

CMS MEASURES MANAGEMENT SYSTEM

Measure Types: Composite Measures

Using quality measures allows management and practitioners to [benchmark](#) their organization or services against similar performing facilities and track improvements over time. While individual measures are critical in assessing and measuring health care quality, sometimes a combination of two or more measures can provide an even more effective glimpse into the multiple dimensions of quality of care. A combined measure, known as a [composite measure](#) or “roll-up” measure, can summarize overall quality of care across multiple measures through the use of one value or piece of information.

Using Composite Measures

Composite measures require a strong foundation of reliability, validity and usefulness. There are various [types](#)¹ of composite measures based on the method used to combine the components, including all-or-none/any-or-none scoring at the patient level, sum, average, weighted average, or opportunity scoring. It is important that composite measures are consistent across their use and evaluation, depending on the type. According to a [2015 review](#) of composite measures, the following best practices should be considered so that composite measures are developed and utilized in an effective way²:

1. The purpose, intended audience, and scope of a composite performance measure should be explicitly stated.
2. The individual measures used to create a composite performance measure should be evidence-based, valid, feasible and reliable.
3. The methods used for weighting and combining individual measures into a composite performance measure should be transparent and empirically tested.
4. The scientific properties of these measures, including reliability, accuracy, and predictive validity, should be demonstrated.
5. Composites should be useful for clinicians and/or payers to identify areas for quality improvement.

Scale is also critical; developing, using, and tracking composite measures requires attention to consistency across specified levels of the healthcare system. Individual component measures, for example, may refer to measurements about an individual practitioner or about the hospital. Individual measures aggregated into a composite measure must take place at the same scale across measures.

The National Quality Forum (NQF) has criteria for what constitutes a composite measure for the purposes of NQF endorsement – with regard to reliability, feasibility in use and evaluation, and validity.³ For example, if the individual measures result in multiple scores rather than a single score, they should not be combined and instead remain individual or be grouped or paired. In other words, composite measures should be made of individual measures with consistent score types and scales. While individual measures don't necessarily need to be endorsed by NQF, they should meet certain criteria in clinical evidence and performance gaps. If the component measure will be used for making judgments about performance, NQF endorsement should be obtained.

Testing

Testing a composite measure is a complex task as you must determine how to aggregate and how to weight each portion of the measure. The developer must test individual measures and the composite

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measure for reliability and validity. Deciding how to weight each portion of the composite measure will impact the measure results. It is critical that the developer be very explicit in what they are measuring, how they are weighting the individual components and why, as this can impact the results and sensitivity of the measure. Changing the weights can change the results. While it is always critical to provide the rationale for a quality measure, it is especially critical when combining measures into one to ensure understanding of the results.

The Pros and Cons of Composite Measures

Composite measures offer benefits in that they reflect the multidimensional nature and complexity of healthcare. They summarize data from multiple measures, providing a clearer picture of overall performance so that quality managers and other users can understand improvement. By aggregating individual measures, the amount of data requiring processing is also cut down, resulting in more efficiency. This can often allow other stakeholders – outside of quality managers, for example – to understand complex healthcare measures in a simpler way for decision-making, planning, or outreach purposes. Composite measures can also increase reliability and precision if they are compiled in a methodologically appropriate way, and if the individual measures have high performance scores.

However, if not used responsibly, composite measures can also mask differences and relationships across collected information, particularly if data on individual components are not transparent. As with any composite of information, unsound methods can affect the validity of conclusions about quality. Therefore, it's important that composite measures are subject to increased methodological testing, analysis, and evaluation.

¹ Composite Measures: ONC-SAMHSA Behavioral Health Clinical Quality Measures Technical Expert Panel Meeting August 9, 2012. Available at: <https://www.healthit.gov/sites/default/files/pdf/2012-08-09-behavioral-health-clinical-quality-measures-technical-expert-panel-composite-measures.pdf>. Accessed on: November 7, 2017.

² The Physician Consortium for Performance Improvement® Convened by the American Medical Association Measures Development, Methodology, and Oversight Advisory Committee: Recommendations to PCPI Work Groups on Composite Measures Approved by the PCPI in Dec 2010.

³ National Quality Forum. *Composite Performance Measure Evaluation Guidance*. Washington, DC: National Quality Forum; Apr 2013; Contract No. HHSM-500-2009-00010C. Available at: http://www.qualityforum.org/Publications/2013/04/Composite_Performance_Measure_Evaluation_Guidance.aspx. Accessed on: November 7, 2017.