

Death and severe injuries on NZ roads: Different things to different people

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Abstract

Many sources record road-related deaths and injuries but use different definitions. Achieving safer roads requires an accurate description of road trauma. To create a comprehensive picture of road-related trauma, a collaboration of five agencies in New Zealand brought together data from seven databases and matched individuals. The resulting analysis allowed a true representation of road trauma beginning with all injuries, the number presenting to hospital, hospital admissions, serious life-threatening injuries, and deaths. The study addressed important gaps in the understanding of road trauma. It demonstrated that interagency collaboration can address deficiencies in individual databases and allow a common definition for road traffic injuries.

Background: Road traffic injuries are associated with high societal costs in health, social and financial terms. Different agencies use different measures yet report them similarly making it difficult to determine the true picture of where injury occurs, who is injured and how, what the severity of that injury is, how it is managed, and what the cost is. An example would be the way the transport agencies define severity of injury which relates to whether the patient was taken to hospital or not. The trauma network definition is based on the Injury Severity Score (ISS). To determine whether these gaps could be addressed a range of transport and health agencies collaborated and matched data sources to develop agreed definitions and confirm numbers of patients in each category, and their health and financial outcomes.

Method: Five agencies; NZ Major Trauma National Clinical Network (MTNCN), NZ Transport Agency (NZTA), Accident Compensation Corporation (ACC), Ministry of Health (MoH), Order of St John (OStJ) brought together data for the financial year 1 July 2016-30 June 2017 from seven databases (Crash Analysis System (CAS), ACC Claims data, OStJ electronic Patient Report Forms, NZ Major Trauma Registry (NZMTR), National Non-Admitted Patient Collection, National Minimum Dataset, Vehicle Risk Rating register. The agencies agreed definitions on road", "road trauma", and "severity of injury". Using the National Health Index (NHI) number (a unique health identifier applied to each individual in New Zealand) to match individual patients that could potentially be in more than one dataset an overall picture of the numbers of patients injured in road related trauma was determined. The circumstances surrounding their injury, demographics, severity of injury, and cost of care, were described

Results: Using a collaborative approach the contributing organisations' varying definitions of road, road trauma and severity of injury were resolved. A single agreed definition was reached. Road was defined as public open road or urban highway. Private road and farms were excluded. Road trauma was defined as an injury occurring on a road associated with a form of transport. Pedestrians falling over not involving a form of transport were excluded. Injury severity was agreed as that defined by ISS with ISS>12 describing patients with severe injury. Starting with the dataset comprising the number of individuals who had ACC claims for personal injury as a result of road related trauma a cohort of ~44,000 was described. This represented the entire dataset for such patients in New Zealand. Various sub-cohorts of this group of ~44,000 were outlined (Figure 1) culminating in 343 deaths and ~1,000 with severe injuries as determined by inclusion in the Major Trauma Registry. Car occupants made up the majority of patients (63%) and vehicle type was only unavailable in

0.8%. The total cost of care was \$130m, with a median of \$203 and IQR of \$71-91. The highest costs was associated with truck occupants, motorcyclists and cyclists. Notable deficiencies in the datasets included only 13% of patients admitted to hospital after a cycle injury having CAS reports and an inability to match injuries to the vehicle risk rating as the register was incomplete for the year studied.

Conclusions: The study proved the feasibility of the methodology which has enormous potential to objectively quantify the burden of trauma in New Zealand. The study addressed important gaps in the understanding of the personal outcomes following road trauma and demonstrated the potential for collaboration between disparate agencies to provide additional value for all

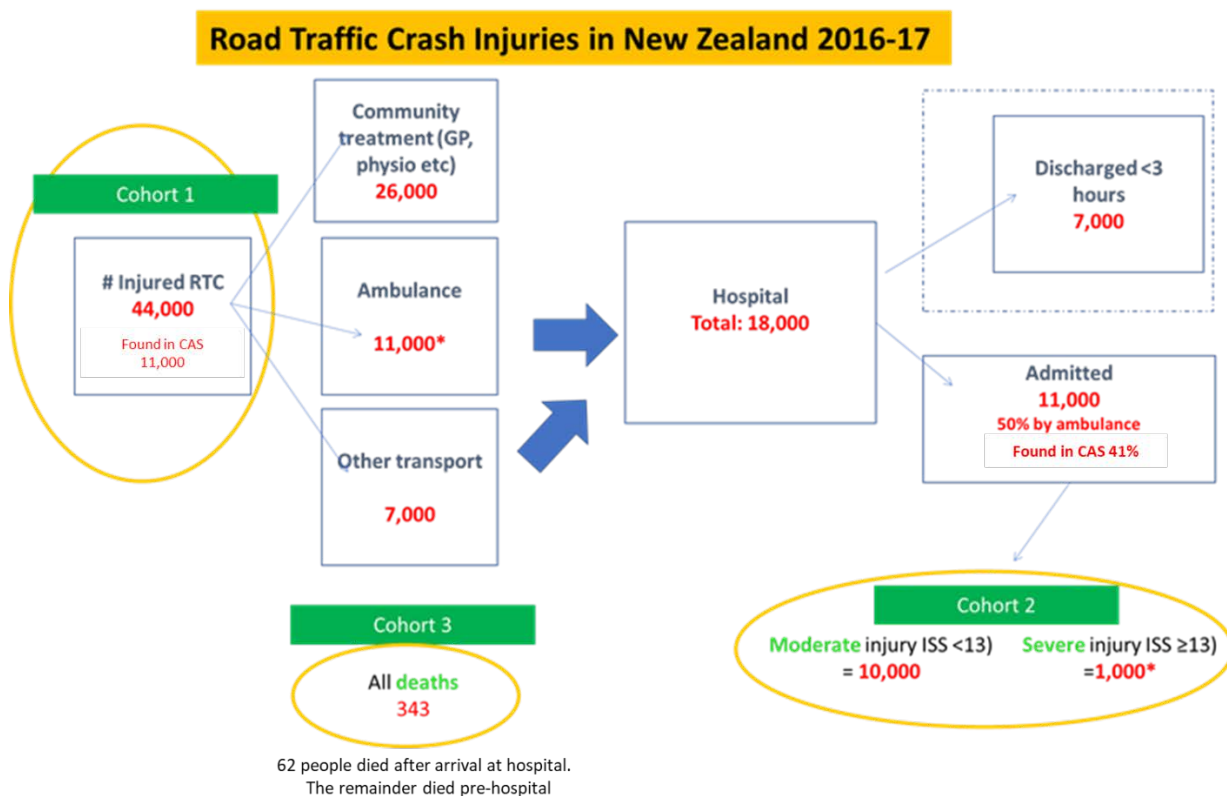


Figure 1. Road traffic crash injury count for NZ July 2016-June 2017)

Databases used

Crash Analysis System: <https://www.nzta.govt.nz/safety/safety-resources/crash-analysis-system/>

National non-admitted Patient Collection <https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/national-non-admitted-patient-collection>

National Health Index <https://www.health.govt.nz/our-work/health-identity/national-health-index>

National Minimum Dataset <https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/national-minimum-dataset-hospital-events>

Electronic Patient Report Form <https://www.stjohn.org.nz/News--Info/St-John-ePRF/>