Road traffic injury hospitalisations in New Zealand

- **Traffic injury hospitalisations have decreased from 2000 to 2015.**
- **Motorcyclists and cyclists were at a higher risk of traffic injury hospitalisations per time spent travelling.**
- **Males had higher rates of traffic injury hospitalisations than females.**
- **Young people aged 15-24 years had the highest rate of traffic injury hospitalisations.**
- **Māori, Pacific peoples and Asians had higher rates of pedestrian injury hospitalisations than people of European/Other ethnicity.**
- **People living in more deprived areas had higher rates of traffic injury hospitalisations.**
- **West Coast and Northland DHBs had the highest rates of traffic injury hospitalisations in 2015. Auckland DHB had significantly higher rates of pedestrian and cyclist injury hospitalisations than the national rate in 2011-15.**

Source: http://mylicence.sa.gov.au/the-hazard-perception-test/situations

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 and cyclists 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 examines hospitalisations from traffic injuries, from the National Minimum Dataset. The data are presented by mode of transport, to help show how users of different forms of transport are affected. The rates are presented per capita, as well as per time spent travelling, which takes into account the different time spent using different modes of transport. The data for this indicator include road traffic hospitalisations from 2000 to 2015. The analyses have excluded deaths, day cases, short stays in Emergency Department, transfers, overseas visitors, and readmissions (Langley et al 2002, Ministry of Health 2006, 2015).

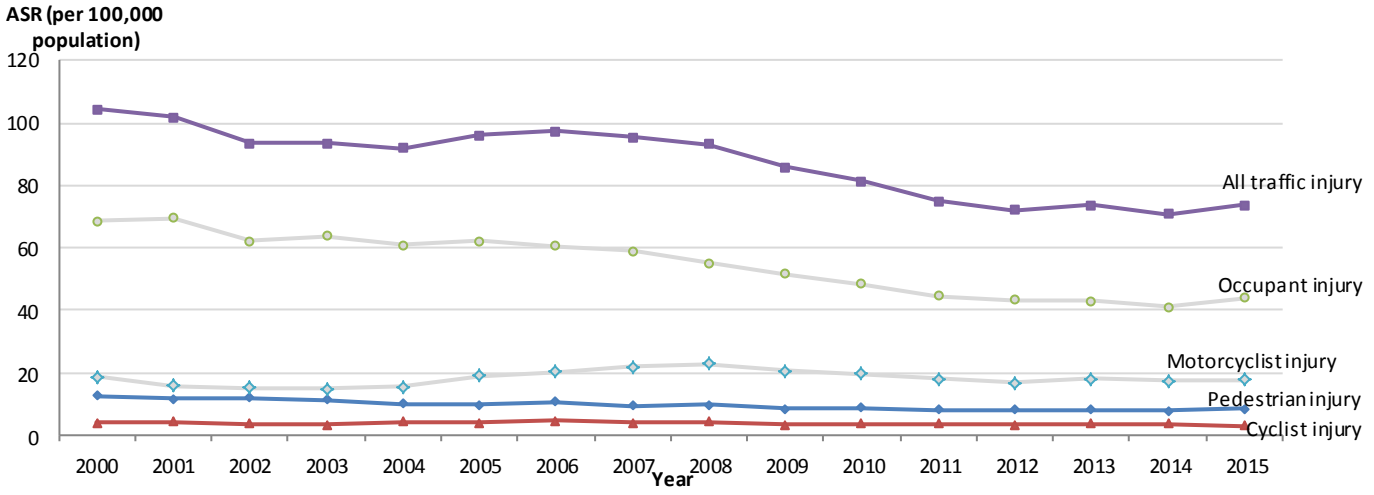
'All traffic injuries' include occupant injury (injuries of driver or passenger of three or four-wheeled motor vehicles), motorcyclist injury, pedestrian injury, cyclist injury, other injury and unspecified injury.

Traffic injury hospitalisations have decreased from 2000 to 2015

In 2015, there were 3512 hospitalisations for traffic injuries in New Zealand. The majority of these were for vehicle occupants (60%), with a smaller percentage for motorcyclists (24%), pedestrians (11%) and cyclists (4%).

From 2000 to 2015, the age-standardised rate (ASR) of all traffic injury hospitalisations decreased from 104.3 to 73.8 per 100,000 population (Figure 1). The ASR of pedestrian injury decreased from 12.5 to 8.4 per 100,000 population from 2000 to 2015. Over the 16 years, the ASR of cyclist injury ranged from 4.6 to 3.0 per 100,000 population.

Figure 1: Traffic injury hospitalisations by mode of transport, age-standardised rate (ASR) per 100,000 population, 2000-2015



Source: National Minimum Dataset (NMDS).

Road traffic injury hospitalisations in New Zealand

In the ten years from 2006 to 2015, there were over 36,000 traffic injury hospitalisations, of which over 22,000 were from vehicle occupant injury (61%), over 8,400 were from motorcyclist injury (23%), nearly 3900 were from pedestrian injury (11%) and over 1600 were from cyclist injury (5%) (Table 1).

Although there was a decreasing trend of all traffic injury hospitalisation rate (Figure 2), the trends for the pedestrian and cyclist injury hospitalisation rates were not obvious because of year to year variation (Figure 3).

Source for Table 1 and Figures 2 & 3: National Minimum Dataset (NMDS).
In Figures 2 & 3, 95% confidence intervals are presented

Table 1: Number of traffic injury hospitalisations, 2006-2015

Year	All traffic injury	Occupant injury	Motorcyclist injury	Pedestrian injury	Cyclist injury
2006	4,073	2,554	836	444	190
2007	4,043	2,503	925	399	169
2008	3,966	2,359	957	416	178
2009	3,740	2,286	876	368	151
2010	3,624	2,191	859	387	154
2011	3,370	2,032	796	355	166
2012	3,316	2,013	750	367	157
2013	3,416	2,037	809	375	176
2014	3,317	1,968	796	360	167
2015	3,512	2,115	833	397	141
Total	**36,377**	**22,058**	**8,437**	**3,868**	**1,649**

Figure 2: All traffic, occupant and motorcyclist injury hospitalisations, age-standardised rate (ASR) per 100,000 population, 2006-2015

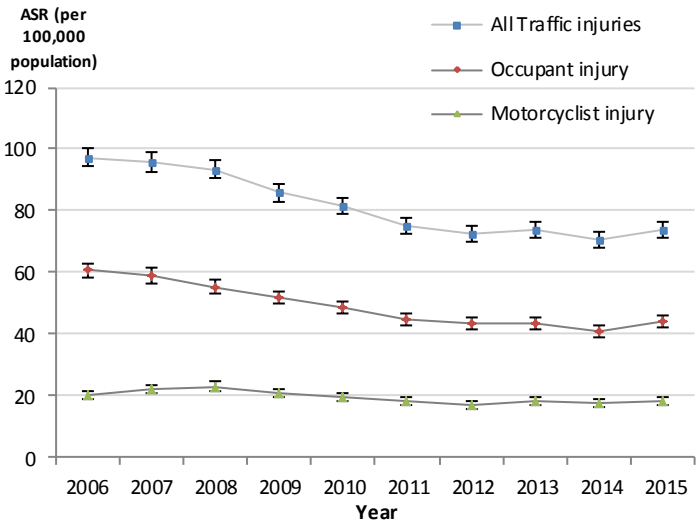


Figure 3: Pedestrian and cyclist injury hospitalisations, age-standardised rate (ASR) per 100,000 population, 2006-2015

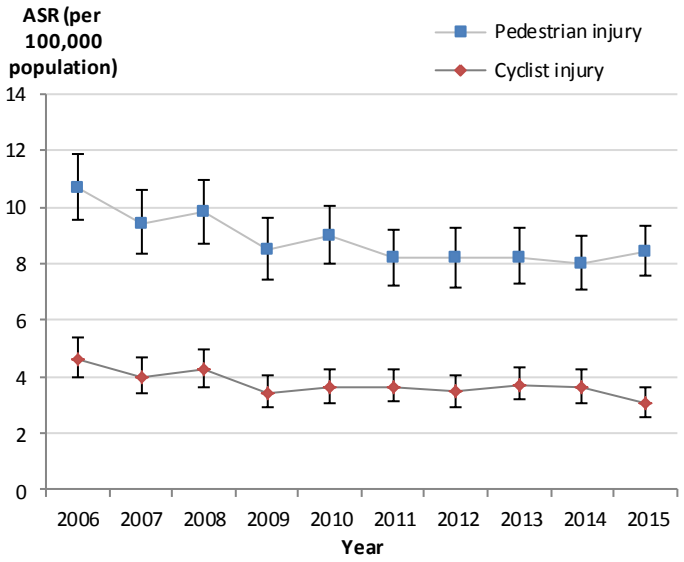


Table 2: Injury risk per million hours travelled, by mode of transport, 2004-2014

Year*	Number of hospitalisations per million hours travelled				
	All traffic injury	Occupant injury**	Motorcyclist injury	Pedestrian injury	Cyclist injury
2004-2007	2.5	2.0	125.8	1.9	8.0
2005-2008	2.5	1.9	125.4	2.0	7.4
2006-2009	2.5	1.9	162.8	1.9	7.1
2007-2010	2.4	1.8	133.1	1.9	5.6
2008-2011	2.3	1.7	147.2	1.8	5.5
2009-2012	2.2	1.6	125.4	1.8	5.8
2010-2013	2.2	1.6	120.5	1.8	6.7
2011-2014	2.1	1.5	131.7	1.8	6.7

Source: National Minimum Dataset (NMDS) & New Zealand Household Travel Survey
*Three-year moving averages (June-July) are presented.
**Occupant travelling hours include travelling time in cars, vans, and public transport (bus/train/ferry).

Motorcyclists and cyclists were at a higher risk of traffic injury hospitalisations per million hours spent travelling

The risk of injury hospitalisation per time spent travelling was much higher for motorcyclists and cyclists compared to vehicle occupants and pedestrians. In 2011-2014, for every million hours of travelling time, there were 131.7 motorcyclist hospitalisations and 6.7 cyclist hospitalisations, compared to 1.5 vehicle occupant hospitalisations and 1.8 pedestrian hospitalisations (Table 2).

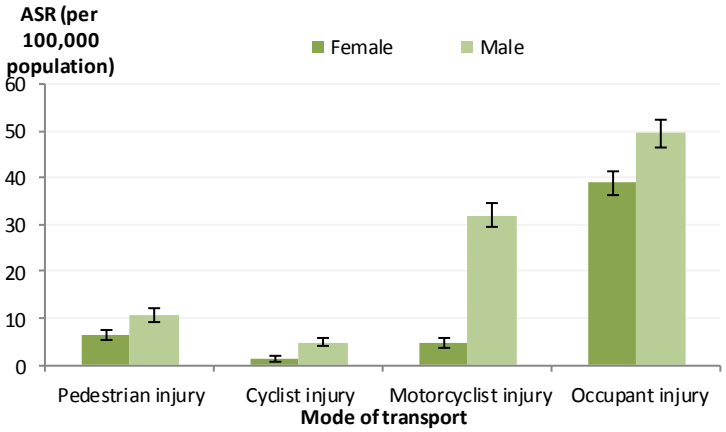
Except for motorcyclists, the rate of injury hospitalisations per million hours travelled has decreased for users of all modes of transport from 2004-2007 to 2011-2014.

Road traffic injury hospitalisations in New Zealand

Males had higher rates of traffic injury hospitalisations

In 2015, males had significantly higher rates of traffic injury hospitalisations than females (Figure 4). This applied to pedestrian, cyclist, motorcyclist and vehicle occupant injury hospitalisations. The rate was especially higher for motorcyclist hospitalisations; the male rate was nearly seven times as high as female rate (32.0 vs 4.6 per 100,000 population).

Figure 4: Traffic injury hospitalisations, by gender and mode of transport, age-standardised rate (ASR) per 100,000 population, 2015



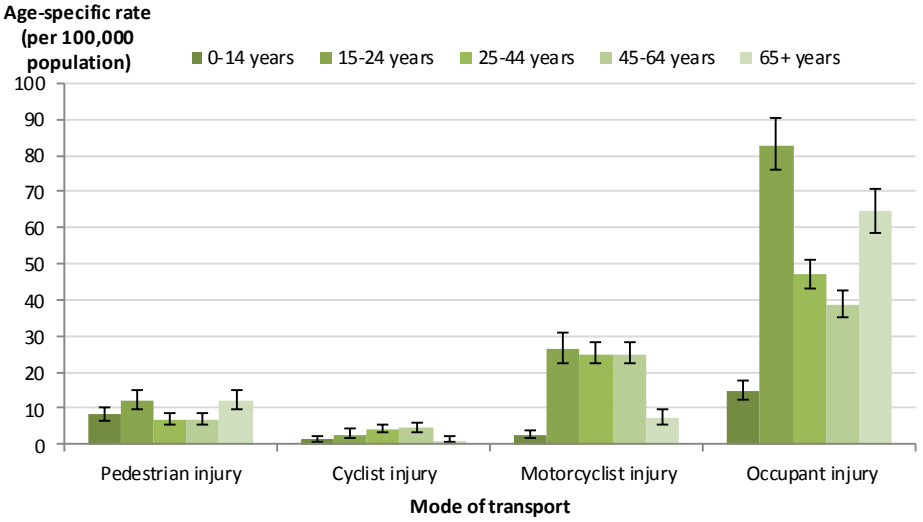
The age group more likely to be hospitalised varied by mode of transport

In 2015, young adults (15-24 years) and older people (65+ years) had higher rates of pedestrian and vehicle occupant injury hospitalisations than other age groups (Figure 5).

In comparison, people aged between 15-64 years tended to have higher rates for cyclist and motorcyclist injury hospitalisations.

For all traffic injury hospitalisations, people aged 15-24 years had the highest hospitalisations rate (125.3 per 100,000 population), followed by 25-44 years (83.6 per 100,000 population).

Figure 5: Traffic injury hospitalisations, by age group and mode of transport, age-specific rate per 100,000 population, 2015

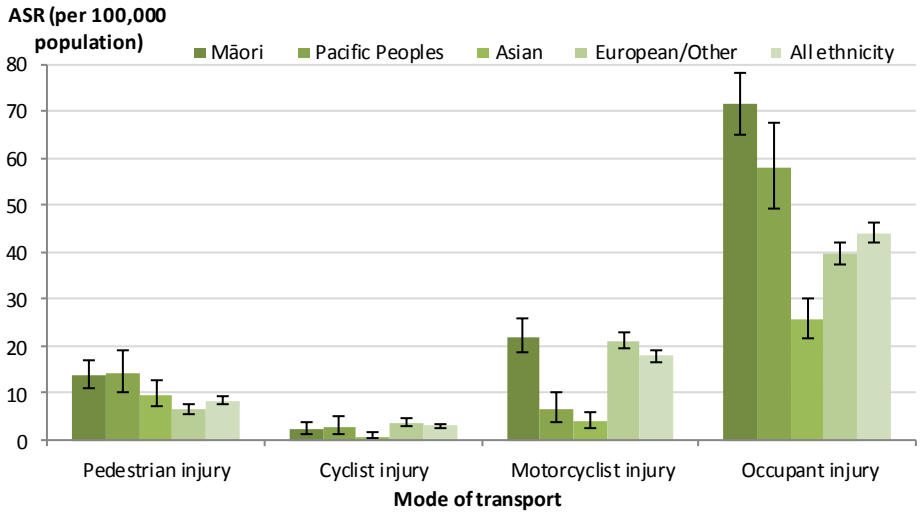


Māori, Pacific Peoples and Asians had a higher rate of pedestrian injury hospitalisations

In 2015, compared to other ethnic groups, Māori, Pacific Peoples and Asians had higher rates of pedestrian injury hospitalisations (Figure 6). Māori and Europeans/Others had a higher rate of motorcyclist injury hospitalisations. Māori and Pacific Peoples had a higher rate of vehicle occupant injury hospitalisations.

Overall, Māori (110.8 per 100,000 population), and Pacific Peoples (82.5 per 100.000 population) had higher rates of traffic injury hospitalisations than Asian (40.3 per 100,000 population) and European/Other (71.7 per 100,000 population).

Figure 6: Traffic injury hospitalisations, by ethnicity and mode of transport, age-standardised rate (ASR) per 100,000 population, 2015



Source for Figures 4, 5 &6: National Minimum Dataset (NMDS).
Note: Prioritised ethnic groups were used. 95% confidence intervals are shown.

Road traffic injury hospitalisations in New Zealand

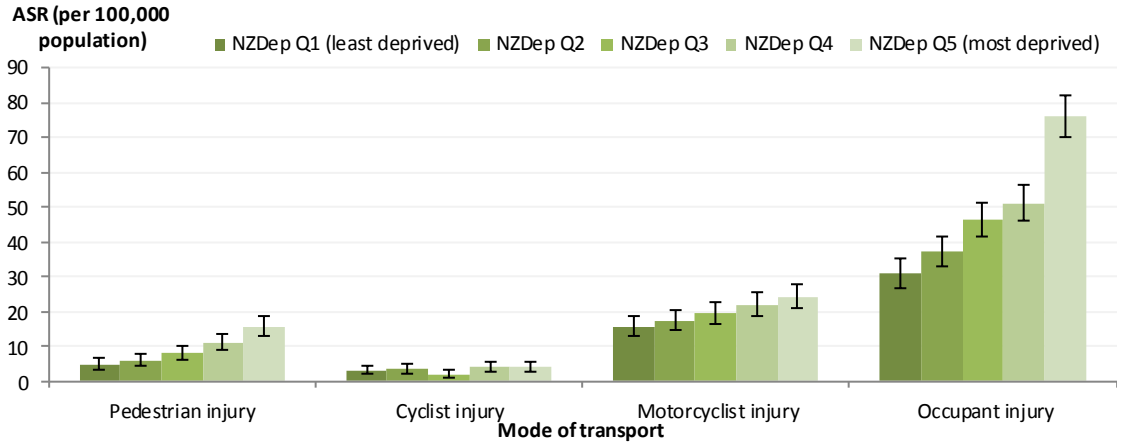
Higher rates of traffic injury hospitalisations in more deprived areas

The rates of pedestrian, motorcyclist and vehicle occupant injury hospitalisations were higher for people living in more socio-economically deprived areas (Figure 7).

In 2015, compared to the least deprived areas (NZDep2013 quintile 1), people from the most deprived areas (NZDep2013 quintile 5) had:

- 3.2 times the pedestrian injury hospitalisation rate (15.7 vs 4.9 per 100,000 population)
- 2.5 times the vehicle occupant injury hospitalisation rate (75.9 vs 30.7 per 100,000 population)
- 1.5 times the motorcyclist injury hospitalisation rate (24.1 vs 15.6 per 100,000 population).

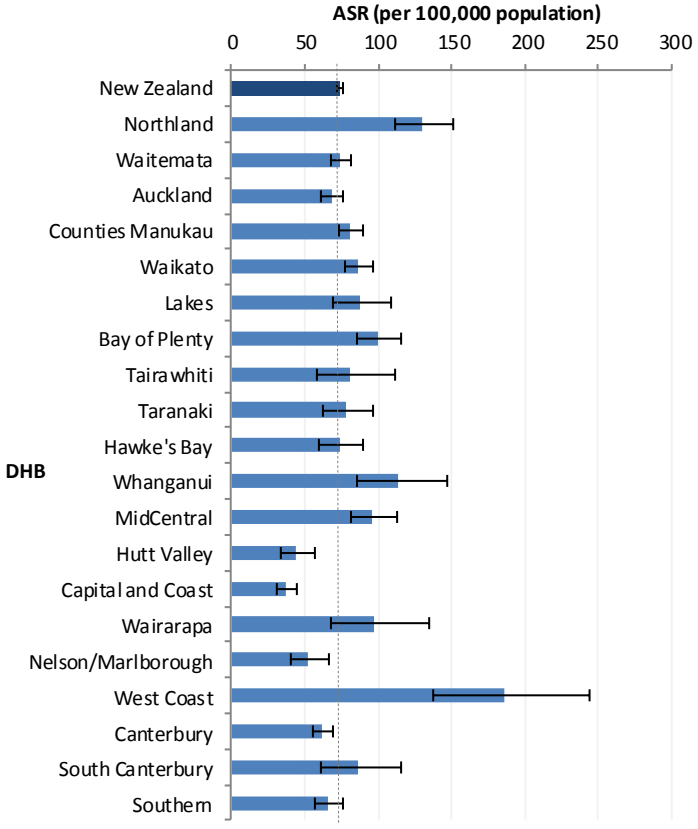
Figure 7: Traffic injury hospitalisations, by NZDep2013 quintile and mode of transport, age-standardised rate (ASR) per 100,000 population, 2015



Source for Figures 7&8: National Minimum Dataset (NMDS).

Note: 95% confidence intervals are shown. Spatial analysis was based on residential address, not the site of crash.

Figure 8: All traffic injury hospitalisations, by DHB, age-standardised rate (ASR) per 100,000 population, 2015



Large DHB differences in traffic injury hospitalisations

In 2015, West Coast District Health Board (DHB) had the highest rate (185.5 per 100,000 population) of traffic injury hospitalisations, followed by Northland DHB (129.9 per 100,000 population) (Figure 8). In comparison, Capital and Coast DHB had the lowest rate (37.6 per 100,000 population).

Compared to the national traffic injury hospitalisation rate (73.8 per 100,000 population), the rate was significantly higher in Northland, Waikato, Bay of Plenty, Whanganui, MidCentral and West Coast DHBs.

The traffic injury hospitalisation rate was significantly lower than the national rate in Hutt Valley, Capital and Coast, Nelson/Marlborough and Canterbury DHBs.

Road traffic injury hospitalisations in New Zealand

Large DHB differences in pedestrian and cyclist injury hospitalisations

In 2011-2015, for pedestrian injury hospitalisations, the rate for Auckland DHB was significantly higher than the national rate. Meanwhile, the rate was significantly lower in MidCentral, Nelson/Marlborough, and Canterbury DHBs (Figure 9).

For cyclist injury hospitalisations, Auckland and Canterbury DHBs had significantly higher rates than the national rate, while Northland, Counties Manukau, and Southern DHBs had significantly lower rates in 2011-2015 (Figure 10). The rate for West Coast DHB is not presented due to low counts.

Figure 9: Pedestrian injury hospitalisations, by DHB, age-standardised rate (ASR) per 100,000 population, 2011-2015

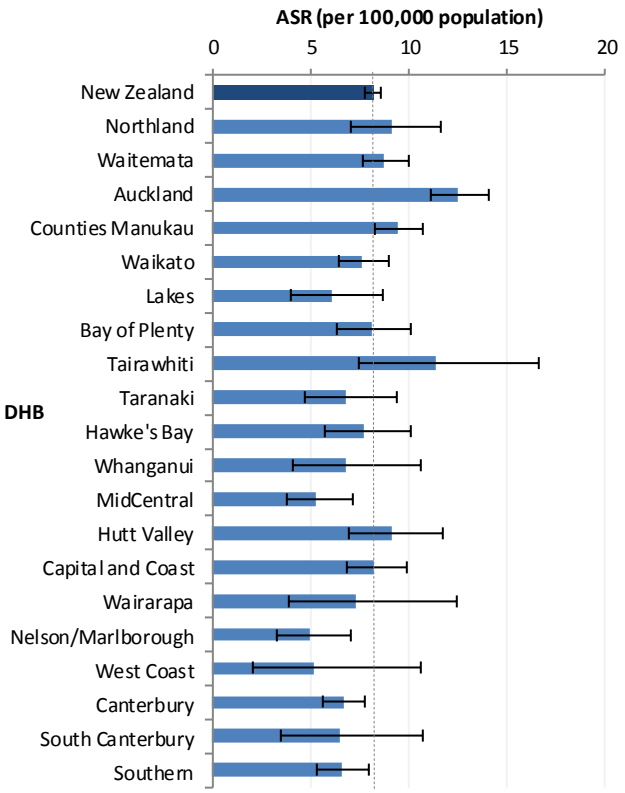
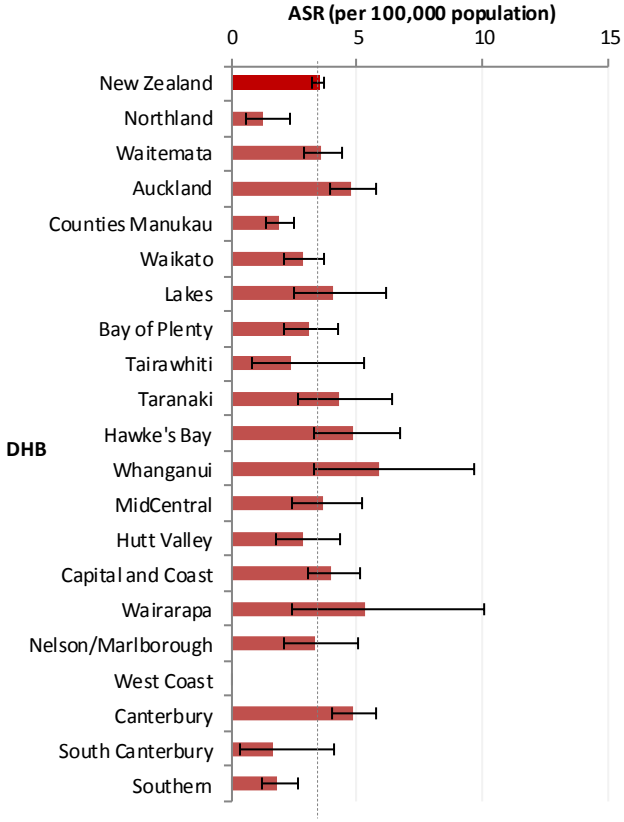


Figure 10: Cyclist injury hospitalisations, by DHB, age-standardised rate (ASR) per 100,000 population, 2011-2015



Source for Figures 9&10: National Minimum Dataset (NMDS).

Notes:

- Five years data were combined to calculate ASR due to small counts. 95% confidence interval are presented.
- ASR was not calculated for counts smaller than five.
- Spatial analysis was based on residential address not the site of crash.

For more information, please contact Fei Xu on ehnz@massey.ac.nz

DATA SOURCES

Data come from the National Minimum Dataset, from the Ministry of Health. 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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