



# MONASH University

## Accident Research Centre

A centre within the Monash University Injury Research Institute

# The Big Impact

Edition 1, March 2012



## From the Director

*Welcome!* It is with pleasure that I introduce the first in a series of quarterly updates on Research and Development emanating from the Monash University Accident Research Centre (MUARC).

Over the past twelve months, MUARC has become an entirely transport-safety focused research centre comprising the largest research grouping within the newly established Monash Injury Research Institute. Over the past year, we have placed considerable emphasis on developing a comprehensive forward-looking five-year research strategy. One of the key elements of our strategy is to ensure extensive dissemination of our research findings to the broader research community as well as government and non-government stakeholders. This research and development update is one approach we are taking to capture and disseminate recently completed research; describe new research initiatives; and highlight research development and research training opportunities.

I am delighted to highlight, in the first update, two recently completed pieces of research.

The first work, completed by Dr Ashleigh Filtness, is related to the effect of sleep restriction on younger drivers. Sleep restriction is known to adversely impact upon driving performance and Dr Filtness's research confirms that it is young drivers who are mostly affected.

The second study by Dr Stuart Newstead and Dr Mike Keall examines whether there are benefits in restricting novice drivers from driving high-powered vehicles in the early years of licensing; the findings show a large increase in crash risk amongst novice drivers associated with driving high-powered vehicles. However, the prevalence of such vehicles is small and that, combined with the numerous exemptions to the restrictions and poor compliance, suggests there is likely to be minimal crash and injury reductions from such a policy.

An exciting initiative we are in the

throes of developing is the Road Safety Management and Leadership Program. This program is possible through collaboration between MUARC and the University of Adelaide Centre for Automotive Safety Research (CASR) with funding from the National Road Safety Council. The program will be facilitated by MUARC's recently appointed Global Road Safety Advisor, Mr Tony Bliss and is targeted at road safety executives and leaders. The event will be held at Monash University between November 19 and 23, 2012. For further details please visit our website.

[www.monash.edu.au/miri/research/research-areas/transport-safety](http://www.monash.edu.au/miri/research/research-areas/transport-safety)

Finally, I trust you will find 'The Big Impact' a useful approach for keeping abreast of our research. Please don't hesitate to contact either myself or the researchers if you wish to follow-up on our research.

**Professor Mark Stevenson**  
Director, MUARC

### Recent publications

Edquist, J, Horberry, T, Hosking, S & Johnston, I 2011, 'Effects of advertising billboards during simulated driving', *Applied Ergonomics*, 42(4), pp. 619-626

Lenné, M G, Liu, C C, Salmon, P M, Holden, M & Moss S 2011, 'Minimising the risks and distractions for young drivers and their passengers: An evaluation of a novel driver-passenger training program', *Transportation Research Part F: Traffic Psychology and Behaviour*, 14, pp. 447-455

Newstead S, Keall M, & Watson L 2011, 'Rating the overall secondary safety of vehicles from real world crash data: the Australian and New Zealand total secondary safety index', *Accident Analysis and Prevention*, 43, pp. 637-645

# Younger male drivers more affected by sleep restriction

If you are planning on taking a long drive, make sure you rest up the night before. A recent study carried out by Monash University Accident Research Centre researcher, Dr Ashleigh Filtness showed that younger male drivers are more susceptible to the effects of sleep restriction than older male drivers.

“An analysis of sleep related crashes in the UK has shown that they are most likely to occur in the early hours of the morning, between 2am and 4am. These crashes tend to involve young men under the age of 25. The data also shows a small increase in sleep related crashes in the afternoon, around 3pm, which are more likely to involve older men,” explains Dr Filtness.

Dr Filtness and her colleagues from Loughborough University conducted an in-depth driving simulator study comparing the effect of sleep restriction on a group of younger men aged 20 to 26, compared with older men aged 52 to 74. The participants usually slept around eight hours a night. The night before the study, the men went to bed three hours later so they only had five hours of sleep.

To make the tests as realistic as possible, the men were required to drive for two hours in a full-sized driving simulator displaying a monotonous driving environment, such as experienced on country roads and highways. The drive time was selected to coincide with the typical ‘post lunch dip’ when people are generally less alert.

“Even though the real-life crash data shows that older male drivers were more likely to be involved in sleep related crashes in the afternoon, our study confirmed it actually was the younger male drivers who were more affected by sleep loss the night before,” Dr Filtness said.

“Young drivers, in particular males, tend to ignore the signs of sleepiness for a variety of reasons. They might try turning up the radio, opening the window or using the



air-conditioner to attempt to keep awake. Unfortunately, the research shows that none of the strategies work, and by the time their head is nodding it can be too late.”

Particularly with long weekends and holidays, it is vital that all drivers plan their trip by allowing for breaks at least every two hours or sharing the driving if possible. “Fidgeting, stretching, yawning and lack of concentration are all signs of sleepiness. If you ignore them, the consequences could be fatal,” Dr Filtness concluded.

## International road safety expert joins the MUARC team

International road safety expert, Tony Bliss, has joined the MUARC team as a Global Road Safety Adviser.

Tony brings considerable experience to the role having recently worked as the Lead Road Safety Specialist at the World Bank in Washington DC, USA.

In Tony's role at the World Bank, he prepared and implemented guidelines for a safer and more sustainable approach to road safety investment and promoted the harmonisation of road safety policies and practices across seven multilateral development banks. Tony will build on this expertise to ensure MUARC is capable of identifying and implementing strategies to improve road safety in low and middle income countries in our region.

“It is a real cultural shock to see how blasé many countries are about road safety. Initiatives that we in Australia and



Tony Bliss

New Zealand take for granted, such as compulsory seatbelt wearing, safe road design and priority for injury prevention are still largely ignored in many developing countries.” Mr Bliss emphasised.

“Working together with MUARC, I intend to influence overseas policy makers to learn from our excellent transport safety initiatives and to lobby their governments to make real changes that save lives.”

Mark Stevenson agrees, “One of the most rewarding elements of safety research at MUARC in the Monash Injury

Research Institute is that our research makes a difference! It is all well and good to conduct excellent research in our labs, but being able to share this knowledge to address the disproportionate road trauma in developing countries, makes our research worthwhile.”

One of the first tasks Mr Bliss will undertake as part of MUARC is to facilitate the Road Safety Leadership Program which will take place in November. This program, open to leaders and future leaders within the road safety industry, will promote a comprehensive understanding of road safety management, the science that underpins it, and associated organisational leadership challenges.

“I am delighted that Tony has joined the MUARC team and we look forward to working with Tony in our aim to reduce global road trauma”, Mark concluded.

# Young drivers and high-performance vehicles: restrict or not?



One would think that the numbers would speak for themselves. In most countries, young drivers have persistently higher crash rates, despite the numerous countermeasures targeted to reduce known risk factors. Feasibly, driving high-powered vehicles would also be a significant risk factor since high speed not only increases the risk of a crash, but also the risk of serious injury or fatalities.

However, numbers alone do not always paint a complete picture as Drs Stuart Newstead and Michael Keall determined from their research into the potential safety benefits of restricting young drivers from driving high-performance vehicles. Using crash data from the five mainland Australian states and New Zealand, the researchers found that the risk of a crash resulting in injury for young owners of high-powered vehicles was nearly double that for those driving lower-powered vehicles.

Accordingly, legislation to restrict young drivers from using high-powered vehicles would be expected to lead to a noticeable reduction in crash rates amongst this age group. Except...the study also found that few young drivers actually own these types of high-powered vehicles even before

these restrictions were imposed or in areas where the restrictions are yet to be imposed. This is because the restricted category of vehicles is very narrow and generally limited to cars with engines that are either modified, turbo or supercharged (sometimes excluding diesel) or have eight or more cylinders.

“Although widening the scope of restricted vehicles to include others identified in the study as also having high crash risk may lead to greater reductions in young driver crash risk, this might be very unpopular as it may severely restrict the range of vehicles accessible to young drivers,” commented Dr Newstead, a senior research fellow at the Monash University Accident Research Centre.

The study also examined crash data for Queensland, which introduced the high-performance vehicle restrictions part way through the study period. Despite the new restrictions, there appeared to be little change in the proportion of young driver crashes involving high-powered vehicles. It is not clear whether this is because restrictions are not being complied with or because it is relatively easy for young drivers to obtain an exemption.

One question that could not be addressed by the study is to what extent those young drivers who choose a high-powered vehicle have inherent risk taking personalities. “The estimated road trauma savings from banning novice drivers from high-powered vehicles might be even less if those drivers who choose high-powered vehicles also tend to high risk behaviours in lower-powered vehicles,” Dr Newstead explained.

“Even though there is a demonstrably higher crash risk for young drivers in high-powered vehicles, from a policy perspective the question is whether the likely modest crash reduction benefits to be obtained from banning novice driver from these vehicles outweigh the cost of implementation and enforcement of those bans,” Dr Newstead concluded.

## Further information

### Monash University Accident Research Centre (MUARC)

Building 70, Clayton Campus  
Monash University, VIC 3800

Telephone: +61 3 9905 4371

Email: [miri-enquiry@monash.edu](mailto:miri-enquiry@monash.edu)