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RESEARCH BRIEF

ACHI is a nonpartisan, independent, health policy center that serves as a catalyst to improve the health of Arkansans.

Continued Evaluation of the Arkansas Graduated Driver License

• June 2014

PURPOSE

The Graduated Driver License (GDL) law, passed in 2009, expands the previous teen driving law to improve the safety of the roadways for all drivers by placing strategic restrictions on when and with whom Arkansas teens may drive. The first evaluation of the GDL was conducted in 2012. Initial results showed a significant reduction in fatal crashes among teens when comparing crash data from one year prior to enacting the GDL (2008) with data one year after it was passed (2010).[1] The current evaluation builds on these prior findings by broadening the examination timeframe to include 2007 through 2008 and 2010 through 2011 data in order to assess whether improvements to teen driver safety have continued. The following research brief provides a general overview of the GDL provisions, a description of the data and methods used for the evaluation, and a summary of the results.

OVERVIEW OF THE ARKANSAS GRADUATED DRIVER LICENSE

The GDL law was implemented to allow teens to gain driving experience using driving restrictions for optimal risk reduction.[2] This program provides a tiered system for the issuance of teen driver's licenses in three levels: learner's license, intermediate license, and unrestricted/regular license. A learner's license allows teens aged 14 to 15 years 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 crashes on record during the previous six months. While teens with an intermediate license are allowed to drive without adult supervision, they are restricted from having more than one unrelated passenger under the age of 21 in the vehicle. Drivers with this license are further prohibited from operating a vehicle between the hours of 11:00 pm and 4:00 am, unless they are driving to or from a school or church-related activity, work, or in an emergency situation. 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).

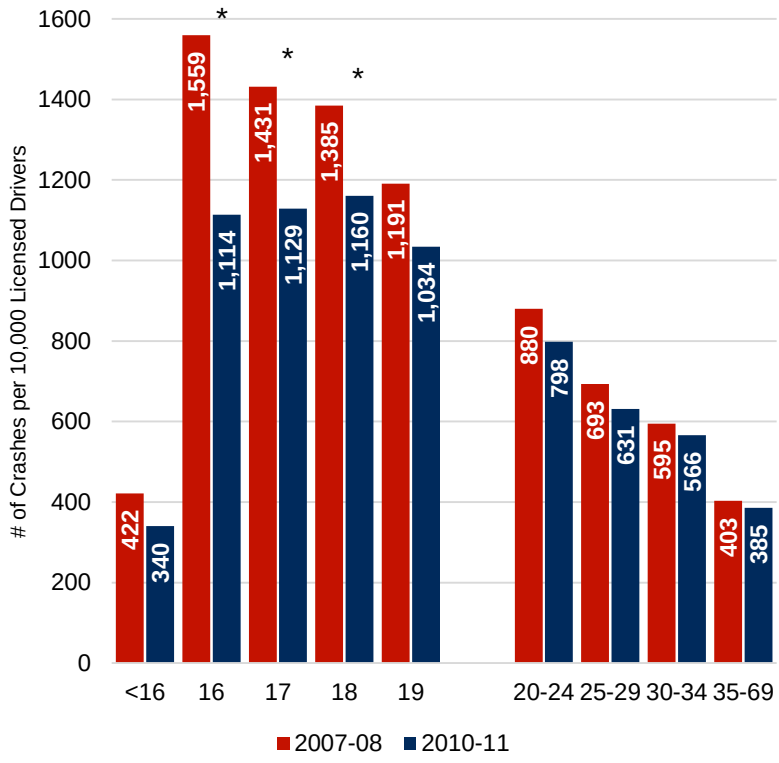
METHODS

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 US Department of Transportation's Federal Highway Administration. These data were used to create crash rates per 10,000 licensed drivers during each calendar year under examination. For the purpose of this evaluation, teens were defined as those 19 years of age or younger, and adults were defined as those 20 years of age or older. The evaluation compared rates of crashes and fatalities for 2007-2008 (pre-GDL) and 2010-2011 (post-GDL) of teen and adult drivers. Chi-square tests were conducted to compare rates of crashes and crash fatalities between pre- and post-GDL timeframes for each age group.

FINDINGS

Findings from this evaluation reveal a continuation in the decreased rates of vehicle crashes and fatalities for teen drivers as was indicated in the 2012 research brief.[1] When comparing the two years prior to the GDL passing with data from two years after its implementation, the 14- to 19-year-old groups evidenced a 23.6% reduction in crashes. The largest decrease was found among 16-year-old drivers who showed a reduction in crashes of 28.5% (see figure 1). No similar rate reductions were identified for adult drivers. Similar patterns were found when examining the number of fatal crashes involving teen drivers. All age groups subject to restrictions under the GDL law demonstrated a decrease in the number of fatal crashes between the pre- and post-GDL timeframes. As a group, 14- to 19-year-olds showed a 57.5% reduction in fatal crashes. The largest decrease was found among the 18-year-old drivers who showed a 55.7% reduction in fatal crashes (from 8.8 fatalities per 10,000 licensed drivers in 2007-2008 to 3.9 fatalities per 10,000 licensed drivers in 2010-2011).

Figure 1. Average Annual Number of Crashes by Age of Driver 2007-2008 vs. 2010-2011 (per 10,000 Licensed Drivers)



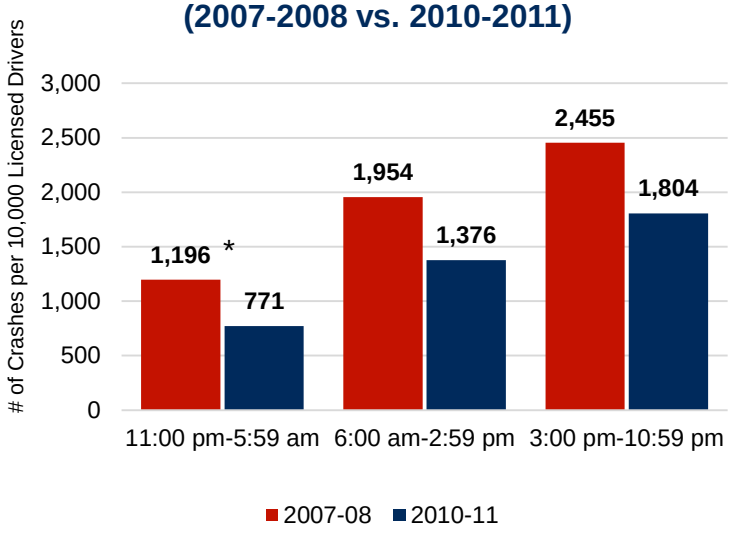
*Indicates significant differences as result of Chi-square tests between groups (p<.001).

The analyses show that the GDL law has a significant impact on crash rates for specific times of day. A key provision of the law restricts teen driving between the hours of 11:00 pm and 4:00 am. Findings indicate that between pre- and post-GDL timeframes, fatal crashes involving teen drivers during restricted driving hours were reduced by 66.1% (from 59 fatal crashes per 10,000 licensed drivers in 2007-2008 to 20 fatal crashes per 10,000 licensed drivers in 2010-2011) compared to 52.8% during non-restricted hours.

The greatest impact of the GDL law was evidenced in single vehicle crashes and crash-related fatalities. There was a statistically significant decrease (p<.001) in single vehicle crashes and fatalities involving teen drivers between the hours of 11:00 pm to 5:59 am. No other time period was statistically significant. (See Figures 2 & 3).

An additional analysis not included in the prior evaluation focused on efforts to minimize texting while driving. While the data do not explicitly identify crashes involving texting while driving, they do indicate crashes that were the result of careless or prohibited driving. Results of this analysis revealed that fatal crashes involving careless or prohibited driving were reduced by 63.6% in the two years after passing the GDL (from 55 crashes per 10,000 licenced drivers in 2007-2008 to 20 crashes per 10,000 licensed drivers 2010-2011). The 20- to 64-year-old age group did not achieve a significant reduction in crashes attributable to careless or prohibited driving (data not shown).

Figure 2. Total Number of Single Vehicle Crashes Involving Drivers Aged 14-19 Years by Time of Day (2007-2008 vs. 2010-2011)

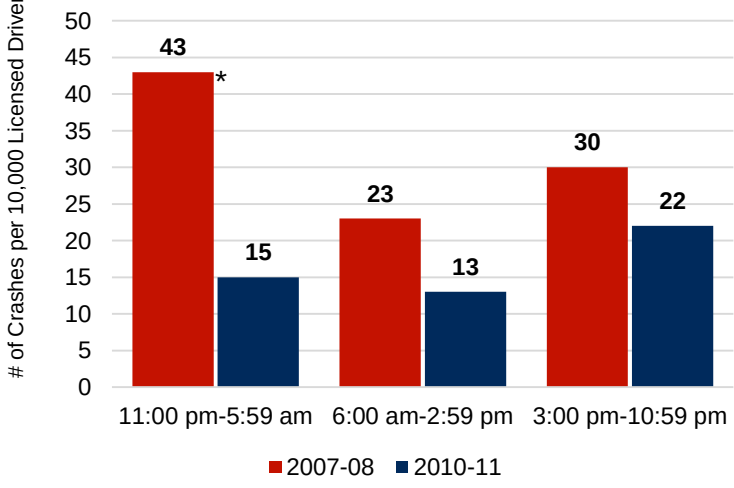


*Indicates a significant difference as result of Chi-square tests between groups (p<.001).

DISCUSSION

This evaluation expands on the previous evaluation to determine if there is further evidence to support the protective benefit of the GDL law for Arkansas teens. The analyses reported in this brief demonstrate a continuation of the observed decrease in rates of vehicle crashes and crash-related fatalities for teen drivers reported in the 2012 evaluations. Additional findings suggest an impact of the GDL for specific times of day and for crashes involving single- and multi-car crashes. While other factors such as varied economic conditions, increased motor vehicle safety measures, and improved vehicle and road safety may contribute to these rate reductions, the evaluation findings provide strong support for the GDL as a working mechanism to protect Arkansas teen drivers.

Figure 3. Total Number of Single Vehicle Crash-Related Fatalities Involving Drivers Aged 14-19 Years by Time of Day (2007-2008 vs. 2010-2011)



*Indicates a significant difference as result of Chi-square tests between groups (p<.001).

REFERENCES

[1] Arkansas Center for Health Improvement. *Research Brief: Evaluation of the Arkansas Graduated Driver License.* Little Rock, AR: ACHI; July 2012.
[2] Arkansas Act 394 of 2009, SB309, 87th General Assembly, Regular Session (2009).

ACKNOWLEDGMENTS

Correspondence concerning this brief should be addressed to Dr. Heather Rouse, senior author and Director of Health Policy Research, Arkansas Center for Health Improvement (HLRouse@uams.edu).

Contributing ACHI authors include Katie Leath.

Data analysis completed by Stephen Lein.

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