



Institute of Health Policy, Management & Evaluation
UNIVERSITY OF TORONTO

Determinants of Quality in Ontario LTC Homes (2008 - 2012)

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Outline

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- **Research Question**
- **Methods** (Data, Population, Measures, Analysis)
- **Results:**
 - Trends
 - Residents and Homes Characteristics
 - Residents First
 - Public Reporting
 - LTC Homes Act
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Context: Physical Restraint Use

- Physical restraints are defined as use of any equipment to restrict an individual's freedom of movement.
- Despite the known physical and psychological risks of restraint use, it remains a common practice in Long-Term Care Homes, for purported reasons such as residents' and staff safety, facilitating treatment, preventing falls, tube removal, aggressive behaviour, and sometimes to compensate for understaffing.
- Over the past two decades, the high prevalence of restraint use was widely accepted as a sign of poor quality of care among researchers, policy makers and the public around the world.

Context: Physical Restraint Use

- As a result, regulatory actions were taken by governments to minimize the use of physical restraints in long-term care homes. Restraint use was regulated, and market and educational-based approaches such as public reporting and Quality Improvement (QI) programs were adopted to enhance the quality of care.

Context: Ontario LTC Policy

- The Ministry of Health and Long Term Care (**MOHLTC**) introduced the Long-Term Care Homes Act (**LTCHA**) on July 1, 2010. The LTCHA required homes to have written policies/strategies for minimizing restraints use.
- MOHLTC tasked the Ontario Health Quality Council (**OHQC/HQO**) to publicly report on LTC quality indicators beginning in 2009. Physical restraint use was one of the indicators selected.
- HQO also began to implement a province-wide Quality Improvement (QI) initiative called Residents First also in 2009. Physical restraint use was not one of the topics chosen for Residents First, but it was a balancing measure for falls.

Balancing Measures

Unintended consequences of policy interventions:

- Increase in number of falls and use of antipsychotic drugs have been identified as potential unintended consequences of reducing physical restraint use (Konetzja et al., 2014; Castle et al., 1997)).
- A reduction in physical restraint has been associated with an increase in antipsychotic use (Konetzja et al., 2014) while mixed results, have been reported for falls (Huabin et al., 2011; Capezuti et al., 1998).

Research Question

- Research question:
 - What impact do regulations, public reporting and QI programs have on the use of physical restraints? Were there incremental changes in the use of restraints coincident with (attributable to) the introduction of restraint specific regulations, public reporting and QI programs?
 - Were there concomitant changes in two balancing measures for restraint use (falls and antipsychotics)?

Methods: Data and Data Sources

- Data Sources:
 - a. Resident-level RAI-MDS assessment data held at ICES
 - b. Home-level data for staffing and participation in public reporting and QI initiatives from MOHLTC and Health Quality Ontario (HQO)
- Study Population: All residents of Ontario's Long Term Care Homes with RAI-MDS assessments between January 2008 and December 2012 (~1.3 million assessments from 167,170 residents).
- We hypothesize that the effects of the LTCHA, Residents First and Public Reporting are observable using resident-level outcome data.

Methods: Outcome Variables

Outcome Variables	Defined as	Exclusion
Physical Restraint Use	whether or not the resident was physically restrained in the 7 days prior to the assessment.	Residents who were comatose or quadriplegic.
Antipsychotic Use	whether the resident with no diagnosis of psychosis was administered antipsychotic drugs in her or his last assessment in each quarter.	Residents with diagnosis of schizophrenia, Huntington's chorea, those who experienced hallucinations or delusions, and those who were end-stage disease or receiving hospice care.
Falls	whether or not the resident fell in the 30 days leading up to the target assessment.	Resident with Body Mass Index (BMI) of less than 10 and greater than 75.

- All other residents with valid assessments were included in the analysis. An assessment was considered valid if it was not an admission full assessment, it was carried out more than 92 days after the admission date and it was the latest assessment in the quarter.

Methods: Independent Variables

Intervention Variables	Captures
Overall Time Trend	the secular trend in restraint and antipsychotic use (2008-2012)
LTCHA	the immediate impact of the LTCHA (before and after the implementation of the LTCHA)
Time Trend After the Act	The continuing effect of the Act (zero before the implementation and then as sequentially numbered quarters)
Public Reporting	a pre and post comparison between participants and non-participants
Residents First	a pre and post comparison between participants and non-participants
Residents First Topic- Falls	A comparison between homes that chose to focus on Falls and homes that did not

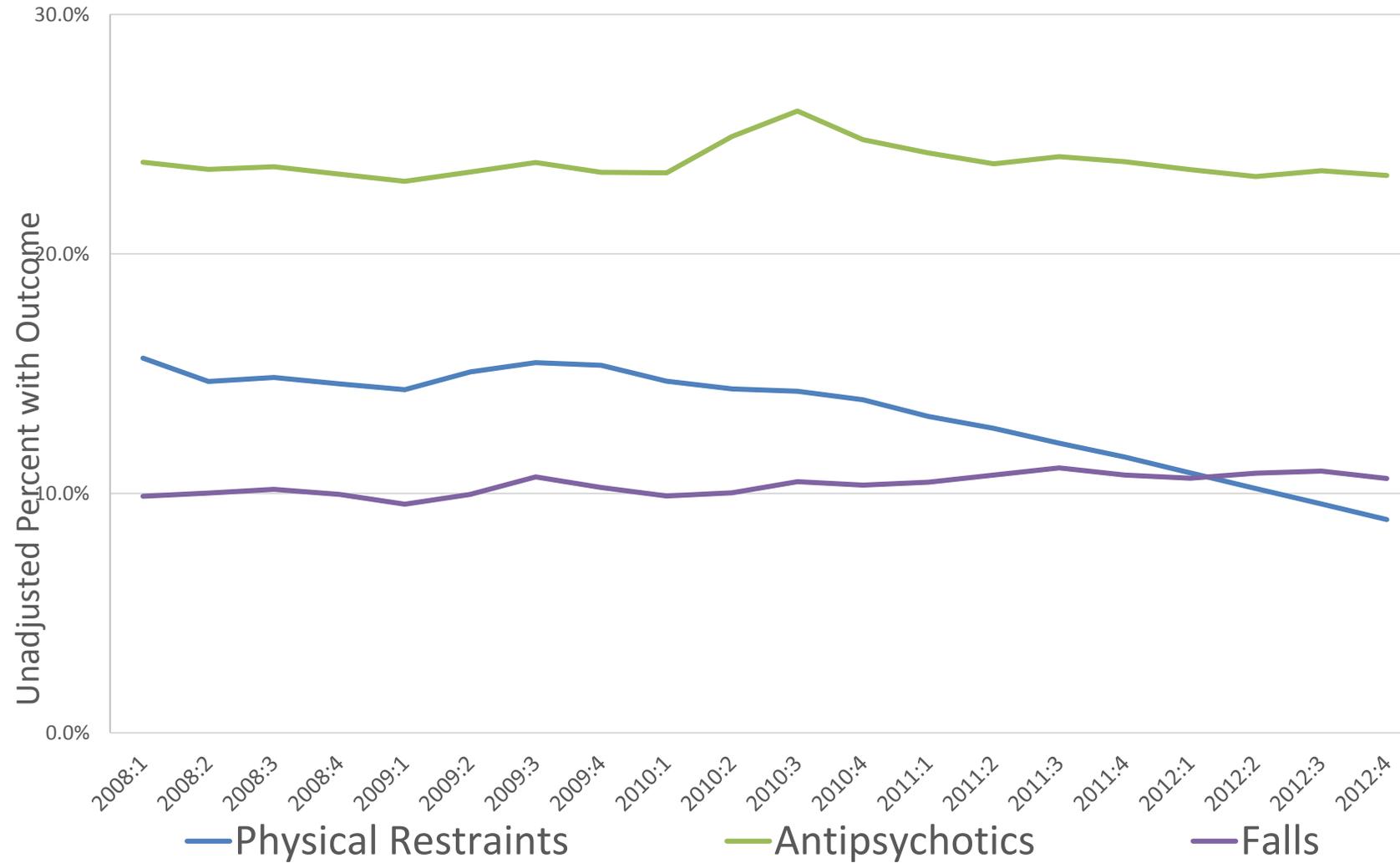
Additional Covariates

- To control for differences in residents and facility-level risk, we controlled for a set of variables based on a:
 - “Review of the Canadian Institute for Health Information (CIHI) indicator library”
 - “Review of literature”
- Facility-level covariates such as home-level variables such as size, ownership type, location, and staffing level.
- Individual-level covariates such as age, sex, length of stay, Depression Rating Scale, Aggressive Behavior Scale, Cognitive Performance Scale...

Data Analysis

- Logistic Regression of having the outcome vs not for each resident
- Generalized Estimating Equations (**GEE**) to account for clustering of residents within homes
- Interrupted Time Series (**ITS**)

Results - Trends



Implications

- The immediate effects of the LTC Act were disruptive but the ongoing aspects are positive.
- All three policy initiatives seem to have had an effect on restraint use. Restraint use is a particularly directly observable and modifiable care practice.
- The effects of Residents First Quality Improvement program were more mixed and more difficult to assess with different homes participating in different areas of focus.

Generally the emphasis on a coherent set of measures provides a strong focus and impetus for quality improvement. Measures of care processes are more readily observable and attributable to the changes in external policy than outcome measures . But the latter are very important.

Results: LTCHA

	Restraint Use (Adj Odds Ratio)	Antipsychotic Use (Adj Odds Ratio)	Falls (Adj Odds Ratio)
Overall Time Trend	0.99	0.99	NS
LTCHA	1.12	1.11	1.10
Time Trend After the Act	0.96	0.97	NS

Values represent Odd Ratios for resident outcome in each observed quarter at the 5% level of significance

- Overall quality is improving over time for restraint and antipsychotic use.
- The LTCHA had a negative one-time impact on these three measures of quality.
- The LTCHA accelerated the rate of improvement for restraint and antipsychotic use.

Results: Public Reporting

	Restraint Use (Adj Odds Ratio)	Antipsychotic Use (Adj Odds Ratio)	Falls (Adj Odds Ratio)
Public Reporting	0.96	1.02	NS
Values represent Odd Ratios for resident outcome in each observed quarter at the 5% level of significance			

- The odds of restraint use were lower and the odds of antipsychotic use were higher for residents of homes participating in public reporting.
- There was no significant relationship between public reporting and falls.

Results: Residents First QI Initiative

	Restraint Use (OR (95% CI))	Antipsychotic Use (OR (95% CI))	Falls (OR (95% CI))
Residents First	0.83	1.03	0.94
Residents First Topic	-	-	1.07 (n=132)

Values represent Odd Ratios for resident outcome in each observed quarter at the 5% level of significance

- Restraint use and Falls were down among Residents First participants while Antipsychotic use was higher.
- Homes that chose to focus on falls in Residents First had a higher rate of falls after beginning the Residents First program compared to all other homes.

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