Ontario Health Teams
Phase 2 Evaluation

OHT Priority Populations: Frail/Older Adult Improvement Indicators at Baseline 2017/18 to 2019/20

Walter P. Wodchis
Luke Mondor
Ruth E. Hall

June 2021

HSPN Health System Performance Network

The opinions, results and conclusions included in this report are those of the authors and are independent from the funding sources.

About Us

The Health System Performance Network (HSPN) is a collaborative network of investigators, visiting scholars, post-doctoral fellows, graduate students and research staff working with health system leaders, and policymakers to improve the management and performance of our health system. Building on Ontario's established record of performance measurement created by the 1998 ground-breaking Hospital Report Research Collaborative, the HSPN was established in 2009 and has built a track record in performance measurement, research, evaluation and improvement in Ontario with expertise in multiple domains of health system performance including perspectives of patients, providers, population health, and cost. The HSPN receives funding from the Ontario Ministry of Health.

Contact information
Health System Performance Network
155 College Street, Suite 425
Toronto ON M5T 3M6
Telephone: +1 (416) 946-5023
Email: hspn@utoronto.ca

Authors Affiliations
Walter P. Wodchis, PhD – HSPN, University of Toronto; Institute for Better Health, Trillium Health Partners; and ICES
Luke Mondor, MSc – HSPN and ICES
Ruth E. Hall, PhD – HSPN, University of Toronto; Institute for Better Health, Trillium Health Partners; and ICES

Acknowledgements
Parts of this material are based on data and/or information compiled and provided by CIHI to ICES. This study was supported by ICES, which is funded by an annual grant from the Ontario Ministry of Health (MOH) and the Ministry of Long-Term Care (MLTC).

Financial Support
This research was supported by a grant from the Ontario Ministry of Health to the HSPN. The funders had no role in data analysis, decision to publish, or preparation of the report.

Suggested citation
Wodchis WP, Mondor L, and Hall RE. *Ontario Health Teams Phase 2 Evaluation. OHT Priority Populations: Frail/Older Adult Improvement Indicators at Baseline, 2017/18 to 2019/20.* Toronto, ON: Health System Performance Network. 2021.

ISBN

This document is available at hspn.ca.

About This Report

This report is part of the second phase of the Health System Performance Network (HSPN) central evaluation of Ontario Health Teams (OHTs). The first phase focused on analyses of OHT applications and included surveys and key informant interviews at the time of application to become OHTs. The second phase includes reporting across all OHTs using population-based administrative data. The purpose of the HSPN evaluation is to understand how OHTs are developing and implanting change to drive improvements in patient, provider and health system outcomes.

This report is largely based on data prior to the government's introduction of the OHT initiative, selection and approval, and, prior to OHT implementation of new models of care and therefore considered a baseline of OHT performance. Baseline information on health system indicator trends provides a useful frame of reference for OHT implementation activities and comparators for local measurement.

Table of Contents

List of Tables and Figures

Executive Summary

Ontario Health Teams (OHTs) were introduced in 2019 by the Ontario Ministry of Health (MOH) as a new way of integrating care delivery. They were developed to enable patients, families, and cross-sectoral groups of providers and organizations to work together to create a coordinated continuum of care that is better connected to patients in their local communities. At maturity, OHTs will be clinically and fiscally accountable for a defined population. However, in the first year OHTs were asked to identify a priority population that they would begin to implement their new integrated care pathways. Frail/older adults were among the top three priority populations selected by OHTs.

The objective of this work is to report on indicators related to frail/older adult care at the OHT level using routinely collected health administrative data sources held at ICES. The HSPN and MOH have adopted the Quadruple Aim Framework inclusive of patient experience, provider experience, health outcomes, and cost/efficiency. This report focuses on system level indicators that reflect patient experience, health outcomes and system efficiencies for frail/older adult care. We contrast these indicators across measures of material deprivation and rurality.

Results in Brief

In 2019/20, 12.7% or approximately 280,000 of the over 65-year old attributable population (just over 2.3 Million individuals) was considered frail. This varied from 10.3% to 16.7% across the 42 OHTs. Among the frail attributable population, the average number of days in a year spent home was 352, with low variability across OHTs (345 – 357 days) and the proportion with 2 or more fall-related ED visits was 2.6% (range = 1.8% to 3.9%).

Among the long-stay home care clients with at least two assessments in a year, there was an increase in dependency in their ADL (+1.6) and decline in health status (-0.03). The extent of change in these indicators are considered to be clinically meaningful. Moreover, these two indicators demonstrated the highest levels of variability among the frail/older adult indicators, with over 3-fold variation in ADL (range= +0.8 to +3.0) and health status (range = -0.02 to -0.07) change across the OHTs. Corresponding coefficients of variation were 28 and -32, respectively. Furthermore, among the long-stay home care clients, 42% of the caregivers reported being distressed (ranging from 24% to 54% across the OHTs).

There was weak to negligible correlation between the concentration of the attributable population in the most vs least deprived areas and all frail/older adult indicators at the OHT level. However, we found a moderate positive correlation (0.38) with rurality for repeat fall-related ED visits (i.e. higher proportion of fall-related ED visits among OHTs with a greater proportion of their frail attributable population in rural areas) and a moderate negative correlation (-0.36) with rurality and the proportion of caregivers reporting be distressed (i.e. lower proportion of caregivers residing in rural areas reported being distressed).

For average days at home and caregiver distress, there was almost no difference comparing results from deprivation quintile 5 vs 1 within each of the OHTs. For other indicators, some minor inequities are present. For example, up to a 3-fold difference in highest vs lowest material deprivation was observed for 2+ fall-related ED visits. However, the direction and magnitude of inequities varied considerably by indicator and by OHT.

Conclusion

This report provides an overview of baseline performance across 42 candidate OHTs across select indicators for frail/older adult care. These baseline findings illustrate where there are opportunities for OHTs to focus their implementation activities to improve frail/older adult outcomes and care experience.

Abbreviations

CCC = Complex Continuing Care, CCRS = Continuing Care Reporting System database; DAD = Discharge Abstract Database; HCD = Home Care Database; NACRS = National Ambulatory Care Reporting System database; ODB = Ontario Drug Benefit claims database; OHIP = Ontario Health Insurance Plan claims database; OHTAM = Ontario Health Teams attribution database; OMHRS = Ontario Mental Health Reporting System database; ONMARG = Ontario Marginalization database; NRS = National Rehabilitation Reporting System, RAICA = Resident Assessment Instrument - Contact Assessment; RAIHC = inter-Resident Assessment Instrument – Home Care; RPDB = Registered Persons Database; SDS = Dame Day Surgery database;

Background

Ontario Health Teams (OHTs) were introduced in 2019 by the Ontario Ministry of Health (MOH) as a new way of integrating care delivery. They were developed to enable patients, families, and health care providers work together to create a coordinated continuum of care that is better connected to patients in their local communities. OHTs involve a cross-sectoral group of providers and organizations, and at maturity will be clinically and fiscally accountable for a defined population [1]. In the first year of activity, OHTs were asked to identify a priority population they would begin to implement their new integrated care pathways and frail/older adults were among the top three priority populations selected by OHTs [2].

Objectives

The objective of this work is to report on indicators specific to care of frail/older adults across OHT attributable populations using routinely collected health administrative data sources held at ICES. We sought to describe variation in these indicators, cross-sectionally and over time, to identify where opportunities and challenges exist to better integrate care. Monitoring and evaluation of these indicators facilitates evidence-based decision making and care improvements for Ontarians.

Methods

Data Sources

In January 2021, a database of Ontarians linked to an OHT was shared with ICES by the MOH. This database, the OHT Attribution Models database (OHTAM), links Ontarians to a single usual provider of primary care, and then assigns that provider's patients to a hospital and a larger network (i.e., an OHT) based on historical health care utilization patterns. Specialists are linked to networks based on hospital where they provided the most services. Nearly all Ontarians are assigned to a network using this methodology, which closely resembles the Ontario physician networks developed at ICES [3]. Importantly, the networks are based on health care utilization and physician-hospital referral patterns, and not where individuals live in Ontario. Administrative data from 2017 were used to attribute individuals to OHTs and create the dataset, which we herein refer to as the *OHT attributable population.* Each OHT in the dataset was anonymized for reporting.

Health administrative datasets used in this work included the Registered Persons Database (RPDB), Canadian Institute for Health Information's Discharge Abstract Database (DAD) and Same Day Surgery Database (SDS), National Ambulatory Care Reporting System (NACRS), Ontario Mental Health Reporting System (OMHRS), National Rehabilitation Reporting System (NRS), Continuing Care Reporting System (CCRS), Home Care Database (HCD), Resident Assessment Instrument Contact Assessment (RAICA) and Home Care (interRAIHC), Ontario Health Insurance Plan claim database (OHIP), Complex Continuing Care Database (CCC), Ontario Drug Benefit claims database (ODB), Ontario Marginalization (ONMARG) database, and the 2006 Canadian Census (Census). Detailed information on these data is available elsewhere (see: https://datadictionary.ices.on.ca/Applications/DataDictionary/Default.aspx). These datasets were linked using unique encoded identifiers and analyzed at ICES, an independent, non-profit research institute funded by an annual grant from the MOH. As a prescribed entity under Ontario's privacy legislation, ICES is authorized to collect and use healthcare data for the purposes of health system analysis, evaluation and decision support. Secure access to these data is governed by policies and procedures that are approved by the Information and Privacy Commissioner of Ontario. The use of these data in this project was authorized under section 45 of Ontario's Personal Health Information Protection Act, which does not require review by a Research Ethics Board.

Selection of Indicators

A jurisdictional scan of frail/older adult health system reports and the OHT applications identified 37 indicators for consideration. This was followed by a modified Delphi approach among the team to select 11 indicators to report at the OHT attributable population level as measures of patient/population outcomes of integrated frail/older adult care. An important criterion for selection included the indicator could be measured in administrative databases for all OHTs. In addition, we also desired a parsimonious number of indicators. We had our indicator selection validated by the Provincial Geriatric Leadership Office, and they endorsed the five. In addition, it was recommended we include four descriptive indicators of frail/older adults to provide context to the five improvement indicators.

Exhibit 1: Frail/Older Adult indicators examined in this report

Indicator	Definition	Quadruple Aim
Days spent at home, among those identified as frail	Average days at home (days in reporting period minus total days in hospital, emergency department, inpatient rehab and complex continuing care) among persons >65 years of age identified as being frail	Health outcome / Patient experience
Repeat fall-related emergency visits, among those identified as frail	Proportion of older adults >65 years of age identified as being frail that had 2 or more unscheduled emergency department visit for fall-related injuries	Health outcome
Caregiver distress	Proportion of long-stay home care clients >65 years of age that had a caregiver that is unable to continue in caring activities or that expresses feelings of distress, anger and/or depression	Patient/caregiver experience
Change in Activities of Daily Living (ADL)	Change in ADL Long form score among long-stay home care clients >65 years of age that had two interRAIHC assessments in a 365-day period	Health outcome
Change in Minimum Dataset Health Status Index (MDSHSI)	Change in MDSHSI score among long-stay home care clients >65 years of age that had two interRAIHC assessments in a 365-day period	Health outcome
Contextual Indicators		
Proportion of older adults with frailty	Proportion of older adults >65 years of age identified as being frail	-
Activities of Daily Living (ADL)	Average ADL long form score among long-stay home care clients >65 years of age	-
Minimum Dataset Health Status Index (MDSHSI)	Average MDSHSI (a generic, preference-based measure of health-related quality of life) among long-stay home care clients >65 years of age	-
Cognitive impairment	Proportion of long-stay home care clients >65 years of age that had a cognitive performance scale value equal to 3 or more	-

Reporting of Indicators

All frail/older adult indicators are calculated on the full attributable population >65 years of age. Days spent at home and repeat fall-related ED visits are further limited to those with frailty (please refer to the Appendix technical specifications for definition of frailty based on health administrative data), while caregiver distress, cognitive impairment, ADL and change in ADL, and MDSHSI and change in MDSHSI are further limited to long-stay home care clients (i.e., those with an interRAIHC assessment). We report at the OHT level, only for OHTs that have submitted a full application to the MOH and approved. These 42 OHTs account for approximately 85% of the Ontario attributable population. Full information of the calculation of each selected indicator – including data sources used, derivation of numerators and denominators, and other details – can be found in the accompanying Appendix.

We report each measure annually (from 2017/18[1] to 2019/20) at the OHT-level using model-based risk adjusted methods. Risk adjustment is a statistical method that accounts for differences in the distribution of individual-level characteristics (and other risk factors) between different providers so that providers that care for older, more complex patients are not unfairly penalized (relative to providers that care for younger, healthier populations). Model based risk adjustment is ideal as it (1) allows for a consistent approach across all indicators, whether the indicator is a risk (proportion) or rate (events over time), (2) is flexible in that different regression models can be applied to best fit the data, and (3) allows for control for multiple confounding factors. In this report, all estimates are risk adjusted for age and sex.

To quantify the degree of variability of risk adjusted results at the OHT-level in each reporting period (here, years), we calculated the coefficient of variation (CV), the ratio of the standard deviation to the mean. The higher the CV value, the greater the level of dispersion around the mean and possibly represents a measure where some OHTs are performing much better than others. We also described the minimum and maximum percent change in risk adjusted estimates in 2019/20 relative to prior reporting periods.

We used the ONMARG database to derive the material deprivation quintile for the attributable population using and individual's postal code. Material deprivation includes aspects of income, education, family structure and housing quality. These data are collected from the Canadian census and are at the neighbourhood level[2]. Material deprivation measures the ability or inability to access and attain basic needs. The concept is closely connected to poverty. For each target population, we calculated the proportion of each OHTs attributable population living in each quintile of material deprivation. We ranked OHTs according to the ratio of their population residing in the most vs least deprived areas of Ontario (i.e., proportion of population in quintile 5 vs quintile 1). Kendall's rank correlation statistic (T) was used to quantify associations between this material deprivation rank and risk adjusted indicator performance. The rank correlation coefficient varies between +1 and -1. Values between ±0.00 and 0.10 suggest a negligible association; values between ±0.10 and 0.39 suggest a weak association; values between ±0.40 and 0.69 suggest a moderate association; values between ±0.70 and 0.89 suggest a strong association; and values between ±0.90-1.00 suggest a very strong association. Correlations between the OHT ranks of risk adjusted performance versus rank of rurality (i.e., proportion of each OHTs attributable population residing in a rural vs urban community) was

[1] Indicators based on interRAIHC data are reported from 2018/19 (2019/20 for change indicators) because data was not available earlier.

[2] Neighbourhoods (here, dissemination areas) represent areas of 400 to 700 people.

Understanding and interpreting the scatterplots:

Each panel represents OHT-level risk adjusted estimates calculated separately for each reporting period. OHTs were ordered from left to right according to their level of performance, from most to least desirable respectively, based on the most recent year of data (2019/20). The ordering of OHTs is consistent from panel to panel, so for example, the leftmost point in each panel always represents the same OHT, but in different reporting periods. Comparing each point to the dotted line shows the OHT performance relative to the total OHT attributable population in a reporting period.

Each dot is colour-coded according to the OHT's ratio of the attributable population aged >65 years in most (Q5) vs least (Q1) deprived areas, so that correlations can be seen visually. Dark blue dots represent OHTs with the higher proportion of their attributable population in the most deprived neighbourhoods as compared to the proportion of the attributed population in the least deprived neighbourhoods; light green represent OHTs where there is a higher proportion in the least as compared to the most deprived neighborhoods.

also calculated. Here, urban versus rural was based on residing in a community of 10,000 persons or more. We report our results through an equity lens rather than something to adjust away through risk-adjustment.

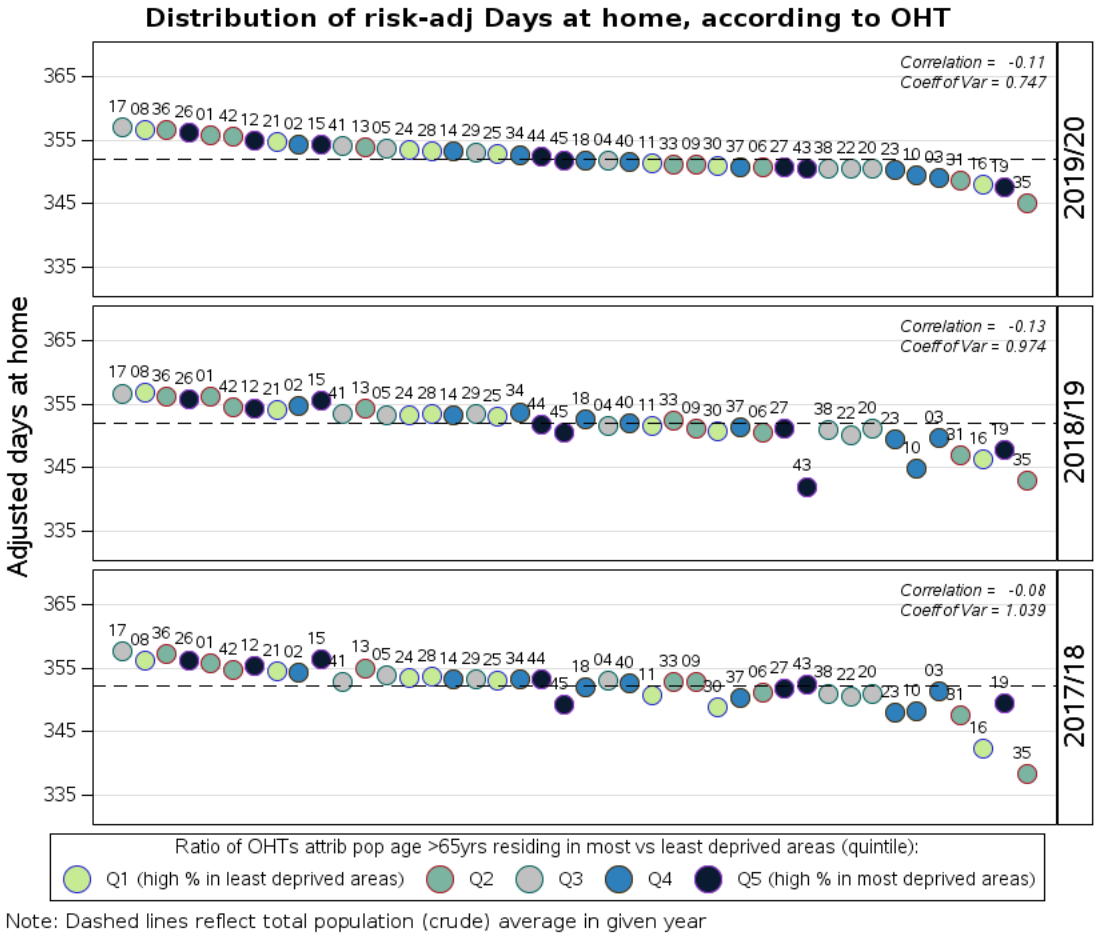
Key Findings

Days Spent at Home, among those identified as frail

Days spent at home is a patient-driven quality indicator. Although some hospital visits are necessary, most people would prefer to spend their time at home.

- In 2019/20, average days at home in the frail attributable population was 352 (of possible 365.25), which was comparable to prior reporting periods and highlights the good health of most older adults.
- The range in OHT-level risk-adjusted estimates was from 345 to 357 and the CV was 0.74, indicative of low variability across all OHTs.
- Change from the prior year was small across all OHTs (range: 0.4% lower to 2.5% higher)
- Days at home showed weak (negative) correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=-0.11) and weak correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=0.14, figure not shown)

Exhibit 2: Days spent at home among those identified as frail by OHT, 2017/18 to 2019/20



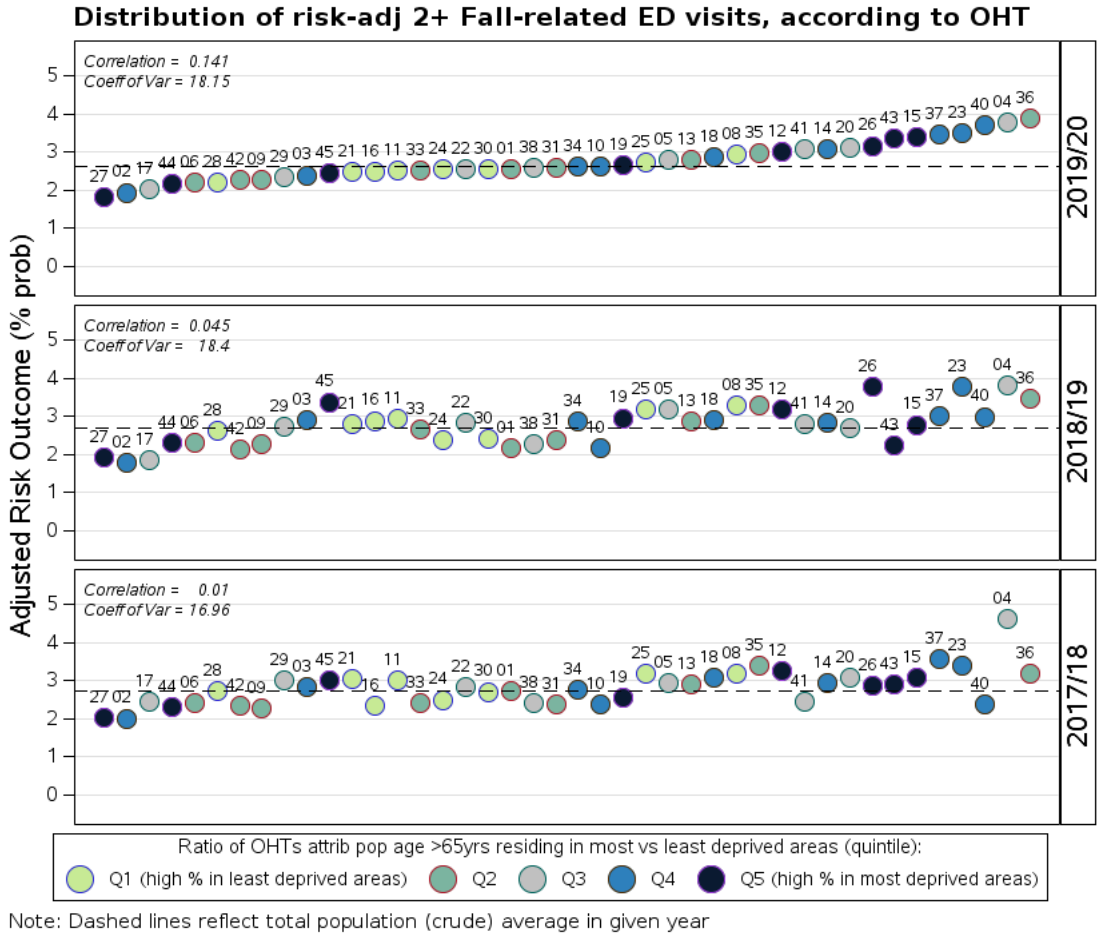
Note: Dashed lines reflect total population (crude) average in given year

Repeat Fall-Related Emergency Visits, among those identified as frail

Injuries from falls can negatively impact the health and independence of older adults and require costly medical intervention.

- In 2019/20, 2.6% of the frail attributable population had 2 or more fall-related ED visits within 1 year, which was comparable to prior reporting periods (2.7%).
- The range in OHT-level risk-adjusted estimates was from 1.8% to 3.9%, more than a 2-fold difference. The CV was 18, indicative of moderate variability across all OHTs.
- Approximately one-third of the OHTs improved (lower %) from year to year, though change was small. For example, OHT 29 improved from 3.0% (2017/18) to 2.7% (2018/19) to 2.4% (2019/20)
- Two or more fall-related ED visits showed weak correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=0.14) but weak-to-modest correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=0.38, figure not shown)

Exhibit 3: Repeat fall-related ED visits among those identified as frail by OHT, 2017/18 to 2019/20



Note: Dashed lines reflect total population (crude) average in given year

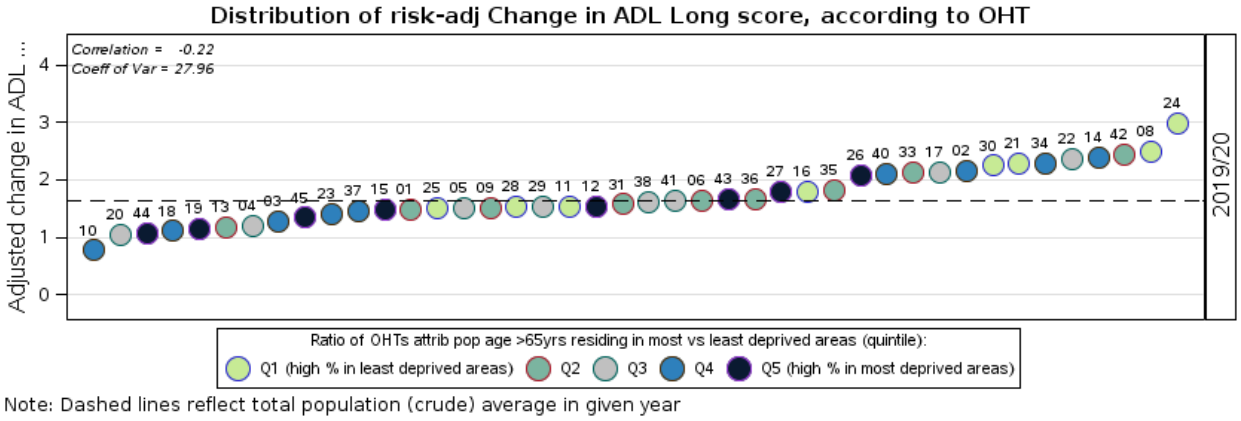
Change in Activities of Daily Living among home care clients

Activities of Daily Living (ADL) measures the degree of dependency on others for an individual to perform personal hygiene, dressing, locomotion, toilet use, bed mobility and eating activities. ADL is the most common measure of function amongst older adults. Scores range from 0 to 28, with higher values indicative of greater difficulty in performing ADLs. This indicator measures the change in (in)dependence amongst long-stay home care clients from one assessment to the next A one-point (+/- 1.0) change in this scale is clinically meaningful and is associated with a change in need for support in one of the ADL activities included.

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessments and of those, just over half (53%) had 2 assessments within a 1-year period. At the OHT level, populations ranged from 190 home care clients to 8,100 home care clients.

- On average, there an increase in dependency in ADLs (average change score = +1.6, which is clinically meaningful [7])
- Change varied by OHT from +0.8 to +3.0. The CV was 28, indicating high variability across OHTs.
- Change in ADL showed weak (negative) correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=-0.22) and with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=-0.10, figure not shown)

Exhibit 4: Change in ADL Long score among home care clients by OHT, 2019/20



Note: Dashed lines reflect total population (crude) average in given year

**The interRAIHC was adopted for use in Ontario in 2018/19. No estimates are available prior to 2018/19, and change score information in 2018/19 are therefore incomplete (and are not presented).*

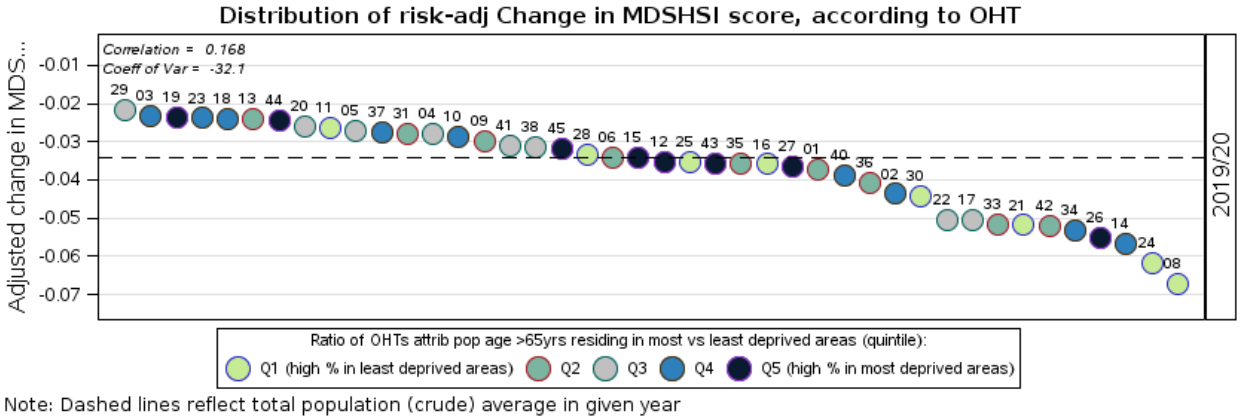
Change in Minimum Dataset Health Status Index (MDS-HSI) among home care clients

The MDSHSI is a preference-based health-related quality of life measure derived by mapping items collected in the RAI instrument onto the Health Utilities Index Mark 2 system [6]. It is a single summary score of overall health. Values range from -0.03 to 1.00 with scores approaching 1.00 indicative of perfect health. A difference of ±0.03 is considered clinically meaningful. The change in MDS-HSI captures the individual within-person change in overall health status. Slowing health declines amongst older adults may result from multi-faceted interventions.

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessments and of those, just over half (53%) had 2 assessments within a 1-year period. At the OHT level, populations ranged from 190 home care clients to 8,100 home care clients.

- In 2019/20, the average change in MDSHSI among home care clients with 2 or more interrail assessments within a 1-year period was -0.034, which is considered to be a clinically meaningful decline in health status.
- Average health status declined across all OHTs, from -0.022 to -0.067. The CV was 32 indicating high variability across the OHTs.
- The change in MDSHSI score showed weak correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=0.17) and weak (negative) correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=-0.03, figure not shown)

Exhibit 5: Change in MDSHSI score among home care clients by OHT, 2019/20



Note: Dashed lines reflect total population (crude) average in given year

**The interRAIHC was adopted for use in Ontario in 2018/19. No estimates are available prior to 2018/19, and change score information in 2018/19 are therefore incomplete (and are not presented).*

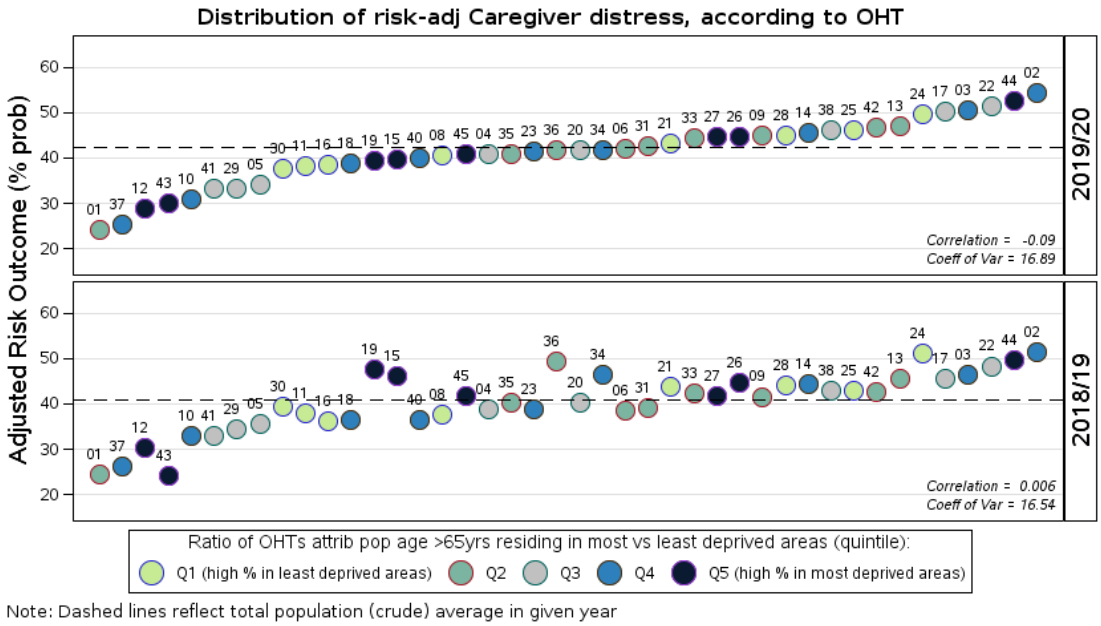
Proportion of Home Care Clients with Caregiver Distress

Caregiver distress may indicate whether home care clients and their caregivers have access to sufficient and appropriate level of services and supports. It may also help flag where additional resources are needed to prevent caregiver burnout [5].

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessment. At the OHT level, populations ranged from 300 home care clients to 12,600 home care clients.

- In 2019/20, 42% of the attributable population with an interRAIHC assessment reporting having caregiver distress, up marginally from the prior year (41%).
- There was over a two-fold difference in the proportion of caregivers considered distressed across OHTs from 24% to 54%. The CV was 17, indicative of moderate variability across all OHTs.
- At the OHT level, caregiver distress increased by as much as 20% from the prior year (OHT 43) but improved (lower %) in other OHTs by as much as 17% (OHT 19)
- OHT outcomes showed weak (negative) correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=-0.09) but weak-to-modest (negative) correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=-0.36, figure not shown)

Exhibit 6: Proportion of home care clients with caregiver distress by OHT, 2018/19 to 2019/20



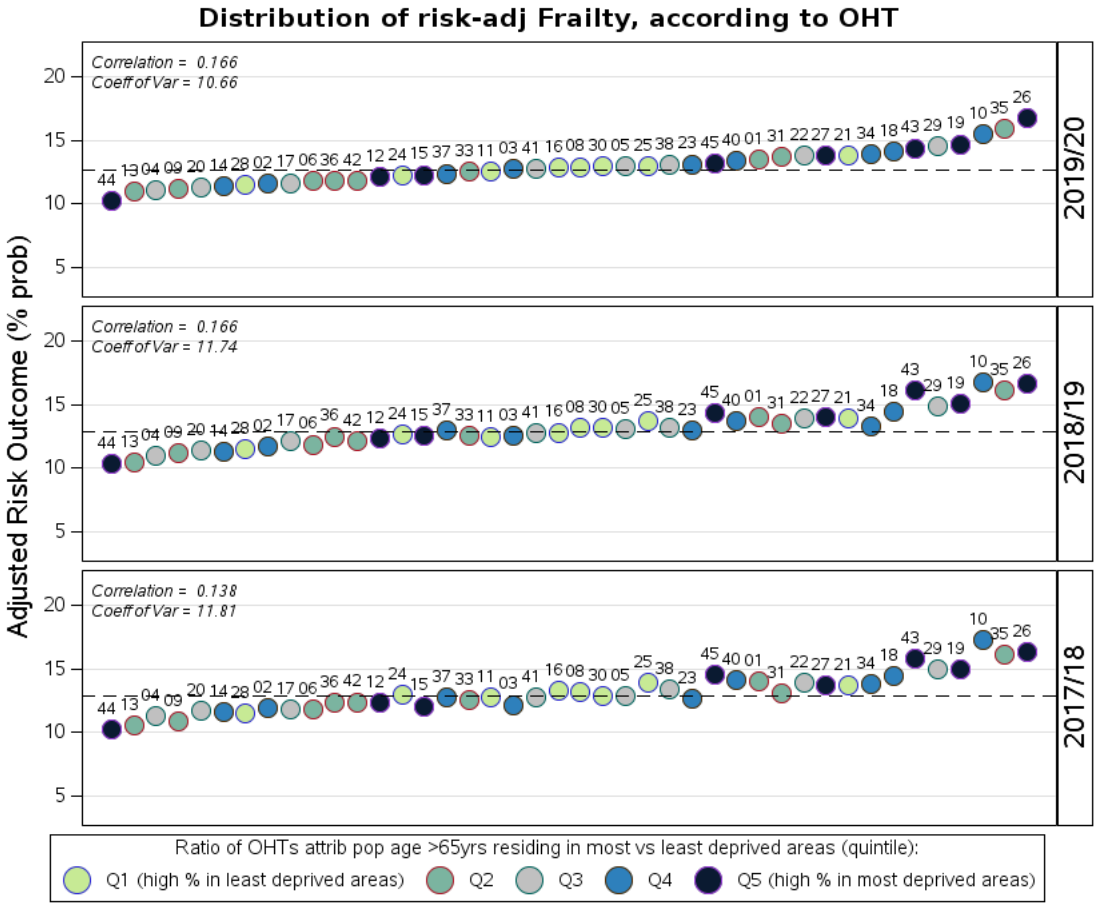
**The interRAIHC was adopted for use in Ontario in 2018/19. No estimates are available prior to 2018/19*

Proportion of Older Adults with Frailty (contextual indicator)

Frailty is characterized by increased vulnerability to external stressors. Frail individuals are at an increased risk of adverse outcomes including transitions to higher levels of care and short-term mortality [4].

- In 2019/20, 12.7% of the older adult population (or approximately 280,000 persons) met the criteria for being frail. This proportion was consistent over time.
- The range in OHT-level risk-adjusted estimates was from 10.3% to 16.7% and the CV was 11, indicative of moderate variability across all OHTs.
- The proportion of frailty showed weak correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=0.17) and weak correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=0.30, figure not shown)

Exhibit 7: Proportion of older adults with frailty by OHT, 2017/18 to 2019/20



Note: Dashed lines reflect total population (crude) average in given year

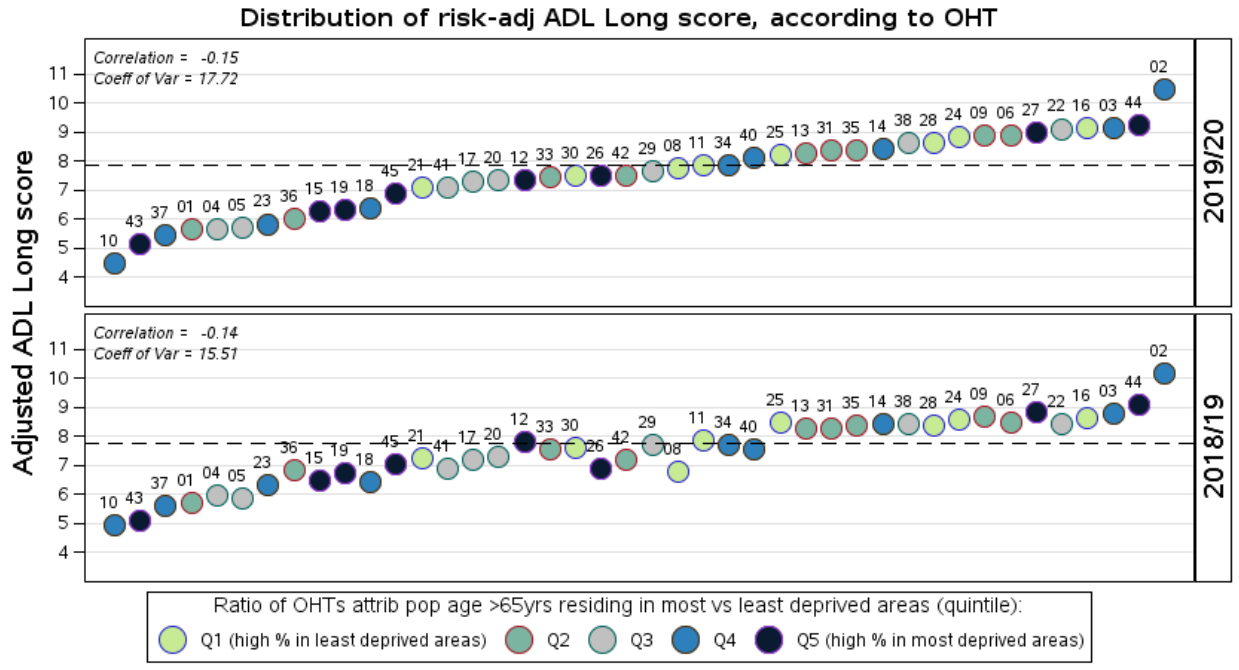
Activities of Daily Living among home care clients (contextual indicator)

This scale provides a measure of a client's ability to perform activities of daily living (ADL), including personal hygiene, dressing, locomotion, toilet use, bed mobility and eating. Scores range from 0 to 28, with higher values indicative of greater difficulty in performing ADLs . This indicator provides a context or baseline level of overall ADL to assist in the interpretation of the change in ADL measure.

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessment. At the OHT level, populations ranged from 300 home care clients to 12,600 home care clients.

- In 2019/20, the average ADL Long score (among the older attributable population with an interRAIHC assessment) was 7.9.
- The minimum and maximum values at the OHT-level were 4.5 and 10.5, respectively and the CV was 18, indicative of moderate variability.
- Mean ADL score showed weak (negative) correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=-0.15) and moderate (negative) correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=-0.59, figure not shown)

Exhibit 8: Average ADL Long score among home care clients by OHT, 2018/19 to 2019/20



Note: Dashed lines reflect total population (crude) average in given year

**The interRAIHC was adopted for use in Ontario in 2018/19. No estimates are available prior to 2018/19*

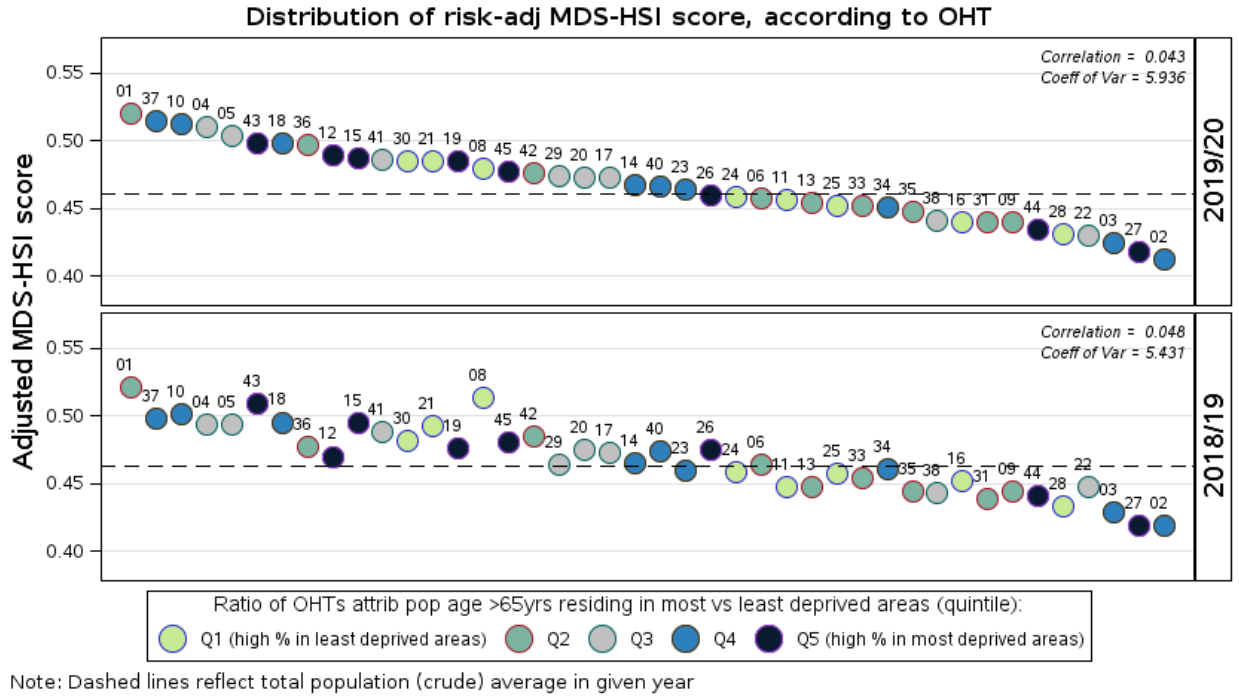
Minimum Dataset Health Status Index (MDSHSI) among home care clients (contextual indicator)

The MDSHSI is a preference-based health-related quality of life (HRQOL) measure derived by mapping items collected in the RAI instrument onto the Health Utilities Index Mark 2 system [6]. It is a single summary score of overall health. Values range from -0.03 to 1.00 with scores approaching 1.00 indicative of perfect health. A difference of ±0.03 is considered clinically meaningful. This indicator provides a context or baseline level of overall HRQOL to assist in the interpretation of the change in MDS-HSI measure.

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessment. At the OHT level, populations ranged from 300 home care clients to 12,600 home care clients.

- In 2019/20, the average MDSHSI score (among the older attributable population with an interRAIHC assessment) was 0.461 which was nearly identical to 2018/19 (0.462)
- The minimum and maximum values at the OHT-level were 0.412 and 0.520, respectively and the CV was 6, indicative of relatively low variability.
- MDSHSI showed weak correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=0.04) but a moderate correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=0.49, figure not shown)

Exhibit 9: Average MDSHSI score among home care clients by OHT, 2018/19 to 2019/20



**The interRAIHC was adopted for use in Ontario in 2018/19. No estimates are available prior to 2018/19.*

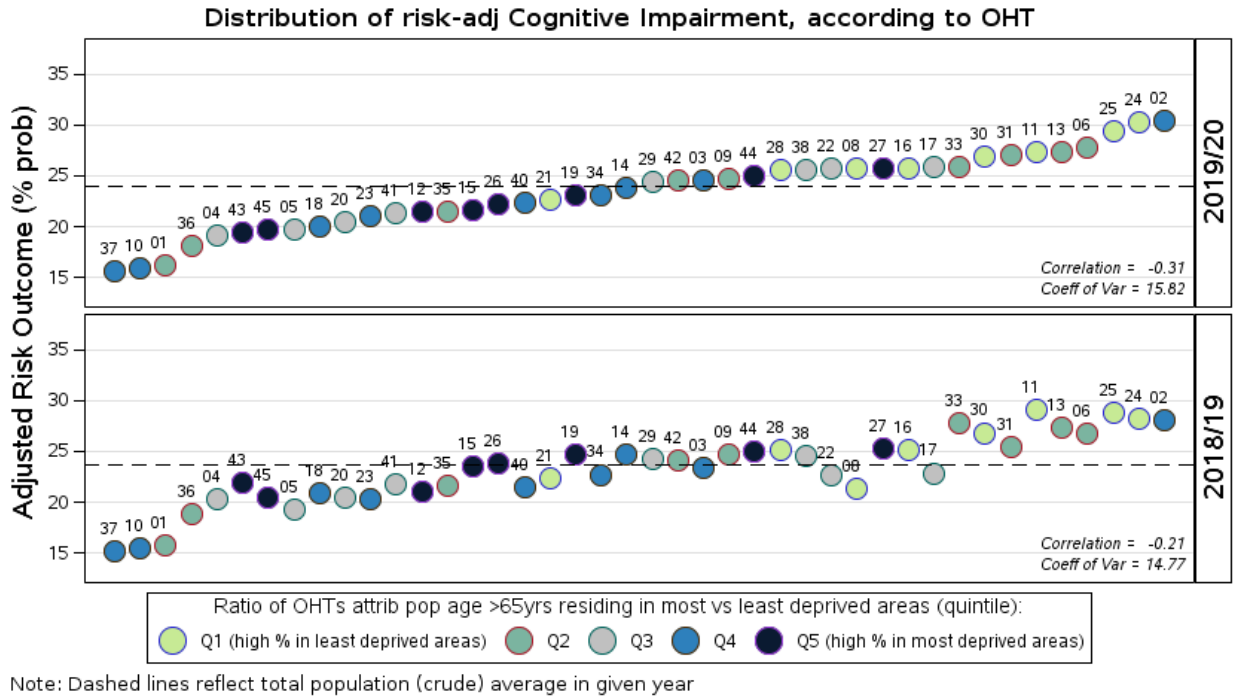
Cognitive impairment among home care clients (contextual indicator)

Persons with cognitive impairment often have complex needs and require additional resources. Although we did not include a change in cognitive performance as a performance indicator, this contextual indicator is a useful measure of the level of patient need in the community.

In 2019/20, 7.8% (N=181,000) of the OHT attributable population aged >65 years had at least 1 interRAIHC assessment. At the OHT level, populations ranged from 300 home care clients to 12,600 home care clients.

- In 2019/20, Almost one in four (24.0%) of the older attributable population with an interRAIHC assessment displayed cognitive impairment.
- There was a two fold variation in the prevalence of cognitive impairment across OHTs, from 15.6% to 30.4%,. The CV was 16, indicating moderate variability.
- At the OHT level, the prevalence of cognitive impairment increased was as much as 20% from the prior year (OHT 08) and decreased by as much as 12% (OHT 43)
- The proportion of individuals with cognitive impairment showed weak (negative) correlation with the concentration of the attributable population residing in the most (vs least) deprived areas ($T_{2019/20}$=-0.31) and moderate (negative) correlation with the concentration of the attributable population residing in rural (vs urban) areas ($T_{2019/20}$=-0.40, figure not shown)

Exhibit 2: Cognitive impairment among home care clients by OHT, 2018/19 to 2019/20



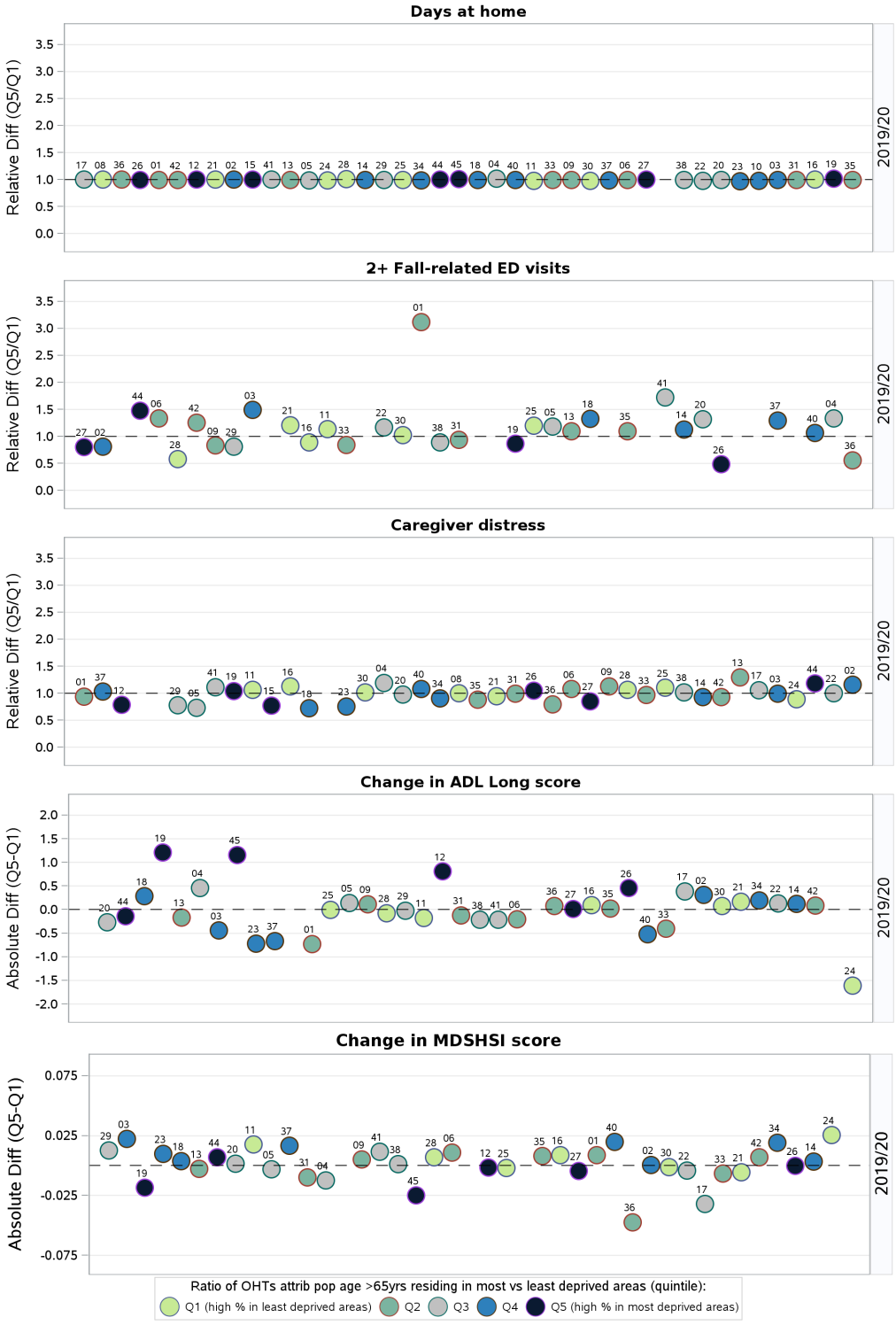
Note: Dashed lines reflect total population (crude) average in given year

Differences by Highest vs Lowest Deprivation Quintile within OHTs

The following exhibit shows the relative difference in the risk-adjusted estimates for decedents residing in the most vs least (materially) deprived areas within each OHT for each EOL indicator. Values >1 indicate that the outcome is higher or more common for those in the most deprived areas and values <1 indicate that the outcome is lower among those in the most deprived areas. Change in MDSHSI and change in ADLs are presented as absolute differences (material deprivation Q5 – material deprivation Q1, so that the null value is zero). Here, both Q5 and Q1 could have improvements in health status (or declines in dependence), but still result in a negative or positive value. As such, equity differences less than zero for the average change in MDSHSI score, or larger than zero for the average change in ADL score, indicate a less favourable change in the outcome among the home care population in the most deprived areas of the OHT compared to those in the least deprived areas

For average days at home and caregiver distress, there is almost no difference comparing results from deprivation quintile 5 vs 1. For other indicators, some minor inequities are present (for example, a 3-fold difference in 2+ fall-related ED visits was evident in OHT 01). However, the direction and magnitude of association varies considerably by OHT.

Exhibit 3: Difference in Frail/Older Adult indicator results in the highest vs lowest deprivation quintile within each OHT, 2019/20 data



Note: Dashed line reflects null value (no difference between Q5 and Q1). OHTs with small Ns (numerator or denominator) are suppressed. OHTS are ordered according to level of performance for that indicator. Change indicators are presented as an absolute difference.

Limitations

There are limitations of this work requiring comment. We quantified a series of indicators specific to care for frail/older adults measurable with routinely collected health administrative data in Ontario, selected through a modified Delphi approach. Other indicators specific to the quadruple aim framework and relevant to integrated care for this target population were not quantified. Some OHTs may have indicators specific to their local populations that are considered more sensitive to change. Individual-level socioeconomic status is not captured in health administrative data, and area-based measures (including ONMARG material deprivation index) are subject to ecological fallacy. The OHTAM dataset we analyzed encompassed the attributable population based on health care utilization patterns from 2017 but is a closed cohort. Because of this, without regular updates of the OHTAM data, results further from 2017/18 are subject to increasing bias. Last, we report on correlations between ranks of the concentration of the population in highest vs lowest quintile of deprivation and indicator results which should only be interpreted general associations.

Conclusions

In 2019/20, 12.7% or approximately 280,000 of the over 65-year old attributable population met the frailty definition, and this varied from 10.3% to 16.7% across the 42 OHTs. Among the frail attributable population, the average number of days in a year spent at home was 352 days with low variability across OHTs (345 – 357 days) and the proportion with 2 or more fall-related ED visits was 2.6% (range = 1.8% - 3.9%).

Among the over 65-year old attributable population receiving long-stay home care services, the average ADL score was 7.9 (out of 28) suggesting moderate independence in ADLs (ranging from 4.5 – 10.5 across OHTs), almost 1 in 4 (24%) were considered to be cognitively impaired (ranging from 15.6% - 30.4% across OHTs) and, their health status on average was 0.46 out of a possible 1.0 (ranging from 0.41 to 0.52 across OHTs) which is typical of a home care population. Furthermore, 42% of the caregivers of long-stay home care clients reported being distressed (ranging from 24% to 54% across the OHTs).

Among the long-stay home care clients with at least two assessments in a year, there was an increase in dependency in their ADLs (+ 1.6) and decline in health status (-0.03). These changes are both considered to be clinically meaningful. Furthermore, these two indicators demonstrated the highest levels of variability among the frail/older adult indicators with over 3-fold variation across the OHTs (and CVs of 28 and -32, respectively).

There was weak to negligible correlation between the concentration of the attributable population in the most vs least deprived areas and all frail/older adult indicators at the OHT level. However, we found a moderate positive correlation (0.38) with rurality for repeat fall-related ED visits (i.e. higher proportion of having multiple fall-related ED visits among OHTs with a greater proportion of their frail attributable population in rural areas) and a moderate negative correlation (-0.36) with rurality and the proportion of caregivers reporting be distressed (i.e. lower proportion of caregiver distress among OHTs with a higher concentration of the older attributable population residing in rural areas).

Within the 42 OHTs, some minor inequities according to quintile material deprivation were evident. For example, up to a 3-fold difference in highest vs lowest material deprivation was observed for 2+ fall-related ED visits. However, the direction and magnitude of inequities varied considerably by indicator and by OHT.

These baseline findings illustrate where there are opportunities for OHTs to focus their implementation activities to improve patient and caregiver experience and outcomes specific to frail/older adult care. The approaches OHTs implement will likely vary depending on geography, other demographics, and community resources available. Nonetheless lessons should be shared where improvements are being observed.

Given the relatively stable overall historical trend across many of these indicators (including contextual indicators), and the early stage in the OHT journey towards an integrated health care system, movement of these indicators at the level of the entire OHT attributable population, is not expected for most indicators within the near future (1-2 years). However, within segments of frail/older adults that OHTs select to implement their integrated care pathways, movement can be expected. Evidence from Ontario's Integrated Funding Model pilot program showed that well-specified interventions focused on specific target populations were able to improve patient outcomes [8].

OHTs that have selected frail/older adults as their priority population will need to build capacity to be able to measure, monitor and report on most of these indicators in order to evaluate their new integrated care models to determine whether they are having an impact.

References

1. Ontario Ministry of Health. Ontario Health Teams: Guidance for Health Care Providers and Organizations. Queen's printer of Ontario; 2019: http://health.gov.on.ca/en/pro/programs/connectedcare/oht/docs/guidance_doc_en.pdf.
2. Sibbald SL, Hall RE, Embuldeniya GE, et al. Ontario Health Team Central Evaluation – Formative Evaluation: Document Analysis. Toronto, ON: Health System Performance Network. 2020: http://hspn.ca/wp-content/uploads/2020/05/HSPN-Provincial-level-OHT-Document-Analysis-Extraction-Results.pdf
3. Stukel TA, Glazier RH, Schultz SE, et al. Multispecialty physician networks in Ontario. *Open Med*. 2013;7(2):e40-55.
4. Campitelli MA, Bronskill SE, Hogan DB, et al. The prevalence and health consequences of frailty in a population-based older home care cohort: a comparison of different measures. *BMC Geriatr*. 2016;16:133.
5. Maxwell CJ, Campitelli MA, Diong C et al. Variation in the health oucomes asociated with frailty among home care clients: relevance of caregiver distress and client sex. *BMC Geriatr*. 2018; 18:211.
6. Wodchis WP, Hirdes JP, Feeny DH. Health-related quality of life measure based on the minimum data set. *Int J Technol Assess Health Care.* 2003; 19(3): 490-506.
7. Carpenter GI, Hastie CL, Morris JN, Fries BE, Ankri J. Measuring change in activities of daily living in nursing home residents with moderate to severe cognitive impairment. *BMC Geriatr*. 2006; 6:7
8. Walker K, Embuldeniya G, Hall RE, et al. Integrated Funding Models Central Evaluation. HSPRN; 2019: http://hspn.ca/wp-content/uploads/2020/01/Integrated-Funding-Models-Central-Evaluation-Report.pdf

Appendix: Indicator Technical Specifications

Proportion of older adults with frailty (contextual indicator)	
Rationale:	Frailty is characterized by increased vulnerability to external stressors. Frail individuals are at an increased risk of adverse outcomes including transitions to higher levels of care and short-term mortality.
Indicator Reference:	https://rgps.on.ca/wp-content/uploads/2019/08/PGLO-report-May15r.pdf [accessed Jan15, 2021]
Data Sources:	CCRS, DAD, HCD, NACRS, ODB, OHIP, RAICA, RAIHC, RPDB,

Numerator (a subset of the denominator):	All persons:
	• With a history of dementia (see Jaakkimainen RL et al. (2016) *Identification of physician-diagnosed Alzheimer's disease and related dementias in population-based administrative data: a validation study using family physicians' electronic medical records*. Journal of Alzheimer's Disease, 54: 337-349 for codes), or
	• Residents in a long-term care facility (based on having any record in CCRS in the last 5 years), or
	• Receiving palliative care services (in the past 1 year) based on:
	  • DAD: ICD-10 codes that begin with Z515, patserv=58, prvserv or inserv=00121
	  • OHIP: feecodes that begin with A945, K023, G512, G511, B998,B997, K700, B966, B997, B998, G511, C945, C945, C882, C982, E083 (following C982, C882, C122, C123, C124, C142, C143), B966 (billed with B998/B996), K023, B400, C945, C982, G512, Q641,)
	  • NACRS: prvserv or consultserv = 00121
	  • HCD: src_admission, service_rpc or src_discharge=95, residence_type=2000
	  • RAICA: b2c=1 or b4=12, or
	• With two or more of the following seven conditions identified in DAD or OHIP:
	  • Cognitive impairment, including dementia and delirium (ICD-10 codes F05X: F050, F051, F058, F059 and ICD-9 codes 293)
	  • Incontinence (ICD-10: R32, R15),
	  • Falls (ICD-10: E9177, E9178, E9293, W01,W05-W19)
	  • Nutritional difficulties (ICD-10: R627, R634, R633, R630, F500, F501, R63, R636, R638,78322, 7833, 7839),
	  • Functional difficulties (ICD-10: R26, R262, M6250-9, M6281, L89X)
	  • Targeted health service utilization (OHIP specialty 07 with OHIP feecodes W770, W775, W795, A770, A775, A795, C770, C775, C795, E071, E075, E077, E703, DAD patserv 77, OHIP location home with OHIP feecodes B960-4, B966, B986, B987, B988, B990-8)
	Decline in general health status (2+ non-elective hospital admissions or unscheduled ED visits in the last year, or malaise, fatigue/debility and/or cachexia diagnoses (ICD-10 R53, G933, R64, ICD-9: 795).

Denominator:	Total population age 66 years or older
Exclusions:	n/a

Standardization:	Model-based risk-adjusted via logistic regression using individual-level data, controlling for age (continuous) and sex
Notes and Limitations:	• A lower value is desirable for this measure

Days spent at home, among those identified as frail	
Rationale:	Days spent at home is a patient-driven quality indicator. Although some hospital visits are necessary, most people would prefer to spend their time at home.
Indicator Reference:	n/a
Data Sources:	CCC, CCRS, DAD, NACRS, NRS, OHTAM, OMHRS, RPDB
Numerator (a subset of the denominator):	For each decedent, calculated as the total days in the observation period (or to death) minus the sum of days spent in hospital (DAD and OMHRS data), emergency department (NACRS), inpatient rehab (NRS), and complex continuing care (CCC)

Denominator:	The number of OHT attributed population age 66 years or older that were frail (see: https://rgps.on.ca/wp-content/uploads/2019/08/PGLO-report-May15r.pdf [accessed Jan15, 2021] for frailty definition used by PGLO) defined as:
	• Having a history of dementia (see Jaakkimainen RL et al. (2016) Identification of physician-diagnosed Alzheimer's disease and related dementias in population-based administrative data: a validation study using family physicians' electronic medical records. Journal of Alzheimer's Disease, 54: 337-349 for algorithm used), or
	• Residents in a long-term care facility (based on having any record in CCRS in the last 5 years), or
	• Receiving palliative care services (in the past 1 year) based on:
	  • DAD: ICD-10 codes that begin with Z515, patserv=58, prvserv or inserv=00121
	  • OHIP: feecodes that begin with A945, K023, G512, G511, B998,B997, K700, B966, B997, B998, G511, C945, C945, C882, C982, E083 (following C982, C882, C122, C123, C124, C142, C143), B966 (billed with B998/B996), K023, B400, C945, C982, G512, Q641)
	  • NACRS: prvserv or consultserv = 00121
	  • HCD: src_admission, service_rpc or src_discharge=95, residence_type=2000
	  • RAICA: b2c=1 or b4=12, or
	• Having two or more of the following seven conditions identified in DAD or OHIP:
	  • Cognitive impairment, including dementia and delirium (ICD-10 codes F05X: F050, F051, F058, F059 and ICD-9 codes 293)
	  • Incontinence (ICD-10: R32, R15),
	  • Falls (ICD-10: E9177, E9178, E9293, W01,W05-W19)
	  • Nutritional difficulties (ICD-10: R627, R634, R633, R630, F500, F501, R63, R636, R638,78322, 7833, 7839),
	  • Functional difficulties (ICD-10: R26, R262, M6250-9, M6281, L89X)
	  • Targeted health service utilization (OHIP specialty 07 with OHIP feecodes W770, W775, W795, A770, A775, A795, C770, C775, C795, E071, E075, E077, E703, DAD patserv 77, OHIP location home with OHIP feecodes B960-4, B966, B986, B987, B988, B990-8)
	  • Decline in general health status (2+ non-elective hospital admissions or unscheduled ED visits in the last year, or malaise, fatigue/debility and/or cachexia diagnoses (ICD-10 R53, G933, R64, ICD-9: 795).

Exclusions:	n/a

Standardization:	Model-based risk-adjusted via generalized regression (assuming a Poisson distribution, log link function and offset for the number of person-days in the observation period) using individual-level data, controlling for age (continuous) and sex.
Notes and Limitations:	• Observation periods are scaled to 365.25 days to account for leap years • A higher value (mean days) is desirable for this indicator

Repeat fall-related emergency visits, among those identified as frail	
Rationale:	Injuries from falls can negatively impact the health and independence of older adults and require costly medical intervention.
Indicator Reference:	n/a
Data Sources:	NACRS, OHTAM, RPDB
Numerator (a subset of the denominator):	Population with a fall-related emergency department visit in the observation period (index event, ICD10: W01, W02, W03, W04, W05, W06, W07, W08, W09, W10, W11, W12, W13, W14, W15, W16, W17, W18, W19) and a second fall-related ED visit within 365 days prior to the index event. Where multiple ED visits occur in the observation period, the most recent ED visit is used as the index event.

Denominator:	The number of OHT attributed population age 66 years or older that were frail (see: https://rgps.on.ca/wp-content/uploads/2019/08/PGLO-report-May15r.pdf [accessed Jan15, 2021] for frailty definition used by PGLO) defined as:
	• Having a history of dementia (see Jaakkimainen RL et al. (2016) Identification of physician-diagnosed Alzheimer's disease and related dementias in population-based administrative data: a validation study using family physicians' electronic medical records. Journal of Alzheimer's Disease, 54: 337-349 for algorithm used), or
	• Residents in a long-term care facility (based on having any record in CCRS in the last 5 years), or
	• Receiving palliative care services (in the past 1 year) based on:
	  • DAD: ICD-10 codes that begin with Z515, patserv=58, prvserv or inserv=00121
	  • OHIP: feecodes that begin with A945, K023, G512, G511, B998,B997, K700, B966, B997, B998, G511, C945, C945, C882, C982, E083 (following C982, C882, C122, C123, C124, C142, C143), B966 (billed with B998/B996), K023, B400, C945, C982, G512, Q641)
	  • NACRS: prvserv or consultserv = 00121
	  • HCD: src_admission, service_rpc or src_discharge=95, residence_type=2000
	  • RAICA: b2c=1 or b4=12, or
	• Having two or more of the following seven conditions identified in DAD or OHIP:
	  • Cognitive impairment, including dementia and delirium (ICD-10 codes F05X: F050, F051, F058, F059 and ICD-9 codes 293)
	  • Incontinence (ICD-10: R32, R15),
	  • Falls (ICD-10: E9177, E9178, E9293, W01,W05-W19)
	  • Nutritional difficulties (ICD-10: R627, R634, R633, R630, F500, F501, R63, R636, R638,78322, 7833, 7839),
	  • Functional difficulties (ICD-10: R26, R262, M6250-9, M6281, L89X)
	  • Targeted health service utilization (OHIP specialty 07 with OHIP feecodes W770, W775, W795, A770, A775, A795, C770, C775, C795, E071, E075, E077, E703, DAD patserv 77, OHIP location home with OHIP feecodes B960-4, B966, B986, B987, B988, B990-8)
	• Decline in general health status (2+ non-elective hospital admissions or unscheduled ED visits in the last year, or malaise, fatigue/debility and/or cachexia diagnoses (ICD-10 R53, G933, R64, ICD-9: 795).

Exclusions:	n/a

Standardization:	Model-based risk-adjusted via logistic regression using individual-level data, controlling for age (continuous) and sex
Notes and Limitations:	• A lower value is desirable for this indicator

Activities of Daily Living – long form (contextual indicator)	
Rationale:	This scale provides a measure of a client's ability to perform activities of daily living (ADL), including personal hygiene, dressing, locomotion, toilet use, bed mobility and eating. ADL is the most common measure of function in older adults.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	Value of ADL Long
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period. For home care clients with >1 assessment, we take the most recent.
Exclusions:	Assessments that are not the most recent in the reporting period, for those with multiple assessments.
Standardization:	Model-based risk-adjusted via generalized regression (assuming a normal distribution and identity link function) using individual-level data, controlling for age (continuous) and sex.
Notes and Limitations:	• ADL Long ranges from 0 to 28, with higher values indicating greater difficulty in performing activities • A lower value (mean score) is desirable for this measure

Change in Activities of Daily Living – long form	
Rationale:	This scale provides a measure of a client's ability to perform activities of daily living (ADL), including personal hygiene, dressing, locomotion, toilet use, bed mobility and eating. ADL is the most common measure of function in older adults.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	Change in ADL Long score from first to most interRAIHC assessment
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period (index assessment) and a second interRAIHC assessment within 365d prior. The index assessment is the most recent in the observation period.
Exclusions:	Clients with <2 interRAIHC assessments within 365d
Standardization:	Model-based risk-adjusted via generalized regression (assuming a normal distribution and identity link function) using individual-level data, controlling for age (continuous) and sex.
Notes and Limitations:	• interRAIHC data was not available in 2017/18 • ADL Long ranges from 0 to 28, with higher values indicating greater difficulty in performing activities. Therefore, a lower/ negative value (mean change score) is desirable for this indicator

Minimum Dataset Health Status Index (MDSHSI, contextual indicator)	
Rationale:	The MDSHSI is a preference-based health-related quality of life measure derived by mapping items collected in the RAI instrument onto the Health Utilities Index Mark 2 system. It is a single summary score of overall health.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	MDSHSI score
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period. For home care clients with >1 assessment, we take the most recent.
Exclusions:	Assessments that are not the most recent in the reporting period, for those with multiple assessments.
Standardization:	Model-based risk-adjusted via generalized regression (assuming a normal distribution and identity link function) using individual-level data, controlling for age (continuous) and sex.
Notes and Limitations:	• For calculation of the MDSHSI from RAI data, see: Wodchis WP, Hirdes JP and Feeny DH. Health-related quality of life measure based on the minimum data set. Int J Technol Assess Health Care. 2003; 19(3): 490-506 • MDSHSI ranges from -0.03 to 1, with higher scores (approaching 1) indicative of good health. • A value of ≥0.03 is a clinically meaningful difference in MDSHSI • The MDSHSI was validated on the RAIHC assessment instrument, which is no longer used in Ontario. Data items collected on the interRAIHC assessment instrument (which was adopted in Ontario in March 2018) differs, notably for assessing mobility, which results in a marginally higher MDSHSI score. Interpretation requires caution. • A higher value (mean score) is desirable for this measure

Change in Minimum Dataset Health Status Index (MDSHSI)	
Rationale:	The MDSHSI is a preference-based health-related quality of life measure derived by mapping items collected in the RAI instrument onto the Health Utilities Index Mark 2 system. It is a single summary score of overall health. The change in MDS-HSI captures the individual within-person change in overall health status. Slowing health declines amongst older adults may result from multi-faceted interventions.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	Change in MDSHSI score from first to most interRAIHC assessment
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period (index assessment) and a second interRAIHC assessment within 365d prior. The index assessment is the most recent in the observation period.
Exclusions:	Clients with <2 interRAIHC assessments within 365d
Standardization:	Model-based risk-adjusted via generalized regression (assuming a normal distribution and identity link function) using individual-level data, controlling for age (continuous) and sex.
Notes and Limitations:	• interRAIHC data was not available in 2017/18 • For calculation of the MDSHSI from RAI data, see: Wodchis WP, Hirdes JP and Feeny DH. Health-related quality of life measure based on the minimum data set. Int J Technol Assess Health Care. 2003; 19(3): 490-506 • MDSHSI ranges from -0.03 to 1, with higher scores (approaching 1) indicative of good health. Therefore, a higher value (mean change score) is desirable for this indicator • A value of ≥0.03 is a clinically meaningful difference in MDSHSI • The MDSHSI was validated on the RAIHC assessment instrument, which is no longer used in Ontario. Data items collected on the interRAIHC assessment instrument (which was adopted in Ontario in March 2018) differs, notably for assessing mobility, which results in a marginally higher MDSHSI score. Interpretation requires caution.

Caregiver distress	
Rationale:	Caregiver distress may indicate whether home care clients and their caregivers have access to sufficient and appropriate level of services and supports. It may also help flag where additional resources are needed in order to prevent caregiver burnout.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	Assessments that indicate a caregiver is unable to continue in caring activities (variable P2A) or the caregiver expresses feelings of distress, anger or depression (P2B)
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period that had a caregiver (variable P1b1 = 0, 1 or 2). For long-stay home care clients with >1 assessment, we take the most recent.
Exclusions:	Assessments that are not the most recent in the reporting period, for those with multiple assessments.
Standardization:	Model-based risk-adjusted via logistic regression using individual-level data, controlling for age (continuous) and sex
Notes and Limitations:	• interRAIHC data was not available in 2017/18 • A lower value (%) is desirable for this indicator

Cognitive impairment (contextual indicator)	
Rationale:	Persons with cognitive impairment often have complex needs and require additional resources.
Indicator Reference:	n/a
Data Sources:	interRAIHC, OHTAM, RPDB
Numerator (a subset of the denominator):	Clients with a cognitive performance scale equal to 3 or more
Denominator:	Total population age 66 years or older with an interRAIHC assessment in the observation period. For home care clients with >1 assessment, we take the most recent.
Exclusions:	Assessments that are not the most recent in the reporting period, for those with multiple assessments.
Standardization:	Model-based risk-adjusted via logistic regression using individual-level data, controlling for age (continuous) and sex
Notes and Limitations:	• A lower value (%) is desirable for this measure