MyPractice: Long-Term Care Report

Technical Appendix

Ontario Health
Quality

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Introduction

The *MyPractice*: *Long-Term Care report* is a private and confidential report that provides practice-level data to support quality improvement. The data provided in these reports is derived from administrative databases held at ICES. This document provides detailed information on the methods used to prepare these reports including how residents are assigned to physicians, how the LTC homes a physician practices are identified, how indicators are calculated and the data sources. To receive a personalized report, a physician must sign up so that Ontario Health is permitted to receive data from the Institute for Clinical Evaluative Sciences regarding your practice. By signing up to receive this confidential report, physicians will have access to personalized data as well as to specific ideas to support quality improvement within their LTC home(s). This report focuses on indicators related to the use of systemic antibiotics, the prescribing of antipsychotics for residents diagnosed with dementia but not diagnosed with psychosis, and medications associated with increased risk of falls. Future editions of the report may be expanded to include additional topics.

Overview

This report contains information on your LTC practice, including prescribing indicators, comparator data and contextual information intended to complement other sources of information for quality improvement. To provide the data in this report, the cohort of residents living in Ontario LTC homes was identified using administrative databases held at the Institute for Clinical Evaluative Sciences (ICES): the Ontario Health Insurance Plan Claims History Database (OHIP) and the Ontario Drug Benefit (ODB) Program Database. Each resident was then linked to the one physician, called the most responsible physician (MRP), who provided the most medical care to the resident. The MRP was identified based on LTC fee codes in the OHIP data. Additional data from the Canadian Institute for Health Information (CIHI) were used to calculate indicator and contextual information. *MyPractice*: LTC reports are updated every three months, and the data in each are about six months old when the reports are released. Details on the new topic, new indicators and methods are provided below.

New Indicators: Antibiotic Prescribing

In 2018, the newest topic, antibiotics, was selected for inclusion in the practice report, based on literature review, feasibility, requests from physicians who receive the reports, and approval of our committees. There is evidence that reducing the amount and duration of antibiotic prescriptions may not lead to harm for patients and may increase safety by reducing the harms associated with antibiotic overuse. It is estimated that as much as 50-75% of antibiotic courses initiated in long-term care homes (LTCHs) are unnecessary. (Loeb, et al., 2001) (Agata, Loeb, & Mitchell, 2013) Efforts to reduce unnecessary antibiotic use in LTCHs have not resulted in any reported adverse outcomes. (Nicolle, 2014) In hospital inpatients, the presence of an antimicrobial stewardship program designed to reduce unnecessary antibiotic use was associated with lower rates of antibiotic-resistant bacteria and *C. difficile* infections. (Baur, et al., 2017)

Similarly, duration of therapy in LTCH residents is often longer than needed. Forty-five percent of antibiotic courses in long-term care exceed 7 days. (Daneman, et al., 2011) However, several randomized controlled trials support using courses of 7 days or less for uncomplicated infections commonly seen in long-term care residents, such as cystitis, cellulitis, and pneumonia. (Public Health Ontario, 2018) Additionally, shorter courses have been associated with lower rates of adverse effects, antimicrobial resistance, and *C. difficile* infections. (Public Health Ontario, 2018) (Drekonja, Rector, Cutting, & Johnson, 2013) Optimal antibiotic prescribing is in line with Choosing

Wisely Canada's "Antibiotics Wisely" campaign as well as Public Health Ontario's efforts to support antimicrobial stewardship.

The indicators selected are based on research conducted in Ontario that shows prescribing patterns are associated with physician characteristics and are under the direct influence of physicians. (Daneman, et al., 2011) (Daneman, et al., 2017) (Daneman, et al., 2015) The first indicator, antibiotic prescribing, is an estimate of the prevalence of prescribing antibiotics to all residents for whom you provide care. Creams, ointments, ophthalmic and otic antibiotics are excluded from this estimate. The second indicator, prolonged treatment with antibiotics, is an estimate of the proportion of the treatments with antibiotics that are longer than 7 days. (Daneman, et al., 2013) This indicator includes treatment episodes for the same resident, same drug class, and the same physician to reflect prescribing of individual physicians.

Fall Prevention Indicators

In 2016, the topic of falls prevention and mobility was added to the practice report. The breadth and complexity of this topic necessitated focusing on one aspect for this report: falls prevention. Through extensive consultation, two indicators were selected and developed that focus on certain medications associated with an increased risk of falls: benzodiazepines and specified CNS-active medications. The report includes two measures of benzodiazepine prescribing: the overall rate of benzodiazepine prescribing (at least one benzodiazepine dispensed in the quarter), and the continuous use of benzodiazepines (at least 90 continuous days of prescriptions for benzodiazepines). (Rojas-Fernandez C, Dadfar F, Wong A, Brown SG, 2015) (Woolcott JC, Richardson KJ, Wiens MO, Patel B, Marin J, Khan KM et a., 2009) The report also includes one indicator based on the Beers 2015 criteria: rate of residents who have three or more specified CNS-active medications dispensed at the same time. (The American Geriatrics Society 2015 Beers Criteria Update Expert Panel, 2015) These indicators were not designed to assess whether a medication is appropriate, but to identify residents who are at an increased risk of falls associated with the medications. For this reason, residents who have clinical indications for these medications are included in the indicators. The data are meant to identify residents who should be monitored for an increased risk of falls related to these medications, to help identify those who may be appropriate for a trial of weaning, or a trial of substituting with a safer medication that is not as strongly associated with a risk of falls. Please note that non-benzodiazepine benzodiazepine receptor agonists (e.g. zopiclone) cannot be accurately captured in the ODB data; therefore, this class of medications was excluded from the indicator.

Two additional supporting measures from the Canadian Institute for Health Information are also included in the report: falls in the previous 30 days and daily physical restraints. These rates are provided at the physician level and are unadjusted.

Antipsychotic Medications Indicators

The antipsychotic indicators in the report now focus on the LTC residents who were diagnosed with dementia, but were not diagnosed with psychosis in the previous five years. The antipsychotic polypharmacy indicator will no longer be included because the rates were very low (< 2% of residents who had an antipsychotic prescribed in Ontario). The denominators are now the same for the indicators that estimate the overall rate, new starts and 90 days of prescriptions for antipsychotics: they include residents aged 66 and older who have a diagnosis of dementia, and exclude residents who are in palliative care, or in the LTC home for less than 100 days, or have a diagnosis of psychosis. (Rochon PA, Stukel TA, Bronskill SE, Gomes T, Sykora K, Wodchis WP et al., 2007) (Health Quality Ontario, 2015a) (Azermai M, Elseviers M, Petrovic M, van Bortel L, Stichele RV, 2011) (Lunsky Y, Klein-Geltink JE, Yates EA, eds., 2013) (Bronskill SE, Anderson GM, Sykora K, Wodchis WP, Gill S,

Shulman KI, et al., 2004) Finally, the grace period for the indicator capturing the dispensing of antipsychotics for at least 90 days was changed from one day to 1.5 times the number of days supplied, which is a standard methodology and had little impact on the indicator results. (Hudson M, Rahme E, Richard H, Pilote L, 2007) (Sikka R, Xia F, Aubert RE, 2005) This was done to align more closely with the new indicators related to falls prevention. Analyses were conducted to assess the impact of these changes on the indicators, and found that there were only small changes in the provincial rate as a result of widening the grace period between prescriptions.

Indicator Selection and Development

Ontario Health, Quality business unit (OH(Q), uses an indicator selection process that includes a comprehensive review of the scientific evidence, and external consultation. The initial step was a literature review of the published and reported indicators for antipsychotic prescribing in LTC. The list of antipsychotic prescribing indicators was reviewed by an internal panel to determine which indicators were relevant and measurable for the *MyPractice*: LTC report. Next, a survey of the *MyPractice*: LTC report Advisory Committee, a panel of external experts and stakeholders, was conducted to prioritize the indicators. Committee members rated each indicator on a scale of 1 to 9 for three criteria: importance/relevance, actionability, and interpretability. The scores were analyzed using the Rand Method (RAND, 2001). The *MyPractice*: LTC report Advisory Committee finalized the selection of indicators for inclusion in the report using the survey results and consensus-building discussion.

The same process was followed to select indicators for the new topic (medications associated with an increased risk of falls) with an additional step. Since this is the second year of report production, physicians who requested the report were offered an opportunity to respond to the indicator selection survey. The results of the indicator selection survey of physicians who had previously received the report were included in the modified Delphi process to inform the final selection of indicators.

Following each indicator selection process, the selected indicators were developed by a team of analysts, epidemiologists and scientists from organizations including Ontario Health and the Institute for Clinical Evaluative Sciences. Additional clinical input was also obtained during the process to ensure relevance for the LTC practice setting by presenting the results of analyses to the members of the Advisory Committee and seeking their expert feedback. For all aspects of indicator development, the process was guided by the current state of scientific knowledge and expert clinical scientists. When possible, previously published methods were adopted for the *MyPractice*: LTC report, and modified to ensure the most accurate data for quality improvement. For instance, the LTC resident cohort for each physician was determined using a previously published method employed by scientists at the Institute for Clinical Evaluative Sciences with some modifications.

Report Development

The report layout was developed through extensive consultation with a research team based at Women's College Hospital. Usability sessions to evaluate the report design were conducted with LTC physicians, and feedback from these sessions along with the application of user-centred design methods and known audit and feedback principles were used to produce the report layout and written content. An iterative process was used to determine how to present the data and which stratifications to include. Ongoing consultations with the *MyPractice*: LTC report Advisory Committee and Clinical Reference Group (comprised of health care professionals including family physicians practicing in LTC, geriatric psychiatrists, pharmacists, nurse practitioners, and registered nurses) helped shape the final report layout, presentation of data and written content, and ensure utility for the end-user. The current templates are being tested in a randomized trial. At times, a survey of report recipients will be conducted as one method of obtaining feedback on how to further enhance and improve the report design and content.

Methods

In this section of the Technical Appendix, the methods for identifying the LTC cohort and calculating indicators will be described. LTC residents were identified using two main data sources: OHIP and ODB. To be included, residents had to be between 19 and 115 years of age and have a minimum of two records for the reporting period. Those two records could be any combination of OHIP records for services provided in an LTC home or ODB records that had an LTC flag. Next, residents were assigned to a most responsible physician (MRP) based on the OHIP records, and the homes in which each physician practised were identified through OHIP records. Once the LTC residents and their physicians were identified, the indicators were calculated using additional data sources, including the Discharge Abstract Database (DAD), OHIP, ODB, the Registered Persons Database (RPDB) and the Ontario Mental Health Reporting System Database (OMHRS). A diagnosis of psychosis and/or dementia was determined using five years of DAD, OHIP and OMHRS data, and one year of ODB data. More detailed information on these calculations is provided below. Please see the specific segments of the Methods section for more detailed information on the inclusion and exclusion criteria, MRP assignment, and other details such as data sources, assessment of diagnosis information for dementia and psychosis, indicator calculations, and data on interRAI outcome scales from the Continuing Care Reporting System (CCRS) database.

Data Sources

Administrative databases used to generate this report include: the OHIP database for physician claims data and cohort definition; the ODB database for prescription information and cohort definition; the RPDB for patient demographic information; the DAD for acute care data; the OMHRS for inpatient mental health data; and the CCRS for interRAI data (also referred to as RAI-MDS). The latter was only used for the yearly CIHI data section found on pages 12-13 of the *MyPractice*: LTC report. The ODB has been validated for the accuracy of prescription claims (Paterson JM, Suleiman A, Hux JE, Bell C, 2008). These data sets were linked using unique encoded identifiers and analyzed at ICES.

Ontario Health Insurance Plan (OHIP)

Ministry of Health and Long-Term Care (MOHLTC)

The OHIP claims database covers all reimbursement claims to the MOHLTC made by fee-for-service physicians, and by community-based laboratories, and radiology facilities. The OHIP database at ICES contains encrypted patient and physician identifiers, codes for services provided, dates of service, associated diagnoses, fees paid, and shadow billing information. Services that are missing from the OHIP data include: some lab services; services received in provincial psychiatric hospitals; services provided by health service organizations and other alternate providers; diagnostic procedures performed on an inpatient basis, and lab services performed at hospitals (both inpatient and same-day).

Ontario Drug Benefit (ODB) Claims Database

Ministry of Health and Long-Term Care (MOHLTC)

The ODB claims database contains records of all prescriptions dispensed to individuals who are covered by the ODB program, who include all people living in LTC facilities in Ontario. The records include the Drug Identification Number, the date the drug was dispensed, and the number of days supplied for each dispensed prescription. The record also identifies which of the claims were made in the LTC setting. The data are collected through the Health Network System by the MOHLTC. The

ODB has been validated for the accuracy of prescription claims (Paterson JM, Suleiman A, Hux JE, Bell C, 2008).

Discharge Abstract Database (DAD)

Canadian Institute for Health Information (CIHI)

The DAD is a database of information abstracted from hospital records that captures administrative, clinical and patient demographic information on all hospital inpatient separations, including discharges, deaths, sign-outs and transfers. CIHI receives Ontario data directly from participating facilities or from their respective regional health authorities or the MOHLTC. The DAD includes patient-level data for all acute- and chronic-care hospitals and rehabilitation hospitals in Ontario. Data are collected, maintained and validated by CIHI. The main data elements of the DAD are patient identifier (e.g., name, health care number), administrative information, clinical information (e.g., diagnoses and procedures) and patient demographics (e.g., age, sex, geographic location).

Ontario Mental Health Reporting System (OMHRS)

Canadian Institute for Health Information (CIHI)

The OMHRS, housed at CIHI, collects information about individuals admitted to designated adult mental health beds in Ontario. The OMHRS includes information on admissions and discharges as well as clinical information. Clinical data are sourced from the Resident Assessment Instrument for Mental Health (RAI-MH), a standardized assessment instrument for inpatient mental health care. It includes information about mental and physical health, social support and service use. Data are collected on clients at participating hospitals in Ontario at admission and discharge, and for patients with extended stays, also every three months. Data are available from October 1, 2005 onward.

Registered Persons Database (RPDB)

Ministry of Health and Long-Term Care (MOHLTC)

The RPDB provides basic demographic information about anyone who has ever received an Ontario health card number. The RPDB is a historical listing of the unique health numbers issued to each person eligible for Ontario health services. This listing includes corresponding demographic information such as date of birth, sex, address, date of death (where applicable) and changes in eligibility status. Data from the RPDB are enhanced with available information through other administrative data sources at ICES; however, even the enhanced data set overestimates the number of people living in Ontario for several reasons, including the source of death information and record linkage issues. Although improvements have been made in recent years, the RPDB still contains a substantial number of individuals who are deceased or no longer living in Ontario. As such, the RPDB will underestimate mortality. To ensure that rates and estimates are correct, a methodology has been developed to adjust the RPDB so that regional population counts by age and sex match estimates from Statistics Canada.

Continuing Care Reporting System (CCRS)

Canadian Institute for Health Information (CIHI)

CIHI developed the CCRS to enhance the collection of standardized, facility-based LTC and complex continuing care information for national comparative reporting. The CCRS contains demographic, administrative, clinical, and resource utilization information on individuals receiving continuing care services in hospitals or in LTC homes in Canada. Participating organizations also provide information on facility characteristics to support comparative reporting. The clinical data are collected using an internationally accepted standard, the Resident Assessment Instrument-Minimum Data Set Version 2.0 (RAI-MDS 2.0). Each resident in an LTC home is assessed at admission and every three months

or whenever they experience a significant change in health status. The RAI-MDS 2.0 assessment includes patient-level measures of function, mental and physical health, social support and service use. It was modified by CIHI with permission for Canadian use. All LTC homes in Ontario have submitted data to CIHI on a quarterly basis since 2009.

ICES-derived Chronic Disease Cohorts

The ICES-derived cohorts are datasets created in-house using validated algorithms to identify people who have specific diseases. The algorithms use a combination of data sources including OHIP, drug, hospital, emergency department, and outpatient data, and diagnostic codes. These algorithms have a time frame placed on them. Validation studies have been conducted for these cohorts and typically involve medical chart reviews and report several measures of validity (sensitivity, specificity, positive and negative predictive value). This report uses the prevalence flag to estimate your practice and the provincial percentage of residents with the condition obtained from the following chronic disease cohorts: asthma, diabetes, congestive heart failure, chronic obstructive pulmonary disease (COPD), and dementia. (Gershon AS, 2009) (AS Gershon, 2010) (To T, 2004) (Gershon A, 2009) (Schultz SE, 2013) (Hux JE, 2002) (Jaakkimainen RL, 2016)

Identifying Your LTC Residents

To identify your LTC residents, who include those living in LTC for whom you have provided care in each reporting period, your College of Physicians and Surgeons of Ontario (CPSO) number was linked to health care administrative databases stored at ICES. The assignment of residents to physicians was accomplished using a previously published method that was adapted and improved for *MyPractice* reports (Rochon PA, Stukel TA, Bronskill SE, Gomes T, Sykora K, Wodchis WP et al., 2007). Your report includes LTC residents for whom you were determined to be the attending physician, or most responsible physician (MRP), based on OHIP LTC fee codes billed for each quarter and three previous months. This was a two-step process: physicians who billed the greatest number of W010 fee codes for a resident were assigned as the MRP for the resident. For residents with zero W010 codes billed, the MRP was the physician who billed the greatest number of LTC fee codes for that resident. Since the OHIP and ODB data are updated more frequently than other administrative databases at ICES, these databases were used to identify your residents each quarter. This methodology was validated on a small sample of physicians that provided consent prior to the initial release.

Your resident group includes individuals between 19 and 115 years of age, for whom there was information on date of birth and sex, and a valid LTC institution number. The indicators have additional exclusion criteria. For example, eligibility for ODB coverage typically begins at age 65, thus the lower age limit for indicators was set at age 66 to ensure a one-year look-back period on drug prescription data that was essential for estimating whether a medication was considered a new start.

Identifying the LTC Homes in Which You Work

The institution numbers recorded in the OHIP billings for the residents who were assigned to you as the MRP were examined to identify the LTC homes in which you practised. For an LTC home to be assigned to your practice, there had to be at least five residents recorded in the same home; this was intended to minimize random error in the institution codes in OHIP data. In some instances, the data may not accurately reflect the homes in which a physician practised due to coding practices in OHIP billing. For example, if a physician worked in more than one LTC home, but included the institution number for only one of these homes on all OHIP submissions, then the other homes could not be identified for the report. For physicians who practised in more than one LTC home, data were provided for the LTC home in which the physician had the largest number of residents prescribed the relevant

medications. This was intended to aid in quality improvement. If you have additional questions, please contact Ontario Health at practicereport@hqontario.ca.

Indicator Calculation

After identifying your residents and the LTC homes in which you practised, additional administrative data sets were used to calculate both the indicators and the supporting contextual information. For instance, data from OHIP and ODB were used to calculate the indicators of antipsychotic prescribing, and additional databases were used to identify diagnoses of psychosis and dementia (please see section below). It is important to note that the ODB contains information on dispensed medications, but not on the actual use of those medications. In LTC, most prescriptions are dispensed and delivered to the home; thus, this report refers to the prescribing rather than the dispensing of medications to focus on the clinician's perspective. Although a prescription in LTC is usually filled by a pharmacy, the medication may not be administered to the resident, and these PRN prescriptions cannot be identified in the data. For these reasons, it is not possible to know whether a resident took a medication. This distinction is made in the presentation of the CIHI Antipsychotic indicator which captures the ***use*** of antipsychotic medication.

All the indicators in this report are unadjusted. Three indicators are included in this report that were calculated using the CCRS data from CIHI. Currently, Ontario Health cannot provide data from the CCRS in as timely a manner as the other (OHIP/ODB) report data. However, these data may still provide contextual information to aid in quality improvement. Three indicators were included from the CCRS data: antipsychotic use among residents without a diagnosis of psychosis, falls in the last 30 days, and daily physical restraints. These indicators are calculated based on the CIHI methods, and all are presented unadjusted. Please see the appendices for details on indicator calculations.

Identification of Medications

The criteria established to determine which medications - identified by their Drug Identification Numbers (DINs) - should be included in an indicator were based on scientific literature and the expert clinical knowledge of committee members. The criteria related to some or all of the following: drug class, routes of administration, indications, and availability of the drug in LTC.

Once the criteria for including DINs in an indicator were established, a list of potential DINs for each indicator was created from publicly available drug databases: the Ontario Drug Database, the Drug Product Database of Health Canada, and the ATC/DDD Index of the World Health Organization. The latter two sources provided supplementary information about particular DINs that was not available in the ODB and that was used to clarify information about those DINs – such as information about a drug being cancelled post-marketing.

Based on each indicator's established inclusion/exclusion criteria, OH(Q) staff reviewed each list of potential DINs to determine whether each DIN should be included in the calculation of prescribing rates for the relevant indicator. If there was uncertainty about a including a particular DIN, it was discussed with clinical experts to determine whether or not to include it. The resulting DIN list was then reviewed once more by the clinical expert(s) to finalize it. These steps were taken to ensure the accuracy and validity of the list of medication DINs for each indicator. These reviews occurred when each set of indicators was developed between 2015 and 2018.

In 2019, the list of DINs for each indicator was reviewed to determine if there were medications, newly developed or recently added to the formulary, that should be added to the list. In order to be added, medications had to meet the inclusion criteria established during indicator development (e.g. appropriate drug class, route of administration, etc.). For this review, a list of all the medications in

the drug classes relevant to each indicator was obtained from the ODB. This list was compared to the existing list of DINs for each indicator. Any potential new DINs identified were reviewed by OH(Q) staff and external clinical experts to determine if they met the inclusion criteria for the relevant indicator.

As a result of the review, some new DINs were added to the DINs lists for all indicators except for those that measured the prescribing of benzodiazepines, for which there were no new DINs. We assessed the impact of including the new DINs in the provincial, regional and physician indicator results. There were small increases in the provincial and regional rates for some indicators in the most recent three quarters for which data were available. Similarly, there were small increases in the indicator rates at the 25th and 60th percentiles of the distribution. Patterns of dispensing remained the same as they were prior to the review. The benzodiazepine indicators were not affected by the DINs review, as there were no new DINs identified for these indicators. DINs reviews will be conducted on a regular basis to ensure all eligible medications are captured for each indicator.

Diagnosis of Psychosis and Dementia for the Antipsychotic Indicators

Diagnoses were identified by examining the preceding five years of OHIP, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS) data according to previously published methods and clinical review. (Rochon PA, Stukel TA, Bronskill SE, Gomes T, Sykora K, Wodchis WP et al., 2007) (Hwang YJ, Dixon SN, Reiss JP, Wald R, Parikh CR, Gandhi S, 2014) (Health Quality Ontario, 2015b) In addition, ODB records in the year preceding each reporting quarter were examined for the dispensing of medications related to dementia (cognitive enhancers/cholinesterase inhibitors), as a surrogate for the diagnosis of dementia. Psychosis includes schizophrenia, bipolar disorder, tics or Huntington's disease and other forms of psychosis (including dementia-related psychosis). The CIHI indicator results for antipsychotics, falls, restraints and RAI-MDS outcome scales were calculated using CIHI methodology applied to the most recent fiscal year for which data were available. (Canadian Institute for Health Information, 2015) (Canadian Institute for Health Information, 2013) The section provides further detail on methods used to calculate the indicators. The Appendices include a complete list of medications used for the indicators by drug class, diagnostic codes to identify psychosis and dementia in the different databases and the codes for identifying your residents receiving palliative care.

Resident Characteristics

Age

A resident's age was determined from the RPDB and based on the age of the resident on the index date (the last service date in the quarter). Residents were categorized according to the following age groups: 19-64 years, 65-74 years, 75-84 years, and 85 years and older.

Sex

A resident's sex (male or female) was determined from the RPDB.

Palliative Care

Residents were designated as palliative care if there were any OHIP or DAD codes indicating palliative treatment in the six-month period prior to the index date (last service date in the quarter). See Appendix C for a list of the palliative care codes.

New Residents

Residents were defined as *new* if they had been in the current LTC home for less than 100 days from the index date (last service date in the quarter).

Activities of Daily Living (ADL) Self-Performance Hierarchy Scale

According to interRAI, the "ADL Hierarchy Scale groups activities of daily living according to the stage of the disablement process in which they occur. Early-loss ADLs (for example, dressing) are assigned lower scores than late-loss ADLs (for example, eating). The ADL Hierarchy Scale ranges from 0 (no impairment) to 6 (total dependence)." (interRAI, 2015)

For this report, the residents' ADL Self-Performance Hierarchy Scale scores were based on their most recent RAI-MDS assessment in the fiscal year reported. Residents were categorized based on the following three groups: independent (0), limited impairment (1-2), extensive assistance (3-4), and dependent (5-6).

Aggressive Behaviour Scale (ABS)

According to interRAI, the "Aggressive Behaviour Scale (ABS) is a measure of aggressive behaviour based on the occurrence of verbal abuse, physical abuse, socially disruptive behaviour and resistance of care. Scale scores range from 0-12 with higher scores indicative of greater frequency and diversity of aggressive behaviour. A score of 1 to 4 on the ABS indicates mild to moderate aggressive behaviour, whereas scores of 5 or more represent the presence of more severe aggression. This scale has been validated against the Cohen Mansfield Agitation Inventory." (interRAI, 2015)

For this report, the residents' ABS scores were based on their most recent RAI-MDS assessment in the fiscal year reported. Residents were categorized into the following three groups: 0 (no aggressive behaviour), 1-2 (some aggressive behaviour), 3-5 (severe aggressive behaviour) and 6 or more (very severe aggressive behaviour).

Cognitive Performance Scale (CPS)

According to interRAI, the "Cognitive Performance Scale (CPS) combines information on memory impairment, level of consciousness, and executive function, with scores ranging from 0 (intact) to 6 (very severe impairment). The CPS has been shown to be highly correlated with the Mini Mental State Examination (MMSE) in a number of validation studies." (interRAI, 2015)

For this report, the residents' CPS scores were based on their most recent RAI-MDS assessment in the fiscal year reported. Residents were categorized based on the following three groups: 0-1 (relatively intact), 2-3 (mild or moderate impairment) and 4-6 (severe impairment). **(Canadian Institute for Health Information, 2013)**

Depression Rating Scale (DRS)

According to interRAI, the "Depression Rating Scale (DRS) is used as a clinical screen for depression. Validation studies were based on a comparison of the DRS with the Hamilton Depression Rating Scale and the Cornell Scale for Depression. Compared to DSM-IV major or minor depression diagnoses, the DRS was 91% sensitive and 69% specific at a cut-point score of 3 out of 7." (interRAI, 2015)

For this report, the residents' DRS scores were based on their most recent RAI-MDS assessment in the fiscal year reported. Residents were categorized based on the following three groups: 0 (no depressive symptoms), 1-2 (some depressive symptoms) and 3 or more (possible depressive disorder).

Pain Scale

According to interRAI, the "Pain Scale was originally developed for use with nursing home residents and later translated for use with other interRAI instruments. The scale uses two items to create a score from 0 to 3. It has been shown to be highly predictive of pain as measured by the Visual Analogue Scale." (interRAI, 2015)

For this report, the residents' Pain Scale scores were based on their most recent RAI-MDS assessment in the fiscal year reported. Residents were categorized based on the following three groups: 0 (no pain), 1 (less than daily pain), 2 (daily pain, but not severe) and 3 (severe daily pain).

Data Interpretation Considerations

Administrative databases were used to generate this report without asking you to provide additional data. However, these databases do have limitations, including:

- **Data timeliness:** The data lag for these reports is about six months for the OHIP/ODB indicators. Data from the CCRS in this report will not match the time period of the OHIP/ODB cohort, and will be updated annually. While OH(Q) and our partners are always looking for ways to provide more timely data, we encourage you to also use local data sources to track and measure your progress.
- **Data comprehensiveness/limitations:** Administrative databases cannot capture all the information relevant to these indicators and thus there are missing elements in the report. These include:
    - The prescribing indicators calculated from ODB data in this report measure the **presence of a dispensed medication**, but not the administration of the medication.
    - In LTC, most prescriptions are filled and delivered to the home; thus, this report refers to the prescribing rather than the dispensing of medications to focus on the clinician's perspective.
    - Medications begun in the hospital cannot be identified, which would impact the measurement of newly starting a medication.
    - PRN prescriptions cannot be identified in the ODB database. Thus, indicators cannot exclude medications dispensed on an as-needed basis.
    - ODB coverage usually begins at age 65; however, those living in LTC who are younger than age 65 will have ODB coverage.
- **Data suppression**: To maintain confidentiality, data are suppressed as per ICES' privacy policies, in the following manner:
    - When a value is between one and five, the value and its accompanying rate are suppressed. Additional suppression may be applied to maintain confidentiality even if the value is greater than five. Suppression is denoted by the dagger symbol (†). Suppressed values are included in the totals, and every effort is made to suppress the next smallest value.

What Does This Mean For Me?

Although there are data elements missing from this report, where possible, the data have been presented in a way designed to help overcome these limitations. Since ODB coverage usually begins at age 65, the lower age limit for the medication indicators is set at 66. This allows for an equal time period to look for previous prescriptions in the data, resulting in complete drug information for all residents and consistency for all indicators. With this new report structure and new indicators, we welcome your thoughts on how we might improve this report.

Technical Notes for Indicators

Antibiotics Prescribing Overall: Percentage of residents who were prescribed an antibiotic

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of LTC residents who had at least one antibiotic dispensed in the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The total number of residents who had at least one record for an antibiotic drug dispensed with an LTC flag (ODB) in the 90 days prior to and including the index date which is defined as a resident's last service date in the quarter. **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are 19 years and older. **Exclusions:** • Age less than 19 on index date • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents who had at least one antibiotic dispensed}}{\text{Total number of residents}}$ X 100
		Adjustment (risk, age/sex standardization): N/A ***Stratification*:** By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database.
OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN).

Antibiotics Prolonged Treatment: Percentage of antibiotic treatments that were longer than seven days

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of antibiotic treatments that were longer than seven days.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The total number of antibiotic treatments that were longer than seven days in duration during the reporting period (i.e. within 90 days of the index date). **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of antibiotic treatments. **Exclusions:** • Age less than 19 on index date • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of treatment episodes longer than seven days}}{\text{Total number of treatment episodes}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification*:** By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database.
OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN). A treatment episode is defined as the total length of treatment for sequential antibiotics dispensed for the same resident, of the same drug class, and the same physician. There is no more than three days between the last date of the first prescription, and the first day of the second prescription. This indicator is calculated based on prescriptions written by the MRP only.

Antipsychotics: Percentage of residents aged 66 and older diagnosed with dementia, without psychosis, who were prescribed an antipsychotic medication

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of LTC residents diagnosed with dementia but not diagnosed with psychosis, who had at least one antipsychotic medication dispensed in the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The total number of residents with dementia without psychosis, who had at least one record for an antipsychotic drug dispensed with an LTC flag (ODB) in the 90 days prior to and including the index date which is defined as a resident's last service date in the quarter. **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are aged 66 years and older, who were diagnosed with dementia, without psychosis, were not new to the LTC home, and were not in palliative care. **Exclusions:** • Diagnosis of psychosis in the preceding five years • No diagnosis of dementia in the preceding five years • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents who had at least one antipsychotic medication dispensed}}{\text{Total number of residents who were diagnosed with dementia without psychosis}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification*:** By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).

OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN).

Antipsychotics New Starts: Percentage of residents aged 66 and older diagnosed with dementia, without psychosis, who were newly prescribed an antipsychotic medication

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of LTC residents diagnosed with dementia but not diagnosed with psychosis, who had at least one antipsychotic medication dispensed in the reporting period and did not have an antipsychotic medication dispensed in the preceding 12 months.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The number of residents diagnosed with dementia without psychosis who had at least one prescription for an antipsychotic medication dispensed, and did not have a prescription for antipsychotics dispensed in the previous 12 months. The earliest antipsychotic dispensed in the 90 days preceding the index date (a resident's last service date in the quarter) is the starting point for the 12-month lookback for a previous antipsychotic dispensed. **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are aged 66 years and older, who were diagnosed with dementia, without psychosis, were not new to the LTC home, were not in palliative care. **Exclusions:** • Diagnosis of psychosis in the preceding five years • No diagnosis of dementia in the preceding five years • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Total number of residents who had at least one antipsychotic medication dispensed in the quarter who did not have an antipsychotic medication dispensed in the preceding 12 months}}{\text{Total number of residents who were diagnosed with dementia without psychosis}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification*:** By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).
OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN).

Antipsychotics for at Least 90 Days: Percentage of residents aged 66 and older diagnosed with dementia, without psychosis, who were prescribed an antipsychotic medication for at least 90 continuous days

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of LTC residents diagnosed with dementia but not diagnosed with psychosis, who had an antipsychotic medication dispensed for at least 90 continuous days measured from the last date of contact in the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The number of residents diagnosed with dementia without psychosis who had at least 90 days of antipsychotic medications dispensed (with LTC flag) during the 90 days preceding the index date (a resident's last service date in the quarter). Antipsychotic drug can be any drug from list (i.e., change to a different antipsychotic medication throughout 90 days is included). The grace period, the number of days between the end of one prescription and start of the next prescription, was 1.5 times the number of days supplied for the prescription. **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are aged 66 years and older, who were diagnosed with dementia, without psychosis, were not new to the LTC home, and were not in palliative care. **Exclusions:** • Diagnosis of psychosis in the preceding 5 years • No diagnosis of dementia in the preceding 5 years • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents with an antipsychotic medication dispensed for at least 90 days}}{\text{Total number of residents who were diagnosed with dementia without psychosis}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification*:** By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).

OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN).

Benzodiazepines: Percentage of residents aged 66 and older who were prescribed a benzodiazepine

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of LTC residents who have at least one benzodiazepine medication dispensed in the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The total number of residents who have at least one record for a benzodiazepine drug with an LTC flag (ODB) in the 90 days prior to and including the index date (a resident's last service date in the quarter). **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are aged 66 years and older, were not new to the LTC home, and were not in palliative care. **Exclusions:** • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents who had at least one benzodiazepine dispensed}}{\text{Total number of residents}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification***: By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).
OTHER NOTES	***Limitations/ caveats***	Due to data limitations, this indicator includes medications dispensed that are prescribed on an as-needed basis (PRN). Caveats: These indicators are not intended to assess the appropriateness of the use of these medications. They are designed to identify those residents at increased risk of falls related to the medications, and to aid with quality improvement. For this reason, residents who may have clinical indications for these medications are included in the indicator because these residents would be at an increased risk of falls. Where appropriate, residents may be considered for a trial of weaning, titrating drug dose, or a trial of substituting with a medication that has a lower risk of falls. These indicators are not intended to override clinical judgement, but solely to capture those who may be at an increased risk of falls.

Benzodiazepines for at Least 90 Days: Percentage of residents aged 66 and older who were prescribed a benzodiazepine for at least 90 continuous days

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of residents who had a benzodiazepine dispensed for at least 90 continuous days measured from the last date of contact in the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The number of residents who have at least 90 days of benzodiazepine medication dispensed (with LTC flag) in the 90 day period preceding the index date (a resident's last service date in the quarter). To calculate the days supplied the benzodiazepine drugs can be any of those from the drug list (i.e., change to a different benzodiazepine throughout 90 days is included). The grace period, which is the number of days between the end of one prescription and the start of the next prescription, was defined as 1.5 times the number of days supplied for the prescription. **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are 66 years and older, were not new to the LTC home, and were not in palliative care. **Exclusions:** • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents with a benzodiazepine dispensed for at least 90 days}}{\text{Total number of residents}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification***: By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).
OTHER NOTES	***Limitations/ caveats***	The indicator also captures medications dispensed that are prescribed on an as-needed basis (PRN). Caveats: These indicators are not intended to assess the appropriateness of the use of these medications. They are designed to identify those residents at increased risk of falls related to the medications, and to aid with quality improvement. For this reason, residents who may have clinical indications for these medications are

		included in the indicator because these residents would be at an increased risk of falls. Where appropriate, residents may be considered for a trial of weaning, titrating drug dose, or a trial of substituting with a medication that has a lower risk of falls. These indicators are not intended to override clinical judgement, but solely to capture those who may be at an increased risk of falls.

Three or More CNS-Active Medications: Percentage of residents aged 66 and older who on a given day had prescriptions for three or more specified* CNS-active medications

INDICATOR DESCRIPTION	***Indicator description***	This indicator estimates the percentage of residents who had three or more specified* medications dispensed that have central nervous system activity. This is estimated on a given day (the index date) during the reporting period.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports)
	External alignment	Not applicable
	Other reporting	Not applicable
	Accountability	***This indicator is strictly for quality improvement efforts, and is not reportable or for accountability.***
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The total number of residents who have three or more specified* CNS-active medications dispensed with an LTC flag (ODB) on the index date (a resident's last service date in the quarter). **Includes:** • Cohort identified by OHIP/ODB data (any combination of two codes of OHIP W codes for LTC or ODB claims with an LTC flag). *Specified medications include: antipsychotics, opioids, benzodiazepines (oral), and antidepressants (including TCAs and trazadone).
		Denominator: The total number of residents in the OHIP/ODB cohort for the reporting period who are 66 years and older, were not new to the LTC home, and were not in palliative care. **Exclusions:** • Age 65 or less on index date • Residents with palliative care in past six months • Residents new to their LTC home (less than 100 days in home) • Residents in a physician's group with five or fewer residents within the LTC home (apply this exclusion ONLY when stratifying rates by physician)
		Methods: $\frac{\text{Number of residents who on the index date had prescriptions for three or more specified* CNS-active medications}}{\text{Total number of residents}} \times 100$
		Adjustment (risk, age/sex standardization): N/A ***Stratification***: By LTC homes.
	Data sources	Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Ontario Drug Benefit (ODB) Program Database, Discharge Abstract Database (DAD), and Ontario Mental Health Reporting System (OMHRS).
OTHER NOTES	***Limitations/ caveats***	The indicator also captures medications dispensed that are prescribed on an as-needed basis (PRN). Caveats: These indicators are not intended to assess the appropriateness of the use of these medications. They are designed to identify those residents at increased risk of falls related to the medications, and to aid with quality improvement. For

		this reason, residents who may have clinical indications for these medications are included in the indicator because these residents would be at an increased risk of falls. Where appropriate, residents may be considered for a trial of weaning, titrating drug dose, or a trial of substituting with a medication that has a lower risk of falls. These indicators are not intended to override clinical judgement, but solely to capture those who may be at an increased risk of falls.

Antipsychotics (CIHI): Percentage of residents on antipsychotics without a diagnosis of psychosis

INDICATOR DESCRIPTION	***Indicator description***	The percentage of residents on antipsychotics without a diagnosis of psychosis (i.e., residents are excluded if they have a diagnosis of schizophrenia or Huntington's disease, or if they are experiencing hallucinations or delusions). The indicator is calculated as a rolling four-quarter average.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports); unadjusted indicators. Publicly reported by Ontario Health (Quality) at the LTC home level. Quality Improvement Plans (QIPs) submitted to Ontario Health (Quality) and posted publicly.
	External alignment	Publicly reported by CIHI at the LTC home level.
	Other reporting	Not applicable
	Accountability	Not applicable
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** The number of residents who received antipsychotic medication according to their target RAI-MDS assessment. **Includes:** • Residents who **received** antipsychotic medication on one or more days in the week before their target assessment (O4a = 1, 2, 3, 4, 5, 6 or 7) • 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
		Denominator: The number of residents with valid RAI-MDS assessments, excluding those with schizophrenia, Huntington's chorea, hallucinations or delusions as well as residents who are end-stage disease or receiving hospice care. **Exclusions:** • Residents who are end-stage disease (J5c = 1) or receiving hospice care (P1ao = 1) • Residents who have a diagnosis of schizophrenia (I1ii = 1) or Huntington's chorea (I1x = 1), or those experiencing hallucinations (J1i = 1) or delusions (J1e = 1) Note: end-stage disease is with six or fewer months to live.
		Methods: The indicator is calculated using four rolling quarters of data by summing the number of residents that meet the inclusion criteria for the target quarter and each of the previous three fiscal quarters. This is done for both the numerator and denominator. The unadjusted rate is the quotient of the summed numerator divided by the summed denominator, multiplied by 100.
		Adjustment (risk, age/sex standardization): Not applicable in the *MyPractice*: Long-Term Care Report. For Publicly reported indicators only.
	Data source	Continuing Care Reporting System (CCRS), provided by CIHI.

OTHER RELEVANT INFORMATION	***Limitations/ caveats***	***Caveats and Limitations:*** • Includes only long-stay beds. • General limitations when using RAI-MDS data, including random error, coding errors, and missing values. • Captures antipsychotic medication use over four seven-day periods during the year, so will not capture all antipsychotic use. • Presence of psychosis and antipsychotic use are determined from the same assessment, so residents may be on an antipsychotic for hallucinations or delusions that would no longer be present and therefore not captured in the RAI-MDS assessment. These residents would be counted in the numerator. • Antipsychotic use does not consider dose or duration of use. ***Comments Detailed:*** • Antipsychotic use is defined as any use by a resident in the seven days prior to the assessment date. Delusions and hallucinations are captured in the assessment if these conditions were present in the seven days prior to the assessment date. • The unadjusted indicator result is used in Quality Improvement Plans (QIPs) and is included in the *MyPractice*: Long-Term Care Reports. • The reporting period for current performance in QIPs is July to September. Data are based on information from mandatory "Resident Assessment Instrument – Minimum Data Set 2.0" (RAI-MDS) assessments. • The RAI-MDS is a standardized assessment that is completed for each resident upon admission to LTC and quarterly thereafter by the resident's care team by reviewing the resident's medical records and speaking to the resident and their family.

Falls (CIHI): Percentage of long-term care home residents who fell in the last 30 days

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of long-term care home residents who fell during the 30 days preceding their resident assessment. The indicator is calculated as a rolling four-quarter average.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports); unadjusted indicators. Publicly reported by Ontario Health (Quality) at the LTC home level. Quality Improvement Plans (QIPs) submitted to Ontario Health (Quality) and posted publicly.
	External alignment	Publicly reported by CIHI at the LTC home level.
	Other reporting	Not applicable
	Accountability	Not applicable
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** Number of LTC home residents in a fiscal quarter who had a fall in the last 30 days recorded on their target "Resident Assessment Instrument – Minimum Data Set 2.0" (RAI-MDS) assessment. **Includes**: • J4a = 1 (yes) Where, J4a = Fell in past 30 days
		Denominator: Number of LTC home residents in a fiscal quarter with a valid RAI-MDS assessment. **Inclusions**: To be considered valid, the resident assessment must: • Be the latest assessment in the quarter • Be carried out more than 92 days after the admission date • Not be an Admission Full Assessment
		Methods: The indicator is calculated using four rolling quarters of data by summing the number of residents that meet the inclusion criteria for the target quarter and each of the previous three fiscal quarters. This is done for both the numerator and denominator. The unadjusted rate is the quotient of the summed numerator divided by the summed denominator, multiplied by 100. This indicator was jointly developed by interRAI and the Canadian Institute for Health Information (CIHI). A lower percentage is better.
		Adjustment (risk, age/sex standardization): Not applicable in the *MyPractice*: Long-Term Care Report. For Publicly reported indicators only.
	Data source	***Data source:*** Continuing Care Reporting System (CCRS), provided by CIHI.
OTHER RELEVANT INFORMATION	***Limitations/caveats***	***Caveats and Limitations:*** • Includes only long-stay beds. • General limitations when using RAI-MDS data, including random error, coding errors, and missing values. ***Comments Detailed:*** • This indicator captures whether the resident fell in the last 30 days but does not capture whether the fall resulted in injury.

		• Residents have a right to balance the risk of falls with their right to remain mobile and unrestrained; therefore, a certain number of falls are inevitable. • The focus should be on reducing the number of falls, recognizing that some falls will occur, and preventing injuries associated with falls. • The unadjusted indicator result is an additional indicator in Quality Improvement Plans (QIPs). The reporting period for current performance in QIPs is July to September. • Data are based on information from mandatory "Resident Assessment Instrument – Minimum Data Set 2.0" (RAI-MDS) assessments. • The RAI-MDS is a standardized assessment that is completed for each resident upon admission to LTC and quarterly thereafter by the resident's care team by reviewing the resident's medical records and speaking to the resident and their family.

Restraints (CIHI): Percentage of long-term care home residents in daily physical restraints over the last seven days

INDICATOR DESCRIPTION	***Indicator description***	This indicator measures the percentage of long-term care home residents in physical restraints every day during the seven days preceding their resident assessment. The indicator is calculated as a rolling four-quarter average.
	OH(Q) reporting tool/product	*MyPractice*: Long-Term Care Report (private reports); unadjusted indicators. Publicly reported by Ontario Health (Quality) at the LTC home level. Quality Improvement Plans (QIPs) submitted to Ontario Health (Quality) and posted publicly.
	External alignment	Publicly reported by CIHI at the LTC home level.
	Other reporting	Not applicable
	Accountability	Not applicable
DEFINTION & SOURCE INFORMATION	***Unit of analysis***	Percentage
	Calculation	***Numerator:*** Number of LTC home residents in a fiscal quarter who were recorded as having been physically restrained daily during the seven days preceding their target "Resident Assessment Instrument – Minimum Data Set 2.0" (RAI-MDS) assessment. **Includes**: • (P4c = 2) OR (P4d = 2) OR (P4e = 2) Where, P4c = Trunk restraint [0, 1, 2] P4d = Limb restraint [0, 1, 2] P4e = Chair prevents rising [0, 1, 2] 0 = not used 1 = used less than daily 2 = used daily
		Denominator: Number of LTC home residents in a fiscal quarter with valid RAI-MDS assessments. **Inclusions:** To be considered valid, the resident assessment must: • Be the latest assessment in the quarter • Be carried out more than 92 days after the admission date • Not be an Admission Full Assessment **Exclusions:** • Residents who were comatose (B1 = 1) • Residents who were quadriplegic (I1bb = 1)
		Methods: The indicator is calculated using four rolling quarters of data by summing the number of residents that meet the inclusion criteria for the target quarter and each of the previous three fiscal quarters. This is done for both the numerator and denominator. The unadjusted rate is the quotient of the summed numerator divided by the summed denominator, multiplied by 100. This indicator was jointly developed by interRAI and the Canadian Institute for Health Information (CIHI). A lower percentage is better.
		Adjustment (risk, age/sex standardization): Not applicable in the *MyPractice*: Long-Term Care Report. For Publicly reported indicators only.

	Data source	***Data source:*** Continuing Care Reporting System (CCRS), provided by CIHI.
OTHER RELEVANT INFORMATION	***Limitations/caveats***	***Caveats and Limitations:*** • Does not measure the use of bed rails or chemical restraints (i.e., medication). • Includes only long-stay beds. • There may be some inconsistencies in how homes code restraints due to the difference in RAI-MDS physical restraint definition and the Ministry legislated definition. • General limitations when using RAI-MDS data, including random error, coding errors, and missing values. ***Comments Detailed:*** • A physical restraint is any manual method, or any physical mechanical device, material or equipment that is attached or adjacent to the resident's body, that the resident cannot remove easily, and that restricts the resident's freedom of movement or normal access to his or her body. • It is the effect the device has on the resident that classifies it into the category of restraint, not the name or label given to the device, nor the purpose or intent of the device. • This definition is different from that of the definition for physical restraint used by the Ministry of Health and Long-Term Care, where intent plays an important role. • The restraint use items capture restraint use in the seven days prior to the target assessment. The unadjusted indicator result is an additional indicator in Quality Improvement Plans (QIPs). • Data are based on information from mandatory “Resident Assessment Instrument – Minimum Data Set 2.0” (RAI-MDS) assessments. • The RAI-MDS is a standardized assessment completed for each resident upon admission to LTC and quarterly thereafter by the resident's care team by reviewing the resident’s medical records and speaking to the resident and their family.

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Appendices

Appendix A: Medications by Drug Class

Antibiotics	
Aminoglycosides: • Amikacin • Gentamicin • **Paromomycin** excluded** • Tobramycin	**Lincosamides:** • Clindamycin
Antibacterial/Antiprotozoal: • Metronidazole	**Macrolides:** • Azithromycin • Clarithromycin • Erythromycin •
Carbapenems: • Ertapenem	**Penicillins:** • Amoxicillin • Ampicillin • Cloxacillin • Penicillin
Cephalosporin (1st Generation) • Cephalexin • Cefadroxil • Cefazolin	**Sulfonamides, Trimetroprim and combination** • Sulfamethoxazole & Trimethoprim • Trimethoprim
Cephalosporin (2nd Generation) • Cefaclor • Cefprozil • Cefuroxime • Cefoxitin	**Tetracyclines:** • Doxycycline • Minocycline • Tetracycline • Tigecycline
Cephalosporin (3rd Generation) • Ceftazidime • Ceftriaxone • Cefixime	**Urinary Anti-infectives:** • Fosfomycin • Methenamine • Nitrofurantoin
Fluoroquinolones • Ciprofloxacin • Levofloxacin • Moxifloxacin • Norfloxacin • Ofloxacin	**Other Antibiotics:** • Colistin/Colistimethate • Daptomycin • Fidaxomicin • Linezolid
Glycopeptides: • Vancomycin	

Antipsychotics	
Typical	**Atypical**
• Chlorpromazine • Flupentixol • Fluphenazine • Haloperidol • Loxapine • Methotrimeprazine • Periciazine • Perphenazine • Pimozide • Pipotiazine • Thioridazine** • Thiothixene • Trifluoperazine • Zuclopenthixol	• Aripiprazole • Asenapine • Clozapine • Olanzapine • Lurasidone • Paliperidone • Quetiapine • Risperidone • Ziprasidone

**No longer manufactured or available in Canada.

Benzodiazepines (oral formulations only)	
• Alprazolam • Bromazepam • Chlordiazepoxide • Chlordiazepoxide HCL • Chlordiazepoxide HCL & Clidinium HCL • Clonazepam • Clorazepate Dipotassium • Diazepam	• Estazolam • Flurazepam HCL • Ketazolam • Lorazepam • Nitrazepam • Oxazepam • Temazepam • Triazolam

Opioids*	
• Codeine • Oxycodone • Anileridine** • Opium • Buprenorphine • Dextropropoxyphene • Fentanyl • Hydromorphone	• Levorphanol • Meperidine • Methadone • Morphine • Oxymorphone • Propoxyphene • Sufentanil

*Includes NSAIDs and other combination medications that have an opioid in the formulation.
**No longer manufactured or available in Canada.

Antidepressants*	
• Amitriptyline • Amoxapine • Bupropion • Citalopram • Clomipramine • Desipramine • Desvenlafaxine • Doxepin • Duloxetine • Escitalopram • Fluoxetine • Fluvoxamine • Imipramine • Mirtazapine	• Moclobemide • Nefazodone • Nortriptyline • Paroxetine • Phenelzine • Protriptyline • Sertraline • Tranylcypromine • Trazodone • Trimipramine • Tryptophan • Venlafaxine • Vortioxetine

Appendix B: Codes for Medical Comorbidities

Table 1: Codes used for the *MyPractice*: Long-Term Care Report antipsychotic indicators.

Medical Comorbidity	Data Source	Code Type	Code	Code Description
Psychosis (to identify patient population with schizophrenia or other major psychoses, tics, or Huntington's disease)	DAD	ICD-10	F06.0, F06.2, F10.5, F10.7, F11.5, F11.7, F12.5, F12.7, F13.5, F13.7, F14.5, F14.7, F15.5, F15.7, F16.5, F16.7, F17.5, F17.7, F18.5, F18.7, F19.5, F19.7, F20 , F20.0, F20.1, F20.2, F20.3, F20.4, F20.5, F20.6, F20.8, F20.9, F22, F22.0, F22.8, F22.9, F23 , F23.0, F23.1, F23.2, F23.3, F23.8, F23.9, F24, F25, F25.0, F25.1, F25.2, F25.8, F25.9, F28, F29, F30, F30.0, F30.1, F30.2, F30.8, F30.9, F31, F31.0, F31.1, F31.2, F31.3, F31.4, F31.5, F31.6, F31.7, F31.8, F31.9, F32.3, F33.3, F39.0, F95, G10	Schizophrenic disorders F20-F29 Affective psychoses F00-F09, G30 Paranoid states Other nonorganic psychoses F10-F19, F55 Psychoses with origin specific to childhood Huntington's disease Tics
	OMHRS	DSM-IV	291.3, 291.5, 292.11, 292.12, 293.81, 293.82, 295.1, 295.2, 295.3, 295.4, 295.6, 295.7, 295.9, 296, 296.01, 296.02, 296.03, 296.04, 296.05, 296.06, 296.4, 296.41, 296.42, 296.43, 296.44, 296.45, 296.46, 296.5, 296.51, 296.52, 296.53, 296.54, 296.55, 296.56, 296.6, 296.61, 296.62, 296.63, 296.64, 296.65, 296.66, 296.7, 296.8, 296.89, 297.1, 297.3, 298.8, 298.9	Psychotic disorder, with delusions Psychotic disorder, with hallucinations Schizophrenia, bipolar disorder or other psychotic disorders
	OHIP	DXCODE	291, 292, 295, 296, 297, 298, Q020, Q021	Schizophrenia Manic depressive psychosis Paranoid states Other psychoses

Table 2: Codes for the *MyPractice*: Long-Term Care Report antipsychotic indicators.

Medical Comorbidity	Data Source	Code Type	Code	Code Description
Dementia (to identify patient population with dementia)	CIHI-DAD	ICD-10	F00, F00.0, F00.1, F00.2, F00.9, F01, F01.0, F01.1, F01.2, F01.3, F01.8, F01.9, F02, F02.0, F02.1, F02.2, F02.3, F02.4, F02.8, F03 F05.1, F06.5, F06.6, F06.8, F06.9, F09, G30, G30.0, G30.1, G30.8, G30.9, G31, G31.0, G31.1, G31.2, G31.8, R54	Senile and presenile organic psychotic conditions Other cerebral degenerations (e.g., Alzheimer disease) Senility
	OMHRS	DSM-IV	290 .4, 290.41, 290.42, 290.43, 291.2, 292.82, 294.1, 294.11 , 294.8, 780.9	Dementia
	OHIP	DXCODE	290, 331, 797	Senile dementia, presenile dementia Other cerebral degenerations Senility
	ODB	dclass = ‘coge’	See attached Excel file of DINs	Any use of cognitive enhancers/cholinesterase inhibitors: Donepezil Galantamine Rivastigmine

Appendix C: Codes for Palliative Care

OHIP Fee Code	Description
A945	GEN./FAM.PRACT.SPECIAL PALLIATIVE CARE CONSULTATION
C945	SPECIAL PALLIATIVE CARE CONSULT HOSP IN PATIENT
C882	TERMINAL CARE IN HOSP.G.P/F.P
C982	PALLIATIVE CARE
W872	TERMINAL CARE N.H G.P/FAMILY PRACTICE
W882	TERMINAL CARE IN CHR.HOSP.G.P.
W972	PALLIATIVE CARE
W982	PALLIATIVE CARE
K023	PALLIAT CARE SUPPORT INDIVID CARE 1/2 HR OR MAJOR PART
B998	SPEC VIS PALLIATIVE CARE HOME, DAYS, EVE
B966	TRAVEL PREMIUM - PALLIATIVE CARE HOME VISIT
B997	SPEC VIS PALLIATIVE CARE HOME, DAYS, EVE
G511	TELEPHONE MANAGEMENT OF PALLIATIVE CARE AT HOME
G512	WEEKLY PALLIATIVE CARE CASE MANAGEMENT
CIHI DAD patserv	**Description**
58	Palliative Care
ICD-10 code	**Description**
Z515	Palliative care