Today’s Agenda

Motor Vehicle Crashes and TBI

• Overview of Data Relating to Motor Vehicle Crashes and TBI
• Graduated Driver Licensing and Reducing Motor Vehicle Crashes
• Q & A
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Presenters

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Pacific Institute for Research and Evaluation (PIRE)

Pamela Fischer, MLPA
Pam Fischer Consulting, Long Valley, New Jersey
Preliminary Analysis of Traumatic Brain Injury among Motor Vehicle Occupants Aged 0-19 Years, 2009-2012

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CSN, Economic & Data Analysis Resource Center
Pacific Institute for Research & Evaluation
May 7, 2014

Funded by Health Resources and Services Administration’s, Maternal and Child Health Bureau, US Department of Health and Human Services
Background

Even with recent advancements in technology and restraint use, motor vehicle-related traumatic brain injury remains an important cause of death and disability among children.
Objective: Identify opportunities to reduce MV-occ TBI among 0-19 year-olds

Preliminary analysis

• What are the recent trends in MV-occ TBI?
• What is the size of the problem?
• Description of MV-occ TBI, by age group
• What are the next steps?
DATA used in the analysis

- NHTSA’s NASS Crashworthiness Data System
- 2009-2012
- CDS is an annual survey of crashes where one vehicle was towed away
- Strengths: Detailed crash, vehicle, and occupant data
- Limitations: Sample sizes
Motor vehicle occupant injury and fatality rates have declined in the past decade. But the proportion of injuries that are TBI has not changed.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Year Range</th>
<th>TBI</th>
<th>Other Injury</th>
<th>Not Injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0-14, 1999-2002</td>
<td>1999-2002</td>
<td>1.1%</td>
<td>20.5%</td>
<td>78.4%</td>
</tr>
<tr>
<td>Age 0-14, 2009-2012</td>
<td>2009-2012</td>
<td>0.7%</td>
<td>17.6%</td>
<td>81.7%</td>
</tr>
<tr>
<td>Age 15-19, 1999-2002</td>
<td>1999-2002</td>
<td>1.6%</td>
<td>30.0%</td>
<td>68.3%</td>
</tr>
<tr>
<td>Age 15-19, 2009-2012</td>
<td>2009-2012</td>
<td>1.8%</td>
<td>26.5%</td>
<td>71.8%</td>
</tr>
</tbody>
</table>
MV-occ TBI are particularly severe

**Injury Severity Score**
- Other Injury: 1.71
- TBI: 8.72

**Number of Injuries**
- Other Injury: 2.16
- TBI: 5.49

**Days in the Hospital**
- Other Injury: 0.15
- TBI: 1.08
MV-occ TBI victims were less likely to have been restrained

Age 0-14

- Not Restrained
- Restrained

<table>
<thead>
<tr>
<th></th>
<th>Restrained</th>
<th>Not Restrained</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Injury</td>
<td>90%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Other Injury</td>
<td>90%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>TBI</td>
<td>76%</td>
<td>24%</td>
<td></td>
</tr>
</tbody>
</table>
MV-occ TBI victims were less likely to have been restrained

Age 15-19

- **No Injury**
  - 95% Restrained

- **Other Injury**
  - 82% Restrained

- **TBI**
  - 58% Restrained
Seat Position of MV-occ TBI

Age 0-14

- Front Seat
- Back Seat
- Other/Unk

Front: 19%

Front: 30%

Front: 33%

No Injury  Other Injury  TBI
Seat Position of MV-occ TBI

Age 15-19

- Driver
- Front Seat
- Back Seat
- Other/Unk

No Injury:
- Front: 28%
- Driver: 59%

Other Injury:
- Front: 18%
- Driver: 67%

TBI:
- Front: 28%
- Driver: 57%
MV-occ TBI were more likely Alcohol-Involved

<table>
<thead>
<tr>
<th>Alcohol Involved?</th>
<th>No Injury</th>
<th>Other Injury</th>
<th>TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4.6%</td>
<td>4.9%</td>
<td>10.8%</td>
</tr>
<tr>
<td>No</td>
<td>95.4%</td>
<td>95.1%</td>
<td>89.2%</td>
</tr>
<tr>
<td>Unknown</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Injury Data for Infants and Children

2/8/2013
Vehicle Type

No Injury

Other Injury

TBI
Conclusions and Next Steps

- Restraint use and alcohol involved crashes appear to be related to MV-occ TBI
- Next Steps:
  - Explore variations in MV-occ TBI rates in states.
  - Do some states have higher rates? Do the rates correspond with state policy and restraint use?
  - Take a closer look at some of the factors highlighted today
Contact Information

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Leveraging GDL to Curb Teen Driver Crashes

Pam Fischer, MLPA
Pam Fischer Consulting
Car crashes...

- #1 cause of injury & death (15-20 yr olds)
- Highest for 16-yr-olds (licensing age, 34 states)
- 4x’s higher for teen drivers
- 15% of US population, 30% ($26B) of total cost of mv injuries nationwide

CDC, Kweon & Kockelmann, Oleen & Teigen
Teen Fatal Crashes

- On the decline nationwide

2000: 8,224
2012: 2,823

NHTSA
Why Teens Crash

• Brain development
• Inexperience
• Easily distracted
• Prone to speed
• Unlikely to buckle up
What's the antidote?
GDL

• Three step process that allows teens to build skill, while addressing the things that cause them the greatest risk

• Most effective tool we have for addressing teen crash risk; 20-40% reductions in crashes

• A tool for parents that sets **MINIMUM** standards
Optimal GDL (MAP-21)...

Should include:

1. Minimum permit age (16) & waiting period (6 months)
2. Supervised practice hours (40+)
3. Minimum intermediate age (17)
4. Nighttime driving restriction (10 p.m. – 5 a.m.)
5. Passenger restriction (no more than 1)
6. Minimum licensure age (18)

NHTSA – MAP-21
NJ’s GDL

- One of the nation’s most progressive
  - Permit at 16 (w/6 hours BTW)
  - Probationary license at 17 (oldest full licensing age in the nation, 18)
  - 1 passenger limit
  - 11 p.m.-5 a.m. curfew
  - No HH/HF electronic devices
  - Seat belts
  - Decal
Evaluation

• How does your state’s GDL compare to best practice?
• Do teens and parents fully understand & comply?
• Is law enforcement on board?
• Are teen crashes, injuries and fatalities going in the right direction?
NJ Teen Drivers, Teen Passenger Fatalities (2004-2013)

NJ State Police FARS

Drivers

Passengers
NJ Teen Drivers Involved in Crashes

NJDOT Motor Vehicle Crash Database, Div. of Highway Traffic Safety & CHOP Analysis
Who is the chief GDL enforcer?

PARENTS!!!!
Challenges for Engaging Parents

• Unaware of teen crash risk & unfamiliar with the concept
• Parenting style impacts GDL acceptance & enforcement
• Need facilitated guidance coupled w/ written materials
• Busy (incentives/mandate may be necessary)
• In the dark about teen’s behavior on the road
<table>
<thead>
<tr>
<th>Top 5 Worries</th>
<th>Top 5 Realities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kidnapping</td>
<td>1. Car crashes</td>
</tr>
<tr>
<td>2. School snipers</td>
<td>2. Homicide</td>
</tr>
<tr>
<td>3. Terrorists</td>
<td>3. Suicide</td>
</tr>
<tr>
<td>4. Dangerous strangers</td>
<td>4. Drug Overdose</td>
</tr>
<tr>
<td>5. Drugs</td>
<td>5. Cancer</td>
</tr>
</tbody>
</table>

Paranoid Parents Guide/Barnes, CDC
Enforcement

- Use peer-to-peer training that involves top brass, address teen crash risk and how GDL works to address that risk
- Establish formal SOPs
- Recognize the challenge of identifying GDL holders
- Partner w/schools
NJ’s decal

• Aids w/ enforcement of the GDL requirements (14% increase yr 1)
• Not a new concept, used around the world with no negative impact on safety
• NJ AG report, no incidents impacting teen safety
• Driving down crashes (9% decrease in yr 1)

GHSA, NJ Div. of Criminal Justice, CHOP
Strengthening GDL Laws

• Establish formal coalition/task force w/champion & administrator
• Use state specific crash data & real life stories
• Survey parents/teens to gauge support
• Determine “must haves” & legislature’s temperature
Questions?

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njsafe
Thank you for your participation

Please take a moment to complete our short evaluation:

https://www.surveymonkey.com/s/55VQX2J

Questions or Comments? Contact:

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