

Performance Improvement

After the Collaborative Is Over: What Sustains Quality Improvement Initiatives in Primary Care Practices?

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Multisite quality improvement (QI) initiatives involving practices such as community health centers, academic practices, and managed care groups, often known as collaboratives, have been the subject of numerous reports.¹⁻⁶ The participating teams use a combination of shared and individualized initiatives to improve previously identified areas of care quality. Through a series of iterative change cycles, specific care processes are redesigned and tested to see if quality of care is improved, ideally without increasing costs to the practice. Common among these collaborative efforts has been the sharing of previously developed processes, new ideas or strategies, and outcome data.

Evaluation of collaboratives' successes has generally relied on short- and intermediate-term clinical process and outcome measures, with varied results.^{1,7-9} The overarching goals of QI collaboratives are (1) to improve care processes and outcomes, and (2) to create an infrastructure that will sustain these improvements. Nevertheless, the ability of collaboratives to create a sustaining infrastructure is seldom considered in published reports.

Sustaining improvements in care quality has important implications for patients and health care delivery systems, yet relatively little is known about the processes required to sustain these QI initiatives after the initial project, and frequently its funding, has ended. QI outcomes may not always be sustained or disseminated following the initial period of support.¹⁰ Neily and colleagues¹¹ found that leadership, teamwork, and skills acquisition during a QI collaborative on inpatient falls and injury prevention were important correlates of sustaining QI processes one year later. Nease et al.¹² reported that use of a depression screening instrument in primary care practices extended beyond the initial QI process but provided little information on the correlates that may be associated with sustaining practice changes.

In the current study, we sought to better understand and describe the characteristics and/or activities of primary care practices that are associated with sustaining QI initiatives. Our work in this area draws on our participation and leadership in

Article-at-a-Glance

Background: Multisite quality improvement (QI) initiatives, often known as collaboratives, involving primary care practices such as community health centers, academic practices, and managed care groups have been reported. Yet relatively little is known about the sustainability of these QI initiatives after the initial project, and frequently its funding, has ended. A series of practice characteristics that constitute critical elements for QI sustainability activities, as described in a Sustainability Pyramid Model, were proposed.

Methods: Approximately five months after the cessation of formalized activities of the final collaborative, 25 in-person interviews were conducted in 13 primary care practices that had participated in the three North Carolina Chronic Disease Management collaboratives, which initially involved 33 practices. Clinical outcomes were not considered.

Findings: Twelve of the 13 practices stated that the collaborative work resulted in improvement in one or more process and/or outcome clinical measures and those improvements have been continued. Five of the 13 practices reported that sustaining improvements had been a challenge since the collaboratives ended. Content analysis of the interviews indicated that the practices variously cited the practice characteristics, as included in the Sustainability Pyramid Model: regular meetings to study practice population data, leadership commitment, availability of infrastructure/staff support, pursuit of additional funding, publicity, and strategic partnerships.

Discussion: Although the improvement activities initiated during the collaborative were sustained, the process of developing and implementing new QI activities appeared to be more challenging for almost half of the practices. The practices that could accomplish this ongoing new QI process had "institutionalized" their QI strategies—a finding with important implications for sustainability.

Sustainability Pyramid

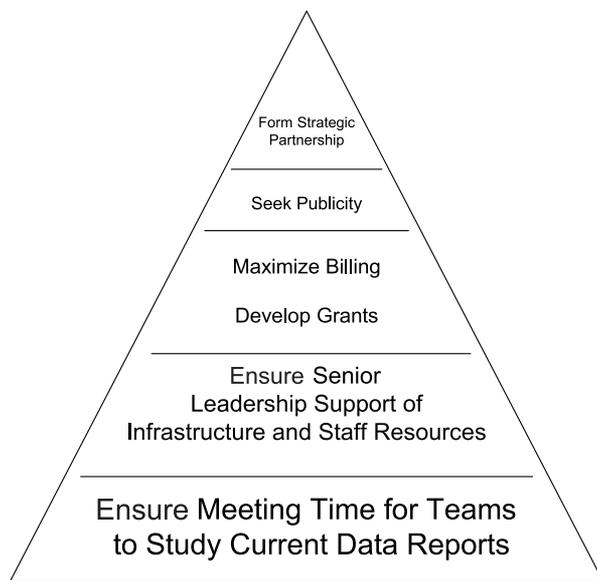


Figure 1. *This model was developed a priori on the basis of the authors' observations as participants in quality improvement (QI) collaboratives. The more important activities, which are necessary to enable other actions, are at the pyramid's base. Although all elements contribute, the proposed model suggests an empirical weighting of these five identified areas from most to least important on the basis of their critical role in sustaining the QI process.*

33 QI collaboratives in a 10-year period. We hypothesized a series of practice characteristics that constitute critical elements for QI sustainability activities, as described in the Sustainability Pyramid Model (Figure 1, above).

We sought to explore the association between Sustainability Pyramid Model components and the presence or absence of sustained QI processes in 13 practice settings that participated in three QI collaboratives. Previous studies have documented the association between participation in QI collaboratives and clinical outcomes.¹⁻⁶ We did not measure clinical outcomes or attempt to link specific activities to sustained clinical outcomes. Rather, our goal was to examine the association between practice characteristics and sustaining QI activities initiated in the collaboratives.

Methods

THE NORTH CAROLINA CHRONIC DISEASE MANAGEMENT COLLABORATIVE (CDMC)

The North Carolina Chronic Disease Management Collaborative (CDMC), in partnership with the Robert Wood Johnson Foundation's Improving Chronic Illness Care Program, was organized and implemented with financial sup-

port from the North Carolina state government, the Kate B. Reynolds Charitable Trust, and supporting organizations. The CDMC is a statewide QI collaborative targeting four areas: diabetes, cardiovascular disease, cancer, and preventive health behaviors.

The three following CDMC collaboratives have been conducted as of this report:

1. The Diabetes Collaborative (February 2003–March 2004), focusing on diabetes care
2. The Chronic Disease Management Collaborative I (August 2004–September 2005), focusing on diabetes and cardiovascular disease
3. The North Carolina Chronic Disease Management Collaborative II (January 2006–February 2007), which continued a focus on diabetes and cardiovascular disease and added two new tracks, cancer and prevention*

Each of the three collaboratives included teams from community health centers, health departments, private medical practices, and free clinics. Although common clinical outcomes were measured, each team designed unique and multiple plan-do-study-act (PDSA) cycles based on site-specific needs. Each practice redesigned elements of its care procedures using the Chronic Care Model of Wagner et al.¹³ and tracked both process and outcome measures for a cohort of patients. These measures were shared among all collaborative participants. Representatives from each practice attended regular meetings and shared their QI experiences with collaborative members.

There is evidence that the PDSA initiatives improved clinical outcome, as summarized in a separate unpublished document.¹⁴ During the CDMC's work, more than 3,000 Type 2 diabetic patients were tracked, and their average glycolated hemoglobin (A1C) decreased from 8.3 to 7.5. Further, the percentage of patients with Type 2 diabetes mellitus whose blood pressure was controlled to less than 130/80 mmHg increased from 12% to 33%, and the percentage of patients with pneumococcal immunization increased from 10% to 26%. (The authors were not the investigators in the CDMC clinical outcome study and therefore only have summary data.)

STUDY METHODS

Case Study Approach. To explore the proposed sustainability model, we used the case study approach (Ragin¹⁵) to compare

* These collaboratives were conducted by a partnership between the North Carolina Division of Public Health (Heart Disease and Stroke Prevention, Diabetes and Cancer Branches), the North Carolina Community Health Center Association, the Carolinas Center for Medical Excellence (CCME), North Carolina's Medicare Quality Improvement Organization, and the University of North Carolina at Chapel Hill, Department of Family Medicine.

Table 1. Practice Profiles

	Governance/ Ownership	Rural:Urban	> 8 Providers	1–8 Providers	> 10,000 Patients	≤ 10,000 Patients
Community Health Centers	6	5:1	3	3	3	3
Free Clinics	2	1:1	—	2	—	2
Private Practice	1	1:0	—	1	—	1
Hospital Owned	3	0:3	1	2	1	2
Health Department	1	1:0	—	1	—	1

and contrast the presence or absence of the characteristics of the proposed sustainability model and their relationship to QI sustainability activities. Approximately five months following the cessation of formalized activities of the final funded collaborative, we conducted 25 in-person interviews in 13 primary care practices (case study sites) in North Carolina. These sites had actively participated in the three CDMC collaboratives, which initially involved 33 practices statewide.

Sample. We sampled the 13 study sites purposively from the larger group of practice sites participating in the collaboratives to reflect geographic representation from throughout the state and to reflect diverse practice types (community health centers and private practices) and practice sizes (small to large practices). Clinical outcomes were not considered.

Semistructured Interviews. The principal investigator [P.B.] conducted individual 60–120-minute semistructured interviews with key leaders at each of the 13 study sites. The content of the interviews was developed by the investigators based on experience with the Chronic Care Model, pilot tested in two primary care practices, and then revised to ensure clarity of the questions. The 61 questions were designed to elucidate the presence of or absence of specific QI activities that had been part of the collaborative activities, as well as the relative importance/prioritization of these QI activities (Appendix 1, available in the online article). Key successes as well as challenges in continuing QI activities were also sought through open-ended questioning. Detailed notes of the responses were obtained and later transcribed.

Content Analysis. Two of the investigators [P.B., D.M.C.] identified themes by analysis of total transcripts by content analysis for each question and by grouping of common themes. Each of the practices was examined both individually and in combination with the other practices to explore differences by location and association of findings with the presence or absence of sustainability in QI activities. Transcripts were read in their entirety and then subjected to textual line-by-line

analysis with the goal of revealing and refining categories. Transcribed notes were also examined by individual question by counting the prevalence of specific activities. In a search for further evidence of ongoing QI activities, the investigators also reviewed any recent data or documents collected by the practice to track disease process and outcome measures. Informant recall bias could not be measured specifically but was dealt with through review of existing organizational documents and by considering the perspectives of the two co-authors' review of the material. The study was approved by the East Carolina University Institutional Review Board, and informed consent was obtained from each respondent.

Findings

Twenty-five providers and staff at the 13 study sites agreed to participate and provide data for the present study. The characteristics of the participating practices are shown in Table 1 (above).

OVERALL STATUS: ONGOING QI WORK

Twelve of the 13 practices stated that the collaborative work resulted in improvement in one or more process and/or outcome clinical measures and that those improvements have been continued. All but one of the 13 practices were able to provide written evidence of PDSA findings that documented continued QI activities. Ten of the 13 practices provided written evidence of ongoing PDSA findings that spanned more than two years.

Twelve practices reported that the collaborative activities contributed to the success of their QI programs (Appendix 2, available in online article). Five of the 13 practices reported that sustaining improvements had been a challenge since the collaboratives ended. The examples in Table 2 (page 505), drawn from two study sites where QI initiatives were successfully sustained, show practice characteristics and activities associated with sustainability of quality initiatives.

Table 2. Case-Study Examples from Two Practices Sustaining Quality Improvement (QI)*

Characteristic Associated with Sustainability	Practice Site 1 Family Practice Residency Program	Practice Site 2 Free Clinic
Institutionalized meetings	The residency director institutionalized a clinical competency system that measured the performance of family practice residents. Each resident was evaluated by the director on a 60-day cycle regarding improvements of key clinical indicators as measured by the data system and outcomes of PDSA improvement cycles.	Teams are formed that include the clinic manager and volunteer physicians. Monthly meetings are scheduled where current clinical data are analyzed and PDSA activities are implemented. Report summaries along with data reports are compiled by the clinic manager and forwarded to funders approximately every 6 months.
Current patient data available	Administrative staff were hired to input current data via a customized electronic registry.	Volunteer staff under supervision of clinic manager enter data into an electronic registry on a weekly basis.
Leadership	The residency director designed the QI program and acts as chief advocate.	The clinic manager, supported by the board of directors, designed the QI program and acts as its chief advocate.
Infrastructure Support	Administrative staff were dedicated to QI.	Volunteer staff were dedicated to QI.
Maximized Billing & Grants	QI data are used to support federal and state grant funding.	QI data chief acts as source for documentation to hospital foundation and United Way.
Publicity	QI data are used for publications and internal newsletters.	QI data are used for press releases and contribution-appeal letters.
Strategic Partnerships	The QI program was instrumental in a continuing residency program collaborative and the statewide Practice-Based Research Network.	QI program was instrumental in link to state's chronic disease programs.

* PDSA, plan-do-study-act.

IDENTIFIED PRACTICE CHARACTERISTICS

Regular Meetings to Study Practice Population Data. The initial theme to emerge was the importance of regularly scheduled meetings focusing on key clinical composite data and their link to QI activities. Seven of the 13 practices provided evidence that their staff were meeting regularly and reviewing practice-specific data on care quality issues. All 7 practices had initiated new PDSA cycles linked to current clinical data apart from ongoing PDSA initiated previously through the collaborative. Six of the 7 practices that were meeting regularly (from monthly to twice a year) had institutionalized a system to ensure regular review of the data (for example, scheduled agenda items at board of directors' meetings and incorporating clinical quality of care outcomes in medical residents' evaluations). Seven of the 13 practices indicated a desire to initiate new and additional PDSA cycles; 6 of those practices had regular meetings to address current clinical data.

The remaining five practices were not meeting regularly and had not reviewed data for more than one year. These five practices reported numerous barriers to regular data reviews rather than a lack of motivation, such as new electronic medical

record (EMR) systems, turnover of key leadership staff, new program grants consuming leadership time, and loss of funding for data entry personnel. Certain EMR systems were unable to report composite data.

Leadership Commitment. A second theme to emerge was related to the commitment level of practice leadership. Eleven of the 13 practices were able to produce a written policy that showed evidence of the practice leader's (medical director and/or chief operating officer) commitment to continue Chronic Care Model-based QI activities. Further, practice administrations also showed their use of and commitment to ongoing collection of QI data in a variety of ways. One practice funded a new EMR system, two others hired new staff to help with QI activities, three administrators made a summary of the QI work as a regular agenda item at practice staff meetings and used the data for goal setting, and four medical directors reported reviewing the data regularly. Eleven of the 13 practices reported that leadership support contributed to their sustained use of PDSA-tested improvements.

Ensure Staff/Data Entry Resources. A third theme involved the availability of infrastructure/staff support. Nine of the 13

Table 3: Sustainability Pyramid Activity Characteristics and Practices’ Sustaining Quality Improvement (QI) Initiatives in the 13 Practices*

Sustainability Pyramid Activity							Sustaining QI Initiative		
Practice	Team Meeting	Meetings with Data	Leader Support	Funding	Publicity	Networking	PDSA Continued	New PDSA	Desire New PDSA
1	Y	N	Y	Y	Y	Y	Y	N	Y
2	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	N	Y	Y	Y	Y
4	Y	N	Y	N	Y	N	Y	N	N
5	Y	N	Y	N	Y	Y	Y	N	N
6	Y	Y	Y	N	Y	Y	Y	Y	Y
7	Y	Y	Y	N	Y	N	Y	Y	N
8	Y	N	Y	N	Y	N	Y	N	N
9	Y	Y	Y	Y	N	Y	Y	Y	Y
10	N	N	N	N	N	N	N	N	N
11	Y	N	Y	Y	N	Y	Y	N	N
12	Y	Y	Y	Y	Y	Y	Y	Y	Y
13	Y	Y	Y	Y	Y	Y	Y	Y	Y

* PDSA, plan-do-study-act; Y, yes; N, no.

practices provided evidence that they had hired new personnel and/or redirected existing personnel resources to ensure that adequate resources were available to support practitioners in QI activities. Most of the personnel time required was for chart abstraction, data entry, report development, and assistance with PDSA initiatives.

Impact on Fund Raising. Six of the 13 practices provided evidence that they were pursuing additional external grant funding for QI activities. An important aspect of nearly all PDSA cycle activities is changed billing practices related to increased visit complexity and visit frequency. Only one of the 10 practices that bills third-party payers had made such a change despite its importance.

All six practices pursuing additional funding used clinical data gained from the collaborative as evidence of need and of ability to manage grant tasks. Two of the six practices used collaborative clinical data as their key argument to funders for ongoing financial support.

Publicity. Seven of the 13 practices had developed local or regional publicity to advertise the practice’s QI processes and/or outcomes. Leaders described the importance of this publicity in creating an image of high-quality care, attracting attention to the practice, and facilitating additional funding.

Strategic Partnership. Eleven of the 13 practices reported

that they had formed strategic partnerships with other practices and organizations that participated in the collaborative. Examples of strategic partners were academic institutions, statewide health organizations, national disease-specific organizations, and regional consultants. These partnerships were used for access to funding, resources, and strategic planning.

A COLLABORATIVE ENVIRONMENT

A collaborative environment in the practice—specifically, peer support for practice leaders and strategic partnerships—appeared to facilitate the six sustainability activities. These findings support the proposed Sustainability Pyramid Model.

The prevalence of the six practice characteristics, as presented in somewhat different form, as well as the presence or absence of sustainability activities, is shown for the 13 clinics (Table 3, above).

Discussion

The intention of the CDMC collaborative was to use the Chronic Care model to redesign ambulatory practices and to produce ongoing QI process changes. Our data suggest that this goal was met by nearly every practice that we investigated. That is to say, PDSA cycle process improvements initiated during the collaborative were continued. A key factor that sus-

tained such improvement activities appeared to be support from the chief executive officer and medical directors. Our data indicate that such support was tangible; for example, the provision of needed staff time and positions to enter data. However, only slightly more than half of the practices continued to hold meetings centered on clinical data and on building new or expanded PDSA improvement cycles.

Although the improvement activities initiated during the collaborative were sustained, the process of developing and implementing new quality of care improvement activities appeared to be more challenging for almost half of the practices. The practices that were able to successfully accomplish this ongoing new QI process had “institutionalized” their QI strategies. This finding, unexpected to the authors, has important implications for future curriculum and research in QI sustainability. The reasons why some practices do or do not institutionalize these activities are not entirely clear. The development and continuation of new PDSA activities based on clinical data was not entirely dependent on leadership support but rather on more creative systems redesign. Examples of system redesign policies and practices included making new PDSA activities part of resident evaluations and part of regular board of directors reports.

These system redesign policies and practices seemed to be effective regardless of the type of practice (private practice, community health center, or hospital-owned), suggesting that other practice characteristics, such as those identified in this study, might be more important. It was clear that dedicated time for physician and nonphysician staff to meet regularly to consider current patient cohort data and to review and plan QI activities was fundamental. Our findings suggest that key was the need to produce some sort of product, such as a monthly report to the board, staff evaluation, or physician incentive plan. The availability of infrastructure/staff to support QI was also important. If a practice did not prioritize collection of QI data and data entry and reporting, then data were not consistently available.

The interrelated practice characteristics, as identified in the interviews, appear to have a logical priority and different “weighting” in terms of importance, consistent with the Sustainability Pyramid Model (Figure 1). Previous studies have not differentiated this “weighting.” This study has identified the importance of an institutional methodology to regularly review clinical outcome data with physicians. These two areas, if substantiated through future research, should receive special attention in collaborative curricula. They should be emphasized to senior clinical leaders as “must do” activities for sustainability.

This article builds on the work of Neily et al.,¹¹ who also demonstrated the importance of leadership, and expands the work of Edwards et al.,¹⁶ who provided a framework and checklist of elements necessary for sustainability. Common to Edwards et al. and the Sustainability Pyramid Models are specific elements including infrastructure support and institutionalization/integration into organizational activities. However, the Edwards et al. model does not suggest a hierarchy of items. We contend that selected QI activities must be undertaken before other elements can be successfully implemented.

The study focused on a small and selected group of primary care practices in North Carolina of varying administrative structures that already had considerable experience in QI improvement collaboratives; the ability to generalize to practices without these experiences is unknown. Only one practice was a freestanding clinic, which is the most predominant practice structure in the United States. Further, the data were obtained through qualitative methods involving 61 questions centered on certain domains. Although open-ended questions were included, a more open qualitative instrument may have elicited other themes, variables, or interaction of variables.

Undertaking QI activities as described in the chronic care model is difficult for many practices, especially in the context of declining reimbursement, competing priorities, and increasing staff and infrastructure costs. Further, as described by Hroschikowski et al.,¹⁷ changing traditional care patterns requires enormous attention, focus, clear specifications, and attention to myriad details. Unfortunately, the Chronic Care Model provides only an abstract framework that still requires considerable upfront design work and frequent changes to adapt effectively.

Conclusion

Our findings suggest the interrelation of specific practice characteristics such as regular data reports, leadership, committed infrastructure and the sustaining of QI activities. The Sustainability Pyramid Model illustrates the relative importance and hierarchical relationships among the practice characteristics that are required to sustain QI activities. **J**

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Online-Only Content

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- Appendix 1. Interview Questionnaire Tool
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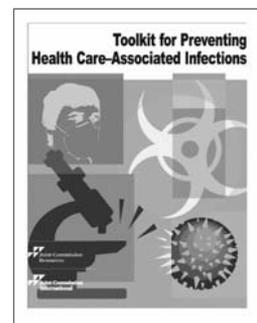
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Appendix 1. Interview Questionnaire Tool*

Team Organization

1. How many collaboratives has your clinic participated in? What was the focus of the collaboratives? What were the dates of the collaboratives?
2. Have there been staff changes from those who participated in collaborative?
3. Do you meet regularly with a group (team) whose aim is to improve quality?
4. How many times in the last 6 months has your QI team met?
5. Who is on the team? What disciplines/job titles?
6. Who is the leader? What discipline is team leader?
7. Who convenes the team? What discipline convenes the team?
8. How many PDSA cycles has the team implemented in the last month?
9. Can you give one example of a PDSA cycle?
10. What have been the barriers to meeting?
11. What have you learned that facilitates the scheduling of team meetings?

Medical Review

1. Does the team or a representative of the team meet regularly with the medical director?
2. How many times in last 6 months?
3. Do you review the PDSA cycles with the medical director?
4. Does the medical director review the PDSA cycle data?
5. Does the medical director suggest changes or modifications to the PDSA?
6. Can you give an example of the medical director's suggestions?
7. What have been the barriers to meeting?
8. What have you learned that facilitates the scheduling of medical director meetings?

Administrative Review

1. Does the team or a representative of the team meet regularly with the CEO?
2. How many times in last 6 months?
3. Do you review the PDSA cycles with the CEO?
4. Does the CEO review the PDSA cycle data?
5. Does the CEO suggest changes or modifications to the PDSA?
6. Can you give an example of the CEO suggestions?
7. Has the CEO included the QI team activities in the annual QI plan such as a Joint Commission QI plan?
8. Has the CEO modified any job description to include the team's QI tasks?
9. Has the CEO approved the staffing plan for the data entry?
10. Has the CEO estimated costs and revenues for the QI team initiatives?
11. What have been the barriers to meeting?
12. What have you learned that facilitates the scheduling of CEO meetings?

Data Entry

1. Who is the person entering the clinical data?
2. What is the procedure for entering data? Does a procedure for data entry exist? How often are data entered?
3. What is the backup plan for the data entry? Does a backup plan exist?
4. Have you personally entered data?
5. What have been the barriers to data entry?
6. What have you learned that facilitates the entering of data?

Data Reporting

1. Do you report your data to the medical director?
2. Do you report your data to the CEO?
3. How do you report your data to the CEO? Can you provide an example?
4. Does the CEO follow up with any suggestions or action recommendation?
5. Do you ask to report to the Board and/or display the data on your poster board at a board meeting?
6. Do you define and highlight improvements in the data for your medical director, CEO, and Board?
7. What have been the barriers to reporting your data?
8. What have you learned that facilitates the reporting of your data?

Economic Impact

1. Have you had any discussions with leadership as to how your QI project could improve billing?
2. If yes, what have been your discussions?
3. Have you discussed the impact of the QI interventions on visit complexity?
4. Have you discussed the impact of the QI interventions on visit frequency?
5. Have you discussed "pay for performance" with your CEO?
6. Have you discussed "pay for performance" with your medical director?
7. Have you estimated the annual costs for the QI project activities?

Grant Development

1. In the last six months, how many times have you met with someone to discuss grant development tied to the QI project?
2. In the last 12 months, how many grant applications have you submitted in support of your project?
3. Have you talked with other local or regional organizations about joint grant development to fund the QI project collaboration?

(continued on page AP2)

Appendix 1. Interview Questionnaire Tool* (continued)

Public Relations

1. Have you met with anyone to discuss any publicity regarding the QI project?
2. If yes, in the last six months, how many people have you met with to discuss publicity?
3. In the last six months, how many times have you published (print, electronic, in-house newsletter, etc.) your project activities or progress?
4. Has the QI project been included in your clinic's annual report?

Community Connection

1. In the last six months, how many people/organizations have you talked with about your QI project seeking advice, assistance, or support?
2. In the last six months, how many community volunteers have you involved in QI team activities?
3. Have you codesigned or co-implemented a PDSA with a partner organization?

Summary Statement

Are there other comments or overall impressions of your participation in the collaborative that you would like to add?

*QI, quality improvement; PDSA, plan-do-study-act; Y, yes; N, no; CEO, chief executive officer..

Appendix 2. Practices' Summary Statements of Collaborative Experience*

Practice 1: "The collaborative experiences have been extremely helpful to us in improving our clinical outcomes and documenting our achievements for grant acquisitions. It has been key to funding."

Practice 2: "The collaborative is key to the source for our data. Without the collaborative we would have a major problem in fund-raising. Now without the collaborative, we have lost connection to other practices and lost their support. This is affecting our fund-raising."

Practice 3: "The activities (PDSA, CCM) that came from the collaborative are now part of how we do business. They are not separated from how we define our quality. They drive our whole process."

Practice 5: "The collaboration was very positive, it kept us on track, we miss it."

Practice 6: "The collaborative and the chronic care plan are integrated into our whole training and quality design. They now drive how we define our quality improvement process."

Practice 7: "This is the only way. Register sheet with protocols based on data is the only way I could track the correct care for patients. The collaborative has given the structure for putting all the pieces together for quality care."

Practice 8: "We were initially resistant to the process, but staff and doctors now view the collaborative as very positive. We learned much. We met many people from other practices and learned as much from others as from the process and presentations."

Practice 9: "We have been greatly satisfied by the collaborative. It was great support. It has also been day-to-day support. It has shown how some improvement areas can translate into the improvement of other areas. Changes from the collaborative have been bottom-up and not top-down."

Practice 10: "The collaborative has not really helped us but it was not its fault. There have been many staff changes that have caused major disruption in practice care, specifically the delivery of chronic disease care as taught by the collaborative."

Practice 11: "The collaborative helped the practice improve our general prevention services of diabetes. Our staff believe that it has greatly improved the quality of services we give. Patients are doing better, and practice staff have developed improved team work. There are key treatment parameters that are now being addressed. Our follow-up is faster, things were being missed before, and the collaborative helped us with treatment protocols. The practice team wishes that the collaborative was continuing."

Practice 12: "The collaborative has greatly improved patient care. It has also improved staff satisfaction because now we have data that show our quality. We are disappointed that we are no longer meeting in the collaborative. This is a big loss. The learning process kept us on track."

Practice 13: "The collaborative has been so important to the practice. It states to the volunteers, doctors, and nurses who give time to the practice that the service is a quality service. It has added credibility to our program. We greatly miss the collaborative meeting."

* As requested (see Appendix 1). Practice 4 did not provide a summary statement. PDSA, plan-do-study-act; CCM, Chronic Care Model.