

2024 Measure Set Review (MSR): Final Preliminary Assessment

The following information was sourced in June of 2024 from the Centers for Medicare & Medicaid Services (CMS) Measures Inventory Tool (CMIT), discussions with CMS program leads, and publicly available CMS datasets (see links below).

I. Measure Information

CMIT ID	Title
00097-01-C-HOQR	Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery
Measure Steward	CMS Program
Centers for Medicare and Medicaid Services (CMS)	Hospital Outpatient Quality Reporting

Measure Overview
<p>Rationale: This measure aims to promote use of high-quality, efficient care; reduce unnecessary exposure to contrast materials and radiation; ensure adherence to evidence-based medicine and clinical practice guidelines; and provide data to consumers and other stakeholders about imaging use at the facility, state, and national level.</p> <p>CMS adopted the measure for the Hospital OQR Program, in part, to address an area of patient safety related to one of the most common imaging services in the Medicare population at the time, as CMS believed inappropriate use could increase the patient’s risk of cancer, contribute no benefit to the quality of care, and result in the unnecessary waste of services (75 FR 72076). CMS routine monitoring and evaluation shows that the range of cases per HOPD varies greatly (that is, from one to over 1,300 cases), posing limitations when assessing and interpreting comparative performance trends over time. In addition, while there was a slight average performance score improvement from payment determination years CY 2020 to 2024 (despite the COVID-19 pandemic and the larger pool of reporters) of about 1% (4.7% and 3.6, respectively), the variation between the 10th and 25th percentiles of performance is not statistically distinguishable, indicating the measure may not provide meaningful data for informing consumers about quality of care for this service in HOPDs. Furthermore, at a 3.5% average overall rate for this measure for the CY 2024 payment determination year, there is little room for national performance on this measure to show significant improvement, as lower rates are better for this measure. Based on these findings, this measure meets the CMS criteria for measure removal Factor 2 (that is, performance or improvement on a measure does not result in better patient outcomes) and has been proposed for removal from the Hospital OQR Program.</p>
<p>Description: This measure calculates the percentage of stress echocardiography, single photon emission computed tomography myocardial perfusion imaging (SPECT MPI), stress magnetic resonance imaging (MRI), or coronary computed tomography angiography (CCTA) studies performed at a hospital outpatient facility in the 30 days prior to an ambulatory, non-cardiac, low-risk surgery performed at any location (e.g., within the same facility as the cardiac imaging, at another hospital unaffiliated with the site of the index cardiac imaging, or within a physician’s office).</p>

<p>Numerator: Number of stress echocardiography, SPECT MPI, stress MRI, and CCTA studies performed within a hospital outpatient department during the 30 days prior to an ambulatory, non-cardiac, low-risk surgery performed at any location.</p> <p>Exclusions: None</p>	
<p>Denominator: The number of stress echocardiography, SPECT MPI, stress MRI, and CCTA studies performed within a hospital outpatient department within a 1-year window of claims data performed on Medicare FFS beneficiaries at outpatient hospital facilities reimbursed through the Hospital Outpatient Prospective Payment System (OPPS). Beneficiaries can be included in the measure's initial patient population multiple times; each stress echocardiography, SPECT MPI, stress MRI, and CCTA studies performed at a facility measured by OPPS in the 30 days prior to a low-risk surgery is counted once in the measure's denominator.</p> <p>Exclusions: Medicare FFS beneficiaries with a history of at least three diagnoses from the following categories are excluded from the measure's initial patient population: diabetes mellitus, renal insufficiency, stroke or transient ischemic attack (TIA), prior heart failure, and ischemic heart disease. Cardiac imaging studies performed in the emergency department (ED) or in the 30 days following an ED encounter are also excluded from the measure, as they often have a different clinical indication than those performed in other hospital outpatient care settings.</p>	
<p>Measure type: Process</p>	<p>Measure is a composite: No</p> <p>Measure is digital and/or an eCQM: No</p>
<p>Level(s) of analysis/measured entity: Facility/Hospital/Agency</p>	<p>Care setting(s):</p> <ul style="list-style-type: none"> • Ambulatory: Office-based care • Hospital: Inpatient Acute Care Facility • Hospital: Outpatient Department (HOPD)
<p>Risk adjustment and/or stratification: No. Process measures are not generally risk adjusted.</p>	<p>Data source(s): Medicare FFS claims</p>
<p>Data collection method: Claims data review</p>	<p>Reporting frequency: Annually</p>
<p>All required data are collected as part of clinical workflow: Yes</p>	<p>Reporting overlap with similar/related measures: No overlap with similar active measures.</p>
<p>Does this measure fill a statutorily required category for the program? No</p>	<p>Is this measure included in upcoming rulemaking? Yes. This measure is being considered for removal from this program beginning with the CY 2025 reporting period/CY 2027 payment determination as described in the CY 2025 OPPS Proposed Rule (89 FR 59186).</p>

Measure Status	
<p>Current CBE Endorsement Status: Endorsement removed</p>	<p>CBE Endorsement History: Initial endorsement April 2011; endorsement removed March 24, 2021.</p>

II. Measure Performance

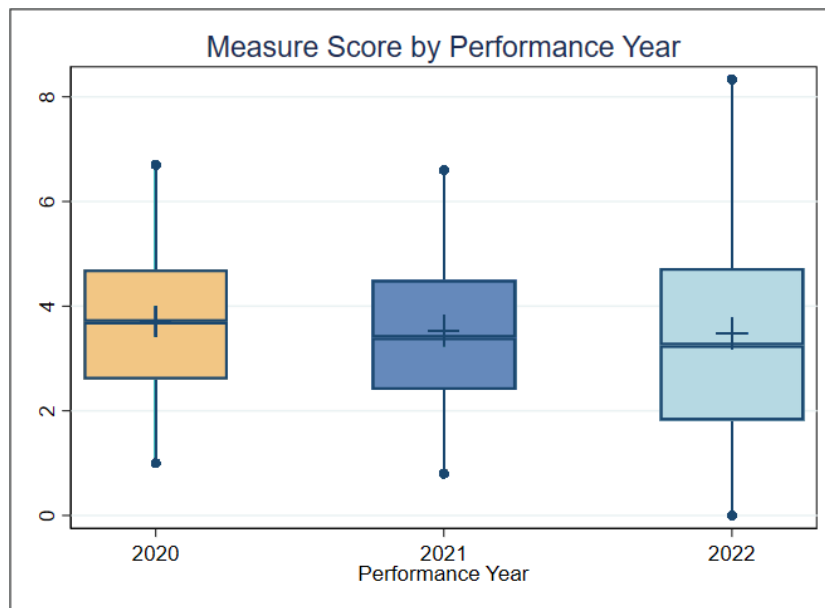
00097-01-C-HOQR Performance in HOQR 2020-2022

For this measure, the MSR evaluation and analysis team reviewed the publicly available dataset [Outpatient Imaging Efficiency-Hospital](#) and [archived Hospital](#) data.

Figure 1 is a boxplot that shows the distribution of the performance over the past 3 years (where available). For each performance year, the dots indicate the lower 5th and upper 95th percentiles, and the vertical line is the range between these values (90% of the measure scores are between the dots). The box spans the lower 25th to the upper 75th percentile (50% of the measure scores are within the box). The horizontal line in the box indicates the median score, and the “+” indicates the average score. This plot can be used to assess overall trends in the score over time.

Interpretation: In the plot below, the median score decreased slightly from 3.7 in 2020 to 3.4 in 2021 and to 3.25 in 2022.

Figure 1. Boxplot of Measure Score by Year



Importance Table

Interpretation of measure scores: This table shows the relative spread of the scores and how many patients are impacted. Often the lowest or highest deciles (which, by definition, each represent 10% of the entities) may represent a disproportionately higher or lower percentage of patients. If the lowest decile contains only 5% of the patients for example, it suggests that low patient population may be related to low scores. The table can also be used to evaluate the impact of improving the score. It is common practice to use the performance of the top 20% of the entities as a benchmark. Here, 20% of the entities perform better than the 3rd Decile (1.8), which could be considered the benchmark. The number of adverse events for each decile can be estimated by multiplying the total patients by the corresponding rate. Here, the estimated total number of adverse events across all deciles is 19,313. If Deciles 4-10 performed at the benchmark of 1.8, there would be an estimated 53% fewer adverse events (about 8,982).

Table 1. Importance (Decile by performance score, 2022)

Data Type	Overall	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max
Mean Score (SD)	3.47 (2.74)	0	0	0.2	1.8	2.5	3.0	3.5	4.1	4.7	5.8	9.2	27.3
Entities	2,918	521	292	292	292	292	291	292	292	292	292	291	1
Total Patients	521,537	15,522	8,991	15,263	40,691	64,361	77,660	90,466	85,487	72,189	46,002	20,427	11

Reliability Tables

Two tables are used to summarize reliability. For Table 2, entities are sorted by patient volume, and the average reliability is reported along with the number of entities and average number and total patients for each decile. These tables can be used to assess the impact of population size on the reliability of an entity's measure score. In cases where reliability has a strong relationship to population size, reliability will be the lowest at Decile 1 and progressively increase up to Decile 10.

For Table 3, entities are sorted by reliability, and the average reliability by decile is reported. Average, standard deviation, minimum and maximum reliability, and inter-quartile range (IQR) are also included. This table can be used to see the distribution of the reliability of the entities. A measure score is generally considered reliable when the reliability for at least 70% of the individual entities is above 60%.

Table 2. Reliability (Decile by denominator – target population size)

Data Type	Overall	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max
Mean Target Population Size	179	11	14	23	35	48	69	97	138	210	338	818	3,280
Mean Reliability	35.3	78.3	63.8	47.2	35.6	26.7	22.4	18.6	21.7	28.0	36.5	53.1	82.6
Entities	2,918	32	292	292	292	292	291	292	292	292	292	291	1
Total Patients	521,537	352	4,228	6,770	10,124	14,149	19,941	28,195	40,193	61,192	98,610	238,135	3,280

Table 3. Mean reliability (By reliability decile)

Mean	SD	Min	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10	Max	IQR
35.3	34.1	0.3	1.8	4.9	8.5	13.1	18.9	26.2	36.4	50.3	93.4	100	100	40.6

Entities with a denominator less than 11 were removed from this analysis.

Interpretation: In the current year, 18% of the entities have a measure score of 0 (see Table 1). These tend to be entities with lower patient volume numbers, representing only 3% of patients. Conversely the 10% of the entities with the highest score (Decile 10) are those with high volume, representing 46% of the patients.

Reliability is calculated using Adam's¹ method. Only 21% of the entities have a reliability above 60%. The low reliability does not seem to be related to low patient volume; the decile with the highest reliability is Decile 1, which has the lowest patient volume. (Many of the low-volume entities have a score of 0, which leads to a reliability of 100 because the within entity variance is 0.) The main reason the reliability is so low is because the variation between entities in measure score is relatively low. Overall, this measure may not be reliable to differentiate between entities.

¹ Adams, John L., *The Reliability of Provider Profiling: A Tutorial*. Santa Monica, CA: RAND Corporation, 2009.