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Evaluation of the Arkansas Graduated Driver License

Purpose of this Evaluation

The Graduated Driver License (GDL) law was expanded for Arkansas teens in 2009 to help provide a safe environment for young drivers by placing strategic restrictions on when and with whom they may drive. The purpose of this evaluation was to determine if there is evidence of reductions in vehicle crashes and related fatalities for teen drivers since this law was enacted. The following research brief will provide a general overview of the GDL provisions, a description of the datasets and methods used for the evaluation, and a summary of the results.

Overview of the Arkansas Graduated Driver License

The Graduated Driver License (GDL) program was developed to allow teens to gain driving experience through the use of restrictions for optimal risk reduction (Act 394, 2009). This law provides for teen driver's licenses in three levels: learner's license, intermediate license and unrestricted/regular license. A learner's license permits teens that are 14-15 years old to drive only while accompanied by an adult 21 years of age or older. Eligibility for an intermediate license is contingent on a teen driver having no serious traffic violations or accidents on record during the previous six months. While teens with an intermediate license are allowed to drive without an adult, they are restricted from having more than one unrelated passenger under the age of 21. Drivers with this license are further prohibited from operating a vehicle between 11:00 pm and 4:00 am, unless they are traveling to or from a school or church-related activity, work or in emergency situations. At 18 years-of-age teens are eligible to apply for a regular, unrestricted, driver's license, contingent on a clean driving record (i.e., there must be no major traffic violations on the applicant's record in the previous 12 months).

Method

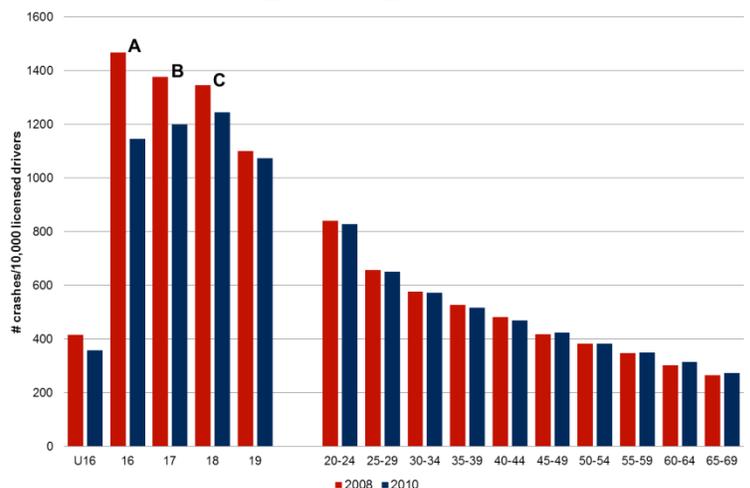
Data for this evaluation were pulled from two sources and integrated by calendar year. Arkansas State Police Motor Vehicle Crash Data were aggregated at the person level and crash level to create the following

variables for analysis: age of the driver, number of occupants, time of crash, location of crash, and incident of fatality resulting from the crash. Information about the number of licensed drivers by age was extracted from the U.S. Department of Transportation's Federal Highway Administration. These data were used to create crash rates per 10,000 licensed drivers during each calendar year. The evaluation compared rates of crashes and fatalities for 2008 (pre-GDL) and 2010 (first full year after GDL was passed). Analyses were conducted for each age group. Analyses were also conducted to determine if the number of crashes and related fatalities were reduced for teen drivers with more than two total occupants. Chi-square tests were used to compare crash and fatality rates from 2008 and 2010.

Findings

There was a significant decrease in the rate of vehicle crashes for all teen driver groups between 2008 and 2010 (^A16 year-olds $X^2 [1, N = 31,989] = 72.90, p < .01$; ^B17 year olds $X^2 [1, N = 46,187] = 32.27, p < .01$; ^C18 year olds $X^2 [1, N = 58,141] = 13.28, p < .01$) (see Figure 1). The largest decrease was found among 16-year-old drivers who evidenced a reduction in crashes of 22 percent (from 1,467 per 10,000 drivers in 2008 to 1,145 in 2010). In contrast, there was no significant reduction in crashes for any group above 20 years old.

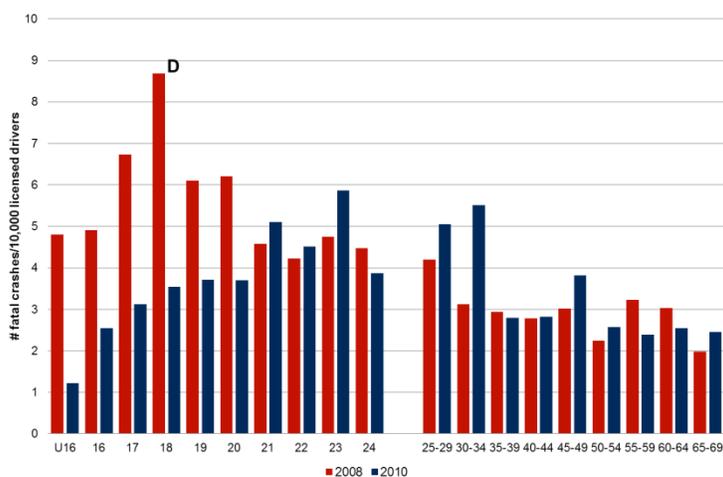
Figure 1: Average Annual Number of Crashes by Age of Driver (Per 10,000 Licensed Drivers) 2008 vs. 2010



In fact, some older age groups experienced an increase in crashes during this time.

Similar patterns were found when examining the number of fatal crashes involving teen drivers (see Figure 2). All age groups subject to restrictions under the GDL saw a decrease in the number of fatal crashes between 2008 and 2010. Though difficult to detect significant differences with such small sample sizes, analysis revealed a statistically significant decrease for the 18-year-old drivers ($\chi^2 [1, N = 58,141] = 6.22, p < .05$). Overall, fatalities involving teen drivers in all age groups were reduced by 59 percent (from approximately 25 fatal crashes per 10,000 drivers in 2008 to 10 in 2010). This translates into an estimated 32 lives that were saved. In contrast, most age groups 20 years and older saw an increase or no change in the number of fatal crashes.

Figure 2: Number of Fatal Crashes by Age of Driver
(Per 10,000 Licensed Drivers)
2008 vs. 2010



Additional findings suggest an impact of the GDL for specific times of the day and for crashes involving cars with more than two passengers. One of the major provisions of the law was to restrict teen driving between the hours of 11:00 p.m. and 4:00 a.m. Findings from this study indicate that between 2008 and 2010 fatal crashes involving teen drivers during this time of day were reduced by 76 percent (from 21 fatal crashes in 2008 to 5 in 2010).

Findings also indicate a decrease in crashes by the number of occupants. With a 20 percent decrease from 2008 to 2010 (107 in 2008 to 86 in 2010), the most significant difference was recognized for cars

carrying five or more passengers. Teens were also less likely to be involved in single vehicle crashes; teens between 16- and 18-years-of-age experienced a 19 percent reduction in single vehicle crashes and a 52 percent reduction in single vehicle fatal crashes.

Summary and Conclusions

The purpose of this evaluation was to determine if there is evidence to support the protective benefit of the Graduated Driver License law for Arkansas teens. The analyses reported in this brief demonstrated the rates of teen driver crashes and crash-related fatalities during the year prior to GDL (2008) compared to the year after GDL was passed (2010). Findings indicate that significant reductions in crashes and crash-related fatalities were found. This is especially true for the youngest drivers who obtained their intermediate license to drive for the first time without an adult. Similar reductions in crashes or fatalities were not found for the adult population during this same time frame. These findings provide strong support for proponents of the GDL for Arkansas teen drivers.

Acknowledgements

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