

Acute Hospital Utilization (AHU)

SUMMARY OF CHANGES FOR HEDIS MY 2023

- Clarified truncating and rounding rules for PPD, PUCD, covariance and variance calculations.
- Revised the “Other” criteria in the Nonclinical Components table under *Rules for Allowable Adjustments of HEDIS* for observed measurement.

Description

For members 18 years of age and older, the risk-adjusted ratio of observed-to-expected acute inpatient and observation stay discharges during the measurement year.

Definitions

Outlier	Medicare members with four or more inpatient or observation stay discharges during the measurement year. Commercial members with three or more inpatient or observation stay discharges during the measurement year.
Nonoutlier	Medicare members with three or less inpatient or observation stay discharges during the measurement year. Commercial members with two or less inpatient or observation stay discharges during the measurement year.
Classification period	The year prior to the measurement year.
Planned hospital stay	A hospital stay is considered planned if it meets criteria as described in step 3 of calculation of observed events.
PPD	Predicted probability of discharge. The predicted probability of a member having any discharge in the measurement year.
PUCD	Predicted unconditional count of discharge. The predicted unconditional count of discharges for members during the measurement year.

Eligible Population

Product lines	Commercial, Medicare (report each product line separately).
Ages	18 years and older as of December 31 of the measurement year.
Continuous enrollment	The measurement year and the year prior to the measurement year.
Allowable gap	No more than one gap in enrollment of up to 45 days during each year of continuous enrollment.
Anchor date	December 31 of the measurement year.

Benefit	Medical.
Event/diagnosis	None.
Required exclusions	Members in hospice or using hospice services any time during the measurement year. Refer to <i>General Guideline 15: Members in Hospice</i> .

Calculation of Observed Events

Use the following steps to identify and categorize acute inpatient and observation stay discharges.

- Step 1** Identify all acute inpatient and observation discharges during the measurement year. To identify acute inpatient and observation discharges:
1. Identify all acute and nonacute inpatient stays (Inpatient Stay Value Set) and observation stays (Observation Stay Value Set).
 2. Exclude nonacute inpatient stays (Nonacute Inpatient Stay Value Set).
 3. Identify the discharge date for the stay.

- Step 2** *Direct transfers:* For discharges with one or more direct transfers, use the last discharge.

Using the discharges identified in step 1, identify direct transfers between acute inpatient and observation or between observation and acute inpatient using the definition found in the *Guidelines for Risk Adjusted Utilization Measures*.

- Step 3** For the remaining observation and inpatient discharges, exclude inpatient and observation discharges with any of the following on the discharge claim:
- A principal diagnosis of mental health or chemical dependency (Mental and Behavioral Disorders Value Set).
 - A principal diagnosis of live-born infant (Deliveries Infant Record Value Set).
 - A maternity-related principal diagnosis (Maternity Diagnosis Value Set).
 - A maternity-related stay (Maternity Value Set).
 - A planned hospital stay using any of the following:
 - A principal diagnosis of maintenance chemotherapy (Chemotherapy Encounter Value Set).
 - A principal diagnosis of rehabilitation (Rehabilitation Value Set).
 - An organ transplant (Kidney Transplant Value Set, Bone Marrow Transplant Value Set, Organ Transplant Other Than Kidney Value Set, Introduction of Autologous Pancreatic Cells Value Set).
 - A potentially planned procedure (Potentially Planned Procedures Value Set) without a principal acute diagnosis (Acute Condition Value Set).
 - Inpatient and observation stays with a discharge for death.

Note: For hospital stays where there was a direct transfer (identified in step 2), use the original stay and any direct transfer stays to identify exclusions in this step.

Step 4 For the remaining observation and inpatient discharges, remove discharges for outlier members and report these members as outliers.

Note: Count discharges with one or more direct transfers (identified in step 2) as one discharge when identifying outlier members.

Step 5 Calculate the total using all discharges identified after completing steps 1–4.

Risk Adjustment Determination

For each nonoutlier member in the eligible population, use the steps in the *Risk Adjustment Comorbidity Category Determination* section in the *Guidelines for Risk Adjusted Utilization Measures* to identify risk adjustment categories based on presence of comorbidities.

Risk Adjustment Weighting and Calculation of Expected Events

Calculation of risk-adjusted outcomes (counts of discharges) uses predetermined risk weights generated by two separate regression models. Weights from each model are combined to predict how many discharges each member might have during the measurement year, given age, gender and presence or absence of a comorbid condition. Weights are specific to product line (Medicare Under 65, Medicare 65 Plus, commercial). Refer to the reporting indicator column in the risk adjustment tables to ensure that weights are linked appropriately.

For each nonoutlier member in the eligible population, assign PPD risk weights. Calculate the PPD.

Step 1 For each member with a comorbidity HCC category, link the PPD weights.

Step 2 Link the age-gender PPD weights for each member.

Step 3 Sum all PPD weights (HCC, age and gender) associated with the member.

Step 4 Calculate the predicted probability of having at least one discharge in the measurement year based on the sum of the weights for each member using the formula below.

$$PPD = \frac{e^{(\sum \text{PPD WeightsForEachMember})}}{1 + e^{(\sum \text{PPD WeightsForEachMember})}}$$

Truncate the final PPD *for each member* to 10 decimal places. Do not truncate or round in previous steps.

For each nonoutlier member in the eligible population assign PUCD risk weights.

Step 1 For each member with a comorbidity HCC Category, link the PUCD weights. If a member does not have any comorbidities to which a weight could be linked, assign a weight of 1.

Step 2 Link the age-gender PUCD weights for each member.

Step 3 Calculate the predicted unconditional count of discharges in the measurement year, by multiplying all PUCD weights (HCC, age and gender) associated with the member. Use the following formula:

$$PUCD = \text{Age/Gender Weight} * \text{HCC Weight}$$

Note: Multiply by each HCC associated with the member. For example, assume a member with HCC-2, HCC-10, HCC-47. The formula would be:

$$PUCD = \text{Age/Gender Weight} * HCC-2 * HCC-10 * HCC-47$$

Truncate the final PUCD for each member to 10 decimal places. Do not truncate or round in previous steps.

Expected count of hospitalization Calculate the final member-level expected count of discharges using the formula below.

$$\text{Expected Count of Discharges} = \text{PPD} \times \text{PUCD}$$

Round the member-level results to 4 decimal places using the .5 rule and sum over all members in the category.

Step 4 Use the formula below to calculate the covariance of the predicted outcomes for each category (gender and age group). For categories with a single member ($n_c=1$), set the covariance to zero. Do not round the covariance before using it in step 5.

$$COV_c = \frac{\sum_{m=1}^{n_c} (PPD_m - \text{mean}(PPD)_c) \times (PUCD_m - \text{mean}(PUCD)_c)}{n_c - 1}$$

Where:

c denotes an individual category
 n_c is the number of members in the category indicated by c
 m is an individual member within the category indicated by c
 PPD_m is the truncated PPD for the member denoted by m
 $\text{mean}(PPD)_c$ is the unrounded/untruncated mean PPD in the category indicated by c
 $PUCD_m$ is the truncated PUCD for the member denoted by m
 $\text{mean}(PUCD)_c$ is the unrounded/untruncated mean PUCD in the category indicated by c

Step 5 Once the covariance between PPD and PUCD for a given category is calculated, it can be used as indicated in the formula below to calculate the variance for that category.

$$\text{Variance}_c = \sum_{m=1}^{n_c} (PPD_m \times PUCD_m)^2 \times \left(1 + (1 - PPD_m)^2 + \left(\frac{2 \times COV_c}{PPD_m \times PUCD_m} \right) \right)$$

Where:

c denotes an individual category
 n_c is the number of members in the category indicated by c
 m is an individual member within the category indicated by c
 PPD_m is the truncated PPD for the member denoted by m
 $PUCD_m$ is the truncated PUCD for the member denoted by m

Round the variance for reporting to 4 decimal places using the .5 rule.

Reporting: Number of Nonoutliers

The number of nonoutlier members for each age and gender group, reported as the NonOutlierMemberCount.

Reporting: Number of Outliers

The number of outlier members for each age and gender group, reported as the OutlierMemberCount.

Calculated: Number of Members in the Eligible Population

The number of members in the eligible population (including outliers) for each age and gender group and totals. Calculated by IDSS as the MemberCount.

Calculated: Outlier Rate

The number of outlier members (OutlierMemberCount) divided by the number of members in the eligible population (MemberCount), displayed as a permillage (multiplied by 1,000), for each age and gender group and totals. Calculated by IDSS as the OutlierRate.

Reporting: Number of Observed Events Among Nonoutlier Members

The number of observed discharges within each age and gender group, reported as the ObservedCount.

Calculated: Observed Discharges per 1,000 Nonoutlier Members

The number of observed discharges (ObservedCount) divided by the number of nonoutlier members in the eligible population (NonOutlierMemberCount), multiplied by 1,000 within each age and gender group and totals. Calculated by IDSS as the ObservedRate.

Reporting: Number of Expected Events Among Nonoutlier Members

The number of expected discharges within each age and gender group, reported as the ExpectedCount.

Calculated: Expected Discharges per 1,000 Nonoutlier Members

The number of expected discharges (ExpectedCount) divided by the number of nonoutlier members in the eligible population (NonOutlierMemberCount), multiplied by 1,000 within each age and gender group and totals. Calculated by IDSS as the ExpectedRate.

Reporting: Variance Among Nonoutlier Members

The variance (from Risk Adjustment Weighting and Calculation of Expected Events, PUCD, step 5) within each age and gender group, reported as the CountVariance.

Calculated: O/E Ratio

The number of Observed Discharges Among Nonoutlier Members (ObservedCount) divided by Number of Expected Discharges Among Nonoutlier Members (ExpectedCount) for each age and gender group and totals. Calculated by IDSS as the OE.

Note

- *Supplemental data may not be used for this measure.*

Table AHU-2/3: Data Elements for Acute Hospital Utilization

Metric	Age	Gender	Data Element	Reporting Instructions
AcuteHospitalUtilization	18-44	F	NonOutlierMemberCount	For each Stratification
	45-54	M	OutlierMemberCount	For each Stratification
	55-64	Total	MemberCount	NonOutlierMemberCount + OutlierMemberCount
	18-64		OutlierRate	OutlierMemberCount / MemberCount (Per mille)
	65-74		ObservedCount	For each Stratification
	75-84		ObservedRate	1000 * ObservedCount / NonOutlierMemberCount
	85+		ExpectedCount	For each Stratification
	65+		ExpectedRate	1000 * ExpectedCount / NonOutlierMemberCount
	Total		CountVariance	For each Stratification
			OE	ObservedCount / ExpectedCount

Rules for Allowable Adjustments of HEDIS

The “Rules for Allowable Adjustments of HEDIS” (the “Rules”) describe how NCQA’s HEDIS measure specifications can be adjusted for other populations, if applicable. The Rules, reviewed and approved by NCQA measure experts, provide for expanded use of HEDIS measures without changing their clinical intent.

Adjusted HEDIS measures *may not* be used for HEDIS health plan reporting.

Rules for Allowable Adjustments for **Risk-Adjusted Measurement** of the Acute Hospital Utilization Measure (Observed Discharges, Expected Discharges, Risk Adjustment Determination, Risk Adjustment Weighting, Observed to Expected, Variance)

NONCLINICAL COMPONENTS		
Eligible Population	Adjustments Allowed (Yes/No)	Notes
Product lines	No	Organizations may not adjust product lines.
Ages	No	The age determination dates may not be changed. Note: <i>The denominator age may not be expanded. The ages for the risk weights may not be changed.</i>
Continuous enrollment, allowable gap, anchor date	No	For risk adjusted rates, organizations are required to use enrollment criteria; adjustments are not allowed.
Benefits	Yes	Organizations are not required to use a benefit; adjustments are allowed.
Other	Yes, with limits	Organizations may only adjust additional eligible population within the eligible population to focus on gender, sociodemographic characteristics or geographical region. Note: <i>NCQA recommends evaluating risk model performance and validity within adjusted populations.</i> Organizations may not adjust the clinical subpopulation (i.e., members with a diabetes diagnosis).
CLINICAL COMPONENTS		
Calculations of Observed Events	Adjustments Allowed (Yes/No)	Notes
Discharges	Yes, with limits	Only events or diagnoses that contain (or map to) codes in value sets may be used to identify visits. The value sets and logic may not be changed. Note: <i>Organizations may include denied claims to calculate observed events.</i>
Outlier	Yes, with limits	Organizations may not adjust the outlier logic. Note: <i>Organizations may include denied claims to calculate these events.</i>

Exclusions	Adjustments Allowed (Yes/No)	Notes
Required exclusions	No	The hospice exclusion is required. The value sets and logic may not be changed.
Risk Adjustment and Calculation of Expected Events	Adjustments Allowed (Yes/No)	Notes
<ul style="list-style-type: none">• Risk Adjustment Determination• Risk Adjustment Weighting• Expected Count of Discharges• Variance	Yes, with limits	<p>Risk adjustment determinations, weighting and calculations (including PPD and PUCD) of expected events logic may not be changed.</p> <p>Note: Organizations may include denied claims to calculate these events.</p>

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Adjusted HEDIS measures *may not* be used for HEDIS health plan reporting.

Rules for Allowable Adjustments for **Observed Measurement** of Acute Hospital Utilization Observed Events Measure (Observed Discharges)

NONCLINICAL COMPONENTS		
Eligible Population	Adjustments Allowed (Yes/No)	Notes
Product lines	Yes	When adjusting this measure to assess for observed events only, organizations are not required to use product line criteria; product lines may be combined and all (or no) product line criteria may be used.
Ages	Yes, with limits	The age determination dates may be changed (e.g., select, “age 50 months as of June 30”). Note: The denominator age may not be expanded.
Continuous enrollment, allowable gap, anchor date	Yes	Organizations are not required to use enrollment criteria; adjustments are allowed.
Benefits	Yes	Organizations are not required to use a benefit; adjustments are allowed.
Other	Yes	Organizations may use additional eligible population criteria to focus on an area of interest defined by gender, race, ethnicity, socioeconomic or sociodemographic characteristics, geographic region or another characteristic.
CLINICAL COMPONENTS		
Calculations of Observed Events	Adjustments Allowed (Yes/No)	Notes
Discharges	Yes, with limits	Only events or diagnoses that contain (or map to) codes in value sets may be used to identify visits. The value sets and logic may not be changed. Note: Organizations may include denied claims to calculate the observed events.
Outlier	Yes, with limits	Organizations may not adjust the outlier logic. Note: Organizations may include denied claims to calculate these events.
Exclusions	Adjustments Allowed (Yes/No)	Notes
Required exclusions	Yes	The hospice exclusion is not required. Refer to <i>Exclusions</i> in the <i>Guidelines for the Rules for Allowable Adjustments</i> .