Data issues relating to aspects of road safety in Australia

Supplementary Submission to Senate Inquiry

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This paper

- outlines some of the data issues relating to reporting and understanding the number and rate of injuries as a result of land transport accidents in rural and remote Australia; and
- attempts to summarise the readily available data on that matter.

Data quality and availability

There are a number of deficiencies with the data pertaining to land transport accidents that are readily available at present.

Some of the available data relate to area of residence of the injured people, some relate to the location of the accident.

Many of the readily available data relate to land transport accidents, which includes traffic (road) accidents, as well as off-road accidents (eg on-farm accidents involving vehicles).

Many of the Bureau of Infrastructure, Transport and Regional Economics (BITRE) data are provided as counts only, with very little provided for a comparison of metro/rural/remote. It is unclear how trends across time are established, but it seems likely that this is done by a simple comparison between two data points, rather than by regression involving data from a number of years.

Many of the data are provided in reports which review data from one source (eg hospital admissions) alone, rather than from work to build a complete picture of how deaths, crash events, deaths etc all tie together. An exception is the report *Injury of ATSI people due to transport 2005-06 to 2009-10* from the Australian Institute of Health and Welfare's (AIHW) National Injury Surveillance Unit (NISU)**.**

Data for this submission are assembled from the AIHW hospital inpatients database, the ABS's mortality data, and BITRE's road crash data bases. This permits analysis of deaths, life-threatening serious injury, serious (ie resulting in hospitalisation) injury, and crashes.

Very little use appears to be made of claims data compiled by insurance companies.

There appears to be little or no controlling for different levels of access to or use of motor vehicles or of distances travelled (ie measures of exposure to traffic accident risk).

The National Rural Health Alliance (the Alliance) has found little or no information available on crash injury risk factors (road condition, intoxication, relative safety of vehicles in each area, number of car occupants in each crash). Many of these data are likely to be available but do not appear to have been used to explore why death rates and injury are so much higher in rural and remote areas, and why crashes involving Indigenous people in remote areas more often result in fatalities.

It would be very useful, and relatively easy, to systematically review deaths and injury from land transport accidents in such a way as to account for such variables as these. This would provide a much better understanding of the inter-related issues than currently exists. Such work could be used to better shape policy in this area, thus benefitting the health and wellbeing of people living in rural and remote areas.

Such a project should jointly involve the AIHW's NISU, insurance companies and BITRE. Despite issues relating to the confidentiality of data, insurance companies have the incentive of helping to reduce the number of crashes and injury (and therefore payouts) through better

information, understanding and government policy around crash injury prevention in rural and remote areas - where rates of injury are currently the highest.

What the data show

Deaths

Each year in Australia there are between 1200 to 1300 deaths due to land transport accidents (traffic and off-road accidents involving cars, motor bikes, bicycles, truck, buses, pedestrians and possibly the odd horse). The bulk are traffic accidents – although off-road accidents become relatively more common in rural and remote areas.

More than 50% of these deaths (>700) are deaths of people who live in rural and remote areas. In addition, there are data that suggest that a substantial number of deaths are of people who live in major cities but have the accident on rural or remote roads. Further analysis is required to confirm and quantify the size of this phenomenon.

Of these >700 deaths, just under 500 are 'excess' deaths, ie they are deaths that would not have occurred if death rates for residents of rural and remote areas occurred at the same rate as for those who live in Major cities.

The numbers vary from time period to time period, source to source, and how the data have been treated. However it is clear from AIHW figures[1] that people living outside major cities experience higher rates of morbidity and mortality from land transport accidents. The age-standardised rate of death due to land transport accidents between 2009 to 2011 appears to be around 4.4 per 100,000 population in Major cities, compared with 10.1, 12.6, 18.8, and 24.1 respectively amongst people living in Inner regional (IR), Outer regional (OR), Remote (R) and Very remote (VR) areas.

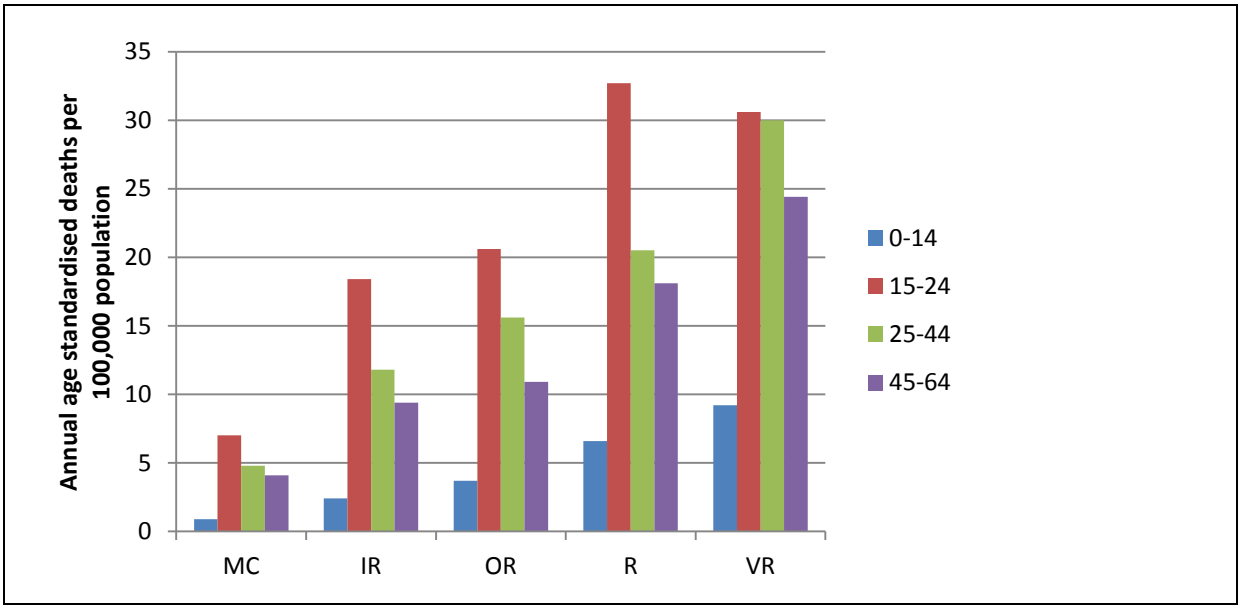
Data presented in another AIHW publication[1] describe mortality from land transport accidents for Indigenous and non-Indigenous people by remoteness for the period 2005-06 to 2009-10. Mortality appears to have decreased over time, so that the rates for this earlier period are slightly higher than those reported above for 2009-11. Death rates due to land transport accidents for non-Indigenous people in major cities were around 6 per 100,000, increasing to 15 in rural/regional areas and 23 in remote areas. The rates for Indigenous people were around 10 in Major cities, 19 in rural/regional areas and 50 in remote areas. Death rates for both Indigenous and non-Indigenous people increase with remoteness, with rates for Indigenous people being higher than for non-Indigenous people in each area.

The inter-regional differences in death rates are so great that land transport accidents nationally and in Major cities are not in the top 20 causes of death, but they rank as the 17th, 13th, 8th and 4th leading cause of death in IR, OR, R and VR areas respectively.

BITRE[1] describes decreases in the number of fatal road crashes[1] (not the number of deaths) between 2008-10 and 2013 of 16% for major cities, 18% for regional areas and 5% for remote areas (based on the difference between the rates in 2008-10 and 2013)[1]. However, regression by the Alliance shows annual decreases in the number of fatal crashes in the period 2008 to 2013 in the range of 5% for Major cities and Outer regional areas, 4% for Very remote areas, but only 1% for Inner regional and Remote areas. Changes in the rate of death are not reported, but these should broadly reflect changes in the number over this relatively short period.

Differences in mortality are apparent between different age groups and between the sexes. AIHW provides data for age and sex differences by remoteness for mortality caused by land transport accidents[1].

Figure 1: Annual Age standardised rates of death due to land transport accidents, by broad age group, 2009-2011

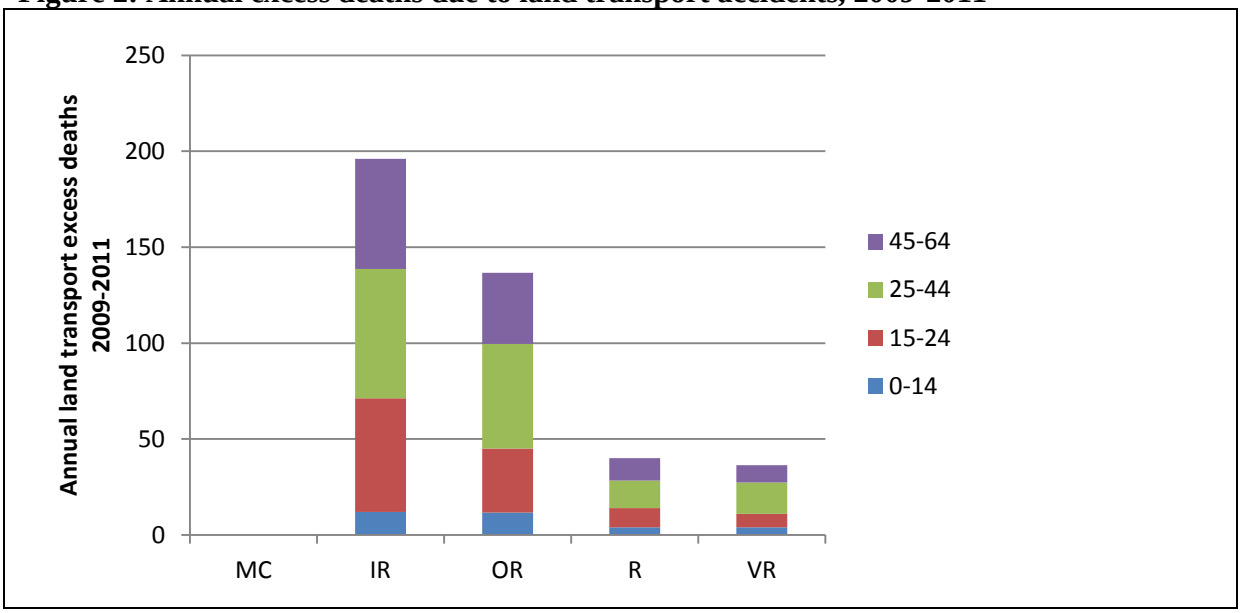


Source: http://www.aihw.gov.au/publication-detail/?id=60129548021&tab=3
Note: Data was not available for the 65-84, and 85+ agegroups

Rates of death due to land transport accidents increase with remoteness for each age group, with highest rates amongst 15 to 24 year olds

Excess deaths (see Figure 2) is a measure of the number of extra deaths which have occurred because of the higher death rates in regional and remote areas. Excess deaths are the deaths that would not have occurred if death rates for residents of rural and remote areas had been the same as they are for those living in Major cities. Figure 2 shows that while the 15 to 25 year age group is a major contributor to the higher overall land transport death rates in rural and remote areas (bearing in mind its narrow age range - 10 years compared with 20 years for the 25 to 44 year olds and the 45 to 64 year olds), that contribution by the 25 to 44 and 45 to 64 year olds is also substantial in each of the areas.

Figure 2: Annual excess deaths due to land transport accidents, 2009-2011



Source: http://www.aihw.gov.au/publication-detail/?id=60129548021&tab=3
Note: Data was not available for the 65-84, and 85+ agegroups

Table 1 describes approximate death rates due to land transport accidents for Indigenous and non-Indigenous males and females. Death rates are higher for Indigenous people than for non-Indigenous people, and rates for both groups increase with remoteness.

Table 1: Approximate annual age standardised death rates for Indigenous males and females due to land transport acidents, by remoteness of residence, 2005-06 to 2009-10

	Major cities	regional	remote
	Approximate age standardised rates (per 100,000 population)		
Indigenous males	13	30	65
Non-Indigenous males	8	25	30
Indigenous females	6	12	30
Non-Indigenous females	3	7	13

Source: Approximated from Figure 4.2.5 at http://www.aihw.gov.au/publication-detail/?id=60129543939

Serious injury

BITRE[1] reports on the number of people seriously injured (ie hospitalised) as a result of land transport accidents for the period 2008 to 2011. They report that the rate has been increasing in major cities but decreasing in regional and remote areas. For example, there were 20,185 serious injuries of people from Major cities in 2008, and 21,898 in 2011, while there were 12,826 serious injuries of people from rural and remote areas in 2008, and 11,638 in 2011. Consequently the proportion of the seriously injured who are from rural and remote areas has decreased from 39% in 2008 to 35% in 2011(in the context that 30% of the Australian population live in rural or remote areas).

Table 2: Approximate annual age standardised rates of serious injury for Indigenous males and females, by remoteness of residence, in the period 2005-06 to 2009-10

	Major cities	regional	remote
	Approximate Age standardised rate per 100,000 population		
Land transport accidents			
Indigenous males	290	425	600
Non-Indigenous males	270	480	770
Indigenous females	145	185	290
Non-Indigenous females	125	200	340
Traffic accidents			
Indigenous males	200	275	400
Non-Indigenous males	175	260	370
Indigenous females	115	130	215
Non-Indigenous females	90	115	170
Non traffic accidents			
Indigenous males	70	115	130
Non-Indigenous males	75	180	300
Indigenous females	20	30	40
Non-Indigenous females	15	35	70

Source: Approximated from Tables 4.2.5 and 4.2.6 at http://www.aihw.gov.au/publication-detail/?id=60129543939

Table 2 shows increasing rates by remoteness of serious injury due to traffic accidents, but relatively small differences between the rates for Indigenous and non-Indigenous people within remoteness areas.

There are also higher rates of serious injury due to non-traffic (ie off-road) accidents in regional and remote areas, with substantially higher rates for non-Indigenous people (males primarily) than for Indigenous people.

Comparison of these data with those in Table 1 raises an interesting (and potentially fruitful) question. Given that rates of serious injury due to land transport accident for Indigenous people are similar or slightly lower than for non-Indigenous people, why are death rates due to land transport accidents substantially higher for Indigenous people than for non-Indigenous people in each of the remoteness areas?

These numbers can be used to estimate the rate at which serious injury results in death for these populations. For non-Indigenous people in major cities, about 3% of serious injury due to land transport accidents results in death, compared with 4% in regional and remote areas. However, the figures for Indigenous people are 4% in major cities, 5% in IR areas, 6% in OR areas and 10% in Remote and Very Remote areas. This is just one of the pieces of detailed evidence in relation to accidents that warrants further scrutiny and analysis.