

Measure Information for the Multiple Chronic Care Conditions (MCC) Risk-standardized Hospital Admission Rates for Patients for the Merit-based Incentive Payment System (MIPS) Groups

Performance Year (PY) 2024 MCC Measure Code Specifications

January 1 – December 31, 2024

A. Measure Name

Clinician and Clinician Group Risk-standardized Hospital Admission Rates for Patients with Multiple Chronic Conditions (MCC).

B. Measure Description

The measure is a risk-standardized rate of acute, unplanned hospital admissions for the Merit-based Incentive Payment System (MIPS) among Medicare Fee-for-Service (FFS) patients aged 65 years and older with multiple chronic conditions (MCCs); i.e., two or more of nine qualifying chronic conditions. The measure is adjusted for age, chronic condition categories, and other clinical and frailty risk factors present at the start of the 12-month measurement period as well as social risk factors. The measure attributes admissions to MIPS participating clinicians and/or clinician groups, as identified by their National Provider Identifiers (NPIs) and/or Taxpayer Identification Number (TIN) and assesses each clinician's or clinician group's admission rate.

C. Rationale

Hospital admission rates are an effective marker of ambulatory care quality. Hospital admissions from the outpatient setting reflect a deterioration in patients' clinical status and as such reflect an outcome that is meaningful to both patients and providers. Patients receiving optimal, coordinated high-quality care should use fewer inpatient services than patients receiving fragmented, low-quality care. Thus, high population rates of hospitalization may signal poor quality of care or inefficiency in health system performance. Furthermore, these effects may be exacerbated in disadvantaged areas.

Patients with MCCs are at high risk for hospital admission, often for potentially preventable causes, such as exacerbation of pulmonary disease. Evidence from several Medicare demonstration projects suggests that care coordination results in decreased hospital admission rates among high-risk patients. In addition, studies have shown that the types of ambulatory care clinicians this measure targets (for example, primary care providers and specialists caring for patients with MCCs) can influence admission rates through primary care clinician supply, continuity of care, medication prescribing and dispensing interventions, as well as patient-centered medical home interventions such as team-based care, home visits, and patient-oriented care. Other studies speak directly to the positive effect that individual providers and group practices can have on lowering patients' hospital visit rates. In particular, they support that comprehensive and continuous care by individual providers can decrease care utilization.

The goal of this measure is to illuminate variation among MIPS clinicians and clinician groups in hospital admission rates for patients with MCCs and incentivize them to expand efforts to develop and implement efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences.

Additional details on rationale can be found in original measure information forms (MIFs) in the resource library on the Quality Payment Program website at: <https://qpp.cms.gov/resources/resource-library>.

D. Measure Outcome (Numerator)

The outcome for this measure is the number of acute unplanned admissions per 100 person-years at risk for admission during the measurement period. This measure does not include the following types of admissions in the outcome because they do not reflect the quality of care provided by ambulatory care providers who are managing the care of patients with MCCs:

1. Planned hospital admissions

Rationale: Although clinical experts agree that proper care in the ambulatory setting should reduce hospital admissions, variation in planned admissions (such as for elective surgery) does not typically reflect quality differences. Consistent with the approach CMS has taken for other admission and readmission measures, the measure excludes planned hospital admissions because planned admissions are not a signal of poor-quality care. Planned admissions are those planned by providers and patients for anticipated medical treatment or procedures that must be provided in the inpatient setting. Most planned admissions are part of ongoing clinical care and do not represent acute events that could have been prevented by high-quality care. Moreover, for ambulatory patients with chronic diseases, admissions for certain planned procedures (e.g., placement of a cardiac device designed to prolong life) are consistent with the highest quality of care. For these reasons, planned admissions are not counted in the measure outcome.

The planned admission algorithm was based on CMS's Planned Readmission Algorithm Version 4.0, which CMS originally created to identify planned readmissions for the hospital-wide readmission measure. In brief, the algorithm uses a flowchart and four tables of procedure and/or discharge diagnosis categories to identify planned admissions.

A comprehensive list of category and ICD-10 codes used in the planned readmission algorithm is available in the MIPS MCC Data Dictionary (code specifications report) via links provided in [Section I](#).

2. Admissions that occur directly from a skilled nursing facility (SNF) or acute rehabilitation facility

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3. Admissions that occur within a 10-day “buffer period” after discharge from a hospital, SNF, or acute rehabilitation facility
 4. Admissions that occur after the patient has entered hospice. The measure excludes from the outcome admissions that occur when patients are enrolled in Medicare’s hospice benefit (hereinafter, hospice care)
 5. Admissions related to complications from procedures or surgeries. A comprehensive list of the measure outcome exclusions utilizing the Agency for Healthcare and Research (AHRQ) Clinical Classifications Software (CCS) diagnosis categories is available in the MIPS MCC Data Dictionary (code specifications report) via links provided in [Section I](#).
 6. Admissions related to accidents or injuries. A comprehensive list of the measure outcome exclusions utilizing the Agency for Healthcare and Research (AHRQ) Clinical Classifications Software (CCS) diagnosis categories is available in the MIPS MCC Data Dictionary (code specification report) via links provided in [Section I](#).
 7. Admissions that occur prior to the first visit with the assigned clinician or clinician group
 8. Admissions with a principal discharge diagnosis of COVID-19. A comprehensive list of the measure outcome exclusions utilizing the Agency for Healthcare and Research (AHRQ) Clinical Classifications Software (CCS) diagnosis categories and/or ICD-10 codes is available in the MIPS MCC Data Dictionary (code specifications report) via links provided in [Section I](#).

E. Population Measured (Denominator)

The cohort, or group of patients included in the measure, is comprised of Medicare FFS beneficiaries 65 years or older whose combinations of chronic conditions put them at high risk of admission and whose admission rates could be lowered through better care. This definition reflects NQF’s “Multiple Chronic Conditions Measurement Framework,” which defines patients with MCCs as people “having two or more concurrent chronic conditions that act together to significantly increase the complexity of management, and affect functional roles and health outcomes, compromise life expectancy, or hinder self-management.”





The specific inclusion criteria are as follows.

Patient is alive at the start of the measurement period and has two or more of nine chronic condition disease groups in the year prior to the measurement period:

- Acute myocardial infarction (AMI)
- Alzheimer's disease and related disorders or senile dementia
- Atrial fibrillation
- Chronic kidney disease (CKD)
- Chronic obstructive pulmonary disease (COPD) and asthma
- Depression
- Diabetes
- Heart failure
- Stroke and transient ischemic attack (TIA)

The MCC Cohort tab in the Data Dictionary (code specification report) in [Section I](#) identifies the claim algorithms, lookback period, and the specific International Classification of Diseases, Tenth Revision (ICD-10) codes for each of the nine chronic disease groups.

Patient is aged ≥ 65 years at the start of the year prior to the measurement period.

Patient is a Medicare FFS beneficiary with continuous enrollment in Medicare Parts A and B during the year prior to the measurement period.

F. Exclusions

The measure excludes the following patients from the denominator:

- Patients without continuous enrollment in Medicare Part A or B during the measurement period
 - Patients who were in hospice at any time during the year prior to the measurement year or at the start of the measurement year
 - Patients who had no Evaluation & Management (E&M) visits to a MIPS-eligible clinician type
 - Patients assigned to clinician who achieve QP status and therefore do not participate in MIPS
 - Patients attributed to hematologists and oncologists
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G. Data Collection Approach and Measure Calculation

This measure is calculated from Medicare inpatient claims, Medicare outpatient claims (hospital outpatient and Part B Carrier claims), Medicare beneficiary enrollment data, Durable Medical Equipment claims, the American Community Survey, and the Area Health Resource Files.

H. Methodological Information and Measure Construction

Attribution. The measure uses a visit-based approach to attribute patients to a primary care provider (PCP) or a specialist who typically coordinates care for MCC patients included in the measure.

Provider types included for measurement:

- Primary care providers (PCPs): CMS designates PCPs as physicians who practice internal medicine, family medicine, general medicine, or geriatric medicine, and non-physician providers, including nurse practitioners, certified clinical nurse specialists, and physician assistants.
- Relevant specialists: Specialists covered by the measure are limited to those who provide overall coordination of care for patients with MCCs and who manage the chronic diseases that put the MCCs patients in the measure at risk of admission. These specialists were chosen with input from our Technical Expert Panel (TEP) and include cardiologists, pulmonologists, nephrologists, neurologists, endocrinologists, and hematologists/oncologists (see definitions in the Data Dictionary MIPMCC Attribution Providers). However, as noted above in [Section F](#), the measure is not designed to assess the quality of care of cancer specialists who are actively managing cancer patients, and thus patients attributed to hematologists and oncologists are excluded from the measure.

Patient Attribution

We begin by assigning each patient to the clinician most responsible for the patient's care using the number and pattern of Evaluation & Management (E&M) visits. The patient can be assigned to a PCP, a relevant specialist, or can be left unassigned.





A patient who is eligible for attribution can be assigned to a relevant specialist only if the specialist has been identified as “dominant”. A specialist is considered “dominant” if they have two or more visits with the patient, as well as at least two more visits than any PCP or other relevant specialist. For example, if a patient saw a cardiologist four times in the measurement year, a PCP twice, and a nephrologist twice, the patient would be assigned to the cardiologist, having met the definition of “dominant” specialist. Note: Hematologists and oncologists are considered relevant specialists as they could be expected to manage MCCs patients’ care, especially during periods of acute cancer treatment. However, as indicated above in [Section E](#), the measure is not designed to assess the quality of care of cancer specialists who are actively managing cancer patients, and thus patients attributed to hematologists and oncologists are excluded from the measure.

There are two scenarios where a patient can be assigned to a PCP. First, the patient must have seen at least one PCP. The patient will then be assigned to the PCP with the highest number of visits if there is no relevant specialist who is considered “dominant.” Second, if the patient has had more than one visit with a relevant specialist but no “dominant” specialist has been identified, and has two or more visits with a PCP, they will be assigned to that PCP.

Finally, the patient will be unassigned if they only saw non-relevant specialists, if the patient has not seen a PCP and no “dominant” specialist can be identified, or if the patient has not had more than one visit with any individual PCP.

Patients are then assigned at the Taxpayer Identification Number (TIN) level, which includes solo clinicians and groups of clinicians who have chosen to report their quality under a common TIN.

At the TIN level, patients are first assigned to the clinician (unique National Provider Identifier (NPI)/TIN combination since a given provider can be affiliated with more than one TIN) most responsible for their care (using the algorithm for individual clinician-level attribution above) and then patients “follow” their clinician to the TIN designated by the clinician. Patients unassigned at the individual clinician level continue to be unassigned at the TIN level.





If the TIN participates in an ACO, the patient follows the TIN to the ACO level (which is an aggregate of TINs that participate in that ACO). Person-time at risk: The measure utilizes the calculation of person-years to determine the time patients are at risk for hospitalization. The time at risk for hospitalization is calculated by first determining when a patient becomes attributable to a provider. For patients who had at least one outpatient visit in the prior year with their attributed provider (that is, evidence of an existing relationship), their time at risk begins at the start of the measurement year. However, for patients who had not previously seen their attributed provider (that is, evidence of a new relationship), their time at risk begins at the first visit in the measurement year.

However, if the first visit to the attributed provider occurred after the patient has entered hospice, the patient would not have any time at risk and would thus be excluded. Time at risk is then calculated as the number of days a patient is alive from the start of the measurement year or first visit until enrollment in hospice, death, or the end of the measurement period. The following times are not considered at risk and thus removed from the person-time calculation during the measurement period:

- Days spent in a hospital, SNF, or acute rehabilitation facility
- 10 days following discharge from a hospital, SNF, or acute rehabilitation facility
- Time after entering hospice care

Calculation Algorithm/Measure Logic. The cohort of MCCs patients is identified first by applying the inclusion/exclusion criteria. Patients are assigned to the individual clinician most responsible for their care, and then subsequently to the TIN designated by the clinician, using the visit-based attribution algorithm. Attribution is assigned in the measurement period and only patients assigned to a MIPS-eligible clinician will be included in the measure score calculation. If the TIN participates in an ACO, the patient, as a final step, is assigned to the ACO ID (which is an aggregate of TINs that participate in that ACO). The number of admissions and time at risk in the measurement period are then calculated for each patient based on the measure specifications. The measure is risk adjusted for demographic, clinical, and social risk factors.

For the score calculation, the measure uses a hierarchical (two-level) statistical model that accounts for the clustering of patients within MIPS providers/ACOs and accommodates the varying patient sample sizes of different providers. The measure uses a negative binomial with linear variance (NB-1) model since the measure's outcome is a count of the number of admissions for MCCs patients during the measurement period.





The first level of the model adjusts for patient factors. The relationship between patient risk factors and the outcome of admissions is determined based on all patients attributed to MIPS-eligible clinicians. Therefore, the “expected” number of admissions (described below) for each provider is based on the performance of all eligible MIPS providers nationwide.

The second level of the model estimates a random-intercept term that reflects the provider’s contribution to admission risk, based on their actual admission rate, the performance of other providers, their case mix, and their sample size.

The measure score is a risk-standardized acute admission rate (RSAAR), calculated as the ratio of the number of predicted admissions to the number of expected admissions multiplied by the crude national rate. The predicted to expected ratio of admissions is analogous to an observed over expected ratio, but the numerator accounts for clustering, sample-size variation, and provider-specific performance. The expected number of admissions is calculated based on the provider’s case mix and average intercept among all MIPS providers/ACOs. The predicted number of admissions is calculated based on the provider’s case mix and the estimated provider-specific random intercept term. The predicted to expected ratio is then multiplied for each provider by a constant – the crude rate of acute, unplanned admissions among all MIPS providers/ACOs – for ease of interpretation.

Risk Adjustment. The risk-adjustment model includes demographic and clinical (including chronic disease groups and measures of frailty) variables as well as social risk factors. Clinical variables are defined primarily using CMS’s Condition Categories (CCs), which are clinically meaningful groupings of ICD-10 diagnosis codes. Where ICD-10 codes in CCs overlap with those used in the variables that define the chronic disease groups, those ICD-10 codes were removed from the CCs to eliminate the overlap. Some variables are also defined by subsets of ICD-10 codes within CCs. For details on how risk variables are defined, see the following tabs in the Data Dictionary: MIPS MCC All Risk Vars, MIPS MCC RVs defined by ICD10s, MIPS MCC RVs defined by Pol Grp, MIPS MCC CC to ICD Map.

A comprehensive list of the risk adjustment variables categories and ICD-10 codes categories is available in the MIPS MCC Data Dictionary (code specifications report) via links provided in [Section I](#).



Case thresholds for measure reporting. As noted in the 2022 Quality Payment Program Final Rule, MIPS eligible groups, subgroups*, virtual groups, and APM Entities with at least 16 clinicians per group and with 18 attributed patients with MCCs as the case minimum will be scored on this administrative claims-based measure.

I. For Further Information

To access additional measure specifications, including the MIPS MCC Data Dictionary (code tables), please visit <https://qpp.cms.gov/about/resource-library>.

J. References

1. Jencks, S. F., et al. (2019). "Safety-Net Hospitals, Neighborhood Disadvantage, and Readmissions Under Maryland's All-Payer Program: An Observational Study." *Ann Intern Med.* doi: 10.7326/M16-2671
2. Abernathy K, Zhang J, Mauldin P, et al. Acute Care Utilization in Patients With Concurrent Mental Health and Complex Chronic Medical Conditions. *J Prim Care Community Health.* 2016;7(4):226-233.
3. Brown RS, Peikes D, Peterson G, Schore J, Razafindrakoto CM. Six features of Medicare coordinated care demonstration programs that cut hospital admissions of high- risk patients. *Health Aff (Millwood).* 2012;31(6):1156-1166.
4. van Loenen T, van den Berg MJ, Westert GP, Faber MJ. Organizational aspects of primary care related to avoidable hospitalization: a systematic review. *Fam Pract.* 2014;31(5):502-516.
5. Dale SB, Ghosh A, Peikes DN, et al. Two-Year Costs and Quality in the Comprehensive Primary Care Initiative. *N Engl J Med.* 2016;374(24):2345-2356.
6. Casalino LP, Pesko MF, Ryan AM, et al. Small primary care physician practices have low rates of preventable hospital admissions. *Health Aff (Millwood).* 2014;33(9):1680- 1688
7. Matzke GR, Moczygemba LR, Williams KJ, Czar MJ, Lee WT. Impact of a pharmacist– physician collaborative care model on patient outcomes and health services utilization. *American Journal of Health-System Pharmacy.* 2018;75(14):1039-1047
8. Ruiz S, Snyder LP, Rotondo C, Cross-Barnet C, Colligan EM, Giuriceo K. Innovative Home Visit Models Associated With Reductions In Costs, Hospitalizations, And Emergency Department Use. *Health Affairs.* 2017;36(3):425-432

* Subgroups are only available through MVP reporting. All measure-specific criteria must be met by the subgroup.



9. Edwards ST, Saha S, Prentice JC, Pizer SD. Preventing Hospitalization with Veterans Affairs Home-Based Primary Care: Which Individuals Benefit Most? *Journal of the American Geriatrics Society*. 2017;65(8):1676-1683
10. Krumme AA, Glynn RJ, Schneeweiss S, et al. Medication Synchronization Programs Improve Adherence To Cardiovascular Medications And Health Care Use. *Health Aff (Millwood)*. 2018;37(1):125-133. doi:10.1377/hlthaff.2017
11. Gabriel M, Powers C, Encinosa W, Bynum J. E-Prescribing and Adverse Drug Events: An Observational Study of the Medicare Part D Population With Diabetes. *Medical care*. 2017;55
12. Bazemore, A., et al. (2018). "Higher Primary Care Physician Continuity is Associated With Lower Costs and Hospitalizations." *Ann Fam Med*. 16(6): 492-497.
13. O'Malley, A. S., et al. (2019). "New approaches to measuring the comprehensiveness of primary care physicians." *Health Serv Res*. 54(2): 356-366.
14. National Quality Forum. Multiple Chronic Conditions Measurement Framework. <http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=71227>. Accessed February 20, 2019.
15. Krumholz, H. M., Brindis, R. G., Brush, J. E., Cohen, D. J., Epstein, A. J., Furie, K., Howard, G., Peterson, E. D., Rathore, S. S., Smith, Jr., S. C., Spertus, J. A., Wang, Y., & Normand, S. L. (2006). Standards for statistical models used for public reporting of health outcomes: An American Heart Association scientific statement from the Quality of Care and Outcomes Research Interdisciplinary Writing Group: Cosponsored by the Council on Epidemiology and Prevention and the Stroke Council. *Circulation*, 113(3), 456–462. <https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.105.170769>
16. Drye EE, Altaf FK, Lipska KJ, Spatz ES, Montague JA, Bao H, Parzynski CS, Ross JS, Bernheim SM, Krumholz HM, Lin Z. Defining Multiple Chronic Conditions for Quality Measurement. *Med Care*. 2018 Feb;56(2):193-201.
17. Bonito, A; Bann, C; Eicheldinger, C; Carpenter, L. Creation of New Race-Ethnicity Codes and Socioeconomic Status (SES) Indicators for Medicare Beneficiaries. Report prepared for Agency for Healthcare Research and Quality and Centers for Medicare & Medicaid Services. January 2008. Available at: <https://archive.ahrq.gov/research/findings/final-reports/medicareindicators/medicareindicators.pdf>