Assuring Cognitive Fitness to Drive in an Aging Population

A Presentation to the
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This presentation will focus on:

- Why cognitive fitness to drive is a growing public health concern.
- A scientifically valid and practical tool to measure cognitive fitness to drive.
- Legal issues and other considerations with age-based screening.

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Analysis of Fatal Crash Data

Delaware: 2007-2011

A Summary of Motor Vehicle Fatal Crash and Fatality Data from the Fatality Analysis Reporting System (FARS)
### Table 69. Fatal Crashes and Fatalities Involving Drivers Ages 75 and Older

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Delaware</td>
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<td></td>
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<tr>
<td>Fatal Crashes</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>6</td>
<td>12</td>
<td>40</td>
<td>71.4%</td>
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<tr>
<td>Drivers Ages 75 and Older Killed</td>
<td>4</td>
<td>3</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>30</td>
<td>45.5%</td>
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<tr>
<td>NHTSA Region 3</td>
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<tr>
<td>Fatal Crashes</td>
<td>301</td>
<td>280</td>
<td>292</td>
<td>291</td>
<td>291</td>
<td>1,455</td>
<td>0.0%</td>
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<tr>
<td>Drivers Ages 75 and Older Killed</td>
<td>254</td>
<td>239</td>
<td>253</td>
<td>246</td>
<td>254</td>
<td>1,246</td>
<td>2.4%</td>
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<tr>
<td>U.S.</td>
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<tr>
<td>Fatal Crashes</td>
<td>2,800</td>
<td>2,602</td>
<td>2,495</td>
<td>2,619</td>
<td>2,516</td>
<td>13,032</td>
<td>-4.3%</td>
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<tr>
<td>Drivers Ages 75 and Older Killed</td>
<td>2,272</td>
<td>2,155</td>
<td>2,036</td>
<td>2,130</td>
<td>2,019</td>
<td>10,612</td>
<td>-6.0%</td>
</tr>
</tbody>
</table>
Understanding the public health challenge

- As a group, older drivers are involved in relatively few crashes; the greatest risk is for crashes per mile driven.
- We all lose functional abilities needed to drive safely – vision, mental sharpness, physical strength and flexibility – as we age, but at dramatically different rates; some in their 70’s and 80’s are as fit as others in their 50’s and 60’s.
- A mandate for every DMV is to ensure that those licensed in their state are medically fit to drive.
- Implementing a ‘medical model’ that includes screening for age-related impairments must rely on measures that predict crash risk.
Why focus on measures of cognitive ability?

- Mechanisms already exist for detecting drivers with impaired vision or physical impairments.
- Cognitive loss (especially dementia) robs the driver of his/her capacity to self-regulate; and self-regulation is the cornerstone of our existing system of ensuring driver competence.
- Case-control research shows strongest validity as crash predictors for measures of cognitive ability.
- Alzheimer’s Association estimates prevalence of dementia in the 65-and-over population at 13%, and at 45% in the 85+ population.

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Which are the most valid measures of cognitive ability to gauge fitness to drive?
Which are the most valid measures of cognitive ability to gauge fitness to drive?

Those that are significant predictors of crash risk for older drivers¹:

- “executive function”—planning, anticipation (Maze Test)
- visual search with divided attention (Trail-making Part B)
- visual information processing speed with divided attention (UFOV subtest 2)
- visualizing missing information (MVPT/VC)
- working memory (cued/delayed recall)

¹ As reported in peer-reviewed scientific journals
A *practical* cognitive screening tool will:

- Accommodate potentially large volumes of drivers without imposing unacceptable demands for personnel (number of staff, level of training); a *self-administered screen* is ideal.
- Employ a user interface that accommodates elderly drivers who are not comfortable with computers – should be operated by touch, not a mouse, and with no need for keyboard entries.
- Minimize demands on drivers’ time by using a progressive program flow: first target dementia/MCI, then focus upon cognitive decline among normally aging drivers.
- Be perceived by the public as fair and objective.
- Not cause physical discomfort.

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For example …

[State logo]

Safe Driving BASICS™

Brief Auto-Screening Instrument for Cognitive Status

- Born from widely recognized and respected research.
- SDB is the next generation of a system in current use by Maryland MAB.
- Functions as a complementary referral system to any existing State medical review process – a DMV can take this system and plug it into their current process with virtually no changes to existing methodology.

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Customer Process

Safe Driving BASICS [SDB] cognitive screening can be added to the license renewal process at a specified age, determined by the State.

This screening adds 5 - 15 minutes to each individual customer’s transaction. The screening tool operates unattended.

Customer resumes standard renewal process.

Nothing in this process precludes the licensing authority from refusing or restricting licensure to any driver license applicant, just as it would absent the brief cognitive screen.
The Intervention Process

Screening scores could be accumulated centrally and analyzed to generate referrals where appropriate to medical review.

The screen would add a referral source to an existing medical review system, a source that delivers significant advantages:

- Low personnel burden
- Targeted
- Objective
- Evidence-based
Safe Driving BASICS™

Branch Offices

Data Storage
Rules Application
Referrals
Reporting

HQ Server

Existing Referral Sources

Existing Medical Evaluation Process

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Age-based screening: Legal issues & other considerations

- Any claim of age discrimination brought by a driver in a court challenge to a licensing authority would merit only a ‘rational basis’ test—which would surely fail.
- There are precedents in applying special criteria for driver qualifications at particular (older) ages: FL (vision); PA (physician report); other states (see www.seniordrivers.org).
- It is only cost-effective to screen for impairing conditions among those with highest probability of manifesting them.
- Prominent policy studies endorse age-based screening (see AAA Foundation for Traffic Safety Licensing Policy Workshop, pg.6).
- Another constituency, another perspective: Baby boomers with aging parents may strongly support DMV initiatives in this area.

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IMPORTANT TO REMEMBER:

- Individual assessment for medical fitness to drive is the preferred model and may be driven by ADA if not the baby boom drivers alone.

- There is no universal test for medical fitness to drive. **Screening for likely risk factors is the public health model.**

- If you have a medical evaluation process, you already have a screening process unless you assess 100% of your drivers.

- Existing screening systems are inconsistent and subjective.

- Evidence-based screening will yield consistent, useful, and defensible results.

- The best screening system will supplement existing systems and **snap-fit** onto existing processes.

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