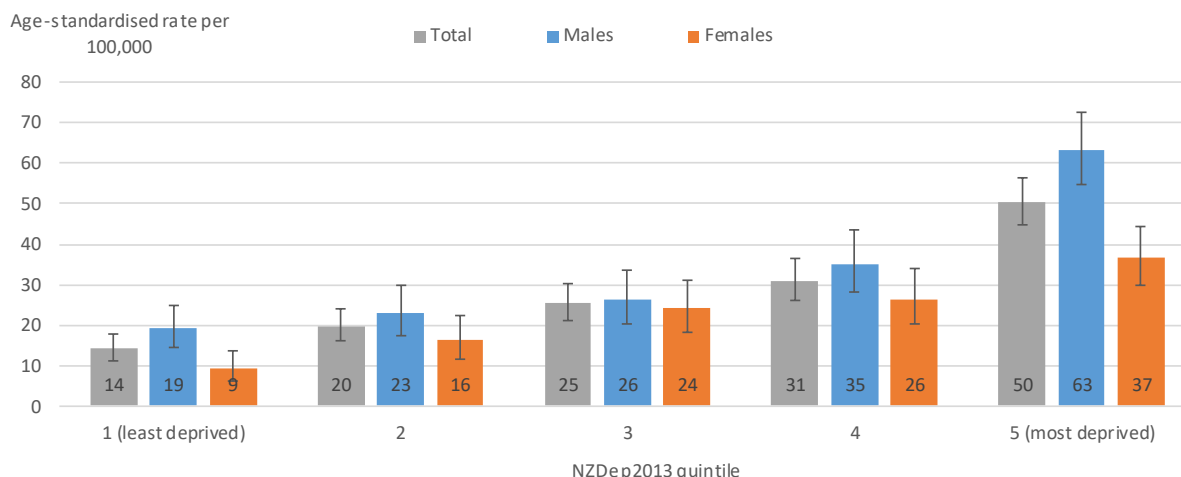
Source: National Minimum Dataset

Higher traffic injury hospitalisation rates in more deprived areas

The child traffic injury hospitalisation rate increased with increasing socioeconomic deprivation (Figure 13). Children living in the most deprived areas (NZDep2013 quintile 5) had a much higher age-standardised hospitalisation rate for traffic injuries (50 per 100,000) than other children.

Compared with children living in the least deprived areas (quintile 1), children living in the most deprived areas (quintile 5) had 3.5 times the traffic injury hospitalisation rate (standardised rate ratio = 3.51, 95% confidence interval 2.74–4.50).

Figure 13: Road traffic injury hospitalisations in children aged 0–14 years, by NZDep2013 quintile, 2014–16 (age-standardised rate per 100,000)



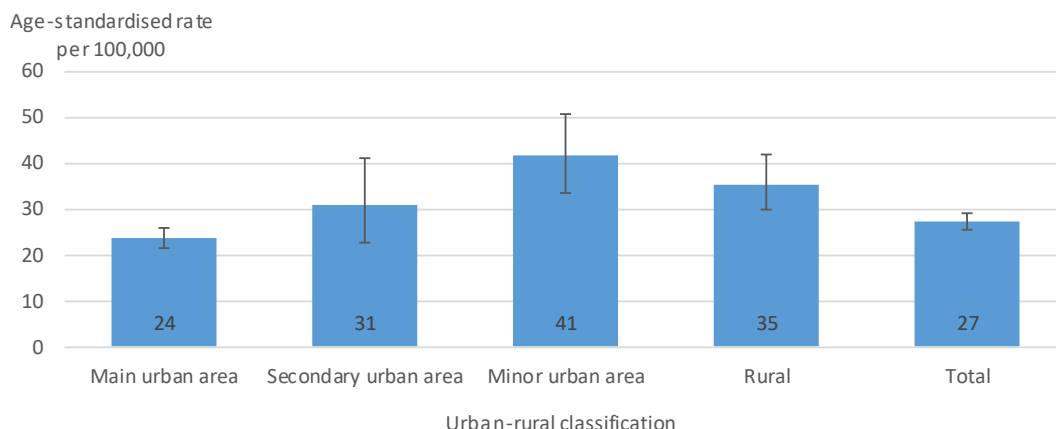
Source: National Minimum Dataset

Road traffic injuries (children aged 0–14 years)

Children living in minor urban areas had the highest traffic injury hospitalisation rate

In 2014–16, children living outside of main urban areas had higher traffic injury hospitalisation rates than those in main urban areas. Standardising for age, children living in minor urban areas had the highest hospitalisation rate for traffic injuries (41 per 100,000) (Figure 14).

Figure 14: Road traffic injury hospitalisations in children aged 0–14 years, by urban/rural classification, 2014–16 (age-standardised rate per 100,000)



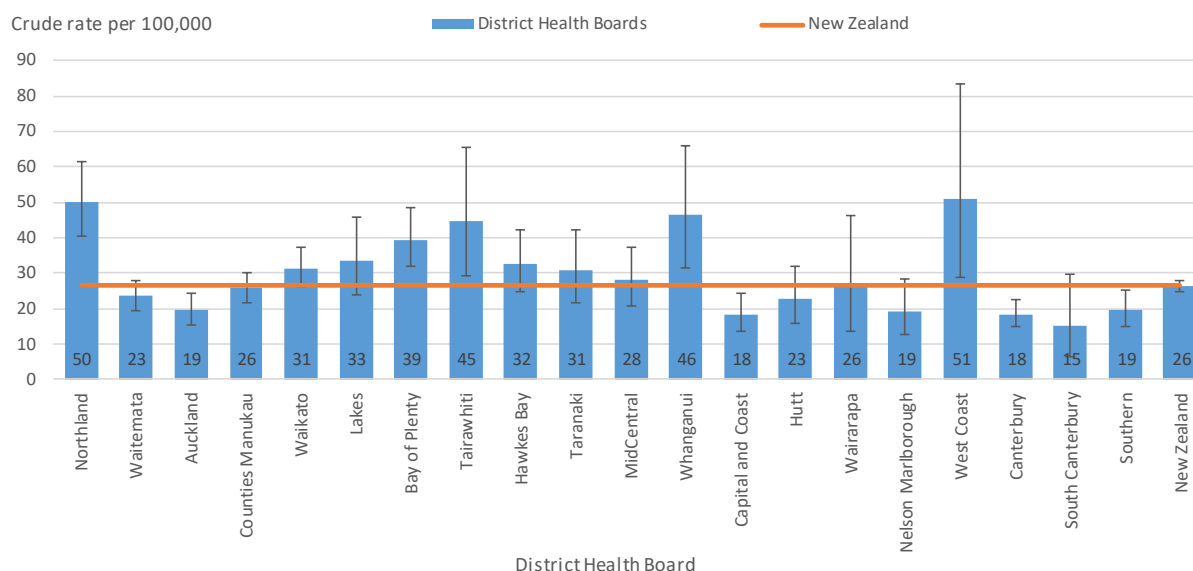
Note: Urban/rural classification is for 2013. Main urban areas refer to major towns and cities with a population of 30,000 or more. Secondary urban areas are smaller towns with a population of 10,000–29,999 people. Minor urban areas are towns with a population of 1,000–9,999 people. Rural areas include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

Source: National Minimum Dataset

Highest traffic injury hospitalisation rates in West Coast and Northland DHBs

There were substantial regional differences in the traffic injury hospitalisation rate for children aged 0–14 years by District Health Board (DHB) in the five-year period 2012–2016 (Figure 15). The highest hospitalisation rates were in West Coast, Northland, Whanganui, Tairāwhiti and Bay of Plenty DHBs. The lowest hospitalisation rates were in Capital and Coast, Nelson-Marlborough and Auckland DHBs.

Figure 15: Road traffic injury hospitalisations in children aged 0–14 years, by District Health Board, 2012–2016 (crude rate per 100,000)



Source: National Minimum Dataset

Road traffic injuries (children aged 0–14 years)

DATA SOURCES

Data for this indicator come from the New Zealand Mortality Collection (for deaths) and the National Minimum Dataset (for hospitalisations), from the Ministry of Health. The following ICD–10AM codes were used:

- 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 short-stay Emergency Department visits, day cases, deaths, transfers between or within hospitals, overseas visitors, and readmissions.

Age-standardised rates have been presented where possible, to take into account the population age structures of different population groups. Where counts were less than 25, age-standardised rates have been suppressed, or crude rates have been presented instead. For crude rates, counts less than 5 have been suppressed. 95% confidence intervals have been presented as error bars on graphs. See the metadata for more information about this indicator.

RELATED INDICATORS

Related environmental health indicators for transport, available from the EHINZ website (www.ehinz.ac.nz), include:

- Road traffic injury mortality (all ages)
- Road traffic injury hospitalisations (all ages)
- Number of motor vehicles
- Main mode of transport to work on Census day
- Active transport to and from school
- Household travel time by mode of transport
- Unmet GP need due to transport (all ages; children aged 0–14 years)
- About transport and health (information factsheet).

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/>

For more information, please
contact Kylie Mason on
ehnz@massey.ac.nz