

## Alberta Health Services: Estimating disease burden and monitoring health outcomes



### Background

Alberta Health Services (AHS) is the provincial health authority in Alberta, Canada. It is responsible for delivering health services to 3.5 million people. AHS recognizes that understanding the health of a population requires measurements that assess the functional status and well-being of individuals. After researching a number of patient-reported outcome (PRO) tools, in 2008 AHS (then known as Capital Health) partnered with QualityMetric Incorporated, now part of Optum™, to develop Health Quality of Life measurement tools utilizing its SF-12v2® Health Survey. AHS was drawn to the SF-12v2 by its:

- Substantial evidence base
- Potential for broad application
- Ability to assist clinicians in patient management and risk stratification

The SF-12v2 is a multipurpose short-form survey with 12 questions that measures functional health status. It's scored to produce an eight-scale profile of health, as well as two psychometrically derived summary measures of physical and mental health status (PCS and MCS, respectively). The eight-scale profile consists of health domains (such as physical function and vitality) that are the most frequently measured health domains in widely used health status surveys.

## A real-world application

AHS used the surveys in a population health initiative designed to:

- Establish health norms for the Edmonton, Alberta area
- Estimate disease burden in the region
- Monitor health outcomes in patients enrolled in a community-based diabetes program (Taking Charge of Your Diabetes) or obesity management and education program (Weight Wise)

Taking Charge of Your Diabetes provides information to improve knowledge and understanding of diabetes, teaches skills necessary to manage diabetes and promotes self-management. Meanwhile, Weight Wise focuses on helping people achieve healthy weights by providing behavior modification counseling, access to experts and informational programs.

The 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 a disease-specific tool — the SF-12v2 allows for the comparison of scores among and across disease/condition states. This makes the results more interpretable and actionable for AHS as it strives to monitor and improve overall population health.

A random sample of individuals living in the Edmonton area were invited to complete the normative health survey. Meanwhile, patients participating in either the diabetes or weight management program completed a baseline clinical survey at the start of an education class or during an appointment with their health care provider. Follow-up surveys for these patients were re-administered at six and 12 months.

## Results

### General population norms

A total of 2,059 residents completed the normative survey, which included the SF-12v2 Health Survey and a checklist of 24 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 burdens. This analysis was important to AHS because it helped it better understand the “health stock” of the population it serves. In addition, the normative information collected provided comparison points for use when analyzing other PRO data.

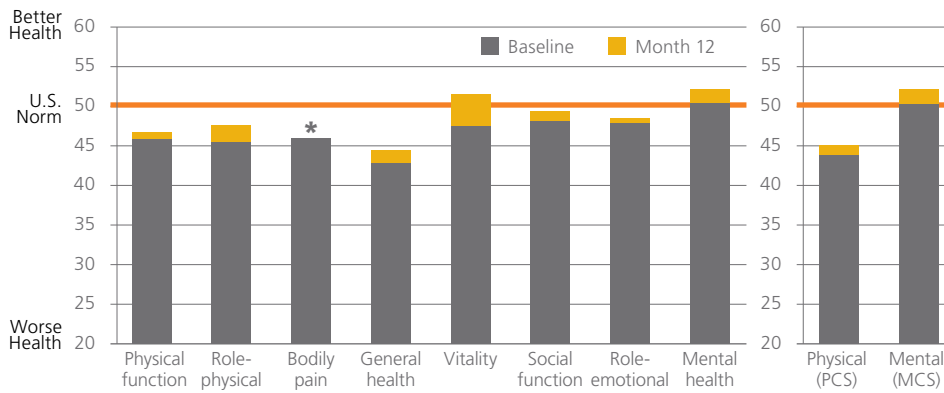
### Taking Charge of Your Diabetes program

In all, 222 patients participating in the diabetes program took the baseline clinical survey. 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 PCS (+4) and MCS (+3). 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. (See Figure 1.) Patients showed improvement of 1.3 points for PCS and 1.9 for MCS, 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 preventive, proactively keeping enrollees from developing significant health status deficits.

**Figure 1: AHS Taking Charge of Your Diabetes program outcomes**



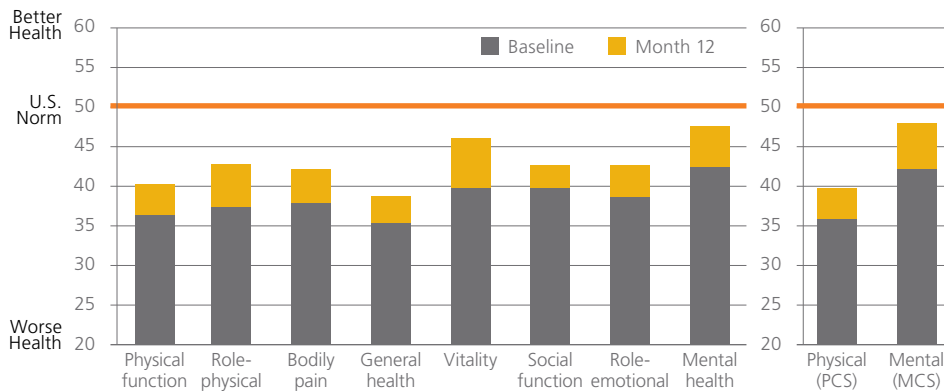
\*No change between baseline and month 12 score.

**Weight Wise program**

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 fact, the PCS score of 35 was consistent with individuals suffering from severe congestive heart failure, while the MCS 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 PCS (+3.8) and MCS (+5.7), with 48 percent of patients getting better physically and 55 percent getting better mentally. There were also clinically meaningful improvements in all eight SF-12v2 scale scores. (See Figure 2.)

**Figure 2: AHS Weight Wise obesity program outcomes**



## Turning data into action

Patients and providers reported many positive experiences and health impacts as a result of using the health survey scores. For example, the survey results:

- Promoted better communication between patients and providers
- Gave patients and providers an increased opportunity to understand and manage the condition in question
- Served as a call-to-action for patients, prompting them to consult with their providers to improve their health
- Provided insights on how behavior changes impacted health

"I found it to be a really good reflective tool," one patient reported. "I was able to see my responses to the physical and mental sides. It made me aware of what was happening in the program and the effect it was having on my daily life, my lifestyle choices."

## Moving forward

As AHS continues its mission to provide a patient-focused, quality health system that is accessible and sustainable for all Albertans, the Optum SF™ health surveys will play an important role.

In 2011, AHS reached a new agreement to license the SF-12v2 Health Survey for up to 9,000 administrations. In addition, Optum will develop a customized aggregate report using Edmonton norms for comparisons and will update the interpretation language. The report will display up to five time points and specify each survey in order of administration.

AHS plans to continue to collect SF data on its member population and will work with Edmonton area Primary Care Networks (PCNs) to track physical and emotional health scores and trends going forward.

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