Putting the Brakes on Low Speed Vehicle Run Over: an opportunity to act

QUEENSLAND GOVERNMENT

Forum Report June 2012

Working together towards a safer Queensland.

Queensland *Injury Prevention Council*

Prepared by: **Dr Ruth Barker**
Director, Queensland Injury Surveillance Unit
07 3163 8869

Date: **June 2012**
Document name: **LSVRO_Forum Report**
Version: **Final**

For further information regarding this forum please contact qipc@health.qld.gov.au

Contents

1. Introduction

Low speed vehicle run-over (LSVRO) injuries are predominantly paediatric pedestrian injuries that involve vehicles moving at low speed either in non-'traffic' settings (e.g. driveways, yard, garage, car park, access road) or where vehicles are moving into or out of traffic flow (traffic verge). This injury mechanism has been described as a distinct subgroup of road transport related injury and results from a complex interplay of behavioural, vehicular and environmental factors.

LSVRO injury became a prevention focus for Queensland after the Commission for Children and Young People and Child Guardian (CCYPCG) reported on eight LSVRO fatalities in Queensland in one year (2004-5)[1]. This report triggered a review by the Queensland Parliamentary Travelsafe Committee in 2007, with recommendations for further research into causative factors and prevention strategies[2].

The Queensland Injury Prevention Council (QIPC) was set up in 2008 as an advisory body to the Director - General of Queensland Health. The Council brings together a diverse range of injury prevention practitioners from across Queensland. Following the recommendations of the 2007 Travelsafe Committee, QIPC has funded four specific injury prevention research projects on the issue of LSVRO injury.

On 10 May 2012 QIPC hosted a forum on Low Speed Vehicle Run-Over injury, facilitated by Michelle Feenan from Engagement Plus.

The specific aim of the forum was to facilitate the translation of knowledge gained from the QIPC funded LSVRO research into practice by engaging with relevant industry and regulatory groups in addition to injury prevention and safety promotion organisations. The forum brought together a diverse group of speakers and participants in order to examine current research and experience as well as discuss potential strategies to prevent LSVRO injury. For some participants at the forum, LSVRO prevention had not previously been part of their core business.

Participants included:

- Planning, construction and building design businesses and representative groups
- Planning and building regulators and policy makers
- Automotive industry businesses and representative groups
- Automotive industry design and testing bodies
- Automotive industry insurers
- Automotive industry innovators
- Automotive consumer representative groups
- Injury prevention/ safety promotion groups

The forum was attended by fifty four (54) people representing state, national and international interests, organisations and perspectives. A list of attendee organisations is provided at the end of this report.

The format for the six hour programme was a series of morning presentations delivering a structured review of existing knowledge on LSVRO, followed by a facilitated brainstorming session drawing on the expertise

and experience of participants to identify possible interventions and strategies with which to implement them.

This report outlines both the forum presentations as well as the outcomes from the facilitated discussion and synthesises these to identify potential future directions for policy, research and practice.

2. The Forum Programme

The forum programme ran from 10:00am till 4:00pm on Thursday 10 May, 2012.

The programme was specifically designed to accommodate participants from a diverse range of backgrounds. Although LSVRO incidents have been widely publicised in Australian media reports in the last few years, there is little structured discussion around modifiable risk factors to prevent this injury other than improved parental supervision. Therefore, the programme was designed to first define LSVRO and then take participants through a structured analysis of why these events occur and how they might be prevented.

1. Case definition and presentation from a family who have experienced a LSVRO incident:

The forum was opened by Dr Ruth Barker (Queensland Injury Surveillance Unit (QISU)) with a discussion of the case definition of LSVRO and an overview of the difficulties in collecting useful LSVRO injury-related data. Two of the QIPC funded research projects have reviewed LSVRO injury data by accessing the National Coroner's Information System (NCIS) database and also by linking multiple health and coronial data sources in Queensland. These projects have highlighted:

- the lack of a clear definition for LSVRO in coded data
- the difficulty in retrospectively obtaining sufficient detail to understand the event sequence
- the difficulty in determining risk factors for LSVRO incidents

This session was followed by a presentation from Peter and Emma Cockburn, who lost their daughter Georgina in a home LSVRO incident. Peter and Emma described how the incident happened and how it has significantly impacted their lives and the lives of those around them. In particular, they described the care and consideration that they had brought to designing and building their house and raising their four children. Peter is a builder and Emma a primary school teacher, yet despite this, they did not predict the event that resulted in Georgina's death. Georgina accessed the internal garage door from the house and entered the garage as Peter returned home. He raised the garage door using the remote and did not see Georgina as he reversed the work vehicle and trailer into the garage. Georgina was crushed under the trailer wheel.

This first hand testimony highlighted both the impact of such an event on a family as well as the local community, but also how a lifetime of care could be undone in an instant. Emma reported having seen the "Where are your Kids" flyer [3], but recalled thinking that this was 'common sense' and that 'this would not happen to us'. The message of this presentation was:

- that it takes more than knowledge and education to prevent LSVRO incidents
- that this event can occur even where there is sound parenting practice in place
- that a moments distraction can result in tragedy

Summary of Evidence

The current evidence base for understanding LSVRO incidents was then presented by paediatric specialists from Queensland, Australia and New Zealand. The presentations analysed LSVRO events according to the following categories:

People factors:

Dr Ruth Barker (QISU) presented fatality data of children aged 0-5 years from the NCIS and Commission for Children, Young People and the Child Guardian (CCYPCG) databases as well as injury data from the QISU data base and linked Queensland Health/ Queensland Ambulance and death data for children aged 0-14 years.

This presentation highlighted the following points:

- There have been at least 82 LSVRO related deaths (0 to 5 years) in Australia between 2000 and 2010
- 69/82 (84%) of these occurred on or near a residence (this includes the street/ access road in front of the residence)
- A parent or family member was actively driving the vehicle in 48/82 cases (59%)
- The number of fatal cases in Queensland averages 3 per year over the last 10 years (27 cases)
- By using multiple health data sources in Queensland, the number of LSVRO cases (children aged 0-14 years) is estimated to be approximately 3 per week
- The peak age for LSVRO injury is 12-23 months
- An increased severity of injury (includes deaths) is associated with younger age (<2 years)
- The pattern of injury and injury severity is likely to reflect whether the child goes under the vehicle
- There is a correlation between vehicles involved in LSVRO fatalities reversing and vehicles leaving a property

Whilst there was reasonable data to classify the age and gender of the child as well as the driver's gender and relationship to the child, data was much less consistent when trying to understand the reason for the vehicle being moved, the direction of the vehicle, supervision of the child, and passive and active measures used (if any) to prevent a LSVRO. Therefore it is difficult to understand how proposed LSVRO prevention strategies might be taken up, and if adopted, how they might impact on LSVRO incidence.

In particular, existing data does not allow a detailed understanding of the following issues:

- Adult perception of LSVRO risk in different settings:
    - "home"
    - Footpath
    - Public spaces
- Driver behaviour:
    - Looking/ walking around vehicle
    - The lag between assessing the environment, getting in and starting the vehicle

- Utilisation of reversing aides
- Optimum placement of reversing aides for optimum use
- Will reversing aides change driver behaviour?

Vehicle Factors:

Dr Roy Kimble (Royal Children's Hospital, Brisbane) presented the results of linked Queensland Health, Queensland Ambulance and the Queensland Coroner's data as well as international research on vehicle factors related to LSVRO incidents.

Summary of Low speed vehicle run-over injuries in Queensland 1999-2009

- 1611 LSVRO incidents among 0-15 year olds
- Incidence Rate of 16.87 per 100 000, per annum.
- 26 deaths.
- M:F 2:1
- 39% (n=621) 0-4 year olds

This equates to approximately 3 children per week and 3 deaths per year.

In 58% the driver was the parent. Younger children tended to have more severe injuries, including an increase in head trauma. Importantly, all vehicle types were involved in LSVROs, however the larger vehicles including 4WDs tended to be associated with the more severe injuries. From this data and work performed by others, the vehicle involved is more likely to be reversing and the injury takes place in the family driveway.

Although these data are useful in determining the incidence rates of LSVRO, more detailed data is required to develop an evidence base towards motor vehicle and driveway design change. Any decrease in incidence of LSVRO following public awareness campaigns is at best short lived. Detail surrounding these complex events must be prospectively collected to provide a better understanding and evidence base. In Queensland a collaborative of all the major stakeholders has been formed to collect and analyse these data prospectively. Organisations involved include Queensland Health, three major Universities, QISU, QIPC, QTR, QAS, CCYPCG, Police, Ambulance and the Coroner's Office.

Environmental factors:

Dr Michael Shepherd, (Paediatric Emergency Specialist, Starship Hospital, Auckland, New Zealand) reviewed environmental factors that influence LSVRO risk. He discussed the human-vehicle-environment interaction. The vehicular environment is not limited to the driveway, such that one needs to examine the whole environment that is involved in the vehicle-child interaction.
He reported on the only 2 case controlled studies on LSVRO, Roberts and Shepherd, both from New Zealand (see below). There is no prospective comparative New Zealand data available.

Roberts 1995[4]: Retrospective, observational, case control study, medical type model (53 cases).
Very well designed study which found the following were significant:

- No physical separation of the driveway from the play area was associated with a 3-fold increase in LSVRO risk (OR 3.50, 95% CI 1.38–8.92)
- Shared driveways also associated with a 3-fold increase in LSVRO risk (OR 3.25, 95% CI 1.22–8.63)

Shepherd 2010[5]: Collaboration between clinician, injury advocate and planner. This paper looked at the following environmental features:

- Types of dwellings
- Context of site
- Characteristics of the driveway
- Relationship between driveway and house doors
- Visibility and obstructions to drivers' view
- Access restrictions - fencing and gates
- Shared and adjacent driveways

The study design was a case controlled study with blinded assessment of the environment using aerial mapping and council records (88 cases and 181 controls).

The risk of LSVRO injury was increased by:

- Long Driveway - Driveway length of greater than 12 metres, OR 1.8 (95% CI 1.1-3.0)
- Quiet Road - Exiting the driveway onto a local road, OR 5.5 (95% CI 2.7-11.2)
- Driveway exiting onto a cul de sac, OR 2.3 (95% CI 1.4-3.9)
- More than one parking area on the property accessed from one driveway, OR 3.0 (95% CI 1.6 - 5.4)
- Driveway running along the property boundary , OR 2.9 (95% CI 1.6 - 5.2)

The risk of LSVRO injury was reduced by:

- Presence of a separate pedestrian pathway on the property, OR 0.4 (95%CI 0.2-0.9).

It was postulated that the observed increased risk of LSVRO associated with vehicles exiting onto local roads, cul de sacs, and along longer driveways could be attributed to greater vehicle speed. Therefore, LSVRO prevention efforts could focus on strategies to restrict driveway speed in residential developments. Previous studies have proposed that fencing separate play areas on residential properties may also decrease the incidence of LSVRO injury. The Shepherd study does not provide additional support for the fencing of play areas but the incidence of play area fencing in the study was low.

Therefore, proposed environmental strategies include:

- New driveways should be short, particularly when the property is located on a (quieter) local road or cul de sac.
- New designs should place parking areas near the front of the property or on the street
- Acceptable modification of existing properties should be considered in light of this same information.

- Separation of the driveway from pedestrian and play areas may be a potential prevention strategy. Therefore, the built environment contributes to LSVRO injuries. Environmental factors include the type of road the property is on, driveway length, the amount and type of parking present and the configuration of pedestrian and driveway spaces. More research is needed to collect more detailed prospective data to enable a broader understanding of risk factors and measure and understand any impact from interventions.

Discussing data challenges:

This section of the forum was an opportunity for the participants to better understand some of the limitations in data analysis around LSVRO incidents. Dr Roy Kimble discussed a prospective data collection collaborative in Queensland.

The aim of the collaborative is to:

- Develop prospective tools for identifying LSVRO incidents at the 'coal face'
- Improve the accuracy and detail of LSVRO related data collected at the 'coal face'
- Co-ordinate this process across the forensic health continuum
- Develop strategies that will make this process sustainable
- Analyse data collected through this process

Current data sources do not routinely allow accurate identification of LSVRO incidents. In particular, in reviewing the NCIS data there was significant variation in the descriptive text provided by police making some possible LSVRO cases difficult to categorise. Standardisation of a case definition and standard reporting items for forensic cases was proposed as a strategy to improve understanding of the causation of LSVRO fatalities.

Lunch and Trade Displays:

During the lunch break, participants observed trade displays by:

Reverse Alert: Demonstration of an automatic system that will recognise an object in the rear path of a vehicle. The system automatically activates the brake by depressing the brake lever. This is not a vehicle modification. The sensor is set to a certain distance and a powerful solenoid pulls a cable attached to the brake pedal. This can be temporarily over-ridden by the driver. The driver is alerted by a beeping that an object is on the path of the reversing vehicle before the vehicle is stopped. This system does not rely on the driver's reflexes to stop the vehicle if the driver is alerted to something or someone in its path.

Volvo: City Safe: This system uses a combination of advanced camera and computer technology to allow the vehicle to predict impending impact with a vehicle/ pedestrian in front of the vehicle and automatically stop the vehicle. The system is only effective at speeds less than 30km/h. This technology has been introduced in the top of the range but will eventually be available in all Volvo vehicles. Upcoming technology includes side and rear cameras to predict impending impact with pedestrians/vehicles in these directions. This technology will be available in 2013.

Option Audio: Presented multiple retro-fit options for vehicle reversing cameras. Visual display options included display in dash, rear view mirror and rear of vehicle. Not every vehicle offers reversing cameras or sensors as options so consumers need to 'shop around'.

Opportunity for prevention: Vehicle design, Environmental design, Behaviour

Vehicle Design:

Mr Robert McDonald (Research Manager, IAG insurance) presented information relating to the design features of vehicles that impinge on pedestrian visibility. Areas discussed included the A pillars, mirror limitations and rear design of the vehicle. Robert discussed work that he had undertaken in developing a "Rear Visibility Index" for vehicles, including the techniques utilised. In the course of this work, passenger vehicles were identified where the horizon could not be seen through the rear window of the vehicle. The Rear Visibility Index is publicly available on the NRMA Insurance website[6].

The following points were made in relation to vehicle design:

- All cars, even the smallest have a blind spot at the rear that can hide children
- Reversing cameras are really the only way to eliminate blind spots at the rear of the car.
- Cameras are only an aid and not a substitute for driver awareness
- Most sports utility vehicles (SUVs) are no worse than many passenger cars for rearward visibility
- The observed pattern of involvement of SUVs in driveway LSVRO incidents may be because they are today's family wagons and are therefore, the most common vehicle to be around children

Environmental Design

Mr Glen Brumby, (Executive Director, Building Codes QLD, Department of Local Government and Planning) presented on the challenges of instigating design change to prevent LSVRO within the complex environment of Building Code and planning regulations. He outlined the national Building Code structure and discussed local planning regulations. He discussed the significant economic impact of even small code / planning changes and stressed that any proposed change required sound economic evidence as justification. He contrasted current considerations around LSVRO prevention with progress in the area of domestic pool barriers, where the design changes and technical requirements sit more clearly under the National Construction Code.

Education:

Ms Susan Teerds (CEO Kidsafe QLD) presented current collaborative efforts in Queensland to raise public awareness about the incidence and risk factors for LSVRO incidents.

The activities in Queensland followed a high profile non-fatal LSVRO case, where former Wallaby Rugby Union player, Brendon Cannon ran over his son Sam in the driveway of his Brisbane home.

In conjunction with the Queensland Children's Medical Research Institute (QCMRI), Kidsafe developed a TV/ internet advertising campaign, as well as vehicle stickers, flyers, posters and a travelling display. Several

thousand stickers and posters were printed and distributed to primary schools, child health centres, hospitals, day care centres, kindergartens, after school care facilities, police stations and various community groups (with funding from QLD Health). The stickers continue to be given to parents and carers of children. Two 15 metre ground mats were printed to demonstrate the blind spot distances behind vehicles and have been used at many community and corporate events

Messaging focuses on:

Supervise: When moving vehicles know where your kids are at all times. Physically hold them close to you or put them in the car with you. Teach kids to wave bye-bye from a safe place – never the driveway. Never leave children unattended in cars.

Separate: Use fences and self-closing gates to keep garages and driveways separate from play areas. Always keep car doors locked. Prevent toddlers gaining access to garages by installing doors that open inward to the house, self-close and have highset handles. Treat the driveway like a road – never a play area.

See: Walk around your car and keep children in mind when using your reversing mirrors, sensors or cameras.

Emphasis was given to the need to structure public awareness and education efforts within a broader multi-faceted prevention strategy. In particular, consumers require tools (reversing aides, barriers) in order to implement some prevention strategies. The price for retrofitting is an important factor for most vehicle owners but the quality of the cameras, the quality of the display and the location of the display in the vehicle are misunderstood by most consumers. Therefore, education needs to occur in collaboration with other prevention strategies.

3. Workshop discussions

The final segment of the forum Programme was left for the participants to share their ideas and suggestions for the way forward in prevention strategies for LSVRO incidents. The segment was facilitated by using an interactive, computer-based brainstorming tool (Zing) that allowed the capture of large numbers of participant responses in short periods.

The Workshop Questions

Participants were asked a series of questions starting with a very open ended query designed to elicit a wide range of ideas, and ending with a specific question about what each participant thought they could do in their work/ organisation in order to reduce LSVRO incidents.

Questions were as follows:

1. Having heard all of the information about LSVRO's so far- what thoughts, views and ideas come to mind?
2. What's currently working well or helping to prevent LSVRO incidents?
3. What are some of the challenges that need to be addressed?

4. For those of us in the room - what can we do to "Put the brakes on LSVRO" incidents? What can you do in your groups or organisations?

Responses to the workshop questions were immediately visible to all participants as they were displayed on the central screen. Responses have been summarised and grouped into the following themes for each question. A full summary of this raw material is available on request.

- **Impact on Families and Communities**
- **Research**
- **Funding**
- **Complex interplay of contributory factors**
- **Community awareness and safety promotion**
- **Design and technology**
- **Collaborative approaches**
- **Leadership**
- **Cultural changes**

3.1 Having heard all of the information about low speed vehicle run over's so far- what thoughts, views and ideas come to mind?

Participants were asked to generally reflect on the information that had been presented and their own experience in the area of LSVRO prevention.

Responses to this question are summarised below:

Impacts on Families and Communities

- LSVRO events affect a community rather than a single family
- Significant long-term effects of LSVRO incidents
- Significant economic cost of LSVRO incidents
- Usual method of estimating cost probably an underestimate

Research

- Need for nationally consistent data collection using standardised case definition and reporting items
- Need for simple strategies for collecting and accessing data
- Further research required to understand behavioural interactions between vehicle drivers and young children

Complex Interplay of Contributory Factors

- Requires co-ordinated, multi-faceted solution

- Requires national collaboration
- Requires collaboration across industries
- Requires short, medium and long-term strategies

Community Awareness and Safety Promotion

- Higher than expected frequency of LSVRO incidents
- Likely that near-misses are underreported
- Point of sale strategies for raising awareness with vehicle consumer groups
- Point of sale/ rental strategies to upgrade to safer housing design
- Timing and targeting of prevention messages
- Co-ordination of prevention messages

Design and Technology

- Recognition of several vehicle developments that may reduce LSVRO incidents
- Recognition that these developments are unlikely to be the whole solution
- Potential for residential design/design standards to play a role in further reducing LSVRO incidents
- Competing interests of vehicle occupant protection, with impaired rear visibility due to car restraints
- Competing interest of vehicle design with multiple factors influencing vehicle size, shape and visibility

Leadership

- Lack of central responsibility and co-ordination of LSVRO prevention strategy implementation

Cultural Change

- Application of safe system paradigm - safer vehicles - safer speed - safer roads/environment – safer behaviour
- Alternatives to legislating and regulating, creating consumer demand for solutions - mandatory standards are not always the most effective outcome
- Need to encourage people to treat the driveway with the same level of respect as the backyard swimming pool
- Possible insurance incentive for vehicles with better safety rating / visibility aides? How will this disadvantage lower socio-economic groups?
- Acceptance of the inherent risk of moving cars - the risk will always exist no matter how much education and other safeguards are in place
- Poor understanding of driver behaviour with new and evolving technologies, implications and options for newer and older drivers

3.2 What's currently working well or helping to prevent LSVRO incidents?

There were a number of approaches identified by the participants that were seen to be helping prevent LSVRO incidents such as collaboration between agencies and researchers, multi-faceted approaches, good data, media awareness, some awareness by consumers and vehicle manufacturers and the emergence of innovative vehicle technology.

Responses to this question are summarised below:

Impact on Families and Communities

- Nil

Research

- Collaborating locally to develop richer data sources to inform LSVRO prevention
- Linking research with development in the area of rear visibility of vehicles
- Developing national strategies to improve case identification

Funding

- QIPC funding research on LSVRO in Queensland

Complex interplay of Contributory factors

- Nil

Community awareness and safety promotion

- Broad public awareness through co-ordinated and evidence based media campaigns
- Growing consumer awareness through vehicle consumer groups
- Introducing LSVRO prevention as part of other safety messages in training of early childhood educators

Design and technology

- Rapid industry driven progress in the area of technology to improve vehicle pedestrian safety
- Uptake of this technology through effective consumer awareness campaigns

Collaborative approaches

- Current progress in the area of LSVRO data collection across the forensic-health continuum
- Creating partnerships at local, state and national level to examine possible preventive strategies
- Engagement with different sectors (research, government, industry)

Leadership

- QIPC leadership in responding to Queensland Parliamentary Travelsafe Committee recommendation

Cultural changes

- Nil

3.3 What are some of the challenges that need to be addressed?

The forum participants identified a number of challenges that needed to be addressed in developing strategies for preventing LSVRO's. Aspects such as further research and in particular the type of data that is recorded (including near misses) are important challenges to overcome.

Creating an overarching body for leading or championing LSVRO prevention strategies was identified as well as creating effective and enduring messages (without incurring blame) to help continue to raise awareness amongst the general public and stakeholders. Sustainable funding and getting safety on the broader agenda were also identified as challenges to be overcome for the future.

Responses to this question are summarised below:

Impact on Families and Communities

- Nil

Research

- Still require more detailed data in order to inform prevention strategies and evaluate potential outcomes
- Need to build nationally consistent data collection systems

Funding

- Sustainable funding of data sources required in order to maintain access to data collections

Complex interplay of Contributory factors

- Nil

Community awareness and safety promotion

- Making messaging relevant to all
- Addressing the "It won't happen to me" response
- Targeting LSVRO messaging to those who need it, when they need it
- Understanding that the child safety 'marketplace' is already crowded
- Making LSVRO prevention part of everyday business
- Targeting driver education

Design and technology

- Justifying additional building design and construction standards in a climate of economic rationalism
- Understanding how existing and new drivers interact with new vehicle technology
- Care to not over-rely on technology to prevent LSVRO
- Delay in impacting on existing vehicle and housing stock
- Understanding how urban planning pressure affects block design and LSVRO risk

Collaborative approaches

- Striking a balance between regulatory and market driven changes that are likely to reduce LSVRO
- Multi-faceted co-ordinated approach required to have maximal impact

Leadership

- No single agency that "owns" the problem
- Politics of economic rationalism
- Political leadership required to facilitate change in some areas

Cultural changes

- Need to address the "blame" issue for families who have experienced LSVRO
- Understand how easily a LSVRO incident can happen, even with careful supervision
- Addressing the perception that low speed = low risk
- Addressing the perception that the home environment is low risk

3.4 What can we do to "Put the brakes on LSVRO" incidents? What can you do in your group or organisation?

Participants were asked to identify the actions or steps that they could take within their organisations or spheres of influence to help prevent LSVRO's. Many of the responses focused on design changes, better collaboration, some policy development and knowledge sharing.

Responses to this question are summarised below:

Impact on Families and Communities

- Nil

Research

- Provision of better quality data through quality assurance strategies, standardised data collection and refining case definition
- Collaborating across jurisdictions and agencies to collect like data
- Develop research methodology to investigate the impact of interventions

Funding

- Nil

Complex interplay of Contributory factors

- Nil

Community awareness and safety promotion

- Utilise existing contacts and sphere of influence to raise awareness and engage with new stakeholders around prevention strategies
- Incorporate messaging into routine business

Design and technology

- Design improved door systems (garage access door)
- Incorporate LSVRO prevention strategies into current business/ design of vehicles/ environment

Collaborative approaches

- Provision of better quality data through collaboration with other data providers
- Collaboration at local, state, national and international level to share data and information in order to develop, implement and evaluate preventive strategies
- Facilitate conversations at different levels in order to engage new stakeholders

Leadership

- QIPC to review current commitment to ongoing support to LSVRO prevention
- Commitment to a national prevention strategy with state-wide delivery
- Bring this issue to the attention of ministers

Cultural changes

- Nil

4. SUMMARY

The QIPC Low Speed Vehicle Run Over Forum – "an Opportunity to Act" brought together fifty four (54) interested and committed representatives from a number of sectors to explore the current evidence base and to contribute their ideas for preventive strategies to reduce the incidence of low speed run over injury.

The forum outcomes and recommendations are as follows:

Collaboration:

LSVRO prevention is a complex issue requiring a multi-faceted collaborative approach for future preventive strategies. Collaboration requires joint ownership of the responsibility to act in LSVRO prevention as well as exchange of ideas and strategies between a broad range of stakeholders.
The following is required:

- Government: examine their role and scope for action at local, state and national level
- Industry: engage with health/ data custodians to better understand how innovation may reduce LSVRO incidence
- Consumer organisations: engage with research groups to improve consistency, evidence base and timing of messaging around LSVRO prevention

Policy:

Clear leadership and ownership for preventive strategies and a national approach, particularly to data gathering and messaging would be integral to achieving positive outcomes in this area.

- There is a need for a policy leader/ home organisation for LSVRO prevention
- Government could show leadership through modelling best practice in public housing design and selection of fleet vehicles

Practice:

There was recognition that there needed to be allocation of adequate resources to enable the implementation and evaluation of an evidence based multifaceted long term response to reduce LSVRO risk. Resources need to be allocated in the following categories:

Vehicle design:

The forum discussed current progression in vehicle safety design and technology. Whilst it was acknowledged that the Australian impact on global vehicle design is minimal, there are vehicle technologies that may reduce the incidence of LSVRO injury that can be supported and promoted by industry, government and consumers.

- Continue advocacy for inclusion of preventive strategies in vehicle design/ technology as recommended best practice (not mandatory)

Environmental design:

Evaluating regulations around the design and construction of driveways and entrances to residential and other properties, consideration of standardising the barriers (fences) to driveways and considering the closure mechanisms for doorways into garages were discussed. Comparison was made to progress that has occurred in the area of domestic pool immersion prevention over the last 30 years through pool barrier legislation in different states. Acknowledgement was made of how the pool barrier legislations in Australia fall neatly within the National Construction Code, where addressing driveway and property access crosses several jurisdictions.

- Continue advocacy for inclusion of LSVRO preventive strategies in built environment as recommended best practice (not mandatory)

Public Awareness/ Education:

Awareness and education programs continue to play a strong role in overall preventive strategies however it was recognised that these messages may need to go into broader networks such as local government, the building industry and the town planning sectors. In addition, education programmes were recognised to be most effective when part of a broader multi-faceted approach that combines motivation for change with strategies and tools to implement change such as retro-fitted vehicle and environmental solutions or consumer choices.

- Continue public awareness/ education strategies with broader reach and consistent messaging as part of a long term multifaceted approach

Research:

The current related research is assisting in providing a picture of the contributing factors, however more research is needed in order to fine tune the preventive strategies and to inform policy and possible regulation in this area. Similarly ongoing robust data collection is required to evaluate the impact of any interventions in LSVRO prevention. Advances in vehicle design, including alarms and alert mechanisms, are influencing market demands as consumers are starting to expect these features in new vehicles. However, little is known about how drivers use these tools, and more work is required in order to better understand the performance limitation of these devices in LSVRO prevention. The relatively low cost of retro-fitting

some vehicle reversing aides may change the risk of LSVRO associated with existing vehicles in the short to medium term.

- There is a need for a standardised case definition and utilisation of this definition across different data collection systems
- There is a need for improved, detailed prospective data collection
- There is a need for collaborative approaches and data linkage across different data collection systems; need for data linkage to ascertain incidence and impact of event
- There is a need for more research regarding cost effective preventive strategies

Conclusion:

The forum successfully generated a great deal of interest, commitment and possible ideas for preventive strategies at a local, state and national level. It is collaborations between agencies, researchers, policy makers, industries and the community that will be vital in 'putting the brakes' on low speed run over injury for our future.

APPENDICES

References:

1. Annual Report: Deaths of Children and Young People Queensland 2004-5, Chapter 5, Transport, Commission for Children, Young People and Child Guardian, accessed at http://www.ccypcg.qld.gov.au/pdf/publications/reports/annual_report_dcyp_2004-2005/AR_DCYP_chapter5.pdf
2. Parliamentary Travelsafe Committee, Report no. 50 September 2007, Investigation into child deaths and injuries from low speed vehicle run-overs, Queensland Transport Final Report July 2008- March 2009 volume 1 of 2, page 116-7, accessed at http://www.parliament.qld.gov.au/Documents/TableOffice/TabledPapers/2009/5309T685.pdf
3. Where are Your Kids, developed by the ATSB accessed at http://www.auburn.nsw.gov.au/Explore/RoadSafety/RoadSafetyDocuments/Where%20Are%20Your%20Kids.pdf
4. Roberts, I et al, 1995, Driveway Related Child Pedestrian Injuries: A case-control study, *Pediatrics*, Vol 95, no. 3, p 405-8
5. Shepherd, M, Austin, P and Chambers, J, 2010, Driveway Runover, the Influence of the Built Environment: A case-control study, *Journal of Paediatrics and Child Heath*, Vol 46, no. 12, p 760-7
6. NRMA Rear Visibility Index, accessed at: http://www.nrma.com.au/help-information/keeping-safe-secure/car-safety#!

List of Abbreviations / Organisations:

ATSB: Australian Transport Safety Bureau

BITRE: Bureau of Infrastructure, Transport and Regional Economics

CCYPCG: Commission for Children, Young People and the Child Guardian

LSVRO: Low speed vehicle run-over

NCIS: National Coroner's Information System

NRMA: National Roads and Motorists' Association

QCMRI: Queensland Children's Medical Research Institute

QIPC: Queensland Injury Prevention Council

QISU: Queensland Injury Surveillance Unit

SUV: Sports utility Vehicle

List of attending organisations

Australian Bureau of Statistics

Queensland University of Technology

Motor Accident Authority NSW

Mater Childrens Hospital, Brisbane

Queensland Injury Surveillance Unit

Safety Surveillance Guard

Neuroscience Research Australia

Department of Local Government and Planning, QLD

Department of Transport and Main Roads, QLD

Queensland Health

Royal Automobile Club of Queensland

CBN Building

Architectural Door Hardware Association

Lend Lease

Kids and Traffic

MD Surveillance Guard

Dept of Infrastructure & Transport ACT

Queensland Children's Medical Research Institute

QLD Trauma Registry

Royal Children's Hospital, Brisbane

QLD Police

Redland City Council

James Cook University

VicRoads

NMRA Insurance

Queensland Commission for Children and Young People and Child Guardian

Centre for Accident Research and Road Safety - Queensland

Kidsafe NSW

Kidsafe QLD

Volvo

University of Queensland

NSW Transport

Building Codes QLD

Federal Bureau of Infrastructure, Transport and Regional Economics

Starship Children's Hospital, Auckland

Dept of Infrastructure & Transport, Australian Government

Option Audio

NSW Ombudsman