

Using the Patient's Voice to Measure Quality of Care

Improving quality of care is one of the primary goals in U.S. health care reform. Examples of steps taken to reach this goal include using health insurance exchanges to tie provider reimbursements to quality care and requiring insurers to report the percentage of premiums spent to improve health care quality.

The primary challenge going forward will be how to measure and quantify the success of these efforts, and ultimately calibrate these results with other quality improvement efforts.

QualityMetric Incorporated offers a standardized and scientifically valid way to measure health outcomes for individuals and large populations. Our health surveys and cutting-edge technology are perfectly positioned to address the need for quality measurement from the patient's point of view.

The SF Health Surveys

QualityMetric's SF-36v2® Health Survey and SF-12v2® Health Survey are two of the most widely used and widely cited (in the scientific literature) measures of functional health status. The tools are already well established in the life sciences industry as a way to measure new drug efficacy and to substantiate marketing claims. As you will read below, they are an emerging way for insurers and health care providers and governments to incorporate the voice of the patient into the decision making process both clinically and administratively.

These surveys measure health status across eight domains and are summarized into physical and mental health scores. They have been translated into 135 languages and have been used around the world to measure health outcomes.

Health Surveys for Specific Populations

QualityMetric also offers disease-specific and pediatric health surveys. Disease-specific surveys measure the impact or severity of various conditions, including asthma, rheumatoid arthritis, pain, headache, and sleep problems. Pediatric surveys are designed to address the unique challenges associated with measuring health status in children.




Short, but Effective

Health surveys don't need to be long and time consuming to capture meaningful, in-depth information.

QualityMetric's SF-12v2 Health Survey can be completed in two to three minutes while generating data measuring both physical and mental health status.

The results are scientifically valid and norm-based, meaning that a person's scores are viewed in comparison to others of similar age and gender. It is also possible to place the results in the context of specific conditions or disease states.



The Scientists Behind Our Surveys

Our consulting team includes some of the top health outcomes scientists in the world with experts in cognitive and clinical psychology, sociology, public health, psychiatric epidemiology, and clinical medicine.

QualityMetric scientists have outcomes experience in over 60 therapeutic areas, and are equipped with proprietary databases to help translate patient-reported data into actionable information. They use their expertise and QualityMetric's tools to provide clients with:

- An understanding of the distribution of health burden in member populations
- The ability to screen and identify outliers who present the greatest risk for future adverse health events
- The data and insights needed to measure and monitor treatment and program efficacy over time (including return on investment)
- Predictions of those most likely to incur high medical costs
- Risk-adjusted comparisons across treatments, providers, programs, members, and populations

The SF health surveys were born out of three seminal population health studies dating back to 1974. (See box below.)

This is a scientific legacy that continues to the present. As of July 2011, over 16,000 peer-reviewed articles have been published utilizing the SF health surveys. The bibliography spans 63 different therapeutic areas, with almost all having at least 100 citations. Seventeen areas have more than 500, including: oncology, cardiovascular, depression, diabetes, musculoskeletal, obesity, pain, senior studies and women's health. Also, the number of randomly controlled clinical trials using the SF tools now stands at more than 2,000. This level of utilization and ubiquity contributes greatly to the data assets that make these tools so valuable and relevant today.

Smart Measurement® System

Our Smart Measurement System uses the latest technologies to capture, benchmark, and interpret survey data. This IT platform is ideal for organizations that want to measure functional health and well-being quickly and confidentially, while obtaining results in real time. More than 400 payers, providers, and population health organizations are already utilizing the system.

The Smart Measurement System features:

- Automatic scoring of surveys with real-time reports
- Reporting that allows changes in health to be tracked over time and comparisons to be made between treatments, programs, patients, and populations
- Access via confidential login at any time, from any location where Internet access is available
- Multi-user capability that allows multiple patients/clinicians to be logged into the system and completing tasks simultaneously
- Multiple modes of administration, including online, PDA, fax-back, and more
- An automated reminder system for patients that uses the phone or email to remind patients when it is time to take the survey

“It is useful to see how my health compares to my peers—other diabetics and obese people—and the general population. Seeing my scores is liberating because now I know if I'm more or less healthy than other people who have similar health concerns.”

A patient involved in the Alberta Health Services project

Our Scientific Heritage

The SF health surveys were born out of three seminal population health studies dating back to 1974:

The Health Insurance Experiment (1974-1981)

This was the first extensive use of psychometrics in health status surveys. The effort was led by John E. Ware Jr. et al while at the RAND Corporation. It demonstrated that self-administered surveys of functioning and well-being are reliable and valid.

The Medical Outcomes Study (1986-1990)

A four-year longitudinal, observational study of practice style variations for over 23,000 chronically ill patients. It was led by Dr. Ware and colleagues from the University of Chicago, RAND, and Tufts-New England Medical Center. The surveys measured 40 health concepts, leading to the development of the SF-36 Health Survey, which represented the eight most important concepts.

The Medicare Health Outcomes Study (1998-2004)

The 1997 Balance Budget Act directed Medicare to focus on the health status of beneficiaries. CMS worked with NCGA to incorporate certain outcome measures into HEDIS and expand outcomes measures. The SF-36 Health Survey was recommended as a core measure in an annual assessment of physical and mental health states.

Success Stories

Below are some examples of the ways government agencies, health care providers and health care organizations are using these tools in the real world:

The Medicare Health Outcomes Survey

In 1998, CMS launched a nationwide effort to collect information from Medicare managed care members about their health status. At that time, no standardized comparative information on the health outcomes for Medicare beneficiaries enrolled in managed care organizations existed. The Medicare Health Outcomes Survey (MHOS) represented the first such initiative to measure two-year health outcomes for the Medicare population in managed care settings nationwide. The MHOS incorporated the latest advances in summarizing physical and mental health outcome results and appropriate risk-adjustment techniques for comparing outcomes of care across managed care organizations. The primary outcome measures of physical and mental health status were based on the SF-36 Health Survey, a generic measure of functional health status and psychological well-being. The results of the longitudinal component of the survey were intended to present beneficiaries with comparative information about the health plans they were enrolled in, and enable them to make informed choices about health insurance options. Similarly, the intent of the MHOS was to provide managed care organizations important information about the health status of their Medicare population and direction for programmatic improvements in health care service delivery. The MHOS is now in its 13th year, having amassed over 3 million assessments of two-year outcomes in the Medicare population.

Alberta Health Services

Alberta Health Services (AHS) is the provincial health authority in Alberta Canada. They are responsible for delivering health services to 3.5 million people. In 2009, QualityMetric began working with AHS on a population health initiative designed to estimate disease burden and monitor health outcomes in patients enrolled in community-based diabetes and obesity management and education programs.

AHS offers a diabetes management program called "Taking Charge of Your Diabetes," as well as an obesity program called "Weight Wise." The diabetes program provides information to improve knowledge and understanding of diabetes, teach skills necessary to manage diabetes, and to promote self management. The Weight Wise initiative focuses on helping people achieve healthy weights by providing behavior modification counseling, access to experts and informational programs.

QualityMetric's SF-12v2 Health Survey was determined to be the best tool for the project because it is a standardized and scientifically valid measure of functional health status. As a general health measure, rather than disease-specific, the SF-12v2 allows for the comparison of scores among and across disease/condition states, making the results more interpretable and actionable for AHS for monitoring and improving overall population health.

Patients participating in both programs completed the baseline survey during an appointment with their health care provider or at the start of an education class. Follow-up surveys were re-administered at six and 12 months.

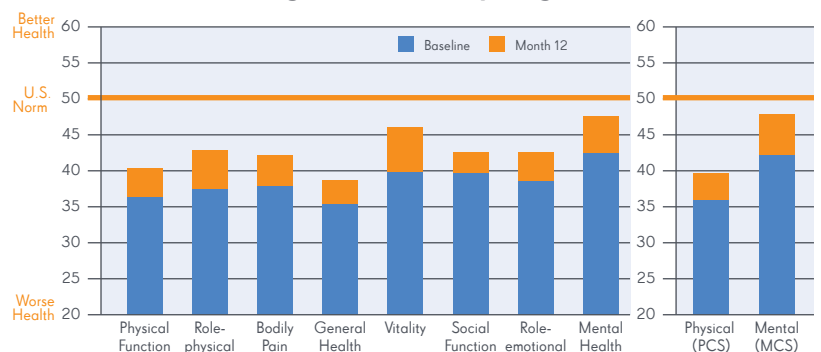
In all, 222 patients participating in the diabetes program took both the baseline and follow-up surveys. When the baseline scores for these patients were compared to the general population norm for patients with diabetes, we found the program participants had higher scores for both physical (+4) and mental (+3) health components. This means the program participants had less disease burden/impact than expected. Surprisingly, we found that these patients were functioning at normal levels and at a much higher level than patients in the general population with diabetes.

To evaluate health outcomes, we compared scores at baseline with the results one year later. Patients showed improvement of 1.3 points for physical health status and 1.9 for mental health status, a modest improvement over the course of a year.

These results were anticipated since the patients enrolled in the program were only recently diagnosed. The program was always intended to be preventative, keeping enrollees from developing significant health status deficits proactively.

The 239 survey respondents who participated in the obesity program showed significant health burden at baseline, scoring 1.5 standard deviations below the norm in physical health status and 0.8 standard deviations below normal for mental health. In

AHS Weight Wise Obesity Program Outcomes



fact, the score of 35 on the physical score was consistent with individuals suffering from severe congestive heart failure, while the mental score of 42 met the cut point for first stage screen for depression.

The comparison of scores over 12 months showed clinically meaningful improvements in both physical health status (+3.8) and mental health status (+5.7), with 48% of patients getting better physically and 55% getting better mentally.

This project also allowed us to develop general population norms specifically for the Edmonton, Alberta area. A total of 2,059 residents completed the SF-12v2 Health Survey along with a checklist of 24 self-reported conditions. This allowed for a relative burden analysis for the general Edmonton population. The top self-reported conditions included low back pain (31%), arthritis (27%), high-blood pressure (24%), and high cholesterol (18%). The greatest physical health burdens came from liver disease, COPD, arthritis, incontinence, and limited use of arms and legs. Mood disorder, eating disorder, schizophrenia, incontinence and hearing impairment caused the greatest mental health burden.

Magellan Health Services

Seven years ago, Magellan Health Services, a specialty health care manager focused on some of today's most complex and costly health care services, sought to better understand the impact behavioral health services have on their patients. Magellan's goals were to ensure the highest level of care, improve communication between individuals and health care providers, and measure treatment effectiveness.

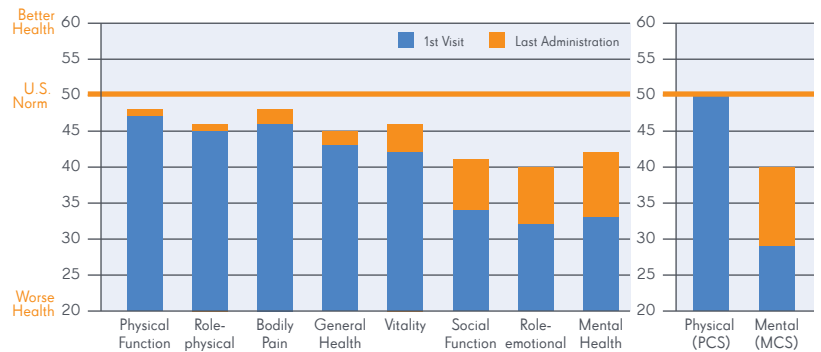
Magellan and QualityMetric worked together to create the SF-BH™ Assessment. The SF-BH is a self-reported assessment that measures "not only overall physical and mental health, but specific behavioral health concepts as well," according to Joann Albright, PhD, Senior Vice President of Quality, Outcomes, and Research at Magellan. Dr. Albright led the effort to develop the SF-BH at Magellan.

Patients complete the assessment online at baseline and at follow-up appointments. The technology used to administer, collect, score, and report on the SF-BH is QualityMetric's Smart Measurement® System. The data is collected and scored automatically through this technology, and a variety of customized reports are then generated for Magellan. These reports are also sent via email directly to the individual completing the assessment and the health care provider. The SF-BH was developed in U.S. English and U.S. Spanish to address the needs of Magellan's population.

Over the years, the surveys have been administered close to 300,000 times. The results have been used by Magellan to:

- **Identify health burden** – In a study completed in 2009, Magellan's population scored significantly lower than the U.S. general population norm in the mental health domains (vitality, social functioning, role-emotional and mental health). Magellan's population reporting having "little or no energy" was more than double that of the general population (50.1% vs. 23.1%). Also, the percentage of individuals who reported being downhearted and depressed all or most of the time was seven times higher than the general population (44.6% to 6.2%).
- **Measure treatment effectiveness and track health improvement/decline** – This same study also found that treatment led to significant improvement in these individual's mental health status. The study followed patients over time, analyzing and comparing survey scores over multiple visits. Magellan was able to establish that the greatest improvements were related to mental health status. The majority of individuals (69%) improved by a clinically meaningful amount, compared to those who got worse (13%) and the 18% that stayed the same.
- **Estimate Return on Investment** – An algorithm developed to translate SF health survey scores into predicted medical expenses was used to do this. The predicted medical expenses estimated with initial visit scores were compared against the predicted medical expenses estimated with final visit scores. The change in scores translated into an annual cost savings of \$311 per patient. There was also a significant reduction in the mean number of missed work days reported by Magellan patients. At the initial visit, the mean number of missed work days reported was 3.3 days in the past four weeks. This was reduced to a mean of 1.7 days in the past four weeks at the follow-up assessment.

Behavioral Health Intervention Meaningfully Improves Mental Health Status



Through the use of the SF-BH, Magellan is able to demonstrate the value of its services to payers, consumers, and providers. The customized reports allow Magellan to share results with both consumers and providers to improve communication, assist in self-care management, and improve program transparency.

Measuring these concepts has made it possible for Magellan to obtain a comprehensive understanding of the health of their population—critical information not measurable previously. The data is also ideal for use in comparative effectiveness research or analysis. Magellan can now provide vital information about their programs, such as how the mental health burden of their population compares to that of the U.S. general population, whether interventions are resulting in positive or negative outcomes, and even how one approach compares to another.

Magellan and QualityMetric have been successfully working together now for well over seven years and plan to continue working together. In 2011, a new three-year contract was signed. Magellan has broadened the use of the SF-BH and plans to expand both the frequency and the way this tool is used in other programs. “Increasingly, consumers and providers recognize the value of the SF-BH,” says Dr. Albright, “The field of health outcomes measurement is evolving and growing, and we definitely look forward to future ventures with QualityMetric.”

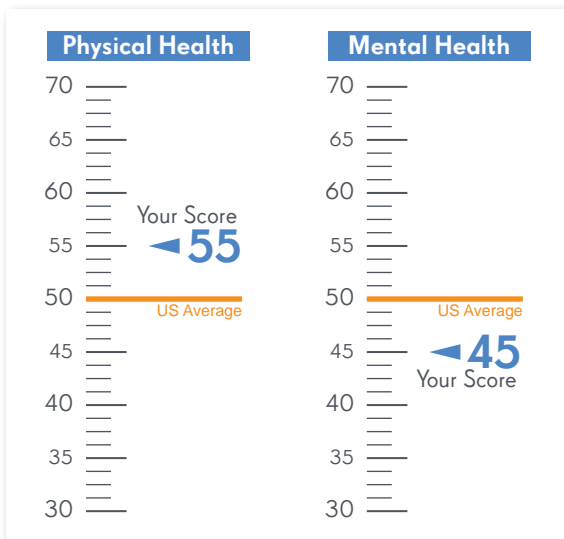
Possible Applications for These Tools and Technologies

As we all work to bring the U.S. health care reform laws to life and to infuse quality of care into the process, pressing questions will become:

- How do we define quality?
- How do we quantify quality in a standardized, reliable, and universally accepted way?

Answering these questions is easier said than done of course, but it seems reasonable to expect that the voice of the patient should be part of the equation. There are quite naturally many quality metrics involved. Many are already captured and being applied. The Hospital Compare program at the Department of Health and Human Services is just one of thousands of examples. It uses quality measures such as patient satisfaction scores, hospital readmission rates, use of diagnostic tools (MRI, CAT scans, mammograms), etc.

Health status scores fit in well with these kinds of measures and others. They help provide a better overall, more holistic, view of how the health care system is impacting patients. It’s important to know how patients are feeling, how their condition impacts their life. They can help us determine which treatments make them feel better and which ones don’t. Unfortunately, right now this data is not well utilized or applied within the larger health care system. QualityMetric can help change this fact.



Example of a patient’s physical and mental health status scores