

The Who, What, and How of Health Outcome Measures

By Josh Ferguson



Anyone involved with healthcare system leadership or who serves on a clinical or non-clinical outcomes improvement project team, deals with health outcome measures on a daily basis. And like a habit that becomes so routine we don't even think about it, we may not stop to think about health outcome measures. What are they exactly? Why are we measuring them? Are we measuring the right ones? Which outcome measures are relevant in different care environments? Let's peek inside the fundamentals of health outcome measures as a refresher for focusing on measuring the right ones for the right reasons.

What Are Health Outcome Measures?

Health outcome measures come in many shapes and sizes and how they are defined depends on the domain being measured and the values and interests of the governing agency. For example:

- The [International Consortium for Health Outcomes Measurement \(ICHOM\)](#) [defines health outcomes](#) as “the results that matter most to patients” rather than those that matter most to physicians and healthcare organizations.
- The [Centers for Disease Control and Prevention](#) [says](#) that “an ideal [population health](#) outcome metric should reflect a population's dynamic state of physical, mental, and social well-being. Positive health outcomes include being alive; functioning well mentally, physically, and socially; and having a sense of well-being.”
- The [National Quality Metrics Clearinghouse](#) (NQMC) categorizes clinical quality measures into five areas: process, access, outcome, structure, and patient experience. These are defined as “measures used to assess the performance of individual clinicians, clinical delivery teams, delivery organizations, or health insurance plans in the provision of care to their patients or enrollees, which are supported by evidence demonstrating that they indicate better or worse care.” The NQMC lists 244 clinical quality measures specifically related to outcomes, and a total of 1,920 measures related to all five clinical quality categories.

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Other large organizations have their own definitions, including [CMS](#), [The Joint Commission](#), and the [Healthcare Effectiveness Data and Information Set](#) (HEDIS). The important thing to remember is that it's easy to get caught in the quagmire of definitions and quantities of measures. The key is to take these definitions and make them work on a series of specific measures being tracked. This is accomplished first by identifying an improvement opportunity, establishing relevant outcome goals and process aims, and then designing and implementing a series of interventions in order to achieve the defined outcome.

Key Characteristics Outcome Measures

Some outcome measures are more difficult to track than others. Consider long-term and short-term measures. An example of a short-term measure may be the median time from ED arrival to provider contact and a long-term measure may be the perceived autonomy and control in quality of life for older persons. Obviously, the latter is more difficult to track because of the resource load it places on an organization (someone has to collect this data); the patient also has to see the value and be willing to commit the time to participate.

Outcome measures may serve dual domains. Outcome measurements can frequently cross multiple domains of care and may serve as surrogate outcome measurements if traditional measures are unavailable. Take a complication rate, like infection from joint replacement surgery, for example. With this outcome measure, some organizations may use this as a gauge to improve clinical care, others may use it as a surrogate for cost, while others may look toward lowering this outcome measure in order to improve patient satisfaction.

Outcome measures create cause and effect. At times, outcomes improvement teams can unintentionally impact other metrics, either for better or worse. For example, decreasing the length-of-stay (LOS) following cardiac surgery could result in a higher rate of readmissions. It's a fine line between reducing waste and causing inadvertent harm. This is where balance measures come in. [Balance measures](#) are the metrics a health system must track to ensure an improvement in one area isn't adversely impacting another area. Typical balance measures for reducing LOS include ER utilization, frequency of outpatient visits, and patient satisfaction.

Treat outcome measures like a science experiment. While outcomes improvement work is at times challenging, it can be extremely rewarding. Difficulty can arise if patience is not

employed and when the improvement efforts are numerous or other interventions factors are being deployed. Seeing an intervention as a laboratory experiment can allow organizations to deploy new interventions so they can conclude whether a resulting outcome measure was the result of a particular intervention. Approaching work in this manner, can help to minimize the impact of external and confounding variables and their potential impact on the outcome measure and any associated intervention(s).

The Birds and the Bees of Outcome Measures

Where do outcomes measures come from? Different professional organizations focus on different areas of care, for example:

- The Global Initiative for Chronic Obstructive Lung Disease has identified [a set of outcomes and process aims for managing COPD](#).
- The American Heart Association publishes [guidelines along 14 cardiovascular states](#), including stroke, heart failure, and acute myocardial infarction.
- The Institute for Clinical Systems Improvement issues [recommendations and protocols in 12 clinical areas](#), including palliative care, patient safety and reliability, and behavioral health.
- The American Diabetes Association [sets targets for glucose levels](#) while patients are hospitalized.
- The Infectious Diseases Society of America [sets standards](#) for what antimicrobials should be used and how frequently they should be given in different situations.

This structure is valuable because the individual organizational agencies provide very specific outcome measures in the form of guidelines and recommendations targeted to the domain. But these are only the tip of the iceberg. [This article](#) on shifting healthcare quality measures from volume to value provides some detail on the myriad regulatory measures sponsored by CMS, HEDIS, and The Joint Commission, as well as others.

The Financial Relevance of Outcome Measures

Healthcare organization have to look for opportunities for reducing cost in order to maintain financial viability. They can reduce costs and, more importantly, improve patient outcomes, by focusing on improving the quality of care being delivered. One of the early steps involved in improving the quality of care is to identify best

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practice. This is often one of the easier items to accomplish. The degree of complexity increases as interventions are successfully designed, tested, implemented, and ultimately adopted. It takes an [average of 17 years](#) for a new piece of evidence to be adopted by the healthcare community. To accelerate the work, many successful organizations have turned toward establishing domain-specific interdisciplinary outcome improvement teams to transform the quality of care being delivered and the results are often profound in reducing cost and improving patient experience.

Who's Responsible for Outcome Measures?

As outcomes improvement teams are being formed, responsibilities and accountabilities must be considered across all levels of an organization in order for care quality improvements to be successful. Members of the executive leadership team, the outcomes improvement teams, and frontline clinicians, need to see value in supporting a particular vision in order to create a quality improvement culture that can thereby transform their organization.

Maintaining open lines of communication, sharing ideas, and disseminating improvement efforts across an organization are central components to achieving widespread adoption and success in improving the quality of care. For example, there may be an initiative from a heart failure outcomes improvement team that wants to ensure that all patients with heart failure receive a specific type of education before being discharged in order to reduce the risk of readmission. What would happen, however, if a patient who had heart failure was admitted for a total hip replacement and this information had not been shared with other teams within the organization? Not only does the orthopedic surgeon need to be aware of these heart failure outcome measures, but so do the nursing staff on the orthopedic floor. This type of information sharing among the entire organization becomes vital for cross-functional support of the patient.

How Many Outcome Measures Are Too Many?

There is an ongoing debate about consolidating measures. Are we asking the right questions for calculating outcomes and are we asking the right people? Questions regarding patient experience are important, but are they being composed in a valuable and reliable manner, are they being asked by the right person or entity, and are they being evaluated on their own merit or in combination with other measures? All too often, questions are asked of patients rather than caregivers, and vice versa, when it's

appropriate to query both groups to get a full view of the patient experience. More importantly, are these questions being evaluated individually or in combination with other measures? For example, a patient in the hospital with a long history of substance abuse may report that their pain was not well controlled during their hospital stay. Conversely, a member of the healthcare staff will give a completely different response based on guidelines to ensure patient safety. What was the reason for admission, what events were prohibiting a pain medication from being safely administered, what medication was being taken prior to the hospital stay and with what dose and frequency were they being taken? All of these measures are important and add detail and valuable information to a particular outcome measurement.

Questions should be posed to generate reliable responses and should be based on an outcome. Often a single survey question cannot ascertain whether a certain outcome measurement has been achieved. The pain management question should be about how the pain impacted LOS or complications or health-related quality of life. When we look at these outcomes, we need to do so in such a way that allows a combination of measures to be organized in such a manner that they paint a better overall picture of what is actually occurring. This is the true value of health-related, quality-of-life questionnaires and validation tools. It's exciting to see how some hospitals are moving toward more use of an analytics system to produce better and higher quality data, and provide a basis for transforming healthcare.

[Using an Enterprise Data Warehouse and Analytics to Impact Outcomes Improvement](#)

One of the powers of an [enterprise data warehouse](#) (EDW) is its ability to process data from multiple sources. Often, patients have multiple comorbidities and conditions, all tracked by different outcome measures. This is a lot of data among an entire population of patients.

As the number of patients with multiple chronic comorbidities continue to rise, we must find ways to harness the recorded data/ documentation. We must find ways to identify discrete events and also be able to see the patient over time and across encounters, and even across different healthcare systems. In the end, the information is the patient's information, but it may be of interest to combine these outcome measures with other metrics to see what type of data results. This is the power of an EDW and analytics, especially when developing the types of outcome measures that matter most to patients. Say a patient has both colorectal and

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breast cancer. It's possible to determine if there is a relationship between those two conditions by examining what measures to use differently to answer that question.

It's important to have the tools to measure the work we do. If we deploy an intervention and want to know if it's making an outcome better or worse, it's just as important to set baseline and target values for analysis as it is to identify the intervention.

Furthermore, a hospital must proceed with outcomes improvement in a scientific manner without getting so caught up in making it perfect that the process comes to standstill. This is always the battle: how much intervention is good enough? It's possible that one intervention may not make a big enough difference. Two or three may be required in order to see meaningful improvement. The same can be said about moving the needle on an outcome. It may take two or more process aims to lead to an outcome improvement. Keep in mind that multiple interventions cannot be deployed simultaneously or it won't be clear which one worked.

The ACO-Outcome Measures Relationship

What outcome measures would an ACO want to focus on the most? Some of the things we talk about with healthcare systems is where the care is being provided and what type of care is being provided. This goes back to structuring outcomes improvement teams and being able to bring the right people to the table at the right time. What types of services are patients with certain conditions utilizing the most, and is the utilization appropriate? Who's caring for that [patient population](#)? Can better care be provided in one environment over another? Who's making sure that all diabetic patients are getting all of the care that they need? Is one group better at managing this than another?

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Where Outcome Measures Are Headed

As healthcare increases its analytics capabilities, we'll ask questions in a more reliable fashion and reduce the variation in how outcomes are measured within specific care domains. We'll track outcomes in a more meaningful way, across the spectrum of healthcare, rather than confined by facility. And we'll start to look at outcome measures in such a way that we can focus more on patient populations rather than individual episodes of care. ♪

About the Author



Josh Ferguson joined Health Catalyst in May 2015 as a Clinical Advanced Application Content and Deployment Director. Prior to coming to Health Catalyst, Josh worked at Intermountain Healthcare for over 17 years in a variety of capacities including: Medical Knowledge Engineer, Clinical Implementation Coordinator, Respiratory ICU Nurse Practitioner, and a nurse in the ICU, acute rehab and transitional care units. Josh earned his Master's degree in Nursing from the University of Washington. While attending the UW, he completed the course work for 3 different tracks including: Adult Acute Care Nurse Practitioner, Clinical Nurse Specialist, and Nursing Educator. His baccalaureate degree is in Nursing and Human Performance Management from Weber State University.