

The application approval process was completed in early 2014 and included historic data linkage from 2005 to 2014 and then a regular quarterly data linkage process.

The initial data linkage was conducted by the Centre for Health Record Linkage (CHeReL) and then the de-identified (all identifying fields removed), matched and unmatched records were released to the Centre for Road Safety for conducting the research. The process of data preparation, finding and addressing data quality issues and data derivations took a year to complete. During this time the methodology had to be refined and modified a few times and because of this the entire data linkage process had to be repeated. One of the key changes which resulted in an improved match rate between crash records and hospital admissions was the inclusion of traffic unit controllers who were not identified as “injured” in the NSW Police reports but were matched to an APDC or EDDC record through the linkage process. In addition to identifying a few hundred more serious injuries every year, this change resulted in a few thousand more injuries being identified each year which either were not reported to police or CRS did not receive them through weekly data loads from NSW Police. Researchers consider this to be a value-add from data linkage process through making the gaps in the collection of road crash data more evident [3].

Another important outcome of data linkage with hospital records was quantifying the proportion of road crash injuries that are not reported to NSW Police or reported with incorrect or inadequate level of details. Like in most other jurisdictions, the CRS study found that each year there are around 4000 cases of hospitalisations resulting from road transport crashes (based hospital admission classification) which are not included in crash data from Police. A separate study into the reasons for this commenced later in 2014 which found a range of possible scenarios to explain why they could not be linked to police reported crashes. An in-depth research framework has

been developed for implementation in 2015 to examine this further and be able to quantify the proportion of real unlinked hospital records which are missing from the NSW serious injury dataset. This should provide more clarity around circumstances under which a linkage can or cannot be expected and a more accurate picture of serious injuries in NSW. It is also anticipated that the data linkage with Motor Accidents Authority of NSW and Lifetime Care and Support Authority will help identify more linked serious injuries as well as moderate and minor injuries especially for passengers in a crash. The centre also aims (as part of their information capability road map) to obtain data from hospitals on borders with Victoria, Queensland and South Australia to uncover the serious injuries resulting from crashes in NSW in which the injured people are transported to hospitals outside NSW. This should also help to further narrow the gap between linked and unlinked serious injuries.

In the meantime, there is a wealth of data on confirmed cases of serious injuries from the data linkage process. This will be used by the Centre for Road Safety, road safety stakeholders and business partners in NSW to guide strategies and programs aiming to reduce serious injuries by 30% by 2021.

## References

1. Department of Violence and Injury Prevention and Disability. Data systems: a road safety manual for decision-makers and practitioners. France: World Health Organisation, 2010.
2. D’Elia A, Newstead S. An Enhanced Road Safety Information System for Western Australia. Bentley (AU): Curtin University, Curtin-Monash Accident Research Centre (C-MARC); 2011. 75 p. Report No: D10#158249
3. Watson A. Piecing the puzzle together: enhancing the quality of road trauma surveillance through linkage of police and health data. PhD Thesis. Brisbane, Australia: Queensland University of Technology, 2014.

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# Time for a new public debate about the state of road safety

by Professor Ian Johnston AM

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Every time a politician cuts a ribbon at a road upgrade or opens a road safety conference we are told of our wonderful progress in reducing deaths from road crashes. But let’s not blame the politicians - we write the speeches for them!

And the claims are, in a narrow sense, accurate, albeit misleading. In Australia, in 1970, almost 50 persons were killed in road crashes for every billion kilometres driven. Forty years later the rate was below six; an almost 90%

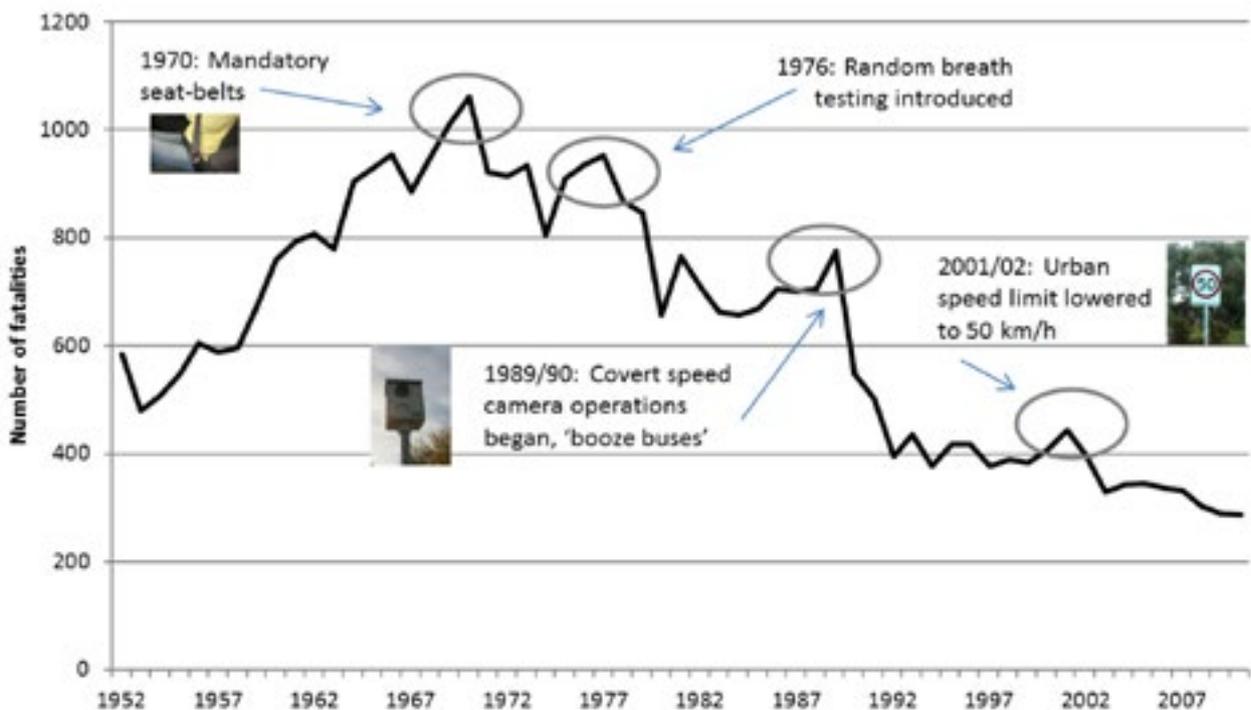
reduction. Moreover, despite the enormous growth in road use the absolute number of deaths had fallen from close to 3,800 in 1970 to under 1,200 in 2013. The latest official federal government statistical summary states: “Over the last decade (to 2013), national annual fatalities decreased by 25 per cent, fatalities per population decreased by 35 per cent, and annual fatal crashes decreased by 23 per cent [1].

In short, we tell the public of our continuous incremental gains and they are real. What is misleading is the implication being that the problem is under control and that there is no cause for public concern. Would the public remain complacent if they saw things from the perspective of the level of trauma they are being asked to accept? The current national road safety strategy has a target of reducing serious injuries and deaths by 30% by 2020 (over its 10 year life). Since the total annual number of serious injuries and deaths in the baseline period was over 30,000 the target implies that we plan to accept that some 20,000 persons will be seriously injured or killed in 2020. Further, suppose the 30% reduction was achieved in year one of the strategy (which it wasn't) and then maintained for the decade (which it can't be) the minimum total of serious injuries and deaths that we are planning to accept over the decade is over 200,000. No other daily activity demands such a level of trauma.

If we stop and reflect on the timing of the introduction of our most effective (traditional) countermeasure packages we notice that each followed a publicly perceived road trauma crisis. The following figure illustrates this for

Victoria. Deaths climbed steadily from the post-war motorisation boom through to the early 1970's when the 1000 deaths barrier was breached. There was a huge public outcry which culminated in the introduction of legislation to make the wearing of seat belts compulsory. There was an immediate reduction, sustained for a few years. When an aberrantly low number in the mid-70's was followed by a return to the prevailing trend a second crisis was perceived, largely because the media and public commentators focus on the year to year “scoreboard”. Random Breath Testing (RBT) dramatically impacted alcohol-related crashes and a new “normal” was established until another apparent crisis occurred. The next “normal” in Victoria was around 400 deaths a year until yet another spike led to the speed enforcement packages of the 2000's.

I grant my interpretation is speculative, but I am in no doubt that governments respond to public concern and that that concern is driven by media coverage. Unfortunately, media coverage is (largely) confined to fatal crashes, especially those involving blameworthy behaviour. There is solid scientific evidence that only around half of fatal crashes and only around ten per cent of non-fatal casualty crashes involve the kinds of behaviour most associate with crash causation – drugs, alcohol, illegal speeding, and so on. Of course, human behaviour is implicated in all crashes but the vast majority of behavioural issues are mistakes made by imperfect humans. This realisation spawned the Safe System approach in which road, traffic and vehicle engineers are encouraged to change designs to be error-tolerant for road users behaving legally. But it also explains



why most of the packages were built around behavioural control. Legislation and its enforcement and public education can be implanted quickly and bring more or less immediate results. Changes to road, traffic and vehicle engineering have long lead times.

As Fred Wegman commented after his time as a Thinker in Residence in Adelaide: While the Safe System concept has been present in Australia for many years, its implementation still proves a challenge to everyone involved in road safety” [2, pg. 65]. Why is this the case, despite encouraging signs in several road and traffic agencies? In my view the two key reasons are cost and potential liability. Our road transport system evolved at breakneck speed during rapid motorisation. The imperative was to provide capacity. Crashes were seen as an unfortunate by-product of a system whose primary objective was to stimulate economic growth through effective mobility for goods and people. We did not - or even understand that we had to - design an error-tolerant system at the outset, and to retrofit what we have now seems prohibitively expensive. In addition, if governments accept greater responsibility for error-tolerance (as factory managers must) there is a risk of liability in the event of poor design.

Compounding these barriers is the ignorance of the public concerning Safe System principles and practice. The widespread community view is that crashes result primarily from bad behaviour; a view reinforced by daily media coverage of crashes. The public debates are, for example, about the “unfairness” of low-level speed enforcement, the case against lowering the blood alcohol level and the constraints on employment of youth if novice drivers cannot carry passengers or drive late at night in their first

few months. Invariably, when politicians are proudly pointing to the reductions in road crash deaths over the decades they cite all the behavioural control measures (RBT, seat belt and helmet use laws, speed enforcement, etc.) as the keys to success, thereby reinforcing the public view that safety is all about controlling the behaviour of the other road users. I would argue that the potential for major new behavioural measures is limited.

The public debate is at an impasse. Governments assure the public that we are winning and that there is no cause for concern. Because there seems no cause for concern the debate cannot go to a new level. Governments understand the costs of a fundamental shift to a Safe System and therefore limit themselves to incremental advances as they can be afforded. Expenditure priorities, however, are exactly that – prioritising where to spend scarce resources. The public demands nothing since they do not know that road use is among the major public health problems we face. While casualties per unit road use are low, the sheer volume of what is an essential daily activity for all citizens means that the absolute numbers are very large.

We need a new kind of public debate. The public needs to understand the level of trauma its governments accept on its behalf and decide whether implementing the Safe System needs a leg up the priority ladder.

## References

1. Department of Infrastructure and Regional Development. Road deaths Australia 2013 – statistical summary. Canberra, 2014.
2. Taken from Johnston, I. R., Muir, C. and Howard, E. W. Eliminating Serious Injury and Death from Road Transport: A Crisis of Complacency. CRC Press, Florida, 2014.

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