

Clinical outcome measure

An outcome measure is a tool used to assess a patient's current status. Outcome measures may provide a score, an interpretation of results and at times a risk categorization of the patient. Prior to providing any intervention, an outcome measure provides baseline data.

In this era of “quality outcome measures,” some authors have proposed various metrics to assess quality outcomes for [shunt surgery](#).

Measuring health outcomes is central to assessing the quality of care. Outcomes can include a vast range of health states; mortality, physiologic measures such as blood pressure, laboratory test results such as serum cholesterol, patient-reported health states such as functional status and symptoms may all be used as outcome measures. Outcome measures in different contexts, such as quality improvement, public reporting, and incentive programs, can be controversial because inferences from health states to quality are sometimes difficult to make. Interpretations may differ regarding the degree to which a specific health outcome is attributable to the antecedent Healthcare received by a patient as opposed to other factors, including some unrelated to Healthcare. For instance, determinants of outcomes after heart attack include patient age, gender, severity of coronary artery occlusion, prior heart attacks, and other complicating conditions, such as hypertension, diabetes, or obesity. In addition, a variety of Healthcare services can be major determinants or contributors to an outcome. For heart attack outcomes, these could include services delivered by emergency medical technicians in the field, emergency room (ER) teams, inpatient and cardiac catheterization laboratory staff — including physicians, specialists, and nurses — and rehabilitation professionals. Attributing outcomes after heart attack to specific Healthcare services or to specific providers in a context such as this proves challenging.

Using Outcome Measures The need to account for all factors that influence a patient's health outcome can be addressed by adjusting for risk factors, using statistical adjustment, or stratification of the data. This adjustment will be based ideally on the state of the patient before the patient received a particular set of Healthcare services. The timing of measurement of an outcome relative to the care received is important to interpreting a professional's contribution to an outcome (the “marginal health benefit” added to the outcome by this phase of care). For instance, the outcomes of hip replacement may be quite different at three months, one year, or five years after surgery. In some recent examples, failures of surgical technique or selected prostheses only became apparent ten years after surgery. Long-term outcomes remain difficult to measure due to the expense of locating patients for measurement.

Users of outcome measures may wish to consider other important technical questions. For instance, are the sample sizes adequate to allow sufficient adjustment for risk factors? Measured health outcomes after surgery are more statistically reliable for a surgeon performing hundreds of procedures than for a surgeon performing fewer than ten. Surgeons who perform few procedures are typically excluded from comparisons because of small sample sizes, even though users have an interest in comparing the performance of low-volume surgeons with that of other surgeons.

Outcomes measures can be very useful in quality improvement programs, by pointing out the areas in which intervention could improve care. For instance, poor stroke outcomes could result from patients' delays in recognizing symptoms, delays in emergency transport, or delays in patient assessment and treatment on arrival at the hospital. Improvement efforts can then target the areas where improvement might yield the best results. For instance, patient-originated delays might be addressed with community-based education, whereas delays attributable to emergency services could be addressed with education of technicians and/or re-organization of emergency services.

In the face of technical difficulties and the cost of collecting health outcomes data from patients directly, many “outcome measures” actually use processes of care or use of services as “proxies” for patient's health states. For example, hospital readmission rate is sometimes referred to as an outcome measure; the underlying theory is that readmission reflects a change in health state. In reality, readmissions can occur for many reasons other than the health state of the patient. A high readmission rate may indicate that the patient's health has deteriorated, or it could indicate another issue, such as a lack of caregivers in the home or a misjudgment about the [discharge](#) destination at the time of discharge. A high rate of readmissions could reflect poor care during the first admission, or superior care leading to rescue and a sicker population on average at discharge. Such measures may be considered “proxies for health outcome.”

Summary Overall, users may prefer to use outcome measures in accountability programs only if they include relatively large numbers of patients, an entity such as an accountable care organization that can take responsibility for coordinating services, and adequate data for risk adjustment. In quality improvement programs where outcomes can be used to guide investigation and changes to the delivery process, their use is probably less controversial. For more information on the uses of quality measures, see NQMC's Uses of Quality Measures tutorial.

Questions to Consider When Selecting a Measure of Outcome Are the outcome measures to be used for quality improvement or accountability? At what point in an episode of care is the outcome measured? What other organizational and non-Healthcare factors may influence the relationship between process of care and the outcome? Can one clearly define the organizations, professionals, and staff who influence the observed outcome?

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