SOUTH AUSTRALIA POLICE
KEEPING SA SAFE

Talkin' Road Safety
BUSINESS and COMMUNITY EDITION

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Wheel lugs on Heavy Vehicles

The advice below relating to wheel nut lugs fitted to trucks is provided via the National Heavy Vehicle Regulator working group.

Neither the Australian Design Rules (ADRs) or Heavy Vehicle (Mass, Dimension & Loading) National Regulation (HV(MDL)NR) exclude wheel nuts from overall width measurement.

ADR - Definitions and Vehicle Categories

OVERALL WIDTH - the maximum distance measured across the body including wheel guards, but excluding:

- rear vision mirrors, signalling devices and side-mounted lamps and reflectors;
- anti-skid devices mounted on wheels, central tyre inflation systems, tyre pressure gauges;
- permanently fixed webbing-assembly-type devices – such as curtain-side devices, provided that the maximum distance measured across the body including any part of the devices does not exceed 2.55m

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Wheel lugs on Heavy Vehicles cont...

HV(MDL)NR – Schedule 6, Part 1, Section 7

Width

(1) A heavy vehicle must not be wider than 2.5m.

(2) When measuring the width of a vehicle for subsection (1), any of the following items that may be fitted to the vehicle are to be disregarded—

(a) anti-skid devices mounted on wheels;

(b) central tyre inflation systems;

(c) lights, mirrors, reflectors, signalling devices or tyre pressure gauges.

Furthermore there is also no exemption for wheel nuts from the protrusions requirements under the ADR or Heavy Vehicle (Vehicle Standards) National Regulation (HV(VS)NR)

ADR 42/04 – General Safety Requirements

11. **EXTERNAL OR INTERNAL PROTRUSIONS**

11.1. No vehicle must be equipped with:

11.1.1.any object or fitting, not technically essential to such vehicle, which protrudes from any part of the vehicle so that it is likely to increase the risk of bodily injury to any person;

11.1.2.any object or fitting technically essential to such vehicle unless its design, construction and conditions and the manner in which it is affixed to the vehicle are such as to reduce to a minimum the risk of bodily injury to any person;

11.1.3.any object or fitting which, because it is pointed or has a sharp edge, is likely to increase the risk of bodily injury to any person; or

11.1.4. any bumper bar the end of which is not turned towards the body of the vehicle to a sufficient extent to avoid any risk of hooking or grazing.

HV(VS)NR – Schedule 2, Part 2, Section 7

Protrusions

(1) A thing fitted to a heavy vehicle must be designed, built and fitted to the vehicle in a way that minimises the likelihood of injury to a person making contact with the vehicle.

(2) However, subsection (1) does not apply to a thing fitted to a heavy vehicle if—

(a) the vehicle was designed before 1965 and the thing was part of the vehicle's design; or

(b) the thing was fitted to the vehicle before 1965 in accordance with the law of the place where the thing was fitted.

Wheel lugs on Heavy Vehicles cont…

What all this means - the Advice:

These types of wheel nuts are in contravention of both the ADRs and the Heavy Vehicle National Law, as they are clearly not designed to reduce or minimise the likelihood of injury in the event of a person making contact with them, and typically when fitted they would exceed overall width.

Does the month or time of the year influence crash numbers

This report examines variations in road injury crash numbers in South Australia by time of year using injury and fatal crash data from 1982-2013.

It was found that there was a statistically significant variation in injury crash numbers by month after accounting for different month lengths. January was found to have 11.7% fewer injury crashes per day than an average month and March was found to have 8.6% more. This pattern seems to have been in place over the entire time period examined.

Examining crash rates by crash location indicates that rural injury crashes follow a different pattern with more injury crashes in the warmer months and fewer in the colder months.

An examination of particular types of days and days of the year revealed very low injury crash rates for the period from 25 December to 5 January, on public holidays and on Sundays. To a lesser extent there were also some indications of lower rates during school holidays. These can all be associated with less travel from work and school and presumably less travel overall leading to less exposure and less injury crashes as a result.

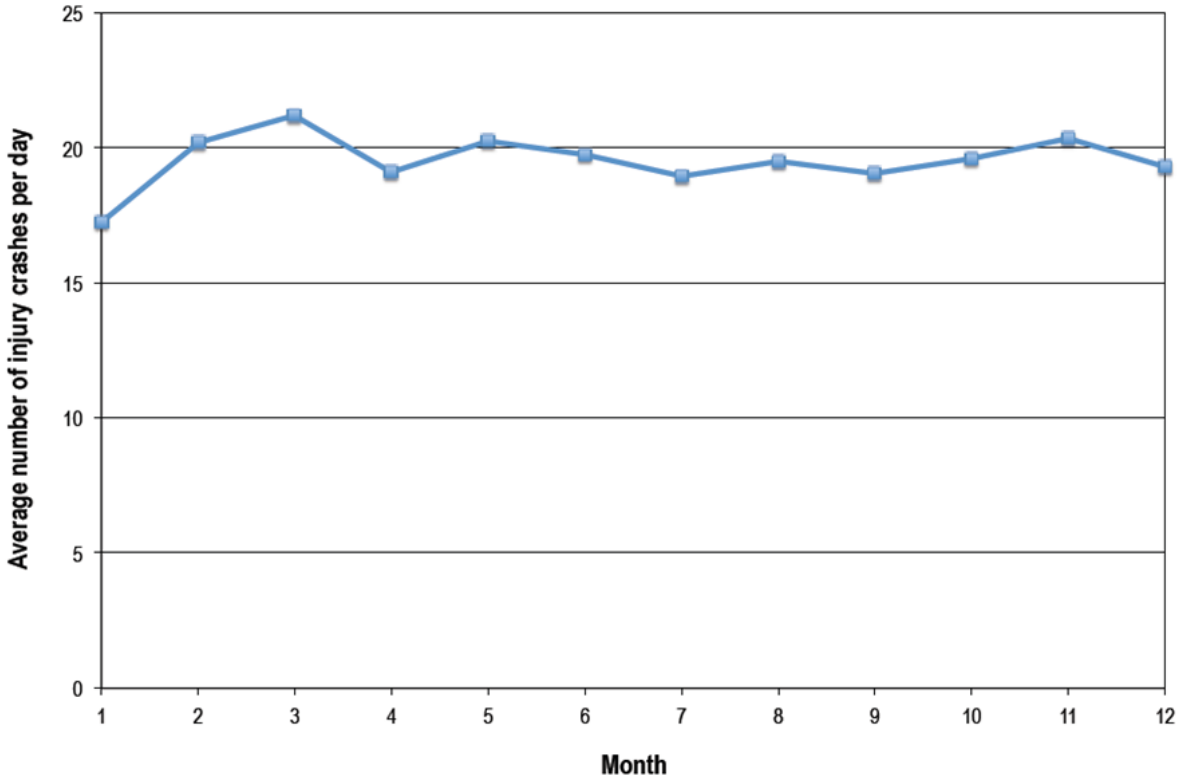
This fits with January being the lowest injury crash rate month (with many people on holidays) and March being the highest (very few public holidays and no school holidays) followed by November, May and February (all with minimal school holidays).

The limited available exposure measures do suggests that there is less vehicle travel in January consistent with January's low daily injury crash rate. While there are some indications that March may have a higher exposure, the evidence is not definitive.

The increasing number of large public events in March in recent years may be having an underlying effect on the number of injury crashes in March. However, there is no consistent observable evidence for this in the crash numbers so the size of any effect is probably not large.

Does the month or time of the year influence crash numbers cont...

Figure 2.3
Average number of injury crashes per day by month averaged over 1982-2013



If you want to read the full report on these statistics go to the following link: -

http://casr.adelaide.edu.au/casrpubfile/1739/CASR128.pdf

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Work related Road Safety

In safety management terms, the workplace is a largely closed environment with controlled access. The road network is by contrast a largely open environment with open access. For companies charged with the safety of employees on the road, the task can at first seem relatively complex. How can employee safety risks be controlled in an open access environment? And where the employee is performing this task everyday outside of work how does the company intervene when the employee is at work?

The answer lies within the growing notion in road safety of 'shared responsibility'. Companies have legal obligations for the safety of their employees, and can play a vital role in improving the safety of the entire community at the same time. Over many years, road users were largely held responsible for their own safety, but that notion is coming to an end with the realisation that the inherent safety of the environment and the technology deployed within that environment largely determines the safety of any individual.

This essential lesson of workplace safety management is beginning to be applied in road safety management. Companies wishing to reduce the risk of their employees on the road should, firstly, reassess the need for travel; secondly, reorganise work journeys to reduce exposure to risk or use lower risk journey options; thirdly, invest in the upfront safety quality of vehicles that are being used; and fourthly, engage their staff about risk management on the road as they would engage them about anything in the workplace which directly affects the performance of the company.

Ideally, these actions should be managed within a standard management cycle of establishing direction, implementing plans, monitoring progress, and looking for opportunities to improve. This requires a person to be tasked with coordinating activity and working with line managers to ensure that the company's objectives in the area are being met.

This cycle will continually review safety performances and identify actions with the most potential to improve road safety within the organisation. These actions will change with time, location and organisation. However, this review has identified a number of measures that have the potential to produce immediate benefits and so it is possible to provide some short-term recommendations. Organisations will need to determine which of the following actions are relevant and which have already been implemented.

- Immediately move to a policy of purchasing 5 star vehicles wherever possible and do not compromise the whole fleet if 5 star vehicles are not available for all vehicle types purchased.
- Analyse driving patterns within the organisation and implement technology and other policies to reduce the amount of driving required.
- Provide information for safer journey planning to avoid high-risk times and locations.

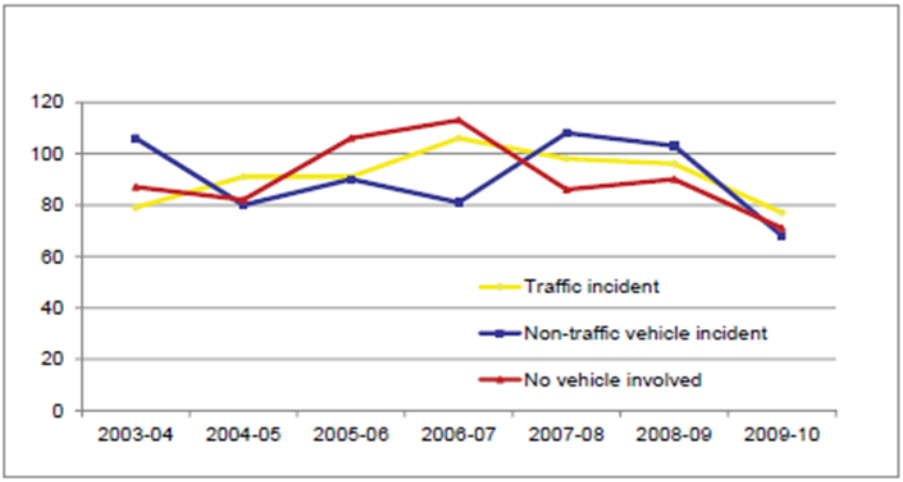
Work related Road Safety

- Ensure all employees are familiar with company road safety policies.
- Provide road safety information in a form accessible to all employees.
- Review road safety policies regularly in consultation with employees.

The costs and benefits of improving work-related road safety will vary from company to company, but will play a potentially vital support role for efforts within the wider community towards a safe road traffic system.

Figure 1

Worker fatalities in Australia 2003/04 to 2009/10: number by traffic incident status



In the seven years up to and including June 2010, one-third of worker fatalities occurred in a vehicle incident on a public road and another one-third occurred in a vehicle incident at a workplace. As shown in Figure 1, just one-third did not involve a vehicle.

All injuries come at a cost and road vehicle injuries tend to cost more. In the 2008/09 financial year (the latest data available), the median working time lost from a vehicle incident was 5.8 weeks at a cost of $10,000, compared to 4.0 weeks and a cost of $7,700—the average for all injury/disease mechanisms (Safe Work Australia, 2012b).

If you want to read the full report on this subject go to the following link:-
http://casr.adelaide.edu.au/casrpubfile/1554/CASRWorkRelatedRACV1416.pdf

If you would like to book a session on Road Safety Education please contact the SAPOL Road Safety Section on 8207 6585 or email SAPOL.RoadSafetySection@police.sa.gov.au

How does extreme behaviour affect the road toll?

In Australia, there has been a recent paradigm shift to a Safety System approach that recognises that road users are fallible and will make errors, and that system design should take into account the force that a human body can tolerate before injury occurs. The Safe System approach compels system designers to provide an intrinsically safe environment, representing a shift away from the traditional approach placing responsibility for safety on the road user.

Within the road system, there are compliant road users who may make an error that leads to a crash, resulting in a 'system failure', and there are also road users who deliberately take risks and display dangerous or 'extreme' behaviours that lead to a crash. Crashes resulting from system failures can be addressed through improvements to the road system more readily than crashes resulting from extreme behaviours. The classification of crash causation in terms of system failures or extreme behaviour is needed to determine the extent to which Safe System approach (i.e. improvements to road system design to serve compliant road users) is capable of reducing road crash numbers.

To examine the relative contribution of system failures and extreme behaviour in South Australian crashes, two datasets were reviewed: Coroner's investigation files for fatal crashes and databases of in-depth crash investigations conducted by CASR. For each crash in the datasets investigators first determined whether extreme behaviour contributed to the crash according to a specific definition. If extreme behaviour was not a factor, investigators considered what changes could be made to the road transport system, if any, to prevent the crash and prevent the injuries sustained in the crash. Crashes involving extreme behaviour might also be affected by changes to the road system, however for the purposes of this study these concepts were treated as mutually exclusive.

The definition of extreme behaviour specified high levels of alcohol and speeding but some crashes involved lower levels of these behaviours that contributed to the crash (i.e. the road user was not 100% compliant or safe) and were not classified as extreme. In such cases, crashes involving any illegal behaviour that contributed to the crash or to injuries sustained during the crash were identified and formed a spate category 'illegal system failures'.

A summary of the results from the analysis of 83 fatal crashes, 272 non-fatal injury crashes in metropolitan Adelaide and 181 non-fatal rural crashes in South Australia is presented in the following table.

Summary of the role of system failures and extreme behaviour in fatal and non-fatal crashes in South Australia

Data source	Extreme behaviour (%)	Illegal system failure (%)	System failure (%)
Fatal crashes 2008	43.4	22.9	33.7
Non-fatal metropolitan injury crashes 2002-2005	3.3	9.9	86.8
Non-fatal rural crashes 1998-2000	9.4	16.6	74.0

How does extreme behaviour affect the road toll?

Very few non-fatal crashes involved extreme behaviour by road users. Even for fatal crashes, a large proportion of crashes were 'system failures'. The higher proportion of extreme behaviour in fatal crashes was likely due to higher levels of blood alcohol concentration and speed being related to a high likelihood of death in a crash. These findings suggest that improvements to the road system (i.e. forgiving road infrastructure, appropriate speed limits, and safe vehicle design) can assist in reducing the incidence and severity of a large proportion of crashes in South Australia.

If you want to read the full report on this subject go to the following link: -

http://casr.adelaide.edu.au/casrpubfile/1108/CASR092.pdf