From Children to Adults: Protecting our Adolescent Drivers!

Does GDL Work in Minnesota?

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Objective: Show that GDL is working in Minnesota

- Crashes have decreased for ages 16 – 17
- The rate of crashes per population has decreased for this age-group
- The rate of crashes per driver has also decreased for this age-group
- **GDL decreases crashes by decreasing exposure**
Graduated Driver Licensing (GDL)

• Purpose: to provide new teenage drivers with behind-the-wheel experience and skills, gradually in low-risk environments

• Design:
  – Learner’s permit
  – Provisional license
  – Full driver’s license

• Effect
  – Improved driving skills
  – Decreased exposure
Current ‘Best Practices’ GDL System
per Insurance Institute for Highway Safety

• Minimum age of 16 for permit and 17 for provisional license
• Minimum of 65 supervised driving hours.
• Provisional stage extends to age 18
  – Nighttime driving restriction from 8 pm to 6 am
  – No passengers under the age of 20
GDL Statutes

• Differences among states

• Minnesota statute
  - 1999
  - 2008
Does GDL Work?
Previous Evaluations

• Six single state evaluations that **have shown reductions** in young novice driver crashes:
  • California, Florida, Michigan, North Carolina, Ohio and Pennsylvania

• Multi-state evaluations **have shown reductions**
  • Graduated driver licensing: what works?
    AJ McKnight, RC Peck
  • Behavioral Impact of Graduated driver Licensing on Teenage Driving Risk and Exposure
    Pinar Karaca-Mandic and Greg Ridgeway
    J Health Econ. 2010 January; 29(1): 48-61
  • National evaluation of the effect of graduated driver licensing laws on teenager fatality and injury crashes.
    Josua D. Lyon, Rong Pan, Jing Li
“We find that the GDL policies reduce the number of 15–17 year-old accidents by limiting the amount of teenage driving rather than by improving teenage driving”

Pinar Karaca-Mandic
University of Minnesota
Challenges to Evaluation

• Toward Zero Deaths (TZD) – Since 2003 rates of crashes have been decreasing for all ages

• Denominator to use:
  – Population – not all at risk
  – licensed drivers – numbers and types change monthly
  – vehicle miles traveled – not readily available by age

• Mechanism involved in decrease: increased skill vs. decreased exposure
Percent change: Number of Crashes
Minnesota, 2002-2009

-42%
Young People Driving
Percentage of Age Group with Driver's License

Data: Michael Sivak & Brandon Schoettle, University of Michigan Transportation Research Institute

Percent Change: Rate per 1,000 Drivers
Minnesota, 2002-2009

-40% -35% -30% -25% -20% -15% -10% -5% 0%

-36%

60+ 40-59 25-39 21-24 18-20 16-17
Minnesota VMTs
(Vehicle Miles Traveled)

VMT (billion)

2007 2008 2009 2010 2011

56.2 56.4 56.6 56.8 57.0 57.2 57.4 57.6

MDH
DEPARTMENT of HEALTH
Percent change in VMT per age-group

Minnesota, 2002-2009

-67%
Percent change: crash rate per 1B VMT
Minnesota, 2002-2009

-50% -40% -30% -20% -10% 0% 10% 20% 30% 40% 50%
-60+ 40-59 25-39 21-24 18-20 16-17

39%
Finding: GDL works!

- Crashes have decreased for ages 16 – 17.
- The rate of crashes per population has decreased for this age-group.
- The rate of crashes per driver has also decreased for this age-group.
- GDL decreases crashes by decreasing exposure.
Conclusions

• The problem of improving teen driving safety is a complex one.
• Preliminary bivariate analysis shows an association between GDL and decreased crashes, but not proof.
• Data is consistent with published studies
• Supportive of the effect being decreased exposure.
• Need to enhance GDL
Proposed Changes for Minnesota’s Current GDL Statute

Based on the best practice components of a strong GDL law per The Insurance Institute for Highway Safety

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<thead>
<tr>
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<th>Current MN</th>
<th>IIHS Optimal</th>
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<tbody>
<tr>
<td>Supervised driving hours</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>Minimum permit age</td>
<td>15</td>
<td>16</td>
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<tr>
<td>Minimum provisional age</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Nighttime driving restriction (provisional license)</td>
<td>Midnight – 5 am</td>
<td>8 pm – 6 am</td>
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<tr>
<td>Passenger restriction (provisional license) (for non-familial passengers &lt; 20)</td>
<td>1 for 1&lt;sup&gt;st&lt;/sup&gt; 6 months Up to 3 for 2&lt;sup&gt;nd&lt;/sup&gt; 6 months</td>
<td>0 until age 18</td>
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Next Steps?

• Multivariate Analysis
• Assessing Exposure to GDL
• Focus on 16 year olds
• Further analysis of process components (i.e., enforcement)
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