Proposed Changes to Existing Measure for HEDIS®1 MY 2025:
Acute Hospital Utilization (AHU)

NCQA seeks comments on proposed modifications to the Acute Hospital Utilization (AHU) measure.

The AHU measure assesses the risk-adjusted ratio of observed-to-expected (O/E) acute inpatient and observation stay discharges for members 18 years of age and older. The measure is currently separately specified for the commercial and Medicare product lines and for different age strata (commercial members 18+; Medicare members 18–64; Medicare members 65+). NCQA seeks to expand this measure into the Medicaid product line for members 18–64 years of age. This initiative was motivated by the retirement of the Inpatient Utilization (IPU) measure in MY 2024, and NCQA’s commitment to improving quality across diverse populations.

To examine acute hospital utilization in this population, NCQA tested the concept using 2022 Medicaid administrative claims data. Testing demonstrated that the measure can be feasibly reported by health plans with a sufficient denominator size for HEDIS reporting for the Medicaid product line. After evaluating the distribution of events and considering trends in utilization, the outlier definition for the Medicaid product line will be set at 6 or more inpatient or observation stay discharges. This represents approximately 1.4% of Medicaid members excluded as outliers, which is similar to other product lines and measures. After excluding outliers, the average observed rate of acute inpatient and observation stay discharges was 76.8 events per 1,000 beneficiaries.

NCQA developed and tested a two-part risk adjustment model for this measure that adjusts for variables such as age, gender and clinical conditions (using the CMS Hierarchical Condition Categories [HCC]). Testing demonstrated that risk adjustment models for the Medicaid 18–64 population performed adequately and were calibrated well. Across the testing population, the O/E ratio was 1.02 (95% confidence interval: 1.01, 1.03). Table 1 contains the distribution of plan-level O/E ratios. The mean plan-level O/E ratio was 0.87. Poor-performing plans in the 90th percentile had 31% more hospitalizations than expected (O/E ratio: 1.31); high-performing plans in the 10th percentile had 58% fewer hospitalizations than expected (O/E ratio: 0.42). Note that while the plan-level O/E is somewhat lower than 1 (expected for performance on average), the population level O/E is very close to 1. This suggests the model is appropriately calibrated, but that plan-level effects in the testing data are observed in the Table 1 distribution.

<table>
<thead>
<tr>
<th>Product Line</th>
<th>Age Group</th>
<th>N of Plans*</th>
<th>Mean</th>
<th>Min</th>
<th>10th</th>
<th>25th</th>
<th>50th</th>
<th>75th</th>
<th>90th</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid</td>
<td>18-64</td>
<td>48</td>
<td>0.87</td>
<td>0.00</td>
<td>0.42</td>
<td>0.61</td>
<td>0.86</td>
<td>1.04</td>
<td>1.31</td>
<td>1.95</td>
</tr>
</tbody>
</table>

*Includes plans that meet the minimum denominator size of 150 members. O/E interpretation: 1 = as expected, <1 = better than expected, >1 = worse than expected.

Advisory panels expressed overall support for expanding this measure to the Medicaid product line.

NCQA seeks general feedback on proposed changes and specific feedback on the following question:

1. Do you support publishing this measure for the Medicaid product line?

Supporting documents include the measure specification.

NCQA acknowledges the contributions of the Technical and Utilization Measurement Advisory Panels.

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**Acute Hospital Utilization (AHU)**

**SUMMARY OF CHANGES FOR HEDIS MY 2025**

- Revised the last *Note* to clarify that supplemental data can be used for required exclusions.
- *Added the Medicaid product line.*

**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.

*Note: For Medicaid, report only members 18—64 years of age.*

**Definitions**

**Outlier**

- Medicare members with four or more inpatient or observation stay discharges during the measurement year.
- *Medicaid members with six 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.
- *Medicaid members with five 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, Medicaid (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 exclusion

Members who use hospice services (Hospice Encounter Value Set; Hospice Intervention Value Set) or elect to use a hospice benefit any time during the measurement year. Organizations that use the Monthly Membership Detail Data File to identify these members must use only the run date of the file to determine if the member elected to use a hospice benefit during the measurement year.

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 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.

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**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, Medicaid). 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.

\[
PPD = \frac{e^{\sum \text{PPD Weights For Each Member}}}{1 + e^{\sum \text{PPD Weights For Each Member}}}
\]

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:

\[
PUCD = \text{Age/Gender Weight} \times \text{HCC Weight}
\]
**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:

\[
PUCD = \text{Age/Gender Weight} \times \text{HCC-2} \times \text{HCC-10} \times \text{HCC-47}
\]

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.

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

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

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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, except for required exclusions.

### Table AHU-1: Data Elements for Acute Hospital Utilization

<table>
<thead>
<tr>
<th>Metric</th>
<th>Age</th>
<th>Data Element</th>
<th>Reporting Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AcuteHospitalUtilization</td>
<td>18-21</td>
<td>NonOutlierMemberCount</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td>22-34</td>
<td>OutlierMemberCount</td>
<td>For each Stratification</td>
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<tr>
<td></td>
<td>35-44</td>
<td>MemberCount</td>
<td>NonOutlierMemberCount + OutlierMemberCount</td>
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<tr>
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<td>18-44</td>
<td>OutlierRate</td>
<td>OutlierMemberCount / MemberCount (Permille)</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>ObservedCount</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>ObservedRate</td>
<td>1000 * ObservedCount / NonOutlierMemberCount</td>
</tr>
<tr>
<td></td>
<td>18-64</td>
<td>ExpectedCount</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ExpectedRate</td>
<td>1000 * ExpectedCount / NonOutlierMemberCount</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CountVariance</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OE</td>
<td>ObservedCount / ExpectedCount</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Metric</th>
<th>Age</th>
<th>Data Element</th>
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</tr>
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<tr>
<td>AcuteHospitalUtilization</td>
<td>18-44</td>
<td>NonOutlierMemberCount</td>
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</tr>
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<td></td>
<td>45-54</td>
<td>OutlierMemberCount</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>MemberCount</td>
<td>NonOutlierMemberCount + OutlierMemberCount</td>
</tr>
<tr>
<td></td>
<td>18-64</td>
<td>OutlierRate</td>
<td>OutlierMemberCount / MemberCount (Permille)</td>
</tr>
<tr>
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<td>65-74</td>
<td>ObservedCount</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td>75-84</td>
<td>ObservedRate</td>
<td>1000 * ObservedCount / NonOutlierMemberCount</td>
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<td>85+</td>
<td>ExpectedCount</td>
<td>For each Stratification</td>
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<td>65+</td>
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<td>1000 * ExpectedCount / NonOutlierMemberCount</td>
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<tr>
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<td>Total</td>
<td>CountVariance</td>
<td>For each Stratification</td>
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<tr>
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<td>OE</td>
<td>ObservedCount / ExpectedCount</td>
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