



Multiple Chronic Conditions Measures

1	Measuring Quality of Care for Persons with Multiple Chronic Conditions (MCC)	1
2	Need for Measure Development	2
3	Considerations for Measure Development Targeting Persons with Multiple Chronic Conditions	2
3.1	What to Consider when Choosing Appropriate Measure Concepts	2
3.2	When Determining How to Address Key Issues	3
3.3	When Testing and Evaluating Measures for Persons with Multiple Chronic Conditions	4
4	Key Points	4
	References	6

This document discusses the development of quality measures^① for persons with multiple chronic conditions (MCCs)^①. The CMS consensus-based entity (CBE) [MCC Measurement Framework](#)^② defines MCC as “having two or more concurrent chronic conditions that collectively have an adverse effect on health status, function, or quality of life and that require complex healthcare management, decision-making, or coordination” (pp. 7-8). There is a dearth of measures for persons with MCCs and a great need for these measures.

1 MEASURING QUALITY OF CARE FOR PERSONS WITH MULTIPLE CHRONIC CONDITIONS (MCC)

CMS noted in the [Chronic Conditions Charts: 2018](#)^③ that the prevalence of two or more chronic conditions among fee for service (FFS) Medicare beneficiaries in 2017 was 69%. These individuals constitute a challenge to the healthcare system because their conditions complicate each other, are ongoing, and are extremely costly to both the persons involved and the nation overall. The effects of their comorbidities are more than simply additive; they multiply both morbidity^① and mortality^① ([Tinetti et al., 2011](#)^④). CMS found in 2017 that Medicare beneficiaries with MCC were the heaviest users of healthcare services. Those with six or more chronic conditions accounted for 62% of Medicare spending on hospitalizations. However, [Giovannetti et al. \(2013\)](#)^⑤ identified a few specifically designed measures to evaluate the quality of care provided to people with MCC.

Assessment of the quality of care provided to the MCC population should consider persons with two or more concurrent chronic conditions that require ongoing clinical, behavioral, or developmental care from members of the healthcare team and whose conditions act together to significantly increase the complexity of management and coordination of care—including, but not limited to, potential interactions between conditions and treatments.

Looking from an individual patient’s perspective, the CMS CBE [MCC Measurement Framework](#) stated the presence of MCC would

- affect functional roles and health outcomes across the lifespan
- compromise life expectancy
- hinder a person’s ability to self-manage or a caregiver’s capacity to assist in that individual’s care (p. 8)

2 NEED FOR MEASURE DEVELOPMENT

Although persons with MCC represent a growing proportion of society who use an increasingly large amount of healthcare services, existing quality measures do not adequately address comorbidity. Current quality measures are largely based on performance standards derived from [clinical practice guidelines](#) for management of a single disease ([Tinetti et al., 2004](#)). Evidence-generating clinical trials that form the basis of many clinical practice guidelines often exclude patients with MCC. The randomized clinical trials used in clinical practice guideline development focus mainly on single diseases to produce robust guidance for specific disease treatments. Rigid adherence to these disease-specific guidelines could potentially harm those with MCC. For example, medications prescribed in adherence to guidelines for several diseases individually may result in a patient suffering adverse effects of polypharmacy ([American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity, 2012](#)). Few measures exist to evaluate inappropriate care in these situations.

In November 2020, the Agency for Healthcare Research and Quality (AHRQ) sponsored a two-day research summit, [Transforming Care for People Living with Multiple Chronic Conditions](#). The Summit led to AHRQ creating a [research agenda](#) to transform care for people with MCC and a special issue of [Health Services Research](#). One of the prioritized topics for future research is “How do we develop quality measures to support MCC?” Bierman ([2021](#)) notes, “The need to do better is urgent.” The hope is AHRQ’s investment in MCC research will lead to better evidence for quality measures for people with MCCs.

3 CONSIDERATIONS FOR MEASURE DEVELOPMENT TARGETING PERSONS WITH MULTIPLE CHRONIC CONDITIONS

3.1 WHAT TO CONSIDER WHEN CHOOSING APPROPRIATE MEASURE CONCEPTS

Without evidence-based guidelines specifically directed to care of persons with MCC, best practices may remain up to the clinical judgment of the [measured entities](#). However, certain measurable quality topics are especially pertinent to people with MCC. The CMS CBE [MCC Measurement Framework](#) identified these measurement concepts as having potential for high leverage in quality improvement for patients with MCC:

- optimizing function, maintaining function, or preventing further decline in function
- seamless transitions between multiple measured entities and sites of care

- patient-important outcomes (includes [patient-reported outcomes](#) and relevant disease-specific outcomes)
- avoiding inappropriate, non-beneficial care, including at the end of life
- access to a usual source of care
- transparency of cost (total cost)
- shared accountability across patients, families, and measured entities
- shared decision-making (p. 9)

These quality measure concepts represent cross-cutting areas with the greatest potential for reducing factors of cost, reducing disease burden, and improving well-being, all of which are highly valued by measured entities, patients, and families.

3.2 WHEN DETERMINING HOW TO ADDRESS KEY ISSUES

3.2.1 Guiding Principles

The CMS CBE [MCC Measurement Framework](#) advises measure developers to follow several principles when developing quality measures for persons with MCC. Quality measures should

- promote collaborative care among measured entities
- consider various types of measures that address appropriateness of care
- prioritize optimum jointly established outcomes by considering patient preferences
- address shared decision-making
- assess care longitudinally
- be as inclusive as possible
- illuminate and track [disparities](#) through [stratification](#) and other approaches
- use [risk adjustment](#) for comparability (of [outcome measures](#) only) with caution, as it may obscure serious gaps in quality of care
- standardize inputs from multiple sources, particularly patient-reported data

3.2.2 Time Frame Issues to Consider

Measurement time frame is particularly important with chronic conditions because the nature of chronic conditions requires observation over time. Especially in the case of outcome measures for patients with MCC, it is extremely difficult to know where to attribute responsibility unless there is careful consideration and specification of the measurement time frame. Measures for this population should assess care across episodes and across measured entities and staffing using a longitudinal approach. Delta measures of improvement (or maintenance rather than decline) over extended periods are particularly relevant in this population.

3.2.3 Attribution Issues to Consider

Compounding the issues of [attribution](#) occur when adding the factor of MCC. Since multiple conditions usually means multiple measured entities, it becomes difficult to choose who to credit for good outcomes and which measured entity gave inadequate care when the treatment for one condition might exacerbate the other. These issues may require a more aggregated level of analysis such as at a measured entity group level or population rather than individual level. Since beneficiaries with MCC have multiple measured entities, it would be more appropriate to measure and attribute the outcomes for the population to the care provided by the team of measured entities or create a combined measured entity (e.g., primary care providers).

3.2.4 Methodological Issues to Consider

Measure developers should design quality measures for the population of persons with MCC to be as inclusive as possible. They should also design methodological approaches to reveal and track variances in care and outcomes.

The empirical link between quality processes and the outcomes of those healthcare processes is even more difficult to establish when dealing with MCC. Measure developers should use risk adjustment with caution in the context of MCC. Stratification may allow quality comparison across populations without masking important distinctions of access, care coordination, and other issues. The supplemental material, [Risk Adjustment in Quality Measurement](#), provides an in-depth discussion on how to determine when risk adjustment is appropriate and how to evaluate the application of risk adjustment models.

Quality measures for this population should address quality across multiple domains. Measure developers should harmonize measures across levels of the healthcare system to provide a comprehensive picture of care.

3.2.5 Data Gathering Issues to Consider

It may be difficult for measure developers to gather data systematically for the population of persons with MCC. In particular, it may be challenging for measure developers to collect patient-reported data due to interacting conditions. For example, it might be difficult to collect fatigue data from a person with both chronic lung disease and history of stroke, because each condition may contribute to a patient's fatigue, and it may be hard to assess the contribution of each disease to that fatigue. Measure developers may need to interpret different types of data, as the data may come from multiple measured entities, multiple sources, in multiple formats, and over extended periods of time. It is important for measure developers to standardize data collection methods.

3.3 WHEN TESTING AND EVALUATING MEASURES FOR PERSONS WITH MULTIPLE CHRONIC CONDITIONS

Evaluation methods described elsewhere in the Blueprint, e.g., Blueprint content on the MMS Hub, [Measure Testing](#), also apply to measures of quality care for persons with MCC. In addition, MCC measures should successfully carry out the guiding principles from the CMS CBE Framework. Measure developers should examine functional status and other outcomes using measures of change over time. If new tools and/or methods of data collection become available, measure developers should assess them carefully. Formative, or alpha, testing may be particularly important early during development, not only for new tools designed for these types of measures, but also for testing the feasibility of linking data from a variety of sources.

4 KEY POINTS

Medicare beneficiaries with MCC are the heaviest users of healthcare services, however, there are few measures designed specifically to measure the quality of care provided to people with MCC. The CMS CBE [MCC Measurement Framework](#) identifies measurement concepts with the greatest potential for reducing factors of cost, reducing disease burden, and improving well-being. For a variety of reasons, it may be difficult for measure developers to gather MCC-related data systematically. Measures for the MCC population should assess care across episodes and across measured entities and staffing using a longitudinal approach. Delta measures over extended periods are particularly relevant. Formative

testing may be particularly important early during development of MCC measures, not only for new tools designed for these types of measures, but also for testing the feasibility of linking data from a variety of sources.

REFERENCES

- Agency for Healthcare Research and Quality. (2020, November 17-18). *Proceedings from AHRQ summit on transforming care for people living with multiple chronic conditions*. Rockville, MD. Retrieved March 10, 2022, from <https://www.ahrq.gov/sites/default/files/wysiwyg/patient-safety/settings/mcc-summit/mcc-summit-proceedings.pdf>
- American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity (2012). Patient-centered care for older adults with multiple chronic conditions: A stepwise approach from the American Geriatrics Society. *Journal of the American Geriatrics Society*, 60(10), 1957-1968. <https://doi.org/10.1111/j.1532-5415.2012.04187.x>
- Bierman, A. S. (2021, November 1). AHRQ unveils research agenda to transform care for people with multiple chronic conditions. *AHRQ Views*. <https://www.ahrq.gov/news/blog/ahrqviews/transform-care-mcc.html>
- Bierman, A. S. & Werner, R. M. (Eds.) (2021). The science of care for people with multiple chronic conditions [Special issue]. *Health Services Research*, 56(S1), 965-1079. <https://doi.org/10.1111/1475-6773.13183>
- Centers for Medicare & Medicaid Services. (2021). *Chronic conditions charts: 2018*. Retrieved April 13, 2022, from https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/cc_charts.zip
- Giovanetti, E. R., Dy, S., Leff, B., Weston, C., Adams, K., Valuck, T. B., Pittman, A. T., Blaum, C. S., McCann, B. A., Boyd, C. M. (2013). Performance measurement for people with multiple chronic conditions: conceptual model. *American Journal of Managed Care*, 19(10), e359-e366. <http://www.ajmc.com/journals/issue/2013/2013-1-vol19-n10/performance-measurement-for-people-with-multiple-chronic-conditions-conceptual-model>
- National Quality Forum. (2012). *Multiple chronic conditions measurement framework*. <http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=71227>
- Tinetti, M.E., Bogardus, S.T., & Agostini, J.V. (2004). Potential pitfalls of disease-specific guidelines for patients with multiple conditions. *The New England Journal of Medicine*, 351, 2870-2874. <https://doi.org/10.1056/NEJMs042458>
- Tinetti, M.E., McAvay, G.J., Chang, S.S., Newman, A.B., Fitzpatrick, A.L., Fried, T.R., & Peduzzi, P.N. (2011). Contribution of multiple chronic conditions to universal health outcomes. *Journal of the American Geriatrics Society*, 59(9), 1686-1691. <https://doi.org/10.1111/j.1532-5415.2011.03573.x>