

Information topic	Details
Indicator name	Road traffic injury hospitalisations
Domain and topic	Transport
Indicator definition and units	The number and rate of road traffic injury hospitalisations, by mode of transport
Data sources	National Minimum Dataset (Health New Zealand – Te Whatu Ora) New Zealand Household Travel Survey (Ministry of Transport) Populations web tool (Health New Zealand – Te Whatu Ora)
Numerator	Number of road transport injury hospitalisations
Denominator	<ul style="list-style-type: none"> • Hospitalisation rate: Stats NZ estimated resident population (sourced from the Aotearoa Data Explorer and Health NZ), and population projections for ethnicity data from 2024 onwards. • Hospitalisation rate by NZDep: NZDep2023 Index of Deprivation (Atkinson et al, University of Otago) • Injury hospitalisation risk per million hours / kilometres travelled per year: number of hours/kilometres travelled, by mode of transport (Ministry of Transport).
Methodology	<p>The indicator includes all injury hospital discharges (ie, those with a principal diagnosis of ICD-10AM S00-T78), with the following external cause of injuries:</p> <ul style="list-style-type: none"> • 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 <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 hospital records were excluded from analysis:</p> <ul style="list-style-type: none"> • Transfers (within or between hospitals) • Emergency Department short stays (where the person was seen in ED and discharged on the same or next day, without admission as an inpatient) • Day cases • Deaths • Readmissions for the same injury date, +/- 1 day (Langley et al 2002, Ministry of Health 2006) • Readmissions for the same individual, within 1 day (Langley et al 2002, Ministry of Health 2006) • Overseas residents
Time period and time scale	Injury Hospitalisations: Data has been reported for the most recent 20 years . For some analyses, we have pooled data across multiple years due to small counts (for instance, injury rates by ethnic group).
Population coverage	Hospitalisation rates use the New Zealand estimated resident population.

Metadata

Spatial Coverage	National, with rates also presented by district (formerly District Health Boards) and Territorial Authority.
Measures of frequency	Results are presented by travel mode, year, age group, sex, ethnic group, NZDep2023 quintile, urban/rural classification and district.
Methodology	<p>95% confidence intervals were calculated based on the methodology outlined in APHO (2008). Confidence intervals are presented as vertical bars on graphs.</p> <p>Suppression was applied to some rates due to the unreliability of estimates with small numbers. Age-standardised rates were suppressed for counts less than 20 or populations less than 30. Age-specific rates were suppressed for counts less than 5 or populations less than 30.</p> <p>Rate ratios have been used to compare rates. A rate ratio higher than 1 indicates the rate is higher in the group of interest than in the comparison group. We have used 95% confidence intervals to decide if the rate ratio is statistically significantly different from 1 (where 1 indicates no difference because the two rates are the same). If the 95% confidence interval does not include 1, then the rate ratio is statistically significant (at the 5% probability level).</p>
Limitations of indicator	<ul style="list-style-type: none"> • The indicator only covers injuries that resulted in hospital admissions. • Spatial analysis was based on residential address (not the site of crash). • The indicator will only present the number/rate of hospitalisations and not the number of people affected. • The indicator excludes some minor injuries through the exclusion criteria listed above. This means that the indicator focuses more on moderate to severe injuries.
References	<p>Atkinson J, Salmond C, Crampton P, Viggers H, and Lacey K (2024). <i>NZDep2023 Index of Socioeconomic Deprivation: Research Report, 31 October 2024</i>. Wellington: University of Otago.</p> <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>Centers for Disease Control and Prevention. 2002. <i>ICD Framework: External Cause of Injury Mortality Matrix</i>. Retrieved 18/03, 2015, from http://www.cdc.gov/nchs/injury/ice/matrix10.htm</p> <p>Langlely, J., Stephenson, S., Cryer, C., & 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. 2006. <i>Hospital Throughput for DHBs and their Hospitals</i>. Retrieved 18/03 2015, from http://www.health.govt.nz/system/files/documents/publications/hospital-throughout0304.pdf</p>