



CCRS

# Continuing Care Reporting System Data Users Guide

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Canadian Institute  
for Health Information

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# Summary

This guide provides context and information to guide the understanding and use of data from the Continuing Care Reporting System (CCRS) at the Canadian Institute for Health Information (CIHI), including the assessment of data quality as defined by CIHI's Information Quality Framework.

CCRS captures longitudinal demographic, clinical and functional information on residents who receive continuing care services in hospital-based facilities and long-term care homes in Canada that have 24-hour nursing available.

The database includes administrative information about residents and their stays, as well as information derived from clinical assessments. The clinical standard for CCRS is the Resident Assessment Instrument–Minimum Data Set (RAI-MDS 2.0 ©). It is a validated clinical assessment developed by interRAI, an international research network. The RAI-MDS 2.0 has been modified for use in Canada by CIHI, with permission from interRAI.

The information collected using the clinical standard supports care planning and monitoring at the point of care. In addition, once data is submitted to CIHI, it is made available across Canada for program planning, improving the quality of care, allocating resources and understanding population needs.

Users should be aware of the following when using CCRS data:

- The admission criteria for long-term care and the services provided vary across the country. Depending on a number of factors, including the availability of other services such as home care and assisted-living settings to keep people living in the community, jurisdictions tailor their admission criteria and service provision for long-term care toward the local needs of their populations.
- The population of interest<sup>i</sup> for CCRS is all residents of all publicly funded continuing care facilities (hospital-based facilities or long-term care homes) in Canada that have 24-hour nursing available. However, as the CCRS population of reference<sup>ii</sup> does not currently contain all provinces and territories (or all providers in submitting provinces and territories) that make up the CCRS population of interest, caution should be used when interpreting results, as the CCRS data may not be representative of all continuing care facilities in Canada.
- CCRS was launched in 2003–2004, and participation varies by jurisdiction and year. Therefore, any time series changes must be interpreted carefully, as they may reflect changes in the underlying population rather than actual changes in the characteristics and resource utilization of the residents being served.

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i. The population of interest is the group of units for which information is wanted.

ii. The population of reference is the available group of units.

- CCRS contains data from full RAI-MDS 2.0 assessments (completed within 14 days of admission and repeated annually within the same episode of care or after a significant change in clinical status) and shorter quarterly RAI-MDS 2.0 assessments. When using RAI-MDS 2.0 assessment data, users should be aware that not all data elements will be available for the quarterly assessments.
- CCRS does not contain assessment information about all residents, primarily because some stay in the continuing care facility for less than 14 days. For lengths of stay less than 14 days, completing an assessment is voluntary; thus only demographic and administrative data is available for these residents.
- The structure of CCRS longitudinal data is complex. There are more than 500 data elements, consisting of RAI-MDS 2.0 data elements plus data elements developed by CIHI. The supporting documentation will help with understanding and interpretation (e.g., RAI-MDS 2.0 User's Manual, CCRS RAI-MDS 2.0 Output Specifications Manual, CCRS Data Submission User Manual).

Please email [ccrs@cihi.ca](mailto:ccrs@cihi.ca) with any feedback or questions.

# Introduction

## Data and information quality at CIHI

Quality is at the heart of everything CIHI does. It is embedded in our mandate and vision: Better data. Better decisions. Healthier Canadians.

### Information Quality Framework

CIHI's Information Quality Framework provides an overarching structure for all of our quality management practices related to capturing and processing data and transforming it into information products.

For further information on the Information Quality Framework, including CIHI's information life cycle, quality dimensions and quality principles, please visit the [data and information quality section of our website](#).

### Provincial/territorial data quality reports

CIHI produces annual data quality reports to assess the contribution of each province and territory to 12 of CIHI's databases (including CCRS) and to inform on data advancement in key areas. These reports are shared with deputy ministers of health and key jurisdictional representatives across the country.

# Introduction to continuing care

## Overview of continuing care

Continuing care includes long-term care (e.g., nursing or personal care homes) and hospital-based continuing care for people who require on-site delivery of supervised care 24 hours a day, 7 days a week.

### Long-term care

Long-term care is governed by provincial and territorial legislation. The admission criteria for long-term care and the services provided vary across the country. Depending on a number of factors, including the availability of other services, such as home care and assisted-living settings to keep people living in the community, jurisdictions tailor their admission criteria and service provision for long-term care toward the local needs of their populations. For some jurisdictions, where home care and other community support services are available, many people who would have otherwise been admitted to a long-term care home are now served at home or in other settings.

There is also variation in how long-term care homes are governed and who owns them.

Long-term care homes can submit data to CCRS if they provide 24-hour nursing care and have implemented the CCRS clinical standard (RAI-MDS 2.0).

### Hospital-based continuing care

Hospital-based continuing care serves individuals who may not be ready for discharge from hospital but who no longer need acute care services. Also known as extended care, chronic care or complex continuing care, it provides ongoing professional services to a diverse population with complex health needs.

Hospital-based continuing care facilities/units submit to CCRS only if they have implemented the CCRS clinical standard (RAI-MDS 2.0). This currently includes Ontario complex continuing care facilities and 2 Winnipeg Regional Health Authority hospitals. Other continuing care hospitals and units submit data to CIHI's Discharge Abstract Database.

# Introduction to CCRS

## Overview of CCRS

CCRS, launched in 2003–2004, is a database that captures longitudinal demographic, clinical and functional information on residents who receive continuing care services in hospital-based facilities and long-term care homes in Canada that have 24-hour nursing available. Participating organizations also provide administrative information collected when the resident enters and leaves the hospital/long-term care home, plus information on hospital/long-term care home characteristics to support comparative reporting.

## Clinical standard

The clinical standard for CCRS is the RAI-MDS 2.0. It is a validated clinical assessment developed by interRAI, an international research network.<sup>iii</sup> The RAI-MDS 2.0 has been modified for use in Canada by CIHI, with permission from interRAI. The RAI-MDS 2.0 has been used in Ontario complex continuing care facilities since 1996; data collected via the RAI-MDS has been incorporated into CCRS.

The RAI-MDS 2.0 is a comprehensive assessment that is used to identify the preferences, needs and strengths of residents of long-term care homes and patients in continuing care hospitals; it also provides a snapshot of the services they receive. It includes measures of cognition, communication, vision, mood and behaviour, psychosocial well-being, physical functioning, continence, disease diagnoses, nutritional status, skin condition, medications, and special treatments and procedures.

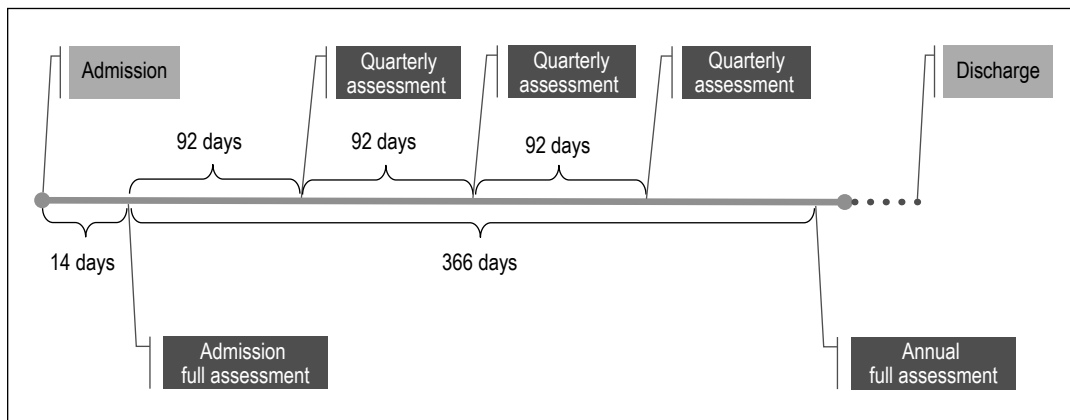
The information, which is gathered electronically at the point of care, provides real-time decision support for front-line care planning and monitoring. The data from individual residents can be aggregated and used by clinical quality champions, managers and policy-makers for planning, quality improvement and accountability.

The CCRS standard expects that a full RAI-MDS 2.0 assessment will be carried out on residents in continuing care within 14 days of admission and will be repeated annually within the same episode of care. A full assessment should also be completed when a resident experiences a significant change in clinical status. For lengths of stay less than 14 days, completing an assessment is voluntary. A shorter quarterly RAI-MDS 2.0 assessment should be completed every quarter (at 3, 6 and 9 months) between full assessments.

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iii. A peer-reviewed paper published in 2013 found that data quality with respect to reliability, validity, completeness and freedom from logical coding errors was consistently high for Ontario RAI-MDS 2.0 data.<sup>1</sup>



**Figure** Typical CCRS episode

The next-generation clinical assessment instrument for long-term care is the interRAI Long-Term Care Facilities (interRAI LTCF ©). CIHI has built a new integrated reporting system to support this and other interRAI assessment instruments. This new system and the interRAI LTCF are outside the scope of this guide.

## Outputs

The RAI-MDS 2.0 has embedded decision-support algorithms. These algorithms summarize information from the assessment and can be used to support both clinical and organizational decision-making. The algorithms include outcome scales, Clinical Assessment Protocols (CAPs), quality indicators and the case-mix systems.

Outcome scales combine assessment items from the RAI-MDS 2.0 to summarize a specific clinical domain for a person, such as cognitive performance, physical functioning, depression symptoms and pain.

Person-level CAPs provide evidence-informed guidance for further assessment and intervention in areas where there is risk of decline or potential to improve (e.g., activities of daily living).

Quality indicators are organizational summary measures that reflect presumed quality of care across key domains, including safety, health status, and appropriateness and effectiveness.

Case-mix systems sort residents into similar clinical groups reflecting the relative costs of services and supports they are likely to use. This information becomes available to clinicians, managers and policy-makers and can be used at the point of care, at the organization level or at the system level for planning and monitoring care, understanding populations, improving quality and allocating resources.

## Record types

There are 9 different types of records that can be submitted to CCRS: 7 for the submission of resident-specific information<sup>iv</sup> and 2 non-resident record types required for the appropriate processing of resident-specific records.<sup>v</sup> Resident-specific records can be submitted to CCRS as new, correction or deletion records.

Further details are in the *CCRS Data Submission User Manual*.

## Episode of care

An episode of care is the period of time between an individual's admission to and discharge from a continuing care facility (hospital-based facility or long-term care home).

An Admission/Re-entry form (AD) that contains key demographic and administrative information is collected for all residents on admission. The AD opens the resident episode and establishes the Unique Registration Identifier (URI) number associated with all assessments in that episode of care.

A discharge record is completed whenever a resident is discharged from a continuing care facility (including death). A discharge record may also be completed when the discharge is temporary (i.e., when the resident's return is anticipated). If a resident is discharged but returns to the same continuing care facility before the next scheduled assessment, the previous assessment cycle can continue under the same URI. If the resident misses his or her scheduled assessment while out of the continuing care facility, a new episode of care must be started under a new URI.

# CCRS organization definitions

## Organization and population scope

CCRS is designed to capture information on all residents of all publicly funded continuing care facilities (hospital-based facilities or long-term care homes) in Canada that have 24-hour nursing available. Some publicly funded long-term care homes have residents whose cost of stay is covered solely by private means; these long-term care homes may choose to submit data for these patients to CCRS. A private pay resident flag is collected to differentiate these residents from those whose services are covered in whole or in part by public funds.

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- iv. The 7 record types for the submission of resident-specific data are Admission/Re-entry (AD), Update (UP), RAI-MDS 2.0 Full Assessment (FA), RAI-MDS 2.0 Quarterly Assessment (QA), Medication (MD), Discharge (DC) and Special Project (SP).
  - v. The 2 non-resident record types required for the appropriate processing of resident-specific records are Control Record (CR) and Contact Information (CI).

## Source organizations

Source organizations (i.e., long-term care homes, hospital-based continuing care facilities) are the agencies actually delivering services and those responsible for collecting information on the residents they serve.

## Submission organizations

Submission organizations submit data to CIHI. In some jurisdictions, source organizations will submit their own data to CIHI and therefore will act as both source and submission organizations. In other jurisdictions, source organizations will send their data to another organization (e.g., their provincial ministry of health), which will then submit the data to CIHI.

## Overview of CCRS data tables

CCRS data is grouped into 4 key data tables: Organization, Episode, Assessment and Medication. Additional tables contain information on resource utilization and quality indicators.

### Organization data table

Organization data includes general information about agencies delivering continuing care, including the type of organization and basic name and address elements. CCRS data is submitted at the provider level and can be grouped up to the health region/zone and province/territory levels.

### Episode data table

Episode data includes identifiers, demographic information and administrative data such as referral and discharge information. This data can be collected on all continuing care residents regardless of whether they receive a RAI-MDS 2.0 assessment.

### Assessment data table

Assessment data is captured during the RAI-MDS 2.0 assessment (both full and quarterly). It includes information about a resident's functioning, needs, strengths and preferences.

### Medication data table

The medication data includes information from the RAI-MDS 2.0 assessment Section U. Medication records contain specific information about each prescription drug, including the dose and frequency of administration. Medication records are linked to a specific assessment and are optional to submit.

## CCRS coverage and participation

Data coverage is related to jurisdictional representation in the database, years of coverage in the database and data availability. The CCRS population of interest<sup>vi</sup> is defined as all residents of all publicly funded continuing care facilities (hospital-based facilities or long-term care homes) in Canada that have 24-hour nursing available.

The CCRS population of reference<sup>vii</sup> is defined as all publicly funded continuing care facilities in Canada with 24-hour nursing from which data submissions can be expected.

The population of reference has changed over time as participation in CCRS has expanded. Therefore, any time series changes must be interpreted carefully, as they may reflect changes in the underlying population rather than actual changes in the characteristics and resource utilization of the residents being served.

As of 2018–2019, 6 provinces and territories have committed to submitting data to CCRS for all long-term care homes with 24-hour nursing: Newfoundland and Labrador, Ontario, Saskatchewan, Alberta, British Columbia and Yukon. Manitoba has partial commitment, and participation is voluntary in Nova Scotia. New Brunswick implemented the interRAI LTCF in 2017–2018.<sup>viii</sup> The remaining 4 provinces and territories have no commitment to provide data to CCRS for long-term care homes.

2 provinces have committed to sending data to CCRS for people receiving continuing care services in hospital-based facilities: Ontario and Manitoba.

Of the 8 jurisdictions with full commitment, partial commitment or voluntary participation for long-term care homes with 24-hour nursing, all submitted data to CCRS in 2018–2019. Of the 2 provinces with some commitment to submit data to CCRS for people receiving continuing care services in hospital-based facilities, both did so in 2018–2019.

As the CCRS population of reference does not currently contain all provinces and territories (or all providers within submitting provinces and territories) that make up the CCRS population of interest, caution should be used when interpreting results, as the CCRS data may not be representative of all continuing care facilities in Canada.

For further information on participation by province/territory and the number of long-term care homes and continuing care hospitals submitting data to CCRS by province/territory and year, see tables 3 and 4 in the section **CCRS data**.

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vi. The population of interest is the group of units for which information is wanted.

vii. The population of reference is the available group of units.

viii. Historically, CCRS participation was voluntary for New Brunswick and 1 long-term care home submitted RAI-MDS 2.0 data. In 2017–2018, all long-term care homes in New Brunswick implemented the interRAI LTCF.

# Quality measures for CCRS throughout the information life cycle

This section provides information on the processes and standards CIHI uses to support data quality and information quality throughout the CCRS information life cycle (capture, submit, process, analyze and disseminate).

The process begins with data (assessment, demographic and administrative) collected electronically by front-line clinicians and stored in a vendor software system. This data is then compiled into submission files and securely submitted to CIHI. Once the data files have been submitted, CIHI processes the data and produces submission reports that identify necessary corrections to the data. Corrected records should then be resubmitted to CIHI. Records that have been accepted by the final submission deadline are included in analytical outputs that can support clinical and quality management decisions.

## Capture

### **CCRS data capture**

The RAI-MDS 2.0 is implemented in jurisdictions primarily as a comprehensive assessment for front-line clinicians to help plan and monitor resident care. The data submitted to CCRS is therefore a by-product of the ongoing processes of care.

In long-term care, most assessments are completed by nurses and sometimes by occupational therapists, physiotherapists and/or social workers. Some organizations have super users whose sole responsibility is to conduct interRAI assessments, while other sites have an interdisciplinary team complete assessments.

Various vendor systems are used to capture the data. There are more than 500 data elements, consisting of RAI-MDS 2.0 data elements plus data elements developed by CIHI. The vast majority of data elements in CCRS are mandatory, including all the elements that are used to derive the key outputs (outcome scales, CAPs, quality indicators and the case-mix methodology).

## CIHI quality measures

CIHI takes measures to ensure quality control during the data capture phase of the CCRS information life cycle. These are intended to ensure standardized data collection and prevent data quality issues. They include

- Encouraging data suppliers to use electronic data capture to complete assessments and requiring them to use licensed vendors, preferably those that implement edits and audits at data capture. This allows for corrections and verifications to occur at the time of data entry;
- Providing data element definitions and data collection standards such as user manuals and job aids (see below);
- Providing education courses that address coding of RAI-MDS 2.0 assessment data (see below); and
- Responding to coding questions, including consultation with and approval by interRAI researchers for relevant questions, to ensure that standard, consistent responses are made available to data providers.

## Resources for assessors

CIHI has developed the following RAI-MDS 2.0 user manuals and associated documents to support data capture (coding). They are available by logging in to CIHI's website and visiting [eStore](#).

- Resident Assessment Instrument (RAI) RAI-MDS 2.0 User's Manual, Canadian Version
- RAI-MDS 2.0 Outcome Scales Reference Guide
- Continuing Care Reporting System (CCRS) Assessment and Administrative Forms
- interRAI Clinical Assessment Protocols (CAPs) — For Use With interRAI's Community and Long-Term Care Assessment Instruments
- ICD-10-CA Pick-List Codes Used for the Continuing Care Reporting System
- Home and Continuing Care (HCC) Medication List
- CIHI Language Codes

## Job aids

CIHI has developed a number of job aids to support data capture (coding) that are available on [CIHI's website](#). Examples include the following:

- Documenting Activities of Daily Living (G1)
- Documenting Therapies (P1b)
- Documenting Nursing Rehabilitation/Restorative Care (P3)
- Documenting Devices and Restraints (P4)
- Documenting Number of Medications (O1)
- Describing RAI-MDS 2.0 Outcome Scales
- Assessing Range of Motion (G4)

## Education courses

CIHI's Learning and Development Program includes a suite of education courses relating to continuing care and the RAI-MDS 2.0. Examples relating to data capture (coding) include the course 972E — RAI-MDS 2.0: Beginners — Completing the Assessment (workshop) and the RAI-MDS 2.0 Educators Forums (web conferences). The course catalogue and the courses are available by logging in to [CIHI's Learning Centre](#).

## eQuery

eQuery is a web-based tool that allows CIHI's clients to search an existing repository of questions and answers about coding and other related topics. If clients do not find the answer, they can use eQuery to submit a question in English or French and a CIHI clinical specialist will respond to it. A search topic in eQuery relates to CCRS. [eQuery](#) is accessed by logging in to CIHI's website.

# Submit

## CCRS submission

CIHI can receive CCRS data from provincial/territorial ministries, regional health authorities and continuing care providers (submitting organizations).

## CIHI quality measures

CIHI takes measures to ensure quality control during the CCRS data submission phase of the information life cycle. These are aimed at preventing, monitoring and controlling data quality issues and include

- Producing the *CCRS Data Submission User Manual* and Edit Specifications, which provide information on how the data is to be submitted to CCRS and include data element specifications, valid code values, record layouts, data validation rules and error message descriptions. This documentation is reviewed annually, and changes are made available to clients prior to the beginning of each fiscal year;
- Requiring data providers to use licensed vendors that incorporate CIHI's submission specifications into their proprietary software systems;
- Requiring all vendors to pass CIHI's testing requirements to ensure compliance with the most recent CIHI specifications;
- Checking each record on submission to ensure completeness and valid values. Any records that do not meet these specifications are either rejected (hard edit) or accepted with a warning message (soft edit), and data providers are given a report detailing the reasons for the rejection. Correction and resubmission of rejected records is the responsibility of the organizations collecting and submitting the data;
- Producing quarterly data quality audit reports that identify potentially missing records and illogical or suspicious values in successfully submitted data; and
- Providing direct client support by email ([ccrs@cihi.ca](mailto:ccrs@cihi.ca)) to assist with submitting data, interpreting submission reports and correcting rejected records.

## Resources for data submitters

CIHI has developed the following manuals to support data submission. They are available by logging in to CIHI's website and visiting [eStore](#).

- Continuing Care Reporting System (CCRS) Data Submission User Manual
- Resident Assessment Instrument (RAI) RAI-MDS 2.0 User's Manual, Canadian Version



## Education courses

CIHI's Learning and Development Program includes a suite of education courses relating to continuing care and the RAI-MDS 2.0. A course relating to data submission is 568E — Submitting CCRS Data (eLearning). The course catalogue and the courses are available by logging in to [CIHI's Learning Centre](#).

## System edits

The edits built into the CCRS database are logical and consistent, and they are verified by both the CCRS team and the information technology team prior to implementation. Several consistency edits exist within and between data elements and also between records to ensure the longitudinal integrity of the resident's information. For example, the Discharge Date submitted on the discharge record must be on or after the Admission Date submitted on the admission record.

## Duplicate records

There are many edits in CCRS to prevent the submission of duplicate records. However, duplicates may still occur if the source organizations change some of the information that is used to determine the uniqueness of the records (e.g., resident identifiers, dates). It is not possible to identify such duplicates, but the impact is assumed to be minimal.

## Operational reports

Operational reports are generated in a timely manner (normally within 48 hours) of when each submission file is processed in the database. These operational reports provide data suppliers with details regarding the number of records submitted, the number of records rejected and the reasons for each rejected record. Operational reports for both submission and source organizations are available online by logging in to [CIHI's Client Services](#).

## Data quality audit reports

Data quality audit reports are produced 45 days after the end of a quarter. They identify potentially missing records and illogical or suspicious values in successfully submitted data. Data submitters then have an additional 15 days to submit corrections and/or missing data.

## Frequency of submission

Data submission to CCRS is quarterly, but organizations can submit data any number of times within each quarter. Quarterly data submission deadlines are published annually, prior to the beginning of the data submission year. To have data included in the respective quarterly report, data providers have up to 45 days after the end of the quarter to submit their data, and an additional 15 days to submit corrections and/or missing data. Late data can be submitted at any time, but it might not be included in the respective quarterly or annual report.

# Process

## Processing CCRS data

CCRS data goes through robust, automated data quality processing in CIHI's IT environment. To prepare the data for analytical use, various data operations are performed, such as deriving data elements and flagging data quality issues. This transformed data is stored in a central data repository known as the Analytical Source of Truth.

## De-identification

CIHI receives a complete health card number (HCN) on almost all CCRS records and applies a standard algorithm to encrypt this number, even if it has already been encrypted by the submitter. This standard encryption methodology is applied to all CIHI data holdings. As a result, CCRS data can be linked with other CIHI data (e.g., home care clinical assessments, hospital admissions).

## Data cuts

60 days following the end of a quarter, a cut of the transformed CCRS data is produced to create analytical data files and outputs. While data is accepted into CCRS after the data submission deadline, it is not incorporated into that quarter's reporting. Late submissions are included in subsequent updates.

Annual reports are produced using Quarter 4 data; as such, late submissions of Quarter 4 data are not included in the annual report for that year.

## Data quality flags

The CCRS analytical data files have a series of data quality flags used to identify records that have issues with given demographic variables, such as if a resident's age is outside the expected range (younger than 16 or older than 115).

# Analyze

## Resources for analysts

CIHI has developed a number of resources that can aid with the analysis and interpretation of CCRS outputs. These are available from CIHI's [eStore](#) and eReporting services (available by [logging in to CIHI's website](#)). Examples include the following:

- Continuing Care Reporting System (CCRS) RAI-MDS 2.0 Output Specifications Manual
- RAI-MDS 2.0 Outcome Scales Reference Guide
- Continuing Care Reporting System (CCRS) Data Submission User Manual
- CCRS Quality Indicators Risk Adjustment Methodology
- CCRS eReports User Manual
- CCRS eReports Quick Reference Guide
- CCRS eReporting Building Blocks

## Education courses

CIHI's Learning and Development Program includes a suite of education courses relating to continuing care. Examples relating to analysis of CCRS data include the courses 833E — Calculating a Continuing Care Quality Indicator (web conference) and 895E — Navigating CCRS eReports (eLearning). The course catalogue and a learning pathway are available by logging in to [CIHI's Learning Centre](#).

## CCRS analytical outputs

CCRS analytical outputs are summarized in the **Disseminate** section of this guide. Key outputs include Quick Stats, eReports and Your Health System (In Brief and In Depth).

## Geographic level

CCRS data for all submitting provinces and territories can be analyzed at the organization, region (or zone) and province/territory levels.

When analyzing trends at the organization level, users should be aware that organizational changes (such as closures, mergers or splits) can affect the longitudinal integrity of resident and organization information.

Depending on the vendor systems available to clients, 1 of 2 things can happen following an organizational change:

- Organizations discharge all their active residents from the old organization number and admit them under the new organization number. This breaks the longitudinal record of the active residents (as they all begin new episodes of care) and also affects admission and discharge volumes and length-of-stay calculations.
- Organizations transfer all their active residents to the new organization number, maintaining the longitudinal integrity of individual resident records. However, all historical records for residents are transferred to the new organization number, which affects the analysis of historical data under the previous organization number.

For further information, email [ccrs@cihi.ca](mailto:ccrs@cihi.ca).

## Item non-response

When analyzing CCRS data, users should be aware of item non-response (or partial non-response). Item non-response occurs when a record is received with some missing or invalid data. The item non-response rate for CCRS depends largely on whether the data element is mandatory or optional.

The vast majority of data elements in CCRS are mandatory and therefore require a valid response for the system to accept the record; this includes all the elements that are used to derive the key outputs (outcome scales, CAPs, quality indicators and the case-mix systems) used for analysis. Some data elements are not applicable in certain situations and can therefore be left blank.

Availability of HCN is important to determine unique residents and to link records within CCRS or with other databases for longitudinal analysis. For the last 4 years, 99% to 100% of CCRS records from each province and territory have contained an HCN, with the exception of New Brunswick. Compliance for New Brunswick ranged from 93% to 97%.

Item non-response rates for other data items are available on request.

## Counting residents

Data users should be aware of the different ways of counting CCRS residents. Key variations are detailed in the table below.

**Table 1** CCRS counting variations

Counting variables	Variations	Comments
<b>Identifier type</b>	<ul style="list-style-type: none"> <li>• Unique Registration Identifier (URI)</li> <li>• Encrypted HCN</li> <li>• Resident ID</li> </ul>	Note that each ID will produce a different result when counting unique clients due to different relationships between the variables within jurisdictions. Resident ID is most commonly used for CIHI outputs (e.g., Quick Stats).
<b>Resident type</b>	<ul style="list-style-type: none"> <li>• Total residents</li> </ul>	<p>The count of residents may be event based; if a resident had an admission, assessment or discharge in a given time period, he or she is counted. This includes but is not limited to residents who receive a RAI-MDS 2.0 assessment.</p> <p>Alternatively, resident count can refer to all active residents in a given time period, regardless of what year they were admitted to continuing care and whether they had an event in that period. If a resident has not been discharged, he or she is considered active.</p>
	<ul style="list-style-type: none"> <li>• Assessed residents</li> </ul>	Residents assessed with the RAI-MDS 2.0 assessment instrument. It is expected that a full assessment will be carried out within 14 days of admission. However, some residents do not have an assessment (they may have stayed in the continuing care facility less than 14 days, or they may have had an assessment that was not completed or not successfully submitted to CCRS). A full assessment should be repeated annually or when a resident experiences a significant change in clinical status. A shorter quarterly RAI-MDS 2.0 assessment should be completed every quarter (at 3, 6 and 9 months) between full assessments.
	<ul style="list-style-type: none"> <li>• Admitted residents</li> </ul>	Residents admitted to a continuing care facility with 24-hour nursing (may be a hospital-based facility or long-term care home).
	<ul style="list-style-type: none"> <li>• Discharged residents</li> </ul>	Residents discharged from a continuing care facility with 24-hour nursing (may be a hospital-based facility or long-term care home).

Counting variables	Variations	Comments
<b>Event type</b>	<ul style="list-style-type: none"> <li>All events (assessment, admission, discharge)</li> <li>Latest event in given time period</li> </ul>	<p>The number of events included for analysis can differ depending on the time period and type of analysis. For example, counts may be based on all events in a given time period. If a resident has multiple events, he or she will be counted more than once.</p> <p>Alternatively, only 1 event in a time period or episode of care may be counted. In this approach, if a resident has more than one event (e.g., assessment) within a time period/episode of care, only the latest event is counted.</p>
<b>Setting type</b>	<ul style="list-style-type: none"> <li>Hospital</li> <li>Long-term care home</li> </ul>	<p>Hospital-based continuing care includes hospitals with extended, chronic or complex care beds. At this time, only Ontario and Manitoba have facilities of this designation type that are required to submit data to CCRS.</p> <p>Long-term care includes nursing, personal care and long-term care homes that have 24-hour nursing available. At this time, 7 provinces/territories have full or partial commitment to submit data for long-term care homes to CCRS; for 1 province, participation is voluntary.</p>

## Disseminate

### Dissemination of CCRS data

The table below summarizes the ways CIHI disseminates CCRS data.

**Table 2** CCRS reporting outputs

Name	Description	Access	Frequency
<b>Quick Stats</b>	Standard tables of aggregate data at the province/territory level for a given year, therefore reflecting only 1 point in time. Contain administrative, clinical, resource utilization and quality indicator information. Include data for only the jurisdictions that submitted data for the given fiscal year.	<a href="#">Available publicly</a>	Annually
<b>eReports</b>	Secure, web-based access to comparable RAI-MDS 2.0 and related data in a user-friendly, interactive environment. Functionality includes <ul style="list-style-type: none"> <li>Comparative reporting (compare across organizations, regions, provinces/territories or the entire database);</li> <li>Trending over time (4 years or 8 quarters);</li> <li>Customizable reports that can be saved; and</li> <li>Graphs and tables that can be downloaded in Excel or as a PDF.</li> </ul>	Authorized users only. Available to users that meet specific criteria, such as organizations that submit data to CCRS, as well as their health authorities and ministries of health. Accessed via CIHI's Client Services application.	Quarterly

Name	Description	Access	Frequency
<b>Your Health System (YHS): In Brief and In Depth</b>	Interactive public reporting tool that includes 9 Long-Term Care quality indicators and 7 contextual measures. Includes functionality that allows comparisons between organizations, regions and provinces/territories. YHS: In Depth includes a matrix that provides a snapshot of how indicators are performing compared with the average and across time. Features exportable graphs and data. Designed to present comparative indicator results that may facilitate sharing of best practices and help generate new ideas for improvement strategies.	Available publicly: <a href="#">In Brief</a> <a href="#">In Depth</a>	Annually
<b>Data requests</b>	Researchers, decision-makers and health managers can request specific RAI-MDS 2.0 and CCRS data from CIHI at an aggregate or record level to suit their information needs. Data will be released in accordance with CIHI's Privacy Policy.	Via <a href="#">CIHI Data Inquiry Form</a>	On request
<b>Special topic</b>	Tailored analytical outputs that use data from across CIHI's data holdings to focus on a particular health area. Recent examples include <i>Seniors in Transition: Exploring Pathways Across the Care Continuum</i> (2017) and <i>Dementia in Canada</i> (2018).	<a href="#">CIHI's website</a>	Varies

Before any analytical outputs are released by CIHI, they undergo internal verification and approval processes. These include both checking the accuracy of the outputs and verifying adherence to CIHI's Privacy Policy.

CIHI has a comprehensive program in place to protect the privacy of individuals whose personal health information it receives and to maintain the confidentiality of that information.

CCRS has a number of sensitive data elements that relate to direct personal identifiers (e.g., HCN), client/patient indirect personal identifiers (e.g., Month and Year of Birth, Postal Code, Language) and health facility/organization identifiers (e.g., Organization Name and Number). Rules for release vary for different requests (i.e., own versus third party, record level versus aggregate).

The resident's HCN, month and year of birth and full 6-digit postal code are not normally made available to third-party users unless approved by CIHI's Privacy, Confidentiality and Security Committee.

- Instead of HCN, a meaningless but unique number can be provided.
- Instead of the month and year of birth, the age of the resident (in years) at admission, assessment and/or discharge can be provided.
- Instead of the full 6-digit postal code, geography at higher levels of aggregation is provided.

# CCRS data

The following section presents data relating to CCRS participation, resident counts and data quality indicators.

## Participation

### 2018–2019 participation

The table below presents CCRS participation by province/territory for 2018–2019.

**Table 3** CCRS participation by province/territory, 2018–2019

Province/territory	Commitment to participate*	Number suitable for participation <sup>†</sup>	Participation
N.L. (L)	C	36 LTC homes	35
N.S. (L)	V	93 LTC homes	0
Ont. (H)	C	115 hospitals	103
Ont. (L)	C	626 LTC homes	626
Man. (H)	C	2 hospitals	2
Man. (L)	P	125 LTC homes	39
Sask. (L)	C	156 LTC homes	140
Alta. (L)	C	177 LTC homes	177
B.C. (L)	C	309 LTC homes	297
Y.T. (L)	C	5 LTC homes	5

#### Notes

\* *Commitment to participate* indicates the level of commitment made by the province/territory to submit to CCRS. Prince Edward Island, Quebec, the Northwest Territories and Nunavut have no commitment to participate and so are not included in the table. New Brunswick is not included in the table as the interRAI LTCF was implemented across the province in 2017–2018.

† *Number suitable for participation* is the total number of long-term care homes/hospitals that were suitable for participation in CCRS in 2018–2019. It is sourced through direct contact with the individual ministries of health and/or information provided on their websites.

C: Complete data collection expected at the provincial/territorial level, through a mandate or other type of agreement. C is assigned to any province/territory where the ministry of health has confirmed with CIHI that all organizations in the sector are required to submit data to CCRS.

H: Hospital-based facility.

L: Long-term care (LTC) home.

P: Partial mandate or agreement (e.g., for only certain long-term care homes/hospitals and/or regional health authorities), representing partial data collection at the provincial/territorial level.

V: Voluntary submission with no commitment at the provincial/territorial level.

#### Source

Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.



## Historic number of long-term care homes and continuing care hospitals submitting data to CCRS

The following table shows the number of long-term care homes and continuing care hospitals submitting data to CCRS by province/territory and year. The values represent the number of organizations that submitted data in that year, as opposed to the number for which CCRS data is currently available. The latter can include data submitted retroactively.

**Table 4** Number of long-term care homes and continuing care hospitals submitting data to CCRS, by province/territory and year

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
N.L. (L)	22	32	36	36	35	35
N.S. (L)	4	4	1	3	2	0
N.B. (L)	1	1	1	1	†	†
Ont. (H)*	109	108	105	108	109	103
Ont. (L)	630	631	629	625	625	626
Man. (H)	2	2	2	2	2	2
Man. (L)	38	38	39	39	39	39
Sask. (L)	11	111	155	155	152	140
Alta. (L)	168	168	174	174	175	177
B.C. (L)	292	298	301	301	300	297
Y.T. (L)	4	4	5	5	5	5

### Notes

\* Small Ontario complex continuing care (CCC) facilities sometimes do not submit to CCRS in a given year, as they do not have any residents in their designated CCC beds.

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

H: Hospital-based facility.

L: Long-term care home.

Prince Edward Island, Quebec, the Northwest Territories and Nunavut have no commitment to participate and so are not included in the table.

### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

# Resident counts

## CCRS residents by year

The table below presents the number of residents by province/territory and year. For information on assessed, admitted and discharged resident counts, see Quick Stats or eReports.

**Table 5** CCRS residents, by province/territory and year

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
<b>N.L. (L)</b>	2,105	2,930	3,591	3,546	3,818	3,733
<b>N.S. (L)</b>	525	529	411	114	176	—
<b>N.B. (L)</b>	222	315	283	293	†	†
<b>Ont. (H)</b>	27,372	27,389	27,471	27,416	27,689	26,523
<b>Ont. (L)</b>	112,720	114,929	113,262	114,206	114,326	110,161
<b>Man. (H)</b>	267	265	265	261	246	231
<b>Man. (L)</b>	7,677	7,977	7,828	7,798	7,805	7,632
<b>Sask. (L)</b>	944	9,173	12,590	12,315	12,221	11,069
<b>Alta. (L)</b>	21,356	21,130	21,338	21,879	21,825	22,095
<b>B.C. (L)</b>	33,388	35,748	35,628	37,256	36,802	36,829
<b>Y.T. (L)</b>	284	286	312	345	388	316

### Notes

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

— Data not available.

H: Hospital-based facility.

L: Long-term care home.

CCRS *residents* is the number of Unique Registration Identifiers (URIs) for residents who were admitted, assessed or discharged through 2017–2018. Beginning in 2018–2019, CCRS *residents* uses Resident ID.

### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

## Data quality indicators

This section of the guide presents results for 4 data quality indicators. For further information relating to the indicator methodology, please see the [Provincial/Territorial Data Quality Report: Indicators and Contextual Measures — Reference Guide](#).

### Invalid/Inconsistent Demographics

The Invalid/Inconsistent Demographics indicator measures the percentage of CCRS records with invalid or inconsistent information in key demographic data elements. For CCRS, this includes inconsistent resident sex and inconsistent resident date of birth. Only the latter is reported in this guide because very few CCRS records have inconsistent resident sex.

The optimal value is 0%.

This indicator relates to the capture stage of the data life cycle and the quality dimension accuracy and reliability.

**Table 6** CCRS residents with inconsistent date of birth, by province/territory and year (%)

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
N.L. (L)	—	—	0.0	0.0	0.0	0.0
N.S. (L)	—	—	0.0	0.0	0.0	—
N.B. (L)	—	—	0.4	0.4	†	†
Ont. (H)	—	—	0.0	0.1	0.1	0.1
Ont. (L)	—	—	0.2	0.2	0.2	0.2
Man. (H)	—	—	0.0	0.0	0.0	0.0
Man. (L)	—	—	0.5	0.5	0.4	0.6
Sask. (L)	—	—	0.8	0.8	1.0	1.2
Alta. (L)	—	—	0.0	0.0	0.0	0.0
B.C. (L)	—	—	0.2	0.2	0.2	0.3
Y.T. (L)	—	—	0.0	0.3	0.3	0.0

#### Notes

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

— Data not available.

H: Hospital-based facility.

L: Long-term care home.

#### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

## Missing Longitudinal Record

The Missing Longitudinal Record indicator measures the percentage of CCRS records where submission of assessments stopped and no discharge was submitted. This indicator provides a measure of records that are potentially missing from CCRS. Organizations are expected to submit an assessment in each quarter the resident is in the long-term care home/hospital until the resident is discharged. If the submission of assessments stops without the submission of a discharge record, this indicates there is at least one expected record missing for that resident (e.g., discharge record, assessment).

The optimal value is 0%. It is assumed for the purposes of this indicator that the expected assessment or discharge records are not in the database for 1 of 3 reasons: they were never completed, they were completed but not submitted to CIHI or they were rejected and never resubmitted.

This indicator relates to the capture and submit stages of the data life cycle and the quality dimension accuracy and reliability.

**Table 7** CCRS residents with missing longitudinal records, by province/territory and year (%)

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
<b>N.L. (L)</b>	0.0	0.9	0.1	0.1	0.2	1.0
<b>N.S. (L)</b>	0.8	10.0	4.6	3.5	28.0	—
<b>N.B. (L)</b>	0.0	0.0	0.0	0.0	†	†
<b>Ont. (H)</b>	0.1	0.1	0.4	0.1	0.1	0.4
<b>Ont. (L)</b>	0.2	0.2	0.1	0.1	0.1	0.6
<b>Man. (H)</b>	0.0	0.0	0.0	0.0	0.0	3.0
<b>Man. (L)</b>	1.0	0.2	0.2	0.5	0.5	4.2
<b>Sask. (L)</b>	0.1	1.2	1.2	1.0	0.6	2.8
<b>Alta. (L)</b>	—	0.0	0.0	0.0	0.0	0.6
<b>B.C. (L)</b>	4.5	2.3	2.4	2.6	2.2	7.2
<b>Y.T. (L)</b>	4.2	3.1	1.0	2.3	1.0	2.2

### Notes

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

— Data not available.

H: Hospital-based facility.

L: Long-term care home.

### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

## Residents Without a Full Assessment

The Residents Without a Full Assessment indicator measures the percentage of URIs that had data submitted in the reporting fiscal year that were expected to have at least one full assessment submitted but for whom no full assessments were received. Residents who either were discharged before the organization started submitting to CCRS, were discharged within 14 days of being admitted or were admitted within 14 days of March 31 of the reporting year are excluded from this indicator, as they were not expected to be assessed.

The optimal value is 0%. It is assumed for the purposes of this indicator that the expected full assessment records are not in the database for 1 of 3 reasons: they were never completed, they were completed but not submitted to CIHI or they were rejected and never resubmitted.

This indicator relates to the capture and submit stages of the data life cycle and the quality dimension accuracy and reliability.

**Table 8** CCRS residents without a full assessment, by province/territory and year (%)

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
<b>N.L. (L)</b>	1.1	3.8	1.9	1.9	0.0	0.0
<b>N.S. (L)</b>	2.0	0.0	2.7	6.7	8.3	—
<b>N.B. (L)</b>	—	0.0	0.0	0.0	†	†
<b>Ont. (H)</b>	0.1	0.1	1.1	0.0	0.0	0.0
<b>Ont. (L)</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Man. (H)</b>	0.0	0.0	0.0	0.0	0.0	0.0
<b>Man. (L)</b>	0.3	0.3	0.3	0.3	0.2	0.7
<b>Sask. (L)</b>	—	0.0	0.9	0.7	0.8	0.8
<b>Alta. (L)</b>	—	0.6	0.3	0.1	0.2	0.1
<b>B.C. (L)</b>	1.6	0.9	0.8	0.7	1.4	0.9
<b>Y.T. (L)</b>	6.7	6.0	4.0	6.5	14.8	1.4

### Notes

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

— Data not available.

H: Hospital-based facility.

L: Long-term care home.

### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

## Late Submissions: Record Level

The Late Submissions: Record Level indicator is a measure of the timeliness of the province's/territory's data submission to CCRS. It calculates the percentage of records for a given year that are submitted after the Quarter 4 deadline.<sup>ix</sup> The optimal value is 0%.

This indicator relates to the capture and submit stages of the data life cycle and the quality dimension timeliness and punctuality.

**Table 9** CCRS record-level late submissions, by province/territory and year (%)

Province/territory	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
<b>N.L. (L)</b>	0.1	1.2	0.1	2.9	0.1	1.1
<b>N.S. (L)</b>	1.9	1.0	0.0	16.3	1.9	1.0
<b>N.B. (L)</b>	—	0.1	0.0	0.0	†	†
<b>Ont. (H)</b>	0.5	0.6	1.6	0.5	0.5	0.6
<b>Ont. (L)</b>	0.5	0.4	0.3	0.3	0.5	0.4
<b>Man. (H)</b>	0.6	1.5	0.6	0.2	0.6	1.5
<b>Man. (L)</b>	1.3	0.9	1.0	1.5	1.3	1.1
<b>Sask. (L)</b>	—	4.6	0.7	2.3	30.2	4.8
<b>Alta. (L)</b>	—	0.4	0.4	0.3	7.3	0.6
<b>B.C. (L)</b>	3.1	1.5	1.5	1.1	3.1	1.5
<b>Y.T. (L)</b>	0.6	0.1	0.8	0.2	0.6	0.1

### Notes

† In 2017–2018, New Brunswick implemented the interRAI LTCF.

— Data not available.

H: Hospital-based facility.

L: Long-term care home.

### Source

2018–2019: Continuing Care Reporting System, July 2019, Canadian Institute for Health Information.

## Reference

1. Hirdes JP, et al. [An evaluation of data quality in Canada's Continuing Care Reporting System \(CCRS\): Secondary analyses of Ontario data submitted between 1996 and 2011.](#) *BMC Medical Informatics and Decision Making*. 2013.

ix. Note that the methodology for this indicator differs from that used in the *Provincial/Territorial Data Quality Report: Indicators and Contextual Measures — Reference Guide* in that it calculates late submissions for the fiscal year rather than by quarter.



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