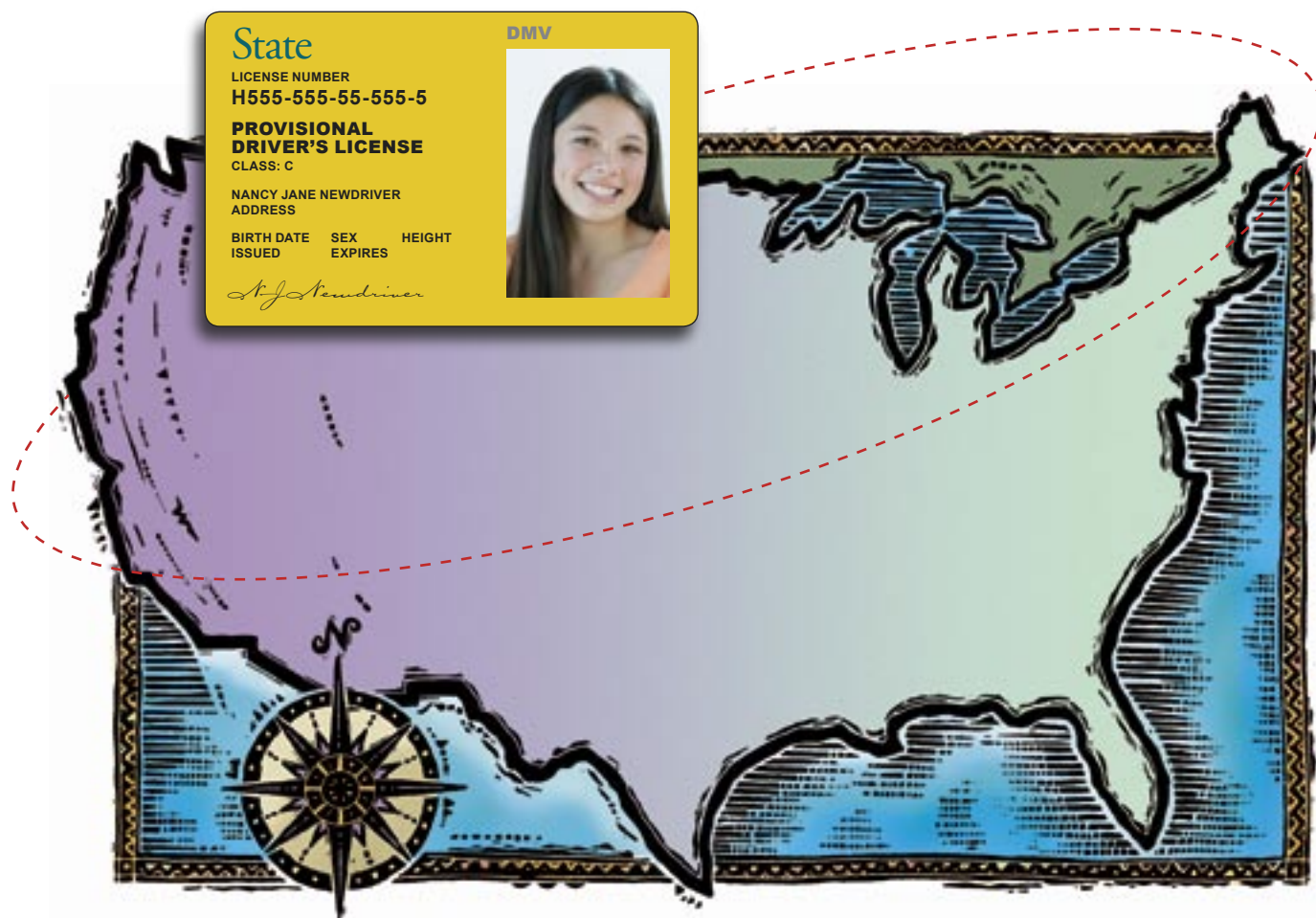


Nationwide Review of Graduated Driver Licensing



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Executive Summary

Background

Each year more than 1,000 16-year-old drivers are involved in fatal crashes. Injuries are the primary cause of death of teenagers, and 41% of all injury deaths at ages 15-19 involve motor vehicle crashes. Many diverse approaches, from minimum drinking age laws to driver education, have attempted to reduce the toll of motor vehicle crashes involving young drivers. During the past decade, 44 states and the District of Columbia have passed legislation for Graduated Driver Licensing (GDL) programs.

GDL involves a three-stage approach to licensure of teenage drivers, usually beginning around age 15½ to 16. A typical three-stage GDL program comprises a “learner” stage, during which all driving must be supervised, followed by an “intermediate” (or “provisional”) stage, during which unsupervised driving is allowed but is subject to certain restrictions and conditions, and finally by unrestricted licensure. The objective is to provide novice drivers with supervision during their initial months on the road, and then to reduce their exposure to certain more-hazardous situations, for example by restricting driving at night and setting limits on carrying passengers.

Evaluations in various states have consistently shown that GDL is beneficial, with reported impacts as great as 34% reduction in the involvement rate of 16-year-old drivers in injury crashes and 19% reduction in their fatal crash involvement rate. Nationally, overall estimates of fatal crash reductions associated with GDL implementation have ranged from 6% to 11% for ages 15 through 17 combined. To date, reported national estimates of the benefit of GDL have been limited to fatal crashes and have neglected to focus on the value of improving weaker programs.

Objectives

The objectives of this research were to provide answers to the following questions:

- What was the overall reduction in involvement of 16-year-old drivers in fatal crashes and injury crashes?
- Did crash involvement rates decline as the number of restrictive components in GDL programs increased?
- How much could crashes of 16-year-old drivers be reduced if all states had GDL programs as effective as the programs associated with the largest reductions?
- If an association is found between GDL and lower crash rates, does it appear to be a causal relationship?

Method

This study is based upon analysis of data on fatal crashes, compiled and made available to the public by the National Highway Traffic Safety Administration; midyear population estimates, compiled and made available to the public by the U.S. Census Bureau; data on injury crashes, compiled by individual states and obtained specifically for this study with the permission of each respective state; and information on state GDL legislation, provided by AAA Government Relations & Traffic Safety Advocacy, the Insurance Institute for Highway Safety, and representatives of individual states.

Population-based rates of fatal crash involvement and injury crash involvement were calculated for drivers aged 16, 20-24, 25-29, and 30-54, in each state included in the analysis, for each quarter-year ("state-quarter"). Analyses of fatal crashes were based upon data from 43 states, spanning years 1994 through 2004. Included were 36 states that had a three-stage GDL program in effect for at least part of the period of the study, and 7 that did not[†]. Analyses of injury crashes were based upon data from 35 states, from 1994 through 2003, though not all years of data were available for all states. Included were 28 states that had a three-stage GDL program in effect for at least part of the period analyzed, and 7 that did not.

[†] Minnesota's licensing process has included both a learner stage and an intermediate stage since 1999; however, Minnesota's intermediate stage does not include any form of nighttime driving restriction or passenger restriction. For this reason, Minnesota sometimes is not classified as having a three-stage GDL program (e.g., IIHS (2006)); however, for the purpose of this study, Minnesota was classified as having a three-stage GDL program.

The licensing system for young drivers in effect in each state-quarter was characterized first on the basis of whether or not it included both a learner stage and an intermediate stage prior to full licensure, and second according to the number of its program components that were consistent with the following definitions:

- A minimum age of **at least 16 years** for gaining a learner's permit.
- A requirement to hold the learner's permit for **at least 6 months** before gaining a license that allows any unsupervised driving.
- A requirement for certification of **at least 30 hours** of supervised driving practice during the learner stage.
- An intermediate stage of licensing with a minimum entry age of **at least 16 years and 6 months**.
- A nighttime driving restriction for intermediate license holders, beginning **no later than 10 p.m.**
- A passenger restriction for intermediate license holders, allowing **no more than one passenger** (except family members).
- A **minimum age of 17 years** for full licensure.

For each age group and each type of program, crash involvement rates were calculated for the period of the 5th to 8th quarters before and the period of the 5th to 8th quarters after implementation. The four quarters immediately before and four quarters immediately after GDL implementation were excluded from the analysis to avoid capturing the effects of possible short-term perturbations in the licensing of young drivers immediately before and after changes in licensing policy. Negative binomial regression models were used to examine the associations between GDL programs and crash incidence, while accounting for state-, year-, and quarter-related correlations in the data.

Results

- Population-based fatal crash involvement rates of 16-year-old drivers were 11% lower overall in state-quarters with three-stage GDL programs (i.e., programs that included a learner stage and an intermediate stage prior to full licensure),

and injury crash involvement rates were 19% lower overall, compared with state-quarters without three-stage GDL programs. Both differences were statistically significant at the 95% confidence level. These figures include the results for states with a wide range of programs, including the less successful programs.

- Overall fatal crash and injury crash involvement rates of drivers aged 20-24, 25-29, and 30-54 did not change in association with the implementation of three-stage GDL programs. Drivers in these older age groups were exposed to driving environments similar to those of novice drivers but were unlikely to be influenced by GDL enactment. The lack of changes in older drivers' crash rates suggests that GDL enactment was largely responsible for the lower rates in 16-year-old drivers.
- Programs with any five of the seven previously defined GDL components were associated with fatal crash rates of 16-year-old drivers that were 38% lower, and injury crash involvement rates that were 40% lower, relative to the corresponding rates in state-quarters with none of the seven components (Note: The maximum number of components in effect in any state-quarter in the study was five.)
- Similar reductions were not seen for drivers aged 20-24, 25-29, or 30-54. Reductions were absent, or much smaller, and/or did not achieve statistical significance. The general absence of comparable changes in crash rates of these somewhat older drivers suggests that the changes for 16-year-old drivers were related to GDL.
- For both fatal and injury crashes, crash involvement declined as the number of GDL program components increased from one to five. Thus, risk of crash involvement decreased in an apparent dose-response fashion as the restrictiveness of GDL programs increased.
- The results of this research suggest that the association between Graduated Driver Licensing and lower rates of crash involvement among 16-year-old drivers is likely to be a causal relationship.

Conclusions

The most restrictive graduated driver licensing programs are associated with reductions of 38% and 40% in fatal crashes and injury crashes, respectively, of 16-year-old drivers. The overall reductions, for all three-stage programs combined (i.e., irrespective of the number of specific components that they included, thus including the weakest of programs), were 11% and 19% for fatal crashes and injury crashes, respectively.

The difference between crash involvement rates that were 38% - 40% lower in state-quarters with any five of the seven defined GDL components, and the apparent lack of effect of programs with very few components, point to the enormous safety benefit that might be achieved by strengthening GDL regulations in states without three-stage GDL programs or with less comprehensive programs.