

Road traffic injury hospitalisations in New Zealand, 2001–2016

HIGHLIGHTS

- The road traffic injury hospitalisation rate increased slightly from 2014 to 2016.
- In 2016, population groups with higher hospitalisation rates of traffic injuries included: males, people aged 15–24 years, people aged 75+ years, Māori, people living in more deprived areas (NZDep2013 quintile 5), and people living outside of main urban areas.
- Motorcyclists and cyclists were at higher risk of traffic injury hospitalisations per time spent travelling.
- The District Health Boards with the highest traffic injury hospitalisation rates in 2016 were Northland and Tairāwhiti DHBs.



The health impact of road transport accidents

Traffic-related deaths and injuries are the main health impact of road transport in New Zealand (Briggs et al 2016). The New Zealand Burden of Disease Study found that transport injuries made up about 33% of overall health loss due to all injuries in New Zealand in 2006 (Ministry of Health and ACC 2013). Traffic injuries affect all types of road users; however, pedestrians, cyclists and motorcyclists can be considered 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 and safety features (such as seatbelts).

Data for this indicator

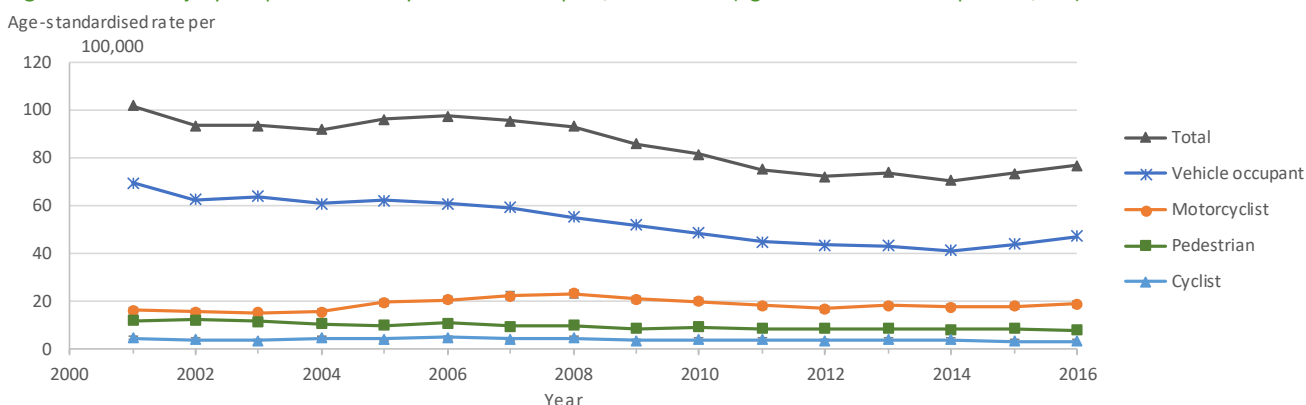
This indicator presents hospitalisations from road traffic injuries for 2001–2016 from the National Minimum Dataset. Results are presented by year, sex, age group, ethnic group, socioeconomic deprivation (NZDep2013 quintiles), urban/rural classification, and District Health Board (DHB). The results are firstly presented for all traffic injuries, then by specific transport modes, to show how users of different forms of transport are affected. Rates are presented per 100,000 people (or 100,000 people per year, when multiple years of data have been combined), as well as by time spent travelling. Hospitalisations have excluded deaths, day cases, short Emergency Department stays, transfers, overseas visitors, and readmissions. '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. 95% confidence intervals are shown as error bars on graphs.

Traffic injury hospitalisations increased from 2014 to 2016

In 2016, there were 3778 hospitalisations for traffic injuries in New Zealand. The majority of these were for vehicle occupants (62%, 2334 hospitalisations), with a smaller percentage for motorcyclists (24%, 902 hospitalisations), pedestrians (10%, 359 hospitalisations) and cyclists (4%, 156 hospitalisations).

The age-standardised rate of all traffic injury hospitalisations decreased from 102 per 100,000 in 2001 to 70 per 100,000 population in 2014, but increased up to 77 per 100,000 in 2016 (Figure 1). This was mirrored by an increase in the traffic injury hospitalisation rate for vehicle occupants from 2014 to 2016.

Figure 1: Traffic injury hospitalisations by mode of transport, 2001–2016 (age-standardised rate per 100,000)



Road traffic injury hospitalisations in New Zealand

Recent increases in hospitalisation rates for some road user types

Hospitalisation rates for traffic injuries decreased from 2001 to 2014, but increased from 2014 to 2016 for some road user types.

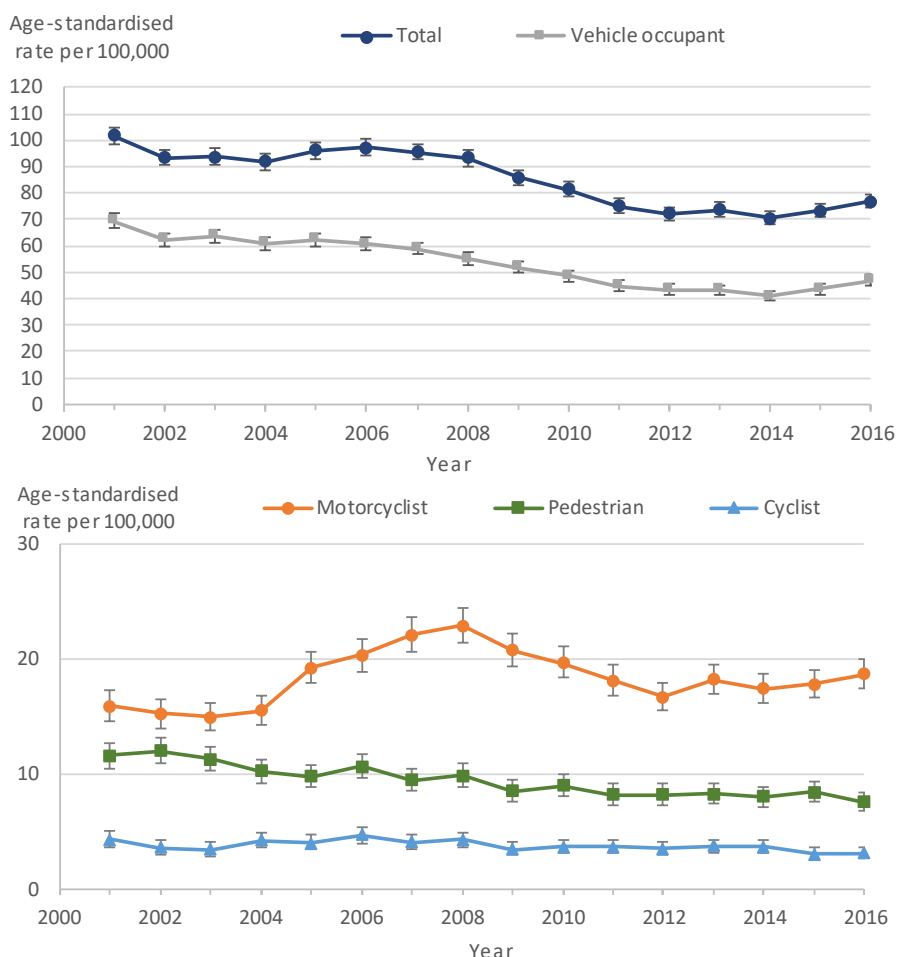
For vehicle occupants, the hospitalisation rate decreased from 70 per 100,000 in 2001 to 41 per 100,000 in 2014, but increased to 47 per 100,000 in 2016 (Figure 10).

The motorcyclist hospitalisation rate had decreased from a peak of 22.9 per 100,000 in 2008 to 16.7 per 100,000 in 2012, then increased to 18.7 per 100,000 in 2016 (Figure 11).

For pedestrians, the hospitalisation rate decreased from 11.6 per 100,000 in 2001 to 7.5 per 100,000 in 2016 (Figure 11).

The cyclist injury hospitalisation rate decreased from 4.3 per 100,000 in 2001 to 3.1 per 100,000 in 2016 (Figure 11).

Figures 10 and 11: Road traffic injury hospitalisations, by road user type, 2001–2016 (age-standardised rate per 100,000 population)



Source: National Minimum Dataset

Table 1: Road traffic injury hospitalisation risk per ten million hours travelled, by mode of transport, 2004–2013

Year*	Number of hospitalisations per million hours travelled				
	All traffic injury	Vehicle occupant	Pedestrian injury	Motorcyclist injury	Cyclist injury
2004–2006	2.5	2.1	2.0	115.8	7.9
2005–2007	2.5	2.0	2.0	118.8	7.1
2006–2008	2.5	2.0	2.0	158.9	7.3
2007–2009	2.4	1.9	1.9	135.2	5.6
2008–2010	2.4	1.8	1.9	154.7	5.8
2009–2011	2.3	1.8	1.8	129.8	5.6
2010–2012	2.2	1.7	1.8	121.4	6.5
2011–2013	2.1	1.6	1.8	130.8	6.7

Motorcyclists and cyclists were at higher risk of traffic injury hospitalisations per time spent travelling

The risk of injury hospitalisations per time spent travelling was much higher for motorcyclists and cyclists, compared to vehicle occupants and pedestrians (Table 1).

In 2011–2013, for every million hours travelled by transport mode, there were 130.8 motorcyclist hospitalisations and 6.7 cyclist hospitalisations, compared to 1.6 vehicle occupant hospitalisations and 1.8 pedestrian hospitalisations.

The rate of injury hospitalisations per million hours travelled decreased for vehicle occupants and pedestrians from 2004–2006 to 2011–2013. However, rates had increased slightly in recent years for motorcyclist injuries and cyclist injuries.

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

*Three-year moving averages have been presented. Injury hospitalisations from the National Minimum Dataset were calculated based on calendar year (e.g. January 2004 – December 2006), while time travelled (from the Household Travel Survey) was available by financial year (e.g. July 2004 – June 2007).

**Occupant travelling hours included travelling time in cars, vans, and public transport (bus/train/ferry).

Road traffic injury hospitalisations in New Zealand

Road traffic injury hospitalisation statistics

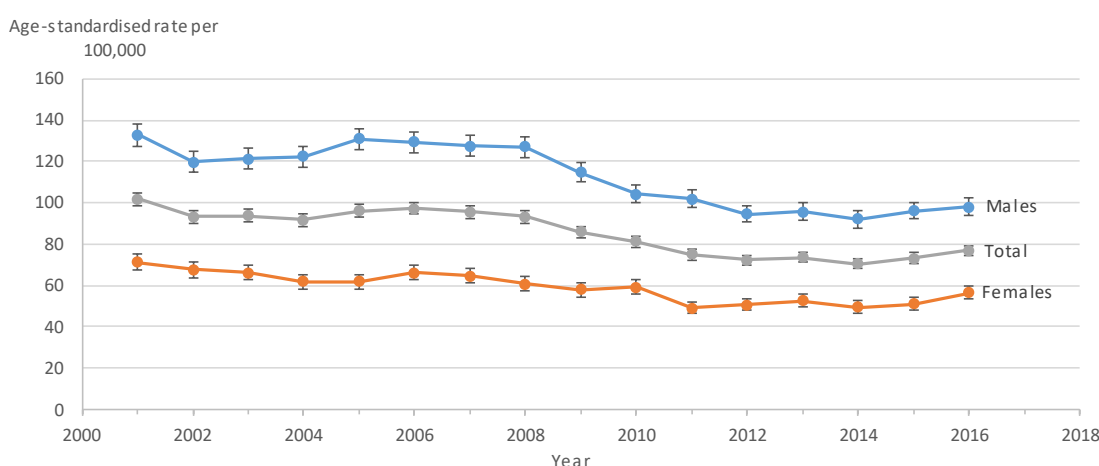
This section presents hospitalisation results by demographic and socioeconomic factors for 2001–2016. Results are presented for all traffic injuries, then by road user type.

Increase in road traffic injury hospitalisation rate from 2014 to 2016, for both sexes

The road traffic injury hospitalisation rate dropped substantially for both males and females from 2001 to 2016, although there have been slight increases for both males and females from 2014 to 2016 (Figure 2).

The male hospitalisation rate has remained much higher than the female rate since 2001. In 2016, the age-standardised rate for males was almost twice as high (98 per 100,000) as the rate for females (56 per 100,000).

Figure 2: Road traffic injury hospitalisations, by sex, 2001–2016 (age-standardised rate per 100,000)

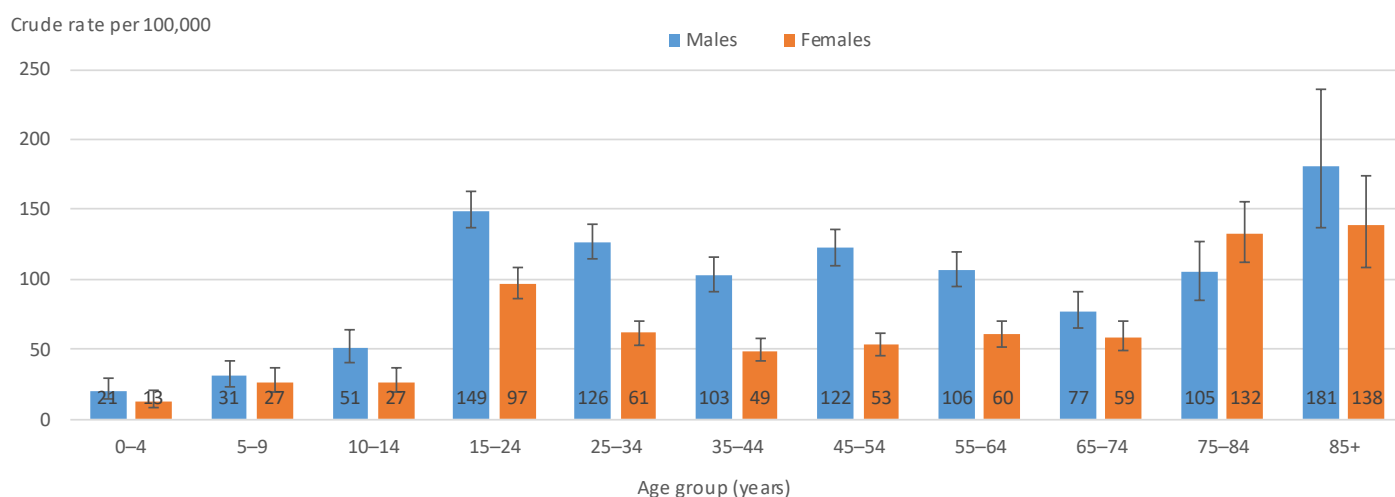


Source: National Minimum Dataset

Highest hospitalisation rates among 85+ year olds and 15–24 year olds

Young people aged 15–24 years, and older adults aged 85+ years, had the highest road traffic injury hospitalisation rates in 2016 (Figure 3). For most age groups from 10+ years, males had higher rates than females.

Figure 3: Road traffic injury hospitalisations, by age group and sex, 2016 (crude rate per 100,000)



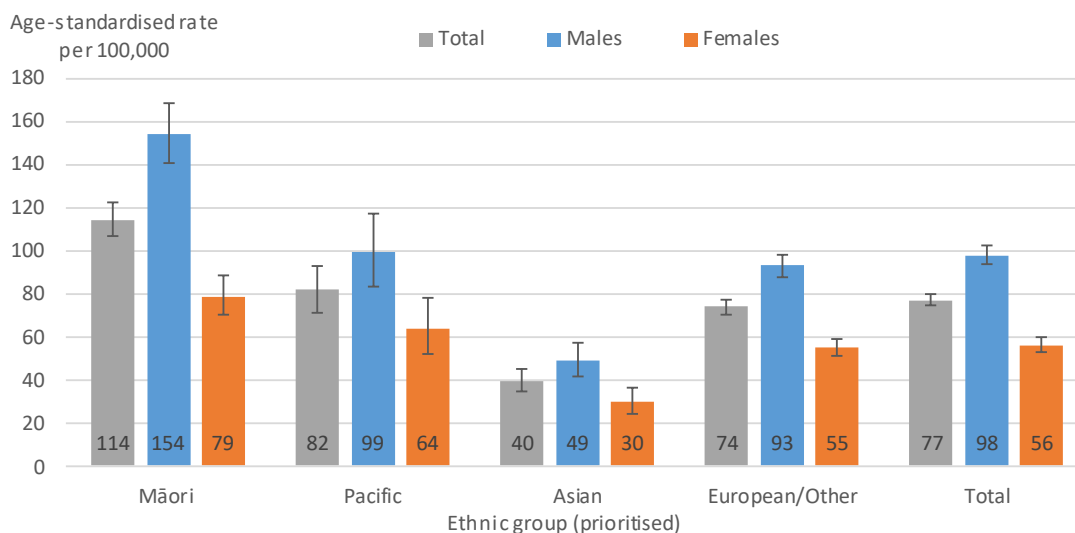
Source: National Minimum Dataset

Road traffic injury hospitalisations in New Zealand

Māori had higher road traffic injury hospitalisation rates in 2016

In 2016, Māori had the highest age-standardised hospitalisation rates for road traffic injuries by ethnic group, with a particularly high rate for Māori males (Figure 4). Asians had a much lower hospitalisation rate than people in other ethnic groups.

Figure 4: Road traffic injury hospitalisations, by ethnic group and sex, 2016 (age-standardised rate per 100,000)



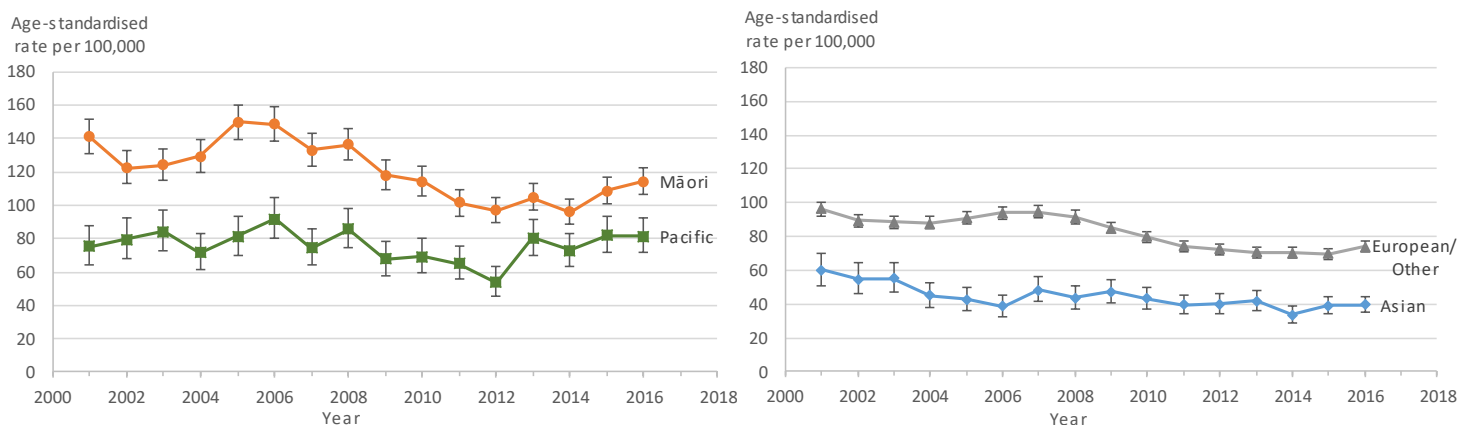
Source: National Minimum Dataset

Varying time trends in hospitalisation rates by ethnic group

For Māori, the age-standardised rates of traffic injury hospitalisations decreased from 2001 to 2014, but increased from 2014 (96 per 100,000) to 2016 (114 per 100,000) (Figure 5).

For Pacific, the hospitalisation rate increased substantially from 2012 to 2013, but has remained relatively stable since then. Hospitalisation rates for Asians and European/Others generally decreased from 2001 to 2016.

Figure 5: Road traffic injury hospitalisations over time, by ethnic group, 2001–2016 (age-standardised rate per 100,000)



Note: Prioritised ethnic groups have been used.

Source: National Minimum Dataset

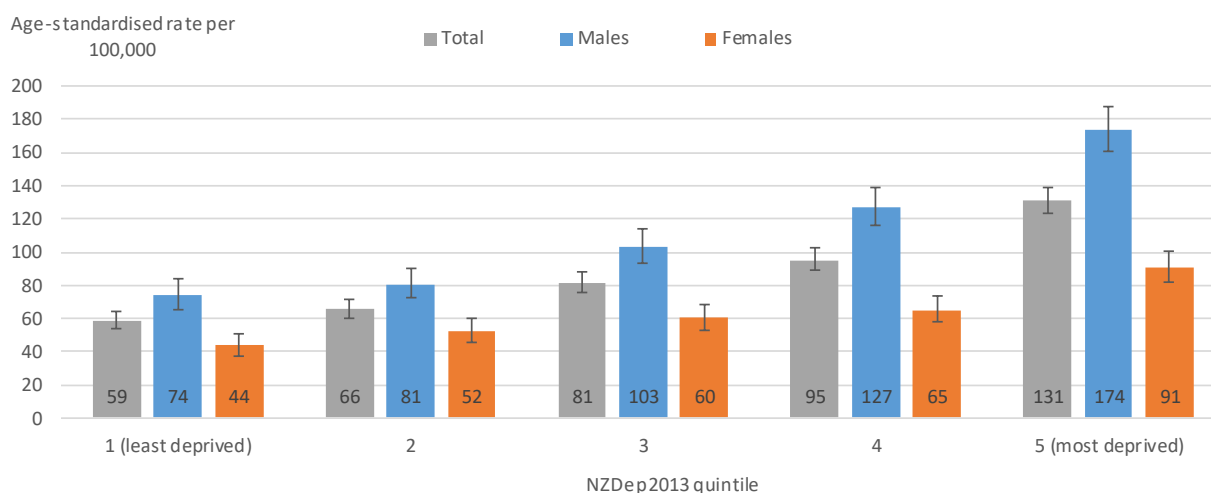
Road traffic injury hospitalisations in New Zealand

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

Hospitalisation rates for road traffic injuries were much higher in the most deprived areas (NZDep2013 quintile 5) than in the least deprived areas (quintile 1) in 2016, for both males and females (Figure 6).

Standardising for age, people living in the most deprived areas (quintile 5) were twice as likely to have a traffic injury hospitalisation than those living in the least deprived areas (quintile 1) (standardised rate ratio = 2.2, 95% confidence interval 2.0–2.5).

Figure 6: Road traffic injury hospitalisations, by socioeconomic deprivation (NZDep2013 quintiles) and sex, 2016 (age-standardised rate per 100,000)

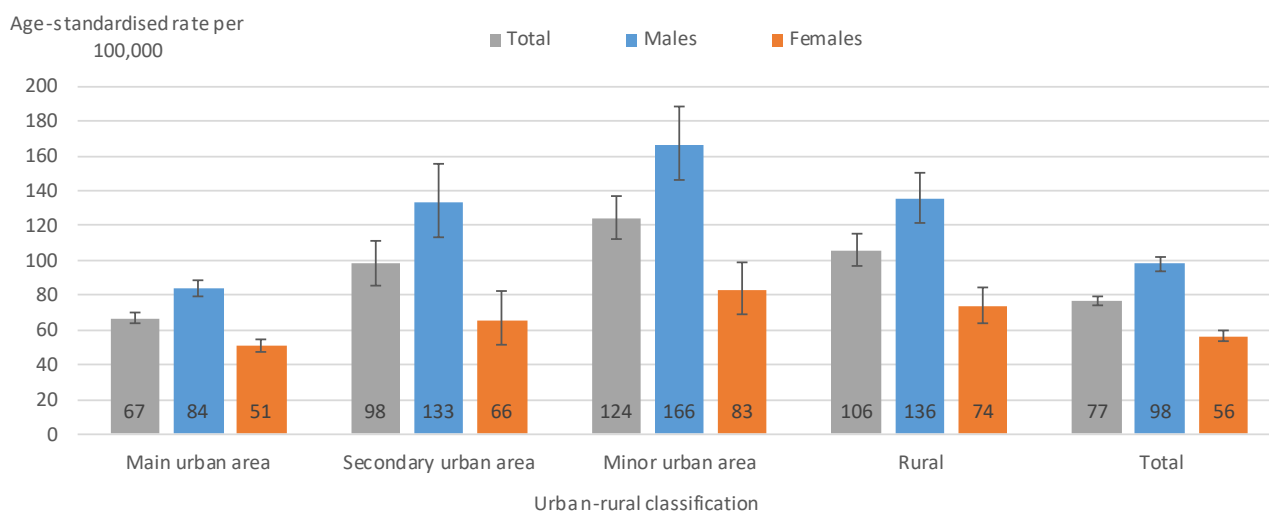


Source: National Minimum Dataset

People living in main urban areas had lower road traffic hospitalisation rates

People living in main urban areas had lower hospitalisation rates for road traffic injuries than people living in secondary urban areas, minor urban areas and rural areas in 2016 (Figure 7). In 2016, the highest road traffic injury hospitalisation rates were for people living in minor urban areas.

Figure 7: Road traffic injury hospitalisations, by urban/rural classification and sex, 2016 (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.

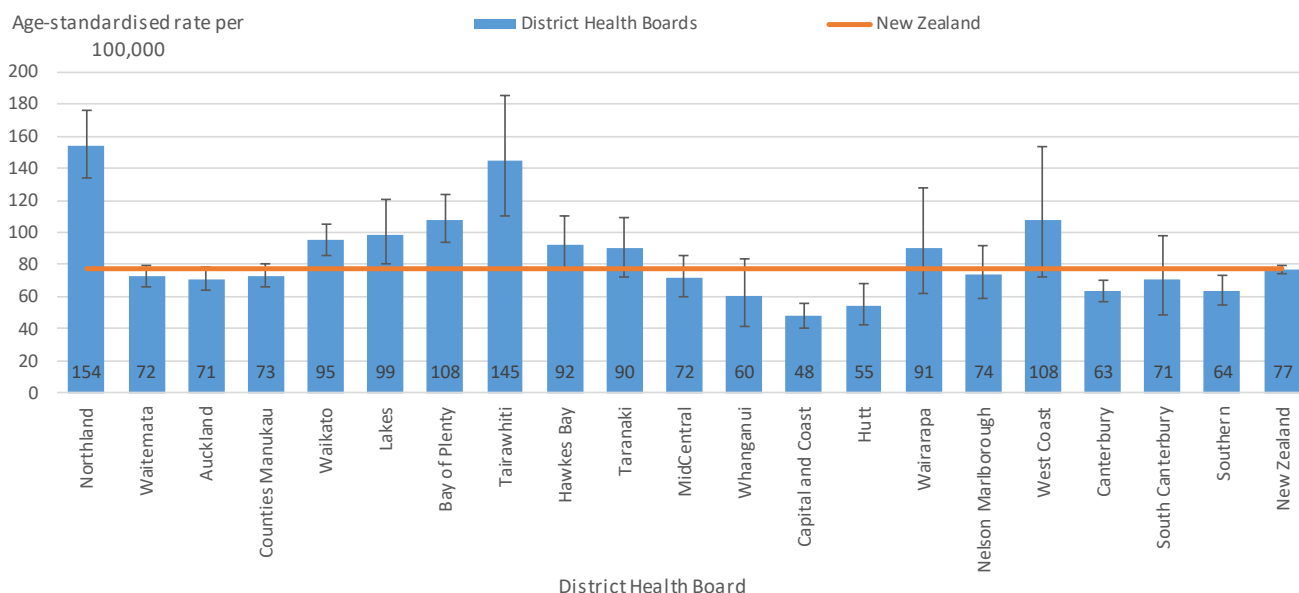
Source: National Minimum Dataset

Road traffic injury hospitalisations in New Zealand

Highest traffic injury hospitalisation rates in Northland and Tairāwhiti DHBs

There were substantial regional differences in the road traffic injury hospitalisation rate by District Health Board (DHB). In 2016, the highest traffic injury hospitalisation rates were in Northland, Tairāwhiti, Bay of Plenty and West Coast DHBs (Figure 8). The lowest rates were in Capital and Coast and Hutt DHBs.

Figure 8: Road traffic injury hospitalisations, by District Health Board, 2016 (age-standardised rate per 100,000)



Source: National Minimum Dataset

Road traffic injury hospitalisation statistics by road user type

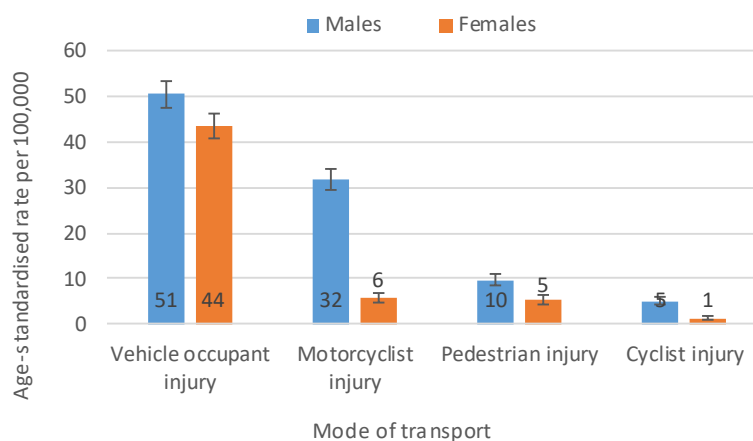
This section presents hospitalisation statistics by road user type: vehicle occupants (including drivers and passengers), motorcyclists, pedestrians and cyclists. For some analyses, data have been pooled over multiple years to give sufficient numbers for analysis.

Males had higher hospitalisation rates of traffic injury

In 2016, males had significantly higher hospitalisation rates of traffic injury than females for all modes of transport (Figure 12).

The hospitalisation rate was especially high for male motorcyclists, whose rate was 5 times as high as the rate of females (32 vs 6 per 100,000 population).

Figure 12: Road traffic injury hospitalisations, by sex and mode of transport, 2016 (age-standardised rate per 100,000)



Source: National Minimum Dataset

Road traffic injury hospitalisations in New Zealand

Age patterns differed depending on road user type

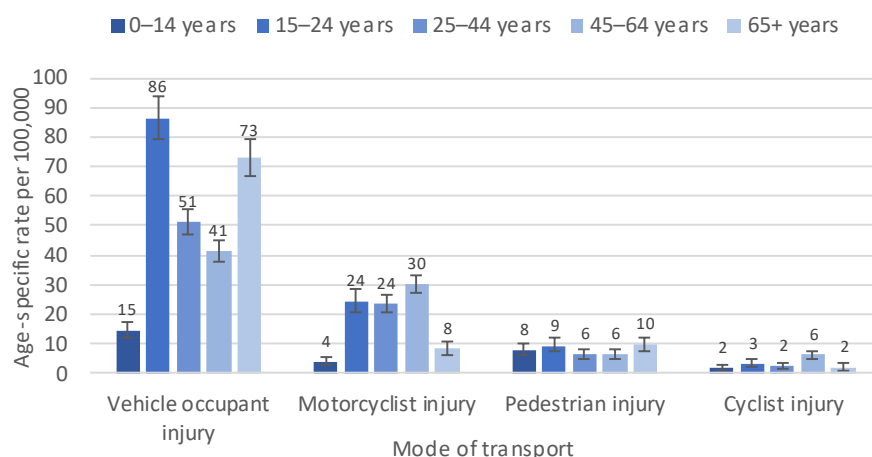
Young adults (15–24 years) and older people (65+ years) had higher hospitalisation rates for vehicle occupant injuries than other age groups (Figure 13).

By contrast, for motorcyclist hospitalisations, people aged 15–64 years had higher hospitalisation rates.

For pedestrian injuries, people aged 15–24 and 65+ years had the highest hospitalisation rates.

For cyclist injuries, people aged 45–64 years had a higher hospitalisation rate than other age groups (Figure 13).

Figure 13: Road traffic injury hospitalisations, by age group and mode of transport, 2016 (age-specific rate per 100,000 population)



Source: National Minimum Dataset

Māori had higher hospitalisation rates for vehicle occupant injuries

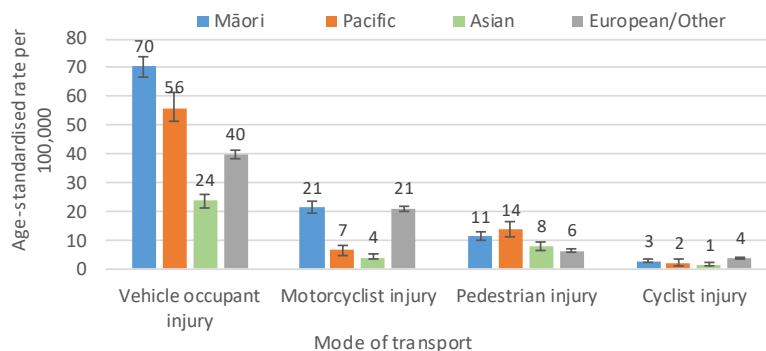
In 2014–16, Māori had significantly higher hospitalisation rates for vehicle occupant injuries than people in other ethnic groups (Figure 14).

For motorcyclist injuries, Māori and European/ Others had the highest hospitalisation rates.

For pedestrian injuries, the hospitalisation rate was highest for Pacific peoples and Māori.

For cyclist injuries, European/Others had the highest hospitalisation rate.

Figure 14: Road traffic injury hospitalisations, by ethnic group and mode of transport, 2014–16 (age-standardised rate per 100,000 population)



Note: Prioritised ethnic groups have been used.

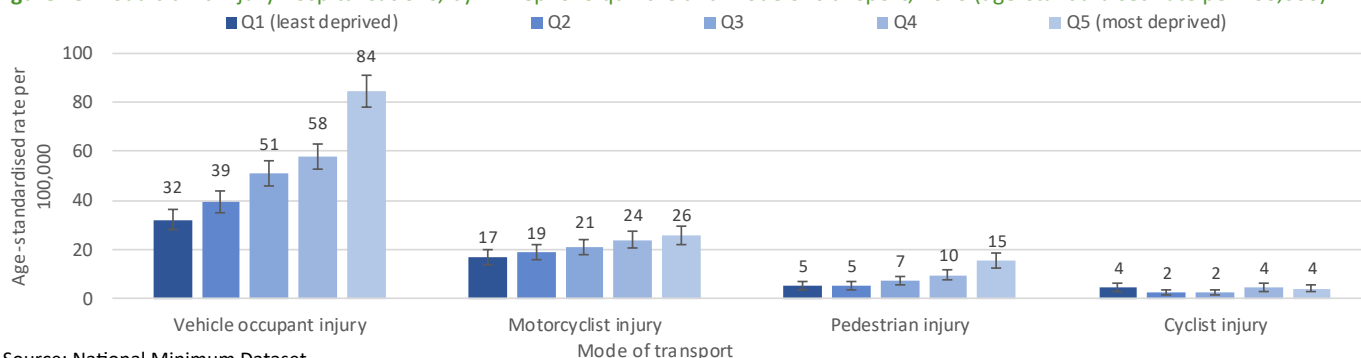
Source: National Minimum Dataset

Higher traffic injury hospitalisation rates in more deprived areas

In 2016, the injury hospitalisation rates increased with socioeconomic deprivation (NZDep2013 quintiles) for vehicle occupants, motorcyclists and pedestrians (Figure 15).

In 2016, compared to the least deprived areas (NZDep2013 quintile 1), people from the most deprived areas (quintile 5) had 2.6 times the vehicle occupant hospitalisation rate (84 vs 32 per 100,000 population), and 3 times the pedestrian hospitalisation rate (15 vs 5 per 100,000).

Figure 15: Road traffic injury hospitalisations, by NZDep2013 quintile and mode of transport, 2016 (age-standardised rate per 100,000)



Source: National Minimum Dataset

Road traffic injury hospitalisations in New Zealand

Urban-rural patterns seen in traffic injury hospitalisation rates

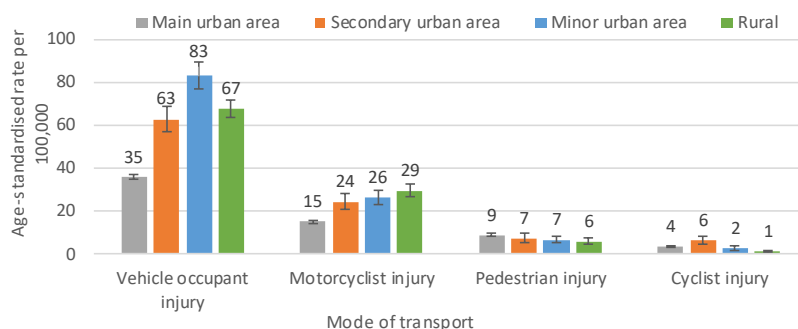
In 2014–16, the traffic injury hospitalisation rates varied by urban/rural classification.

For vehicle occupants and motorcyclist injuries, people in main urban areas had much lower hospitalisation rates than other people (Figure 16).

However, for pedestrians, people in main urban areas had the highest hospitalisation rates.

For cyclists, the highest traffic injury hospitalisation rates were in secondary urban areas.

Figure 16: Road traffic injury hospitalisations, by urban/rural classification and mode of transport, 2014–16 (age-standardised rate per 100,000)



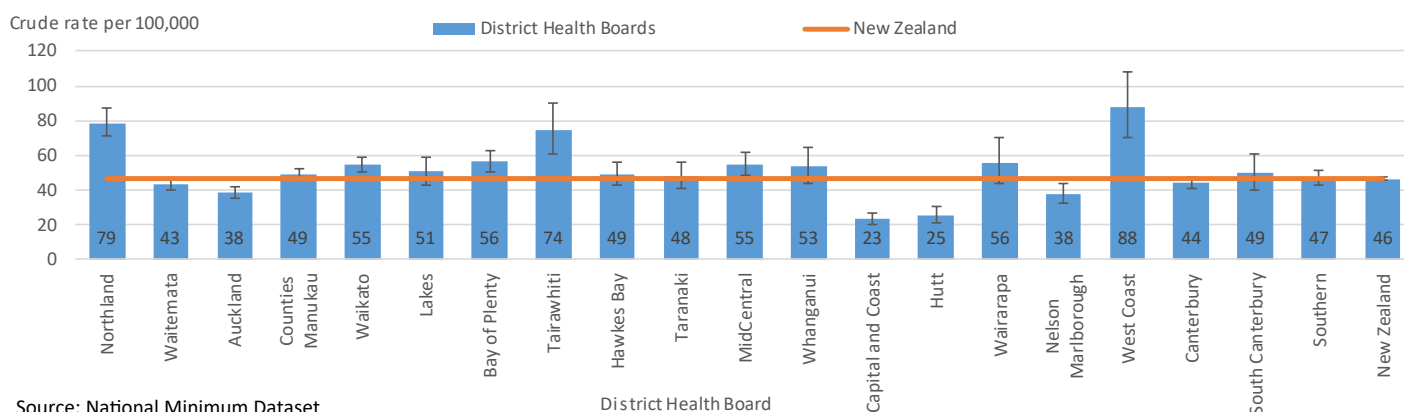
Note: Urban/rural classification is for 2013. Main urban areas refer to major towns and cities with a population of 30,000 or more. Secondary urban areas are smaller towns with a population of 10,000–29,999 people. Minor urban areas are towns with a population of 1,000–9,999 people. Rural areas include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

Large DHB differences in traffic injury hospitalisation rates by mode of transport

There were substantial differences by District Health Board (DHB) in the traffic injury hospitalisation rates by different modes of transport, in 2014–2016. Crude rates have been presented due to low numbers, which means that the results do not take into account the differing age structures by DHB.

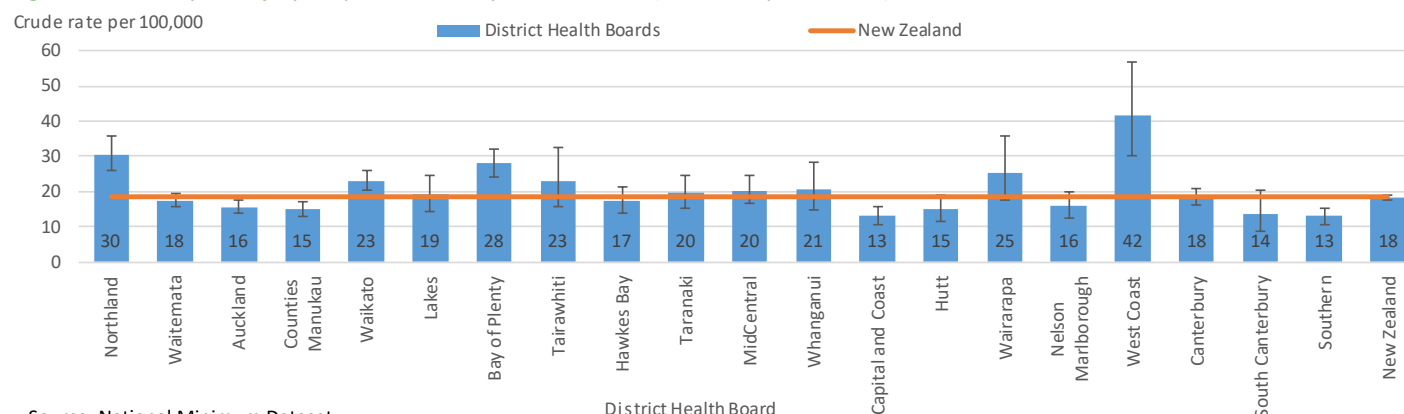
West Coast and Northland DHBs had the highest rates of vehicle occupant injury hospitalisations (Figure 17) and motorcyclist injury hospitalisations (Figure 18).

Figure 17: Vehicle occupant injury hospitalisations, by DHB, 2014–16 (crude rate per 100,000)



Source: National Minimum Dataset

Figure 18: Motorcyclist injury hospitalisations, by DHB, 2014–16 (crude rate per 100,000)

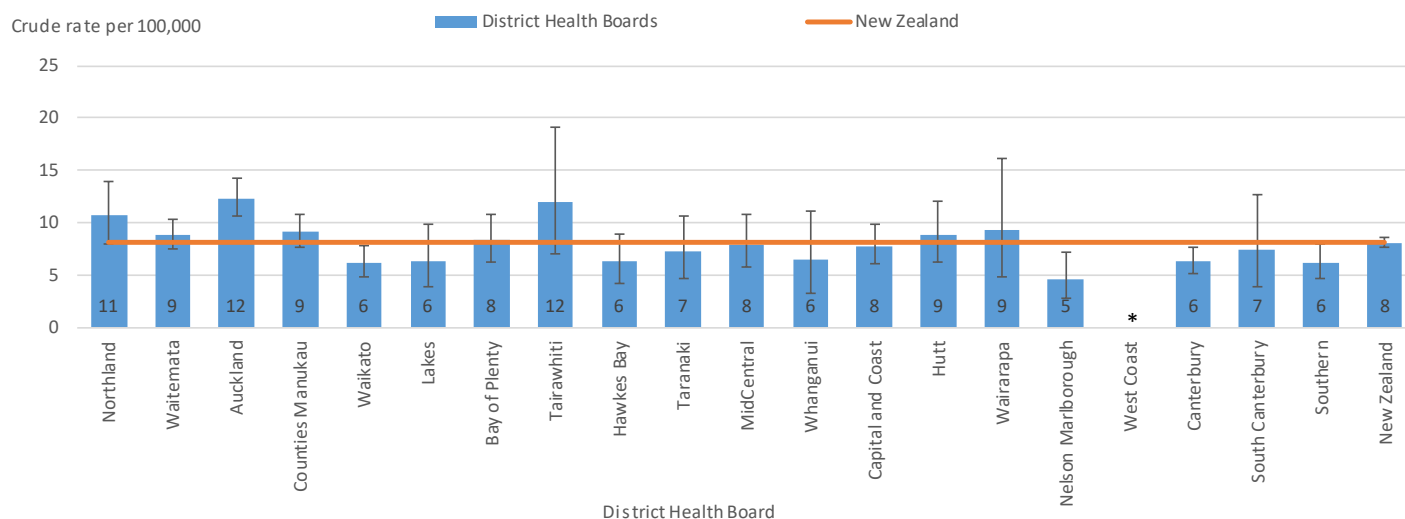


Source: National Minimum Dataset

Road traffic injury hospitalisations in New Zealand

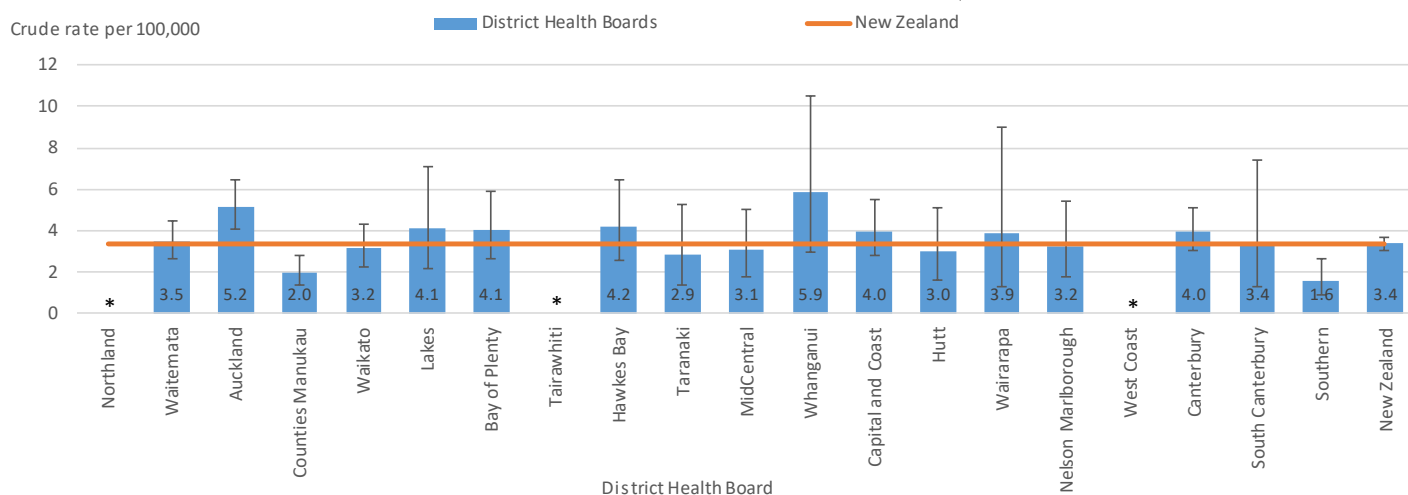
Auckland DHB had a significantly higher rate of pedestrian injury hospitalisations (Figure 19) and cyclist injury hospitalisations (Figure 20) than the national average.

Figure 19: Pedestrian injury hospitalisations, by DHB, 2014–16 (crude rate per 100,000)



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

Figure 20: Cyclist injury hospitalisations, by DHB, 2014–16 (crude rate per 100,000)



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

Road traffic injury hospitalisations in New Zealand

DATA SOURCES

Data for this indicator come from the National Minimum Dataset, from the Ministry of Health. The following ICD–10AM codes were used: 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 have been presented where possible, to take into account the population age structures of different population groups. 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
- 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
- About transport and health (information factsheet).

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