2025 Pre-Rulemaking Measure Review
Preliminary Assessment

MUC ID	Title
MUC2025-036	Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Acute Myocardial Infarction (AMI) Hospitalization
Measure Steward & Developer	**Proposed CMS Programs**
Centers for Medicare & Medicaid Services (CMS)	Hospital Inpatient Quality Reporting Program Link: Hospital Inpatient Quality Reporting Program Hospital Value-Based Purchasing Program (HVBP) Link: Hospital Value-Based Purchasing Program

Measure Overview
Rationale: The goal of this measure is to improve patient outcomes by providing patients, physicians, hospitals, and policymakers with information about hospital-level, risk-standardized mortality rates following hospitalization for AMI. Measurement of patient outcomes allows for a broad view of quality of care that encompasses more than what can be captured by individual process-of-care measures. Complex and critical aspects of care, such as communication between providers, prevention of and response to complications, patient safety, and coordinated transitions to the outpatient environment, all contribute to patient outcomes, but are difficult to measure by individual process measures. The goal of outcomes measurement is to risk adjust for patient conditions at the time of hospital admission then evaluate patient outcomes. This measure was developed to identify institutions whose performance is better or worse than what would be expected based on their patient case mix and therefore promote hospital quality improvement and better inform consumers about care quality.
CMS-provided program rationale: Measurement of patient outcomes related to acute myocardial infarction (AMI) risk-standardized mortality rates permits an overall view of care provided by individual hospitals as compared to like facilities with similar patient populations. This process can assist patients and caregivers in evaluating outcomes for specific providers in relation to care and services for AMI. This opportunity provides patients with the opportunity to choose a provider based on their needs and provides hospitals with quality improvement opportunities.
Description: The measure estimates a hospital-level 30-day risk-standardized mortality rate (RSMR) for Medicare patients (Fee-For-Service [FFS] and Medicare Advantage [MA]) aged 65 and older discharged from the hospital with a principal diagnosis of AMI. The outcome is all-cause 30 day mortality, defined as death from any cause within 30 days of the index admission date, including in-hospital death.
Measure background: Measure currently used in a Medicare program, but the measure is undergoing substantive change.
Numerator: The outcome for this measure is 30-day all-cause mortality. We define mortality as death from any cause within 30 days of the start of the index admission. **Exclusions:** N/A

Measure Overview	
Denominator: The cohort includes admissions for patients that meet all of the following inclusion criteria: • Discharged from the hospital with a principal discharge diagnosis of AMI; • Enrolled in Medicare FFS Part A and Part B or MA for the first 12 months prior to the date of admission and enrolled in Part A or MA during the index admission. [For VA beneficiaries hospitalized in VA hospitals, there are no Medicare FFS or MA enrollment requirements. For VA beneficiaries hospitalized in non-VA hospitals, they must be concurrently enrolled in Medicare FFS Part A or MA at the time of the index admission, to be eligible for cohort inclusion, but the 12-month Part A and B or MA enrollment prior to admission is not required.]; • Aged 65 or over; • Not transferred from another acute care facility. **Exclusions:** This measure excludes index admissions for patients that meet any of the following exclusion criteria: Discharged alive on the day of admission or the following day and not transferred to another acute care facility; Inconsistent or unknown vital status or other unreliable demographic data (e.g., age and sex); Enrolled in the Medicare hospice program (or used VA hospice services) any time in the 12 months prior to the index admission, including the first day of the index admission; or Discharged against medical advice. For patients with more than one eligible AMI admission in the reporting period, only one index admission per year is randomly selected for inclusion in the cohort. Additional admissions within that time period are excluded. **Exceptions:** N/A	
Substantive changes from prior version (if applicable): Integration of Medicare Advantage (MA) beneficiaries into the cohort and modifying performance period from 3 years to 2 years.	
Measure type: Outcome	**Measure is a composite:** No **Measure is digital and/or an eCQM:** No **Measure is a paired or group measure:** No
Level of analysis: Facility	**Data source(s):** • Digital-Administrative systems: Administrative Data (non-claims) • Digital-Administrative systems: Claims Data
Care setting(s): Hospital inpatient acute care facility	**Risk adjustment or stratification:** Yes, risk adjusted.
CBE endorsement status: Endorsed	**CBE endorsement history:** Initial endorsement in 2007; endorsed during maintenance review in 2020.
Is measure currently used in CMS programs? Hospital Value-Based Purchasing Program	**Measure addresses statutorily required area?** No

Evaluation

Meaningfulness

Importance	
Type of evidence:	Empirical data; Peer-Reviewed Original Research; Peer-Reviewed Systematic Review [Measures Under Consideration Entry/Review Information Tool (MERIT) Submission Form]
Importance: As referenced in the empirical data summary, mortality rates after an AMI hospital admission are high throughout hospitals in the United States and create significant economic burden on the health care system. Evidence from peer-reviewed studies shows that while risk-standardized mortality rates for AMI have decreased over the last 20 years, variation remains, suggesting continued opportunities for improvement. This measure clearly aligns with national health priorities and demonstrates potential for improving outcomes, such as use of appropriate medications, timely percutaneous coronary interventions, and prevention of complications to decrease risk of mortality within 30 days of hospital admission. The evidence supporting the importance of this measure was found to be sufficient during CBE endorsement review in 2020.	
Rating: Met; Prior CBE Endorsement	

Conformance
Measure alignment with conceptual intent: This measure intends to estimate the risk-standardized mortality rate (RSMR) of adults discharged from the hospital with an AMI diagnosis within 30 days of discharge. The measure numerator, denominator, and exclusions are clearly defined and directly support the intent of the measure. Specifically, the numerator is 30-day all-cause mortality. The denominator includes patients discharged from the hospital with a principle diagnosis of AMI, are enrolled in Medicare FFS Part A and Part B for the first 12 months prior to the date of hospital admission and are enrolled in Medicare FFS or MA during the index admission, are 65 or older, and were not transferred from another acute care facility. The denominator has been updated to include MA patients, which doubles the cohort size and more accurately reflects the quality of care for FFS and MA beneficiaries. This measure aligns with the Hospital IQR Program objectives to improve the quality of care that hospitals provide and to distribute clearly defined and objective data about hospital performance, and the HVBP program objective to eliminate or reduce adverse events.
Rating: Met

Feasibility	
Feasibility testing/analysis conducted:	No, not an eCQM
Feasibility: Data elements for this measure are routinely collected in electronic health records and claims data. The measure can be implemented without significant workflow changes. No major technical barriers are associated with this measure; however, rural hospitals or hospitals without EHR access may experience burden when reporting on this measure. The feasibility of this measure was found sufficiently demonstrated during CBE endorsement review in 2020.	
Rating: Met; Prior CBE Endorsement	

Validity	
Validity testing method(s):	Empiric Validity
Testing level(s)	Facility
Was this measure tested in the same target population as the CMS program?	Yes
Validity: The developer assessed the validity of the measure by comparing the correlations between the AMI Mortality measure and components of the Overall Hospital Quality Star Rating, including the Summary Score (with and without the Mortality Group) and the Mortality Group Score (with and without the AMI Mortality Measure[1]). Because the AMI Mortality measure follows a lower-is-better scale while Star Rating measures follow a higher-is-better scale, the developer hypothesized a weak-to-moderate negative correlation between the AMI Mortality measure and Star Rating-related measures. The AMI Mortality measure showed negative correlations with the Star Rating Overall Summary Scores ($r=-0.304$, $p < .0001$), the Star Ratings Adjusted summary score excluding the Mortality Group ($r=-0.128$, $p < .0001$), the Star Rating Mortality Group Scores ($r=-0.451$, $p < .0001$), and the Star Rating Adjusted Mortality Group Scores excluding the AMI Mortality Measure ($r=-0.376$, $p < .0001$). These findings are consistent with expectations, reinforcing the relationship between lower AMI Mortality scores and higher Star Ratings as indicators of better quality of care. The developer does not recommend the measure for stratification. Testing in populations representative of the CMS program population supports the external validity of the measure. The validity of this measure was found sufficiently demonstrated during CBE endorsement review in 2020.	

[1] All Mortality Measures used in Star Ratings are FFS only.

Validity
Threats to validity: The measure is risk adjusted for patient functional status (frailty indicator), patient-level demographics (age), and patient-level health status and clinical conditions (case-mix adjustment, comorbidities, and severity of illness). The developer performed model discrimination using the c-statistic and predictive ability and assessed model calibration using the risk decile plot. During measure development, the sample of 228,680 persons produced a c-statistic of 0.86, with predictive ability ranging from 1.00% in the lowest decile to 61.96% in the highest decile. The validation sample of 227,985 persons produced the same c-statistic of 0.86, with predictive ability ranging from 1.07% to 62.82%. The risk decile plot showed that deciles with a higher predicted risk of AMI mortality were associated with higher observed AMI mortality rates. These results suggest that the model effectively differentiates AMI mortality risk levels and adequately adjusts for differences in patient characteristics.
Rating: Met; Prior CBE Endorsement

Reliability	
Reliability testing method(s):	Random Split-half Correlation [MUC Entry/Review Information Tool (MERIT) Submission Form]
Testing level:	Facility
Reliability discussion: The developer conducted permutation resampling to calculate the intraclass correlation coefficient (ICC) at the accountable-entity level. The overall ICC for hospitals with at least 25 admissions was 0.772. Reliability results used 2 years of data (2022-2023) from 2,127 facilities with at least 25 admissions. During collaboration on this PA, the developer provided the minimum, maximum, median, and 25th and 75th percentiles. Among hospitals with at least 25 admissions, the minimum reliability was 0.739, the median reliability was 0.771 (IQR: 0.765-0.779), and the maximum reliability was 0.788. All facilities exceeded the recommended minimum reliability threshold of 0.6. During CBE endorsement review in 2020, the committee found the reliability of this measure to be sufficiently demonstrated.	
Additional reliability analyses: No additional analyses were performed.	
Rating: Met; Prior CBE Endorsement	

Usability	
Usability considered in application:	Yes, the submission materials briefly discuss the measure's usability within relevant programs.
Usability discussion: The measure is currently used in the HVBP program and has demonstrated actionable insights for providers in hospitals. The developer did not identify unintended consequences but will continue to monitor the measure's use and assess potential unintended consequences over time, such as the inappropriate shifting of care, increased patient morbidity and mortality, and other negative unintended consequences for patients. During CBE endorsement review in 2020, the committee found the use/usability of this measure to be sufficiently demonstrated.	
Rating: Met; Prior CBE Endorsement	

Appropriateness of Scale

Appropriateness of Scale	
Similar or related measures in program(s):	Hybrid Hospital-Wide All-Cause Risk Standardized Mortality Measure (HWM) is a related measure in the HVBP program. Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Acute Myocardial Infarction (AMI) Hospitalization is a related measure in the Hospital Readmissions Reduction Program.
Measure balance, burden, and value across target populations/measured entities: This measure is an updated version of the Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Acute Myocardial Infarction (AMI) Hospitalization in HVBP program. MA patients were added to the cohort, which increases the cohort size, improves measure reliability, and allows measure results to more accurately reflect the quality of care for FFS and MA beneficiaries. The developer's analysis does not indicate the potential for differential benefit or harm to specific subgroups of participating entities or their patient populations and included a robust risk adjustment model that may improve distribution of benefit through reducing the influence of factors outside of the facility's control. **Considerations for the committee:** Based on clinical and professional experience, the committee should consider the potential burden and value of the measure for small or rural hospitals as well as hospitals serving high-risk or underserved populations.	

Time-to-Value Realization

Time-to-Value Realization	
Plan for near- and long-term impacts after implementation:	None specified

Measure implementation impacts over time: Incorporating MA data will extend the measure to a broader group of Medicare beneficiaries, thereby improving representativeness and reducing potential selection bias. In the near term, some hospitals may experience modest changes in scores as MA beneficiaries are incorporated. Over the longer term, a single, comprehensive Medicare cohort will provide more consistent tracking of performance trends, enhance comparability across hospitals and regions, and better reflect true differences in hospital quality.

Considerations for the committee:

- What are the potential near- and long-term impacts of this measure on measured entities as well as the Hospital IQR and HVBP programs and patient populations?
- Will benefits and burdens associated with this measure be realized within an appropriate implementation time frame?
- How will this measure mature through revisions in the future if added to the Hospital IQR and HVBP programs measure sets?