

# Tracking serious injury to improve road safety: Why we can't do it now and what we should do about it

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Road safety remains a serious problem for the community. Road traffic crashes rob us of too many of our young and productive members of our society, and constitute one of the major causes of premature death and injury. Most concerning is that these deaths and injuries are almost always preventable.

Tracking of changes in road fatalities over the years shows that road safety has improved markedly over the last century and especially since the early 1970's. Initiatives like compulsory seat belts and random breath testing have reduced fatality rates from over 25 per 100,000 population to currently just over five per 100,000. The gains have slowed significantly over the last two decades and our road safety countermeasures have not had the same impact as previously. The wins are getting harder to achieve.

In addition, questions are being raised about the effects of road traffic crashes on injury; especially serious injury. And questions should be asked. First because we really don't have good data on injuries due to road crashes since the focus has always been on road deaths. Second, it is likely that at least some of our efforts to reduce fatalities may actually increase serious injury. Some of our countermeasures act less on preventing crashes and more on limiting damage to the person. This, we fear may be resulting in greater numbers of people with serious longer term injury due to road traffic crashes. We need to know: a) whether this is so, and b) the nature of crashes that results in serious injury so we can prevent them.

## Understanding serious road traffic injury

Road safety authorities around Australia and the world have focussed on trends in fatalities. This is because they are undoubtedly unequivocal outcomes, newsworthy and almost always tragic. Increasingly however there have been calls for better data on serious injury. In fact, the primary measure of success for our current National Road Safety Strategy 2012-2021 (Australian Transport Council, 2011) is the number of serious casualties on the roads.

The problem is: What information do we use? Hospital data is available across Australia and the External cause codes (E-codes) differentiate road traffic injury and what type of road user is involved. It is possible to track changes in hospitalisation rates for road traffic injury Henley and Harrison 2012).

To attempt to make a difference in preventing road traffic injury, however, we need more than this. We need information on the nature of the crash and how it occurred. In all states and jurisdictions in Australia, police collect data on road crashes and pass it on to road authorities for analysis and use in policy development. Police normally attend and investigate crashes where someone is injured or there is significant property damage requiring a vehicle to be towed away. Road regulations require crashes to be reported as soon as possible, especially where someone is injured or requires treatment for injury at a later time.

## The problem of data linkage for counting road traffic injury

The problem is that not all crashes involving injury are reported to police; even for serious injury. We know this from multiple studies where hospital admissions data is linked to crash databases. These results show much higher numbers of injured due to traffic accidents being admitted to hospital than are in the road safety crash databases. For example, studies linking road traffic hospital and crash records in WA found only 64% of hospitalised cases linked to cases in the crash database (Rosman and Knuiman 1994), in NSW, only 56.3% linked (Boufous, Finch, Haven and Williamson 2008), in New Zealand linkage was only 63% (Alsop and Langley), in the UK, only 61% linked (Cryer et al 2001) and in Hong Kong only around 58% linked (Loo and Tsui 2007). Clearly, looking only at injury or serious injury data that is captured in the conventional road crash databases will underestimate significantly the number of crashes and people injured. Even more concerning, particular types of crashes, have even lower representation in the crash databases. For example, the research shows that crashes involving particular road users, such as motorcyclists, pedestrians and young children are significantly under-represented in police-reported crash databases. The crash databases relying on police reports therefore only represent part of the problem.

Currently there is a great deal of interest in the use of probabilistic data linkage of hospital admissions and crash databases as a solution to identifying serious road traffic injury from minor injury. These studies show that probabilistic data linkage is not a solution to the problem of tracking serious road traffic injury and understanding why they occur. Counting serious road traffic injury only from cases in crash databases that link with hospital data will result in gross underestimation of the problem. Australia needs a new, alternative approach for monitoring road safety.

## A proposed new approach to developing road safety databases

The key to identifying serious road traffic injury is the hospital admission. The objective of a new approach to monitoring road traffic injury would be to systematically report all hospital admissions for road injuries to police. This would allow police to match existing reports of crashes that they had attended or had reported to them. It would also allow them to identify any serious crashes where no report had been made and to follow them up.

This new approach would have some major advantages. First it would produce a database of serious road traffic injury that accurately reflects the size of the problem and will allow tracking of change over time. Second, it would, for the first time, allow direct linking of crash information from the police report with hospitalisation information about the injury outcome of crashes. This would make possible analysis to understand how serious crashes occur, the types of injuries that result from them and allow evaluation of the effectiveness of countermeasures on different types of crashes and different types of injuries. Better information about what works and what works best will improve road safety action and outcomes. Third, the approach will direct police efforts into investigating and reporting on the road traffic crashes of most concern. Currently in many jurisdictions of Australia, police spend arguably too much time reporting on minor crashes and injury. In fact, in NSW, since October this year, police will no longer attend minor collisions or crashes where cars need to be towed, unless someone is injured, drunk, or fails to exchange details.

The proposed approach would not be difficult to achieve. Mandatory reporting of health conditions is already a standard procedure in hospitals for a wide range of diseases of public health importance. Road traffic injury reporting should be included and be triggered when someone is admitted to hospital for a road traffic injury. Computer-based reporting will facilitate linking of police-generated reports and hospital-generated reports. A large percentage of reports will need no further action once existing reports are linked. Where hospital-generated reports do not link

with a complementary police-report, the injured person or their representative would be required to report the crash and provide details of how it occurred just as they currently do. Police can then strategically follow-up crashes as they see fit.

Road safety is unlikely to significantly improve while we still only focus on preventing road deaths. For too long, serious road traffic injury has been largely ignored in spite of its greater financial burden on our health system and the community. Expanding our focus, however, needs accurate data which currently does not exist in Australia. We think some simple, strategic changes to how we manage the collection of information about serious road traffic injury will set us on a better path to improving road safety in Australia.

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