Indigenous Rural Trauma

The College has been particularly concerned with the unequal health outcomes of the indigenous, especially in rural and remote areas. A symposium in Melbourne at the College in 2007 concentrated on injury in indigenous populations [10]. Transport related fatal injury is 2-3 times more likely compared to non-indigenous Australians and indigenous people are more likely to be killed as passengers [11].

The College is keen to foster comprehensive strategies which indigenous communities themselves will adopt and accept. A satisfactory trauma and safety system for all communities in rural and remote settings has been promulgated widely [12]. Better care of the injured and better safety tend to go together. There is much still to be done.

Road Trauma and Safety in the next decade

The College of Surgeons like the ACRS has much to contribute to the renewed National Road Safety Strategy for the next decade and has expressed its commitment to working with the National Road Safety Council when it is established. The RACS will support collaborative endeavours which will lead to practical improved outcomes.

We especially encourage high profile leadership in the community and working with government, industry, the community and the media to promote road safety efforts.

Our position statements identify the principal key areas to be addressed through both project development and effective measures.

2. Australian Transport Safety Bureau (ATSB) 2004 Serious injuries due to road crashes, November 2004

From the Viewpoint of Enforcement

Road Policing for the future - Accepting the challenge

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Introduction

The 21st century brings with it a more affluent and mobile society, more safety features on new vehicles and an array of new technology coupled with a safer road environment. For the safety and protection of the motoring public, we go to inordinate lengths to ensure that intelligent vehicle applications in the car, the design of roadway and the general environment is ‘forgiving’ of driving errors. In this context, there can be an expectation for technology to be the road safety saviour for careless and inconsiderate drivers. The reality check for road
policing strategists is the element of human behaviour, generously termed ‘human error’. Community self-regulation is our unrealistic and unachievable expectation to date. We are thankful for a high level of road safety compliance which enables law enforcement efforts to be concentrated on idiots, hoons, opportunists and risk takers who are driven by a selfish compulsion to speed, to ignore laws regarding driver distractions or to drive following substance abuse.

“Road policing of the future demands more coordinated strategies...”

Road policing of the future demands more coordinated strategies, more accurate and sophisticated law enforcement equipment, more ‘on-road’ driver education and, more importantly, a higher level of community engagement to foster the necessary driver responsibility and self-regulation.

The causes and complexity of road trauma means there is no ‘silver bullet’ in the form of a technological solution to counteract bad driver/riders behaviour.

Historic perspective

It is beneficial to review the past and identify what has worked best in traffic policing enforcement. The fundamental role has been to reduce the incidence, severity and cost to the community of road crashes. In practical terms the road policing aim is to reduce antisocial behaviour on our roads by deterring or apprehending offenders. A further aim should be to prevent re-offending.

Simple philosophies of general and specific deterrence for drivers/riders provide the traditional foundation for road safety enforcement. Strategies have included regular road patrols to identify and intercept offenders, usually for speeding or other moving vehicle violations, coupled with the occasional “blitz” targeting high risk locations and high risk activities. Road patrols only achieved a limited coverage and blitzes were labour intensive, short lived, unsustainable and sometimes with dubious long term outcomes. The ‘intelligence’ aspect usually relied on outdated crash statistics coupled with the intuition and experience of the traffic officers.

A change in thinking from the “speed trap” mentality or the mobile officer hidden in the bushes only to emerge to chase a speeding motorist, slowly evolved into a more meaningful
“active and visible police presence”. Here the police officer would position a police vehicle in view of all drivers travelling in both directions but still capable of checking speeds before the motorist was aware of the officer’s presence. Thousands now observe the ‘enforcement presence’ rather than just a few as in earlier instances. Team policing became very effective with a combination of three marked vehicles and a covert unit saturating a location to provide heightened effectiveness. The team worked across different divisions with reciprocal resourcing arrangements and provided an impression of multiple police units in all locations.

Research, technology and legislation changed the focus and impact on alcohol and drug impaired drivers. Police observations of seriously impaired driving coupled with cumbersome and time-consuming impairment tests were replaced with high profile random roadside breath and drug testing. The strategic direction for enforcement for alcohol impairment which developed in the 1990’s has now become the guiding principles for general road policing namely:

- Highly visible enforcement
- Repeated as often as possible (sustained enforcement)
- Strictly enforced to ensure credibility (fair and consistent)
- Well publicised and combined with education.

All factors are considered vital to success.

The critical component of traffic policing is the perception of being apprehended...

The critical component of traffic policing is the perception of being apprehended/intercepted by police if an offence is committed. This has led to the adoption of public police statements promoting the “Anywhere-Anytime” concept. The public must believe if they commit an offence such as speeding or driving whilst impaired, then there is a high probability that they will be caught and prosecuted. Therefore, committing an offence is not worth the risk.

Strategic, operational and action plans were regularly developed with defined targets and set performance measures providing a monitoring capability for continuous improvement in strategies and a focus on road trauma reduction.

Enforcement and Education

Research over the past three decades has demonstrated that maximum road safety outcomes are achieved by the direct link between education and enforcement yet frequently both enforcers and educators have ignored this correlation.

The policing role is viewed by many, including some police officers, as purely an enforcement responsibility to:

- Issue infringements for specific road trauma related offences
- Target categories of high risk road users
- Target vulnerable road users and those over-represented in the fatality and injury statistics

- Patrol black-spots and black-lengths
- Target high risk times, dates (weekends, festivities)
- Undertake blitzes or location lockdowns (saturation policing for a specific purpose)

However, the provision of education, road safety awareness and road safety messages is fundamental to support any and all enforcement strategies. Police should be constantly seeking media coverage including before, during and after any policing activities. Media promotions, warnings and awareness campaigns multiply the enforcement effectiveness. It also demonstrates that the police are being fair and open in their quest to reduce road trauma and that penalties are not ‘revenue raising’. Further, police take an active role in education in many subtle ways:

- Example setting in their manner of driving, adherence to the speed limit when not on urgent police duties and their general interaction with the community on all road safety matters.
- Issuing warnings about inappropriate driving behaviours
- Providing compliments when good driving is observed

Some still argue that the police are not trained or equipped to provide education to the community. However, the very nature of their specialist work, coupled with their training and ‘real life’ experiences attending and investigating crashes provide ample credentials to ‘educate’ the public on driver safety either individually or collectively.

Education and road safety awareness by road policing practitioners has both community acceptance and integrity and should be more forcefully developed by police over the next few years. This does not diminish the responsibility and focus of professional educators, media and advertising specialists to provide local state-wide or national educational or awareness campaigns.

Road safety is a community responsibility requiring multi-agency involvement and commitment

Partnerships

Road safety is a community responsibility requiring multi-agency involvement and commitment towards saving lives. It requires more than token acceptance of this moral obligation. As the car has become part of the fabric of our society so should road safety. The road safety message needs to be generated through a multitude of community avenues and partners. Police can and do provide strong leadership at all levels to engage or strengthen local, state and national partners to actively support enforcement, education and road safety awareness strategies.
Driver/rider attitudes and behaviours

"Despite front page stories with pictures of mangled cars and grieving families, some motorists continue to believe it won’t happen to them"[1]

The key component in reducing road trauma is to impact upon the road safety attitude of drivers and to instil in them the basic responsibility and moral obligation of their ‘duty of care’ to themselves and other road users.

The difficulty in educating motorists is compounded by their personal experiences. Over time they may have driven thousands of kilometres without a crash or near miss even though they have a propensity to speed, may not always wear their seat belt or may drink and drive on occasions. They still view themselves as a safe driver or low risk driver.

Many do not accept, understand or believe the risk factors and dangers involved in their illegal behaviours. E.g.
• They do not realise how long it takes to stop in an emergency (hence a casual attitude to speeding)
• They do not realise the damage which can occur to a human body in a crash
• They continue in the belief that a crash won’t/can’t happen to them
• They always have an excuse and self-justify their careless and dangerous driving actions/behaviours
• They work around police enforcement (attempting to evade, elude or pre-empt enforcement activity)

Driver distractions are an emerging critical issue for road safety...

Driver distractions are an emerging critical issue for road safety professionals. The driver is being inundated with gadgets for amusement, communication or office productivity. All these are able to be used while the vehicle is in motion but all are potentially a high risk distraction, diverting the driver from applying full concentration to driving including observation skills and compliance with the road laws. Poor driver attitude condones and even seeks out the use of these products in the full knowledge they will be used while the vehicle is in motion. The expansion of driver distractions is further complicated by the difficulty of traffic officers to effectively police these behaviours. This presents a current and future challenge for law enforcement.

Successful road policing promotes two elements which impact on driver attitude namely;
• Certainty of Detection – if you take a risk and commit an offence then you will be caught
• Certainty of Prosecution – if you are caught, the evidence obtained will ensure a successful prosecution

While road safety education, awareness and warnings are the ideal to ensure community self-regulation with everyone adopting good driving habits, the reality is that enforcement strategies are essential for those who do not comply and continue with risk taking behaviours.

Current trends in Road Policing

The defining characteristics of international good practice in effective traffic law enforcement now means that all road policing strategies must be intelligence-led and outcome-focused. This approach works well where it has been implemented.

“Policing has changed not just through technology but by the way we go about our everyday business. Everything we do now is evidence-based and intelligence-led. Directing our resources to the areas of greatest need and highest priority can have the most significant impact in the shortest period of time. That is why our road safety operations now target certain areas and operate at specific times. We are much better informed about where the problems are and how to address them. The results speak for themselves. We had the lowest road toll on record last year, but the success is not in creating of a record, it is in the saving of 29 lives compared to the year before and preventing many thousands of serious injuries” [2]

Intelligence-led means using accurate and detailed crash data which has been analysed and interpreted. This provides the evidence base for enforcement. Strategically and operationally, police need to:
• Identify what is happening, when, how often and where (situational analysis)
• Formulate a strategy
• Take action to correct the problem
• Monitor and evaluate the results
• Evaluate ongoing trends in statistics as a result of the corrective action
• Repeat the process to support continuous improvement

This “systems approach” from a policing perspective requires the utmost integrity in law enforcement crash investigation methods, the recording processes, the foundation data-bases and the retrieval process to drive strategic enforcement and therefore reduce road trauma. This approach provides intelligent feedback not only to traffic police but also road safety authorities, engineers, researchers, education providers, politicians, government executives, insurers, the media and others with an interest in reducing road trauma. It provides the foundations to influence the culture of safer driving/riding by providing both a general and specific deterrence to adverse road user behaviours.
**Outcome-focused** means all traffic policing activity must target real crash causes to reduce road trauma in an effective, efficient and professional manner. This focus aids in building enforcement capability for cyclic and continuous improvement and importantly supports the strategic effect of traffic law enforcement in changing road user behaviour.

**The Evidence Base**

The foundation ‘evidence’ is essential to ensure integrity of any enforcement program. It also provides a base for education and social marketing strategies as well as police training.

To achieve this integrity, strict performance standards and quality controls must be applied at all levels of crash investigation and data collection. This includes:

- Thorough investigation into all collisions to identify ‘real’ causation factors i.e. not just categorised as ‘inappropriate speed’ or ‘speeding’ without proper analysis. A core factor may be the collision speed but the driver attitude to speed and lack of preventative controls that enabled the offence to take place is also a strong contributing factor and should be recorded.

- In support of the first point, all fatal crashes should be investigated with the same respect and thoroughness as a homicide investigation. If this single aspect were to be addressed, then the return value to the ‘body of knowledge’ on road crashes would be enormous. The untimely loss of a life deserves such resource and professional investigative commitment.

- The data/statistics from crashes must be collated, retrievable and interpreted for all police traffic operations so that the analysed data actually ‘drives’ road policing strategies.

- Operational command and police operatives must have real-time access to trend analysis and crash profiling. This ensures that they can be efficient and effective in targeted enforcement as well as routine policing and patrols.

- Crash data must also be collated together with traffic infringements, speed survey analyses and information from police enforcement activity to provide ‘intermediate’ road trauma predictors. These intermediate predictors are currently lacking in most policing jurisdictions.

**Intelligent Transport Systems**

In July 2008, the author attended the Intelligent Transport Systems Asia-Pacific Forum and Exhibition [3]. Key trends and future directions identified for traffic law enforcement were:

- Public Private Partnerships (in a variety of structures) provide a practical and realistic avenue for governments to progress with new initiatives

- The wireless world is taking over with data and image transfer

- The public sector collects a huge amount of valuable data without effective utilization

- The integration of vehicles and the infrastructure

- The intelligent use of data – improve decision making of authorities (timely/accurate) and the users

- The prospective direction is for e-payments and e-enforcement

**The focus of “e-enforcement” was on:**

- Speed violation enforcement systems

- Detection accuracy for speed measurement

- Infringement processing systems

- Summons auto mailing systems (delivery to the offender through the internet)

- Summons collection and tracking systems

- Vehicle and occupancy counts (for bus lane and priority lane travel)

- Digital watermarking (for digital traffic camera photographs and digital evidence)

- Automated Number Plate Recognition

It is relevant to be aware of what technology can offer the future. However, most examples provide enhancements on current applications, capability and strategies.

A visit to the Intelligent Transport System Centre in Singapore provided a practical demonstration of its Expressway Monitoring and Advisory System which comprised:

(a) A detection camera system that collects real-time traffic data
(b) A surveillance camera system that provides visual verification of incidents.

An observation in the control room where the cameras were operating under digital video streaming for a range of purposes was made – e.g. vehicles stopping in a clearway, no parking areas or illegally unloading were identified through Automated Number Plate Recognition systems; the image separated from the mainstream; time and date stamped and the owner issued with an infringement – from the control room. If additional police intervention were required to remove the vehicle, that would be activated as well.

**Moving from technology to Hi-tech**

“The use of new and improved technologies will no doubt continue to have a major impact on improving road safety not just now but well into the future. Quite simply put, the use of technology provides police with additional tools and a wider arsenal to target those people who continue to flout the road laws and put others at risk” [4]

Technology to support police enforcement has traditionally been applied to speed measurement or breath-testing. Ampmeters, digi-tectors, radar and laser guns have been the basic tools for mobile and static speed enforcement.
Now the explosion into hi-tech provides better means of identifying offenders, providing the evidence required and more efficient means of processing offenders. Such examples include:

- **Automated number plate recognition (ANPR)** providing data image capture through optical character recognition from a still or video camera, identification of the number plate, linkage to the registration data base and owner identification. This is done at point of image capture. Many United Kingdom police services operate with these units from mobile police video, closed circuit television footage and static road units. The vehicle registration can be instantaneously checked through sixty data bases and enforcement action triggered as required. Australia’s recent trials and operational policing use with these systems has proved highly successful.

- **Police ‘in-car’ video systems** provide real time evidence of driver behaviour with the evidence being able to be viewed by the offending driver following interception as well as being available for presentation in court should the matter be disputed.

- **Police ‘in-car’ computer systems** enabling real-time automated access to a range of police and government data bases for dealing with both traffic and criminal activities.

- **Camera based vehicle detection systems.** Combining Automated Number Plate Recognition and in-car systems means moving or stationary offender violations can be automatically processed without the need to intercept the driver. E.g. the sophistication of the equipment ensures that the speed of the police vehicle and the offending vehicle is calculated, the exact location of the incident is identified through Global Positioning Satellite and the whole incident and scientific data is video recorded as evidence. The information is then transferred to a data processing centre and infringements issued to the offending driver.

- **Satellite technology** for speed monitoring and enforcement. These systems have been on trial for the past seven years. The accuracy and reliability will prove to be of high value to on-road policing capability in the future.

- **Hand-held electronic offence ticketing devices** reduce the officer’s time by automatically scanning the driving licence and issuing an electronic infringement with the flow-on time savings. These are available for mobile or foot patrol officers.

- **More sophisticated hand held laser speed measurement devices** capable of accurately determining speed at a greater distance.

- **Warnings.** With the new technology comes the ability to provide the offending drivers with documented warnings for minor offences and to record these warnings officially within the system.

**Automated Traffic Management Systems**

Conventional speed and red light cameras have been an integral part of most modern enforcement systems. Digital technology is becoming even more sophisticated with the development of:

- **Time over extended distance speed measurements** (taking speed measurements at two camera sites, calculating the time between sites and determining the average speed. The distance can vary from a few hundred metres to many kilometres).

- **Distributed networks** where a combination of speed cameras with number plate recognition software are interlinked to provide average speeds for an offending driver in various locations throughout the network (providing evidence of habitual speeding).

- **Digital video surveillance and wireless transfer capability** for a range of moving violations and enforcement activities.
• Centralised control of traffic management systems and remote access to enforcement equipment
• The combined red-light speed enforcement cameras
• Double line cameras for identifying vehicles crossing the lines
• On-road education and warnings can be provided to motorists who approach school crossings, railway crossings and dangerous locations. Over-speed approach can trigger the illumination of electronic studs or other lighting signals. Failure to immediately comply can trigger a secondary device (photographic still or video evidence) resulting in a prosecution.

The ‘black box’ as a monitor
Traffic Police should take full advantage of the technology behind the black box and other vehicle safety features and use it as a tool in their endeavours to reduce road trauma. While the ‘black box’ is available to police in some circumstances now, its broader application has the potential to drive the community towards self-regulation. Within the transport industry, police have the capability to tap into the engine management system to monitor hours of driving and speed compliance.

A range of vehicle applications being introduced to standard vehicles includes adaptive speed controls, over-speed warnings, distance warning systems, seat-belt warning systems and interlocks as well as alcohol interlock devices. Without invoking the ‘big brother’ concept, if drivers infringe upon the rights and privileges of others by dangerous driving behaviours, then access to this technology should be part of any investigation process.

Public Private Partnerships
Over the past ten years governments have increasingly engaged in public/private partnerships for the benefit of road safety. This includes speed, red light and bus lane camera and infringement operations; still and video camera surveillance and prosecution; intelligent processing systems; data collection and other forms of gathering evidence. Different models exist internationally with varying accountability, responsibility and revenue sharing arrangements.

Whatever model is adopted, we should not stray from first principles to reduce crashes and ensure discipline on our road network for the safety of all.

This also ensures that the enforcement responsibility and accountability at all times remains with police and that any resultant revenue from infringements is irrelevant to the road safety aims. Police must also maintain responsibility for strategic planning as well as the decision making process on prosecution.

Public private partnerships can deliver efficiencies to parallel enforcement strategies especially where high volume processing is required. The key factors to be applied are to ensure that:
• The evidence management system is streamlined ensuring data integrity is maintained
• Meticulous application to standards are maintained
• Quality benchmarks are provided together with sound policy, data privacy and confidentiality

Overall, system and processing integrity impacts directly upon perceptions of the offending drivers and the public – and what drivers think they can get away with (especially speeding). Swiftness and certainty of penalty rapidly brings about a behavioural and cultural change. The integrity of the processing chain is therefore critical to the community cultural change process. [5]

"Revenue raising"
A current impediment to introducing new or upgrading road safety initiatives is the negative community attitude that enforcement through technology is more focused on raising money than saving lives.

Unfortunately, some governments engender a primary focus on anticipated revenue rather than the reverse. What should be the focus of attention is the financial cost benefits to the government and the community of each life saved through enforcement initiatives. “A two-year University of Sydney study, published in this month’s Transportation Research journal finds the average cost of a single death from a fatal car crash is $6million” [6]. This figure is expected to replace the outdated but accepted $1.5 million figure for Australia. The key point is that these figures are rarely seized upon and promoted in the cost benefit analysis of road trauma reduction.
The facts are simple. Speeding and other like offences are illegal. Research supports the fact that even five kilometres over the legislated speed limit doubles the crash risk [7].

From a road-policing perspective, 60kph means 60kph and 100kph means 100 kph (maximum safety speeds in good conditions). As driving is a privilege and not a right, the drivers have an obligation to themselves and others to obey the speed limits. If a choice is made by the driver to exceed the speed limit, either carelessly or deliberately, then the expected consequences are known. Any revenue is a bi-product of those consequences and should not be accepted as a “catch cry” of offenders.

Police and governments have a responsibility to minimise or neutralise this revenue raising debate, eliminate the argument as a barrier and get on with their strategic responsibility of saving lives.

Conclusion
The challenges for law enforcement over the next ten years are to continue to provide focus on safer road user behaviour, instil public confidence in planned and systematic enforcement practices, maximise the application of available technology, and maintain a leadership role in determining strategies and tactics. Enforcement must be strong, active and visible and interrelated with public education and awareness. Enforcement technology does not make the role of the traffic patrol officer obsolete –
or do ‘safer’ cars and better roads. Traffic law enforcement can and does change driver behaviour and is an essential element in ensuring public safety and reducing road trauma. The key is to maximise the integration of enforcement, education and road safety awareness as well as balance the mix of physical on-road policing and automated enforcement through technology.

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From the Viewpoint of Road Users

Motorcycles and Road Safety in Australia for the Next Decade

By Shaun Lennard, Chairman, Australian Motorcycle Council (AMC)

Hobart

Two significant events took place in 2008 which we hope will provide the basis for motorcycle-specific plans in the national road safety strategy for the next decade. The timing of these in the lead up to the next ten-year strategy is perfect – stakeholders have time to digest the recommendations and develop them into practical measures for an Australian strategy.

In April 2008, the Australian Government hosted the first-ever Motorcycle and Scooter Safety Summit, held in Canberra. This was followed – purely by coincidence – by the inaugural Workshop of Motorcycling Safety hosted by the Organisation for Economic Cooperation and Development (OECD)’s International Transport Forum, held in Lillehammer, Norway, in June 2008.

I was fortunate enough to represent Australian riders through the Australian Motorcycle Council (AMC) at both of these