2024 Pre-Rulemaking Measure Review
Preliminary Assessment

MUC ID	Title
MUC2024-034	Influenza Vaccination Coverage Among Healthcare Personnel
Measure Steward & Developer	**Proposed CMS Programs**
Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN)	Rural Emergency Hospital Quality Reporting Program

Measure Overview
Developer-provided rationale: Use of this measure to monitor influenza vaccination among health care providers (HCP) is envisioned to result in increased influenza vaccination uptake among HCP, because improvements in tracking and reporting HCP influenza vaccination status will allow health care institutions to better identify and target unvaccinated HCP. Increased influenza vaccination coverage among HCP is expected to result in reduced morbidity and mortality related to influenza virus infection among patients.
CMS-provided program rationale: CMS is considering including this quality measure into the Rural Emergency Hospital Quality Reporting Program, as the measure supports CMS's goal of reducing patient morbidity and mortality related to the spread of influenza within health care settings. This measure will monitor influenza vaccination among health care providers (HCP) and is intended to result in health care institutions' ability to better identify and target unvaccinated HCP for alternate interventions to prevent the spread of influenza. Increased influenza vaccination coverage among HCP is expected to result in reduced morbidity and mortality related to influenza virus infection among patients.
Description: Percentage of healthcare personnel (HCP) who receive the influenza vaccination.
Measure background: Measure currently used in a Medicare CMS program and is being submitted without substantive changes for a new or different program.
Numerator: HCP in the denominator population who during the time from October 1 (or when the vaccine became available) through March 31 of the following year: (a) received an influenza vaccination administered at the healthcare facility, or reported in writing (paper or electronic) or provided documentation that influenza vaccination was received elsewhere; or (b) were determined to have a medical contraindication/condition of severe allergic reaction to eggs or to other component(s) of the vaccine, or history of Guillain-Barré Syndrome within 6 weeks after a previous influenza vaccination; or (c) declined influenza vaccination

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Measure Overview
Each of the three submeasure numerators described above will be calculated and reported separately, alongside the overall numerator calculated as the aggregate of the three submeasure numerators. **Exclusions:** N/A
Denominator: Number of HCP in groups (a)-(c) below who are working in the healthcare facility for at least 1 working day between October 1 and March 31 of the following year, regardless of clinical responsibility or patient contact. Denominator is reported in the aggregate; rates for each HCP group may be calculated separately for facility-level quality improvement purposes: (a) Employees: all persons who receive a direct paycheck from the reporting facility (i.e., on the facility's payroll). (b) Licensed independent practitioners: include physicians (MD, DO), advanced practice nurses, and physician assistants only who are affiliated with the reporting facility who do not receive a direct paycheck from the reporting facility. (c) Adult students/trainees and volunteers: include all students/trainees and volunteers aged 18 or over who do not receive a direct paycheck from the reporting facility. **Exclusions:** N/A **Exceptions:** N/A

Measure type: Process	**Measure has multiple scores:** No **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-Electronic Health Record (EHR) Data; Non-Digital-Paper Medical Records
Care setting(s): Hospital inpatient acute care facility	**Risk adjustment or stratification:** None
CBE endorsement status: Endorsed, CBE ID 0431	**CBE endorsement history:** Endorsed 2012; last reviewed 2022
Is measure currently used in CMS programs? Yes	**Measure addresses statutorily required area?** No

Meaningfulness

Importance	
Type of evidence:	Peer-Reviewed Systematic Review; Empirical data [Source: Measures Under Consideration (MUC) Entry/Review Information Tool (MERIT) Submission Form]
Importance: The developer reports a median performance score for vaccination coverage of 92.3% and during the 2020-2021 season a mean of 84.4% (interquartile range, 77.4%-96.1%) among 4,464 facilities. For evidence of a performance gap, they show different mean vaccination rates for employees (92.4%), independent practitioners (81.2%), and students/trainees/volunteers (90.2%); the submission does not present significance testing. The developers did not test for differences between subgroups based on social risk factors. Two systematic reviews reported significant effects of HCP vaccination on patient all-cause mortality and laboratory-confirmed cases of influenza among health care workers, with moderate quality of evidence. One observational study found clinically significant, though not statically significant, evidence for a protective effect of HCP vaccination coverage on patient influenza incidence. The Advisory Committee on Immunization Practices (ACIP) in updated guidance continues to recommend influenza vaccination for health care personnel; the submission did not present or evaluate this recommendation as a guideline. During 2022 CBE maintenance and endorsement, the committee found the importance of this measure sufficient.	
Rating: Met, Prior CBE Endorsement	

Measure Performance

For ease of interpretation, Battelle generated Table 1 from measure submission information. Table 1 contains the mean, 25th and 75th percentiles, and the interquartile range (IQR) (this is the middle 50% of the data distribution calculated by subtracting the 25th percentile from the 75th percentile) for several years of data that the developer provided. The developer also provided the 10th and 90th percentiles, and median for the 2020-2021 season which are in Table 1.

Interpretation: The mean score for the entities described in the testing submission for this measure ranged from 84.4%-86.4% of health care personnel. For this proportion measure, a higher score indicates better quality of care.

Table 1. MUC2024-034 Performance Score Statistics

	Entities	10th percentile	25th Percentile	Median	Mean	75th Percentile	90th Percentile	IQR
2015-2016 season	4,640	--	62.5%	--	86.4%	97.3%	--	35.8
2019-2020 season	2,908	--	86.0%	--	89.5%	97.5%	--	21.5
2020-2021 season	4,464	73.8%	77.4%	92.3%	84.4%	96.1%	100.0%	18.7

Conformance
Measure alignment with conceptual intent: Developers reported results from inter-rater reliability testing in a sample of 5,000 personnel within three jurisdictions; kappa values were above 0.8 for both the numerator and denominator in the two jurisdictions where on-site validation was conducted, and 0.66 and 0.55, respectively, in the third jurisdiction without on-site testing. The numerator contains three sub-measures (personnel vaccinated, personnel with contraindications, and personal with a documented refusal), but developers do not explain why they did not consider contraindications as a denominator exclusion. The measure concept overall aligns with ACIP recommendation for influenza vaccination for HCPs, but the submission could be strengthened by evaluating additional information regarding how sub-measure scores may vary for vaccination coverage, contraindications for vaccination, and vaccination refusal. During 2022 CBE maintenance and endorsement, the committee found the conformance of this measure sufficient.
Rating: Met, Prior CBE Endorsement

Feasibility	
eCQM Feasibility testing conducted:	No [Source: MERIT Submission Form]
Feasibility: Data for this measure come from several sources and include elements available through electronically derived administrative data and manual abstraction. Because the data required do not pertain to patients, provider workflow does not have to change to collect the data. During 2022 CBE maintenance and endorsement, the committee found the feasibility of this measure sufficient.	
Rating: Met, Prior CBE Endorsement	

Validity	
Validity testing method(s):	Empiric Validity
Testing level(s):	Facility
Validity: Developers evaluated accountable entity-level validity of the measure by correlating HCP vaccination rates with the number of evidence-based strategies used by health care facilities to improve HCP vaccination coverage, hypothesizing that more intensive efforts at improving vaccination would be associated with higher vaccination rates. The developer collected the number of strategies among pilot participants using a survey (n=234). One-way analysis of variance (ANOVA) showed a borderline statistically significant association between evidence-based strategies and vaccination for employees and significant associations among credentialed non-employees and trainees/volunteers, indicating that this measure's approach to assessing these constructs is aligned with evidence-based strategies currently in use. During 2022 CBE maintenance and endorsement, the committee found the validity of this measure sufficient.	
Threats to validity: This process measure is not risk adjusted. Developers recommend stratifying reporting by occupational group, and this recommendation is unrelated to an equity gap. The evidence review connects the measure focus with material outcomes, i.e., patient morbidity and all-cause mortality.	
Rating: Met, Prior CBE Endorsement	

Reliability	
Reliability testing method(s):	None
Testing level:	N/A
Reliability discussion: The submission did not report accountable entity-level reliability testing. During 2022 CBE maintenance and endorsement, the committee found the reliability of this measure sufficient. The committee will need to determine if prior endorsement is sufficient to account for lack of reliability testing submitted for MUC List consideration.	
Additional reliability analyses: N/A	
Rating: Met, Prior CBE Endorsement	

Usability	
Usability considered in application:	Yes [Sources: MERIT submission form]
Usability discussion: Based on submission documents, there is an opportunity for improvement on the measure target among facilities participating in REHQRP. The developer did not identify any external program-level factors that may present barriers to measure. No potential unintended consequences were identified in measure submission. The committee should consider if there are any potential unintended consequences to measure use in this program.	
Rating: Met	

External Validity	
Was this measure tested in the same target population as the CMS program?	Yes
External validity discussion: The measure testing for this measure was conducted in hospital populations and care sites representative of the REHQRP population and indicates that this measure has suitable external validity.	
Rating: Met	

Appropriateness of Scale

Similar or related measures in program(s):	The developer did not identify any relating or competing measures.
Measure appropriateness, equity, and value across target populations/measured entities: The developer's review of active Rural Emergency Hospital Quality Reporting Program measures did not identify any similar or competing measures, suggesting that this measure would fill a gap within the current program measure set. The focus and target population of this measure largely align with the intent and population of the program. The developer did not evaluate equity with respect to rural residence or any other risk factor, but inclusion in the Rural Emergency Hospital Quality Reporting Program could improve equity for rural populations. The committee should consider if, based on their professional and patient experience, there is a chance for variation on distribution of benefit or burden across provider and patient populations.	

Time to Value Realization

Plan for near- and long-term impacts after implementation:	Reducing patient morbidity and mortality is among the expected outcomes from implementation of this measure.

Measure implementation impacts over time: While the measure developer makes brief mention of potential outcomes for their measure on patient populations, there is a need for further examination of near- and long-term impacts of this measure after implementation across provider and patient populations.

Questions for the committee to consider:

- What are the potential near- and long-term impacts of this measure on measured entities, the Rural Emergency Hospital Quality Reporting 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 Rural Emergency Hospital Quality Reporting Program measure set?