

# Study of current factors affecting road safety for 16-18 year old novice drivers in the Wingecarribee Shire

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## Abstract

Young novice drivers in the first six months of their provisional licence phase have higher crash and fatality rates which are disproportionate to other road users (Bates, Watson and King, 2006). The 'Rotary U Turn the Wheel' road safety program was developed to educate novice drivers of these risks, changes in attitude and behaviour, and to support the school curriculum in this area of road safety. Approximately 822 Year 11 students across the Wingecarribee Shire whose ages range from 16 – 18 were surveyed during the 2013 – 2014 period at the annual 'U Turn the Wheel' event. The survey aimed to benchmark issues and factors that impact both positively and negatively on road safety for 16 – 18 year old novice drivers. The survey was anonymous which allowed students to candidly discuss issues that affected their driving experiences as well as personal issues that may also affect road safety in this vulnerable group without fear of any negative consequence. Factors discussed in the survey included their involvement in accidents or infringements; high risk behaviours; media advertising and its effect; personal drug use; medication; as well as any medical issues that could affect their driving ability. The study results will form the basis of an educational review of the U Turn the Wheel program to ensure best practices are employed in the program and teaching content is current and relevant to the target audience.

## Keywords

Road safety, novice, drivers, U Turn the Wheel, young driver issues, road safety education, risk factors, student survey.

## Introduction

Driver education programs are often developed through community response to local road trauma and have been the subject of various studies to establish the effectiveness of the programs' ability to reduce a driver's crash risk. Little evidence has been established to link driver education attendance to lowered crash risk for participants (Bates et al. 2006) and may contribute to the short term nature of the program which has a dilution effect on participants when compared to the extended influence of supervising drivers and/or parents. Drivers aged 17 – 24 years are three times more likely than other road users who are over 21 to be involved in a serious crash (NRMA, 2015).

This preliminary study identifies the factors that affect the road safety of young novice drivers who attended the *U Turn the Wheel* program during 2013-14. It uses the information obtained to perform an educational review of the road safety program and also compares program content with actual audience needs.

The Rotary Club of Moss Vale together with the Wingecarribee Shire Council Road Safety Officer established the initial *U Turn the Wheel* program which is now duplicated in many other areas. The program was based on the principle that "road safety is a community problem which demands a community solution" (Faulks et al. 2008). The program relies on the commitment of the Roads and Maritime Services, local council road safety officers, schools, road safety experts as well as the wider community of volunteers that make it a success. In 2005, Redshaw reviewed local programs including *U Turn the Wheel* and found that overall "students are receptive to information that they see as directly relating to them". It was necessary to compare what this age group thought was important in regards to road safety and what was actually being taught during the sessions of *U Turn the Wheel*. For any educational program to be effective, it is necessary to establish relevance of the content to the participants and their current situation. The survey allowed participants to voice their current concerns and issues in relation to road safety issues relevant to their needs.

## Methods

The current *U Turn the Wheel* program in the Wingecarribee Shire is a compulsory program for the local high schools. The program is run once a year from August to November and all Year 11 students are required to attend. In late 2013 and early 2014 schools were given a copy of the survey to be completed during the program and its inclusion was added to student information sheets.

The survey was developed to cover a wide range of road safety issues and was then reviewed by a research and marketing consultant to ensure the wording and questioning style was clear, concise and measurable. The survey was anonymous which allowed students the freedom to express their honest views and opinions to questions. Results could not be attributed to any particular school, gender, socio economic group or locality other than the broader Wingecarribee Shire area.

The hard copy survey was distributed and students were given time to complete and hand it in during the final plenary session of the day. Participants had just completed

five hours of road safety seminars and had developed an initial understanding of the issues and effects within the community. Surveys were collected and collated without bias.

**Participants** (n= 822)

The participants in the survey were Year 11 high school students from a wide variety of socio economic backgrounds, ethnicities, gender and localities within the Wingecarribee Shire. The participants were 16 – 18 years of age. A high percentage of participants held a current learner or provisional 1 drivers licence, class C. No participants held a provisional 2 class C licence.

**Survey areas:**

Students were asked a range of questions both in multiple choice/ tick the box as well as short answer responses. The questions were grouped into the following categories:

- Licencing: type held, time period, offences, logbook compliance, driving lessons
- Low risk strategies: head checks, indicators, speeding, CAS, seat belts, mobile phones
- Drugs: medications taken, medical issues
- Road safety advertisement: memorable advertising

**Results**

**Licencing**

Year 11 students ranged from 16 – 18 years of age. It was expected that the majority of students would hold a learner licence. The 822 participants were classified into licence type.

The survey results were further subdivided into the length of time the participant held the current licence class. The results showed the largest group of participants had held a learner licence for 6 – 12 months and provisional 1 licence holders had held the licence for 1 – 6 months.

The program achieved the aim of delivering a road safety message to the most vulnerable group of novice drivers – learners and provisional 1 licence holders. Provisional 1 drivers are at higher risk than any other road user group in

the first six months of driving. The program has achieved a capture point of learners holding the licence for six months or more and provisional 1 licence holders in their first six months of solo driving experience. (Table 1)

Licence holders were asked if they had received any traffic offences during their learner or provisional phase up to and including the day of the program being held. The main fines and/or penalties listed were for the following offences:

- Speeding 9.2%
- Driving without a supervisor 5.3%
- Not displaying their P plates on the vehicle 3.4%
- Accidents (minor) 3.3%

A small percentage of participants had been fined for negligent driving which could be attributed to the identified minor vehicle accidents in which they had been involved.

The participants had been asked how many demerit points they had lost whilst on their licence; the results did not correspond with the previous answers relating to offenses which all carried a demerit point penalty. This may be due to the participant’s limited knowledge of the current demerit point system and how offences can carry a financial penalty and a related number of demerit points.

The opportunity was taken to question participants on their compliance to logbook requirements. Currently in NSW learner drivers under the age of 25 years must complete 120 hours of driving experience on road, with a minimum of 20 night hours. Learner driving hours are recorded in a Roads and Maritime Services (RMS) logbook which is signed off by their supervising driver to verify the learner has actually completed this time. Non-compliance or defrauding the logbook constitutes an offence which if caught, will incur a penalty, possible criminal charges as well as being refused a driving test for a set period of time.

In order to clarify their actions and demonstrate what happens in reality, participants were asked “When you sat your P1 test did you actually complete the full 120 hours in your logbook?” They were given a Yes/No selection. Those who answered ‘No’ were asked to identify if they had completed 80 – 120 hours, 50 – 80 hours or less than 50 hours in their logbook.

**Table 1. Main capture point of participants by licence type**

Percentage per Licence class	No licence	Learner		P1		P2
	15%	75%		10%		0%
<b>Capture point</b>		First 6 months	Last 6 months	First 6 months	Last 6 months	
	15%	26.5%	48.5%	7.8%	2.2%	0%

The majority of drivers on provisional licences answered ‘Yes’ to completing the required 120 hours. Of the drivers who did not complete 120 hours, the results were listed as either 80 – 120 hours or under 50 hours. No participants had answered 50 – 80 hours. The majority of participants had completed between 80 – 120 hours in their logbook before sitting the practical driving test.

Learner and provisional drivers were also asked if they had undertaken paid driving lessons with a professional driving instructor. (See Table 2)

**Table 2. Hours of professional driving instruction undertaken**

No lessons	1-5 hours	5-10 hours	10 or more hours
48%	26.5%	14.8%	10.7%

The majority of participants holding a licence had not yet undertaken formal professional driver training. Of those participants who had undertaken professional lessons the highest percentage had completed 1 – 5 hours of professional training. Overall, the time learners were exposed to professional training was less than 5% of total training time (120 hours). This left parents/supervisors to ‘fill the gap’ of 95% of training with limited support of correct training methods, current information and road rule knowledge. This skills gap for both the learner and the supervisor needs to be addressed as a priority to reduce the potential transfer of incorrect knowledge and skills to new novice drivers which may affect the road safety of this vulnerable group of road users.

## Low risk strategies

Participants were asked a variety of questions that related to the implementation and compliance of low risk strategies whilst driving. The main areas were seat belt compliance, head checks or blind spot checks, indicating off roundabouts, implementing a three second safety gap (crash avoidance space – C.A.S.), speeding and mobile phone usage.

Whilst seat belt compliance is relatively high in Australia, recent years with increased immigration from countries where seat belts are not heavily enforced has seen the compliance figure reduce slightly. An educational campaign has been developed to educate these immigrant groups to ensure their understanding of the safety benefits and risks are fully understood.

Ethnic background was not questioned within the scope of this survey and therefore no result can be obtained for non-compliance to any specific ethnic background. Participants were asked “Have you ever driven without a seatbelt?”

Compliance within the participant group was relatively high at 80% but a further 14.1% did not answer this question. The participants that answered ‘Yes’ to the question were asked if they did this frequently (0.6%), occasionally (4.2%), always (1.1%). The small number of non-compliant drivers not wearing a seatbelt would be considered too high a risk as these potential accidents have a high risk of fatalities.

Participants were asked if they performed necessary blind spot checks when driving; 51% answered always, 27% sometimes, 9% never and 3% not completing the question. The issue of positive enforcement for novice drivers to comply with this low risk strategy needs to be explored as well as the influence of parental non-compliance. Blind spot checks are heavily weighted in the RMS practical driving test in NSW. A learner driver must complete the driving test with two or less blind spot check errors. The third error constitutes a fail item. Learner drivers are motivated to perform these checks to ‘pass the test’: there is little motivation to comply with this after the driving test. Blind spot checks or observation checks are performed to observe the area where the side mirrors do not cover.

Indicator usage on roundabouts has recently been the subject of an advertising campaign in NSW to increase compliance. The participants were asked, “Do you put your left indicator on when exiting a roundabout?” A total of 51% of participants answered ‘Yes’ they did indicate off a roundabout where 29% answered sometimes and 15% never. Of those participants that answered never the main reasons given were “didn’t know they had to” and “it is confusing”.

Speeding is the major cause of death and injuries in accidents for novice drivers in the 16 – 25 year old age range. A total of 28 % of participants answered ‘Yes’ to driving over the speed limit with 50% of these responses listing they did this regularly. Participants that answered ‘Yes’ to speeding, 70% stated they felt more at risk when they did speed in a motor vehicle.

Mobile phone use is prohibited for learner drivers and provisional drivers in NSW. When asked “do you operate a mobile phone while you drive, including hands free or text?” 9.7% of participants answered ‘Yes’. Further questioning revealed 7.4% occasionally, 0.9% frequently and 1.4% always operated a mobile phone while driving.

Participants were asked as a novice driver what are the main hazards you experience whilst driving, and what worries you the most? (See Table 3)

The main single issue that concerned young drivers was other drivers. They felt the behaviour of other drivers towards learners and provisional drivers was frightening and often did not know how to deal with this aspect of learning to drive. This raised a general question of why do learners have to do comply with rules when other drivers break the law all the time.

**Table 3. Main concerns of young novice drivers**

Main hazard/ worry: common response	No. of participants
Other drivers	78
Road and traffic conditions	38
Animals	31
Inexperience	30
Speeding	28
Pedestrians	23
Fatigue	19
Crashes	16
Other – peer pressure, tailgating, parking a car	29

## Drugs and medical issues

As the survey was anonymous it was an ideal opportunity to ask participants about drug use, both legal and illegal, prescription and non-prescribed medication. To gain a wider perspective of issues that may increase a young drivers risk on road the survey also asked if they had a range of medical conditions that could impact on road safety if uncontrolled. (Table 4)

Young drivers and parents need to be aware and educated on the affect certain drugs have on driving ability; to help reduce the impact on road safety. Some of the medical conditions outlined have the potential to delay a young driver's ability to gain a provisional driver's licence such as epilepsy where a mandatory non-drive period is enforced until symptoms have settled. With the additional factor of peer influence in this age group there is a potential for young drivers to ignore exclusion periods or not report the

**Table 4. Drug use and effect on driving within young novice drivers**

Drug Name	Common usage	Effect on driving	No of participants
<i>Anti-psychotics</i>			
Rixadone Respiradone	Anti-psychotic Bipolar, Schizophrenia	YES Interacts with alcohol	2
Seroquel Quetiapine fumarate	Anti-psychotic Bipolar, Schizophrenia	YES Avoid alcohol	3
Carbomazapine Sandoz	Anti-convulsing, Bi polar	YES	1
Lithium	Manic depression	YES	2
Ablify Aripiprazole	Anti-depressant, Bipolar	YES	1
Anti-depressant (not listed)	Depression	YES	6
Venlafaxine	Anti-depressant	YES	2
Lovan Fluoxetine	Anti-depressant SSRI	YES	5
Cymbalta duloxetine hydrochloride	Anti-depressant	YES Interacts with MAOI drugs and alcohol	1
Zoloft / Sertraline	Anti-depressant SSRI	Yes can interact with alcohol	1
Pristiq Desvenlafaxine succinate	Anti-depressant SNRI	Yes	1

Drug Name	Common usage	Effect on driving	No of participants
Cipramil Citalopram hydrobromide	Anti-depressant SSRI	YES Avoid alcohol	1
Escitalopram Escitalopram oxalate	Anti-depressant OCD, Anxiety SSRI	YES	5
Seretide	Asthma	NO	4
Asmol	Asthma	NO	1
Ventolin	Asthma	NO	6
Flixotide	Asthma	NO	1
Epilim/xyprexol	Epilepsy	YES	1
Lamotrigine	Epilepsy	YES Avoid alcohol	4
Ritalin Methylphenidate hydrochloride	ADHD Narcolepsy	YES Negative interaction with alcohol	3
Concerta Methylphenidate hydrochloride	ADHD	YES	2
Insulin	Diabetes	YES if not controlled	1
Metaformin	Diabetes	NO	1
Ixprim Opioid, Tramadol	Pain killer	YES	1
Celebrex Celecoxib	Arthritis/menstrual cramps	Possible side effects	1
Hypothyroid drugs		UNKNOWN	1
Roaccutane Isotretinoin	Acne	NO	2
Doxycycline	Antibiotic	NO	2
Unknown drug		UNKNOWN	3
Crystal meth		Yes	1
Marijuana		Yes	1

medication or condition to the RMS; increasing their risk factor on the road.

Drummer argues that 'the role of prescribed medication in road trauma is uncertain. In general, most drugs tend not to be significant risk factors on the road when the drugs are used as prescribed.' (Drummer, 2008)

It is however a risk factor when medication is not taken as prescribed, particularly in the earlier stages of

treatment such as depression. Many medications impair necessary skills required to operate heavy machinery with specific effect on attention, concentration, visual acuity, coordination and reaction times. Drugs in general, other than alcohol, have been implicated in approximately 30% of Australian driver fatalities (Gowing, Holmwood & Edmonds 2005).

## Road safety advertisement

Participants were asked to describe the most memorable road safety advertisement and if they felt it improved their behaviour when driving. There was a high nil return rate on this question which could be attributed to advertising not connecting with this target audience. The following are the most popular three responses for advertisement recall in this age group.

- Dr Oowler multiple choice advertisement – Take the slow down pledge
- RBT Plan B – What’s your Plan B
- Speeding – No one thinks big of you: Roads Traffic Authority (RTA NSW)

Although many answers listed in the surveys could not name the specific advertisement they did describe them accurately. Plan B was the most recognised by name and therefore held more recall potential to this audience group.

## Overall findings

The survey was a necessary first step in benchmarking the issues young novice drivers faced in the regional areas of NSW. For many years the program has relied on road safety information, research and local knowledge to convey an important underlying principle of attitude and behaviour change to tackle road trauma. These are all necessary components to ensuring an effective education program. However, one area that had been omitted was the young driver’s perspective of what issues they faced as novice drivers. Their active involvement was needed (Faulks et al. 2008). The survey allowed this road user group to voice the areas that concerned them in relation to road safety. For a solution to be effective in reducing road trauma in this vulnerable road user group it is essential that all key stakeholders contribute to the solution. A collaborative approach that was inclusive of young drivers needs was necessary to begin the process of ownership of the issues and being instrumental in allowing the young drivers to help solve the problem.

The data highlighted a need for changes to the current curriculum of the *U Turn the Wheel* road safety program to ensure key information is given to this road user group to help prevent and reduce road trauma. The information gained also allowed key stakeholders the opportunity to review the skill and knowledge gaps within this road user group. By a coordinated approach, road safety governing bodies such as the RMS; educational groups such as schools, driving instructors, road safety officers, course providers; and more importantly parents/supervisors and learner drivers; will increase awareness of the issues faced by this age group and develop effective training to help reduce the negative effects of these risk factors (OECD/ECMT, 2006).

The main areas that were found in this survey for an urgent review within the educational program included:

- *Prescription drug use and effect on driving*: the main drugs used within this group were anti-depressants, anti-psychotics and ADHD medications. All categories affect a driver’s ability to operate a vehicle safely if the medication is not controlled. Evidence suggests more education is required for this age group on drug use/interaction and driving, as well as RMS exclusion requirements and AUSFIT compliance.
- *Demerit point system and how it works*: young drivers had little knowledge of the demerit system or how it operates. For the young driver to be aware of negative consequences when driving it is important they are familiar with the scheme to encourage compliance.
- *Further support for medical and learning issues in relation to learner drivers*: as the incidence of autism spectrum disorders and learning disabilities increases a coordinated structured approach to supporting these young drivers is necessary to decrease their risk factors on road.
- *Choices we make when driving – low risk driving strategies and why they are used*: there was limited knowledge on current low risk strategies that can be employed whilst driving and how these can decrease a driver’s risk. There was also a general feeling amongst participants that compliance to these strategies was only necessary to pass the test. Reinforcement through parents and supervisors needs to be explored further. The main aim of driver education is to produce safer drivers, defined in terms of accident involvement - not how to pass a driving test (OECD/ECMT, 2006). This paradigm change is a necessary one for all key stakeholders involved in road safety if real change is to be made.

The survey results are currently being used to review the content of the *U Turn the Wheel* program and this will form the basis of an educational review. The *U Turn the Wheel* committee has already implemented one recommendation by Redshaw (2005) and has included a plenary session open for discussion to ensure all sessions have been linked together with a unifying message (Faulks et al, 2008).

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## Developing a new index for comparing road safety maturity: case study of the ASEAN Community

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[Note: This paper was peer reviewed and presented at the Australasian Road Safety Conference 2015 (ARSC 2015)]

### Abstract

As part of the development of the ASEAN Regional Road Safety Strategy, a new index for measuring road safety maturity (RSM) was constructed from numerical weightings given to measurable factors presented for each of the pillars that guide national road safety plans and activities in WHO Global Road Safety Report 2013: road safety management, safer road and mobility, safer vehicles, safer road users and post-crash response. The index is based on both a content analysis approach and a binary methodology (report/no report) including measures which have been considered pertinent and not redundant. For instance, the use of random breath testing and/or police checkpoints in the national drink driving law are combined in the enforcement index. The value of the index per pillar ranges from 0 to 100%, taking into account whether there is total, partial or non-implementation of certain actions. In addition, when possible, the self-rated level of enforcement is included. The overall ratings for the 10 ASEAN countries and the scores for each of the pillars are presented in the paper. The extent to which the RSM index is a valid indicator of road safety performance is also discussed.

### Introduction

Transport plays a critical social and economic role, but failures of the system can have severe consequences for quality of life, including death and severe injuries (Ra'ed & Keating, 2014; Salmon, McClure, & Stanton, 2012). The social and economic losses associated with road trauma are enormous. According to the WHO Global Road Safety Report (2013) about 1.24 million people are fatally injured each year in road traffic related incidents. In addition, between 20 and 50 million non-fatal injuries are reported every year; with many people incurring disability as a result of their injury (Al Turki, 2014). It is clear that these numbers could be significantly higher if the effect of under-reporting is taken into account, particularly in low and middle-income countries.

One of the lessons of the recent literature in road safety is that road trauma is not equally distributed worldwide, with the incidence differing according to the level of economic development of the countries (Kopits & Cropper, 2005). To illustrate, it is estimated that 91% of road fatalities occur in low-income and middle-income countries (WHO, 2013). High-income countries have reported decreasing trends in deaths on their roads when compared with the increasing fatalities in low and middle-income countries. Developed