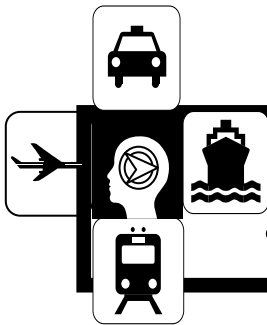


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Tech Brief

GRADUATED DRIVER LICENSING IN NEW JERSEY: Phase I

FHWA-NJ-2002-016

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INTRODUCTION AND BACKGROUND

In 1998, the State of New Jersey passed a Graduated Driver Licensing (GDL) law to take effect on January 1, 2001. The law enacted a three stage licensing system; in simplified form this consists of: 1. Special learner's permit for 16 year olds, during which the new driver must be supervised by an experienced driver over 21; 2. Provisional license for 17 year olds who have completed minimum of 6 months with a learner's permit, during which the new driver may not drive between Midnight and 5 AM and is restricted in the number of passengers under 21 that may be carried; and 3. Basic driver's license for 18 year olds who have completed the first two stages.

As part of the initial act, the state legislature required that the impact of the law be evaluated. This evaluation is being done in two phases. The first phase (described in this Tech Brief) is to analyze the traffic safety record of the younger drivers in New Jersey that GDL is aimed at before the implementation of GDL. The second phase will analyze the younger driver's traffic safety record after implementation of GDL and compare it to the pre-implementation record.

A review of the national literature on teenage driving indicates that teenagers, in their first year of driving, have the highest rates of fatal accidents, whether measured as accidents per driver or per miles driven. The accident rates decrease rapidly with age and experience, reaching the lowest levels for middle aged drivers. Additional characteristics are that the teenage driver is more likely to be the driver at fault, they are more likely to be involved in single-car accidents, and they are more likely to have been speeding.

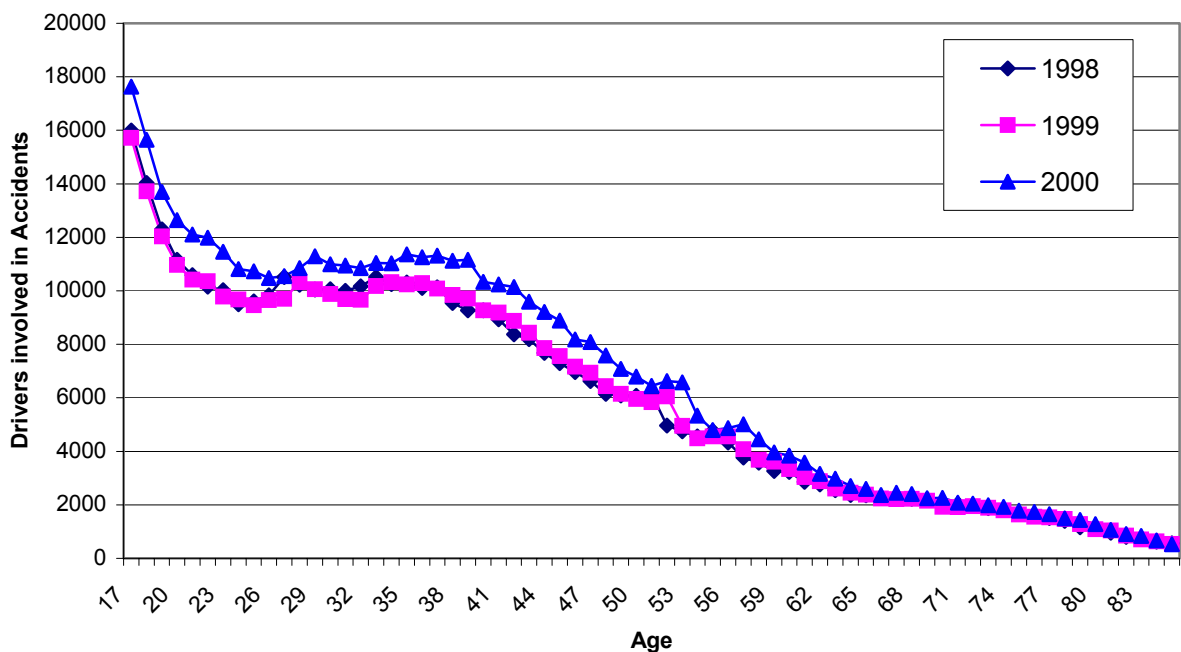
Teenage drivers involved in crashes tend to have passengers, often teenage passengers. And the number of accidents late at night is high given that teenagers typically do most of their driving during daylight.

RESEARCH APPROACH

The data analyzed included all traffic crashes reported in New Jersey from 1998 through 2000 and all traffic violations and license suspensions in 1996 through 2000. The data were provided by New Jersey Department of Transportation and the New Jersey Motor Vehicle Services respectively.

FINDINGS

The analysis showed that young drivers in New Jersey have the same tendencies as in the national data. The figure below shows that indeed, the youngest New Jersey drivers have considerably more crashes than older, more experienced drivers.



Driver Involvement in Crashes by Age

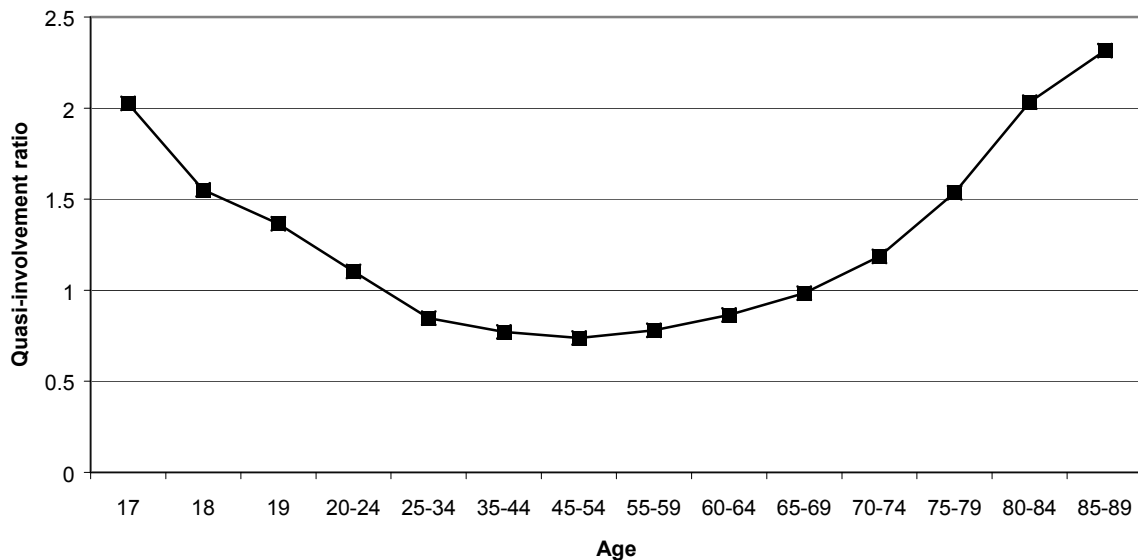
The largest number of accidents among young drivers occur in the four to seven PM period, as they do for all ages. However, about 30% of crashes for drivers under 25 occur after dark. This drops to about 20% for middle aged drivers, and keeps dropping to 10% for the oldest drivers.

While most accidents involve two or more vehicles, the younger New Jersey drivers are more likely to be involved in single vehicle accidents – over 8% of the 17 year olds were in single vehicle crashes compared to four percent of the middle aged drivers.

When filling out the accident report, the police officer indicates an “apparent contributing circumstance” for each vehicle involved in the accident. Two of the common circumstances, inattention and failure to yield, show a U-shaped relation with the age of the driver. That is, they are more frequently indicated for the youngest and oldest drivers than for the middle years. For example, inattention is indicated about 33% of the time for 17 year olds and drivers over 80 but dips down to about 22% for the middle years. Failure to yield is listed for about 11% of the 17 year old drivers, drops off to 5 % for the middle years, and climbs to a high of 17% for drivers 85 and up.

The younger drivers are more likely to speed. Police indicated that about 6.5% of the 17 year old drivers were operating at an unsafe speed. Speeding declines consistently with age to about 3.7% by the time the drivers are 20 to 24 years of age and continues to drop to about one percent for 65 and older drivers.

To measure the tendency of drivers at certain ages to be responsible for accidents, a variable called quasi-involvement ratio was used. The contributing circumstances were first categorized into at-fault or not-at-fault. An at-fault circumstance, for example, would be unsafe speed or improper lane change. Examples of not-at-fault variables include obstructed view or defective traffic control device. For each age group, the ratio of the number of at-fault to not-at-fault circumstances was calculated. A ratio above one indicates that drivers in the age group tend to cause accidents and a ratio less than one indicates that drivers in the age group tend to be the victims of accidents. The figure shows



Quasi-Involvement Ratio – Measure of Fault

that fault also has a U-shaped pattern with age. The ratio is 2.0 for the 17 year olds, drops to less than one for the 45 to 54 year olds, and increases for the oldest drivers.

Turning to the violation data, the rate of violations for 17 to 20 year olds ranges from about 2,300 to 3,200 per 10,000 persons for the four years of data. This is about four times the rate for the 40 to 54 year olds.

The top two reasons for traffic violations do not differ markedly from those of middle aged drivers. Speeding is the most frequent violation for the younger and middle aged drivers, ranging from about 35 to 40 percent. Speeding drops off significantly for drivers over 65. Failure to yield or to obey a traffic control device (e.g., traffic signal or stop sign) is the next largest category for young drivers, representing about 22 percent of their violation, which is lower than for middle aged drivers at about 27 percent, and over 30 percent for the older drivers.

The third most prevalent reason for younger drivers' violations is careless driving, which accounts for about 14 percent of violations for 17 year olds, dropping gradually to about eight percent for 21 year olds and down to six percent for middle aged drivers.

CONCLUSIONS

The younger driver's record is distinguished from the middle aged driver's in the following ways:

- Higher percentage of crashes occur after dark.
- More crashes occur on local roads.
- Lower percent of crashes are fatal.
- But higher percent are fatal or injury crashes than for the middle aged driver.
- Much higher percent of crashes are single vehicle crashes.
- Higher percent of crashes occurred while going straight.
- For 17 year olds, higher percent of left-turn crashes than middle aged drivers.
- Higher percent of crashes due to inattention than middle aged driver.
- Higher percent of crashes due to failure to obey traffic control device.
- Much higher percent of crashes due to unsafe speed.
- Higher likelihood of being at fault (using the quasi-involvement ratio).
- Much higher rate of violations.
- Higher percent of violations due to careless driving than for middle aged driver.

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