Measuring the quality of health care is important because it tells us how the health system is performing and leads to improved care.

But what are the different types of quality measures, how are they developed, and how are they used? This brief provides an overview of these issues.

What is quality measurement in health care, and why is it important?

Quality measurement in health care is the process of using data to evaluate the performance of health plans and health care providers against recognized quality standards.

Quality measures can take many forms, and these measures evaluate care across the full range of health care settings, from doctors’ offices to imaging facilities to hospital systems.

Measuring the quality of health care is a necessary step in the process of improving health care quality. Too often, the quality of care received in the United States is substandard: Patients receive the proper diagnosis and care only about 55 percent of the time, and wide variations in health care quality, access, and outcomes persist. Research consistently shows that there is chronic underuse, overuse, and misuse of services. Furthermore, the way health care is delivered is often fragmented, overly complex, and uncoordinated. These problems can lead to serious harm or even death.

Quality measurement can be used to improve our nation’s health care by: 1) preventing the overuse, underuse, and misuse of health care services and ensuring patient safety; 2) identifying what works in health care—and what doesn’t—to drive improvement; 3) holding health insurance plans and health care providers accountable for providing high-quality care; 4) measuring and addressing disparities in how care is delivered and in health outcomes; and 5) helping consumers make informed choices about their care.

For a glossary of key terms in quality measurement, see page 14.
What are the types of quality measures?

Quality measures assess care across the full continuum of health care delivery, from the level of individual physicians all the way up to the level of health insurance plans. Hundreds of different quality measures are used in health care. These measures generally fall into four broad categories: 1) structure, 2) process, 3) outcome, and 4) patient experience.

We discuss each of these measures below. However, it is important to note that no single type of measure can give a complete picture of the quality of care that is provided and received. Rather, each type of measure addresses a key component of care.

A Structure Measures

Structure measures evaluate the infrastructure of health care settings, such as hospitals or doctor offices, and whether those health care settings are able to deliver care. These measures include staffing of facilities and the capabilities of these staff, the policy environment in which care is delivered, and the availability of resources within an institution.

Table 1. Types of Quality Measures

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>Assesses the characteristics of a care setting, including facilities, personnel, and/or policies related to care delivery.</td>
<td>Does an intensive care unit (ICU) have a critical care specialist on staff at all times?</td>
</tr>
<tr>
<td>Process</td>
<td>Determines if the services provided to patients are consistent with routine clinical care.</td>
<td>Does a doctor ensure that his or her patients receive recommended cancer screenings?</td>
</tr>
<tr>
<td>Outcome</td>
<td>Evaluates patient health as a result of the care received.</td>
<td>What is the survival rate for patients who experience a heart attack?</td>
</tr>
<tr>
<td>Patient Experience</td>
<td>Provides feedback on patients’ experiences of care.</td>
<td>Do patients report that their provider explains their treatment options in ways that are easy to understand?</td>
</tr>
</tbody>
</table>

Note to the reader: Unless otherwise stated, we use the term “provider” as a catchall to refer to the individuals (e.g., nurse practitioners) and the institutions (e.g., hospitals) that are responsible for providing health care services.

“The right care for the right person at the right time, the first time.”

—Carolyn Clancy, former Director of the Agency for Healthcare Research and Quality (AHRQ)
the ability to perform certain functions does not capture whether or not these functions actually occur, nor does it capture whether those functions improve patient health. In short, the fact that a health care provider or facility meets the requirements of a structure measure may not result in that provider delivering care that improves patient health. For example, some forms of provider accreditation and certification require providers to use electronic health records. A provider could buy an electronic health record system but continue to rely on paper records and still meet this structural requirement.

Although structure measures provide essential information about a provider’s capacity, it is important to note the limitations of these measures. In particular, structure measures provide just one piece of the full picture of care. For example, the fact that a hospital has the ability to perform certain functions does not capture whether or not these functions actually occur, nor does it capture whether those functions improve patient health.

In short, the fact that a health care provider or facility meets the requirements of a structure measure may not result in that provider delivering care that improves patient health. For example, some forms of provider accreditation and certification require providers to use electronic health records. A provider could buy an electronic health record system but continue to rely on paper records and still meet this structural requirement.

Examples of structural measures include: Does a hospital have a hand hygiene protocol in place? Does a physician’s office use computerized order entry for prescriptions?

<table>
<thead>
<tr>
<th>ENTITY</th>
<th>DESCRIPTION</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Plan</td>
<td>Assesses the services provided by the health plan and the overall performance of providers in the plan’s network.</td>
<td>Does the health plan cover treatment of alcoholism or other drug dependence?</td>
</tr>
<tr>
<td>Provider</td>
<td>Assesses the quality of a provider’s facilities and/or the overall quality of care provided.</td>
<td>Does the hospital provide services to treat alcoholism or other drug dependence?</td>
</tr>
<tr>
<td>Health Care Professional</td>
<td>Assesses the quality of care provided by an individual health care professional.</td>
<td>Did the physician tell the patient that treatment is available for alcoholism or other drug dependence?</td>
</tr>
</tbody>
</table>

Table 2. Entity Being Evaluated

Key Considerations
- Structure measures are necessary to ensure that all plans, providers, and care settings have the critical tools needed to provide high-quality care.
- While structure measures provide essential information about a provider’s ability and/or capacity to provide high-quality care, they cannot measure the actual quality of the care received or whether the care improved patients’ health.
- Structure measures should be considered a key part of a suite of quality measures, but they should never be relied on as the sole measure of quality.
Process Measures

Process measures are used to determine the extent to which providers consistently give patients specific services that are consistent with recommended guidelines for care. These measures are generally linked to procedures or treatments that are known to improve health status or prevent future complications or health conditions.⁵

In most cases, assessing whether a provider meets the requirements of process measures is clear-cut: Did patients receive recommended care or not?

Process measures are useful in that they give providers clear, actionable feedback and a straightforward way to improve their performance. However, overreliance on process measures to track performance and administer provider incentives can be problematic, for several reasons.

- Process measures are not available for many key areas of care, such as whether the care provided was appropriate, or whether a provider coordinated treatment for patients with physical and mental illnesses, for example.

- Process measures that do exist tend to focus on preventive care and the management of chronic conditions, which may distract from other important quality areas that are more difficult to measure. Areas where measuring quality is harder include teamwork and organizational culture.

- Process measures may also not capture the true quality of the care provided. For example, a measure that looks at what percentage of patients who smoke received smoking cessation advice will yield the same results whether the advice provided was a brief admonition to quit or a conversation with the patient about barriers he or she faces when trying to quit and the availability of smoking cessation supports.

Examples of process measures include: Are nurse practitioners routinely examining the feet of diabetes patients to check for wounds? Are physicians prescribing the appropriate drugs to their diabetic patients?⁶

Key Considerations

- Having well-designed process measures is critical and can mean the difference between providing recommended care and just checking off a box.⁷

- While process measures typically reflect professional standards of care, they do not always consistently predict outcomes, and users should be aware of their limitations.³ Good process measures should always be backed by evidence that can reliably link a process with improved outcomes.

- Current process measures are broadly focused on the areas of prevention and chronic disease management.

- Process measures are lacking in key areas of care that can also contribute to outcomes, such as care coordination and technology. Process measures that are developed in the future should focus on these key areas.
Outcome Measures

Outcome measures evaluate patients’ health as a result of the care they have received. More specifically, these measures look at the effects, either intended or unintended, that care has had on patients’ health, health status, and function. They also assess whether or not the goals of care have been accomplished. Outcome measures are where the rubber meets the road: Patients are interested in surviving illness and improving their health, not the clinical processes that support these outcomes.

Outcome measures frequently include traditional measures of survival (mortality), incidence of disease (morbidity), and health-related quality of life issues. And while these measures often incorporate patient-reported information on how satisfied patients are with the health care services they’ve received, these measures do not assess the full extent of the patient experience (as described on page 7).

Although outcome measures are important to patients and providers, their usefulness is limited by the fact that developing outcome measures that are truly meaningful can be quite hard. Key challenges to developing meaningful outcome measures include:

- Measuring outcomes often requires detailed information that is available only in medical records, and this information is difficult and expensive to obtain.
- Gathering enough data to provide useful information about a particular outcome can also be a challenge.
- Although social determinants of health (such as access to safe housing, social support, and economic opportunity) can have a profound impact on health outcomes, there is little agreement on whether or not providers can be held accountable for the confounding effects of social determinants.
- Differences in patient population can make certain outcomes more difficult to achieve. For example, ensuring that a certain percentage of a provider’s diabetic patients have controlled blood sugar levels may be more difficult for a provider with a patient population that is sicker or that has multiple chronic conditions.

Examples of outcome measures include: What was the amputation rate for patients with diabetes? What percentage of cancer patients went into remission? What was the quality of pain relief for patients who’d had knee surgery?

Key Considerations

- Because outcome measures reflect what is most important to patients, it is especially critical that they are developed with patient needs, values, and preferences in mind.
- When developing, evaluating, and using outcome measures, it is important to recognize the potential impact of social determinants of health, as well as critical differences in patient populations.
- Outcome measures can be particularly useful for patients when they are choosing providers or health care services if the measures come with relevant information on cost.
Experts are increasingly advocating for the inclusion of patient experience as a key measure of quality as the movement to improve health care quality continues to develop and evolve. This trend has been aided, in part, by the fact that the National Quality Strategy includes measures of patient experience as a key element. (For more information on the National Quality Strategy, see “How the Affordable Care Act Improves Health Care Quality” on page 8.)

Examples of patient experience measures include:
- How long did patients have to wait before being seen?
- Did a physician give easy-to-understand information to her patients that addressed their health questions or concerns?
- Did someone from the provider’s office follow up regarding the results of a blood test, x-ray, or other lab work?

Patient Experience Measures
Patient experience measures provide feedback on patients’ experiences of their care, including the interpersonal aspects of care. But these measures assess many other aspects of care, ranging from the clarity and accessibility of information that doctors provide, to whether doctors tell patients about test results, to how quickly patients are able to get appointments for urgently needed care.

Research shows that positive patient experiences have a well-documented relationship to clinical quality. Patients with better care experiences are often more engaged in their care, more committed to treatment plans, and more receptive to medical advice.

Key Considerations
- Patient experience measures should be developed with patient input to ensure that they are representative of their needs, values, and preferences.
- These measures reveal critical information about the extent to which care is truly patient-centered.
- Although these measures are relatively new, experts are relying more and more on them as a core element of health care quality.
- Patient experience measures provide a rigorous, validated alternative to the subjective reviews that are posted on a large number of online review sites.
How the Affordable Care Act Improves Health Care Quality

Beyond expanding health insurance and access to care, the Affordable Care Act includes numerous provisions related to improving the quality of care in the United States. The health care law did the following:

» Created a National Quality Strategy, the first overarching policy that is designed to lead federal, state, and local efforts to improve the quality of care and align public and private payers in their quality and safety efforts.

» Established a Center for Quality Improvement and Patient Safety to conduct and support research on best practices for improving how health care is delivered.

» Established the Patient-Centered Outcomes Research Institute (PCORI) to support the generation of patient-centered evidence that can be used in measure development.

» Created the Center for Medicare and Medicaid Innovation (CMMI) to test new payment and delivery models that include quality measurement and improvement as a key design component.

» Established a mandatory physician quality reporting program (beginning in 2015) and the development of a physician compare website for Medicare beneficiaries.

» Requires public reporting on the quality of health insurance plans that are sold in the new state health insurance marketplaces.

» Requires additional reporting of patient data related to race, ethnicity, sex, and language, and requires qualified health plans to implement activities to reduce disparities (variations in access to care and in health outcomes due to factors such as race, ethnicity, gender, and socioeconomic status).

» Authorized numerous new payment and delivery models, such as value-based physician payment, accountable care organizations (ACOs), and patient-centered medical homes, that all use quality as a key metric of success.
How are quality measures developed?

All quality measures begin with an evidence base. But how does research become an evidence base and then a validated quality measure that can be applied to multiple providers and/or health insurance plans?

Sound quality measurement begins with clinical research that links a particular process, structure, or outcome with improved patient health or experience of care. For example, research has found that administering a beta blocker as soon as possible to a patient who is experiencing a heart attack can reduce the risk of death. This protocol, supported by sound evidence, was later developed into a clinical practice guideline. A clinical practice guideline is a diagnostic or treatment process that a clinician should follow for a certain type of patient, illness, or clinical circumstance.

Who develops the evidence base?

A range of different groups are involved in funding and developing the evidence base that is used to create clinical practice guidelines. These groups include public agencies like the National Institutes of Health (NIH), the Agency for Healthcare Research and Quality (AHRQ), and the Patient-Centered Outcomes Research Institute (PCORI). Private businesses, such as pharmaceutical companies and medical device developers, as well academic research institutes, foundations, and advocacy organizations, are also involved in developing this evidence.

Often, professional societies, such as the American Heart Association (AHA) or the American College of Surgeons (ACS), and public agencies like AHRQ, will be the first to identify a critical mass of evidence on a particular treatment. These societies or agencies then develop clinical guidelines that may end up becoming standards of care for many diseases and conditions. These guidelines can be a starting point for determining where quality measurement is needed and for providing the critical evidence needed to develop such measures. In addition, some societies or agencies go a step beyond creating clinical guidelines—they create the measurements themselves.

How does evidence become a quality measure?

The evidence base that is used to develop clinical guidelines is vast. The process of translating this evidence base into quality measures varies widely according to the type of measure, as well as the entity that is charged with developing the measure.

In general, the process of developing a quality measure includes convening a set of stakeholders to evaluate the evidence and define the parameters of a quality measure. Steps in this process generally include:

» Convening a committee whose members have expertise on the particular issue to be measured

» Evaluating the evidence base, including primary research and clinical practice guidelines
Reaching consensus on the best measurement approach by considering numerous criteria, including what the proposed measure would evaluate and how that is relevant to consumers, the scientific soundness of the evidence base, the feasibility of measurement, and how data will be collected.

Developing detailed specifications about what will be measured and how.

Vetting the specifications with key interest groups, such as professional societies or consumer groups.

Conducting rigorous testing to ensure that the measure works as it was designed.

Obtaining final approval by the entity charged with developing the measure.

Who develops quality measures?
The entities that develop quality measures include:

- Government agencies, such as the Centers for Medicare and Medicaid Services (CMS) and the Agency for Health Care Research and Quality (AHRQ).
- Private nonprofits, such as the Joint Commission on Accreditation of Health Care Organizations (JCAHO) and the National Committee for Quality Assurance (NCQA).
- For-profit companies, such as Healthgrades and U.S. News and World Report.

When public agencies and nonprofits develop quality measures, they often provide opportunities for comment on their measures and make the measure specifications publicly available. On the other hand, for-profit companies often do not have the same level of transparency in their measure development processes.

How do measures get endorsed?
After a quality measure is developed, it is often endorsed by professional societies and/or consumer groups. The endorsement process is a consensus-based process that allows stakeholders to evaluate a proposed measure. Usually, a nonprofit (such as the National Quality Forum—NQF) or government agency (such as AHRQ) convenes stakeholders to rigorously review potential quality measures and endorse those that meet pre-established standards. These stakeholders include the following:

- health care professionals
- consumers
- payers (such as insurance companies)
- employers
- hospitals
- health plans

Measures endorsed by organizations like NQF are generally recognized as reflecting a thorough scientific and evidence-based review.
Where do data on health care quality come from?

Once an agency, nonprofit organization, or company has developed a quality measure, data must be collected to support that measure. These data come from a variety of sources. Often, complex measures require data from more than one source.

Some common sources of the data that are currently used to track quality measures include:

» **Administrative data:** Administrative data include health insurance claims that are used to bill payers for health care services. This type of data is often the easiest to obtain, because health plans and providers already have a robust infrastructure to collect and share these data. However, administrative data are limited in the types of measures they can support. For instance, while claims data can capture which services were provided to which patients, they cannot be used to determine whether these services were appropriate for the patients who received them.

» **Medical records:** The information that providers keep in patients’ health records contains far more detail than claims data, including information on medical histories and current medical conditions. However, these data can be difficult to obtain, for several reasons. For example, providers may use paper records that require chart review. Some providers have electronic health records, but different providers often use different record systems, which makes it difficult to gather and synthesize data across providers.

» **Qualitative data:** Qualitative data, such as data from patient surveys, focus groups, and interviews, or data from “mystery shopper” programs, provide the level of detail needed for reporting patient experience measures. These data are generally collected through patient surveys that are administered by mail, phone, or email, and they provide feedback on many different elements of the care patients receive.

Collecting data on quality measures is a key challenge. In the past, most health plans and providers were not required to track and report data that measure quality. Now, busy providers are often responsible for tracking different quality measures for different payers. For example, a provider may have to track one set of measures for a health plan, another set for CMS, and a third set for an accreditation agency. Having to meet different requirements can be burdensome for providers.

Making the process of collecting data on health care quality less onerous for providers may require new tools and technologies, as well as recognition of the time it takes providers to meet reporting requirements.

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**Key Considerations**

- The United States does not have a designated agency that is responsible for defining standards for the development of quality measures or for quality reporting. This has led to burdensome submit requirements for health plans and providers, who must submit quality data to numerous agencies and organizations.

- Just as importantly, patients often have trouble understanding information on health care quality that comes from so many sources.

- Future efforts to improve the way health care quality is measured should focus on aligning quality measures across the different groups that have developed or endorsed them, as well as on creating a single federal agency with the authority to regulate the process of developing quality measures and the way information on quality is disseminated to consumers.
The Promise of Electronic Medical Records for Measuring Quality

The expanding use of electronic medical records has the potential to transform the way that data on quality are collected, assessed, and reported by making information about health care and health outcomes more accurate, timely, useful, and accessible.

How are quality measures used?

Currently, the most common uses of quality measurements include public reporting, provider incentive programs, and accreditation and/or certification of providers and health plans.

- **Public reporting**: Providers and health plans, both public and private, are increasingly making quality measurement data available to the public to increase provider accountability and promote informed consumer choice.

  For example, the Centers for Medicare and Medicaid Services (CMS) provides robust quality performance data for hospitals in the Medicare program on its Hospital Compare website. CMS also reports quality data for the Medicare program on nursing homes, home health agencies, and Medicare Advantage plans, among others. Increasingly, private plans are also publicity reporting provider performance on quality measures, often combined with price and cost data.

- **Provider incentive programs**: Quality measures are frequently used to direct financial rewards or penalties to providers based on their performance. For example, rather than paying providers for the volume of care they deliver or the number of patients they care for, payers can link all or part of a payment to the quality of care that is delivered.

  New models of care delivery, including accountable care organizations (ACOs) and patient-centered medical homes (PCMHs), use quality measurement as a critical method of allocating payments to participating providers.

- **Accreditation and certification**: Quality measures frequently inform the standards that are used by organizations such as the National Committee for Quality Assurance (NCQA), URAC, and the Joint Commission on Accreditation of Health Care Organizations (JCAHO) in their accreditation and/or certification of providers and plans.

  Accreditation and certification are often viewed as important symbols of quality and can serve as a “seal of approval” for consumers. For example, the Affordable Care Act requires all qualified health plans that are sold in the state health insurance marketplaces and the federally facilitated marketplace to be accredited.

Key Considerations

- Administrative data such as health insurance claims are easy and cheap to collect, but they often cannot provide the level of detail needed to assess health outcomes.

- Medical records, particularly electronic medical records, are a key source of data for reporting outcome measures. However, a lack of standardization across record systems can make reporting difficult.

- While qualitative data such as patient surveys are important for measuring patient experience, they can be time-consuming and expensive to collect, as well as burdensome for providers. New methods for collecting data on patient experiences should be explored.

- As with all personal health data, privacy is a critical issue. Though quality measures are not intended to disclose information on individual patients, ongoing vigilance is needed to ensure that quality measurement and reporting comply with existing privacy laws.
What’s next in quality measurement?

Using quality measurement to improve health care is a relatively new endeavor. While the U.S. health care system has made great strides in developing and implementing quality measures over the past 15 years, much work remains.

One key step in this effort is the creation of the National Quality Strategy, the first comprehensive federal undertaking aimed at improving the quality of care in this country. The Affordable Care Act required the secretary of Health and Human Services (HHS) to establish this national strategy for improving health care that set priorities and that provided a plan for achieving its goals: better care, affordable care, and healthier people and communities.16

Over the past three years, HHS has worked with numerous stakeholders to develop a set of priorities for the National Quality strategy, which include:

» Making care safer by reducing the harm that is sometimes caused during the delivery of care

» Promoting the most effective prevention and treatment practices for the leading causes of death

» Promoting effective communication about and coordination of care

» Ensuring that all individuals and families are engaged as partners in their care

» Working with communities to promote healthy living

» Making quality care more affordable for individuals, families, employers, and governments by developing and increasing the use of new health care delivery models17

Ongoing work to develop programs that operationalize these principles will be needed to ensure that the National Quality Strategy lives up to its promise.

The process of developing meaningful quality measures and putting them into use is ongoing and will be refined over time. But as we collect and evaluate more data on quality, we’ll be closer to ensuring that every American gets the right care at the right time, the first time.
**Glossary of Key Terms in Quality Measurement**

**Accreditation:** Recognition that is granted to an institution (such as a health care provider or health plan) by a professional association or non-governmental agency demonstrating that the institution meets pre-established standards.

**Certification:** Recognition that is granted to an individual health care worker by a professional association or non-governmental agency demonstrating the individual’s competency relative to a pre-determined set of criteria.

**Clinical practice guideline:** A standard of care based on current, high-quality evidence that outlines the recommended course of care, including relevant options and their outcomes, and that is designed to help providers make the best possible care decisions.

**Disparities in health care:** Variations in access to care and in health outcomes due to factors such as race, ethnicity, gender, and socioeconomic status.

**Evidence-based care:** Health care that applies the best available research (evidence) when making decisions about a patient’s care.

**Morbidity:** The incidence of disease, or how frequently a condition or illness occurs in a given population.

**Patient experience:** The full range of patients’ interactions with the health care system, from scheduling appointments to interactions with their providers to the course of treatment, including whether these interactions meet patient needs and health goals.

**Patient-centered care:** Health care that recognizes and incorporates the distinct wishes and needs of individual patients, with an emphasis on patient values and preferences.

**Quality health care:** The right care for the right person at the right time, the first time.\(^1^\)

**Quality measure:** A tool that is used to measure performance against a recognized standard of care.

**Standard of care:** Care that is delivered in accordance with clinical practice guidelines or other evidence-based care protocols.

**Value:** The relationship of the clinical benefits of health care to the cost of providing that care.
Endnotes


11 Robert A. Berenson, Peter J. Pronovost, and Harlan M. Krumholz, op. cit.

12 Centers for Medicare and Medicaid Services (CMS), Hospital Compare website, available online at http://www.medicare.gov/hospitalcompare/search.html.

13 Robert A. Berenson, Peter J. Pronovost, and Harlan M. Krumholz, op. cit.

14 National Committee for Quality Assurance, op. cit.

15 Patient Protection and Affordable Care Act, Public Law 111-148 (March 23, 2010), as modified by the Health Care and Education Reconciliation Act of 2010, Public Law 111-152 (March 30, 2010), Title I, Subtitle D, Section 1311.

16 Department of Health and Human Services, op. cit.

17 Ibid.


Sidebar Notes


A selected list of relevant publications to date:

*Measuring Health Care Quality: An Introduction* (March 2014)

*Principles for Consumer-Friendly Value-Based Insurance Design* (December 2013)

*Key Differences between Reward/Penalty Programs and Value-Based Insurance Design* (October 2013)

For a more current list, visit: [www.familiesusa.org/publications](http://www.familiesusa.org/publications)