

MY 2020 HEDIS® Calculation Specifications

This document specifies all calculations performed by NCQA's Interactive Data Submission System (IDSS) as part of the HEDIS submission process for measures specified for Measurement Year 2020 in *HEDIS Measurement Year 2020 & 2021 Volume 2*.

This document is accompanied by product line specific, machine-readable calculation specifications in Excel described in the appendix.

Introduction

Health plans, or HEDIS vendors on their behalf, submit HEDIS measure data through IDSS. This data includes eligible populations, denominators, numerators, exclusions, etc. as extracted from the health plans' medical records, administrative or case management systems, health information exchanges, etc. as per the HEDIS measure specifications. IDSS uses this plan-reported data to calculate rates and several other derived quantities. The health plan reported and IDSS calculated data are returned to the health plans in results files and attested to by the health plans.

A key objective of the HEDIS submission redesign is to introduce standardized and meaningful names for all health plan reported and IDSS calculated data elements. These standard names simplify the interpretation of the data and how they contribute to calculated rates, etc.

The following sections, roughly organized by measure domain, specify all IDSS performed calculations in terms of the new standardized data element names.

All Measures: Totals and Sub-Totals

Where applicable, health plans submit measure data at the age and/or gender and/or other metric stratified level. These values are either integer counts, or in the case of risk-adjusted utilization measures, plan-calculated expected counts and variances rounded to 4 decimals. IDSS will sum these values as appropriate across all stratifications before calculating total and sub-total rates. These basic calculations are not included in the specifications below.

Unless otherwise specified, within each measure the calculations apply to all indicators, stratifications, and metrics (e.g. service categories such as Medicine/Surgery, Inpatient/Outpatient/Telehealth in utilization measures).

Effectiveness of Care, Access, and Selected Utilization Measures

These measures are reported using the administrative or hybrid collection methods with optional numerator hits from supplemental data. Raw rates in the IDSS results files are proportions in the range of [0.0,1.0] rounded to 10 decimals. In IDSS, these rates are displayed as percentages rounded to 2 decimals.

Administrative Collection Method

For measures without numerator hits from supplemental data:

$$Rate = \frac{NumeratorByAdmin}{EligiblePopulation}$$

For measures with numerator hits from supplemental data:

$$Rate = \frac{NumeratorByAdmin + NumeratorBySupplemental}{EligiblePopulation}$$

Inverted Rates

AAB: Avoidance of Antibiotic Treatment for Acute Bronchitis/Bronchiolitis

LBP: Use of Imaging Studies for Low Back Pain

URI: Appropriate Treatment for Upper Respiratory Infection

The rates for these three administrative measures are inverted:

$$Rate = 1 - \frac{NumeratorByAdmin}{EligiblePopulation}$$

Hybrid Collection Method

For measures without numerator hits from supplemental data:

$$Rate = \frac{NumeratorByAdmin + NumeratorByMedRecs}{Denominator}$$

For measures with numerator hits from supplemental data:

$$Rate = \frac{NumeratorByAdmin + NumeratorBySupplemental + NumeratorByMedRecs}{Denominator}$$

In addition, IDSS calculates the following auxiliary rates related to the hybrid sample definition:¹

$$CYAR = \frac{NumeratorByAdminElig}{EligiblePopulation}$$

Where *CYAR* is the Current Year Administrative Rate used in the sample size reduction logic.

IDSS also calculates the number of Oversample Records, based on the Oversampling Rate reported by the health plan:

$$OversampleRecordsNumber = Ceiling(OversampleRate \times MinReqSampleSize)$$

Medical-Record only Collection Method

Measures or specific indicators may only allow the use of numerator hits from medical records, or medical records and supplemental data, such as the “Notification of Inpatient Admission” and “Receipt of Discharge Information” indicators in the TRC: Transition of Care measure.

$$Rate = \frac{NumeratorBySupplemental + NumeratorByMedRecs}{Denominator}$$

Utilization Measures (not risk-adjusted)

Utilization measures report the number of events (discharges, prescription, etc.) per 1000 member years (commercial, Medicare) or per 1000 member months (Medicaid), in addition to a few measure-specific rates. Below we specify calculations per measure.

ABX: Antibiotic Utilization

For the ABX measure health plans report the following data elements:

- *MemberMonths* – Member months
- *PrescriptionCount* – Number of antibiotics scrips. Note this data element is used for both antibiotics of concern and other antibiotics for the “Average Scrips PMPY” and the “Average Days Supplied per Scrip” rates

¹ If a plan uses the administrative collection method for a measure that also allows the hybrid collection method IDSS will return *CYAR* and *OversampleRecordsNumber* in the <Result> section, but with blank values.

- *PrescriptionConcernCount* – Number of antibiotics of concern scrips. Note this data element is only used for the “Percentage of Antibiotics of Concern” rates
- *PrescriptionLength* – Total days supplied

These data elements are used to calculate rates for three classes of indicators:

$$\text{Average Scrips PMPY} = 12 \times \frac{\text{PrescriptionCount}}{\text{MemberMonths}}$$

$$\text{Average Days Supplied per Scrip} = \frac{\text{PrescriptionLength}}{\text{PrescriptionCount}}$$

$$\text{Percentage Antibiotics of Concern} = \frac{\text{PrescriptionConcernCount}}{\text{PrescriptionCount}}$$

AMB: Ambulatory Care

The Medicaid-only AMB measure reports the number of services (visits) per 1000 Member Months:

$$\text{Rate} = 1,000 \times \frac{\text{ServiceCount}}{\text{MemberMonths}}$$

FSP: Frequency of Selected Procedures

The FSP measure reports the number of procedures per 1000 Member Years (commercial, Medicare):

$$\text{Rate} = 12,000 \times \frac{\text{ProcedureCount}}{\text{MemberMonths}}$$

Or per 1000 Member Months (Medicaid):

$$\text{Rate} = 1,000 \times \frac{\text{ProcedureCount}}{\text{MemberMonths}}$$

IAD: Identification of Alcohol and Other Drug Services

MPT: Mental Health Utilization

The IAD and MPT measures report the percentage of members that received a service. If a health plan only has a few members in a stratification and these members only account for a few member months, it is possible for these rates to exceed 100%:

$$\text{Rate} = 12 \times \frac{\text{MemberCount}}{\text{MemberMonths}}$$

IPU: Inpatient Utilization – General Hospital / Acute Care

For the Medicaid-only IPU measure, health plans report three types of data: *MemberMonths*, *Discharges* and *Days*, which are used to calculate rates for three classes of indicators:

$$\text{Discharges}/1000 \text{ MM} = 1,000 \times \frac{\text{Discharges}}{\text{MemberMonths}}$$

$$\text{Days}/1000 \text{ MM} = 1,000 \times \frac{\text{Days}}{\text{MemberMonths}}$$

$$\text{ALOS} = \frac{\text{Days}}{\text{Discharges}}$$

Where ALOS is the Average Length of Stay.

Risk Adjusted Utilization Measures

Risk adjusted utilization measures include member-based (AHU, EDU, HPC) and event-based measures (HFS, PCR). The AHU, EDU, HPC and PCR measures also include logic on handling outlier members.

AHU: Acute Hospital Utilization

EDU: Emergency Department Utilization

HPC: Hospitalization for Potentially Preventable Complications

For the AHU, EDU and HPC measures, health plans report the following data elements:

- NonOutlierMemberCount – The count of non-outlier members in the eligible population
- OutlierMemberCount – The count of outlier members in the eligible population
- ObservedCount – The count of observed discharges (visits for EDU)
- ExpectedCount – The count of expected discharges (visits for EDU)
- CountVariance – The variance in the observed count used to calculate LCL, UCL (see below)

The first four data elements are used to calculate the following quantities:

$$\text{MemberCount} = \text{NonOutlierMemberCount} + \text{OutlierMemberCount}$$

$$\text{OutlierRate}^2 = \frac{\text{OutlierMemberCount}}{\text{MemberCount}}$$

$$\text{ObservedRate} = 1000 \times \frac{\text{ObservedCount}}{\text{NonOutlierMemberCount}}$$

$$\text{ExpectedRate} = 1000 \times \frac{\text{ExpectedCount}}{\text{NonOutlierMemberCount}}$$

$$\text{OE} = \frac{\text{ObservedCount}}{\text{ExpectedCount}}$$

HFS: Hospitalization Following Discharge from a Skilled Nursing Facility

For the HFS measure, health plans report the following data elements:

- Denominator – The count of skilled nursing facility discharges
- ObservedCount – The count of observed hospitalizations
- ExpectedCount – The count of expected hospitalizations
- CountVariance – The variance in the observed count used to calculate LCL, UCL (see below)

The first three data elements are used to calculate the following quantities:

² All risk adjusted outlier rates are calculated and reported in IDSS results files as proportions [0,1] but in HEDIS products displayed as permilles (‰) [0,1000].

$$\text{ObservedRate} = \frac{\text{ObservedCount}}{\text{Denominator}}$$

$$\text{ExpectedRate} = \frac{\text{ExpectedCount}}{\text{Denominator}}$$

$$\text{OE} = \frac{\text{ObservedCount}}{\text{ExpectedCount}}$$

PCR: Plan All-Cause Readmissions

For the PCR measure, health plans report the following data elements:

- MemberCount – The count of members in the plan population
- OutlierMemberCount – The count of outlier members
- Denominator – The count of index hospital stays
- ObservedCount – The count of observed 30-day readmissions
- ExpectedCount – The count of expected 30-day readmissions
- CountVariance – The variance in the observed count used to calculate LCL, UCL (see below)

The first five data elements are used to calculate the following quantities:

$$\text{OutlierRate} = \frac{\text{OutlierMemberCount}}{\text{MemberCount}}$$

$$\text{ObservedRate} = \frac{\text{ObservedCount}}{\text{Denominator}}$$

$$\text{ExpectedRate} = \frac{\text{ExpectedCount}}{\text{Denominator}}$$

$$\text{OE} = \frac{\text{ObservedCount}}{\text{ExpectedCount}}$$

Lower and Upper Confidence Limits around the OE

For reporting purposes, NCQA uses the plan reported CountVariance to calculate the lower confidence limit (LCL) and upper confidence limit (UCL) around the Observed-to-Expected ratios (OE) for all risk adjusted utilization measures. These data elements are not included in the IDSS results files:

$$\text{LCL} = \frac{\text{ObservedCount} - 1.96\sqrt{\text{CountVariance}}}{\text{ExpectedCount}}$$

$$\text{UCL} = \frac{\text{ObservedCount} + 1.96\sqrt{\text{CountVariance}}}{\text{ExpectedCount}}$$

Health Plan Descriptive Information

For TLM and EBS, plans report MemberCount and IDSS does not perform any rate calculations.

For ENP, plan reported MemberMonths are converted to MemberYears according to:

$$MemberYears = Round(0.0833333333334 \times MemberMonths, 0)$$

The scale-factor is chosen to ensure 6-month fractions always round up to the nearest year, without adding an extra year for very large values of MemberMonths.

For LDM and RDM, every plan reported $MemberCount_s$ is converted to a proportion $Rate_s$ by dividing by the sum of all n $MemberCount$ across all stratifications within the same Metric (e.g. SpokenSource, SpokenPreferred, RaceSource, RaceEthnicity):

$$Rate_s = \frac{MemberCount_s}{Denominator}$$

Where:

$$Denominator = \sum_{i=1}^n MemberCount_i$$

The Denominator is also returned as a calculated value by IDSS.

Measures Reported Using Electronic Clinical Data Systems

For measures reported using Electronic Clinical Data Systems (ECDS):

$$Rate = \frac{Numerator}{Denominator}$$

For ECDS measures where the Initial Populations, Exclusions and/or Numerators are reported by source system, the total values are calculated as:

$$InitialPopulation = InitialPopulationByEHR + InitialPopulationByHIERegistry + InitialPopulationByCaseManagement + InitialPopulationByAdmin$$

$$Exclusions = ExclusionsByEHR + ExclusionsByHIERegistry + ExclusionsByCaseManagement + ExclusionsByAdmin$$

$$Numerator = NumeratorByEHR + NumeratorByHIERegistry + NumeratorByCaseManagement + NumeratorByAdmin$$

Appendix: Machine Readable Calculation Specifications

The accompanying MY2020 HEDIS Calculation Specification Excel spreadsheet maps every IDSS calculated result for every indicator to its calculation formula. These specifications can be combined with the MY2020 HEDIS Data Dictionaries to transform plan-reported data in the Submission XML <Data> sections to the IDSS calculated values in the Results XML <Result> sections.

Calculated values include all Rates; the MemberCount, ObservedRate, ExpectedRate, OE and OutlierRate for risk-adjusted utilization measures (where applicable); the Current Year Administrative Rate (CYAR) and Oversample Records (OversampleRecordsNumber) for hybrid-collected measures; the InitialPopulation, Exclusions and Numerator for ECDS measures where these are collected by source system; and the Denominators for the LDM and RDM measures.

Note that proportion rates are calculated as proportions [0.0,1.0] and not as percentages or permilles. Percentages and permilles are considered formatting steps and only used for display purposes. The formulas do not include rounding logic. Only for the OversampleRecordsNumber do they include the Ceiling() function. In general, rates returned by IDSS in the Result XML files are rounded to 10-decimals but displayed for human consumption in IDSS and the downloadable Excel workbooks as percentages or rates rounded to 2 decimals.

Table 1 provides a data dictionary for the calculation specification spreadsheets.

Column	Description
ProductLine	One of Commercial, Medicaid, Medicare, Exchange
MeasureCode³	The unique 3 to 5-character measure abbreviation as defined in HEDIS Volume 2. For utilization measures that are reported separately for Medicaid Total, Duals, Disabled and Low Income populations, the Volume 2 measure abbreviations are followed by an a: all members; b: duals; c: disabled; d: low income. The commercial and Medicare product lines only report the "a" versions.
IndicatorKey	An identifier that is unique across all HEDIS survey (CAHPS, HOS) and non-survey indicators, but shared across product lines. IndicatorKeys consist of a 6-digit BaseID followed by a 2-digit StratumID, separated by an underscore ("_"). StratumID values have no inherent meaning, but different values for the same BaseID are used to distinguish socio-economic stratifications such as the SES stratifications for select Medicare measures and the Total, Dual, Disabled and Low Income (a/b/c/d) versions of select Medicaid utilization measures. IndicatorKeys do not change through a trending break.
CollectionMethod	Admin or Hybrid. For effectiveness of care and similar measures and indicators that allow both the administrative and hybrid collection method, the collection method selected by the plan. This is required because the rate calculations for the two collection methods are different, and additional values are calculated for the hybrid collection method only.
Variable	The name of the calculated variable in the Results XML file.
Formula	The formula for the calculated value, expressed in Submission XML data element names. Note that for the LDM and RDM measures, calculations combine data elements from multiple indicators, as indicated by the prepended IndicatorKey. The Ceiling() function is used for the OversampleRecordsNumber

³ Because IndicatorKey is unique across all measures, the MeasureCode column in this table is redundant but included for reference.