Canada's Drug Agency
L'Agence des médicaments du Canada

CDA-AMC Environmental Scan

Appropriate Use of Antipsychotics in Long-Term Care

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Key Messages

What is the Issue?

- In Canada, the quality indicator "potentially inappropriate use of antipsychotics in long-term care" is used to monitor the percentage of people living in long-term care (LTC) taking antipsychotics without a diagnosis of psychosis. Rates have been increasing since the start of the COVID-19 pandemic, but there is currently no target for this quality indicator to guide LTC homes to safely decrease those rates.
- The appropriate use of antipsychotics in LTC was established as a priority topic by members of the Appropriate Use Coalition. Establishing a target for LTC homes in Canada related to the appropriate use of antipsychotics is one of the key activities for the long-term care subgroup of the Appropriate Use Coalition and will support safety and quality of care for those living in LTC homes.

What Did We Do?

- Under the direction of the Appropriate Use Coalition, CDA-AMC collaborated with Choosing Wisely Canada to host a multidisciplinary panel of experts to develop evidence-informed consensus statements on a target for LTC homes in Canada, and an annual improvement goal, for the quality indicator "potentially inappropriate use of antipsychotics in long-term care" through a modified Delphi process.
- To support the panel, we conducted a literature-based Environmental Scan regarding the potentially inappropriate use of antipsychotics in LTC to help inform the development of the consensus statements.
- We searched key resources, including journal citation databases, and conducted a focused internet search for relevant evidence published since 2014.

What Did We Find?

- The risk-adjusted rate for the CIHI quality indicator 'potentially inappropriate use of antipsychotics in LTC' has increased in all provinces and territories in Canada since 2019. In 2023-2024, the overall risk-adjusted rate for the potentially inappropriate use of antipsychotics in LTC in Canada was 24.3%, compared to 20.2% in 2019–2020.

- No national benchmarks or targets for the quality indicator 'potentially inappropriate use of antipsychotics in LTC' currently exist in Canada. Some provinces have established benchmarks or targets, generally around 18% to 20%.
- In general, quality improvement initiatives in Canada have demonstrated a 16% to 17% relative reduction, annually, in the performance on the quality indicator 'potentially inappropriate use of antipsychotics in LTC.'
- Areas of opportunity and implementation considerations related to reducing potentially inappropriate use of antipsychotics in LTC include education or training, person-centred care, interdisciplinary collaboration, medication review and monitoring, resources and staff continuity, change champions, information sharing, engaging relevant groups and providing flexibility when developing quality improvement initiatives, collecting sociodemographic data, and providing recognition for evidence-based quality improvement efforts. These areas of opportunity are interrelated, which emphasizes the value of collective action across LTC providers, homes, and health systems.
- Unintended consequences of striving to achieve low rates of potentially inappropriate use of antipsychotics in LTC (e.g., the potential for increased use of other medications, decreased antipsychotic use in an unintended population, changes in diagnostic patterns) and balancing measures (e.g., the use of physical restraints, or worsening behavioural symptoms among people living in LTC) are other considerations for decision-making, and are potential outcomes that can be monitored as part of quality improvement initiatives.

How Was This Environmental Scan Used?

- This Environmental Scan, along with a summary of engagement input, were used as evidence inputs by the panel to help them prepare for and participate in a modified Delphi process.
- The panel used this information and their relevant expertise to develop consensus statements related to a proposed target, and an annual improvement goal, for the quality indicator "potentially inappropriate use of antipsychotics in LTC".

Abbreviations

AARP	American Association of Retired Persons
CCRS	Continuing Care Reporting System
CCSMH	Canadian Coalition for Seniors' Mental Health
CIHI	Canadian Institute for Health Information
CMS	Centers for Medicare & Medicaid Services
CSA	Canadian Standards Association
HSO	Health Standards Organization
LTC	Long-term Care
MDS	Minimum Data Set
OPAL	The Optimizing Prescribing of Antipsychotics in Long-term Care
RAI	Resident Assessment Instrument

Setting the Context

As the population in Canada ages,[1] the number of people living with dementia is expected to increase and reach close to 1 million by 2030. Over 80% of people with dementia living in long-term care (LTC) present behavioural and psychological symptoms,[2] such as aggression, anxiety, and agitation. Though not typically indicated for use in people with dementia, antipsychotic medications are sometimes used to treat these symptoms. The rising prevalence of dementia in Canada among older adults in LTC reveals the importance of focusing on the appropriate use of medications, including antipsychotics, in these contexts.[3,4] Appropriate use efforts prioritize patient safety and better health outcomes by providing best suited medications that provide the greatest possible benefit, while avoiding harm.[5] Members of the Appropriate Use Coalition jointly identified the use of antipsychotics in LTC as a priority topic, with the aim to establish an appropriate rate of antipsychotic use in LTC homes to enhance safety and quality of care for those living in long-term care homes.[6]

What are Antipsychotics?

Antipsychotic medications are the main class of drug used to treat people with schizophrenia and symptoms of psychosis, including delusions and hallucinations, by reducing specific hormones in the body.[7] Typical (first generation) antipsychotics block dopamine, whereas atypical (second generation) antipsychotics impact dopamine and serotonin levels.[7] Antipsychotic use can lead to serious side effects, such as movement issues, sedation, and diabetes.[7] Atypical antipsychotics are generally recommended as first-line treatment for most cases of psychosis, as they are likely to cause fewer movement-related side effects compared to typical antipsychotics.[8] Other

approved indications for antipsychotics include bipolar disorder and as an adjunct treatment for major depressive disorder.

A summary of the approved indications for antipsychotics in provided in Table 5 in Appendix 2 .

Antipsychotic Use in LTC

Antipsychotic medications are sometimes used to treat behaviours or conditions that may be difficult for care providers to manage in LTC, such as insomnia and the behavioural and psychological symptoms of dementia (e.g., responsive behaviours such as aggression, anxiety, agitation). These symptoms can be caused by many contributing factors, including pre-existing personality or psychiatric illness, environment, acute medical problems (e.g., urinary tract infection, constipation), and unmet need (e.g., pain, hunger, isolation, boredom) specific to each individual.[2,9,10] The use of antipsychotics for dementia is considered "off-label" in Canada, except for risperidone and brexpripazole (second generation antipsychotics), which Health Canada has approved for short-term symptomatic management of aggression, psychotic symptoms or agitation for individuals with severe dementia of the Alzheimer type, specifically when they are unresponsive to non-pharmacological approaches and they pose a risk of harm to self or others.[11,12] While the use of antipsychotics may be reasonable in some cases, such as severe agitation, aggression or psychosis, there is concern that antipsychotics are sometimes prescribed for people living with dementia when they are not indicated or when harms outweigh potential benefits. There is limited evidence that some antipsychotics may be effective for managing specific behavioural and psychological symptoms of dementia (e.g., short-term management of severe agitation).[13,14] However, antipsychotic use may increase the risk of stroke, falls, fractures, fall-related hospitalizations, and mortality among people living in LTC.[13-16]

Using antipsychotics without assessing and addressing the root causes of behavioural and psychological symptoms of dementia, or without considering alternative treatment options, is unlikely to be a safe and effective care strategy in the long-term.[10,18] Relying on antipsychotics in these cases may overlook the contributing factors to behavioural and psychological symptoms of dementia that are specific to each individual. Additionally, antipsychotics can negatively impact an individual's autonomy, which is the right to self-governance and the ability to act in a way that is aligned with one's desires and preferences. While autonomy is often compromised in those with advanced dementia,[19,20] the sedative effects of antipsychotics (also referred to in the literature as chemical restraints when used to manage behaviours) can exacerbate impairments in an individual's ability to participate in decisions about their care, thereby further reducing autonomy. In essence, antipsychotic use in people living in LTC who have dementia but do not have a diagnosis of psychosis can conflict with an individual's right to dignified care. Dignity in care means respecting an individual's personhood and autonomy and recognizing their capacity and goals, as well as doing nothing to undermine it.[20,21]

Canadian clinical practice guidelines recommend against the use of antipsychotics in people with dementia living in LTC in most circumstances.[2,22-25] Antipsychotics may only be considered when the behavioural and psychological symptoms of dementia (e.g., aggression, agitation) are severe and there is an immediate risk of harm to the individual or to others.[2,24,26-28] Appendix 3 presents a summary of the Canadian clinical practice recommendations. These guidelines align with the standards developed by the Health Standards Organization (HSO) for LTC services in Canada, which is against antipsychotics as a first line of treatment for behavioural and psychological symptoms of dementia.[22]

What do we mean by "potentially inappropriate use of antipsychotics" and how is it measured?

Given that antipsychotics are seldom approved or recommended for use in people with dementia in LTC, and because of the risk of harms associated with these medications, the use of antipsychotic drugs in people without a diagnosis of psychosis is considered potentially inappropriate. In Canada, the Canadian Institute for Health Information (CIHI) uses the quality indicator "potentially inappropriate use of antipsychotics in LTC" to monitor the percentage of people living in LTC taking antipsychotics without a diagnosis of psychosis.[29] This quality indicator, as well as the methods to calculate it, was developed by interRAI, a network of international experts that develops tools to facilitate evidence-based clinical practice and policy decision-making. The quality indicator provides valuable information on the quality of care delivered by LTC facilities at the local, provincial, and national level, as well as insight on quality improvement efforts by tracking trends over time.

The indicator measures the percentage of people living in LTC on antipsychotics without a diagnosis of psychosis, and excludes people living in LTC with end-stage disease (6 months or less to live) or those who are diagnosed with schizophrenia or Huntington's chorea, as well as those with hallucinations or delusion during the relevant period.[29] CIHI describes that "lower is better; it means that a lower percentage of [people living in LTC] received antipsychotic medication without a diagnosis of psychosis."[29] Refer to the Quality Indicator section of this report for a complete description of this indicator.

As is implied in the name of the indicator by the use of the term "potentially inappropriate," this quality indicator will likely always include some individuals that are using antipsychotics for reasons that are considered clinically appropriate.[30] By way of its exclusion parameters as defined by interRAI, the quality indicator interprets certain approved indications for antipsychotics as potentially inappropriate, specifically bipolar disorder and major depressive disorder without hallucinations or delusions (refer to Table 5 in Appendix 2 for the indications of antipsychotics).[30] The interRAI methodology used to calculate this quality indicator also labels certain

circumstances where antipsychotic use may be considered clinically reasonable as "potentially inappropriate", such as the short-term treatment of severe aggression

Given that the quality indicator is designed to measure "potentially inappropriate" use, by definition, it may include a proportion of individuals who are receiving antipsychotics appropriately in LTC. Therefore, while a lower number is better, it is likely and reasonable that performance rates on the quality indicator will never reach 0.

Who may be disproportionately affected by potentially inappropriate antipsychotic use in LTC?

A retrospective cohort study found that adults 85 years and older are less likely to initiate and more likely to discontinue potentially inappropriate antipsychotic use following 180 days of admission in Ontario, compared to counterparts between the ages of 66 and 84 years.[31] There is evidence to suggest that discontinuing long-term antipsychotic use is possible without exacerbating challenging behavior,[32] despite the fears and concerns expressed by health professionals and LTC staff.[33-37]

Although women are at higher risk of dementia,[4] the same retrospective cohort study found that men have higher rates of potentially inappropriate antipsychotic use following admission to LTC homes in Ontario.[38] This finding aligns with other studies investigating trends of antipsychotic use in relation to sex.[39] There is some evidence to suggest that men with dementia exhibit more aggressive symptoms compared to women with dementia.[38,40] Of note, the literature did not differentiate between gender and sex, and did not account for gender diverse identities (e.g., non-binary).

It is unclear whether there are racial and ethnic disparities in the rate of potentially inappropriate antipsychotic use in LTC in Canada. Research from the United States suggests that LTC facilities caring for a higher proportion of non-white older adults have higher potentially inappropriate antipsychotic use.[41] Additionally, the demographics of people living with dementia in Canada is expected to increase in diversity.[4] By 2050, the Alzheimer Society of Canada estimates that 1 in 4 individuals living with dementia will be of Asian origin.[4] This group represents a variety of ethnicities, such as Chinese, Indian, Filipino, Vietnamese, Pakistani, Iranian, Korean, Sri Lankan, Japanese and many more.[4] The Alzheimer Society's projections also indicate an increase in the proportion of Indigenous Peoples, as well as people of Caribbean and African descent, living with dementia.[4]

Beyond individual factors, the environment and resources of a LTC home can influence the rate of antipsychotic use. A cross-sectional study found that LTC homes in low socioeconomic areas in the US have higher rates of antipsychotic use. Of note, this study measured antipsychotic use

using the Center of Medicare & Medicaid Services (CMS) quality indicator 'Percent of Residents Who Received an Antipsychotic Medication (long stay)', which differs from how the quality indicator measured by CIHI is calculated (Refer to Table 6 in Appendix 2 [42] Low socioeconomic areas are likely to have less green space, higher crime rates, low quality built environments, and more noise pollution that can contribute to cognitive and psychological decline in adults.[42] However, the same study found that adequate staffing levels can mitigate the difference in the rate of antipsychotic use between low and high socioeconomic areas.[42]This aligns with the findings of a scoping review of US studies, which suggests that LTC homes with lower nurse hours per person per day have higher rates of potentially harmful antipsychotic use.[41] Adequate staffing levels correspond to more resources and time to implement evidence-based interventions.[42] This scoping review included studies using different quality indicators to measure antipsychotic use in "potentially harmful" circumstances. The indicators used by included studies may differ from how the quality indicator measured by CIHI is calculated.

Why is this an issue?

Addressing the potentially inappropriate use of antipsychotics in LTC has been a quality improvement focus in Canada for several years. As a result of these efforts, the quality indicator revealed a decline in potentially inappropriate antipsychotic use in LTC in Canada by 2019.[43] Many programs contributed to the progress made in the appropriate use of antipsychotics in LTC by supporting person-centered care and providing non-drug care strategies for people with dementia. For instance, Alberta's Appropriate Use Toolkit provides guidance to assess and manage responsive behaviours and facilitate appropriate use of medications (e.g., deprescribing algorithm).[44] Similarly, the Optimizing Practices, Use, Care, and Services-Antipsychotics (OPUS-AP) program in Quebec increased the knowledge and competency of LTC providers and staff to facilitate deprescribing antipsychotics when appropriate.[45,46] The Appropriate Use of Antipsychotics approach by Healthcare Excellence Canada supports LTC homes to deprescribe antipsychotics by fostering a supportive environment and tailoring care to individual needs and preferences.[47]

However, potentially inappropriate antipsychotic use in LTC has increased and continues at an undesirable rate since the start of the COVID-19 pandemic in 2020.[48-51] In 2022, 1 in 4 people living in LTC homes in Canada were taking antipsychotics considered to be potentially inappropriate, with some jurisdictions having higher rates than others.[51]

With the expected rise in the prevalence of dementia in the coming decades,[3,4] increasing rates of antipsychotic use are concerning given its marginal benefits and potential for physical harms (e.g., falls, stroke, and mortality).[13-16] Further, some argue that potentially inappropriate antipsychotic use is a superficial approach to manage behavioural and psychological symptoms of dementia that compromises safety and dignity.[20,52] Additionally, as the population with

dementia becomes more diverse,[4] certain racial and ethnic groups may be disproportionally impacted by potentially inappropriate antipsychotic use and its potential for physical harms.

While the quality indicator reveals an increase in potentially inappropriate antipsychotic use in LTC, it is encouraging to note that the decline in rates observed prior to 2020 signifies the sector's capability to achieve lower rates. However, there is currently no l target for LTC homes in Canada for the quality indicator "potentially inappropriate use of antipsychotics in LTC" that could provide guidance for LTC homes and appropriate use programs across Canada. Establishing a target related to the appropriate use of antipsychotics will further support safety and quality of care for those living in LTC.

What did we do?

Canada's Drug Agency, in collaboration with Choosing Wisely Canada and supported by the Appropriate Use Coalition, hosted a multidisciplinary panel of experts to develop evidence-informed consensus statements on a target for LTC homes in Canada and an annual improvement goal related to the appropriate use of antipsychotics through a modified Delphi process.

This Environmental Scan is a supporting document for the consensus statements on the Appropriate Use of Antipsychotics in Long-Term Care. It was provided to the panel of experts along with a summary of engagement input from interested parties (e.g., groups representing people living in LTC, their families and caregivers, and other community groups) to help them prepare for the Delphi process. The panel used this information and their relevant expertise to develop consensus statements for a target for LTC homes in Canada and an annual improvement goal for the quality indicator "potentially inappropriate use of antipsychotics in LTC", which are available on the CDA-AMC website. The information in this scan was also used to generate the survey options for the target and the goal in the first round of the Delphi process.

A note on terminology

A target may also be known as a benchmark; however, the term "benchmark" is used inconsistently in the literature. For the purposes of this work, we reported values as "benchmarks" if that is the language used in the source document, otherwise we use the term "targets."

A target for LTC homes in Canada: A level of excellence for performance on a quality indicator to which organizations across Canada can aspire.

- The target for the quality indicator "potentially inappropriate use of antipsychotics in LTC," is presented as a risk-adjusted rate (expressed as a percentage) that reflects acceptable practice in LTC homes in Canada.
- The target does not include a specific timeframe to reach the value, as the time required to reach the target will depend in part on each LTC home's current performance on the quality indicator

Annual improvement goal: An interim improvement goal that LTC homes can aim to achieve as they work toward reaching the target for LTC homes in Canada. It is expressed as a percent relative reduction, per year, and reflects an achievable rate of change through quality improvement.

This Environmental Scan provides background information about potentially inappropriate use of antipsychotics in LTC to help inform the development of a target for LTC homes in Canada and an annual improvement goal, including:

- performance on and existing targets for the quality indicator that measures potentially inappropriate use of antipsychotics in LTC homes in Canada and internationally.
- findings from quality improvement initiatives that demonstrate what is possible in terms of the rate of change for the quality indicator (i.e., by how much and how quickly did performance improve?)
- areas of opportunity, including barriers and facilitators, at the individual, LTC home, and system level, to help inform the implementation of the target
- other considerations for decision-making, such as unintended consequences of efforts to improve performance on this quality indicator.

The methods for this Environmental Scan are described in the methods document on the CDA-AMC website.

Quality Indicator: Potentially Inappropriate Use of Antipsychotics in LTC

This section provides information to introduce and describe features and limitations of CIHI's interRAI quality indicator 'potentially inappropriate use of antipsychotics in LTC' for which the expert panel will propose a target and an annual improvement goal.

Data Definition[29]

Name: Potentially Inappropriate Use of Antipsychotics in Long-Term Care

Other name: Percentage of Residents on Antipsychotics Without a Diagnosis of Psychosis (DRG01)

Description: "This indicator looks at how many long-term care residents are taking antipsychotic drugs without a diagnosis of psychosis. These drugs are sometimes used to manage behaviours in residents who have dementia. Careful monitoring is required, as such use raises concerns about safety and quality of care." The result on the quality indicator is expressed as a percentage (i.e., numerator/denominator), and is reported as an unadjusted and an adjusted rate.

Numerator: People living in LTC who received antipsychotic medication on at least one day in the week before their valid target assessment.

Denominator: People living in LTC with valid assessments

Inclusions in the measurement of the quality indicator:

1. Residents with valid assessments. To be considered valid, the target assessment must
    a. Be the latest assessment in the quarter
    b. Be carried out more than 92 days after the Admission Date
    c. Not be an Admission Full Assessment or First Assessment

Exclusions from the measurement of the quality indicator:

1. Residents who are end-stage disease (with 6 months or less to live) or receiving hospice/palliative care
2. Residents who have a diagnosis of schizophrenia or Huntington's chorea, or those experiencing hallucinations or delusions

Method of Adjustment: Stratification, direct standardization, indirect standardization

Covariates used in Risk adjustment:

Individual covariates: Motor agitation; moderate/impaired decision-making problem; long-term memory problem; Cognitive Performance Scale (CPS); combination Alzheimer's disease/other dementia; age younger than 65

Facility-level stratification: case mix index

How is this Quality Indicator Measured?

In 2003-2004, CIHI launched the Continuing Care Reporting System (CCRS) which uses quality indicators developed by InterRAI to measure the quality of care delivered by LTC homes in Canada. Data is reported from LTC homes with publicly funded or subsidized beds. CIHI is in the process of transitioning to Integrated interRAI Reporting System (IRRS), as the new standard and reporting system for LTC homes in Canada. Previous reporting systems, including the CCRS, will be decommissioned by March 2026.[53]

Data is collected by LTC homes using standardized clinical assessment tools, either the Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) or the interRAI Long-Term Care Facilities (interRAI LTCF). As certain provinces and territories are in the process of or have transitioned to the newer interRAI LTCF, the national average will be based on both instruments until the transition is complete.[29]

While there are a few differences between the assessment tools, the interRAI LTCF and the RAI-MDS 2.0 "indicator results are comparable and appropriate to be trended over time and across instruments".[29] One difference to note is that the RAI-MDS captures exclusions from the measurement in the 7 days prior to assessment, whereas the interRAI LTCF captures exclusions in the last 3 days, or symptoms in the exclusion list that did not occur in the past 3 days but are typically part of the person's clinical profile; however both capture antipsychotic use in the previous 7 days.[54,55]

Geographic Coverage

The number of LTC facilities and provinces and territories reporting this quality indicator data to CIHI varies over time and is generally increasing. As of August 2024, the "potentially inappropriate use of antipsychotics in LTC" quality indicator is measured in Newfoundland and Labrador, New Brunswick, Nova Scotia, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, and the Yukon.[29]

The process of transitioning between tools may have impacted data coverage in certain jurisdictions (e.g., due to disruptions or delays in data submission to CIHI) that can impact results for that time period, which is reflected in the quality indicator results. Notably:

- In Nova Scotia, the transition started in 2022 and it is ongoing; due to low coverage and lack of a full year of data, the results are currently excluded from public reporting. Data from Nova Scotia will be included for 2023-2024.(Michael Chislett, CIHI, Ottawa, ON: personal communication, 2024 Sep 27)
- New Brunswick completed the adoption in 2016–2017 and started submitting data to IRRS in 2020
- Saskatchewan completed the transition in 2019–2020, and started submitting data to IRRS in 2020
- In Alberta, the transition started in 2021 and is ongoing; currently only data from the RAI-MDS 2.0 CCRS is submitted to CIHI

In addition, CIHI acknowledges the impact of the COVID-19 pandemic on LTC homes in Canada, and their ability to complete assessments and/or submit data to CIHI, and that results should be interpreted within the context of the pandemic.[29]

Coverage for the province or territory is measured as the percentage of LTC homes within the respective region that submitted data out of all the LTC homes that were expected to submit data for the fiscal year of reporting. Whether the data provided for a province or territory reflects full coverage (i.e., 95% or higher) or partial coverage (i.e., only certain LTC homes or regional health authorities submitted data, and coverage is less than 95%) for that jurisdiction may vary from year to year. Results are suppressed if coverage is 60% or less.

While this quality indicator is not currently reported to CIHI or measured in the Northwest Territories, Prince Edward Island, Nunavut and Quebec, there is the potential that some of these jurisdictions may adopt this quality indicator and/or begin submitting this data to CIHI in the future.

Considerations for the Quality Indicator

While the quality indicator "potentially inappropriate use of antipsychotics in LTC" is a valuable performance indicator at the LTC home, provincial, and national level, there are some limitations to this indicator,[30] as is the case for all quality indicators.

As the quality indicator is designed to measure "potentially inappropriate" antipsychotic use in LTC, it is likely (and expected) that a proportion of individuals who are receiving antipsychotics appropriately will be included in the quality indicator.[30] For instance, while the quality indicator excludes people with a diagnosis of schizophrenia, or Huntington's chorea, or those experiencing hallucinations or delusions, and people who are end-of-life, there are other potentially appropriate indications for antipsychotics that are not part of the exclusion criteria. For example, other

mental health conditions (i.e., bipolar disorder, major depressive disorder), or the short-term treatment of aggression in people with severe dementia (refer to Table 5 in Appendix 2 for approved indications for antipsychotics) may also be appropriate indications for antipsychotics in older adults in LTC. In addition, the indicator would categorize the off-label, yet perhaps clinically reasonable, use of antipsychotics (e.g., atypical antipsychotics may sometimes be used off-label to treat obsessive-compulsive disorder, post-traumatic stress disorder, or generalized anxiety disorder) as potentially inappropriate use.[56] While some of the covariates used in the risk-adjustment methodology (e.g., cognitive performance scale, motor agitation) can adjust performance rates to account for these situations, antipsychotic use in these potentially appropriate conditions and circumstances contributes to why performances rates on this quality indicator are not expected to reach 0.

Another consideration for this quality indicator is that it is only providing a "snapshot" of the data due to assessment period during which individuals are assessed. Both the RAI-MDS 2.0 assessment tool and the interRAI LTCF capture whether an antipsychotic was received in the previous 7 days, and whereas coding for exclusion criteria (e.g., schizophrenia, delusions, hallucinations) is captured in the previous 7 days for RAI-MDS 2.0 and the previous 3 days for interRAI LTCF.[54,55] Thus people who are experiencing certain behaviours or receiving certain care during the assessment period may not exhibit those same behaviours or require the same care at another time (although the newer interRAI LTCF also captures symptoms that are typically part of the person's clinical profile but may not have occurred in the previous 3 days).[56]

LTC Home Case-Mix

The quality indicators measured by CIHI are intended to measure the quality of care delivered by LTC homes, but some factors that are beyond a LTC home's control may affect their performance on a quality indicator. Thus LTC homes with more people who are at higher-risk of poor outcomes may appear to have poorer performance rates than other LTC homes with a different population.[57] The case-mix of a LTC home reflects the diversity, complexity, and severity of illnesses among the people living in LTC. CIHI's case-mix index categorizes people living in LTC into statistically and clinically homogeneous groups based on clinical and administrative data (i.e., people are grouped based on clinical and resource use similarities), which can be used to compare performance across facilities and jurisdictions.[58]

To enable more appropriate and fair comparisons between LTC homes, the quality indicator for potentially inappropriate antipsychotic use in LTC is risk-adjusted at the individual level (i.e., logistic regression to adjust for covariates such as cognitive performance and Alzheimer's disease or other dementia) and at the LTC home level (i.e., by stratifying and reweighting the data relative to the CIHI case mix index).[29,57] However, it is important to remember that statistical

methods like risk-adjustment of a quality indicator cannot control for all factors that might affect performance on a quality indicator.[57]

In the US, there is a concern that LTC homes will alter who they admit given the potential impact of people who are at higher risk of poor outcomes on the CMS quality indicator for antipsychotic medication in LTC, and national efforts to improve performance on this indicator.

- In one qualitative surveys of physicians and staff at LTC homes in 7 states, respondents reported that they were concerned that LTC homes that had a higher proportion of people with mental illness or with severe behaviours would be penalized due to their higher use of antipsychotics.[59] Respondents also said that some LTC homes are refusing to admit people based on their psychiatric history.[59]
- In one qualitative study on lessons learned from the CMS national partnership to improve dementia care, it was reported that some LTC homes changed their admission process in response to the national partnership.[60] It was reported that some LTC homes were intentionally avoiding admitting people who were likely to require the use of antipsychotic medications, and "cherry-picking" people who were considered as a more "desirable" admission (i.e., unlikely to require the use of antipsychotics).[60]

Findings

Quality Indicators

The primary focus of this report is on the interRAI quality indicator "potentially inappropriate use of antipsychotics in LTC" (i.e., the percentage of people living in LTC taking antipsychotic drugs without a diagnosis of psychosis). This is the quality indicator used across Canada and is thus most relevant for the development of a proposed target for appropriate use of antipsychotics in LTC homes in Canada. Although this quality indicator is not currently measured or reported to CIHI in the Northwest Territories, Nunavut, Prince Edward Island and Quebec, Northwest Territories and Prince Edward Island are working towards reporting data to CIHI; thus, this information may be relevant to future decision-making in those jurisdictions. Nunavut and Quebec have not committed to using this indicator or submitting data to CIHI at this time. (Michael Chislett, CIHI, Ottawa, ON: personal communication, 2025 Mar 21)

However, as they may provide insight to the panel, we also included information on other quality indicators that aim to measure the same or similar concept as the quality indicator measured by CIHI.

The quality indicators included in this report are:

- Potentially inappropriate use of antipsychotics in LTC (interRAI; measured by CIHI)[29]
- Percent of residents who received an antipsychotic medication (long stay) [US; Centers for Medicare & Medicaid Services (CMS)][61]
- Nursing home inappropriate antipsychotic use (US; AARP)[62]
- Medication management – antipsychotics (Australia; National Aged Care Mandatory Quality Indicator Program)[63]
- Antipsychotic use (Australia; Registry of Senior Australians)[64]
- Users of antipsychotics in older persons in homes for older people (OLD-11) (Belgium)[65]
- "Proportion of patients who receive treatment with antipsychotic drugs" (Sweden)[66]

Table 6 in Appendix 2 summarizes the features of each quality indicator, including how the different indicators are calculated and how they compare to the indicator measured by CIHI. Any data included in this report for these other quality indicators should be interpreted with consideration of the differences between these quality indicators and quality indicator measured by CIHI. Some key differences from the quality indicator measured by CIHI include variation in the exclusion criteria (e.g., not excluding people experiencing hallucinations or delusions, and people who are end-of-life from the denominator), not reporting or not using risk adjustment methods, or

broader inclusion criteria (i.e., including all those who received an antipsychotic including those diagnosed with psychosis).

Quality Indicator Performance and Targets

Regarding the potentially inappropriate use of antipsychotics in LTC, we identified the following:

- Summary statistics for performance on the quality indicator from Canada, including:
    - Data from interRAI: risk-adjusted rates for the median, 20th and 80th percentiles of LTC homes for the first quarters of 2019 and 2022 (refer to Table 1).
    - Data from CIHI: risk-adjusted rates nationally, and for the overall province or territory, and for the median, 10th and 90th percentiles of LTC homes, based on a rolling 4 quarter average from 2018-2019 to 2022-2023 (refer to Table 2, Table 3, and Table 9). We report CIHI data for LTC homes (referred to as "residential care" by CIHI). We did not report the data for hospital-based continuing care facilities.
- Summary statistics for performance on the quality indicator from the US, Australia, Belgium, and Sweden (refer to Table 7 in Appendix 2 Appendix 2
- 8 proposed or established targets or benchmarks (refer to Table 8 in Appendix 2 including:
    - 6 Canadian targets or benchmarks for the quality indicator measured by CIHI, including:
        - an established benchmark for Ontario
        - provincial targets for Alberta, British Columbia, and Saskatchewan
        - a regional target for Island Health in British Columbia
        - a target for private LTC homes contracted by the Saskatchewan Health Authority
    - 2 international targets for quality indicators that are similar to the interRAI quality indicator

The term 'benchmark' is used inconsistently in the literature. For the purposes of this report, we have reported values as 'benchmarks' if that is the language used in the source document, otherwise they are reported as 'targets.'

Canada

Quality Indicator Performance

Data from interRAI

Performance on the quality indicator potentially inappropriate use of antipsychotics in LTC had been on steady decline prior to the start of the COVID-19 pandemic, however the rate of potentially inappropriate use of antipsychotics in LTC has since increased in all provinces and territories in Canada (refer to Figure 1).

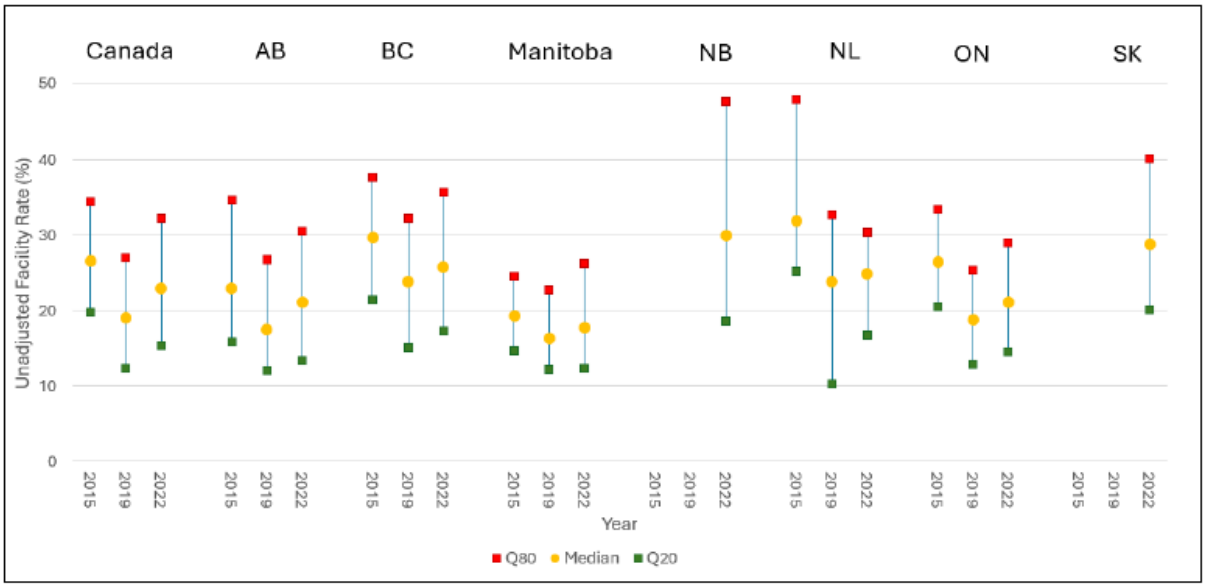

Figure 1. Canadian Trends in Risk-Adjusted Quality Indicator 'Potentially Inappropriate Use of Antipsychotics in Long-Term Care', First Quarters of 2015 – 2022, by Province

Source: Reproduced with permission from Hirdes JP, Mulla RT, Ziraldo MM. Using interRAI Assessment Data to Inform Efforts to Support Choosing Wisely Canada Initiatives Related to Medication Use in Canada. [Toronto (ON)]: Choosing Wisely Canada; 2024.

The national and provincial distributions (i.e., median, 20th and 80th percentiles) for the first quartiles of 2019 and 2022, based on interRAI data are presented in Table 1. In the first quarter of 2019, 20% of LTC homes in Canada had a rate of potentially inappropriate use of antipsychotics at or below than 12.6% (20th percentile). The 20th and 80th percentiles are used by interRAI to represent conventional cut-points for "good or poor performance" based on risk-adjusted interRAI quality indicators; [67] interRAI also uses these percentiles as they represent larger groups with more stable estimates) (Dr. John Hirdes, interRAI Canada, University of Waterloo, Waterloo ON: unpublished data, 2024 Aug 2).

In general, the rate of potentially inappropriate antipsychotic use in LTC has increased for all provinces and territories since 2019 (refer to Table 1).

Table 1. Potentially Inappropriate Use of Antipsychotics in LTC, First Quarters of 2019 and 2022, by Province – Data from interRAI

Jurisdiction	Year	Risk adjusted rate, LTC facility level distribution (%)		
		20th percentile	Median (50th)	80th percentile
Canada	2019	12.6	19.2	27.7
	2022	15.3	23.1	32.5
Newfoundland and Labrador	2019	10.2	23.2	31.7
	2022	16.8	24.9	30.4
New Brunswick	2019	–	–	–
	2022	18.6	29.9	47.6
Ontario	2019	13.0	18.8	25.4
	2022	14.5	21.2	29.0
Manitoba	2019	12.2	16.4	23.6
	2022	12.3	17.7	26.2
Saskatchewan	2019	–	–	–
	2022	20.1	28.8	40.2
Alberta	2019	12.5	17.9	28.0
	2022	13.4	21.1	30.5
British Columbia	2019	15.1	23.9	32.7
	2022	17.6	25.9	36.1

LTC = long-term care.

Note: Risk adjusted quality indicators are reported for the first quarters of the year. Percentiles represent the percentage of LTC homes that are at or lower than the stated value.

Source: (Dr. John Hirdes, unpublished data, 2024 Aug 2).

InterRAI also shared an analysis that suggests no significant differences between high performing (20th percentile) and lower performing (80th percentile) homes in terms of size, urban or rural location, jurisdiction, and income (Dr. John Hirdes, interRAI Canada, University of Waterloo, Waterloo ON: unpublished data, 2025 Jan 15).The top 20% of LTC homes included: homes in all provinces; small, medium, and large LTC homes: rural and urban locations; and homes in all income quintiles. This suggests that it is possible for all homes to improve their performance on the quality indicator, regardless of home size, rural or urban location, and income.

Data from CIHI

National data from LTC homes (referred to as "residential care" by CIHI) from CIHI for the quality indicator 'potentially inappropriate use of antipsychotics in LTC' is presented in Table 2. This excludes data for hospital-based continuing care facilities.[68,69]

In 2023–2024, the overall risk-adjusted rate for the potentially inappropriate use of antipsychotics in LTC in Canada was 24.3%. This means that 24.3% of people living in LTC homes in Canada in 2023–2024 received an antipsychotic without a diagnosis of psychosis. When looking at the distribution of LTC homes in 2023–2024, 10% of LTC homes in Canada had a rate of potentially inappropriate use of antipsychotics at or lower than 9.5% (10th percentile); 50% of LTC homes had a rate at or lower than 23.5% (median); and 90% of LTC homes had a rate at or lower than 41.0% (90th percentile).[69]

The 2023-2024 rates of potentially inappropriate use of antipsychotics in LTC are higher than those observed in previous years. Notably, in 2019-2020 the overall risk-adjusted rate was 20.2%, and 10% of LTC homes had a rate at or lower than 8.4% (10th percentile).[68]

Table 2. Quality Indicator Potentially Inappropriate Use of Antipsychotics in LTC – National Distribution from CIHI

Year	Overall risk-adjusted rate (%)	Risk adjusted rate, LTC facility level distribution (%)		
		10th percentile	Median (50th percentile)	90th percentile
2018-2019[a]	20.6	8.8	19.7	34.2
2019-2020[a,b]	20.2	8.4	19.3	34.5
2020-2021[a,b]	21.3	9.2	19.9	33.8
2021-2022	23.9	10.2	22.9	39.7
2022-2023	24.4	10.5	23.3	40.4
2023–2024	24.3	9.5	23.5	41.0

LTC = long-term care.

Note: Data is reported for LTC homes (referred to as "residential care" by CIHI) and excludes hospital-based continuing care facilities. Risk adjusted quality indicators are reported using a rolling 4-quarter average. Percentiles represent the percentage of LTC homes that are at or lower than the stated value. Data reflects LTC homes with publicly funded or subsidized beds.

For 2022–2023 and 2023–2024, results for Newfoundland and Labrador, New Brunswick, Ontario, Saskatchewan, British Columbia and the Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage.

For 2021–2022 results for Newfoundland and Labrador, New Brunswick, Ontario, Saskatchewan, Alberta, British Columbia and Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage

For 2018–2019, 2019–2020, 2019–2020 Results for Newfoundland and Labrador, Ontario, Alberta, British Columbia and Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage.

[a] No data available from New Brunswick

[b] No data available from Saskatchewan

Source: https://www.cihi.ca/en/quick-stats Accessed June 14, 2024[68] and November 12, 2024.[69]

Provincial data from CIHI for 2023-2024 for the quality indicator potentially inappropriate use of antipsychotics in LTC is presented in Table 3.

The median risk-adjusted rate ranges by province from 19.1% in Ontario to 36.4% in the Yukon. The 10th percentile risk adjusted rate (i.e., 10% of LTC facilities had a rate at or lower than this value) ranged from 6.9% in Alberta to 19.2% in Newfoundland and Labrador.

Table 3. Quality Indicator Potentially Inappropriate Use of Antipsychotics in LTC – CIHI data by Jurisdiction for 2023–24

Jurisdiction	Overall risk-adjusted rate (%)	Risk adjusted rate, LTC facility level distribution (%)		
		10th percentile	Median (50th)	90th percentile
Newfoundland and Labrador	31.8	19.2	30.8	47.1
New Brunswick	33.6	10.9	30.2	56.4
Ontario	20.5	7.5	19.1	31.3
Manitoba	24.9	11.9	21.8	32.2
Saskatchewan	34.8	12.1	33.2	49.3
Alberta	22.5	6.9	21.7	40.0
British Columbia	29.4	11.3	29.5	45.3
Yukon	35.3	13.9	36.4	39.9
Canada	**24.3**	**9.5**	**23.5**	**41.0**

LTC = long-term care.

Note: Data is reported for LTC homes (referred to as "residential care" by CIHI) and excludes hospital-based continuing care facilities. Risk adjusted quality indicators are reported using a rolling 4-quarter average. Percentiles represent the percentage of LTC homes that are at or lower than the stated value. Data reflects LTC homes with publicly funded or subsidized beds. Results for Newfoundland and Labrador, New Brunswick, Ontario, Saskatchewan, British Columbia and the Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage.

Source: https://www.cihi.ca/en/quick-stats Accessed November 12, 2024.[69]

Using CIHI data between 2018-2019 and 2023-2024, we also identified when provinces or territories achieved their best performance (i.e., lowest rate) on the quality indicator for the median, 10th and 90th percentiles and the year it was achieved (refer to Table 9 in Appendix 2 [68] These values demonstrate what level of performance on this quality indicator is achievable, and may help inform the development of the target that is both aspirational and achievable for LTC homes.

Since 2018-2019, the best rate for the 10th percentile of facilities (i.e., 10% of facilities in the province were at that rate or lower) by province was:

- Newfoundland and Labrador 7.6% (2019-2020)

- New Brunswick 10.9% (2023–2024)
- Ontario 7.5% (2023–2024)
- Manitoba 6.7% (2018–2019)
- Saskatchewan 7.8% (2018–2019)
- Alberta 6.9% (2023–2024)
- British Columbia 10.7% (2018–2019 and 2019–2020)
- Yukon 0.0% (2018–2019 and 2019–2020)

Targets or Benchmarks

Ontario

In Ontario, there is a provincial benchmark of 19% for this quality indicator. This benchmark was established in 2017 by Health Quality Ontario, using an expert panel and a modified Delphi process (refer to Table 8 in Appendix 2 .[70,71] The reasons provided for selecting this benchmark included that this value represented "achievable yet high quality care" based on the performance distribution in LTC homes in Ontario; that the value was similar to those set in other jurisdictions; and that it was consistent with safety and effectiveness evidence.

In 2023-2024, Ontario had the best overall risk-adjusted rate at 20.5% compared to the other provinces, with 50% of LTC homes in Ontario having a rate at or lower than 19.1% (median) (refer to Table 3).[69]

Saskatchewan

In Saskatchewan, for the use of antipsychotic drugs in LTC, there was a provincial target of a "5% reduction by March 31, 2019".[72] It was unclear when this target was established but the Saskatchewan Health Authority annual report to the legislature in 2018-2019 reported that "the provincial target of a 5% reduction, or 22.9% of LTC residents" was not met. We did not find any provincial targets for Saskatchewan published since 2019.[72]

Within Saskatchewan, the Saskatchewan Health Authority contracts services at 15 private sector LTC homes in Saskatoon and surrounding area. For these private sector LTC homes, the 2022 – 2023 target for the performance measure potentially inappropriate use of antipsychotics was "not to exceed 27.5%"; of which 13 of the 15 contracted private LTC homes did not meet the target.[73] It is important to consider that this is a target for 15 private LTC homes, and that this may impact its relevance to a target for LTC homes in Canada.

Alberta

In Alberta, through the Appropriate Use of Antipsychotics project, a 5-year target was set in 2013 to have a provincial average of less than or equal to 20% by 2018 (refer to Table 8 in Appendix 2).[74] The goal of the project is to use antipsychotics appropriately to improve quality of life in older adults living in LTC. We did not find any targets for Alberta published since the 2013 target.

In 2018-2019, the overall risk-adjusted rate for Alberta was 17.2%, but this rate had increased to 22.5% by 2023 to 2024.[68] However, in 2023-2024, Alberta had the lowest rate at the 10th percentile compared to the other provinces, with 10% of LTC homes in Alberta having a rate at or lower than 6.9%, and 50% of LTC homes had a rate at or lower than 21.7% (median) (refer to Table 3).[69]

British Columbia

In BC, provincial targets were set in the Ministry of Health service plan. The target for 2024–2025 is 21.0%, followed by targets of 18.0% for the 2025 to 2026 and 2026 to 2027 years (refer to Table 8 in Appendix 2 .[75] These targets were set with the aim to improve performance over time compared to current levels, and the authors reported that nationally or internationally, that there is no clear optimal target for this quality indicator due to "evolving resident complexity and rising rates of dementia".[75] In 2023 to 2024, the overall risk-adjusted rate for BC was 29.4% (refer to Table 3).[69]

Within BC, Island Health BC set a regional target for 2023-2024 of less than or equal to 26.1% (refer to Table 8 in Appendix 2).[76] They did not provide a rationale behind adopting a different target from the provincial target. Island Health BC's 2023-2024 target was reduced compared to a previous target to reflect their intention of continuous quality improvement. In the first quarter of 2023-2024, Island Health BC reported that their performance for the year to date (i.e., 27.6%) was outside the acceptable range.[76]

Key Takeaways: Quality Indicator Performance and Targets in Canada

- The risk-adjusted rate for the quality indicator potentially inappropriate use of antipsychotics in LTC has increased across Canada since 2019. For instance:
    - In 2023-2024, 50% of the LTC homes in Canada had a rate of potentially inappropriate use of antipsychotics at or lower than 24.3%, and 10% of the LTC homes in Canada had a rate of potentially inappropriate use of antipsychotics at or lower than 9.5%.
    - In 2019-2020, 50% of the LTC homes in Canada had a rate of potentially inappropriate use of antipsychotics at or lower than 19.3%, and 10% of the LTC

homes in Canada had a rate of potentially inappropriate use of antipsychotics at or lower than 8.4%

- Some provinces have established benchmarks or targets, generally around 18% to 20%.
- Having a benchmark or target can support quality improvement efforts. Two provinces with benchmarks or targets established before 2022 (i.e., Ontario and Alberta) had better performance on this quality indicator compared to the other provinces without benchmarks or targets.

International

Performance for the potentially inappropriate use of antipsychotics in LTC from the US, Australia, Belgium, and Sweden are reported in Table 7. We also identified 2 international targets or benchmarks for quality indicators that aim to measure potentially inappropriate antipsychotic use in LTC (refer to Table 8 in Appendix 2). Some of the performance data from the US uses the same quality indicator and risk adjustments as the indicator in Canada (i.e., use of the interRAI quality indicator), (Dr. John Hirdes, interRAI Canada, University of Waterloo, Waterloo ON: unpublished data, 2024 Jun 7) but the remaining international data and targets use a quality indicator that differs in some capacity from the quality indicator measured by CIHI.

International performance and targets may provide further insight into the development of a target for LTC homes in Canada for the appropriate use of antipsychotics; however, this information should be interpreted with consideration of the differences between these quality indicators and the quality indicator measured by CIHI (e.g., many are not risk-adjusted; refer to Table 6 in Appendix 2 for a summary of the different quality indicators).

United States

For the US, we identified performance data regarding the potentially inappropriate use of antipsychotics in LTC for 3 different quality indicators.

In 1987, the Omnibus Budget Reconciliation Act (OBRA) restricted the use of psychotropic medications, including antipsychotics, for people living in LTC homes. This act was passed as part of nursing home reform legislation to combat the misuse of psychotropic medications (e.g., medically unnecessary use of antipsychotics). To support the implementation of the OBRA legislation, the Health Care Financing Administration (i.e., the agency responsible for regulating LTC facilities participating in programs by the Centers for Medicare & Medicaid Services (CMS)), developed guidelines in 1990 that remain in use today. These guidelines restrict the use of antipsychotic medications in people with dementia to people with an approved indication, or people with psychotic symptoms and/or those who are a danger to themselves or others.

Facilities that do not meet these legislated requirements may be denied Medicare reimbursement.[77]

The legislative differences between Canada and the US should be considered when interpreting quality indicator performance from the US.

interRAI Data – Quality Indicator Performance

National data from 2017 that used the interRAI quality indicator potentially inappropriate antipsychotic use in LTC (i.e., same data definition and risk adjustment as the quality indicator measured by CIHI) reported:

- 20% of LTC homes in the US had a rate at or lower than 5% (20th percentile)
- 50% of LTC homes had a rate at or lower than 10% (median),
- 80% of LTC homes had a rate at or lower than 13% (80th percentile)

This demonstrates a substantial improvement from 2012, when the median performance rate was 19%.(Dr. John Hirdes: unpublished data, 2024 Jun 7)

Long-term Services and Supports Scorecard – Quality Indicator Performance

The Long-term Services and Supports Scorecard reported that in 2021 the percentage of people living in LTC in the US who were inappropriately receiving antipsychotics medication was 10.3%. Performance on the quality indicator for the best and worst performing states were 6.6% and 25%, respectively.

This scorecard uses the quality indicator "nursing home inappropriate antipsychotic use", which differs from the indicator measured by CIHI in that it excludes people with bipolar disorder, but does not exclude Huntington's chorea, those experiencing hallucinations or delusions, and people who are end-of-life.

Although risk-adjustments by covariate were not reported, this indicator applies an equity adjustment to adjust for race/ethnicity, and they also reported their results by race/ethnicity. When this quality indicator was reported by race, there were 2 groups (i.e., people who are white and people who were reported as "American Indian or Alaska Native" by study authors) that had the worst performance rates at 10%, and people who are Asian had the best performance rate of 5%.[78,79]

CMS –Target or Benchmark

In 2012 in the US, a target for a national average of 20.3% was set for the CMS quality indicator "percent of residents who received an antipsychotic medication (long stay)". The initial target was set to ensure that the national partnership initially made rapid progress, and that systems and

infrastructure were established to continue to work toward lower antipsychotic medication use in LTC. The authors reported that this initial target did not reflect that they believed that a rate of 20.3% is acceptable.[80] We did not find any more recent targets for the US, but in 2017, LTC homes with low rates for this quality indicator were encouraged to continue their efforts and maintain their success, and facilities with high rates were directed to aim for a relative reduction of 15% by the end of 2019.[81]

CMS – Quality Indicator Performance

Based on the results of a national partnership to improve dementia care in the US, which included the national target set in 2012, the national prevalence for the CMS quality indicator decreased from 23.9% in 2011 to 14.3% in 2019 (refer to quality improvement in Table 10 in Appendix 2).[81-83]

In the fourth quarter of 2023, the prevalence of antipsychotic use among people living in LTC homes was 14.8% for the US overall.[84] The rates for this quality indicator for the best and worst performing states were 6.6% and 22.9%, respectively.[84]

The CMS indicator differs from the quality indicator measured by CIHI in that it does not exclude those experiencing hallucinations or delusions, and people who are end-of-life, and no risk-adjustment measures were described (i.e., these are raw rates).

Australia – Quality Indicator Performance

We identified relevant performance data from Australia measured using 2 different quality indicators.

National risk-adjusted data from 2016 from the Registry of Senior Australians outcome monitoring system, reported that 32.0% (95% confidence interval [CI], 31.7% to 32.2%) of people living in LTC were dispensed an antipsychotic. When looking specifically at people with dementia living in LTC, 13.1% (95% CI, 13.0% to 13.3%) were dispensed an antipsychotic.[64] This quality indicator differs from the indicator measured by CIHI in that uses data-linkage from various sources (rather than person-level data) it does not exclude those experiencing hallucinations or delusions, and people who are end-of-life, and different covariates were used in the risk adjustment.

The Australia National Aged Care Mandatory Quality Indicator Program reports on overall use of antipsychotics, and their quality metric includes all people who receive an antipsychotic, including those who received the antipsychotic for a diagnosed condition of psychosis (e.g., delusions, schizophrenia); and is broader than the quality indicator measured by CIHI. In 2024, they reported that 18% of all care recipients received antipsychotic medications, and that 9% of people living in LTC received an antipsychotic with a diagnosis of psychosis.[63,85]

Sweden –Target or Benchmark and Quality Indicator Performance

In Sweden, we identified a national target for the quality indicator "proportion of patients with dementia who receive treatment with antipsychotic drugs" of less than or equal to 10%.[66] In 2022, 15% of older adults with dementia living in "special housing" were receiving treatment with an antipsychotic, and the target was reported as being "not fulfilled".[66] This target should be interpreted with consideration that this this quality indicator is specific to people with dementia and the exclusion criteria and risk adjustment were not described, and it is not directly comparable to the quality indicator measured by CIHI.

Belgium – Quality Indicator Performance

In Belgium, the Health System Performance Assessment measures antipsychotic use in all people aged 65 or older living in LTC, which includes those diagnosed with a condition of psychosis,[65] which is broader than the CIHI quality indicator. National data from 2021 reported that 27.3% of people aged 65 or older living in LTC were using antipsychotics.[86]

Key Takeaways – International Quality Indicator Performance and Targets

Table 4 presents a summary of the international performance rates and benchmarks related to the potentially inappropriate use of antipsychotics in LTC. Of note, only 1 set of international data was directly relevant to the interRAI quality indicator that is measured in Canada

Table 4. Summary of International Quality Indicator Performance and Targets

Country	Quality Indicator	Target	Most Recent National Rate	Caveats
United States	**"Potentially inappropriate antipsychotic use in LTC" by interRAI**	**NA**	**20th percentile: 5% Median: 10% 90th percentile: 13% (2017)**	**- Same quality indicator as CIHI - rates may be impacted by OBRA[a] legislation**
	"Nursing home inappropriate antipsychotic use" by Long-term Services and Supports Scorecard	NA	Overall rate: 10.3% (2021)	- quality indicator excludes bipolar disorder, but does not exclude Huntington's chorea, those experiencing hallucinations or delusions, and people who are end-of-life. - data is adjusted for race/ethnicity (equity adjustment), but no other risk-adjustments are described - rates may be impacted by OBRA[a] legislation
	"Percent of residents who received an antipsychotic	National average: 20.3% (set in 2012)	Overall rate: 14.3% (2019)	- quality indicator does not exclude those experiencing hallucinations or delusions, and people who are end-of-life

Country	Quality Indicator	Target	Most Recent National Rate	Caveats
	medication (long stay)" by CMS			- risk-adjustment not described - rates may be impacted by OBRA[a] legislation
Australia	Antipsychotic use (Registry of Senior Australians outcome)	None	32% of people living in LTC were dispensed an antipsychotic 13.1% of people with dementia in LTC were dispensed an antipsychotic (2016)	- uses data-linkage from various sources (rather than person-level data) - does not exclude those experiencing hallucinations or delusions, and people who are end-of-life - uses different covariates used in the risk adjustment.
	Medication management – antipsychotics (Australia National Aged Care Mandatory Quality Indicator Program)	None	18% of all people living in LTC received an antipsychotic 9% of people living in LTC received an antipsychotic with a diagnosis of psychosis (2024)	- quality indicator is broader, and includes all people who received an antipsychotic, including those with a condition of psychosis - risk adjustment not described
Sweden	Proportion of patients with dementia who receive treatment with antipsychotic drugs	≤ 10%	15% of older adults with dementia living in "special housing" (2022)	- quality indicator is specific to people with dementia - exclusion criteria and risk-adjustment were not described
Belgium	Users of antipsychotics in older persons in homes for older people (OLD-11) (Health System Performance Assessment)	None	27.3%	- quality indicator is broader, and includes those diagnosed with a condition of psychosis - specific to people aged 65 and older - exclusion criteria and risk adjustment not described

CMS = Centers for Medicare & Medicaid Services; LTC = long-term care; OBRA = Omnibus Budget Reconciliation Act.
[a] OBRA restricts the use of psychotropic medications, including antipsychotics, for people living in LTC homes. Guidelines to support OBRA legislation restrict the use of antipsychotic medications in people with dementia to people with an approved indication, or people with psychotic symptoms and/or those who are a danger to themselves or others. Facilities that do not meet these legislated requirements may be denied Medicare reimbursement.

Quality Improvement

We identified 6 relevant quality improvement initiatives targeting the potentially inappropriate use of antipsychotics in LTC that were successful in lowering the percentage of people living in LTC with potentially inappropriate antipsychotic use. Findings from quality improvement initiatives can demonstrate what is possible in terms of the rate of change for the quality indicator (i.e., by how much and how quickly did performance improve?) after implementing efforts to reduce potentially inappropriate antipsychotic use in LTC. This information may be used to inform the

development of an annual improvement goal for this quality indicator (i.e., a goal that facilities can aim to achieve as they work to improve their performance on this quality indicator).

Five initiatives were based in Canada and targeted the quality indicator measured by CIHI, and 1 initiative in the US targeted the CMS indicator (percent of long-stay residents who received an antipsychotic medication). For the descriptions of these quality improvement initiatives and their findings, refer to Table 10 in Appendix 2

For each initiative, we summarized the main findings, including the absolute reduction (i.e., the difference in the performance between time 1 and time 2) and the relative reduction (i.e., the change in performance relative to the initial performance value [calculation: 100% X absolute reduction/performance at time 1]) for the quality indicator potentially inappropriate use of antipsychotics in LTC. When possible, we reported annual rates of improvement, but when an annual value was not reported (or could not be calculated) we reported the rate of improvement for the timeframe that was nearest to 1 year.

Canadian Quality Improvement Initiatives

In Ontario, an interdisciplinary quality improvement program[87] focused on reducing potentially inappropriate antipsychotic use through deprescribing practices was implemented in 34 LTC homes in 2022 and achieved:

- A decrease in the rate of potentially inappropriate antipsychotic use in 29 of the 34 homes.
- In 1 year (i.e., from 2022 to 2023), an average absolute reduction of 8.4% in the rate of potentially inappropriate use of antipsychotics.
    - The represents a relative reduction of 40.6%.
- No "real change" in the diagnosis of schizophrenia.

The authors noted that these LTC homes were managed by one of Canada's largest LTC providers, which may have had access to resources and infrastructure that influenced the success of the initiatives.

A study of the Canadian Foundation for Healthcare Improvement's Spreading Healthcare Innovations Initiative,[67] evaluated the change in the quality indicator used by CIHI based on the LTC homes' performance in the quality indicator at baseline (i.e., the best, median, and worst-performing LTC homes, represented by the 20th, median, and 80th percentiles). The study included 45 LTC homes across 6 provinces and territories where the program was initiated, and 1193 control facilities, where the program was not initiated. The study found:

- The intervention homes had greater improvements in the quality indicator performance than the control homes, for the best, median, and worst-performing homes.
- For the intervention homes, over 2 years (i.e., 2014-2016), there was an absolute reduction of 12.4%, 10.3%, and 15.9% for the best, median, and worst-performing homes, respectively.
    - These represent relative reductions of 51.8%, 33.8%, 38.4% in 2 years for the best, median, and worst-performing homes, respectively.
- No clinically meaningful change was reported in the percentage of people living in LTC with worsened behaviour symptoms after reducing the use of antipsychotics.

The Optimizing Prescribing of Antipsychotics in LTC (OPAL) program,[88] which was implemented at 10 LTC homes across Canada in 2016, achieved:

- In 1 year, a weighted mean reduction of 4.6% (standard deviation 2.8%) in the percentage of residents with potentially inappropriate use of antipsychotics
- This represents 16.1% relative reduction (standard deviation 17.0%) in 1 year

In Alberta, the Appropriate Use of Antipsychotics Project,[44,89,90] which was implemented across all 170 LTC homes by 2014, resulted in:

- Over 4 years (i.e., from 2012-2016), an absolute reduction of 9.4% in the percentage of people living in LTC with potentially inappropriate use of antipsychotics
    - This represents a 35% relative reduction in 4 years
- In 1 year (i.e., from 2015-2016), an absolute reduction of 3.7% in the percentage of people living in LTC with potentially inappropriate use of antipsychotics
    - This represents a 17.5% relative reduction in 1 year
- No serious unintended consequences, with declines also observed in quality indicators for physical restraint use, pain, and delirium, as well as no change in aggressive behavior.

In British Columbia, the Call for Less Antipsychotics in Residential Care program,[91-93] resulted in:

- An absolute reduction of 6% in the percentage of people living in LTC with potentially inappropriate use of antipsychotics in Wave 1 (48 LTC homes; October 2013 to December 2014)
    - This represents a 16% relative reduction in 14 months

- An absolute reduction of 6.3% in the percentage of people living in LTC with potentially inappropriate use of antipsychotics in Wave 2 (40 LTC homes; September 2015 to December 2016)
    - This represents a 21.8% relative reduction in 15 months
- An absolute reduction of 7.0% in the percentage of people living in LTC with potentially inappropriate use of antipsychotics in Wave 3 (33 LTC homes; December 2017 to May 2019)
    - This represents a 17.5% relative reduction in 16 months

United States Quality Improvement Initiatives

In the US, the National Partnership Campaign to Improve Dementia Care in Nursing Homes, aimed to improve national levels for the CMS MDS quality indicator "percent of long-stay residents who received an antipsychotic medication". The differences between this quality indicator and quality indicator measured by CIHI (refer to Table 6), should be considered when considering these findings. The results of this national initiative include:

- Over 7.5 years (2011 to 2019), an absolute reduction of 9.6% in the percent of "long-stay residents" who received an antipsychotic medication.
    - This represented a 40.1% relative reduction in 7.5 years
- In the first 18 months of the campaign (i.e., 2012 to 2013), an absolute reduction of 3.6% the percent of "long-stay residents" who received an antipsychotic medication.
    - This represented a 15.1% relative reduction in 18 months

Key Takeaways – Quality Improvement

- In general, in response to quality improvement initiatives in Canada, the rate of improvement for the quality indicator potentially inappropriate use of antipsychotics in LTC was a 16% to 17% relative reduction, annually (as reported in 3 quality improvement initiatives).[44,88-91]
- Balancing measures suggest that these quality improvement initiatives did not result in unintended consequences, as behavior symptoms were not worse, and there were also declines in physical restraint use after reducing the use of antipsychotics.

Areas of Opportunity

This section summarizes areas of opportunities for reducing potentially inappropriate antipsychotic use at the LTC provider, LTC home, and system level relying mostly on literature on the perspectives of LTC providers and lessons learned from quality improvement initiatives. While most of the literature focuses on antipsychotic use in dementia, there are other circumstances in which antipsychotic use may be considered potentially inappropriate (e.g., insomnia). Action in these areas may benefit individuals in circumstances that may be considered "potentially inappropriate" beyond dementia.

Of note, the term "LTC homes" includes corporations responsible for more than 1 LTC home. In this section, the term "LTC providers" refers to any staff and health professionals involved in the care of people living in LTC (e.g., nurse, physicians, and LTC home administration).

Figure 2 summarizes the information described in this section.

At the LTC provider level

Education and training

Qualitative research suggests that LTC providers can benefit from opportunities to increase their knowledge about:[33]

- Dementia and behavioural and psychological symptoms of dementia
- Antipsychotics and use guidelines
- Non-pharmacological interventions for the management of behavioral and psychological symptoms of dementia

Some LTC providers view antipsychotics as effective and relatively safe to use for managing behavioural and psychological symptoms of dementia.[33,35,36,94] Educational opportunities allow LTC providers to better understand the risks associated with potentially inappropriate antipsychotic use, recognize triggers for behavioural and psychological symptoms of dementia, and respond to these symptoms using non-pharmacological approaches.[34-37,95,96] Educational opportunities encompass knowledge materials (e.g., journal articles, procedure manuals), training programs (e.g., P.I.E.C.E.S.), webinars, e-learning modules, workshops, focus groups, and other avenues to present success stories and lessons-learned within and across LTC homes.[37,92,97,98] The OPUS-AP program in Quebec found success in a multidimensional training strategy, which used a variety of knowledge translation tools and encouraged LTC providers to solidify lessons learned during team meetings.[99] Of note, examples of non-pharmacological approaches include physical activity, music therapy, massage, arts and crafts, reality orientation, stimulus control, validation therapy, other recreational activities.[100,101]

With the knowledge they learn from educational opportunities, LTC providers may also feel more confident during discussions about deprescribing with family members or caregivers and address their concerns when they arise.[36,102] Family and caregivers can be a strong influence on medication management.[33] For example, they can raise their concerns to LTC providers if they notice side effects from antipsychotics (e.g., low energy levels), but they may also feel discouraged from deprescribing if they fear that it may worsen symptoms.[33] Families and caregivers may also benefit from education opportunities so that they may better support deprescribing efforts.[35] Of note, there is evidence to suggest that discontinuing long-term antipsychotic use is possible without exacerbating symptoms of BPSD, especially with mild symptoms.[32]

The Canadian Coalition for Seniors' Mental Health (CCSMH) developed a guideline for assessing and managing behavioural symptoms of dementia.[2] The guideline recognizes the importance of developing organizational systems to address the educational needs of providers and family or caregivers of people living in LTC.[2]

Person-centred care

Person-centred care recognizes that everyone is unique in their identity, experiences, interests, and characteristics.[103,104] In practice, this means taking this into account when developing and tailoring care plans, as well as involving those receiving care (and their family or caregivers) in the decision-making process, when managing behavioural and psychological symptoms of dementia. Hence, person-centred care ensures people with dementia in LTC are treated with dignity and respect when receiving care.[103-105] Standards developed by the Canadian Standards Association (CSA group), as well as those developed by the HSO, champion a person-centred care approach to support the mental and wellbeing of people living in LTC, including those with dementia.[22,106] The CCSMH guidelines advise conducting a review of the personhood of the person living with dementia, inclusive of their sex, gender, sexual orientation, language, race, ethnicity, cultural background, trauma history, religious, spiritual beliefs, and other factors to understand the contributors, assess, and manage behavioural and psychological symptoms of dementia.[2]

In Canada, successful quality improvement initiatives have integrated a person-centred care approach in reducing potentially inappropriate antipsychotic use in LTC. For example:

- The Spreading Healthcare Innovations Initiative (implemented in 45 LTC homes across 6 jurisdictions) focused on education and training to support person-centred care approaches in reducing potentially inappropriate antipsychotic use.[67]

- Alberta's Appropriate Use of Antipsychotics Project provided information resources to support person-centred care planning in their toolkit for individuals involved in providing care.[44,89,90]
- British Columbia's Call for Less Antipsychotics in Residential Care program aimed to improve quality of care by encouraging the use of person-centred care and non-pharmacological approaches.[91-93]
- Healthcare Excellence Canada's Sparking Change program provides resources, coaching, and financial awards for up to 500 LTC homes aiming to decrease potentially inappropriate use through person-centred care approaches.[107]

Person-centred care values collaboration with people living in LTC, as well as their family or caregivers, as a way to support autonomy and respect preferences regarding treatment options.[97,103,108] LTC providers can benefit from trusting relationships and open communication with family and caregivers who can provide valued insight about an individual's preferences and background.[20] This is an especially important consideration to support people with advanced dementia who have impaired decision-making and communication skills that limit their capacity to understand new information and communicate effectively with care providers.[20] It also opens channels for family and caregivers to advocate for people living in LTC.[109] LTC care providers may wish to offer earlier opportunities for individuals with dementia to participate in their care through advanced care planning, which includes discussing their treatment preferences and developing advanced care directives[2,20] Advanced care planning provides individuals with dementia the opportunity to autonomously participate in their care planning prior to considerable cognitive decline. Individuals with dementia may also designate someone to represent them when they are no longer able to communicate their preferences.[52] The guideline by CCSMH regards advanced care statements as best practice when caring for an individual with dementia [2] By doing so individuals in LTC can receive care that respects their autonomy and choices, even in advanced stages of dementia.

The population in Canada is aging and becoming more diverse. As reported in 2021, 1 in 4 people in Canada are or have been a landed immigrant or permanent resident.[105] This demographic shift underscores the need for culturally safe care in LTC homes.[110] A literature review found that responsive behaviour was avoided when LTC providers considered cultural and linguistic diversity in care, such as providing traditional food.[111] The same review concluded that the absence of a common spoken language with care providers was the most challenging need resulting in frustration, agitation, and other behavioural and psychological symptoms of dementia.[111] This aligns with the findings of retrospective studies, which suggest that language discordance (i.e., when people living in LTC do not speak the same language as their care providers) negatively impacts quality of care in LTC.[39,112] Reaume and colleagues found that people whose mother

tongue was not English or French (referred to as "allophones") represented almost 50% of language discordance in LTC homes in Ontario.[112] They hypothesized that the language discordance and cultural barriers make it challenging to implement non-pharmacologic interventions, leading to the early use of medications and higher odds of potentially inappropriate antipsychotic use for allophones.[112] Immigrants, especially those who landed in Canada later in their life, may experience challenges advocating for their needs if they have difficulties communicating in English.[110] People with dementia can also lose their ability to communicate in second languages, especially in advanced stages.[113] If person-centred care means celebrating one's individuality, it also means recognizing the need to consider cultural and religious customs, norms and traditions, such as integrating inclusive practices, culturally appropriate food, and recreational activities. Hence, the need for culturally safe care in the context of appropriate antipsychotic use becomes more evident as the number of people with dementia increases and becomes more diverse.[4,114]

The Landmark Study predicts a 273% increase of Indigenous Peoples with dementia in Canada by 2050.[4] This increase is expected to be significantly higher than the projected increase for the general population.[4] The legacy of colonization continues to perpetuate inequities in health (e.g., increased risk of diabetes) and social determinants of health (e.g., housing, social inclusion, food insecurity) resulting in an elevated risk of dementia.[4] Although Indigenous populations prioritize aging near their communities, those in severe stages of their conditions may transfer to LTC homes.[1,115] In these cases, they may feel isolated from their families, community, traditions, language, and culture.[1,115] Additionally, transitioning to LTC may force them to relive trauma from experiences rooted in racism and discrimination, including when accessing health care services. Intergenerational trauma and health and social inequities because of colonization can influence the experience of people living with dementia, including how behavioural and psychological symptoms manifest.[2] Indigenous populations have advocated for trauma-informed, culturally safe care aligning with the principles of a person-centred approach.[1,115]

At the level of the LTC home

Interdisciplinary collaboration and empowerment

Multidisciplinary teams may promote better medication management and facilitate deprescribing of potentially inappropriate medication in LTC.[33] The CCSMH guidelines recommend interdisciplinary approaches to manage behavioural and psychological symptoms of dementia, and facilitate deprescribing.[2] Additionally, the CSA group standard (CSA Z2004:24) requires LTC homes to have the optimal ratios, skills, and occupational mix of health professionals based on evidence-based practice and the needs of those living in LTC.[106] People living in LTC can benefit from varying experiences, observations, and clinical perspectives with a multidisciplinary approach. For example, nurses and care aides are likely to have in-depth knowledge about the

individual's routine and triggers,[34-36] whereas physicians and pharmacists may be better able to provide advice on antipsychotics use.[35,92] Some LTC providers are advocating for better access to specialists, such as psychiatrists and geriatricians, to consult regarding antipsychotics use and other treatment options.[36,37,96] Of note, rural or remote LTC homes can face greater barriers to accessing specialized care and regional health care resources compared to those in urban areas.[116] They can experience longer wait times as specialists may travel a great distance to reach rural or remote LTC homes.[116]

A multidisciplinary approach requires collaboration and effective communication to ensure LTC providers are empowered to push for change and to avoid operating in siloes.[33]

Systematic medication review and adverse effect monitoring

It has been reported that standard protocols and processes operationalize and encourage efforts to reduce potentially inappropriate antipsychotic use.[35,95] For instance, regular medication review and systematic monitoring of individuals taking antipsychotics (e.g., assessing for side effects) can help detect inappropriate use, while ensuring every individual living in LTC can proactively benefit from the practice.[33] Reactive medication reviews and monitoring may focus all deprescribing efforts on people in LTC with severe side effects.[95]

Clear and straight-forward protocols and processes guide LTC providers through their decision-making around antipsychotic use, and encourage non-pharmacological approaches.[36,37,95] However, some LTC providers warn about the potential of operationalized procedures and processes to increase workload and workplace pressure for staff.[95] They also caution against the introduction of quotas (e.g., certain number of medication reviews within a specific period), given already busy workloads. In some cases, this has been observed to lead to completion of these tasks in a perfunctory or rushed manner that may be counterproductive.[95,102]

Change champions

Strong leadership, such as by LTC home managers, can discourage inappropriate antipsychotic use and champion deprescribing initiatives by providing governance.[35-37,94,95,97,99,100,102] The CSA group standard (CSA Z2004:24) holds organizational leadership responsible for ensuring the organization's vision, mission, and values reflect the commitment to support the mental health and well-being for people in LTC, including those living with dementia.[106] They can direct LTC policies and allocate resources in support of efforts (e.g., medication review, providing staff time to train and upskill) to reduce potentially inappropriate antipsychotic use.[37,95] By doing so, they can foster a work culture that values person-centred care and considers antipsychotics as last resort for the management of behavioural and psychological symptoms of dementia.[97,102]

LTC resources

Some LTC providers find that deprescribing initiatives (e.g., medication reviews, training) and certain non-pharmacological approaches for the management of behavioural and psychological symptoms of dementia can be time intensive (e.g., behaviour mapping).[33,37,90,94,102] Adequate staffing levels allow LTC providers more time for deprescribing efforts and to attempt non-pharmacological methods prior to resorting to antipsychotics.[35,37,59,92,96,97] They can better share responsibilities across the care team and balance deprescribing efforts with competing priorities and busy workloads.[92] Furthermore, difficulties addressing challenging behaviour impacts morale and further contributes to burn out that demotivates LTC providers from time-intensive non-pharmacological methods.[36,42]

A cross sectional study found that LTC homes with low staffing levels in low socioeconomic areas with less than 3 hours of nursing staff per resident per day would provide an additional 2 people with antipsychotics compared with LTC homes in higher socioeconomic areas with similar staffing levels.[42] This finding suggests targeting LTC homes in low socioeconomic areas for staffing initiatives can provide larger impact on reducing potentially inappropriate antipsychotic use when resources are finite.[42] LTC homes in low socioeconomic areas may be in environments with safety concerns, have less capacity for person-centred care, and be located in rural or remote neighbourhoods.[42] Although staffing concerns exists in urban centers, LTC homes in rural or remote areas also experience staff shortages to a greater extent.[117]

Non-pharmacological approaches also require specialized staff (e.g., therapists) and materials or equipment (e.g., supplies for arts and crafts, a music player for music therapy).[90,92] Furthermore, it can require a conducive physical structure, such as spaces for recreational activities and an environment free of safety concerns.[42,92] In LTC homes with limited resources (e.g., staff), some physicians reported feeling pressure to prescribe antipsychotics to people with dementia from care provider colleagues without prescribing authority.[33,34]

Staff continuity

Building a trusting relationship with the people living in LTC affords LTC providers the knowledge to apply and advocate for person-centred care and potentially reduce antipsychotic use.[36,59,92,94,97] Staff continuity provides care providers the time and consistency to these build productive and trusting relationships with people living in LTC, as well as family or caregivers. Longer-term staff are likely more knowledgeable of the person's behavioural triggers, preferences, and routine, compared to new staff. They can use the knowledge gained from building relationships with people in LTC to avoid and eliminate triggers to responsive behaviour that may lead to potentially inappropriate antipsychotic use, as well as to guide their decision-making around treatment.[92,94,102] Longer-term staff are more likely to have an understanding of how each person in LTC may respond to non-pharmacological approaches and which approach may be most

effective for each person and the specific behaviour.[97] In terms of deprescribing, longer term care providers are likely more aware of an individual's medication history and insight about an individual's capacity to withdraw medications.[102] The CSA group standard (CSA Z2004:24) requires LTC homes to ensure continuity of care that allows care providers to understand the needs of people living in LTC.[106] They recommend against the use of temporary work assignments.[106]

Transition to LTC

LTC providers may feel less inclined to change treatment of older adults during their transition into LTC, specifically when they enter LTC with limited information about their antipsychotic use.[35,59,102] LTC providers feel that they would be in a better position to consider deprescribing when older adults enter LTC with the following information: [92]

- Medication initiation date
- Reasons for initiating antipsychotic medication
- Symptoms experienced
- History of antipsychotic use

LTC providers disclosed that people transitioning into LTC, along with their family or caregivers, are sometimes unable to identify why antipsychotics were initiated, and in some cases, they are unaware.[102] Furthermore, they find that the idea of changing regimens may be distressing for older adults at admission, and keeping their routine may help them adjust to a new environment.[37,95] General practitioners expressed that opportunities to learn more about dementia care may help build confidence and expertise to deprescribe antipsychotics when they are initiated by other physicians.[35] Canadian clinical practice guidelines that provide recommendations and protocols for deprescribing antipsychotics, such those from the CCSMH,[2] may help support care providers facing this situation.

At the systems level

Engagement

Ongoing efforts highlight the value of engaging all relevant groups implicated in antipsychotic use in LTC when developing quality improvement initiatives.[60,92] Inclusive engagement provides various perspectives that can inform policy and programs that aim to reduce potentially inappropriate use.[60] The National Partnership to Improve Dementia Care in Nursing Homes described difficulties in engaging families and people living in LTC in a meaningful way for a national initiative.[60] They recently added these perspectives to an expert panel responsible for endorsing quality indicators, including 'The Percent of Residents Who Received an Antipsychotic

Medication (Long Stay)'. By doing so, they recognized the palliative perspective may have been better considered if they engaged these groups earlier.[60]

Flexible and adaptive quality improvement programs

Successful quality improvement initiatives have a clear overall objective with flexibility at the LTC home level on how they can make meaningful changes that reflect their needs.[92] In Alberta, the Appropriate Use of Antipsychotics Project provided educational resources for LTC homes to use, such as learning modules.[44] The program provided additional tools that LTC homes can tailor to their needs, such as behaviour tracking sheets and sample letters informing families of efforts to reduce potentially inappropriate use of antipsychotics.[44] In British Columbia, LTC providers involved in the Call for Less Antipsychotics in Residential Care program found value in an adaptive flexible approach with system leaders (e.g., health ministries, health authorities) responsible for developing the initiative, seeking input from individuals involved in LTC providers participating in the program, creating opportunity for collaboration, and adapting the approach and guidance based on lessons learned.[92]

Sociodemographic data

Unlike other countries, Canada does not collect socio-demographic data on the LTC population, such as gender, sexual orientation, race, and ethnicity.[118] Hence, decision-makers lack full scope of existing disparities and gaps in health outcomes and quality of care for equity-deserving groups in LTC, including those related to potentially inappropriate antipsychotic use. Sociodemographic data facilitates health equity and person-centred approaches by providing the foundation to develop and deliver targeted interventions to those that need it most.[118] The need for sociodemographic data in LTC becomes more apparent as the aging populations becomes more ethnically diverse in Canada,[119] including the people living with dementia.[4]

Quality measures and recognition

Efforts to improve performance for the quality indicator 'potentially inappropriate antipsychotic use in LTC' may lead to unintended consequences, such as substitution using other pharmaceutical agents and changes in diagnostic patterns. These unintended consequences are discussed in the following section.

In addition to evaluating balancing measures, health systems may wish to recognize LTC homes that implement a structured, evidence-based approach to manage behavioural and psychological symptoms of dementia.[120] By doing so, the paradigm of "success" shifts from avoiding antipsychotics to focusing on evidence-based practice, while discouraging the use of substituting antipsychotics with other potentially harmful practices.[120]

Key Takeaways – Areas of Opportunity

- There are several interrelated areas of opportunities to reduce the potentially inappropriate use of antipsychotics in LTC, which emphasizes the value of collective action across care providers, LTC homes, and health systems.
    - Care providers may be better equipped to manage behavioural and psychological symptoms of dementia when they are given the opportunities to learn more about dementia, antipsychotics and associated harms, and non-pharmacological approaches.
    - A person-centred approach respects the personhood of people living in LTC, including their culture, traditions, background, and other factors that may contribute to behavioural and psychological symptoms of dementia. Including people in LTC and their family or caregivers in care planning and decision-making also supports autonomy and better outcomes for those living in LTC.
    - LTC homes can foster appropriate use of antipsychotics by supporting interdisciplinary collaboration, having change champions, facilitating better information sharing (e.g., medical and medication history), and creating systematic medication review and monitoring process for staff to follow.
    - Individuals involved in providing care and prescribing antipsychotics in LTC can focus and allocate time on appropriate use efforts when they are supported with the resources, such as adequate staff, and supplies for non-pharmacological approaches.
    - Health systems may be better equipped to develop and govern appropriate use efforts that reflect the needs of people living in LTC by engaging all relevant groups and collecting sociodemographic data (e.g., gender, cultural background) in the LTC system. They may consider providing flexibility that allows LTC homes to tailor quality improvement programs to their needs, as well as recognizing when LTC homes implement evidence-based approaches.
- With action in these areas, the LTC system may be better positioned to ground their care in a person-centred approach and leverage evidence-based practice.

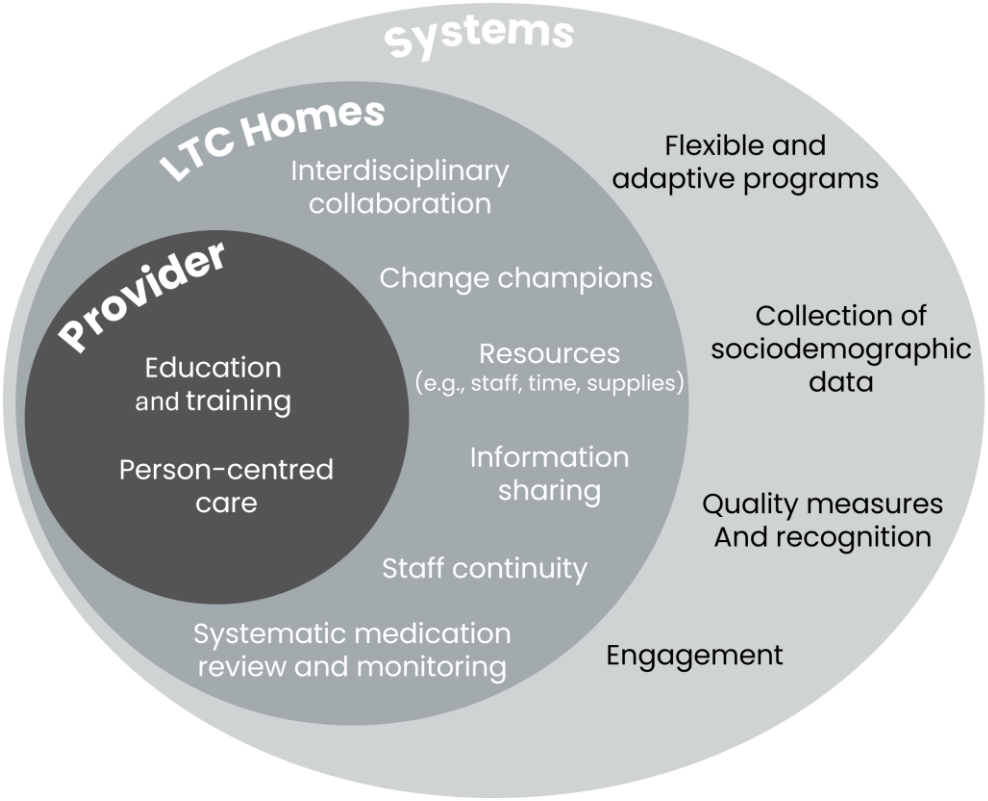

Figure 2: Summary of Areas of Opportunity

Additional Considerations

We also identified additional considerations regarding the quality indicator potentially inappropriate use of antipsychotics in LTC that the panel may wish to consider to inform the development of a proposed target for LTC homes in Canada.

Unintended Consequences

For the quality indicator "potentially inappropriate use of antipsychotics in LTC" there is the concern that by focusing on achieving low rates of potentially inappropriate use of antipsychotics that there is the potential that LTC homes may intentionally or unintentionally substitute one activity (e.g., potentially inappropriate use of antipsychotics) for another potentially problematic activity to improve their performance on this quality indicator.

When considering establishing a target for appropriate use rates of antipsychotics in LTC it is important to consider the potential risk of these unintended consequences related to reducing antipsychotic prescribing in LTC.

Increased Use of Other Medications

One of the unintended consequences of focusing on reducing the potentially inappropriate use of antipsychotic medications in LTC is that there may be increased use of other types of medications. For instance, other medications that have similar properties as antipsychotics (e.g., sedation) or other categories of psychotropic drugs (e.g., anticonvulsants) may be substituted for antipsychotic medications.

Examples of increased use of other medications include:

- In Ontario, between April 2010 and December 2019, in older adults living in LTC, the prevalence of potentially inappropriate antipsychotic use declined by 0.70% per year (stabilizing in 2016) and benzodiazepine use declined by 1.17% per year, however, the overall use of antidepressants increased by 0.89% per year and anticonvulsant (e.g., gabapentinoids) use increased by 1.06% per year. The yearly increase in antidepressants was greatest in people with dementia compared to those without dementia.[121]
- A national initiative in the US (launched in 2012), reduced potentially inappropriate antipsychotic use in LTC, but this initiative was associated with:
    - increased use of non-benzodiazepine sedatives and muscle relaxants in people living in LTC with diagnoses of Alzheimer's disease and related dementias, Parkinson's, or psychosis
    - increased use of anticonvulsants people living in LTC with bipolar disorder

    - increased use of antidepressants in most cohorts (with the exception of the Parkinson's cohort).[122]

- In 1 US LTC home (584 people) that implemented an Appropriate Use of Antipsychotics framework (between October 2016 to June 2019), the rate of antipsychotic use decreased from 22.0% to 14.9%. However, there was also a 9.5% increase in the use of the antidepressant trazadone, and a 4.4% increase in the use of benzodiazepines.[123]

Decreased Antipsychotic Use in Unintended Populations

Another unintended consequence of focusing on reducing the potentially inappropriate use of antipsychotic medications in LTC, is that antipsychotic medication use may also be reduced in populations that are not the target of quality improvement initiatives and where reductions may not be clinically warranted.

For instance, a national initiative in the US (launched in 2012 by CMS) targeting potentially inappropriate antipsychotic use in LTC reported a reduction of antipsychotic use in people with Alzheimer's disease and related dementias, but the use of antipsychotics also decreased in unintended populations, including populations that are exempt from the CMS quality indicator (i.e., people diagnosed with schizophrenia, Tourette syndrome, Huntington's disease) and populations where reductions may not be clinically warranted (i.e., people diagnosed with bipolar disorder, psychosis, and/or Parkinson's disease where the use of antipsychotics may be potentially appropriate).[122]

Changes in Diagnostic Patterns

There is also the potential that efforts to improve performance on the quality indicator for potentially inappropriate use of antipsychotics in LTC may inadvertently influence diagnostic patterns in LTC homes. To mask the use of antipsychotics in people that would otherwise be counted as "potentially inappropriate use" by the quality indicator measured by CIHI, people living in LTC may be inappropriately labeled with conditions that are excluded from the quality indicator (e.g., schizophrenia, experiencing delusions or hallucinations).

Examples of changes in diagnostic patterns include:

- In Ontario, between April 2010 and December 2019, in older adults living in LTC, the prevalence of inappropriate antipsychotic use declined by 0.70% per year (stabilizing in 2016); however, starting in 2014, there was an increase in the diagnosis of delusions in people with moderate (0.47% per year), severe (0.91% per year), and very severe (0.11% per year) aggressive behaviors. There were also increases in the diagnosis of delusions among people with dementia. However, the diagnosis of schizophrenia was stable over time.[121]

- In the US, following the 2012 launch of a national initiative by CMS to improve dementia care that improved performance on the CMS quality indicator "percent of long-stay residents who received an antipsychotic medication", there were concerns that the program may have affected diagnostic patterns, for instance:
    - CMS expressed concern that some LTC homes may be erroneously coding some people as having schizophrenia (a condition excluded from the CMS quality measure for antipsychotic use), which can mask the homes' true rate of inappropriate antipsychotic use. To ensure the accuracy of the data in the Minimum Data Set (MDS) system, CMS announced in 2023 that it will be conducting audits of schizophrenia diagnosis coding in the MDS system in LTC homes, and will be adjusting quality measures if the audits reveal inaccurate coding (e.g., an absence of comprehensive psychiatric evaluations and behavior documentation).[124]
    - In one qualitative study on lessons learned from the CMS national partnership to improve dementia care, it was reported that clinicians from LTC homes have acknowledged "purposefully altering their approach to documentation and diagnosing to skirt mandatory antipsychotic reporting (p. 3)."[60] It was reported that these approaches were used intentionally to reduce their home's reported antipsychotic prescribing rate, while continuing to use these drugs to treat the behavioral and psychological symptoms of dementia.[60]
    - One study reported that the implementation of this program was significantly associated with a decline in diagnoses of Alzheimer's disease and related dementias, and that there were also increases in the diagnosis of schizophrenia, Tourette syndrome, Huntington's disease (i.e., conditions exempt from the antipsychotic reduction initiative) and bipolar disorder in people living in LTC, although these increases were not significantly associated with the implementation of the program.[122] However, when looking specifically at people with dementia (i.e., the population targeted by this program), another study found no meaningful change in new diagnoses of schizophrenia, Tourette syndrome, Huntington's disease within 2 years of admission.[125]
    - These concerns may be linked to the OBRA legislation that restricts the use of antipsychotic medications in people living in LTC with dementia, as performance on the quality indicator may be related to Medicare funding.[77]
- In 2015 in the US, the quality rating system for LTC homes started including a measure of inappropriate antipsychotic medications.[126] This initiative led to reduced antipsychotic use overall in LTC, but there were also concurrent changes in diagnostic patterns between

2011 and 2017 that would reflect increases in the number of people who are excluded from the CMS quality indicator:

  - the proportion of people living in LTC who were diagnosed with schizophrenia without Alzheimer's or other dementia increased from 4.04% to 4.56%
  - the proportion diagnosed with Alzheimer's or other dementia without schizophrenia decreased from 49.38% to 46.35%
  - the proportion diagnosed with both schizophrenia and Alzheimer's or other dementia increased from 2.41% to 3.69%.
  - There was also an increase in antipsychotic use in people with both Alzheimer's or non-Alzheimer's dementia and schizophrenia who had a 45.4% increase in antipsychotic use between 2011 (1.98%) and 2017 (2.88%).[126] This would be considered appropriate use of antipsychotics and these individuals would be excluded from the quality indicator.

- In one study in the US of Veterans living in community-based LTC homes, 3.5% of Veterans received a new diagnosis of schizophrenia, Tourette's syndrome, or Huntington's disease after admission to a LTC home.[127] Veterans admitted to homes with the highest rate of antipsychotic use were twice as likely to receive a new diagnosis of conditions that warrant treatment with antipsychotics.[127] Having an underlying condition of bipolar disorder was a strong predictor of acquiring a new diagnosis of indicators for antipsychotic use that are captured using the CMS quality indicator for potentially inappropriate antipsychotic use (i.e., of schizophrenia, Tourette's syndrome, or Huntington's disease). Bipolar is an approved indication for some antipsychotics, but is not a condition that is excluded from the CMS quality indicator, a discrepancy that the authors suggested may motivate clinicians to label individuals as having schizophrenia, Tourette's syndrome, or Huntington's.[127]

Balancing Measures

To avoid unintended harm from efforts to reduce potentially inappropriate use of antipsychotics in LTC, one approach that quality improvement initiatives have implemented is to also evaluate balancing measures (i.e., quality indicators that determine whether changes designed to improve performance on 1 quality indicator are causing new problems in other quality indicators). By monitoring quality indicators such as the use of physical restraints, or worsening behavioural symptoms, LTC homes can help ensure that there are no unintended consequences associated with improvements in the quality indicator potentially inappropriate use of antipsychotics in LTC. Of note, CIHI already reports the percentage of people living in LTC in daily physical restraints as

a quality indicator.[128] Physical restraint use has been a focus of quality improvement efforts in LTC, along with reducing potentially inappropriate antipsychotic use.[128]

While some care providers reported feeling that they have no alternatives other than to substitute antipsychotics (sometimes referred to as chemical restraints) with physical restraints,[33] there has been no quantitative evidence to substantiate these concerns in Canada. The Canadian Foundation for Healthcare Improvement's Spreading Healthcare Innovations Initiative observed no increase in physical restraints with the reduction of antipsychotic use.[67] Additionally, CIHI reported a decline of physical restraint, alongside potentially inappropriate antipsychotic use between 2011 and 2015.[43,128] While the use of physical restraints in LTC increased to 5.6% at the height of the COVID-19 pandemic (2020–2021), it has since decreased to 4.9% and remained at this rate since 2022-2023.[43]

Key Takeaways – Additional Considerations

- There is the potential risk of unintended consequences related to reducing antipsychotic use in LTC, such as the substitution of other medications, changes in diagnostic patterns, and decreased used of antipsychotics in unintended populations.
- Quality improvement initiatives that focus on reducing potentially inappropriate use of antipsychotics in LTC should also monitor balancing measures, such as physical restraint use, to help reduce the likelihood of unintended consequences.

Considerations for Decision-Making

The information summarized in this environmental scan was used in conjunction with relevant expertise as part of a modified Delphi process to develop consensus statements related to a target for the quality indicator "potentially inappropriate use of antipsychotics in LTC" (measured by CIHI) and an annual improvement goal.

When establishing the target for LTC homes in Canada, the panel members were also asked to consider the following:

- There is not currently a nationally or internationally established target for this quality indicator. A target for this quality indicator should reflect a level of antipsychotic use in LTC homes that balances potential benefits and harms for people living in LTC and should be both aspirational and achievable for LTC homes.
- The quality indicator is designed to measure "potentially inappropriate" use of antipsychotics, thus by definition, some potentially appropriate use of antipsychotics will

be counted by the quality indicator. Therefore, while a lower number is better, it is likely and reasonable that that the quality indicator will never reach 0.

- Across Canada, the performance on this quality indicator varies between and within the provinces and territories, and by year. Established provincial targets generally range from 18% to 21%.
- Quality improvement initiatives in Canada have been successful in improving performance on this quality indicator (i.e., up to 17% relative reduction, annually), without causing unintended consequences in other quality indicators.
- Canadian clinical practice guidelines generally recommend against the use antipsychotics in people with dementia living in LTC in most circumstances,[2,22-25] and that antipsychotics should only be considered when the behavioural and psychological symptoms of dementia (e.g., aggression, agitation) are severe and there is an immediate risk of harm to the individual or to others[2,24,26-28] Following this guidance will likely improve performance results for the quality indicator 'potentially inappropriate use of antipsychotics in LTC.'

Implementation considerations:

- Beyond developing a target for LTC homes in Canada, there is potential to better position LTC homes to reduce potentially inappropriate use of antipsychotics while promoting person-centred care. These areas of opportunity underscore the collective action needed across LTC providers, homes, and health systems.
- Care providers highlighted the importance of learning more about dementia, antipsychotics, and non-pharmacological approaches. Providers can also include people living in LTC and their families or caregivers in care planning that is informed by preferences, values, cultures, and experiences.
- Care providers can prioritize appropriate use efforts with more resources, such as adequate staff levels, to implement non-pharmacological approaches in practice and benefit from educational opportunities.
- LTC homes can support care providers by fostering a work environment conducive to appropriate use of antipsychotics through change champions, interdisciplinary collaboration, information sharing, and systematic medication review.
- Health systems may consider developing and governing quality improvement efforts that are adaptable to diverse needs of people in LTC. These efforts should be informed by engagement of all individuals involved in providing care in LTC, specifically those implicated in antipsychotic use.

- As the number of people with dementia increases and becomes more diverse, collecting sociodemographic data (e.g., gender, race, ethnicity) in LTC may inform tailored and targeted interventions to improve quality of care, inclusive of managing behavioural and psychological symptoms of dementia.

Appendix 1 – Glossary

Key Definitions

For the purposes on this Environmental Scan, we used the following definitions:

Appropriate Use: "people taking medications best suited for their needs to provide the greatest possible benefit and avoid potential harm. Appropriate use of medications should add value to [individuals], their community, the health system and the broader environment."[5]

Balancing measures: Type of quality measure to determine whether changes designed to improve one part of the system are causing problems in other parts of the system. Can be used to evaluate the consequences of a quality improvement initiative that were not necessarily intended.[129]

Case Mix Index: A method to categorize people living in LTC into statistically and clinically homogeneous groups based on clinical and administrative data. This means people are grouped based on clinical and resource use similarities so that performance across LTC homes and jurisdictions can be compared.[57]

Long-term Care Home: Places of residence that provide 24-hour care and services to people including professional health services, personal care, and other services (e.g., meals, laundry, and house keeping).[130] The quality indicator measured by CIHI captures information about individuals receiving care in LTC homes with publicly funded or subsidized beds. For this report, long-term care home excludes retirement homes, supportive housing, and assistive living facilities.

- A LTC home may also be referred to as a LTC facility in different provinces and territories in Canada. For the purposes of this work, we used the term "home," unless the term "facility" cannot be changed from the source document.

Percentiles: Percentiles represent the percentage of LTC homes that are at or lower than the stated value. For instance, if the 10th percentile in Canada for the percentage of people in LTC with potentially inappropriate use of antipsychotics was 10.5% (for 2022 to 2023), it means that 10% of LTC homes in Canada have a quality indicator result at or lower than 10.5%.

Potentially Inappropriate Use of Antipsychotics: The use of antipsychotics when not indicated, or when potential harms outweigh benefits. This primarily refers to the use of antipsychotic medication in people without diagnosis of psychosis.[29] In Canada, CIHI uses the quality indicator "potentially inappropriate use of antipsychotics in LTC" (DRG01) to monitor the percentage of people living in LTC on antipsychotics without a diagnosis of psychosis. This quality indicator excludes people living in LTC receiving end-of-life care, and those who are diagnosed with

schizophrenia or Huntington's chorea.[29] Other countries have a similar quality indicator to measure "potentially inappropriate use of antipsychotics" but can differ from Canada in their exclusion criteria.

Quality Indicators: Standardized, evidence-based measures designed to provide comparable and actionable information regarding whether a system is delivering high- or poor-quality care. They can be used to demonstrate changes in quality (e.g., improvement) in a LTC home or in a system.

Risk-Adjusted Quality Indicator: A quality indicator adjusted using statistical techniques to control for population differences, which allows for comparison between LTC homes.[57] Risk adjustment does not control for all potential population differences that can affect outcomes.[57] Of note, the overall risk-adjusted quality indicator "potentially inappropriate use of antipsychotics in LTC" describes the risk-adjusted rate of potentially inappropriate antipsychotic use for a region (e.g., nation, province, territory).

Appendix 2 – Supplementary Tables

Table 5: Antipsychotics and the Indications for Adults

Drug Name	Main Indication	Other Indications	Older Adults with dementia[a]
Typical (First generation)			
Chlorpromazine[131] (tablets)	Psychotic disorders such as schizophrenia	Prevention and treatment of nausea and vomiting when other agents are ineffective or unavailable.	Not indicated
Fluphenazine[132] (tablets)	Management of manifestations of psychotic disorders	Treatment of behavioral disorders in adults	Not indicated
Haloperidol[133] (injection)	Acute manifestations of schizophrenia and manic states	Management of aggressive and agitated behaviour in patients with chronic brain syndrome and intellectual disability and in the symptomatic control of Tourette's syndrome	Not indicated
Perphenazine[134] (tablets)	Management of manifestations of psychotic disorders	"Controlling nausea and vomiting due to stimulation of the chemoreceptor trigger zone" Management of behavioral complications in patients with intellectual disability	Not indicated
Pimozide[135] (tablets)	Management of the manifestations of chronic schizophrenia in which the main manifestations do not include excitement, agitation or hyperactivity	–	Not indicated
Trifluoperazine[136] (tablets)	"Control of excessive anxiety, tension and agitation seen in neuroses or associated with somatic conditions"	Prevention or treatment of nausea and vomiting; management of psychotic disorders	Not indicated

Drug Name	Main Indication	Other Indications	Older Adults with dementia[a]
Zuclopenthixol[137] (tablets, injection)	"Management of the manifestations of schizophrenia"	–	Not indicated
Atypical (Second generation)			
Clozapine[138] (tablets)	Treatment resistant schizophrenia	–	Not indicated
Quetiapine[139] (tablets)	Schizophrenia	Bipolar disorder	Not indicated
Quetiapine extended release (tablets)[140]	Schizophrenia, Bipolar disorder	Major depressive disorder when currently available approved antidepressant drugs have failed due to lack of efficacy and/or lack of tolerability.	Not indicated
Risperidone[11] (tablets)	Schizophrenia and related psychotic disorders	Bipolar disorder	Short-term symptomatic management of aggression or psychotic symptoms in patients with severe dementia of the Alzheimer type unresponsive to non-pharmacological approaches and when there is a risk of harm to self or others. Other behavioural disturbances in this population are unaffected by risperidone.
Aripiprazole[141] (tablets)	Schizophrenia and related psychotic disorders	None	Not indicated
Brexpiprazole[12] (tablets)	Schizophrenia	Adjunct treatment of major depressive disorder	Symptomatic management of agitation associated with Alzheimer dementia in patients with aggressive behaviour, unresponsive to non-pharmacological approaches.

Drug Name	Main Indication	Other Indications	Older Adults with dementia[a]
Olanzapine[142] (tablets)	Schizophrenia and related psychotic disorders	Bipolar disorder	Not indicated
Ziprasidone[143] (capsules)	Treatment of schizophrenia and related psychotic disorders	Treatment of acute manic or mixed episodes associated with bipolar disorder	Not indicated

Note: Table includes first and second-generation antipsychotics that are currently listed as 'marketed' on the Government of Canada Drug Product Database.

[a] The product monographs for all of the drugs listed in the table included a safety warning that that antipsychotics are associated with increased mortality in older adults with dementia

Table 6: Quality Indicators for Potentially Inappropriate Antipsychotic Use

Quality Indicator, Source, Country	Description	Numerator	Denominator	Adjustments	Comparison to CIHI Quality indicator
Potentially Inappropriate Use of Antipsychotics in Long-Term Care CIHI (as developed by interRAI) Canada[29]	The percentage of LTC residents taking antipsychotic drugs without a diagnosis of psychosis	Residents who received antipsychotic medication on 1 or more days in the week before their target assessment.	Residents with valid assessments. Excluding those who have a diagnosis of schizophrenia, or Huntington's chorea, or those experiencing hallucinations or delusions, and residents who are end-of-life. The target assessment must: be in the latest assessment quarter; be carried out more than 92 days after the admission date; and not be and admission assessment or first assessment.	Method of adjustment: Stratification, direct standardization, indirect standardization Individual covariates used in risk adjustment: Motor agitation; moderate/impaired decision-making problem; long-term memory problem; Cognitive Performance Scale (CPS); combination Alzheimer's disease or other dementia; age younger than 65	Not applicable

Quality Indicator, Source, Country	Description	Numerator	Denominator	Adjustments	Comparison to CIHI Quality indicator
			Depending on the assessment tool used, exclusion criteria are considered when identified within 7 days or 3 days prior to assessment.	Facility-level stratification: case mix index	
Percent of Residents Who Received an Antipsychotic Medication (long stay) CMS MDS 3.0[61] United States	This measure reports the percentage of long-stay residents who are receiving antipsychotic drugs in the target period.	Long-stay residents with a selected target assessment where the following condition is true: antipsychotic medications received Long-stay = LTC facility stays ≥ 101 days	Long-stay nursing home residents with a selected target assessment except those with exclusions. Exclusions: People with any of the following related conditions on the target assessment: - Schizophrenia - Tourette's syndrome - Huntington's disease	Covariates are 'not applicable'	Does not exclude those experiencing hallucinations or delusions, and people who are end-of-life. Risk adjustment not described
Nursing home inappropriate antipsychotic use Long-term Services and Supports Scorecard 2023 Edition (from AARP)[62] US	Percentage of nursing home residents who are inappropriately receiving an antipsychotic medication	Nursing home residents who are inappropriately receiving antipsychotic medication on target assessment	People living in nursing homes. Excludes people with a diagnosis of schizophrenia or bipolar disorder	Data are averaged at the state level using the LTSS State Scorecard approach to measuring equity. For the equity adjustment, residents are divided into 2 groups: white, and an aggregate grouping of race/ethnicity as categorized by MDS data (i.e., "American Indian or Alaska Native, Asian, Black or African	Similar numerator. Denominator differs in that those with a diagnosis of bipolar disorder are excluded, it does not exclude those with Huntington's chorea, those experiencing hallucinations or delusions, and people who are end-of-life. Data is adjusted for race/ethnicity, but no

Quality Indicator, Source, Country	Description	Numerator	Denominator	Adjustments	Comparison to CIHI Quality indicator
				American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, and Multiracial). The lower performing group is scored and ranked as a performance metric.	other risk-adjustments are described.
Medication management - antipsychotics National Aged Care Mandatory Quality Indicator Program Australia[63]	Percentage of care recipients who received antipsychotic medications	Care recipients who received an antipsychotic medication. Further split by total antipsychotic use, which includes all residents, and use in those with a diagnosis of psychosis.	A 7-day medication chart and/or administration record review for each care recipient every quarter. Includes all care recipients assessed for antipsychotic medications, including those who received an antipsychotic medication for a diagnosed condition of psychosis (e.g. delusions, hallucinations, perceptual disturbances, and the severe disruption of ordinary behaviors) Excludes recipients admitted to the hospital for the entire 7 day assessment period.	None reported	Denominator differs in that it includes people with a diagnosis of psychosis. Does not exclude those with a diagnosis of schizophrenia, or Huntington's chorea, or those experiencing hallucinations or delusions, and people who are end-of-life. Risk adjustment not described
Antipsychotic Use Registry of Senior Australians (ROSA) outcome monitoring system	Proportion of long-term residents dispensed an antipsychotic	Number of long-term residents who have been dispensed at least one antipsychotic medication during the reporting period	Number of long-term residents of aged care. Exclude from denominator and numerator any that have the reported health conditions of schizophrenia, or Huntington's disease	Covariates used in risk adjustment: Age, sex, number of co-morbidities, history of antipsychotic medication dispensing	Does not exclude those experiencing hallucinations or delusions, and people who are end-of-life.

Quality Indicator, Source, Country	Description	Numerator	Denominator	Adjustments	Comparison to CIHI Quality indicator
Australia[64]				one year prior to entry into care.	Different covariates used in risk adjustment
	Proportion of long-term residents with dementia dispensed an antipsychotic	Number of long-term residents who have been dispensed at least one antipsychotic medication during the reporting period	Number of long-term residents of aged care with dementia. Exclude from denominator and numerator any that have the reported health conditions of schizophrenia, or Huntington's disease	Covariates used in risk adjustment: Age, sex, number of co-morbidities, history of antipsychotic medication dispensing one year prior to entry into care.	Specific to residents with dementia. Does not exclude those experiencing hallucinations or delusions, and people who are end-of-life Different covariates used in risk adjustment
Users of antipsychotics in older persons in homes for older people (OLD-11) Health System Performance Assessment [65] Belgium	Percentage of older persons (aged 65 years and over) using antipsychotics in homes for older people versus outside homes for older people	Number of older persons (aged 65 years and over) using antipsychotics, defined as having minimum 1 reimbursed antipsychotic	Number of older persons (aged 65 years and over)	Not reported	Includes all recipients who received an antipsychotic medication, **including those diagnosed with a condition of psychosis**. Exclusion criteria and risk adjustment not described
Proportion of patients who receive treatment with antipsychotic drugs	Proportion of patients with dementia living in "special housing	Not reported	Not reported	Not reported	Specific to those with dementia.

Quality Indicator, Source, Country	Description	Numerator	Denominator	Adjustments	Comparison to CIHI Quality indicator
SveDem (the Swedish registry for cognitive or dementia disorders) Sweden[66]	who receive treatment with antipsychotic drugs. (Note: Municipalities in Sweden are obliged to provide special forms of housing for services and care for the elderly who need special support that includes dementia)				Unclear if this includes all people in LTC (including those with a diagnosis of psychosis) who receive an antipsychotic. Exclusion criteria and risk adjustment not described

CMS = Centers for Medicare & Medicaid Services; MDS = minimum data set;

Table 7: Performance rates for potentially inappropriate antipsychotic use in LTC in other jurisdictions

Jurisdiction and sample population	Summary statistics	Quality indicator
United States, 2023 National data National Partnership to Improve Dementia Care in Nursing Homes: Antipsychotic Medication Use Data Report[84]	Quarterly prevalence of antipsychotic use among people living in LTC homes, Q4 of 2023: US Overall: 14.8% Best performing state, District of Columbia: 6.6% Worst performing state, South Dakota: 22.9%	Percent of Residents Who Received an Antipsychotic Medication (long stay) CMS MDS 3.0
United States, 2021	Proportion of residents US Overall: 10.3%	Nursing home inappropriate antipsychotic use

Jurisdiction and sample population	Summary statistics	Quality indicator
National Sample (analysis of 2021 MDS 3.0 state-level data) Long-term Services and Supports Scorecard – 2023 Edition (from AARP)[78,79]	Best performing state, California: 6.6% Worst performing state, New Hampshire: 25%	
	Rates by race/ethnicity (US overall), proportion of residents: "American Indian or Alaska Native" (terminology used by study authors): 10% Asian: 6% Black or African American: 7% Hispanic or Latino: 8% Native Hawaiian or Pacific Islander: 7% Multiracial or other race: 7% White: 10%	
United States, 2017 National data (Dr. John Hirdes: unpublished data, 2024 Jun 7)	20th percentile: 5% Median level: 10% 80th percentile: 13%	Potentially inappropriate antipsychotic use in LTC (interRAI quality indicator; measured in the same manner with the same risk adjustments as quality indicator measured by CIHI)
United States, 2012 National data (Dr. John Hirdes: unpublished data, 2024 Jun 7)	20th percentile: 11% Median level: 19% 80th percentile: 28%	
Australia, 2016 National sample:	Proportion of residents, % (95% CI): 32.0 (31.7 to 32.2)	Proportion of long-term residents dispensed an antipsychotic Risk-adjusted rate

Jurisdiction and sample population	Summary statistics	Quality indicator
2944 LTC care facilities, 227,311 residents Registry of Senior Australians (ROSA) outcome monitoring system[64]	Proportion of residents, % (95% CI): 13.1 (13.0 to 13.3)	Proportion of long-term residents with dementia dispensed an antipsychotic. Risk-adjusted rate
Australia, 2024 2,425 Residential aged care services, 182,591 residents Australia National Aged Care Mandatory Quality Indicator Program[63,85]	Use of antipsychotics (total), proportion of residents: 18.0% Antipsychotic use with diagnosed psychosis, proportion of residents: 9% (January to March 2024)	Percentage of care recipients who received antipsychotic medications
Sweden, 2022[66]	Proportion of residents in "special housing": 15%	Proportion of patients with dementia who receive treatment with antipsychotic drugs (SveDem, the Swedish registry for cognitive or dementia disorders)
Belgium, 2021 National sample 62,886 care homes, with 148,455 beds [86]	Proportion of residents: 27.3%	Percentage of older persons (aged 65 years and over) using antipsychotics in homes for older people

CI = confidence interval; CMS = CMS = Centers for Medicare & Medicaid Services; LTC = long-term care; MDS = minimum data set.
Note: Percentiles represent the percentage of LTC facilities that are at or lower than the stated value.

Table 8: Proposed and Established Targets or Benchmarks

Jurisdiction	Quality Indicator	Comparison quality indicator measured by CIHI	Proposed or Established Benchmark or Target	Rationale
Canada				
Ontario Provincial established benchmark, Health Quality Ontario, 2017[70,71]	CIHI[144]	Not applicable	19% (benchmark)	"The value was consistent with the evidence of safety and effectiveness in this population and represents good quality of care. The value represented achievable yet high quality care based on the distribution of performance results in Ontario long-term care homes. The value was similar to those set in other jurisdictions" (p. 6)[71]
BC Provincial targets Ministry of Health Service Plan 2024–2025 to 2026–2027[75]	CIHI	Not applicable	2024–2025 target: 21.0% 2025–2026 target: 18.0% 2026–2027 target: 18.0%	"Nationally, or internationally, there is no clear optimal target for the current performance measure due to evolving resident complexity and rising rates of dementia" (p. 13) The rate from 2017–2018 (i.e., 25.4%) was used as the baseline. National rates in 2022–2023 was 24.5%. Targets in this plan aim to improve performance over time from current levels.
Island Heath, BC[a] Jurisdictional target [76]	CIHI	Not applicable	≤ 26.1% (target for 2023–2024)	The target was reduced (compared to a previous target) to reflect the program's intention for continued improvement.
Alberta Provincial target, 2013 (Appropriate use of antipsychotics project)[74]	CIHI	Not applicable	5-year target: provincial average ≤ 20% by 2018 (Note: this target reflects that the provincial average should not be above 20% (and not that each facility should reach 20%)	Goal is to use antipsychotics appropriately to improve quality of life in older adults living in LTC

Jurisdiction	Quality Indicator	Comparison quality indicator measured by CIHI	Proposed or Established Benchmark or Target	Rationale
Saskatchewan Provincial target (set prior to 2018–2019) Saskatchewan Health Authority[72]	CIHI	Not applicable	"5% reduction by March 31, 2019"	Not provided
Saskatoon and surrounding area, Saskatchewan Target for private sector LTC homes, 2022–2023 Saskatchewan Health Authority[73]	CIHI	Not applicable	"not exceed 27.5%"	Not provided
International				
United States National targets, 2012 [80,145] and 2017[81]	Percent of Residents Who Received an Antipsychotic Medication (long stay)	Does not exclude those experiencing hallucinations or delusions, and residents who are end-of-life.	2012 Target: national average of 20.3% (Goal of 15% relative reduction) Note: this target reflects that the national average should not be above 20.3% (and not that each facility should have a prevalence of 20.3%)	"The initial target for the national partnership was to ensure that we made rapid progress and put systems and infrastructure in place to continue to work toward lower antipsychotic medication use. It does not mean that we believe that a rate of 20.3% is acceptable." (p.1)[80]

Jurisdiction	Quality Indicator	Comparison quality indicator measured by CIHI	Proposed or Established Benchmark or Target	Rationale
	CMS MDS 3.0	Risk adjustment not described	2017 target: Facilities with low rates are encouraged to continue their efforts and maintain their success Facilities with high rates should aim to decrease antipsychotic medication use by 15% percent (relative reduction) by the end of 2019 Note, definition of 'low rates' and 'high rates' not further defined.	Rationale not identified
Sweden National target, 2020[66]	Proportion of patients with dementia who receive treatment with antipsychotic drugs (SveDem registry)	Specific to those with dementia. Unclear if this includes all residents (including those with a diagnosis of psychosis) who receive an antipsychotic. Exclusion criteria and risk adjustment not described	≤ 10% for residents in "special housing"	Rationale not identified

LTC = long-term care.

Note: Percentiles represent the percentage of LTC facilities that are at or lower than the stated value. The term 'benchmark' is used inconsistently in the literature, and for the purposes of this report, we have reported values as 'benchmarks' if that is the language used in the document, otherwise they are reported as 'targets'.

[a] Island Health BC serves Vancouver Island, the islands in the Salish Sea and the Johnstone Strait, and mainland communities north of Powell River

Table 9: CIHI Quality Indicator Potentially Inappropriate Use of Antipsychotics in LTC – Best Performance by Province Between 2018–2019 and 2023–2024

Jurisdiction	LTC facility level distribution, percentile	Best Performance	
		Risk adjusted rate, (%)	Year
Canada (overall)	10th	8.4	2019–2020
	Median	19.3	2019–2020
	90th	33.8	2020–2021
Newfoundland and Labrador	10th	7.6	2019–2020
	Median	22.8	2020–2021
	90th	36.6	2020–2021
New Brunswick[a]	10th	10.9	2023–2024
	Median	30.2	2023–2024
	90th	52.0	2021–2022
Ontario	10th	7.5	2023–2024
	Median	17.1	2019–2020
	90th	27.4	2019–2020
Manitoba	10th	6.7	2018–2019
	Median	17.3	2019–2020
	90th	28.6	2018–2019
Saskatchewan[b]	10th	7.8	2018–2019
	Median	25.3	2018–2019
	90th	40.3	2018–2019
Alberta	10th	6.9	2023–2024

Jurisdiction	LTC facility level distribution, percentile	Best Performance	
		Risk adjusted rate, (%)	Year
	Median	17.2	2018–2019
	90th	33.2	2019–2020
British Columbia	10th	10.7	2018–2019 and 2019–2020
	Median	22.7	2019–2020
	90th	38.3	2018–2019 and 2020–2021
Yukon	10th	0.0	2018–2019 and 2019–2020
	Median	13.6	2019–2020
	90th	34.0	2018–2019

LTC = long-term care.

[a] Data for New Brunswick only available for 2021–2022 onwards

[b] Data for Saskatchewan was not available in 2019–2020 and 2020–2021

Note: Data is reported for LTC homes (referred to as "residential care" by CIHI) and excludes hospital-based continuing care facilities. Risk adjusted quality indicators are reported using a rolling 4-quarter average. Data was available from 2018–2019 to 2022–2023. Percentiles represent the percentage of LTC homes that are at or lower than the stated value. Data reflects LTC homes with publicly funded or subsidized beds.

For 2022–2023 and 2023-2024 results for Newfoundland and Labrador, New Brunswick, Ontario, Saskatchewan, British Columbia and the Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage.

For 2021–2022 results for Newfoundland and Labrador, New Brunswick, Ontario, Saskatchewan, Alberta, British Columbia and Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage

For 2018–2019, 2019–2020, 2019–2020 Results for Newfoundland and Labrador, Ontario, Alberta, British Columbia and Yukon reflect full coverage in that province/territory. Results for the remaining provinces/territories are based on partial coverage. Source: https://www.cihi.ca/en/quick-stats Accessed June 14, 2024[68] and November 12, 2024. [69]

Table 10: Quality improvement initiatives to reduce potentially inappropriate antipsychotic use in LTC

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
Vanker et al. 2024 [87]	Ontario 34 LTC homes (managed by one of Canada's largest LTC providers) from February 2022 to February 2023. Homes varied in size from 60 to 288 beds.	Interdisciplinary approach led by a central team responsible for providing support to LTC homes with dedicated "home teams". The home teams conducted biweekly medication reviews and determined eligibility for tapering or deprescribing using Cohens Mansfield Agitation Inventory. A pharmacist would develop a deprescribing or tapering plan for eligible individuals.	CIHI/InterRAI Potentially inappropriate use of antipsychotics in LTC	Relative reduction: 40.6% Absolute reduction: 8.4% (Decreased from 20.6% February 2022 to 12.2% to February 2023) Of the 34 LTC homes, the rate of potentially inappropriate antipsychotic use: • decreased in 29 homes • increased in 5 homes	1 year (February 2022 to February 2023)
			CIHI/interRAI Diagnosis of schizophrenia	"No real change in the diagnosis of schizophrenia overall." Average increase of 0.65 residents and a median change of 0 at a home level.	
Hirdes et al. 2020 [67] Canadian Foundation for Healthcare Improvement (CFHI) Spreading Healthcare Innovations Initiative Longitudinal cohort	Canada (6 provinces and/or territories) Intervention: 429 residents in 45 LTC homes Control: 122,570 residents in 1193 LTC homes	Focus on education, training, and support to implement strategies to reduce antipsychotic medication use in residents without a diagnosis of psychosis. Strategies included training and mentoring teams to implement person-centred approaches, to improve staff collaboration, and improve medication review procedures.	CIHI / interRAI Potentially inappropriate use of antipsychotics in LTC	Between Q1 2014 to Q1 2016 **Intervention LTC homes**: 20th percentile of homes: Relative reduction: 51.8% Absolute reduction: 12.4% (decreased from 23.9% to 11.5%) Median (50th percentile of homes): Relative reduction: 33.8% Absolute reduction: 10.3% (decreased from 30.4% to 20.1%) 80th percentile of homes: Relative reduction: 38.4%	2 years (Q1 2014 to Q1 2016)

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
		Did not require that facilities adopt a single common protocol.		Absolute reduction: 15.9% (decreased from 41.4% to 25.5%) **Control LTC homes**: 20th percentile of homess: Relative reduction: 35.1% Absolute reduction: 6.7% (decreased from 19.1% to 12.4%) Median (50th percentile of homes): Relative reduction: 25.2% Absolute reduction: 6.9% (decreased from 27.3% to 20.4%) 80th percentile of homes: Relative reduction: 17.5% Absolute reduction: 6.2% (decreased from 35.4% to 29.2%)	
			CIHI / interRAI Percentage of residents with worsened behavior symptoms	Difference between Q1 2014 to Q1 2016 Intervention LTC homes 20th percentile of homes: 0.0 Median (50th percentile of facilities): 0.4 80th percentile of homes: –0.8 Control LTC homes 20th percentile of homes: 0.0 Median (50th percentile of homes): –0.7 80th percentile of homes: –0.7	

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
Kirkham et al. 2020 [88] The Optimizing Prescribing of Antipsychotics in Long-term care (OPAL) program Stepped wedge trial	Canada 10 LTC homesfrom across Canada in 2016 (all homes were operated by Extendicare Canada)	Program consisted of an educational in-service, provision of evidence-based assessment and monitoring tools, and monthly interdisciplinary LTC team meetings to discuss individuals for whom antipsychotics could be reduced or discontinued.	CIHI/interRAI Potentially inappropriate use of antipsychotics in LTC	Rates before implementation of the program: Range: 23.2% to 34.6% Weighted mean: 28.6% (SD = 1.3) Rates 12 months after implementation of the program: Range: 15.5% to 30.6% Weighted mean: 24.0% (SD = 1.5) Weighted mean change: –4.6% (SD 2.8) Relative reduction: 16.1% (SD 17.0)	1 year
Alberta Appropriate Use of Antipsychotics Project[44,89,90]	Alberta As of 2014, the initiative was introduced to all 170 Alberta care homes (14,500 beds)	Multicomponent approach that includes staff education, discussions with family members, and development of resident-specific care plans. Resources include learning workshops, monthly curbside consultation call-in sessions, video conferences and the AUA Toolkit of resources 5-year target: provincial average ≤ 20% by 2018 In 2013, 11 "early adopter" LTC homes	CIHI/interRAI Potentially inappropriate use of antipsychotics in LTC	Calculated 1-year reduction: Relative reduction: 17.5% Absolute reduction: 3.7% (Decreased from 21.1% (in Q4 2015) to 17.4% (in Q4 2016))	1 year (Q4 in 2015 and Q4 2016)
				Provincial reporting (2016): Relative reduction: 35% Absolute reduction: 9.4% (Decreased from 26.8% (in Q4 2012) to 17.4% (in Q4 2016))	4 years (Q4 2012 to Q4 2016)
				Results from a 3-year evaluation: Relative reduction: 21.3% Absolute reduction: 5.7%	3 years (2011 to 2012 Q4 to 2014 to 2015 Q4)

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
		committed to reducing use by 50%		(Decreased from 26.8% (in Q4 2012) to 21.1% (in Q4 2015))	
			CIHI/interRAI Balancing measures to ensure that project did not result in unintended harm	Delirium: declined from 27.4% to 26.0% Falls in past 30 days: increased from 14.5% to 15.2% Pain: declined from 11.1% to 7.8% Physical restraint use: declined from 11.9% to 8.6% Aggressive behavior scale: remained unchanged	
British Columbia, Call for Less Antipsychotics in Residential Care (CLeAR) [91-93]	Wave 1 (2013) 48 LTC homes Aim: Province-wide reduction of 50% from baseline by December 31, 2014	Implementation of the provincial behavioural and psychological symptoms of dementia best practice guideline and algorithm, and health authority and care facility approaches to enhance care. Approaches included: kick-off workshop, Improvement Advisor support, site visits, regional workshops, and webinars. Strategies included using non-pharmacological approaches, establishing a medication review plan and implementing best	CIHI/interRAI Potentially inappropriate use of antipsychotics in LTC	In participating Wave 1 homes: Relative reduction: 16% Absolute reduction: 6% (Decreased from 38% in October 2013 to 32% December 2014) By December 2016, Wave 1 homes were at 24.2% (as reported in the Wave 2 report)	14 months
	Wave 2 (September 2015 to December 2016) 40 LTC homes Aim: Reduce antipsychotic use by			In participating Wave 2 homes: Relative reduction: 21.8% Absolute reduction: 6.3% (Decreased from 28.8% (in September 2015) to 22.5% (in December 2016))	15 months

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
	33% in participating care homes	practices for prescribing antipsychotics appropriately.		Non-participating homes: decreased from 28.6% to 26.0% (9% relative reduction)	
	Wave 3 (December 2017 to May 2019) 33 LTC homes completed (54 initially recruited) Aim: Reduce antipsychotic use in participating care homes from baseline to national average (21.6%) by April 30, 2019			In participating Wave 3 homes: Relative reduction: 17.5% Absolute reduction: 7.0% (Decreased from 34.2% (December 2017) to 27.2% (May 2019))	16 months
United States CMS National Partnership Campaign to Improve Dementia Care in Nursing Homes [81-83]	United States Country wide intervention	Multidimensional approach including public reporting, targets, partnerships and state-based coalitions, research, training for providers and surveyors, and revised surveyor guidance	Percent of long-stay residents who received an antipsychotic medication CMS MDS	Calculated 27-month reduction: Relative reduction: 8.9% Absolute reduction: 1.4% (Decrease from 15.7% (in Q1 2017) to 14.3% (in Q2 2019))	2 years 3 months (Q1 2017 to Q2 2019)
				National prevalence Relative reduction: 40.1% Absolute reduction: 9.6% (Decreased from 23.9% (Q4 2011) to 14.3% (Q2 2019))	7 years and 6 months (Q4 2011 to Q2 2019)

Study details	Jurisdiction and population	Quality improvement initiative	Quality indicator	Change in the quality indicator	Time for improvement
				National prevalence Relative reduction: 34.1% Absolute reduction: 8.2% (Decreased from 23.9% (in 2011) to 15.7% (in 2017))	5 years and 3 months (Q4 2011 to Q1 2017)
				National prevalence Relative reduction: 15.1% Absolute reduction: 3.6% (Decreased from 23.8% (in 2012) to 20.2% (in 2013))	18 months (Q2 2012 to Q4 2013)

CMS = Centers for Medicare & Medicaid Services; LTC = long-term care; MDS = Minimum Data Set; SD = standard deviation; Q = quarter.

Note: Percentiles represent the percentage of LTC homes that are at or lower than the stated value.

Appendix 3 – Clinical Practice Recommendations

We identified 13 Canadian guidelines with recommendations regarding antipsychotic use for older adults who do not have a diagnosis of psychosis (refer to Table 11).[2,22-28,146,147] These include 3 evidence based guidelines,[2,26,146] and 10 guidelines with unclear methodology.[22-25,27,28,147,148]

Twelve guidelines were specific to people with a diagnosis of dementia [2,22,26,146,147] [23-25,27,28,149,150] and 7 guidelines further specified people living in LTC homes.[2,22,25-28,146] One guideline provided a recommendation for any age group.[151]

We identified 4 types of recommendations for people living LTC who do not have a diagnosis of psychosis: those that recommend against the use of antipsychotics, those that indicate that antipsychotics only be used for the treatment of severe agitation or when there is an immediate risk of harm to themselves or others, those that recommend deprescribing antipsychotics, and those that recommend non-pharmacological approaches.

Recommendations against the use of antipsychotics

We identified 5 guidelines that made recommendations against the use of antipsychotics in people living with dementia.[2,22-25]

These guidelines recommend:

- antipsychotics should not be used as a first choice to treat behavioural and psychological symptoms of dementia[22,23,149,150]
- antipsychotics should only be used as a last resort to treat behavioural and psychological symptoms of dementia[25]
- atypical antipsychotics should not be used to manage behavioural concerns in people with dementia, especially when safer alternative are available[24]
- long-acting injectable antipsychotics should not be used for the treatment of behavioural and psychological symptoms of dementia unless there is a co-occurring chronic psychotic illness that requires their use (strong recommendation based on low quality evidence)[2]

One of the guidelines also recommended that antipsychotics be avoided in people with "disease dementia" and in people with dementia with Lewy bodies, but that if antipsychotics are needed to manage behavioural issues that a low dose of an atypical antipsychotic can be used if managed by an experienced clinician, with careful monitoring for adverse events.[24]

One guideline recommended that care providers question the use of antipsychotics to treat insomnia in any age group.[151]

Recommendations regarding the treatment of severe agitation or an immediate risk of harm

We identified 5 guidelines with recommendations regarding the use of antipsychotics in people living with dementia for the treatment of severe agitation or when there is an immediate risk of harm to themselves or others.[2,24,26-28]

For the treatment of the behavioural and psychological symptoms of dementia, the guidelines recommend that antipsychotics should only be considered:

- when the symptoms (e.g., aggression) pose a risk of harm to the person or to others[26-28]
- when the person is in severe distress[24,27,28]

The guidelines also recommend that antipsychotics should only be considered when symptoms:

- cannot be managed by other means[24]
- are likely to respond to antipsychotics[28]
- have not responded to individualized nonpharmacological interventions[26]

One guideline also specifies that antipsychotics may only be appropriate for the short-term management of psychotic or aggressive symptoms.[26]

In addition, 1 evidence-based guideline made recommendations about the use of specific antipsychotics for the treatment of severe agitation in people with dementia:

- Aripiprazole, brexpiprazole or risperidone may be used for the treatment of severe agitation. (conditional recommendation based on moderate quality evidence)[2]

- Quetiapine may be used for the treatment of severe agitation if symptoms are refractory to other pharmacological treatments, or in cases where other treatments are not tolerated due to extrapyramidal side-effects. (conditional recommendation based on low quality evidence)[2]

- Olanzapine should not be used for the treatment of agitation, except for its potential use as short-term emergency treatment of severe agitation (strong recommendation based on low quality evidence)[2]

- Short-acting antipsychotics that are available in both oral and intramuscular formulations may be used on a short-term basis for the emergency treatment of severe agitation that is associated with imminent risk of physical harm towards self or others (conditional recommendation based on very-low quality evidence)[2]

- Typical antipsychotics could be considered for the treatment of agitation if symptoms are refractory to other pharmacological treatments including aripiprazole, brexpiprazole and risperidone (conditional recommendation based on very low quality evidence) [2]

Recommendations regarding deprescribing antipsychotics

We identified 2 evidence-based guidelines that made recommendations for deprescribing antipsychotics in people living with dementia.[2,146]

In people living with dementia, the guidelines recommend deprescribing antipsychotics in the following populations:

- those who do not have a history of severe agitation or psychosis, or other potentially appropriate indication for antipsychotics (strong recommendation based on low quality evidence)[2]

- those who have been treated with antipsychotics for at least 3 months, and their symptoms have stabilized or there was no response to treatment (strong recommendation based on moderate quality evidence)[146]

- people living with dementia who initially had severe agitation or psychosis, after considering their current symptoms, the duration of antipsychotic treatment, dosage required to stabilize behavioural and psychological symptoms of dementia, and initial severity of symptoms.(conditional recommendation, based on low-quality evidence)[2]

Both guidelines include guidance on tapering protocols for deprescribing antipsychotics.

Recommendations regarding non-pharmacological approaches

One guideline recommended that nonpharmacological approaches should be used whenever possible for the management of the behavioural and psychological symptoms of dementia, as nonpharmacological interventions as "have been shown to be more effective than pharmacologic treatment for dementia-related behaviours (p. 2)"[147]

Four other guidelines also included recommendations about non-pharmacological approaches for the management of the behavioural and psychological symptoms of dementia.[2,24,27,28]

Table 11: Canadian Recommendations for Antipsychotic Use in LTC

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
Evidence-based guidelines			
Canadian Coalition for Seniors' Mental Health, 2024 Canadian Clinical Practice Guidelines for Assessing and Managing Behavioural and Psychological Symptoms of Dementia[2] Recommendations can be applied to community, outpatient, inpatient, LTC, and other residential care settings	"We recommend deprescribing antipsychotics in people living with dementia who do not have a history of severe agitation or psychosis or another potentially appropriate indication for antipsychotics such as a history of serious mental illness." (p. 32)	Strong recommendation Low quality evidence	"Antipsychotic medications are associated with significant risks such as mortality and stroke" "The use of antipsychotics among people living with should be limited to circumstances where there is an appropriate indication for their use (e.g., severe agitation or psychosis that has not responded to other management strategies)." (p. 32)
	"We suggest deprescribing antipsychotics by decreasing the dose by 25-50% every 1-2 weeks until discontinued, and that dosage reduction be stopped at the lowest effective dose if BPSD worsen." (p. 32)	Conditional Recommendation Low-quality evidence	"Gradual dose reduction is recommended compared to abrupt withdrawal of antipsychotics for several reasons. Gradual dose reduction may enable monitoring for a recurrence of BPSD during the withdrawal process, which may allow for reintroduction of the previously effective dose of an antipsychotic or initiation of non-pharmacological interventions prior to emergence of more severe BPSD which may be more difficult to stabilize. Some individuals with BPSD who are unable to discontinue antipsychotics completely without recurrence of BPSD may be able to remain stabilized on a lower dose than they were initially prescribed, which may be beneficial with respect to reducing the risk associated with dose-related adverse effects of

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
			antipsychotics even without complete cessation of treatment." (p. 32)
	"We suggest deprescribing antipsychotics in people living with dementia who initially had severe agitation or psychosis, after considering their current symptoms, the total duration of antipsychotic treatment, dosage of medication required to stabilize behavioural and psychological symptoms of dementia, and initial severity of symptoms." (p. 32)	Conditional recommendation Low-quality evidence	In RCTs examining deprescribing of antipsychotics around 70% of individuals had antipsychotics successfully discontinued without a worsening of symptoms of dementia "Individuals who have been prescribed medications for longer periods of time, those who had less severe symptoms at baseline or those who stabilized on lower doses could be most appropriate for a trial of deprescribing." (p. 32)
	"We recommend **against** using long-acting injectable antipsychotics for the treatment of behavioural and psychological symptoms of dementia unless there is a co-occurring chronic psychotic illness that requires treatment with a long-acting injectable antipsychotic." (p. 20)	Strong recommendation Low quality evidence	"There are no RCTs evaluating the safety and efficacy of long-acting antipsychotics for the treatment of agitation in dementia.
	"We suggest aripiprazole, brexpiprazole or risperidone for the treatment of **severe agitation** in Alzheimer's disease and related dementia." (p. 16)	Conditional recommendation Moderate-quality evidence	There is some evidence of the effectiveness of atypical antipsychotics, but they are also associated with the risk of severe adverse events
	"We suggest quetiapine for the treatment of **severe agitation** for Alzheimer's disease and related dementias if symptoms are refractory to other pharmacological treatments, or in cases where other treatments are not tolerated due to extrapyramidal side-effects." (p. 17)	Conditional Recommendation Low-quality evidence	Limited evidence in a network meta-analysis did not demonstrate that quetiapine was more effective than placebo for reducing symptoms of agitation, and the risk of stroke and death was similar to other antipsychotics, with relatively low propensity to cause extrapyramidal symptoms

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
	"We recommend against using olanzapine for the treatment of agitation except for potential use as short-term emergency treatment of severe agitation in Alzheimer's disease and related dementias." (p. 17)	Strong recommendation Low-quality evidence	Olanzapine is one of few short-acting antipsychotic, but in a network meta-analysis, olanzapine was not more effective than placebo for reducing symptoms of agitation, and was associated with the greatest risk of mortality and cerebrovascular adverse events.
	"We suggest typical antipsychotics could be considered for the treatment of agitation in dementia if symptoms are refractory to other pharmacological treatments including aripiprazole, brexpiprazole and risperidone." (p. 17)	Conditional recommendation Very low Quality evidence	Typical antipsychotics can be effective at reducing symptoms of agitation in dementia, compared to placebo, but these medications are associated with increased risk of somnolence, and extrapyramidal symptoms, compared to placenta
	"We suggest short-acting antipsychotics that are available in both oral and intramuscular formulations for the emergency treatment of severe agitation that is associated with imminent risk of physical harm towards self or others on a short-term basis in Alzheimer's disease and related dementias" (p. 19)	Conditional recommendation Very low Quality evidence	"At times, a person living with dementia may have severe agitation that places them or others at imminent risk of harm. In these circumstances, immediate treatment with antipsychotics may be required to attempt to reduce agitation to safely facilitate a more thorough evaluation of the contributors to agitation and to formulate a comprehensive management plan" (p. 19)
	"Psychosocial interventions are recommended for all with behavioural and psychological symptoms of dementia, either alone or in combination with pharmacological treatments." (p. 10) Refer to this guideline for recommendations for non-pharmacological interventions for behavioural and psychological symptoms of dementia.	Good practice statement	"Psychosocial approaches have a strong evidence base for many behavioural and psychological symptoms of dementia" (p. 10)
Bjerre et al. 2018 Guideline endorsed by: College of Family Physicians of	Recommendation for deprescribing antipsychotics: "For adults with behavioural and psychological symptoms of dementia treated for at least 3 months (symptoms stabilized or	Strong recommendation Moderate-quality evidence	Overall the benefits of deprescribing out weight the harms, and that older adults with dementia can be successfully withdrawn from chronic antipsychotic medication without detrimental effects on their behaviour

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
Canada, Canadian Pharmacists Association, Canadian Society of Consultant Pharmacists, 2018[146] Includes LTC and primary care settings	no response to adequate trial), we recommend the following: • Taper and stop antipsychotics slowly in collaboration with the patient and caregivers: e.g., 25%-50% dose reduction every 1-2 week" (p. 19) "Recommendations do not apply to those who have been prescribed antipsychotics for the treatment of disorders such as schizophrenia, schizoaffective disorder, bipolar disorder, acute delirium, Tourette syndrome or tic disorders, autism, mental retardation or developmental delay, obsessive-compulsive disorder, alcoholism, cocaine abuse, or Parkinson disease psychosis; or as an adjunct in the treatment of depression; or for the treatment of delusions and hallucinations in patients with dementia" (p. 29)		Authors stated a lack of evidence of the harm of deprescribing, and evidence for a benefit of reducing inappropriate antipsychotic use in terms of avoidance of the drug-related harms.
Institut national d'excellence en santé et services sociaux, 2017 Appropriate use of antipsychotics in residents of residential and long-term care centres with behavioural and psychological symptoms of dementia[26]	In residents of LTC facilities with behavioural and psychological symptoms of dementia: Antipsychotics "may be appropriate for the short-term management of psychotic or aggressive symptoms that: • Pose a risk to the resident or to others; • And have not responded to individualized nonpharmacological interventions" (p. 1) Antipsychotics "are ineffective or not indicated for managing behavioural and psychological symptoms of dementia, such as shouting and repetitive movements, sleep	Not reported	"The recommendations were developed using a systematic approach and are supported by the scientific literature and the knowledge and experience of Québec clinicians and experts." (p.1) (Systematic review of the evidence is available in French[152])

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
	problems, wandering, resistance to personal care, etc." (p. 1)		
Guidelines with unclear methodology			
Choosing Wisely Canada Recommendation, Canadian Nurses Association, 2024[149]	"Don't recommend antipsychotic medicines as the first choice to treat symptoms of dementia"	Not reported	"The benefit of these drugs is limited, however, and they can also cause serious harm including premature death. Their use should be limited to cases where non-pharmacologic measures have failed and where patients pose an imminent threat to themselves or others"
Choosing Wisely Canada Recommendation, Canadian Pharmacists Association, 2024[151]	"Question the use of antipsychotics to treat insomnia in any age group."	Not reported	There is a lack of evidence of benefit for atypical antipsychotics for the treatment of insomnia and guidelines warn against their possible adverse effects. "While antipsychotics may be appropriate in some patients with insomnia when there is another indication for their use (e.g., as adjunctive treatment in depression), the use of these medications as first-line therapy for insomnia is discouraged due to potential harm that outweighs their benefits"
Dementia: Behavioural and Psychological Symptoms RxFiles, 2024[147]	For managing the behavioural and psychological symptoms of dementia, "use non-pharmacological approaches whenever possible" (p. 2)	Not reported	"Non-pharmacologic interventions have been shown to be more effective than pharmacologic treatment for dementia-related behaviours and should be attempted first, whenever possible." (p. 2) "If the individual/resident or caregiver(s) are at risk of harm, medication may be required. However, use of medications (specifically antipsychotics) for behavioural and psychological symptoms of dementia is associated with significant risks, including drowsiness/sedation, higher fall risk, and an increased risk for strokes and death." (p. 2)

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
Health Standards Organization (HSO) National Standard of Canada Long-Term Care Services, 2023[22]	"**Use antipsychotics appropriately**. Antipsychotics are not used as a first choice to treat behavioural and psychological symptoms of dementia or sleep-related issues" (p. 29)	Not reported	"The use of antipsychotic medications when not indicated can seriously harm residents" (p. 29)
Choosing Wisely Canada Recommendation, Canadian Geriatrics Society, 2022[23] and the Canadian Society for Long Term Care Medicine 2021[150]	"Don't use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia"	Not reported	Antipsychotics provide limited benefit to treating aggression, resistance to care, and other disruptive behaviours in people with dementia, and they can cause serious harm. Use should be limited to cases where non-pharmacological measures have failed and patients pose an imminent threat to themselves or others. When an antipsychotic has been prescribed, frequent reviews and attempts at reduction or discontinuation must be done to reduce harm
Alberta Medical Association, 2017 Towards Optimized Practice – Cognitive Impairment[24]	For people with disease dementia: "Avoid use of antipsychotics. If antipsychotics are required, a low dose of an atypical antipsychotic can be attempted but should be managed by a clinician who is experienced, has specialized skills and can provide close follow-up" (p. 3) For people with frontotemporal dementia: "Atypical antipsychotics are reserved for severe agitation and aggression that cannot be managed by other means" (p. 3) "Emphasize a non-pharmacological approach targeted at controlling symptoms (especially behavioural) and supporting patients and their families." (p. 3)	Not reported	Not reported

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
	For people with dementia with Lewy bodies: "Antipsychotics should be avoided in the treatment of patients with Dementia with Lewy bodies. If required to manage troubling behavioural issues that have not responded to other measures, use a low dose of an atypical antipsychotic with extreme caution and careful monitoring for adverse effects" (p. 5) General approaches for behavioural and psychological symptoms of dementia, recommendations for atypical antipsychotics: "Potential benefits must be weighed against the significant risks such as cerebrovascular events and mortality." (p. 5) "Reassess medications periodically with attempts to taper and discontinue." (p. 5) "DO NOT use these medications to manage behavioural concerns e.g., insomnia - especially when safer more effective alternatives are available." (p. 5)		
Alzheimer Society Canada, 2017 Position Statement[25] Includes LTC	"The Alzheimer Society recommends that antipsychotics only be used as a last resort to treat behavioural and psychological symptoms of dementia, especially in older adults." (p. 2)	Not reported	"As the human body ages, it reacts to medications differently. This puts older adults at an increased risk of adverse events from medications. In particular, antipsychotic drugs have been linked to an increased risk of falls, diabetes and heart disease" (p. 2)

Guideline, Year	Recommendation	Strength of recommendation and quality of evidence	Supporting evidence and/or rationale
Health Quality Ontario, 2016 Quality Standard: Behavioural Symptoms of Dementia - Clinical Guide Care for Patients in Hospitals and Residents in Long-Term Care Homes[27]	"People living with dementia are prescribed psychotropic medications to help reduce agitation or aggression only when they pose a risk of harm to themselves or others or are in severe distress." Note: psychotropic medications includes antipsychotics, as well as antidepressants, mood stabilizers, benzodiazepines, and other hypnotics	Not reported	"Because of their potential for adverse events, psychotropic medications should not be considered first-line therapy for people living with dementia. In particular, the use of antipsychotics is cautioned for people living with dementia as it is associated with an increased risk of serious adverse events, such worsening cognition, parkinsonism, diabetes, sedation, cerebrovascular disease, and premature death."
	"People living with dementia and symptoms of agitation or aggression receive nonpharmacological interventions that are tailored to their specific needs, symptoms, and preferences, as specified in their individualized care plan."	Not reported	"There are a variety of nonpharmacological interventions that can be effective in managing symptoms of agitation or aggression in people living with dementia. Treatment approaches should include a combination of nonpharmacological interventions that are individualized based on the person's needs, symptoms, preferences, and history."
Centre for Effective Practice, 2016 Antipsychotics in Dementia Care[28] Includes LTC	"When behavioural and psychological symptoms of dementia are particularly distressing or disturbing, pose an imminent risk of harm to the patient or others, and are likely to respond to antipsychotics, it is sometimes beneficial to initiate antipsychotic therapy."	Not reported	Potential benefit "modest improvement seldom observed" Potential harms: "Side effects: sedation, falls, postural hypotension, QT prolongation, confusion, extrapyramidal symptoms (rigidity, stiffness, akinesia), tardive dyskinesia, diabetes, weight gain Stroke: increased risk Death: possible increase"
	"Non-drug therapy is an important part of managing behavioural and psychological symptoms of dementia, regardless of whether drug therapy is initiated. It is an ongoing process that involves the care team, family, and caregivers."	Not reported	"As a general principle, individualize your approach as much as possible. Behavioural triggers and effective ways to treat them will vary from one patient/resident to the next."

LTC = long-term care; RCT = randomized controlled trial.

Notes: Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), or as guidelines with unclear (i.e., not reported in detail) methodology.

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