

## Incidence and Costs of Transport-Related Injury in Western Australia

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### Abstract

The aim of this study was to investigate the incidence and costs of transport-related injury in Western Australia. Data were obtained from linked administrative health and personal motor injury claims data. Costs allocated to injury events included health sector costs, longer term care costs, loss of productivity and quality of life loss. The number of transport-related injury events in 2012 was 12,997, with total costs of \$1.3bn. Incidence and mean costs varied across multiple dimensions including sex, age group, Aboriginality, socio-economic quintile and health region. The study provides a useful evidence base for policymakers in planning injury prevention strategies.

### Background

Transport-related injuries are a leading cause of injury, accounting for 13.6% of fatalities and 11.5% of hospitalisations (Hendrie, Miller, Randall, Brameld, & Moorin, 2016). Quantifying costs associated with types of injury is important in providing a measure of the size of the problem, thus enabling priorities for prevention to be set (Hendrie & Miller, 2004). The aim of this study was to describe the burden of transport-related injury in Western Australia in 2012, including incidence and costs stratified across multiple dimensions.

### Method

Data on transport-related injuries were drawn from linked administrative health and personal motor injury claims data. Incidence counts were based on injury events in 2012, with episodes relating to a specific injury combined into a single event. Injury costs included were health sector costs, costs relating to long-term care, loss of productivity and quality of life loss. Costs were calculated using an incidence-based approach computed by assessing lifetime costs of injuries in 2012. Methods for allocating costs to injury events included direct mapping of unit costs drawn from relevant sources and cost modelling using regression analysis. Costs were expressed in 2014 Australian dollars.

### Results

The number of transport-related injury events was 12,997 or 5.3 injuries per 1000 population. Fatal injuries comprised 1.4% of injuries, non-fatal injuries requiring hospitalisation 44.4%, and those only requiring emergency department presentations 54.2%. However, fatalities accounted for 68% of the total costs of \$1.3bn.

In terms of cost components, health sector costs accounted for 9.0% of total costs, long term care costs for 3.1%, loss of productivity for 21.6%, and quality of life loss for 66.2%.

Males had higher rates of injury events than females, accounting for 78% of all injury costs. The injury rate was highest in the 15 to 24 year age group and lowest in the 65 years and above age group. Mean costs of injury increased with age, from \$25,800 per injury event for younger people to over \$173,000 for the 65 years and above age group.

Aboriginal people had a higher rate of transport-related injuries than non-Aboriginal people. Compared with a share of 3.6% of total population in WA, Aboriginal people accounted for 8.3% of transport-related injury costs. Mean costs were almost twice as high.

Those in the most disadvantaged socioeconomic quintile had a higher incidence rate of transport-related injuries when compared to the least disadvantaged socioeconomic quintile, and total costs were 1.7 times higher. Rates of injury could only be meaningfully compared across regions for fatalities and hospitalisations, given missing values in coding of external cause in non-metropolitan hospitals. Incidence rates were higher in non-metropolitan regions, especially in the Wheatbelt and Kimberley health regions. Mean costs per injury event were also generally higher in non-metropolitan regions.

## Conclusion

In comparing the incidence and costs of transport-related injury across multiple dimensions, this study provides information to policymakers and other injury prevention stakeholders to identify areas where further prevention efforts are most needed. The study also provides estimates for determining savings that can be achieved through successful intervention programs.

**Table 1. Incidence and costs of transport injury events by demographic and socio-economic characteristics and alcohol related status**

Injury severity	Incidence n	Rate <sup>a</sup>	Total costs \$m	Mean cost \$
<b>Total</b>	12,997	5.3	1,268	97,537
<b>Sex</b>				
Males	8,753	7.1	933	106,621
Females	4,241	3.5	334	78,829
<b>Age (years)</b>				
<15	2,310	4.9	60	25,807
15-24	3,593	10.6	319	88,151
25-64	6,296	4.7	753	119,549
≥65	798	2.6	139	173,769
<b>Aboriginality</b>				
Aboriginal	588	6.6	105	177,956
Non-Aboriginal	12,409	5.3	1,163	93,726
<b>SEIFA<sup>b</sup></b>				
Quintile 1	2,718	5.9	335	123,367
Quintile 2	2,501	5.2	230	91,922
Quintile 3	2,525	5.2	232	92,009
Quintile 4	2,542	5.0	242	95,138
Quintile 5	2,449	4.8	189	77,130
<b>Health regions<sup>c</sup></b>				
North metro	2,025	2.0	300	148,233
South metro	1,904	2.1	358	187,994
Goldfields	206	3.4	53	255,493
Great Southern	129	2.2	28	219,071
Kimberly	187	4.9	29	154,653
Midwest	222	3.3	53	239,384
Pilbara	196	3.1	32	161,770
Southwest	403	2.4	105	261,550
Wheatbelt	421	5.5	131	311,404

a. Rate per 1000 population.

b. SEIFA = Socio-economic indexes for areas; Quintile 1 = most disadvantaged, 5= least disadvantaged.

c. Excludes emergency department presentations as large number of missing codes for external cause of injury for non-metropolitan hospitals.

**References**

- Hendrie, D., & Miller, T. (2004). Assessing the burden of injuries: competing measures. *Injury Control and Safety Promotion*, 11(3), 193-199.
- Hendrie, D., Miller, T., Randall, S., Brameld, K., & Moorin, R. (2016). *Incidence and costs of injury in Western Australia Report prepared for the Chronic Disease Prevention Directorate*. Perth: Department of Health.