Guidance for Calculating the Plan All-Cause Readmissions (PCR) Measure in the 2020 Adult and Health Home Core Sets

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 and observation stay discharges that result in an unplanned inpatient or observation stay 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.

FFY 2020 Reporting Cycle Changes

This fact sheet highlights changes made to the PCR measure for the federal fiscal year (FFY) 2020 reporting cycle and gives guidance about calculating the measure.

- **Addition of observation stays:** Use of observation stays varies by hospitals, health plans, and states, and these serve as an alternative to inpatient stays. Including both inpatient admissions and observation stays enhances understanding of readmission rates.

- **Removal of outlier Medicaid beneficiaries from the Risk-Adjusted Readmission Rate:** A small proportion of outlier beneficiaries experience four or more hospitalizations during a year. Since their high utilization is likely driven by unmeasured social factors unaccounted for in existing risk-adjustment models, these individuals are now identified and removed from the risk-adjusted readmission rate.

- **Calculation of an Outlier Rate among beneficiaries in the Medicaid population:** New data elements—the Count of Beneficiaries in Medicaid Population and Number of Outliers—were added to calculate the Outlier Rate, the rate of beneficiaries with high-frequency hospitalization. While not included in the readmission rate, the outlier rate provides key information about the Medicaid population.

Table 1. Overview of the PCR Measure

Measure steward	National Committee for Quality Assurance (NCQA)
Description	The number of acute inpatient admission and observation stay hospital discharges 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: • Count of Index Hospital Stays (IHS) • Count of Observed 30-Day Readmissions • Count of Expected 30-Day Readmissions • Count of Beneficiaries in Medicaid Population[1] • Number of Outliers
Index Hospital Stay (IHS)	An acute inpatient admission and observation stay with a discharge on or between January 1 and December 1 of the measurement year
Index Admission Date	The IHS admission date
Index Discharge Date	The IHS discharge date
Age	Ages 18 to 64 as of the Index Discharge Date
Continuous enrollment	365 days prior to the Index Discharge Date through 30 days after the Index Discharge Date
Allowable gap	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
Anchor date	Index Discharge Date
Required benefits	Medical

[1] For PCR-HH, this data element is the Count of Enrollees in the Health Home Population.

How to Report the PCR Measure for the 2020 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), the Count of Expected 30-Day Readmissions (column 4), the Count of Beneficiaries in Medicaid Population (column 7), and the Number of Outliers (column 8) are reported by states.

The Observed Readmission Rate (column 3), the Expected Readmission Rate (column 5), the Observed-to-Expected Ratio (column 6), and the Outlier Rate (column 9) are calculated by MACPro using the five reported data elements.

Note that the observed-to-expected (O/E) ratio 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 2. Overview of PCR Reporting in MACPro

	(1) Count of HIS	(2) Count of Observed 30-Day Readmissions	(3) Observed Readmission Rate Col. 3 = Col. 2/ Col. 1	(4) Count of Expected 30-Day Readmissions	(5) Expected Readmission Rate Col. 5 = Col. 4/ Col. 1	(6) O/E Ratio Col. 6 = Col. 2/ Col. 1	(7) Count of Beneficiaries in Medicaid Population[1]	(8) Number of Outliers	(9) Outlier Rate Col. 9 = (Col. 8/ Col. 7) * 1,000
Total Ages 18-64	State reports data element in MACPro	State reports data element in MACPro	Data element calculated by MACPro	State reports data element in MACPro	Data element calculated by MACPro	Data element calculated by MACPro	State reports data element in MACPro	State reports data element in MACPro	Data element calculated by MACPro

[1] For PCR-HH, this data element is the Count of Enrollees in the Health Home Program.

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 2020 reporting, the measurement year is calendar year (CY) 2019. 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; identify, remove, and report outlier beneficiaries from the eligible population; and report the count of IHS among nonoutliers for the measurement year.

Identify the Eligible Population

The eligible population for this measure is based on discharges, not beneficiaries. Include all acute inpatient and observation stay discharges for beneficiaries who had one or more discharges on or between January 1 and December 1 of the measurement year. The following beneficiary characteristic criteria must be met for each discharge as defined below:

- **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 and observation stay discharges on or between January 1 and December 1 of the measurement year. Inpatient and observation 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 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 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 stay precedes the admission date to a second stay 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.

Identify, Remove, and Report Outlier Beneficiaries

Outliers are Medicaid beneficiaries in the eligible population with four or more IHS between January 1 and December 1 of the measurement year.

 Step 5. Identify Medicaid beneficiaries with four or more IHS. Remove all hospital stays among these outliers and enter the number of outlier beneficiaries into Column 8 of the reporting table.

Report the Count of IHS among Nonoutliers

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

Column 2: Count of Observed 30-Day Readmissions

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 IHS Followed by an Admission within 30 Days after Discharge

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

Step 2. For 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 stay precedes the admission date to a second stay by one calendar day or less.

Step 3. Exclude inpatient admissions and observation stays for beneficiaries with a principal diagnosis of pregnancy or for a condition originating in the prenatal period.

Step 4. Exclude planned inpatient admissions and observation stays 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 and observation stays identified in steps 1-4 have an admission date within 30 days after the IHS discharge date (Index Discharge Date).

Reporting the Count of Observed 30-Day Readmissions

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 IHS (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, observation stay status, surgical procedure, discharge condition) and their associated risk weights. The base risk weight for Medicaid beneficiary status is no longer included in the risk adjustment calculation. 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 observation stay status at discharge, surgeries, discharge condition, gender, and age from the IHS, and comorbidities from the classification period.

Observation Stay	Determine if the IHS at discharge was an observation stay.
Surgeries	Determine if the beneficiary underwent surgery during the IHS. Download the list of codes to identify surgeries, using Table HCC-Surg, available on the NCQA website at https://www.ncqa.org/hedis/measures/hedis-2020-risk-adjustment-tables-usage-agreement/hedis-2020-risk-adjustment-tables/.

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Discharge Condition	Assign a Discharge Clinical Condition (CC) category code or codes to the IHS based on its primary discharge diagnosis, using Table PCR-DischCC, available to order free of charge in the NCQA store at http://store.ncqa.org/index.php/catalog/product/view/id/3760/s/hedis-2020-risk-adjustment-tables/. Once ordered, the risk adjustment tables can be accessed through the NCQA Download Center (https://my.ncqa.org/?ReturnURL=%2fDownloads).
Comorbidities	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. The links are available in the "For More Information" section at the end of this Technical Assistance Resource.

Step 2. Assign Risk Adjustment Weights

For each IHS, identify risk adjustment weights based on presence of observation stay status at discharge, surgeries, discharge condition, comorbidity, gender, and age. Each weight indicates how much the attribute raises or lowers the chance of a 30-day readmission. 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-2020-risk-adjustment-tables-usage-agreement/hedis-2020-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" at the link provided.

Table 3 illustrates the assignment of risk adjustment weights according to the beneficiary demographics and presence of observation stay status at discharge, surgeries, discharge condition, and presence of comorbidities for a discharge for a hypothetical Medicaid beneficiary.

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.

Table 3. Example of Risk Adjustment Weighting based on the Attributes of a Hypothetical HIS

Hypothetical Attributes	Value	Weight	Table File	Table Tab
Assignment of Risk Adjustment Weights (See Step 2)				
Gender/Age	Female & Age 18-44	-2.7841	PCR Risk Adjustment tables	PCR-MD-OtherWeights
Observation Stay Weight	No	-	PCR Risk Adjustment tables	PCR-MD-OtherWeights
Surgical Weight	Yes	-0.1251	PCR Risk Adjustment tables	PCR-MD-OtherWeights
Discharge CC	CC-57 (Schizophrenia	0.2516	PCR Risk Adjustment tables	PCR-MD-DischCC-Weight
HCC-PCR	HCC-18 (Diabetes with Chronic Complications)	0.0748	PCR Risk Adjustment tables	PCR-MD-ComorbHCC-Weight
	HCC-55 (Drug/Alcohol Dependence)	0.0832	PCR Risk Adjustment tables	PCR-MD-ComorbHCC-Weight
Sum of Weights (See Step 3)			**= -2.4996**	
Estimated Readmission Risk for Hypothetical IHS (See Step 4)			**= 0.0759**	

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 0.0759, applying the formula below.

$$Estimated\ Readmission\ Risk = \frac{e^{(\Sigma\,WeightsForIHS)}}{1 + e^{(\Sigma\,WeightsForIHS)}}$$

Where:

Estimated Readmission Risk = [exp (sum of weights for IHS)] / [1 + exp (sum of weights for IHS)]

Note: "Exp" refers to the exponential or antilog function.

Reporting the Count of Expected 30-Day Readmissions

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

$$Count\ of\ Expected\ Readmissions = \sum Estimated\ Readmission\ Risk$$

Column 5: Expected Readmission Rate

The Expected Readmission Rate is the percentage of acute inpatient and observation 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 IHS (Column 1). This data element is automatically calculated for states by MACPro.

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 by MACPro.

Column 7: Count of Beneficiaries in the Medicaid Population

The Count of Beneficiaries in Medicaid Population serves as the denominator for the Outlier Rate that will be calculated in Column 9. This value is intended to estimate the count of beneficiaries who are eligible to experience a hospitalization during the year. This value can be derived by following the Medicaid Population definition.

Identify the Medicaid Population

Identify Medicaid beneficiaries who meet all of the following criteria:

- **Age:** Beneficiaries must be 18 to 64 years of age as January 1 of the measurement year.

- **Continuous enrollment:** Beneficiaries must be continuously enrolled for at least 395 days, with no more than one gap in enrollment of up to 45 days during the 395-day period, between January 1, 2018 and December 1, 2019.

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Reporting the Count of Beneficiaries in Medicaid Population

Count the number of beneficiaries that meet the Medicaid Population definition and enter the value into Column 7 of the reporting table.

Column 8: Number of Outliers

Outliers are Medicaid beneficiaries in the eligible population with four or more IHS between January 1 and December 1 of the measurement year. These individuals are identified in Step 5 of the calculation of Count of IHS.

Reporting the Number of Outliers

Count the number of beneficiaries that are outliers and enter the value into Column 8 of the reporting table.

Column 9: Outlier Rate

The Outlier Rate is the rate of Outlier beneficiaries that were removed from the risk-adjusted measure calculation per 1,000 beneficiaries in the Medicaid population. It is equal to the (Number of Outliers [Column 8] divided by the Count of Beneficiaries in Medicaid Population [Column 7]) x 1,000. This data element is automatically calculated for states by MACPro.

For More Information

Please refer to the following resources for additional information on calculating the PCR measure for FFY 2020 Adult and Health Home Core Set reporting:

- The technical specifications for the PCR-AD measure are available in the FFY 2020 Adult Core Set Resource Manual, at https://www.medicaid.gov/medicaid/quality-of-care/downloads/medicaid-adult-core-set-manual.pdf.

- The technical specifications for the PCR-HH measure are available in the FFY 2020 Health Home Core Set Resource manual, at https://www.medicaid.gov/state-resource-center/health-home-information-resource-center/downloads/FFY-2020-HH-Core-Set-Manual.pdf.

- The risk adjustment tables are available to order free of charge in the NCQA store at http://store.ncqa.org/index.php/catalog/product/view/id/3760/s/hedis-2020-risk-adjustment-tables/. Once ordered, the risk adjustment tables can be accessed through the NCQA Download Center (https://my.ncqa.org/?ReturnURL=%2fDownloads**).** The tables needed to calculate this measure are found in the "PCR Risk Adjustment Tables" and the "Shared Risk Adjustment Tables" (which includes the CC-COMORBID, HCC-RANK, and HCC-COMB tables).

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.

For more information on tools to reduce Medicaid readmissions, please refer to "The Hospital Guide to Reducing Medicaid Readmissions," available at https://www.ahrq.gov/professionals/systems/hospital/medicaidreadmitguide/index.html.