A recent review of the youth and young adult health-related risk taking research by staff at C-MARC (Peter Palamara, Chelvi Kopinanthan, Jim Langford, Jessica Gorman, Michelle Broughton) and the University of Michigan Transportation Research Institute (Lisa Molnar, David Eby) has highlighted the relationship between risk taking on the road by young and novice drivers and the practice of other risky health-related behaviours. Whilst it is understood that risk taking is only one contributing factor to the high rate of crashing and injury among this young driver group, there is reasonably good evidence to conclude that youth and young adults who engage in risky behaviours such as drinking, smoking, and illicit drugs are likely to have a higher risk of becoming involved in motor vehicle crashes as drivers. The review also noted that risk taking per se is a normal part of adolescent development but its impact for drivers could nevertheless be managed by programs such as Graduated Driver Licensing.

The authors reviewed local, national and international evidence around on-road risk taking and other risk taking behaviours such as alcohol, smoking and illicit drugs; unsafe sex, and self-harm and suicide. Initiatives to counter risk taking on the road and elsewhere were also reviewed for their effectiveness, with the view to determining which elements and initiatives might be adapted and implemented locally in Western Australia to combat young driver risk taking and crash involvement. The best evidence attesting to the relationship between risk taking on the road and elsewhere and for program effectiveness was noted for youth elsewhere (e.g., USA; Canada), with little evidence for youth nationally and even less for local Western Australian youth. The latter finding highlights the importance of undertaking research to provide a more contemporary, local understanding of how risk taking on the road and elsewhere develops and can be best managed within the Western Australian context.

A number of recommendations were discussed as potential interventions to reduce risk taking on the road as well as others for additional research into the relationship between risk taking on the road and elsewhere for Western Australian youth. The most important recommendations related to a strengthening of Western Australia’s driver training and licensing program in line with best practice in Graduate Licensing, and the need to make better use of Western Australia’s unique data linkage capabilities to develop an understanding of the relationship between health-related risk-taking behaviours and on-road driving outcomes.

The full report Review of young driver risk-taking and its association with other risk-taking behaviours can be downloaded from: http://deepblue.lib.umich.edu/bitstream/handle/2027.42/94210/102889.pdf?sequence=1

From the Director

Welcome to the third edition of the Curtin-Monash Accident Research Centre News. We hope you all had a happy and safe holiday and enjoy reading about all the new grants, new staff members and research that is going on at C-MARC.

Recently C-MARC has moved from the School of Public Health to now come directly under the Faculty of Health Sciences. I would like to take this opportunity to thank the School of Public Health for all the help we received over the first five years of C-MARC’s operation. We have also relocated our offices from the university campus to 7 Parker Place, Technology Park, Bentley.

We are pleased to announce that in collaboration with research partners, C-MARC has recently been successful in receiving funding for an ARC Research Council Discovery Grant. An overview of this project can be found later in this newsletter.
Modelling the Road Trauma Effects of Potential Vehicle Safety Improvements in the Western Australian Light Passenger Vehicle Fleet

Associate Professor Stuart Newstead, Laurie Budd and Jim Scully authored a recent C-MARC report profiling 2006-2009 crash data and 2006-2012 registrations for West Australian passenger vehicles by corporate fleet type: metropolitan corporate, rural corporate, government and private. It also projects crashes and occupant injuries by road user, for the cohort of 2012 registered new corporate vehicles over their average 22 year life span. This includes both the period of initial corporate ownership as well as subsequent transfer to private ownership. This served as a baseline for evaluating the road trauma benefits of different safety focused fleet vehicle purchasing scenarios.

The WA corporate and government fleet was found to have a growing over representation of vehicle market groups with high aggressivity, a trait particularly unique to W.A. Corporate and government fleet vehicles experienced a substantially higher crash risk per registered vehicle than private vehicles in WA over the 2006-2009 period, despite most corporate and government fleet drivers being over 25 years of age and most corporate vehicles being newer and thus more likely to be fitted with newer safety technology. The observed higher crash risk per registered vehicle is most likely due to greater travel exposure by corporate and government fleet vehicles compared to private vehicles in WA.

The table below shows the relative community cost savings estimated for various fleet purchasing strategies applied to the 2012 fleet including purchasing various safety technologies. The most beneficial emerging crash avoidance technology was fitment of forward collision warning and autonomous emergency braking systems that operate at all speeds to all fleet vehicles. Of the more general purchasing strategies, purchasing vehicles with the best available crashworthiness (within the desired market group) showed the second highest potential benefit. WA road trauma could also be significantly reduced through fleets purchasing less aggressive vehicles, particularly those vehicles used predominantly in metropolitan Perth.

A copy of the full report Modelling the Road Trauma Effects of Potential Vehicle Safety Improvements in the Western Australian Light Passenger Vehicle Fleet can be downloaded from http://www.ors.wa.gov.au/Documents/Vehicles/or...
The effect of alcohol outlets and sales on alcohol-related injuries presenting at Emergency Departments in Perth, from 2002 to 2010

Alcohol-related injuries, including violence and road crashes, represent a major problem in Australian society. Recent events, including the death of a teenager as the result of a king-hit punch, have brought the problem of alcohol-related injuries to the attention of the public. Research has shown that alcohol availability (including the number of alcohol outlets per area, the volume of alcohol sales and the trading hours of outlets) is associated with problem drinking and alcohol-related assault, road crashes, intimate partner violence, suicide and child maltreatment. However, no previous studies have investigated the independent effects of these three aspects of the physical availability of alcohol.

The study was a collaboration between C-MARC, the National Drug Research Institute and the Drug and Alcohol Office of Western Australia to investigate the relationship between alcohol availability and alcohol-related injury presentations over time.

The research was undertaken by PhD student Michelle Hobday, Professor Tanya Chikritzhs from the National Drug Research Institute (NDRI), Professor Lynn Meuleners (C-MARC) and Dr Wenbin Liang (NDRI). Injury data was obtained from the Emergency Department Information System (EDIS). Eight years of data on Perth alcohol-related injuries, alcohol outlets and their sales and trading hours were collated at postcode level. For the purposes of the analysis, outlets were separated into off-premise outlets (bottle shops) and on-premise outlets (restaurants, nightclubs, hotels and taverns).

The results showed that, while most injuries occur during daytime hours, most alcohol-related cases present during the night, especially over weekends. Higher pure alcohol sales per off-premise outlet were associated with an increase in alcohol-related injuries, while higher counts of on-premise outlets per postcode were associated with additional alcohol-related injuries. Higher numbers of on-premise outlets with extended trading hours in a postcode were associated with a greater risk of alcohol-related injury compared to additional on-premise outlets with standard trading hours.

The results suggest that a reduction in injuries associated with off-premise outlets may be achieved by controlling price (such as discounts on bulk purchases and minimum floor prices). The counts of on-premise outlets may be controlled through the granting of fewer licences, particularly preventing clustering of these outlets, and additional surveillance of entertainment districts both within outlets (responsible beverage service and bouncers) and in the surrounding areas (through increased police presence).

C-MARC Seminar Series

23 October 2013 Relationships linking speed and road trauma and the use of Kloeden et al’s relative risk curves to estimate crashes attributable to low and high level speeding

C-MARC hosted a seminar presented by Professor Max Cameron, of the Monash University Accident Research Centre, discussing the use of Kloeden et al’s relative risk relationships, in conjunction with vehicle speed measurements, to estimate casualty crashes associated with each speed range. Results were presented for Perth 60 km/h limit roads and also for urban roads in Queensland.

The first seminar for 2014 was presented by Michelle Hobday “The effect of alcohol outlets and sales on alcohol-related injuries presenting at Emergency Departments in Perth, from 2002 to 2010” on 19th February 2014 at Curtin University.

The study was a collaboration between C-MARC, the National Drug Research Institute and the Drug and Alcohol Office of Western Australia to investigate the relationship between alcohol availability and alcohol-related injury presentations over time.
C-MARC recently welcomed two new members to the team.

Mrs Trish Barrett - Research Associate

Trish has a background in medical science, women’s health, health promotion and medical research. For the past 3 years she has been working on a cataract auditing database being implemented in Western Australian public and private hospitals, and a project to develop a more efficient phacoemulsification needle. Prior to that she was involved in research projects within the School of Public Health, Curtin University, for the Royal Flying Doctor Service and the Health Department of WA.

Dr. Min Zhang—Main Roads Fellow

Dr. Min Zhang is a senior epidemiologist and has ten years research experience in public health. In 2008-2013, she was appointed as a research associate professor and Director of Lu Cha Sino-Australian Research Collaboration at the School of Population Health, the University of Western Australia. She has published 51 refereed articles including 39 peer-reviewed journal articles with 62% first-authored papers.

New Research Projects

Australian Research Council Discovery Grant

Driving performance and self-regulation among older drivers with bilateral cataract

C-MARC is delighted to announce that Professor Lynn Meuleners, Dr Lisa Keay, Dr Mark Young, Dr Jonathon Ng, Associate Professor Nigel Morlet and Professor Peter McCluskey received an Australian Research Council (ARC) Discovery grant entitled “Driving performance and self-regulation among older drivers with bilateral cataract: a prospective cohort study”. The study will examine driving performance and self-regulation before, between and after first and second eye cataract surgery. It will use naturalistic in-vehicle driver monitoring devices and a driving simulator to measure driving related outcomes.

Publications


To KG, Meuleners L, Fraser M, Do DV, Duong DV, Huynh V, To QG, Phi TD, Tran HH, Nguyen ND. Prevalence and visual risk factors for a fall in bilateral cataract patients in Ho Chi Minh City, Vietnam. Ophthalmic Epidemiology, 2014.


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C-MARC is a West Australian based independent multi-disciplinary road safety research centre established by the West Australian State Government’s Office of Road Safety in 2009.

The Centre represents a significant partnership between the Office of Road Safety, Curtin University and Monash University’s Accident Research Centre (MUARC).

C-MARC’s mission is “to be a Centre of excellence in road and other injury research and the translation of that research into policy and practice that will inform government, industry and the wider community.”

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