

Benzodiazepine prescribing patterns across Ontario long-term care homes

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2013 Annual CAHSPR Conference, Vancouver, BC

Broad objectives for today

- **Review findings from our research to date**
 - Motivation behind our work
 - Discuss plans for future work from a LTC perspective
- **Discussion**
 - In studies that examine variation in drug therapy use across facilities:
 - What factors are important to consider?
 - What role do transitions in care play?
 - Can this research inform interventions and quality improvement planning?

About ICES

- Independent, non-profit organization with core funding from the Ontario Ministry of Health and Long-Term Care
- Research supports health policy development and guides changes to the organization and delivery of health care services
 - population-based health information reflects ~ 13 million of 33 million Canadians
 - linked databases include administrative, survey & primary data collection
 - prescribed entity under provincial privacy legislation
- Able to follow patient populations through the health system diagnosis and treatment, and evaluate outcomes

Background

- Benzodiazepines are a class of psychoactive medications with well-documented sedative effects
- Benzodiazepines are commonly prescribed in the LTC setting for anxiety and sleep disorders
- In older adults, benzodiazepines have been shown to be associated with risk of falls & fall-related injuries, patient confusion and dependence
- An important component of any large-scale effort to improve prescribing practices in LTC homes is the ability to measure and report on the quality of drug prescription

Facility variation studies in LTC

ORIGINAL INVESTIGATION

Variation in Nursing Home Antipsychotic Prescribing Rates

Paula A. Rochon, MD, MPH; Therese A. Stukel, PhD; Susan E. Bronskill, PhD; Tara Gomes, MHS; Kathy Sykora, MSc; Walter P. Wodchis, PhD; Michael Hillmer, MSc; Alexander Kopp, BA; Jerry H. Gurwitz, MD; Geoffrey M. Anderson, MD, PhD

Background: Excessive prescribing of antipsychotic therapy is a concern owing to their potential to cause serious adverse events. We explored variation in the use of antipsychotic therapy across nursing homes in Ontario, Canada, and determined if prescribing decisions were based on clinical indications.

Methods: A point-prevalence study of antipsychotic therapy use in 47 322 residents of 485 provincially regulated nursing homes in December 2003. Facilities were classified into quintiles according to their mean antipsychotic prescribing rates. Residents were grouped into those with a potential clinical indication or no identified clinical indication for antipsychotic therapy.

Results: A total of 15 317 residents (32.4%) were dispensed an antipsychotic agent. The mean rate of antipsychotic prescribing by home ranged from 20.9% in the quintile of facilities with the lowest mean prescribing rates (quintile 1) to 44.3% in facilities with the highest mean pre-

scribing rates (quintile 5). Compared with individuals residing in nursing homes with the lowest mean antipsychotic prescribing rates, those residing in facilities with the highest rates were 3 times more likely to be dispensed an antipsychotic agent (adjusted odds ratio [AOR], 3.0; 95% confidence interval [CI], 2.74-3.19). Similar rates were observed among residents with psychoses with or without dementia (AOR, 2.7; 95% CI, 2.35-3.09) and residents without psychoses or dementia (AOR, 2.9; 95% CI, 2.19-3.81) who had no identifiable indication for an antipsychotic therapy.

Conclusion: Residents in facilities with high antipsychotic prescribing rates were about 3 times more likely than those in facilities with low prescribing rates to be dispensed an antipsychotic agent, irrespective of their clinical indication.

Arch Intern Med. 2007;167:676-683

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CONCERN HAS BEEN EXPRESSED for 2 decades about inappropriate and widespread prescribing of antipsychotic therapy in nursing homes.^{1,2} Serious adverse events were associated with conventional antipsychotic agents including falls,³ hip fracture,⁴ and parkinsonism.⁵ These older agents were frequently administered to frail older adults, often by untrained staff unaware of these safety issues.⁶ To respond to this misuse of antipsychotic therapies, the US federal government passed nursing home reform legislation called the Omnibus Budget Reconciliation Act of 1987 (OBRA-87) as part of a plan to address quality issues related to mental health care. Following the implementation of this legislation in 1990, use of conventional antipsychotic agents in nursing homes decreased from 24% to 17%, without any documented detrimental effect to residents.⁷

In the 1990s, the newer "atypical" antipsychotic therapies were introduced. These agents were thought to be safer than the earlier conventional antipsychotic therapy, leading to widespread use of the atypical agents in nursing homes.^{8,9} One Canadian study found that a quarter of residents newly admitted to a nursing home in 2000 were dispensed an antipsychotic agent within a year of their admission.⁹ More recently, serious safety concerns were linked to these newer agents. Atypical agents were associated with parkinsonism¹⁰ and other movement disorders¹¹ in a fashion that parallels those identified with the older conventional agents.¹⁰ Furthermore, these agents have been linked to death.^{12,13} Health Canada¹⁴ and the Food and Drug Administration have issued warnings about their use.¹⁵ Given these important safety concerns, use of antipsychotic therapy should generally be reserved for situations in which the benefit outweighs the risk. Specifi-

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676

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Facility variation studies in LTC

ORIGINAL INVESTIG

December 2004



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Improving the Quality of Drug Management

of Saskatchewan Seniors in Long-Term Care



Technical Appendix

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Facility variation studies in LTC

ORIGINAL INVESTIGATOR

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Improving the Quality of Drug Management in Long-Term Care of Saskatchewan



Technical



QUALITY MONITOR
HEALTH QUALITY ONTARIO

2012 REPORT ON ONTARIO'S HEALTH SYSTEM

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Study objectives

- Inappropriate use of benzodiazepines for the elderly is well-documented in the literature
- Highlighting prescribing patterns across LTC homes, and factoring in physician and facility characteristics, might help to target effective education interventions

Objectives

- To quantify rates of benzodiazepine use among a cohort of older adults newly admitted to LTC
- To identify resident, physician and facility characteristics associated with high rates of use
- To explore different patterns of benzodiazepine use

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Methods

Design

Retrospective, population-based cohort study

- 57,504 adults age 66+ years and newly admitted to 622 Ontario LTC homes between April 1, 2005 and September 30, 2009
- benzodiazepines prescribed by 2,190 physicians
- exclude residents with diagnosis of alcoholism or in palliative care in previous 2 years

Data

LTC wait list data (CPRO) to identify the cohort and linked to:

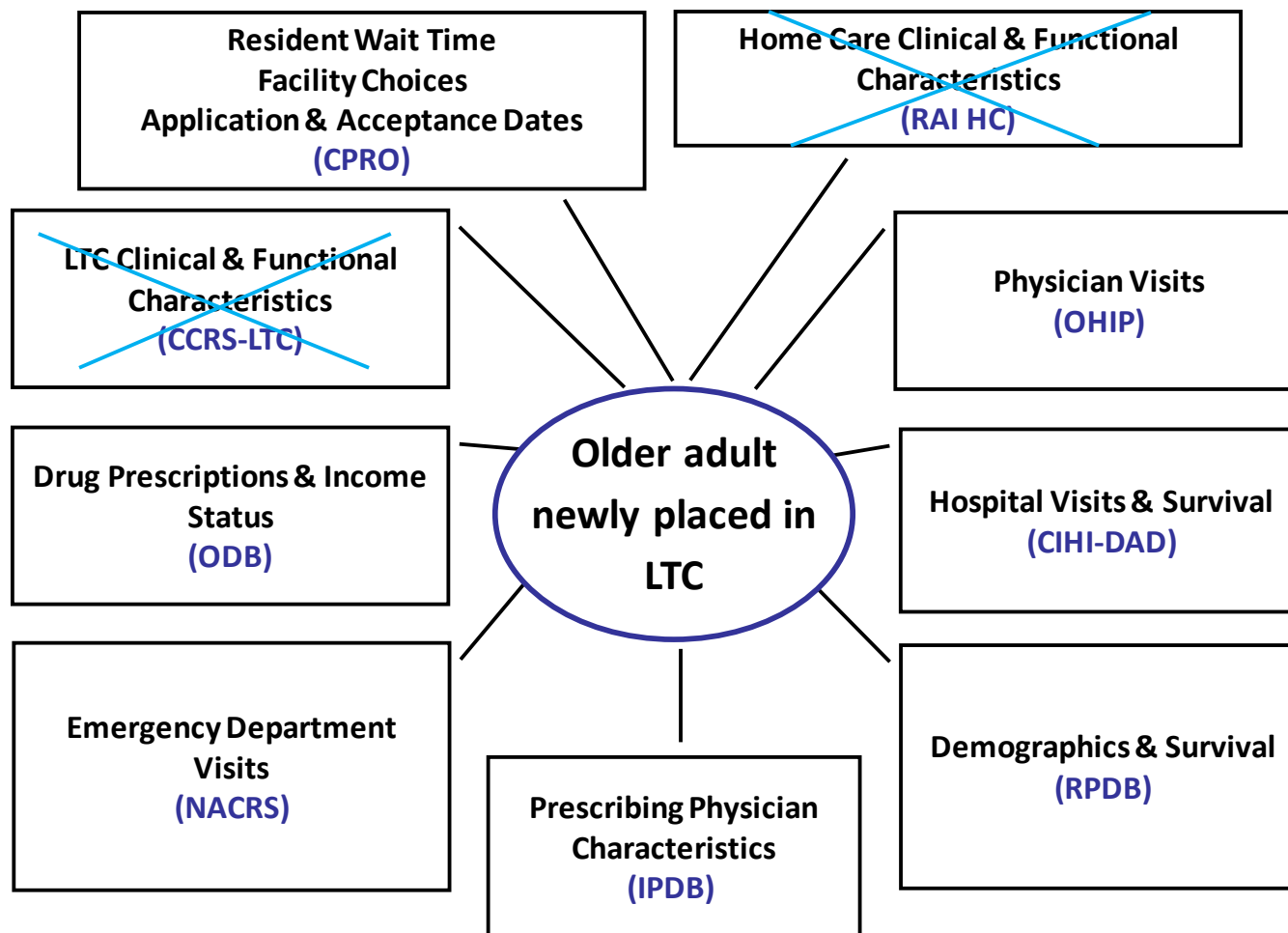
- emergency department use (NACRS), physician services (OHIP), drug therapies (ODB), demographics (RPDB), inpatient (DAD, NRS, CCRS), physician characteristics (IPDB), facility characteristics (OCCM)

Methods

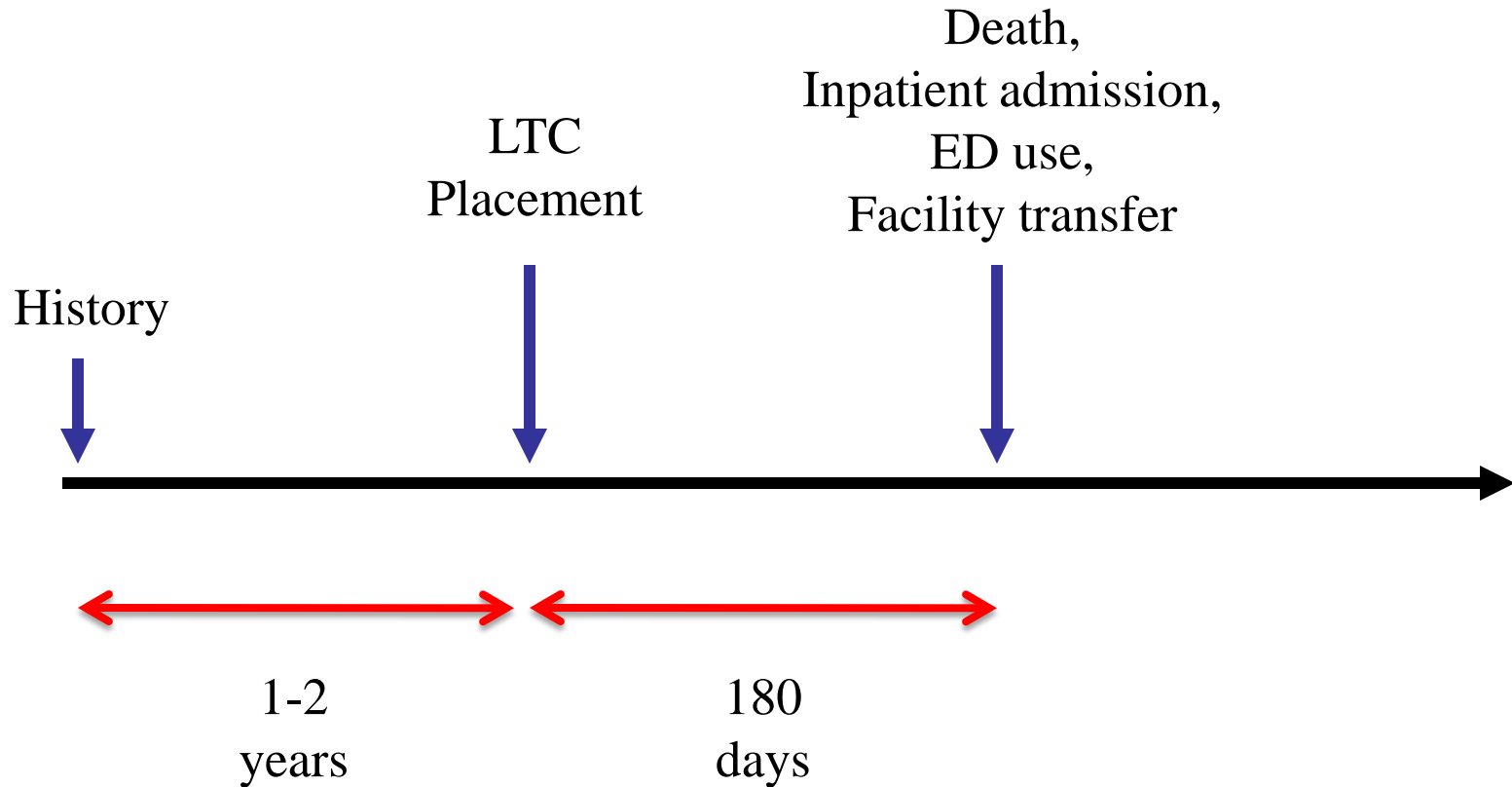
Analysis

- Look backward from placement date to:
 - identify previous use of benzodiazepines
 - document past health system use and diagnoses
- Look forward from placement date to:
 - follow residents for 180 days censoring for death, emergency department visits, inpatient admissions, facility transfer
 - quantify benzodiazepine prescribing patterns
- Characterize benzodiazepine use
 - High dose (Saskatchewan Health Quality Council)
 - Long duration (> 30 days)
 - Chronic use (3 scripts in 1 year & minimum 100 pills)

Tracking LTC residents through the system



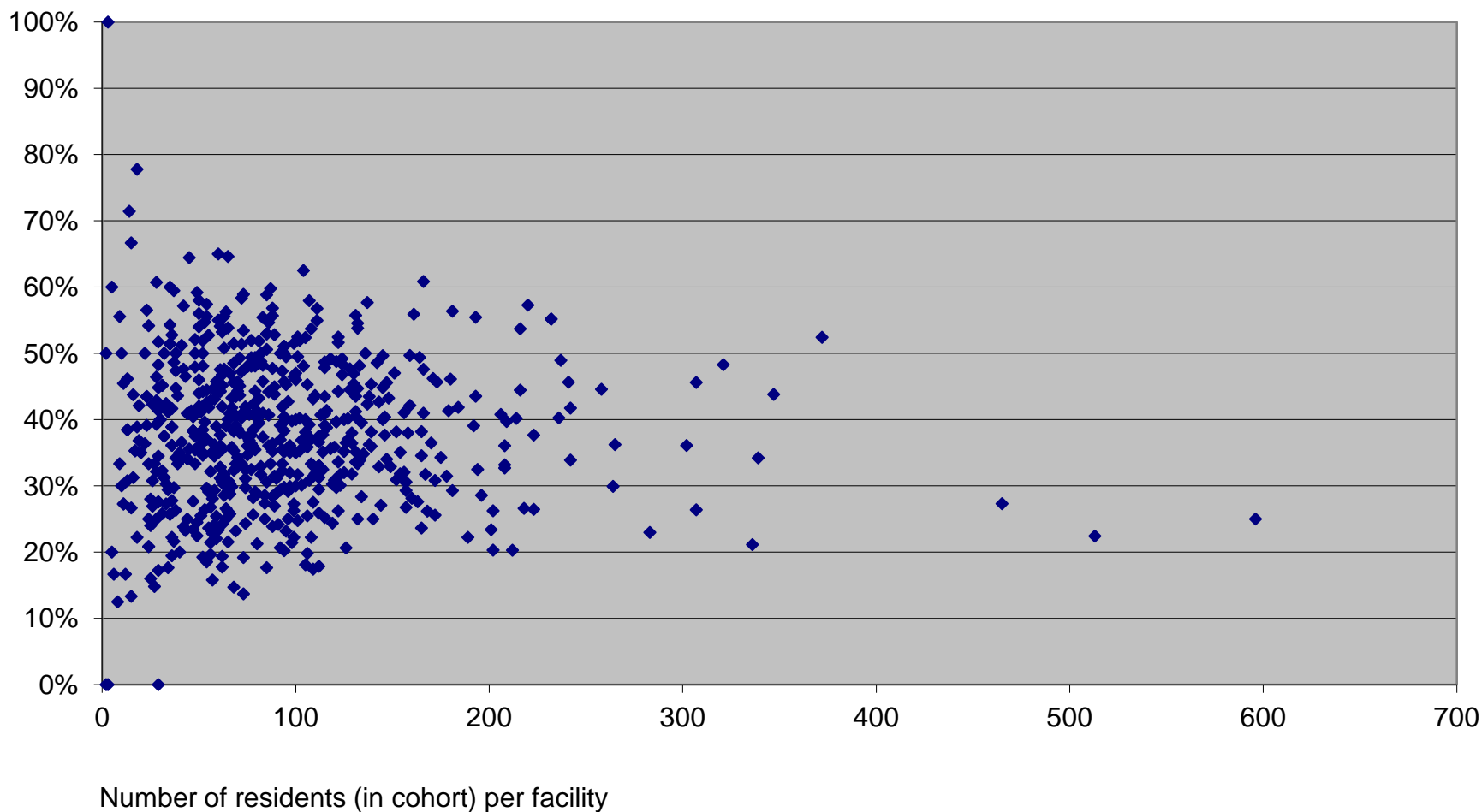
Cohort timeline



Research considerations

- **Challenges**
 - Limited ability to make causal statements
 - Timeliness of administrative data
 - Very limited data on reason for prescription
 - Who is accountable at each time point?
- **Opportunities**
 - Ability to replicate over time and across facilities
 - Additional data increasingly available

Rates of benzodiazepine use across LTC facilities in Ontario

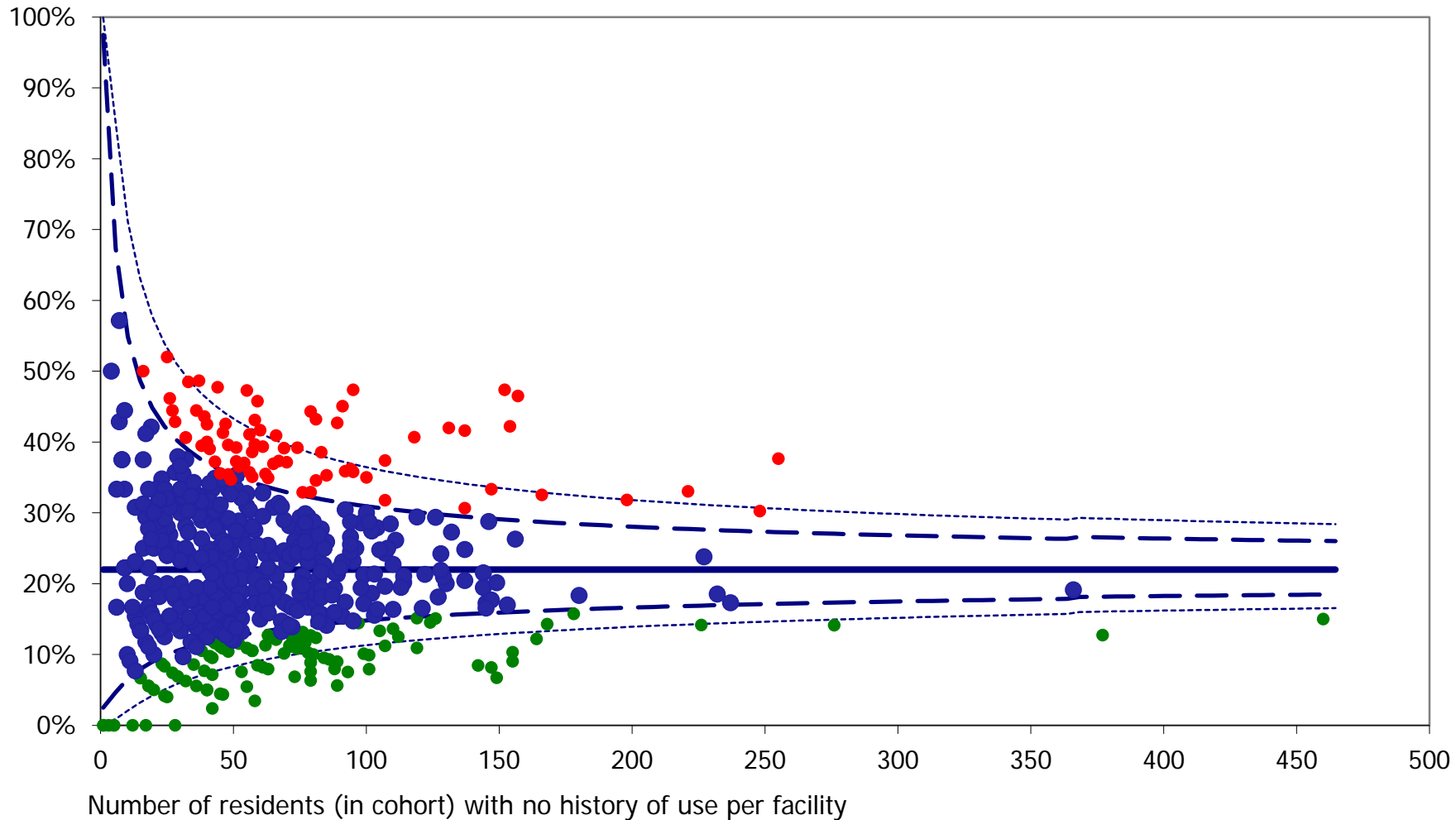


Use of benzodiazepines after admission

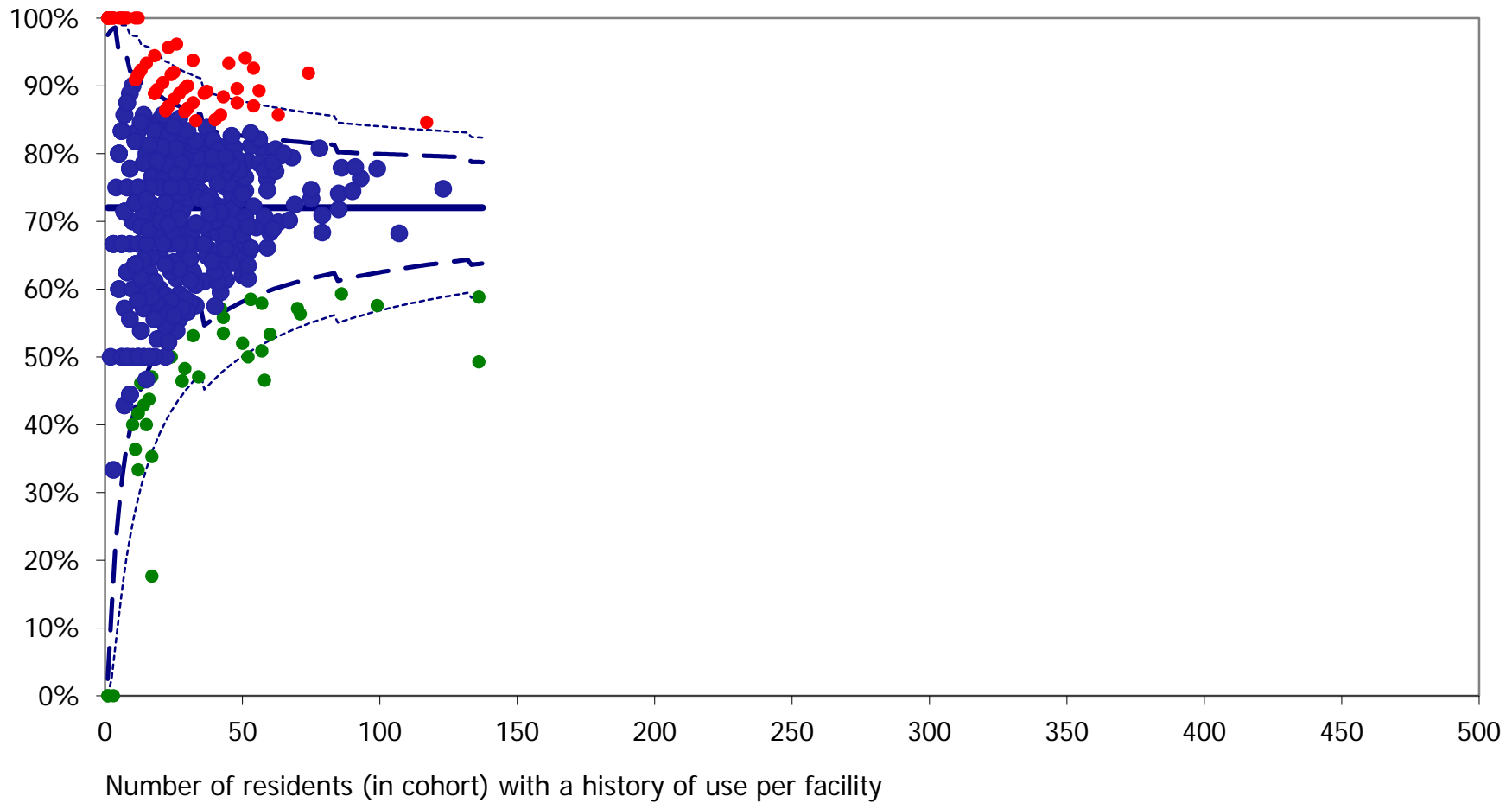
- 38% (21,823) of newly admitted residents received a benzodiazepine within 180 days
 - 22.3% (8,769) among those with no history of use
 - 71.6% (13,504) among those with history of use

Prior Year / After	No Benzo	Benzo	Total
No History	77.7%	22.3%	39,272
History	28.4%	71.6%	18,232
Overall	62.0%	38.0%	57,504

Rates of benzodiazepine use across LTC facilities among residents with no history of use



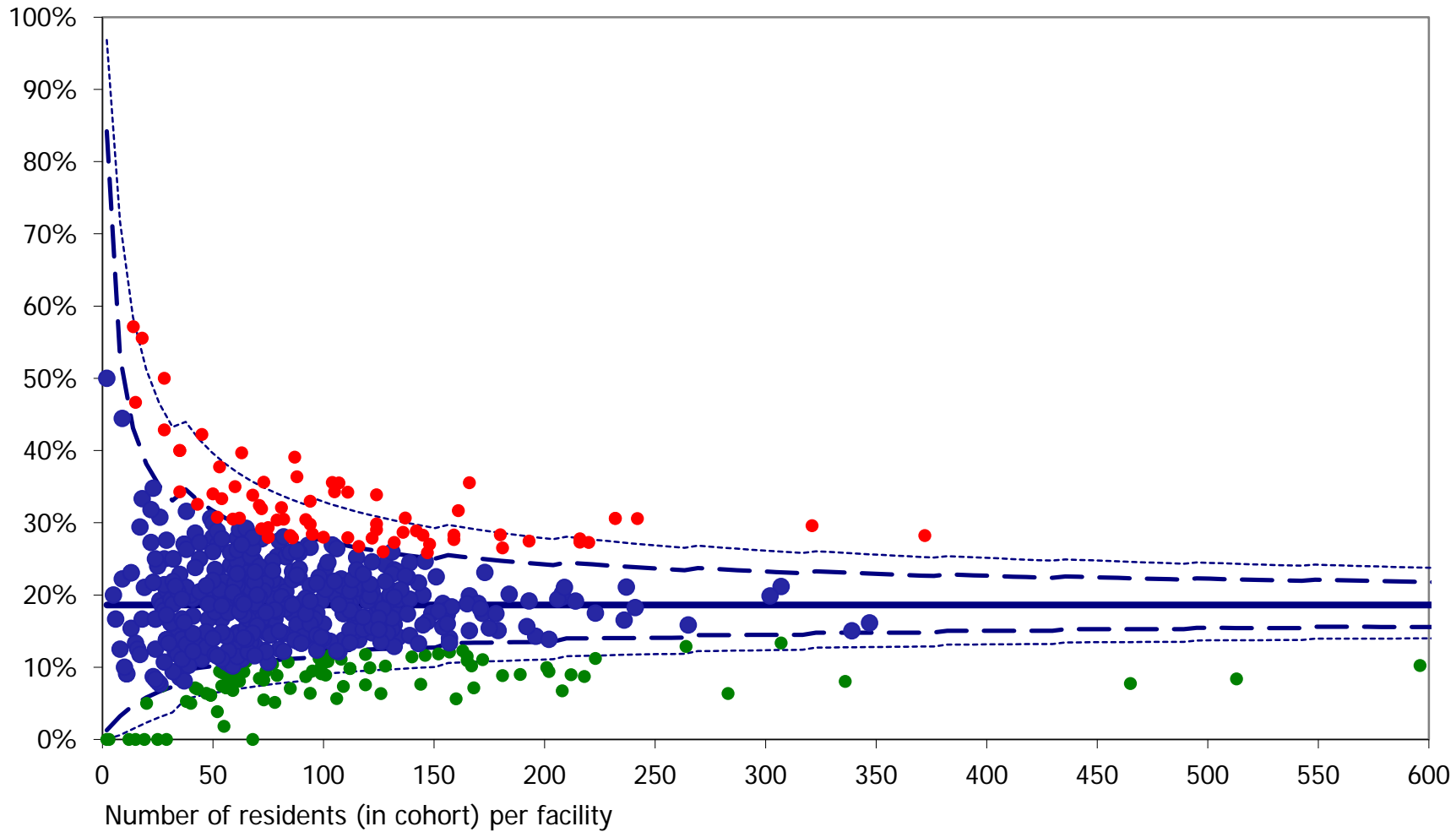
Rates of benzodiazepine use across LTC facilities among residents with a history of use



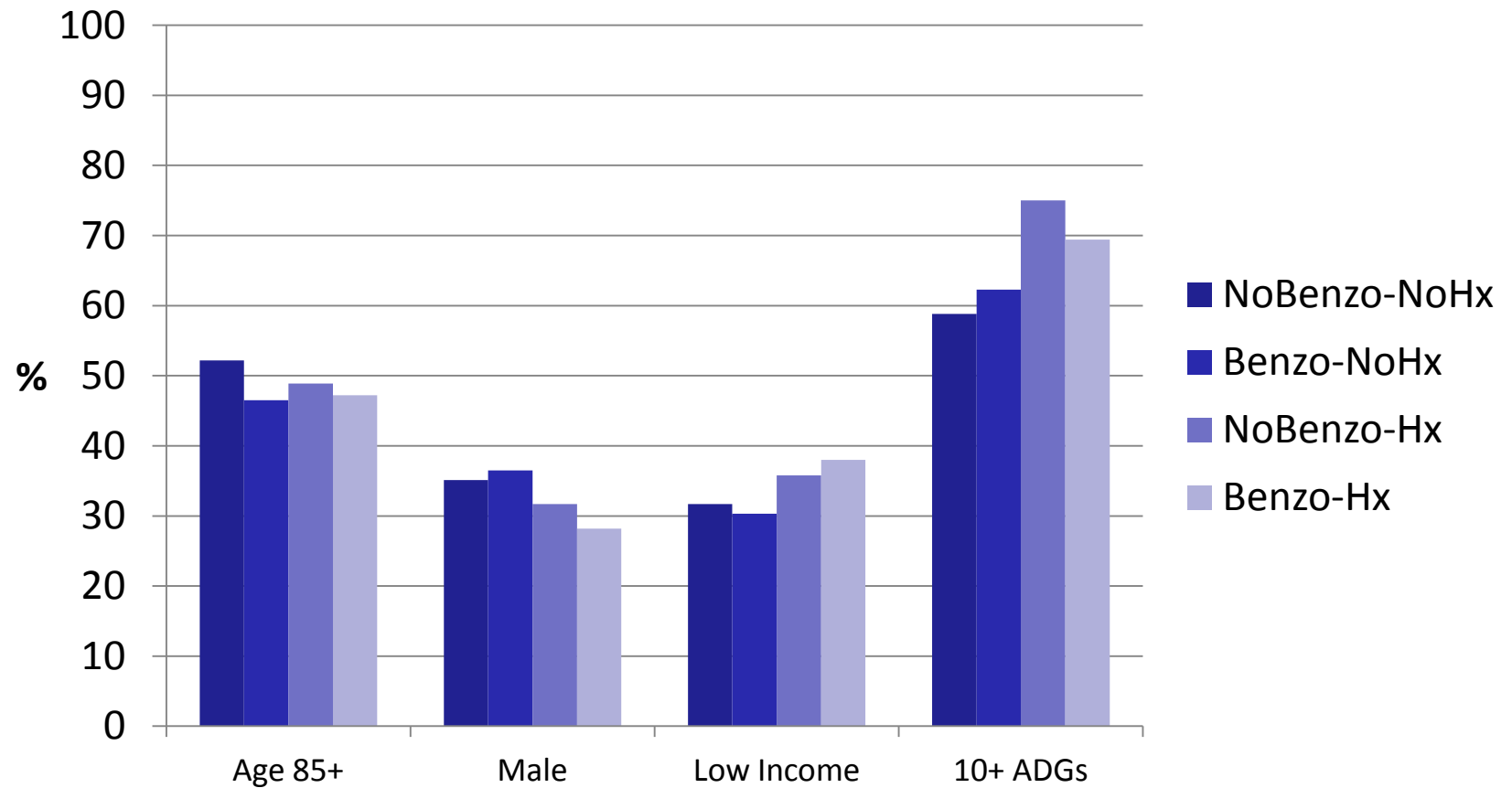
Quality indicators for benzodiazepine use

Indicator	Overall (n=21,823)	History (n=13,054)	No History (n=8,769)
Newly started	40.2%	--	100%
High dose (first claim)	13.4%	12.2%	15.2%
Long duration (first claim)	4.4%	5.2%	3.1%
Chronic use	49.0%	61.2%	30.9%

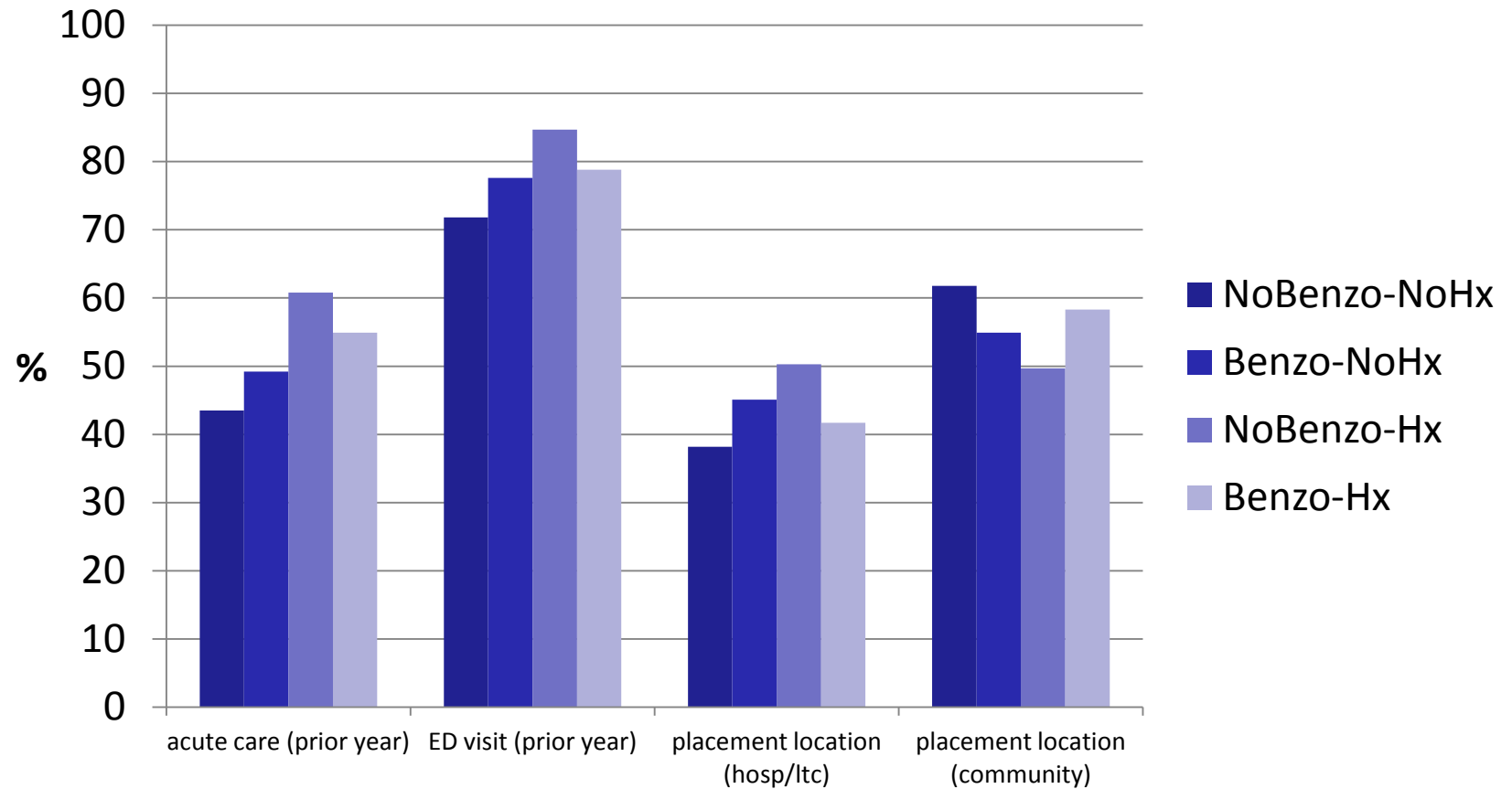
Rates of chronic benzodiazepine use across LTC facilities



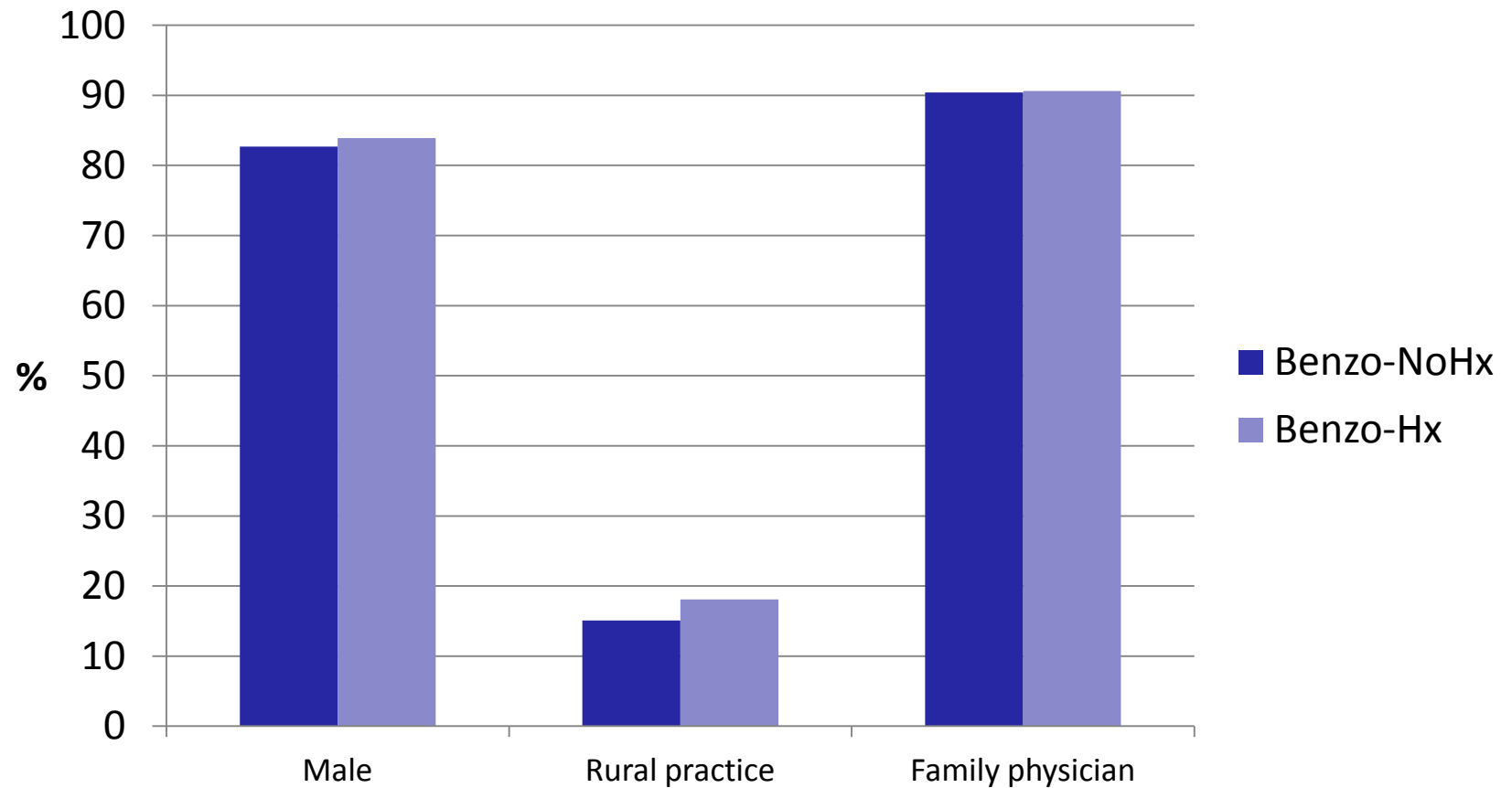
Resident characteristics



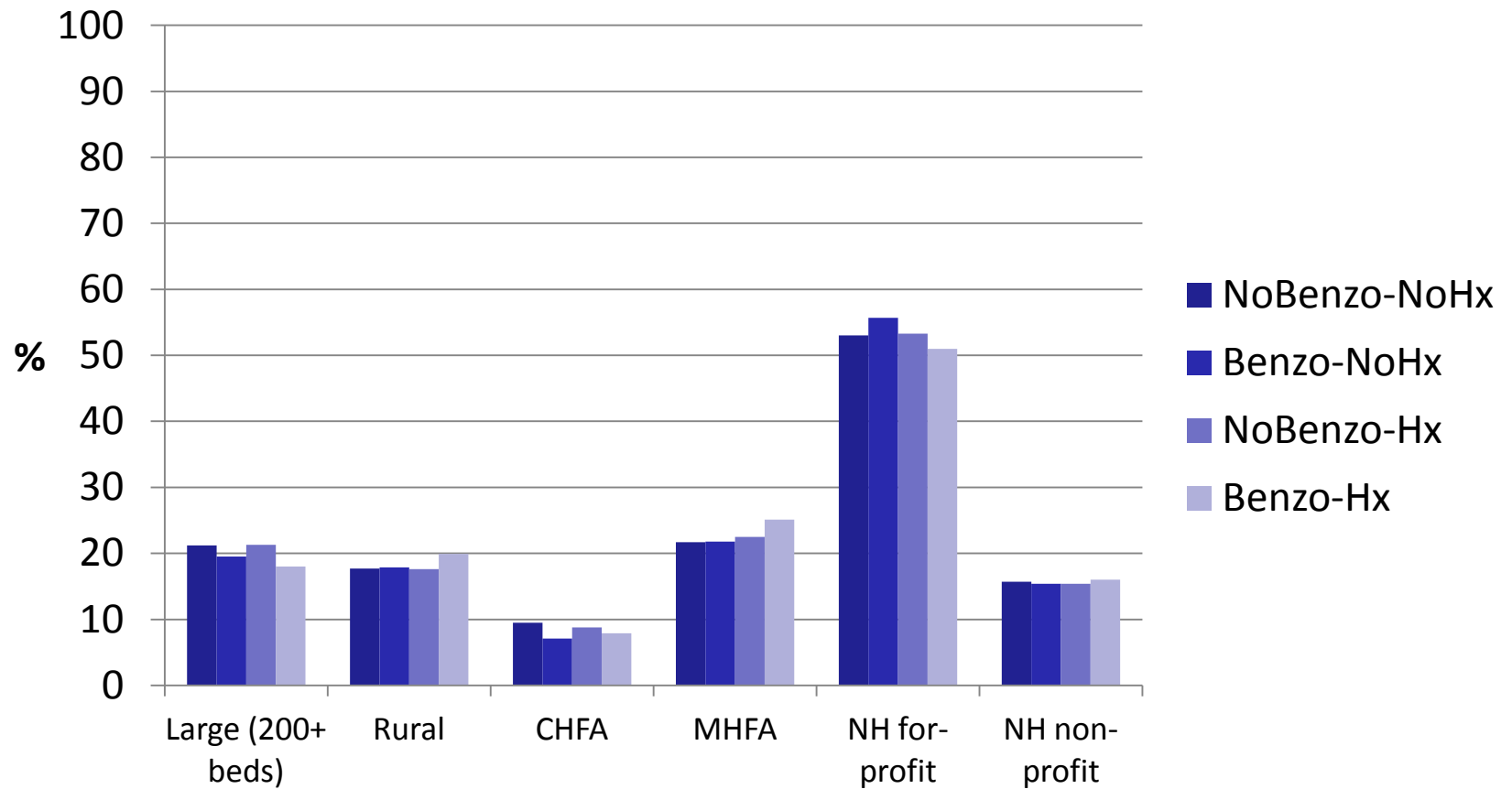
Resident prior health system use



Prescribing physician characteristics



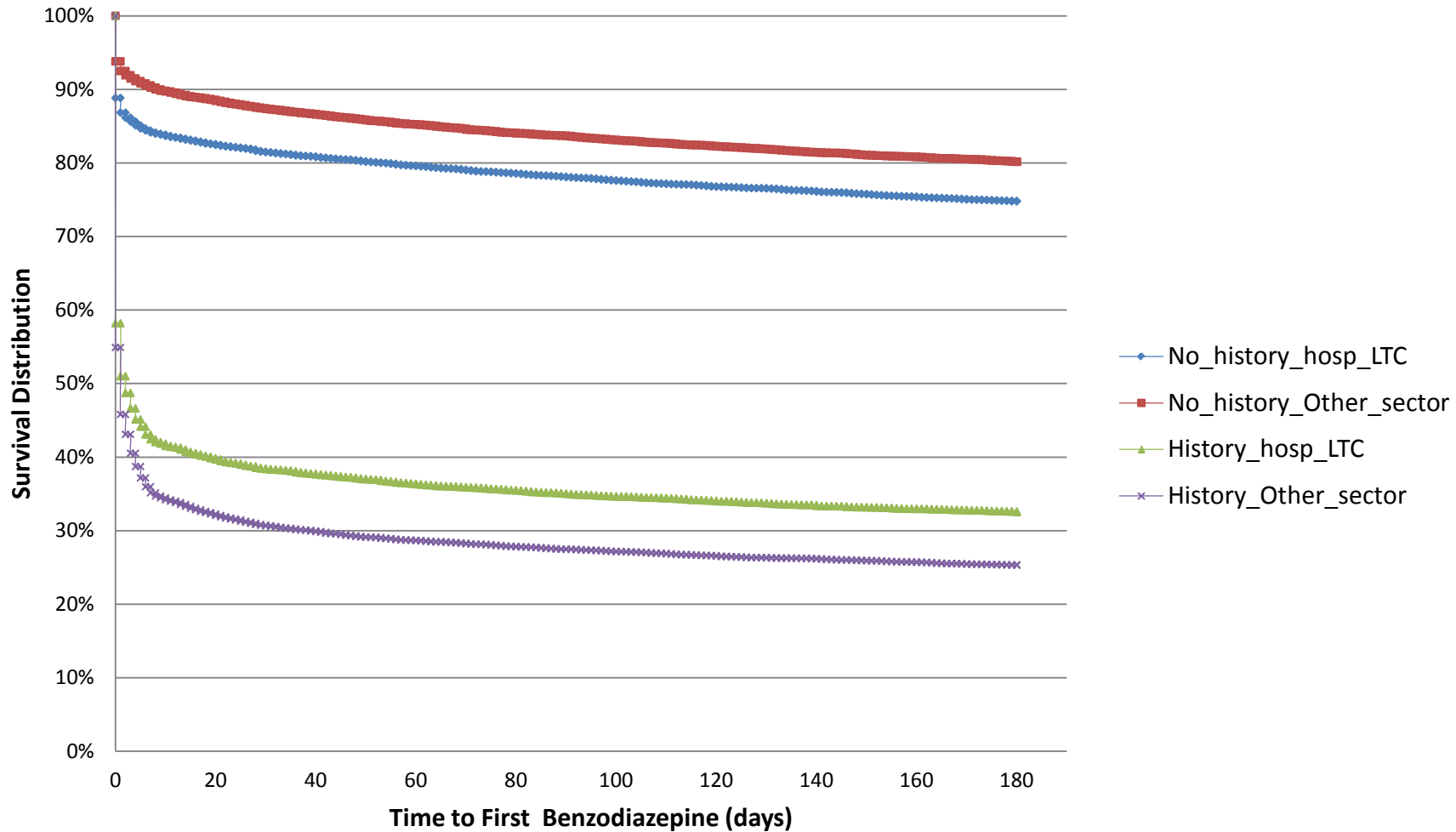
Facility characteristics



Timing of first benzodiazepine

Time Window	Overall (n=21,823)	History (n=13,054)	No History (n=8,769)
0 to 7 days	73.4%	86.0%	54.5%
8 to 30 days	8.9%	6.1%	13.1%
31 to 60 days	5.5%	2.9%	9.6%
61 to 180 days	12.2%	5.0%	22.9%

Timing of first benzodiazepine



Correlation in rates of benzodiazepine prescribing across LTC facilities

(no history of use & history of use)

Quality Indicator	Pearson Correlation
Any use	0.33
High dose	0.41
Long duration	0.49
Chronic use	0.22

Next steps & future studies

- Examine correlation in quality indicators across facilities
- Examine agreement in identification of outliers across facilities
- Build and test regression models (stratified by history of use) to examine association between high rates of benzodiazepine use across facilities and resident, physician and LTC home factors
 - Look across different quality indicators
 - Examination of prescribing physician as a usual provider of care
 - Sensitivity analysis to compare contribution of physicians and facilities to variation beyond resident characteristics

Discussion

- Study presents a complex picture of benzodiazepine prescribing in LTC
 - Rates of benzodiazepine use were high across facilities and were often associated with chronic use
 - Many residents were newly started
 - Many residents who received benzodiazepines had received them prior to LTC placement
 - Almost exclusively family physicians prescribing benzodiazepines in this setting

Acknowledgements

- Fangyun Wu, ICES, for analytical support.
- This research was funded by the CIHR through an operating grant (Prescribing quality in long-term care homes: correlation between overuse, underuse and misuse – MOP-93642).
- Dr. Bronskill is supported by a CIHR New Investigator Award in the Area of Aging.
- *The opinions, results and conclusions reported in this paper are those of the authors and are independent from the funding sources. No endorsement by ICES or the MOHLTC is intended or should be inferred.*