Introduction
Readmission to the hospital within 30 days of discharge is frequently avoidable and can lead to adverse patient outcomes and higher costs. The Plan All-Cause Readmissions (PCR) measure in the Medicaid Adult and Health Home Core Sets assesses the percentage of acute inpatient hospital discharges resulting in an unplanned hospital readmission within 30 days (see Table 1 for an overview of the measure). State reporting of the PCR measure can help drive quality improvement efforts and monitor progress in reducing readmissions in Medicaid.

This fact sheet was developed to help states calculate and report the PCR measure for the federal fiscal year (FFY) 2019 reporting cycle of the Adult and Health Home Core Sets. The fact sheet explains how data are reported for the measure and provides step-by-step guidance on calculating the measure. Additional resources are listed at the end of the fact sheet.

Changes to the PCR measure for the FFY 2019 reporting cycle
The PCR measure uses a risk adjustment methodology specific to the Medicaid population to calculate a count of expected readmissions. For FFY 2019 reporting, the data elements that states report were changed to include a count of expected readmissions. The count of expected readmissions is a prediction of the state’s performance based on its demographic and clinical case mix in the Medicaid population. It is calculated by classifying the state’s case mix and applying risk weights to each eligible hospital stay. The PCR measure also includes an observed-to-expected (O/E) ratio, which is the ratio of the actual (observed) count of readmissions in relation to the risk-adjusted (expected) count of readmissions. The O/E ratio is interpreted as “lower-is-better”:

- O/E ratio < 1.0 means that the state had fewer readmissions than expected given the case mix
- O/E ratio = 1.0 means that the number of readmissions was the same as expected given the case mix
- O/E ratio > 1.0 means that the state had more readmissions than expected given the case mix

Table 1. Overview of the PCR Measure in the 2019 Adult and Health Home Core Sets

<table>
<thead>
<tr>
<th>Measure Stewart</th>
<th>National Committee for Quality Assurance (NCQA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The number of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days and the predicted probability of an acute readmission. States report the following data:</td>
</tr>
<tr>
<td>IHS</td>
<td>An acute inpatient stay with a discharge on or between January 1 and December 1 of the measurement year.</td>
</tr>
<tr>
<td>Index Admission Date</td>
<td>The IHS admission date.</td>
</tr>
<tr>
<td>Index Discharge Date</td>
<td>The IHS discharge date.</td>
</tr>
<tr>
<td>Age</td>
<td>Ages 18 to 64 as of the Index Discharge Date.</td>
</tr>
<tr>
<td>Continuous enrollment</td>
<td>365 days prior to the Index Discharge Date through 30 days after the Index Discharge Date.</td>
</tr>
<tr>
<td>Allowable gap</td>
<td>No more than one gap in enrollment of up to 45 days during the 365 days prior to the Index Discharge Date and no gap during the 30 days following the Index Discharge Date.</td>
</tr>
<tr>
<td>Anchor date</td>
<td>Index Discharge Date.</td>
</tr>
<tr>
<td>Required benefits</td>
<td>Medical.</td>
</tr>
</tbody>
</table>
How to Report the PCR Measure for the 2019 Adult and Health Home Core Sets

This section explains how states should report the data elements for the PCR measure in MACPro, the web-based reporting system, and highlights the data elements that are calculated automatically by the reporting system.

The Count of Index Hospital Stays (IHS) (column 1), the Count of Observed 30-Day Readmissions (column 2), and the Count of Expected Readmissions (column 4) are reported by states. The Observed Readmission Rate (column 3), the Expected Readmission Rate (column 5), and the Observed-to-Expected Ratio (column 6) are calculated by the web-based reporting system using the three reported data elements.

Table 2. Overview of PCR Reporting in MACPro

<table>
<thead>
<tr>
<th>Total Ages 18-64</th>
<th>(1) Count of IHS</th>
<th>(2) Count of Observed 30-Day Readmissions</th>
<th>(3) Observed Readmission Rate Col. 3 = Col. 2/ Col. 1</th>
<th>(4) Count of Expected 30-Day Readmissions</th>
<th>(5) Expected Readmission Rate Col. 5 = Col. 4/ Col. 1</th>
<th>(6) O/E Ratio Col. 6 = Col. 2/ Col. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>State reports data element in MACPro</td>
<td>State reports data element in MACPro</td>
<td>Data element calculated by MACPro</td>
<td>State reports data element in MACPro</td>
<td>Data element calculated by MACPro</td>
<td>Data element calculated by MACPro</td>
<td></td>
</tr>
</tbody>
</table>

Step-by-Step Guide to Calculating the Plan All-Cause Readmissions (PCR) Measure

This section is intended to supplement the technical specification for the PCR measure with step-by-step guidance for calculating the measure. The steps are aligned with the data elements reported in or calculated by MACPro. For FFY 2019 reporting, the measurement year is calendar year (CY) 2018. Supplemental data sources, such as electronic health records or registry data, cannot be used to calculate the PCR measure.

Column 1: Count of IHS

Identify the eligible population, identify IHS for the eligible population, and count the number of IHS for the measurement year.

Identify the Eligible Population
The Count of IHS is based on discharges, not beneficiaries. Include all acute inpatient discharges for beneficiaries who had one or more discharges on or between January 1 and December 1 of the measurement year. The eligible population is defined as follows:

- **Age**: Beneficiaries must be 18 to 64 years of age as of the Index Discharge Date for the IHS.

- **Continuous Enrollment**: Beneficiaries must be continuously enrolled for 365 days prior to the Index Discharge Date through 30 days after the Index Discharge Date. There should be no more than one gap in enrollment of up to 45 days during the 365 days prior to the Index Discharge Date and no gap during the 30 days following the Index Discharge Date.
Identify IHS for the Eligible Population

**Step 1.** Identify all acute inpatient discharges on or between January 1 and December 1 of the measurement year. Inpatient stays where the discharge date from the first setting and the admission date to the second setting are two or more calendar days apart must be considered distinct inpatient stays and should be counted separately. The measure includes acute discharges from any type of acute facility (including behavioral health care facilities).

**Step 2.** For acute-to-acute direct transfers, keep the original admission date as the Index Admission Date, and use the direct transfer’s discharge date as the Index Discharge Date. A direct transfer is when the discharge date from the first inpatient setting precedes the admission date to a second inpatient setting by one calendar day or less.

**Step 3.** Exclude hospital stays where the Index Admission Date is the same as the Index Discharge Date.

**Step 4.** Exclude hospital stays if the beneficiary died during the stay, had a principal diagnosis of pregnancy on the discharge claim, or had a principal diagnosis of a condition originating in the perinatal period on the discharge claim.

**Reporting**

Count the number of IHS and enter the value into Column 1 of the reporting table.

<table>
<thead>
<tr>
<th>Column 2: Count of Observed 30-Day Readmissions</th>
</tr>
</thead>
</table>

Determine the number of IHS that were followed by at least one acute readmission for any diagnosis within 30 days of the Index Discharge Date.

Identify Index Hospital Stays Followed by an Admission within 30 days after Discharge

**Step 1.** Identify all acute inpatient stays with an admission date on or between January 3 and December 31 of the measurement year.

**Step 2.** For acute-to-acute direct transfers, keep the original admission date as the Index Admission Date, and use the direct transfer’s discharge date as the Index Discharge Date. A direct transfer is when the discharge date from the first inpatient setting precedes the admission date to a second inpatient setting by one calendar day or less.

**Step 3.** Exclude acute inpatient hospital admissions for beneficiaries with a principal diagnosis of pregnancy or for a condition originating in the perinatal period.

**Step 4.** Exclude planned admissions with a principal diagnosis of maintenance chemotherapy, a principal diagnosis of rehabilitation, an organ transplant, or a potentially planned procedure without a principal acute diagnosis.

**Step 5.** For each IHS, determine if any of the acute inpatient stays identified in steps 1-4 have an admission date within 30 days after the IHS discharge date (Index Discharge Date).

**Reporting**

Count the number of observed IHS with a readmission within 30 days and enter the value into Column 2 of the reporting table.
**Column 3: Observed Readmission Rate**

The Observed Readmission Rate is the percentage of acute inpatient stays during the measurement year that were followed by an unplanned acute readmission for any diagnosis within 30 days. It is equal to the Count of 30-Day Readmissions (Column 2) divided by the Count of Index Hospital Stays (Column 1). This data element is automatically calculated for states by MACPro.

**Column 4: Count of Expected 30-Day Readmissions**

Each IHS has a chance of resulting in a readmission within 30 days. That risk is based on attributes of the beneficiary and hospitalization (e.g., gender, surgical stay, discharge condition) and their associated risk weights. The sum of the risk across all IHS is the Count of Expected 30-Day Readmissions.

**Step 1. Classify the Risk Adjustment Categories for Each IHS**

For each IHS, classify the risk adjustment categories based on presence of surgeries, discharge condition, gender, and age from the IHS, and comorbidities from the classification period.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comorbidities</td>
<td>Assign Risk Adjustment Determination of Comorbidities based on all the encounters during the 12 months prior to the Index Discharge Date. For more information, see the “Steps for Utilization Risk Adjustment Determination” in the Technical Specifications for the Adult Core Set and Health Home Core Set Measures. See the resources at the end of the Fact Sheet for links.</td>
</tr>
</tbody>
</table>

**Step 2. Assign Risk Adjustment Weights**

For each IHS, enter the base risk weight for a Medicaid beneficiary and identify risk adjustment weights based on presence of surgeries, discharge condition, comorbidity, gender, and age. Obtain risk adjustment weights for each classification using the risk adjustment tables available on the NCQA website at https://www.ncqa.org/hedis/measures/hedis-2019-risk-adjustment-tables-usage-agreement/hedis-2019-risk-adjustment-tables. The CC-COMORBID, HCC-RANK, and HCC-COMB tables can be found in the Shared Risk Adjustment Tables, while the remaining tables needed to calculate the measure are in the PCR Risk Adjustment Tables.

- The base risk weight sets an average readmission rate and is the same for all Medicaid beneficiaries.
- Each weight indicates how much the attribute raises or lowers the chance of a 30-day readmission.

Table 3 illustrates the assignment of risk adjustment weights according to the beneficiary demographics and presence of surgeries, discharge condition, and presence of comorbidities for a discharge for a hypothetical Medicaid beneficiary.
Table 3. Example of Risk Adjustment Weighting based on the Attributes of a Hypothetical IHS

<table>
<thead>
<tr>
<th>Hypothetical Attributes</th>
<th>Value</th>
<th>Weight</th>
<th>Table File</th>
<th>Table Tab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment of Risk Adjustment Weights</td>
<td>See Step 2</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Base Risk Weight</td>
<td>Yes</td>
<td>-2.7612</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-OtherWeights</td>
</tr>
<tr>
<td>Gender/Age</td>
<td>Female &amp; Age 18-44</td>
<td>0.0027</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-OtherWeights</td>
</tr>
<tr>
<td>Surgical Weight</td>
<td>Yes</td>
<td>-0.2120</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-OtherWeights</td>
</tr>
<tr>
<td>Discharge CC</td>
<td>CC-71 (Paraplegia)</td>
<td>1.0712</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-DischCC-Weight</td>
</tr>
<tr>
<td>HCC-PCR</td>
<td>HCC-18 (Diabetes with Chronic Complications)</td>
<td>0.1616</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-ComorbHCC-Weight</td>
</tr>
<tr>
<td></td>
<td>HCC-55 (Drug/Alcohol Dependence)</td>
<td>0.3681</td>
<td>PCR Risk Adjustment tables</td>
<td>PCR-MD-ComorbHCC-Weight</td>
</tr>
<tr>
<td>Sum of Weights</td>
<td>See Step 3</td>
<td>-1.3696</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Estimated Readmission Risk for Hypothetical IHS</td>
<td>See Step 4</td>
<td>0.2027</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Step 3. Sum Risk Adjustment Weights**
Sum all the risk adjustment weights for each IHS. Table 3 illustrates the sum of the weights for a hypothetical discharge.

**Step 4. Calculate the Estimated Readmission Risk for each IHS**
Use the formula below to calculate the Estimated Readmission Risk based on the sum of the weights for each IHS. As shown in Table 3, the Estimated Readmission Risk for a hypothetical discharge is 0.2027, applying the formula below.

\[
\text{Estimated Readmission Risk} = \frac{e^{(\sum \text{WeightsForIHS})}}{1 + e^{(\sum \text{WeightsForIHS})}}
\]

Where:
Estimated Readmission Risk = \([\exp(\text{sum of weights for IHS})] / [1 + \exp(\text{sum of weights for IHS})]\]

Note: “Exp” refers to the exponential or antilog function.

**Reporting**
Use the formula below to calculate the Count of Expected Readmissions. Sum the estimated readmission risk for each IHS (calculated in Step 4) and report in Column 4 of the reporting table. The Count of Expected Readmissions should be reported to four decimal places.

\[
\text{Count of Expected Readmissions} = \sum (\text{Estimated Readmission Risk})
\]
**Column 5: Expected Readmission Rate**

The Expected Readmission Rate is the percentage of acute inpatient stays during the measurement year that are predicted to be followed by an unplanned acute readmission for any diagnosis within 30 days. It is equal to the Count of Expected 30-Day Readmissions (Column 4) divided by the Count of Index Hospital Stays (Column 1). This data element is automatically calculated for states in the web-based reporting system.

**Column 6: Observed-to-Expected (O/E) Ratio**

The Observed-to-Expected (O/E) ratio is the ratio of the count of actual (observed) readmissions in relation to the count of risk-adjusted (expected) readmissions. It is equal to the Count of Observed 30-Day Readmissions (Column 2) divided by the Count of Expected 30-Day Readmissions (Column 4). This data element is automatically calculated for states in MACPro.

**For More Information**

Please refer to the following resources for additional information on calculating the PCR measure for FFY 2019 Adult and Health Home Core Set reporting:


For technical assistance related to calculating and reporting the PCR measure in the Adult and Health Home Core Sets, contact the TA mailbox at [MACqualityTA@cms.hhs.gov](mailto:MACqualityTA@cms.hhs.gov).