

MEASURES MANAGEMENT SYSTEM

Technical Specifications

CMS provides quality measures in its quality improvement and reporting programs for healthcare providers. In turn, providers report measure data back to CMS. For providers to satisfy reporting requirements, measure data must be reported to CMS consistently. To make sure that different measure users report on measures the same way, measure developers create a standard format through technical specifications.

Technical specifications (or “measure specifications”), provide details about the measure. They describe:

- what is being measured
- what patient populations will be included
- what patient populations should not be included (and why)
- where and how to find the information required to report on the measure
- how to calculate measure results.

Measure developers draft specifications early in the development process and update them after measure testing. Technical specifications must be completed before the measure can be used in a CMS program. Once a measure is put in a CMS program, the specifications provide information that measure users need to correctly report on that measure.

Anatomy of a measure

In addition to a name and description, every measure has four main parts: initial population, denominator, numerator, and denominator exclusions. The table below shows each measure component alongside an example of a real measure.

Table 1. Description and example of measure components

Measure component	Description	Example
Measure name	A brief statement of the measure’s focus	Influenza Immunization (IMM-2)
Measure description	A high-level overview of the measure, including the target population and the focus of measurement	Inpatients age 6 months and older discharged during October, November, December, January, February, or March who are screened for influenza vaccine status and vaccinated prior to discharge if indicated.
Initial population	All patients that will be evaluated by the measure. These patients will share a common set of characteristics, which may include (but are not limited to) age group, diagnoses, and enrollment periods	Inpatient discharges 6 months of age and older
Denominator	The population evaluated by the individual measure. The denominator population may be the same as the initial population or it may be a subset of the initial population	Acute care hospitalized inpatients age 6 months and older discharged during October, November, December, January, February or March.

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Measure component	Description	Example
Numerator	Describes the process, condition, event, or outcome that satisfies the measure intent	Inpatient discharges who were screened for influenza vaccine status and were vaccinated prior to discharge if indicated
Denominator exclusions	Describes patients who meet the denominator criteria but who should not receive the intervention being measured.	Patients who: <ul style="list-style-type: none">• Expire (die) prior to discharge• Had an organ transplant during the current hospitalization• Patients discharged to another acute care hospital• Patients who leave against medical advice
Exceptions	Describes patients who meet the denominator criteria but who have a documented reason not to receive the intervention.	Patients for whom vaccination was indicated, but supply had not been received by a hospital due to problems with vaccine production or distribution

Data elements and data sources

Technical specifications also include lists of data elements needed to identify cases that belong in the measure numerator, denominator, and exclusions. A *data element* is a discrete piece of data that helps to make up the measure. For example, if a measure denominator includes hospital inpatient discharges for patients ages six months and older, then two denominator data elements would be **admission date** and **birthdate** (among others).

Technical specifications generally include detailed descriptions of each data element as well as the “how” and “where” to collect them. However, measure developers largely define measure data elements according to the measure’s *data source*. Most clinical quality measures rely on one of these three data sources:

- Patient medical records (e.g. chart-based measures)
- Administrative data (e.g. claims-based measures)
- Electronic clinical data (e.g. electronic clinical quality measures [eCQMs])

Patient medical record data is used to develop chart-based measures. These technical specifications include instructions for manual abstractors and provide the detail that an abstractor would need to collect the correct data elements for the measure. An abstraction flowchart (sometimes called an ‘algorithm’) shows the step-by-step process to guide abstraction and scoring. In addition to the flowchart, the technical specifications define allowable terms, allowable places in the chart to find those terms, and allowable values. See figure 1 for examples.

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Claims-based measures rely on billing data, so these specifications include detailed information about how to identify the correct claims and billing codes. The technical specifications will explain where to find the required data by providing the claim type (e.g. Medicare Part A, Part B, or Part D) and the fields within each dataset where specific data elements can be found. The specifications will also include how to pull the right information by providing lists of codes that define each data element.

Electronic clinical quality measures (eCQMs) rely on structured data from EHRs, and these data elements are defined using standardized codes. This allows the data elements to be extracted from the EHR without the help of a chart abstractor. Details for reading and interpreting eCQM technical specifications will be covered in a future newsletter.

Risk adjustment

Risk adjustment is the statistical process used to identify and account for differences in patient characteristics. The purpose of risk adjustment is to allow for fairer and more accurate comparison of care outcomes across healthcare organizations. It is only required for measures that assess patient outcomes (e.g. a measure of improved respiratory function following asthma treatment). For measures that assess care processes, such as the flu vaccination example, risk adjustment is not required.

Measure scoring

Specifications also include information on how the measure is meant to be scored and reported. Most quality measures produce rates (“proportion measures”). A measure rate is calculated by dividing the numerator by the denominator, less any exclusions. For example, the immunization measure score would be the percentage of patients aged 6 months or older who were screened for (and received, as indicated) the flu vaccine between the months of October – March.

However, there are other scoring methods as well.

- **Ratio:** A score that is derived by dividing a count of one type of data by a count of another type of data. Unlike a rate/proportion measure, in a ratio measure the numerator is not in the denominator (e.g., the number of patients with central lines who develop infection divided by the number of central line days).
- **Continuous variable:** A measure score in which each individual value for the measure can fall anywhere along a continuous scale (e.g., average time to thrombolytics, which totals the time in minutes from a case presenting with chest pain to the time of administration of thrombolytics).

Data Definition: Chart-Based Measures

Example data element: hypertension

Allowable terms that can be used from the record: hypertension, (HTN), high blood pressure, (↑BP)

Allowable places within the record: problem list, history and physical, and progress notes

Allowable values: Systolic BP < 130, Urine dipstick result +1 or greater

Figure 1: Data Definitions in Chart-Based Measures

$$\frac{[\text{Numerator}]}{[\text{Denominator} - \text{Denominator Exclusions}]}$$

Figure 2: Numerator/Denominator formula for proportion measures

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- **Composite/scale:** A combination of the values of several items into a single summary value for each case. Some measures will specify a weighted score in which each part of the composite is weighted differently.
- **Categorical variable:** A categorical variable groups items into classes (male, female), (board certified, not board certified). Categories may also be ordinal, meaning that they reflect a natural order (e.g., cancer stage: I, II, III, or IV); hospitals rankings: good, better, best).
- **Frequency distribution:** A display of cases divided into mutually exclusive groups according to a quality-related criterion.

The specification will also include guidance for how to interpret the measure score. In some cases, a higher measure score suggests better quality (e.g. the rate of substance use screenings among adults in the hospital). In other cases, a lower measure score suggests better quality (e.g. the rate of adverse health outcomes following heart surgery). In some cases, the better quality may be associated with scores in a specific range (e.g. a diabetes measure that suggests a blood glucose target range of 70-130 mg/dL). The specification includes this guidance regardless of the scoring methodology.

Conclusion

The measure specifications are intended to include all the information that a practice or hospital would need to report on a quality measure. By providing this information in a standard format, CMS and its measure developers aim to promote consistent reporting across the many entities that use these measures. This is one of many ways that CMS can promote measures that yield accurate, reliable information about the quality of care delivered at healthcare facilities.