HEDIS® High Performers in Antibiotic Stewardship
Methodology

Introduction

NCQA, with funding from the Pew Charitable Trusts, has leveraged the Healthcare Effectiveness Data and Information Set (HEDIS®[1]) to highlight how health plans can contribute to improved antibiotic stewardship. HEDIS is a set of quality measures widely reported by health plans in the United States. These measures assess whether health plans ensure the individuals they cover receive evidence-based care.

HEDIS includes four measures that assess antibiotic prescribing, including overall prescribing for respiratory related diagnoses and three condition-specific measures for bronchitis/bronchiolitis, upper respiratory infection and pharyngitis -- three conditions for which antibiotics are frequently incorrectly prescribed in the United States. These measures were used to develop the ***NCQA Health Plan Stewards of Responsible Antibiotic Use Program***. This document describes the methodology used to determine which health plans were identified as high performers on measures assessing appropriate and overall prescribing patterns of antibiotics.

HEDIS Measures Assessed

NCQA uses four publicly reported HEDIS quality measures to assess health plan performance or utilization related to antibiotic use (Table 1). The measures are reported using administrative data (i.e., claims and enrollment information) and calculated for commercial, Medicaid and Medicare Advantage plans.

All publicly reported HEDIS measures are audited by NCQA-Certified HEDIS Compliance Auditors.

Table 1. HEDIS Antibiotic Measures Assessed

Measure	Assesses % of…	Higher Rates Indicate…
Avoidance of Antibiotic Treatment for Acute Bronchitis/ Bronchiolitis (AAB)	Episodes for members three months of age and older with a diagnosis of acute bronchitis/ bronchiolitis that did *not* result in an antibiotic dispensing event.	Appropriate treatment for bronchitis/bronchiolitis (i.e., the percentage of episodes that *were not* prescribed an antibiotic).
Appropriate Treatment for Upper Respiratory Infection (URI)	Episodes for members three months of age and older with a diagnosis of upper respiratory infection that did *not* result in an antibiotic dispensing event.	Appropriate treatment for upper respiratory infection (i.e., the percentage of episodes that *were not* prescribed an antibiotic).
Appropriate Testing for Pharyngitis (CWP)	Episodes for which members three years of age and older with a diagnosis of pharyngitis received a group A streptococcus test for antibiotics dispensed.	Completion of the recommended testing required to merit antibiotic treatment for pharyngitis.
Antibiotic Utilization for Respiratory Conditions (AXR)	The percentage of episodes for members three months of age and older with a diagnosis of a respiratory condition that resulted in an antibiotic dispensing event.	Overall prescription utilization rate for respiratory related diagnoses.

*The denominator for each measure is the number of episodes for a diagnosis of bronchitis/bronchiolitis (AAB), upper respiratory infection (URI), pharyngitis (CWP), or respiratory conditions (AXR).

Analysis Process

Health plans submitting antibiotic measure data for performance in Measurement Year (MY) 2023 (data collected from January 1, 2023-December 31, 2023) were assessed for this program. There are three plan types: private/commercial plans, in which people enroll through work or on their own; plans that serve Medicare beneficiaries in the Medicare Advantage program; and plans that serve Medicaid beneficiaries. For 2023, 132 health plan submissions across the four measures were analyzed. This included 57 commercial, 36 Medicaid, and 39 Medicare plan submissions.

NCQA reviewed performance rates by the following age groups:

- Children under 18 years of age (Note: not included in the Medicare plans)
- Adults 18-64 years of age
- Adults 65 years of age and older

For each of the four measures, each measure was assessed by product line and age (i.e., Medicaid adult 18-64, commercial adult 18-64, Medicare adult 18-64).

Table 2. Indicators Assessed for Antibiotic Program

Product Line	Age
Medicaid	Child
	Adult 18-64
	Adult 65+
Commercial	Child
	Adult 18-64
	Adult 65+
Medicare (adult only)	Adult 18-64
	Adult 65+

Step 1: Analysis for Utilization Measure (AXR)

Using the median performance rate, plans must be at or below the bottom 50th percentile for the AXR measure to be considered a high performer. For AXR, a higher or lower performance rate does not indicate better or worse performance. Rather, the measure indicates antibiotic utilization for respiratory conditions across a plan's membership. However, a higher rate of prescribing for respiratory conditions beyond what is average for a given organization may highlight a need to further assess antibiotic prescribing practices to minimize inappropriate prescribing. If plans were at or below the bottom 50th percentile for the AXR measure, NCQA included those plans in step two when assessing the other three measures (AAB, URI, CWP) as described below in the effectiveness of care measures section.

Step 2: Analysis for Effectiveness of Care Measures (AAB, URI, CWP)

Commercial and Medicaid plans could be assessed on up to nine indicators (three measures x three age groups); Medicare plans could be assessed on up to six indicators (three measures for adults aged 18-64 and adults aged 65 and over). NCQA compared plans *within* product lines (i.e., commercial plans were compared to other commercial plans, and so on).

To be included in the analysis, a health plan's indicator rate was required to be "reportable," defined as having at least 30 denominator events for that indicator. This is a standard minimum used across HEDIS measures. It was possible for a health plan to be eligible for some indicators, but not all.

Health plans that had the following were designated as meeting the criteria for being a responsible steward of antibiotic use, as defined by the HEDIS measures:

- At least two reportable indicator rates.
- If a health plan reached the two reportable indicator rates, then at least 33.3% of those reportable indicator rates were at or above a designated threshold, i.e., benchmark.

For each indicator, a performance rate at or above the 85th percentile was required to meet criteria for consideration as a high performer. The results were analyzed to ensure that the algorithm utilized did not inadvertently favor a specific type of health plan over another.

An example of how a health plan did or did not meet the criteria to be considered a high performer is provided in Figure 1.

Figure 1. Example of Application of Antibiotic Stewardship Criteria to Health Plans

MEASURE	INDICATOR	PLAN A	PLAN B	PLAN C
STEP 1: DOES THE HEALTH PLAN PERFORM AT OR BELOW THE 50TH PERCENTILE OF THE AXR MEASURE?				
ANTIBIOTIC UTILIZATION FOR RESPIRATORY CONDITIONS	**Total**	✓ **45th percentile**	✓ **30th percentile**	**X** **60th percentile**
STEP 2: DOES YOUR HEALTH PLAN HAVE TWO REPORTABLE INDICATORS (BLUE BOXES), AND IF SO, ARE AT LEAST 33.3% OF THOSE AT OR ABOVE THE 85TH PERCENTILE (CHECK MARKS)?				
BRONCHITIS	**Child**			
	Adult 18-64	✓		
	Adult 65+			
UPPER RESPIRATORY INFECTION	**Child**	✓		
	Adult 18-64		✓	
	Adult 65+	✓		
PHARYNGITIS	**Child**	✓		
	Adult 18-64			
	Adult 65+			
REPORTABLE INDICATORS		**6**	**4**	
APPROPRIATE PRESCRIBING		**4**	**1**	

Reportable Indicator

✓ Performed ≥ 85th percentile

Plan meets criteria **Plan does not meet criteria**

Plan Profile Selection

In order to understand and share health plan best practices for combating antibiotic misuse, NCQA conducted interviews with a selection of plans that met the criteria of responsible antibiotic stewardship as defined by their performance on the HEDIS antibiotic use measures.

NCQA used a purposive selection process aimed at maximizing diversity of plan types to learn about antibiotic stewardship strategies that could be useful for all health plans. Plans were categorized based on product line, plan size and geographic region. NCQA then selected plans based on these categories with the goal of including a diverse group of plans for interviews. Plans that participated in the interviews are profiled on the web page.

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