



Performance Enhancement Using a Balanced Scorecard in a Patient-centered Medical Home

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BACKGROUND AND OBJECTIVES: Oregon Health & Science University Family Medicine implemented a balanced scorecard within our clinics that embraces the inherent tensions between care quality, financial productivity, and operational efficiency. This data-driven performance improvement process involved: (1) consensus-building around specific indicators to be measured, (2) developing and refining the balanced scorecard, and (3) using the balanced scorecard in the quality improvement process. Developing and implementing the balanced scorecard stimulated an important culture shift among clinics; practice members now actively use data to recognize successes, understand emerging problems, and make changes in response to these problems. Our experience shows how Patient-centered Medical Homes can be enhanced through use of information technology and evidence-based tools that support improved decision making and performance and help practices develop into learning organizations.

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Medical homes are enhanced through use of information technology and evidence-based tools, supporting the collection and reporting of data used to improve decision making and performance.¹ We describe how a data-driven assessment tool, called a balanced scorecard, can be used as a management tool to coalesce the strategic goals of a clinical enterprise and assess and improve performance.

The balanced scorecard is used within business to acknowledge critical areas that must be assessed to understand performance.² The medical community has used report cards to evaluate clinician and hospital performance.³ However, it is rare that balanced scorecards are used to examine the tensions between

quality of care, financial productivity, and operational efficiency in primary care, where balanced assessment is needed to avoid the potentially deleterious effects of overemphasizing one element of quality over others. We describe how we created, and now use, the balanced score card in quality improvement and resident education in our clinics.

This study was reviewed and exempted by the OHSU Institutional Review Board.

Balanced Scorecard Development

The balanced scorecard should demonstrate strategic integrity, matching the objectives of the organization as defined by the decisions and actions of its members.⁴ To accomplish this, clinic leadership conducted twice

monthly meetings to discuss clinical goals and performance assessment and shared initial conclusions with their constituencies (ie, faculty, residents, staff) to get feedback that informed the design of the balanced scorecard. Through this process, clinic members identified three individual, but interdependent, indicators to include on the balanced scorecard: clinical quality, operational efficiency, and financial productivity.

Using the same group process, we defined the individual items within each component of the balanced scorecard and set metrics for each item that would not be punitive but reflective of practice realities. We then weighted these items and the overarching dimensions in terms of their relative importance to our team. Whenever possible, we used national standards. However, on occasion we chose slightly different standards to acknowledge patients' and clinical teams' roles in the achievement of quality outcomes. Table 1 lists the three dimensions of the balanced scorecard, the individual items within each dimension, the metrics for each item, and how members of the clinical team weighted each item's relative importance.

An important concern to be addressed was the ability to obtain the data. If clinical teams did not

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Table 1: Indicator Weighting for Balanced Scorecard (BSC)—Oregon Health & Science University Example

Performance Index Calculations	Specific Metric	Clinician and Team BSC	Clinic BSC
Clinical Measures (Weighted at 40%)			
Usual provider continuity	Patients will have visits with PCP. Target 75%	25%	25%
Hypertension (HTN)	HTN patients, systolic BP <140. Target 95%	25%	25%
Mammography	Women, ages 50–75, every 2 years. Target 95%	10%	10%
HgA1C result <9 months	Diabetic patients, HgA1C every 9 months. Target 95%	15%	15%
HgA1C in control	Diabetic patients, HgA1C<8. Target 95%	15%	15%
Pneumovax	Patients age >65, or with DM, CAD, COPD. Target 95%	10%	10%
Beta blocker in CHF patients	CHF patients, taking ACE inhibitor. Target 80%	0%	0%
ACE use in CHF patients	CHF patients, taking beta blocker. Target 80%	0%	0%
Total		100%	100%
Operations Measures (Weighted at 40%)			
Visits closed in 48 hours	All visit documentation done in 48 hours. Target 100%	30%	10%
Medications review	Medications will be reviewed at all visits. Target 100%	20%	10%
Allergy review	Allergies will be reviewed at all visits. Target 100%	10%	20%
MyChart status	Patients will be signed up for MyChart	30%	20%
Minutes check in to check out	Average time check in to check out. Target 60 minutes	10%	10%
Phone stats (abandoned calls)	Percent of patient calls not answered. Target <5%	—	30%
Total		100%	100%
Production Measure (Weighted at 20%)			
Visit level distribution	No target—information only	0%	0%
Bump rate—cancel by clinician	% of appointments canceled by clinician. Target <5%.	50%	30%
RVUs per session	RVUs generated per clinic session. Target 14.	50%	0%
Visits with new patients	Percent of visits with new patients. Target 8.2%	—	0%
Exam room utilization	Percent of exam room utilization. Target 50%	—	30%
Patient satisfaction	Press Ganey overall mean score percentile. Target 95%	—	40%
Cost per visit	Cost per visit. Different for each clinic. Target 10% improvement	—	0%
Total		100%	100%

* There is a BSC for the individual clinician, the clinical teams, and the clinics. The categories are weighted (clinical, operational, and production measures) according to the relative value we place on each category and the items therein. This weighting is factored into the scoring process that is used to create the clinician-specific, team-specific, and clinic-specific performance index. If the percentage is “0”, this indicates that the data are provided but are not weighted in the performance index. If an indicator is marked as “—”, this indicates that indicator is not provided on that particular scorecard. Indicators may be used at the clinician level or the clinic level, or both.

ACE— angiotensin-converting enzyme
 BP—blood pressure
 CAD—coronary artery disease
 CHF—congestive heart failure
 COPD—chronic obstructive pulmonary disease
 DM—diabetes mellitus
 PCP—primary care provider
 RVU—relative value unit

understand and trust the data reported on the balanced scorecard, it would not be used. As described in Table 2, we used Davenport's six characteristics of quality data (correct, complete, current, consistent, contextual, controlled) to guide this process. Through a group process, we defined the denominator of our assessment, identified common metrics (see Table 1), determined from where data would be drawn, and established that data could be consistently extracted and algorithms developed to meaningfully evaluate performance. The following example shows why it was important that we did this as a group process.

Creating metrics for care for diabetic patients meant identifying the diabetic patients in our practice. We defined our denominator as patients for whom we were listed as

their primary care provider (PCP), had been seen in clinic within the last 3 years, and had a diabetes-related diagnosis on their problem list. This required that the PCP field and problem list contain accurate information. We built clinic-wide systems to assure accuracy of the PCP field, and we reinforced the importance with clinicians of having up-to-date problem lists. Attention to the PCP field underscored our commitment to continuity of care, and the attention to the problem list reinforced the value of chronic disease management, even during acute visits. Thus, accurate data for the balanced scorecard required that PCPs and practice members commit to keeping this information up to date, and arriving at this decision as a group was essential to clinic-wide buy-in.

Mobilizing the Balanced Scorecard for Quality Improvement

We distribute the balanced scorecard monthly. For transparency, we include clinician names on the reports and share them across clinics. We continue to seek feedback on the balanced scorecard. To date, most concerns regard how information is presented on the scorecard, and we continue to improve the visual display. We believe that everyone understands the data on the balanced scorecard, because we worked together to define the metrics and how the data were obtained. The most compelling evidence that clinical teams believe the data is that we use it to target clinic-wide quality improvement activities. For example, clinicians experienced an "aha" moment when they saw, on the balanced scorecard, the percent of

Table 2: Davenport's Qualities of High Quality Data Applied to the Balanced Scorecard

Parameter	Key Questions	Application to the Balanced Scorecard
Correct	Are the data accurate? Are there any confounders that compromise data accuracy?	We ask: are we looking at the "right" group of patients? We define this as patients who have our clinician listed as their primary care provider and were seen in the clinic within the last 3 years. This is the initial denominator in the assessment process.
Complete	Are we collecting all of the data needed?	Being "complete" varies by the item we are assessing for data completeness. For example, to assess clinical performance regarding patients with diabetes, we asked: "Do I have a complete list of all my patients with diabetes?" We draw data from the problem list in the electronic health record (EHR).
Current	Is the information collected up to date?	Are we looking at the right dates in our performance assessment? This is critical for preventive service screening (eg, mammography) where assessment algorithm must look at date of birth and date of last mammography to establish performance levels.
Consistent	Are we able to continually obtain the data?	Are we collecting the data from the same place every time? Do clinicians and staff know where to document the data? This requires training and having a search methodology that can be replicated.
Context	Does the data have the meaning we want it to have? Is how the data should be used to evaluate performance clear?	Do the reports that we generate reflect the issues that we are trying to improve? Example: if we want to understand if we are providing good care to our diabetic patients, does this data reflect that accurately?
Controlled	Do we have a process and method for checking data accuracy to establish the ongoing quality of the data used in evaluation?	Do we have a process to validate the information that we obtain? This occurs both by random checks of the data by report writers, as well as specific issues raised by the "customers" of the report (practice members).

their patients with congestive heart failure (CHF) that were not on angiotensin converting enzyme (ACE) inhibitors. Unhappy with their numbers, and wanting to improve, we developed a registry of patients with CHF to identify patients for whom

an ACE-inhibitor might be appropriate treatment. Clinicians reviewed this information with students who then contacted individual patients, discussed the importance of this medication, and encouraged a follow-up appointment. Table 3 describes

other quality improvement initiatives stimulated by the balanced scorecard.

Discussion

Engaging members of the practice in the performance evaluation process,

Table 3: Clinic Quality Improvements Stimulated by the Balanced Scorecards

Target	Core Objective	Measure	What Was Changed	Observed Change in Performance
After visit summaries	Provide patients with a clinical summary of each office visit as they leave the office	Percent of patients who receive a printed summary of their visit at the time that they check out	Team decided that “check-out” desk would provide summary to all patients prior to leaving clinic	A 60% performance rate on the balanced scorecard stimulated this change (3/28/10). By 7/28/10, the clinic was distributing after visit summaries to 100% of patients
Pneumovax	Improve immunization rate for our patients ages 65 and above and those with diabetes, coronary artery disease, and COPD	Percent of patients above the age of 65, or with diagnosis of diabetes, coronary artery disease, and COPD, who have received their pneumovax immunization.	The nursing staff screened charts, and preordered immunizations, and clinicians were attentive to ordering immunizations	Through a clinic-wide initiative the pneumovax delivery rate improved from 41.9% (June 2010) to 53% (December 2010).
Patient satisfaction	To improve patient satisfaction	Press Ganey scores for overall mean score	• A task group organized, consisted of primarily front and back office staff • Found ways to better communicate with staff • Asked all patients to complete the survey, if they receive one • All patients given a comment card at every visit • Staff called 6–10 patients every week and asked about their visit	Press Ganey scores improved: 10/09–12/09 6th percentile 1/10–3/10 10th percentile 4/10–6/10 20th percentile 7/10–9/10 53rd percentile
Online communication via MyChart	Increase the percent of patients who are “active” on MyChart	Percentage of patients who are cared for in the clinic who are signed up with MyChart	Confirm user identity at end of clinical visit, print instructions with user name and randomly generated password, staff provide assistance and encouragement, enabled capacity to sign up for MyChart in the exam room	In April 2009 the percent of clinic patients active on MyChart was 61.7%. Following the intervention, the rate as of January 2011 is 74.4%
Improving phone service	To increase the percentage of all patient calls that are answered before the patient hangs up	Percentage of all calls that are not answered (call abandonment rate)	Made phone call clinical team priority, included the staff and clinicians in a LEAN quality improvement process	In the last year, call abandonment rate fallen from 7.5% to 4.84%.

and building consensus about what we would assess, created buy-in and aligned our team's performance and quality improvement goals. We now actively use data to recognize successes, understand emerging problems, and make changes in response to these problems.⁶

Residents participate in all phases of this quality improvement effort as practice partners and clinic team members, through a Continual Improvement Curriculum that occurs longitudinally throughout the 3 years of the residency. In year 1, residents learn to apply plan-do-study-act (PDSA) cycles by conducting personal improvement projects using the balanced scorecard. In year 2, residents participate in meetings with the Data Team to better understand data collection and balanced scorecard reporting. In year 3, residents receive training in team management skills and lead faculty and staff in the improvement process.

The balanced scorecard allows us to acknowledge the complexity of the clinical environment, while striving to achieve the principles of the PCMH that are central to our mission. Through the process of developing and implementing a balanced scorecard, our practices, including faculty, residents, students, and clinical staff, are undergoing a culture shift. We all are learning how to reflect on what we do, find quality data to assess our work, stimulate improvement, and evaluate the impact of our quality improvement efforts. While labor intensive, we have found the process of creating the balanced scorecard as important as using the balanced scorecard itself.

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