



Journal of the Australasian College of Road Safety

Formerly RoadWise — Australia's First Road Safety Journal



In this edition —

Contributed articles:

- Road Safety Is No Accident
- Congestion – Choking Australia's Economy
- Anti-lock Braking Systems (ABS)
- The Role of Bystander First Aid in Road Trauma

Peer-reviewed papers

- A Comparison of the Pedestrian Passive Safety Performance of the New Vehicle Fleet in Australia, France and the United Kingdom
- Moped Crashes in Queensland



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The policy of the publisher is to provide a medium for expression of views and for debate, within the traffic safety community, on a wide range of issues. The journal provides authors of papers with the opportunity to have their work submitted to the Editorial Board for peer review. Encouragement also is given to interested persons and organisations to submit articles, photographs or letters for publication. The publisher reserves the right to reject submissions or, with approval of the author, edit articles. No payment is offered for articles submitted.

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Cover photo: A motor scooter and car crash in Canberra. The increasing use of scooters and mopeds, perhaps in response to rising petrol costs, raises serious safety issues addressed in the second peer reviewed paper in this edition.

(Photo: Courtesy the Canberra Times).

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From the President



Dear ACRS Members,

I was honoured to be elected President by the ACRS Executive Committee and now have the task of a regular column with College colleagues and readers of this excellent Journal edited by Geoff Horne. I am looking forward to working with the national staff,

Executive Officer Linda Cooke and Executive Assistant Jacki Percival and all the volunteers around Australasia in our chapters.

I recognise the successful past leadership of Professor Raphael Grzebieta, Kerry Fitzgerald and others and hope I can assist the College in its work in making a difference, so that considerably less people suffer road trauma. I have been a supporter of the Vision Zero and the Safe Systems approach for a long time.

There is a challenge to harness the expertise resident in the College to reduce road trauma, not only in Australia and New Zealand but to contribute and learn from other experiences in road safety across the world.

There is no doubt we need safer drivers in safer cars on safer roads.

The Federal Government has recently agreed to support a new project to encourage parents to participate in the new driver training programs. This concept was developed from a program running at the RACV and recognised as a potential national program when I was at the Australian Automobile Association (AAA).

I was recently re-elected as Chair of ANCAP Australasia Ltd, where we have key goals to encourage motorists to choose safer new cars, and I was pleased to stand with Ford recently to confirm their ANCAP Five Star result of the FG Falcon which they are proud to advertise.

I am currently Asia Pacific Director for iRAP, the international road assessment organisation where we are identifying the key features of hazardous roads in developing countries as well as recommending low cost, mass action programs with the help of local communities to reduce road trauma. The Australian Government through AusAID has recognised the value of iRAP and is funding a project in Vietnam after a very successful project in Malaysia.

So here are three of many new projects involving that concept of safer drivers in safer cars on safer roads.

Next year the United Nations will host a ministerial road safety conference, the first time that the UN has undertaken such a task. This will assist in elevating road safety as a high order political issue across the world. The ACRS will be able to contribute to that conference. I know that there will be many

ideas, contributions, research results and practical solutions which can be passed on to the organisers and through the Australian Government.

Last month I had the opportunity to attend a Make Roads Safe workshop at the European Bank for Reconstruction and Development in London. At that workshop, a recent report from the World Bank Road Safety Facility demonstrated:

“Road crash deaths and injuries in low and middle-income countries are projected to be the 4th largest cause of healthy life years lost by the total population in 2030 after HIV/AIDS, depressive disorders and heart disease.

‘Road deaths are projected to be the leading cause of premature death for children (age 5 – 14) by 2015. Low and middle-income countries already bear about 90% of the global burden of road deaths and injuries, and this burden is projected to grow considerably.

‘A large proportion of crash victims in these countries will continue to be their more vulnerable road users – i.e. pedestrians, cyclists, other non-motorised transport users, motorcyclists, street vendors, etc. Many are poor, or likely to be pushed into poverty, and they will become the casualties of progress.’

I agree with the World Bank’s view that “With accelerated motorisation and infrastructure provision there is an urgent need to address this growing and preventable public health crisis. One estimate suggests that as many as 100 million lives could be lost over the next 40 to 50 years, with at least ten times more serious injuries”

This crisis is creating an emerging international epidemic in road trauma.

I also attended a Campaign for Safer Road Design in the UK, as well as meeting my NCAP colleagues in Europe and Japan. In the next few months there will be a number of road safety conferences in Australia including the College conference in Brisbane. All these meetings provide an opportunity for us to learn from each other. It is obvious though that nationally and internationally we have to engage a wider audience, to demonstrate to the community at large that road trauma is not acceptable.

As our Governor General and or Patron, His Excellency Major General Michael Jeffrey said in 2006; “Sadly, road deaths and injury continue at staggering levels. Even one road death a day is too much and yet we are now confronted with a national average of five deaths a day on our roads. An even greater number of people suffer very serious injuries, paraplegia, limb amputation, and brain damage. That 60 people a day are seriously injured on our roads is an awful fact. Take the mortality rate alone – if a similar statistic applied to Australians in battle, the public outcry would galvanise the country into action.”

I have written to the Prime Minister seeking direct support for a multidisciplinary, whole of government support for reducing road trauma and also separately I have offered to the Federal Government the College's support for any national road safety initiatives.

College members, through their own work, their networking and the various College activities can and will make a difference. In the next few months I would like to hear from College members any ideas and suggestions on how we can collectively improve our contribution. Working together is important. I do not expect we will always agree on solutions but I am sure we all agree with the simple goal to really reduce unnecessary road trauma.

I will be attending some of those major road safety conferences I mentioned above and hope to meet as many members and potential members as possible.

Lauchlan McIntosh AM

President

Diary

18 - 19 September 2008 - Joint ACRS-Travelsafe Committee of Queensland Parliament Conference on 'Motivating Behaviour Change Among High Risk Road Users' - for more information contact eo@acrs.org.au

5-8 October 2008 ASPACI Conference , Melbourne - Dynamic Testing of Vehicles Fitted with Electronic Stability Control for Crash Investigation.

10-12 November 2008, Australasian Road Safety Research, Policing and Education Conference, Adelaide. For further information contact: <http://www.roadsafetyconference2008.com.au>

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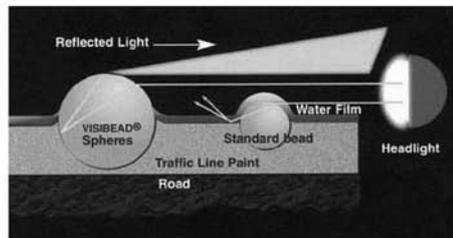
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Letters to the Editor

Dear Editor,

As someone who has held a Queensland Open driver's licence continuously since the early 1960's with a pretty good history of safe road use, all the while watching the attitude of the authorities and their followers, I have long been of the opinion that Government road safety policy in general and its speed limit policy in particular are dud policies, dud as in dishonest, unjust and deceitful and the main reasons for holding this opinion are because :-

1. The policy continually ignores the proven practical ability and crash history of the individual whether good or bad.
2. It is prepared to spoil an individual's life and livelihood for minor offences where no harm has been caused to anyone and regardless of their practical ability.
3. At the same time it frequently fails to properly and appropriately penalise those who actually cause a crash, something which does actually cause harm to person and property.

4. It fails to properly provide either the road-user or the road-user-to-be with proper practical road use education and assessment.
5. It does little, if anything, to police and penalise those who hog the road including those most dangerous of hogs who accelerate while being overtaken.

These are just a few of the more important reasons why the policy should be judged as dud.

After all, the basic fundamental principle of safe road use is to use the road according to all the conditions which prevail at any given moment and do so with consideration for others. A principle seemingly ignored by the authorities. Speeding doesn't kill, inept road use does.

Cheers,

Stuart Mason

Goolman, Queensland.

Advertisement

CARRS-Q short courses in road safety

Road Safety Audit – Investigation & Treatment of Crash Locations

Delivered jointly with the Queensland Department of Main Roads, this course will provide participants with a good understanding of the principles of road safety audit and general road safety, and the necessary skills to conduct road safety audits through practical exercises conducted by experienced road safety auditors.

Date: 17 – 21 November 2008

Venue: QUT Carseldine campus, Brisbane

Road Safety Evaluation Models

This course covers the fundamental principles and best practices relevant to road safety evaluation. In Module 1, participants will gain a firm understanding

of commonly used research methods, and Module 2 will provide in-depth knowledge of research design, data collection and data analysis methods.

Module 1: Principles & Practice

Date: 24 – 26 November 2008

Venue: QUT Carseldine campus, Brisbane

Module 2: Foundations of Data Analysis

Date: 27 – 28 November 2008

Venue: QUT Carseldine campus, Brisbane

More information

For more information, phone 07 3138 4592, email roadsafetycourses@qut.edu.au or visit www.carrsq.qut.edu.au/education



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Quarterly News

Executive Committee for 2008-9

In accordance with the College Constitution, the Executive Committee met within two weeks of the Annual General Meeting to elect the officers of the College for 2008-9. Those elected were as follows:

President: Lauchlan McIntosh AM

Vice Presidents: Barry Watson and David Healy

Treasurer: Jeff McDougall

Secretary: Paul Simons

Elected Members: Mark Stevenson; Raphael Grzebieta; Soames Job

Chapter Representatives

New South Wales (Sydney): Liz de Rome

New South Wales (Armidale): Tom Fisher

Queensland: Peter Kolesnik

Western Australia : Alexandra McManus

New Zealand: Michael Cummins

Australian Capital Territory and Region: Robin Anderson

Victoria: Anne Harris

South Australia: Paul Simons

Call for Nominations for the 2008 ACRS Fellowship

Members of the College are invited to submit nominations for the 2008 Fellowship to the Executive Officer, ACRS, PO Box 198, Mawson, ACT 2607 or by email to eo@acrs.org.au. To elect a member as a Fellow of the College is the highest honour that the College is able to bestow on a member, and reflects long and valued service to road safety and practical support for the College over a number of years. Note that nominations should be confidential and are the first stage in an election process that involves the Fellowship Committee, which is a sub-committee that reports to the College Executive. The College Executive is the electing body for Fellowships.

Change to Rules of the ACRS Register of Road Safety Professionals

Up till now the only members of the College eligible to apply for registration as Road Safety Professionals were those at the Fellow and Associate Fellow levels. The Executive Committee has changed this rule with immediate effect to allow any ACRS member to apply for registration. However, the requirement of a minimum of five years work experience at a responsible senior level, together with the other minimum standards specific to each discipline, still applies.

Chapter News

Australian Capital Territory and Region

Members of the ACT & Region Chapter of ACRS attended a Drugs and Driving Forum on 6 June 2008, at the University of Canberra. The Forum was a part of the ACT Government's review of alcohol and driving laws and provided expert commentary and public discussion on the impact of drugs on driving, random roadside drug testing practice across Australia, and current research into drug driving. The ACT Government's discussion paper on the review is at www.tams.act.gov.au/move

The Chapter ran a successful seminar on 'On-road Cycling in Canberra' on Tuesday 29 July 2008 at the Australian National Botanic Gardens theatre. The seminar discussed the policy and practice of on-road cycling in the ACT, the operational and regulatory implications, and the effects on road safety. There were presentations by Roads ACT, Pedal Power and NRMA, (which are on the Chapter's webpage) followed by an open discussion session, with lively involvement by the 25 participants. The Chapter is now planning a seminar on driver distraction for November 2008.

New South Wales (Sydney)

A seminar on Public Health Advertising and Road Safety was successfully held on the morning of Thursday 10 July 2008 at the George Institute for International Health, George Street, Sydney. Speakers were: Dr Sarah Redshaw, on the context of car advertising; Dr Ioni Lewis, CARRS-Q, on the effectiveness of negative and positive emotional appeals in road safety advertising; Mr Russell Watsford, Roads and Traffic Authority, on the "Speeding - No One Thinks Big of You" campaign targeting young male drivers who speed (the "Little Pinky",

"Hectic" and "Speed Notes" advertisements); and Ms Kay Coppa, NSW Cancer Council, on public health messages and health promotion. About 40 people attended the seminar.

Three further education activities are currently being planned for the remainder of 2008, including seminars on: 1) Influencing driver attitudes to speed? What works, what does not work?; and 2) What do road safety workers need to know about trauma and trauma systems? A session on road safety policy is being considered for the Christmas meeting, concurrent with the chapter's annual general meeting.

Media activities

Following the presentation of the Stay Safe Rangers kiss-and-ride program at Balgowlah Heights Primary School to the 2007 national conference and publication of the program evaluation in the College journal of November 2007, Manly Council in the northern beaches of Sydney has decided to implement the program across all primary schools in the LGA. Ian Faulks commented on the efficacy of the program in media reports.

'Two Wheels' magazine featured an article by Liz de Rome about the Gear Study. This is a 12 month cohort study of motorcycle crashes in the ACT to investigate the injury reduction benefits of motorcycle protective clothing. The study, which is funded by Swann Insurance, is a joint project between the George Institute for International Health and Canberra Hospital.

Queensland

A Quarterly Chapter meeting was held on Tuesday, 17 June 2008 at the Parliamentary Annexe and involved a presentation entitled "Parliamentary Committees and Good Government" from the new Travelsafe Committee Chair, Ms Jo-Anne Miller, MP and Mr Rob Hansen, Travelsafe's Research Director.

The other main activity the Chapter has been undertaking is preparation for the forthcoming ACRS-Queensland Travelsafe Parliamentary Committee Conference. The theme of this conference is High Risk Road Users and is scheduled to run in Brisbane on 18-19 September. At the conference, there will be 2 international and 2 national keynote speakers, and well as in excess of 130 delegates with 40 papers being presented in 10 sessions.

The themes are:

- Behaviour Change Strategies
- Novice Driver Countermeasures
- Understanding Younger Driver Behaviour
- School and Community-based approaches (2 sessions)
- Research methods and Prevalence Studies
- Impaired driving countermeasures
- Vulnerable Road Users
- Speeding Countermeasures
- Penalties and sanctions

South Australia

The Chapter continues to hold bi-monthly lunchtime dialogue meetings covering a variety of road safety topics. Paul Simons, who is the Chapter representative on the ACRS Executive Committee, is also representing the Chapter on the planning committee for the November 2008 Australasian Road Safety Research, Policing and Education Conference in Adelaide. On the Wednesday following the conference, the Chapter, in conjunction with the RAA, is running a one-day workshop on 'Young Drivers'.

Victoria

A very successful seminar was held at Parliament House in June 2008 with the theme "Sleepy in Charge! - driving while fatigued" with 55 attendees and presentations by the National Transport Commission, the respiratory physician from the Austin Hospital and a lawyer from the TAC.

A recent meeting of the Chapter Committee has set in train plans for four seminars this financial year, with dates and presenters yet to be firmed up. The first seminar, in October, will be on Safety Technology and "Big Brother". The other three seminars will focus on "Child Safety", "the Safe System approach" and "Road safety and the environment - friends or foes?".

Western Australia

The WA Chapter continues to meet each month to progress Road safety issues in WA. A recent issue of interest under discussion was the lack of regulations and training surrounding the use of motorised vehicles, such as gophers and motorised wheelchairs. There has been an increase in injuries associated with these vehicles and an alarming trend to use them on the road as one would a scooter. The Chapter will continue to follow-up this issue.

A camera trial at two rail crossings in WA was recently conducted by the Government to assess if motorists were crossing safely. During the trial almost 600 motorists crossed when either the red lights were flashing or the boom gates were down. After extensive coverage in the media, the trial has now been extended to other rail crossings. The Chapter has been informed that the trial has been extended and results should be available by the end of this year.

In September the Chapter will be holding a seminar on 'Vehicles restraints use in the 1st 1000 weeks of a child's life'. This will be conducted in conjunction with KidSafeWA.

Australian News

WA's Road Safety Council Presents 'Towards Zero' Plan

On 7 August 2008 the Road Safety Council presented to Community Safety Minister John Kolbelke a set of recommendations, which if implemented fully would potentially save 11,000 people from being killed or seriously injured on Western Australian roads over the next twelve years for an additional investment of \$2.34 billion.

Independent Chair of the Road Safety Council, Grant Dorrington, said Towards Zero in its proposed entirety would also save the Western Australian community \$4.1 billion in unnecessary costs associated with road crash deaths and serious injury while investing in an inherently safe road network for future generations.

"Importantly, Towards Zero recognises that while some people deliberately take risks, there are many more people that are simply making mistakes on our roads and people shouldn't have to die or be seriously injured as a result," he said.

The recommendations were developed in consultation with the Monash University Accident Research Centre (MUARC), which proposed an optimal strategy for WA with the potential to save 15,000 people from being killed or seriously injured. The Road Safety Council went to the community with this optimal strategy and while the community supported the majority of the proposals, including enhanced speed enforcement and safe road use initiatives, there was still work to be done to get the wider community on board with the very real evidence that safe travel speed initiatives would save lives.

"The Western Australian community has told us they want a strategy that is world class and is based on reliable evidence and research," said Grant Dorrington. "I urge the government to make the tough decisions for the greater good – it is not easy but the community needs you to back what is proven to work, not just what is popular."

"Perhaps the most significant lesson we have learnt from our previous Arriving Safely strategy is that full, thorough and timely implementation is vital for success. In whatever form the government chooses to accept the Council's recommendations, performance indicators, clear accountability, monitoring and reporting will certainly be vital components," said Mr Dorrington.

A copy of Towards Zero and the recommended three year action plan, together with a summary of the community consultation of over 4,000 community members and up to 50 parliamentarians, can be found in the WA Office of Road Safety website. (Source: Office of Road Safety media release August 2008)

Over 8,000 complete drink-drive rehab program

More than 8,000 Queenslanders on drink driving charges have completed CARRS-Q's 'Under the Limit' rehabilitation program since it was introduced through TAFE colleges in 1993. (Source: CARRS-Q Newsletter Winter 2008)

Research on Motorcycle Clothing

The George Institute in Sydney, with sponsorship from Swann Insurance, is conducting a research study into whether protective clothing can have a markedly beneficial effect in reducing injuries from motorcycle crashes. The study will look at the association between the use of protective clothing and the severity and long-term consequences of any injuries sustained. Researcher Liz de Rome said, "Standards have been developed for motorcycle protective clothing in Europe, but they are not enforceable in Australia. This research will provide Australian riders with better information about the protective clothing they wear." (Source: George Institute Newsletter June 2008)

New Simulator for Road Safety Research

Plans are in hand to build a \$750,000 advanced driving simulator at the Centre for Accident Research and Road Safety (CARRS-Q) at Queensland University of Technology. It is expected that the simulator will be operational before the end of this year. It will give researchers a unique tool for studying human behaviour in various driving conditions and situations. CARRS-Q's Associate Professor Andry Rakotonirainy said that the simulator would offer the opportunity to study drivers in critical situations with a high degree of realism. It would help provide research data that would be difficult, costly and often unsafe to obtain under real driving conditions. Funding for the simulator has been sourced in part from the Australian Research Council, the University of Queensland, Queensland Transport, Department of Main Roads, RACQ and the Motor Accident Insurance Commission. (Source: CARRS-Q Newsletter Winter 2008).

Clarification of Mobile Phone Rules for Drivers

The National Transport Commission (NTC) recently invited comments from the public on proposed amendments to the Australian Road Rules concerning in-vehicle use of mobile phones. The proposed amendments are clarifications of existing road rules, to define more specifically what constitutes "use" and "holding" of a mobile phone and tightens the prohibition on texting. The amendments, if approved, would also tighten the rule prohibiting the use of Visual Display Units while driving, and require that driver's aids must be secured in the vehicle. The closing date for written comments was 4 July 2008. For further information see the NTC website at www.ntc.gov.au.

Concern for Blind Pedestrians

Blind Citizens Australia (BCA) has expressed concern that pedestrians who are blind or vision impaired would be less safe on Australia's roads and footpaths in view of the anticipated increase in electric-powered or hybrid vehicles. BCA was responding to the Federal government's announcement of a subsidy for the Australian production of hybrid cars. There is already anecdotal evidence that some blind or vision impaired pedestrians have had some unpleasant near misses with cars, such as the hybrid variety, that emit lower than usual noise levels.

As the peak national representative body for people who are blind or vision impaired, BCA called for governments and manufacturers to help combat what could be a deadly silence for those relying on the sound of cars approaching to cross roads and travel independently. The move comes amid anecdotal evidence that some people who are blind or vision impaired have already had near misses with silent vehicles like hybrid cars.

"Unless we do something now to ensure these vehicles are made safe, it will only be a matter of time before someone suffers a serious injury or is killed," said Robyn McKenzie, BCA Executive Officer. "We're urging the Federal government and Toyota to set aside funding in the \$35 million subsidy for hybrid car production to develop safety measures. We also encourage government departments which are purchasing hybrid cars to make sure their staff are aware of the safety issues these cars can have for pedestrians."

Other members of the blindness sector have backed the suggestions. "As an organization providing seeing eye dogs and orientation and mobility training, this trend makes us very concerned about the safety of pedestrians who are blind or vision impaired," said Vision Australia Chair Kevin Murfitt.

In the coming weeks, Blind Citizens Australia will be working with governments and blindness sector bodies across Australia to ensure that the balance between a greener Australia and the needs of people with disabilities remains fair. Media contact: Leah Hobson, National Policy Officer 0430 210 980. (www.bca.org.au)

Intelligent Access Program Helps Local Government

Transport Certification Australia (TCA) Chief Executive Officer Chris Koniditsiotis told delegates at the June 2008 National Local Roads and Transport Congress that the Intelligent Access Program (IAP) gave local government the opportunity to work with their road authority to better manage local roads. He said that the TCA acknowledged the important role local government played in maintaining and managing the road network. Examples included helping to ensure heavy vehicles travelling to a freight hub stayed on their approved route, and helping to ensure access conditions designed to protect vulnerable infrastructure, such as ageing bridges, were complied with. According to the Australian Local Government

Association (ALGA), local governments own and manage more than 80% of the nation's road network.

The IAP is administered by TCA and is a voluntary program that provides heavy vehicles with improved access to Australia's road network in return for monitoring of compliance with specific access conditions using vehicle telematics solutions. Monitoring is done by an IAP Service Provider, certified by TCA. (Source: Transport Certification Australia - June 2008)

Help for Migrant Drivers to Obtain their Driver's Licence

New migrant drivers in Coffs Harbour are getting help in training for their driving tests and reducing their risk of infringing road rules thanks to a program run by Anglicare (the social service branch of the Anglican Church) and funded by an NRMA Motoring & Services Community Road Safety Grant. NRMA local Director Wendy Machin said "Many migrants have no family or friends to help them complete the 120 hours of supervised driving needed to obtain a provisional licence." This is where Anglicare North Coast Driver Mentor Program steps in with their program partners, TAFE Outreach and Coffs Harbour Council and their army of volunteers.

Recent evidence acquired from the Coffs/Clarence Local Area Command Crime Management Unit concludes that the number of migrants issued with infringement notices has dropped significantly since 2004/5 when compared with 2007/8. Currently there are almost 60 migrant learners participating in the program. Of these, 21 have obtained their provisional licence. The program also relies on 13 active volunteers, who have received enormous praise from learner drivers.

The NRMA has allotted \$100,000 for road safety grants that can be applied for by community groups and councils throughout NSW from 31 July 2008. (Source: NRMA Media April 2008)

Cause for Concern over Results of Mobile Phone Research

The Australian Transport Safety Bureau has released a study on its website (www.atsb.gov.au) that it funded on mobile phone use. The study, conducted by Shari Walsh of the Queensland University of Technology School of Psychology and Counselling, has revealed that over 40% of the sample survey (of 800 drivers) use their phone at least once per day while driving. The most frequently reported behaviour performed daily or more often was answering a mobile phone call, which was admitted by 43% of the respondents. This was followed by making a mobile phone call (36%), reading a text message (36%) and sending a text message (18%) while driving. However, the study also showed that drivers tended to use their mobiles more while waiting at traffic lights or stuck in traffic, rather than when driving in complex situations like changing lanes or driving through a school zone. (Source: CARRS-Q Newsletter Winter 2008).

graduate certificate/ diploma road safety

Do you want to enhance your knowledge and skills in road safety? If yes, you may consider enrolling in a Graduate Certificate or Graduate Diploma in Road Safety.

The program is run by the Centre for Accident Research & Road Safety – Queensland (CARRS-Q), a joint initiative of the Motor Accident Insurance Commission and Queensland University of Technology (QUT). The courses are offered in internal mode at QUT's Kelvin Grove campus and external mode through our well established distance education program.

Mode: Internal or via distance education

Venue: QUT Kelvin Grove campus, Brisbane

When: Semester 1, 2009

Applications will close January 2009. From the start of Semester 1, 2009 both domestic and international students will be able to enrol in the distance education mode.

More information

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Queensland Consultation on Motorcycle Safety

One in five road deaths in Queensland in 2007 was a motorcycle rider, and in 83% of fatal motorcycle crashes the rider was found to be at fault. With motorcycle riders being 30 times more likely than car drivers to be killed in a crash, there has been growing concern to improve motorcycle safety.

Queensland Transport therefore released a Motorbike Safety in Queensland Consultation Paper in April this year to stimulate discussion and gain public opinion on how to deal with this crisis in motorbike safety. Proposals in the consultation paper included:

- Introducing practical pre-learner training, requiring a person to complete an off-road basic motorcycle handling course before being granted a learner licence;
- Introducing a separate moped licence;
- Improving rider safety through protective and highly visible clothing;
- Reducing the number of dormant licence holders; and
- Improving road conditions for motorcycle riders.

Early responses to the paper indicated support for a graduated licensing scheme for motorcycle riders, protective clothing regulations and motorcycle safety education campaigns.

Some 2,000 responses were received up to the close of the consultation period on 30 May. CARRS-Q was responsible for

analysing the submissions and preparing a report in July for Queensland Transport. This report will inform future initiatives to improve motorbike safety in Queensland.

(Source: Queensland Transport)

Video Monitoring Improves Bus Drivers' Skills and Resolves Disputes

Victorian Ventura National Bus Company has incorporated video monitoring of drivers in over 100 of its bus fleet, following a successful pilot program commenced in 2007.

DriveCam, consists of a small video camera mounted behind the rear view mirror of the bus. Risky driving behaviours, such as hard braking and swerving cause the recorder to save audio and video moments immediately before and after the event.

Events are downloaded at the bus depot, reviewed by DriveCam specialists and assigned a risk score. The footage of the incident and accompanying analysis aids fleet supervisors in providing feedback and appropriate coaching for their drivers. Many at Ventura were surprised by the positive way that their drivers embraced the DriveCam solution. Perhaps this is because DriveCam has provided valuable support to drivers in resolving disputes over collisions, near misses and aggressive behaviour from other road users and passengers. (Source: Media release: Fleet Safe June 2008) For further information visit www.fleetsafe.com.au.

Tugun Bypass to Open Early

The Tugun Bypass, linking the Gold Coast and northern NSW, is expected to open to traffic more than six months ahead of schedule. Traffic modelling shows about 46,000 vehicles will use the 7km bypass each day, reducing existing traffic along the Gold Coast Highway by up to 55 per cent. The bypass will cut travel times between Currumbin and Tweed Heads to five minutes. The four-lane road cost \$543 million, with \$120 million being provided by the Federal Government and \$423 million from the Queensland Government. It has been estimated that the project will save \$1.9 billion in reduced travel times and vehicle operating costs and \$59 million in avoided vehicle crashes over 30 years. (Australian Roads Forum Insider - Road Transport News, April 28, 2008)

Country Football to Drive Road Safety Message

Football in Western Australia will help deliver vital road safety messages and increase awareness of the importance of wearing a seatbelt, as part of a new 'Belt Up' sponsorship campaign. Community Safety Minister John Kobelke has announced a new sponsorship deal between the State Government and the West Australian Football Commission (WAFC) for the 2008 season. The 'Belt Up' Sports sponsorship is for one year, with two 12-month extension options, worth about \$500,000 annually, subject to annual evaluation reports. The Insurance Commission of WA will fund the sponsorship. (www.mediastatements.wa.gov.au/Pages/RecentStatements.aspx?ItemId=130091& Saturday, 3 May 2008)

Australia's Biggest Road Project Opened

Australia's biggest road project to date – the \$2.5 billion Melbourne EastLink – has been officially opened by Victorian Premier John Brumby. Mr Brumby said the roadway would transform travel around Melbourne, delivering massive economic and social benefits for Victoria. It has been planned to improve transport choices and connections and reduce congestion on existing roads. The project is innovative in its design, delivery and community focus. It includes additional public art, public transport upgrades and toll free bypasses at Ringwood and Dandenong. The EastLink project is a 39km motorway linking Mitcham and Frankston and featuring 17 interchanges, 6km of toll-free bypasses, 88 bridges, a 35km shared use path, more than 3.6m plants, 60 wetlands and twin 1.6km three-lane tunnels under the Mullum Mullum Valley. (Australian Roads Forum Insider, July 4, 2008)

New Zealand News

Road Safety Leader Dies in Bike Crash

Superintendent Steve Fitzgerald, who was National Road Safety Manager in the New Zealand police in the period 2000-2005, was killed in June after being knocked off his bike by a truck. Mr Fitzgerald's police career began about 41 years ago in Britain. He joined New Zealand Police as a recruit after immigrating in 1974. He was riding in Petone, north of Wellington, when the crash with the truck occurred. (www.nzherald.com.nz, June 20, 2008)

Road Safety Innovation and Achievement Awards

The Road Safety Trust of New Zealand recently invited nominations for the 2007-2008 Awards. There are five categories: 1) Education; 2) Community; 3) Organisations; 4) Vehicle-Based; and 5) Road Engineering. The judges will be looking for proven innovation, achievement, commitment and sustainability in road safety initiatives. The winner in each category will receive a prize of NZ\$2,000, with the overall Premier Winner receiving an additional NZ\$3,000 cash prize. A representative from each winning entry will receive free travel to attend the Awards ceremony in Wellington. The closing date for entries was 4th August 2008. (Source: www.roadsafetyinnovationawards.org.nz)

Coroner Praises Police Serious Crash Unit

Retiring New Zealand Coroner Phil Comber said that after 24 years experience, during which time he was more than aware of how many Levin residents died in crashes, he attributed many of the road upgrades and safety improvements in the region to the work of the local Police Serious Crash Unit. Mr Comber described how, compared to his early days as Coroner, Police were now able to provide "a fantastic amount of detail" on crashes. "Thanks from the public are due to the members of the Serious Crash Unit and the work they do. They're highly professional and highly skilled ..." (Source: NZ Police Ten One Community Edition May 2008)

Pilot Project on Distraction

Recognising the ongoing problem of driver distraction as a major cause for road crashes, Land Transport NZ and the Road Safety Trust embarked on a pilot advertising program in April, linking distraction messages to sporting codes – initially basket ball and cricket. The concept is to promote the idea that even a moment's inattention can have consequences, both in the sporting arena and behind the wheel. (Source: Land Transport NZ News May 2008)

Land Transport Reorganised

In July 2008 the NZ Transport Agency (NZTA) was established, bringing together the functions of Land Transport New Zealand and Transit New Zealand. This change is a result of the implementation of the Next Steps process that concluded in May 2007. Former Land Transport NZ Chief Executive, Wayne Donnelly, commented: “The soon to be announced update of the New Zealand Transport Strategy and the first Government Policy Statement will add momentum to the work Land Transports NZ has been doing towards a sustainable and safe land transport system that will make New Zealand an even better place to live, work and play. The future working relationships forged with transport partners and stakeholders across New Zealand have been a point of pride for the whole organisation.” The NZTA has been designed to deliver four key outcomes: 1) Integration; 2) Safety; 3) Sustainability; and 4) Value for money. (Source: Land Transport NZ News June 2008)

Manual for Training Cyclists

‘Cyclist skills training: A guide for the set-up and delivery of cyclist training in New Zealand’ caters for a range of trainees wanting to learn in a school or an adult training situation. Trainees must demonstrate that they have achieved the desired skill at each level, before proceeding to the next level of training. (Source: Land Transport News)

Main Causes of Injury and Death on NZ Roads

The major cause of injury and death is driving at excessive speeds. Second is drink-driving, while the third is failing to give way at intersections. A television advertising campaign to address the latter danger was launched in May. Each year about 2,500 crashes occur at intersections resulting in over 3,000 injuries and 26 deaths. The target audience for the intersection campaign is primarily city drivers aged 25-39 years. (Source: Land Transport News June 2008)

European News

No Overall Improvement in EU's 2007 Road Toll

Although some countries were able to reduce their road deaths in 2007, for the first year since 2001, there was no overall reduction in road deaths in the European Union.. The recently published 2007 European Commission's Road Safety Quick Indicator provided disappointing results. Road deaths went up in Malta (+40%), Denmark (+30%), the Czech Republic (+16%), Finland (+14%), Slovenia (+11%), Sweden (+9%) and Poland (+7%). However, fewer road deaths were recorded in Spain (-8%), Ireland (-7%), Austria (-5%), the UK (-6%), Hungary (-6%), Bulgaria (-4%), Greece (-3%) and France (-2%). (Source: ETSC Monitor 72)

Only Three EU Countries Expected to Reach 2010 Targets

Only France, Portugal and Luxembourg will be able to reach the EU target to halve the number of deaths on roads between 2001 and 2010, according to the European Transport Safety Council (ETSC). Between 2001 and 2007 road deaths were down by 43% in France, 42% in Portugal and 38% in Luxembourg, enabling them to meet the deadline in 2008-2009. [Editor: In interpreting these statistics, it is important to recognise that France, Portugal and Luxembourg started from a much lower level of road safety in 2001 than countries such as Sweden or the UK. The higher the level of road safety, the harder it becomes to make improvements.] The other 24 Member States are not expected to halve road deaths until some time between 2011 and 2030 or beyond. The worst results were shown by Central and Eastern European countries, with an average annual decrease in road deaths barely reaching 1.6%. In Romania, Slovenia, Lithuania, Slovakia and Poland, the number of deaths has even increased over the last six years. Latvia is the only exception among the new Member States, with a reduction of 25% between 2001 and 2007 (ETSC Monitor 73)

Anti-Speeding Campaign Launched in 20 Countries

A pan-European campaign, ‘Operation Speed’, coordinated by TISPOL – the European Traffic Police Network, and targeting excess speed, was held by police in over 20 European countries carrying out checks night and day throughout the week of 21-27 April. In 2007 over 387,000 drivers were caught speeding during a similar week long operation. Speed is the most common cause of road deaths costing up to 11,000 lives a year, according to TISPOL. (Source: ETSC Monitor 72)

Drink Blitz Catches 2,000 Over-the-Limit Daily

In Europe's biggest ever Drink Drive safety campaign, organised by TISPOL more than 2,000 motorists a day were found to be over the limit for alcohol in the blood. The campaign was held early in June 2008 and covered 18 countries. Overall 14,645 (1.7%) of drivers stopped were found to be over the legal limit. The lowest – under 1% - proportion of drink drivers was in Norway, Sweden, Denmark and Finland. Moldova accounted for the worst result: almost 20%. In France the figure was 2.17%, Switzerland 6.65% and the UK 6%. As part of the bid to find an international solution to drink driving, leading experts will be meeting at TISPOE's annual conference in Harrogate, UK, 30 Sept-1 Oct 2008. Full details on www.tispol.org. Supt. Kevin Casey, Traffic and Transit Safety Department, Victoria Police, Australia has been invited to the conference to offer a perspective from outside Europe. (ETSC Safety Monitor Nos. 72 and 73)

New European Transport Research Journal

The European Conference of Transport Research Institutes (ECTRI) has announced the publication of a new open access journal to be known as 'The European Transport Research Review'. The Journal's main scope and mission is to provide a forum for the publication of high quality scientific papers in the field of transport in general, and a dissemination medium for new ideas and developments that originate in, or are of interest to, the European transport research community. The papers are published free of charge for authors and readers. A College member, Michael Regan of Monash University, who is currently working with INRETS, France, is on the Editorial Board of this journal. For general enquiries about the Journal and the Journal's themes contact the Editor-in-Chief: Evangelos BEKIARIS, 17 Possidonos Av., GR-17455 Alimos, Athens, Greece. Email: abek@certh.gr. For more information visit www.springer.com/engineering/mechanical+eng/journal/12544

Asian News

Indonesia and Malaysia Get Road Safety Help

The Allianz Insurance Group, which has considerable motor insurance business in Indonesia and Malaysia is developing programs to support road safety in those countries. Alexander Ankel, CEO of Allianz General Insurance Company (Malaysia) said, "The Allianz Group has led to improvements in traffic safety and cost-savings through the automotive engineering research of Allianz Center of Technology (AZT). There are many road safety initiatives taken at a global level, and it is vital for Allianz in Malaysia to tap into this with the countless road accidents that happen every day in this country." Allianz Malaysia, in collaboration with the Malaysian Institute of Road Safety, started the year with a Road Safety Video Contest for college students.

In Indonesia, Allianz Utama have invited novice drivers to driving coaching. Supported by former F1 driver Christian Danner and the AZT, the Indonesian motor society Ikatan Motor Indonesia coached the beginners on fundamental driving skills as well as accurate road safety behaviour. The audience was impressed when the implications of a 30 kilometre-per-hour crash test were shown. "I had no idea how serious crashes at low speed could be. I will definitely use my safety belt in future, even just for short drives," one participant commented.

"Traffic is becoming very hectic in Indonesia. Every day, new motor vehicles are joining the streets, which increase the risks on the road. As a good corporate citizen and also for the sake of our business, we need to increase the safety on the roads," commented Victor Sandjaja, CEO of Allianz Utama. (Source: www.finchannel.com - June 2008)

ArriveSafe in India

With its growing motoring population and crowded highways, efforts to improve road safety are becoming increasingly crucial in India. Various web sites can be found on Indian road safety. One group that is working towards such improvements is the non-government organisation ArriveSafe. The philosophy of ArriveSafe is "Our behaviour on road is a reflection of our character," so we work as a pressure group to give a wake-up call to the authorities concerned and shake the bad driving habits of our people. There is "No U-turn" after a crash so avoid it, any way possible." For more information visit www.arrivesafe.com.

North American News

NIOSH Offers Online Library for Preventing Traffic Injuries

The U.S. National Institute for Occupational Safety and Health (NIOSH) now offers an online library to house resources from around the world related to the prevention of road traffic injuries and deaths while at work. The resources are stored in the "Road Safety at Work" online library, at www.roadsafetyatwork.org. The online library contains information on the following:

- "Best practices" including engineering controls, policies, administrative procedures, and guidance to employers or workers about safety on roads.
- Materials that show evidence of implementation and evaluation of success.
- Statistics about worker injuries and fatalities on roads.

Contributions can be made to the online library, www.roadsafetyatwork.org, by contacting Jane Hingston at JHingston@cdc.gov. Information is needed on all types of occupational drivers: (1) drivers of commercial vehicles such as large trucks and buses (workers for whom driving is the primary job duty); (2) workers who use smaller trucks or passenger vehicles provided by their employer (workers whose primary occupation is something other than "driver"); and (3) workers who drive personal vehicles for work purposes. Workers who are pedestrians and those who are working on roads are also included. NIOSH encourages stakeholders to use the online library, free of charge, and consider the best practices that may be useful in their workplace. (NIOSH Media Release 4 June 2008)

Complete Streets Campaign Gathers Momentum

The National Complete Streets Coalition recently reported that efforts to establish a formal national complete streets policy moved a step closer with the introduction into the House of

Representatives of the ‘Safe and Complete Streets Act 2008’. The bill would make sure that roads built and improved with federal funds safely serve everyone using the roadway, including pedestrians, cyclists, those catching buses and those with disabilities. The Senate version of the bill has also been introduced, making this the first time that comprehensive complete streets bills have been introduced in the House and Senate. (Source: Complete Street News May 2008)

International News

International Road Assessment Program (iRAP)

Taking a holistic approach to road safety, in which all systems are taken into consideration, is now well recognised by many road safety professionals as essential, if significant road safety improvements are to be made. This has resulted in a stronger emphasis being placed on the importance of safe roads in achieving high standards of road safety, whereas previously attention was directed mainly at driver behaviour and vehicle design. In Australia, while Federal and State Government funding has made some improvements (for example, the Black Spot Program), there is still much work to be done to create a truly safe road system. In consequence, the motoring organisations launched the Safer Roads Program, with its threefold aim of facilitating safer drivers in safer vehicles on safer roads. In pursuit of these aims, efforts are being made to improve standards in driver training, vehicle safety is being tackled through the Australian New Car Assessment Program (AusNCAP) and road conditions are being analysed and brought to the attention of the road authorities through the Australian Road Assessment Program (AusRAP).

More recently, the idea of having an International Road Assessment Program has been launched through a pilot iRAP project, with the cooperation of the Road Assessment Programs in Australasia, Europe and the United States. In an explanatory document, iRAP, with headquarters in the UK, has reported on introductory road inspections conducted in Malaysia, South Africa, Costa Rica and Chile in 2007. In each country the inspections were led by the local automobile club and an established regional RAP team (EuroRAP, AusRAP and usRAP). In addition, the projects received support from about thirty research institutions, governments and road safety organisations.

iRAP has announced that its primary aim is “to ensure sustainability by providing partners with training and experience, along with a detailed inventory database and analysis tools for continued use.” The iRAP website is at www.irap.net.

In the pilot project iRAP has created a methodology for inspecting roads in developing countries using experience from

existing RAP programs. Two inspection methods are used to record feature data. One uses a ‘drive through’ approach that records road features using specialised equipment. The second approach captures high definition multi-video that can be coded later using special software. iRAP provides specific training and detailed inspection manuals to ensure consistency in the way road features are analysed and given a safety rating, known as the Road Protection Score (RPS). The RPS calculation takes raw road feature data and provides a score that reflects the overall safety of the infrastructure of a section of road. The RPS is based on the risks faced by users of that section of road.

The next stage in the iRAP process is to propose appropriate low-cost countermeasures to reduce the risks of using each section of road analysed. According to the iRAP report, “A ‘logic’ system, based on known infrastructure safety deficits, is used to generate programs of low-cost countermeasures that are likely to save a significant number of lives.” Ideally this will require knowledge of the type and number of crashes that have occurred on the road section. However, in developing countries such statistics may not exist. To address this problem, iRAP is establishing “a new methodology to estimate the number of casualties that would be expected on a road section from raw inspection data. The results will be used alongside the countermeasure generation tool to estimate the number of casualties that are likely to be saved through action”. Estimating the number of casualties that might be expected on a section of road sounds fraught with difficulty, but at least it will provide a starting point for improving a road, and, hopefully, encourage the road authorities to begin collecting real crash data.

Tools and Reports

The iRAP program is developing web-based tools to enable road inspection data to be loaded into a central database so that users will then be able to generate tables, maps and charts to suit their needs. In order to make the best investment decisions following a road assessment, road authorities will have access to iRAP’s economic appraisal methodology that compares the cost of implementing road safety schemes with the economic benefits of saving lives and reducing serious injuries. The cost of deaths, serious injuries and countermeasures obviously varies from country to country, so this is taken into account in comparing the costs of road countermeasures with the anticipated benefits.

It is good to know that a start has been made through iRAP to assist developing (low to middle income) countries to address their road safety problems, which are often exacerbated by bad road conditions. It will be important for iRAP to be able to propose low-cost solutions wherever possible, since road improvements are so expensive and often do not have priority in developing countries, when social, health, educational and other needs are very pressing.

Contributed Articles

Road Safety Is No Accident

About the author

Dr Jiggins is an Associate Fellow of the College and Secretary of the ACT and Region Chapter. He has recently been awarded a Churchill Fellowship to study the reporting of road crashes in the print media. The Fellowship was sponsored by the NRMA-ACT Road Safety Trust. Feedback on this paper is welcome: stevejiggins@bigpond.com



The Australian news media typically portrays road crashes as “accidents” involving human tragedy. The pattern is all too familiar: scenes of mangled wreckage, an ambulance leaving the scene, an interview with emergency service personnel who describe the crash as “the worst they have seen”.

We might ask “What’s the take-out message from this sort of coverage?”

An accident, by definition, is an unpredictable event beyond the control of the individual – according to the dictionary “an incident that happens by chance or without apparent cause”. Overseas researchers argue that describing crashes as “accidents” fails to convey important safety information and potentially builds barriers which may block or inhibit the adoption of road safety countermeasures.

In 2004, for the first time in the history of the World Health Organisation, World Health Day focused on the theme of road safety. Road traffic “collisions” – as WHO prefers to call them - kill more than 1.2 million people a year around the world, but are largely neglected as a health issue, perhaps because they are still viewed by many as events which are beyond our control. Yet the risks are known: speeding, alcohol, non-use of helmets, seat belts and other restraints, poor road design, poor enforcement of road safety regulations, unsafe vehicle design, and poor emergency health services.

Another interesting feature of the Australian media’s reporting of road crashes in the preoccupation with the “road toll” – an issue that receives extensive reporting in the Australian media but is less common in overseas coverage of road fatalities.

A study by the Australian Transport Safety Bureau in 2006 [1] examined annual trends in road fatality numbers for Christmas and Easter holiday periods. In contrast to media reporting on the issue, the analysis of average number of deaths per day found that fatality rates during holiday periods were not systematically higher or lower than fatality rates at other times of the year. The study also found no evidence of any change in the involvement of primary causal factors (speeding, alcohol or fatigue). The findings are broadly consistent with the results of a similar study undertaken in 2003.

The concept of a “toll” implies a tax or duty that must be paid. It could be seen that the holiday death toll is simply the cost that the community must pay for the use of our road network. This is in stark contrast to an emerging philosophy called Vision Zero which has its roots in Sweden.

Vision Zero is a road safety philosophy with the aim that, eventually, no one will be killed or seriously injured within the road transport system. In October 1997, the Road Traffic Safety Bill founded on Vision Zero was passed by a large majority in the Swedish parliament (Ministry of Transport and Communications, 1997) [2]. The Vision is an expression of the ethical imperative that

It can never be ethically acceptable that people are killed or seriously injured when moving within the road transport system (Tingvall and Haworth, 1999) [3]

As noted by Swedish road safety expert Claes Tingvall, Vision Zero provides a vision of a safe road transport system which can be used to guide the selection of strategies and then the setting of goals and targets. Zero is not a target to be achieved by a certain date. It is a change from an emphasis on current problems and possible ways of reducing these to being guided by what the optimum state of the road transport system should be.

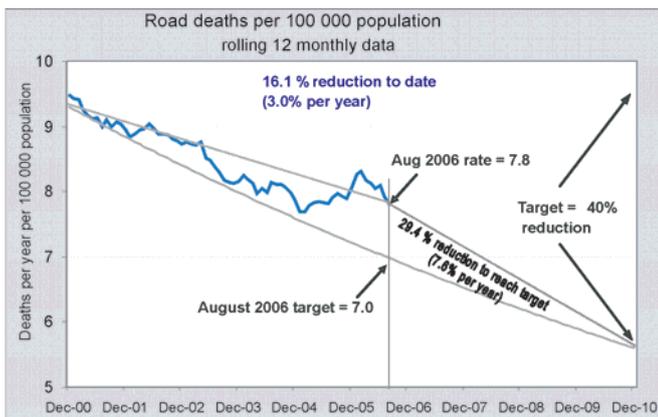
Vision Zero also changes the emphasis in responsibility for road traffic safety. In all current road transport systems, the road user has almost total responsibility for safety. In most countries, there are general rules that the road user should behave in such a way that crashes are avoided. If a crash occurs, at least one road user has, by definition, broken a general rule and the legal system can therefore act.

The results in Sweden have been dramatic with fatalities on Swedish roads falling from 541 in 1997 to 431 in 2006 and a fatality rate that is amongst the lowest in the OECD.

Why bother?

Well Australia is not Sweden and we may not have the financial resources to embrace the investment in infrastructure that Vision Zero would require. However, road safety professionals and emergency service workers are missing opportunities to promote road safety messages under the current media driven emphasis on the human drama associated with road traffic “accidents.”

As shown in Graph 1 taken from the National Road Safety Action Plan 2007 and 2008 [4], the level of road safety performance in Australia has hit a plateau and there is a widening gap between actual crash rates and those proposed under the National Road Safety Strategy agreed by Transport Ministers in November 2000.



Graph 1

The National Road Safety Action Plan 2007 and 2008

acknowledges that road safety is a community health and welfare issue and road safety measures need to be supported and accepted by the public. The Plan calls for improved public understanding of the road trauma impacts on livelihood and lifestyle, the research basis for growing problems such as driver-distraction, and the benefits of expenditure on safer roads.

The Plan also notes there has been a tendency in some areas of motoring journalism to attempt to undermine speed management and other safety interventions. The plan argues it is important to establish stronger links with this sector to promote sound understanding of the scientific and research basis for road safety interventions.

What can be done?

The first step towards engaging the media is to understand how it works. A technique called 'Media Framing' provides a basis for examining newspaper content in terms of what the media typically include in their coverage of certain issues and, equally importantly, what they choose to ignore.

Framing examines how journalists and editors 'package' information for their audiences and how that information is presented. In the print news media, the headline is usually pivotal because it provides an instant summary of the story and at the same time locates it within certain reference points for the reader (such as the 'horse race' in the coverage of political matters). Cartoons are also indicators of what is at stake in news reports and point to the existence of particular types of media frames.

Newspapers typically present fatal crashes as dramas with a victim/villain storyline; in keeping with this narrative strategy, newspapers are most likely to cover stories where a driver survived to take the blame. By highlighting crashes that diverge from the norm, focusing on the assignment of blame to a single party, and failing to convey the message that preventive practices like seatbelt use increase odds for survival, newspapers removed crashes from a public health context and positioned them as individual issues.

Connor and Wesolowski (2004) [5] examined the public health messages conveyed by newspaper coverage of fatal motor vehicle crashes and determine the extent to which press coverage accurately reflects real risks and crash trends. Crash details were extracted from two years of newspaper coverage of fatal crashes in four Midwestern cities in the United States. Details and causal factors identified by reporters were compared to data from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS). The newspapers covered 278 fatal crashes over the two year period, in contrast to 846 fatal crashes documented in FARS. Newspapers assigned blame in 90% of crashes covered, under-reported restraint use and driver's risk of death, failed to reflect the protective value of restraints, and misrepresented the roles played by alcohol and teen drivers. The study found newspaper coverage did not accurately reflect real risk.

Commentary on road crashes is eagerly sought by the media. These contacts provide police and other road safety commentators with an opportunity to redress the imbalance in reporting and to push important safety messages.

Police and other road safety professionals could try and place less emphasis on the human drama of the crash and focus on broader safety messages. For example, a crash involving a novice driver and a carload of passengers could be used to make the following points:

- Novice drivers are over-represented in crash data by a ratio of at least 3:1.
- Young drivers generally use less safe older vehicles because they are more affordable, hence injury risk in a crash is higher.
- Young driver crash rates are elevated sharply when they drive late at night and during early morning hours and when carrying two or more passengers; and
- That is why road safety authorities are examining curfews and passenger restrictions for this group (National Road Safety Action Plan 2007 and 2008) [4].

These comments do not go to the causal factors of the particular crash but highlight a broader pattern and set an agenda in terms of possible counter-measures.

Similarly, a crash involving a motorcycle could point to the following messages:

- Motorcyclists face a fatal crash risk about 20 times higher than drivers; their relative risk of serious injury is even higher.
- Over 40 per cent of fatal motorcycle crashes are single-vehicle crashes.
- The severity of injuries faced by motorcyclists is higher than for other road user groups.
- Potential riders should consider carefully the purchase of a motorcycle particularly if the decision is lifestyle based.
- Riders should undertake specialist courses to mitigate the higher risks they face.
- Promote to riders the safety advantages of ABS and linked braking systems in motorcycles.

Where to from here?

There is some guidance available from another area of public health. Researchers found that media portrayals of mental illness and suicide perpetuated a number of community myths about these problems. The Mindframe Media and Mental Health Project [6] aims to build a collaborative relationship with the Australian media and mental health systems to enable a more accurate and sensitive portrayal of suicide and mental health issues. Key activities undertaken by the Project include:

- the development of a resource kit for use by media professionals including the companion website; and
- delivery of face-to-face briefings with a diverse range of media organisations providing opportunity for discussion on issues to consider when reporting.

The print and web based resources are designed to help media professionals continue to report suicide and mental illness responsibly and accurately (see <http://www.mindframe-media.info/site/index.cfm?display=85542>).

Police, road safety authorities and the media could work together in a similar fashion to develop media resources to assist journalists in their reporting of road crashes. Consideration could be given to the development of guidelines that would assist both police and the media. The current National Road Safety Action Plan 2007 and 2008 provides a good foundation for such work. The College is well placed to coordinate the development of guidelines and to post these and other resources on our website.

Given that the social cost of road crashes has been estimated by the Bureau of Transport and Regional Economics at \$15 billion per annum [7], we need to do more to reduce this trauma.

It is time for paradigm change to encourage the community to look at road crashes as a public health issue and to move away from the media's pre-occupation with the human drama associated with road crashes.

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Congestion – Choking Australia’s Economy

By Mike Harris, Executive Director,
Australian Automobile Association

This article was contributed by the SaferRoads Program



Surging oil prices and the release of the Garnaut Review’s draft report on climate change and Emissions Trading Scheme have again fuelled debate about petrol prices. A risk is this debate will shift towards providing short-term relief at the bowser at the expense of the long-term well-being of the economy and the environment.

While a simple cut in petrol tax would no-doubt be welcomed by motorists feeling the pinch, the real opportunities for governments are in implementing broad strategies to create a more sustainable transport system, with the effect of helping to keep a lid on motoring costs and benefitting the environment.

As a society, we must continue to introduce measures to reduce fuel consumption and the emissions of all vehicles, reduce the demand for travel and provide better opportunities for the community to use public transport. Many of these measures are well underway, but more is needed.

The Australian Automobile Association believes that fuel excise of 38.1 cents per litre – of which only 10 cents are returned to roads infrastructure – should be removed and replaced with a road-user charge that means those with the highest impact on roads and the environment pay more.

The road user charge would account for the cost of providing road infrastructure and maintenance, the cost of accidents to the community, an environment impact charge and the cost of congestion, but only applying to those contributing to severe congestion.

The subsequent revenue should be used to upgrade roads and public transport and help reduce the impact of motoring on the environment, thereby contributing to an integrated transport solution.

Tackling traffic congestion must be central to any strategy. To a point, travellers can accept some congestion as a result of economic activity. But as travel demand increases, congestion threatens to strengthen its stranglehold on our major cities, stifling economic growth, increasing fuel consumption and emissions and exasperating travellers.

The cost of congestion in Australia’s capital cities is staggering.

The Bureau of Transport and Regional Economics estimated that the avoidable cost of congestion is more than \$9 billion annually or \$24 million a day – comprising \$3.5 billion in private time costs, \$3.6 billion in business time costs, \$1.2 billion in extra vehicle operating costs and \$1.1 billion in extra

air pollution costs. This will grow to \$20 billion a year (\$55 million a day) by 2020 if we don’t act, with traffic expected to grow by 37 per cent between 2005 and 2020.

A report by the Centre for International Economics found that a Sydney motorist who travels 22km a day will spend three days stuck in traffic each year – and that is set to worsen.

A recent survey by the RACQ found that Brisbane’s morning peak hour increases vehicle fuel consumption and greenhouse emissions by around 30 per cent. The survey also found the crawl to work took almost twice as long as travelling the same routes in the period between the morning and evening peaks.

The Victorian Transport Department’s Metropolitan Transport Plan found that approximately 40 per cent of total tram travel time is taken up by delays attributable to other road vehicles. Largely due to congestion, 30 per cent of trams are regularly outside their schedules. This highlights the need for improved integration between all forms of transport and better urban infrastructure planning.

A particularly frustrating aspect of congestion is that although we know when the peak congestion periods occur – typically before and after normal business hours – the intensity of congestion on any given day can vary significantly. This has the result of making travel annoyingly unreliable, so to counter unreliability on congested roads, travellers need to leave early just to avoid being late.

Several studies around the world have examined the causes of congestion, and thereby provide answers to the problem. A US study conducted for the US Federal Highway Administration found that, apart from fluctuations in traffic volumes, the key causes of congestion are: bottlenecks or locations where capacity is lacking (40%); traffic incidents (25%); bad weather (15%); work zones (10%); poor traffic signal timing (5%); and special events and other factors (5%).

It is unrealistic to expect that congestion can be entirely cut from networks, since it is a manifestation of economic activity – truly “free-flow” traffic conditions can only occur all the time if society stops moving.

But investment in a three-pronged strategy can reap significant returns in terms of private and business time costs, vehicle operating costs and air pollution.

In new urban areas, construction of new roads will be necessary to ensure the growing numbers of cars can be accommodated, while in well established urban areas, the opportunities for, and public acceptability of, substantial new transport infrastructure is probably limited. Widening roads to add more lanes, improving intersection design, unchoking bottlenecks and creating “tidal” flow systems for morning inbound and afternoon outbound traffic can each assist in managing congestion.

While the planning and construction of road network infrastructure is vital, there are other approaches that governments can take to improve capacity and travel times. These include incident management, work zone management, weather management, special events management, freeway and corridor management and better traveller information.

Traffic flow and congestion can also be improved by reducing total demand for the road, or by curbing demand at peak times. Encouraging more people into each vehicle, flexible working hours, telecommuting, living closer to work and expanding public transport each has an important role to play.

The Federal and State Governments' announcement this year they will provide \$132 million to undertake a series of studies into projects which have the potential to reduce congestion is a welcome first step.

With more than 1,100 new vehicles added to the road network each day and with petrol prices climbing and climate change looming, it is more important than ever that Governments tackle congestion to counter these issues and provide a solution.

Anti-lock Braking Systems (ABS)

by Dr Will Murray, Research Director,
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Introduction

Vehicle safety features, such as anti-lock brakes, are sometimes promoted as the next 'silver-bullet' for road safety improvements. Research with thousands of drivers around the world, suggests that many of them are dangerously ignorant of what ABS actually does.

What is ABS?

ABS is an abbreviation for Anti-lock Braking System. ABS allows steering while maximizing braking. ABS was developed to reduce skidding and maintain steering control when brakes are used in an emergency situation. When used properly, an antilock braking system (ABS) allows the driver to maintain directional stability and control over steering during EMERGENCY BRAKING SITUATIONS, particularly on wet and slippery road surfaces.

Unfortunately, safety experts have found that many drivers don't benefit from ABS because the correct techniques for using them are almost the opposite of everything that most of us have been taught about emergency braking in cars. To gain any safety advantage from ABS, drivers must learn how to operate it correctly. ABS is designed to help the driver maintain control during emergency-braking by preventing the vehicle's wheels from locking. This allows drivers to maintain steering control under heavy braking and to hit the brakes fully with less fear of skidding or loss of control. It does this by either preventing the wheels from locking, or if they do lock, by releasing and then reapplying the brakes once more.

In effect, ABS is a mechanical way of cadence braking (or pumping the brakes). There are two advantages for the typical driver. One is that the ABS system is able to "pump" the brakes on and off much quicker than the driver's leg, and the other is

that it requires no skill or experience - the car does all of that for you.

ABS was originally used in aerospace applications - specifically, to reduce wear and tear on aircraft tyres after landing. The first car (worldwide) to have ABS fitted as standard across the entire range was the Ford Granada Mk 3 (of 1985). BMW made the technology standard on all vehicles in 1986. Since it came into widespread use in production cars, ABS has made considerable progress. Recent versions not only handle the ABS function itself (i.e. preventing wheel locking) but also traction control, brake assist, and electronic stability control, amongst others. The technology now much lighter and more efficient.

A typical ABS is composed of a central electronic unit, four speed sensors (one for each wheel), and two or more hydraulic valves on the brake circuit. When the system senses that any of the wheels are rotating considerably slower than the others (a condition that will bring it to lock) it moves the valves to decrease/increase the pressure on the braking circuit, effectively reducing/increasing the braking force on that wheel. This process is repeated continuously, causing a pulsing feel through the brake pedal.

In vehicles not equipped with ABS, the driver must manually pump the brakes to prevent wheel lockup, maintain steering control and avoid hazards. In vehicles equipped with ABS, the driver's foot remains firmly on the brake pedal, allowing the system to automatically pump the brakes. This makes ABS particularly useful for steering through skids, reducing both the likelihood and severity of collisions.

What is the downside to ABS?

In Australia, The Royal Automobile Club of Victoria (RACV) was concerned about overseas research on ABS safety and commissioned Monash University Accident Research Centre (MUARC) to examine the Australian experience. MUARC analysed the crash records for a number of models that came equipped both with and without ABS, and compared their actual crash involvement.

The results were mixed, and rather disturbing. For multi-vehicle crashes, ABS-equipped vehicles were less likely to be involved (by about 18%) compared with the same model without ABS. However, for single-vehicle run-off-road crashes, e.g. leaving the road on a bend, ABS vehicles were over-involved by about 35% compared with the equivalent model without ABS. This increased involvement of ABS-equipped vehicles in run-off-road crashes is particularly concerning. Similar data is available for the US, which suggests that vehicles with ABS are 39% more likely to be involved in roll-over incidents.

You should be aware of the following disadvantages of ABS:

- ABS fitted vehicles do not have a better safety records than those vehicles not equipped with ABS. Indeed, some have shown their records to be worse. US research, for example, suggests that cars with anti-lock brakes are up to 65% more likely to be in fatal crashes than cars without them. Experts suggest that the problem isn't with the technology, but poor driving habits and lack of driver awareness on how the brakes operate.
- Drivers are traditionally taught to pump the brakes on slippery roads to avoid a skid (cadence braking). Firm and continuous pressure - not pumping - is required to activate ABS.
- The belief that ABS dramatically improves a car's braking performance is very widespread and highly dangerous, because this mistaken idea tends to encourage inadequate following distances and tailgating.
- Technology like ABS places over emphasis on reactive safety, rather than proactive safety and careful driving. You **MUST** drive carefully at all times to avoid the need for emergency braking. Even better, minimise the need to travel, or use safe modes such as the train.
- Increased braking distances in many circumstances ie they allow you to steer through a skid, but not necessarily to stop more quickly. ABS is designed to help the driver maintain control of the vehicle during emergency braking situations, not make the car stop more quickly.
- ABS is the subject of some widely cited experiments in support of risk compensation theory, which suggests that drivers adapt to the safety benefit of ABS by driving more aggressively. The equipment creates a "false sense of security" among drivers who do not understand the operation and limitations of ABS. Don't become an over-confident driver because you have ABS. Drive prudently as you always should.
- Inexperienced drivers can be put off by the pulsing feel of the ABS and take their foot off the brake pedal – thus reducing its effectiveness. Keep your foot on the pedal!
- ABS is often noisy, a bit like the brakes are grinding against gravel, which can also be off-putting. Keep your foot on the pedal!
- Emergencies are relatively rare and sudden by nature (and of course completely unexpected by unobservant and unaware road users). Most drivers have little or no experience of how to deal with them safely.
- When drivers do encounter an emergency that causes them to brake hard and thus encounter this pulsing for the first time, many are believed to reduce pedal pressure and thus lengthen braking distances, contributing to a higher level of accidents than the superior emergency stopping capabilities of ABS would otherwise promise. Nevertheless, ABS can significantly improve safety and control for drivers in on-road situations if they know not to release the brakes when they feel the pulsing of ABS.
- The availability of ABS should not deter drivers from learning to master threshold or cadence braking skills.
- Despite these limitations, researchers remain confident about the potential for ABS to prevent crashes, and encourage you to choose ABS-equipped vehicles. Drivers, however, should consider the warnings and tips discussed here to make the most of the technology and should practise emergency braking in safety until it becomes second nature. A split-second, life-or-death crisis is no time to learn new skills.

Best practice tips for using ABS

1. Understand whether your car has an antilock brake system:
 - Read your owner's manual.
 - Check your instrument panel for an amber ABS indicator light after you turn on the ignition.
 - When you buy, lease or rent, ask fleet manager, dealer or rental company.
2. Familiarise yourself with the ABS system. Test drive the vehicle at a speed above which the ABS activates (usually above 10mph) in an unobstructed such as a car park and apply the brakes firmly. The antilock system should prevent the wheels from skidding. Pulsation may be felt in the brake pedal and you may hear a clicking sound. Avoid pumping the brake, even if the pedal is pulsating.
3. Always make sure you drive carefully, keep a safe distance behind the vehicle in front of you, and maintain a speed consistent with the road conditions. Don't rely on ABS to allow you to drive closer to the car in front or to drive faster. You should continue to maintain a sensible distance between you and the car in front. You should also always drive at a speed which is sensible for the conditions. Always assume that ABS equipped cars will take the same distance to stop as cars which are not equipped with ABS. The big advantage is that the car remains under control. It won't skid and you can still steer it.

4. In a braking emergency, press the brake pedal as firmly as possible and, where appropriate, steer around obstructions. You should not pump your brakes if you have ABS. Pumping is for standard brakes. It completely robs ABS of its effectiveness. Just hold your foot firmly on the brakes pedal and remember that you can still steer. Remember the ABS system will prevent the wheels from skidding. So "Stomp and steer!" **KEEP YOUR FOOT HARD ON THE BRAKE PEDAL** for as long as you need to do so in order to avoid the obstacle.
5. When activated, the ABS causes the brake pedal to pulse noticeably - almost as if the brakes are pushing back at you. Also, the valves in the ABS controller may make a noise that sounds like grinding or buzzing. In some cars you may feel a slight vibration--this means the ABS is working. It is important **NOT** to take your foot off the brake pedal when you hear noise or feel pulsations, but instead continue to apply firm pressure. As most drivers rarely or never brake hard enough to cause brake lockup, and a significant number rarely bother to read the car's manual, this may not be discovered until an emergency. Just **KEEP YOUR FOOT HARD ON THE BRAKE PEDAL** for as long as you need to do so in order to avoid the obstacle.
6. No matter how hard you brake, ABS does not help you stop quicker under most conditions. It helps you maintain steering control during braking so you can steer around obstacles. Why? Because the wheels don't skid, but continue to rotate. This means that you can brake hard to avoid an obstacle and steer around it at the same time. This really adds to your chances of avoiding injury or death. Remember, just **STEER NORMALLY**, even when braking hard in cars with ABS. Avoid steering towards oncoming traffic.

Getting more information about ABS

A really detailed review of the research on ABS is provided by:

- Evans L, Traffic Safety (2005), Publisher: Science Serving Society (www.ScienceServingSociety.com), ISBN: 0975487108

More discussion, guidance and tips on ABS are available online:

- en.wikipedia.org/wiki/Anti-lock_braking_system
- www.nhtsa.dot.gov/cars/problems/Equipment/absbrakes.html
- www.dervman.com/abs.htm
- www.csu.edu.au/division/healsafe/webpages/guides/ABS.htm
- www.mucda.mb.ca/aboutabs.htm
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The Role of Bystander First Aid in Road



First Aid Saves Lives
St John

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Abstract

This paper provides an overview of the research literature on the use of first aid by bystanders at road traffic crashes (RTC). The review is undertaken in the context of increasing average ambulance response times to RTC and in recognition of the potential contribution of early first aid to improving mortality and morbidity rates for road trauma.

Introduction

Road safety innovation includes the development of cost effective strategies to limit the effects of RTCs when they happen. After a RTC involving injury, the factors most likely to lead to death or disability are obstruction of the airway and uncontrolled bleeding (Oxer 1999). These are amenable to simple and early first aid intervention. Bystander first aid is important because the emergency response time for ambulance services, including in metropolitan settings in Australia, may result in delayed treatment and in many cases simple first aid interventions applied immediately can save lives. Statistics released by The Council of Ambulance Authorities (2006) show a gradual increase in the average time taken for ambulances to arrive at the scene of a RTC across Australia and consequently the potential role of lay first aiders in minimising harm and improving outcomes for the injured is increasingly important.

However, little is known about the prevalence of first aid qualification and/or skill among the driving population, the likelihood that drivers will be involved in situations where first aid skills may be utilised, or the type of first aid intervention that has been used. The likelihood that a skilled bystander will intervene is also important and a related question concerns the factors that motivate or de-motivate road users in providing first aid care. This paper reviews the literature and makes recommendations for improving the first aid knowledge and skill of road users.

Literature Review

It is surprising that there is relatively little literature discussing the role of First Aid in RTC (Mabbott 2001). In Western Australia, researchers investigating the use of First Aid by bystanders in traffic crash situations concluded that approximately 23% of road trauma patients attended by the St John Ambulance Service had received some form of First Aid prior to arrival of the ambulance (Oxer 1999). This treatment was described as airway managed (2%); cardiopulmonary resuscitation (1.4%); bleeding control (4.5%); positioning (62%); defibrillation (0.05%); and other First Aid such as reassurance and comfort (30%). In Sweden, a population study was conducted using a questionnaire attached to the Swedish National Road Administration survey. Of 2,800 randomly selected drivers, 39% of drivers had received first aid training and 30% had used their skills. Fourteen percent of those with training had been bystanders at RTAs and at 20% of crashes a bystander had administered first aid (Larsson, Martensson & Alexanderson 2002). In the Australian Capital Territory Arbon and Hayes (2008) found that 11% had used first Aid at the scene of a RTC.

These studies underline the potential impact of trained First Aiders as bystanders at RTCs. A report released by St John Ambulance Australia (2006), argues that the first trained responder at the site of an accident can significantly assist in the timely treatment of potentially life threatening or disabling injury. Similarly, Finn et al (2001) have found that bystander CPR “buys time” in a time-critical situation. As Pearn (2000) highlights, the domain of basic life support inescapably belongs to the incidental bystanders or opportunistic first responders. The Council of Ambulance Authorities (2006) reports that, in the Australian Capital Territory, in 50% of cases, an ambulance arrives within 7.5 min to a Code 1 call, and in 90% of cases, an ambulance arrives within 13.3 minutes. A Code 1 call is any call that requires the ambulance to respond urgently, utilising lights and sirens. Whilst the thought of providing bystander First Aid may be overwhelming for some, Eisenberg et al and Finn et al (2001; 2001) have shown that, for example, the outcomes of out-of-hospital cardiac arrest can be significantly improved by the early initiation of First Aid. In this study there were no survivors when the interval for initiation of basic life support was greater than 10 minutes.

The need for first aid training

Oxer (1999) notes that after a crash involving injury, the two factors most likely to kill are obstruction of the airway causing suffocation, and uncontrolled bleeding causing death. Both Oxer (1999) and Mauritz (2003) show that First Aid intervention, whether the intervener is trained or not, has the capacity to save lives. Basic skills taught in First Aid courses enable a bystander to stop a major bleed and help to maintain an airway; which may be all that is required until further medical assistance is available. In the potential time it may take for an ambulance to arrive at a RTC in Australia, bystanders have a great ability to maintain life and potentially minimise disability.

A number of studies have identified that relatively simple basic life support measures such as maintaining an airway have the capacity to reduce mortality. A study by Hussain and Redmond (1994) found that 56.6% of the pre-hospital deaths that occurred in North Staffordshire, were due to RTCs, and a proportion of fatalities, both at the scene of accidents and before reaching the hospital, were preventable by early intervention. The results show that at least 60 people died before reaching the hospital and that up to 85% of these probably died due to airway obstruction. Similarly, Khangure (1998) found that airway obstruction was a contributing factor in the death of 123 cases (6.9%) in Western Australia between 1990-1997. These researchers argue that many pre-hospital deaths are preventable with simple First Aid techniques, which can be taught to the lay community.

The value and outcomes of First Aid training programs have been examined by Peterson and Russell (1999) who found that

both immediately and six months after some type of First Aid training, people are more likely to stop and provide assistance at a RTC. Both Hussain (1994) and Khangure (1998) show that at least 7% of road fatalities could be saved as a result of basic First Aid measures taken at the scene and argue that this presents a great opportunity for the community to actively participate in reducing the road toll both in terms of road trauma related deaths and disabling injury.

To intervene or not?

Surprisingly, there has been little investigation into the experiences of bystanders who have intervened at a RTC. Certainly, many studies show that there is a low incidence of First Aid intervention. Henriksson et al's (1998) Swedish study suggests that the absence of First Aid intervention contributed to the death of 4% of traffic accident victims. A Western Australian report notes that 7% of deaths can be related to a lack of First Aid (Mabbott 2001) and Ashour et al (2007) suggest that 4.5% of potential prehospital deaths may have been prevented with First Aid intervention.

A Polish study (Goniewicz 1998) explored the reasons why people are not willing to intervene at a RTC. In this study of 560 government drivers, Goniewicz found primarily psychological barriers caused people not to intervene in accidents. These included feelings of inadequacy; expressed as a lack of the necessary First Aid skills, due to poor quality training and/or poor skills transfer. Eisenburger & Safar (1999) also note that psychological barriers may impact whether or not bystanders intervene at an accident site. They report that the crowd at the scene can be frightening and stage fright can make helpers nervous resulting in their declining to intervene.

Cheung (2003) found that the most common reason for not having First Aid training was lack of time, with only 12% of their sample group with current First Aid training. Surprisingly, Cheung (2003) found that those with First Aid training still had a level of knowledge that was far from satisfactory and this needs further investigation. A study by Kendrick (1998) of parental First Aid interventions, found that 75% of participants knew the correct treatment for a variety of basic scenarios. However, 25% did not feel confident to use their skills to intervene. Further to the lack of skills, whether real or perceived, Mabbott (2001) suggests two other reasons why people do not render assistance: a perception of personal harm (such as contracting an infectious disease) and the perceived risk of litigation. In concurrence with Mabbott (2001), Eisenburger and Safar (1999) note that fear of legal prosecution seems to make some bystanders and health professionals hesitate to act. The fear and safety concerns of interveners were also explored by Jelinek et al (2001) who noted that a reluctance to intervene and provide First Aid predominantly resulted from fear of health and safety risks such as infection.

Where is first aid training heading?

The current literature discusses both the need for First Aid intervention at RTCs, the willingness of bystanders to perform First Aid, the reasons why they may hesitate to become involved and the most commonly used interventions. Most importantly, the literature shows that an increase in First Aid training, or skills, leads to an increase in confidence and/or intervention rates of interveners (Larsson, Martensson & Alexanderson 2002; Mauritz et al. 2003).

Peterson and Russell (1999) explored the intervention rates following an intensive one-hour First Aid course with community members. This study found that, following the course there was an increased rate of intervention by course participants and the knowledge provided in the course was retained at a satisfactory level for at least 6 months.

Recommendations made by St John Ambulance Australia (2006) include that First Aid training should be mandatory for motor driver licence holders. Eisenburger & Safar (1999) also add that training programs should include realistic information of the frightening appearance of a victim as well as the need to ensure debriefing of all bystanders who provide First Aid as routine. Debriefing was also flagged as an issue by Axelsson et al (1996) who discussed debriefing as one of the crucial elements to a bystander interpreting their intervention as a positive experience. In a study by Axelsson et al (1998), one of the key findings was that the opportunity for debriefing influences the overall psychological reaction of a bystander who has performed First Aid. Axelsson et al (1998) has found that better post intervention care for lay rescuers enables them to repeat a past endeavour and encourages others to learn and perform First Aid.

Recommendations about how First Aid courses are run, what information is provided, whether training should be mandatory and the delivery methods of First Aid training are discussed throughout the literature. Importantly, Hussain (1994) highlights the need for First Aid training, especially among motorists, because 56.6% of deaths were due to RTAs. Hussain (1994) suggests that knowledge of basic airway protection and the recovery position could be tested easily and quickly before a driving licence is issued, and that every car should have a basic First Aid kit. Overall, the literature demonstrates the potential value of First Aid training as an element in strategies to reduce mortality and to improve the outcomes for those injured in RTCs.

Conclusions

This paper highlights key issues in the delivery of First Aid at RTCs. Given that emergency ambulance care is on average available 7-13 minutes after the initial call for assistance is

received, the role and potential impact of immediate First Aid care is significant. It is argued that mortality and morbidity associated with RTC can be improved by strategies that increase the likelihood that a First Aid trained person will be in attendance and that provide more appropriate support and information to those who intervene at RTCs in the crucial minutes before an ambulance arrives.

A significant proportion of Australian road users have received training in First Aid at some time in their lives. However, confidence and skill in applying First Aid declines over time and only about 29% (Kendrick & Marsh 1998) or 28% (Arbon and Hayes 2008) of the population have a current First Aid qualification

Level of confidence and fear of making a mistake are important in determining whether an individual will choose to intervene at the scene of a RTA (Jelinek et al. 2001). Consequently it is important that a higher proportion of road users are encouraged to undertake First Aid training and receive exposure to First Aid knowledge and techniques regularly throughout their driving career.

Benefits of First Aid training include an increased likelihood of owning a first aid kit and providing first aid at the scene of a RTC. It appears that people who have been exposed to First Aid training have a greater level of awareness of the equipment that may be required and are more likely to become involved in providing care.

Basic life support interventions, including changing posture, opening an airway and controlling bleeding are important patient interventions that have the potential to save lives. These three forms of intervention are easily taught and applied by lay people, have a significant impact on survival and appear to be relatively commonly used interventions at RTCs.

Three key concerns about providing first aid are fear of making a mistake, concern for safety and concern about litigation (Arbon & Hayes 2008). First Aid training for road users should address these issues and provide clear guidance about the legal protection applicable to members of the public intervening to provide care and strategies to ensure their safety. A further useful strategy may be the development of public information campaigns that help to alleviate these fears and encourage people to intervene.

Providing First Aid in these emergency situations can be overwhelming and traumatic. There is a need for improved strategies to provide support to those who have given First Aid care at a RTC. Better post intervention care for lay rescuers enables them to repeat a past endeavour and encourages others to learn and perform basic life support (Axelsson et al. 1998).

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Peer Reviewed Papers

A Comparison of the Pedestrian Passive Safety Performance of the New Vehicle Fleet in Australia, France and the United Kingdom

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This paper was originally presented at the 2007 Road Safety Research, Policing and Education Conference held in Melbourne.

Abstract

Improvements to frontal vehicle design can improve a pedestrian's chance of survival in a collision but there are no design rules pertaining to pedestrian protection in Australia. Some overseas regulators are mandating a minimum level of pedestrian protection, and one consequence of this is likely to be a flow of safer designs into the Australian vehicle fleet. To assess this size of this effect, the distribution of pedestrian safety performance in the new car fleet of Australia was compared to those of France and the United Kingdom. A greater proportion of new passenger vehicles rated less than 2-stars for pedestrian safety by the European New Car Assessment Program (Euro NCAP) and the Australasian New Car Assessment Program (ANCAP) are sold in Australia than in France and the United Kingdom. Furthermore, the portion of the new car fleet in France and the United Kingdom assessed by the Euro NCAP/ANCAP since the beginning of 2006 has shown significant improvement and has a larger proportion of better performing vehicles than the equivalent segment of the Australian new car fleet. This period corresponds with the introduction of new vehicle pedestrian safety regulations in Europe.

Introduction

In the 10 years up to July 2007, 2595 pedestrians were killed on Australian roads [1]. A significant proportion of serious and fatal injuries are caused by the initial pedestrian interaction with the front of the vehicle [2] Therefore, it follows that considerate design of the front of a vehicle should improve a pedestrian's chance of survival and reduce the incidence and severity of injury in a collision.

Currently there are no Vehicle Design Standards/Australian Design Rules (ADRs) that consider the safety of pedestrians or other vulnerable road users in the event of a collision. Europe and Japan now mandate a minimum level of pedestrian protection in new models of passenger vehicles sold in those

jurisdictions, and one consequence of this is that vehicles designed to comply with pedestrian protection regulation are flowing into the Australian vehicle fleet.

The Australian Government is committed to harmonizing Australian vehicle standards with global regulations [3] An ad hoc group under Working Party 29 of the United Nations Economic Commission for Europe (UNECE) on passive safety is developing a draft global technical regulation on pedestrian protection [4] and so it might be expected that Australia will examine any final proposal issued by the UNECE with a view to adopting such a regulation for passenger vehicles sold in Australia.

However, it remains a fact that there is no current legal requirement for minimum levels of pedestrian protection in new passenger cars sold in Australia. Therefore, improvements in new vehicles sold in Australia are only accruing through the importation of vehicles that are required to comply with regulations overseas, the global nature of vehicle research and development, and/or impetus from new car assessment programs.

New car assessment programs in Europe, Australia and Japan are promoting pedestrian-safe passenger vehicles. While there is no compulsion on manufacturers to design vehicles to do well in these programs, vehicles have performed well, demonstrating that improvements in vehicle design for pedestrian protection are possible. Perceptions of safety, including that of pedestrian safety, are reported to affect consumers' choices [5], but it is likely that perceptions about pedestrian protection on consumers' choices are somewhat less influential than perceptions about occupant protection. The occupant safety ratings (which are separate from the pedestrian safety ratings) of new cars usually far exceed the minimum required by the relevant ADRs. At this time, the same cannot be said for levels of pedestrian protection, with very poor assessments still prevalent. As such, vehicle regulation may have a more important role in improving levels of pedestrian protection than regulation for occupant protection.

Table 1: Relationship between points scored and pedestrian star rating in Euro NCAP/ANCAP tests

Points scored	0 - 0.99	1 - 9.49	9.5 - 18.49	18.5 - 27.49	27.5 - 36
Star rating	0	1	2	3	4

From a road-safety perspective, the importance of a particular model's level of pedestrian protection should be in proportion with that model's representation in the vehicle fleet – high-selling models of vehicle are more likely to be involved in pedestrian crashes simply due to the effect of exposure.

It is therefore pertinent to ask: how is Australia currently benefiting from overseas developments in design in the area of pedestrian protection? And how does any such benefit compare with countries now subject to regulation in the area? Furthermore, what change in the safety of the fleet might be expected from the introduction of relevant regulation in Australia?

Aim

The aim of this study was to examine recent trends in the pedestrian safety of new passenger vehicles, to assess the impact of these trends on the performance of the new car fleet in Australia, and to compare this performance with that of the new car fleets of two highly populated European countries: France and the United Kingdom. We wish to see whether the impact of new regulation in Europe is detectable in the European new car fleet and to what extent any such impact is flowing through to the Australian new car fleet

Background

Recent International developments in pedestrian safety

Since 1 October 2005, new types of passenger vehicles given type-approval in Europe must comply with Phase I (of II) of a European Council Directive that requires a certain performance level in child headform and full legform impact tests [6]. New vehicles that are not of a 'new type' are not required to comply. Phase II requirements will be more stringent than Phase I, in the number of tests, and the performance requirements of the tests. The European Council intends to introduce Phase II in 2010 [7].

Japan has regulated to ensure that new types of passenger car and their derivatives introduced after 1 September 2005, and all types after 1 September 2010, comply with pedestrian head impact performance requirements. Currently there are no requirements for a legform impact test [7].

New Car Assessment Programs (ANCAP and Euro NCAP)

The European New Car Assessment Programme (Euro NCAP) and the Australasian New Car Assessment Program (ANCAP) test selected new passenger vehicles to assess their pedestrian protection performance, and publish the results as information for consumers. The vehicle is awarded up to 36 points, based on the results of a series of subsystem tests, in which dummy components are fired at the front of the vehicle. The vehicle is then given a star rating of between 0 and 4 stars based on the amount of points it has scored (Table 1). In 2002, ANCAP and Euro NCAP adopted revised pedestrian testing protocols (currently version 4.1), which are largely based on the work of Working Group 17 of the European Enhanced Vehicle Safety Committee (EEVC). ANCAP pedestrian assessments are conducted under the same protocol as those for Euro NCAP and so Euro NCAP results can be republished by ANCAP as well. A summary of the assessment methods and full results from previous ANCAP tests have been previously documented by [8]. All current and historical assessments are available on the ANCAP (<http://www.ancap.com.au>) and Euro NCAP (<http://www.euroncap.com>) websites.

Methods

To assess the performance in pedestrian protection of the current Australian, French and British new-car fleet, we required two pieces of information: the composition of individual models in the new car fleets of each country and a measure of those models' performances in pedestrian impact tests. The fleet composition we wish to consider is the one that is representative of vehicles being sold currently, rather than an historical one, and so we sought the most recent sales data that was available. To take account of seasonal fluctuations, we used 12 months of sales data from each country. The Australian new car fleet was based on the 12 months of sales to June 30, 2007 [9]. For French [10] and British [11] sales, we used sales data to 31 December, 2006.

For each model in the sales data, we assumed that its representation in the new car fleet was current. Where the model had been superseded during the 12 month period, we assigned its sales figures to the replacement model of vehicle (where possible). To these data we applied current Euro NCAP/ANCAP assessment results.

Table 2 Number of vehicles tested since 2002 in Euro NCAP and ANCAP by the rating awarded

Program	0 Star	1 Star	2 Star	3 Star	4 Star	Total
Euro	7	55	56	20	1	139
NCAP						
ANCAP	1	29	13	1	0	44
Total	8	8	69	21	1	183

Note: The Euro NCAP numbers are those published to June 2007 and the ANCAP numbers are vehicles tested to June 2007.

While we do not have evidence regarding the compliance of individual models of vehicle with either European or Japanese regulation, the results of Euro NCAP and ANCAP assessments can serve as a guide. Furthermore, Euro NCAP/ANCAP assessments provide greater differentiation between the performance of different models than the pass/fail assignments of the regulation. Our assessment is that vehicles that just pass Phase I of the European Council Directive would receive around 10 points in a Euro NCAP/ANCAP assessment, (i.e. in the upper-one to lower-two-star range.)

After assigning the relevant Euro NCAP/ANCAP assessment to each model, we ranked the sales volumes of the models of vehicle in each country's new car fleet by their Euro NCAP/ANCAP assessment, and assembled cumulative distributions of Euro NCAP/ANCAP performance for each country's fleet. In doing so, we are able to compare the proportion of fleets performing at any specified level.

Finally, we disaggregated each distribution by the assessment period (2002-2003, 2004-2005, 2006-2007) to assess trends in the performance of the new car fleet in each country.

Results

The performance of vehicles in Euro NCAP/ANCAP pedestrian tests

A summary of the ratings for all vehicles tested by ANCAP or Euro NCAP to the current testing protocol is given in Table 2. Note that these numbers include assessments of vehicles that are now obsolete. It is noteworthy that 68% of ANCAP's vehicle assessments achieved a score of 1 star or less, compared to 45% of vehicle assessments by Euro NCAP.

Trends in the performance of vehicles in Euro NCAP/ANCAP pedestrian tests

Figure 1 shows the distribution of current results (only those models that are still part of the current new car fleet), split into the years in which the assessment was performed. As assessments are usually made at the time or soon after a model

release, the test period indicates the age-rank of the vehicle model (i.e. models tested in 2002-2003 are older models than those tested in 2004-2005 etc). Figure 1 shows that that vehicle models assessed more recently have performed better than vehicles released in earlier periods. The median assessment of current new cars, assessed in 2002-2003, is around 7 points, while the median assessment of current cars assessed in 2006-2007 is around 14 points.

The composition of new vehicle fleets in Australia, France and the United Kingdom

While individual vehicle models may perform well or poorly, and Figure 1 indicates that newer vehicle models perform better than models released four years ago, a vehicle model's performance is relevant to road safety to the extent to which the model is registered and driven on the road. While there have been assessments made of 183 models of vehicle, relatively few dominate the overall fleet performance – 50% of all new vehicle sales in Australia are accounted for by 17 models. A similar number account for 50% of new vehicle registrations in France (18 models) but a greater number do in the United Kingdom (22 models) (Figure 2).

Most of the vehicles assessed by Euro NCAP are also available in Australia, but for many of these models, their contribution to the new-car fleet varies significantly between Europe and Australia (and also between countries in Europe). Figure 5 shows the differences between the new vehicle fleet compositions in each country; models comprising the top 50% of sales in France and the UK account for around 3% and 14% of the new car fleet in Australia. This lack of correspondence between the new car fleets of Australia and the new car fleets of France and United Kingdom show that great differences in the performance of the respective fleets are possible.

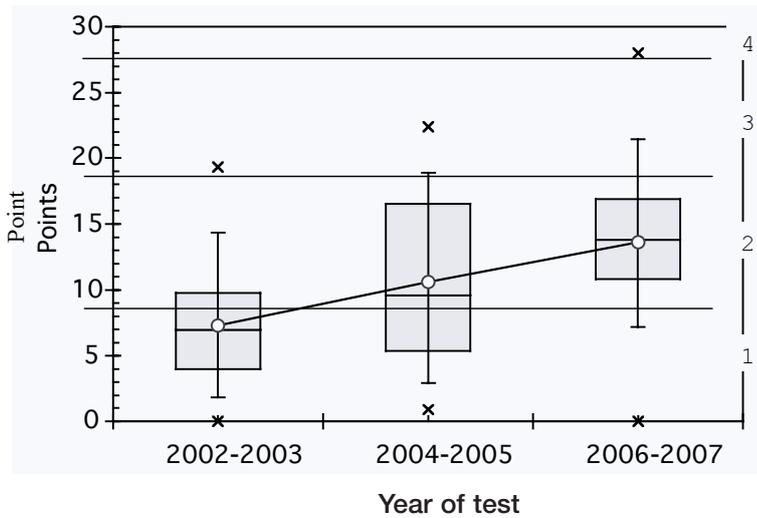


Figure 1 - Box and whisker plot of current Euro NCAP/ANCAP pedestrian test results by test year. ("o" indicates the mean, the box covers the interquartile range, the error bars show 10th and 90th percentile values and "x" shows the highest and lowest values.)

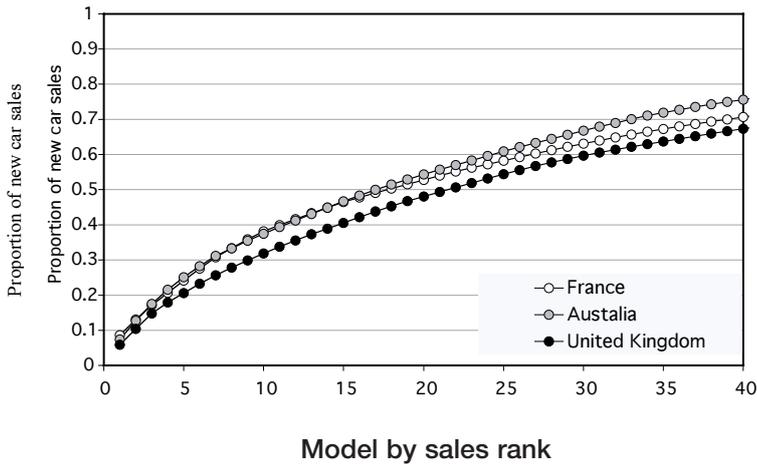
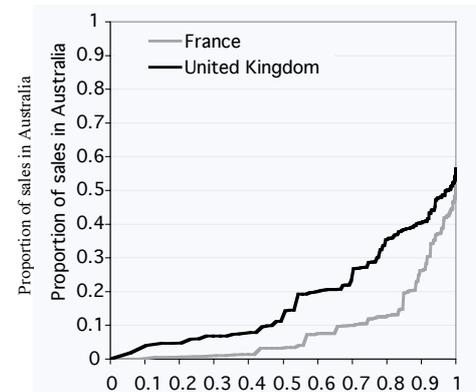


Figure 2 Cumulative proportion of new passenger vehicle sales by sales rank (e.g. the top selling vehicle has sales rank = 1, second top selling vehicle = 2, etc)



Proportion of sales in France or United Kingdom

Figure 3 The proportion of the new car fleet in Australia represented by top selling vehicles in France and the United Kingdom.

The pedestrian assessment of the new-car fleets in Australia, France and the United Kingdom

Not every passenger vehicle sold in Australia, France and the United Kingdom had been assessed by Euro NCAP/ANCAP. However, as the programs target higher selling models of vehicle, 82%, 80% and 73% of the new car fleets in Australia, the United Kingdom and France (respectively) can be assigned assessment scores. Vehicles are assigned points to a maximum of 36, based on the results of the tests used in the assessment and these are grouped into star-ratings.

Figure 4 shows the cumulative distribution of performance in Euro NCAP/ANCAP tests of the new-car fleet in each country. Fifty six per cent of new passenger vehicles sold in Australia have a pedestrian safety star rating of less than 2, compared to 34% in France, and 42% in the United Kingdom; this implies that pedestrians struck by new vehicles in Australia are 65 percent more likely to be struck by a 0 or 1 star car than pedestrians in France and 33 per cent more likely than pedestrians in the UK. Note though that most of the differences in the fleet performance occur below 2.5 stars, and so the prevalence of better performing vehicles (pedestrian rating of 3 stars) is similar in each country and relatively small – under 20 per cent of the new car fleet.

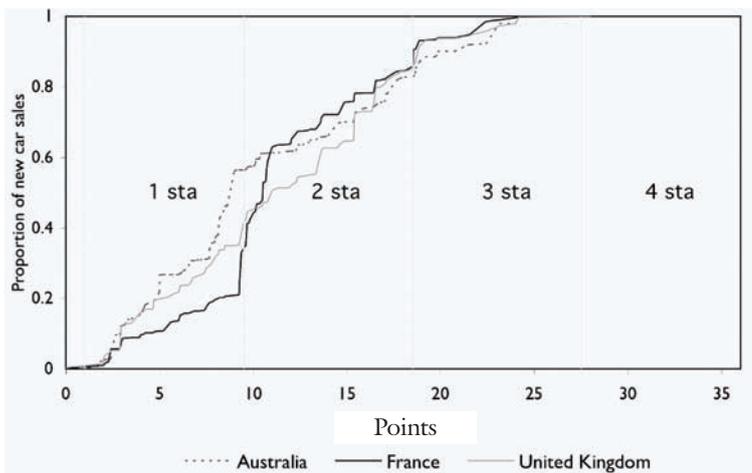


Figure 4 Cumulative performance of the new car fleet in Euro NCAP/ANCAP pedestrian tests for Australia, France and the United Kingdom, for models assessed by Euro NCAP/ANCAP.

The performance of the new car fleet by model-age

As the previous analysis showed, the prevalence of better performing vehicles is similar in each country. But we should also consider that, as many current models were released in Europe prior to September/October 2005, much of the new car fleet is still not required to comply with the European Directive nor the Japanese Regulation. (Such a requirement will only come into force in 2011.) Therefore we disaggregated the distributions shown in Figure 4 by the period of the Euro NCAP/ANCAP assessment on the basis that assessments are made within a relatively short period after the release of the model, and that, according to Figure 1, assessments have generally improved since 2002. We disaggregated the fleet according to three assessment periods: 2002-2003, 2004-2005 and 2006-2007. This grouping should provide an ordering of models by their release date.

Note that the relative contributions of these groups to each new car fleet are not even: a greater proportion of the new vehicle fleet are of models assessed in 2002-2003 than of models assessed in the other periods. Relatively few new vehicles sold were been assessed in 2006-2007. Nevertheless, we expect the latest group to represent post-regulation design in Europe and Japan, and as such, some indication of the present state of performance amongst this segment in the new car fleet.

Figure 5, Figure 6 and Figure 7 show the distribution of performance of the new car fleet for each country, split into the period of assessment. Several things are notable: in every country the performance has improved in each successive period, as the distribution of each subsequent period lies to the right of the previous period. However, the new-car fleet performance of models assessed in 2006-2007 in France and the United Kingdom shows much greater improvements over previous periods than the improvement of the equivalent segment of the Australian fleet.

Figure 8 highlights the difference between the performance of the Australian recent-model new car fleet and those of France and the United Kingdom. Figure 8 shows that around 50% of cars sold in Australia that were assessed in 2006-2007 are rated at 2 stars or greater, whereas the equivalent segment of sales in France and the UK are rated at 3 stars or greater.

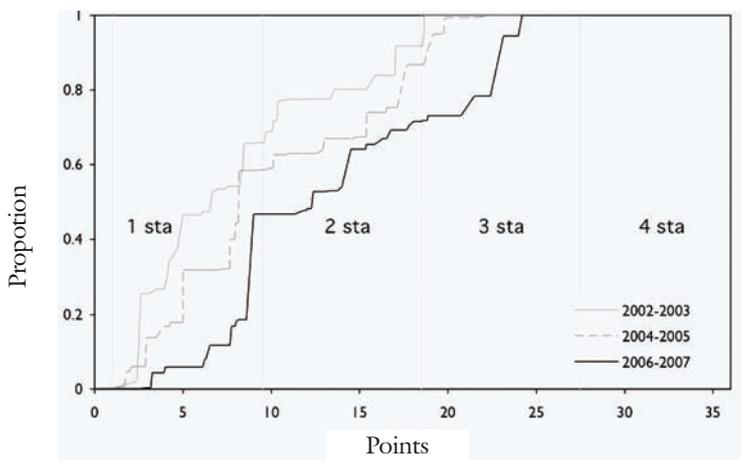


Figure 5 Cumulative Australian new car fleet performance by assessment period. Sales volumes from July 2006 to June 2007 are used to define the new car fleet.

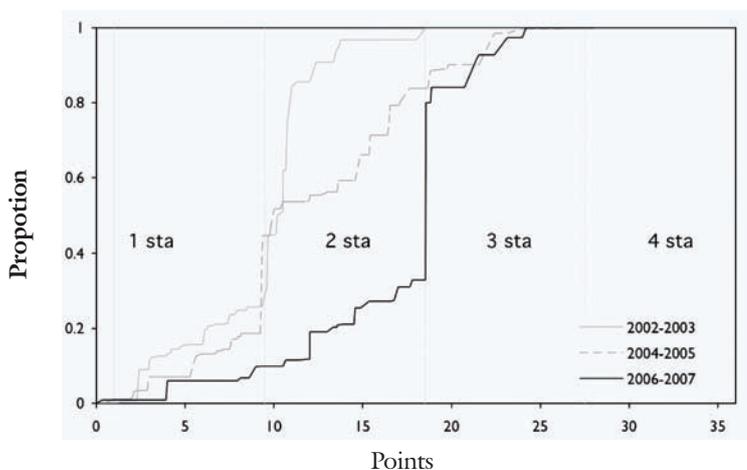


Figure 6 Cumulative French new car fleet performance by assessment period. Sales volumes from calendar year 2006.

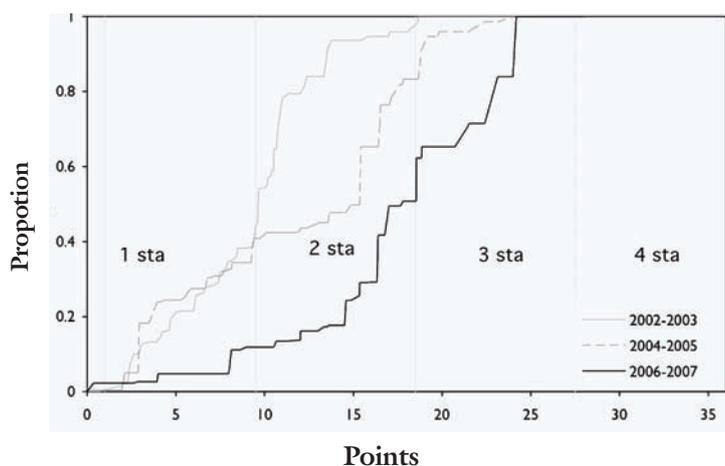


Figure 7 Cumulative UK new car fleet performance by assessment period. Sales volumes from calendar year 2006.

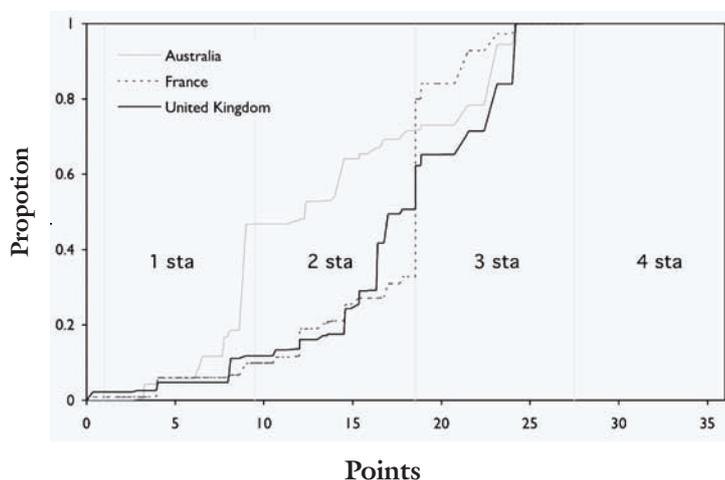


Figure 8 New car fleet performance of vehicles in Australia, France and the United Kingdom assessed in 2006-07.

Discussion and conclusions

This analysis has shown a gap in pedestrian safety performance between the new car fleets of Australia and the new car fleets of France and the United Kingdom. One implication of these differences is that pedestrians who are struck in Australia by a new vehicle are around 65% more likely to be struck by a one-star vehicle than pedestrians in France and around 33% more likely than a pedestrian in the United Kingdom. The prevalence of 3-star cars in the new car fleet is similar in each country and relatively low: under 20%.

Delaney et al. [12] could not detect a difference in real-world pedestrian injury outcomes between one-star and two-star cars in Europe, and so the real-world safety implication of the difference between Australia and the two European countries examined here is not clear – our assumption has been that Euro NCAP/ANCAP-style pedestrian testing is related to pedestrian safety. A positive relationship between the head impact component of the test and real-world outcomes has been demonstrated before [13]. Additionally, our comparison of the fleet rating of recently released models shows a much wider gap between the Australian and European passenger cars, with a greater proportion of newer model, new vehicles rated at three-star being sold in France and the UK. These newer models are all required to meet Phase I of the European Directive on pedestrian safety.

The analysis here suggests that the introduction of regulation in Europe is associated with changes in the Euro NCAP performance of the French and British fleets that is discernibly greater than changes in the equivalent segment of the Australian new car fleet. This might suggest that regulation has sped the introduction of vehicle countermeasures related to pedestrian protection into the European fleet. Similar regulations in Australia might have a similar effect.

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Moped Crashes in Queensland

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Abstract

Motor scooter and moped sales are booming, but little is known about their crash involvement. In Queensland, most scooters are mopeds which can be ridden with a car licence only. This paper begins by defining scooters and mopeds and discussing the difficulties in identifying them in crash and other data bases. It then presents the results of analyses of moped crashes identified from crash and registration data supplied by Queensland Transport.

The registration data classed 227 vehicles in crashes as mopeds but further examination of make and model information identified an additional 79 mopeds. The number of moped crashes increased from 25 in 2001 to 97 in 2005, with larger percentage growth in crashes of riders licensed in Queensland than elsewhere. The most common crash types were “angle” (37%) and “fall from vehicle” (23%).

Moped crashes were more likely to occur in tourist areas, on weekdays and in low speed zones than motorcycle crashes. The distributions of crash type and crash severity were similar. Moped riders in crashes were much more likely than motorcycle riders to be female (37.9% versus 7.2%), younger and hold an interstate (10.8% versus 1.3%) or overseas licence (7.8% versus 0.7%).

The challenges in interpreting the results of the analyses of the crash data are discussed.

Introduction

Australia, in common with other developed countries, is experiencing a boom in the sales and use of motorcycles. The number of motorcycles registered increased by 20% from 2001 to 2005 (1), the strongest growth of any vehicle type in Australia. From a public health perspective, the increase in motorcycling presents an enormous challenge because motorcycle riders and their pillion passengers are especially vulnerable in crashes. Across Australia, the number of motorcyclist (rider and pillion) fatalities has risen from 175 in 1997 to 238 in 2006 (2). There have been two major changes that have contributed to the growth in motorcycling – more older riders and the growth in popularity of scooters and mopeds.



While the increase in older riders began in the 1990s, in the last decade sales of new motor scooters and mopeds have increased more than other powered two-wheelers. National sales figures for January to June 2006 (3) show that new scooter and moped sales increased by 64.4% from the same period the previous year (which had recorded a 30% growth from the previous year). New scooters and mopeds are now the largest segment of the on-road motorcycle market. Mopeds comprised five of the ten best-selling new on-road motorcycles in Australia in January to June 2006.

The lack of an official definition of a motor scooter means that crash and registration data for these vehicles are not easily available. Informally, vehicle design is commonly used to differentiate between a motorcycle and a scooter. A motorcycle has a step-over design where the rider must step over the vehicle to mount it. Scooters have a step-through design, most have automatic transmissions and most (but not all) have small engines. Mopeds are defined in the Australian Design Rules as powered vehicles with two or three wheels, an engine cylinder capacity not exceeding 50 ml and a speed not exceeding 50 km/h. Despite this definition, mopeds are not reliably identified in crash data in most Australian jurisdictions.

There is little Australian research regarding the safety of scooters and mopeds. Early investigations of moped safety in Australia included surveys of riders and preliminary crash data and investigations undertaken for a Victorian Parliamentary inquiry into the safety of mopeds (4). Several more recent Australian surveys of motorcyclists have included few scooters and mopeds in their samples (5,6).

Recent crash data for mopeds is sparse. In Western Australia (where mopeds can be ridden on a car licence), there were 257 mopeds in Police reported crashes in 1995 to 2004, less than 0.1% of all vehicles in crashes (7). While the numbers of moped crashes are very small, they do not appear to be markedly over-involved in serious crashes (fatal and hospitalisation) compared to their involvement in “other” crashes (0.1% versus less than 0.1%), unlike the pattern found for motorcycle crashes (7.9% versus 1.5%).

Most of the research into the safety of scooters and mopeds comes from Europe where these vehicles have traditionally been very popular. Studies from Sweden (8), Britain and Holland have reported higher crash risks for mopeds and scooters than other motorcycles, but studies in France and Greece have found similar crash risks (9). This research is of limited relevance to Australia, because until recently in many European countries, moped licences could be obtained by riders as young as 14 or 15 and helmet wearing was not mandatory in some countries for slow mopeds.

Given the increase in popularity of scooters and mopeds and the lack of current Australian information about their safety, an analysis of Queensland crash data was undertaken. Queensland has about one-third of all Australian scooter sales. Mopeds are allowed to be ridden with only a car licence, and comprised 83.6% of new scooter sales in the first half of 2005 (10). While scooters cannot be easily identified in the crash or registration data, mopeds are identifiable in the registration data, which provided the opportunity to analyse a matched crash and registration data file.

Method

Queensland Transport supplied spreadsheets containing registration details of all vehicles that were coded as motorcycles in their crash data for 2001-05; and crash and casualty information for crashes involving motorcycles. The crash and registration files were merged to allow the more specific vehicle information in the registration data (make, model and body type) to be used to distinguish the different types of powered two-wheelers in crashes.

The characteristics of the merged data set are summarised in Figure 1. There were 7609 powered two wheelers (PTWs) reported to be involved in road crashes from 2001 to 2005. The registration number was recorded for 7224 of these vehicles, allowing matching with the registration data. Of the vehicles for which registration number was not recorded, 253 (3.3%) were coded as unregistered, 58 (0.7%) were coded as “unknown”, 69 (0.9%) coded as missing, and 5 were hit and run crashes.

Of the 7224 vehicles for which registration data was available, 1016 (14.1%) had no information on make, model, or body type. A further 552 were missing model information only. Where information on body type was available, 5965 (96.1%) were coded as motorcycles, 227 (3.7%) as mopeds, 8 (0.1%) as motor trikes, and 8 (0.1%) as sidecars.

How many of the PTWs coded as motorcycles are traditional stepover motorcycles and how many are scooters, or some other classification cannot be directly ascertained from the data.

Analysis of the make and model data revealed inconsistencies in the coding of body type. Among vehicles with the same recorded make and model, some were coded as motorcycles and others were coded as mopeds. In some instances, it is likely that the coding of body type was accurate and the apparent discrepancy resulted from the make and model information being sufficiently vague so as to include several variants of a PTW, some of which were truly mopeds and some of which were actually larger scooters (which are coded as motorcycles). In other cases, the coding of body type was inconsistent with the make and model information. This led us to reclassify body type, resulting in 306 vehicles being identified as mopeds for the analysis (see Figure 2).

Results

There were 306 mopeds involved in 303 crashes. Crashes involving mopeds increased from 25 in 2001 to 97 in 2005. The majority of crashes were hospitalisations (43%) or medical treatment (38%). Four were fatal, 52 were minor injury crashes (17%) and only one crash resulted in property damage only (see Table 2). In almost all crashes, the moped (or motorcycle) rider or pillion was the most severely injured in the crash.

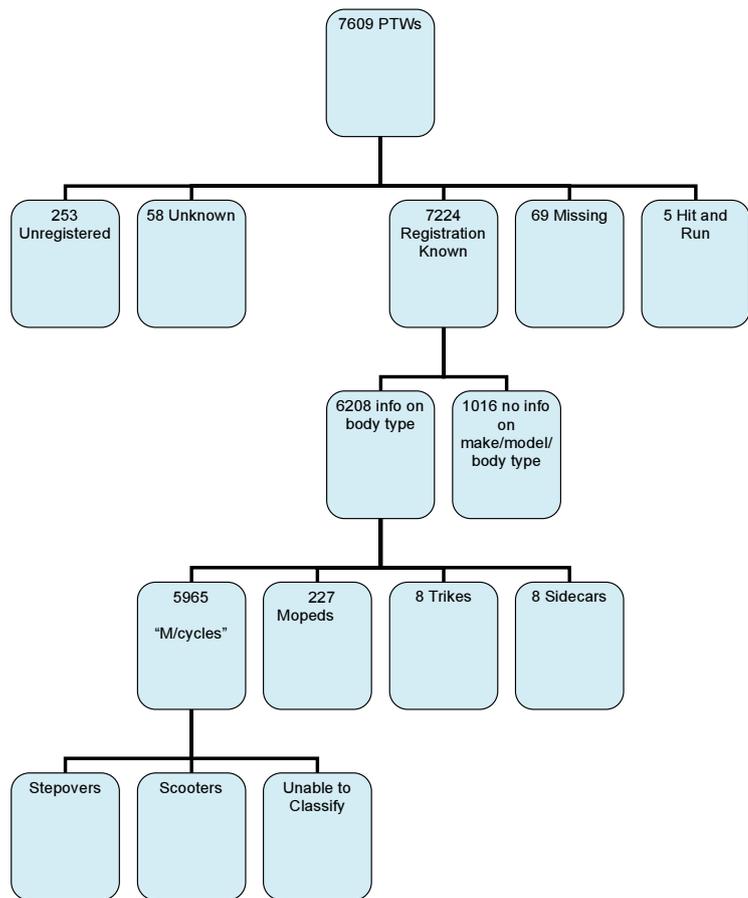


Figure 1. Initial classification of Powered Two Wheelers (PTWs) from merged Queensland Transport crash and registration data

Table 2. Numbers of Mopeds and Motorcycles in Crashes in Queensland 2001-2005 by Crash Severity

PTW type	Year	Crash severity						Total
		Fatal	Hospitalisation	Medical treatment	Minor injury	Property damage	Unknown	
Moped	2001	0	13	7	5	0	2	27
	2002	1	20	16	7	0	1	45
	2003	0	25	26	15	0	0	66
	2004	0	28	29	14	0	0	71
	2005	3	44	38	11	1	0	97
	Total		4	130	116	52	1	3
Motorcycle	2001	10	339	323	137	17	16	842
	2002	23	443	321	176	19	22	1004
	2003	37	575	399	196	12	31	1250
	2004	40	641	397	207	41	22	1348
	2005	54	708	422	211	25	22	1442
	Total		164	2706	1862	927	114	113

Table 3 shows that only 30.4% of moped crashes occurred in the capital city, Brisbane, with large percentages in the Gold Coast, Townsville, Cairns and the Sunshine Coast. About 80% of moped crashes occurred between 6am and 6pm and on weekdays. Speed limits were 60 km/h or less for 86.1% of moped crashes. Overall, 50.8% of crashes occurred at intersections and 32.3% were single vehicle crashes. Angle collisions were the most common crash events (36.6%) followed by falls from the vehicle (22.9%). Other common crash types were rear end crashes (12.1%), sideswipes (11.4%) and hit object (10.8%).

Among the riders in moped crashes, 37.9% were female and 37.6% were in the 17-24 age bracket (see Table 4). Full licences (type unstated) were held by 65.7% of riders, with 10.8% holding a provisional or restricted licence and 8.2% holding a learner permit. Just over 5% were riding illegally (cancelled, disqualified, expired licence, unlicensed or never held a licence). Overall, 10.8% of riders held an interstate licence and 7.8% held an overseas licence. Among moped riders aged under 25, 21% had interstate licences and 14% had overseas licences. The increase in crash involvement was greater in Queensland-licensed riders (from 18 in 2001 to 82 in 2005) than in riders licensed interstate or overseas (from 6 in 2001 to 12 in 2005).

Comparisons of moped and motorcycle crashes

In this section, the vehicles which were classified as mopeds were compared with those that were classified as motorcycles (which included scooters that were not mopeds). Vehicles that were unable to be classified (e.g. because of missing registration data) were omitted. Thus, the comparison includes 306 mopeds and 5886 motorcycles in crashes (rather than the total 7609 powered two-wheelers in the original crash data).

During 2001-2005, there were 19 motorcycle crashes for every moped crash (see Table 2). Young riders were involved in 24% of motorcycle crashes and 38% of moped crashes (see Table 4). The number of motorcycle crashes involving young riders increased by 83% during this period, the number of moped crashes with young riders increased by 208%. The severity profiles of motorcycle and moped crashes were similar [$\chi^2(3) = 5.83, p=0.12$] (Table 2).

Moped crashes were less likely than motorcycle crashes to occur in the Brisbane area and more likely to occur on the Gold Coast and in the Townsville area (see Table 3). Similar proportions of moped and motorcycle crashes occurred in daytime, but moped crashes were more likely to occur on weekdays (79.5%

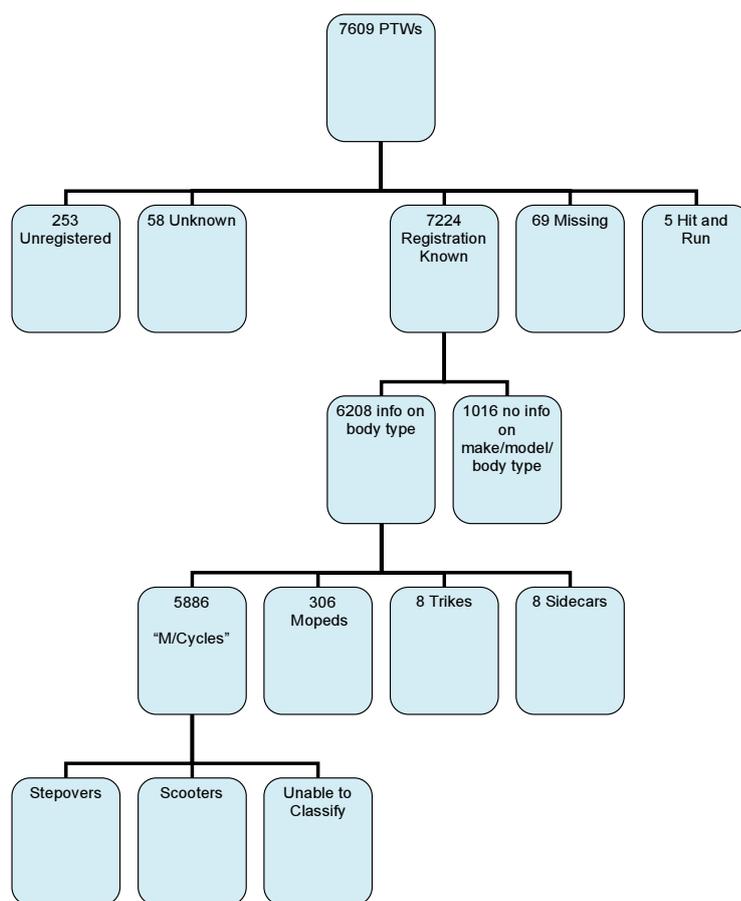


Figure 2. Reclassification of Powered Two Wheelers (PTWs) from merged Queensland Transport crash and registration data

versus 70.5%). Relatively more moped than motorcycle crashes occurred at low speed zones: 86.1% of moped crashes and 69.4% of motorcycle crashes in speed zones of 60 km/h or less. Similar proportions of moped and motorcycle crashes occurred at intersections and similar proportions were single vehicle crashes. The distributions of crash type were also similar.

Moped riders in crashes were much more likely than motorcycle riders to be female (37.9% versus 7.2%). Moped riders were younger on average, with 37.6% being aged 17-24, compared with 23.7% of motorcycle riders in crashes. Moped riders in crashes were much more likely to hold an interstate (10.8% versus 1.3%) or overseas licence (7.8% versus 0.7%) than motorcycle riders.

Discussion

The results show that the number of mopeds in crashes roughly quadrupled from 25 in 2001 to 97 in 2005, reflecting recent increases in moped sales. While there are many fewer mopeds than motorcycles in crashes, the trend suggests that the issue of moped safety is becoming increasingly important.

Table 3. Characteristics of Crashes of Moped and Motorcycle Riders

Crash characteristic		Level	Moped crashes %	Motorcycle crashes %
Location*	Brisbane area	30.4	40.7	$X^2(5)=103.09, p<0.01$
	Gold Coast	18.3	10.5	
	Sunshine Coast	4.9	7.4	
	Cairns area	7.8	3.8	
	Townsville area	15.7	5.1	
	Other areas	22.9	32.5	
Time of day	6am – 6pm	79.9	79.1	$X^2(1)=0.11, p=0.74$
	6pm – 6 am	20.1	20.9	
Day of week*	Weekday	79.5	70.5	$X^2(1)=10.94, p=0.01$
	Weekend	20.5	29.5	
Speed zone*	40 km/h	1.3	1.6	$X^2(7)=56.76, p<0.01$
	50 km/h	21.8	11.9	
	60 km/h	63.0	55.9	
	70 km/h	4.6	5.8	
	80 km/h	5.9	10.2	
	90 km/h	0.3	0.4	
	100 km/h	3.0	13.7	
	110 km/h	0.0	0.3	
Intersection	Yes	50.8	47.7	$X^2(1)=1.86, p=0.30$
	No	49.2	52.3	
Number of vehicles	Single vehicle	32.3	33.0	$X^2(1)=2.39, p=0.97$
	Multiple vehicle	67.7	67.0	
Crash type	Angle	36.6	34.7	$X^2(5)=5.08, p=0.41$
	Fall from vehicle	22.9	23.5	
	Hit object	10.8	13.2	
	Rear-end	12.1	12.2	
	Sideswipe	11.4	9.0	
	Other (including hit parked vehicle, head on, hit animal, hit pedestrian)	5.2	8.3	

* indicates significant difference between mopeds and other motorcycles

Table 4. Characteristics of Moped and Motorcycle Riders in Crashes

Rider characteristic	Level	Moped riders %	Motorcycle riders %	
Gender*	Male	62.1	92.1	$X^2(1)=346.67, p<0.001$
	Female	37.9	7.2	
	Unknown	0.0	0.7	
Age group*	0-16	0.0	0.2	$X^2(8)=91.82, p<0.001$
	17-24	37.6	23.7	
	25-29	13.1	15.0	
	30-39	16.0	27.4	
	40-49	14.4	20.8	
	50-59	9.5	9.3	
	60-74	6.5	2.5	
	75 and over	1.6	0.2	
Licence status*	Open/full	65.7	79.6	$X^2(1)=150.43, p<0.001$
	Provisional/restricted	10.8	7.5	
	Learner	8.2	6.6	
	Not licensed Australia	7.2	0.6	
	Not known	2.0	0.6	
	Not applicable	1.0	0.4	
	Unlicensed (including disqualified, expired, never licensed)	5.2	4.6	
Licence issued*	Queensland	77.1	96.4	$X^2(1)=326.79, p<0.001$
	Interstate	10.8	1.3	
	Overseas	7.8	0.7	
	Unknown	4.2	1.6	

* indicates significant difference between mopeds and other motorcycles

Yet the method of identifying mopeds in crashes used in this research is likely to have missed some mopeds. Only those mopeds in crashes where registration number was recorded in the crash data and the registration data contained information on body type could be identified. Overall, body type was unable to be identified for 18% of powered two-wheelers in crashes. The percentage of missing data was greater for crashes in 2001 (36%) and 2002 (30%) than in 2003-2005 (9-11%). Body type was more often unable to be identified for vehicles in fatal and hospitalisation crashes (28% and 21%) than for vehicles in medical treatment, minor injury and property

damage crashes (15-16%). The dynamic nature of the registration data underlies these trends: vehicles in less recent crashes are less likely to be currently registered, and vehicles in more serious crashes are more likely to have been written off. The implication is that the estimate of the number of mopeds in crashes is likely to be somewhat low, with greater underestimation of mopeds (and motorcycles) in earlier and more severe crashes. Thus, the trends in growth of moped (and motorcycle) crashes reported here may be over-stated to some extent because of the greater difficulty in identifying earlier crashes. While scooters that do not fit the definition of a

moped were unable to be separated from other motorcycles in the analyses, this is unlikely to have markedly influenced the results, given that 83.6% of new scooter sales in Queensland are mopeds (10).

The Queensland crash data analysed here suggest that while moped crashes largely occur in low speed areas, their severity is similar to motorcycle crashes. This belies the marketing image of mopeds as small and slow and safe, no harder to ride than a bicycle. It also conflicts with the greater severity of motorcycle than moped crashes in Western Australia (7). The relatively small number of moped crashes in both studies may underlie this discrepancy. The coarseness of severity coding in the Police crash data also complicates the interpretation of this finding. Given the survey data suggesting that scooter riders are less likely to wear protective gear (5), it could be that the “hospitalisation” injuries of scooter riders are largely lacerations but those of motorcycle riders are fractures. Better injury data is needed to address the issue of the relative severity of moped and motorcycle crashes.

While the data provide a useful picture of moped crashes, they say nothing about whether moped riders are more or less likely to crash than motorcyclists. There is no reliable measure of moped and motorcycling activity (exposure to risk) available for comparison with the crash numbers. Numbers of licences held is problematic as an exposure measure for motorcycle riders (11) and licences are not required for mopeds. If registration numbers were made available, this would not account for potential differences in distances travelled by motorcycles and mopeds. There is a lack of detailed exposure data for PTWs, such as the time of day that trips occur, the reasons for travel, rider demographics, and PTW type (motorcycle, scooter, moped) which is needed for calculation of crash rates that allow meaningful comparisons of risk. So it is not known if mopeds are safer than motorcycles.

The data suggest that tourism contributes to moped crashes, particularly of young riders, but is not the most important factor. About 18% of moped riders were licensed interstate or overseas compared with only about 2% of motorcycle riders. The growth has been greater in moped crashes involving Queensland riders than those licensed elsewhere and relatively few older moped riders were licensed interstate or overseas. Thus, the popularity of moped riding in Queensland appears to have two components, with tourism contributing more for younger riders and commuting contributing more for older riders.

The data support the role of inexperience in moped crashes, particularly the number of “fall from vehicle” crashes. The licensing variables do not indicate whether or not the rider held a motorcycle licence. It is likely that many riders did not. The findings of these analyses reflect the nature of moped use in Queensland, where the ability to ride a moped on a car licence means that many moped riders are not only young but also inexperienced riders of powered two wheelers (and a significant number are riding in unfamiliar conditions). In other

jurisdictions where a motorcycle licence is required to ride a moped, there are likely to be many fewer moped riders and perhaps the population of riders may be better trained and more experienced. It would be useful to undertake a similar data analysis in another State, if the numbers of moped crashes were sufficient to allow meaningful calculations.

Conclusions

The analyses presented here show that while moped crashes comprised only a small fraction of on-road crashes of powered two-wheelers in 2001-05, they are increasing at a faster rate than motorcycle crashes. The similar severity of moped and motorcycle crashes suggests that moped crashes merit further investigation. Data and definitional issues need to be addressed to better understand moped crashes and to provide a basis for decisions about moped licensing.

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Road Safety Literature

New to the College Library

Journal of Highway and Transportation Research and Development, Vol.2, No.2 December 2007, published by the Research Institute of Highway, Ministry of Communications, Beijing, China.

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Centre for Automotive Safety Research (CASR) The University of Adelaide

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<http://www.casr.adelaide.edu.au/reports/CASR036.pdf>

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<http://casr.adelaide.edu.au/publications/researchreports/>

Monash University Accident Research Centre

Report No. 277: **Development of strategies for best practice in speed enforcement in Western Australia: Supplementary Report**, Monash University Accident Research Centre 2008.

Recent Publications in Australia and New Zealand

Badland HM, Schofield GM, Garrett N, 2008, "Travel behavior and objectively measured urban design variables: associations for adults traveling to work", pp. 85-95, Health Place; Vol. 14, No.1, Elsevier Publishing.

(Centre for Physical Activity and Nutrition Research, Faculty of Health and Environmental Sciences, Auckland University of

Technology, New Zealand).

The authors have identified:

- mixed land use,
- residential density,
- street connectivity, and
- commute distance

as potential variables that affect physical activity behaviour related to transport.

Urban design variables and relevant transport-related physical activity of adults who commuted to an occupation (n=364) were examined and objectively measured. (Utilitarian walking and cycling for other purposes were not investigated). The distance travelled was negatively associated with resultant transport-related physical activity behaviour.

Bilston LE, Finch C, Hatfield J, Brown J, 2008, "Age-specific parental knowledge of restraint transitions influences appropriateness of child occupant restraint use", pp.159-163, Injury Prevention, Vol.14, No.3, BMJ Publishing Group.

(Prince of Wales Medical Research Institute, University of NSW)

A NSW Statewide survey was carried out to determine the factors that influence appropriate restraint usage by child occupants across the age range for which any type of child restraint may be appropriate (0-10 years). A telephone survey was directed at a random sample of parents or carers of children aged 0-10 years.

Demographic information and data on age, size, restraint practices, parental knowledge of child occupant safety, and attitude to restraint use was collected using a structured interview. Data were analysed using logistic regression after cluster adjustment. It was found that inappropriate restraint use by children was widespread, particularly in children aged 2+ years.

The study concluded that Parents are more likely to make appropriate restraint choices for their children if they possess restraint knowledge specific to their children's age and size. Educational campaigns may be most effective when they provide information for specific ages and transition points. Strategies to overcome parents' misplaced confidence that they know enough to restrain their children safely are also indicated

Boyle MJ, Smith EC, Archer FL, 2008, "Trauma incidents attended by emergency medical services in Victoria", pp. 20-28, Pre-hospital and Disaster Medicine, Vol. 23, No.1, World Association for Disaster and Emergency Medicine. (Monash University, Department of Community Emergency Health and Paramedic Practice).

There is a lack of international literature describing the profile of trauma patients attended by a state wide emergency medical

services system. Most literature is limited to descriptions of trauma responses for a single emergency medical service, or to patients transported to a specific Level-1 trauma hospital. There is no Victorian or Australian literature describing the type of trauma patients transported by a state emergency medical service. This study was undertaken to define a profile of all trauma incidents attended by statewide emergency medical services. It was a retrospective cohort study of all patient care records for trauma responses attended by Victorian Ambulance Services in 2002.

There were 53,039 trauma incidents attended by emergency ambulances during the 12-month period. Of these, 1,566 patients were in physiological distress, 11,086 had a significant pattern of injury, and a further 8,931 had an identifiable mechanism of injury. The profile includes minor trauma ($n = 9,342$), standing falls ($n = 20,511$), no patient transported ($n = 3,687$), and deceased patients ($n = 459$).

This unique analysis of pre-hospital trauma provides a baseline dataset that may be utilized in future studies of pre-hospital trauma care. Additionally, this dataset identifies a ten-fold difference in major trauma between the pre-hospital and the hospital assessments.

Cameron CM, Purdie DM, Kliever EV, McClure RJ, 2008, "Ten-year outcomes following traumatic brain injury: A population-based cohort", pp. 437-449, Brain Injury, Vol. 22, No. 6, Taylor and Francis Group.
(School of Medicine, Griffith University, Logan, Queensland).

Cordell R, Lee HC, Granger A, Vieira B, Lee AH, 2008, "Driving assessment in Parkinson's disease-A novel predictor of performance"? Movement Disorders, ePub, John Wiley and Sons.
(Parkinson's Disease Clinic, Osborne Park Hospital, Western Australia)

Driving can be hazardous for persons with clinical symptoms of Parkinson's disease. However, the independence of these people is reduced by the removal of the privilege to drive. Nevertheless, in the interest of public safety, medical practitioners require reliable screening tools to decide whether a driver suffering Parkinson's disease should be on the road.

The aims of this study were to examine whether clinical measures for Parkinson's disease patients and information provided by carers can be employed to predict impairment in driving performance. The trial included 53 idiopathic Parkinson's disease subjects and 129 age-matched controls and they were assessed on open roads. Prior to the driving assessment, a Geriatrician examined participants. Various clinical measures of the disorder were recorded, and their carers filled out a questionnaire assessing driving ability of the patient.

Conclusions of the trial were as follows:

- The driving performance of the participants declined with age;
- Drivers with Parkinson's disease were significantly less competent drivers than drivers in the control group;

- The most frequent errors committed on the road were indecisiveness in T-junctions and reduced usage of rear view and side mirrors;
- Only two of the clinical measures of patients with Parkinson's disease showed links to driving performance;
- Information provided by carers was significantly related to driving performance of patients with Parkinson's disease.

It was concluded that drivers suffering Parkinson's disease were less competent drivers than the age-matched control group. Also, standard clinical measures of Parkinson's disease have little value in predicting their driving performance. Carers can provide valuable information to doctors in identifying unsafe drivers with Parkinson's disease.

Curnow WJ, 2008, "Bicycle helmets and public health in Australia", pp. 10-15, Health Promotion Journal of Australia, Vol.19, No.1, Australian Health Promotion Association.

The objective was to evaluate the effects on public health in Australia of regulations, which require people to wear a bicycle helmet while cycling. The study involved the examination of:

- the processes of introducing compulsory wearing of bicycle helmets,
- evidence of their efficacy relative to scientific knowledge of brain injury,
- effects of compulsory wearing on public health, and
- official actions to uphold the policy.

The primary objective of the study was to quantify the 10-year health service use (HSU) and mortality outcomes for people with a traumatic brain injury (TBI). The research was designed with a population-based matched cohort study, using linked administrative data from the Manitoba Injury Outcome Study in Canada.

An inception cohort (1988-1991) of hospitalized 1290 cases with TBI, aged 18-64, years was identified and matched to an equally sized, non-injured, comparison group. Associations between injury and HSU/mortality outcomes for 10 years following the TBI event were quantified (using survival analysis, negative binomial and poisson regression).

The majority of deaths (47.2%) occurred in the first 60 days following injury. Furthermore, the study indicated that people who sustain a TBI and survive the initial acute phase of care experience, substantially increased long-term morbidity compared to the general population, regardless of the level of injury severity.

The authors state that regulation for compulsory wearing of a bicycle helmet was a response to fear of death and chronic disability from brain injury, and it was taken at a time when cycling was increasing and the risk of casualty was falling. It appears that governments did not verify the efficacy of helmets and disregarded research that found that helmets can increase brain injury. After the legislation was introduced, rates of cycling declined sharply with loss of benefits for health, but the risk of casualty increased.

The authors claim that compulsory wearing of a bicycle helmet is detrimental to public health in Australia.

Mitchell RJ, McClure RJ, Williamson AM, McKenzie K, 2008, "Implementing the national [Australia] priorities for injury surveillance", pp. 405-408, Medical Journal of Australia, Vol. 188, No.7, Australasian Medical Publishing.

(NSW Injury Risk Management Research Centre, University of New South Wales).

Injury is a national health priority area because it is a major cause of disability and death in Australia. Injury surveillance is basic to injury prevention. National policies and strategies developed over the past 20 years, to reduce the burden of injury in Australia, have included 22 recommendations on surveillance. But only three of these have been completely implemented.

Major measures for improving injury surveillance include:

- improving current injury mortality and morbidity data collection systems;
- filling the gaps in injury surveillance;
- maintaining vigilance over data quality;
- increasing the integration and accessibility of injury data; and
- developing technical expertise in surveillance.

Implementation of the current National Injury Prevention and Safety Promotion Plan faces the following barriers:

- the lack of an implementation plan,
- performance management structure,
- appropriate national governance structure, and
- resources.

All of these impediments could be overcome with government commitment.

Myburgh JA, Cooper DJ, Finfer SR, Venkatesh B, Jones D, Higgins A, Bishop N, Higglett T, 2008, "Epidemiology and 12-month outcomes from traumatic brain injury in Australia and New Zealand", pp. 854-862, Journal of Trauma, Vol. 64, No. 4, Lippincott Williams and Wilkins (Department of Intensive Care, The St George Hospital, Sydney).

An epidemiological profile of traumatic brain injury in Australia and New Zealand was obtained following the publication of international evidence-based guidelines.

The 6-month prospective inception cohort study included adult patients with traumatic brain injury, admitted to the intensive care units for major trauma. There were 635 patients recruited from 16 centers (74.2% were men; 61.4% were due to vehicular trauma, 24.9% were falls in elderly patients, and 57.2% had severe traumatic brain injury). Data, including mechanisms of injury, pre-hospital interventions, secondary insults, operative and intensive care management, and outcome assessments 12-months post-injury were collected.

Secondary brain insults were recorded in 28.5% and 34.8% underwent neurosurgical procedures before the intensive care units admission. There was concordance with traumatic brain injury and the intensive care units practice guidelines, although intracranial pressure monitoring was used in 44.5% patients with severe traumatic brain injury. Twelve-month mortality was 26.9% in all patients and 35.1% in patients with severe traumatic brain injury. Favorable outcomes at 12 months were recorded in 58.8% of all patients and in 48.5% of patients with severe traumatic brain injury.

The mortality and favorable neurological outcomes, after traumatic brain injury, in Australia and New Zealand, were similar to published data before the advent of evidence-based guidelines. A high incidence of pre-hospital secondary brain insults and an ageing population may have contributed to these outcomes. Strategies to improve outcomes from traumatic brain injury should be directed at preventive public health strategies and interventions to minimize secondary brain injuries in the pre-hospital period

Newbury C, Hsiao K, Dansey R, Hamill J. J, 2008, "Paediatric pedestrian trauma: The danger after school", Journal of Paediatrics and Child Health, ePub, Blackwell Publishing. (Children's Trauma Service, Starship Children's Hospital, Auckland, New Zealand).

The objective of the study was to examine the demographics of road pedestrian trauma in children in the Auckland region and to provide data that can help target prevention strategies.

A retrospective analysis was conducted of all children (0-14 years) in the Auckland region admitted to the hospital or killed, following a collision between a pedestrian and a vehicle, for the 6-year period 2000-2005. (Pedestrians injured in a driveway were excluded).

During 2000-2005, 364 children were involved in pedestrian crashes resulting in 25 deaths. The median age was 7 years. Males comprised 63% of all cases. Pacific Islanders and Maori were over-represented. Injury times were recorded for 317 patients. Of these, 49% occurred between 3 and 7 pm. Injury peaks for school days showed a tri-modal pattern with injury peaks at 8-9 am, 3-4 pm and 5-6 pm with the 3-4 pm after-school peak predominating.

It was concluded that prevention strategies should focus on the after-school period and should be tailored for Maori and Pacific Island communities.

Young D, Grzebieta R, McIntosh A, Bambach M, Frechede B, 2007, "Diving Versus Roof Intrusion: a Review of Rollover Injury Causation", pp. 609-628, International Journal Crashworthiness, Vol.12, No.6, Taylor and Francis Group.

Rollover injuries can be attributed to the inability of a vehicle's crashworthiness design, or lack thereof, to protect its occupants during a rollover crash. Countermeasures for injuries due to ejection are well established. However, there is still considerable, ongoing debate about injury mechanisms of occupants contained in a vehicle during a rollover. The debate extends to countermeasures required to mitigate such injuries.

There are two apparently conflicting views of injury causation for contained occupants in rollovers that have been presented in research literature to date. This paper presents and analyzes these approaches, i.e., diving versus roof intrusion. Analysis of the validity of each of these theories is investigated by means of the basic physics behind the underlying concepts. Injury results from the General Motors rollover Malibu II test series are then used and further analyzed in light of the findings presented in this paper. Results show that the most injurious events in the Malibu II tests are those in which the roof structure was not strengthened. It was also concluded that more work needs to be carried out to establish acceptable injury mechanisms and associated injury criteria for future rollover crash testing protocols.

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