Journal of
the **Australasian College of Road Safety**

Formerly RoadWise — Australia's First Road Safety Journal

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Cover photo: The Te Papa Museum, Wellington, New Zealand, venue for the 2005 Australasian Road Safety Research, Policing and Education Conference 13-16 November

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From the President

I hope you have had a safe and well rested Christmas and New Year break. We are looking forward to a very good and productive year. By productive year I mean not only in terms of the College's activities, but above all a year where we start to see some reduction in road trauma. Hopefully it will be an improvement on 2005, which showed little improvement on the current casualties. We should begin to see the fruits of all our efforts, members and non-members inclusive, in terms of a downward trend in road casualty statistics. As the new onboard vehicle safety technologies such as electronic stability control and airbag side curtain systems filter into our new and used car fleet, and AusRAP [see SaferRoads article] begins to provide our road authorities with tactile feedback where to improve roads, I am hoping a permanent and sustainable reduction in casualty crashes will be evident.

We are planning to publish four editions of the Journal during 2006. Last year was a transition year as we changed from the old format, and we were only able to publish two editions. However, the response concerning the new format Journal has been very positive and we are keen to continue on this high note. The College has been fortunate in that the organisers of last year's Australasian Road Safety, Education and Enforcement Conference in November in Wellington, namely the NZ Land Transport Authority, have offered us the opportunity to publish selected peer reviewed papers from their proceedings. Authors we have contacted are keen to see their papers run on into the ACRS Journal. Each paper will be rechecked and reviewed a third time to ensure Journal quality standard prior to inclusion. We are hoping that this process will continue for future conferences.
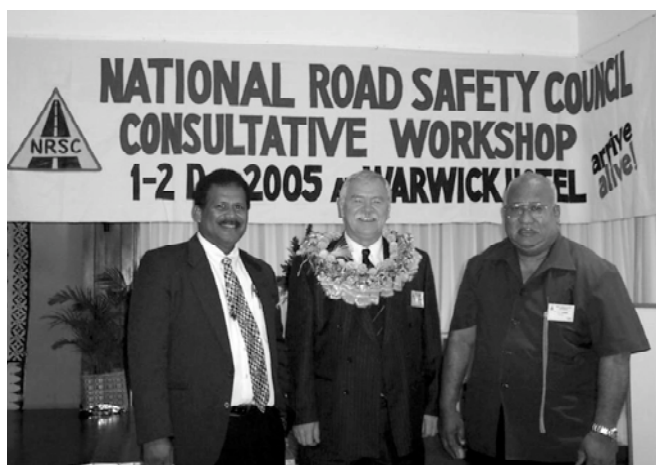
From left to right: Mr Timioci Satakala Acting Executive Director NRSC, A/Prof. Raphael Grzebieta, Mr Sailasa Vatucawaqa, Director Transport Planning Unit, Ministry for Transport & Civil Aviation.

I would like to report on my recent visit to Fiji. I was invited by the Fijian Government's National Road Safety Council (NRSC) as a keynote speaker to present a lecture on road safety. The main thrust of my presentation centred around Victoria's successful road safety strategy, intermixed with results of research I have been involved in, and how elements of this strategy and work can be applied or are related to Fiji. It was interesting to note that the Fijians already have an excellent road safety strategy formulated by experienced consultants and from their observations of other country' s successful strategies.

Fiji's road safety fatality record is approximately 8.6 per 100,000 population compared to Australia's 8.2 and Victoria's 6.7. While this value seems reasonable from an international benchmark perspective, when the statistics are reassessed using a per 100,000 vehicles registered reference, the record is quite poor. Fatalities per 10,000 registered vehicles are around 5.9 when compared to Australia's 1.2 and Victoria's 0.9. Their benchmark record related to kilometres travelled can not be calculated as no census information is available on distances each vehicle has travelled. However I suspect the record here would be quite poor as well. For the last three years, their total fatalities have hovered at around 78 per annum and their serious injuries have been constant at around 333 each year. These number are for a population of around 0.9 million and a road network of around 3,400 km.

I decided to arrive one day early and drive around Fiji and in particular along the road between Nandi and Suva. The first observation I made was that few people were wearing seat belts. It is the law that you should buckle up in Fiji. However the law was not being enforced. Indeed the Police officer who was showing me around Nandi's roads complained about people not wearing seat belts and the resulting injuries he was observing. However, despite the trauma he witnessed on a daily basis he was not wearing a seat belt himself! "Walking the talk" seemed to be a major issue.

Another interesting problem in Fiji was the large number of vehicles (including transport and school buses) with bald tyres. With the poor roads and heavy rains this was a recipe for disaster. I was provided an opportunity to inspect a number of post crash police impounded vehicles where fatalities and serious injuries had occurred. The majority of them had bald muddied tyres. Again the explanation was that once the vehicles had obtained roadworthy certificates and registration, the owners changed their tyres to old ones mainly because they knew no one would notice. The conclusion I was rapidly drawing to, and voiced during a media interview, was that enforcement of the excellent road laws in Fiji was not

occurring as well as it should be, hence the stalling in reduction of their road toll. Indeed, one of the conclusions from the NRSC road safety conference was that the Fijians are not adequately enforcing their road laws as a result of inadequate funding. They are hoping that this issue will be corrected in the next few years. The tourism industry is particularly hopeful for improvements because the Fijian road safety record is perceived as now seriously affecting productivity in tourism and other industries.

Finally I would like to welcome our new Executive Officer Dr Margaret Clarke. Margaret is a science graduate from the University of WA with a doctorate in Chemistry from the Australian National University. From 2000 to 2005 she worked 2 days per week as Executive Manager of ChemCert Australia, a non-profit industry supported organisation with many working aspects similar to the ACRS, including

organising major conferences. Previously she has worked in both the private and public sector, including positions at Manager level in the Dept of the Environment and Heritage and Director level in the Dept of Foreign Affairs and Trade, and 8 years in various positions in the Dept of Transport. She is also a consultant in training policy and development for the farming and air conditioning industries. In her spare time she is a member of the Porsche Car Club of Canberra. We are looking forward to working with Margaret, who I am sure will quickly adapt to the position and provide the College with a high standard of organisational support.

Again I wish you all a prosperous, safe and happy new year.

Raphael Grzebieta

Diary

3-4 August 2006: 25th AITPM National Conference, Melbourne. The theme of the conference is "delivering sustainable transport – 'it's got legs'". Contact John Reid at jareid@austraffic.com.au or phone (03) 5964-9386 for sponsorship details.

16-18 October 2006: 20th World Congress of the International Traffic Medicine Association, Melbourne. Contact: Dr Morris Odell tel: +61 3 9684 4480 or email: trafficmed@vifm.org

25-27 October 2006: Australasian Road Safety Research, Policing and Education Conference, Holiday Inn, Surfers Paradise, Gold Coast, Queensland.

Letters to the Editor

The Editor welcomes letters of up to 500 words on any road safety topic. They may be emailed to journaleditor@acrs.org.au or sent by post to PO Box 198, Mawson ACT 2607, Australia. Correspondents should include their name and address, but letters may be published anonymously by request.

SAFETY DOES SELL

I would be interested in readers' opinions regarding Goods and Services Tax exemption for component manufacturers of pro-active/ passive safety features for Australian manufactured vehicles. The rationale is that we tend to lag somewhat behind other manufacturing nations when it comes to the

introduction of new technologies in motor vehicles. For example, the introduction of air bags was an optional extra on only some models in a manufacturer's range and was initially a 'driver only' option included at considerable extra cost. The earlier introduction of same across a range, to include passengers also, would undoubtedly have saved lives. New technologies such as night vision systems, currently only available on 3 (?) vehicles around the world, have the potential to drastically reduce the frequency and severity of pedestrian versus vehicle collisions such as the disproportionate serious pedestrian incident rates in the Gold Coast CBD areas. From a driver's perspective - pedestrians, both inebriated and sober, may well be out of range of low beam headlights. Conversely, from a pedestrians perspective - "I can see the car, therefore it can see me", may result in the point of first possible perception being missed and the 'point of no return' passed. It would be my expectation that Australian manufacturers would seriously consider the introduction of such worthwhile safety features at an earlier stage, if it could be shown to be more cost effective.

(Sgt) Garth Crank
Accident Investigation Squad
GOLD COAST DISTRICT

Subscriptions now due!

If you have not yet sent in your renewal subscription for 2006, please do so soon and save us from sending you a reminder.

QUARTERLY NEWS

College Chapter News

ACT and Region Chapter

A very successful and well-attended seminar was held on 21 October at the CSIRO Discovery Centre, Canberra, with Professor Claes Tingvall as the guest speaker, reporting on road safety developments in Europe. The seminar was sponsored by the NRMA-ACT Road Safety Trust and entitled 'Road Safety Initiatives Seminar'. A number of local speakers provided presentations on national and regional road safety issues and Professor Tingvall's talk sparked a lot of interest, especially regarding the 'Vision Zero' concept.

NSW (New England) Chapter

The Chapter is planning a local area symposium in Armidale on road safety issues specific to rural and regional Australia, to coincide with the Arrive Alive Expo 2006 for senior high school students scheduled for June.

NSW (Sydney) Chapter

On Friday 2 December 2005, the STAYSAFE Committee of the NSW Parliament and the Chapter, with the assistance of the Motor Accidents Authority, held a forum on Young Drivers at Risk, at which the invited speakers were Dr Sarah Redshaw, Director of the 'Driving Cultures' program at the Centre for Cultural Research, UWS and Mr Glenn Sherlock, who manages the Blue Mountains City Council's Road Safety Program. This followed the AGM and an interactive session aimed at identifying directions for the Chapter in 2006 and beyond. Plans are going ahead for the College series seminar on 'Recidivist Drink and Unlicensed Driving' to be held in Sydney on 10 February at the Parliament House theatrette. The keynote speakers at this day-long seminar will be Ms Kerry Fitzgerald and Dr Barry Watson, together with three local speakers, Chief Superintendent John Hartley, NSW Police, Associate Professor Maree Teesson, Deputy Director of the National Drug and Alcohol Research Centre and Dr Kyp Kypri, senior lecturer in population health at the University of Newcastle.

New Zealand Chapter

On 20 October the speaker at the Chapter meeting was Shalom Hakkert, from Israel, on sabbatical in New Zealand. The Chapter ran the Australasian series seminar on Recidivist Drink and Unlicensed Driving in Wellington on 13 November,

Craig Hill welcoming delegates to the seminar.

before the start of the Australasian Research, Policing and Education Road Safety Conference

Queensland Chapter

The final chapter meeting for the year was held on 8 December, when Renae Moore spoke about the Queensland Government's paper on 'Options for Improving Young Driver Safety'.

South Australian Chapter

A successful and well-attended seminar was held on 17 October when Professor Claes Tingvall and Jim Langford presented on Vision Zero respectively from an international and safe systems perspective. The final seminar for the year was held on 7 December when Michael O'Brian, the Parliamentary Secretary to the Minister of Transport presented the SA Government's response to Vision Zero and safe systems. Planning is in hand to hold the Recidivist Drink and Unlicensed Driving Seminar in Adelaide around May this year.

Victorian Chapter

Claes Tingvall spoke on 'Road Safety Developments in Europe' at a Chapter meeting on 25 October at the TAC. Planning is proceeding for the 2006 meetings, including an ACRS national forum on 9 June in Melbourne on pedestrian safety issues.

Western Australian Chapter

48 delegates attended the lunchtime seminar on 'Driver Distraction' held on 12 December with Dr Mike Regan of the Monash University Accident Research Centre (MUARC) as the speaker.

Australian News

2005 Fellowship Announced

The Executive Committee of the ACRS are pleased to announce that they have elected Mr Lauchlan McIntosh, Executive Director of the Australian Automobile Association as the 2005 ACRS Fellow. Lauchlan has had a significant and increasing role in promoting road safety in recent years. He is one of the leading individuals lobbying governments to change their attitude and culture towards the road carnage. His strong support, encouragement and leadership of AusNCAP as well as the more recent SaferRoads and AusRAP initiatives, have had a significant impact in saving lives and reducing injuries in Australia. The nation owes a lot to him and his AusNCAP, SaferRoads and AusRAP team. In addition Lauchlan has been an active supporter of the College and encouraged national support from all AAA members.

AAA Survey shows motorists' concerns

A survey of Australian motorists conducted by the Australian Automobile Association in 2005 showed that their major concern is the behaviour and attitudes of other drivers - especially their perceived aggression and impatience. This concern has risen significantly over the past five years and the AAA's President, Ron Gray, concludes that this is an indication of how social pressures are impacting on standards of courtesy on the road and resulting in a more impatient and selfish mindset among drivers. Mr Gray reports that motorists are also starting to focus more on the condition and safety of roads, which indicates that the SaferRoads project may be starting to strike a chord among motorists. (Source: AAA Annual Report 2004-2005)

New South Wales considering new lifetime care scheme

A NSW Government proposal for a new scheme to assist people with catastrophic injuries from motor vehicle accidents was announced by the Premier mid-2005 and submissions were invited from interested parties to be received by 31 August. Consultations have been held with disability and health care groups, medical and health service providers and lawyers. It is expected that a decision on the scheme will be reached in the next two to three months. Currently about 125 people receive catastrophic injuries each year in NSW (of whom 70% are under 30 years of age and mainly males) and of these 60 are considered 'at fault' and therefore not eligible for compensation under the existing 'greenslip' insurance scheme. If the scheme is established, for the first time all people catastrophically injured will receive care and support for life, regardless of who caused the accident. Lump sum payments for pain, suffering and economic loss will remain unchanged, but damages for medical and care components will be replaced by the Lifetime Care and Support Scheme. (Source: Motor Accidents Authority)

South Australia Mock Crash Demonstration

Further to the report of simulated road trauma demonstrations in Queensland schools in the November Journal, news of a similar approach has been received from South Australia. Organised inWhyalla in June 2005, as part of Drug Action Awareness Week, the Mock Crash Demonstration was built around a typical scenario involving a teenage party organised while parents were out for the evening. With plenty of drink flowing, followed by a P-plate driver's foolish decision to take some of his mates to the beach, the recipe for disaster was plain for the 460 student audience to understand. Participants in the day were enthusiastic about its effectiveness and are keen to see it continue as an annual event. (Source: PartyLine – newsletter of the National Rural Health Alliance Dec 2005)

Queensland Road Expenditure for five years

The Queensland Government announced in November 2005 a record $10.5 billion funding for Queensland roads. The five-year Roads Implementation Program provides $2.5 billion more for the state's roads - an increase of 31 per cent.

Victorian Inquiry into Driver Distraction

The Road Safety Committee of the Victorian Parliament is conducting an inquiry into Driver Distraction and plans to complete its report by 30 June 2006. The Committee is required to report to Parliament on: 1). the prevalence of mobile telephone use by drivers and its impact on crash causes; 2). the prevalence of in-car video devices, their effect on drivers and impact on crash causes; 3). the types of other devices and activities, both inside and outside the vehicle, that may distract a driver's attention from the driving task and lead to unsafe driving; 4). the suitability and enforceability of existing laws concerning the use of mobile telephones and other electronic devices by drivers; and 5). the possible need for change to legislation or statutory requirements to implement any recommendations made as a result of the inquiry. In conducting its inquiry, the Committee is requested to seek information from the manufacturers and distributors of mobile telephones and other electronic devices with in-car applications, research organisations, Government and non-Government agencies, motoring organisations and the community. The Committee is also examining the measures adopted to address the issue of driver distraction in other jurisdictions and countries.

AIRSO Secretary to visit Australasia

The Secretary of AIRSO (Association of Industrial Road Safety Officers, www.airso.org.uk), Mr Graham Feest, is planning to visit Australasia in April/May and is hoping to make contact with College members, including through meetings of Chapters.

New Zealand News

ACRS at the Wellington Conference

Although there was no exhibition area at the Australasian Road Safety Conference in Wellington in November 2005, the College, thanks to the organisers, was able to have a display board and table to advertise our activities and recruit new members. The photo, taken by the ACRS display, shows from left to right: Jeff McDougall (ACRS Treasurer), Raphael Grzebieta (ACRS President), Kerry Fitzgerald (Executive Committee member), Geoff Horne (Executive Officer) and Mark Stevenson (NSW Chapter Chairman).

Advice for International Students

A new road safety information pack for Christchurch individuals and agencies hosting international students has recently been launched. The project was initiated because members of the Christchurch Road Safety Community often receive calls from home-stay providers wanting advice about driving and road safety for their charges.

The information pack was developed by NZ Police, Land Transport New Zealand, Education Christchurch, Students Against Driving Drunk, home-stay providers and Christchurch City Council. It contains hard copy information as well as a directory of websites about driving, driver licences and owning cars in New Zealand, in a variety of Asian languages and English. (Source: 'Ten-One' Community Edition Dec05)

Mobile Road Safety Campaign

The NZ Police and Insurance Authorities have come up with a new way of persuading motorists to take care, as this photo shows. Seen on the North Island, this truck had a very clear message displayed. The truck driver said he had noticed that car drivers were much more careful about overtaking his truck since the message had been introduced. "Sometimes they tag along behind me for miles" he said with a smile.

3E Strategy to improve road safety

Engineering, enforcement and education, considered to be the keys to improved road safety and achievement of the Road Safety to 2010 Strategy, are receiving intensified effort by the three main transport agencies, Land Transport NZ, Transit NZ and NZ Police. 54 of the most hazardous stretches of the state highway network have been identified as needing special attention. Land Transport NZ Manager Networks, Peter Croft, says that Land Transport NZ is playing a diverse role in all aspects of the 3E projects. "We have teams working with NZ Police to analyse the problem areas, our engineers are working with Transit on solutions and our educators are working in the community on education programs.' (Source: LTNZ News issue 11)

Median Barriers prove their worth in Wellington region

A 700 metre section of wire rope median barrier, trialled since December 2004 on the Centennial Highway, with video monitoring, has proved extremely effective. Instances have been recorded of vehicles striking the barrier, which would likely have resulted in severe head-on crashes had the highway not been divided. Now the barrier is to be extended to 3.8 km at a cost of NZ \$15m. This will cover the full length of the coastal section of the Centennial Highway. (Source: LTNZ News issue12)

European News

A new 'VOICE' for vulnerable road users in Europe

Ten non-government European organisations have banded together under the leadership of the ETSC (European Transport Safety Council) to form 'VOICE', the "Vulnerable road user Organisations In Cooperation across Europe" – to campaign for greater safety for vulnerable road users. Members of the group include the 'Older People's Platform', the 'Child Safety Alliance' the 'Disability

Forum' and consumer and health organisations. Their purpose is to persuade leaders in government and industry that they should accept responsibility for the implementation of measures to better protect cyclists and pedestrians.

VOICE argues that the most vulnerable road users, such as the cycling child, or the elderly pedestrian, have become the "forgotten travellers" of transport policy. As a result of this neglect they are exposed to risks far above those of the average driver on European roads. Cycling and walking have a fatality risk per distance travelled 7-9 times higher than car travel.

Against this background and with reference to the European Commission's call for sharing responsibility in road safety policy, the ETSC VOICE campaign has four objectives. These are: 1) to lobby policy makers; 2) to highlight good and bad practice in road safety policy; 3) to push for full implementation of existing measures on the national level; and 4) to improve (self-enforcing) road design in European Cities. Each of these objectives corresponds with a specific activity of the campaign. (Source: VOICE News Release Oct 05)

Enforcement is vital says ETSC

The European Transport Safety Council believes that the European target of a 50% cut in the annual road toll by 2010 can only be achieved if traffic law is enforced more effectively. It is suggested that police enforcement of rules covering speeding, drink driving and seat belt use alone could help avoid 14,000 fatalities by 2010, according to European Commission estimates. (Source: ETSC Enforcement Monitor Nov 05)

Four stars for pedestrian protection

EuroNCAP recently published its latest test results and for the first time gave four stars to a car in the pedestrian safety category. The winner, the Citroen C6, received the award based on an evaluation of a combination of factors: primarily the use of a 'pop-up' bonnet on impact that shields a pedestrian's head from solid objects in the engine bay, but also from impact absorbing structures in the front subframe. (Source: ETSC Safety Monitor December 05)

10 years of EuroNCAP

The European New Car Assessment Program celebrated its 10 years of existence on 29 November 2005. According to the RAC Foundation, safety ratings of similar category cars have increased from one star to five stars in less than ten years due to the influence of EuroNCAP. (Source: ETSC Safety Monitor December 05)

ETSC argues for more in-car safety features

In a paper issued on 18 October 2005, the ETSC presented the case for how three in-car enforcement technologies could contribute to reducing road trauma. These technologies are said to be capable of reducing the three main causes of death on the roads today. The technologies are seat belt reminders, Intelligent Speed Adaptation (ISA) and alcohol interlocks. The ETSC faith in seat belt reminders is based on evidence from Sweden, where 99% of drivers in cars with seat belt reminders are wearing their seat belts. With regard to ISA, the paper states that excessive speed is the main cause of both the likelihood and severity of road crashes in the EU. ISA could ensure greater compliance to speed limits. It is thought that 60-75% of users would accept ISA in their own cars. Finally, alcohol interlocks have been shown in trials to reduce conviction rates for drink driving by 28-65%.
(Source: ETSC News Release October 2005)

American News

DVD for teen drivers

The AAA Foundation* in the USA recently released an expanded DVD version of its flagship product, Driver-ZED™, an interactive, risk-management software for teens. This new and improved version includes twenty live-action work zone safety scenarios, twice as many safety tips, and it also includes informative parent/teacher/teen supplemental guides. The AAA Foundation developed Driver-ZED to help teens improve their ability to identify and avoid potential risks in the driving environment, while gaining invaluable hazard identification experience. As such, Driver-ZED software takes teens where driving manuals, books, and videos can't – into an interactive experience in the virtual driver's seat. For more information see www.driverzed.org.

* For information about the AAA Foundation visit www.aaafoundation.org.

Futures Workshop addresses research issues

The AAA Foundation, with co-sponsorship from the Federal Highway Administration and the National Highway Traffic Safety Administration, hosted a high-level two-day futures workshop in Washington, DC in October 2005. The aim was to gain insight into what long-term, big picture traffic safety issues should be considered in the development of a long-term research agenda. A panel of some 40 experts in various disciplines of traffic safety research participated in the workshop. They discussed salient traffic safety research needs within three tracks: human factors, vehicles, and highway infrastructure. The proceedings of the workshop will be published soon and made available to the traffic safety research community. Visit www.aaafoundation.org to obtain a copy. (Source: AAA E-Newsletter Jan 06)

Contributed Articles

Australian Road Regulatory Agencies

A Tale of Eight Jurisdictions

by Anthony Carey

Early last century summary decisions were made by individual engineers in the employ of state instrumentalities on the selection of railway gauges. Influenced by a variety of reasons including existing systems in their birth countries and the cost of construction, separate gauges were developed randomly. In those times it is understandable such decisions were enacted outside the vision of a National Context.

It was not until much later that interstate rail connections had to be aligned and we are still struggling with the national railway construction to bring this up to a first world standard.

There are in Australia now eight jurisdictions, six states and two territories whose Road Regulatory Agencies control and determine road governance standards within their borders. Many of these standards are patently different, in many areas local policies are conflicting and more significantly there is a no man's land separating these policies.

Suppliers and contractors to the industry experience frustration and inconvenience but accept it as the cost of doing business under the interstate partition system. The agencies write and initiate their design guide rules separately drawing from their own staff expertise, other source documents written abroad as well as documents written by Standards Australia.

State Agencies are represented in the Austroads Group, a body comprising personnel from Australian and New Zealand instrumentalities. Many talented people work diligently within the group but the entity itself produces advisory documents and personnel are not empowered to bring about any form of direct compliance.

The reality then is that Conformity or close Harmonization of standards in Road Governance is not mandatory in the National Arena. Nowhere is this more apparent than in deployment of Road Safety Appurtenances. Each new device has to be [the photo below may be omitted if space is short or difficult] ?submitted to each state agency separately for acceptance. Some states may pass it, some may not. The criteria vary despite the Standard compliance. This road furniture, as it is described in our industry, is a vital life saving and injury reducing component of road safety design systems.

So many other National Industry areas of compliance have been effected successfully between the states and territories for the public benefit. It ought be done in the Road Construction and Maintenance industry too. Given that the road system is our greatest national asset, it is time for the Federal Government to enshrine a National Structure to bring about safer roads, couple this with existing programs, fund the structure adequately to harness expertise, reduce duplication, give the national standards some teeth and bring to the fore policies and vision more in line with 21st century practice.

Where Bikes are Many but Helmets are Few

By Colin Grigg

During a recent visit to Europe, I was based at Teikyo University in Maastricht, the Netherlands. Here, the bicycle is a major means of transport. In various parts of the City of Maastricht, e.g., outside the railway station, there are huge clusters of "parked" bicycles. Many are chained to bridges and lamp posts.

People can be seen entering and leaving some office buildings accompanied by their bicycle. Public buildings, parking facilities and public transport are all designed and organised with two-wheelers in mind.

Cobble stone pavements in inner-city areas yield a bumpy ride, but many bicycles have telescopic handles and seats.

There are designated cycle tracks on either side of streets and roads throughout the city and district, in addition to provision for cars, bus lanes and pedestrian paths and crossings. At some intersections there are separate traffic lights for bicycles. There are directories for cyclists, for example the " fietsroute netwerk" .

But bicycle activity in Maastricht is merely indicative of the use of bicycles throughout Holland. There are more than 16.5 million of them, the highest density in the world. There are some 750,000 in Amsterdam and I was able to see their use in that city. It is estimated that the number in use in Holland increases by 15% annually. There is at least one cycle in 91% of households. There are approximately 10,000 km of dedicated cycle-ways for their use. Two of the four bridges over the River Maas, in the inner city area, are reserved for pedestrians and cyclists. Staircases onto the bridge (and in railway subways) have grooves up an incline, for bicycle wheels. There is also provision for accessing the bridge by lift.

The bicycle has an important place in other European countries that I visited. For example, in Bruge, Belgium there are more than 50 one-way streets, with provision to cycle in both directions.

Apart from private ownership, many centres have bicycle rental businesses. An increasing number of hotelkeepers have bicycles for their guests. Businesses for spare parts and repairs are plentiful. Bicycles exist in various configurations including tandems, electrically propelled and those adapted for handicapped persons. Bicycles are used to go to work, transport children to and from school or for leisure. Sometimes a parent conveys two children on one bicycle, one in front and one behind or towing a trailer 'pram'. It is possible for visitors to participate in bicycle tours with a Dutch, French or English speaking guide.

Despite the hierarchical arrangement by planners of roads, paths and crossings, riders are not particularly safety conscious. Riding in abreast formations, failure to wear helmets and protective clothing (I did not see a single helmet) and not using bike lights are prevalent practices. There is a considerable amount of bell ringing as bicycles weave between pedestrians. Twenty five percent of all cycling deaths are attributed to typical refusal to install/maintain a working bike light.
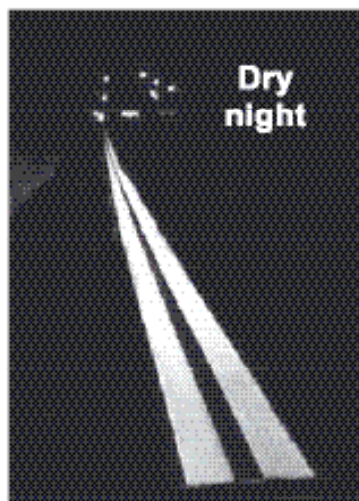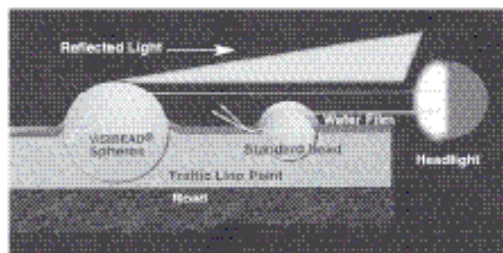
Australia's National Highways Rated For Safety

Article contributed by SaferRoads
www.aaa.asn.au/saferroads

The Australian Automobile Association has maintained its focus on the SaferRoads program with the release of the latest ratings of Australia's national road network in a bid to further highlight the state of Australia's roads.

The Australian Road Assessment Program (AusRAP) – which rates Australia's road network – shows that many of Australia's national highways are "High risk" roads that could unnecessarily contribute to road trauma and death.

AAA Executive Director, Lauchlan McIntosh, launched the latest road ratings contained in an AusRAP report entitled How Safe Are Our Roads – Rating Australia's Road Network for Risk.

"Five people die every day on Australian roads and often these tragedies could have been avoided if the roads were more forgiving," Mr McIntosh said.

"All roads are not equal - some are better and safer than others. These AusRAP ratings show us where the dangerous – and the safest – sections are on our national network.

"This report highlights the state of our major road network and shows where remedial treatments should be investigated and solutions provided."

AusRAP rates the roads on the basis of collective risk and individual risk. Collective risk reports the total number of crashes on a road section (casualty crashes per kilometre), while individual risk takes into account traffic volumes (casualty crashes per vehicle kilometre travelled). The assessments are shown in a series of State-by-State colour coded risk maps.

Mr McIntosh said that the data used to develop the AusRAP ratings was drawn from the latest government data between 1999 and 2003 – this did not include results from sections improved since that time.

"For example, the Victorian Government has installed many sections of wire barriers along the Hume Highway and improvements are occurring in other states," he said.

"It shows that road authorities are aware of the need to upgrade road infrastructure, but obviously they need more funds to continue this work."

AusRAP risk maps are part of an overall program to develop an Australian ratings system for roads - similar to the European Road Assessment Program (euroRAP) - to promote information about the relative safety of different roads.

The AusRAP report sets out the "best and worst" links – all on a State by State basis, with some examples in the attached summary.

Mr McIntosh also acknowledged the support of the Australian Transport Council and the contribution of the Australian Transport Safety Bureau. "We look forward to further developing the AusRAP database to include a star rating system based on a Road Protection Score, which should be completed in 2006. This score will be based on the inherent safety features and hazards along the road network," he said.

An Australian Capital Territory road soon to be upgraded to dual carriageways.

" Road safety results in Australia require recognition by everyone in the community that we need safer drivers in safer cars on safer roads. AusRAP helps us all understand the relative safety of different roads and the potential to save lives by improvement. According to research, improving roads can make the biggest contribution to reducing death and injuries on our roads. Roads are far more important than most people realise."

The AusRAP report can be viewed on the AusRAP website www.ausrap.org and the AAA website www.aaa.asn.au

Following is a State by State " snapshot" of the major road ratings.

AusRAP - State By State "Snapshot"

Some of the AusRAP results include:

NSW
- Pacific Highway (618km) average 44 deaths per year and has a high collective risk rating.
- Many sections of the Sturt and Newell Highways are regarded as having a low risk rating in terms of safety.

Vic
- Calder Highway (486km) relatively unsafe, nearly all sections have a medium to high individual risk rating.
- The Sturt Highway (226km) is relatively safe, with low-medium collective and low individual risk.

Qld
- The Bruce Highway (1553km) averages 41 deaths per year and is relatively unsafe – medium or above individual risk rating.
- There are no roads in Queensland that can be classified as "best". Many major sections are classified as medium-high to high in collective and individual risk categories.

SA   • Sturt Highway (226km) relatively unsafe and rated medium or above for both individual and collective risk.

     • The Eyre Highway, from the WA border to Yalata, is rated as having low collective risk and low-medium individual risk.

WA   • Great Northern/Victoria Highway (3188km) very low traffic volumes and relatively unsafe, with a

medium-high to high individual risk.

     • Many sections of the Great Eastern/Coolgardie-Esperance/Eyre Highway are rated low in both collective and individual risk.

NT: • Stuart Highway (1749km) safety performance varies but relatively unsafe, with individual risk rating medium-high to high.

Motorcycle Safety

By Ian Faulks, STAYSAFE Committee, NSW Parliament and Liz de Rome, LDR Consulting

Motorcycle deaths in New South Wales have risen sharply in 2005, with 31 motorcyclists dying in road crashes in the first four months of 2005. Up to mid-September 2005, another 15 motorcyclists have died. These deaths are those reported as occurring on 'roads or road-related areas'—a required element for a motor vehicle-related death in New South Wales to be recorded under the formal definition of road trauma. There are a number of additional deaths involving motorcyclists that occurred in areas not considered to be roads or road-related areas.

The rapid rise in motorcycle deaths is a matter of concern. Recent fatal motorcycle crashes involved:

• A majority of male riders
• Wide range of ages (15 year old pillion passenger to 84 year old rider)
• Crashes occurred across a wide range of areas of New South Wales (Sydney, Wollongong, North Coast, New England)
• Most crashes were on local and minor roads
• Crashes involved impacts with other motor vehicles and impacts with roadside objects

These observations indicate that there is not just one subgroup of riders at greater risk. It is a concern for all riders.

Despite active efforts by the NSW Motorcycle Council and the Motor Accidents Authority to develop a motorcycle safety strategy and to promote wearing of appropriate protective equipment, injuries and deaths of riders continue to increase.

The Federal Chamber of Automotive Industries has reported that retail figures for the first quarter of 2005 show that motorcycle sales in Australia continue to grow rapidly. The motorcycle market in Australia appears to be experiencing a long term revival, with the expected total 2005 market reaching 100,000 motorcycles—a total volume of sales not seen since the early 1970s. The growth in sales of new motorcycles is primarily driven by the road bike market, and includes segments such as super sports, scooters, and cruisers. Sales of off-road motorcycles also increased. A total of 21,336

road bikes, dirt bikes and all-terrain vehicles (ATVs) were sold to the end of March 2005 - an increase of 13.3% over the same period last year. The increase follows a record year in 2004, when total motorcycle sales grew by 21.3% to 89,374—the highest in more than two decades.

At a meeting of the National Road Safety Strategy Panel, formed to monitor the implementation of the National Road Safety Strategy 2001-2010, in February 2005 in Canberra, the issue of motorcycling safety in New South Wales was considered. It was reported that there had been a slight reduction in the number of motorcycle crashes between 1995 and 2003, despite a 34% increase in the number of registered motorcycles over the same period. Between 2000 and 2003 there was an 11% decrease in multi-vehicle motorcycle crashes. This decrease was made up of a 9% reduction in multi-vehicle motorcycle crashes in which the motorcycle rider played the major role, and a 12% reduction in such crashes where the other driver played the major role. It was noted that a motorcycle awareness campaign, funded by the Motor Accidents Authority, was introduced in 2002. It was also noted that the light truck category of vehicles (which includes 4WDs) are over-represented in motorcycle-into-car crashes.

The issue of a national motorcycle safety strategy was raised at this meeting of the National Road Safety Strategy Panel in

February 2005. The panel noted that this issue had been raised in the past and that the consensus at that time was that it was more effective to address motorcycle safety through the National Road Safety Strategy and Action Plans. The panel considered that this approach continued to be appropriate.

Seminar on issues in motorcycle safety

On Friday 3 December 2004, the STAYSAFE Committee of the NSW Parliament and the Australasian College of Road Safety, with the assistance of the Motor Accidents Authority, held a seminar on issues in motorcycle safety. The papers presented at the seminar were not a comprehensive review of motorcycle safety in New South Wales, but did provide an opportunity to bring together Parliamentarians, motorcycle riders and their representative organisations, local government and New South Wales public sector officials, and road safety researchers and consultants to consider issues surrounding motorcycle safety.

Seminar on motorcycle protective clothing and consumer protection in Australia

On Wednesday 4 May 2005, the Motorcycle Council of NSW and the Motor Accidents Authority held a seminar on motorcycle protective clothing and consumer protection in Australia. The seminar, named 'Gearing Up: A seminar on Motorcycle Protective Clothing' was designed for the motorcycle protective clothing industry and complemented an earlier project to produce a web-based consumer's guide to promote the use of protective clothing by motorcycle riders.

A recent STAYSAFE Committee report has brought together and published the proceedings of these two seminars. As well, the STAYSAFE Committee has included relevant papers on motorcycle safety strategies, including:

- the Roads and Traffic Authority's 2002-2004 action plan for motorcyclist and bicyclist safety;
- the Motorcycle Council of NSW's 2002-2005 'Positioned for Safety' motorcycle safety strategic plan; and
- the United Kingdom' 2005 motorcycling strategy

Roads and Traffic Authority 2002-2004 action plan for motorcyclist and bicyclist safety

The Roads and Traffic Authority 2002-2004 action plan for motorcyclist and bicyclist safety was developed in late 2001, as part of the whole of government Road Safety 2010 strategy (see STAYSAFE 59, 2002).

The motorcyclist and bicyclist safety action plan set out objectives, strategies and actions for the 2002-2004 period. Both motorcyclists and bicyclists are considered vulnerable road users, and in 2001 these two categories of road user comprised one in eight road deaths in New South Wales.

With particular regard to motorcyclists, the 2002-2004 motorcyclist and bicyclist safety action plan noted:

- 94% of motorcycle fatalities were male.
- Younger adults aged under 30 years comprised the largest proportion of motorcycle fatalities (54%) but older riders (aged 30 years or more) were beginning to account for an increasing proportion (from 23% in 1986-1990 to 45% in 1996-2000).
- Speeding by the motorcycle rider was considered a contributing factor in more than half (56%) of all motorcycle fatalities.
- Around one-quarter (23%) of all motorcycle fatalities involved a motorcycle rider with an illegal blood alcohol concentration.
- One in nine (11%) motorcycle fatalities was not wearing a helmet.
- Nearly half (41%) of all motorcycle fatalities occur on the weekend whilst the great majority (79%) of bicycle fatalities occur on weekdays.
- Motorcyclist safety is a key issue for urban road safety, with 55% of motorcycle fatalities occurring in the Sydney, Newcastle and Wollongong greater conurbation.
- Almost half (45%) of all motorcycle fatalities involve the motorcycle leaving the carriageway or losing control on the carriageway with no other moving vehicle involved.
- Wearing of helmets is compulsory for motorcyclists (including pillion and sidecar passengers), and wearing rates for motorcyclists are around 98%.
- Competency-based compulsory motorcycle rider training for learner riders, related to steps in licence provision, is being expanded across New South Wales

The goal of the Roads and Traffic Authority 2002-2004 action plan for motorcyclist and bicyclist safety was:

"To reduce the incidence and severity of road crashes involving motorcyclists and bicyclists"

To achieve this goal, the stated objectives of the action

plan were to:

- Enhance awareness, knowledge and understanding of rider safety;

- Continue to improve attitudes, hazard perception and skills of riders;

- Promote the need for all motorists to travel at appropriate speeds in residential areas and in places where bicyclists are more common;

- Provide for bicyclists and motorcyclists in the design, construction and maintenance of roads;

- Ensure that the design and use of all vehicles leads to improved safety for motorcyclists and bicyclists; and

- Engage the whole community in relation to the safety of bicyclists and motorcyclists.

The 2002-2004 motorcyclist and bicyclist safety action plan identified future actions to improve the safety of motorcycle riders and passengers. Key actions included:

- Provide further public education to motorcyclists and other road users emphasising factors of key importance in motorcycle crashes.

- Design, construct and maintain roads to standards that recognise the needs of riders in line with the Austroads Guide to Traffic Engineering Practice (part 15) Motorcycle Safety.

- Continue to provide motorcycle rider training.

- Encourage the use of protective and more visible clothing for motorcycle riders.

An important element of the action plan provided for the development of a problem definition and countermeasure summary document specific to motorcycling. This was eventually published by the Roads and Traffic Authority (2004).

However, it is unclear as to how many other actions listed in the twenty five specific actions for motorcycle safety under the 2002-2004 motorcyclist and bicyclist safety action plan have been achieved. No evaluation of the outcomes of the action plan has been reported, and the action plan has been removed from the Roads and Traffic Authority's website.

What is clear is that the situation regarding road trauma involving motorcyclists and bicyclists has worsened. In the year to date, January-mid September 2005, these two categories of road user comprised one in seven road deaths in New South Wales (cf one in eight road deaths in 2001).

It is also unclear why motorcyclists and bicyclists were included in a common action plan—perhaps it was because both motorcycles and bicycles are two-wheeled vehicles, or because there are mandatory helmet wearing laws for both categories of road user. But the divergences are much greater, including for example:

- Motorcyclists must be licensed, with rigorous compulsory

off-road and on-road training, whereas there is no licensing regime for bicyclists

- Protective clothing used by motorcyclists is radically different in design, construction and functionality from clothing used by bicyclists

- The speeds achieved by motorcyclists in routine riding are much higher than bicyclists

- The distances ridden by motorcyclists are often much longer than ridden by bicyclists

- Bicyclists are better served by separated roadways (bicycle paths), although as Umar (2002) noted, specific provision of motorcycle-only lanes can be a viable countermeasure to motorcycle-related road trauma.

Motorcycle Council of NSW 2002-2005 'Positioned for Safety' motorcycle safety strategic plan

The Motorcycle Council of NSW is the peak body for motorcyclists in New South Wales. The Council does not have individual members, rather motorcycling clubs send delegates to the Council. The Motorcycle Council of NSW, with funding from the Motor Accidents Authority, developed and released a motorcycle safety strategic plan, 'Positioned for Safety' (Motorcycle Council of NSW, 2002). This appears to be the first major strategic planning approach specific to motorcycle safety developed in Australia. The 'Positioned for Safety' motorcycle safety strategic plan was designed to integrate with, and extend, the Road Safety 2010 strategic planning document.

The 'Positioned for Safety' motorcycle safety strategic plan incorporated almost one hundred individual strategies addressing issues to achieve safer roads for motorcyclists, safer riders (and other road users interacting with motorcyclists), safer motorcycles and equipment, and a range of issues associated with general research into motorcycling, crash investigation and reporting, the promotion of consultation and communication, and issues associated with licensing, registration and insurance.

The Motorcycle Council of NSW has released an evaluation of the 2002-2005 'Positioned for Safety' motorcycle safety strategic plan, conducted by David Riches & Associates (2005). Findings from the evaluation indicated:

- High levels of stakeholder awareness, although "hard copies" may be missing

- Direct influence on engineering and transport management strategies, as engineers now look to Austroads Guide to Traffic Engineering Practice Part 15- Motorcycle Safety for guidance

- A strong influence on education and awareness programs, conducted mainly in local government settings

- Provided a useful "point of reference" for road safety

practitioners who are planning motorcycle action and activity in their area

- Encouraged campaigns directed to encourage protective clothing wearing rates

- Increased stakeholder awareness of the needs of motorcyclists, through publishing clear statistical analyses of motorcycle crash involvements

- Contributed to improving the public and professional image of motorcyclists

- Contributed significantly to improved flow of communication between road safety stakeholders and organisations, with some gaps noted in interaction with the Roads and Traffic Authority

- Provided a strong foundation to enter a new three-year planning cycle.

Overall, the results of the evaluation were very positive, with 98% of local councils who responded stated that they were aware of the Motorcycle Council of NSW's Positioned for Safety motorcycle safety strategy. There were substantial levels of action and strategic commitment in local government settings across New South Wales. Sixty percent of local councils who responded indicated that motorcycle road safety initiatives were included in their road safety strategies or action plans, and 73% of respondent local councils were able to cite specific examples of motorcycle project activity.

The evaluation also showed that the Motorcycle Council of NSW's Positioned for Safety motorcycle safety strategy has achieved a considerable number of outcomes extraneous to the original intent of the strategies. These outcomes have contributed to the organisational growth and professionalism of the Motorcycle Council of NSW to provide a better understanding of motorcycle issues, the political environment and the tactics that are required to achieve road safety benefits and outcomes. These outcomes are:

- Improved communications with the Roads and Traffic Authority, resulting in a more effective two way flow of information and consultation on motorcycle issues.

- Improved availability of reliable motorcycle crash data providing the basis for informed decision making and planning

- Reconciliation and recognition of shared objectives for motorcycle safety

- Establishment of direction and a framework for activity by the Motorcycle Council of NSW, providing clear priorities and objectives within a defined planning time period

- Direction and framework for partner organisations

Raised awareness of motorcycle issues by agencies, including the National Roads and Motorists' Association (NRMA), the Institute for Public Works Engineering Australia (IPWEA), the Australasian College of Road Safety, etc..

Additionally the evaluation found evidence that:

- Effective media approaches have lifted the profile of motorcycle safety issues, and shifted the reporting theme from a negative portrayal of motorcycle riders to provide a positive image of motorcyclists as responsible road users with safety concerns; and

- A level of national prominence has been achieved by the Motorcycle Council of NSW as a leader in advocating and developing strategy for motorcycle safety in Australia.

It remains unclear as to why the Roads and Traffic Authority's motorcycle safety strategy contains only 25 actions, while the Motorcycle Council of NSW motorcycle strategy contains 91 actions. Such a gross disparity requires, in STAYSAFE's view, investigation and clarification.

The Motorcycle Council of NSW, working through the Australian Motorcycle Federation, also sought to develop a national strategic approach to motorcycle safety (Australian Motorcycle Federation, 2001). As noted earlier, this proposal was not accepted by the national Road Safety Strategy Panel. It remained for the first national motorcycling safety strategy to be published elsewhere (United Kingdom Department for Transport, 2005).

United Kingdom 2005 motorcycling strategy

In February 2005, the United Kingdom Department for Transport released a comprehensive motorcycling strategy. This is a quite broadly based transport strategy which covers environmental, infrastructure and traffic management, motorcycle and rider equipment and behavioural factors.

The United Kingdom Department for Transport's motorcycling strategy includes the following statement from the Parliamentary Under Secretary of State for Transport:

The [United Kingdom] Government is committed to supporting motorcycling as an important part of the transport mix, working together with the motorcycling community to address the needs of motorcyclists.

For many years the popularity of motorcycling has fluctuated, influenced by changes in the cost of motoring by car, the range and ease of use of the motorcycles and scooters, and changes in lifestyles – such as where we choose to live and work.

Recently we have seen a significant increase in motorcycling, with people turning to motorcycles to beat congestion, and, as we have become more wealthy as a nation, an increase in biking as a leisure activity with people riding for the sheer fun of it.

In the light of this increase having a national strategy for motorcycling is a clear priority…

The principal aim of our strategy is to 'mainstream' motorcycling, so that all the organisations involved in the development and implementation of transport policy recognise motorcycling as a legitimate and increasingly popular mode

of transport. We want to see an end to old stigmas and stereotyping—motorcycling can be a modern, practical way of getting around, and we all need to recognise it as such.

The mainstreaming of motorcycling brings with it rights and responsibilities. Motorcyclists have the right to expect both central and local Government to take account of motorcycling in the planning process, when designing and maintaining the road network, when managing traffic and when considering safety. In return, motorcyclists must recognise their responsibilities—to ride sensibly and safely within the law, be considerate to other road users, and to others more generally – for example those who wish to enjoy the peace and tranquility of our rural areas.

This strategy is a beginning. It encompasses important initiatives including better training to take skills to a higher level; improving rider and driver attitudes and behaviour; improved motorbike design; better designed infrastructure and smarter traffic management. It sets out a clear program of action for us, working with others, and for the motorcycling world itself – the industry and the user groups – building on the excellent co-operative platform developed through the Advisory Group. Together we can take forward this sensible, practical and deliverable package of measures to make a positive difference for motorcycling, and make sure that motorcycling takes its proper place in the transport mainstream as a safe, affordable means of transport.

The approach adopted in the United Kingdom Department for Transport motorcycle strategy, which states that mainstreaming motorcycling as a form of transport is now government policy, is a quite different approach to that of most Australian governments, who consider motorcycles too dangerous to be encouraged and focus policy on harm minimisation and control.

Other relevant motorcycle safety research papers

It is important to recognise that a significant proportion of work relating to motorcycle safety often remains unreported and unpublished. For example, in 2002 three Northern Sydney local councils—Willoughby, Ku-Ring-Gai, and North Sydney developed a motorcycle safety program to address the over-representation of motorcyclists in crashes in these three local government areas. The program included:

- education of motorcyclists regarding potential risks and how to avoid them;
- a helmet trade in offer which encouraged the use of protective clothing and safe helmets;
- road safety audits of identified 'trouble spots' for motorcyclists (which revealed that the issue at some of the sites was behavioural rather than environmental, and to address this, warnings for both motorists and motorcyclists were displayed at these sites on Variable Message Signs).

- a radio campaign, motorcycle safety brochures and bumper stickers, to raise the awareness of all road users regarding motorcycle safety issues.

While the motorcycle safety program was innovative, and engendered strong community and stakeholder support, and used a wide range of complementary strategies, and targeted different road user groups who have an impact on the safety of motorcyclists, and generated substantial interest from other road safety stakeholders, no substantive report of the program was published.

The Motor Accidents Authority has been particularly active in funding research and intervention programs for motorcycle safety. The Motor Accidents Authority has developed an injury prevention strategy to:

- meet the Motor Accidents Authority's road safety legislative responsibilities in a strategic and coordinated way
- give direction and priority to the Motor Accidents Authority's road safety activities; and
- disseminate information about those activities.

The strategy focuses on decreasing serious injury and gives priority to areas including those that have greatest cost impact on the New South Wales compulsory third party (CTP) insurance scheme. A key target group for the Motor Accidents Authority is motorcyclists.

Recent research studies funded by the Motor Accidents Authority include an exposure study by motorcycle make and type (Christie & Harrison, 2003), and an investigation of motorcycle crash patterns for young riders (Christie & Harrison, 2001). The results of this work have also been published more widely (Harrison & Christie, 2005).

The George Institute for International Health has commenced a series of research reviews examining the use of helmets by motorcyclists (see, e.g., Ivers, Wells, Blows, Liu, Stevenson, Sing & Norton, 2003; Ivers, Blows, Liu, Lo, Norton, Stevenson & Zhang, 2004; Liu, Ivers, Norton, Blows & Lo, 2003)

Safety issues associated with motorcycle helmets were also examined by O'Connor (2005), who sought to assess the role of helmets and helmet type in relation to injury to the cervical spinal cord (see also O'Connor, Kloeden & McLean, 2002).

A number of relevant papers on motorcycle safety have been presented at recent Road Safety Research, Policing and Education Conferences in Australia and New Zealand, including Haworth (2003), Haworth and Mulvihill (2003; 2004), Christie & Newland (2001), and (McCormack,2003)

Finally, it is important to note that motorcycle safety issues arise in off-road contexts, including riding in parks and reserves, and on private property (including farms, see, e.g., Franklin & Davies, 2003)

Concluding comments

STAYSAFE hopes that the release of such a compendium of research and analysis will foster and facilitate the development of a coherent motorcycle safety strategy in New South Wales that is adopted and supported by government as well as the motorcycling community.

STAYSAFE believes that it is appropriate to proceed to a formal inquiry into motorcycling safety in New South Wales. STAYSAFE has examined motorcycling safety issues by way of formal inquiry once before, but this work is now two decades old (STAYSAFE 3, 1984). Under the Chairmanship of Michael Knight MP, a comprehensive review of motorcycling safety was conducted, examining areas such as pre-learner's permit training and testing, the conditions of the learner's permit, provisional licensing and testing, requirements for motorcyclists to wear helmets and protective clothing, conspicuity issues (including daytime running lights), and a limited consideration of engineering issues affecting motorcycles. The most notable recommendations from this inquiry supported the establishment of a Rider Training Unit and a Motorcycle Rider Training and Testing Scheme in New South Wales. It was several years before recommendations made in this report were implemented. For example, a recommendation for a side-car passenger to be required to wear a helmet, and a recommendation for the removal of any exemption from helmet wearing, were not effected until 1992.

As well as the STAYSAFE Committee, Parliamentary counterparts in other Australian jurisdictions have conducted a number of inquiries into motorcycle safety (see, e.g., Road Safety Committee, 1993, 1998; Social Development Committee, 1992).

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Managing Fatigued Driving:

Public Information and Education

By Ken Smith, Smithworks Consulting

Abstract

The paper discusses fatigue and its impact on driving performance and crashes. Definitions of fatigue are described, and the difficulty of identifying fatigue related crashes and thus their true extent. It is argued that there is need for much greater public knowledge of contributing factors to fatigue and the extent to which people are at risk. Fatigue is a much greater road safety problem than is commonly understood and efforts to manage it are only just beginning.

Introduction

Over the last decade or so there has been a good deal of research and discussion about driver fatigue or, perhaps more correctly, the effect of fatigue on driving and its implications for safety. In Australia most of this work has been in relation to heavy vehicle safety, with research and policy development being centred around heavy vehicle driver hours of work and related issues such as sleep disorders. More recently attention has been drawn to the dangers of sleepiness while driving, which has resulted in advertisements warning of the danger of 'microsleeps'. Recently, some survey work amongst the general population has been carried out.

Motoring organisations and authorities provide messages about the dangers of fatigue, the need to take rest breaks, plan trips and the like but there appears to be relatively little information in the public domain about the contributing factors and impairment effects of fatigue. The research work carried out in relation to heavy vehicle safety, although relevant, is not generally made available to the wider community.

This paper seeks to review this and other work in relation to fatigue and sleepiness, and to provide a basis for further consideration of ways to better inform the community to reduce what is becoming more clearly understood as a serious road safety problem. The paper will discuss definitions of fatigue, identifying fatigue as a contributing factor in crashes and other research work bearing on the issue.

Defining fatigue

Fatigue needs to be defined so that its character and effects can be distinguished from other forms of impairment, such as impairment from the use of prescription and non prescription drugs, cannabinoids and other 'recreational' substances and alcohol.

While use of alcohol and other drugs (and some associated behaviours) can lead to fatigue and give rise to much the same psychophysiological impairment as fatigue, a person can be impaired by fatigue without use of drugs and alcohol.

This requires a definition that relates specifically to fatigue, even if some of the impairment outcomes are common to other contributing factors. For the purposes of driving impairment, this does not matter.

Much of the research on fatigue in Australia has been in relation to the road transport industry. The outcome of this research is relevant to all drivers and riders. Most research has tended to use operational definitions of fatigue, focussing on psychophysiological outcomes and linking them to sleep deprivation(1). The report of the Neville Inquiry(2) summed up various definitions and concluded:

"fatigue is the result of inadequate rest over a period of time and …. leads to physical and mental impairment".

A Fatigue Expert Group convened by the Australian Transport Safety Bureau, the Land Transport Safety Authority of New Zealand and the National Road Transport Commission(3) suggested a combination of symptoms and contributory factors:

"The symptoms or effects associated with fatigue include impaired performance (loss of attentiveness, slower reaction times, impaired judgement, poorer performance on skilled control tasks and increasing probability of falling asleep) and subjective feelings of drowsiness or tiredness;

Contributory factors include long periods awake, inadequate amount or quality of sleep over an extended period, sustained mental or physical effort, disruption of circadian rhythms, inadequate rest breaks and environmental stresses (heat, noise and vibration)".

Job and Dalziell(4) noted that a definition of fatigue should identify fatigue as a construct or state of the person, not a performance or a behavioural outcome; it should identify the cause of the state of the person, to distinguish from other things producing the same performance outcomes, and should reflect, as far as possible, the meaning ascribed to the term by the general population. On these criteria they define fatigue as follows:

"Fatigue refers to the state of an organism's muscles, viscera or central nervous system, in which prior physical activity and/or mental processing, in the absence of sufficient rest, results in insufficient cellular capacity or system wide energy to maintain the original level of activity and/or processing using normal resources."

Any of these definitions is suitable. It will be obvious that even where formulated for heavy vehicle drivers these definitions apply in every respect to all drivers and riders, whether professional or private and whether working or on personal affairs. Although as noted it is probably most generally associated with long distance driving, impairment caused by fatigue can affect short trips as well, as discussed a little later.

Fatigue and Crashes

Certain kinds of crashes are said to be fatigue related or characteristic. At present there are three ways in which fatigue can be identified as a cause or major contributing factor to a crash. The first is by indirect evidence or by inference from investigation of the crash(1). The second is an admission by the driver or rider that fatigue played a part in loss of control. The third is through the evidence of a witness that the driver or rider was too tired to operate the vehicle safely, either through physical signs of fatigue or through the evidence of long hours of work or wakefulness.

The second and third ways are less frequently available to investigators either because the driver does not survive or is unwilling to admit that his or her driving was impaired by fatigue, or because there are no witnesses.

Many fatigue related crashes are fatal, and unlike drugs or alcohol, fatigue cannot be detected in a post mortem. Therefore investigators have to infer fatigue as a contributing factor through the circumstances of the crashes that occur. This is very important for determining whether fatigue played a part in the crash, and in relation to the limitations of the data.

Criteria used for identifying fatigue related crashes

The criteria used for identifying fatigue related crashes are essentially a matter of best judgement on the crash circumstances that can most reliably be associated with driving impaired by fatigue. These are commonly held to be:

- severe crashes
- crashes where the driver is the only occupant
- crashes involving running off the road or colliding with another vehicle or object, especially where there is no evidence of braking or swerving; or
- crashes occurring at the high risk times of mid afternoon, late at night or in the early hours of the morning, corresponding to the circadian rhythm low points(5).

The times of day commonly used (2-4pm and 10pm or midnight to 6am) only represent those hours in which circadian rhythms are at a 'low' point and there is greater propensity to sleep. These periods are somewhat arbitrary and there is room for variation according to individual differences and a person's need for sleep. A person who is seriously sleep deprived may fall asleep or be impaired by fatigue at any time, so the 'high risk' crash times are neither exclusive nor fully inclusive.

There is therefore great uncertainty about the number or proportion of crashes that can reliably be identified as fatigue related. It is likely, and is frequently acknowledged, that the numbers commonly cited represent an underestimate rather than an overestimate, even if they include crashes that might have been ascribed to fatigue because there is no other identifiable cause. Figures of 4% to around or above 30% have been cited(6). Dobbie(7) estimated that 16.6% of fatal crashes

were caused by fatigue, on a very restricted definition. One study of crashes in NSW expressed the view that up to 60% of the crashes investigated could have involved some element of fatigue(8). Moore and Brooks(6) have suggested that even the best estimates of heavy vehicle fatigue crashes almost certainly understate the true figure.

But even that does not account for all factors. Swann(9) in an Austroads paper that has not been noticed very much, has suggested that crashes identified as fatigue related might only be those that result from the driver falling asleep, since the core characteristic of these crashes is that the driver is no longer in control. But there might be significant impairment at levels well below the point of falling asleep that also contributes to crashes. Swann thinks there are levels of sleepiness in which

> '…drivers have significant withdrawal of attention from road and traffic demands which can be both general, impairing vehicle control and collision avoidance ability, and can also be selective, impairing collision avoidance ability but leaving vehicle control intact. At these impaired levels of information processing drivers may not detect critical events, such as stop signs and red lights and may fail to appreciate high accident risk situations.'

If Swann is correct, it is probable that only crashes involving greater levels of sleepiness are reliably identified as fatigue related, and that crashes arising from lesser (but still present) fatigue impairment are incorrectly ascribed to other causes such as inattention or 'negligent driving' or sundry breaches of the road rules.

Without firm indication that a driver or rider was impaired in these crashes, or admission by the driver or rider that he or she was fatigued and therefore failed, it is unfortunately not possible to include such crashes in any definition of a fatigue related crash.

Does this amount of underestimation matter? On these and all available figures, it is clear that fatigue related crashes are a significant portion of the total and warrant action to reduce them. It is reasonable to estimate that the number of fatal crashes that result when the driver falls asleep, let alone those that result from lesser levels of sleepiness, are in the range from 16.6% (Dobbie(7) to possibly as high as 30%. To put this in perspective, it should be recalled that in 1999 28% of drivers and riders killed in Australia had a blood alcohol concentration over the Australian legal limit of 0.05g/100ml (5, p.119). The most recent figures are very little different. On this basis it is not unreasonable to suggest that fatigue could be implicated in as many crashes as alcohol. In fact effective action on driver fatigue could have a significant impact on a stagnating road toll, and the more so since available figures underestimate the true number. No greater precision than is now available would be required to justify investment in measures to reduce the number of crashes and resulting trauma that have fatigue as a major contributing factor.

Misunderstood and underestimated

So why is fatigue such a widespread phenomenon and apparently so little understood?

One view is that people misunderstand the nature of fatigue. It is widely considered to be a problem in long distance driving, with the driving itself being the major contributing factor. Warnings about fatigue feed this impression to some extent by promoting the need for regular rest breaks ('every two hours stop, revive, survive'). Further, there are warnings about sleepiness ('a microsleep can kill in seconds') but there is often little in the way of information base on which to understand the point of the slogan.

The very term 'driver fatigue' suggests the idea that driving makes one tired, and therefore that the problem or contributing factor is extended periods of driving. But the problem is not 'driver fatigue' (although that is certainly part of it) but 'driving when fatigued'. If understood in this way then the importance of other factors becomes evident. And apart from the matter of hypovigilance, it is only in this context that warnings about microsleep make sense.

Much of the considerable amount of research on fatigue of the last few years has tended to focus on hours awake and sleep deprivation, with some attention to the impact of sleep disorders which is part of the same theme. In Australia it began with research into heavy vehicle driver fatigue, and from that research and a considerable amount of background literature came the realisation that circadian rhythm effects and loss of sleep time were if anything more important than the number of hours worked and time on task(3). Much of this work has stayed in the road transport industry where the associated research and policy development had its genesis, and until very recent times has not gained much attention outside it.

But there is more than one phenomenon that is thought of when people think about fatigue. Some writers and researchers draw a distinction between fatigue resulting in measurable impairment and subjective feelings of sleepiness or tiredness (1,2,9). This is also referred to as hypovigilance, which was the subject of a workshop held at CARRS-Q late in 2004(10). These feelings are related to boredom or lack of stimulation and rapidly dissipate on arousal. Unaroused states can be just as dangerous as sleep deprivation or work induced fatigue if they mean loss of attention and consequent failure to perceive hazards and slowness to react. Swann(9) talked about the effect of sleepiness as a phenomenon in its own right, without referring to sleep deprivation or other cause. Subjective feelings of boredom or sleepiness are relieved by taking periodic rest breaks and a snack, following the usual advice.

Note that physiologically this is the same phenomenon as sleepiness from causes normally associated with fatigue in terms of the definitions earlier cited: insufficient sleep, energy

depleting activity, or too long awake since the last sleep. In safety terms it is just as dangerous.

It may be worth considering that easier driving environments such as improved road surfaces and more favourable geometry, quieter, air conditioned vehicles with automatic transmissions and cruise control may all reduce attentional demands on the driving task. Have we increased the potential for hypovigilance?

An important issue in fatigue

We have noted in the discussion of definitions of fatigue that fatigue impairs performance. One of the factors in fatigue impairment is that fatigue, like alcohol, affects cognition(1,p.50). This means that the fact that a person is becoming impaired by fatigue is itself masked in the same way as impairment from alcohol consumption. Perception, attention and judgement are impaired(9). Therefore, as with alcohol a person's own judgement as to whether they are impaired by fatigue may not be able to be trusted, and in the interests of safety probably should not be.

The impact of fatigue on driving capability is not insignificant. Research carried out comparing performance effects of sleep deprivation and alcohol by Dawson and Reid(11) and Feyer and Williamson(12) found that 17-19 hours continuous wakefulness brought a decrement in performance equivalent to being at the Australian legal blood alcohol concentration (BAC) limit of 0.05, and that the performance effect of 24-27 hours or so without sleep was equivalent to being at a BAC of 0.10. Amounts of sleep deprivation that occur quite easily in daily work and social activities can bring about serious levels of incapacity. This incapacity manifests itself in identifiable driving errors (e.g. failure to dim headlights for oncoming traffic, tracking errors, speed variability, poor headway maintenance and others easily brought to mind) but also more subtly in failure to identify hazards, lapses in concentration, errors of judgement, fidgetiness and discomfort, or sudden awareness of having covered some considerable distance. These manifestations of impairment can occur at levels of sleepiness well below the 0.05 BAC equivalent, but towards the more extreme end can occur with startling suddenness and little warning.

It is often argued that road and traffic situations that demand high levels of attention (coming upon slower vehicles and overtaking them, more demanding road geometry, roadworks and so on) can overcome attentional deficits. To some degree this is true where hypovigilance is concerned but at higher levels of impairment even this can be insufficient to overcome the effects, any more than the effects of alcohol impairment can be overcome. For the same reason, and especially because of the cognitive deficit that is part of fatigue impairment, driving faster to increase arousal and attentional demands is fallacious and of course extremely dangerous.

Perceptions about Fatigue

Without firm survey evidence to substantiate the view, it is possible that the public has little understanding of the impact of insufficient sleep and sustained wakefulness, together with stressful or physically and mentally demanding work, time on task, rest breaks and so on, and the consequent danger of falling asleep or being significantly impaired even on short urban journeys. These issues have been canvassed in the road transport industry but not to a great extent outside it.

It is especially likely that there is very little knowledge of the specific, impairment related reasons why ordinary people as road users should give attention to fatigue and sleepiness, and accordingly modify their behaviour. A well developed survey would be required to determine the reasons and influences, but it is reasonable to suggest that they would include

- insufficient understanding of how much fatigue can impair driving,
- insufficient self-awareness of growing loss of alertness and concentration (but with at the same time a perception that impairment could be identified when it begins)
- a desire to press on and complete the journey or to meet a time or stage
- not enough good, safe, convenient places to stop
- transient effects such as weather which lead to reluctance to stop and get out of the vehicle.

Some recent survey findings support this view. RACV(13) conducted market surveys and focus groups in Victoria to determine peoples' attitudes to rest breaks and rest areas, with some significant findings. Drivers 18-25 years of age were less likely to take rest breaks than older drivers, as were people who undertook long trips more frequently and rural residents than people who lived in urban areas. Significantly, inattention or inexperience (ranked third) were ranked higher than fatigue (fifth) as contributors to crashes. About rest areas and rest taking, respondents 'totally agreed' with the following statements:

- On long driving trips I want to get where I'm going as quickly as possible (48%)
- When I do stop it's only for petrol or a toilet break rather than a rest (41%)
- There is not enough advertising warning drivers about fatigue (31%)
- I only stop driving when I've nearly fallen asleep at the wheel (9%)
- Breaking a drive to have a rest is just wasting time (7%)

Another survey conducted by Bartlett et al(14) found sometimes confused and sometimes insufficient knowledge by 17-25 year olds compared with older drivers on the amount of sleep needed by young people compared with older people, on whether raising the volume of the radio would help a driver keep awake, and on whether younger people were more likely to fall asleep at the wheel than older people.

Other findings of those studies seem to suggest that urban residents who take long country journeys relatively infrequently are more likely to take rest breaks than rural residents who habitually take longer journeys. But on other evidence suggesting that fatigue related crashes often happen at holiday periods and weekends it is clear that many also just want to get to their destination as quickly as possible, as the RACV survey also suggests, and it is a reasonable supposition that many of those will be fatigued when they begin and be less inclined to take rest breaks.

These findings are by no means comprehensive but indicate that there is scope for deeper and more extensive public education about fatigue. In the same way as for alcohol, for example, such public education should be directed towards changing public perceptions and encouraging behaviour change.

Risk factors

So what are the risk factors and what do we know about them? To begin with, we are all at risk. Obviously some are more at risk than others, but not always for the reasons we think.

The risks in long distance holiday driving have been well documented. But leisure activities may reduce sleep time and impair driving. The RACV survey(13) noted that young people are less likely to take rest breaks than older drivers, to have less knowledge about the amount of sleep they need and what should be done (and what is ineffective) when fatigue symptoms are detected.

Some medical conditions may lead to fatigue, whether through sleep loss or for some other reason. Researchers like Grunstein have pointed to the risks arising from various kinds of sleep disorder.

Here are some basic fatigue risk factors.

Work

There is little in the literature that covers the effect of work on driving. Work that is stressful and mentally or physically demanding means that a tired worker on his or her way home will have impaired driving capacity. The journey home from work is typically undertaken under the most difficult, crowded and stressful driving conditions.

Shift work brings a great many more problems. There is a broad literature on shift work. Anecdotally, shifts of eight, ten or twelve hours are worked in different industries, and the trend appears now for there to be relatively short periods on any one shift to prevent the body's habituation to one regime and to provide more periods for rest at night.

Shift work is at high risk for fatigue. The body is governed by inbuilt biological rhythms attuned closely if not precisely to the cycles of day and night. Work is best performed during the day when the bodily system is (other things being equal) awake and alert; the best sleep is obtained at night when there is a strong propensity to sleep((1), p.50). By definition, shift work includes periods of work at night during the low points of the circadian rhythm, and that work is more fatiguing than work during the day. Further, in shift work rest and sleep are often taken at times of the day when sleep is less 'efficient' than at night: it may be shorter because of disturbances and interruptions and may be less restorative. The Fatigue Expert Group has suggested in relation to long distance road transport that there should be a limit of 18 hours night work (the period midnight to 6am) and that after this two nights' unrestricted sleep should be available(3; also in (1), p.52). This probably applies equally to shift work.

There is a strong possibility that people on shift work are permanently fatigued to a greater or lesser degree. In turn, shift workers' driving capacity is also likely to be impaired, the more so since some driving to and from work is likely to be at the most risky time of the day, ie at low periods in the body's circadian rhythm.

Young people

Evidence on crash risks for young drivers late at night and in the early hours of the morning suggests that they are at high risk(5, p.227). Of course there are many reasons for this but sleepiness is one of them. Young people may also be at risk at other times if they are sleep deprived because of leisure activities, the more so because of a less than accurate perception of how much sleep they need(13). Even small amounts of alcohol, possibly well under the legal limit, potentiate the need for and propensity to sleep.

Sleep and sleep depriving medical conditions

To recapitulate the issues briefly, the need for sleep is biologically determined(1, see p.50). Fatigue must be relieved by sleep. Sleep 'debt' arising from loss of effective night sleep accumulates and must eventually be 'repaid'. It may be repaid involuntarily if the person does not stop to rest. When the need for sleep becomes acute a person may fall asleep with little warning. This can take the form of 'microsleeps' of a few seconds duration, or for longer periods of time.

Sleep depriving conditions such as sleep apnoea and other medical conditions, the effects of medication and social or psychological conditions that disturb sleep can put sufferers at great risk.

You and me

If these are some identifiable high risk groups – and there are others – it is clear that most of us are at some degree of risk at some time or other, some frequently or habitually for occupational or lifestyle reasons, and some only at intervals. It should be recalled that the risk factors are sleep loss or deprivation, continuous periods awake, the effect of work or leisure activities and others. Conditions such as work, financial or personal concerns that disturb sleep can put people at risk.

For some these are temporary, for others longstanding emotional and similar disturbances make for chronic and continuing sleep loss and risk. Parents and especially mothers of small children are chronically sleep deprived, and the problem is made worse because of unrelenting daytime activities in caring for them, or in doing so and working part or full time as well.

Clearly, many are at risk more than they think they are. Harrison[15] conducted surveys and discussion groups to assess the impact of ordinary day to day activities and found these often very significant in terms of general fatigue and consequently on driving. Parenting responsibilities, social activities and work were main contributors to fatigue while driving. An important issue with respect to policy and countermeasures for driving while fatigued is that respondents to Harrison's surveys also pointed out that because of those activities driving could not be avoided: the option to postpone or avoid it altogether, or often to take necessary rest breaks, was simply not available.

Where do we go from here?

Clearly there is a strong case to be made for significantly more and better education on the characteristics and driving risks associated with fatigue than is available at present. As already noted, the number of crashes in which fatigue probably plays a part, even at the most conservative estimate, warrants action. Information on fatigue, its risks and driving performance impacts needs to be much more comprehensive and much more widely available than it is at present. Such education needs to cover more areas (for example issues relating to shift work and normal daily activities), and there is need to determine the extent and depth of public knowledge so that public education is directed most effectively.

Activities such as Driver Reviver stations during holiday periods are valuable and should be continued. But even for those who do not use them they serve a purpose in raising traveller awareness.

As a guide to the measures we might need to consider it is worth looking back to see the amount and depth of education and public information that went into informing the public about drink driving. A vast amount of that related to enforcement but there has also been a significant component devoted to 'knowledge' matters such as standard drinks and so on. That effort is continuing with present education focussing on such things as morning after effects.

It might be considered that comparing fatigue with alcohol is unreasonable, but there are two aspects to be considered. In the first instance, in the 1960s when alcohol began to be considered as a problem in road trauma requiring significant effort there was probably little better public understanding of the dangers of alcohol than there is now about, for example, sleep deprivation. It is argued that there is need and

justification for significant effort to develop countermeasures even though alcohol was a much bigger killer in the 1960s than fatigue is now. Secondly even if fatigue or sleepiness is a less serious problem than alcohol it is still a significant problem in terms of even relatively conservative estimates (e.g. Dobbie[7]) of the number of crashes involved. If as has been argued fatigue is likely to play a greater part in road trauma than the best estimates show then the case for action becomes significant. And in a time when we are struggling to make real inroads to further reduce road trauma, here is a very significant contributor on which our efforts are only just beginning.

Conclusions

Fatigue is a widespread and serious road safety problem. Research evidence and inference based on the available evidence indicates that fatigue is probably more pervasive, and its effect in terms of driving impairment worse, than is commonly believed.

All sectors and groups in the community are affected at least at intervals, and some groups such as shift workers severely and predictably so, even if their problems are not often generally known. But survey evidence also highlights the severe fatigue impacts of normal, day to day activities of people leading ordinary lives, often with no relief and perhaps no alternative to driving. Much improved public education and information is probably required to highlight the dangers.

Society's effort in dealing with driver fatigue is only just commencing. Much more work is needed to create awareness of the degree to which a person can be impaired by fatigue and its effect on performance, and that fatigue is as much a concern in ordinary, day to day activities as it is in holiday travel. Fatigue is everyone's problem.

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PARSO Birth and Growth

A background to the development and work of the Professional Association of Road Safety Officers (PARSO) in New South Wales Inc.

by Janet Hogge, Road Safety Program Coordinator, Hawkesbury City Council

Until recently, PARSO members talked of the Association as being in its infancy. After more than six years of operation, we now feel we have moved on to another stage of development. This is reflected in the success of the recent PARSO Community Road Safety Summit. The Summit was the highlight in what has been, at times, an arduous journey.

The need for a professional body to represent Road Safety Officers (RSOs) was initially identified in September 1997. Discussion about how this might come about began and, in May 1998 a working group for the founding of a Professional Association of RSOs in NSW was established. Draft objectives, benefits and outcomes were produced to be canvassed with RSOs across the State.

It was clear that most RSOs wanted to form an organisation that was independent. It was agreed that incorporation was the most appropriate method to provide the Association with:

• a framework (constitution) in which to carry out its functions and role;

• a legal identity; and

• provide a simple and affordable means for achieving the above two.

The Professional Association of Road Safety Officers in NSW Inc. (PARSO) was incorporated under the Incorporation of Associations Act, 1984 in May 1999. A number of RSOs who were instrumental in establishing PARSO became members of the first Executive Committee. PARSOs objectives are:

• To provide an umbrella organization for all Road Safety Officers in NSW to do all such things as may be necessary to enhance and expand the NSW Local Government Road Safety Program (LGRSP) including, inter alia, the following:

• To facilitate opportunities for association and interchange of thought and experience among members of the Association.

• To develop a framework for effective education, training and publicity for Road Safety Officers.

• To arrange for an interchange of knowledge and experience of road safety matters between members of the Association.

• To provide opportunities to members for interchange of knowledge and experience of road safety matters between professional bodies both national and international.

• To ensure that specialised knowledge and experience of the Association is available to other organisations.

- To establish and maintain a reference library and collection of designs, drawings, promotional materials, resources, articles, and other information and to print, publish and circulate papers, books and other literary matter relevant and useful to members.
- To represent the views of Road Safety Officers to relevant organisations or bodies.

Since incorporation PARSO has endeavoured to find its place in the road safety landscape. Along the way the organisation has aimed to determine the needs of RSOs and to raise the profile of their work within the Local Government Road Safety Program.

There have been a number of milestones along the way for PARSO and one of the most important of these was the invitation from the Motor Accident Authority (MAA)

to join the Summit Advisory Group which organised the Young Driver Seminar in March 2000. Also significant, was the invitation from the Institute of Public Works Engineering Australia (IPWEA) to have a PARSO representative sit on its Road Safety Panel, a specialist panel established in 1995.

To reach its goal of providing RSOs with support while raising the organisation's profile, PARSO has implemented a number of strategies including:

A Christmas card project to raise profile of RSOs in local government and deliver a road safety message to discourage drink driving.

Endorsing The Australian Pedestrian Charter. PARSO was the second organisation, after the West Australian Government to endorse this charter which promotes walking as a serious travel choice.

Organised visits to the Transport Management Centre for RSOs, Planners and Engineers.

Promotional brochure produced for distribution to delegates at the Vic Roads Conference in Melbourne.

Organised for NRMA to present its "Years Ahead" Seniors' Peer Education Program to RSOs.

Lobbied for additional Local Programs Officer at the RTA Sydney Regional Office to cope with the increasing number of metropolitan Councils joining the Local Road Safety Program.

Presentation at the 2004 Local Government Road Safety Conference State-wide RSO meeting.

One of the most significant steps taken by the organisation was the development of a survey to determine the varying conditions under which RSOs are working, and the overall commitment from Councils to the LGRSP. The results of the survey were presented at the LGRSP Conference held at Redfern in 2001. This conference also saw PARSO representation on the debating panel (this was repeated in 2002).

At the first Annual General Meeting (AGM) in October 2000, it was agreed that a new position should be established, that of media officer. A media policy was drafted and later adopted by the Management Committee.

Over the past two years PARSO has moved forward rapidly with the development of it's "Outreach' project which provides financial support to RSOs who want to spend time with their peers in other parts of the State for the purpose of professional development. There has also been the development of the PARSO website which provides RSOs with information about upcoming meetings, interesting websites and meeting minutes.

Above all else, PARSO provides a voice for Road Safety Officers, particularly in responding to issues that impact on the delivery of road safety at a local level.

A comprehensive survey undertaken in 2004 by PARSO identified a wide range of issues for RSOs. The survey served to formalise what PARSO members had already been discussing and of which they were aware. Things such as no consistency regarding where an RSO is located within Council; to whom they report; whether they have access to vehicles or car allowance or mobile phones; or what level of support they receive.

The results of this survey have been taken into account by the RTA during its redevelopment of the Council/RTA funding agreements.

In 2004 members agreed to pursue the idea of a Community Road Safety Summit for all road safety practitioners including RSOs, Police, Rotary etc. The inaugural PARSO Community Road Safety Summit was held in February 2005. The Summit proved to be a huge success and delegates were able to vote for the winner of the inaugural PARSO Community Road Safety Award. The outcome of the Summit was the development of an Action Plan to move PARSO into it's next stage of development.

Our primary function is to provide support by listening to RSOs and where possible, getting things onto the appropriate agendas. At the same time, we are able to maintain the integrity of individuals who may otherwise feel uncomfortable at 'having a say'.

Managing PARSO has been challenging for all concerned. The ideas come thick and fast, but the resources are at times thin on the ground. A commitment to PARSO, from committee members, involves sharing administrative tasks that would normally be managed by a dedicated salaried position.

For this reason acknowledgement must be made to all those RSOs who were instrumental in the establishment of PARSO and its ongoing development.

Peer Reviewed Papers

Driver Distraction in Sydney

Drivers' attitudes, awareness and knowledge about driver distractions: Research from two central Sydney communities

by Suzanne Baker, City of Sydney Council & Kathrine Spina, Marrickville Council

This paper was presented at the International Conference on 'Dri ver Distraction' in S ydney, 2-3 June 2005, run jointly by the ACRS, the NRMA and the Travelsafe Committee of the NSW Parliament. Any views or opinions presented are solely those of the authors and not of the councils involved.

Introduction

The issue of driver distraction is an emerging one. As new technologies become available for use in motor vehicles its importance as a road safety issue in Australia will increase. The role of distraction in road crashes is only just beginning to be explored and to date only a small amount of research has been conducted.

Research conducted (Horberry et al, 2005) shows there is evidence that in-vehicle sources of distraction are capable of degrading driving performance and compromising safety. Driver distraction must be viewed as a legitimate road safety issue and drivers attitudes to distraction need to be further explored and road safety campaigns implemented.

Given the increased risk and high prevalence of crashes associated with distraction demonstrated in overseas studies, and given the effects of distraction on driving performance, there is reason to believe that distraction is a significant contributing factor in crashes in Australia.

In the City of Sydney there has been an increase in lane deviation accidents over the last four years. This has occurred as we have seen a reduction in overall accidents and an increase in ownership of mobile phones. Research indicates lane deviation accidents have been directly related to a driver engaging in a distracting behaviour.

Many studies have been conducted (Horberry et al, 2005) that show distractions such as making a phone call, conducting a mobile phone conversation, conducting a complex conversation and tuning a radio/ changing a CD all lead to a significant increase in the number of situations in which the person failed to respond appropriately in the road environment in a timely manner.

It is possible there is a lack of awareness among the community of the research literature linking driver distraction with degraded driving perf o rmance and the types of distracting behaviour that can impact on driving perf o rmance and driver safety.

This paper focuses on the research results obtained from drivers in two central Sydney communities on their attitudes, awareness and knowledge about driver distractions.

Background

Road Safety Officers from the City of Sydney and Marrickville Council engaged a consultant to conduct research to achieve the following objectives:

- To determine the level of awareness of driver distraction in the community;

- To determine driver beliefs and attitudes on the issue of driver distraction, the effects distraction has on driving behaviour and if drivers adjust their behaviour;

- To determine the extent drivers participate in distracting behaviour;

- To collect information to assist in the development of a road safety campaign.

In April 2005, 203 residents in the two council areas participated in a telephone survey (see Table 1). Eligible respondents were licensed drivers who had driven at least 3 times in the last week. The questionnaire was developed in consultation with the consultant.

Additionally, two focus groups were held with residents recruited from the telephone survey respondents. One group consisted of drivers age 35 and over and the other group consisted of drivers under the age of 35. The focus group discussion guide was also developed in consultation with the consultant and aimed to discuss the findings from the telephone survey.

Research findings

Awareness and knowledge of driver distractions

Drivers were asked, unaided, to think of things that would distract them while they were driving. A range of responses were given. In order of importance, the factors drivers thought to be most distracting to drivers on the road were mobile phones (59%), pedestrians (24%), the behaviour of other drivers (24%), advertising (22%), radio /CD or music in the car (19%), children in the car (12%) and passengers (11%).

Table 1: Telephone survey sample

AGE	Survey Sample	
	No.	%
17 to 19	5	2
20 to 24	16	8
25 to 29	19	9
30 to 34	35	17
35 to 39	28	14
40 to 49	39	19
50 to 59	31	15
60 to 64	12	6
65 plus	18	9
GENDER	No.	%
Male	120	59
Female	83	41
COUNCIL	No.	%
City of Sydney	132	65
Marrickville	71	35
TOTAL	203	100%

Drivers made no spontaneous distinction between the distraction potential of the different uses of a mobile phone. However, when asked to rate the distraction levels of a list of activities, it was clear that drivers do distinguish between text messaging, talking on a hand held and talking on a hands free mobile.

The vast majority of drivers (94%) viewed text messaging while driving to be very distracting to drivers. There was a slight trend for younger females to be less likely to give the activity a very distracting rating. Furthermore, talking on a hand held mobile phone was viewed as very distracting by three out of four drivers (75%). However, when looking at the use of hands-free mobile phones while driving, only one out of four drivers (28%) thought this activity was very distracting.

Drivers argued that not having to hold on to a handset makes talking on hands-free mobiles safer with focus group participants saying not having two hands on the wheel slows reaction times. Focus group participants tended to be quite sceptical of any suggestions that talking on a hands free mobile is just as distracting as hands held.

Young males (17-34 years) were the least likely (41%) to identify mobile phone usage as a distraction to drivers, while older males (35+) were the most likely to identify this as a distraction.

Female drivers (35+) were most likely (38%) to identify the behaviour of other drivers (e.g. not indicating, speeding, and tailgating) as a distraction. In contrast, younger female drivers (17-34 years) were the least likely (10%) to identify this factor as a distraction.

Focus group participants identified the same types of distractions as survey respondents. When asked what they found distracting about various items they identified bus stop advertising as blocking a driver's view. Pedestrians were viewed as distracting because of their unpredictable nature.

Most dangerous driver behaviours

Drivers were given a range of distractions and asked to identify what they thought were the most dangerous and second most dangerous activity to participate in when driving.

Text messaging (sending or reading) was identified as overall the most dangerous (73%) followed by talking on a hand held mobile phone (67%), however only 4% of drivers gave talking on a hands free mobile a similar rating. It is interesting to note that the larger proportion of drivers (38% out of 67%) who nominated talking on hand held mobile phone as a dangerous driver distraction only considered it to be the second most dangerous driver distraction. This may suggest that while drivers consider this as very distracting they perceive it not to be dangerous when they do it.

Driver's own behaviour

Drivers were asked to report whether they had personally engaged in various distracting activities while driving in the

Table 2: Drivers reported own behaviour last week
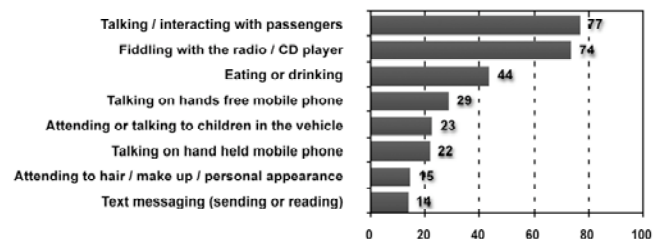
past week (see Table 2). The activities most frequently engaged in were talking or interacting with another passenger while driving (77%), fiddling with the radio or CD player while driving (74%) and eating or drinking while driving (44%).

One out of four drivers (29%) reported that they had talked on a hands-free mobile phone, 23% had attended or talked to children, 22% had talked on a hand-held mobile phone and 15% had attended to their personal appearance.

Only 14% of drivers admitted to text-messaging while driving. Younger drivers were more likely to have engaged in this behaviour with 20% of younger males and 26% of younger females admitting to this behaviour compared to only 7% of older males and 12% of older females.

Australian research has suggested that around one-third of mobile phone users regularly use hand held phones while driving and one in six send text messages while driving which is consistent with the results of this study.

	Hands free mobile phone %	Hand held mobile phone %	Text messaging %	Radio / CD player %	Children in the vehicle %	Eating or drinking %	Personal appearance %	Passengers %
Do not change behaviour	61	20	25	56	65	50	46	76
Slow down	18	35	33	20	8	17		7
More cautious	7	25		7	12	11		4
Drive more recklessly	4		8	2				5
Pull over		25	17					
Look out for police								
Do it while stationary at lights		10						
Take eyes off road			25	3	15			4
Hold wheel with one hand			8	4		11		
Only do it when safe						4		4
Keep eyes on road						4		
Move to the left lane								
Other	14	10	8	4	12	6	31	7
Base	28	20	12	99	26	54	13	99

Table 3: How driving changes when engaging in distracting behaviour

How driving changes when engaging in distracting behaviour

Two of the activities drivers had admitted to engaging in during the past week were selected at random. Drivers were then asked if they had adjusted or changed their driving behaviour in any way when they were engaging in those activities.

More than half the drivers queried (61%; n=17) did not change their driving behaviour when talking on a hands free mobile phone. The majority of drivers queried (35%; 7 out of 20) reported slowing down when talking on a hand held mobile phone while driving. However, 4 out of 20 (20%) did not change their driving behaviour at all.

One in three drivers queried (33%; 4 out of 12) slow down when sending or reading text messages while driving, however one out of four (25%; 3 out of 12) do not make any changes to their driving behaviour. Of the other activities undertaken while driving such as fiddling with the radio / CD player, eating or drinking, attending to personal appearance and children, more than half the drivers did not adjust their behaviour to compensate.

Whilst these findings provide some important insights into drivers' self-reported compensatory responses, it is not known whether drivers did indeed perform in this way in response to being distracted.

Drivers generally had difficulty describing how they changed their behaviour when engaging in one of these activities. In terms of mobile phone calls, there was a tendency for younger drivers to say they did not answer them. However on further discussion they admitted to checking their phone to see who was calling and only answering 'important' calls. There does appear to be some reluctance to admit to talking on mobile phones when driving, indicating either some social unacceptability or recognition of the illegality.

Focus groups participants who said they slow down when doing something distracting had difficultly actually saying how much they slowed down. Participants discussed if drivers can become more careful or aware of their surroundings to compensate for engaging in distracting behaviour. Older drivers tended to think that driving ability depended on the driver and some drivers can 'multi task' or do two things at once while others can not. Younger drivers could also see this point of view, but some said it was physically impossible to compensate totally.

We note that many simulator based studies show drivers do not engage in as much precautionary behaviour as perceived by the driver which confirms the focus group participants feeling that drivers can not actually compensate for the distraction.

Observed behaviour

Drivers were asked how often, as a driver, passenger or pedestrian, they saw a range of distracting activities being conducted while driving. The behaviours observed very often or every day by drivers included talking on a hand held mobile phone (49%), talking on a hands free mobile phone (35%) and talking / interacting with passengers (51%)

The behaviours that were less frequently observed included attending or talking to children in the vehicle (37% saw very often or every day), eating or drinking (47%) and attending to hair / make up / personal appearance (44%).

The behaviours respondents hardly ever saw were drivers' text messaging (27%) or fiddling with the radio / CD player while on the road (22%).

These findings confirm what is well known about mobile phone usage whilst driving.

Drivers experiencing or witnessing distraction related incidents

Drivers were asked to report whether they had personally experienced or witnessed distraction related incidents in the last year.

Table 4: Percentage of drivers experiencing or witnessing distraction related incidents
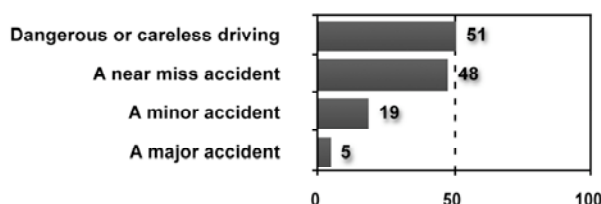
As shown in table 4 above, the majority of drivers (51%) had experienced or witnessed dangerous or careless driving as a result of a distraction and 48% had experienced or witnessed a near miss accident. Interestingly, 24% had experienced or witnessed an accident. This shows that driver distraction is an important road safety issue.

If drivers had experienced or witnessed any road incidents, they were then asked what the distraction was that had caused the most serious of those incidents. Talking on a hand held mobile phone was cited as the most common (45%) cause of these road incidents. This was followed by talking or interacting with passengers (13%) and text messaging (7%). Females were more likely (12%) than males (4%) to cite text messaging as the cause of the serious road incident.

Drivers were then asked what the driving error was that had caused the serious incident. The most commonly cited driving errors were:
• drifting into another lane (21%)
• running a red light (21%)
• not stopping in time (20%) and
• changing lanes without looking or indicating (15%).

This is similar to driving behaviour cited in other simulator based studies.

Ideas and options for an education campaign

Drivers in the focus groups were asked to suggest approaches for reducing mobile phone use whilst driving. The suggestions included the need for stricter enforcement of current laws as drivers perceive there is little risk of getting caught or fined and do not know anyone who has been.

Drivers also said they need to be provided with credible evidence of the dangers of using a hands free mobile. Drivers were not easily convinced that using a hands free mobile is just as distracting as using a hand held. This was also evident when focus groups participants were asked to rank the most dangerous distraction and fewer than half nominated mobile phones indicating drivers need to be convinced of the dangers not just be told not to do it.

Increasing the social stigma associated with mobile phone use also needs to be targeted. Drivers felt the practice of talking on a mobile while driving is quite common now and is not seen as dangerous as drink driving or as anti-social. They suggested campaigns with a focus of 'Do the right thing by other drivers' and 'It can wait' would give a message that this behaviour is not so socially acceptable.

In terms of possible media for a campaign, television ads were suggested as the most obvious. Many felt a more positive approach ("D o the right thing") or introducing a social stigma ('D on' t be a tosser') would be good approaches. Local papers were not seen as effective, particularly by young people who report only occasionally browsing though the local paper or free hand-out magazines (i.e. Courier or City Weekly). Bus back advertising was seen as an effective medium.

Conclusions

Lack of community awareness

This research shows that there is a lack of awareness among the community of the impact a distracting behaviour can have on driving performance. A number of key issues have emerged from the study that need to be considered when developing road safety campaigns in an attempt to reduce the incidence of drivers engaging in distracting behaviour.

Extent of the problem

In terms of the extent of the problem, one in four drivers have witnessed or experienced an accident caused by the driver engaging in distracting behaviour with half of these accidents caused by the driver talking on a hand held mobile. Additionally 48% of drivers have witnessed or experienced a near miss accident and 51% have witnessed or experienced careless driving caused by the driver engaging in distracting behaviour.

The community attitude toward mobile phone use while driving appears to be one of growing inevitability. Even though drivers feel this behaviour is undesirable and somewhat dangerous, many still do it. An education campaign needs to shift this social acceptance by emphasising the negative social impact much like the "Do the right thing", "Don't be a tosser" and "Drink drive, bloody idiot" campaigns.

Low risk of being caught

Drivers perceive the risk of being caught and fined for driving while using a hand held mobile phone as low as neither they nor anyone they know has been caught. Unlike speed cameras and red light cameras, drivers actually have to be seen by police and the police have to make the effort to stop the vehicle. Drivers believe you have to be very unlucky to be fined. Therefore the law against using a hand held mobile while driving is not a major deterrent. The obvious counter measure is to conspicuously increase enforcement.

Hands free mobiles

It is evident from the research that the use of hands-free mobiles while driving is considered less dangerous than using a hand held mobile. The law allowing use of a hands-free mobile reinforces this belief. Drivers will need sound evidence and a convincing argument to be persuaded otherwise. However, while they see the use of a hands free mobile as less dangerous than a hand held, they still acknowledge that it is distracting to talk on a hands free mobile so there is scope to build on that perception. Talking on a hand held mobile is seen as more dangerous than a hands-free because reaction times are increased due to not physically having two hands on the wheel. Drivers seem to be less aware of the mental aspect of driving and the cognitive distractions also slow reaction times and ability to navigate traffic.

Text messaging

Talking on a hand held mobile and text messaging are seen as the most obvious and dangerous distracting behaviours. However, other activities such as fiddling with the radio or CD player, talking with passengers and attending to children are much more common and not seen as particularly dangerous and drivers rarely change their behaviour when participating in these activities. They are seen as an unavoidable part of driving and socially acceptable.

In-car music systems

Research conducted by Horberry et al, 2005, using a driving simulator showed that using a car music system had the greatest impact on driving performance. If this is correct this study shows that the community is unaware that many of these socially acceptable distractions, such as using a car stereo, are in fact more dangerous than they realise.

Scope for a broader campaign

Focus group participants questioned as to why this study was sponsored by the Councils rather than the RTA or Commonwealth Government. This indicates that the

community perceives this as a State or National issue rather than a local issue and that there is scope for a broader campaign.

Recommendations

The recommendations the authors would like to make based on the results of this research include:

The need to implement a state wide road safety campaign that shifts the social acceptance of using a mobile phone whilst driving

There is a need to make drivers aware of the effects mobile phone usage has on driving performance and that this must be done in such a way as to convince not tell

Police need to increase enforcement of this issue to change the perception that it is bad luck if you get caught

Current legislation that permits the use of hands free phones should be reviewed as it reinforces the current belief that hands free phones are safer

Text messaging in young drivers, particularly females, is very popular and could become a very serious problem. Drivers must be educated about the dangers.

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Drink Driving Rehabilitation

An Investigation into the Self-reported Effectiveness of a Distance-education Drink Driving Rehabilitation Program for a Group of Drink Drivers

By James Freeman, Cynthia Schonfeld & Colin Edmonston

Abstract

This paper reports on the examination of a group of convicted drink drivers' self-reported appraisals regarding the effectiveness of a court-ordered distance education drink driving rehabilitation program (N = 51). The analysis indicated that participants were satisfied with the implementation and content of the program, and reported program completion had a positive effect on improving their knowledge and skills to avoid drink driving. Despite this, approximately 25% of participants reported it likely they would drink and drive in the future, with such intentions being associated with attitudes and beliefs about drink driving rather than with the appraisal of program effectiveness. The findings have implications for the implementation of distance education rehabilitation programs to remote communities and the development of effective countermeasures that reduce the prevalence of drink driving.

The Current Context

Drink driving continues to be a major road safety concern as alcohol-related crashes result in substantial injuries, fatalities and property damage. The gravity of the problem is reflected in the enormous amount of literature that has focused on the impact of drink driving, and the effectiveness of different countermeasures to reduce the prevalence of the offending behaviour (Beirness, Mayhew & Simpson, 1997). Research indicates that legal sanctions such as fines and licence disqualification periods are effective in deterring a large proportion of general motorists from drink driving, but the application of sanctions in isolation has proven to be less effective in reducing alcohol-impaired driving among more persistent offenders (see for example Marques, Voas & Hodgins, 1998). More recently, alternative countermeasures such as drink driving rehabilitation programs have been developed and often combined with legal sanctions in an attempt to further reduce the prevalence of drink driving (Freeman & Liossis, 2002).

Effectiveness of Drink Driving Programs

Despite an early series of negative appraisals regarding the effectiveness of rehabilitation programs (Foon, 1988; Holden, 1983; Sanson-Fisher et al., 1986), a growing body of research has demonstrated that drink driving programs have the potential to reduce recidivism and alcohol-related crashes (Davies, Broughton, Harland & Tunbridge, 2000; DeYoung, 1997; Nochajski & Stasiewicz, 2002). The primary aim of these programs has generally been accepted to be the process of separating drinking from driving by providing participants with the knowledge, skills and strategies to avoid further offending behaviour (Popkin, 1994; Wells-Parker, 1994). A secondary aim has often been to reduce drinking levels by increasing participants' awareness of the seriousness of excessive alcohol consumption (Wells-Parker, 1994). The most promising results have been reported by large scale meta-analytic studies that have examined first time and multiple offenders, effect size, intervention characteristics and the quality of research design for each study (Wells-Parker et al., 1995). Furthermore, the most promising indications regarding the effectiveness of rehabilitation programs have been for those interventions that have focused primarily on recidivist drink drivers (DeYoung 1997; Ferguson et al. 2000; Siskind et al. 2001).

Distance Education

The potential of drink driving rehabilitation programs to promote behavioural change has lead to the development of distance education versions to cater for individuals who live in rural and remote locations. In the simplest form, a common element of distance education programs is that the teacher and students are separated by time and place (Keegan, 1990). Historically, distance education has been utilised as a teaching mechanism for over 100 years in academic, vocational and recreational capacities (Treloar, 1998). There has been tremendous growth within the distance education field in the last decade (Carnevale, 2000; Lockhart & Lacy, 2002), as a considerable advantage of the approach is the ability to reach a greater audience and thus provide a service to individuals who would not have otherwise been able to access the program. A growing body of research has demonstrated the approach to be as effective as face-to-face teaching in academic settings (Jordan et al., 1999; Treloar, 1998), but few research attempts have focused on programs that aim to stop further offending behaviours.

Need for Multiple Outcome Measures

In general, the majority of previous research examining the effectiveness of drink driving countermeasures has focused primarily on summative outcome measures such as recidivism rates (Fitzpatrick, 1992; Popkin, 1994; Sanson-Fisher et al., 1986). While recidivism rates are the most accessible outcome measure (Buchanan, 1995), a number of researchers have raised questions regarding the accuracy of the measure (Beirness et al., 1997; Cavaiola & Wuth, 2002; Fitzpatrick, 1992; Popkin, 1994; Sanson-Fisher et al., 1986; Wells-Parker et al., 1995), as the probability of being apprehended for drink driving remains relatively low in a number of jurisdictions

(Beitel, Sharp & Glauz, 1975; Homel, Carseldine and Kearnes, 1988; Voas, 1982)1. In addition, summative measurements provide very little insight into the impact of rehabilitation programs on key outcomes such as drinking behaviours, knowledge, motivation and attitudes, nor appraisals regarding the effectiveness of programs. The collection of such data has the potential to inform the development of future programs.

At present, only a small amount of research has examined offenders' selfreported experiences (Ferguson et al., 2000; Levy, 1997). Despite this, preliminary research has provided rich contextual information regarding the impact of interventions on the acquisition of new knowledge and strategies to avoid drink driving (Connors et al., 1986; Ferguson et al., 2000) as well as participants' motivations to change drinking and drink driving behaviours (Ferguson, 1997; Ferguson et al., 2000; Levy, 1997; Wells-Parker et al., 1998; Wells-Parker et al., 2000). The present study aims to extend previous research and conduct an exploratory investigation into the self-reported experiences and appraisals of a group of convicted offenders who complete a distance education version of a drink driving rehabilitation program called "Under the Limit" (UTL).

The "Under the Limit" Program

UTL is an 11-week education-based drink driving prevention and rehabilitation program developed in 1993 by an interdisciplinary team of university researchers, government and non-government agencies including Magistrates, Community Corrections, TAFE and Police. The program is available throughout the state of Queensland. The UTL program is based on best practice models in the areas of problem drinking as well as drinking and driving (Ferguson et al., 2000). The program aims to promote controlled drinking (not abstinence) and separate drinking from driving. The program has traditionally been implemented through Technical and Further Education (TAFE) colleges in 11 weekly sessions of one and a half hours2. In 1998, a distance education version of the program was developed and implemented, to enable offenders who for a range of reasons (eg persons living in remote areas of the state, shift workers, single parents) could not attend a local TAFE college to participate in the program.

It was decided that an initial evaluation of the distance education program should examine the efficiency of delivery as well as offender views of the content and impact.

- The study thus focuses on the following research questions:
- What are participants' self-reported experiences of completing the program?
- What are participants' self-reported perceptions regarding the effectiveness of the program?
- What are participants' self-reported attitudes towards drink driving after program completion?
- What factors are associated with further intentions to re-offend?

Method

Participants

A total of 51 convicted drink drivers volunteered to participate in the study. There were 40 males and 11 females in the study. The overall response rate for the research was 46% as 111 offenders were contacted to participate in the study. Participants were located in a number of rural and non-rural areas: Far North Qld (n = 6), Townsville (n = 6), South East Qld (n = 16), Darling Downs (n = 10), Central Qld (n = 11), Mackay (n = 2).

Materials

Program Assessment Questionnaire

A questionnaire developed for the study, collected a variety of information focusing on participants' experiences, perceptions and appraisals of the UTL program. Participants were required to respond to a mixture of categorical (e.g., 3 point) and 10-point measures (from 1 = "strongly disagree", 5 = unsure, to 10 = "strongly agree"). The first part of the questionnaire collected demographic information such as the age, employment, marital status and level of income of participants. The second section focuses on participants': (a) experiences of completing the program (e.g., length of time & assistance from friends), (b) assessment of the content of the program (e.g., appraisal of videos & drinking diaries as well as program outcomes), (c) attitudes towards drink driving, and (d) drinking behaviours (e.g., quantity) and drink driving behaviours (e.g. frequency of past offences and intentions to re-offend in the future).

Procedure

Data were collected through structured interviews via two procedures. Firstly, the majority of participants (70%, n = 36) were interviewed face-to-face at their residence or a convenient location. Only the researcher and the participant were present during the interview. Secondly, when face-to-face interviews were not possible due to logistical problems (e.g., time and travel) telephone interviews were conducted at a convenient time for participants (30%, n = 15). Both forms of interviews took approximately 20-30 minutes to complete.

Results

Characteristics of Sample

The majority of participants were between the ages of 25 - 44. Participants were mostly male, who were employed (62.7%) on a full-time basis in blue-collar occupations, earning approximately $12,000 - $35,000. There was considerable variation in the level of participants' education and more than half the sample reported currently being single. The socio-demographic characteristics of the sample are comparable to recent studies that have focused on convicted drink drivers apprehended in Queensland (Buchanan, 1995; Ferguson et al.,

Table 1. Descriptive Statistics for Program Effectiveness

	M	SD
Understanding the negative outcomes of drink driving:	7.55	2.52
Gaining knowledge regarding standard drinks:	7.84	2.58
Learning drinking quantity and remain under legal limit	8.17	2.27
Learning about internal/external factors that affect drink driving	6.78	2.10
Understanding alcohol makes hazards worse	2.29	2.69
Understanding alcohol increases chance of crash	7.29	2.70
Learning benefits of cutting down on drinking	7.14	2.64
Learning about strategies to reduce drinking	6.69	2.75
Understand when most likely to drink and drive	7.10	2.48
Learning strategies to stay under legal limit	7.55	2.34
Becoming aware of pressures to drink and drive	6.06	2.82
Learning about reasons why people drink	6.43	2.58
Filling out the drinking diaries each week	6.35	2.82

2000).   Place of residence varied considerably from the Wide Bay region to the Northern Queensland region, which was the main contributing factor for the sample being enrolled in the distance eduction version of the UTL program.

1. Experiences and logistics of program completion

In regard to the first aim of the study, participants reported no problems contacting the program coordinator, and indicated they found her friendly, reliable and knowledgeable. There were few reported difficulties corresponding with the facilitator via mail (e.g., returning completed activities) and the program did not have a negative effect on participants' family, work or social life. The majority of the participants reported completing the program by themselves (60%), although a sizable proportion reported receiving assistance from friends or family (40%). Most lessons took between one (66.7%) or two hours to complete each week (31.4%). In general, the self-reported data indicates that participants experienced few difficulties completing the distance education program (e.g., correspondence via mail & telephone), which suggests the implementation of a distance education drink driving program in rural/remote areas has the potential to be a viable alternative to traditional face-to-face programs.

2. Assessment of content

In regard to appraisals of program content, the majority of participants reported most lessons to be easy to understand (98%) although approximately half the sample reported some lessons were unrelated to their situation (55%). Participants were provided with different methods to complete the worksheets such as drawing pictures or telling a story, which was reported as helpful. In particular, the sample indicated that the videos and drinking diaries were easy to understand and related to their situation.

In regard to the effectiveness of the program to assist the sample in avoiding drink driving in the future, participants responded to 13 questions (on a 10 point scale) with the mean score for the total questionnaire being 7.10 (S.D. = 1.88). Table 1 depicts the mean scores and standard deviations for each of the 13 questions designed to investigate self-reported appraisals regarding the effectiveness of the program. As highlighted, the most effective aspects of the program were associated with learning about appropriate drinking quantities and the effect(s) alcohol has on driving abilities. An additional question explored participants' satisfaction levels with the program (10 point scale from 1 = "extremely unsatisfied", 5 = unsure, to 10 = "extremely satisfied"), revealing most of the sample were satisfied with the content of the program M = 7.68 (SD = 1.95).

Table 2. Self-reported Drinking & Drink Driving Behaviours

	Drinking			Drink Driving	
	N	%		N	%
Never	3	5.9	Unlikely	39	76.5
Once a Month	12	23.6	Unsure	1	2
Once a Week	7	13.7	Likely	11	21.5
2 to 3 times a week	15	29.4			
4 to 5 times a week	4	7.8			
Every day	10	19.6			

Table 3. Appendix A. Intercorrelations Between Outcome Measures

	1	2	3	4	5	6	7
1. Effectiveness of Program	1	.65**	.37**	-.03	.04	-.18	-.02
2. Satisfaction levels with Program		1	.46**	.10	-.20	-.01	-.16
3. Attitudes regarding Drink Driving			1	-.13	-.56**	.22	.03
4. Drinking Frequency				1	.24	.15	.08
5. Intentions to Re-offend					1	-.12	.02
6. Age						1	.00
7. Level of Income							1

3. Attitudes towards drink driving

The third aim of the study was to examine participants' attitudes towards drink driving behaviours after completing the program. Participants responded to 17 questions (on a 10 point scale from 1 = "strongly disagree" to 10 = "strongly agree") and in general, the sample reported positive attitudes towards; (a) trying to avoid the offending behaviour (M = 6.50, S.D. = 1.01) and (b) recognising the seriousness of the offence (M = 6.90. S.D. = 1.14). Participants also considered that it was not acceptable to drink and drive (M = 7.68, S.D. = 2.60), and believed there was no excuse for drink driving (M = 7.78, S.D. = 3.14). However, they also indicated the majority of their friends believed it was acceptable to drink and drive (M = 6.78, S.D. = 3.03). Finally, they reported the dangers of drink driving as being overrated (M = 8.22, S.D. = 2.61). Taken together, the results indicate that while participants believed drink driving to be unacceptable and reported having the skills to avoid the offence, the sample appear immersed in an environment that condones drink driving behaviour e.g., friends drink and drive.

4. Drinking and drink driving behaviours

An investigation of drinking behaviours upon program completion revealed that approximately one third of the sample were not drinking heavily, as they reported drinking alcohol once a month or less. Conversely, a sizeable proportion reported drinking alcohol every day, four or more days a week (27.4%). In regard to intentions to drink and drive again, three quarters (76%) of the sample reported it unlikely that they would re-offend, one participant was unsure, and 11 (21.5%) participants reported that it was possible they would drink and drive in the future (see table 2). The percentage of participants intending to drink and drive again in the current sample is comparable with recent Queensland research that has examined repeat offenders intention to re-offend after completing interventions (Freeman, 2004).

Intercorrelations between Program Outcomes and Intention to Re-offend

Table 3 depicts the bi-variate relationships between appraisal of program effectiveness, satisfaction levels, attitudes towards drink driving and intentions to re-offend. Firstly, in regard to self-reported satisfaction with the program, the measure was not significantly associated with intention to re-offend (r = -.20), nor with actual drinking levels (r = .10), or socio-demographic characteristics such as age or level of income. Rather, program satisfaction appears associated with an overall appraisal regarding the effectiveness of the program (r = .65**). In addition, satisfaction was positively associated with drinking driving attitudes, as those who recognised drink driving was inappropriate and not to be tolerated reported a higher level of program satisfaction (r = .46**)3.

In regards to appraisals of program effectiveness, as highlighted above the factor appears associated with satisfaction levels (r = .65**), as well as positive attitudes towards avoiding drink driving (r = .37**). However, such appraisals were not related to socio-demographic characteristics or alcohol consumption levels. The third factor of interest was intention to re-offend, as 23.5% of the sample were not certain that they could avoid drink driving in the next year. Interestingly, intention to re-offend for the current sample does not appear to be associated with appraisals regarding the effectiveness of the program (r = .04), satisfaction levels (r = -.20) attitudes towards the content of the program (e.g., lessons, videos or drinking diaries), or socio-demographic characteristics. Furthermore, in contrast to previous research which demonstrated that higher levels of alcohol consumption increase the likelihood of re-offending (Baum, 1999; Yu, 2000), intention to re-offend were not highly correlated with drinking behaviours4.

Rather, intention to re-offend were negatively associated with appropriate attitudes towards drink driving (r = -56**). The results may suggest that individuals who believe drink driving is common, have friends who drink and drive and believe that drink driving is acceptable under some circumstances are more likely to drink and drive again in the future. Once again, it is unknown what impact the UTL program had on intention to re-offend as participants were not interviewed before commencing the program. What appears evident is that individuals who believe drink driving is acceptable (even after completing a drink driving rehabilitation program) are at risk of re-offending in the future.

Discussion

The present research aimed to investigate the self-reported experiences and perceptions of a group of convicted offenders who completed a distance education version of a rehabilitation program. At present very little research has attempted to examine the impact of distance education programs on convicted offenders, or in fact the effect of distance programs for offenders in general. In regard to the logistics of implementing programs, the group reported few difficulties corresponding with the facilitator (via telephone) or receiving or returning lesson content via the mail. Importantly, completing the program was reported to have minimal impact on participants' family or work life, and the group indicated the lessons were easy to understand. Furthermore, participants reported the program to be effective, particularly within the areas of providing information about appropriate drinking levels and the effects of alcohol on driving. Perceptions regarding program effectiveness were positively associated with satisfaction levels, as the group were generally satisfied with the content of the program. Upon program completion the majority of participants also reported positive attitudes towards attempting to avoid drink and drive, and recognised the seriousness of the behaviour and dangers associated with the offence. In summary, the results indicate that a distance education program has the potential to exposure drink driving offenders to valuable information regarding the seriousness of the offending behaviour and alternative methods to avoid the offence.

Finally, an examination of participants' intention to re-offend revealed that three quarters of the sample were confident of avoiding further offences, but approximately one quarter considered it possible that they would drink and drive again in the future. The findings indicate that while rehabilitation programs are effective for the majority of individuals who complete such interventions, additional countermeasures such as alcohol ignition interlocks may be required to assist some individuals to avoid the drink driving sequence. The findings also suggest that the behaviour of drink driving may be entrenched for some individuals, and the process of providing them with the knowledge, skills and strategies to avoid drink driving – in some cases- may not be adequate to stop further offending behaviour. Given that self-reported intentions to re-offend were not associated with satisfaction or appraisal levels but rather with attitudes towards drink driving (both individual and friends'), further research may benefit from examining the environmental and situational factors that facilitate the behaviour of drink driving in some rural/remote communities.

Study Limitations

Some limitations of the study were identified. Participants were not randomly selected. The small sample size limits statistical power and generalisations to the larger population of convicted drink drivers. In general, researchers have experienced considerable difficulties recruiting drink driving offenders, as this population appears extremely unwilling to present for interviews (Cavaiola & Wuth, 2002; Ferguson, 1997). Recently, these recruitment difficulties have been highlighted by small sample sizes that have ranged between 40 and 100 participants (Fetherston & Lenton, 2002; Karki, 2002; Nochajski & Stasiewicz, 2002; Smith, 2003). The accuracy of the self-reported data remains susceptible to self-reporting bias, especially responses that focus on future offending behaviours. Furthermore, it remains uncertain whether stated intentions, such as intending to drink and drive again in the next year, are effective predictors of future behaviours. Finally, participants were not interviewed before commencing the program, which would have facilitated the examination of attitudinal and behavioural changes that result from program completion.

Despite such limitations, the results provide initial evidence for the continued implementation of distance education programs for individuals who are otherwise unlikely to be exposed to essential skills and strategies to avoid drink driving. However, such programs also need to consider addressing the social and physical environment that maintains or promotes the offending behaviour, as the factors that influence drink driving may also extend beyond personal characteristics and consumption levels. As a result, future research may benefit from incorporating pre-program questionnaires to identify what impact intervention programs have on a range of personal and social factors. It would also be of value to obtain consent from participants to access official data on their offences and evaluate the effectiveness of the program in terms of recidivism rates.

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Understanding Street Racing and Hoon Culture

An exploratory investigation of perceptions and experiences

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Abstract

Street racing typically refers to competitive speed challenges on public roads, while "hooning" refers to activities such as burnouts or excessive acceleration. Recent media reports have highlighted the potential for fatalities or injuries and the public nuisance caused by these behaviours. In the last two years since the introduction of Queensland's 'anti-hoon' legislation, over 1500 vehicles have been impounded and 4100 disturbance complaints registered. Similarly, between 1999 and 2004, 169 'hooning' or racing crashes involving 12-24 year olds have been recorded by official Queensland police crash reports. The current investigation used a combination of focus groups, e-mail responses and message board feedback to conduct an examination of the experiences and perceptions of young people in regards to 'hooning' behaviour and legislative reforms. It is proposed that the results can be used to inform existing legislation and assist in the development of interventions from both a youth and Queensland Police Service perspective.

Introduction

Hooning' and street racing have gained significant exposure within both print and broadcast media in recent times highlighting it as a dangerous and anti-social behaviour [eg: 1, 2, 3]. Although the terms 'hooning', cruising and street racing are used interchangeably at times, they refer to slightly different car-centred activities. Street racing is the act of taking part in a competitive speed challenge between two or more cars, while 'hooning' generally refers to activities such as burnouts and unnecessary speeding or acceleration which may take place individually or as part of a group. Having said this, both sets of activities are by definition not mutually exclusive and are often grouped together as an overall set of 'hoon' behaviours when used in terms of the targets for recently introduced legislation such as Queensland's Police Powers and Responsibilities and Another Act, the otherwise labelled 'anti-hoon legislation' [4]. For the purposes of this study, both behaviours will be grouped under the term 'hooning' except where the report specifically refers to racing or another subset of 'hooning.'

What are the characteristics of 'hoons'?

Young, predominantly male drivers in the age range of 16 and 25 years are typically those identified as involved in racing and 'hooning.' This is a pattern that has been largely confirmed by research of racers and those congregating around car scenes in Australia, the United States and Finland [5-7]. It has been proposed in relation to illegal street racing that it is a relatively transient pastime given the small and young age range in which this behaviour occurs, suggesting that those involved tend to grow out of it after a couple of years ([6]. Leigh [6] has gone further and argued that those involved in these activities are largely mainstream citizens who have an active interest in motor sports. Conversely, others [see 7, 8] argue that illegal street racing and social meets are not only associated with criminal activity, but actively encourage and develop it. As such, one pertinent question that remains to be resolved is whether those who engage in these activities are a deviant subculture, are a part of the mainstream car enthusiast culture, or are a mixture of multiple subgroups that entail parts of both.

Queensland crash records

Queensland crash data for the years 1999 to 2004, drawn from Queensland Transport's WebCrash2 database has revealed that 'hooning related' activities are problematic on our roads. Results were initially limited to those crashes that had involved drivers between the ages of 12 and 24 (the 12-16 year age group was included to capture 16 year olds), as this is considered to be the target group for this behaviour and this investigation. Previous analyses had also identified only a small number of additional crashes would be added to the sample if a larger age-group extending to the 30 and over age group was included. 'Hooning-related' crashes were identified by searching the crash details reports attached to records for mentions of words such as 'hoon,' 'racing,' 'burnout,' and 'donut' that are commonly associated with reports of the target behaviours. 169 such crashes were identified after the exclusion of crashes that were either not relevant to 'hooning' or where it had only been implied that the behaviour had occurred. Table 1 below presents the distribution of these 169 crashes in relation to the speed limit of the area the crash occurred in and the crash severity.

A number of significant trends can be identified within this sample. The majority of the crashes (78%) occurred within 60km/hr and lower speed zones, a fact reflected in that nearly 60% of the crashes occurred in metropolitan or hinterland areas. In addition, 72% of the crashes occurred between the afternoon and night time hours of 5pm and 4am. As such, it is apparent that the crash statistics above paint a picture of 'hooning related' crashes as largely urban or suburban night time incidents occurring on suburban streets.

Table 1: Summary of Queensland 'Hooning related' crashes, 1999-2004

Speed (km/h)	aFatal	(%)	bHos	(%)	cMed/Inj	(%)	dProp	(%)e	Total
≤50	0	0.0	10	22.2	14	31.1	21	46.7	45
60	5	5.7	17	19.5	26	29.9	39	44.8	87
70	1	12.5	4	50.0	0	0.0	3	37.5	8
80	1	9.1	3	27.3	3	27.3	4	36.4	11
100	0	0.0	2	14.3	5	35.7	7	50.0	4
110	0	0.0	0	0.0	2	50.0	2	50.0	4
Total	7	4.1	36	21.3	50	29.6	76	45.0	169

a - Fatal Crash   b - Hospitalisation required   c - Medical treatment administered / Minor Injury
d - Property damage only   e - Percentages may not add to 100% due to rounding

Why are people involved in hooning?

There are a number of theoretical models that can be applied to explain street racing and 'hooning' behaviour; however it is important to note that one theory cannot be all-encompassing. It is important to establish that these behaviours have significant perceived positive outcomes for participants. The act of using the car for such activities is thought to be a means for achieving goals and accomplishments which may otherwise not be achievable. This may take the form of comparatively minor goals such as gaining social status [9] or higher level concerns such as defining one's self concept [10] and progressing towards more control over one's life [11]. Likewise, it is arguable that the activities are socially constructed and socially reinforced. Therefore, while macro-level struggles and issues may lead some youth in the direction of these illegal driving activities [6, 7], peer group and parental influences work to reinforce a lifestyle and way of thought that allows these intentions to become a displayed behaviour. Whether this reinforcement takes the form of direct encouragement or not is regarded as unimportant in this current context.

'Anti-hooning' legislation

Recently, a number of points have been added to existing legislation in a number of Australian states in order to combat illegal street racing and 'hooning'. In Queensland, these 'laws' are adjustments that have been recently made to the Police Powers and Responsibilities and Another Act that have provided police with the authority to impound vehicles for varying time periods dependent on how many offences have been committed. In Queensland, the legislation specifically targets actions such as dangerous or careless driving, racing or speed trials, and intentionally causing unnecessary noise or smoke as a result of activities like 'burnouts' [4]. Available police data indicates that a substantial number of instances of 'hooning' or dangerous driving behaviour are taking place on Queensland roads. In the period between November 2002 and September 2004, over 4100 complaints of 'hoon related' activities were recorded on the Police traffic complaints system. The majority of these complaints were registered from the South Eastern and North Coast police regions. In relation to actual impoundment figures, 1549 vehicles have been confiscated for first offences, a figure which drops rapidly with only 20 second offence impoundments. A further 3 vehicles have been detected for three or more offences; making the vehicles liable for surrender to the state (Personal Communication, QLD State Traffic Support Branch).

The Tasmanian Police Offences Amendment Bill, 2004 [12] and the Western Australian Road Traffic Amendment (Impounding And Confiscation Of Vehicles) Act 2004 [13] set out simular stipulations as those in the Queensland document, forbidding activities such as racing, causing a deliberate loss of traction, or creating unreasonable noise or smoke due to driving. The initial impoundment period in each of these three states for 'hooning' is for 48 hours, with the second offence attracting a 3 month impoundment. In the event that a driver commits a third offence, the car will be forfeited to the state. In New South Wales, the Traffic Amendment (Street and Illegal Drag Racing) Act came into effect in December 1996 in an attempt to curtail ' hooning related behaviour' . In the first six months of operation, 380 offences were registered which contributed to the impoundment of 130 vehicles. As of October 2004, 2000 cars have been confiscated in total [14]. The legislation allows for vehicles to be impounded for up to 3 months for a first offence.

New Zealand has also recently introduced its 'Boy Racer Act' to combat street racing and related dangerous driving behaviours [15]. The act stipulates against behaviours such as taking part in an illegal street race, or doing 'donuts' or other actions that cause a loss of traction or require unnecessary acceleration. The laws give police the power to impound vehicles immediately for 28 days (at the owner's expense), and to disqualify drivers who take part in racing-related offences. Approximately 2000 vehicles have been impounded in the time up until June, 2004, since the law's introduction just over a year prior in May of 2003 [16].

The key points to be taken from these varying pieces of legislation are that they are explicitly restricting the behaviours

of racing, burnouts and other reckless driving. It can be reasonably assumed then that these behaviours are the primary target of such legislation. Across all of the states that have introduced these specific powers, vehicle impoundment and confiscation are the key methods of enforcement currently used.

Purpose of the current investigation

'The local car enthusiast and modified car scenes have been identified as the social group involved in the target behaviours in Queensland's 'anti-hoon legislation' [4]. The aim of the current study is to undertake detailed consultation with these groups in the local Brisbane area as to their perspective of the behaviours and their relevant policing, which have not yet been reported in published research. Although all members of the local scene of car enthusiasts being recruited for this study are not being considered as directly involved in the target activities of hooning or street racing, it is felt they would possess a high level of first-hand knowledge and experience of the activities and the most to potentially gain from direct input into the study.

Method

Participants for this investigation were mainly recruited through message board 'posts' to either Queensland-based or Queensland related sections of online 'cruising' and modified car websites. The post was directed at local Brisbane-area enthusiasts, in line with the fact that most crashes and complaints had originated from the South-East metropolitan corner of Queensland. The posts gave a brief background to the purposes of the investigation, calling for participants in the age ranges of 16 to 25 years. Given the general hesitation of participants to be tracked or identified in any fashion, the addresses of websites advertised to are not named within this paper to discourage the seeking of information relating to individuals or the source of any comments made herein.

This recruitment method was chosen to attract participants' as these sites have a large registered user base of mostly young drivers who are involved heavily in the modified car scene. The posts supplied only email and phone contact details for the researchers, which ensured the anonymity of a respondents' identity. Fourteen people participated in one of four focus groups, 12 males and 2 females. Interviews were approximately 120 minutes in length and included semi-structured and open-ended questions. Participants were not asked to provide their names or any demographic information and an inductive approach was used in order to allow interviewers to be flexible in exploring issues and themes as they arose. Although the state of origin for each participant was not verified explicitly each participant spoke of involvement in activities within the local Brisbane or South-East Queensland scene. It is highly unlikely given the central-Brisbane location and the after-hours timing of the focus groups that participants were not based within Queensland and would be regularly subject to other state's legislations.

A number of other interested people who were not able to attend in person provided feedback through phone contact, e-mails and message board posts to raise issues of importance. Of this group, five participated by providing detailed written comments via e-mail and eight participated by providing detailed posts on-line on message boards or by telephone. Again, participants were not asked to provide their names or any demographic information and provided information and feedback on topics of their own choice.

Results

The results of this investigation are presented in a number of sections, each corresponding to the key themes identified through the analysis of the focus groups and other feedback. Six key themes were identified, namely, group processes, defect notices, police attitudes, media perceptions, illegal behaviours and 'anti-hooning' legislation.

Group processes

Defining who exactly is involved in the scene is considered as a key aim before other issues can be easily understood. As suggested in past research, the group is predominantly male, though it was noted by several participants that there is an increasing number of female drivers attending events. The group is not considered as a unified set of people and can be divided in a number of ways. One such way to sub-classify the group is on the basis of vehicle choice. One male enthusiast noted that "There are two groups, 'go' or 'show.' Not many people can afford to have a car that is both spastically fast and good looking." This comment highlights the reality that it is difficult to accrue the finances to have a vehicle that is both capable of high powered output and can look highly attractive.

In addition to these two groups, it appears that a further distinction can be made. For instance, one participant noted that both the 'go' and 'show' groups can be further categorised into people who are regarded as "enthusiasts" and those that are involved in the antisocial element of activities, namely "hoons." This distinction is important because it appears that, for enthusiasts, those who are taking part in the actual 'hooning' activities are usually those who own a car of little monetary value, a car that has been purchased for them, or a car that has been provided to them. According to one participant:

> "It's only those that have a shitbox vehicle that are inclined to throw it around and try drifting and throwing burnouts. Those with well done up cars might end up paying $2000 a year on insurance [for a vehicle] and wouldn't want that going up any more."

Separate to these distinctions, a ubiquitous distinction was made highlighting the existence of what was labelled by two separate individuals as the "dickhead element." This group was otherwise referred to as "bogans" and "louts." This

element was considered to be no more than a small group, constituting approximately 10% of the entire population that would be present at a venue on a particular night. Participants distanced themselves from this sub-group, preferring to identify themselves as " car enthusiasts." These " bogans" and " louts." were described as disrespectful not only to the authorities but also to the genuine car enthusiasts. It was reported that these people might ruin a get together or a meet by public displays of " drunken behaviour" or " bad behaviour." This was reinforced by one participant, who stated:

"... when you are going out and intentionally being in a public place and not doing anything illegal, trying to create a good image for the scene, you then have people who see a whole group of modified cars, they come out do skids, cutting into traffic, and so forth, and the general public sees that and then you have the cops after you all that night and all the next week"

Although this dissident element is attracted to the car scene, it appears that their behaviour is not appreciated, especially in regards to the use of alcohol.

"...they'll go and sit in the middle of you now, thousands and thousands of dollars worth of cars and do burnouts – they get egged on and they think it's cool. So we don't appreciate it at all…"

"….they're there, drinking away, and if you drive through they basically stand in front of you and say ' Do a burnout' …' No I don' t want to' ..I' ve actually seen them stand and grab hold of the cars and start lifting them up and saying ' I' m not letting go until you do a burn o u t ' "

There was also some indication that because someone may currently not be a socially responsible member of the scene, that this will not always be the case. Participants noted how younger members of the scene, including themselves some years ago, we re more prone to taking part in inappropriate or illegal behaviours. On the other hand, attention was drawn to the fact that there are ' hoon' drivers who are considerably older.

"(Older driver) can do a handbrakey on the corner... in the middle of town on a Saturday night at 43, I think it's not just us [that's] the problem, it's everybody"

Defect notices

A key concern that was raised by almost all of those people that provided feedback was the issuing of defect notices. This was a key concern, reiterated a number of times. Problems were identified as to issues with consistency of policing and information availability. While the group as a whole had no problems with being booked for clearly dangerous modifications, they expressed annoyance with the application of fines and demerit points to minor technicalities. A loss of licence due to a defected vehicle was considered a major concern outweighing any other single issue.

"I don't have a problem with like say your rear tyres are lowered, sure that can be really dangerous especially if it is wet, if I have illegal tread depth, and a coppa fined, wouldn't have a problem with it, the issue I have is if you have no water in your washer bottle, or having no H pattern on your gear stick, you know how it has got the gears written, they defect you for that."

Police discretion was the first major concern raised in regards to defect notices issued. Participants recounted several instances of being cleared of any defects only to be picked up by a different officer on a different occasion.

"...they checked the ride height of the car then and um – that's all good…and then a year later I went again, um, to Roma Street and a cop on a bike just "ah yeah, your cars too low. "

The timing and appropriateness of defect notices as an enforcement strategy was also brought into question by the groups. Participants reported how "defect stations" had been set up around charity cruises and on exiting legal track race days. A number of participants voiced their concerns that they were being targeted even though they were partaking in organised and approved legal activities. One participant said *"I just wish they wouldn't target us so much, like after every motor sport event, after every single drifting event that I have ever been to out there, there's always a been a radar and a defect station on the way home, its ridiculous."*

The targeting of modified vehicles, particularly those that are driven by younger drivers was also raised as an issue of concern. Particularly, older or more conservative-appearing drivers were inclined to be treated by police with less scrutiny than younger drivers.

P1: "so they drove up in the (imported Japanese model), it's got fairly dark tinted windows, the police pull them over and he puts down the window, police sees that it's a 50 year old, and he goes, 'oh sorry! Have a nice day, drive on'. I mean where's the justice in that?"

P2: "Yet if it was the son driving, it would have been 'get out of the vehicle, pop the hood', and you know. "

The most noticeable and easily identifiable 'hoon' cars were considered to be those "showy" vehicles, rather than all vehicles present. An emailed input into this investigation provided a unique perspective on this issue, by drawing the attention to a particular case of someone they knew who had always driven erratically, but had only begun to become more noticed by police since purchasing an imported vehicle. As was stated in one email, "the car is not the common denominator", an "idiot is an idiot behind the wheel regardless of what car they drive."

The desire to have clear and informed advice about vehicle modifications was also of a major concern in relation to defect notices. While what is posted on public forums and discussed between fellow enthusiasts was sometimes considered to be

inaccurate or misleading, the official government sources were quoted as providing conflicting advice.

> "I've found it quite difficult to find someone to go to talk to who knows exactly what the law is on…and just go and ask them, 'Can I do this to my car and would it be legal?' 'Cause there are a lot of people who bullshit you and say 'Yes, no' um…"

These concerns were compounded by the reality that vehicle modifications can be expensive and accuracy of information is valuable to assist enthusiasts to correctly uphold the rules. The assistance of local businesses as well in drawing a purchaser's attention to the roadworthy nature of the vehicle was also suggested.

> "…a lot of the time people just go to performance shops and get things done to their cars, um, a lot of time they're not told when they're getting things done that's it's going to be illegal and they don't really want to be aware that its illegal either, but its an awareness too I suppose…"

Police attitudes

Following from the matter of defects, police attitude to the monitoring of the scene was also of a key concern to participants. One participant stated *"There's a real attitude problem with a lot of the police; not all of the police, some of them are fine… it's just a real attitude, power trip that their on, it's not all of them but a great deal of them."* While police presence was not necessarily seen as an imposition, police 'interference' with events and get togethers was met with resistance. The role of police and authorities was expressed by participants as one where they could or should play a greater role in reducing the influence of the "dickhead element" without targeting everyone for congregating together and issuing defect notices for minor defect issues.

> P1: "…there needs to be somewhere with a police presence, where the police aren't gonna pick on everybody but they're there to keep it under control, make sure there's no like people drinking in public or doing burnouts or whatever…"
>
> P2: "Be there for us, not against us"
>
> DS: So just on that thing, what can we do to get rid of the, what do you call it, the dickhead element? We've heard that twice now…. [laughing]
>
> P1: Actually get the police in there to enforce no alcohol or drinking….
>
> GROUP: Yeah, yeah!!!
>
> P2: Like, cars and alcohol don't mix….
>
> P3: Don't mix at all….

Instead, the group felt that they were being pigeon-holed as trouble-makers regardless of whether they were involved in illegal behaviours. However, one particular participant did recall how certain meeting areas have worked effectively in the

past when collaborating with police and other authorities. Further, it was suggested that a common understanding of trust could be reached between enthusiasts and police if people were allowed to get together or participate in events if they did not act illegally or socially irresponsible.

> " We as car enthusiasts are stereotyping police as well as the police stereotyping us. Um, we're both guilty of it and obviously we need to both come to some sort of agreement and co-operate in tackling the hooning issue."

> "…you need to kinda get a kinda bond of trust between hoons and police. Say if you go out to Maccas or whatever there be an understanding where the police won't defect us, if we don't do anything wrong. Like if we just rock up have a chat, go home, and don't do anything stupid they should leave us alone instead of defecting us left right and centre. Um, so you know, we need somewhere to be able to meet without the cops drilling us all the time if we're not doing anything wrong."

A number of participants mentioned that it would be of great benefit if there was a forum or official contact through which they could voice concerns and ask questions without the fear of retribution. It was mentioned that people within the scene are "paranoid as hell" about police and government intervention and were becoming more secretive and distanced from involvement in formal events as a result. These suggestions point to enthusiasts wishing to be involved more closely in police and official decision-making, without thinking that they are going to be targeted or booked for asking a question. One participant stated *". ..if they're [the police] willing to come and talk to us, I am sure that there are a helluva lot of people who would love to have to opportunity to sit down with, whoever you sit down with, and talk it out like adults."*

Media - "Don't let the truth get in the way of a good story."

Media representation of the modified car scene was also commonly raised as an issue causing much frustration and debate. The stereotypes presented in sensationalist television current affairs shows were sighted by enthusiasts as one of the key reasons behind the breakdown of relations between police and the community in general.

> DS: What do you think your view is out in the general public?
>
> P1:- We're up there with rapists [Group laughs]
>
> P2: They just think anyone with a hotted up car goes out and does burnouts, drives ridiculous, goes high speed sort of racing everything like
>
> P3: We're meant to be more dangerous than a killer
>
> P1: Yeah, [name of TV program] connected like hoons last week with like a homicide.

As these negative portrayals are primarily the only representation the group is given in the media, it is felt that the group is not given an official voice to respond to allegations.

" Like you know with [specific charity cruise] we put [it] out [to] a whole lot of newspapers, TV shows and whatever to see if they wanted to cover it or be involved and they wouldn't even look at it."

Further to this issue, participants stated that they had personally or knew of someone who had been targeted by the media and offered money or other incentives such as being a part of a 'Fast and the Furious' type movie only to find that soon after they were involved in a story regarding 'hoons' out of control on Australian roads.

"The camera crew will hit people up for; actually give them money to do a burnout in front of them."

Illegal Behaviours

Discussion of illegal behaviours was seen as a junction between attributing dangerous behaviour to particular subsets of the group as well as pointing to reasons as to why people feel they have no place to legally engage in the behaviours. Although a number of the group admitted that they had committed driving offences including unnecessary speeding, they stated that there was a "time and place."

P1: "I suppose time and place is what it is really about, and that's the difference between I suppose a lot of enthusiasts and hoons is that they're doing it for attention and without regard to a lot of other [people] that come into it, I mean I'll drive for 3 hours to go out where there aren't any other people, where I can see for kilometres and I will have 3 other cars parked at different parts of the road so we can tell there's no-one who can come along who can get hurt, um and someone else in the car a passenger always on the phone, so that if there is an obstacle coming up I can pull over, um and it is still I suppose illegal, but it is taking a lot of precaution to stop other people getting hurt ."

P2: "Right place, right time"

In response to suggestions that legal track events are the place for such activities, a number of barriers were raised as to the feasibility of this behaviour. While there is a large number of local people that are interested in formal track driving, there is a widespread opinion that there are not enough locations or occasions that are available to allow people to take part. Likewise, the level of expense incurred by taking part in race days is a concern.

" [Track racing is] just a hugely expensive sort of thing. If you took obviously those fire proof suits and everything there gonna, but then divide that by the amount of days that you are going to do it's an expensive exercise to get off the street. And you've kinda gotta make a committed decision that yeah this is the road I want to go and for me racing on the street just isn't my cup of tea but I can understand why so many people aren't racing on the track, the way it's going.....the amount of money, they could spend that money on their car. "

It was suggested by most of the participants that subsidising entry to track racing, drifting events or any other track event would reduce the likelihood of people engaging in illegal street racing or 'hooning' activities. As noted by one participant, "...if it [organised track events] was on a regular basis and I think if it was set up, it might minimise [the hooning related activities] actually happening on the streets and out near street houses and things like that..." While this idea was proposed by enthusiasts themselves it is important to note that this possible solution could become problematic if authorities used such events as opportunities to set up 'defect stations' in order to assess vehicles leaving the premises.

"They tell you to go to um, proper motor sports events or whatever but there was a drift day a little while ago... the cops had set up a defect station on the way out and drilled everybody as they left. Like you get in trouble for driving on the street, you get in trouble for driving on the track, like what are you supposed to do, not drive at all?"

'Anti-hooning' legislation

As with the defect notices, it was felt that there is too much uncertainty in terms of what is considered illegal or warrants being charged under the 'anti-hoon' legislation. The need for an independent regulator, as well as clearer and publicly available guidelines for the legislation, were suggested. The use of discretion between officers of whether a behaviour could be "reasonably considered" to be 'hooning' was perceived as a concern in terms of the currently tense relationship between the scene and authorities.

It had previously been stated to the researchers from discussions outside the focus groups that those charged under 'anti-hooning' legislation considered the loss of their vehicle as a 'badge of honour'. This suggestion was refuted by the participants of the current investigation. While they agreed that fines, demerit points and licence suspension were all valid enforcement measures, the impoundment of vehicles was thought to be too harsh a penalty, especially in light of the previous concerns about discretion.

P1: "I don't think I've ever been away from my car for 48 hours and I wonder how would I feel about that and secondly if it was like somewhere where I wasn't sort of you know within like walking distance of it like...nah...."

P2: "It's amazing the effect it [the car] has on your life."

The group also felt that car enthusiasts were the only group being targeted by the 'a nti-hooning' legislation. It was argued that if the whole community of vehicles of all ages and types w e re scrutinised to the same level as that of the modified car community, then the legislation would not be so well accepted.

"It sucks getting picked on, but some cars you look at them and you go "well that's not really safe to be driven"... I'd rather drive a car that's got bigger wheels and tyres and better brakes and whatever, um, even if it's

90 mills off the ground than instead of 100 – um, compared to like a stock VT commodore with over inflated, bald tyres in which most people get around in – it's just ridiculous that we get picked on so much, when generally our cars are better maintained …than everybody else's…"

Discussion

This exploratory investigation provides an insight into the modified car scene and contributes towards a further understanding of a number of issues relating to 'hooning behaviour' and related enforcement. Whilst the authors acknowledge that those who have so far responded to the call to participate are likely to be the more socially-conscious or civilly interested members of the scene, the current investigation has identified that there are numerous subgroups that have all previously been labelled under the broad category of 'hoon'. Further, it appears that those who are engaging in illegal 'hooning' related activities are not representative of the overall car modification group. It is becoming apparent that it is a group of dissidents within this larger group who are ruining the scene for the majority who wish to come together in support of their common interest – motor vehicles. The cohort of enthusiasts who participated in the current investigation appears disheartened that this demarcation has not been appropriated by authorities and media alike. It is important that those who are a part of this scene be involved in any countermeasures designed to curb the issue of 'hooning related behaviours' as they have a wealth of first-hand knowledge and experiences. It is also proposed that garnering the support of the people involved in this scene would be crucial in order to implement any intervention and facilitate appropriate change management to reduce the incidence of 'hooning' activities. It is arguable that any intervention would require the support of car enthusiasts themselves as it appears that they feel as a collective group their voice has repeatedly been unheard within legislative and media circles. Finally, it is important to note that while this investigation does not attempt to dispel the currently held viewpoint that there are dangerous or irresponsible 'hoons' on the road, it is anticipated that the feedback received thus far can contribute to addressing concerns from within the scene about ways that it may be improved.

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(This report documents the findings from the Australian Transport Safety Bureau's latest survey of community attitudes to road safety. The seventeenth in a series of national surveys on community attitudes to road safety was conduced in March and April 2004. A total of 1,665 interviews were conducted with persons aged 15 years and over. The issues examined include: perceived causes of road crashes, exposure and attitudes to random breath testing, attitudes to speed, perceptions of police enforcement, reported usage of seat belts, involvement in road crashes, and experience of fatigue while driving.)

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(Research conducted at Dunedin School of Medicine, University of Otago)

The aim of the research was to identify and describe all work-related traffic fatalities in New Zealand in the period 1985 to 1998.

Potential cases were identified from databases held by three national agencies. The circumstances of the deaths in each fatal incident were reviewed directly from coronial files to determine whether or not they were work-related.

The rate of work-related fatal injury involving vehicles on a public road was 2.01 per 100,000 workers per year. The rate for worker deaths was 1.11 and that for commuting deaths was 0.89 per 100,000 workers per year.

It was concluded that there are a substantial number of fatalities each year resulting from work-related crashes and these represent a sizeable proportion of the total number of work-related fatalities.

Yee WY, Cameron PA, Bailey MJ. 2006, **"Road traffic injuries in the elderly"**, Emergency Medicine Journal, pp. 42-46, Vol. 23 No. 1, BMJ Publishing Group, assisted by Stanford University's HighWire Press.

(Emergency and Trauma Centre, The Alfred Hospital, Prahran, Victoria.)

As the age profile of the population changes to reflect a higher proportion of elderly, elderly victims of motor vehicle collisions are increasing. This study aimed to investigate the injury pattern of elderly victims involved in motor vehicle collisions.

The data used in a retrospective study was obtained from:

- the Victorian State Trauma Outcome Registry and Monitoring Group (VSTORM) from June 2001 to July 2003;
- Australian Bureau of Statistics year 2001 population estimates;
- and Victoria Transport Accident Commission records for total road death toll for the year 2001.

Elderly victims were defined as age 65 and above. Comparison of fatality rates and general injury patterns for the elderly and young victims was undertaken.

The total fatality rate of the elderly group was almost double that of the younger group. The elderly victims had a higher rate of chest injuries (23.42% v 18.17%; p = 0.003). The three most common chest injuries of the elderly victims were rib fractures (23.58%), flail chest (9.55%), and sternum fractures (5.97%). Elderly chest injured patients also had longer intensive care unit stay compared with the younger group (7.96 days v 5.31 days; p = 0.048).

It was concluded that elderly victims of motor vehicle collisions have a higher risk of chest injuries, especially of chest wall injuries. Age specific injury patterns are important in determining primary and secondary prevention strategies.

Howard ME, Desai AV, Grunstein RR, Hukins C, Armstrong JG, Joffe D, Swann P, Campbell DA, Pierce RJ, 2004, **" Sleepiness, Sleep Disordered Breathing and Accident Risk Factors in Commercial Vehicle Drivers"**, American Journal of Respiratory and Critical Care Medicine, Vol. 170, pp. 1014-1021

(Institute of Breathing and Sleep, Austin Health and University of Melbourne, Heidelberg, Victoria)

Sleep disordered breathing and excessive sleepiness may be more common in commercial vehicle drivers than in the population as a whole. The relative importance of factors causing excessive sleepiness and accidents in this sector remains unclear.

A questionnaire was distributed to a random sample of 3268 Australian commercial vehicle drivers. There were 2342 respondents. Another 161 drivers among 244 were invited to undergo polysomnography. A measure was taken of the prevalence of excessive sleepiness and sleep disordered breathing and assessed accident risk factors

59.6% of drivers had sleep disordered breathing and 15.8% had obstructive sleep apnea syndrome. 24% of drivers had excessive sleepiness. Increasing sleepiness was related to an increased accident risk. The sleepiest 5% of drivers on the Epworth Sleepiness Scale and Functional Outcomes of Sleep Questionnaire had an increased risk of an accident (odds ratio 1.91, p=0.02 and 2.23, p<0.01 respectively) and multiple accidents (odds ratio 2.67, p<0.01 and 2.39, p=0.01), adjusted for established risk factors. There was an increased accident risk with narcotic analgesic use (odds ratio 2.40, p<0.01) and antihistamine use (odds ratio 3.44, p=0.04).

Chronic excessive sleepiness and sleep-disordered breathing are common in Australian commercial vehicle drivers. Accident risk was related to increasing chronic sleepiness and antihistamine and narcotic analgesic use.

Hanson D, Hanson J, Vardon P, McFarlane K, Lloyd J, Muller R, Durrheim D, 2005, **"The injury iceberg: an ecological approach to planning sustainable community safety interventions"**, pp. 5-10, Health Promotion Journal of Australia, Vol. 16, No.1.

(School of Public Health and Tropical Medicine, James Cook University, Mackay, Queensland).

This paper examines a systematic ecological framework in a literature review of 143 articles in the fields of 'ecological injury prevention or safety promotion', 'ecological health promotion', 'sustainable economic, health or ecological systems' and 'steady state'.

The biomedical construct of injury prevention perceives injury as a physical event resulting from the sudden release of environmental energy producing tissue damage in an individual. But safety is an ecological concept and has physical, psychological and sociological dimensions. The biomedical construct overlooks the presence and importance of psychological and sociological determinants of injury.

Long-term improvements in community safety must use interventions that seek to develop sustainable safety promoting characteristics and lower risk of injury within the target

community. To do this on a sustainable basis, the community 'ecological system' must have access to the resources necessary to maintain the desired outcome and the ability to mobilise these resources.

McManus, Alexander, Smith, Jenny, McManus, Jennifer, MacDonald, Emma and Williams, Megan, 2005, **"Evaluation of an alternative transport initiative in Perth, Western Australia, 2000-04"**, Health Promotion Journal of Australia, December, Vol. 16, No. 3

Key words: Cycling, alternative transport, program evaluation.

Perth, Western Australia, has the highest proportion of per capita car ownership in Australia. Despite the various health, environmental and traffic-related benefits, the uptake of alternative forms of transportation such as walking, cycling and public transport are low.

The Cycling Unit of the Department for Planning and Infrastructure is responding to a growing reliance on motorised transport. It conducts an annual "Bike to Work Breakfast " to promote cycling as a viable form of transport to work. During this event a short, cross-sectional survey is distributed to assess the usual behaviour of cyclists in attendance. Topical issues relating to cycling are also investigated.

Results from the 2004 survey indicated that the majority (85%) of respondents cycled at least 2-3 times per week. Objectives of cyclists were: 88% to improve fitness; 70% for enjoyment; 45% because it was a cost-effective means of transport. Most of the respondents (92%) supported the need for more cycle-friendly infrastructure such as advanced stop lines at intersections and safety measures such as wearing cycle helmets (85%). These findings were consistent with results from similar surveys conducted between 2000 and 2003.

The Department's "Bike to Work Breakfast" is a popular event within the cycling calendar that provides the opportunity to gain a snapshot of the attitudes and behaviour of cyclists.

Prior consultation with the evaluators in the development of the survey instrument has the potential to investigate barriers, incentives and facilitators to cycling on a regular basis. Age and gender differences could also be explored.

Meuleners LB, Lee AH, Legge M, Cercarelli LR, 2005, **" Health conditions of heavy vehicle drivers involved in a crash in Western Australia: a retrospective study using linked data"** , pp. 37-40, Health Promotion Journal of Australia, Vol. 16, No. 1.

(Injury Research Centre, School of Population Health, The University of Western Australia, Crawley).

The study retrospectively investigated the health conditions of a group of heavy vehicle drivers involved in a crash in Western Australia.

The subjects of the investigation were heavy vehicle drivers admitted to hospital in Western Australia, as a result of a road crash between 1 January 1988 and 31 December 2000. Heavy vehicle drivers involved in a crash were first identified using the Western Australian Road Injury Database before linking to their hospital separation records. All hospital admissions for each driver admitted to hospital for a crash at least once during the study period were subsequently retrieved from the Health Services Linked Database.

The study involved 146 heavy vehicle drivers. A total of 964 distinct in-patient episodes (the collection of all hospital admissions for a single event) were recorded for these drivers, with a minimum of one and a maximum of 84 hospital in-patient episodes per driver. The mean number of in-patient episodes for each driver was seven (standard deviation, 8.44), including an in-patient episode for a heavy vehicle crash.

The evidence presented for this group of heavy vehicle drivers hospitalised as a result of road crash confirms that they have characteristic health conditions such as musculoskeletal problems and digestive disorders.

Robinson DL, 2005, **"Safety in numbers in Australia: more walkers and bicyclists, safer walking and bicycling"** , pp. 47-51, Health Promotion Journal of Australia, Vol.16, No. 1.

(University of New England, Armidale, New South Wales).

Overseas research shows that fatality and injury risks per cyclist and pedestrian are lower when there are more cyclists and pedestrians. This study aims to examine if Australian data follow the same exponential 'growth rule' where (Injuries) / (Amount of cycling) is proportional to [(Amount of cycling) - 0.6].

Fatality and injury risks were compared using three datasets, viz.:

- fatalities and amounts of cycling in Australian States in the 1980s;
- fatality and injury rates over time in Western Australia as cycling levels increased; and
- deaths, serious head injuries and other serious injuries to cyclists and pedestrians in Victoria, before and after the fall in cycling with the helmet law.

The risks of fatality and injury per cyclist in Australia are lower when cycling is more prevalent. Cycling was safest and most popular in the Australian Capital Territory (ACT), Queensland and Western Australia (WA). New South Wales residents cycled only 47% as much as residents of Queensland and WA, but had 53% more fatalities per kilometre, consistent with the growth rule prediction of 52% more for half as much cycling. Cycling also became safer in WA as more people cycled. Hospitalisation rates per 10,000 regular cyclists fell from 29 to 15, and reported deaths and serious injuries from 5.6 to 3.8 as numbers of regular cyclists increased. In Victoria, after the introduction of compulsory helmets, there was a 30% reduction in cycling and it was associated with a higher risk of death or serious injury per cyclist, outweighing any benefits of increased helmet wearing.

The Australian data corresponds well the exponential growth rule found in overseas data. If cycling doubles, the risk per kilometre falls by about 34%. Conversely, if cycling halves, the risk per kilometre will be about 52% higher. The author suggests that policies that adversely influence the amount of cycling (for example, compulsory helmet legislation) should be reviewed.

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