ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

Submission to the House of Representatives Joint Select Committee on Road Safety

Inquiry on steps that can be taken to reduce Australia's road accident rates, trauma and deaths on our roads

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1. INTRODUCTION

The National Road Safety Strategy 2011-20 (NRSS) expectation of 30% reduction of road trauma has failed to achieve its goal and the government needs to be accountable for the failure in commitment to the existing Strategy to guarantee safety on our roads. This can only be achieved by making the sometimes seemingly hard decisions needed to achieve better outcomes. In the absence of these the number of preventable road deaths will continue to increase.

Many solutions to reducing Australia's devastating road toll and creating safer roads have already been identified and the delays taken to implement life-saving initiatives is leading to unnecessary deaths. This was stressed in the Inquiry into the NRSS and the Reviving Road Safety report (developed by the Australian Automobile Association) both highlighting solutions that can be implemented to deliver better outcomes and significantly improve road safety.

The College does not use the terms accidents it uses crashes given that these are all preventable deaths and injuries.

2. BACKGROUND

The Royal Australasian College of Surgeons has long recognised that road trauma is a serious public health problem of epidemic proportions. In the 1960s surgeons identified that they could be influential in this area with policy makers and legislators and demonstrated significant leadership through advocating for mandatory seatbelts, drink driving countermeasures and compulsory wearing of helmets by cyclists The resulting dramatic reduction in road trauma post 1970 is evidence of the success of these campaigns. These were controversial and unpopular at the time and needed strong voices and focussed leadership to direct the change. Such is needed today.

RACS commends the Joint Select Committee on Road Safety for conducting an inquiry into steps that can be taken to reduce Australia's road crashes rates, trauma and deaths on our roads.

3. TERMS OF REFERENCE OF INQUIRY

Each year across Australia more than 1200 people are killed and 44,000 are hospitalised. The estimated cost to the national economy is approximately $30 billion and costs our federal, state and local governments $3.7 billion. While these figures highlight the financial implications of road trauma, our surgeons see firsthand the impact that road trauma has on individuals, families and the community more broadly - devastating consequences that are far greater than any economic impacts. The College urges the government as a matter of urgency to take up the following road safety and prevention issues to reduce the carnage occurring daily on our roads. We respond to the following

Measures to ensure state, territory and local government road infrastructure investment incorporates the safe system principles (Safer Roads, Safer Speeds, Safer Vehicles, Safer People*) (corresponding to (d) ToR)*

Safer Roads

Too much of the travel in Australia occurs on sub-optimal roads. 7% of travel in Australia occurs on one-star roads and 28% on two-star roads. And despite the evidence, governments are still funding high-speed undivided roads with dangerous roadsides, right-angle intersections on freeways and the replacement of roundabouts with traffic signals. Safer roads are a simple and effective way to minimise road crashes: Deaths and serious injuries would be minimised by up to one-third if Australia achieved its target of 90% travel on national highways on 3-star or better and 80% travel on state roads on 3-star or better. Any strategy to improve road conditions must include:

- road quality
- visibility
- driver distraction
- safety barriers
- emergency stopping areas
- rest areas and any other aspects that may impact on safe driving
- appropriate legislation for the increasing number of electric scooters and other motorised mobility devices
- separating cyclists from motor vehicles on roads

Safer speeds

Pedestrians are the most vulnerable of all road users. The College supports appropriate speed limits that have regard to the environment and traffic density and recognising that endorses the following safety measures.

- 40 km/h limit on suburban roads and high pedestrian metropolitan, regional and rural areas
- 10 km/h limits on all shared zones
- 10 km/h in all shopping centre and public car parks (anomalies exist in current legislation that allows the speed limit of the adjacent road to apply in the carpark)
- Point to point cameras should be used for speed detection for **all vehicles** (passenger and heavy vehicles) across every jurisdiction

Safer vehicles

The delays taken in mandating new technologies in Australian vehicles is of grave concern. The *NRSS Inquiry* recommended Australia rapidly introduce and mandate proven life-saving technologies in all new vehicles including heavy vehicles – such as autonomous emergency braking systems.

Removing tariffs on all imported vehicles with enhanced safety features could initiate a market-shift resulting in an immediate win for public safety without having to wait for policy change.

Subsidies on the purchase price of five-star safety rating cars and/or reductions in registration costs could act as a strong incentive for people to choose cars with safety technologies.

Safer people

We advocate for

- Aggressive drug and alcohol testing with zero tolerance for those caught driving under the influence.
- Blood alcohol testing for all road casualty patients (including pedestrians and cyclists) 16 years or older attending hospital for treatment and screening of recent use of alcohol and drugs
- Standard Blood Alcohol Concentration (BAC) limits for different driver/vehicle categories in all jurisdictions (heavy vehicles/motorcyclists, L and P plate drivers 0.00 per cent, light vehicles 0.05 per cent)
- Implementation of technology to detect mobile phone use when driving and appropriate penalties to deter drivers from using mobile phones. Commendation must be extended to Minister Andrew Constance (L-NSW) who advocated for the implementation of mobile phone camera detection system (CDS) which came into effect in New South Wales December 2019. This initiative utilizing Australian technology (unique Acusensus electrooptical equipment and computer programming) coupled with enforcement and underpinned by supporting legislation is first of its kind to be implemented internationally. This equipment can also determine vehicle speed and detect non-seatbelt wearing by drivers and front-seat passengers.

Road trauma and incident data collection and coordination across Australia (corresponding to (e) ToR)

Data Linkage

Data linkage between key agencies is essential - ambulance services, hospitals and emergency departments, police and insurance companies. It is essential to gauge the impact of road trauma and serious injury on the Australian economy and society. States and territories should be required to provide evidence of the outcomes from initiatives that led to reduced deaths and serious injuries. Timely multiple-agency serious injury data capture, collation, release and sharing is needed within integrated agencies. There is currently a significant time lag between incidents occurring and relevant data becoming available for analysis which prohibits monitoring of outcomes of road safety efforts, hindering assessment of the effectiveness of implemented programs and developing appropriate policies. Currently no Australian trauma centre registry collects data on distractions associated with road-related hospital admissions. Intelligent transport systems (ITS) technology can record mobile phone use while driving and will assist future data collection.

Better data and reporting on the location of serious crashes linked to the road and other conditions (speed zone, road quality, location, drug and alcohol use, weather) is needed for detailed examination of association and to improve response measures. Reporting on serious injury should include the number of people affected and the costs of the injury (including ongoing long-term impacts). Geospatial information on crash statistics should be captured and disseminated quickly to relevant agencies to allow adequate response strategies to be implemented and inform future planning. With increasing technology, many cars record operational aspects of the vehicle and can provide insight into system failures, speed, brake usage and other aspects prior to a serious crash.

Event Data Recording

Collisions are analysed by experts to determine causation including driver behaviour, speed, vehicle safety and road design. Event Data Recorders (EDRs) have the capability of recording pre-crash data including speed, braking and acceleration.

Currently, no Australian legislation exists mandating vehicles be fitted with EDR or that stored data be accessible. Such legislation would enhance collision causation analysis, increasing road safety and reducing road trauma.

The use of EDR data has increased significantly since 2006. Information stored in EDRs can include pre-crash data such as vehicle speed, steering input, braking, acceleration and engine RPM. Figure 1 is an example of available pre-crash data that may be stored in EDRs. Stored data also includes speed change (ΔV) up to 300 milliseconds post collision. Such information provides collision analysts the ability to calculate impact speeds and reliably determine causation. Physics allows the EDR data from one vehicle to be used to determine the speed and behaviour of other vehicles involved in the collision that don't have EDR.

Figure 1. 5.0 seconds pre-crash data from 2016 Holden Commodore

Pre-Crash Data -5.0 to -0.5 sec (Event Record 1)

Times (sec)	Accelerator Pedal, % Full (Accelerator Pedal Position)	Service Brake (Brake Switch Circuit State)	Engine RPM (Engine Speed)	Engine Throttle, % Full (Throttle Position)	Speed, Vehicle Indicated (Vehicle Speed) (MPH [km/h])
-5.0	14	Off	1344	27	25 [40]
-4.5	18	Off	1408	33	25 [40]
-4.0	20	Off	1344	32	25 [41]
-3.5	31	Off	1344	44	26 [42]
-3.0	0	On	1728	23	27 [43]
-2.5	0	On	1408	15	27 [43]
-2.0	0	On	1216	15	25 [40]
-1.5	0	On	1088	14	22 [36]
-1.0	0	On	1088	14	19 [31]
-0.5	0	On	1024	14	18 [29]

Within Australia, the only commercially available EDR reader is the Bosch Crash Data Retrieval (CDR) tool. In Australia, Bosch CDR supported vehicles are typically limited to Holden, Jeep and Toyota vehicles. In the USA, more than 3000 vehicles are supported by Bosch CDR including Nissan, Mazda, Mercedes Benz and BMW. Australia has less than 200 vehicles supported by the same technology. Despite being manufactured by the same company as the USA counterparts, most vehicles sold in Australia are not supported for data retrieval because there is no legislative requirement. Alternative tools available internationally can successfully retrieve data from Australian sold Hyundai and Kia vehicles.

International Legislation **-** The normative value of EDR data in collision investigation and vehicle safety has been recognised internationally. In 2011, Title 49 Part 563 of the Code of Federal Regulations, managed by the National Highway Traffic Safety Administration (NHTSA), was enacted in the USA. The legislative change mandated that all vehicles sold in the USA that have EDR fitted and are capable of recording data, must have such data available for download to assist collision investigation. The legislation stipulates that data must be in useable format and accessible by commercially available CDR tools. Data available in accordance with Part 563 is shown in Table 1. The European Union (EU) is set to introduce similar rules to all vehicles sold in the EU from 2021.

Table 1. Part 563 EDR mandated data

Data element	Recording interval time (relative to time zero)	Data sample rate (samples per second)
Delta-V, longitudinal	0 to 250 ms	100
Maximum delta-v, longitudinal	0-300 ms or 0 to end of event	N/A
Time, maximum delta-v	0-300 ms or 0 to end of event	N/A
Speed, vehicle indicated	-5.0 to 0 sec	2
Engine throttle, % full	-5.0 to 0 sec	2
Service brake, on/off	-5.0 to 0 sec	2
Ignition cycle, crash	-1.0 sec	N/A
Safety belt status, driver	At time of download	N/A
Frontal air bag warning lamp, on/off	-1.0 sec	N/A
Multi-event, number of event(s)	Event	N/A
Time from event 1 to 2	As needed	N/A
Complete file recorded (yes, no)	Following other data	N/A

Collision investigation is imperative to road safety. EDRs are pivotal in determining why collisions occur. Harmonisation of EDR regulations internationally with parity between Part 563 of the Code of Federal Regulations, USA and the ADR will increase the ability for collision analysts to reduce road trauma, paving the way towards zero.

Australian Design Rules

The Motor Vehicle Standards Act (MVSA) sets national uniform standards for vehicles entering the Australian market, primarily through Australian Design Rules (ADR) and Road Vehicle Certification System (RVCS). The Federal Chamber of Automotive Industries (FCAI) are a group of vehicle manufacturers whose mission is to promote the development and implantation of effective and well-designed policy including vehicle design and safety. The FCAI support harmonisation of the ADR's to the United Nations (UN) and the subject of EDR regulation has been raised but given low priority due to development of autonomous vehicle technology.

4. CONCLUSION

Road trauma is one of the highest ranked public health issues nationally, causing 1200 deaths and 44,000 hospitalisations each year at a cost of $30 billion to the Australian economy. Over the past decade successive governments have failed in their commitment to implement initiatives outlined in the NRSS, which has fallen significantly short of its goal of 30% reduction in road trauma.

We urge the government to take a strong, bipartisan stand to enact new legislation to prevent further deaths and serious injuries on our roads. Changes are needed to make vehicles, roads, people and speeds safer. Data must be collected for effective crash analysis. Strong leadership in policy development will lead to breakthroughs in road safety.

RACS is proud of its history of championing road safety initiatives that saves lives. We are committed and ready to work with the government to implement the changes needed for safer roads.