

Response to

## **“Committee Stage of Road Traffic (Amendment) Bill - Written Submissions**

The [Road Traffic \(Amendment\) Bill](#) was formally introduced to the Northern Ireland Assembly on 12 May 2014 and received its Second Reading on 27 May 2014. The Bill has now been referred to the Committee for the Environment which has responsibility for the Committee Stage of the Bill.

The Committee issued a call for evidence looking for people to submit their views on the bill”

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**I would be happy to give oral evidence if required.**

## Relevant expertise

Thomas, J.R.V. and **Jones, S.J.** (in press). Injuries to 15 to 19 year olds in road traffic crashes: a cross sectional analysis of police crash data. *Journal of Public Health*.

**Jones, S.J.**, McKenna, F., Stradling, S., Christie, N., Mullarkey, T., Davies, D., Box, E., Townsend, J. and Dalton, J. (2014). Green paper on safety of young drivers has stalled. *BMJ* 2014;348:g476 doi: 10.1136/bmj.g476 (Published 28 January 2014)

Kinnear, N., Lloyd, L., Husband, P., Helman, S., Scoons, J., **Jones, S.**, Stradling, S., McKenna, F. and Broughton, J. (2013). Draft Project Report RPN2553. Novice drivers: Evidence review and Evaluation. Transport Research Laboratory. Crowthorne.

**Jones, S.J.**, Begg, D., and Palmer, S.R. (2012). Reducing young driver crash casualties in GB – use of routine police crash data to estimate the potential benefits of graduated driver licensing. *Injury control and safety promotion*, DOI: 10.1080/17457300.2012.726631

Winner of the UK PH Futures inaugural ‘Killer slide’ competition for slide outlining the potential for Graduated Driver Licensing

Visited Injury Prevention Research Unit, University of Otago, Dunedin, May 2009, to work with Dot Begg, one of leading global academic authorities on Graduated Driver Licensing

Researching and advocating for the implementation of Graduated Driver Licensing in the UK since 2008.

## **Comments on elements of bill relating to new / young drivers**

### 1) Proposal to decrease learner age from 17 to 16 ½

I would advise against this proposal.

The global trend is towards increasing learner ages in order to minimise the risks of crashing associated with age. Age is a significant risk factor for new, young driver crashes, in combination with inexperience, and by reducing the learner age, there is the potential to significantly increase the risk of crashing and negate all positive effects associated with the rest of the proposals.

There is then a concern that the scheme will appear to be 'unsuccessful' and be abandoned.

It is not possible to quantify and then, potentially, adjust for the impact of reducing the learner age. Kinnear et al (2013) found that:-

*The relationship between age and collision risk is well established (see McCartt et al., 2009 for a recent review; Maycock et al., 1991; Forsyth et al., 1995, Mayhew et al., 2003a, Vlakveld, 2004). Based on data from GB (Maycock et al., 1991), McCartt et al. (2009) quantified the independent effects of age and experience on collision risk. Using the example of a driver licensed at 17 years old, the effect of age alone accounts for a reduction in crash risk of 6% in the first year of licensure. Delaying licensure from 17 to 18 years old would therefore result a reduction in collision risk based purely on the effect of age alone. The effect of maturation from 16 to 17 years old is thought to be more pronounced. McCartt et al. (2009) report that a delay in licensure from 16 to 16.5 years reduces fatal collision rates by 7%; a one year delay to 17 years old results in a reduction of 13%. These results further support previous studies noting the effectiveness of higher licensing ages resulting from the implementation of GDL systems (Williams, 2009; Begg & Langley, 2009). The neurological and psycho-social reasons for the effect of age on collision risk have been well documented (see McKenna, 2010a for a review; Kinnear, 2009) and provides an evidence base for understanding the mechanisms through which delayed licensure leads to collision reduction as part of a GDL system.*

### 2) Proposal that a learner should hold a provisional licence for at least 12 months

The rationale for this is that the learner period has a fixed minimum, encouraging learners to gain more driving experience, including driving in all seasons and in day time and night time.

Concerns that are often raised about these fixed periods are:-

That the learner crams all of their lessons into the end of the period

That the cost of learning to drive is increased

The conclusion of Kinnear et al (2013) was that “Minimum required practice and a minimum learner period are common in GDL systems and enhance GDL effectiveness.” They also found that “the extension of the learner period from six months to two years (with a 6 month minimum) was associated with a net reduction in collisions of 15% (Gregersen et al., 2000).”

Kinnear et al (2013) also commented that “the aim of these components is to take advantage of the safety associated with supervised driving to increase the amount of real world practice (and presumably learning) that new drivers gain, preparing them better for the next stage of licensing.”

*Initial evaluations of minimum learner periods in the USA appeared to demonstrate that they contributed to a reduction in collisions (McKnight & Peck, 2002). As of 2011, 46 states and the District of Columbia, USA required a minimum number of hours supervised practice, with 50 hours being the most common requirement (O’Brien, Foss, Goodwin & Masten, 2013); requirements in the USA can range from 20 hours to 60 hours (IIHS, 2013). In a national study of US states, Baker, Chen and Li (2007) reported that the combination of a minimum learner period (of at least three months) and minimum required practice (of at least 30 hours) was associated with an 18% reduction in collision rate. Whether this association was due to either of the components or the combination of them (or indeed the combination with other GDL components) could not be determined.*

*Victoria, Australia introduced a GDL system in 2007 (updated in 2008) and a recent publication details results of an interim evaluation (Healy et al., 2012). As noted in Section **Error! Reference source not found.**, an updated GDL system in Victoria, Australia requires a minimum 12 months learner period and a minimum 120 hours of on road supervised practice (including ten hours at night) during the learner stage for drivers under 21 years old. Results of before-and-after surveys suggest that the number of hours of practice has increased substantially for 17 to 20 year olds (16 year old learners remained stable at around 120 hours pre- and post-implementation due to previous initiatives). The length of time a person is engaged with learning to drive increased for all age groups. As noted in Section **Error! Reference source not found.**, the introduction of the system in Victoria is associated with significant collision reduction, although the effects of increased learning alone cannot be dissociated from the overall effect of the system. (Kinnear et al, 2013)*

There is the possibility that learners will focus more of their driving on the end of the learner period, but this is not the action of all drivers. Evidence from Wells et al (2008)<sup>1</sup> will help to address these concerns. However, readers should be aware that the sample described in this study is likely to be biased. Those teenagers who have responded are likely to differ significantly from those who have not responded in terms of crashes and number of lessons taken. Research from Australia has also covered many of these learner period issues.

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<sup>1</sup> Cohort II: A Study of Learner and New Drivers by P. Wells, S. Tong, B. Sexton, G. B. Grayson and E. Jones (Transport Research Laboratory)

### 3) Proposal that a learner should use a log book

The rationale for the log book is to ensure that learners experience a full range of driving conditions.

There are concerns that learners will falsify the information in the log books. This is a risk, but we often forget that the majority of people are law abiding and aim to 'do the right thing'. Often, the concerns that we raise about legislative processes assumes that most people are dishonest and wish to break the law. In reality, the opposite is usually true.

See also commentary in response to point 4, on compliance.

### 4) Proposal to restrict new drivers to only 1 passenger for 6 months, with exemptions for family members or in the presence of a supervising driver

Passenger restrictions are one of the key elements of a high quality GDL scheme, along with night time curfew and zero alcohol consumption.

The conclusion of Kinnear et al (2013) was that:-

- Night time restrictions and passenger restrictions are considered to be the most effective components for reducing new driver collisions.
- Reducing exposure for new drivers carrying passengers is most effective for new drivers under 30 years old when carrying passengers under 30 years old, particularly when the driver and/or the passengers are male. The carrying of passengers over 30 years old reduces collision risk for all new drivers.
- For drivers over 30 years old, carrying any passengers reduces crash risk. New drivers over 30 years old should not therefore be restricted from carrying passengers.
- Some jurisdictions allow exemptions (e.g. for work or for carrying family members) although these have been associated with reducing GDL effectiveness.

The more detailed assessment by Kinnear et al (2013) was that:-

*The effect of teen passengers on young novice driver collision risk was outlined by Chen, Baker, Braver and Li (2000) and supported the use of passenger restrictions as part of GDL systems. Chen et al.'s analysis demonstrated that the relative fatality risk for 16 and 17 year old drivers increased with each additional same age passenger in the vehicle when compared with carrying no passengers. The effects are mediated by age and gender; the younger the driver, the greater the increase in risk with each additional passenger. Meanwhile, male drivers are at greater risk when carrying passengers than female drivers; a male driver and male passenger is the most dangerous combination (Chen et al., 2000). Both male and female drivers are affected by carrying male passengers though, with driver fatality rates almost doubling when carrying one male passenger. Similar results are reported by Williams and Ferguson (2002), who additionally demonstrate that the effect drops off for older adults, with 30 to 59 year olds showing no impact of additional passengers on their collision risk. Chen et al.*

(2000) found that crash risk for 30 to 59 year olds actually reduced as a result of carrying passengers. While teen drivers are at most risk when carrying same-age passengers, there is evidence that risk is also increased when passengers are in their 20s and early 30s (Chen et al., 2000; Ouimet et al., 2010). Conversely, carrying older passengers (35+ years) is associated with a reduction in collision risk for teen drivers (Preusser, Ferguson & Williams, 1998).

The explanatory factors for the association of passengers on driver collision risk are not fully understood (Williams, Ali & Shults, 2010). It is presumed that older passengers offer a protective effect through helpful co-piloting and encouragement of safer driving behaviours. For teen drivers with same-age passengers the reasons are thought to relate to what Allen and Brown (2008) call the 'perfect storm'. This involves age-related factors such as a propensity to engage in risky behaviours, desire to please peers and in-group pressures combined with driver inexperience and associated risks such as poor hazard perception and calibration of actual and perceived demand (Fuller et al., 2008; McKenna & Crick, 1994; McKenna & Horswill, 1999). Williams, Tefft & Grabowski (2012a) found that compared with teen driver collisions without passengers, such collisions with teen passengers were more likely to involve speeding, alcohol consumption and at-fault contribution to the collision. While the characteristics of passenger risk effects may require further elucidation, the effect itself on collision risk is well documented and widely accepted.

The evidence for the effectiveness of passenger restrictions in directly reducing passenger risk is also well established. Begg and Stephenson (2003) found a 9% reduction in collisions attributable to the introduction of a teenage passenger restriction for new drivers in New Zealand. In a comparison of passenger restrictions across US jurisdictions, states allowing one passenger had a 7% lower fatal crash rate than when two or more passengers were allowed. The fatal crash rate for 15 to 17 year olds was 21% lower when novice drivers were prohibited from carrying any teenage passengers than when two or more teenage passengers were allowed (McCartt et al., 2010). A similar recent study examining GDL components across the USA is reported by Fell, Todd and Voas (2011a). In controlling for background trends, it is reported that the net effect of passenger restrictions is a reduction in 16 to 17 year old collisions with passengers of 9%. Vanlaar et al.'s (2009) meta-analysis suggests that passenger restrictions with exemptions (e.g. for carrying family members) dilute the effectiveness of the restriction. While the magnitude of the increase reported encourages caution when appraising Vanlaar et al.'s results, the direction of the result is still of interest.

Where licensing ages are similar to that of GB, a similar pattern of results is found. In New Jersey, where the restricted licensing age is 17 years old, the passenger restriction (no more than one passenger) was associated with a decrease in fatal crashes of 17 and 18 year old drivers with more than one passenger by almost 24%. However, probably due to the small number of collisions in the study, this reduction did not reach statistical significance. Healy et al.'s (2012) interim evaluation of the GDL system in Victoria, Australia also found a reduction in collisions with two or more passengers for drivers under

probation; the minimum age for a probationary licence is 18 years old. It is sometimes suggested that restricting passenger numbers leads to an increase in exposure for drivers who would otherwise travel as passengers with their peers (Lyon et al., 2012), although no evidence of this was found by Healy et al. (2012).

Despite the reports of reductions in passenger collisions from evaluations of individual jurisdictions, an evaluation of national data in the USA reports that at an aggregate level, the proportion of teen driver with teen passenger collisions actually remained steady between 2004 and 2008, with no difference found between states with and without GDL restrictions (Williams et al., 2010). There was however a statistically significant reduction of the proportion of collisions involving 16 year old drivers with teen passengers over this time period. In addition to several methodological limitations of the analysis that could simply mask effects (for example, proportional rates can be influenced by changes in the rates of other collision types), the failure to demonstrate a consistent proportional change is possibly the result of inconsistent passenger restrictions across the USA. Passenger restrictions in the USA often have exemptions and last for only six months. This may somewhat explain the significant result for 16 year old drivers but not 17 year old drivers in Williams et al. (2010); drivers licensed before 16.5 years old will have exited the restricted stage by age 17. In addition, there have been many changes in passenger restrictions in the USA during the period under study, meaning that collision rates may not be settled or representative. Given the consistency of results from individual jurisdictions in the USA and around the world, the results of analysis of nationally aggregated data must be viewed with caution until methodological limitations have been addressed. For example, there was no control for exposure in the Williams et al. (2010) study. In a study that did control for exposure using National Household Travel Survey data, teen driver with teen passenger collisions had reduced significantly between 2007 and 2010 in the USA (Tefft, Williams & Grabowski, 2012).

Tefft et al. (2012) found that compared with carrying no passengers, 16 to 17 year old drivers carrying one passenger under 21 years old have a 44% increased relative fatal collision risk. Sixteen and seventeen year old drivers carrying two passengers under 21 years old had double the fatal collision risk and with three or more passengers the risk quadrupled. Teen drivers carrying passengers aged 35 years or older had a much reduced collision risk than when carrying no passengers (50% reduction for fatal collisions and 60% reduction for all collisions). These results support the trend of passenger effects found in earlier studies (e.g. Chen et al., 2000; Ouimet et al., 2010).

The effect of younger aged passengers on driver crash risk has been consistently demonstrated and passenger restrictions have been largely verified as an effective way of reducing this risk factor for new drivers. Results from existing GDL jurisdictions suggest that these restrictions should be strongly implemented and supported through both enforcement and parental or supervising driver engagement.

Concerns are often raised about compliance with such restrictions. Kinnear et al (2013) found that:-

*The first full GDL system was implemented in New Zealand in 1987 to address the young and novice driver collision rate. New Zealand's young driver collision rate at this time was compounded by the fact that a full licence could be obtained at 15 years old (in 2011 this was raised to 16 years old). The New Zealand system included both passenger and night time restrictions, with the night time restriction receiving greater support from parents and teens than the passenger restriction (Begg & Stephenson, 2003). As a result, there was less reported compliance with the passenger restriction than the night time restriction in early surveys (Frith & Perkins, 1992; Harre, Field & Kirkwood, 1996). A third of respondents reported that they regularly flouted the passenger restriction with 17% regularly flouting the night time restriction (Frith & Perkins, 1992), although there was some evidence of respondents saying that they drove more carefully when flouting restrictions. A more recent study of Queensland's (Australia) GDL (in which a two-passenger restriction only applies during 11pm and 5am) found that only 1.2% 'usually or always' carried passengers with 25% occasionally or sometimes violating the restriction (Scott-Parker, Watson, King & Hyde, 2012). Despite some level of non-compliance, the restrictions in New Zealand are associated with collision reductions (Begg & Stephenson, 2003); no evaluation of Queensland's system could be located. Fell et al. (2011a) note that even if laws are not strictly enforced, and there is little evidence that they are in the USA, both passenger and night time restrictions remain effective. Similar results are reported in New Zealand where perception of being caught was low yet GDL remained effective (Begg & Stephenson, 2003).*

*A similar pattern is reported by Chaudhary, Williams and Nissen (2007) who collected qualitative data from parents and teens in three US states where passenger restrictions were found to reduce collisions involving 16 year old drivers. Compliance with passenger restrictions was found to be low. Both parents and teens suggested that although they understood the reasons for the law, passenger restrictions were viewed as unfair and rarely enforced. Law enforcement agencies reported that enforcing the law was difficult. Previous research in the USA has identified that low compliance rates are because of difficulty in enforcing restrictions (Goodwin et al., 2010; McCartt, Oesch, Williams & Powell, 2013); self-compliance is also weakened as parents are not always aware of the restrictions (Williams, Nelson & Leaf, 2002). It is worthy of repetition that despite low compliance and difficulty with enforcement in the USA, GDL has remained effective at reducing collisions (Fell et al., 2011a). It is possible that even with low levels of compliance, night time and teen passenger journey frequency reduced from pre-GDL levels, resulting in reduced exposure and casualty savings.*



*Healy et al.'s (2012) interim evaluation of Victoria's (Australia) GDL system established through a survey of new drivers that drivers were largely complying with minimum learner periods, minimum required supervised practice (120 hours) and the completion of log books. Possibly important to the successful compliance of these GDL features were concurrent initiatives such as a publicity campaign, engagement with parents and learners, a learner kit for new drivers and a learner driver mentoring programme. The survey also revealed that compliance with passenger restrictions was good and that drivers reported fewer traffic offences when compared with surveys of new drivers prior to the implementation of the GDL system in 2007-2008. Interestingly, the survey revealed that drivers were much less likely to carry more than one passenger up to three months after the end of the restricted period, suggesting a potential carryover effect when restrictions are clearly implemented and well enforced.*

*In New South Wales (Australia), almost all (98%) learners complete the required 50 hours of supervised practice before taking their practical test (Bates et al., 2010). Learners in New South Wales reported that gaining driving experience was easier than in Queensland, where no minimum requirement was set (at the time of study). It may be that the setting of a minimum requirement causes supervising drivers to be more cooperative in playing their part to progress a learner driver towards the driving test. Moreover, a comparison of two Australian states, where one required learner log books to be completed while the other only recommended completion, found that mandatory log books led to statistically significantly greater completion rates. Scott-Parker, Bates, Watson, King & Hyde (2011) report that compliance with log books was much greater than reported in the press with only 13% of respondents reporting that they 'round up' hours and 4% including 'extra hours' in their reporting. These figures are likely to be underestimates due to social desirability bias and self-selection bias inherent in survey completion, although the surveys were completed anonymously.*

*Scott-Parker et al. (2012) found that those not complying with the learner driver requirements of Queensland's GDL programme were possibly unlikely to comply with traditional licensing systems too. The 11% of drivers who engaged with unsupervised driving at least once during the learner stage were more likely to be male, have submitted inaccurate log books, engage in underage driving, be caught for a driving offence and actively avoid the police. That this group of drivers were more likely to be detected for committing an offence suggests that there is potential for identifying them as a group requiring remediation.*

*Overall, the experiences of other countries suggest that compliance is greater than expected or suggested in the media (Begg & Langlely, 2009). This is likely to be for two main reasons. First, parents are often the primary enforcers of GDL restrictions and surveys of parents in GDL jurisdictions regularly report that there is widespread acceptance and support for GDL components (Brookland & Begg, 2011; Gill, Shults, Cope, Cunningham & Freelon, 2013; Williams, Braitman & McCartt, 2011). Where compliance rates are low, there appears to be a relationship with a lack of parental knowledge and engagement. Teens are less enthusiastic although accept that new drivers are at greater risk and broadly*

*accept GDL restrictions; a nationwide US survey found high acceptance of comprehensive policies including night time restrictions, passenger restrictions and mobile phone bans among teenagers (Williams, 2011). A qualitative study of parents and young drivers in Scotland found that in general, parents, carers and others were far more supportive of GDL than young male drivers (Robinson, Mitchell, Fraser & Stradling, 2011). Opposition to GDL by young drivers was found to reduce with age and it was concluded that most forms of graduated licensing would be supported by the majority of drivers on the road, particularly those over 25 years old.*

*The second reason for higher-than-reported compliance is that police enforcement of GDL restrictions (where identifiers are used) should be no more difficult than policing other road safety legislation (e.g. speeding, seatbelts, mobile phone use and drink driving). Evidence from Australia suggests that greater compliance can be achieved through strong enforcement and support from authorities (including publicity campaigns, engagement with parents and clear information for new drivers) when implementing GDL legislation.*

*Practical aspects of restrictions such as requirements for learner practice must be considered for those without regular access to a private vehicle or appropriately qualified supervising drivers. The development of alternatives (e.g. reduced cost official lessons) for those in such a situation is necessary so that certain groups of new drivers are not inadvertently or disproportionately disadvantaged (Senserrick, 2009). Where additional administration (e.g. completion of log books) is required, support for those for whom English is not their first language or those with literacy difficulties would also be required. Scott-Parker et al. (2011) found that learners who did not speak English as their first language were more likely to complete their log book inaccurately in an evaluation of GDL in Queensland, Australia. Challenges (e.g. administration, effect on minority groups etc.) such as these are to be expected when making any significant policy changes to a national licensing system; it is noteworthy that there is limited reporting of unassailable barriers and GDL has now been enacted in numerous jurisdictions around the world.*

Further evidence that may be of use in considering this legislation, again, from Kinnear et al (2013):-

*Unlicensed driving is a commonly cited concern when strengthening the licensing system is proposed. Few published studies have reported the effects of GDL on unlicensed driving, possibly due to the difficulty of measuring its prevalence. As the first GDL system to be introduced, GDL in New Zealand was scrutinised by researchers. In an evaluation following its introduction, Frith and Perkins (1992) report that the proportion of unlicensed drivers involved in collisions in New Zealand was virtually unchanged following the introduction of GDL. There was however a sharp decline in the number of drivers applying for a driving licence following the introduction of GDL hence it is proposed that there was simply a reduction in the number of drivers, which contributed to the reduction in casualties. Converse results have been reported in California, USA; Males (2007)*

reports that following the implementation of GDL in California, fatal driver collisions involving 16, 17 and 19 year old unlicensed drivers increased. Males (2007) does not discuss or propose any explanation for the findings other than the fact that California has unique demographics, demographic trends and driving circumstances. It is not clear what the classification of unlicensed driver was, which may have been affected by the introduction of new GDL laws. It is worth noting that whatever the definition used, the prevalence of unlicensed driver fatalities in California was high prior to the implementation of GDL (22% pre-GDL rising to 29% post-GDL for 16 year olds).

Another commonly cited concern is that young novice drivers in rural communities will be disproportionately disadvantaged, particularly economically. Begg and Langley (2009) note that while it cannot be disputed that there is less provision of public transport in rural communities, the prohibitive impact of GDL restrictions is often exaggerated. A study of the impact of raising the licensing age in New Zealand to 17 years old found that despite the rhetoric, rural respondents had no greater need to have access to cars under 17 than urban dwellers of the same age (Kingham, Zant & Johnston, 2004). Begg and Langley (2009) report that the types of journeys affected by restrictions are largely non-critical social journeys rather than those to places of employment or education. Only one study specifically addressing urban-rural differences following the introduction of GDL was found (UNC, 2001). This study conducted analysis of collision data and a survey of parents and teen drivers in North Carolina, USA. Similar to GB, rural roads in North Carolina are more dangerous than other road types with a higher proportion of serious and fatal collisions (in 2011, 61% of reported road fatalities in GB occurred on rural roads (DfT, 2012)). Analysis of collisions in North Carolina established that the effect of GDL on both fatal and serious injury collisions was most pronounced on rural roads. Fatal and serious collisions declined by 24-26% in urban areas and by 28-34% in rural areas. For all injury collisions, rates reduced by 25% in urban areas and by 28-30% in rural areas.

The survey of parents and teens was used to compare the perceived impact of GDL on those living in urban and rural areas (UNC, 2001). There were no statistically significant differences between parents' perceptions in rural and urban areas with regard to GDL approval, the 12 month minimum learner period, the six month night time restriction and the six month offence free period. On all scales parental approval was high with 97% of both urban and rural parents approving of GDL (although urban parents were more likely to highly approve, 77% versus 67% respectively). Further questions identified that 95% of parents found it very or moderately easy to accommodate the increased level of supervisory practice. It is also noted that parental support for GDL restrictions increased as they progressed through the system. It is of further interest that while teen approval for GDL was lower than their parents (80% versus 97% respectively) there were no statistically significant differences between urban and rural dwelling teens. These results suggest that parents and young drivers in rural areas adapt to the restrictions that GDL places upon them, presumably because they support the basic tenet of the legislation, to protect and save lives.

*It is worth identifying how young people adapt to GDL restrictions. Williams et al. (2001) recruited young drivers entering the intermediate stage in California upon completion of the driving test. Consent for parental involvement was also sought with the aim of establishing greater detail of their interaction with GDL restrictions. Two cohorts of drivers were used (one subject to graduated licensing restrictions while the other was not) and surveyed three times during the first year. Novice drivers in California are subject to night time restrictions from midnight to 5am for 12 months, unless accompanied by a supervising driver over 25 years old (exemptions for work and other essential travel are also available). A passenger restriction limit of no passengers under 20 years old for six months (unless accompanied by a supervising driver over 25 years old) is also enforced.*

*Adaptation to night time restrictions established that drivers use various means to travel and continue to engage in social or work activities. Ways of adapting included: driving earlier (58%), getting a ride with parents or older adults (59%), alternative transport (31%), rearranging event (45%) or violating the restriction (44%). Thirty-seven percent of teen respondents did not feel that the restriction prevented them from doing what they wanted to do, 40% didn't feel it had much impact, 19% thought it had some impact and 5% thought it had a lot of impact. Eighty-one percent reported that they were able to participate in most activities despite the restriction.*

*With regard to passenger restrictions, ways of adapting included: driving alone (49%), riding with an older teen (57%), riding with a parent or older driver (44%), using alternative transport (18%), rearranging event (21%) or violating the restriction (31%). Seventeen percent of respondents did not feel the restriction prevented them doing anything they wanted to do, 56% did not feel it had much impact, and 26% thought it had a lot of impact. Eighty-nine percent reported that they were able to participate in most activities despite the restriction and only 5% felt the restriction limited their ability to hold a job.*

*Overall, Williams et al. (2001) report that restrictions clearly have an effect on teenagers' mobility in California but that most teenagers report that they adapt to find ways to carry out their activities anyway. Almost three-quarters of the teenagers claimed not to be affected very much by either the night time or passenger restriction. There was little sign that either restriction limited employment opportunities (although exemptions for work during the night time restriction are available). Parents reported very little inconvenience to themselves and overwhelmingly supported the new rules (Williams et al., 2001).*

*Other commonly cited barriers to GDL mentioned outside of the scientific literature appear to be assumed with little or no evidence to support them. Common barriers are considered in Table 1 with a note of any evidence to support or reject them. Of course, it would be the purpose of on-going evaluation of any GDL system implemented to keep potential unintended consequences and concerns under review so that any impact is minimal.*

**Table 1: Evidence and comment for commonly cited barriers to the implementation of GDL**

Concern	Evidence and comment
The introduction of GDL will increase unlicensed driving.	<ul style="list-style-type: none"> <li>• No increase in unlicensed driver collisions was found in New Zealand following the introduction of GDL (Frith &amp; Perkins, 1992).</li> <li>• Males (2007) report an increase in unlicensed driver collisions for 16, 17 and 19 year olds following the introduction of GDL in California.</li> </ul>
GDL will be difficult to enforce.	<ul style="list-style-type: none"> <li>• See Section <b>Error! Reference source not found..</b></li> <li>• There is no evidence that enforcing GDL is more difficult to enforce than any other road safety legislation. Enforcement is easier when new drivers are required to carry an identifier (e.g. a P plate).</li> <li>• Even where GDL is not strongly enforced, it still demonstrates effectiveness.</li> </ul>
New drivers will not comply with GDL restrictions.	<ul style="list-style-type: none"> <li>• See Section <b>Error! Reference source not found..</b></li> <li>• Evidence suggests that compliance with GDL is higher than is often assumed.</li> <li>• Parental support for GDL is high and they are often referred to as the primary enforcers.</li> </ul>
GDL will unfairly impact on the mobility and employability of young people.	<ul style="list-style-type: none"> <li>• Restrictions such as minimum learner periods, passenger restrictions and night time restrictions will of course impact on the mobility of young drivers. Whether this is unfair depends on how the trade-off between the reduction in mobility and the potential casualty savings is perceived.</li> <li>• Williams et al. (2001) found that young drivers use various means to adapt their travel behaviour to get around night time and passenger restrictions, without much problem. It is also reported that parents largely support GDL restrictions and accept having more responsibility in the learning to drive process (Williams et al., 2001; UNC, 2001). The vast majority of journeys affected are social (Williams et al., 2001).</li> <li>• In New Zealand, only a small proportion of journeys were predicted to be affected by a recent increase in the driving age (from 15 to 16 years old) (Begg &amp; Langley, 2009). It was suggested that most affected journeys would be social (Kingham, et al., 2004).</li> <li>• No evidence has been found to support that GDL impacts significantly on the employability of young people. However, no economic evaluation of GDL directly measuring the effect on employment was found either. While the absence of evidence is no substitute for evidence of absence, it is worthy of consideration that many jurisdictions have implemented GDL over the last quarter of a century and no evaluations have reported employability of young people as being adversely affected.</li> <li>• Surveys of young drivers and parents (such as Williams et al., 2001) suggest that restrictions are likely to have a minor impact on employment at most.</li> </ul>
GDL will unfairly impact	<ul style="list-style-type: none"> <li>• In some jurisdictions exemptions are given for work- or education-</li> </ul>

Concern	Evidence and comment
<p>on the mobility and employability of young people.</p>	<p>related driving. However, exemptions have been associated with diluting the effectiveness of the restriction when compared with GDL systems with no exemptions (Vanlaar et al., 2009). There is little direct evidence on the effect of exemptions but theoretically any exposure to risk during restrictions is likely to increase collision risk for those drivers; this increase in risk must therefore be weighed against the increased mobility afforded by the exemption.</p>
<p>GDL will penalise all new drivers and is unfair on responsible drivers.</p>	<ul style="list-style-type: none"> <li>• All new drivers are at increased collision risk due to their inexperience.</li> <li>• Responsible new drivers (including those with no previous convictions and 'model teens') are still involved in fatal collisions (Williams, 1999; Williams, 2006).</li> </ul>
<p>GDL will disproportionately impact those living in rural areas.</p>	<ul style="list-style-type: none"> <li>• It might appear logical that those living in rural areas will be affected more than those in urban areas due to the availability of public transport (or lack thereof). However, a comparison of the impact of GDL in rural and urban areas of North Carolina found that there were no differences between the perceptions of GDL between urban and rural parents and teen drivers; that is, rural dwellers did not report being disproportionately affected by GDL restrictions (UNC, 2001).</li> <li>• GDL has been shown to be more effective in rural areas than urban areas due to the greater risks on rural roads (UNC, 2001). Young drivers on rural roads are at the highest risk of being collision involved hence those living in rural locations are likely to benefit most from GDL in public health terms.</li> </ul>
<p>GDL just delays collisions or offsets them to other groups of drivers.</p>	<ul style="list-style-type: none"> <li>• The transfer of experience gained during the learner / intermediate stages to the fully licensed stage is not fully understood. It is possible that some learning transfers to the novel circumstances in the full stage and as the driver will be older their collision risk will be reduced. There is evidence that increased supervised practice during the learner stage reduces novice driver collision risk, suggesting that transfer does occur (Sagberg &amp; Gregersen, 2004).</li> <li>• Some reports of lower effectiveness or even harm in 'older teens' from the USA can be explained by GDL restrictions only applying to under 18s in most states. In jurisdictions where GDL restrictions apply to all new drivers, reductions in crashes are seen for all ages of novice driver. All new drivers should therefore be subjected to GDL. See Section <b>Error! Reference source not found.</b> for full discussion.</li> </ul>
<p>Passenger restrictions increase the number of young drivers on the road increasing their</p>	<ul style="list-style-type: none"> <li>• There is no evidence to suggest that the benefits of passenger restrictions are offset by increasing young driver exposure. If operating in a strong GDL system, where the exposure of young drivers is increased, the exposure will occur in safer conditions</li> </ul>

Concern	Evidence and comment
exposure.	<p>(e.g. not at night) and will not be with same age passengers.</p> <ul style="list-style-type: none"> <li>• Chaudhary et al. (2007) studied the effects of GDL implementation in three US states and sought to examine if restrictions on novice drivers carrying passengers had offset crash risk; no evidence of this unintended consequence was found.</li> <li>• Chen, Braver, Baker and Li (2001) noted that such is the crash risk of driving with peer age passengers that even if all passengers 16 to 19 years old in the USA were to instead drive solo, 290 lives would be saved annually.</li> </ul>
Telematics can do everything that GDL does.	<ul style="list-style-type: none"> <li>• There is no evidence to support this assertion.</li> <li>• It is possible that telematics can support GDL legislation but it is unlikely that it can substitute for it. For example, legislation applies to and affects all drivers entering the licensing system. Telematics, at present, is a vehicle specific technology making it difficult to apply GDL rules when there are multiple drivers or a new driver uses multiple vehicles (see RoSPA, 2013).</li> </ul>
It is driver behaviour that is the problem and drivers need better training and education.	<ul style="list-style-type: none"> <li>• There is no evidence that education and training can substitute for driver experience on-road or reduce novice driver collisions.</li> <li>• Where driver education or training substitutes for time in GDL systems to allow earlier licensure, evidence suggests this increases collision involvement (Boase &amp; Tasca, 1998; Mayhew et al., 2003b; Wiggins, 2004; Lewis-Evans, 2010).</li> </ul>