Use of the RAI-MDS 2.0 and interRAI LTCF assessment systems to Inform Policy and Improve Practice and Health Outcomes in LTC Residents

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Let’s make change happen  Agir pour innover

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Disclosure

› We have no actual or potential conflict of interest in relation to this topic or presentation.
Session Objectives

› Overview of CFHI’s Pan-Canadian & New Brunswick Appropriate Use of Antipsychotic Collaborative evaluation & measurement approach

› Analysis methods & key findings
  • Use of interRAI

› Discuss how the standardized interRAI assessment system is:
  • a sustainable evaluation tool for healthcare organizations
  • can inform standards, policy & practice across care sectors
The Canadian Foundation for Healthcare Improvement  Our strategy

Our aim
Accelerate healthcare improvement.

Our focus in 2017/18
Build improvement capacity and provide on the ground support to spread and scale proven innovations.

What we do
We work shoulder-to-shoulder with you to improve health and care for all Canadians.

Appropriate care closer to home  Frail elderly
Palliative care  Mental health and addictions
Indigenous health  Northern and remote
Population health

Value-for-money
Patient & family experience of care
Health of populations

Enable patient, family and community engagement
Build leadership and skill capacity
Apply improvement methodology and coaching
Create collaboratives to spread evidence-informed improvement

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An antipsychotics are primarily intended for the management of patients with schizophrenia or bipolar disorder.

1 in 4 LTC residents in Canada takes antipsychotic medications without diagnosis of psychosis (CIHI*)

Evidence demonstrates that antipsychotic medications are:

- Minimally effective in managing behavioral issues associated with dementia (Barton, 2005)
- Associated with worsening cognitive functioning (Vigen, 2011),
- Result in serious adverse events when used long term, especially in the elderly (Gareri, 2014)

Non-pharmacological, patient-centered care approaches, should be tried first (Zuidema, 2015).

*Canadian Institute for Health Information (CIHI). Retrieved from http://yourhealthsystem.cihi.ca/

Innovation Needed!
The Overprescribing of Antipsychotic Medications in Long Term Care
Meet Cynthia: An EXTRA-Ordinary CFHI Fellow from Winnipeg

Improving the lives of patients at personal care homes in Winnipeg and beyond: innovative approach finds major savings

The Problem
For years, healthcare providers at the Winnipeg Regional Health Authority (WRSA) have struggled to answer the needs of elderly men and women who reside at the organization’s personal care homes. The Care-Entrance Information System (CARES) and Functional Assessment Instrument (FAI) were employed to help identify patients needing support. Whether these tools could be used to help filter out patients who would benefit from the WRSAs new personal care home initiative was unknown.

The Solution
The Personalized Continuum of Care (PCC) — managed by the new Palliative Care Service of the WRSAs — adopted the CARES tool to make a difference to the way it approaches care for chronic disease. The PCC team conducted a pilot program to monitor the impact of a new intervention — a “CARES Plus” approach to care. The PCC team found that through a coordinated approach, patients who might have felt isolated or neglected were able to receive the care and support they needed.

The Impact
The PCC team documented that facilities where patients with dementia were managed under CARES Plus saw significant reductions in the use of antipsychotics and anticonvulsants, while also improving the quality of life for patients. By adopting an innovative approach, the PCC team was able to show that this model can lead to improved outcomes for patients and caregivers alike.

“The impact
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“IT was a pleasure to be part of a project that resulted in improved quality of life for residents, and reduced financial cost to the healthcare system.”

— Sue Pachuch
Manager, Client Affairs — Interiors
Canadian Institute for Health Information

“Improving the lives of patients in personal care homes is a priority for the Winnipeg Regional Health Authority. As part of our efforts, we have developed a CARES Plus approach to care that is proving highly effective.”

— Dr. Peter Mazurek
Senior Medical Director
Canadian Institute for Health Information

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Spreading Success Across Canada: CFHI’s pan-Canadian AUA Collaboratives

Objectives:

- Reduce inappropriate use of antipsychotics in nursing homes
- Improve the quality and experience of dementia care for nursing home residents, families and staff
- Build individual and organizational capacity in designing, implementing, evaluating, sustaining and spreading resident-centred and data-driven dementia care innovations
AUA Measurement Approach: Identifying Target Residents

› Prior to AUA implementation teams are supported in identifying residents who are candidates for inappropriate antipsychotic medication reduction

› **Target Residents** *have a prescription for an antipsychotic medication but no diagnosis of schizophrenia, Huntington’s chorea, hallucinations, or delusions, and those who are not classified as end-of life residents.*

› Teams first identify target residents in the first unit where they want to implement the AUA approach
  
  • This is best practice recommendation for successful spread.
  
  • After successful implementation in this first unit – select another unit, identify needed changes to the approach, select a new cohort of target residents, and implement the AUA approach there.
AUA Measurement Approach: Core Measures

Before implementing the AUA approach, teams assess the Target residents to determine **baseline status** of the **core measures**:

- For antipsychotics:
  - Number of prescriptions
  - Prescribed prior to admission? Yes / no

- For other psychotropic medications (antidepressants, anti-anxieties, & hypnotics):
  - Current prescriptions (yes/no to a list of drugs)
  - Number of prescriptions

This information is obtained through patient charts, medication review, pharmacy data – of each of the residents who are candidates for reduction
AUA Measurement Approach: Core Measures continued

- Demographics (language, sex, age, diagnoses)

- Frequency of behavioral symptoms (verbal abuse, physical abuse, socially inappropriate or disruptive behavior, resistance to care)

- Use of physical restraints

- Falls, pain, activities of daily living, cognitive performance, aggressive behavior, depression, index of social engagement

This information is obtained through patient charts, medication review, pharmacy data – of each of the residents who are candidates for reduction
**CFHI Support**

**Training:** Interactive webinars and face-to-face workshops

**Resources:** Tools to guide the gradual reduction of medication use and funding

**Coaching:** Content and improvement experts from across Canada and the U.S.

**Cross-team sharing:** Online learning, peer review and idea exchanges

**Measurement and Evaluation:** Data collection and analysis

Direct care team engagement
The AUA Desktop: An Online Learning Platform

- Calendar
- Discussions
- Dropbox

**NB Appropriate Use of Anti-Psychotics Collaborative**

**NB-AUA Core Tools**
- Educational Tools
- Teamwork Tools
- Medication Review Tools
- Deprescribing Guidelines
- Data Collection and Monitoring Tools

**The NB-AUA Approach**

Core components of the intervention:
- Educating all staff
- Multidisciplinary team work and communication between families, leadership, physicians, pharmacists and all front line staff
- Regular medication reviews
- De-prescribing guidelines
- Ongoing data collection and monitoring

**Calendar**
- Friday, January 13, 2017

**Upcoming events**
- JAN 19 12:00 PM Phase II Webinar 1
- FEB 1 All Day Phase II Expression of Commitment Due
- FEB 23 All Day Phase II Memorandum of Understanding due

**About and News**

Don't miss our first live webinar for Phase II on January 19th!
All the information you need is here.

Do you have any questions? Want to share an experience with the other teams? Join us in the discussion boards!
The AUA Outcomes: Better care & health for residents

15 teams across 8 PTs

56 LTC facilities

7034 residents

# of Target Residents discontinued or reduced (54%) 222/416

41 Falls ↓ 33
30 Verbal Abusive Behaviours ↓ 20
29 Aggressive Behaviour no increase 28
58 Resisting Care ↓ 45
31 Socially Inappropriate Behaviours ↓ 23

ROI: Every 1$ spent on AUA, saves 4.24$ in preventable healthcare costs - RiskAnalytica
Scaling the AUA across New Brunswick
CFHI and NBANH’s New Brunswick Appropriate Use of Antipsychotics (NB-AUA) Collaborative [May 2016-May 2018]

- Partnership between CFHI & NBANH to scale bilingual NB collaborative across all NB nursing homes

- $600,000 funding commitment from NB gov’t (Department of Social Development)

- 2-Phased Spread Approach:
  - **Phase 1** [Feb 2016-May 2017]: 15 nursing homes
  - **Phase 2** [Feb 2017-May 2018]: 46 homes

- The same goals, objectives and delivery method as the pan-Canadian AUA collaborative

- Advisory Committee (including system stakeholders) providing counsel to NB-AUA
Early NB-AUA Phase I Results

• Phase I homes have submitted data for 212 residents who they have identified as candidates for inappropriate antipsychotic medication reduction.

• Exciting outcomes in just 6 months include:
  • 35% (75) of these residents have had their antipsychotic medications reduced or discontinued
    • 24% (51) discontinued
    • 11% (24) on lowered dose
  • Physically abusive behaviour has decreased by 38%
  • Falls & aggressive behaviour has decreased by 13%
  • Physical restraint use has decreased by 23%
AUA Measurement Approach: In Summary

› Changes in the baseline status of the core measures for target residents are tracked quarterly through assessments aligned with interRAI™ MDS 2.0 (pan Canadian) or LTCF assessments (NB-AUA).

› This enables teams to see whether implementation of the AUA Approach is having the predicted effect in improving appropriate use of antipsychotics (without increases in possible negative consequences, such as increases in behaviours, restraint use, or falls).

› Each home was already doing the interRAI™ assessments, so aligning core measures with this assessment data was a sustainable solution.
AUA Measurement Approach: Data submission Methods

1. Pan Canadian: via an excel spreadsheet

2. NB-AUA phase I: via online form

3. NB-AUA phase II: via momentum software solutions, integrated with the LTCF

• The methods of data submission have evolved: NB-AUA phase II represents the most sustainable (least time intensive and least training heavy) solution
AUA Measurement Approach: Data submission Methods

Pan Canadian

› CFHI provided teams with training on how to create visuals in excel

› Homes sent data to CFHI on a quarterly basis
AUA Measurement Approach: Data submission Methods

NB AUA phase I

› Provided teams with access to their data & “dashboards”

› Provided CFHI with access to the aggregate data
NB-AUA Measurement: interRAI LTCF as a Sustainable Solution

› How to implement a more sustainable solution, that is less time intensive for staff for QI measurement?
  
  • Use assessments AND data submission processes that are part of routine clinical practice.

› The opportunity in NB:
  
  o Roll out of the interRAI LTCF in the province presented an opportunity to simplify the data submission process & address the time restraint challenge experienced by many of the pan-Canadian teams

  o Single Software Solution provider: Momentum (in contrast to pan-Canadian AUA homes)

  o Collaboration with CIHI as support for training and development of the data collection form on the Momentum software solution platform

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NB-AUA Measurement: interRAI LTCF as a Sustainable Solution

- For NB-AUA Phase II Momentum Software Solutions was contracted to develop & deploy a custom reporting data form.
- Data form within the LTCF will automatically extract data for AUA core measures through quarterly LTCF assessments.
- The NB-AUA data form will also allow:
  - Homes to track improvements in other quality improvement initiatives.
  - Generation of data extracts to CFHI for analysis.
  - Homes to access reports, such as run charts and other visuals.
- This has huge impact to ensuring sustainability for quality improvement initiatives within New Brunswick.
Before showing results of a longitudinal analysis – empowered by use of interRAI data across Canadian LTC homes, we will review:

- Support role CIHI plays in the AUA collaboratives
- interRAI
  1. What it is
  2. Family of instruments
  3. Applications
  4. How it can be used to inform quality assessment, policy & practice change
How CIHI supports nursing homes

• Education plan for orientation to the interRAI LTCF & RAI MDS 2.0
  ▪ Coding guidelines
  ▪ Use of outcome scales, CAPs and quality indicators
    ▪ Use of CCRS eReports
• Support data submission
• Provide resources for training, information, publications, presentations etc.
• Fulfill data requests
CIHI-CFHI-NBANH partnership

- CIHI also informed the development of the assessment guides – quick reference guides the nursing homes can reference to complete assessments related to the collaborative core measures.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>ICF Item</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION A (Baseline only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Resident Information</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. Gender | Gender of the person                                                      | A2       | M. Male
F. Female                                                           |
| 2. Birthdate | Birthdate of the person                                                  | A3       | For the month and day of date of birth, enter two digits each. Use a leading zero ("0") as a filler if a single digit. Use four digits for the year. |
| 3. Primary Language | Preferred language for day-to-day communication. Communication with the person in his or her primary language, whether English, French, or another language, is preferred. | B4       | Enter the three-letter code for the person’s primary language in the boxes. Enter "en" if the language is identified as English. Enter "fr" if the language is identified as French. For other languages refer to the NCC Language Codes document. |
| 4. Disease Diagnosis – Alzheimer’s Disease | A degenerative and progressive dementia that is diagnosed by ruling out other dementias and physiological reasons for the dementia | C1c      | Select the most appropriate code for the disease:  
0. Not present  
1. Primary diagnosis/diagnosis for current stay  
2. Diagnosis present, receiving active treatment  
3. Diagnosis present, monitored but no active treatment |
| 5. Disease Diagnosis – Dementia other than Alzheimer’s Disease | Includes organic brain syndrome or chronic brain syndrome, senility, senile dementia, multi-infarct dementia and dementias related to neurological diseases other than Alzheimer’s (for | C1d      | Select the most appropriate code for the disease:  
0. Not present  
1. Primary diagnosis/diagnosis for current stay  
2. Diagnosis present, receiving active treatment  
3. Diagnosis present, monitored but no active treatment |
interRAI

Who?

• International, not-for-profit network of ~100 researchers and health/social service professionals

What?

• Comprehensive assessment of strengths, preferences, and needs of vulnerable populations

How?

• Multinational collaborative research to develop, implement and evaluate instruments and their related applications
interRAI Family of Instruments

- Home Care
  - Adult & pediatric versions
  - Contact Assessment

- Complex Continuing Care Hospitals, Nursing Homes

- Acute Care
  - ED Screener
  - ED Contact Assessment

- Palliative Care

- Community Health Assessment
  - Functional supplement
  - MH supplement
  - Deafblind supplement

- Mental Health
  - Inpatient
  - Community
  - Emergency Screener
  - Forensic & Addictions Supplement
  - Correctional Facilities
  - Brief Mental Health Screener
  - Child & Youth Mental Health

- Intellectual Disability

- Subjective Quality of Life
  - Long term care
  - Home and community care
  - Mental Health

interRAI™
UNIVERSITY OF WATERLOO
FACULTY OF APPLIED HEALTH SCIENCES
School of Public Health and Health Systems

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Applications of interRAI Assessment System:
One assessment ... multiple applications

- Case-mix
- Single Point Entry
- Care Plan
- Evaluation
- Best Practices
- Risk Management
- Outcome Measures
- Patient Safety
- Quality Improvement
- Public Accountability
- Accreditation
- Resource Allocation
- Balance incentives
- Quality Indicators

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interRAI data as a basis for changing policy & practice

› Used in Canada for regulatory & quality monitoring purposes - public reporting and nursing home inspection

› Can be used to identify instances of good or bad quality or differences in care practice which can inform policy & practice change to improve quality. For example:

  • Cost structure: policies to reduce duplicative care (identified through interRAI comparisons) have saved state of Michigan USD 1 Billion dollars

  • Changing service caps for homecare, prioritizing access to services, and inclusion of casemix in funding formulas have also been justified through use of interRAI data
• Restraint use emerged as an important quality indicator in Canada in the 1990’s when international comparisons of interRAI data showed above average use in

• Study by Public Health Agency of Canada show reduced rates in most provinces (except SK)

• Access to longitudinal data from routine interRAI assessment makes it possible to monitor quality of care & evaluate impact of policy decisions on quality of care.

Source of graph: Canadian Data set available from interRAI.org, as cited in Carpenter & Hirdes, 2013 in “A Good Life in Old Age: Monitoring & Improving Quality in Long Term Care"
Aligning outcome measures with interRAI enables us to examine the impact of the AUA collaborative through comparing interRAI quality indicators in CFHI homes vs. non-CFHI homes.

This can provide policy-makers with evidence to move to similar models of care.
interRAI Outcome Evaluation

interRAI longitudinal comparative analysis: Participating and non-participating LTC homes [Apr-14-Jun-15]
interRAI Outcome Evaluation of CFHI’s AUA in LTC Collaborative

5 quarters of RAI 2.0 assessment data: Apr-14 to Jun-15

1. Nursing home level analyses: Examined rates of 13 Quality indicators
   • Compared CFHI antipsychotic medication intervention LTC facilities (“CFHI Facilities”) to all other facilities using the interRAI assessment (“Other CCRS Facilities”)

2. Resident level analyses: Multi-level longitudinal models of transitions to non-use of antipsychotics
CFHI collaborative homes vs. non-CFHI collaborative homes

- No significant differences in age, gender, or diagnoses distribution by home’s participation in CFHI Intervention, Q1 2014.
Nursing Home Level Analyses

Box Plots of Risk Adjusted Quality Indicators Over Time
DRG01 - Percent of residents on antipsychotics without a diagnosis of psychosis: 
*CFHI facilities vs. Other CCRS LTC Facilities*

![Graph showing the comparison of DRG01 Median Adjusted QI Rates between CFHI facilities and other CCRS LTC Facilities from 2014Q1 to 2015Q1.](image)
Another Way to Look at the QI Changes

<table>
<thead>
<tr>
<th>Percentile</th>
<th>First Quarter</th>
<th>Last Quarter</th>
<th>Difference</th>
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<tbody>
<tr>
<td></td>
<td>CFHI</td>
<td>Others</td>
<td>CFHI</td>
</tr>
<tr>
<td>20\text{th} percentile</td>
<td>23.9</td>
<td>19.1</td>
<td>11.5</td>
</tr>
<tr>
<td>Median (50\text{th})</td>
<td>30.4</td>
<td>27.3</td>
<td>20.1</td>
</tr>
<tr>
<td>80\text{th} percentile</td>
<td>41.4</td>
<td>35.4</td>
<td>25.5</td>
</tr>
</tbody>
</table>
BEHD4 - Percent of residents whose behaviour symptoms declined
CFHI facilities vs. Other CCRS LTC Facilities

BEHD4 Median Adjusted QI Rates

- Median (CFHI)
- Median (other CCRS)
Person-Level Analyses

Multi-level longitudinal models of transitions out of antipsychotic use
Why do modelling at the individual level?

- QIs tell us whether the home has changed at the population level

- But we also want to understand what happened at the resident level
  - Composition of home changes over time
  - Want to be sure that individual residents benefit from QI efforts
  - Provinces also had their own initiatives to reduce antipsychotic use
  - Consider factors not in QI risk adjustment to broaden covariates

- Ascertainment bias may mean that some facilities are more or less likely to identify clinical issues (e.g., behaviour problems)

- New statistical models available to examine longitudinal change while controlling for effects at facility levels
  - Challenge: Available data set too large for some of the most advanced models
Adjusted odds ratio* for effect of CFHI intervention by start time for follow-up period, all participating provinces

* Adjusted for province only. Excludes persons with schizophrenia, Huntington’s, delusions, hallucinations
Adjusted odds ratio* for effect of CFHI intervention by province based on Jan 1, 2014 start time, all participating provinces

* Adjusted for age, gender, CPS, ABS. Excludes persons with schizophrenia, Huntington’s, delusions, hallucinations
Concluding Comments

There is strong evidence that homes in the CFHI initiative improved their patterns of antipsychotic use over time

- Better improvement than in non-CFHI homes
- Risk adjusted, so not confounded by change in patient populations

At the same time, there was no appreciable change in other QIs

- Particularly important that behavioural and restraint use did not rise notably after the antipsychotic reduction started to “kick in”

Evidence at the facility level is substantiated by person-level multilevel models

- But need further analyses to finalize the models - results vary depending on model assumptions

Continued Research:

- Continue the longitudinal research on pan Canadian CFHI homes vs. non-CFHI homes – will the results sustain?
- Longitudinal research on the NB-AUA homes
- What factors are most predictive of improvement?
Thank you

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