

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

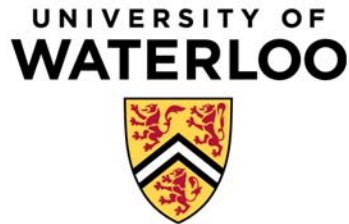
Long-term care



Susan E. Bronskill, PhD

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



PRINCIPAL INVESTIGATORS

Chaim M. Bell MD PhD

Susan E. Bronskill PhD

Lianne Jeffs PhD

Colleen J. Maxwell PhD

Andrew M. Morris MD SM

RESEARCH STAFF

Michael A. Campitelli MSc

Christina Diong MSc

Vasily Giannakeas MSc

Jun Guan, MSc

Laura C. Maclagan, MSc

CO-INVESTIGATORS

Joseph Amuah PhD

Peter C. Austin PhD

Nick Daneman MD MSc

Sudeep S. Gill MD MSc

Andrea Gruneir PhD

David B. Hogan MD

Kate Lapane PhD

Dallas Seitz MD PhD

Gary Teare PhD

Kednapa Thavorn PhD

Walter P. Wodchis PhD

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

Key Findings from FRAMING-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

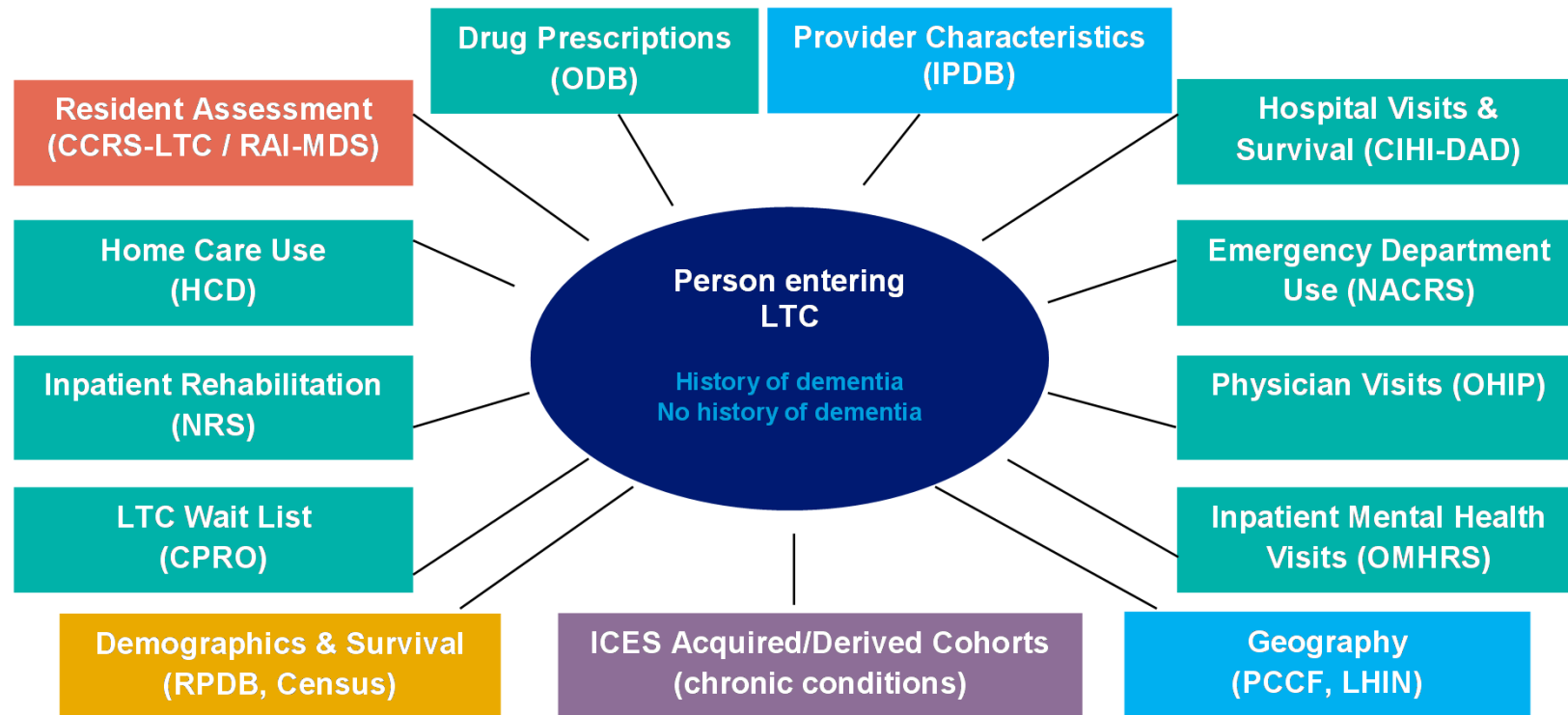
Institute for Clinical Evaluative Sciences (ICES)

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).

Named as a **prescribed entity** under Ontario's Personal Health Information Protection Act and uses multiple security measures to protect the health information entrusted to the organization.



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



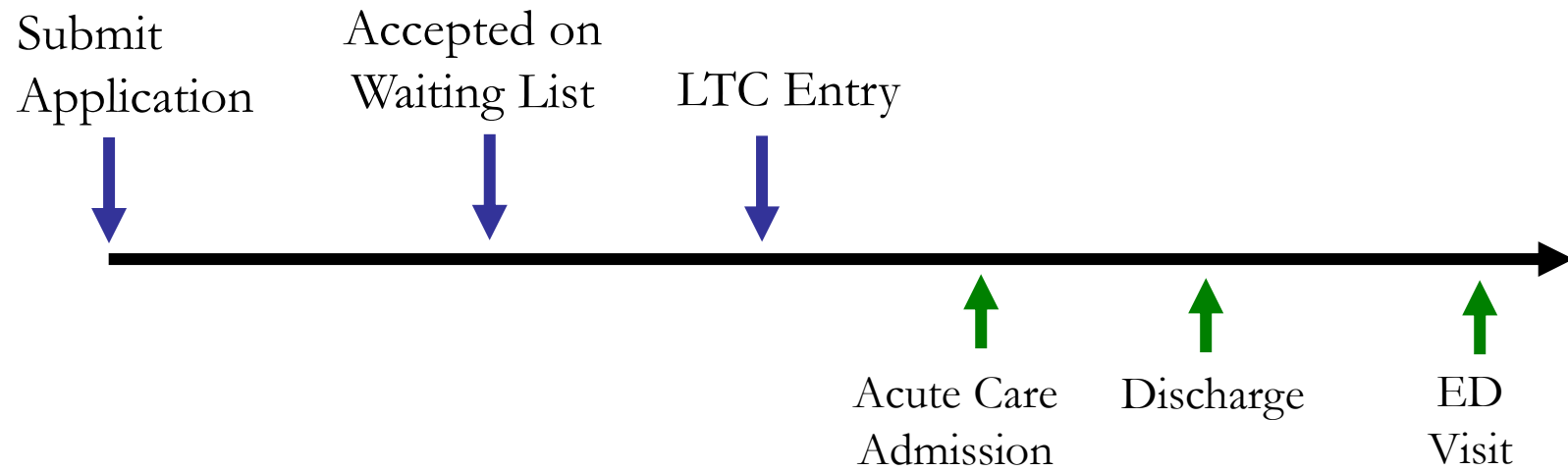
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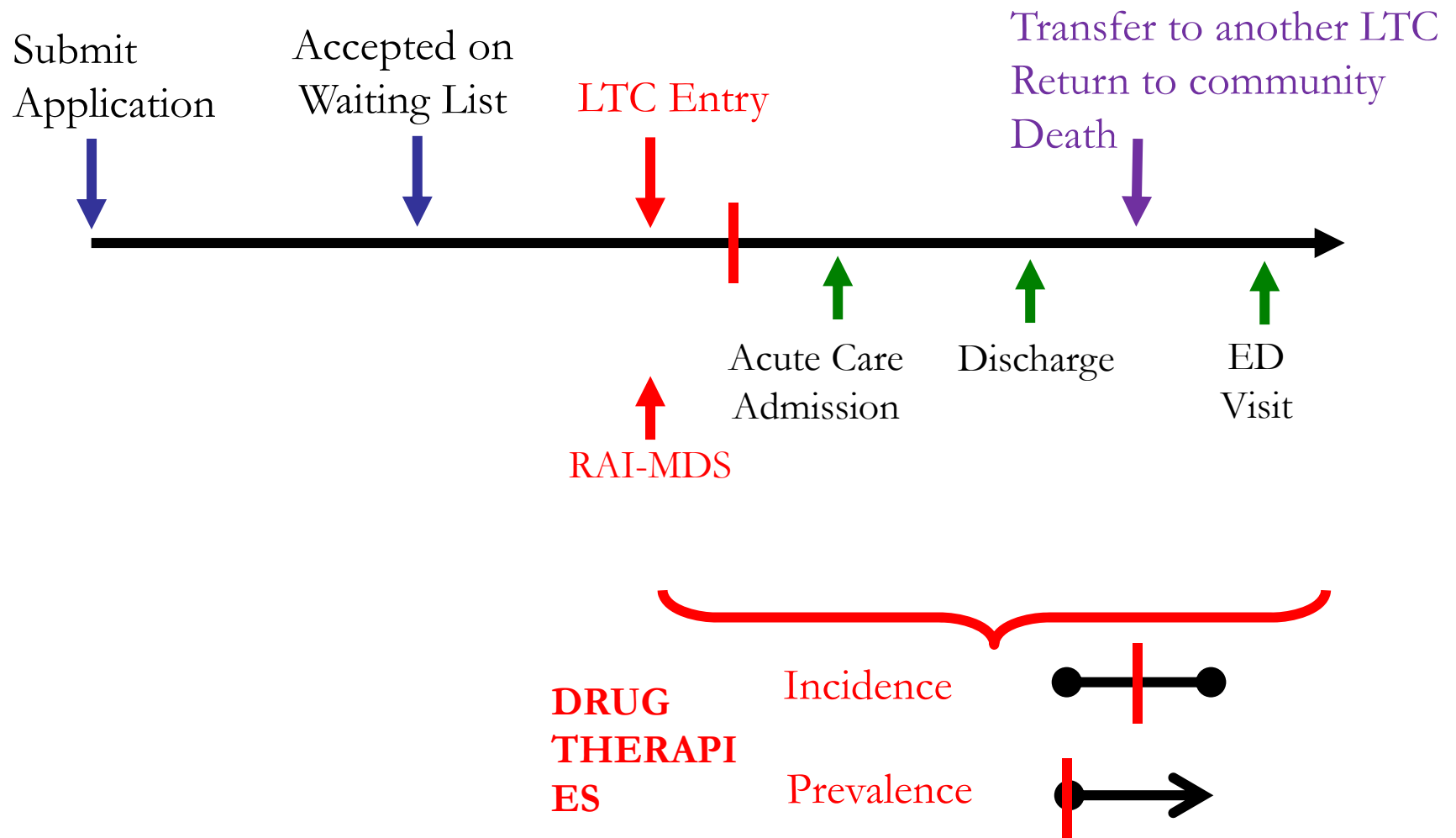
LTC Entry



Trajectories for LTC residents



General Study Design for FRAMING-LTC Quantitative



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

Michael A. Campitelli, MPH,^a Colleen J. Maxwell, PhD,^{a,b} Vasily Giannakeas, MPH,^a Chaim M. Bell, MD, PhD,^{a,c,d} Nick Daneman, MD, MSc,^{a,c,e,f} Lianne Jeffs, RN, PhD, FAAN,^{f,g,b} Andrew M. Morris, MD, SM(Epi),^{c,d} Peter C. Austin, PhD,^{a,f,i} David B. Hogan, MD,^j Dennis T. Ko, MD, MSc,^{a,c,f,i,k} Kate L. Lapane, PhD,^l Laura C. Maclagan, MSc,^a Dallas P. Seitz, MD, PhD,^{a,m} and Susan E. Bronskill, PhD^{a,f,i}

J Am Geriatr Soc 2017 Sep;65(9):2044-2051, <https://doi.org/10.1111/jgs.15013>

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.

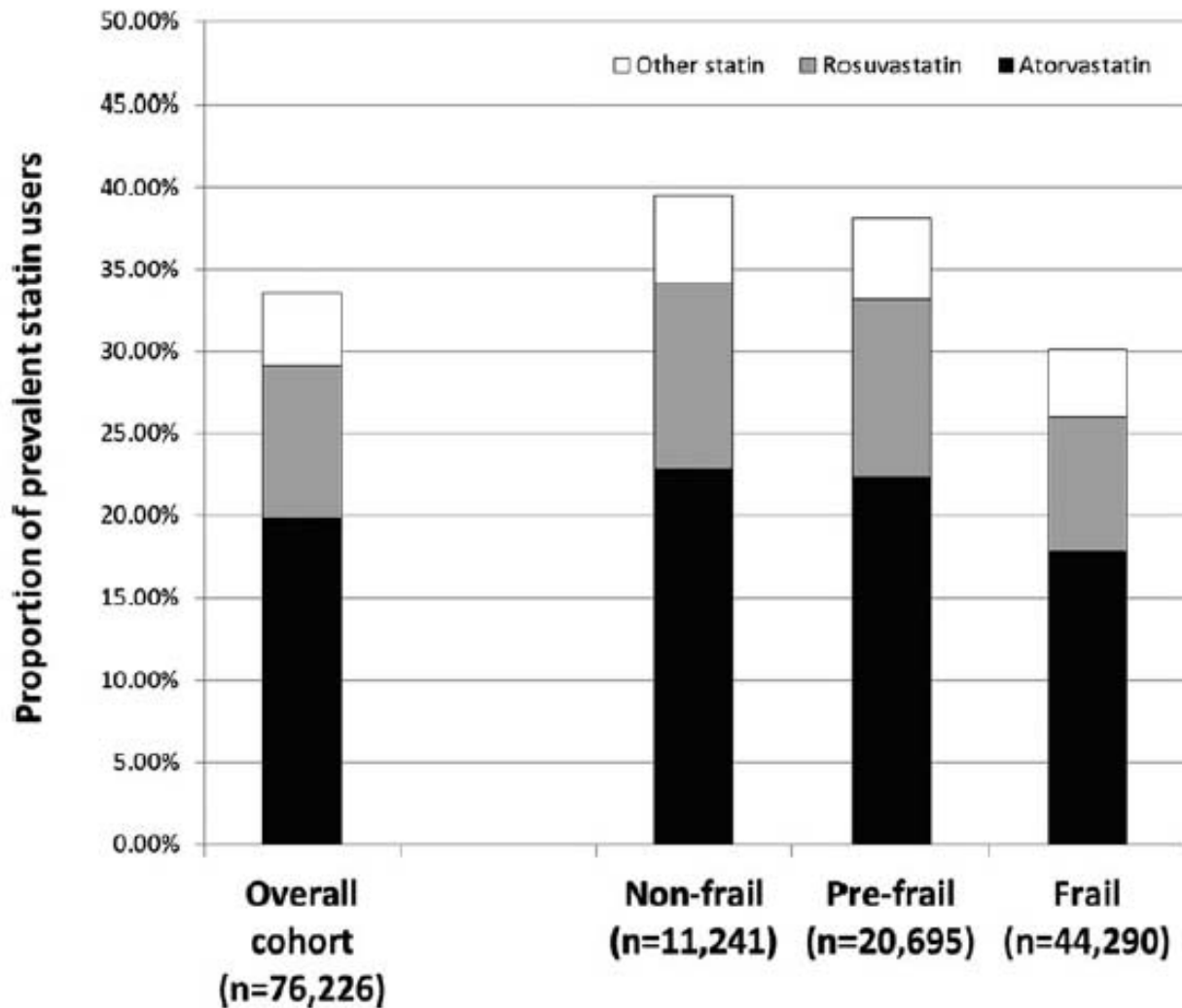


Figure 1. Proportion of prevalent statin users among Ontario nursing home residents between April 1, 2013 and March 31, 2014, overall and by resident frailty.

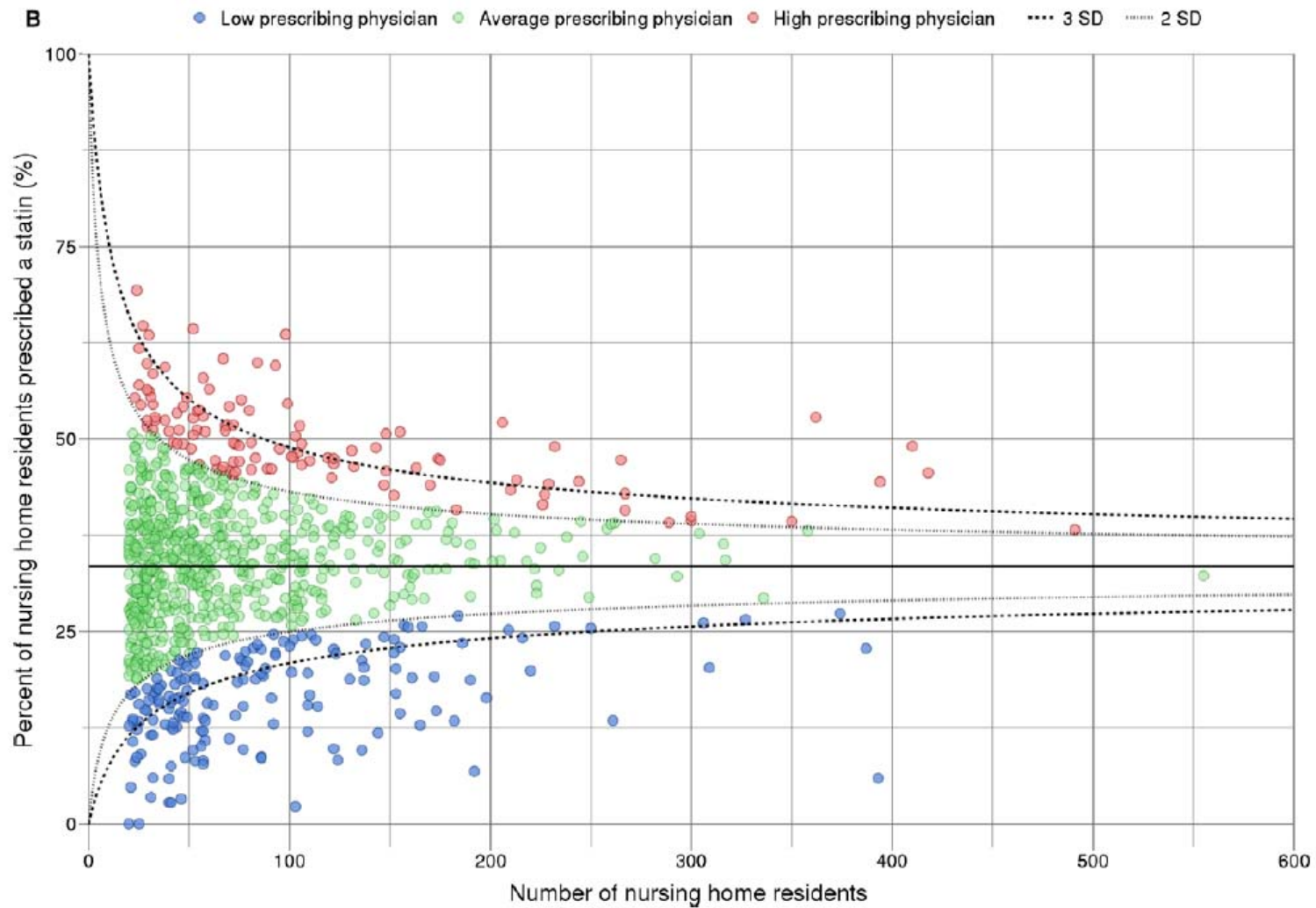


Figure 2. Funnel plot of the proportion of residents receiving a statin for each nursing home physician assigned 20 or more nursing home residents between April 1, 2013 and March 31, 2014. Panel A is unadjusted for resident characteristics and Panel B is adjusted for resident characteristics.

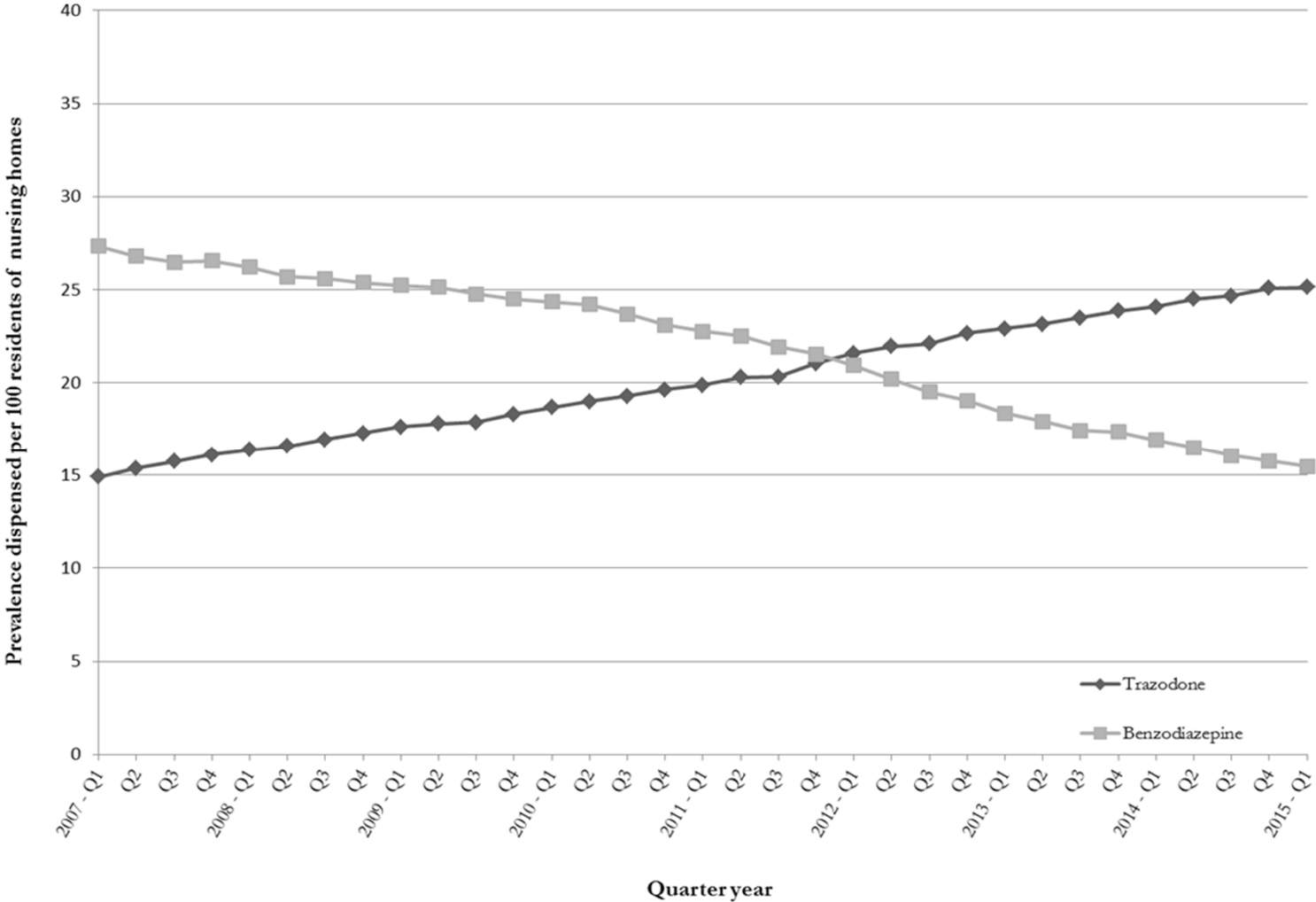
Low-dose trazodone, benzodiazepines & fall-related injuries in nursing homes: a matched cohort study

Susan E Bronskill PhD, Michael A Campitelli MPH, Andrea Iaboni MD, Nathan Herrmann MD, Jun Guan MSc, Laura C Maclagan MSc, Jennifer Watt MD, Paula A Rochon MD, MPH, Andrew M Morris MD, SM, Lianne Jeffs RN, PhD, Chaim M Bell MD, PhD, Colleen J Maxwell PhD

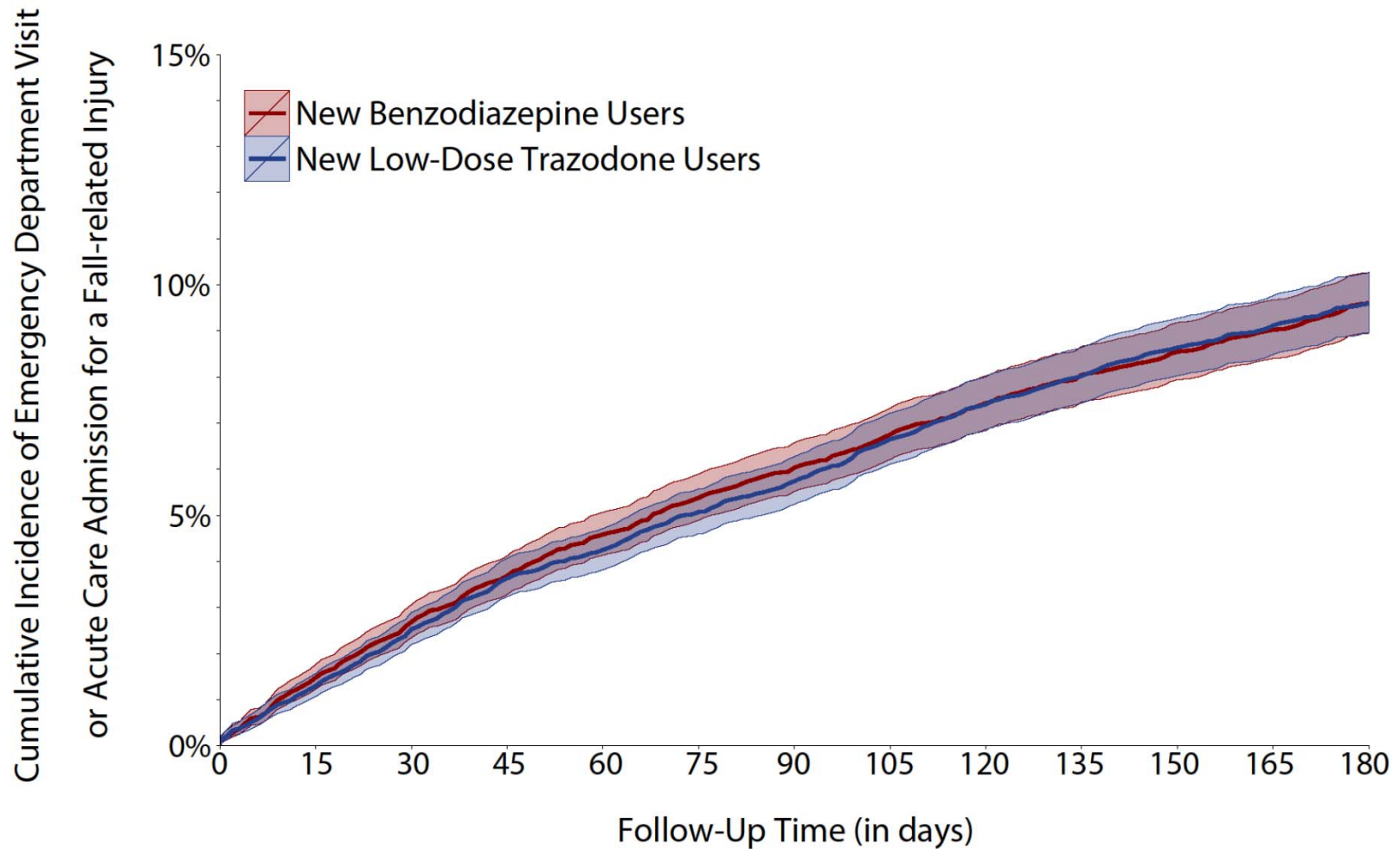
J Am Geriatr Soc 2018, in press.

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



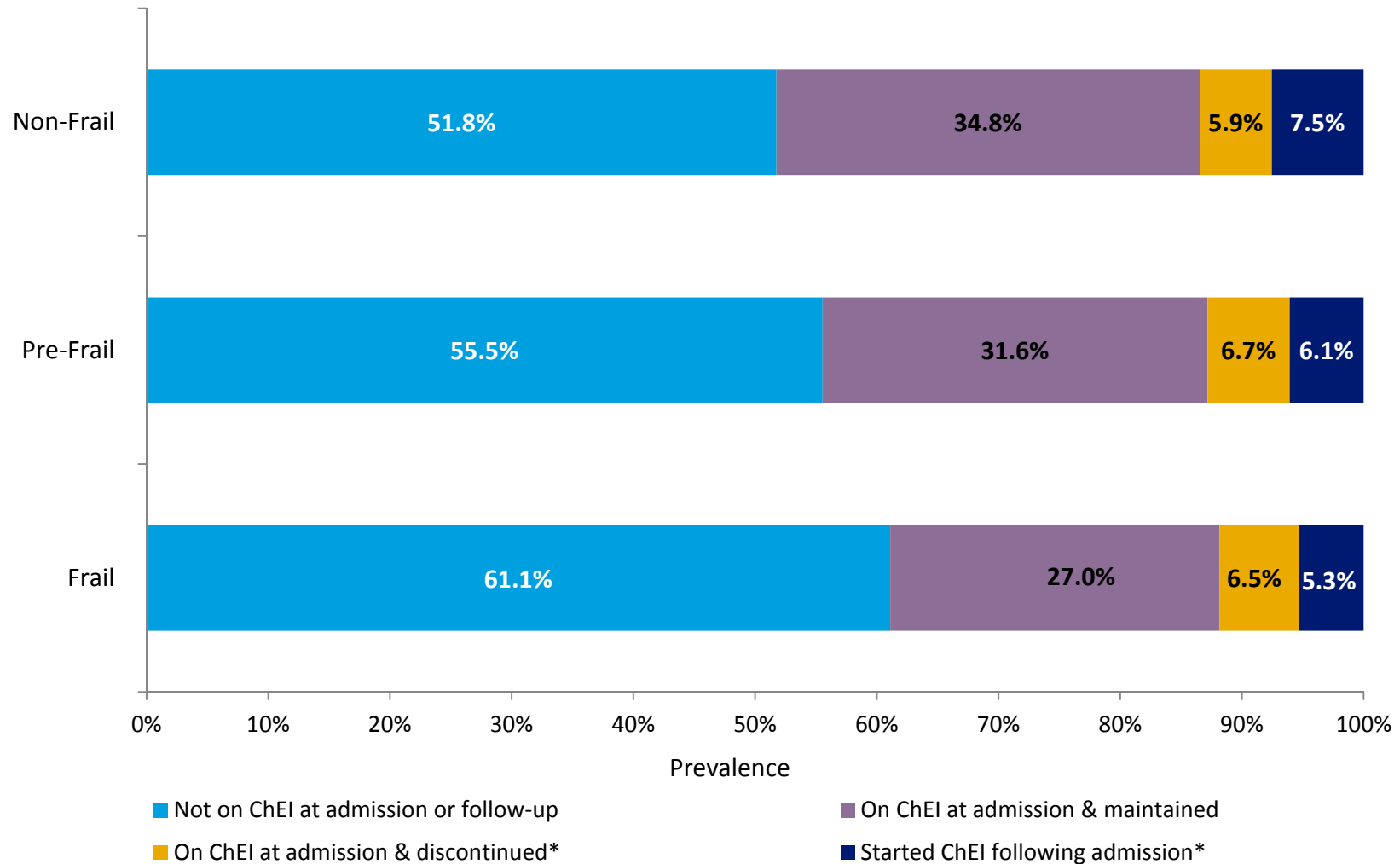
Predictors of cholinesterase discontinuation during the first year after nursing home admission

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

JAMDA 2018, in press.

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



Title	Journal Name	Author	Publication Info
1) The Variation of Statin Use Among Nursing Home Residents and Physicians: A Cross-Sectional Analysis.	Journal of the American Geriatrics Society (JAGS)	Campitelli MA, Maxwell CJ, Giannakeas V, Bell CM, Daneman N, Jeffs L, Morris AM, Austin PC, Hogan DB, Ko DT, Lapane KL, Maclagan LC, Seitz DP, Bronskill SE	2017 Sep;65(9):2044-2051
2) Frailty and Potentially Inappropriate Medication Use at Nursing Home Transition.	Journal of the American Geriatrics Society (JAGS)	Maclagan LC, Maxwell CJ, Gandhi S, Guan J, Bell CM, Hogan DB, Daneman N, Gill SS, Morris AM, Jeffs L, Campitelli MA, Seitz DP, Bronskill SE.	2017 Oct;65(10)2205-2212
3) Antipsychotic Use and Hospitalization Among Older Assisted Living Residents: Does Risk Vary by Frailty Status?	The American Journal of Geriatric Psychiatry	Stock KJ, Hogan DB, Lapane K, Amuah JE, Tyas SL, Bronskill SE, Morris AM, Bell CM, Jeffs L, Maxwell CJ.	2017 Jul;25(7):779-790
4) Influences on the start, selection and duration of treatment with antibiotics in long-term care facilities.	Canadian Medical Association Journal	Daneman N, Campitelli MA, Giannakeas V, Morris AM, Bell CM, Maxwell CJ, Jeffs L, Austin PC, Bronskill SE.	2017 Jun 26;189(25):E851-E860
5) Prevalence of, and resident and facility characteristics associated with antipsychotic use in assisted living vs. long-term care facilities: a cross-sectional analysis from Alberta, Canada.	Drugs and Aging	Stock KJ, Amuah JE, Lapane KL, Hogan DB, Maxwell CJ.	2017 Jan;34(1):39-53.
6) Risk of fall-related injuries in residents of nursing homes receiving low-dose trazodone compared to benzodiazepines: a matched cohort study	Journal of the American Geriatrics Society (JAGS)	Bronskill SE, Campitelli MA, Iaboni A, Herrmann N, Guan J, Maclagan LC, Watt J, Rochon PA, Morris AM, Jeffs L, Bell CM, Maxwell C	2018, in press
7) Frailty and other predictors of cholinesterase inhibitor use and discontinuation during transition to nursing home: a population-based cohort study	JAMDA	Maclagan LC, Bronskill SE, Guan J, Campitelli MA, Herrmann N, Lapane KL, Hogan DB, Amuah JE, Seitz DP, Gill SS, Maxwell CJ	2018, in press
8) Survival among older residents of nursing homes prescribed intensive-dose and moderate-dose statins: a propensity-score matched cohort study	Submitted	Campitelli MA, Maxwell CJ, Maclagan LC, Ko DT, Bell CM, Jeffs L, Morris AM, Lapane KL, Daneman N, Bronskill SE	Responding to reviewers
9) Development of a frailty index for long-term care and home care populations using Resident Assessment Instrument (RAI) data	<u>Prepared For:</u> Joseph E. Amuah, PhD, Senior Researcher, Health System Performance Branch, Canadian Institute for Health Information		

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



**Canadian
Frailty
Network**

**Réseau canadien
des soins aux
personnes fragilisées**

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