Optimizing medication in caring for seniors living with frailty: Five perspectives

Long-term care

Susan E. Bronskill, PhD

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**FRAMING-LTC**
FRAILTY AND RECOGNIZING APPROPRIATE MEDICATIONS IN GERIATRICS AND LONG-TERM CARE

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<th>PRINCIPAL INVESTIGATORS</th>
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Overview of FRAMING-LTC

Brought together a diverse group of investigators to explore the relationship between frailty and medication appropriateness in long-term care (LTC) and assisted living.

- Multiple methods
- 4 “highly qualified personnel” (trainees)
  - University of Waterloo: Kathryn Stock
  - University of Toronto: Shaul Kruger, Kieran Quinn, Marie-Claude Mainville
- Included upwards of 50 investigators, collaborators and knowledge users in carrying out key study deliverables
Scope of FRAMING-LTC

**QUANTITATIVE**
Potentially inappropriate medications (PIMs) of relevance to frail older adults
- Antipsychotics, benzodiazepines, antimicrobials, statins & cholinesterase inhibitors
- Population-based administrative data were linked and analyzed at ICES

**QUALITATIVE**
On-site chart audits directed by the administrative data
- Interviews, observations, and documents at eight LTC facilities with a focus on antipsychotics and antimicrobials
- Iterative, direct content analysis

Development of a consensus panel using modified Delphi methodology
- To identify feasible antimicrobial stewardship interventions for LTC
Our quantitative findings showed:

- Frailty exists as a spectrum in older adults, and can be assessed using clinical items readily available in population-based data
- Frailty was associated with PIM use and modified drug-related outcomes
  - Prescriber, resident, facility, and system level factors over and above frailty
  - Direction and magnitude of these associations sometimes contradict clinical expectations (i.e. frail individuals often receive more, rather than fewer PIMs)

Our qualitative work identified:

- Demonstrated a need for targeted educational interventions for all members of the circle of care (e.g. staff, residents, family members) relating to antimicrobials

Our consensus panel prioritized:

- Guidelines for empiric prescribing and communication tools were identified as the most important interventions to improve antimicrobial prescribing in LTC
ICES is an independent, not-for-profit research institute funded in part by an annual grant from the Ontario Ministry of Health and Long-Term Care (MOHLTC).

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Trajectories for LTC residents

- **Health system encounters** – at the time providers bill for services, admit-discharge or dispense
- **LTC resident assessments** – on admission and quarterly thereafter
- **Demographic information** – when report/updated
- **Provider characteristics** – when reported/updated
Trajectories for LTC residents

Submit Application
Accepted on Waiting List
LTC Entry
Trajectories for LTC residents

Submit Application  Accepted on Waiting List  LTC Entry

Acute Care Admission  Discharge  ED Visit
General Study Design for FRAMING-LTC Quantitative

Submit Application → Accepted on Waiting List → LTC Entry

Transfer to another LTC
Return to community
Death

Acute Care Admission
Discharge
ED Visit

RAI-MDS

DRUG THERAPIES

Incidence
Prevalence
The Variation of Statin Use Among Nursing Home Residents and Physicians: A Cross-Sectional Analysis

Michael A. Campitelli, MPH, Colleen J. Maxwell, PhD, Vasily Giannakeas, MPH, Chaim M. Bell, MD, PhD, Nick Daneman, MD, MSc, Lianne Jeffs, RN, PhD, FAAN, Andrew M. Morris, MD, SM(Epi), Peter C. Austin, PhD, David B. Hogan, MD, Dennis T. Ko, MD, MSc, Kate L. Lapane, PhD, Laura C. MacLagan, MSc, Dallas P. Seitz, MD, PhD, and Susan E. Bronskill, PhD


Statin prescribing was substantial within nursing homes, even among frail residents. After controlling for resident characteristics, the likelihood of statin prescribing varied significantly across physicians. Further studies are required to evaluate the risks and benefits of statin use, and discontinuation, among nursing home residents to better inform clinical practice in this setting.
Figure 1. Proportion of prevalent statin users among Ontario nursing home residents between April 1, 2013 and March 31, 2014, overall and by resident frailty.
Figure 2. Funnel plot of the proportion of residents receiving a statin for each nursing home physician assigned 20 or more nursing home residents between April 1, 2013 and March 31, 2014. Panel A is unadjusted for resident characteristics and Panel B is adjusted for resident characteristics.
New use of low-dose trazodone was no safer against a risk of a fall-related injury than new use of benzodiazepines. Additional studies to assess the comparative effectiveness and risks of low-dose trazodone compared to a variety of psychotropic drug therapies are required, in light of increasing trends in the use of this drug in the nursing home environment.
Trends in the prevalence of trazodone and benzodiazepines dispensed to residents of nursing homes in Ontario from January 1, 2007 to March 31, 2015, by quarter year.
Cumulative incidence functions for fall-related injuries in Ontario residents of nursing homes dispensed low-dose trazodone compared to a benzodiazepine between April 1, 2010 and March 31, 2015
Predictors of cholinesterase discontinuation during the first year after nursing home admission

Laura C. Maclagan, MSc, Susan E. Bronskill, PhD, Jun Guan, MSc, Michael A. Campitelli, MPH, Nathan Herrmann, MD, Kate L. Lapane, PhD, David B. Hogan, MD, Joseph E. Amuah, PhD, Dallas P. Seitz, MD, PhD, Sudeep S. Gill, MD, MSc, Colleen J. Maxwell, PhD

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Less than one-fifth of residents on a ChEI at admission discontinued use during the following year. While some of the predictors of discontinuation align with past research and current clinical recommendations, others were unexpected and point to novel drivers of ChEI use. Future investigations should explore the varied reasons underlying these associations and resident outcomes associated with ChEI discontinuation.
Pattern of ChEI use at admission and during 1-year follow-up among older adults with dementia newly admitted to a nursing home in Ontario, Canada, by frailty status

Pattern of ChEI use at admission and during 1-year follow-up among older adults with dementia newly admitted to a nursing home in Ontario, Canada, by frailty status

- **Non-Frail**
  - Not on ChEI at admission or follow-up: 51.8%
  - On ChEI at admission & maintained: 34.8%
  - On ChEI at admission & discontinued*: 5.9%
  - Started ChEI following admission*: 7.5%

- **Pre-Frail**
  - Not on ChEI at admission or follow-up: 55.5%
  - On ChEI at admission & maintained: 31.6%
  - On ChEI at admission & discontinued*: 6.7%
  - Started ChEI following admission*: 6.1%

- **Frail**
  - Not on ChEI at admission or follow-up: 61.1%
  - On ChEI at admission & maintained: 27.0%
  - On ChEI at admission & discontinued*: 6.5%
  - Started ChEI following admission*: 5.3%
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<th>Author</th>
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<td>9) Development of a frailty index for long-term care and home care populations using Resident Assessment Instrument (RAI) data</td>
<td>Prepared For: Joseph E. Amuah, PhD, Senior Researcher, Health System Performance Branch, Canadian Institute for Health Information</td>
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Thoughts for Discussion

Over and above frailty, there are other important resident-level factors (including select sociodemographic characteristics, severity of cognitive status and behaviours) that drive rates of PIM use.

Over and above frailty, there are important prescribing physician-level factors (including historical prescribing tendencies and sex) that drive rates of PIM use.

- The direction, and magnitude of the impact of these drivers on PIM is sometimes consistent with expectations regarding frailty and sometimes not, and depends on drug class.
ACKNOWLEDGEMENTS

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