Evaluation of a Rural Run-off-road Crash Program in Western Australia

Single vehicle, loss-of-control, run-off-road crashes are especially problematic in regional and remote Western Australia (WA), and were a contributing factor in almost 60% of all road deaths and serious injuries between 2008 and 2012. As a result, approximately 984 kilometres of rural WA roads were treated with run-off-road treatments under the rural Run-off-road Crash Program funded by the Road Trauma Trust Account in the 2012, 2012/13, 2013/14 and 2014/15 budgets.

C-MARC researchers, Dr Kyle Chow and Professor Lynn Meuleners, together with Associate Professor Adrian Wong from the Department of Mathematics and Statistics, Curtin University, evaluated the effectiveness and cost-effectiveness of this program, which was implemented to reduce the number of people killed or seriously injured (KSI) in rural WA. Specific treatments implemented and evaluated included “shoulder widening and/or sealing” and “audible edgelines or white lines”.

Crash data were obtained from the Integrated Road Information System (IRIS) for 57 rural sites that were treated under the WA Rural Run-off-road Crash Program between 2012 and 2015, which are both maintained and managed by MainRoads WA.

Overall, there was a significant 35.5% reduction in run-off-road crashes of all severities across the 57 treated sites. More specifically, there was an 18.4% and 25.6% reduction in the frequency of run-off-road casualty crashes and run-off-road KSI crashes, respectively.

The Run-off-road Crash Program also performed well in economic terms. In relation to the net economic worth of the program, the Net Present Value and the Benefit-cost Ratio across all treatment sites were estimated to be $100.2 million and 2.1, respectively.

In light of its overall effectiveness and cost-effectiveness, it was recommended that the Run-off-road Crash Program be continued as part of the road safety strategy towards reducing road trauma in rural WA. Considering that the positive outcomes from this study were obtained from conservative assumptions and adjustments, the real effects from the program could be better than reported.

Stakeholder Visits to the Centre

### WALGA

Members from WALGA (the West Australian Local Government Association) visited C-MARC on 11 August 2016. Delegates came from across the state, from Perth to Broome to Albany. Many of those who visited are involved in the Roadwise program, the Local Government and Community Road Safety Program for Western Australia which aims to engage Local Government, community groups, businesses and individuals to contribute to reducing road fatalities and serious injuries, and promoting road safety.

Peter Palamara, Dr Kyle Chow and Dr Michelle Hobbday met with the visitors and each discussed some of the projects they are currently involved in. Projects included the effects of illicit drugs, alcohol and fatigue on driving, and evaluation of speed, the Black Spot program and road design interventions on road safety. The visitors asked questions and discussed their personal experiences around these topics and the road safety challenges faced by their regions.

Following this, the visitors had a tour of C-MARC’s driving simulator. Some delegates took the opportunity to “drive” the simulator.

C-MARC staff enjoyed the visit, as it gave us the opportunity to interact with people involved in implementing road safety policies and encouraging community-level involvement in road safety in Western Australia.

### Innovate Australia

C-MARC and ARRB Group also hosted a tour of the driving simulators for Innovate Australia during August. Innovate Australia are a non-for-profit organisation who works with industry in order to uncover, encourage, assist and proactively promote Australian innovation. The stakeholders heard from Dr Paul Roberts, Principal Behavioural Scientist at ARRB Group, and Professor Lynn Meuleners, Director of C-MARC, about the capacity and resources of the research centre. The stakeholders had a tour of the two driving simulators with some delegates taking the opportunity to take them for a “test drive”. The Team here at C-MARC would like to thank Innovate Australia for taking the time to tour our facilities and gain firsthand experience of our driving simulators.

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**Since being commissioned in April of this year, C-MARC has**

**Visits provide an invaluable opportunity for stakeholder engagement and to forge future collaborations between C-MARC, ARRB and other organisations**

**If you would like to tour our facilities or wish to collaborate please email L.Meuleners@curtin.edu.au**

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Dual-screens outside the simulator allow viewers to observe the driver and passenger’s behaviour (top) and the oncoming scenario inside the simulator (bottom).
Ms Seraina Agramunt (PhD student), recently attended the 6th International Conference on Traffic and Transport Psychology (ICTTP 2016) held from the 2nd to the 5th of August 2016, in Brisbane where over 350 road safety delegates were reunited.

During the conference, Seraina gave a presentation about the association between objective visual measures and naturalistic driving behaviours in older drivers with bilateral cataract. The presentation was part of a symposium entitled “Driving patterns & behaviours of older drivers: What can we learn from naturalistic driving research?” addressing current issues about older drivers’ naturalistic driving behaviours.

Seraina presented the preliminary results of an ongoing study led by Professor Lynn Meuleners, analysing the specific effects of first eye and second eye cataract surgery on driving performance and self-regulation practices in older drivers with bilateral cataract. Her presentation focused on the naturalistic driving patterns of older drivers before first eye cataract surgery.

The preliminary results presented during the conference were based on a cohort of 90 participants with bilateral cataract on the waiting list for first eye cataract surgery. Participants underwent a visual assessment and were required to complete a series of questionnaires assessing their socio-demographic status, general health, as well as their cognitive function prior to cataract surgery.

The results found that gender and contrast sensitivity (the ability to distinguish between light and dark contrasts) were associated with the total number of kilometres driven prior to cataract surgery. In other words, men drove more kilometres than women prior to cataract surgery. Furthermore, drivers who were better at distinguishing between light and dark contrasts drove more kilometres per week prior to cataract surgery than drivers who had more difficulties distinguishing between those contrasts. Interestingly, visual acuity which is relied on heavily to determine fitness to drive was not associated with the number of kilometres driven per week. These preliminary results, consistent with previous studies, suggest that older drivers with cataract do appear to self-regulate their driving based on their visual function while they are waiting for cataract surgery. Furthermore, it was suggested that contrast sensitivity would be an important measure to consider when determining the impact of cataract on driving ability which is also consistent with previous research in the field.

Publications


Meuleners L, Hobday M. A population-based study examining injury among older adults with and without dementia. Journal of the American Geriatrics Society 2016. (Accepted for publication)

ARSC2016: The Australasian Road Safety Conference

Date: 6—8 September 2016  
Location: Canberra, ACT  
Venue: National Convention Centre  
Website: http://australasianroadsafetyconference.com.au/

The Australasian Road Safety Conference is the premier road safety conference for Australia, New Zealand and the Asia Pacific region. With the theme of "Agility, Innovation, IMPACT", ARSC2016 will showcase the regions' outstanding researchers, practitioners, policy-makers and industry spanning the plethora of road safety issues identified in the United Nations Decade of Action for Road Safety: Road Safety Management, Infrastructure, Safe Vehicles, User Behaviour, and Post-Crash Care. ARSC2016 will bring with it a special focus on how all stakeholders can become more agile to harness the latest research, technology and policy innovations to produce the best road trauma reduction outcomes possible.

60th AAAM Scientific Conference

Date: 17—21 September 2016  
Location: Waikoloa, Hawaii, USA  
Venue: Hilton Waikoloa Village  
Website: http://www.aaam1.org/abstracts

The Association for the Advancement of Automotive Medicine (AAAM) is a scientific professional organization devoted entirely to traffic related injury control. Its multidisciplinary membership represents medicine, behavioural research, biomechanics, engineering, epidemiology, statistics, education, law, and public policy. The conference combines clinical, research, academic and administrative backgrounds.

27th ARRB Conference

Date: 16—18 November 2016  
Location: Melbourne, VIC  
Venue: Pullman Melbourne Albert Park  
Website: https://www.ivvy.com/event/ARRB16/

The ARRB Research Conference creates the opportunity for road and transport professionals to share and explore the latest ideas, knowledge and technologies in order to maximise the total economic and social benefit of road infrastructure. The 27th Conference in this series is to explore infrastructure and its associated technologies in the context of the reasons for which the roads exist and the users for whom they exist. The theme of the conference is "Linking People, Places & Opportunities".

10th International Conference on Managing Fatigue

Date: 20—23 March 2017  
Location: San Diego, CA, USA  
Venue: Pullman Melbourne Albert Park  
Website: http://fatigueconference2017.com/index.html

The 10th international managing fatigue conference is to be held in San Diego, USA with a conference theme of "Managing Fatigue to Improve Safety, Wellness, and Effectiveness". The conference will cover issues related to research investigating fatigue management in transportation and other related industries. The fatigue conference will attract professionals from a broad array of disciplines including road safety experts, occupational health and safety professionals, researchers, transportation staff, road authorities, military personnel, aviation experts and medical professionals, amongst others.