Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO

HSPRN
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Low Disability at Admission Predicts Faster Disablement in Long-Term Care Residents

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on behalf of Natasha Lane, PhD (MD Student)

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When I say "disability," I mean…

Needing help with **activities of daily living** (ADLs):

- *Walking*
- *Transferring*
- *Getting dressed*
- *Using the toilet*
- *Tending to personal hygiene*
- *Eating*
- *Moving around in bed*

Disablement = ↑Disability *over time*

Why study disablement in long-term care residents?

- Large & growing burden of disability, especially in long-term care[1,2]
- Disability is expensive.[3-5]
- Disablement lowers quality of life; older adults *really* don't want to be disabled.[6-8]

1. WHO, 2015: *World Report on Aging and Health*. **2**. Ontario Long Term Care Association 2014; This is Long-Term Care. **3.** Wodchis, 2013; Person-Centered Costing Using Administrative Data. **4**. Kruse et al, 2013 *J Am Geriatr Soc*; 61(11): 1909-18. **5.** Ontario Ministry of Health and Long-Term Care, 2013; Long-Term Care Homes Financial Policy **6**. Andersen et al 2004, *Health Qual Life Outcomes*; 2: 52. **7.** Kuluski et al 2013, *BMC Family Practice* 2013; 14. **8**. Fried et al 2002 *NEJM*; **346**(14): 1061-6.

Hypothesis

Long-term care residents with these exposures present at admission become disabled at a faster rate over two years:

- **balance impairment**
- **cognitive impairment** (moderate severe to severe)
- **pain** (daily or severe)
- **high disability**

Sample

12,334 residents in 633 Ontario long-term care homes followed over 2 years

- Admitted to Ontario long-term care home and received RAI-MDS admission assessment between April 1, 2011 and March 31st 2012 & at least 2 follow-up assessments.

Outcome: Disablement measure

= Changes in ADL long-form score

Number of activities you need assistance with	**Degree of assistance you need with each activity**
1. Walking (e.g. from room to room) 2. Transferring (e.g. from bed to chair) 3. Getting dressed 4. Using the toilet 5. Tending to personal hygiene 6. Eating 7. Moving around in bed **Score of 0 – 28**, assessed every 90 days in long-term care	**0:** total independence or no or little help with activity. **1**: supervision provided 3 or more times during last 7 days. **2**: limited assistance by staff with the resident highly involved in the activity. **3**: extensive assistance by staff with the resident performing part of the activity **4**: total dependence/full staff participation in activity during the entire 7 days OR activity did not occur during past 7 days.

Exposures

Test differences in rate of disablement between residents with (vs. without) the four exposures at admission to long-term care:

- **High disability**: ADL long form score in the top 50% of sample.
- **Balance impairment**: require partial physical support during an admission balance test, or unable to attempt to balance from standing without help.
- **Cognitive impairment**: RAI-MDS cognitive performance scale (range: 0 – 6) of 4, 5 or 6 at admission.
- **Pain**: assessor indicated that resident in daily or severe daily pain at admission.

Analysis

- For each exposure variable, hierarchical linear regression models were run containing a main effect of time and for each of the exposure measures (e.g. balance impairment)
- & an interaction between time and the exposure

Also included

- random intercepts for residents and LTCHs.

In each of these models, the coefficient for time represents' average rate of disablement (change in disability score) in the reference group.

Resident characteristics at admission

- Average disability score 13.0 (SD: 7.2)
- 68% female
- Average age 84 years (SD: 7.2)

Exposure	Prevalence (%)
High disability (ADL LFS 14 – 27)	50
Balance impairment	63
Moderate-severe to severe cognitive impairment	14
Daily or severe pain	17

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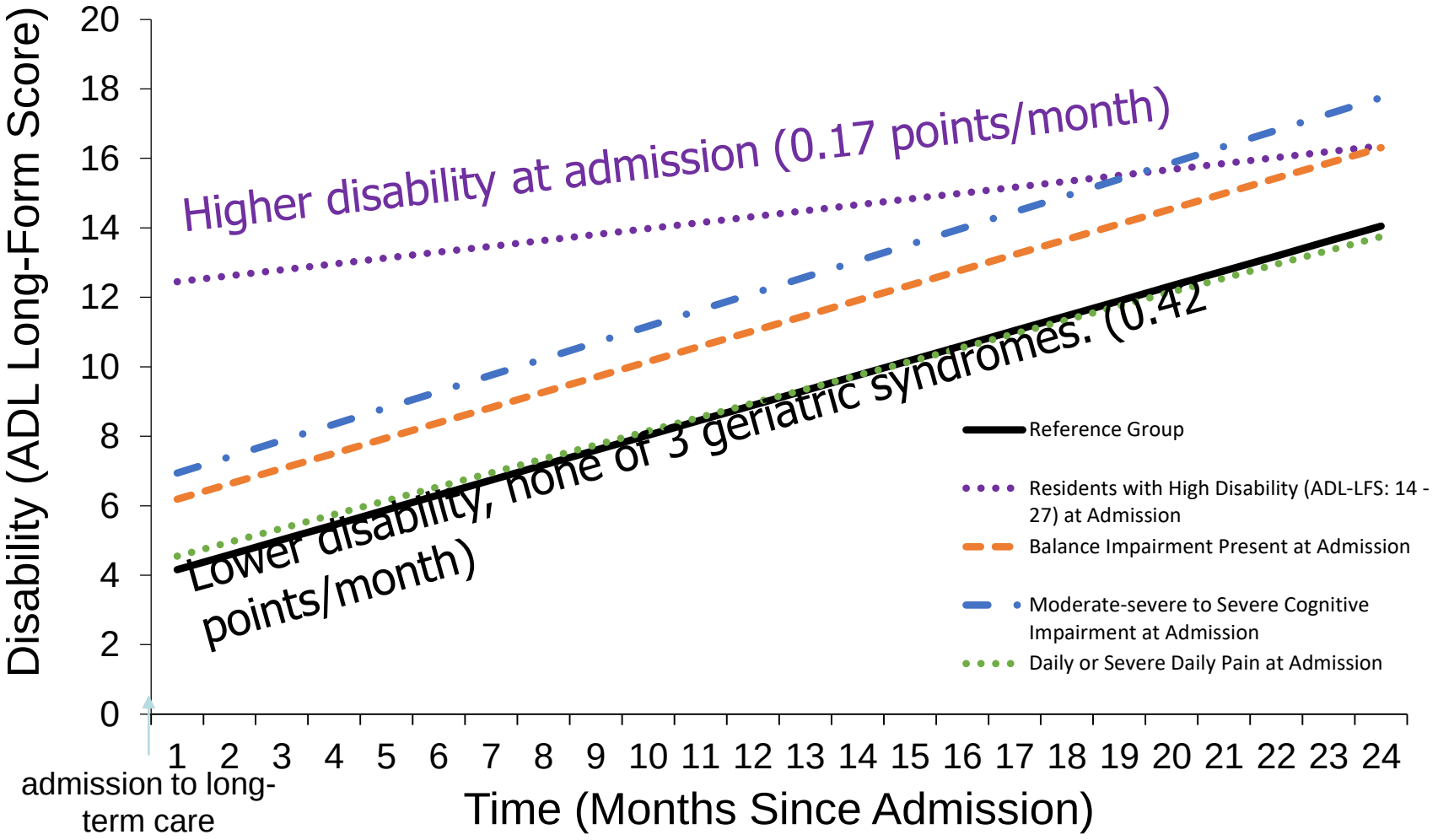

What we learned

- Residents who are more disabled at admission experience slower disablement over 2 years than residents who are less disabled at admission.

- Balance impairment, moderate-severe to severe cognitive impairment or daily or severe pain at admission had negligible effects on 2-year disablement.

Limitations

- Mortality selection (34% of sample died) disproportionately among residents with high disability and balance impairment at admission.
- Disability measure tied to funding; possibly coded up.

Next Research Steps

- Determine whether differences in rate of disablement among more or less disabled residents at baseline can be explained by differential access to rehabilitation care
- Examine effect of acute health events (e.g. falls, infection) and hospitalizations on these disablement trajectories.
- Track disablement from onset of disability in community-dwelling older adults, prior to and through admission to long-term care.

Policy & Practice Implications

- Resident and frontline staff feedback critical in interpretation of results re: payment-linked outcomes.
- Current resource allocation gives most rehab to most disabled residents at admission
  - Untapped opportunity for prevention in residents admitted with low disability

Co-Authors & Funding

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Thank you for your attention!

Questions, comments, tweets?

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