RACS Submission to the Joint Select Committee on Road Safety

August 2021

Introduction

The Royal Australasian College of Surgeons (RACS) is proud of its long history of commitment to road safety and road trauma prevention and is grateful for the opportunity to submit to the Joint Select Committee on Road Safety's review. We commend the Committee for its broad inclusion of road safety initiatives and goals of the Australian Parliament to achieve *Vision Zero by 2050*. Trauma surgeons are all too familiar with death and serious injuries caused by road trauma, treating patients on a daily basis with injuries, the majority of which are totally preventable.

RACS wishes to highlight recommendations from the 3rd Global Ministerial Conference on Road Safety which took place in Stockholm and led to a UN General Assembly Resolution on improving global road safety (August 2020). Two recommendations are particularly relevant to the safety of the most vulnerable road user, the pedestrian. Adoption of these in Australia would greatly improve the safety of vulnerable road users while contributing more broadly to the UN Sustainable development Goals.

- Inclusion of road safety and a safe system approach as an integral element of land use, street design, transport system planning and governance, especially for vulnerable road users and in urban areas. This could be achieved by strengthening institutional capacity with regard to road safety laws and law enforcement, vehicle safety, infrastructure improvements, public transport, post-crash care, and data.
- A greater focus on speed management, including the strengthening of law enforcement to prevent speeding and mandating a maximum road travel speed of 30 km/h in areas where vulnerable road users and vehicles mix in a frequent and planned manner, unless strong evidence exists that higher speeds are safe. It is noted that, noting that efforts to reduce speed in general will have a beneficial impact on air quality and climate change as well as being vital to reduce road traffic deaths and injuries.

RACS recommends that high priority be given to the following initiatives in the assessment of measures to eliminate road crash fatalities and serious injuries.

- Data enhancement and application
- Event data recording
- ANZ Trauma Registry
- Verified trauma system
- Enhanced safety features
- Safe speed limits
- Point-to-point speed enforcement
- Child safety good practice guide
- Safe roads
- Regional roads
- Metropolitan roads
- Targets and accountability

Background information on each of these areas is provided below.

Data Enhancement and Application

RACS recently co-signed a supplementary submission to the Senate Joint Select Committee on Road Safety highlighting how the collection and linkage of data throughout the COVID-19 pandemic greatly assisted Australian governments in their response to keeping the community informed with daily updates of the numbers of Intensive Care Unit (ICU) beds occupied by COVID-19 patients and the number of cases in each jurisdiction.

Below is an excerpt from this submission.

COVID-19 (has provided) positive lessons and opportunities that have occurred including:

- *precise, consistent, and timely data collection and reporting*
- *cooperation by all levels of government driven by national leadership and coordination*
- *consistent and ongoing public focus driven by all political leaders and senior bureaucrats*
- *success at changing social behaviour and engaging media and other communications channels.*

The uptake of this information within the community demonstrates that the public has an appetite for, and understanding of, information that affects the health of the nation. A similar approach for precise, consistent and timely data collection and reporting of road trauma, including the numbers of road trauma patients in ICU beds, could easily be done. This would raise awareness of the costs of road trauma to families, the community and the nation as a whole.

The submission also contains the following comments and recommendations:

Australia has placed timely data collection, aggregation and reporting at the forefront of its response to the COVID-19 pandemic. We believe there are some fundamental principles which have guided Australia's COVID-19 data response which should be applied to road safety and embedded in the next National Road Safety Strategy:

- *Governments are unambiguous that the data is essential to respond to the situation.*
- *Governments release data and modelling to the public for transparency.*
- *There is strong communication on the link between the data and decision-making.*
- *The Commonwealth continues to paint and explain an overall picture even if there are gaps from jurisdictions and does not cease reporting on something because not all data is present.*
- *Government decision-makers keep an open mind to evolving knowledge on the situation – they admit they don't have all the answers yet and have an expectation that the data will continue to improve over time to assist with management of the situation.*
- *Transparent reporting means that jurisdictions can be benchmarked, creating an expectation that they will participate or become a stand-out that must be explained*

In addition to implementation of daily counts of road trauma patients present in ICU beds, further enhancements are recommended in regards to national routinely collected health data, including the Australian Institute of Health and Welfare's (AIHW) National Non-Admitted Patient Emergency Department Care Database (NNAPEDCD) and the National Hospital Morbidity Database (NHMD) as follows:

- RACS advocates for the expansion of the NNAPEDCD collection to include, at a minimum, data fields which describe the mechanism of injury (e.g. mode of transport of the injured party (such as motor vehicle driver/passenger, motorcyclist, bicyclist, pedestrian etc), falls, exposure to noxious substance etc) and intent (e.g. unintentional, assault, intentional self-harm etc) using a standardized classification system. Currently the NNAPEDCD only captures administrative and demographic data fields and a primary diagnosis, no causal information. (1) RACS understands work is currently in progress to review this data collection with a view towards expansion of core data fields for inclusion and we would strongly advocate for this development to enable a more complete understanding of the burden of road trauma to the community.

- RACS advocates for specific data tables related to transport-related injury hospitalisations (drawn from the NHMD) to be regularly provided via the AIHW's data portal. Current data tables are restricted to high level transport categories, yet significant detail regarding the injured patient's mode of transport, role in the vehicle, and counterpart vehicle are captured in the ICD-10-AM external cause codes which are routinely captured for all injury hospitalisations, and the provision of detailed tables which includes such breakdown by age, gender, region, and state/territory along with diagnosis details of injuries sustained, length of stay, and outcomes would provide a valuable road safety intelligence resource for minimum effort.

Finally, RACS continues to strongly advocate for the ongoing work to facilitate national data linkage efforts between transport data sources and health data sources. These linked data provide invaluable intelligence to support ongoing policy and prevention initiatives and continued investment in and development of these national data linkage projects is critical.

Event data recording

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

ANZ Trauma Registry

A robust trauma registry and accurate data are an important base on which to evaluate trauma care outcomes, improve the quality of trauma care and evaluate adequate resourcing. The Australia New Zealand Trauma Registry (ATR) is currently the only way to measure serious injury in Australia's major trauma centres. It provides a platform to benchmark trauma care and deliver service *improvements to help minimise preventable deaths and disability*. Ongoing support and funding of the registry is imperative.

Verified Trauma System

The RACS ANZ Trauma Verification program is a leading mechanism for quality improvement and endorsement of Australian and New Zealand trauma care. It is an independent benchmarking process that helps to improve the standard of care for trauma patients. A multidisciplinary team reviews a trauma service against international standards, identifies strengths and weaknesses and provides recommendations for further improvement.

The Inquiry into the National Road Safety Strategy 2011-2020, a 2016 report by NSW Institute of Trauma and Injury Management (ITIM) evaluating trauma patient outcomes, recommended mandatory RACS trauma verification for all NSW trauma services by 2021. RACS endorses the ITIM recommendation to mandate trauma verification for all major trauma services in all jurisdictions as an effective step in improving the quality of trauma care across Australia. The impetus for this is clear, with the Australia New Zealand Trauma Registry's Annual Report 2015–16 stating that improving trauma systems alone can reduce preventable death following injury by more than 50%.

Enhanced Safety Features

RACS advocates for the Australian Design Rules to mandate safety features, such as Autonomous Emergency Braking (AEB), on all new vehicles imported into Australia, particularly heavy vehicles. Safety benefits would also result from measures such as the removal of tariffs on all imported vehicles with enhanced safety features including AEB; adoption of fiscal factors encouraging purchase of safer vehicles; subsidised purchase price of contemporary five-star safety-rated vehicles and reduction in registration costs on vehicles incorporating AEB and other contemporary safety technologies. National (2) and international (3,4,5) evidence categorically demonstrates the benefit of Autonomous Emergency Braking.

Safe Speed Limits

The relationship between impact speed and risk of fatality is a critical factor in decision-making regarding the setting of speed limits. Professor Raphael Grzebieta, Transport and Road Safety Research Centre, UNSW reports that Mizuno in 2005 from Japan analysed pedestrian injury data showing how the risk of sustaining a serious head injury begins to rapidly rise at collision speeds above 30 km/h. At a speed of 50km/h, Australia's default speed limit, the risk of a fatality from a head injury is 60 per cent. A systematic review and meta-analysis of all published pedestrian collisions studies by Hussain et al in 2019 from UNSW Sydney and Hasselt University in Belgium shows a similar correlation between impact speed and fatality. Their data shows fatality rates of 30 per cent at impact speed of 50 km/h, 13 percent at 40km/h and 5 per cent at 30 km/h.

Lighting, whether it be the car's headlights or street lights, also impacts on this data significantly. A crash reconstruction analysis of a car travelling at 50km/h, in a poorly lit suburban street with its lights on low beam, indicates that a driver will not perceive a pedestrian in time to avoid a collision and the impact of their collision will result in a 29 percent fatality rate to the pedestrian. At 40 km/h, using the same conditions, the driver has just enough time to perceive the pedestrian and react to slow the car to around 30 km/h before collision with the result risk of pedestrian fatality being reduced to 5 percent. The analysis further indicates that had the car been travelling at 30 km/h, the driver would have readily perceived the pedestrian to be able to brake in time without impacting the pedestrian.

This data supports the reduction of Australia's default speed limit. The default speed limit should be reduced to, at most, 40 km/h, providing pedestrians a surviving chance in poorly lit infrastructure environments, which constitute most suburban and CBD streets in Australian cities and towns. RACS encourages the Commonwealth and State Governments to work with Councils to extend this policy across all Council areas.

RACS also supports appropriate speed limits when there are people about, particularly school zones and we applaud the South Australian Government for taking a leadership role and being the only Australian Government to implement speeds as low as 25-kilometres per hour.

Point-to-point speed enforcement

Point-to-point speed cameras involve measuring the average speed of vehicles over long distances and are an effective way of encouraging safe driving speeds. Point-to-point enforcement promotes area-wide suppression of speeding because speed enforcement is sustained over a length of road rather than just a single spot. The use of point to point speed enforcement should be encouraged and more importantly applicable to all vehicles – i.e. **all** road users – not just selected heavy vehicles.

Child safety good practice guide

Recognising the vulnerability of children on the road, the below link to *Child Safety Good Practice Guide* highlights on pages 28 and 29 evidence and references for child pedestrian safety.
https://www.schn.health.nsw.gov.au/files/attachments/net3243_good_practice_guide_a4_fa2-web.pdf

Safe Roads

RACS encourages a holistic approach to road maintenance and improvement programs. 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.

Regional Roads

A key action in the National Road Safety Action Plan 2018-2020 was that Governments collectively aim to improve the star ratings across the whole road network, with the aim to achieve 3-star Australian Road Assessment Program (AusRAP) ratings or better for 80 per cent of travel on state roads, including a minimum of 90 per cent of travel on national highways.
(Reference: Transport and Infrastructure Council, 'National Road Safety Action Plan 2018-2020' p.6, https://www.roadsafety.gov.au/sites/default/files/2019-11/national_road_safety_action_plan_2018_2020.pdf)

RACS urges the prioritization of this action, and we cite the below example from the recent Review of the NRSS as an example of the significant potential benefits that can be achieved by committing to this action.

The Cooroy to Curra section of Queensland's Bruce Highway used to be one of the deadliest stretches in the country. It is now one of the safest, moving from a 2-star safety rating to 4 and 5- star following a state and Australian Government funded upgrade. Road infrastructure improvements have enhanced safety and efficiency on this important transit and freight corridor, with long distance traffic now

separated from the locals. The project has delivered both safety and efficiency outcomes: the speed limit has been raised to 110km an hour and an 82% reduction in fatal and serious injuries was achieved in the three years after opening when compared to the Old Bruce Highway before 2010 (Reference: Crozier J. and Woolley, J. 'Inquiry Into the National Road Safety Strategy 2011-2020' Department of Infrastructure, Transport, Regional Development and Communications https://www.roadsafety.gov.au/sites/default/files/2019-11/nrss_inquiry_final_report_september_2018_v2.pdf)

Metropolitan Roads

Separation is essential to ensure the safety of our most vulnerable road users, particularly pedestrians and cyclists. Statistics show that the highest levels of crashes involving these types of vulnerable road users occur in metropolitan centres, largely due to the higher volumes of both pedestrians and cyclists in these areas.

Increases in our population will only exacerbate this vulnerability, as people seek alternative, inexpensive and efficient forms of transport, while seeking to improve their health and wellbeing. Where separation is not feasible, it is vital that efforts are made to control the speed environment. Roadway design is an important factor that must be carefully considered to maximise the safety of all road users.

Targets and accountability

Each year across Australia more than 1,200 people are killed and 44,000 are hospitalised as a result of road trauma. This can only be described as a national epidemic which demands real leadership and close collaboration from all levels of Government and within our communities.

While RACS welcomes this Inquiry, many of the solutions to reducing Australia's devastating road toll and creating safer roads have already been identified, and there is a growing sense of frustration at the delays taken to implement proven life-saving initiatives. This was highlighted in the Inquiry into the National Road Safety Strategy 2011-2020, as well as the recently released report, Reviving Road Safety Report developed by the Australian Automobile Association (AAA). The Reviving Road Safety report outlines several solutions that can be implemented to deliver better outcomes and significantly improve road safety. RACS endorses this report in full, and we ask that the recommendations from this report, as well as our established position on Road Trauma Prevention are taken into consideration as part of this review.

Over many years and through multiple road safety inquiries, RACS and other key stakeholders have provided recommendations and initiatives to improve safety on our roads but ultimately the key is accountability, assessment and measurability of targets. All agencies and all levels of government need to take responsibility for road trauma and strive for zero deaths and major injuries on Australian roads.

1. Henley G & Harrison JE 2018. Use of emergency department data to improve routine injury surveillance: technical report 2013–14. Injury research and statistics series no. 119. Cat. no. INJCAT 199. Canberra: AIHW
2. Monash University Accident Research Centre (MUARC) conducted an Enhanced Crash Investigation Study (published November 2020) which included 'Active safe technologies such as AEB are valuable technologies that can have the effect of reducing the speed of the vehicle at impact. By combining passive safety requirements with active safety systems, the impact forces can be further reduced
3. https://www.youtube.com/watch?v=a8lquf_yk14 (USA's Insurance Institute of Highway Safety _US car safety ratings)
4. https://www.youtube.com/watch?v=7_JZvL4Gx1g (Volvo EU's approach)
5. https://www.youtube.com/watch?v=oAHlthX3-NM (EU video)