FAQ | August 2017

Continuing Care Quality Indicators FAQ

Canadian Institute for Health Information

Institut canadien d’information sur la santé

FAQ

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General topics

1. **What are continuing care quality indicators and where can I find them?**

   The Canadian Institute for Health Information's (CIHI's) continuing care quality indicators (QIs) measure selected aspects of quality of care delivered by continuing care facilities, including hospitals (complex continuing care facilities) and residential care facilities (long-term care or nursing homes) across Canada. The continuing care QI methodology is developed by interRAI and supported by CIHI. Although all continuing care data is collected at the facility level, indicators are reportable at facility, corporation, regional, provincial/territorial and national levels.

   You can find QI results in 3 main places online:

   - CIHI's eReporting application: The eReporting application is a secure and private online service that provides authorized users with the ability to view and analyze administrative and clinical Continuing Care Reporting System (CCRS) data. Quarterly and annual results for adjusted and unadjusted rates (including numerator and denominator counts) are available in CCRS eReports. These reports are updated on a quarterly basis. Access is restricted to authorized individuals from organizations or jurisdictions providing the data. Contact the CCRS team (ccrs@cihi.ca) for information about access to these reports.
   - CIHI's Your Health System (YHS) web tool: CIHI's public reporting tool includes an array of health system data on hospitals, long-term care facilities and the health of Canadians across the country. Long-Term Care indicators on YHS are updated each fall. You will find results for selected risk-adjusted QIs at the facility, corporation, regional, provincial/territorial and national levels.
   - CIHI's Quick Stats: These publicly available tables provide aggregate-level information about health care in Canada. Profiles of Residents in Continuing Care Facilities is updated annually, and risk-adjusted QI rates are reported here at the provincial level.

2. **Where can I find definitions for the quality indicators?**

   The summary table *Continuing Care Reporting System: Quality Indicators Definitions* provides a high-level description of each of the 35 CCRS indicators. Detailed information on selected continuing care quality indicators, including definitions and indicator-specific inclusion and exclusion criteria, is available in CIHI's Indicator Library.

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3. What are the different types of quality indicators?

Continuing care QIs include prevalence and incidence indicators.

- Prevalence indicators measure resident status at a given point in time (e.g., Experiencing Pain in Long-Term Care, Falls in the Last 30 Days in Long-Term Care).
- Incidence indicators measure change in resident function or status since the resident's previous assessment (e.g., Worsened Pressure Ulcer in Long-Term Care, Experiencing Worsened Pain in Long-Term Care).

4. What are unadjusted quality indicators?

Unadjusted QIs (also known as crude or raw rates) are the percentage results that come from a straight numerator/denominator calculation. Unadjusted results provide accurate information about the frequency of a quality of care outcome. They are best used to gauge performance over time within a facility. (See also question 5.)

5. How are unadjusted quality indicators calculated?

The formula to calculate an unadjusted QI is as follows:

Unadjusted QI = (numerator ÷ denominator) × 100

- The **numerator** is the total number of resident assessments meeting the QI criteria over 4 rolling consecutive fiscal quarters. Each indicator has unique criteria for its numerator. For a summary of these criteria, see *Continuing Care Reporting System: Quality Indicators Definitions*, available through the Support link in the CCRS eReports.
- The **denominator** is the total number of resident assessments over 4 consecutive fiscal quarters (also known as the total assessment volume). Only assessed residents at risk of triggering the QI or not otherwise excluded from the calculation will contribute to the denominator. Each resident contributes only 1 assessment per quarter to the indicator, for a maximum of 4 assessments per year. (For details about the general inclusion criteria, please refer to question 18.)

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6. **What are risk-adjusted quality indicators?**

   Risk-adjusted QI results are calculations that have been adjusted to help control for resident-specific characteristics that are beyond the control of the facility (e.g., age), which can impact quality-of-care metrics. Risk-adjusted QIs help make quality of care comparable between organizations and jurisdictions. Research and evidence-based risk-adjustment statistical methods are applied to the unadjusted data to account for population diversity, thereby enabling fairer comparison of facility results. CIHI's risk-adjustment methods incorporate direct and indirect standardization techniques. For full details on the risk-adjustment methodology, please refer to *CCRS Quality Indicators Risk-Adjustment Methodology*, available on CIHI's website.

Data interpretation

7. **What is the purpose of adjusted and unadjusted quality indicators, and which type should I use?**

   Unadjusted QIs: Unadjusted QIs give information about the actual frequency of a quality-of-care outcome. To get a sense of this frequency or to compare performance over time **within your facility**, use unadjusted QIs.

   Adjusted QIs: The risk-adjusted rates are best interpreted when comparing with risk-adjusted scores of **other facilities**. Risk adjustment removes some factors that are out of the control of the facility, allowing you to gauge your performance relative to that of other facilities. All of the QI results in Your Health System are risk-adjusted, because the tool is designed to promote comparisons with others. To improve comparability further, it may help to identify a peer group of similar facilities (e.g., similar size, case mix, urban/rural status) with which to compare risk-adjusted QIs.

8. **My adjusted rate is higher than my unadjusted rate; does this mean that my facility did worse than expected?**

   We do not recommend comparing unadjusted QI results with adjusted results to evaluate performance. Your adjusted QI is statistically weighted to treat your facility as though it has the same proportion of low-, medium- and high-risk residents as the standard reference population. (See question 11 for information on the standard reference population.) The populations referred to for the unadjusted and adjusted QI rates are not the same, and therefore those results should not be compared.

   Your unadjusted QI rate can be used to measure performance over time within your facility, as it provides information about the actual frequency of quality-of-care outcomes.

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9. Why is my adjusted quality indicator result blank in eReports?

The data used to calculate the risk-adjusted QI is the set of assessments in the denominator of the unadjusted QI. The risk-adjustment process requires a minimum amount of data to perform the calculation. Depending on the properties of the assessments included, this minimum amount can vary — but it's typically in the range of 20 to 30 assessments. If the number of assessments is insufficient to produce a statistically robust result, no adjusted QI is produced. (To learn more about the details of this methodology, refer to question 16.)

10. Does a 0% rate mean that my organization had no residents with this outcome?

A risk-adjusted rate of 0% does not mean that your organization has no residents for a given QI outcome. During the risk-adjustment process, 0% could be produced even if your organization has residents with a given QI outcome. We suggest that you look at the unadjusted QI rates for your facility to see the actual counts. (To learn more about this methodology, please refer to question 16.)

11. What is the "reference rate" metric in CCRS eReports?

The reference rate refers to the unadjusted QI rate observed in the standard reference population. The standard reference population consists of a sample of residents from more than 3,000 facilities in 6 U.S. states and 92 residential care facilities and continuing care hospitals in Ontario and Nova Scotia.

During the risk-adjustment process, all unadjusted QI results are modified as though each facility served a standard reference population, and the risk profile of an individual facility is compared with the profile of a standard reference population. The reference rate allows you to see the difference/similarity between the standard reference population and your facility.

12. Why is the annual quality indicator rate the same as the quarterly rate for Q4?

Since the continuing care QIs are calculated using 4 rolling consecutive quarters of data (see question 17), the QI rates for the fourth quarter of any fiscal year will be calculated using data from the previous 3 quarters (Q1 to Q3) and the current quarter (Q4). The quarterly rate for Q4 is identical to the annual QI rate for that fiscal year because the same quarters (Q1 to Q4) are included in the calculation.

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13. Why does my eReports quality indicator result sometimes change for a previous quarter?

eReports is updated quarterly based on the most up-to-date data received by CIHI, and older results are recalculated for each update. If historical data is submitted or corrections are resubmitted to CIHI, results may change.

14. Why does the quality indicator result sometimes differ between Your Health System, Quick Stats and eReports?

QI results in YHS and Quick Stats are updated annually, whereas eReports data is updated quarterly. The data from the most recent quarter is available in eReports about 2 to 3 weeks after the data submission deadline. If data corrections are submitted, they will be reflected in the quarterly updates of eReports. Consequently, you may notice slight differences in QI results.

15. How do I choose a peer to compare with in eReports or Your Health System?

There are a number of facility characteristics that can be used to define a peer group. You might look at organization size or urban/rural status, scale scores (e.g., level of cognitive impairment or physical functioning) or resident case mix.

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Methodology

16. How are the quality indicators risk-adjusted?

Continuing care QIs are adjusted using a 3-step process:

Step 1: Subdivide the facility population into risk groups and calculate unadjusted QI scores

a) Subdivide the facility population as well as the standard reference population into 3 risk groups (high, medium and low) based on either a Resident Assessment Instrument–Minimum Data Set 2.0 (RAI-MDS 2.0) © outcome scale or the Case Mix Index.

b) Calculate the unadjusted QI scores (numerator ÷ denominator × 100) for each risk group for both the facility and the standard reference population.

Step 2: Calculate expected QI scores for each risk group

a) Use regression models (based on the standard reference population) to predict the expected QI score for each risk group in the facility, based on a set of resident characteristics (called "individual covariates") specific to each QI (risk adjustment does not control for all factors that affect resident outcomes). For example, the individual covariates included in the regression model for the Percentage of Residents Whose Ability to Communicate Worsened QI are
   - Long-term memory problem;
   - Short-term memory problem; and
   - Age younger than 65.

Step 3: Create a single risk-adjusted QI score

a) For each risk group in the facility, divide the observed (unadjusted) QI score by the expected QI from the regression model to create a ratio. Multiply this ratio by the unadjusted QI score from the corresponding risk group in the standard reference population (calculated in step 1b) to create a risk-adjusted QI score.

b) Combine and re-weight the risk-adjusted QI scores from each risk group so that all facilities are treated as though they have the same distribution of residents among the 3 risk groups (and the same distribution as the standard reference population).

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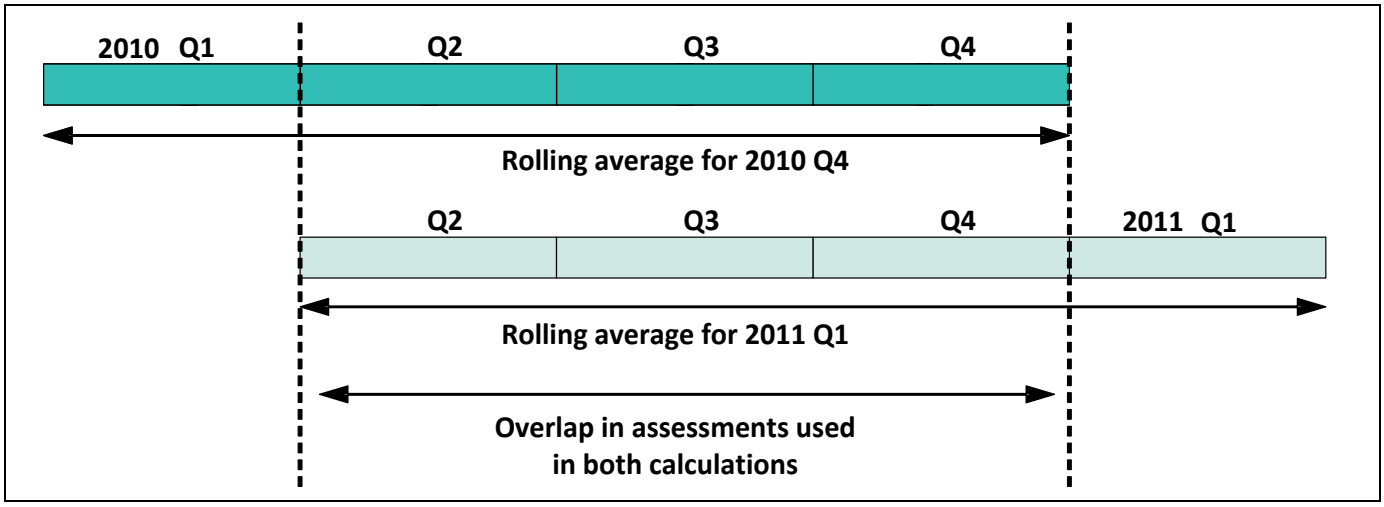
17. Why is the denominator so much larger than the number of residents in my organization?

The denominator is the total assessment volume over 4 rolling (consecutive) fiscal quarters.

Residents are assessed quarterly, for a maximum of 4 assessments per resident each year. This process ensures that most facilities have at least the minimum number of assessments required for applying risk-adjustment procedures. To calculate the **rolling** average, all assessments that meet the criteria for the numerator across the 4 quarters are summed together, as are the assessments that meet the criteria for the denominator. The unadjusted rate for the QI is then calculated. The diagram below illustrates how data is aggregated across 4 quarters for prevalence QIs.



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18. What are the general inclusion criteria for calculating quality indicators?

The general inclusion criteria for all **prevalence indicators** are the following:

- The assessment took place during the fiscal quarter of interest.
- The assessment is not an Admission Full Assessment.
- The Assessment Reference Date is more than 92 days after the Admission Date.
- The assessment is the last assessment in the quarter of interest for that resident.

The general inclusion criteria for all **incidence indicators** are the following:

- The resident has at least 2 assessments from consecutive fiscal quarters.
- The target assessment must meet the 3 general inclusion criteria for prevalence indicators (see above).
- The prior assessment must be the latest assessment completed in the previous quarter and between 45 and 165 days before the target assessment.

Individual indicators may have other specific inclusion or exclusion criteria. Please refer to *Continuing Care Reporting System: Quality Indicators Definitions* for details.

19. Why are admission assessments not used to calculate quality indicators?

QIs are intended to help measure the quality of care provided by an organization. Admission assessments are completed within the first 2 weeks after entry, and information captured at that point won't necessarily reflect quality of care. Consequently, the methodology excludes admission assessments from the QI calculations.

20. What resident characteristics are used in the risk adjustment?

CIHI's risk-adjustment methodology accounts for individual and facility-level characteristics (e.g., resident age group, the presence of specific diagnoses), and each QI is risk-adjusted differently. (For detailed information on risk-adjustment covariates, refer to *Continuing Care Reporting System: Quality Indicators Definitions*.) Please note that risk-adjustment accounts for several factors in the RAI-MDS 2.0 that are strongly correlated with triggering each QI, but it does not adjust for all possible risk factors (e.g., facility size, rural/urban classification). Therefore, it is helpful to choose a peer group of similar facilities for comparing your risk-adjusted QIs.

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21. What are the numerator and denominator for risk-adjusted rates? Why does CIHI's quality indicator result not match my facility's rate?

The risk-adjusted score is shown as a percentage because it is calculated from the unadjusted QI percentage.

However, dividing a numerator by a denominator is not part of the risk-adjustment calculation. So although both the unadjusted and adjusted QIs are expressed as percentages, only the unadjusted numbers can be said to have numerators and denominators. Although risk-adjusted rates are expressed as percentages, they do not represent actual frequency of outcomes for a facility.

22. Are additional residents excluded from the risk-adjustment process?

No, the risk-adjustment process does not exclude any additional residents when calculating the risk-adjusted rates. All exclusions are done prior to calculation of the unadjusted QI.

23. Can I compare CIHI's quality indicator results with quality indicator results released by other organizations?

Variations in data collection processes and indicator methodology mean that it may be difficult to draw conclusions when comparing results of CCRS indicators with results for other indicators developed for the continuing care sector, even if they sound similar. Caution should be exercised in these cases.

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Clinical questions

24. Do convalescent care or respite care beds feed into the quality indicator values?

As convalescent care and respite care beds are typically used for shorter-stay residents, residents admitted to these beds often have an admission assessment only prior to discharge. Admission assessments are not included in QI calculations, thus it is unlikely that residents in a convalescent or respite bed will contribute to an organization's QI results.

25. In my facility, there are residents who are on antipsychotic medication that renders them symptom-free of hallucinations and delusions. How does this affect my facility's result for the Potentially Inappropriate Use of Antipsychotics indicator?

Some residents' symptoms of hallucinations and delusions disappear with antipsychotic administration. Residents who experience these symptoms in the 7 days prior to the assessment period **are included** in the indicator calculation, unless they are excluded for other reasons. This indicator measures **potentially inappropriate** antipsychotic use and is intended to help organizations understand their own rates of potentially inappropriate use of antipsychotics, as well as how their rates compare with others.

26. Does the indicator Percentage of Residents Whose Stage 2 to 4 Pressure Ulcer Worsened refer to residents who had a stage 2 to 4 pressure ulcer at the time of their *previous* assessment that has gotten worse and is now being noted in a later assessment?

Residents included in the numerator for this indicator may have had either no pressure ulcer or a stage 2 to 3 pressure ulcer on their previous assessment; stage 4 ulcers on the previous assessment are excluded because the stage of pressure ulcer must be greater on the resident's target assessment than on their previous assessment. (For full information on the inclusion and exclusion criteria for this indicator, please refer to CIHI's Indicator Library.)

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Resources

a) Continuing Care Reporting System: Quality Indicators Definitions and CCRS Quality Indicator Bulletin
   - These links require a username and password for the CCRS eReports application.
   - Once you log in to CCRS eReports, please click the **Support link** on the launch page.

b) CIHI's Indicator Library

c) Continuing Care Reporting System (CCRS) RAI-MDS 2.0 Output Specifications Manual
   - This manual provides technical specifications for interRAI's standardized outputs that can be derived from the RAI-MDS 2.0. It includes details on assessments items used to calculate each QI.
   - This document is available in CIHI's eStore, which requires a username and password. To obtain a username and password, please send an email to help@cihi.ca.

d) CCRS Quality Indicators Risk-Adjustment Methodology

e) What Does "Adjusted" Mean? A Demonstration of QI Calculation in Nursing Homes

f) Abbreviations:
   - CCRS: Continuing Care Reporting System
   - QI: Quality indicator
   - RAI-MDS 2.0: Resident Assessment Instrument–Minimum Data Set 2.0
   - YHS: Your Health System
   - QS: Quick Stats

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