Road traffic injury mortality in New Zealand

- **In 2015, there were 319 traffic deaths. This included 232 vehicle occupant deaths, 54 motorcyclist deaths, 25 pedestrian deaths and 6 cyclist deaths.**
- **The number of traffic deaths has decreased substantially from 1990 to 2015.**
- **Motorcyclists and cyclists were at higher risk of traffic injury mortality per time spent travelling.**
- **Males had higher death rates of traffic injury than females.**
- **Young people aged 15-24 years had the highest rate of traffic injury mortality.**
- **Māori had a higher traffic injury mortality rate than non-Māori.**
- **People living in more deprived areas had higher mortality rates of traffic injury.**
- **West Coast DHB had the highest traffic injury mortality rate in 2004-2013, followed by Northland DHB.**

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). Each year 200–400 people die on New Zealand roads. 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 factsheet includes two sources of data on road transport mortality. Data are firstly presented for the annual road toll statistics (1990-2015), from the Ministry of Transport. More in-depth data are then presented from the New Zealand Mortality Collection (2000-2013). We have pooled data from the Mortality Collection across years to enable us to examine pedestrian and cyclist deaths (which have small numbers).

The data are presented by mode of transport, to show how users of different forms of transport are affected. The rates are presented per capita, as well as by time spent travelling, which takes into account the different amounts of time spent travelling by different modes of transport.

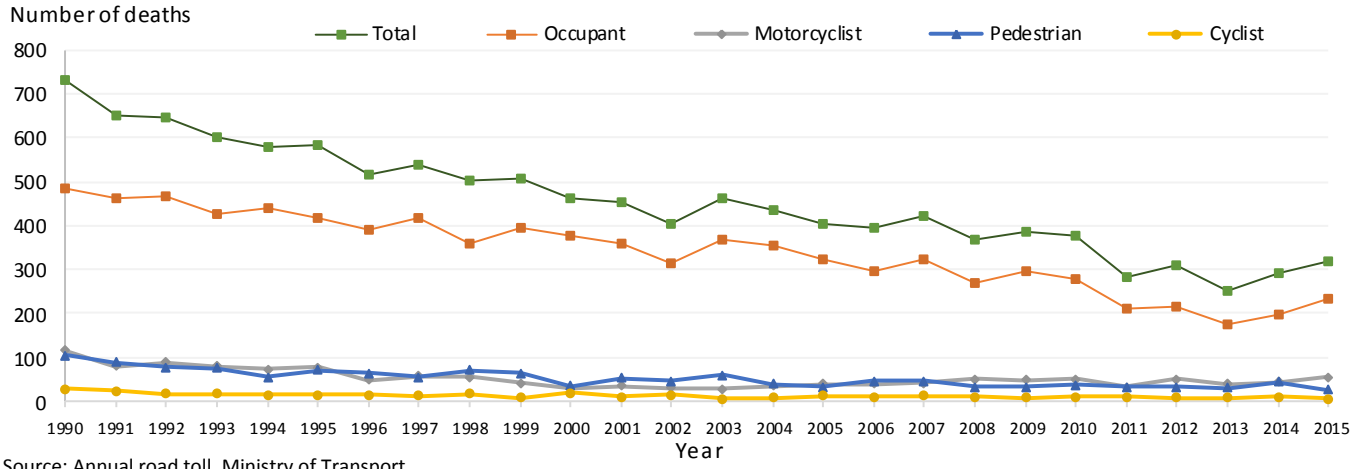
'All traffic injuries' include occupant injury (injuries of driver or passenger of three or four-wheeled motor vehicles), motorcyclist injury, pedestrian injury, cyclist injury, other injury and unspecified injury.

The road toll has decreased substantially from 1990 to 2015

In 2015, there were 319 road deaths due to traffic injuries. The majority of these deaths were due to vehicle occupant injury (232 deaths, 73%), with a smaller percentage due to motorcyclist (54 deaths, 17%), pedestrian (25 deaths, 8%) and cyclist injuries (6 deaths, 2%).

The road toll has decreased from 1990 (730 deaths) to 2015 (319 deaths) for all modes of transport.

Figure 1: Annual road toll, by mode of transport, 1990-2015



Source: Annual road toll, Ministry of Transport.

Road traffic injury mortality in New Zealand

The age-standardised rate (ASR) of all traffic injury deaths decreased from 11.4 in 2000-2001 to 6.0 per 100,000 population in 2012-2013 (Figure 2). The ASR of pedestrian injury deaths has decreased from the peak of 1.2 in 2002-2003 to 0.6 per 100,000 population in 2012-2013 (Figure 3). The cyclist injury death rate decreased from 0.4 in 2000-2001 to 0.1 per 100,000 population in 2012-2013.

There was a decreasing trend for all traffic injury and cyclist injury mortality. The trend for pedestrian injury mortality was not so obvious because of year to year variation (Figures 2 and 3).

Figure 2: All traffic injury mortality, age-standardised rate (ASR) per 100,000 population, 2000-2013

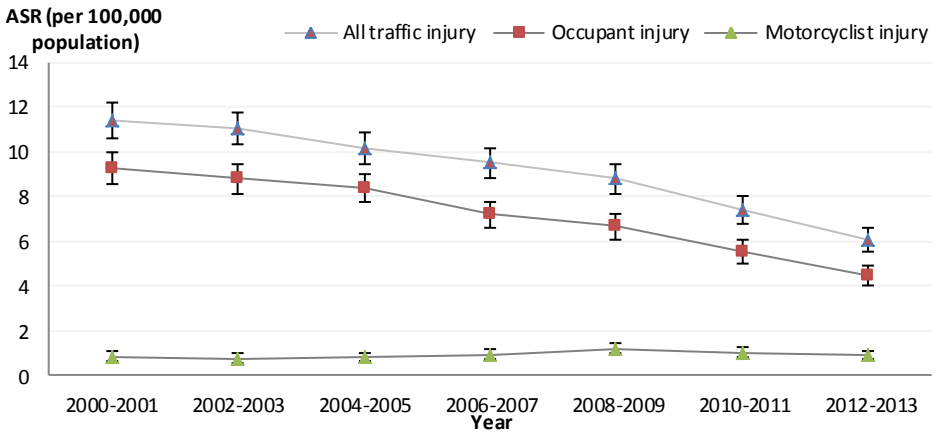
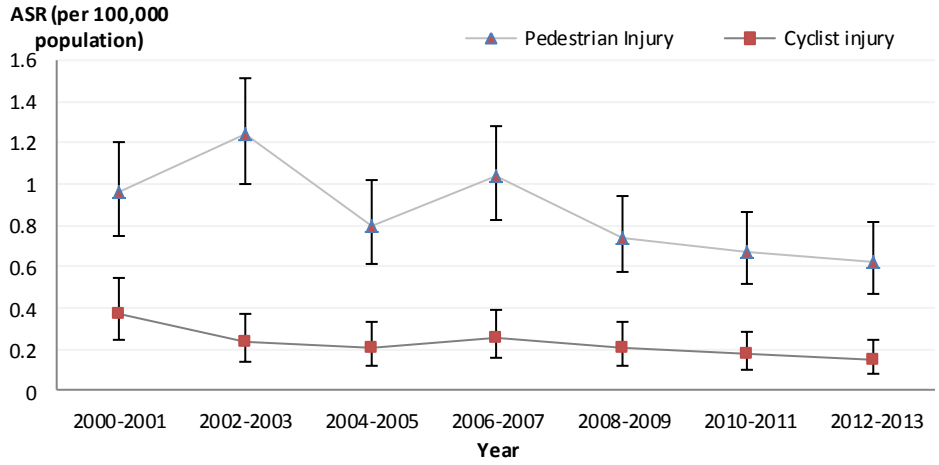


Figure 3: Pedestrian and cyclist injury mortality, age-standardised rate (ASR) per 100,000 population, 2000-2013



Source for Table 1 and Figures 2 & 3: New Zealand Mortality Collection Dataset.
Note: 95% confidence intervals are presented.

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

The risk of injury mortality per time spent travelling was much higher for motorcyclists and cyclists, compared to vehicle occupants and pedestrians. In 2011-2013, for every ten million hours travelled, there were 66.7 motorcyclist and 3.2 cyclist deaths, compared to 1.6 vehicle occupant and 1.5 pedestrian deaths (Table 1).

The risk of traffic injury mortality per time travelled has decreased for vehicle occupants, pedestrians and cyclists. However, the mortality risk for motorcyclists has increased by over a quarter, from 53.1 deaths in 2004-2006 per ten million hours travelled to 66.7 deaths in 2011-2013 (Table 1).

Table 1: Traffic injury mortality risk per ten million hours travelled, by mode of transport , 2004-2013

Year*	Number of deaths per ten million hours travelled				
	All traffic injury	Occupant injury**	Pedestrian injury	Motorcyclist injury	Cyclist injury
2004-2006	2.6	2.5	1.8	53.1	4.1
2005-2007	2.6	2.4	2.0	50.7	4.9
2006-2008	2.4	2.2	2.0	73.7	4.5
2007-2009	2.5	2.3	1.8	67.6	3.7
2008-2010	2.4	2.2	1.7	86.2	3.2
2009-2011	2.3	2.1	1.7	70.8	3.2
2010-2012	2.1	1.9	1.6	68.2	3.3
2011-2013	1.8	1.6	1.5	66.7	3.2

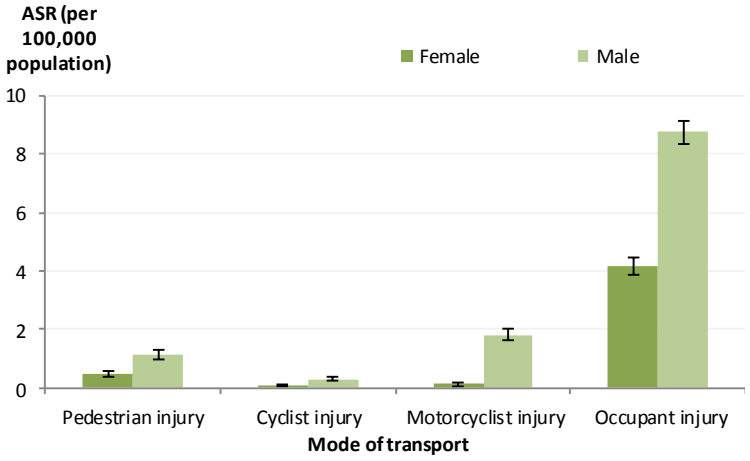
Source: New Zealand Mortality Collection Dataset. & New Zealand Household Travel Survey
*Three-year moving averages are presented. Injury mortality from the Mortality Collection Dataset was calculated based on calendar year (e.g. Jan 2004– December 2006), while time travelled (from the Household Travel Survey) was available in 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 mortality in New Zealand

Males had higher death rates of traffic injury

During 2004-2013, males had significantly higher death rates of traffic injury compared to females (Figure 4). This applied to pedestrian, cyclist, motorcyclist and vehicle occupant injuries. The death rate was especially high for male motorcyclists, whose rate was 14 times as high as the rate of females (1.80 vs 0.13 per 100,000 population).

Figure 4: Traffic injury mortality, by gender and mode of transport, age-standardised rate (ASR) per 100,000 population, 2004-2013



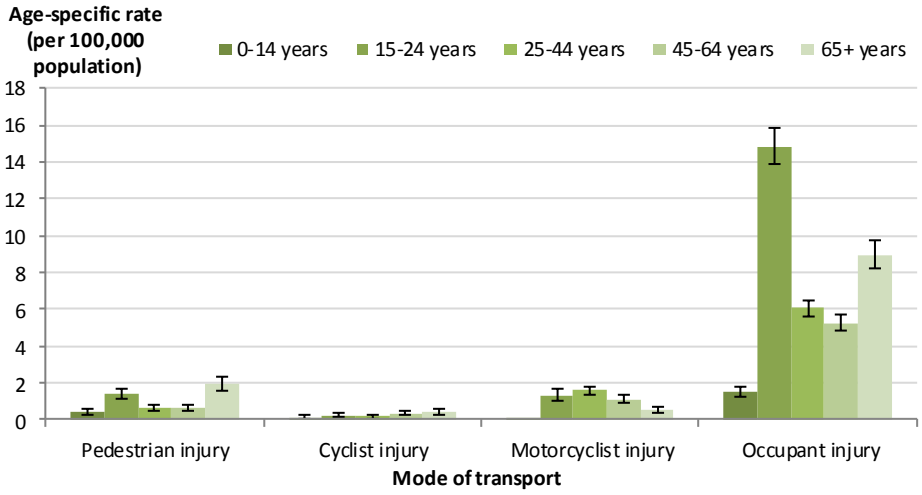
The age group with the highest risk of traffic injury mortality varied by mode of transport

Young adults (15-24 years) and older people (65+ years) had higher death rates for pedestrian and vehicle occupant injuries than other age groups (Figure 5).

People aged over 45 years tended to have a higher death rate for cyclist injury, while people aged between 15-64 tended to have a higher death rate for motorcyclist injury (Figure 5).

For all traffic injury deaths, people aged 15-24 years had the highest rate (17.7 per 100,000 population), followed by 65+ years (11.8 per 100,000 population).

Figure 5: Traffic injury mortality, by age group and mode of transport, age-specific rate per 100,000 population, 2004-2013



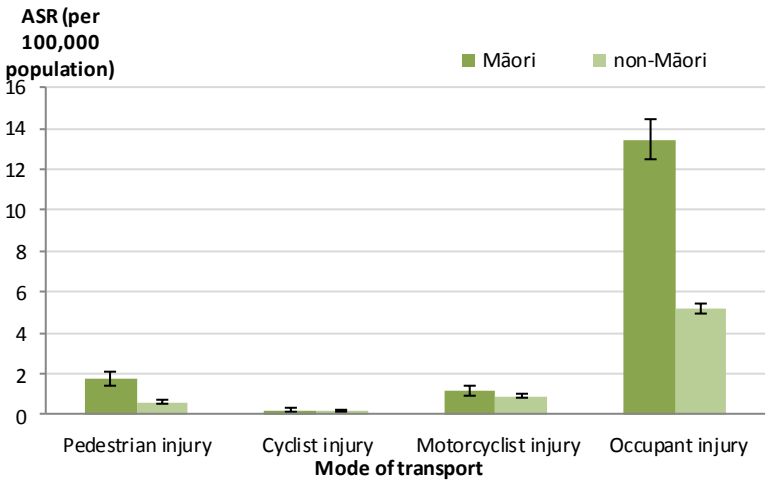
Māori had higher death rates for pedestrian and vehicle occupant injuries

During 2004-2013, Māori had significantly higher death rates for pedestrian and vehicle occupant injuries than non-Māori (Figure 6).

Compared to non-Māori, the Māori death rate was 2.8 times as high (1.7 vs 0.6 per 100,000 population) for pedestrian injury and 2.6 times as high (13.4 vs 5.2 per 100,000 population) for vehicle occupant injury (Figure 6).

Overall, Māori had a higher traffic injury mortality rate (16.6 per 100,000 population) than non-Māori (6.9 per 100,000 population).

Figure 6: Traffic injury mortality, by Māori/non-Māori and mode of transport, age-standardised rate (ASR) per 100,000 population, 2004-2013



Source of Figures 4, 5 & 6: New Zealand Mortality Collection Dataset.
Note: 95% confidence intervals are presented. Ten years' data was combined due to small numbers.

Road traffic injury mortality in New Zealand

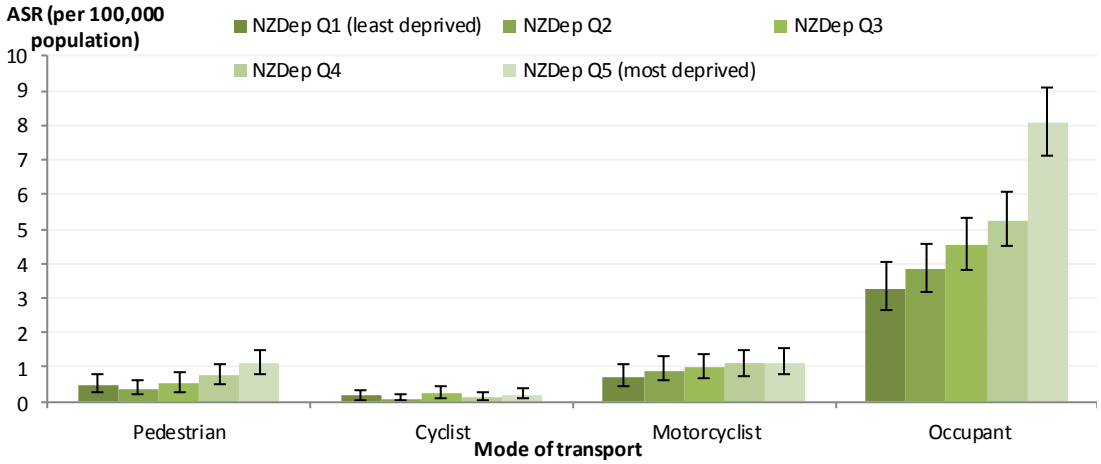
Higher traffic injury mortality rates in more deprived areas

In 2010-2013, the injury mortality rates for vehicle occupants, pedestrians and motorcyclists generally increased with socioeconomic deprivation (Figure 7).

During 2010-2013, compared to the least deprived areas (NZDep2013 quintile 1), people from the most deprived areas (NZDep2013 quintile 5) had:

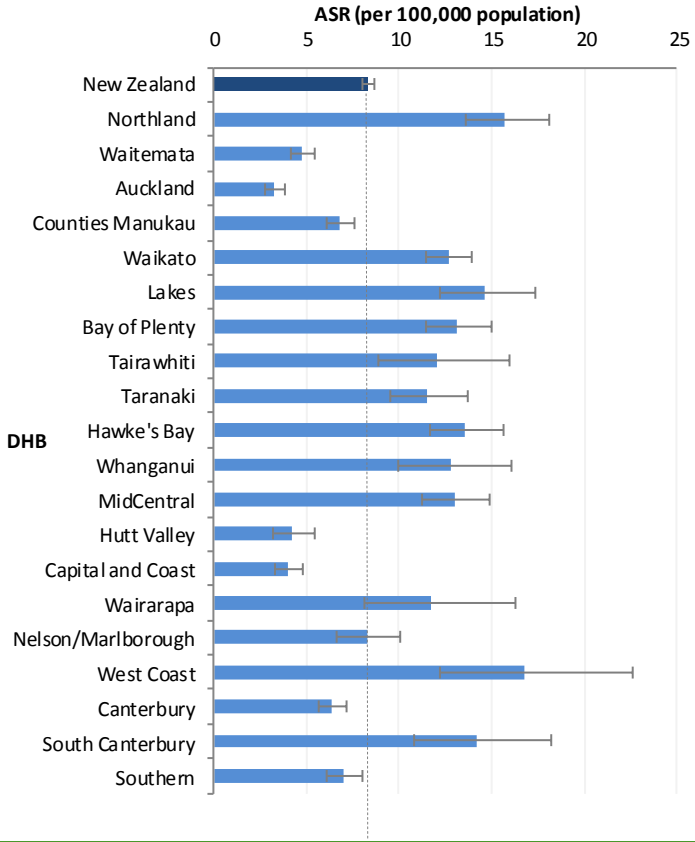
- 2.5 times the vehicle occupant mortality rate (8.0 vs 3.3 per 100,000 population)
- 2.3 times the pedestrian mortality rate (1.1 vs 0.5 per 100,000 population)
- 1.6 times the motorcyclist mortality rate (1.1 vs 0.7 per 100,000 population).

Figure 7: Traffic injury mortality, by NZDep2013 quintile and mode of transport, age-standardised rate (ASR) per 100,000 population, 2010-



Source: New Zealand Mortality Collection Dataset.
Note: 95% confidence intervals are presented. Data from 2010 to 2013 was combined for analysing the connection between NZDep13 and traffic injury mortality rate.

Figure 8: All traffic injury mortality, by DHB, age-standardised rate (ASR) per 100,000 population, 2004-2013



Large DHB differences in all traffic injury mortality

In 2004-2013, West Coast District Health Board (DHB) had the highest mortality rate (16.8 per 100,000 population) for all traffic injuries, followed by Northland DHB (15.7 per 100,000 population) (Figure 8). In comparison, Auckland DHB had the lowest rate (3.3 per 100,000 population).

Compared to the national traffic injury mortality rate (8.3 per 100,000 population) the rate was significantly higher in Northland, Waikato, Lakes, Bay of Plenty, Tairawhiti, Taranaki, Hawke's Bay, Whanganui, MidCentral, West Coast and South Canterbury DHBs.

The traffic injury mortality rate was significantly lower than the national rate in Waitemata, Auckland, Counties Manukau, Hutt Valley, Capital and Coast, Canterbury and Southern DHBs.

Source: New Zealand Mortality Collection Dataset.
Note: 95% confidence intervals are presented. Ten year's data was combined due to small numbers.

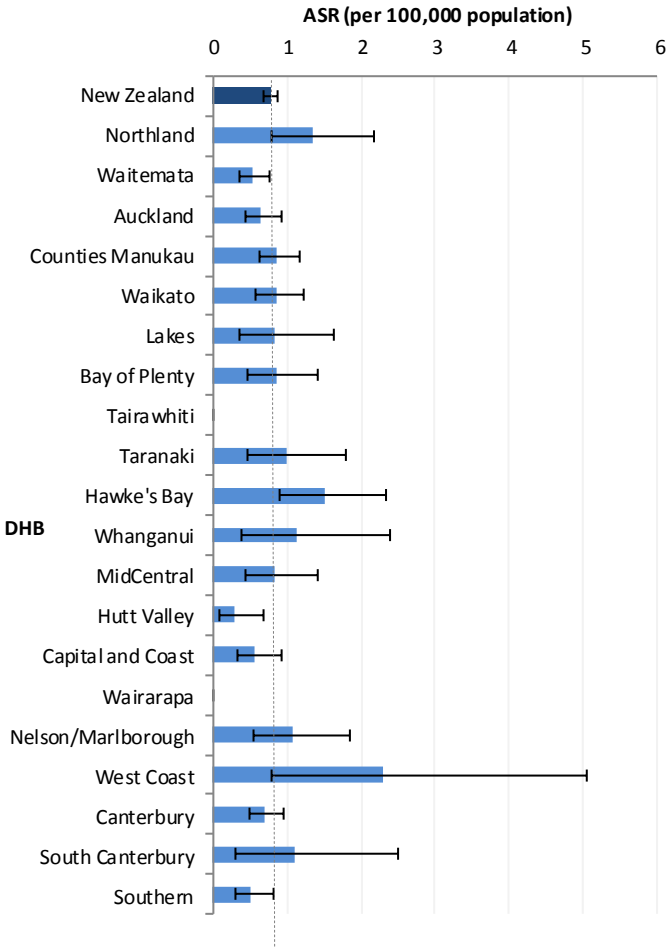
Road traffic injury mortality in New Zealand

Large DHB differences in pedestrian injury mortality

During 2004-2013, West Coast DHB had the highest rate for pedestrian injury mortality (2.3 per 100,000 population), followed by Hawke's Bay (1.5 per 100,000 population) and Northland DHBs (1.4 per 100,000 population) (Figure 9). Hutt Valley DHB had the lowest rate for pedestrian injury mortality rate (0.3 per 100,000 population) in 2004-2013.

Rates for Tairawhiti and Wairarapa DHBs are not presented due to low counts.

Figure 9: Pedestrian injury mortality, age-standardised rate (ASR) per 100,000 population, by DHB, 2004-2013



Source: New Zealand Mortality Collection Dataset

Note:

- 95% confidence interval were presented.
- Ten years' data was combined due to small numbers.
- Rates were not calculated for counts smaller than five.

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

DATA SOURCES

Data come from the National Mortality Collection, 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 hospitalisations
- 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).

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.

Ministry of Health and ACC. 2013. *Injury-related Health Loss: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study 2006–2016.* Wellington: Ministry of Health.