

## Metadata: Road traffic injury hospitalisations in New Zealand

Information topic	Details
Indicator name	Road traffic injury hospitalisations in New Zealand
Domain	Transport domain
Rationale	<p>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).</p> <p>Road traffic injuries can affect users of all modes of transport. In particular, pedestrians and cyclists can be described as ‘vulnerable road users’, 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).</p> <p>This indicator examines hospitalisations from road 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.</p>
Indicator definition and units	The number and rate of road traffic injury hospitalisations, by mode of transport.
Data source	National Minimum Dataset (NMDS), Ministry of Health. New Zealand Household Travel Survey, Ministry of Transport. Population estimates and projections, Statistics New Zealand. NZDep2013 Index of Deprivation, University of Otago.
Numerator	<p>Numerator for hospitalisation rate: Number of road traffic injury hospitalisations, including all traffic, pedestrian, cyclist, motorcyclist and vehicle occupant (injury of driver or passenger of three or four-wheeled motor vehicles) injury hospitalisations. ‘All traffic injuries’ included occupant injury, motorcyclist injury, pedestrian injury, cyclist injury, other injury and unspecified injury.</p> <p>The indicator includes hospitalisations with a principal diagnosis of injury and a traffic-related external cause. The following ICD–10AM codes were used:</p> <ul style="list-style-type: none"> <li>• Occupant: [V30–V79](.4–.9), [V83–V86](.0–.3)</li> <li>• Motorcyclist: [V20–V28](.3–.9), V29(.4–.9)</li> <li>• Pedal cyclist: [V12–V14](.3–.9), V19(.4–.6)</li> <li>• Pedestrian: [V02–V04](.1,.9), V09.2</li> <li>• Other: V80(.3–.5), V81.1, V82.1</li> <li>• Unspecified: V87(.0–.8), V89.2</li> </ul> <p>These ICD codes are consistent with the classification of external cause of injury used by the Centers for Disease Control and Prevention (2002).</p>

	<p>The following hospitalisations were excluded from analysis:</p> <ul style="list-style-type: none"> <li>• transfers within or between hospitals</li> <li>• overseas visitors</li> <li>• day cases (where the patient was discharged alive from hospital on the same day as admitted)</li> <li>• deaths (defined as 'event end types' DD, DO or ED)</li> <li>• emergency department short stay (where the patient was seen in ED and discharged on the same or next day, without admission as an inpatient)</li> <li>• readmissions for the same injury (based on having the same injury date) (Langley et al 2002, Ministry of Health 2006)</li> </ul> <p>Numerator for injury hospitalisation risk per million hours travelled per year: Number of road traffic injury hospitalisations for different modes of transport (as above), 3-year moving average.</p>
Denominator	<p>Denominator:</p> <ul style="list-style-type: none"> <li>• Hospitalisation rate: population estimates (2013 and prior) and projections (after 2013) (Statistics New Zealand)</li> <li>• Hospitalisation rate by NZDep: NZDep2013 Index of Deprivation (University of Otago)</li> <li>• Injury hospitalisation risk per million hours travelled per year: number of hours travelled, by mode of transport, 3-year moving average (Ministry of Transport).</li> </ul>
Time periods covered:	<ul style="list-style-type: none"> <li>• Road traffic injury hospitalisations: from 2000 onward. Data is available on an annual basis. For some analyses, we have pooled data across years due to small counts (e.g. pedestrian and cyclist injury hospitalisations by DHB).</li> <li>• Injury hospitalisation risk per million hour travelled: three-year moving average from 2004-2007 onward.</li> </ul>
Population coverage:	New Zealand usually resident population of all ages.
Reporting variables	Results are presented by travel mode, year, gender, age group, ethnicity, NZDep, and DHB.
Confidence intervals	95% confidence intervals were calculated based on the methodology outlined in APHO (2008). Confidence intervals are presented as error bars on graphs.
Limitations of indicator and data source	<p>This data relates to the traffic injury hospitalisations by different modes of travel. Limitations include the following.</p> <ul style="list-style-type: none"> <li>• The indicator only covers injuries that resulted in hospital admissions.</li> <li>• Spatial analysis was based on residential address and not the site of crash.</li> <li>• The indicator will only present the number/rate of hospitalisations and not the number of people affected.</li> <li>• The indicator excludes some minor injuries through the exclusion criteria (see above). This means that the indicator focuses more on moderate to severe injuries.</li> </ul>
Related	Number of motor vehicles

indicators	<p>Main means of travel to work on Census day</p> <p>Active transport to and from school</p> <p>Household travel by mode of transport</p> <p>Unmet need for GP services due to a lack of transport</p>
References	<p>APHO. 2008. <i>Technical Briefing 3: Commonly used public health statistics and their confidence intervals</i>. York, UK: Association of Public Health Observatories.</p> <p>Briggs, D., Mason, K., Borman, B. 2016. Rapid assessment of environmental health impacts for policy support: The example of road transport in New Zealand. <i>International Journal of Environmental Research and Public Health</i> 13: 61.</p> <p>Centers for Disease Control and Prevention. 2002. <i>ICD Framework: External Cause of Injury Mortality Matrix</i>. Retrieved 18/03, 2015, from <a href="http://www.cdc.gov/nchs/injury/ice/matrix10.htm">http://www.cdc.gov/nchs/injury/ice/matrix10.htm</a></p> <p>Langley, J., Stephenson, S., Cryer, C., &amp; Borman, B. 2002. Traps for the unwary in estimating person based injury incidence using hospital discharge data. <i>Injury Prevention</i>, 8(4), 332-337.</p> <p>Ministry of Health and ACC. 2013. <i>Injury-related Health Loss: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study 2006–2016</i>. Wellington: Ministry of Health.</p> <p>Ministry of Health. 2006 <i>Hospital Throughput for DHBs and their Hospitals</i>. Retrieved 18/03 2015, from <a href="http://www.health.govt.nz/system/files/documents/publications/hospital-throughout-0304.pdf">http://www.health.govt.nz/system/files/documents/publications/hospital-throughout-0304.pdf</a></p> <p>Ministry of Health. 2015. <i>Factsheet: Short stay emergency department events</i>. Retrieved 23/06/2017, from <a href="http://www.health.govt.nz/publication/factsheet-short-stay-emergency-department-events">http://www.health.govt.nz/publication/factsheet-short-stay-emergency-department-events</a>.</p>