Aging workers at increased risk of fatal transportation-related injuries

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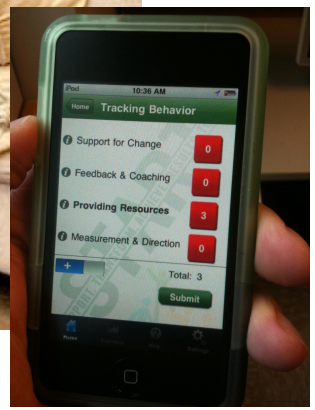
- Prevention with lone workers
- Self-management

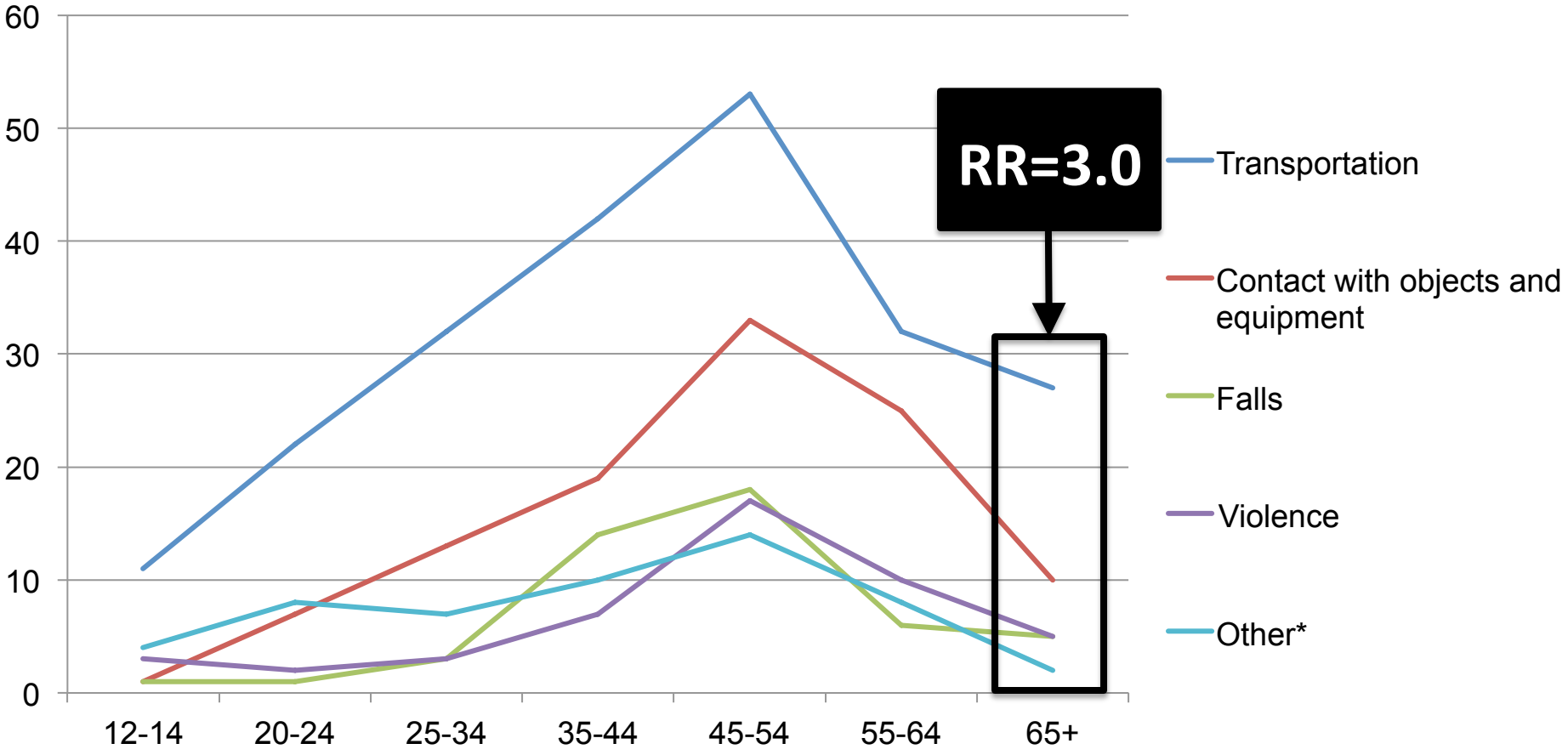


Oregon-FACE
Fatality Assessment & Control Evaluation

Where we are going?

- The “signal” in our data for workers 65+
- The “future researchers should…” gap
- Our investigation of four hypotheses
- Social and intervention implications

Oregon Occupational Fatalities by Age Group and Event (2003-2009)



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

75 year old logger killed when ejected from tumbling bulldozer

Arrows indicate the path of the Caterpillar as it tumbled off the skid road into the ravine. The star shows where the operator was thrown from the cab.

Hypotheses

1. Hazard exposure
2. Organization of work
3. Physical fragility
4. Normative changes in capacity

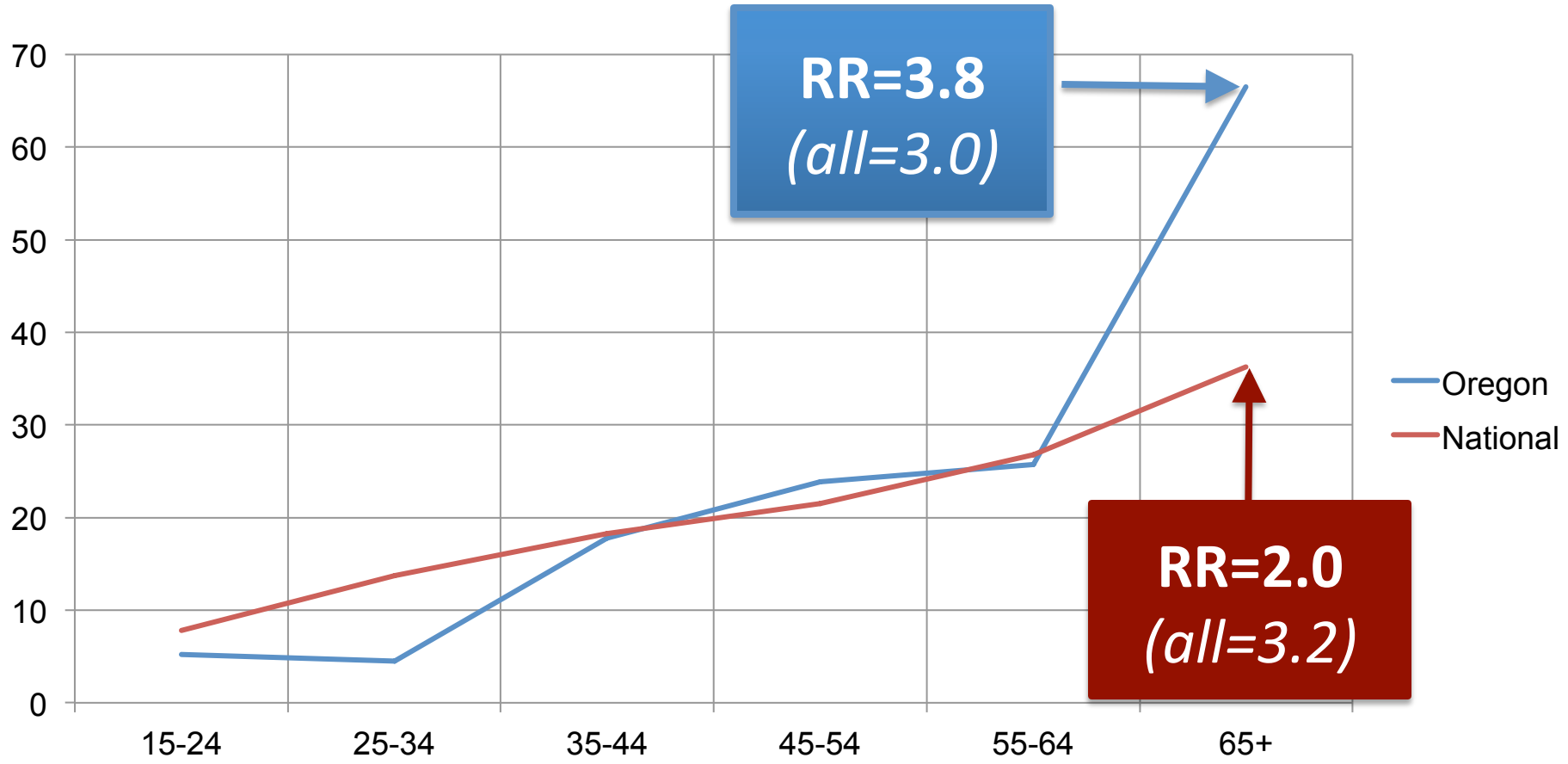
Data Sources and Analyses

- 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

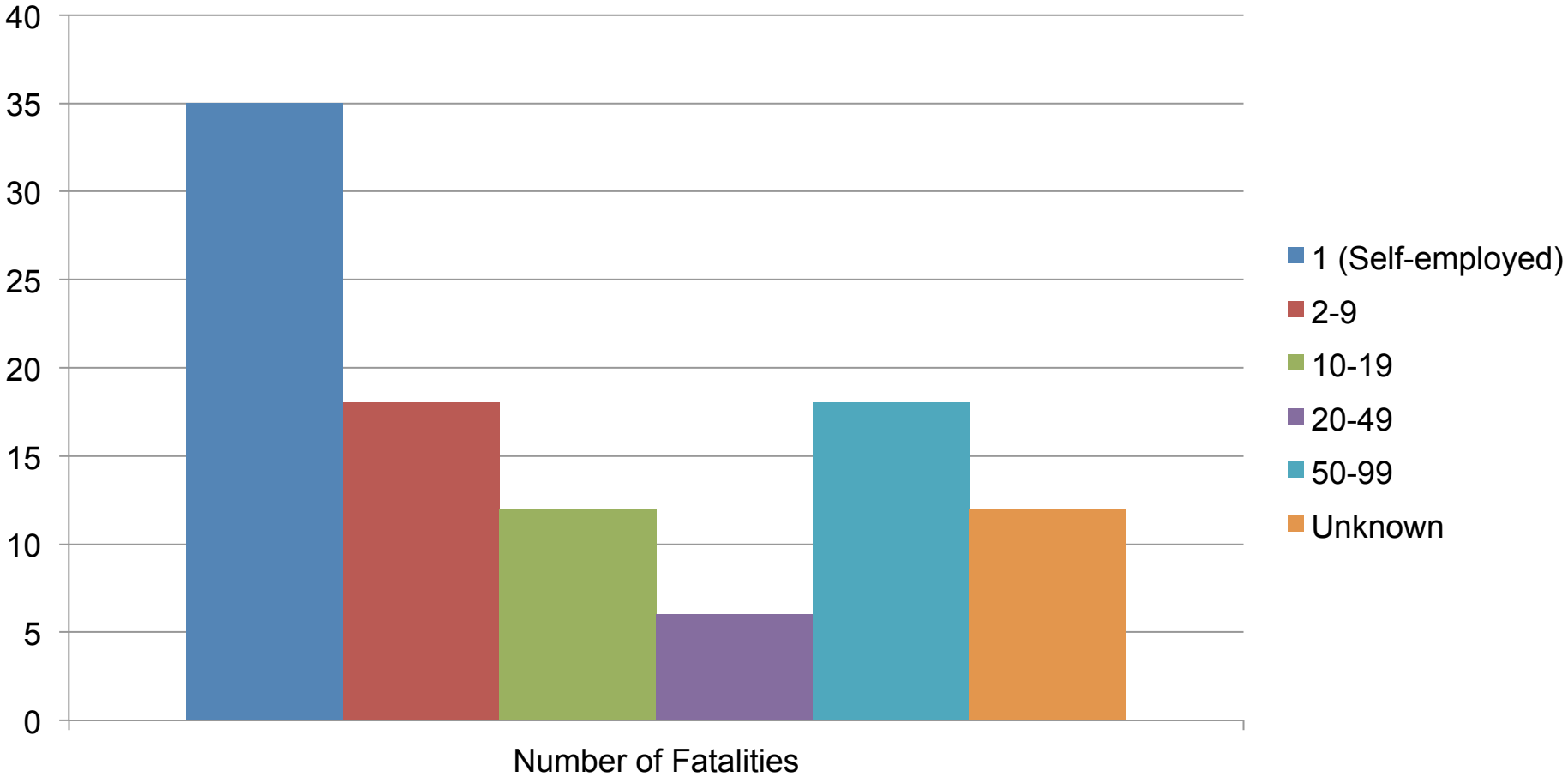
H[1]: Hazard Exposure

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



H^2: 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

H^3: Fragility

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

All events	<65	≥ 65
Yes**	5,242 (4.1)	238 (9.5)
No	123,139	2,253
Total	128,381	2,491

Transportation	<65	≥ 65
Yes**	614 (10.8)	31 (24.2)
No	5,079	97
Total	5,693	128

***p<.0001*

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)

H^4: 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

H^4: 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

Remember our 75 yr old bulldozer operator?

Hierarchy of Controls

1. Engineering & job design
2. Personnel selection, *placement*, and training
3. Feedback & motivation

Questions?

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