



Reference
Guide

Provincial/Territorial Data Quality Report

Indicators and Contextual Measures



Canadian Institute
for Health Information

Institut canadien
d'information sur la santé

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Introduction

The Canadian Institute for Health Information (CIHI) produces annual data quality reports to assess the contribution of each province and territory to 12 of CIHI's databases. These reports are shared with deputy ministers of health and key jurisdictional representatives across the country.

This reference guide describes the indicators and methodology used in the data quality reports. It can be used to help understand how CIHI tracks, monitors and reports changes in data quality on an annual basis. This guide also includes a glossary, which provides definitions of CIHI's dimensions of data quality used as the foundation for all indicators within this report, as well as a list of the acronyms and initialisms (spelled out) that appear in this guide.

Core data quality indicators

Core data quality indicators address fundamental quality concepts that are applicable to multiple databases and that can be measured in a similar way. Core data quality indicators will expand and adapt as improvements in data quality are made through reporting and other initiatives.



Relevance

Identifying information			
Name	Commitment to Participate		
Databases	CCRS, CJRR, CPERS, HCRS, NACRS (ED), NRS		
Indicator description and calculation			
Description	Indicates the level of commitment made by the province/territory to submit to the respective database		
Calculation description	<p>C: Complete data collection expected at the provincial/territorial level, through a mandate or other type of agreement</p> <p>P: Partial mandate or agreement (e.g., for only certain facilities and/or regional health authorities), representing partial data collection at the provincial/territorial level</p> <p>V: Voluntary submission with no commitment at the provincial/territorial level</p> <p>N: No commitment/mandate</p>		
Database-specific descriptions	<p>CCRS and HCRS: 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 (including long-term care or hospital-based continuing care services) or HCRS (home care services).</p> <p>CJRR: C is assigned to a province/territory that has indicated in writing that data submission to CJRR will be mandatory across the province/territory.</p> <p>CPERS: C is assigned to any province/territory that has committed to submit data to CPERS. Jurisdictions that have not committed to submit data to CPERS are assigned N.</p> <p>NACRS (ED): Provinces/territories that are submitting to NACRS at the time of report production are assigned C or P for this indicator. Remaining jurisdictions without any submissions to NACRS (ED) are assigned N.</p>		
Type of measure	Nominal variable		
Data quality assessment			
Optimal value	C		
Assessment range	Little or no data quality concerns C	Moderate data quality concerns P or V	Significant data quality concerns N



Relevance

Use, interpretation and limitations

Use	This indicator informs the pan-Canadian commitment of provinces/territories to participate in and provide data to the respective databases.
Interpretation	<p>The level of data submission varies regardless of the province's/territory's commitment to participate; therefore, actual coverage should be confirmed using the Completeness of Participation indicator.</p> <p>This indicator is not reported for the inpatient acute care and day surgery reports or for the CMDB since there is a long-standing mandate from all provinces and territories to submit hospital data to CIHI for these databases.</p>
Limitations	<p>A mandate or agreement by the province/territory is the first step. Implementing mandatory submission is complex, and it can take time to achieve 100% submissions.</p> <p>For jurisdictions assigned P, V or N, CIHI is engaged in ongoing discussions regarding expansion and implementation.</p>



Accuracy and reliability

Identifying information			
Name	Completeness of Participation: Organizations		
Databases	CCRS, CJRR, CORR, CPERS, HCRS, NRS		
Indicator description and calculation			
Description	The ratio of organizations participating in the respective database relative to the overall number of known organizations that were expected in that province/territory		
Calculation description	<p>A ÷ B, where</p> <p>A = the number of facilities/organizations that were participating in the respective database in the reporting year</p> <p>B = the total number of facilities/organizations that would be suitable for participation in the respective database in the reporting year</p>		
Database-specific descriptions	<p>Suitable for participation (B) is defined as follows:</p> <p>CCRS, HCRS and NRS: Provided through direct contact with the individual ministries of health and/or information provided on their websites.</p> <ul style="list-style-type: none"> For CCRS, if information that comes directly from the ministry is unavailable, then the number of facilities that have past submissions but that have not indicated that submissions are to cease is used. <p>CJRR: Determined by the number of facilities that submitted hip and knee replacement procedures to the DAD and NACRS (and the HMDB for Quebec). Data from Quebec obtained through the HMDB is based on the previous fiscal year if the most recent year of data is not available at the time these reports are generated.</p> <p>CORR: Provided through data submitters (e.g., provincial agency contacts).</p> <ul style="list-style-type: none"> CORR facilities are assessed by types of data submitted: dialysis facilities, transplant facilities and donor programs (organ procurement organizations). The indicator for CORR is based on facilities that submitted new registrations (not follow-up data) for the 3 different types of data expected. <p>CPERS: Determined by the number of facilities eligible for CPES-IC surveying that submitted inpatient care abstracts to the DAD.</p>		
Type of measure	Ratio		
Data quality assessment			
Optimal value	1		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 50–95%	Significant data quality concerns <50%
Use, interpretation and limitations			
Use	This information can be used at a jurisdictional level to assess current and potential participation in the respective databases. This indicator also reflects how the data may represent the actual level of coverage across Canada and relates to the goal of pan-Canadian reporting.		



Accuracy and reliability

Use, interpretation and limitations (cont'd)

<p>Interpretation</p>	<p>A numerator of 0 indicates that no organizations from that jurisdiction submitted data to the respective database, but the number of facilities/organizations in that jurisdiction is known and is represented in the denominator.</p> <p>Some organizations that began submitting to CCRS, HCRS and the NRS may have submitted only historical data. These organizations are considered out of scope for the numerator of this indicator.</p> <p>CORR: Independent health care facilities and satellite centres do not generally initiate new dialysis treatment and are excluded from this indicator. Only in-centre dialysis facilities that start new patients are included.</p> <p>NRS: Some jurisdictions report inpatient rehabilitation data to CIHI's Discharge Abstract Database (DAD) instead of or in addition to reporting to the NRS.</p>
<p>Limitations</p>	<p>Variations in the definition of designated rehabilitation beds, continuing care organizations and home care organizations, as well as missing information, may limit the ability to compare results between jurisdictions for the NRS, CCRS and HCRS databases. This indicator does not speak to the volume of data being submitted. The submission of 1 record or procedure is the minimum requirement for capture in the numerator.</p> <p>CJRR: There is mixed mandatory and voluntary submission across the country. Where voluntary, submission may be surgeon-based. This indicator does not suggest that all records have been submitted by each facility.</p>



Accuracy and reliability

Identifying information			
Name	Completeness of Participation: Records		
Databases	CJRR, CPCD, DAD/HMDB (AIC), DAD/NACRS (DS), NACRS (ED)		
Indicator description and calculation			
Description	The percentage of records submitted to the respective databases compared with the number expected/collected, by province/territory		
Calculation description	$A \div B$, where A = total number of records submitted in the reporting year B = total number of records expected/collected in the reporting year		
Database-specific descriptions	<p>CJRR: Reports on the total number of procedures submitted compared with the number expected. The expected number (B) is determined from the number of procedures submitted to the DAD/ NACRS (and the HMDB for Quebec). Note that bilateral procedures submitted to the DAD, NACRS and the HMDB are counted twice because each side of a bilateral replacement (i.e., left and right) is submitted to CJRR separately. Data from Quebec obtained through the HMDB is based on the previous fiscal year if the most recent year of data is not available at the time these reports are generated.</p> <p>CPCD: Reports on the number of costed abstracts reported to the CPCD compared with the number of clinical abstracts reported to CIHI's clinical databases. Results are provided separately for inpatient acute care data and ambulatory care data.</p> <p>DAD/HMDB (AIC) and DAD/NACRS (DS): Reports on the total number of records (acute inpatient care or day surgery) received for the reporting fiscal year by the database closure date of June 30 compared with the total number of records. The expected value (B) is confirmed by facilities.</p> <p>NACRS (ED): Reports on the total number of ED records received for the reporting fiscal year by the database closure date of June 30 compared with the number of records expected. For partially submitting jurisdictions, the expected value (B) is based on visits reported to the CMDB in the previous reporting fiscal year.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100 No optimal value for the CPCD*		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 50–95%	Significant data quality concerns <50%
Use, interpretation and limitations			
Use	Incomplete data coverage affects the utility of numerous CIHI analytical and reporting products. Provinces/territories and individual organizations find it valuable to have complete data for the purposes of benchmarking and performance comparison.		
Interpretation	<p>A low percentage indicates under-coverage for that jurisdiction and could limit the ability of the data to be used for the stated goals of that database.</p> <p>* There is no optimal value for this indicator for the CPCD because CIHI's vision is to obtain a representative sample of patient-level costs across Canada and across health service organization types.</p>		
Limitations	NACRS (ED): The denominator is based on visits reported to the CMDB in the previous reporting fiscal year. Given this, ED coverage is considered to be an estimate. The total number of ED visits can vary each fiscal year.		



Accuracy and reliability

Identifying information			
Name	Invalid/Inconsistent Demographics		
Databases	CCRS, NPDB, NPDUIS		
Indicator description and calculation			
Description	A measure of the amount of data that is submitted with invalid or inconsistent information in key demographic data elements		
Calculation description	$A \div B \times 100\%$, where A = the number of invalid or inconsistent values for that reporting year B = the total number of records examined for invalid or inconsistent data for that reporting year		
Database-specific descriptions	<p>CCRS includes the following data elements:</p> <ul style="list-style-type: none"> • Inconsistent Patient Sex • Inconsistent Patient Date of Birth <p>NPDB includes the following data elements:</p> <ul style="list-style-type: none"> • Invalid Physician Date of Birth • Invalid Physician Postal Code <p>NPDUIS includes the following data elements:</p> <ul style="list-style-type: none"> • Invalid Patient Birth Year: less than the current year by 130, or greater than the current year 		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <0.5%	Moderate data quality concerns 0.5–1%	Significant data quality concerns >1%
Use, interpretation and limitations			
Use	The indicator reflects the level of accuracy at the data entry and submission levels.		
Interpretation	Records received by CIHI that contain invalid or inconsistent values for key demographic data elements are accepted into the respective databases. These records are often excluded from data sets used for analytical and reporting purposes.		



Accuracy and reliability

Identifying information			
Name	Missing Longitudinal Record		
Databases	CCRS, CORR, NRS		
Indicator description and calculation			
Description	Percentage of longitudinal missing records by the database-specific annual data submission deadline		
Calculation description	$A \div B \times 100\%$, where A = the number of missing records B = total number of records submitted		
Database-specific descriptions	<p>CCRS: A = the number of unique registration identifiers that had activity in quarter 1, 2 or 3 of the reporting fiscal year, for whom data (i.e., assessment or discharge tracking form) was expected by CIHI but had not been submitted for at least one fiscal quarter as of the end of quarter 4 of the reporting fiscal year B = the total number of unique registration identifiers that had data submitted in the reporting fiscal year</p> <p>CORR: A = the number of dialysis patients whose follow-up data was expected but not submitted to CORR by the submission deadline for the reporting year B = the total number of prevalent dialysis patients (defined as the total number of patients receiving dialysis) as of the submission deadline for the reporting year</p> <p>NRS: A = the number of admission records with a date of admission between April 1 and March 31 of the previous fiscal year, without a corresponding discharge as of March 31 of the fiscal year reflected in this report B = the total number of admission records with a date of admission between April 1 and March 31 of the previous fiscal year</p> <p>Note: Unplanned discharges (Admission Class coded as 4) are excluded from the numerator and denominator.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <5%	Moderate data quality concerns 5–20%	Significant data quality concerns >20%



Accuracy and reliability

Use, interpretation and limitations

<p>Use</p>	<p>This indicator provides a measure of records that are potentially missing from the respective databases.</p> <p>CCRS: Facilities are expected to submit an assessment in each quarter the resident is in the facility 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). For some analytical purposes, these residents are assumed to have been discharged from the facility.</p> <p>NRS: Since most of the information in NRS comparative reports is based on paired admission and discharge records, admission records that do not have a corresponding discharge record are excluded from most analyses.</p>
<p>Interpretation</p>	<p>Higher values for this indicator are the result of a larger percentage of missing data for a province/territory. Assessing data collection and submission practices for possible improvements would be beneficial.</p> <p>It is assumed for the purposes of this indicator that the expected assessment, discharge or follow-up records are not in the database for 1 of 3 main reasons: they were never completed, they were completed but not submitted to CIHI or they were rejected and never resubmitted.</p>
<p>Limitations</p>	<p>It is possible that some of the residents who are assumed to have been discharged were still in the facility as of the end of the reporting fiscal year (e.g., June 1 for CCRS, May 15 for the NRS). In this case, individual values for missing discharge records may be slightly overestimated; however, the data quality issue remains within CCRS, as the person did not have an assessment submitted for that period.</p> <p>CCRS: This indicator does not evaluate other patterns of potentially missing assessments, such as if assessment records are submitted for a resident in quarter 1 and quarter 3 but not in quarter 2.</p> <p>CORR: The way in which nephrology services are organized in each of the provinces/territories dictates, in part, the way in which centres report to CORR. For example, in Alberta, the Northern and Southern Alberta Renal programs report as 2 distinct entities, while in most other provinces, hospitals that provide incident treatment to end-stage renal disease patients report directly to CORR. The number of facilities participating over time has varied, as annual participation in the follow-up is voluntary. Therefore, examining trends over time should be done with caution.</p>



Accuracy and reliability

Identifying information	
Name	Missing/Unknown Data Element–Level Characteristics
Databases	CORR, CPERS, NACRS (ED), NPDB, NPDUIS, NRS
Indicator description and calculation	
Description	The percentage of records with missing or unknown (including incomplete) information for selected data elements
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = the number of records with missing or unknown (including incomplete) information for identified data elements for the reporting year</p> <p>B = total number of records for the reporting year</p>
Database-specific descriptions	<p>CORR includes the following data elements in dialysis and transplant patient records:</p> <ul style="list-style-type: none"> • Residential Postal Code when incomplete or left blank • Race/Ethnic Origin when submitted as <i>unknown</i> or left blank • Diagnosis when Primary Renal Disease (for dialysis patient records) and primary diagnosis (for transplant patient records) is left blank or is submitted as <i>unknown</i> or <i>unspecified</i> <p>CPERS includes the following data element:</p> <ul style="list-style-type: none"> • Service Line (i.e., maternity, medical, surgical) when submitted as <i>unknown</i> or left blank <p>NACRS (ED) includes the following data elements:</p> <ul style="list-style-type: none"> • Triage Level when submitted as <i>unknown</i> • Date/Time of Physician Initial Assessment when submitted as <i>unknown</i> • Date/Time Patient Left ED (admitted) when submitted as <i>unknown</i> • Disposition Date/Time (non-admitted) when submitted as <i>unknown</i> <p>NPDB includes the following data elements:</p> <ul style="list-style-type: none"> • Physician Date of Birth when submitted as <i>unknown</i> • Place of MD Graduation when submitted as <i>unknown</i> • Physician Postal Code when blank spaces were submitted <p>NPDUIS includes the following data elements:</p> <ul style="list-style-type: none"> • Patient, Prescriber and Service Provider Postal Code when submitted as unknown (the last 3 digits are 9Z9 or 999) or left blank • Patient Birth Year when submitted as <i>unknown</i> or left blank • Patient Gender when submitted as <i>unknown</i> or left blank • Drug Product Claimed when the drug product could not be identified <p>NRS includes the following data elements:</p> <ul style="list-style-type: none"> • Referred to Facility Number when submitted as <i>unknown</i> <ul style="list-style-type: none"> – Total records (denominator) = complete patient episodes, including an admission and discharge record, where a valid value is expected for this data element • Date Ready for Admission when submitted as <i>unknown</i>
Type of measure	Percentage



Accuracy and reliability

Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <2%	Moderate data quality concerns 2–10%	Significant data quality concerns >10%
Use, interpretation and limitations			
Use	This indicator reflects the level of accuracy and completeness of the data provided for selected data elements.		
Interpretation	<p>Lower values for this indicator may reflect a lack of specificity and potential source of bias for demographic and regional analyses, comorbid conditions and/or clinical research, and also incomplete information of individual clients and providers.</p> <p>CORR: For transplant data, patients with dialysis or transplant records prior to the reporting year were excluded.</p> <p>CPERS: Service line identifies a branch of health care, a specialty or an administrative category the patient falls under.</p> <p>NACRS (ED): Triage level can be used to define patient populations by acuity. Date/Time of Physician Initial Assessment is used to calculate the indicator Wait Time for Physician Initial Assessment. Date/Time Patient Left ED is used to calculate Total Time Spent in Emergency Department for Admitted Patients. Date/Time Patient Left ED and Disposition Date/Time are both used to calculate Total Time Spent in Emergency Department for Non-Admitted Patients. High usage of <i>unknown</i> values when reporting these data elements will affect the accuracy, comparability and usefulness of information in the ED Wait Time Indicator reports.</p> <p>NPDUIS:</p> <ul style="list-style-type: none"> • Unknown postal codes limit the analysis of <ul style="list-style-type: none"> – Access to medications among regions within or across provinces/territories – Distance between where prescriptions are written and dispensed – Types of therapeutic conditions being treated with medications by urban versus rural locations or across similar regions in different provinces, etc. • Unknown patient birth years and genders affect the accuracy of analysis performed for medications that are age- and/or gender-specific, as these claims are excluded from these analyses (e.g., hormone replacement in women older than 65). • The drug identification number (DIN) or pseudo-DIN from a claim record is used to identify the drug or benefit being claimed, as well as to connect the record with a therapeutic category. Claims data with unidentified drugs affects the accuracy of disease-based analysis, sources of utilization, cost changes, etc. <p>NRS:</p> <ul style="list-style-type: none"> • Referred to Facility Number can be used to monitor the discharge patterns of participating facilities. An <i>unknown</i> value has limited value in terms of assessing referral patterns following discharge from inpatient rehabilitation. CIHI encourages participating facilities to submit unique facility numbers. • Date Ready for Admission is used to assess the time a person waits for inpatient rehabilitation, calculated as the time between the date ready for admission and the actual admission date. Since wait times are increasingly a key focus of accountability reporting across Canada, facilities with higher values of <i>unknown</i> for this data element are encouraged to review their practice of determining Date Ready for Admission. 		



Accuracy and reliability

Identifying information			
Name	Outstanding Hard Errors/Rejected Record Rate		
Databases	DAD/NACRS (AIC, DS, ED)		
Indicator description and calculation			
Description	The number of outstanding hard errors or rejected records in the database after closure		
Calculation description	<p>For the DAD and NACRS (including AIC, DS, ED)</p> $A \div B \times 10,000$, where A = total number of records that were rejected or had outstanding hard errors at database closure in the reporting year B = total number of records at database closure (including those that were rejected) in the reporting year		
Database-specific descriptions	<p>NACRS: When a submitted record generates a hard error, the entire record is rejected and not accepted into the database. Records that are not corrected and resubmitted are excluded from the database and subsequent CIHI reports, indicators and analyses. Outstanding rejected records are those that generated a hard error and had not been corrected by the closure date of June 30.</p> <p>DAD: A hard error on a record is replaced with Z and the rest of the record is accepted into the database. Facilities are encouraged to submit corrections to replace the hard error value of Z with a correct value. Records that did not pass edit checks and were not corrected by the closure date of June 30 are captured in the numerator.</p>		
Type of measure	Per 10,000 records		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <10 per 10,000	Moderate data quality concerns 10–20 per 10,000	Significant data quality concerns >20 per 10,000
Use, interpretation and limitations			
Use	This indicator provides information on the level of compliance with the rules of data collection and submission. This indicator also provides an indication of the errors (or missing data for NACRS) in the databases that are being used for reporting.		
Interpretation	<p>A high outstanding hard error/rejected record rate may indicate a need to improve the data correction process. Factors to consider include the number of provincial-/territorial-specific edits in the national database, vendor software programs, the extent of hard error edit checks present in the province's/territory's own internal systems, the need for additional coder education and staffing shortages that limit an institution's ability to undertake data quality initiatives.</p> <p>Institutions should be reviewing the CIHI Outstanding Hard Error Reports, Correction Deletion Abstract Status and Detailed Error files and correcting data on an ongoing basis throughout the fiscal year.</p>		
Limitations	A low error rate does not necessarily mean that all data is accurate. For example, a diagnostic health condition may be valid and pass edit checks, but it may still be an incorrect code due to incomplete chart information or a need for improved training of coding staff at the facility.		



Accuracy and reliability

Identifying information			
Name	Records Rejected Due to Hard Edits		
Databases	CCRS, CPCD, HCRS, NRS		
Indicator description and calculation			
Description	Percentage of submitted records that were rejected due to invalid data or other coding errors, which require resubmission by the participating facilities		
Calculation description	$A \div B \times 100\%$, where A = the number of records rejected in the reporting year B = the total number of records submitted in the reporting year		
Database-specific descriptions	Results are based on CCRS: Admission, full assessment, quarterly assessments and discharge records CPCD: Costed patient records; provided separately for inpatient acute care data and ambulatory care data HCRS: Assessments, admissions, discharges and client update records NRS: Admission, discharge and follow-up records		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <5%	Moderate data quality concerns 5–20%	Significant data quality concerns >20%
Use, interpretation and limitations			
Use	This indicator reflects the level of accuracy at the data entry and submission levels. In the data collection software used by the facility and then again during processing in the database at CIHI, records are run against a series of validation checks. Hard errors are reported to the facility for correction and resubmission.		
Interpretation	<p>A high rejected record rate may indicate a need to improve the data correction process. Factors to consider include the number of provincial-/territorial-specific edits in the national database; vendor software programs; the need for additional coder education; and staffing shortages that limit an institution's ability to undertake data quality initiatives.</p> <p>Institutions should be reviewing their data submission reports on an ongoing basis throughout the fiscal year.</p>		
Limitations	<p>1 or more data element-level hard errors may exist in any rejected record. This indicator looks at the percentage of records rejected and not the number of individual hard errors contained within them. As such, for the purpose of this indicator, a record with 1 data element-level hard error is treated in the same way as a record with multiple data element-level hard errors.</p> <p>A low error rate does not necessarily mean all data is accurate. For example, a diagnostic health condition may be valid and pass edit checks, but it may still be an incorrect code due to incomplete chart information or a need for improved training of coding staff at the facility.</p> <p>This indicator does not provide any information regarding the number of records that were corrected and resubmitted error-free following rejection.</p> <p>HCRS: This indicator cannot be calculated for Ontario and Manitoba, because they do not meet the current HCRS data standards.</p>		



Comparability and coherence

Identifying information			
Name	Availability of Health Care Number for Linkage		
Databases	CCRS, CJRR, CORR, CPERS, DAD/HMDB (AIC), DAD/HMDB/NACRS (DS), HCRS, NACRS (ED), NPDUIS, NRS		
Indicator description and calculation			
Description	The percentage of records by province/territory with a valid Health Care Number (HCN)		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = total number of records with a valid HCN</p> <p>B = total number of records in the respective database for that reporting year</p> <p>The method for identifying invalid HCNs is based on CIHI's corporate standard client linkage methodology and includes those that are</p> <ul style="list-style-type: none"> • Missing or unknown • Incorrectly formatted • The same for a child and mother • Used for administrative purposes and therefore not associated with an individual • Associated with multiple demographic profiles 		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >98%	Moderate data quality concerns 95–98%	Significant data quality concerns <95%
Use, interpretation and limitations			
Use	<p>This indicator assesses the extent to which records for a particular database for that province/territory have a unique HCN that can be used for linkage either within that database or with other databases for longitudinal analysis. The absence of unique, linkable HCN limits the ability to do linkage studies between databases, such as to follow people across the continuum of care.</p> <p>CPERS: HCN is also used in the development and application of methodologies (e.g., weighting and adjustments) that help ensure comparability of results, and it provides information on patient groups (e.g., maternity, medical, surgical) for targeting quality improvement efforts.</p>		
Interpretation	A low percentage may indicate a need to investigate patient registration practices and policies, processes for assigning newborn HCNs in institutions, Admission Discharge Transfer (ADT) System/abstracting interface issues and ministry processes for assigning HCNs.		



Comparability and coherence

Use, interpretation and limitations (cont'd)

Limitations

A missing HCN may be acceptable in some situations (e.g., First Nations, Armed Forces or out-of-country residents who do not have a provincial or territorial HCN).

Manitoba submits encrypted HCNs for those with a Manitoba health card and unencrypted HCNs for those with a health card from other provinces/territories. Therefore, this indicator does not account for the availability of HCNs for interprovincial linkages of cases where Manitoba patients travel to another province and receive treatment in a hospital outside of Manitoba. In these cases, linkages cannot be performed because one HCN is encrypted and the other is not. Non-Manitoba residents who receive services in Manitoba, however, are potentially linkable.

CORR: Receives unencrypted HCN from Quebec and Manitoba, whereas facilities and organizations within these provinces submit encrypted HCN to the HMDB and the DAD. Linkage is therefore not possible between CORR and these databases for all Quebec and Manitoba cases because of the lack of a common meaningless but unique number (MBUN).

CJRR: Receives unencrypted HCN from Quebec, whereas the DAD/HMDB receives data with pre-encrypted HCN for Quebec residents. Linkage is therefore not possible between CJRR and these databases for Quebec residents because of the lack of a common MBUN.



Comparability and coherence

Identifying information			
Name	Compliance With Submission Specifications		
Databases	HCRS, NPDUIS		
Indicator description and calculation			
Description	Indication of whether the data received from the province/territory meets the respective database's submission specifications and is subject to edit checks		
Calculation description	<p>Yes: Data was submitted according to database-specific submission specifications.</p> <p>Partial: Data required minor intervention at CIHI prior to meeting database-specific submission specifications.</p> <p>No: Data was not submitted according to database-specific submission specifications and/or required substantial manual intervention or manipulation by CIHI.</p>		
Database-specific descriptions	<p>HCRS: The partial concept does not apply because either HCRS data is submitted to the production system or it is not. There is no option for manual manipulation.</p> <p>NPDUIS: Compliance is assessed by the type of data submitted (claims and formulary).</p>		
Type of measure	Nominal		
Data quality assessment			
Optimal value	Yes		
Assessment range	Little or no data quality concerns Yes	Moderate data quality concerns Partial	Significant data quality concerns No
Use, interpretation and limitations			
Use	This indicator identifies provinces/territories for which data is electronically submitted according to the database-specific submission specifications. Electronic data submission supports comparable data across provinces/territories with no data manipulation required.		
Interpretation	<p>In jurisdictions where submitted formulary/coverage data does not meet the specifications, comparability of drug coverage information is reflected in the analysis.</p> <p>When claims data is received by and processed in the NPDUIS, a record for a drug not included by any plan/program is reported as having a benefit status at time of claim of <i>exception</i>. If the drug cannot be identified, the record is also identified as an unknown product. This reduces the comparability of trends across jurisdictions.</p>		
Limitations	<p>Manitoba does not submit a formal listing of Part III (Restricted) benefits for Formulary data in the NPDUIS. Manitoba does not submit HCRS administrative data.</p> <p>Ontario administrative data in HCRS is not always linkable to assessment data. This impacts the calculation of quality indicators, index calculations and episode allocations.</p>		

Timeliness and punctuality

Identifying information			
Name	Late Submissions: File Level		
Databases	CMDB, NPDB, NPDUIS		
Indicator description and calculation			
Description	A measure of the timeliness of the province's/territory's data submission to the respective database		
Calculation description	The number of days elapsed between the submission deadline and receipt of the files (i.e., post-deadline)		
Database-specific descriptions	<p>CMDB: Includes the total number of days elapsed after the annual submission deadline and annual resubmission deadline.</p> <p>NPDB: Includes the number of days elapsed after the scheduled date for receipt of</p> <ul style="list-style-type: none"> • The quarter 4 file (e.g., 30 File, 35 File) by May 1 for Newfoundland and Labrador, Manitoba and Saskatchewan, and by November 1 for the remaining jurisdictions excluding the Northwest Territories and Nunavut; and • The annual aggregate data file (e.g., the Annual Aggregate [and Specialty Level] Alternative Payment Program Files) by January 31. <p>NPDUIS: Includes results for 2 types of data (claims and formulary).</p> <ul style="list-style-type: none"> • The claims data submission deadline is greater than 1 month after the agreed upon submission date. • The formulary data submission deadline is greater than 3 months (or agreed upon interval) after the submission date. 		
Type of measure	Days (for NPDB and the CMDB) Percentage of files (for the NPDUIS)		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns 0	Moderate data quality concerns 1–30	Significant data quality concerns >30
Use, interpretation and limitations			
Use	Timely receipt of data is important to support the various reporting and analyses needs across CIHI databases. CIHI receives numerous requests to provide the most recent data available, and late data submissions have a direct impact on the release of data products needed by stakeholders, such as annual reports.		
Interpretation	Investigations into higher values should include assessing the awareness of the submission deadlines, the data submission process and the timeliness of complete data collection at a facility.		



Timeliness and punctuality

Use, interpretation and limitations (cont'd)

Limitations

NPDB:

- For quarter 4 file submission, elapsed days are not calculated for 25 File submissions, as this file is generally submitted on an annual basis by a minority of provinces/territories.
- For provinces/territories that submit data on a date of service basis, the scheduled date of submission is 7 months following the end of the quarter.
- For provinces/territories that submit data on a date of payment basis, the scheduled date of submission is 1 month following the end of the quarter.

NPDUIS: Within formulary data, the number of submissions or frequency of submissions is not a reflection of the number of benefit changes. CIHI may also receive updates via email or bulletins, or by monitoring program websites; these require extensive manual intervention and formatting in order to be submitted to the NPDUIS. Jurisdictions submitting formulary/coverage data that requires substantial manual intervention are encouraged to provide the data in a format that permits timelier updating.

Timeliness and punctuality

Identifying information			
Name	Late Submissions: Record Level		
Databases	CCRS, CJRR, CORR, HCRS, NRS		
Indicator description and calculation			
Description	A measure of the timeliness of the province's/territory's data submission to the respective database		
Calculation description	<p>The percentage of records submitted after the submission deadline</p> $A \div B \times 100\%$, where <ul style="list-style-type: none"> A = the number of records submitted after the annual or quarterly submission deadline B = the total number of records submitted within the reporting year or quarter 		
Database-specific descriptions	<p>CCRS: Based on quarterly submission deadlines. The number of records in the numerator and denominator includes admission, assessment and discharge records.</p> <p>Quarter 4 submission deadline = May 31 of the previous fiscal year. The data is extracted from the database the next day.</p> <p>CJRR: Based on the annual submission deadline of May 31</p> <p>CORR: Includes results for 2 types of registration record data (dialysis and transplant), based on the year-end submission deadline</p> <p>HCRS: Based on quarterly submission deadlines. The number of records in the numerator and denominator includes admission, assessment and service detail and discharge records.</p> <p>Quarter 4 submission deadline = May 31 of the previous fiscal year. The data is extracted from the database the next day.</p> <p>NRS: Based on quarterly submission deadlines. The number of records in the numerator and denominator includes only discharge records.</p> <p>Quarter 4 submission deadline = May 15 of the previous fiscal year.</p> <p>Note: Late submissions are not applicable to the DAD/HMDB and NACRS as these databases close and therefore records cannot be submitted after the closure date for that year. Several of the above-mentioned databases are longitudinal in nature and remain open to allow for historical data to be submitted at any time.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <5%	Moderate data quality concerns 5–20%	Significant data quality concerns >20%



Timeliness and punctuality

Use, interpretation and limitations

Use	<p>Timely receipt of data is important to support the various reporting and analyses needs across CIHI databases. CIHI receives numerous requests to provide the most recent data available, and late quarter 4 data submissions have a direct impact on the release of data products needed by stakeholders, such as annual reports.</p> <p>For databases that report late submissions on a quarterly basis (CCRS, HCRS, NRS), records submitted after the quarterly submission deadline are not included in the detailed quarterly eReporting application produced for that quarter.</p> <p>Tracking this indicator over time allows for the identification of potential issues with timeliness and provides an idea of the amount of potential data that is not included in quarterly or annual reports.</p>
Interpretation	<p>The optimal value is 0%, indicating that all records were submitted to the respective database before the quarterly or year-end submission deadline. A positive value indicates that a portion of data was submitted late. When data is not current, data requestors must seek other sources for updated data.</p> <p>Investigations into late submissions should include assessing the awareness of submission deadlines, the data submission process and the timeliness of complete data collection at a facility.</p> <p>While CJRR's official submission deadline is May 31 (2 months after fiscal year end), it should be noted that some data providers submit the records as soon as the surgeries are completed, while others do so after the patients have been discharged (in keeping with DAD submission timelines). These differences in practice can contribute to submissions taking place after the deadline.</p>
Limitations	<p>All databases included in this indicator are always open, and data can be accepted at any time provided that it meets that year's format specifications.</p> <p>CJRR: A submitting organization may include data from more than one province in a file, which would influence the timeliness results in the associated provinces.</p> <p>CORR: This indicator is based on the number of records submitted late, even if the record contains missing information. Records not received are not included in this calculation; therefore, this indicator should be interpreted relative to Completeness of Participation: Organizations. CORR continues to work with data providers and accepts data after submission cut-offs to ensure reporting completeness.</p>

Database-specific quality indicators

Database-specific quality indicators are those that address quality concepts that are unique to a particular database at CIHI.

Relevance

Identifying information			
Name	Organization-Level ResultSuppressions for Publicly Reported ED Wait Time for Physician Assessment		
Database	NACRS (ED)		
Indicator description and calculation			
Description	The percentage of organizations for which the ED Wait Time for Physician Assessment results are suppressed in CIHI's Your Health System: In Depth public reporting tool due to data quality issues		
Calculation description	$A \div B \times 100\%$, where A = total number of organizations for which the ED Wait Time for Physician Assessment results are suppressed due to data quality issues B = total number of organizations submitting ED records to NACRS		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <5%	Moderate data quality concerns 5–50%	Significant data quality concerns >50%
Use, interpretation and limitations			
Use	<p>This indicator can be used to monitor and improve the usability of NACRS data for public reporting. High percentages of organization-level result suppressions for public reporting impact the comparability and usefulness of this information.</p> <p>ED Wait Time for Physician Assessment measures the time interval between the earlier of triage date/time or registration date/time and the date/time of physician initial assessment in the emergency department. It can be used to monitor the time patients spend in the ED in an effort to improve the efficiency and, ultimately, the outcome of patient care.</p>		
Interpretation	<p>Organization-level results for ED Wait Time for Physician Assessment are suppressed when more than 25% of their eligible records could not be used in the calculation of the indicator due to known data quality issues, such as missing or inaccurate field values and/or missing records.</p> <p>Registration Date/Time, Triage Date/Time and Date/Time of Physician Initial Assessment are used to calculate ED Wait Time for Physician Assessment. Organizations should be reviewing CIHI eNACRS Data Quality Shared Reports to monitor the frequency of <i>unknown</i> values reported for these data elements as well as correcting data, when applicable, during the fiscal year to facilitate inclusion in public reporting.</p>		



Relevance

Identifying information			
Name	Organization-Level Result Suppressions for Publicly Reported Total Time Spent in ED for Admitted Patients		
Database	NACRS (ED)		
Indicator description and calculation			
Description	The percentage of organizations for which the Total Time Spent in ED for Admitted Patients results are suppressed in CIHI's Your Health System: In Depth public reporting tool due to data quality issues		
Calculation description	$A \div B \times 100\%$, where A = total number of organizations for which the Total Time Spent in ED for Admitted Patients results are suppressed due to data quality issues B = total number of organizations submitting ED records to NACRS		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <5%	Moderate data quality concerns 5–50%	Significant data quality concerns >50%
Use, interpretation and limitations			
Use	<p>This indicator can be used to monitor and improve the usability of NACRS data for public reporting. High percentages of organization-level result suppressions for public reporting impact the comparability and usefulness of this information.</p> <p>Total Time Spent in ED for Admitted Patients measures the time interval between the earlier of triage date/time or registration date/time and the date/time when a patient is admitted and leaves the emergency department. It can be used to monitor the total length of time admitted patients spend in the ED in an effort to improve the efficiency and, ultimately, the outcome of patient care.</p>		
Interpretation	<p>Organization-level results for Total Time Spent in ED for Admitted Patients may be suppressed when more than 25% of the organization's eligible records could not be used in the calculation of the indicator due to known data quality issues, such as missing or inaccurate field values and/or missing records.</p> <p>Registration Date/Time, Triage Date/Time, Date/Time Patient Left ED and Disposition Date/Time are used to calculate Time Spent in ED. Organizations should be reviewing CIHI eNACRS Data Quality Shared Reports to monitor the frequency of <i>unknown</i> values reported as well as correcting data, when applicable, during the fiscal year to facilitate inclusion in public reporting.</p>		



Accuracy and reliability

Identifying information			
Name	Accuracy Rate of Claims Data		
Database	NPDUIS		
Indicator description and calculation			
Description	The percentage difference between data held in the NPDUIS and data held by the province/territory for key data elements		
Calculation description	<p>$(A - B) \div A \times 100\%$, where</p> <p>A = total number of claims/patients/amount paid in the NPDUIS for the reporting year</p> <p>B = total number of claims/patients/amount paid as held by a province/territory for the reporting year</p> <p>Results are provided separately for number of claims, number of patients and total amount paid.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	±3		
Assessment range	Little or no data quality concerns 0–±3%	Moderate data quality concerns ±3.1–5%	Significant data quality concerns ±5.1%
Use, interpretation and limitations			
Use	This indicator measures the comparability between the number of claims, the number of patients and the total amount paid by the plan/program based on data in the NPDUIS compared to the corresponding data held by a province/territory.		
Interpretation	Significant differences between the NPDUIS and province/territory data must be analyzed to understand where data may not be comparable and the sources of these differences.		
Limitations	<p>Formularies and claims administered outside of the public drug plan/program (e.g., through hospital-based programs or cancer agencies) are not submitted to the NPDUIS.</p> <p>The following limitations are specific to certain provinces/territories:</p> <ul style="list-style-type: none"> • Prince Edward Island: Claims financed through plans/programs other than the following are not submitted: Child in Care/Financial Assistance, Seniors Drug Cost Assistance, Diabetes Control, Family Health Benefits, High Cost Drugs, Nursing Home, Quit Smoking and Sexually Transmitted Diseases. Claims dispensed to residents of government manors (i.e., publicly owned nursing homes) are not submitted. • Nova Scotia: Claims financed through the Department of Community Services Drug Programs are not submitted. • Saskatchewan: Claims financed through Saskatchewan Aids for Independent Living and Supplementary Health benefits are included only if the drug products are published in the Saskatchewan Health drug plan formulary. • Alberta: Claims financed through plans/programs other than the following are not submitted: Non-Group Prescription Drug Coverage, Seniors and Alberta Widows' Pension and Palliative Care Drug. Claims dispensed to residents of long-term care facilities are not submitted. 		



Accuracy and reliability

Identifying information			
Name	Assessed Long-Term Clients		
Database	HCRS		
Indicator description and calculation			
Description	Percentage of admitted long-term home care clients who were assessed in the reporting fiscal year		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = the number of unique long-term/maintenance clients who were admitted (i.e., admission records were submitted) in the reporting fiscal year, and a RAI-HC[©] assessment was submitted by the end of quarter 4 of the reporting fiscal year</p> <p>Note: This numerator includes clients who were discharged in the reporting fiscal year.</p> <p>B = the total number of unique long-term/maintenance clients who were admitted (i.e., admission records were submitted) in the reporting fiscal year</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >75%	Moderate data quality concerns 25–75%	Significant data quality concerns <25%
Use, interpretation and limitations			
Use	This indicator's intent is to demonstrate whether the province's/territory's practice of whom they assess matches CIHI's expectations. If a high percentage of clients are assessed but CIHI has no expectation of an assessment, this may indicate that the province's/territory's rules of client grouping differ from CIHI standards.		
Interpretation	The calculation includes the long-term/maintenance clients for whom assessments are expected within 14 days after the client is admitted to home care.		
Limitations	<p>The Date of Acceptance to Home Care (X6) is used to calculate Number of Admitted Long-Term Home Care Clients. However, the Date of Acceptance to Home Care (X6) is not a required field for HCRS. Newfoundland and Labrador does not submit this data element, and British Columbia submits this for 2 out of 5 regions. Therefore, when Date of Acceptance to Home Care (X6) is not available, Date Case Opened (CC1) is used to calculate the percentage for Assessed Clients.</p> <p>If a client was admitted in a previous fiscal year and was assessed in the current fiscal year, he or she is not included in the calculation of this indicator.</p>		



Accuracy and reliability

Identifying information			
Name	Availability of Data for Calculation of Day Surgery Length of Stay		
Databases	DAD/HMDB/NACRS (DS)		
Indicator description and calculation			
Description	The percentage of day surgery records with valid data needed to calculate day surgery length of stay (LOS)		
Calculation description	$A \div B \times 100\%$, where A = total number of day surgery records in the database after closure with a valid value for day surgery LOS for the reporting year B = total number of day surgery records at database closure for the reporting year		
Database-specific descriptions	<p>For DAD/HMDB day surgery records, the LOS is the difference, in hours, between the Admission Date/Time and Discharge Date/Time. The day surgery LOS cannot be calculated if either the Admission Time or Discharge Time is unknown.</p> <p>For NACRS day surgery records, the LOS is the difference, in hours, between the Disposition Date/Time and Registration Date/Time or Triage Date/Time, whichever comes first and has a valid value. The day surgery LOS cannot be calculated if 1 or more of these data elements are unknown: Registration Time, Triage Time or Disposition Time.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 90–95%	Significant data quality concerns <90%
Use, interpretation and limitations			
Use	This indicator can be used to monitor and improve accuracy and completeness of day surgery data in the DAD/HMDB and NACRS.		
Interpretation	Low availability of data for calculation of LOS may indicate a need to improve the data collection process or clinical documentation. High usage of <i>unknown</i> values when reporting the data elements used to calculate the LOS will impact accuracy, comparability and usefulness of information using day surgery data.		
Limitations	A low percentage of missing or invalid LOS does not necessarily mean that all data is accurate. This indicator simply reports on the frequency of known values.		



Accuracy and reliability

Identifying information	
Name	Completeness of Death Reporting
Database	CORR
Indicator description and calculation	
Description	The percentage of death records submitted by participating facilities compared with the number expected, by province/territory
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = number of deaths submitted by participating facilities in the reporting year</p> <p>B = total number of deaths in the closed CORR database for the reporting year</p> <p>The number of deaths in the closed database is determined by submitted death records and through linkage between CORR and DAD inpatient hospital records. Indicator is calculated separately for dialysis facilities and transplant facilities.</p>
Type of measure	Percentage
Data quality assessment	
Optimal value	100
Use, interpretation and limitations	
Use	CORR is a longitudinal database that follows patients from first treatment for renal replacement therapy or extra-renal transplant until death. Capturing complete information on patient deaths is essential for providing accurate information on patient outcomes, a key use of CORR data.
Interpretation	This indicator assesses the extent to which facilities are submitting complete information on patient death. A lower percentage indicates under-reporting of this data, which leads to over-estimation of survival statistics.
Limitations	<ul style="list-style-type: none"> • A high completion rate does not necessarily mean that all mortality information is complete. The DAD captures in-hospital deaths only. Deaths outside of the acute inpatient setting may still be under-reported. • There may be specific scenarios where patient deaths are not known because the patient is lost to follow-up (e.g., the patient withdraws from treatment and moves to a different province). • The indicator is not available for Quebec and Manitoba. CORR receives unencrypted HCN from Quebec and Manitoba, whereas facilities and organizations within these provinces submit encrypted HCN for acute inpatient records to CIHI. Linkage between CORR and acute inpatient records is not possible for Quebec and Manitoba cases because of the lack of a common patient identifier.



Accuracy and reliability

Identifying information			
Name	Compliance With Minimum Financial Reporting Requirements		
Database	CMDB		
Indicator description and calculation			
Description	Primarily a measure of the province's/territory's adherence to the management information system (MIS) minimum financial reporting requirements		
Calculation description	<p>The indicator is calculated as an arithmetic average of the following 2 components:</p> <ul style="list-style-type: none"> • The percentage of expenses that are compliant with minimum reporting requirements • The percentage of revenues that are compliant with minimum reporting requirements 		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns ≥75%	Moderate data quality concerns 65–74.9%	Significant data quality concerns <65%
Use, interpretation and limitations			
Interpretation	<p>The percentage of expenses reported in minimum primary and secondary financial accounts reflects the percentage of expenses reported in valid MIS primary and secondary accounts that meet the MIS minimum reporting requirements.</p> <p>The percentage of revenues reported in minimum secondary financial accounts reflects the percentage of revenues reported in valid MIS secondary accounts that meet the MIS minimum reporting requirements.</p>		
Limitations	The results are based on MIS minimum reporting requirements and can be affected by the mapping of provincial/territorial charts of accounts to the MIS Standards by the province/territory.		



Accuracy and reliability

Identifying information			
Name	Compliance With Minimum Statistical Reporting in Core Functional Centres		
Database	CMDB		
Indicator description and calculation			
Description	A measure of the province's/territory's adherence to the management information system (MIS) minimum statistical reporting requirements		
Calculation description	<p>The indicator is calculated as a weighted average (weighted by expenses) of the noted components:</p> <ul style="list-style-type: none"> • The percentage of compliant expenses that also comply with the reporting of Workload Units (for all patient care functional centres) • The percentage of compliant expenses that also comply with the reporting of Earned Hours (for all functional centres) • The percentage of compliant expenses that also comply with the reporting of Inpatient Days (for all inpatient care functional centres [hospital report]) and Resident Days (for all community residential functional centres [non-hospital report]) • The percentage of compliant expenses that also comply with the reporting of Procedures/Exams/Interventions (for Diagnostic Services) • The percentage of compliant expenses that also comply with the reporting of Surgical Visits (for Operating Rooms) • The percentage of compliant expenses that also comply with the reporting of Post-Anesthetic Recovery Room Visits (for Post-Anesthetic Recovery Room and Day Surgery Post-Anesthetic Recovery Room) • The percentage of compliant expenses that also comply with the reporting of Face-to-Face Visits (for Ambulatory Care Services) • The percentage of compliant expenses that also comply with the reporting of Attendance Days (for Therapeutic Services) • The percentage of compliant expenses that also comply with the reporting of Beds and Bassinets Staffed and In Operation (hospital report only) 		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns ≥85%	Moderate data quality concerns 50–84.9%	Significant data quality concerns <50%
Use, interpretation and limitations			
Use	This indicator assesses the reporting of key MIS statistical data in the corresponding MIS functional centres, as stipulated by the CMDB's minimum statistical reporting requirements.		
Limitations	Results can be affected by the mapping of provincial/territorial charts of accounts to the MIS Standards by the province/territory. Results are based only on CMDB data that was compliant with the Chart of Accounts.		



Accuracy and reliability

Identifying information			
Name	Consistency of Data Submission		
Database	CPCD		
Indicator description and calculation			
Description	Measures the fluctuation in participation of costing sites between the previous year and the current year		
Calculation description	<p>The decrease in participation is calculated by counting the number of sites that submitted data in the previous year but not in the current year. Conversely, the increase in participation is calculated by counting the number of sites that submitted data in the current year but not in the previous year.</p> <p>Results are provided separately for inpatient acute care and ambulatory care data.</p>		
Type of measure	Count		
Data quality assessment			
Optimal value	A decrease in participation is 0. No optimal value for the increase in participation.		
Assessment range	Little or no data quality concerns 0	Moderate data quality concerns 1–5	Significant data quality concerns >5
Use, interpretation and limitations			
Use	Costing is a resource-intensive activity, thus it is important to be aware of sites that discontinue participation. Cost data is extremely valuable, both for improved local decision-making and for CIHI, as CIHI relies on this data to calculate Resource Intensity Weights and other measures. Therefore, monitoring sites to promote ongoing participation is critical.		
Interpretation	The number of sites is counted using unique DAD and NACRS institution numbers. Participation changes due to sites merging, splitting, closing or reporting under new institution numbers are excluded from this indicator.		
Limitations	This indicator does not provide information about changes to the volume of costing records as a result of participation changes.		



Accuracy and reliability

Identifying information			
Name	Coverage of Costed Abstracts: Submitting Organizations		
Database	CPCD		
Indicator description and calculation			
Description	A measure of coverage that examines whether costing sites are costing all of their clinical abstracts		
Calculation description	$(A \div B) \times 100$, where A = number of costed abstracts reported to the CPCD B = number of clinical abstracts reported to CIHI's clinical databases by the costing sites Results are provided separately for inpatient acute care data and ambulatory care data.		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 50–95%	Significant data quality concerns <50%
Use, interpretation and limitations			
Use	This indicator determines whether all clinical abstracts reported to CIHI within costing sites are being costed and submitted to the CPCD. It can be used to help identify areas or sites where coverage of costed abstracts is incomplete.		
Limitations	This indicator compares the number of costed abstracts with the number of clinical abstracts; it does not evaluate the accuracy of the costs submitted by each costing site.		



Accuracy and reliability

Identifying information	
Name	Expenses Identified as Regional
Database	CMDB
Indicator description and calculation	
Description	Primarily a measure of the province's/territory's expenses that have been identified as regional expenses, and that may or may not get allocated to individual organizations
Calculation description	The percentage of expenses that are in regional organizations or in other organizations but identified as regional expenses
Type of measure	Percentage
Data quality assessment	
Optimal value	0
Use, interpretation and limitations	
Interpretation	The percentage of expenses in regional organizations, or in other organizations but identified as regional expenses, that may or may not be allocated to individual organizations
Limitations	The results are based on the management information system (MIS) minimum reporting requirements and can be affected by the mapping of provincial/territorial charts of accounts to the MIS Standards by the province/territory.



Accuracy and reliability

Identifying information	
Name	Expenses in Clearing Accounts
Database	CMDB
Indicator description and calculation	
Description	Primarily a measure of the province's/territory's adherence to the management information system (MIS) minimum financial reporting requirements
Calculation description	The percentage of expenses that are in clearing accounts
Type of measure	Percentage
Data quality assessment	
Optimal value	0
Use, interpretation and limitations	
Interpretation	The percentage of expenses in a clearing account reflects the percentage of expenses that remain in clearing accounts upon reporting.
Limitations	The results are based on MIS minimum reporting requirements and can be affected by the mapping of provincial/territorial charts of accounts to the MIS Standards by the province/territory.



Accuracy and reliability

Identifying information			
Name	Facilities With Incomplete Coding of Pre-Admit Comorbid Health Conditions		
Database	NRS		
Indicator description and calculation			
Description	Number of participating facilities that had Pre-Admit Comorbid Health Conditions recorded in less than 80% of episodes		
Calculation description	<p>A ÷ B, where</p> <p>A = the number of participating facilities that had less than 80% of episodes with Pre-Admit Comorbid Health Conditions recorded</p> <p>B = the total number of participating facilities</p>		
Type of measure	Ratio		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns 0%	Moderate data quality concerns 0.1–50%	Significant data quality concerns >50%
Use, interpretation and limitations			
Use	<p>In the NRS, Pre-Admit Comorbid Health Conditions is used to document the existing health conditions present at the time of admission to the rehabilitation facility/unit that will affect the person's health/functional status and resource requirements during the rehabilitation stay. Although it may be valid to not record any pre-admit comorbid health conditions for some episodes, a high prevalence of blank values for this data element raises data quality concerns and may limit analysis.</p>		
Interpretation	<p>A province/territory where facilities have no or incomplete coding of Pre-Admit Comorbid Health Conditions for their clients raises concerns about coding practices. The 80% threshold was determined based on outlier analysis of the distribution of available Pre-Admit Comorbid Health Conditions data.</p> <p>More accurate capture of comorbid health conditions will enhance data quality and analysis capabilities.</p>		
Limitations	<p>This indicator does not identify whether facilities code all relevant pre-admit comorbid health conditions. As long as a facility reports at least one pre-admit comorbid health condition for 80% or more of its completed episodes, the facility is not counted in the numerator.</p>		



Accuracy and reliability

Identifying information			
Name	Facility Non-Response Rate		
Database	NRS		
Indicator description and calculation			
Description	The number of participating facilities that did not submit any client records for at least one fiscal quarter for which an NRS submission was expected		
Calculation description	$A \div B \times 100\%$, where A = the number of facilities that did not submit any client records for at least one quarter that they were expected to B = the number of facilities expected to submit data in the reporting fiscal year		
Type of measure	Ratio		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns 0%	Moderate data quality concerns 0.1–20%	Significant data quality concerns >20%
Use, interpretation and limitations			
Use	This result provides an indication of the number of known rehabilitation facilities within a province/territory that are reporting data to the NRS as expected by CIHI. The denominator includes those facilities that submitted data in the previous year and were expected to submit in the reporting fiscal year. This information can be used to assess current and potential NRS participation. The denominator used in this indicator may differ from the numerator of the Completeness of Participation indicator in that it considers those facilities that have committed to participate in the NRS, rather than all those that submitted data in the reporting fiscal year.		
Interpretation	A value greater than 0% indicates that 1 or more facilities in the NRS frame did not submit any client records for 1 or more of the quarters in which they were expected to submit data.		
Limitations	The indicator does not specify possible underlying reasons for sub-optimal submission levels. Lack of data submission due to temporary closure of a rehabilitation unit may have different implications than a lack of submission for a rehabilitation facility that lacks the resources to consistently submit data to the NRS. The indicator measures facility-level non-participation. The values do not indicate the extent to which the facilities submitted data on all or just a portion of their rehabilitation clients.		



Accuracy and reliability

Identifying information			
Name	Inactive Drug Identification Numbers (DINs)		
Database	NPDUIS		
Indicator description and calculation			
Description	The percentage of drug products that have had claims accepted by a province/territory more than 2 years after Health Canada's reported inactive market date		
Calculation description	$A \div B \times 100\%$, where A = number of drug products that have been inactive/discontinued for 2 years or more with claims accepted by at least one drug plan/program B = total number of drug products with claims accepted by at least one drug plan/program		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <1%	Moderate data quality concerns 1–25%	Significant data quality concerns >25%
Use, interpretation and limitations			
Use	This indicator is used to assess the currency of the drug claim information relative to the DIN status reported by Health Canada.		
Interpretation	<p>Values greater than 0% indicate the percentage of inactive/discontinued DINs covered that are eligible as benefits.</p> <p>The 2-year time frame is permitted to allow for the depletion of inventory by pharmacies, replacement of inventory with products with current DINs and, where appropriate, for clients to seek alternative treatment.</p> <p>Claims data for drug products that are no longer on the market is not considered accurate and could have an impact on utilization analysis.</p>		
Limitations	Natural health products, as defined by Health Canada, were removed from the Health Canada Drug Product Database in 2008; therefore, they are not reported in the NPDUIS. As a result, natural health products are not included in the calculation of this indicator.		



Accuracy and reliability

Identifying information			
Name	Reporting of Nursing Costs for Inpatient Services		
Database	CPCD		
Indicator description and calculation			
Description	Percentage of inpatient costed abstracts where inpatient or emergency department nursing costs are reported in the analytical data set		
Calculation description	$(A \div B) \times 100$, where A = number of inpatient abstracts where costs are reported in an inpatient or emergency department nursing functional centre B = number of inpatient abstracts submitted to the CPCD		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 90–95%	Significant data quality concerns <90%
Use, interpretation and limitations			
Use	This indicator can be used to ensure that nursing costs are routinely being reported for all inpatient abstracts.		
Limitations	This indicator measures the volume of abstracts for which inpatient nursing costs are being reported; it does not measure the accuracy of those nursing costs nor the completeness of costs reported for those abstracts.		



Accuracy and reliability

Identifying information			
Name	Residents Without a Full Assessment		
Database	CCRS		
Indicator description and calculation			
Description	Percentage of unique registration identifiers 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		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = total number of unique registration identifiers that were expected to have at least one full assessment submitted but no full assessments were received</p> <p>B = total number of unique registration identifiers that were expected to have at least one full assessment submitted</p> <p>Residents who either were discharged before the facility 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.</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	0		
Assessment range	Little or no data quality concerns <2%	Moderate data quality concerns 2–5%	Significant data quality concerns >5%
Use, interpretation and limitations			
Use	This indicator presents information on residents who were expected to have a full RAI-MDS 2.0© assessment submitted to CCRS. A full assessment is expected on admission (within 14 days of admission) and on the anniversary of this initial assessment.		
Interpretation	It is assumed for the purposes of this indicator that the expected full assessment records are not in the database for one of the following reasons: they were never completed, they were completed but not submitted to CIHI or they were rejected and never resubmitted.		
Limitations	The indicator does not take into account whether the full assessments are completed according to the expected schedule.		



Accuracy and reliability

Identifying information	
Name	Response Rate
Database	CPERS
Indicator description and calculation	
Description	Percentage of completed surveys, where at least one survey question contains a response
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = total number of completed surveys submitted</p> <p>B = total number of eligible patients selected to complete a survey (number of fielded surveys – number of ineligible determined after contact)</p> <p>Patients are eligible if they</p> <ul style="list-style-type: none"> • Are 18 years or older at the time of admission • Are alive at the time of discharge • Occupied an inpatient bed <p>Please refer to the CPES-IC Procedure Manual for a complete list of eligibility criteria and exclusions.</p>
Type of measure	Percentage
Data quality assessment	
Optimal value	An optimal value (i.e., target response rate) has not been determined yet for CPERS.
Use, interpretation and limitations	
Use	This indicator is used to identify the proportion of eligible patients that submitted a complete survey. Results are used to determine sample sizes.
Interpretation	A lower response rate may result in non-response bias.
Limitations	A survey is considered complete if it contains responses to at least one survey question. Therefore, a complete survey could still be missing information. CIHI will monitor the definition of a complete survey and may update the definition in future iterations of this manual.



Comparability and coherence

Identifying information			
Name	Alternative Clinical Payment Programs (APPs): Physician-Level APP Data		
Database	NPDB		
Indicator description and calculation			
Description	Percentage of alternative clinical payment data (non-fee for service) submitted at the physician level		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = the sum of all clinical medical care plan payments allocated to individual physicians submitted through alternative payment data submissions</p> <p>B = the total alternative clinical medical care plan payments submitted through the aggregate alternative payment data submissions</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns $\geq 95\%$	Moderate data quality concerns $> 0-94.9\%$	Significant data quality concerns 0%/incomplete submission
Use, interpretation and limitations			
Use	<p>Physician-level alternative clinical payments are used to integrate with fee-for-service (FFS) data records, which are provided at the physician level. By combining the alternative payments with the FFS payments, the NPDB is capable of reporting on total clinical physician compensation.</p> <p>In order to combine physician-level alternative clinical payments and FFS physician-level data while maintaining comparability and validity of NPDB indicators, 100% of alternative payment data is required. Without physician-level alternative clinical payments, the NPDB can report on FFS data only. Reporting on only FFS payments compromises comparability between provinces/territories as well as validity of current NPDB indicators, given the increase in the use of alternative forms of physician reimbursement.</p>		
Limitations	<p>In several provinces, physicians get a certain portion of their alternative clinical payments as members of a medical group. In such cases, a group receives a lump payment and distributes it among its members.</p> <p>In provinces where group alternative payments are provided, the mechanism of the distribution of these payments within the group is unknown. Therefore, no information is provided by these provinces regarding the portion of group payments that each physician receives. As a result, in these provinces, a certain portion of total alternative clinical payments (paid on a group level) cannot be integrated with physician-level FFS data.</p>		



Comparability and coherence

Identifying information			
Name	Alternative Clinical Payment Programs (APPs): Specialty-Level APP Data		
Database	NPDB		
Indicator description and calculation			
Description	A measure of whether aggregate specialty-level alternative clinical payment data is available by the province/territory		
Calculation description	Yes: Alternative payment data at the aggregate specialty level is available. No: Alternative payment data is not available at the specialty level.		
Type of measure	Nominal		
Data quality assessment			
Optimal value	Yes		
Assessment range	Little or no data quality concerns Yes	Moderate data quality concerns Not applicable	Significant data quality concerns No/incomplete submission
Use, interpretation and limitations			
Use	Aggregate alternative payment information quantifies the proportion of physician remuneration currently not captured in the NPDB indicators, which are populated using fee-for-service data. Aggregate specialty-level alternative payment data allows the NPDB to report provincial-level total physician clinical compensation for selected physician specialties as opposed to less informative reporting across specialties.		
Interpretation	Without aggregate specialty-level alternative payment data, the NPDB is limited to indiscriminate reporting on payments across specialties only, thus not being able to distinguish between higher-paid and lower-paid specialties; it also limits cross-provincial comparability.		
Limitations	Aggregate-level alternative payment data is not detailed enough to integrate with physician-level fee-for-service (FFS) data. Several provinces provide physician-level alternative payment data that can be integrated with the FFS data, but in the remaining provinces the lack of such data prevents a breakdown of total average payment per physician beyond the provincial level.		



Comparability and coherence

Identifying information			
Name	Claim-Level Physician Billing Data		
Database	NPDB		
Indicator description and calculation			
Description	A measure of whether a province/territory submits claim-level physician billing data on fee-for service (FFS) and available alternative modes of payment		
Calculation description	<p>Yes: Province/territory submits physician billing data on an individual claim-level.</p> <p>In Progress: Province/territory is preparing claim-level data submission specifications.</p> <p>No: There are no formal discussions regarding the collection of claim-level physician billing data.</p>		
Type of measure	Nominal		
Data quality assessment			
Optimal value	Yes		
Assessment range	Little or no data quality concerns Yes	Moderate data quality concerns In Progress	Significant data quality concerns Not applicable
Use, interpretation and limitations			
Use	Claim-level billing data can be used to link physician service utilization data with other health care data to receive a more encompassing picture of health care in Canada. Claim-level data would help improve comparability of provincial indicators related to physician payments and service utilization.		
Interpretation	Discussions are under way between CIHI and the B.C. Ministry of Health. However, it is important to note that the B.C. Ministry of Health is not yet at the stage of data submission and specification development, so British Columbia is shown as In Progress.		
Limitations	Claim-level billing data submitted by different provinces is not standardized and requires additional modifications to be compatible with data from other databases as well as with historical NPDB data. Talks with some provinces on claim-level data submission have not started yet.		



Comparability and coherence

Identifying information			
Name	Compliance With MIS Chart of Accounts		
Database	CPCD		
Indicator description and calculation			
Description	The percentage of expenses reported in the management information system (MIS) primary accounts		
Calculation description	$(A \div B) \times 100$, where A = expenses reported in MIS primary accounts to the CPCD B = total expenses reported to the CPCD Results are provided separately for inpatient acute care data and ambulatory care data.		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 90–95%	Significant data quality concerns <90%
Use, interpretation and limitations			
Use	This indicator is a measure of adherence to CPCD reporting requirements and reflects the percentage of expenses reported in valid MIS primary accounts. Expenses that are reported in non-compliant accounts may be in clearing accounts, or in provincial accounts that have not been mapped to the MIS chart of accounts.		
Limitations	The results are based on the MIS chart of accounts. Results may be affected by the mapping of provincial charts of accounts to the MIS Standards by the province/territory.		



Comparability and coherence

Identifying information	
Name	Potential Alternate Level of Care (ALC) Under-Reporting
Database	DAD (AIC)
Indicator description and calculation	
Description	Percentage of acute inpatients that are likely ALC but have no ALC days recorded by the province/territory
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = potential ALC cases; specifically, number of acute hospitalizations with ALC LOS = 0 AND acute LOS >25 days AND patient transferred to continuing care or other, or discharged to home or home setting with support services</p> <p>B = (number of acute inpatient hospitalizations with ALC LOS >0) + A</p> <p>Exclusions:</p> <ul style="list-style-type: none"> • Quebec hospitals, since Quebec data is not available in the DAD • Obstetric cases (MCC 13 and 14) because they have a different care pathway relative to the general hospital population • Pediatric cases (younger than 17) because the concept of ALC status in children is not widely accepted and/or coded
Type of measure	Percentage
Data quality assessment	
Optimal value	0
Use, interpretation and limitations	
Use	<p>CIHI has released clinical guidelines to promote prompt and accurate designation of ALC in acute inpatient care. Accurate ALC reporting is key to monitoring and improving access to services, patient flow and outcomes in acute care.</p> <p>ALC data is well used at every level of the health service system and across acute and continuing care sectors. Receiving complete ALC data from all provinces and territories would support meaningful pan-Canadian reporting and facilitate comparisons across facilities, regions and provinces.</p>
Limitations	<p>A low percentage of missing or invalid LOS has very limited impact on calculation.</p> <p>Current methodology does not take into account the clinical status or complexity of cases that may be expected to have longer LOS in acute care.</p>



Comparability and coherence

Identifying information			
Name	Product Numbers Identified in Prosthesis Library		
Database	CJRR		
Indicator description and calculation			
Description	The percentage of implant product numbers submitted to CJRR that can be used to identify implant characteristics through linkage with the International Prosthesis Library (which is managed by the International Society of Arthroplasty Registries)		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = the number of product numbers submitted for the reporting fiscal year that can be directly linked with the International Prosthesis Library to obtain specific implant characteristics</p> <p>B = the total number of products submitted for the reporting fiscal year</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >90%	Moderate data quality concerns 80–90%	Significant data quality concerns <80%
Use, interpretation and limitations			
Use	This indicator assesses the extent to which submitted product numbers can be used for linkage to the International Prosthesis Library in order to identify implant characteristics, such as material, size, fixation method, etc. Such information is used to study implant characteristics that influence surgical outcome, utilization trends, etc.		
Interpretation	Low reporting values indicate fewer linkages between the submitted data and the prosthesis library, indicating lower ability for the product data to be used for implant characteristic-related analysis (see Limitations section).		
Limitations	<p>The International Prosthesis Library consists of data voluntarily submitted from international orthopedic registries and is updated on a yearly basis. Canada does not submit data to this library.</p> <p>Reasons for non-linkability can include the following:</p> <ul style="list-style-type: none"> • Valid product numbers not yet included in the most recent version of the International Prosthesis Library, which is a collaborative effort of registries providing the data; • Invalid product number fields with a value of <i>unknown</i>; and • Invalid product numbers deemed invalid by CIHI's validation processes (such as manual entry errors; CIHI recommends using barcode scanners). <p>Note: Excluded from both the numerator and denominator are any global trade item numbers (GTINs) that were submitted in the product number fields, as this product number standard is not currently in the prosthesis library.</p>		



Comparability and coherence

Identifying information			
Name	Reassessment Rate		
Database	HCRS		
Indicator description and calculation			
Description	Percentage of assessed clients with a prior assessment in the same episode of care where the time between the 2 assessments was 1) Within 12 months (the jurisdictional standard reassessment time) and 2) Greater than 15 months		
Calculation description	$A \div B \times 100\%$, where A = the number of assessed clients with a prior assessment in the same episode of care where the time between the 2 assessments was 1) Within 12 months (the jurisdictional standard reassessment time) and 2) Greater than 15 months B = the total number of assessed clients in the reporting fiscal year that had a prior assessment within the same episode of care		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100 (within 12 months); 0 (greater than 15 months)		
Assessment range	Little or no data quality concerns	Moderate data quality concerns	Significant data quality concerns
Within 12 months	>75%	50–75%	<50%
Greater than 15 months	<5%	5–20%	>20%
Use, interpretation and limitations			
Use	Regular assessments help to track clients' health status changes for supporting the care planning of individuals within the health care organization. The assessment interval impacts the results of decision-support products that help compare outcomes across jurisdictions. It is important to know how consistently clients are being reassessed according to the expected 12-month time frame.		
Interpretation	A higher reassessment rate within the expected 12-month time frame will provide a more precise reflection of clients' health changes. Any percentage in the subcategory "greater than 15 months" reflects the volume of assessments that are excluded from calculations of the home care quality indicators.		
Limitations	It is unknown how much discretion assessors are allowed to modify the reassessment schedule within jurisdictions. Ontario administrative data in HCRS is not always linkable to assessment data. This affects our ability to calculate the reassessment rate for Ontario, as we cannot always determine whether 2 given assessments belong to the same episode of care.		



Comparability and coherence

Identifying information			
Name	Total Compensation		
Database	NPDB		
Indicator description and calculation			
Description	Percentage of total clinical medical care plan payments to physicians that are submitted at the physician level		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = the sum of all clinical medical care plan payments allocated to individual physicians, submitted to the NPDB through NPDB quarterly data submissions (30 and 50 files) and alternative payment data submissions</p> <p>B = the total clinical medical care plan payments to physicians submitted to the NPDB, through NPDB quarterly data submissions (30 and 50 files) and aggregate alternative payment data submissions</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns ≥95%	Moderate data quality concerns >0–94.9%	Significant data quality concerns 0%/incomplete submission
Use, interpretation and limitations			
Use	<p>Receiving all clinical compensation payments at the physician level will allow NPDB to report on total clinical compensation as opposed to limiting analysis to fee-for-service payments only.</p> <p>Note: The provincial/territorial ministry of health representatives sitting on CIHI's National Physician Database Advisory Group have directed CIHI to secure alternative payment information at the physician level that is available from each provincial ministry of health in order to</p> <ul style="list-style-type: none"> • Integrate with the physician-level fee-for-service data and use it to report total remuneration; • Calculate critical indicators of value to provincial/territorial ministries of health such as average payment per physician and full-time equivalents; and • Facilitate grouping of service utilization where possible. 		
Interpretation	Less than 100% coverage of physician-level clinical payments compromises comparability of NPDB indicators among provinces/territories.		

Timeliness and punctuality

Identifying information			
Name	Availability of Data by Target Closure Date of May 31		
Databases	DAD (AIC), DAD/NACRS (DS), NACRS (ED)		
Indicator description and calculation			
Description	The percentage of acute inpatient/day surgery/emergency department records finalized (i.e., submitted and corrected if necessary) on or before May 31 of the reporting fiscal year		
Calculation description	$A \div B \times 100\%$, where A = total number of acute inpatient/day surgery/emergency department records where the date when the record was last modified is on or before May 31 of the reporting fiscal year B = total number of acute inpatient/day surgery/emergency department records at database closure		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >95%	Moderate data quality concerns 80–95%	Significant data quality concerns <80%
Use, interpretation and limitations			
Use	<p>This indicator assesses progress toward the target date for database closure for acute inpatient/day surgery/emergency department data submitted to the DAD or NACRS.</p> <p>Data users prefer to use the most recent data available to support decisions. CIHI receives numerous requests to provide the most recent data available. Open-year acute inpatient/day surgery/emergency department data is available for comparative reporting in CIHI's eReporting and Portal products.</p>		
Interpretation	<p>DAD and NACRS data is submitted to CIHI on a daily basis throughout the year.</p> <p>May 31 is the target date for national database closure. This would represent an improvement in timeliness of 1 month (except for Ontario, where the target date of May 31 is already being met) compared with the current closure date of June 30. This indicator was introduced in 2014–2015 to measure progress toward this target.</p> <p>Provinces/territories with less than 100% may need to change practices to meet the new target. They may consider investigating processes involved in coding and abstracting records, including vendor performance, staffing issues, chart availability, completeness of chart at patient discharge, workload (new mandates for data collection) and month-end processes.</p> <p>With the final submission deadline scheduled for 1 month after the last discharge date, data accuracy is not expected to be affected by this timeline target.</p>		
Limitations	This indicator cannot be calculated for Quebec, as the ministère de la Santé et des Services sociaux du Québec (MSSS) submits a single file of its hospital separations following the closure of its provincial database to CIHI to be included in the HMDB on an annual basis.		

Timeliness and punctuality

Identifying information			
Name	Availability of Data Within 3 Months of Discharge		
Databases	DAD (AIC), DAD/NACRS (DS), NACRS (ED)		
Indicator description and calculation			
Description	The percentage of acute inpatient/day surgery/emergency department records finalized (i.e., submitted and corrected if necessary) within 3 months of discharge/disposition		
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = total number of acute inpatient/day surgery/emergency department records where the difference between the Discharge Date and the date when the record was last modified is less than 3 months</p> <p>B = total number of acute inpatient/day surgery/emergency department records at database closure</p>		
Type of measure	Percentage		
Data quality assessment			
Optimal value	100		
Assessment range	Little or no data quality concerns >75%	Moderate data quality concerns 25–75%	Significant data quality concerns <25%
Use, interpretation and limitations			
Use	Data users prefer to use the most recent data available to support decisions. CIHI receives numerous requests to provide the most recent data available. Open-year acute inpatient data is available for comparative reporting in CIHI's eReporting and Portal products and Your Health System web tool.		
Interpretation	The delayed submission of open-year data affects the completeness of numerous CIHI reports and products, such as eReports and the CIHI Portal. It is important to note that the impetus for timeliness improvement has come from the provinces/territories and individual institutions themselves, which find timely data valuable for the purposes of benchmarking and performance comparison (e.g., open-year data availability in Your Health System: Insight and CIHI Portal).		
Limitations	A low percentage of finalized open-year data may be due to data resubmitted for corrections. Corrections submitted to the DAD after 3 months of discharge will impact the timeliness of finalized data. Facilities are encouraged to monitor their data quality reports and submit corrections as quickly as possible.		

Timeliness and punctuality

Identifying information	
Name	Availability of Data Within 60 Days After Quarter End
Database	DAD (AIC), DAD/NACRS (DS), NACRS (ED)
Indicator description and calculation	
Description	The percentage of acute inpatient/day surgery/emergency department records finalized (i.e., submitted and corrected if necessary) within 60 days after quarter end, by quarter
Calculation description	<p>$A \div B \times 100\%$, where</p> <p>A = total number of acute inpatient/day surgery/emergency department records for a given quarter where the date when the record was last modified is within 60 days after quarter end</p> <ul style="list-style-type: none"> • Q1 (April to June discharges): August 31 • Q2 (July to September discharges): November 30 • Q3 (October to December discharges): February 28 (or 29) • Q4 (January to March discharges): May 31 <p>B = total number of records for the given quarter at database closure</p>
Type of measure	Percentage
Data quality assessment	
Optimal value	100
Use, interpretation and limitations	
Use	<p>This indicator assesses open-year timeliness and reports on progress toward reaching consistent and timely acute inpatient/day surgery/emergency department data submissions throughout the year to the DAD or NACRS.</p> <p>Data users prefer to use the most recent data available to support decisions. CIHI receives numerous requests to provide the most recent data available. Open-year acute inpatient data is available for comparative reporting in CIHI's eReporting and Portal products and Your Health System web tool.</p>
Interpretation	<p>First quarter (Q1) timeliness results may be affected by a number of challenges generally associated with data collection processes at the beginning of each fiscal year.</p> <p>The delayed submission of open-year data affects the completeness of numerous CIHI reports and products, such as eReports and the CIHI Portal. It is important to note that the impetus for timeliness improvement has come from the provinces/territories and individual institutions themselves, which find timely data valuable for the purposes of benchmarking and performance comparison (e.g., open-year data availability in Your Health System: Insight and CIHI Portal).</p>
Limitations	A low percentage of finalized open-year data may be due to data resubmitted for correction. Corrections submitted to the DAD more than 60 days after quarter end will impact the timeliness of finalized data. Facilities are encouraged to monitor their data quality reports and submit corrections as quickly as possible.



Accessibility and clarity

Identifying information	
Name	Availability of ED Discharge Diagnosis or Main Problem
Database	NACRS (ED)
Indicator description and calculation	
Description	The percentage of ED records with at least one of the following fields completed: ED Discharge Diagnosis or Main Problem
Calculation description	A ÷ B × 100%, where A = total number of ED records with at least one of the following fields completed: ED Discharge Diagnosis or Main Problem in the database at closure B = total ED records with ED Visit indicator = 1 (ED visit excluding scheduled, clinic and day surgery visits) in the database at closure
Type of measure	Percentage
Data quality assessment	
Optimal value	100
Use, interpretation and limitations	
Use	The ED discharge diagnosis and main problem are important for understanding reasons for ED visits, clinical program management, research and policy-making.
Interpretation	Low reporting of data for this indicator may reflect the submission level of ED data per province/territory. It is optional for facilities to submit clinical data for submission Level 1. For Level 2 submissions, at least one of the Presenting Complaint List or ED Discharge Diagnosis must be completed. Main problem is mandatory for submission Level 3. Provinces/territories with submission Level 1 may have lower values for this indicator.
Limitations	A high percentage of valid values does not necessarily mean that all data is accurate. This indicator reports on the frequency of valid values but accuracy of the data cannot be determined.



Accessibility and clarity

Identifying information	
Name	Availability of Presenting Complaint
Database	NACRS (ED)
Indicator description and calculation	
Description	Percentage of records having the Presenting Complaint field recorded
Calculation description	A ÷ B × 100%, where A = total number of ED records with the following field completed: Presenting Complaint B = total ED records with ED Visit indicator = 1 (ED visit excluding scheduled, clinic and day surgery visits) in the database at closure
Type of measure	Percentage
Data quality assessment	
Optimal value	100
Use, interpretation and limitations	
Use	The presenting complaint is important for understanding reasons for ED visits, clinical program management, research and policy-making.
Interpretation	Low reporting of data for this indicator may reflect the submission level of ED data per province/territory. It is optional for facilities to submit clinical data for submission Level 1. For Level 2 submissions, at least one of the Presenting Complaint List or ED Discharge Diagnosis must be completed. Main problem is mandatory for submission Level 3. Provinces/territories with submission Level 1 may have lower values for this indicator.
Limitations	A high percentage of valid values does not necessarily mean that all data is accurate. This indicator reports on the frequency of valid values but accuracy of the data cannot be determined.



Accessibility and clarity

Identifying information	
Name	Outstanding Hard Errors: Diagnosis and Intervention Fields
Database	DAD (AIC)
Indicator description and calculation	
Description	The number of outstanding hard errors in the diagnosis and intervention data elements after database closure
Calculation description	<p>$A \div B$, where</p> <p>A = total number of hard errors in the diagnosis or intervention data elements (those that did not pass edit checks and were not corrected by the closing date of June 30 of the reporting year; specific data elements include diagnosis code, intervention code, status attribute, location attribute, extent attribute)</p> <p>B = total number of hard errors in any data element (those that did not pass edit checks and were not corrected by the closing date of June 30 of the reporting year). This is the same as the numerator (A) for Outstanding Hard Error Rate</p>
Type of measure	Ratio
Data quality assessment	
Optimal value	0/0
Use, interpretation and limitations	
Interpretation	<p>A high number of errors in these fields may indicate a need to improve the processes for the collection and/or correction of clinical data captured in the diagnosis and/or intervention data elements. Factors to consider include the number of provincial-/territorial-specific edits for the diagnosis and/or intervention fields (e.g., some provinces/territories have implemented more provincial-/territorial-specific edits than others); vendor software programs; the extent of hard error edit checks present in a province's/territory's internal systems; the need for additional coder education; and staffing shortages that would limit an institution's ability to undertake data quality initiatives.</p> <p>Institutions receive reports on hard errors within days of data submission and are encouraged to review these reports and correct data as quickly as possible on an ongoing basis throughout the year.</p>
Limitations	A low number of errors does not necessarily mean that all data is accurate. For example, the diagnosis code may be valid and pass the edit but it may be an incorrect code as the result of incompleteness of charts or the need for improved coder education. Some provinces/territories have more provincial-/territorial-specific edits than others in the diagnosis and/or intervention data elements, which compromises the comparability of these results across provinces/territories. The errors reported in this indicator are those that CIHI can clearly identify via edit checks.

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Glossary of terms

CIHI's dimensions of data quality

Accuracy and reliability	How well the information correctly and consistently describes what it was designed to measure.
Accessibility and clarity	The ease with which the information and its supporting documentation are easily accessed and clearly presented in a way that can be understood.
Comparability and coherence	The extent to which the information is consistent over time and across providers and can be easily combined with other sources.
Relevance	The degree to which the information meets users' current and potential future needs.
Timeliness and punctuality	The degree to which information is current and released on schedule.

List of acronyms and initialisms

Databases

Database acronym/initialism	Database name	Data reported on
CCRS	Continuing Care Reporting System	Continuing and long-term care data: <ul style="list-style-type: none"> • Hospital • Residential
CJRR	Canadian Joint Replacement Registry	Joint replacement data
CMDB	Canadian MIS Database	Financial and statistical data: <ul style="list-style-type: none"> • Hospital • Non-hospital
CORR	Canadian Organ Replacement Register	Organ replacement data: <ul style="list-style-type: none"> • Dialysis • Transplant • Donors
CPCD	Canadian Patient Cost Database	Patient cost data: <ul style="list-style-type: none"> • Acute inpatient care • Ambulatory care • Non-acute care
CPERS	Canadian Patient Experiences Reporting System	Patient experience data: <ul style="list-style-type: none"> • Acute inpatient care

Database acronym/ initialism	Database name	Data reported on
DAD/HMDB	Discharge Abstract Database/Hospital Morbidity Database	Acute inpatient care data Day surgery data
HCRS	Home Care Reporting System	Home care data
NACRS	National Ambulatory Care Reporting System	Emergency department data Day surgery data
NPDB	National Physician Database	Physician payment and service utilization data
NPDUIS	National Prescription Drug Utilization Information System	Prescription drug data: <ul style="list-style-type: none"> • Drug claims • Formulary
NRS	National Rehabilitation Reporting System	Inpatient rehabilitation data

Appendix: Contextual measures

Contextual measure	Description	Report	Limitations
Assessment Instrument	The instrument used to assess residents in the participating facilities	CCRS	None
Number of Residents	Number of unique registration identifiers for residents who were admitted, assessed or discharged	CCRS	<p>In some jurisdictions, CCRS participation is voluntary or the province/territory is part way through its implementation (see Commitment to Participate and Completeness of Participation). In these jurisdictions, the values will not represent the total number of continuing care residents in each province/territory.</p> <p>Since this indicator does not consider provincial/territorial population size, per capita comparisons are not possible.</p>
Type of Continuing Care Facility	The type of continuing care facility, hospital-based/residential, indicates the sector reported within a province/territory	CCRS	Variations exist in the populations served within care setting by province/territory. Some hospitals submit data on continuing care beds to the DAD rather than submitting assessments to CCRS.
Number of Surgeons Submitting Records	Number of unique surgeons that submitted at least one record/procedure from a submitting province/territory	CJRR	Data submission to CJRR varies per province/territory (see Commitment to Participate and Completeness of Participation). Data for all procedures performed by that surgeon may not have been submitted to CJRR. There are no concrete estimates currently available for the total number of active orthopedic surgeons performing hip and knee replacements.
Procedures Expected	Number of hip and knee procedures submitted to the DAD/HMDB and NACRS	CJRR	<p>CJRR data is based on date of surgery, whereas the DAD/HMDB and NACRS data is based on discharge date.</p> <p>Compared with CJRR, the DAD/HMDB and NACRS will have additional data in a given reporting period for surgeries that took place in the previous fiscal year but patients were discharged in the current fiscal year. However, CJRR will have additional data in the same reporting period for surgeries that took place but patients are yet to be discharged in a future DAD/HMDB and NACRS year.</p>

Contextual measure	Description	Report	Limitations
Procedures Submitted	Number of hip and knee procedures performed and submitted	CJRR	None
Number of Participating Hospitals	The total number of unique hospital numbers submitting to the CMDB	CMDB	Each province/territory notifies CIHI of the organizations in its purview that meet this definition; accordingly, the data quality assessment of hospitals will be as comprehensive and inclusive as the province's/territory's hospital lists.
Percentage of Total CMDB Expenses in Hospital/ Non-Hospital Organizations	Percentage of total provincial/territorial expenses that represent hospital and non-hospital expenses	CMDB	Percentages for hospital and non-hospital sectors may vary significantly across jurisdictions. Such a variation could reflect the difference in magnitude between hospital and non-hospital services offered within a jurisdiction and/or a greater focus on reporting of hospital financial data as compared with non-hospital data.
Number of New Registrations	Total number of new dialysis registrations, organ transplantation registrations and organ donors (living and deceased) among participating facilities	CORR	<p>Patients who receive transplants outside of Canada typically require follow-up care and are captured in CORR when identified.</p> <p>Participation in CORR is voluntary, and facilities may choose to report on only some of their patient population.</p> <p>As of 2014, transplant recipient patients can have multiple registrations in a year, which may slightly limit comparability with previous years.</p> <p>Note: Allocation of provincial/territorial data for Living/Deceased Organ Donors is determined by the patient's place of residence.</p>
Number of Costed Abstracts	The number of abstracts for which we have cost data by inpatient acute and ambulatory care	CPCD	This indicator is a measure of accepted abstracts only; it does not account for abstracts that failed CPCD edits.

Contextual measure	Description	Report	Limitations
Number of Participating Sites	The number of sites that reported data by inpatient acute care, ambulatory care and non-acute care cost data	CPCD	<p>Multi-site organizations or organizations that submit to both the DAD and NACRS as well as to any of the non-acute clinical databases may have more than one participating site. For the non-acute care data, a site could be counted more than once if the site submits cost data for more than one type of non-acute care.</p> <p>This indicator cannot be directly compared with the number of participating hospitals in the CMDB, as financial data is submitted to the CMDB at the organization level and to the CPCD at the site level.</p>
Frequency of Surveying	The frequency with which a source organization administers the CPES-IC survey	CPERS	<p>A required survey frequency and cycle are not prescribed, but it is recommended that hospitals survey as frequently as is feasible and submit to CIHI as soon as possible after the organization/vendor has completed data collection and processing activities.</p> <p>As a result, survey frequency differs among jurisdictions. Some survey on an ongoing basis while others survey within a given period. This may influence the number of surveys submitted.</p>
Most Current Fiscal Year	The most recent full fiscal year of data available for assessment at the time of this report	CPERS	Jurisdictions are at different stages of implementation. As a result, jurisdictions may have submitted different years of data.
Number of Survey Records Submitted to CPERS	The number of survey records submitted to CIHI within the predefined (or applicable) fiscal year	CPERS	<p>This count represents the number of survey records submitted, not the number of completed surveys.</p> <p>Note: There is no minimum number of completed questionnaires that hospitals are required to submit.</p>

Contextual measure	Description	Report	Limitations
Participating Organizations by Peer Group	<p>The number of organizations that submit data to CPERS by peer group. Peer groups are calculated by a method that groups facilities with similar structural and patient characteristics for comparative purposes. Hospitals are designated as teaching if they have confirmed teaching status from the provincial ministry or are identified as teaching in the provincial ministry's submission to the Canadian MIS Database. Non-teaching hospitals are assigned to a large, medium or small community hospital peer group based on their volumes and patient complexities.</p> <p>http://indicatorlibrary.cihi.ca/download/attachments/1114124/Peer-Group-Methodology_EN.pdf</p>	CPERS	None
Sampling Method	<p>The type of sampling used by the organization for the given survey cycle:</p> <ul style="list-style-type: none"> • Census • Simple random sample • Proportionate stratified random sample • Disproportionate stratified random sample 	CPERS	Hospitals with fewer than 1,200 eligible discharges per fiscal year must attempt a census.
Survey Mode	<p>Survey mode describes the method for administering the survey to the respondent. Survey modes vary based on the goals of data collection. The survey modes used for administering the CPES-IC include telephone, online and mail.</p>	CPERS	Response rate may be affected by the survey mode.
CIHI Data Source	<p>The database to which the province/territory has made a commitment to report day surgery records</p>	DAD/ HMDB/ NACRS	As there is no national definition of what constitutes a day surgery record, the criteria used to classify a day surgery record may differ between the provinces/territories.

Contextual measure	Description	Report	Limitations
Number of Records	Total number of acute inpatient/day surgery/emergency department records reported	DAD/ HMDB/ NACRS	<p>As there is no national definition of what constitutes an acute inpatient or day surgery record, the criteria used to classify acute inpatient and day surgery records may differ between provinces/territories.</p> <p>Acute inpatient care: DAD data includes stillbirth and cadaveric donor records. HMDB data (Quebec) includes cadaveric donor records but does not include stillbirth records.</p> <p>Day surgery: Records are defined based on the Management Information System (MIS) functional centre account code and must be submitted at Level 3.</p> <p>Emergency department: Records are reported by submission levels 1 to 3. ED records are visits that are reported with an ED MIS functional centre. These include ED visits, as well as arranged day surgery or clinic visits that took place in the ED.</p>
Number of Home Care Clients	Number of unique client identifiers for clients who were admitted, assessed, received home care services or were discharged	HCRS	<p>If a province/territory is not fully implemented and/or is not submitting HCRS records for their short-stay (acute, rehab, end-of-life) home care clients, the number would not be representative of the total number of clients seen in the province/territory. This indicator does not consider provincial/territorial population size or home care admission criteria, therefore per capita comparisons are not possible.</p>

Contextual measure	Description	Report	Limitations
Number of Admitted Long-Term Home Care Clients	Number of unique client identifiers who were admitted and classified as long-term home supportive and maintenance clients based on their health status and assessed needs	HCRS	<p>Provinces/territories may have different interpretations of CIHI's client group definitions. For data not in compliance with CIHI specifications (not subject to hard edits), CIHI has mapped client group descriptions submitted by the province/territory to HCRS submission standards.</p> <p>Date of Acceptance to Home Care (X6) is used to calculate Number of Admitted Long-Term Home Care Clients. However, Date of Acceptance to Home Care (X6) is not a required field for HCRS. Newfoundland and Labrador does not submit this data element, and British Columbia submits this for 2 out of 5 regions. Therefore, when Date of Acceptance to Home Care (X6) is not available, Date Case Opened (CC1) is used instead.</p>
Availability of Contact Assessment Data	An indication of whether or not the interRAI Contact Assessment© data is available	HCRS	<p>This indicator does not measure the coverage of the contact assessment data; rather, it measures the availability of the information. A partial submission of the contact assessment data will be considered, as the information is submitted to HCRS by the province/territory.</p>
Provincial/Territorial Reassessment Interval	Interval of time that provinces/territories set to reassess clients	HCRS	All of the jurisdictions that currently submit to HCRS base their reassessments on a 1-year period.
Number of Submitting Facilities	Total number of facilities that reported ED visits	NACRS (ED)	This indicator describes only the number of facilities, rather than the number of records, that submitted data to NACRS.

Contextual measure	Description	Report	Limitations
Number of Drug Plans Submitting	Number of plans/programs submitting claims and formulary/coverage information for the reporting calendar year	NPDUIS	<p>Ideally all public drug plans/programs should be submitting both claims and formulary/coverage data and the values should be the same.</p> <p>Only selected jurisdictions submit claims for drugs dispensed from community pharmacies, including both publicly and privately funded drug claims. Formularies and claims administered through hospital-based programs or cancer agencies are not submitted to the NPDUIS.</p> <p>The following limitations are specific to certain provinces/territories:</p> <ul style="list-style-type: none"> • Alberta: Claims financed and coverage information from plans/programs other than the Non-Group Prescription Drug Coverage, Seniors and Alberta Widows' Pension and Palliative Care Drug programs are not included. • Nova Scotia: Claims financed by the Department of Community Services Drug Programs are not submitted. • Prince Edward Island: Claims financed and coverage information from plans/programs other than Child in Care/Financial Assistance, Seniors Drug Cost Assistance, Diabetes Control, Family Health Benefits, High Cost Drugs, Nursing Home, Quit Smoking and Sexually Transmitted Diseases programs are not submitted. • Saskatchewan: Claims financed through Saskatchewan Aids for Independent Living and Supplementary Health are included only if the drug products are published in the Saskatchewan Health drug plan formulary.

Contextual measure	Description	Report	Limitations
Number of Claims Submitted (in Millions)	Number of unique claim records (in millions) submitted for the reporting calendar year	NPDUIS	<p>Claims data is submitted with a lag (time varies by province/territory) in order to account for reversals and adjustments prior to submission. Any adjustments and reversals made more than 3 months after a claim has been submitted may not be captured, unless a corrected file has also been submitted by the province/territory.</p> <p>Data will not be corrected after 1 year unless the impact of the correction is deemed significant.</p> <p>The following limitations are specific to certain provinces/territories:</p> <ul style="list-style-type: none"> • Alberta: Claims dispensed to residents of long-term care facilities are not submitted. • Prince Edward Island: Claims dispensed to residents of government manors (i.e., publicly owned nursing homes) are covered through the Institutional Pharmacy Program; claims for these residents are not submitted.
Number of Beds in Participating Facilities	Total number of beds in operation among submitting facilities, as reported in the facility profile	CCRS, NRS	<p>In provinces/territories where NRS participation is voluntary, facilities may choose to report on only some of their rehabilitation population. For example, a unit with 20 beds may choose to submit NRS data for only its 5-bed orthopedic section. Also, facilities/units may experience temporary bed closures throughout the year due to construction, staffing shortages, etc. Facilities are not required to inform CIHI of these temporary closures for NRS reporting. As such, the number of beds reported here may not necessarily reflect the total adult inpatient rehabilitation activity occurring at participating facilities.</p>

Contextual measure	Description	Report	Limitations
Number of Complete NRS Episodes	The total number of complete episodes (paired admission and discharge assessments)	NRS	In provinces/territories where NRS participation is voluntary, facilities may choose to report on only some of their rehabilitation population. Values do not necessarily represent the total number of adult inpatient rehabilitation episodes that occurred in each jurisdiction.



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