# Performance Measure Definition

## 30 Day Overall Readmission Rate

<table>
<thead>
<tr>
<th>Name and Definition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Name</strong></td>
<td>30-day Unplanned Readmission Rates to Acute Care Facilities: All Causes</td>
</tr>
<tr>
<td><strong>Short Name</strong></td>
<td>30 Day Overall Readmission Rate</td>
</tr>
<tr>
<td><strong>Definition</strong></td>
<td>This indicator measures the risk-adjusted rate of urgent readmissions within 30 days of discharge for episodes of care for the following patient groups: obstetric, patients age 19 and younger, adult surgical and adult medical.</td>
</tr>
<tr>
<td><strong>Domain</strong></td>
<td>Health Services Delivery</td>
</tr>
<tr>
<td><strong>Dimension</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acceptability</strong></td>
<td>Efficiency</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Accessibility</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Category of Measure</strong></td>
<td>Health System Outcomes</td>
</tr>
<tr>
<td><strong>Type of Measure</strong></td>
<td>Outcome Measure</td>
</tr>
<tr>
<td><strong>Other Comments / Notes</strong></td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

## Context

### Business Context
- Alberta Health Business Plan 2014-2017
- Alberta Health Outcomes and Measurement Framework
- AHS Strategic Direction
- AHS Health Plan and Business Plan 2013-2016

### Rationale
Hospital readmission rates can be influenced by a variety of factors, including poor hospital discharge planning and a lack of timely follow-up care. Monitoring unplanned/potentially avoidable readmissions within approximately one month of discharge can be useful for hospital quality surveillance and can be combined with other indicators to provide additional information. Data from the United States has shown that hospital readmissions contribute significantly to health care costs.

Urgent readmissions to acute care facilities are increasingly being used to measure institutional or regional quality of care and care coordination.

Readmission rates can be influenced by a variety of factors, including the quality of inpatient and outpatient care, the effectiveness of the care transition and coordination, and the availability and use of effective disease management community-based programs. While not all unplanned readmissions are avoidable, interventions during and after a hospitalization can be effective in reducing readmission rates.

### Notes for Interpretation
It is important to note that the expected performance level of an institution in this indirect method of standardization of risk adjustment is based on how all institutions perform, because the number of expected cases is calculated based on regression models fitted on all cases from all hospitals. Furthermore, risk-adjustment modelling cannot entirely eliminate differences in patient characteristics among hospitals, because not all pre-admission influences are adjusted for; if left unadjusted for (due to reasons such as viability), hospitals with the sickest patients or that treat rare or highly specialized groups of patients could still score poorly. Finally, when interpreting risk-adjusted results, it is recommended that the hospital's result be compared with the Canada average.

It is also important to note that patients with Mental Diseases and Disorders are not included in this measure.

### Organizational Strategy
Look for opportunities to improve quality of intervention and care during hospitalization.
Reducing readmission rate for stabilized conditions after hospital discharge through improved management within outpatient and community programs. Discharge planning and continuity of services after discharge.
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**Benchmark Comparisons**

The benchmark for 30-day all-cause readmission rate is not yet determined. 30-day all-cause readmission rate for Canada is used for comparison. For example: the 30-day all-cause readmission rate for Canada was 8.7% in Canada in 2011/12.

### Cited References

30-day all-cause readmission rates results, CIHI
Available at: http://ourhealthsystem.ca/#/indicators/006/returning-to-hospital/trend(48,11)/

Indicator Library, CIHI
Available at: http://indicatorlibrary.cihic.ca/pages/viewpage.action?pageId=1114173

All-Cause Readmission to Acute Care and Return to the Emergency Department, CIHI

### Technical Specifications

<table>
<thead>
<tr>
<th>Metric</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preferred Display Format</strong></td>
<td>99.99 %</td>
</tr>
</tbody>
</table>

| Numerator | Cases within the denominator with an urgent readmission within 30 days of discharge |

#### Inclusion Criteria for Numerator

1. Residents of Alberta (rcpt_zone IN (1,2,3,4,5)) with valid Alberta PHN or ULI
2. Admission day of a subsequent discharge is less than or equal to 30 days of initial discharge date from an acute hospital. Includes cases such as:
   a) 29 days, 23 hours, and 59 min. is readmission within 30 days
   b) 30 days, 0 hours, and 0 min is readmission within 30 days
   c) 30 days, 0 hours, and 1 min. is NOT readmission within 30 days
3. Unplanned readmission (Admit Category = 'U' - Urgent/Emergent)

#### Exclusion Criteria for Numerator

Presence of at least one record in the episode with one of the following:

1. Delivery (ICD-10-CA: O10–O16, O21–O29, O30–O37, O40–O46, O48, O60–O69, O70–O75, O85–O89, O90–O92, O95, O98, O99 with a sixth digit of 1 or 2; or Z37 recorded in any diagnosis field)
2. Chemotherapy for neoplasm (ICD-10-CA: Z51.1) as MRDx

#### Data Source(s) for Numerator

Discharge Abstract Database (DAD)
The Hospital Morbidity Database (HMDB)
National Ambulatory Care Reporting System (NACRS)

#### Refresh Rate for Numerator

Annually

#### Data Steward for Numerator

Canadian Institute for Health Information

### Denominator

Obstetric, patients age 19 and younger, adult surgical and adult medical episodes of care discharged between April 1 and March 1 of the fiscal year.

#### Inclusion Criteria for Denominator

1. Episodes involving inpatient care; an episode may start or end in a day surgery setting. Episodes that both start and end in day surgery settings are not included.
2. Discharge between April 1 and March 1 of the following year (period of case selection ends on March 1 of the following year to allow for 30 days of follow-up)
3. Albertan resident
4. Sex recorded as male or female (Sex recorded as female for obstetric patients)

Note: Patients were categorized into four patient groups according to the following sequence:
1. Obstetric patient: Identified as any episode with an acute care discharge with a major clinical category (MCC) code of 13 only.
3. Adult surgical patient: If not (1) or (2), any episode with an acute care discharge with an MCC partition code of “intervention.”
4. Adult medical patient: If not (1), (2) or (3), episodes with an acute care discharge with an MCC partition code of “diagnosis.”

#### Exclusion Criteria for Denominator

1. Records with an invalid health card number
2. Records with an invalid date of birth
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3. Records with an invalid admission date or time
4. Records with an invalid discharge date or time
5. Records with admission category of newborn
6. Records with admission category of cadaveric donor
7. Episodes with discharge as death or self sign-out
8. Presence of at least one record in the episode with MCC 17 (Mental Diseases and Disorders)
9. Presence of at least one record in the episode with palliative care (ICD-10-CA: Z51.5) coded as most responsible diagnosis (MRDx).

<table>
<thead>
<tr>
<th>Data Source(s) for Denominator</th>
<th>Discharge Abstract Database (DAD)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>The Hospital Morbidity Database (HMDB)</td>
</tr>
<tr>
<td>Refresh Rate for Denominator</td>
<td>Annually</td>
</tr>
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<td>Data Steward for Denominator</td>
<td>Canadian Institute for Health Information</td>
</tr>
</tbody>
</table>

**Technical Notes**

Unit of Analysis: Episode of care

An episode of care refers to all contiguous inpatient hospitalizations and same-day surgery visits. For episodes with transfers within or between facilities, transactions were linked regardless of diagnoses. To construct an episode of care, a transfer is assumed to have occurred if either of the following conditions is met:

a) An acute care hospitalization or a same-day surgery visit occurs within six hours of discharge from the previous acute care hospitalization or same-day surgery visit, regardless of whether the transfer is coded

b) An acute care hospitalization or same-day surgery visit occurs within 6 to 12 hours of discharge from the previous acute care hospitalization or same-day surgery visit, and at least one of the hospitalizations or visits has coded the transfer

**Calculation**

Risk-adjusted rate for each facility = Observed number of readmissions for each facility ÷ Expected number of readmissions for the facility × Canadian average readmission rate

**Relationship to Other Indicators**

<table>
<thead>
<tr>
<th>Level of Reporting</th>
<th>National</th>
<th>No</th>
<th>Provincial</th>
<th>Yes</th>
<th>Zone</th>
<th>Yes</th>
<th>Site</th>
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<tr>
<td>Reporting Notes</td>
<td>Not applicable</td>
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<td></td>
<td></td>
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<tr>
<td>Frequency of Reporting</td>
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<td>Yes</td>
<td>Quarterly</td>
<td>No</td>
<td>Monthly</td>
<td>No</td>
<td>Other</td>
<td>No</td>
</tr>
</tbody>
</table>

**Limitations**

Data Reliability:

1) Since transfer is excluded from readmission and there are several non-standardized ways to determine whether a transfer has occurred, the readmission rates published elsewhere could differ.

2) Since there is not a standard method to identify unplanned admissions (e.g. admissions through emergency ambulatory care), readmission rates published elsewhere may differ.

Usability:

This indicator is NOT to provide “absolute” readmission rate due to complications raised from previous discharges because it may be difficult to accurately link the diagnosis of a readmission to that of the index discharge. This indicator is only to provide a general trend of unplanned readmission within 30 days for all causes including related complications, non-related circumstances, accidents, etc.

Validity:

Possible sources of error:

1) Since the abstract health record data are available only after the patient is discharged, some patients readmitted within 30 days could potentially still be in acute hospitals and not counted as part of the numerator. These cases may appear in subsequent calculations as data becomes available for reporting purposes.

2) An approach for identifying transfers has been utilized here based on data investigation but other possible options exist including:

   a. Use “transfer to” and “transfer from” fields alone to determine transfer. Since these fields are optional, data may not be captured consistently.

   b. Use admission time of current admission comparing to discharge time of previous admission.
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between two different acute sites. The appropriate cut-off time between readmission and transfer is uncertain and determined through investigation but may differ by proximity of hospitals, transportation mode or availability or other factors.

3) Unplanned admission is defined as admit category = ‘U’ which is urgent/emergent admission. The data reliability is highly dependent on the accuracy of this field.

Timeliness:

1) Readmission rates are attributed to the quarter in which a patient is originally discharged from an acute hospital. This requires that patients be tracked for 30 days after the end of the quarter to allow sufficient time from the date of initial discharge to determine whether a readmission will occur. Readmission rate reporting always lags by a quarter for this reason.