2025 Pre-Rulemaking Measure Review
Preliminary Assessment

MUC ID	Title
MUC2025-039	Excess Days in Acute Care (EDAC) after Hospitalization for Pneumonia
Measure Steward & Developer	**Proposed CMS Programs**
Centers for Medicare & Medicaid Services (CMS)	Hospital Inpatient Quality Reporting (IQR) Program Link: Hospital Inpatient Quality Reporting Program

Measure Overview
Rationale: The goal of this measure is to improve patient outcomes. 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. Safely transitioning patients from hospital to home requires a complex series of tasks which would be cumbersome to capture individually as process measures: timely and effective communication between providers, prevention of and response to complications, patient education about post-discharge care and self-management, timely follow-up, and more. Suboptimal transitions contribute to a variety of adverse events post-discharge, including emergency department (ED) evaluation, need for observation, and readmission. This Measures Under Consideration (MUC) submission includes an updated version of the Pneumonia EDAC measure currently reported in the Hospital Inpatient Quality Reporting (Hospital IQR) Program. The updates include the addition of MA beneficiaries to the cohort, counting ED visits as 1 day and observation stays in rounded hours, using individual ICD-10 codes for risk adjustment, and adopting a binomial model for estimating days in acute care.
CMS-provided program rationale: Excess days in acute care after a hospitalization is an issue that affects patient outcomes and impacts the quality of care provided to patients. Measuring and reporting excess days in acute care provides transparency for consumers and informs health care providers about opportunities to improve care, strengthen incentives for quality improvement, and ultimately improve the quality of care (including better inpatient management of diabetes, as well as better peri-discharge care quality) received by Medicare patients.
Description: This measure estimates days spent in acute care within 30 days post discharge from an inpatient hospitalization for pneumonia. The acute care outcomes include 1) Emergency Department (ED) visits, 2) observation stays (OBSs), and 3) unplanned readmissions. Unplanned readmissions are defined using the planned readmission algorithm (PRA). ED visits are counted as 1 day and OBSs are counted by hours and rounded up to 1 day. CMS annually reports the measure for patients who are 65 years or older and enrolled in fee-for-service (FFS) Medicare or Medicare Advantage (MA) and hospitalized in non-federal hospitals or Veterans Health Administration (VA) facilities.
Measure background: Measure currently used in a Medicare program, but the measure is undergoing substantive changes.
Numerator: The outcome of this measure is a count of the number of days the patient spends in acute care within 30 days of discharge from an eligible index pneumonia hospitalization. We define days in acute care as days spent in an ED, or an observation stay, or admitted as an unplanned readmission for any cause to a short-term acute care hospital, within 30 days from the date of discharge from the index pneumonia hospitalization.

Version 1.0 | December 2025 | *The analyses upon which this publication (or document) is based were performed under Contract Number 75FCMC23C0010, entitled, "National Consensus Development and Strategic Planning for Health Care Quality Measurement," sponsored by the Department of Health and Human Services, Centers for Medicare & Medicaid Services. Restricted:* Use, duplication, or disclosure is subject to the restrictions as stated in Contract Number 75FCMC23C0010 between the Government and Battelle.

Measure Overview	
Exclusions: N/A	

Denominator: The cohort includes admissions for patients that meet all of the following inclusion criteria:
Diagnosis coding that meets one of the two following requirements:
• Principal discharge diagnosis of pneumonia; or
  ○ (i). Principal discharge diagnosis of sepsis (that is not severe); and
  ○ (ii). A secondary diagnosis of pneumonia coded as present on admission (POA); and
  ○ (iii). No secondary diagnosis of sepsis that is both severe and coded as POA;
• Enrolled in Medicare FFS Part A and Part B or MA for the 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;
• Discharged alive from a non-federal short-term acute care hospital or VA hospital;
• Not transferred to another acute care facility.	

Exclusions: This measure excludes index admissions for patients that meet any of the following exclusion criteria: • Without at least 30 days of post-discharge enrollment in Medicare FFS or MA (in the case of patients who are not VA beneficiaries; • Discharged against medical advice; or • Pneumonia admissions within 30 days of discharge from a prior pneumonia index admission.	
Exceptions: N/A	
Substantive changes from prior version (if applicable): Integration of MA beneficiaries into the cohort, modifying performance period from 3 years to 2 years, and changes to outcome weighting (ED visits counted as 1 day and observation stays counted by hours and rounded up to 1 day). Updates to this measure also include non-substantive changes using individual ICD-10 codes for risk adjustment and adopting a binomial model for estimating days in acute care.	
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 2016. Endorsed during maintenance review in 2021.
Is measure currently used in CMS programs? Hospital Inpatient Quality Reporting Program	**Measure addresses statutorily required area?** No

Evaluation

Meaningfulness

Importance	
Type of evidence:	Empirical data; Grey Literature; Peer-Reviewed Original Research; Peer-Reviewed Systematic Review [MUC Entry/Review Information Tool (MERIT) Submission Form, AMI HF PN EDAC Peer Reviewed Research Attachment]
Importance: The developer presents empirical data that states pneumonia leads to over 1 million hospitalizations per year in the United States, incurring billions of dollars in health care costs. Evidence suggests that safely transitioning patients from hospital to home involves a complex set of tasks—such as provider communication, complication management, patient education, and timely follow-up—that are difficult to capture individually through process measures. Suboptimal transitions are linked to adverse outcomes, including emergency department visits, observation stays, and readmissions. These findings support the need for comprehensive measures that reflect the full scope of post-discharge care quality. Evidence from the literature review has raised concerns that current readmission measures do not capture the full range of unplanned acute care in the post-discharge period. This measure aligns with national health care priorities and demonstrates potential for improving outcomes, such as interventions during and after hospitalizations. During CBE endorsement review in 2021, the committee found the evidence supporting the importance of this measure was to be sufficient.	
Rating: Met; Prior CBE Endorsement	

Conformance
Measure alignment with conceptual intent: This measure intends to estimate days spent in acute care within 30 days post discharge from an inpatient hospitalization for pneumonia. The measure numerator, denominator, and exclusions are clearly defined and directly support the intent of the measure. Specifically, the numerator is a count of the number of days the patient spends in acute care within 30 days of discharge from an eligible index pneumonia hospitalization. The denominator includes patients aged 65 and older with a principal discharge diagnosis of pneumonia and no secondary diagnosis of sepsis. Including MA enrollees increases the cohort size and more accurately reflects the quality of care for fee-for-service and MA beneficiaries compared to the previous version of the measure. 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.
Rating: Met

Feasibility	
eCQM feasibility testing/analysis conducted:	No, not an eCQM
Feasibility: Data elements for this measure come from administrative data and claims data. These data sources are standardized and widely available across settings. The measure can be implemented without significant workflow changes. No major technical barriers are associated with this measure. During CBE endorsement review in 2021, the committee found the feasibility of this measure to be sufficiently demonstrated.	
Rating: Met; Prior CBE Endorsement	

Validity	
Validity testing method(s):	Empiric Validity; Face Validity [MERIT Submission Form, Supplemental Attachment]
Testing level(s)	Facility
Was this measure tested in the same target population as the CMS program?	Yes
Validity: The developer assessed the empiric validity of the measure by comparing the correlations between the Pneumonia EDAC measure and components of the Overall Hospital Quality Star Rating, including the Readmission Group Score (with and without the Hospital-Wide Readmission measure), the Summary Score (with and without the entire Readmission Group), and the Patient Experience Group Score. Because the Pneumonia EDAC 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 Pneumonia EDAC measure and Star Rating-related measures. Pneumonia EDAC measure showed negative correlations with the Star Rating Adjusted Readmission Group Scores (r=-0.248, p < .0001), the Star Rating Adjusted Summary Scores (r=-0.347, p < .0001), and the Star Rating Adjusted Summary Scores excluding the Readmission Measure Group Score (r=-0.207, p < .0001). These findings are consistent with expectations, reinforcing the relationship between lower Pneumonia EDAC scores and higher Star Ratings as indicators of better quality of care. The developer assessed the face validity of the measure score as an indicator of quality by surveying the technical expert panel (TEP) on their agreement on the following statement: the risk-standardized acute care days obtained from the measures as specified can be used to distinguish between better- and worse-quality hospitals. Eleven of the 12 members of the TEP agreed with the statement. However, the following three changes have been made to the measure since the TEP convened: the outcome weighting was simplified by assigning rounded times to observation stays and counting ED visits as 1 day, MA patients were added to the cohort, and the reporting period was shortened from 3 years to 2 years. Testing in populations representative of the CMS program population supports the external validity of the measure. During CBE endorsement review in 2021, the committee found the validity of this measure to be sufficiently demonstrated.	

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 617,442 persons produced a c-statistic of 0.66, with predictive ability ranging from 0.60 in the lowest decile to 3.40 in the highest decile. The validation sample of 616,187 persons produced the same c-statistic of 0.66, with predictive ability ranging from 0.59 to 3.38. The risk decile plot showed that deciles with a higher predicted risk of EDAC after hospitalization for pneumonia were associated with higher observed EDAC. These results suggest that the model effectively differentiates EDAC after hospitalization for pneumonia levels and adequately adjusts for differences in patient characteristics. The measure is not recommended to be stratified.
Rating: Met; Prior CBE Endorsement

Reliability	
Reliability testing method(s):	Random Split-Half Correlation
Testing level:	Facility
Reliability discussion: Split-half reliability testing demonstrated strong consistency for the measure, with a corrected reliability score of 0.817 among hospitals meeting the minimum case volume of 25 admissions. This score, based on the mean intraclass correlation coefficient (ICC) across 100 random split samples, meets accepted standards for publicly reported measures and indicates that observed performance differences are likely to reflect true variation rather than random noise. Reliability results used 2 years of data (2022-2023) from 3,705 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 0.809, the median reliability was 0.816 (IQR: 0.815-0.818), and the maximum reliability was 0.824. All facilities exceeded the recommended minimum reliability threshold of 0.6. During CBE endorsement review in 2021, the committee found the reliability of this measure to be sufficiently demonstrated.	
Additional reliability analyses: Additional analyses were not 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
Usability discussion: The measure is currently used in the Hospital IQR Program and has demonstrated actionable insights for providers in hospitals. The developer did not assess for any unintended consequences but will continue to monitor the measure's use and assesses 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 2021, 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):	• Hospital 30-Day, All-Cause, Risk-Standardized Readmission Rate (RSRR) Following Pneumonia Hospitalization is a related measure within the Hospital Readmissions Reduction Program. • Excess Days in Acute Care (EDAC) after Hospitalization for Heart Failure (HF) is a related measure in the Hospital IQR Program. • Excess Days in Acute Care (EDAC) after Hospitalization for Acute Myocardial Infarction (AMI) is a related measure in the Hospital IQR Program and Bundled Payment for Care Improvement Advanced Model.
Measure balance, burden and value across target populations/measured entities: The developer noted that pneumonia is a priority condition and the target of readmission rate monitoring. The developer noted several existing measures for pneumonia or measures focused on EDAC. However, no directly competing measures are currently active in the Hospital IQR Program, indicating that this measure addresses a clear gap. This measure also supports CMS's goals of enhancing patient safety, reducing readmissions, and improving overall health care efficiency. The developer's literature review and analysis do not indicate a potential for differential benefit or harm to specific subgroups of participating entities or their patient populations. **Considerations for the committee:** Based on clinical and professional experience, the committee should consider how different populations might benefit from use of the measure and whether the measure will have the same impact in rural or low-resource settings.	

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, the Hospital IQR Program, 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 measure set?