Red Light Speed Cameras Save Lives

A recent C-MARC report by Dr Tom Chen, Associate Professor Lynn Meuleners and Ms Delia Hendrie has found that red light speed cameras are a useful tool that may reduce risky driving behaviours and consequently save lives.

The study, which was funded by Main Roads WA, evaluated the effectiveness and cost-effectiveness of 11 sites in the Perth metropolitan area, where a red light camera had been upgraded to a red light speed camera between 2010 and 2011. This was part of an initiative to improve safety at intersections in the Perth metropolitan area.

A comparison site was matched to each red light speed camera site in terms of road design (e.g. layout of the intersection) and posted speed limits. Only sites that had a red light camera were used as a comparison site. In addition, the change in incidence of speeding offences issued at these sites were examined.

Preliminary results found that the upgraded red light speed cameras significantly reduced:

- All reported crashes by 19%
- right angle/right turn through crashes by 41%
- rear-end crashes by 20% and
- serious injury crashes by 72%

After accounting for the initial project costs of $1.65 million ($150,000 per site) and operating and maintenance costs, the net cost savings to the community were estimated to be $2.29 million. This is the equivalent of a benefit cost ratio (BCR) of 1.8, indicating a good investment.

The number of speeding infringements after the installation of red light speed cameras also showed a significantly decreasing trend (p<0.0001), which provided preliminary evidence for the management of speeding at these camera sites.

Despite the promising results, the effectiveness of cameras need to be re-examined when more sites and longer period of follow-up data are available.


From the Director

Welcome to the inaugural edition of the Curtin-Monash Accident Research Centre News.

The newsletter is a new initiative to keep our partners and stakeholders informed of the activities of C-MARC.

Our aim is to publish this newsletter every four months. In this first edition, we’re covering some of our recent research and introducing some new team members.

The evaluation of the effectiveness of the red light speed camera upgrades and the review examining the relationship between vehicle performance and novice driver crash involvement are both recently completed reports which are summarized in this edition. The full reports are well worth reading for more detail.

Lynn Meuleners
An often expressed concern in relation to young novice drivers, given their over representation in fatal and serious injury crashes, is the combination of high power / high performance vehicles and inexperience.

A number of Australian jurisdictions have responded to those concerns by implementing regulations that effectively ban young novice drivers from driving high powered / high performance vehicles during the provisional licence period.

In 2009 C-MARC and the Centre for Automotive Safety Research (CASR) at the University of Adelaide were commissioned by the Road Safety Council of Western Australia to investigate the relationship between vehicle performance and novice driver crash involvement and to assess the effectiveness of existing vehicle restriction programs. The purpose of the study was to provide an evidence base for the Road Safety Council before consideration was given to implementing a vehicle restriction scheme in Western Australia.

Analysis of 11,321 serious injury and fatal crashes occurring in Western Australia between 2001 and 2008, involving drivers aged 17 to 25 years, found that 11% (1,285) of the drivers of these vehicles were aged 17 to 19 years. High performance vehicles accounted for less than 1% of all these crashes and 7.6% of crashes involving 17-19 year old drivers.

Vehicle performance was categorised using both the number of cylinders and the power to weight ratio of the crushed vehicle. Those categorised as ‘higher performance’ included:

- four-cylinder vehicles with a PWR ≥ 90kw/tonne;
- six-cylinder vehicles with a PWR ≥ 110kw/tonne; and
- all eight-cylinder vehicles.

The analysis showed a slightly higher, but not significant, relative rate of crash involvement for drivers aged 17 to 19 years driving a high performance vehicle. Higher performance vehicles also appeared to have a higher representation in single vehicle crashes compared to two vehicle crashes. However, the numbers involved were so low that it was difficult to draw any reliable conclusions.

Review of vehicle restriction schemes in other Australian states revealed that there were varying definitions as to what constituted a high performance vehicle, with a range of four, six and eight cylinder vehicles fitting the definition, making it difficult for drivers and police to readily identify which vehicles might be affected.

In all four existing schemes, there was most consistency in the restriction of vehicles with eight cylinder engines but considerable variation when it came to vehicles with six cylinder, turbo and super-charged engines and high power to weight ratios. In all four jurisdictions, the restriction was applied across the provisional driver period and all would consider applications for exemption.

Based on the relatively low crash involvement of young drivers in high performance vehicles and the difficulties in achieving a readily recognised and consistent definition of ‘high performance’ vehicles, the investigation concluded that the introduction of a vehicle restriction scheme into Western Australia could not be justified.

One of the most significant limitations of this study was the low number of serious injury crashes involving young novice drivers.

Another limitation was the inability to definitively separate the effect of driver behaviour from the effect of vehicle performance on crash risk.

The study recommended further strengthening of the existing West Australian Graduated Driver Licencing scheme to include:

- An increase in the number of supervised driving hours and the conditions under which those hours are obtained
- Peer passenger restrictions
- Restrictions on the use of mobile phones
- Investigation and development of a broad platform of initiatives to more broadly target the problem of speeding and reckless driving by young novice drivers
- Encourage the purchase of safer vehicles by all young drivers by providing information about safe first car choices and the provision of financial incentives to purchase safer vehicles

C-MARC recently welcomed new members to the team. They are:

**Ms Sue Wicks**, Research Associate

Sue has a background in Health Promotion and Education. Her expertise and key area of interest is childhood injury prevention, in particular road safety and children. She comes to C-MARC after 13 years with Kid-safe WA, where she held project officer and senior management positions.

Sue is working on the Neurocognitive Predictors of Risky Driving in Young People study.

**Ms Alison Blane**, PhD student

Alison is a psychology graduate from Brunel University, London, where she studied the cognitive and mental health predictors of driving performance and variability in younger and older drivers. After graduating in 2011 she worked as a Research Assistant at the University of Southampton on a government funded project investigating human factors in military systems. Keen to return to driving research Alison will be working on the characterisation of driving performance and self-regulation among older drivers with glaucoma study and will be supervised by Associate Professor Lynn Meuleners, Dr Tom Chen, Dr Jonathon Ng and Dr Nigel Morlet.

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### For Your Diary

15-17 May: **Road Safety on Four Continents**, Beijing

19-22 May: **23rd World Congress of the International Traffic Medicine Association (ITMA)**, Hamburg


7-8 Nov: **Australasian College of Road Safety National Conference 2013**, Adelaide


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### Successful Grants

**NHMRC, Understanding the impact of cataract vision impairment on risk of falls**

CIs: Dr Lisa Keay, Associate Professor Lynn Meuleners, Professor Peter McCluskey, Dr Jonathon Ng, Dr Nigel Morlet

**Australian-China Council 2012-2013 Grant, Australia and Taiwan Road Safety Workshop**

CIs: Dr Tom Chen, Associate Professor Lynn Meuleners, Delia Hendrie

**Dementia Research Grant, Dementia and hospitalisations due to an injury: A population study**

CIs: Dr Tom Chen and Associate Professor Lynn Meuleners

**Australian Rechabite Foundation, Proximity to alcohol outlets and risk of road crash: A population-based study**

CIs: Professor Rebecca Ivers, Professor Tanya Chikritzhs, Associate Professor Lynn Meuleners, Dr Soufiane Boufous

**Neurotrauma Research Program, Neurocognitive predictors of risky driving in young people**

CIs: Professor Julie Stout, Professor Mark Stevenson, Associate Professor Lynn Meuleners

**Neurotrauma Research Program, Motor control and driving ability – quantifying the utility of motor control screening protocols for older drivers**

CIs: Professor Garry Allison, Associate Professor Lynn Meuleners, Ms Delia Hendrie, Dr Tiffany Grisbrook
Seminar Series

December 2012: The association between sleepiness, long distance commuting and night work on driver performance

C-MARC, the Australasian College of Road Safety and Murdoch University jointly hosted a seminar by Professor Lee Di Milia, from Central Queensland University. Professor Di Milia presented the findings of his recent research on factors which impact on night worker driving performance. The presentation was followed by a round table discussion on the implications for Western Australia. The seminar was well attended by members of the road safety and injury prevention workforce.

The next seminar will be presented by Professor Donna Cross, July 25, 2013 at Curtin University and is titled “Child pedestrian injuries - Not everything that counts can be counted.”

Publications


Meuleners LB, Hendrie D, Fraser ML, Ng JQ, Morlet M. The impact of first eye cataract surgery on mental health contacts for depression and/or anxiety: A population-based study using linked data. Acta Ophthalmologica. (Accepted for publication January 15, 2013).