

## Performance Improvement

# A State-Level Application of the Chronic Illness Breakthrough Series: Results from Two Collaboratives on Diabetes in Washington State

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In its 2001 report on improving the quality of health care in America, the Institute of Medicine concluded that substantial changes in and redesign of health care systems, rather than marginal modifications of existing systems, are needed in the United States.<sup>1</sup> The report detailed a number of potential strategies that could improve systems of care. One approach that employs many of these strategies is the Breakthrough Series Collaborative,<sup>2,3</sup> pioneered by the Institute for Healthcare Improvement (IHI; Boston). The Breakthrough Series Collaborative supports teams of health care providers and their office staff as they systematically test and measure practice innovations; the goal is to create systems that are more evidence based, patient centered, efficient, and effective. While working within their own organizations, teams share resources and learning with other teams through electronic communication and conferences.

Since their inception in 1995, Breakthrough Series Collaboratives have been conducted on a number of clinical and service topics (for example, heart failure, diabetes, office wait times).<sup>2-14</sup> Before 1999 collaboratives focusing on chronic conditions were either national efforts that included self-identified participants from different geographic regions who could afford the expense of participating in a national project or efforts focused on teams from a single health care delivery system, such as federally qualified community health centers funded by the Health Resources and Services Administration.<sup>12-18</sup>

### Article-at-a-Glance

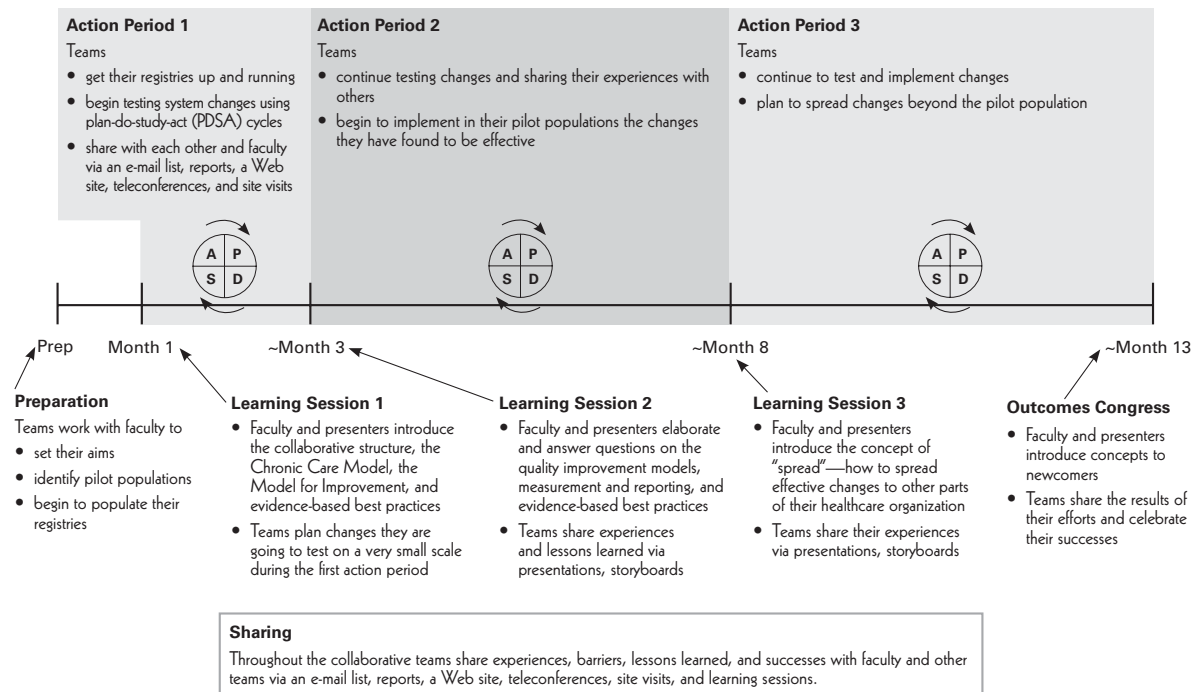
**Background:** Breakthrough Series Collaboratives addressing chronic conditions have been conducted at the national level and in single health care delivery systems but not at the state level. Two state-level collaboratives were conducted: Diabetes Collaborative I (October 1999–November 2000) included 17 clinic teams from across the state, and Diabetes Collaborative II (February 2001–March 2002) included 30 teams and 6 health plans.

**Methods:** Both collaboratives took place in Washington State, where a diverse group of primary care practices participated, and health insurance plans partnered with the clinic teams. Teams individually tested and implement changes in their systems of care to address all components of the Chronic Care Model.

**Results:** All 47 teams completed the collaboratives, and all but one maintained a registry throughout the 13 months. Most teams demonstrated some amount of improvement on process and outcome measures that addressed blood sugar testing and control, blood pressure control, lipid testing and control, foot exams, dilated eye exams, and self-management goals.

**Conclusion:** The benefits of holding collaboratives more locally include increased technical support and increased participation, translating into wider implementation of prevention-focused, patient-centered care.

## Collaborative Activities



**Figure 1.** The majority of the quality improvement effort took place between learning sessions. During action periods, teams tested, implemented, and spread changes, using a small-scale, rapid-cycle approach. This collaborative model is adapted from the Institute for Healthcare Improvement’s Breakthrough Series Collaborative model.

In 1999, given the opportunity to improve care for people with diabetes in Washington State,<sup>19</sup> we began the Washington State Diabetes Collaborative, the first state-level collaborative on chronic disease. Bringing the collaborative methodology to the state level reduced the cost of participation in a collaborative, increased the number of individuals and organizations from the state that could participate, and enriched the role that community support could play in quality improvement (QI).

This article describes two state-level collaboratives—the Washington State Diabetes Collaboratives I and II—aimed at improving care for people with diabetes. The experience of two of the health care providers participating in the collaborative is reported elsewhere.<sup>20</sup>

### Methods

Both collaboratives were sponsored by three organizations: the Washington State Department of Health Diabetes Prevention and Control Program, Qualis

Health (a nonprofit quality improvement organization under contract to the Centers for Medicare & Medicaid Services), and Improving Chronic Illness Care (a national program of the Robert Wood Johnson Foundation). Each collaborative lasted 13 months and included four conferences and three action periods. Teams used the Model for Improvement<sup>21</sup> to individually test and implement changes in their systems, so their systems were redesigned to address all components of the Chronic Care Model,<sup>15,16</sup> which depicts prevention-focused, patient-centered care. To assess progress, teams collected data on various process and outcome measures. The collaborative activities are shown in Figure 1 (above).

### Participants

We invited health care organizations from primary care practices—from very large health care delivery systems to very small office settings—to participate. We also invited

health insurance plans to partner with those organizations. Each organization designated a team of three core members: a senior leader (an administrator), a clinical champion (a primary care provider with an interest in diabetes), and a day-to-day leader (a health professional working closely with the clinical champion).

Teams were required to attend four conferences at a cost of \$150 per team member per conference. Travel, lodging, and provider reimbursement costs were each team's responsibility.

### Diabetes Collaborative I

Diabetes Collaborative I (October 1999–November 2000) included 17 clinic teams from across the state: 3 government or public health care delivery systems, 3 small community care clinics, 4 large clinics, 4 hospital systems, and 3 private medical practices. Eight health plans or provider networks partnered with one or more clinic teams, so that 11 of the 17 teams had health plan partners. Two teams that had participated in a national collaborative served as mentors to the other teams.

### Diabetes Collaborative II

Diabetes Collaborative II (February 2001–March 2002) included 30 teams and 6 health plans. As in Collaborative I, the teams consisted of public delivery systems, community care clinics, large clinics, hospital systems, and private practices. Twenty-four of the 30 teams had health plan partners. Because many teams in the first collaborative found it financially challenging to participate, 17 of the 30 teams in Collaborative II were subsidized with grants of \$3,000 to \$10,000, sponsored by the Washington State Department of Health, health plans, or pharmaceutical companies. The financial assistance ensured participation of a variety of teams from rural as well as urban areas; all practices that had the desire to participate were able to.

## Collaborative Design

To prepare for their work in the collaborative, teams were asked to identify an aim, clinical measures on which they wanted to improve, and a pilot patient population on which to focus their initial efforts. They were strongly encouraged to extract baseline data before the start of the collaborative (Figure 1).

## Conferences: Learning Sessions and Outcomes Congress

Teams attended four conferences during the collaborative: three learning sessions and an outcomes congress (Figure 1). At each learning session, teams attended plenary and concurrent sessions and received coaching from faculty on the Model for Improvement, the Chronic Care Model, and evidence-based clinical care. Each participating team developed a coordinated set of plan-do-study-act (PDSA) QI cycles that would guide the implementation of all six components of the Chronic Care Model during the following action period.

The second and third learning sessions and the outcomes congress relied little on presentations by faculty, instead emphasizing shared learning through presentations by participating teams. The team presentations focused primarily on describing system changes they made and the results achieved on clinical measures. The outcomes congress was publicized statewide to disseminate knowledge and to assist recruiting efforts for future collaboratives.

### Action Periods

The majority of the QI effort took place between learning sessions (Figure 1). During action periods, teams tested, implemented, and spread changes using a small-scale, rapid-cycle approach. Teams reported their activities and progress to the administration in their organizations, to the sponsoring organizations, and to other collaborative teams on a monthly basis. They used time series graphs to track progress on measures of diabetes care for their pilot population and later for larger populations throughout the health system.

Multiple avenues of communication between learning sessions allowed the teams to share their innovative changes, barriers encountered, lessons learned, and results with other teams and faculty. Information exchange was accomplished through the distribution of monthly reports, report summaries, messages posted to the e-mail list, teleconference calls, a Web site, and site visits. The teams also created storyboards for display at learning sessions.

## QI Methods

Teams used the Model for Improvement to overcome resistance to change within their organizations and to test innovations quickly and easily on a small scale but over a wide range of conditions. Teams used the Chronic Care Model to determine the systems to which changes would be made. This model depicts an ideal, patient-centered system of health care, which is different from patient education<sup>22</sup> and is not frequently incorporated into the health care for patients with chronic conditions.<sup>23</sup> Both patient-centered care and the Chronic Care Model emphasize self-management support—helping patients understand their disease and supporting their efforts to manage it.

### Pilot Populations and Registries

To prepare for collaborative work, each team was encouraged to identify a pilot population of approximately 100–200 patients with diabetes. The methods used to identify and select patients were not standardized, although many teams searched administrative databases for diabetes-related diagnostic codes or used pharmacy records to identify patients treated with blood sugar medications. Clinical practices with fewer than 100 patients with diabetes were encouraged to select all patients with diabetes. In larger settings, pilot populations were generally defined by health care provider.

Each team was responsible for maintaining a registry of the patients in its pilot population. Registries enabled teams to extract summary statistics and to track their progress on clinical measures. Any team without an existing electronic system was encouraged to begin building a registry. Teams were offered and trained to use a public-domain diabetes registry known as the Diabetes Electronic Management System (DEMS), developed by the Washington State Department of Health Diabetes Prevention and Control Program.

### Measurement

The collaborative methodology required teams to collect, track, and report on a family of clinical process and outcome measures (Table 1, page 73) to determine whether changes they made in their practices resulted in improvements. During Collaborative I, teams were only required to report progress related to glycemic control

and blood pressure control. The measures teams selected varied; for example, some teams aimed for a 1% reduction in average glycosolated hemoglobin (HbA1c) for the pilot population, and others focused on increasing the percentage of patients with HbA1c less than some specified threshold (thresholds ranged from 7.5% to 9.5%). Other reporting measures were optional, although most teams chose to report the percentage of patients with foot exams, referrals for eye exams, documented self-management goals, and lipid control.

Collaborative II required tracking of four standardized measures: HbA1c < 9.5%, LDL (low-density lipoprotein) cholesterol < 130 mg/dl, blood pressure < 140/90 mm Hg, and documented self-management goal. An additional measure, HbA1c < 8.0%, was added three months into the collaborative.

### Reporting

Because of the differences in registry systems, data collection methods, and measure definitions, teams did not generally report results in a standardized manner; however, we requested that teams submit numerator and denominator data for specific measures so that some data from each team could be aggregated. These data were requested for time frames representing baseline and remeasurement periods to compare performance early and late in the collaborative. For each measure, we computed the baseline median and the remeasurement median for all teams and then calculated the absolute difference of these values. If data were not available, we used the earliest baseline measurement reported and the latest remeasurement value reported. We excluded data from teams that continued to enter new patients into their registries throughout the course of the collaborative because these teams did not have stable pilot populations.

## Results

All 47 teams completed the collaboratives, although the intensity of participation varied among teams. In Collaborative I, on average 14 of the 17 teams submitted the requested monthly progress report, whereas in Collaborative II, on average 25 of the 30 teams reported monthly on their progress. Considerable variability across teams was also noted in terms of participation by individual team members. Teams with strong senior

**Table 1. Collaborative I and II Results on Measures of Diabetes Care\***

Measure	Collaborative*	No. of Teams (No. of Teams Improving)	Baseline Median, % (Range)	Remasurement Median, % (Range)	Absolute Improvement, %
<i>Process Measures</i>					
Percent of Patients in the Pilot Population with... HbA1c test in past 12 months	WSDC I	13 (11)	53 (8-98)	80 (46-97)	27
	WSDC II	26 (20)	82 (21-99)	88 (38-100)	6
Blood pressure measurement in past 12 months	WSDC I	9 (9)	38 (9-93)	87 (68-97)	49
	WSDC II	26 (15)	85 (19-99)	87 (56-100)	2
LDL cholesterol test in past 12 months	WSDC I	10 (10)	23 (3-67)	58 (22-77)	35
	WSDC II	26 (19)	47 (6-86)	71 (20-92)	24
Foot examination in past 12 months	WSDC I	9 (9)	10 (3-44)	60 (36-74)	50
	WSDC II	26 (24)	35 (1-94)	59 (13-96)	24
Referral for retinal examination in past 12 months	WSDC I	9 (9)	13 (2-38)	43 (17-65)	30
	WSDC II	26 (19)	32 (9-81)	39 (10-81)	7
Documented self-management goal in past 12 months	WSDC I	6 (6)	5 (0-29)	36 (12-67)	31
	WSDC II	26 (23)	4 (0-48)	38 (2-91)	34
<i>Outcome measures</i>					
Most recent HbA1c < 8.0% among those receiving a test in past 12 months	WSDC I	10 (5)	58 (33-82)	70 (40-76)	12
	WSDC II	26 (23)	59 (27-87)	66 (41-93)	7
	National	8	37		21
Most recent blood pressure $\leq$ 140/90 mm Hg among those tested in past 12 months <sup>†</sup>	WSDC I	9 (4)	64 (39-80)	66 (49-80)	2
	WSDC II	26 (18)	64 (43-84)	71 (46-85)	7
Most recent LDL cholesterol < 130 mg/dl among those receiving a test in past 12 months	WSDC I	8 (7)	62 (50-81)	75 (57-90)	13
	WSDC II	26 (19)	72 (48-91)	74 (54-89)	2

\* HbA1c, glycosylated hemoglobin; WSDC, Washington State Diabetes Collaborative; National, national collaborative (Wagner E.H., et al.: Quality improvement in chronic illness care: A collaborative approach. *Jt Comm J Qual Improv* 27:63-80, Feb. 2001); LDL, low-density lipoprotein.

<sup>†</sup> This measure differed between collaboratives. In Collaborative I, this measure was actually "blood pressure less than or equal to 140/90 mm Hg." In Collaborative II, the measure was "blood pressure less than 140/90 mm Hg."

leader support, an active clinical champion, and a day-to-day leader with dedicated time for coordinating collaborative activities reported the greatest improvements.

Each team had a registry or an electronic medical record, although the team's abilities to easily retrieve population and individual data from the registries varied. Many teams used the DEMS software as a registry (Collaborative I, 53%; Collaborative II, 90%), and the remaining teams used or modified existing systems. All but one Collaborative I team maintained its registry throughout the 13-month collaborative.

The strategies used by teams to address the components of the Chronic Care Model were team specific and varied; however, through sharing and collaboration, many teams adapted processes and materials used by others. Table 2 (page 75) lists some of the changes tested and implemented by many of the teams. Most teams were able to achieve the goal of making system changes to address each component of the Chronic Care Model. Initial changes included use of the registry in proactive care, designating medical assistants and nursing staff to conduct foot exams, and educating providers about clinical practice guidelines. Changes made later in the collaboratives included holding group visits, performing case management, working with patients to set goals, creating self-management support systems, and promoting community resources.

In presenting the percentage improvement on measures, we report unweighted aggregate pilot population statistics, so that teams with larger pilot populations do not disproportionately affect the results. We report medians and ranges because of substantial variation in rates among teams.

#### Diabetes Collaborative I

Collaborative I (and Collaborative II) data are presented in Table 1. Among the 17 teams in Collaborative I, 4 were excluded from analyses. One team did not report changes or data on measures because of staff turnover and organizational dissolution. For the other 3 teams, their data collection or reporting methods prohibited comparisons of their baseline rates to the remeasurement data, although they were not poor performers.

Most teams demonstrated some amount of improvement in the measures they selected. At the collaborative

level, medians of all nine measures increased. The total number of patients in the pilot populations for each measure ranged from 913 to 1,897.

**Process Measures.** Absolute improvement was higher for process measures than for outcome measures. Absolute improvement was 50% for foot examinations, 30% for referral for retinal examinations, and 31% for documentation of self-management goals. Improving performance on process measures may be easier than improving on outcome measures because outcome measures require behavior changes by both health care providers and patients. In consideration of the patient's important role in improvement, we made documentation of a self-management goal a mandatory reporting measure in Collaborative II.

**Outcome measures.** The absolute improvement in an outcome measure was highest for LDL cholesterol < 130 mg/dl among patients having the test (13% for the 8 teams reporting). Similarly, the absolute improvement for the outcome measure HbA1c < 8.0% was 12% (10 teams reporting). Blood pressure  $\leq$  140/90 mm Hg had an absolute improvement of 2% for the 9 teams reporting on this measure.

**All Measures.** For all measures, the lower end of the remeasurement range was higher than the lower end of the baseline range, suggesting a general shift in performance on measures. The upper ends of the remeasurement ranges stayed the same or were higher than the upper ends of the baseline ranges.

#### Diabetes Collaborative II

Among the 30 teams in Collaborative II, 4 were excluded from analyses. One team did not report changes or data on measures, and as in Collaborative I, the other 3 teams' data collection or reporting methods prohibited comparisons of their baseline rates to the remeasurement data.

Like the teams in Collaborative I, most teams in Collaborative II demonstrated improvement in the measures they selected. The total number of patients in the pilot populations of the 26 teams was 3,289.

**Process Measures.** Again, absolute improvement on process measures was generally higher than improvement on outcome measures. Absolute improvement was 24% for patients having LDL cholesterol testing in the past 12 months (19 of the 26 teams improved on this

**Table 2. Improvements Tested and Implemented by One or More Teams, by Component of the Chronic Care Model\* in Diabetes Collaboratives I and II**

Component	Improvements Tested and Implemented
Community Resources and Policies	<ul style="list-style-type: none"> <li>■ Created brochures of local community programs (e.g., exercise, diet) to support behavior changes</li> <li>■ Provided support groups and counseling</li> <li>■ Hosted a "Diabetes Day" or diabetes fairs where the community members could hear lectures, visit booths, and get health checks such as blood pressure, bone density, cholesterol, and other screenings</li> </ul>
Health Care Organization	<ul style="list-style-type: none"> <li>■ Wrote grants to gain funds for diabetes supplies</li> <li>■ Spread results from the work of the pilot team to others in the organization</li> <li>■ Spread results from the work of the pilot team to other chronic conditions</li> <li>■ Documented motivation to change the system of chronic care in the organization's strategic goal</li> <li>■ Obtained buy-in from senior leaders</li> <li>■ Worked with health plans to remove disincentives to good diabetes care</li> <li>■ Provided funding for system changes</li> </ul>
Self-Management Support	<ul style="list-style-type: none"> <li>■ Physicians initiated setting of self-management goal</li> <li>■ Medical assistant, nursing staff, or diabetes educator used worksheets designed to help patient set self-management goal</li> <li>■ Clinic staff followed up with patient proactively in two weeks to determine whether goal was achieved</li> <li>■ Clinic staff attended the Chronic Disease Self-Management Support Program, a train-the-trainer approach to self-management</li> </ul>
Delivery System Design	<ul style="list-style-type: none"> <li>■ Trained medical assistant and/or nursing staff to provide monofilament foot examinations</li> <li>■ Scheduled planned diabetes care visits</li> <li>■ Contacted patients proactively to get necessary care</li> <li>■ Contacted patients proactively to follow up with care provided</li> <li>■ Held group visits</li> <li>■ Developed fax-back forms to capture results from specialty care</li> <li>■ Used a toolbox to house all forms relevant to diabetes visit</li> <li>■ Implemented a process whereby the lab work is performed prior to the visit so that laboratory results are available at the time of the visit</li> </ul>
Decision Support	<ul style="list-style-type: none"> <li>■ Distributed guidelines to providers</li> <li>■ Increased referrals to endocrinologists, ophthalmologists, podiatrists, and other specialists</li> <li>■ Educated providers on guidelines</li> <li>■ Developed brochures and pocket guides on patient guidelines</li> </ul>
Clinical Information Systems	<ul style="list-style-type: none"> <li>■ Developed and populated patient registries</li> <li>■ Implemented a process for maintaining registry data</li> <li>■ Used automated care reminders for high-risk patients</li> <li>■ Used patient summary sheets to assist providers</li> <li>■ Implemented a system for reminding providers when care is due</li> </ul>

\* Wagner E.H., et al.: Improving chronic illness care: Translating evidence into action. *Health Aff (Millwood)* 20:64-78, Nov.-Dec. 2001; Wagner E.H., et al.: A survey of leading chronic disease management programs: Are they consistent with the literature? *Manag Care Q* 7:56-66, summer 1999.

measure), 24% for patients having foot exams (24 teams improved), and 34% for documentation of self-management goals (23 teams improved).

**Outcome measures.** Twenty-three teams reported an increased percentage of patients with HbA1c < 8.0%. The absolute improvement was 7% (baseline, 59%; remeasurement, 66%). Eighteen teams improved on blood pressure < 140/90 mm Hg; absolute improvement was 7% (baseline, 64%; remeasurement, 71%). For the measure LDL cholesterol test < 130 mg/dl, 19 teams reported increases; however, the absolute improvement was only 2% (baseline, 72%; remeasurement, 74%).

**All Measures.** As in Diabetes Collaborative I, the lower ends of the remeasurement ranges were higher than the lower ends of the baseline ranges, suggesting a general shift in performance on measures. The upper ends of the remeasurement ranges generally stayed the same or were higher than the upper ends of the baseline ranges.

#### Effect of Baseline on Improvement

In general, the lower the baseline rate, the higher the absolute improvement. For example, for Collaborative I, baseline medians for the first six measures were lower but absolute improvement was higher compared with the same measures for Collaborative II. For the last three measures, baseline medians—and absolute improvement—for both collaboratives were similar. We grouped Collaborative II teams by absolute improvement (Table 3, page 77): In general, the greater the improvement, the lower the baseline median.

## Discussion

Collaborative I provided an opportunity to assess the feasibility of using collaborative methodology at the state level to improve diabetes care. In addition, the project provided some preliminary data regarding the effectiveness of this approach. With almost twice the number of participating teams, continued strides in process improvement, upward shifts in the ranges of measure rates, and further improvements in outcomes, Collaborative II supported the effectiveness of implementing state-level collaboratives modeled after IHI's Breakthrough Series Collaboratives.

## Indicators of Success

Holding the collaboratives at the state level increased participation. Only 4 clinical practices from Washington State participated in two national collaboratives on diabetes, whereas 47 clinical practices participated in the two state-level opportunities.

Clinical practice teams became substantially engaged in the QI process. This engagement was reflected in learning session attendance, regular and frequent submission of progress reports, registry development and maintenance, documentation of rapid-cycle tests of improvement, and a wide range of informal but powerful feedback from team members regarding the value of participating.

Furthermore, nearly all teams reported substantial improvements in prevention-focused laboratory testing and in the delivery of clinical services such as foot exams and referrals for dilated eye exams. Several teams were successful in implementing systems changes that resulted in improvements in glycemic control among the patients in the pilot population.

Although most teams were able to implement improvements in their organizations, faculty observed several factors that contributed to success: (1) teams with strong support from administration had more success, (2) teams with access to information system support staff or analysts encountered fewer barriers to reporting, and (3) teams using the DEMS registry were more likely to submit the monthly summary reports used to track changes in process and outcome measures. In addition, faculty observed that size did not necessarily contribute to success; community health centers performed as well as large clinics and large delivery systems.

Finally, the partnership between clinical practices and health plans was fruitful. Not only did the health plans work to support the improvement efforts of the practice, but some also implemented policy changes to improve access to prevention-based care. Examples of these changes are expanded benefits for diabetes education, elimination of copayments for patients in the pilot population, and implementation of coding to pay for group visits.

#### The Challenges of Evaluating Success

Collaboratives are not designed to detect statistically significant improvements or to determine which specific

**Table 3. Baseline Median of Collaborative II Teams, Grouped by Absolute Improvement\***

Measure Percentage of patients in the pilot population with...	Absolute Improvement, %	Baseline Median, %	Number of Teams
HbA1c test in past 12 months	> 20%	58	6
	10%–20%	83	3
	0%–10%	83	11
	< 0%	87	6
Documented self- management goal in past 12 months	> 20%	1	17
	10%–20%	8	5
	0%–10%	7	1
	< 0%	44	3
Most recent HbA1c < 8.0% among those tested in the past 12 months	> 20%	—	0
	10%–20%	53	7
	0%–10%	62	16
	< 0%	75	3
Most recent blood pressure < 140/90 mm Hg among those tested in the past 12 months	> 20%	53	2
	10%–20%	61	3
	0%–10%	66	13
	< 0%	64	8
Most recent LDL cholesterol < 130 mg/dl among those tested in the past 12 months	> 20%	—	0
	10%–20%	70	5
	0%–10%	69	14
	< 0%	77	7

\* HbA1c, glycosolated hemoglobin; LDL, low-density lipoprotein.

interventions resulted in improved care. The collaborative process incorporates measurement and reporting (time series graphs) only to assist teams in identifying what efforts might be associated with improvement. Given the emphasis on improvement rather than measurement, analysis of the results presents challenges not typically found in research. One of those challenges was determining a single statistic of success. We chose to calculate absolute change or absolute improvement because it is useful for showing the magnitude of changes and is easy to interpret. However, for some measures, absolute improvement was lower in Collaborative II, while the remeasurement rates were higher compared to Collaborative I. We could not consider a first team with a higher remeasurement rate “less successful” than a

second team with a lower remeasurement rate just because the second team had improved more. Therefore, at the collaborative level, we consider both absolute improvement and remeasurement values indicators of success.

#### Results Compared with Those of a National Collaborative

Results are available for one other collaborative on diabetes,<sup>17</sup> which consisted of 26 teams (23 of which completed the collaborative). Two of the four measures reported from that collaborative are similar to measures in our state-level collaboratives: HbA1c < 8.0% (aggregate data based on 8 teams) and documentation of a self-management goal (aggregate data based on 21

teams). Our state-level collaboratives compare favorably to the national collaborative.

More teams from Diabetes Collaboratives I (76%) and II (87%) submitted baseline and remeasurement data compared with the national collaborative (56%)<sup>17</sup>; therefore, we were able to include more teams in our aggregation. Our success with data submission possibly reflects the extra support, both technical and financial, that we were able to provide for developing, populating, and maintaining registries.

The national collaborative reported greater improvement (21%) in the percentage of patients with diabetes whose most recent HbA1c was less than 8.0% than either of the state-level collaboratives (absolute improvement in Diabetes Collaborative I, 12%; Collaborative II, 7%; Table 1). However, the remeasurement median for this measure was higher in the state-level collaboratives than in the national collaborative (remeasurement median for national collaborative, 58%; Collaborative I, 70%; Collaborative II, 66%). Also, remeasurement ranges were higher for Diabetes Collaborative II (41%–93%) than for Collaborative I (40%–76%) or the national Collaborative (41%–70%). The national collaborative had a lower baseline median (37%) than either of the state-level collaboratives (58% and 59%; Table 1).

A baseline median for documentation of a self-management goal was not available for the national collaborative; however, the remeasurement median for this measure was higher for the national collaborative (70%; range, 37%–73%) than for the state-level Collaboratives (Collaborative I, 36%; Collaborative II, 38%). Some teams in Collaborative II were able to achieve high remeasurement rates (range, 2%–91%). Although we tracked this measure in both collaboratives, documentation of a self-management goal was required only in Collaborative II.

### Uniqueness of Our Approach

Our approach to collaboratives was unique. First, the scope of the collaboratives differed from that of others: We brought the collaborative structure to the state level and included teams from varying practices and health care delivery systems.

Second, the collaboratives included a partnership between clinics and health plans, so they could work together to address the challenges that providers caring for chronically ill patients face. Participating health plans gained a heightened awareness of how policies and benefits packages affect the delivery of chronic care. The partnership demonstrated that competitive health plans can work to support clinical practices and implement policy changes to promote prevention-focused care.

Third, we were able to reduce the costs of participating in a collaborative by holding learning sessions more locally (thereby reducing travel costs) and by providing financial assistance to teams.

Fourth, having the collaboratives at the state level increased the feasibility of site visits among teams; teams attended or took part in other teams' group visits.

Fifth, we were able to provide teams with a public-domain registry and more technical support than could be offered at the national level. Assistance in registry development especially helped teams focus on improvement efforts rather than on acquiring the technology for measuring their outcomes electronically.

Sixth, in Diabetes Collaborative II, certain measures were mandatory. Requiring some measures allowed us to aggregate data more easily and to emphasize the role of patients with diabetes in managing their disease; we required a measure on documented self-management goals. Finally, the collaboratives were sponsored by three organizations—a quality improvement organization under contract to Medicare, a department of health, and a national program of the Robert Wood Johnson Foundation—with diverse but complementary missions, each bringing its own resources and expertise to the table.

### Conclusion

This work demonstrates the feasibility of the Breakthrough Series Collaborative model for other like partnerships to consider when working with outpatient providers on a statewide basis. **L**

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