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REVIEW OF ROAD SAFETY ISSUES FOR FUTURE INQUIRY

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Road safety data in NSW – how can we better inform safety policy and practice?

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Proposal

We recommend the Staysafe Committee inquires into the adequacy of current NSW road safety data used for the purposes of understanding road safety, informing policy and practice, and ensuring progress against state and federal road safety strategy targets. Such an enquiry would also canvas improvements that could be adopted to increase the usefulness of NSW road safety data.

Why is this important?

Road safety data need to be valid and reliable, and of sufficient scope to allow a proper understanding of current and emerging road safety problems and to underpin the development, targeting and evaluation of strategies to address the problems. Inadequate road safety data can lead to, for example, under- or over-estimation of factors associated with crashes, incorrect interpretation of crash trends and mistaken understanding of progress towards road safety goals, or implementation of interventions that fail to appropriately target crash factors. In short, poor data can result in wasted resources, effort and time, as well as the serious opportunity-cost of not implementing more effective measures to prevent road trauma.

To develop and evaluate effective evidence-based policy and practice in road safety, the NSW Government needs complete, good quality data about crashes and injuries and valid and reliable measures of factors that might contribute to crash and injury occurrence or non-occurrence. The Government needs to be able to track changes in crash trends over time and in response to safety interventions. As noted by repeated national inquiries (Senate Economics References Committee, 2016; Woolley & Crozier, 2018), good quality exposure data are also needed to show whether changes in crashes over time reflect real improvements and deteriorations in safety, or simply reveal fluctuations in how often people are exposed to roadway risks.

As road safety researchers who use NSW data regularly, we are aware of a number of shortcomings in the NSW road safety data which limit their usefulness as a public policy tool. Our experience has highlighted:

- issues with data completeness especially for serious injury crashes involving vulnerable road user groups, but also regarding uninjured crash participants. Such issues can arise through participant reporting or police recording practices,
- limitations in the scope of crash data in terms of the types of crashes, risk factors and crash characteristics that are and are not included in police crash data, the main source of crash information. For example, current data do not include all motorcycle or cyclist crashes or crashes occurring in locations adjacent to public roadways such as driveways,
- limitations with what types of injuries should be included in the data collection. For example, children are more likely to be admitted to hospital for injuries of lower severity than adults,
- limitations with the definition of a serious injury with various methods used to define serious injury, e.g., proxy measures such as length of stay in a hospital,
- an assumption built into current crash data that crashes have a single, immediate cause (typically a road user's behaviour). This is contrary to our understanding that many crashes result from a sequence or system of contributing factors, in which road user behaviour is merely the final precipitating factor. Because the available data limit multi-causal analyses, they also limit our understanding of how best to intervene to prevent crashes,
- problems with the validity of measures used to identify certain risk factors for crashes, including speed, particularly in motorcycle crashes, and driver fatigue,
- absence of important information about crash causes and injury contributors including, for example, any sophisticated measure of participants' contribution to the occurrence of a

crash, appropriateness of child restraints, and whether journeys were for commuting, work, or otherwise,

- problems of poor availability of exposure data for all road user classes, and particularly vulnerable road users, and
- restrictions on access by researchers to publicly funded data collections, for example, serious injury data, collected for the purposes of analysis.

(See Appendix 1 for more detail.)

We are confident other data users can identify additional issues and an inquiry will permit the range of problems and possible solutions to be considered.

Why should it be explored by Staysafe?

A number of government agencies (e.g., NSW Police, Transport for NSW (TfNSW), NSW Health) contribute to NSW road safety data so it is appropriate that the Staysafe Committee conduct an overarching inquiry which can combine inputs from across agencies and make recommendations that require coordinated action between agencies. A Staysafe inquiry can also consider inputs from the many other stakeholders who use NSW road safety data, such as road user groups, safety researchers, reporters, local governments and council officers, and other state government agencies, and can assess how well the NSW road safety data support their safety objectives.

How will Government policy and practice be improved?

Better quality and scope of evidence about the number of crashes with different outcomes and the factors contributing to road trauma is essential to monitor the burden of road trauma, inform more effective policy and practice in this area and provide a more reliable basis for evaluating the effectiveness of the strategies that are implemented. In making this case we acknowledge the NSW Auditor-General (Crawford, 2018) who has recently highlighted the importance of good quality data for public policy and practice in other areas of government.

How does it support the NSW or national road safety strategy?

With NSW progress towards the National Road Safety Strategy targets for 2020 drifting off course (fatalities have decreased 6.1% and serious injuries have increased 5.6% compared to target reductions of 30% from the 2008-2010 averages)[1] [2], the NSW government must examine how the validity, reliability and usefulness of its evidence base for road safety policy and practice can be maximised. Better data gives a better understanding of road safety problems and solutions and is therefore a prerequisite for improving progress towards the targets in the NSW and national road safety strategies. A Staysafe Committee inquiry that produces strong, practical recommendations to address current shortcomings in road safety data and incorporate relevant successful practices used elsewhere will put NSW in the best position to deliver on its goals under the NSW and national road safety strategies.

What benefits will the community enjoy?

The community will enjoy safer roads if Staysafe inquiry recommendations to improve road safety data are made and adopted because better quality and more complete data about the circumstances of road trauma will provide better evidence upon which to base and target policy and practice and will improve the capacity of the NSW government to identify what strategies are measurably effective.

[1] http://roadsafety.gov.au/performance/road-deaths-jurisdiction.aspx
[2] http://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/serious-injuries.html?tabinj=1

Appendix 1: Selected examples of issues with the NSW road safety data

1. Incomplete data

It is mandatory to report crashes involving death or injury to police in NSW. Historically, NSW has been well served by police and traffic agencies who have collected and collated standardised information about crashes and their circumstances. In recent years, data linkage techniques have been adopted to improve the quality of information about the non-fatal medical consequences of crashes.

This linkage of hospital (including life time care) to crash data has revealed very high non-linkage rates particularly among certain groups of road users. To illustrate the size of the issue, Table 1 shows the percentage of people treated for crash injuries in hospital (or lifetime care) data who either did or did not have a corresponding record in the police crash data for the year 2017. Less than three quarters of drivers treated in hospital had a linked police record containing information about the crash event. Only 3 in 5 pedestrians and 1 in 2 motorcyclists had linked crash information and most astonishingly, less than 1 in 5 pedal cyclists had linked crash information. Overall, this means we can only leverage information about crash circumstances for use in prevention efforts for around half of all crash casualties. Furthermore, vulnerable road users are disproportionately underrepresented in police crash data relative to their representation in hospital data. Data linkage has shown there are some glaring gaps in our evidence-base, particularly for road user groups with poor crash outcomes.

Improving linkage rates between data sets would be beneficial for many other reasons. Information on crashes for cyclists such as bicycle helmet use is largely unknown in NSW since that data is collected by the police and most cycling crashes are not reported.

Table 1: Percentage of serious injury records with linked crash information in NSW in 2017

Road users treated at hospital for crash injury	% of road users in hospital records that linked to a record in police data	% of road users in hospital records that did not link to a record in police data
All	50.3	49.6
Drivers only	72.1	27.9
Passengers only	50.6	49.4
Motorcyclists only	47.4	52.6
Pedal cyclists only	16.5	83.5
Pedestrians only	59.8	40.2

(Data from http://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/serious-injuries.html?tabinj=1, accessed 12/9/2018)

2. Categorisation of crashes

Fatigue-related crashes. In NSW, crashes are identified as fatigue-related in crash data if police attending the scene describe the driver as asleep, drowsy or fatigued or if the crash circumstances suggest a lack of self-preservation behaviour on the part of the driver leading into the crash and the absence of other known causes. International research on the identification of fatigue crashes (National Transportation Safety Board, 2006; Radun & Summala, 2004) suggests that the accuracy of crash classification can be improved when information on specific fatigue risk factors is actively sought and collected by investigators to supplement routinely recorded crash characteristics. For example, routine investigation of the amount and recency of drivers' last sleep, time spent driving prior to the crash, and subjective and witness reports of drivers' fatigue just prior to crashes could improve the accuracy of fatigue-related crash classification, which might support better

understanding of these crashes and better targeting of relevant interventions (Hatfield, Friswell, & Williamson, 2015).

Work-related crashes. The NSW crash data do not classify the purpose of road users' journeys when they are involved in a crash. Commuting, work and other types of non-work travel such as holiday driving or school drop-off cannot be identified or evaluated separately if targeted road safety interventions are used.

3. Exposure data

To properly interpret crash and injury data, it is important to have regularly collected exposure data of different road user groups. Exposure is usually estimated for drivers and riders in NSW using the number of licences on issue or number of registered vehicles but these are imprecise approximations for the amount and type of road travel people undertake and do not include vehicle passengers, pedal cyclists, or pedestrians. More informative exposure data would include who travels where and when, how often different types of road users travel, how far they go, and how fast they travel. Baseline information on things like helmet and seatbelt wearing would also be useful. Dedicated exposure surveys such as those conducted regularly by SWOV in the Netherlands provide a model that NSW could adapt, given appropriate funding.

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