Aging workers at increased risk of fatal transportation-related injuries

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surveillance, targeted investigation, assessment, and outreach
OR-FACE

Current Aims (2010-15)

1. Maintain core fatality surveillance, investigation, assessment, and prevention

2. Continue outreach in historical priority areas, including young workers, immigrant workers, commercial fishermen, and loggers
   – Develop other priority outreach activities as appropriate

3. Collaborate with institutional partners to develop effective intervention strategies

4. Evaluate program activities

5. [NEW] Interventions to prevent transportation & mobile machinery deaths among workers >65 yrs

6. [NEW] Interventions to prevent construction falls
Overview

1. The “signal” in the data for workers 65+
2. The “future researchers should…” gap
3. Investigation of four hypotheses
4. Social and intervention implications
Oregon Occupational Fatalities by Age Group and Event (2003-2009)

*Other includes exposure to harmful substances, fire/explosion, and overexertion.

RR=3.0
Data Sources and Analyses

• **Data**
  – **Fatalities**: OR-FACE (State), CFOI (National)
  – **Rate Denominators**: Current Pop Survey (BLS)
  – **Lost work time**: Oregon Workers’ Comp Claims
  – **Other factors**: Empirical research literatures

• **Analyses**:
  – **Rates**: fatalities per 100,000 workers
  – **Contrasts**: rate ratios and 95% CIs
  – **Trends**: Poisson regression applied to 7 yrs
Hypotheses

1. Hazard exposure
2. Organization of work
3. Physical fragility
4. Normative changes in capacity
$H^1$: Hazard Exposure

Fatality Rates for Males Employed in Transportation and Material Moving Occupations, 2003-2009

RR=3.8 (all=3.0)

RR=2.0 (all=3.2)
H²: Organization of Work

Employer Size for Oregon Male Transportation Fatalities ≥65 (2003-2009)
Empirical Literature

• 65+ employees elevated in small orgs (Stokols et al. 2001)
• Small org lower safety investments (Lentz et al. 2001)
• Retirement age, front line work, job roles
## H³: Fragility

**Hospitalization for Oregon disabling claims by event type (2003-2009)**

<table>
<thead>
<tr>
<th></th>
<th>&lt;65</th>
<th>≥ 65</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>p&lt;.0001</strong></td>
<td><strong>p&lt;.0001</strong></td>
</tr>
<tr>
<td>All events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes**</td>
<td>5,242 (4.1%)</td>
<td>238 (9.5%)</td>
</tr>
<tr>
<td>No</td>
<td>123,139</td>
<td>2,253</td>
</tr>
<tr>
<td>Total</td>
<td>128,381</td>
<td>2,491</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
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<tr>
<td>Yes**</td>
<td>614 (10.8%)</td>
<td>31 (24.2%)</td>
</tr>
<tr>
<td>No</td>
<td>5,079</td>
<td>97</td>
</tr>
<tr>
<td>Total</td>
<td>5,693</td>
<td>128</td>
</tr>
</tbody>
</table>
Lost work time per injury

- Chance of temporary disability days paid beyond median (21 days) – 57.6% vs. 48.7% (X-sq 83.2, p<.00001)
H⁴: Normative Changes in Capacity

• Vision impairment
  – Cataracts and glaucoma increase at-fault crashes
  – Visual acuity decline and night driving

• Hearing loss
  – 23% prevalence 65-75 yrs, 40% prevalence 75+
  – Possible impact on driving in presence of distractions
H⁴: Normative Changes in Capacity

• Cognitive
  – Attention, visual-spatial, perceptual speed declines related to driving performance and crash risk

• Psychomotor
  – Reaction time, declines accelerate after 70
Conclusions

• **H1 Hazard exposure:** Some support
  – When controlling for employment, national level effect reduced but remained significant

• **H2 Organization of work:** Some/strong support
  – Small organizations have lower safety investments
  – Retirement age and job roles

• **H3 Physical fragility:** Some/strong support
  – Greater hospitalization and lost work time per injury

• **H4 Normative changes:** Strong support
  – Age related changes affect driving and crash risk
Intervention implications

Hierarchy of Controls
1. Engineering & job design
2. Personnel selection, placement, and training
3. Feedback & motivation
Questions?

Putting Science to Work!

web: www.ohsu.edu/croet/face