TRL RESEARCH FINDINGS

Department for Transport

Novice drivers: Evidence review and Evaluation Pre-driver training, Graduated Driver Licensing

Abstract

The over-representation of young novice drivers in road collisions is a public health risk in Great Britain (GB), and worldwide. The key contributory factors to this problem are known and are cross-cultural; they are youth and inexperience. This report reviewed and synthesised evidence of effectiveness for three approaches to tackling young and novice driver safety, for consideration in GB: 1.Pre-driver education and training for those under 17 years old; 2.Graduated Driver Licensing (GDL); 3.The Road Traffic (New Drivers) Act (1995). While provision of pre-driver education and training is widespread, evidence of effectiveness is absent. Conversely, evidence of the effectiveness of GDL from countries where it has been implemented is strong and consistent. The New Drivers Act appears to have had a beneficial effect on offending patterns in GB and may have had a safety benefit through deterrence from driving. Based on the evidence, it is recommended that licensing in GB be based on a full GDL system. Analysis of STATS19 data and evidence of effectiveness in other countries suggests that a GDL system in GB could save 4,471 casualties and £224 million annually based on 17-19 year old drivers only.

Main findings

Pre-driver education

- There is extensive provision of pre-driver education and training in GB via numerous public, private and charitable organisations. These interventions can be categorised as seeking to improve safety by aiming to satisfy one or more of the following: influencing attitudes, imparting knowledge, and improving skills.
- Very few interventions have been evaluated and most evaluations that have been undertaken are of such low scientific quality that their results cannot be taken as reliable. The evidence base for pre-driver education and training is weak at best, and effectively non-existent when collisions and injuries are used as the outcome of interest. No properly-evaluated intervention has demonstrated a reliable reduction in novice driver collisions.

Graduated Driver Licensing

- GDL is effective at reducing collisions in countries where it has been implemented and the quality of the evidence is high. The evidence is consistent and the potential public health benefits of a GDL system for new drivers are indisputable.
- Overall effectiveness of a GDL system is dependent on the number of components implemented, the strength (strictness) of those components, and the conviction with which the system is implemented by authorities.
- It is estimated that a GDL system in GB would result in annual savings of 4,471 casualties and £224 million, although may range from savings of 2,236 casualties and £112 million to 8,942 casualties and £447 million depending on the effectiveness of the system. This analysis only considered drivers between 17-19 years old; a system that applied to all new drivers would be expected to achieve even greater casualty and cost savings.

New Drivers Act

- Around 10% of novice drivers are caught for committing an offence within their probationary period. Around 2% of drivers have their licence revoked under the New Drivers Act.
- Analyses show a reduction in the proportion of drivers with two or more offences, a reduction in the number of offences overall and a substantial reduction in the proportion of new drivers with six or more points since the introduction of the New Drivers Act. Therefore, the data overall suggest that the Act may be having a beneficial effect on new drivers' offending patterns.

Background

Twenty-two percent of fatalities on Great Britain's (GB) roads in 2011 occurred in collisions involving a driver aged 17 to 24 years old (DfT, 2012). In 65% of these collisions the fatal injuries were sustained by passengers or road users other than the young driver. The over-representation of young novice drivers in road injury statistics is a public health risk in GB, and worldwide.

The key contributory factors to this problem are known and are cross-cultural; they are youth and inexperience. The younger a driver is when they become licensed, the more likely they are to be collision-involved. Meanwhile, the early post-licence driving period, when on-road experience is lacking, is the riskiest time.

This report reviews and synthesises evidence for three approaches to tackling young and novice driver safety; the Department for Transport is considering several options for addressing the issue, and this report will contribute the most up-to-date knowledge concerning the effectiveness of the following interventions:

1. Pre-driver education and training for those under 17 years old
2. Graduated Driver Licensing (GDL)
3. The Road Traffic (New Drivers) Act (1995) (New Drivers Act)

Approach

An evidence review of each of these areas was conducted. In reviewing the literature a systematic approach was taken. This is quite deliberate as it permits a judgement as to the quality of evidence available, and therefore the strength of the evidence base overall to support or refute claims of the likely outcomes of these approaches.

To supplement the evidence review for the New Drivers Act, analyses of DVLA data and STATS19 data were performed. These data allow trend analyses of offences, accidents and licence patterns from before the Act's introduction in 1997, to 2010. In addition, some of the research questions regarding the New Drivers Act required direct sampling of attitudes and other self-reported information from drivers (for example, previous driving experience and self-rated driving style). A questionnaire was designed for this purpose, and distributed to a random sample of particular driver types from the DVLA dataset.

Additional analysis was also conducted to update an estimate of the effect of implementing GDL in Great Britain originally detailed in Jones, Begg and Palmer (2012).

Research findings

Pre-driver education

Provision of pre-driver education and training interventions is widespread in GB. Interventions (typically delivered by public, private and charitable organisations) can be categorised as attempting to impart knowledge, change attitudes, or improve skills (or combinations of the three).

Interventions are well-intentioned but tend not to be based on formal theory and knowledge from academic areas (such as psychology) that can inform their content. In addition, almost no interventions are evaluated using study designs sufficiently robust to permit the drawing of formal conclusions regarding effectiveness. This is true of interventions that target 'softer' and easier-to-measure outcome variables such as changes in attitudes and behaviour, as well as those that seek to measure direct effects on collision risk.

In those interventions that have been evaluated, some short-term positive effects have been shown on attitudes towards road safety, but these tend not to last beyond a few months, are not consistent, and do not guarantee safety benefits.

There are plausible and demonstrable mechanisms by which such interventions can cause harm, typically through early licensure (and thus exposure to risk at a younger, more risky age).

GDL

The international evidence shows that GDL has been effective at reducing collisions involving novice drivers wherever it has been implemented. The quality and consistency of the evidence base is high and reductions in collisions are seen for novice drivers of all ages. Studies published since the latest systematic review (Russell, Vandermeer & Hartling, 2011) further support the effectiveness of GDL for reducing novice driver collisions and include jurisdictions with a licensing age of 17 and 18 years old. It is common for states in the USA to only apply GDL to those under 18 years old but this has been criticised as all new drivers, whatever their age, have been shown to benefit from a GDL system. This is demonstrated by evaluations in Canada and New Zealand where GDL components apply to all new drivers.

Overall effectiveness of GDL systems is linked to the number of components implemented, the strictness of these components, and the conviction with which the system is implemented by authorities. The strongest systems comprise a number of individual components aligned to a learner stage and an intermediate stage of driving.

The key components in the learner stage that add to effectiveness are a minimum learning period, minimum

required amounts of on-road supervised practice, and a minimum age at which novice drivers can graduate to the intermediate stage. The higher the licensing age, the lower the initial collision risk hence there is no evidence to support reducing the licensing age as part of the introduction of a GDL system.

The key components in the intermediate stage that add to effectiveness are restrictions on solo night-time driving for all novice drivers, and restrictions on the carrying of passengers aged under 30 years old for novice drivers under 30 years old.

A lower alcohol limit, and a ban on hands-free mobile phone use while driving (in the absence of such restrictions for all drivers), are both likely to reduce novice driver collisions and encourage positive habits.

There are a number of outstanding research questions with regard to the specificity of GDL components. Such knowledge gaps have not prevented components being implemented or effective but they do suggest that the details of specific components must be carefully considered. For example, minimum values of practice are sometimes seen by new drivers as a 'target' rather than a minimum and levels of practice achieved must be greater than those currently being achieved to be effective.

Measures are sometimes introduced to aid implementation. These include exemptions of the night-time and passenger restrictions for work or education. While these might be considered, there is evidence that such exemptions can lower the effectiveness of the restrictions.

There are a number of commonly-cited barriers to GDL implementation which were considered in light of the evidence base. The literature suggests that there is limited, and in some instances, no formal evidence for commonly-cited barriers. However, while evidence exists to contradict many commonly-cited barriers, in some cases the evidence base is not substantial. The most significant evidence that appears to contradict commonly-cited concerns, such as the impact on youth mobility and employment, is that other countries have been able to introduce and maintain GDL systems and achieve significant casualty savings, without any reporting major impacts on travel or youth employment. Approval ratings for GDL are often found to increase after implementation and many states in the USA and Australia have subsequently reviewed and strengthened their GDL systems since they were first introduced.

Using realistic but conservative estimates of effectiveness from countries in which GDL has been implemented, and applying these to STATS19 data from GB, we estimate that a GDL system in GB would result in annual savings of 4,471 casualties and £224 million. This may range from savings of 2,236 casualties and £112 million to 8,942 casualties and £447 million depending on the effectiveness of the system implemented. The analysis only considered drivers between 17-19 years old; a system that applied to all new drivers would be expected to achieve even greater casualty and cost savings.

New Drivers Act

Around 10% of novice drivers are caught for committing an offence within the two-year probationary period after passing their first practical driving test. Around 2% of novice drivers have their licences revoked under the Act.

The implementation of the Act was associated with a reduction in the proportion of drivers with two or more offences, a reduction in the number of offences overall and a substantial reduction in the proportion of new drivers with six or more points since the introduction of the Act. This suggests that the Act has therefore had a beneficial effect on offending patterns.

The survey of new drivers provided no evidence that the Act had an effect on driving style in the first two years after licensure, in either revoked or non-revoked respondents.

If the probationary period of the Act were extended from two to three years, it is anticipated that this would result in another 3,200 drivers per year having their licence revoked; however it is anticipated that there would be another 4,200 drivers per year who would have committed further offences, but who would be deterred from doing so by the extension of the Act.

There was a decrease in the number of collisions in the age group of interest after the introduction of the Act; however the number of collisions per licensed driver in that age group went up, with fewer drivers aged 17 and 18 becoming licensed over the period during which the Act was implemented. This suggests that any safety benefit of the Act was mainly evident through its deterrent effect on driving, rather than offending.

Recommendations

Based on the evidence reviewed and the analyses conducted in this study, TRL believe that there is a compelling case for significant improvement of driver licensing in GB. A table presented in the report outlines the comprehensive approach recommended by the report's authors.

The suggested system is structured around the framework of the typical driving career for a driver in GB (including pre-driver, learner driver, and post-licence phases). It is only illustrative; the detailed recommendations are a considered compromise between achieving significant casualty savings and maintaining a practical and workable licensing system. Such systems have been implemented successfully in

other jurisdictions, often with stricter constraints. The authors believe that implementation of such a system would be achievable in GB. All elements would need to be subject to on-going evaluation meaning that the system could be adjusted based on the results of findings.

At the heart of our proposal is a GDL system that has all the key components identified in the review. We recommend a 12 month learner stage beginning at age 17, with a requirement for least 100 hours of daytime and 20 hours of night time supervised practice, with a mandatory log-book. On completion of these minimum requirements and the current DSA testing regime (theory and practical tests) a driver would then be permitted to progress to a 'probationary' licence (the restricted stage) from age 18.

During the 12-month (minimum) probationary licence the driver would be required to display a green 'P' plate to identify their licence status and aid enforcement of restrictions. These restrictions would include a night time driving curfew running from 10pm to 5am (unless accompanied by a passenger aged over 30) and a ban on carrying passengers under 30 years old for all novice drivers aged under 30 years old. In addition a ban on any mobile phone use (including hands-free) and a lower alcohol limit should be considered.

After the 12-month probationary licence drivers would automatically graduate to a Full licence and unrestricted driving. We recommend that the New Drivers Act continues into the initial period of this stage, for all drivers, including those who are regaining their licences after previously having them revoked. Further testing and remedial courses for some offences should be considered.

This system would be supported at the pre-driver stage and throughout the driving career by driver education interventions that seek to ensure continued acceptance and perceived legitimacy of the GDL process and its enforcement. At the pre-driver stage the focus would be on preparing (mainly) young people for their entry into the learner stage, and on promoting a consistent road safety culture that is further supported through lifelong learning.

Conclusion

The mechanisms by which young and novice drivers come to be overrepresented in road collisions are well understood from decades of research on the topic; they are youth and inexperience, and they lead to well-understood risky driving scenarios for those concerned. The evidence reviewed in this report suggests that the comprehensive licensing system we are recommending would bring considerable casualty savings for young and novice drivers, their passengers, and all other road users in Great Britain.

About the project

This project sought to appraise and review the evidence for interventions to improve the safety of novice drivers in GB and reduce the number of associated collisions and casualties on GB's roads. Three areas of focus were predetermined: 1. Pre-driver education and training; 2. Graduated Driver Licensing 3. The 'New Drivers Act'. The project sought to determine the quality of the literature and the consistency of the evidence to determine the effectiveness of pre-driver education and training and GDL. Analysis of DVLA and STATS19 data was necessary to evaluate the impact of the New Drivers Act. A survey of drivers who had, and had not, had their licence revoked was also undertaken.

Further information

The full report, Novice drivers: Evidence Review and Evaluation by N Kinnear, L Lloyd, S Helman, P Husband, J Scoons, S Jones, S Stradling, F McKenna, J Broughton, TRL PPR673 can be downloaded for free from http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/report_novice_drivers_-_evidence_review_and_evaluation.htm

These Findings can also be downloaded free of charge from https://www.gov.uk/government/publications/road-safety-research-and-statistical-reports

Although this research was commissioned by the Department for Transport, the findings and recommendations are those of the authors and do not necessarily represent the views of the DfT.

