

Impact of Victoria's Enhanced GLS on Novice Driver Crash Involvement

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Abstract

To address the continuing over-representation of young and inexperienced drivers in crashes, major enhancements were made to Victoria's Graduated Licensing System (GLS) during 2007 and 2008. A multi-faceted evaluation was conducted, of which a key component was investigation of changes in the rate of crash involvement (per driver-year of licence holding) for target groups of young and inexperienced drivers. The enhanced GLS was found to have been most effective for the driver groups with the highest crash involvement rates: significant reductions were found for drivers aged 18 to 20 years and for drivers in their first year since licence issue.

Background

By the mid-2000s, despite progress made in preceding decades, young and inexperienced drivers continued to be greatly over-represented in casualty crashes on Victorian roads. To further improve road safety for young novice drivers, VicRoads implemented major changes to Victoria's Graduated Licensing System (GLS) in 2007 and 2008. Changes to the GLS included a requirement for all learners to carry the learner permit while driving, a complete ban on mobile phone use by learners while driving, a more challenging practical driving test for all probationary licence applicants, increased penalties for some drink-driving offences by drivers aged less than 26 years, and provisions to extend the probationary period of probationary licence holders who incur a licence suspension or commit specified offences.

In addition, important new requirements were applied specifically to drivers who obtain a probationary licence before reaching 21 years of age. These include:

- a requirement to have held the learner permit for at least 12 months before obtaining a probationary licence (up from 6 months previously)
- a requirement to have logged at least 120 hours of supervised driving experience as learner permit holder, including at least 10 hours of driving in the dark, before obtaining a probationary licence
- a requirement to hold a P1 probationary licence for at least one year before graduating to a three-year P2 probationary licence
- a ban on carrying more than one peer passenger (defined as a passenger aged 16 to 21 years, other than a family member) while holding a P1 licence
- a ban on towing (unless for work or under instruction) while holding a P1 licence
- a complete ban on mobile phone use, whether hand-held or hands-free, while driving on a P1 licence¹.

¹ The ban on hands-free mobile phone use was extended to P2 licence holders in November 2013, but the impact of this change on crashes during the evaluation period (up to June 2014) would have been minimal.

Drivers who obtain their first probationary licence when aged 21 years or more skip the P1 stage and thus have a minimum probationary period of three years, compared with four years (one year P1 plus three years P2) for drivers licensed before age 21 years.

Preparation for the new requirement for at least 120 hours of supervised driving experience before obtaining a licence had begun in 1995 with the extension of the validity period of the learner permit from three to ten years. Over the ensuing decade, VicRoads and the Transport Accident Commission ran numerous programs to encourage and assist learners to gain increased experience before obtaining a licence. These included mass media advertising, the Keys Please parent and learner information sessions, and the provision of web sites, log books and other printed materials.

VicRoads commissioned a multi-faceted evaluation of the changes to Victoria's GLS. A key component of the evaluation was an investigation of changes in the crash involvement of target groups of young and inexperienced drivers. This paper provides a summary of the changes in crash involvement. A fuller report of the evaluation, including investigation of changes in learner permit and licence issue, offences, and learner and probationary driver behaviour, will shortly be available from VicRoads (Healy, Imberger & Catchpole, 2017).

Method

The evaluation compared the crash involvement of novice drivers before and after the enhancements made to the GLS during 2007 and 2008. Crash involvement counts are influenced not only by the effectiveness of the licensing regime but also by changes in the number of drivers on the road, by improvements to the road network, by improvements to the vehicle fleet and by many other factors. To allow for the impact of changes in the number of drivers on the road, the study examined rates of crash involvement per 10,000 driver-years of licence holding. To allow for changes in other relevant factors, changes in crash involvement rates for novice drivers were compared with changes for selected groups of experienced drivers over the same period. For example, in the analysis of crash involvements of novices aged 18 to 23 years during the study period, the experienced comparison group comprised drivers aged 35 to 42 years during the study period who had obtained a licence at age 18 to 23 years; and in the analysis of novices in the first four years after licence issue, the experienced comparison group comprised drivers with 12 to 18 years experience since the issue of their first licence.

Generalised linear modelling was used to assess the statistical significance of crash involvement rate changes from the pre-GLS period to the post-GLS period for novice drivers relative to those for the comparison group. Both Poisson regression models and negative binomial regression models were fitted. In almost every case, Akaike's Information Criterion indicated that the Poisson regression model was more parsimonious: in other words, the slightly superior fit of the negative binomial model was not sufficient to justify the use of the more complex model. All regression modelling results presented in this paper were therefore based on models assuming a Poisson distribution of the crash involvement counts. In view of the very different GLS provisions applying to drivers first licensed before or after age 21 years, age group at licence issue (18 to 20 years or 21 to 23 years) was represented by an independent variable in modelling for some parts of the study.

For the analyses based on the age of the novice driver at crash involvement and for those based on the age of the novice at first licensing, eligibility for the post-GLS novice group was restricted to drivers who obtained their first licence no earlier than 1 July 2009 and their first learner permit no earlier than 1 July 2007. Drivers who had obtained their first licence during the first year of operation of the enhanced GLS (i.e. 1 July 2008 to 30 June 2009) were excluded because they were expected to be atypical, firstly because many drivers had brought forward their licence application into the previous year to avoid the two-stage probationary period, and secondly because of the

initially low pass rate of the new practical driving test. Drivers who obtained a learner permit before 1 July 2007 were not typical of novices under the enhanced GLS because they were not subject to the requirement for 120 hours of supervised experience while holding a learner permit. Following the enhancement of the GLS, crash involvements were counted for the three-year period beginning on 1 July 2011. Choice of this period firstly allowed inclusion of sufficient novices licensed after 1 July 2009 and secondly excluded the transitional period immediately following implementation of the enhanced GLS, when crash involvement patterns may have been influenced by temporary factors related to the introduction of the changed GLS requirements.

Drivers were excluded from the crash involvement rate calculations if the information held on them in the VicRoads Driver Licensing System was incomplete (e.g. sex or date of birth unknown) or incorrect. Drivers were also excluded if they appeared to have held a previous licence or permit in another jurisdiction (e.g. the learner permit or probationary licence was not held for the required minimum period before moving to the next stage, or the first licence issued in Victoria was a full licence), since their risk of crash involvement would have been influenced by the licensing system of the other jurisdiction. Drivers who were issued a motorcycle licence or permit before their first car licence were excluded because their crash risk as a car driver would have been influenced by their motorcycle riding experience.

Crash involvement rates were based on involvements in casualty crashes as the driver of a car or car-derivative (i.e. a sedan, station wagon, taxi, panel van or utility). Involvements while driving a heavy vehicle or riding a motorcycle were excluded.

Due to the exclusion of drivers with incomplete data in the VicRoads Driver Licensing System, there was no missing data for any of the demographic and licence-related variables included in the modelling (sex, age at licence issue, age at crash involvement and years of driving experience). There was also no missing data for crash severity. Crash location (Melbourne metropolitan area versus country Victoria) was missing for 0.2% of crash involvements; these cases were excluded from analyses involving crash location.

Blood alcohol concentration (BAC) values are available in the VicRoads crash database for only around 10% of drivers involved in crashes. This is insufficient for any meaningful analysis. The investigation of alcohol involvement therefore used a proxy measure: the number of crash involvements that occurred during ‘high alcohol hours’ – those times of the week when the proportion of crashes that involve alcohol is much higher than at other times of the week.

Results

Age at crash involvement

Crash involvement rates per 10,000 driver-years of exposure were compared for novices (ages 18 to 20 years and 21 to 23 years) and an experienced comparison group (ages 35 to 42 years, first licence issued at ages 18 to 23 years) during a three-year period immediately before the enhancement of the GLS (1/7/2004 to 30/6/2007) and a three-year period after the enhancement of the GLS (1/7/2011 to 30/6/2014). Crash involvement rates decreased from the before period to the after period for both novice groups and for the experienced comparison group. Poisson regression modelling was undertaken to identify crash involvement rate reductions for novices that were statistically significantly larger than the corresponding reductions for the comparison group.

For novices aged 18 to 20 years at the date of the crash:

- The casualty crash rate reduction for the novice group relative to the experienced comparison group was 13.6%. This reduction was statistically significant ($p < 0.0005$).

- Casualty crash involvement rates decreased by 14.0% for males ($p < 0.0005$) and 13.3% for females ($p = 0.001$).
- Casualty crash involvement rates decreased by 16.6% for crashes in the Melbourne metropolitan area ($p < 0.0005$), but the 4.0% reduction for country crashes was not statistically significant ($p = 0.473$, 95% CI -14.2% to +7.4%).
- The fatal and serious injury (FSI) crash rate reduction was 20.3%. This reduction was statistically significant ($p < 0.0005$).
- FSI crash involvement rates decreased by 18.4% for males ($p = 0.007$) and 23.3% for females ($p = 0.003$).
- FSI crash involvement rates decreased by 17.0% for Melbourne metropolitan crashes ($p = 0.006$) and 27.5% for country crashes ($p = 0.003$).

For novices aged 21 to 23 years at the date of the crash, the estimated change in the rate of involvement in casualty crashes was an increase of 5.1%, but this change was not statistically significant ($p = 0.229$, 95% CI -3.1% to +13.9%). For this age group, there was a statistically significant increase of 14.3% in casualty crash involvement of females ($p = 0.024$); and a non-significant decrease of 3.0% for males ($p = 0.593$, 95% CI -13.4% to +8.6%). There was no significant change in the rate of involvement in casualty crashes in metropolitan Melbourne ($p = 0.536$, 95% CI -6.1% to +12.8%) or in country Victoria ($p = 0.157$, 95% CI -4.7% to +34.6%).

The 11.0% reduction in the rate of FSI crash involvement for novices aged 21 to 23 years was not statistically significant ($p = 0.157$, 95% CI -24.2% to +4.6%). There was a statistically significant decrease of 23.4% among males ($p = 0.016$), but the 6.9% increase for females was not statistically significant ($p = 0.584$, 95% CI -15.9% to +36.0%). The 14.7% decrease in metropolitan crashes was almost statistically significant ($p = 0.092$, 95% CI -29.0% to +2.6%), but the 3.2% increase in country crashes was not ($p = 0.855$, 95% CI -26.1% to +44.0%).

Time since licence issue

This part of the study examined novice drivers within the first four years after being issued a licence. The analysis was restricted to drivers licensed at ages 18 to 23 years, so novice driver ages at crash involvement ranged from 18 to 27 years. Crash involvement rates per 10,000 driver-years of exposure were compared for novices (broken down by single year of licensed driving experience) and a comparison group who had been licensed for 12 to 18 years (and, like the novices, were licensed at ages 18 to 23 years). Once again, Poisson regression modelling was used to compare crash involvement rate changes from a three-year pre-GLS period (1/7/2004 to 30/6/2007) to a three-year post-GLS period (1/7/2011 to 30/6/2014) for the novice and comparison groups.

For novices in the first year after obtaining a probationary licence:

- The casualty crash involvement rate for novices fell by 18.7% and the FSI rate by 19.4% relative to the comparison group, both changes being statistically significant.
- Statistically significant decreases were found for males (casualty 18.1%, FSI 20.6%), for females (casualty 19.5%, FSI not significant), for metropolitan crashes (casualty 18.9%, FSI 15.1%) and for country crashes (casualty 17.5%, FSI 29.0%).
- For drivers first licensed at ages 18 to 20 years, the rate reductions for novices were 19.2% for casualty crashes and 21.7% for FSI crashes, both reductions being statistically significant.

- There was no statistically significant change for novices first licensed at ages 21 to 23 years.

There were no statistically significant changes in crash involvement rate (casualty or FSI) for novices in the second and third years after licensing.

For fourth-year novices, the casualty crash involvement rate increased by a statistically significant 18.2% relative to the comparison group. The FSI rate did not change significantly.

The need to exclude novices in the post-GLS period who were licensed before 1 July 2009 (and the corresponding exclusion of drivers licensed before 1 July 2002 in the pre-GLS period) resulted in an over-representation of first- and second-year licence holders by comparison with third- and fourth-year licence holders in the pre-GLS and post-GLS novice driver groups. After correcting for this over-representation, the estimated long-term changes in crash involvement rates following implementation of the enhanced GLS are as shown in Table 1. The corrected estimates were generated by combining the crash involvement rate reduction estimates for individual years of experience (i.e. first-year, second-year, third-year and fourth-year licence holders) generated by the multivariate modelling; the statistical significance of these combined estimates could not readily be tested.

Table 1. Estimated long-term change in crash involvement rate for novices in the first four years after licence issue, by age at licence issue

Age at licence issue	Casualty crash involvements	FSI crash involvements
18 to 20 years	-5.9%	-9.8%
21 to 23 years	+5.8%	-8.3%
18 to 23 years	-5.1%	-9.3%

Peer passengers

Crash involvements for first-year novice drivers first licensed at ages 18 to 20 years were broken down by the number of peer passengers (aged 16 to 21 years) present in the vehicle (0, 1, 2+). The comparison group comprised drivers within 12 to 18 years after licence issue and first licensed at ages 18 to 20 years. Changes from a three-year pre-GLS period (1/7/2004 to 30/6/2007) to a four-year post-GLS period (1/7/2010 to 30/6/2014) were examined for the novice and comparison groups.

For novices carrying two or more peer passengers:

- There were large and statistically significant falls, relative to the experienced comparison group, in the rates of involvement in casualty crashes (69.8%) and FSI crashes (69.2%).
- Statistically significant reductions were found for:
 - males (casualty 70.4%, FSI 69.7%)
 - females (casualty 67.7%, FSI 65.6%)
 - metropolitan crashes (casualty 74.4%, FSI 70.3%)
 - country crashes (casualty 58.8%, FSI 67.7%)
 - novices first licensed at age 18 years (casualty 71.4%, FSI not significant)

- novices first licensed at ages 19 and 20 years (casualty 57.0%, FSI not significant).

Much smaller reductions in casualty crash involvement rate relative to the comparison group were also found for novices carrying one peer or no peer passengers:

- Among novices carrying one peer passenger, statistically significant casualty crash involvement rate reductions were found overall (12.0%), for females (20.8%) and for metropolitan crashes (15.3%).
- Among novices carrying no peer passengers, statistically significant crash involvement rate reductions were found overall (9.1%), for females (13.3%), for metropolitan crashes (9.9%) and for novices licensed at ages 19 to 20 years (19.4%).
- There were no statistically significant changes in FSI crash involvement rate relative to the comparison group for novices carrying one peer or no peer passengers.

Alcohol

This part of the study sought to examine rates of involvement in alcohol-related crashes for fourth-year novices who obtained a licence at ages 18 to 20 years. In the pre-GLS period, most such novices would have held a full licence and therefore been subject to a maximum blood alcohol concentration (BAC) of 0.05 g/100 mL. In the post-GLS period, all such novices held a probationary licence (in most cases a P2 licence) and so were subject to a zero BAC limit. Crash involvement rates during high alcohol hours were examined for fourth-year novice drivers and for a comparison group within 14 to 18 years after licence issue, both groups having been issued a licence at ages 18 to 20 years. Changes in crash involvement rate from a two-year pre-GLS period (17/7/2004 to 30/6/2006) to a two-year post-GLS period (1/7/2012 to 30/6/2014) were compared for the novice and comparison groups.

Rates of involvement in casualty and FSI crashes during high alcohol hours fell for both the novice and comparison groups. The fall was statistically significantly greater for the novice group than for the comparison group only for casualty crashes in the metropolitan area, where the novice rate fell by 19.9% relative to the comparison group. Changes in casualty crash involvement rate did not differ significantly between the novice and comparison groups overall, nor for country crashes, for male or female drivers, for single-vehicle crashes or for other (multi-vehicle and pedestrian) crashes. Changes in FSI crash involvement rate did not differ significantly between the novice and comparison groups overall, nor in any stratum.

Learner permit holders

Casualty and FSI crash involvement rates of learner permit holders within the first six years after issue of the permit were plotted for each financial year from FY2001/02 to FY2013/14. They were not compared with experienced drivers and there were no tests of statistical significance. Learner driver crash involvements were classified according to whether a front-seat passenger aged at least 22 years (assumed to be a fully-licensed supervising driver) was present in the vehicle with the learner.

Casualty crash involvement rates for learner permit holders are shown in Figure 1. The casualty crash involvement rate for all learners showed a fairly steady downward trend throughout the study period, with a marked downward fluctuation in 2006/07. The rates for supervised and unsupervised learners were very similar and followed similar trends. There is no evidence of an increase in learner crash involvement following the commencement of the requirement for novices aged less than 21 years at licence issue to accumulate at least 120 hours of supervised driving experience while holding a learner permit.

FSI crash involvement rates for learners are shown in Figure 2. As for casualty crashes, the overall FSI crash involvement rate trend is downward throughout the study period and rates for supervised and unsupervised learners are approximately equal. Once again, the commencement of the 120 hours requirement does not appear to have increased learner driver crash involvement rates.

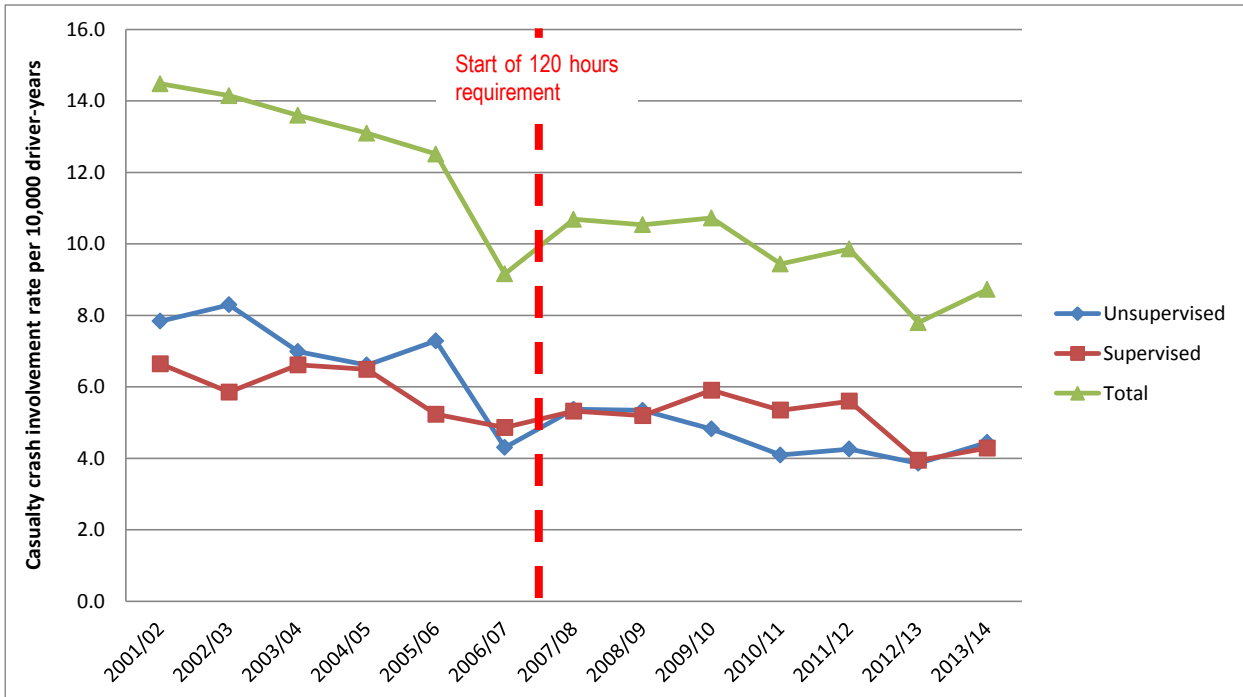


Figure 1. Casualty crash involvement rate per 10,000 driver-years by supervision at the time of the crash for learners who have held the permit less than 6 years

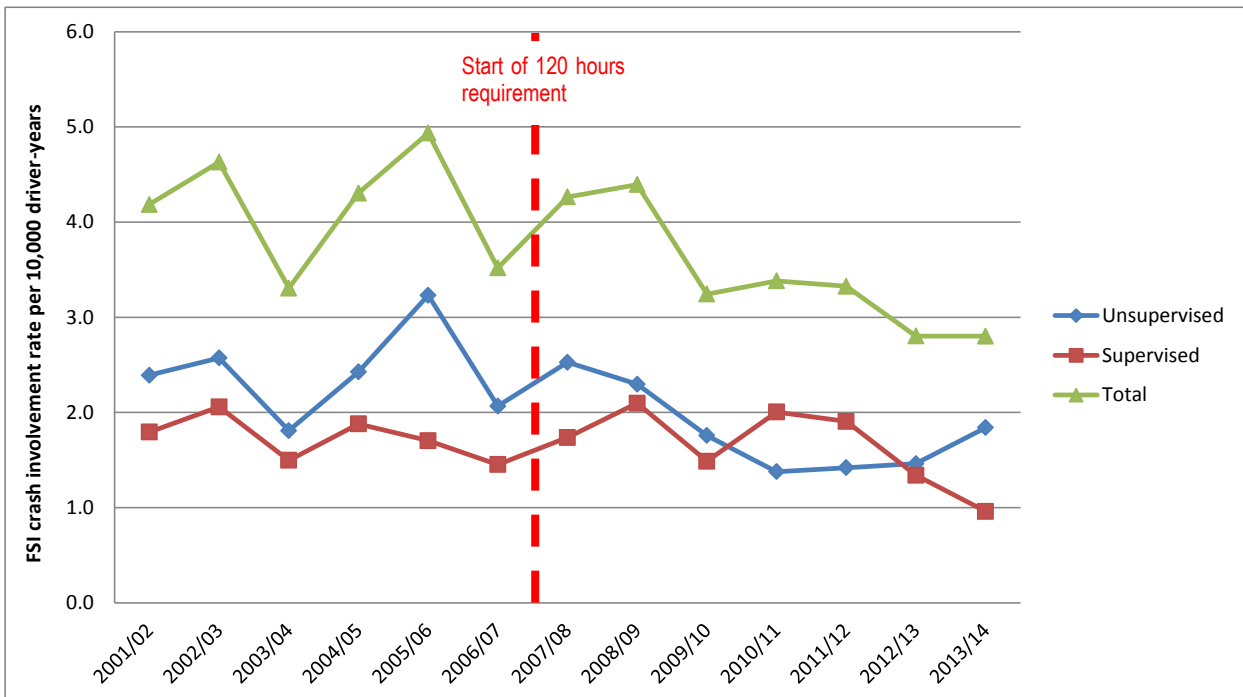


Figure 2. FSI crash involvement rate per 10,000 driver-years by supervision at the time of the crash for learners who have held the permit less than 6 years

Crash involvement counts

This part of the study examined crash involvement counts, rather than rates per 10,000 driver-years of licence holding. Crash involvement counts are influenced not only by changes in risk for each driver but also by changes in the number of drivers on the road.

Crash involvements during a three-year period well before the changes to the GLS (FY2001/02 to FY2003/04) were compared with counts during a three-year period well after the changes (FY2011/12 to FY2013/14). Counts were compared for novices aged 18 to 20 years, novices aged 21 to 23 years and an experienced group aged 35 to 42 years. Crash involvement savings for the novice groups were estimated by comparing the observed crash involvement counts in the post-GLS period with the counts that would have been expected if counts for novices had reduced in the same proportion as counts for the experienced driver group. Estimated annual reductions in the crash involvement of novice drivers are shown in Table 2.

Table 2. Estimated annual savings in crash involvements for novice drivers by comparison with experienced drivers aged 35 to 42 years

Novice age group	Casualty crash involvements		FSI crash involvements	
	Reduction	% saving	Reduction	% saving
18 to 20 years	534	26.7%	128	25.1%
21 to 23 years	118	8.3%	28	7.5%
18 to 23 years	651	19.1%	156	17.7%

Discussion

This study compared changes in the crash involvement of novice drivers with the corresponding changes for selected groups of experienced drivers in order to isolate, as far as possible, the impact of the changes made to Victoria's GLS in 2007 and 2008. The enhancement of the GLS appears to have resulted in a valuable improvement in safety for the state's youngest and least experienced driver licence holders. The drop in crash involvement rates following the enhancement of the GLS was significantly greater for novice drivers than for the older, more experienced comparison group. Relative to the experienced group, crash involvement rates for licensed drivers aged 18 to 20 years fell by 13.6% for casualty crashes and 20.6% for FSI crashes.

The enhanced GLS was found to have been most beneficial to those drivers for whom crash involvement rates were highest: the youngest, least experienced novices. For drivers licensed at ages 18 to 20 years who were in their first year since licence issue, the rate reductions were 19.2% for casualty crashes and 21.7% for FSI crashes. Features of the enhanced GLS that may have contributed to its greater effectiveness with this group include the requirement for 120 hours of supervised driving experience as a learner before applying for a probationary licence, and the additional restrictions, especially on mobile phone use and carriage of peer passengers, that apply to P1 licence holders. The new and more challenging practical driving test may also have contributed to crash reductions among first-year licence holders, since it was designed to filter out applicants who do not yet have the experience and skills required for safe solo driving.

A number of secondary factors are likely to have contributed to the effectiveness of the requirement for licence applicants aged less than 21 years to log at least 120 hours of supervised experience as a learner. VicRoads and the Transport Accident Commission conducted a range of programs and

campaigns for over a decade in advance of the GLS changes to convince novices and their parents of the importance of supervised driving experience before getting a solo licence. The two-year interval between the minimum age for a learner permit (16 years) and the minimum age for a licence (18 years), combined with the requirement to hold the learner permit for at least 12 months, ensures a high proportion of learners have the opportunity to accumulate the required 120 hours of supervised experience and so reduces the incentive for learners and their supervisors to falsify the VicRoads driving experience logbook.

In the last few months of the study period, the ban on hands-free mobile phone use by P1 licence holders was extended to include P2 licence holders. It is possible that this may have yielded further crash reductions that were not captured by the evaluation study.

The reasons for the casualty crash involvement rate increase for fourth-year novices were not identified, and it is not possible to say whether this was the result of short-term factors applying shortly after the changes to the GLS or of factors that will continue to apply in the longer term. Nevertheless, it is important to note that crash involvement rates for fourth-year novices were much lower than (typically around half of) the rates for first-year novices. Thus the crash rate decrease for first-year drivers had much more impact than the increase for fourth-year drivers, so that the net impact of the GLS changes on the first four years of licence holding was a significant decrease in crash involvement rates.

Despite the statistically significant reduction of 19.9% in novice driver crash involvements during high alcohol hours in the metropolitan area, the study was not entirely successful in measuring the impact of the GLS changes on novice driver crashes involving alcohol. The principal difficulty was the unavailability of BAC readings for crash-involved drivers, necessitating reliance on a proxy measure (crash involvements during high alcohol hours). To better understand the impact of the GLS on alcohol-related crashes, it will be necessary to obtain BAC data for drivers involved in casualty crashes.

The novice driver group for whom crash involvement rates were calculated following the enhancement of the GLS was limited to drivers who were first licensed from 1 July 2009 onwards. This limitation was necessary to exclude drivers licensed during the first 12 months after the full implementation of the licensing changes, when licence issue patterns were known to have been influenced by transitory factors related to the licensing changes. As a result of this limitation (and the corresponding limitation in the pre-GLS period), first- and second-year licence holders were over-represented in the novice driver groups for this study by comparison with third- and fourth-year licence holders. Since the benefits of the enhanced GLS were found to be greatest for the least experienced novices, this over-representation would have increased the size of the crash reduction achieved in the period shortly after the changes to the GLS. In the medium to long term, when the over-representation of first- and second-year novices will no longer apply, the crash reductions for the novice group are expected to be smaller than the figures quoted above.

After allowing for the over-representation of the least experienced novices, it was estimated that the long-term crash involvement rate reductions for drivers licensed at ages 18 to 23 years across their first four years after licence issue will be 5.1% for casualty crashes and 9.3% for FSI crashes. For drivers first licensed at ages 18 to 20 years, the estimated long-term crash involvement rate reductions across the first four years of licence holding are 5.9% for casualty crashes and 9.8% for fatal and serious injury crashes.

Reductions in crash involvement rates per 10,000 driver-years of licence holding provide a conservative estimate of the benefits of the enhanced GLS, since they account for reduced risk per driver, but do not account for the additional impact of exposure reduction.

Imberger, Healy, Catchpole, Mitsopoulos-Rubens and McIntyre (2017) have reported in this conference that the changes made to the GLS in 2007 and 2008 were accompanied by marked changes in the age distribution of new licensees. Although there was little change in the total number of new licensees aged 18 to 24 years, Imberger et al. (2017) reported a decrease in the number of first licences issued to drivers aged 18 to 20 years and an increase in the number issued to drivers aged 21 to 24 years. The authors attributed reduced licence holding by 18 to 20 year olds partly to the enhancement of the GLS: the requirement to complete 120 hours of supervised driving as a learner, the requirement to hold the learner permit for at least 12 months, the initially higher failure rate of the new practical driving test, and a possible desire by some novices to delay licensing until age 21 years or later to avoid the requirement to hold a P1 licence for at least a year. They also considered that the delay in licensing may be partly attributable to non-GLS factors, since Delbosc and Currie (2013) have reported that delays in licensing of young people have occurred in many highly motorised jurisdictions and appear to be due more to socio-economic and lifestyle factors than to the implementation of graduated licensing.

In view of the apparent impact of the enhanced GLS on exposure of drivers aged 18 to 20 years, it is important to consider not only changes in crash involvement rates but also changes in crash involvement counts, which are sensitive to changes in exposure as well as to changes in risk per driver. Based on analysis of crash involvement counts, it was estimated that the enhanced GLS had led to reductions of 19.1% in casualty crash involvement and 17.7% in FSI crash involvement for novice drivers aged 18 to 23 years.

Estimates of crash savings based on the analysis of crash involvement rates can be regarded as providing a lower limit for the impact of the GLS on novice driver crash involvement, since they exclude the benefit of exposure reductions (some of which are likely to be due to the changes to the GLS). Furthermore, they are based on the novice driver safety situation immediately before the regulatory changes took effect in 2007 and 2008. On the other hand, the estimates based on analysis of crash involvement counts can be regarded as providing an upper limit for the benefit of the GLS changes, since they include the benefit of exposure reductions (some of which may be due to non-GLS factors). They are based on the novice driver safety situation well before the regulatory changes took effect, and thus include some of the benefit of the programs implemented by VicRoads and the Transport Accident Commission to the prepare novices and their supervisors for the regulatory changes.

Conclusions

The changes made to Victoria's GLS have reduced novice driver crash involvement by between 5% and 19% for casualty crashes and between 9% and 18% for FSI crashes. Crash involvement reductions were largest for drivers first licensed at ages 18 to 20 years, particularly during the first year after the driver obtains a licence, lending strong support to the GLS provisions aimed at these novice driver groups.

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