

Patient Experience During a Practice Facilitation Intervention to Implement the
Chronic Care Model

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Abstract

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Background: Although practice facilitation is a promising strategy for practice improvement in primary care, less is known about whether facilitated interventions improve care from the patient perspective. We examined the effect of a practice facilitation intervention to implement the Chronic Care Model (CCM) on patient-reported quality of chronic illness care.

Methods: We conducted a pre-post analysis of patient surveys collected in 16 small, community-based primary care practices participating in a 2007 trial of practice facilitation to implement the CCM. Two cross-sectional samples of adult patients with at least 1 chronic illness completed the Patient Assessment of Chronic Illness Care (PACIC) survey pre-intervention and 12 months post-intervention. A practice facilitator met with practices for 12 months to assist in implementing strategies guided by the CCM. Practice mean PACIC summary and subscale scores pre- and post- intervention were compared using paired t-tests.

Results: Across the 16 practices, 595 patients pre-intervention (range: 17-52 per practice) and 816 post-intervention (range: 17-62 per practice) were included in the analysis. There was a significant decrease in practice mean PACIC summary scores from pre-intervention 3.35 (SD 0.29) to post-intervention 3.09 (0.32), $p = 0.03$. All 5 subscales also decreased, reaching significance in 3 of the 5 domains: Patient Activation, Delivery System/Decision Support, and Problem-Solving ($p < 0.05$).

Conclusions: We found that a practice facilitation intervention to implement the CCM was associated with a decline in patient-reported quality of chronic illness care. More attention to patient experience when implementing practice change is warranted.

BACKGROUND

The Chronic Care Model (CCM) is a comprehensive evidence-based framework to guide the redesign of chronic illness care in primary care settings. The model identifies six interrelated elements fundamental to the delivery of high-quality chronic illness care: 1) Self-management Support, 2) Delivery System Design, 3) Decision Support, 4) Clinical Information Systems, 5) Health System Organization, and 6) Community Linkages.^{1,2} Through optimizing these components, practices foster interactions between effective practice teams and empowered patients, which in turn, improves outcomes. Evidence supports that practices redesigned to align with the principles of the CCM can improve the quality of care and outcomes for a wide variety of chronic illnesses.³ However, translating a comprehensive system change like the CCM to diverse practice settings has proven to be challenging.^{4,5}

Practice facilitation (PF) has emerged as an effective method to support practices in achieving incremental quality improvement goals or comprehensive system transformation.⁶⁻⁸ Skilled practice facilitators assist practices to identify areas for improvement, adapt interventions to specific practice environments and build internal capacity for ongoing change. Facilitated interventions for practice enhancement have been associated with improved delivery of primary care in the area of evidence-based guidelines, preventive care services and chronic disease management.^{6,9} However, less is known about whether PF interventions improve quality of care from the patient perspective.

There is an increasing emphasis on incorporating patient experience as a quality of care outcome in research and policy.¹⁰ As opposed to global “patient satisfaction” surveys, newer tools elicit patient report of what they actually experience in their interactions with clinicians and health care systems.¹¹ Measures of patient experience focus on dimensions of care, such as

communication and coordination, for which patients are the ideal and sometimes only source of information.¹² Information gathered from patient experience measures can help identify strengths and weaknesses in care delivery, inform quality improvement efforts and provide evidence for patient-centered practice change. Furthermore, there is growing evidence that positive healthcare experiences are associated with improved clinical outcomes. Better patient experience has been linked to favorable results in the areas of adherence, utilization, self-reported and objectively measured health outcomes, provision of preventive services, and patient safety.^{11,12,13,14} Most importantly, patients who report better chronic care experiences are more likely to engage in positive self-management behaviors and to report higher quality of life.¹⁵

Initial results from a trial of a practice facilitation intervention to improve the delivery of chronic illness care found a significant and sustained improvements in delivery of care from the perspective of the health care team.¹⁶ In this study, we aimed to determine the effect of the intervention on the patient experience of chronic illness care. We hypothesized that practices undergoing facilitated change would also show improvements in patient assessment of chronic illness care, when compared to baseline measures.

METHODS

Study design

This study is an analysis of pre-post data obtained from a cluster randomized controlled trial testing a practice facilitation intervention to implement the CCM. The intervention and design of this trial have been previously reported.¹⁷ Briefly, the study randomized 40 practices to receive a PF intervention or to serve as study controls with a delayed facilitation. The intervention consisted of a trained practice facilitator meeting with practices over the course of 12 months to

guide them through a tailored approach to improve diabetes care using the CCM as a framework. Patient surveys prior to the initial intervention were collected only in the intervention practices. Therefore, only the 20 practices randomized to the initial intervention arm of the trial were included in this analysis.

Setting and Participants

The study was conducted in small, independent primary care practices in South Texas that were diverse in geographic setting, patient population, and insurance coverage. Of the 20 practices randomized to receive the initial PF intervention, one practice was reassigned to the delayed intervention group due to significant delays resulting from provider turnover. Three practices participated in the initial intervention but did not collect follow-up patient surveys, so were excluded from the analysis. Thus, we included data on a total of 16 practices allocated to the initial PF intervention. Study subjects included patients receiving care in the participating practices during 2007-2011.

Data collection

Patient surveys were collected from practices pre-intervention and 12 months after completion of the intervention on two separate groups of patients. Data from the pre-intervention surveys were used by practices to focus their improvement efforts. A minimum of 60 consecutive adult patients at each participating practice were asked to complete anonymous surveys during a primary care visit. As practices served a large proportion of Hispanic communities, surveys were administered in English and Spanish. In order to limit the analysis to patients who actually received services and therefore could reliably report on care experiences, we excluded surveys completed by people who were accompanying another patient for an appointment. We further limited the analysis to patients who reported one or more chronic illnesses. As this study was a

secondary analysis of anonymous data, it was considered exempt by the Institutional Review Board (IRB) of the University of Washington. The initial trial received human subjects protection approval from the IRB at the University of Texas Health Science Center at San Antonio (Clinical Trial Registration Number: NCT00482768).

Patient characteristics: Patient surveys collected sociodemographic information including sex, race/ethnicity, and education. Self-reported health was ascertained using the first item of the Medical Outcomes Study Short-Form (SF) 36, considered to be a valid measure of general health status.^{18,19} Patients were also asked if they had one or more chronic illnesses.

Patient Assessment of Chronic Illness Care: Of the patients who reported one or more chronic illness, patient experience of chronic illness care was measured using the Patient Assessment of Chronic Illness Care (PACIC) Survey. The PACIC was developed to measure the extent to which patients report care that is consistent with the CCM.^{20,21} The PACIC was developed to complement the Assessment of Chronic Illness Care (ACIC) survey used by health care professionals to assess quality. The PACIC aims to incorporate the patient perspective of care delivery and to overcome potential over-reporting bias by health care teams.²⁰ The 20-item instrument consists of 5 subscales and an overall summary score. The 5 subscales represent the elements of the CCM that patients should experience in their interactions with the healthcare system including: 1) Patient Activation, 2) Delivery System Design/Decision Support, 3) Goal-setting, 4) Collaborative Problem-Solving and 5) Follow-up & Coordination. Respondents rate how often they experience care as described on a 5-point likert scale ranging from “none of the time” to “always.” Scale scores range from 1-5, with higher scores indicating better perception of quality of chronic care delivery. Evidence supports use of the PACIC in English and Spanish

versions as a measure of quality that it is reliable, valid and sensitive to change with practice improvement initiatives.^{15,20-22}

Analytic Plan

Descriptive statistics were used to describe patient and practice characteristics. Comparisons between the pre- and post- intervention patient groups were examined using chi-square tests and t-tests, where appropriate.

PACIC summary scores were calculated by summing patient responses across all items then dividing by 20, the total number of items in the survey. For surveys with fewer than 20 items complete, the summary score represents the average of all completed items. At baseline and follow-up, 75-80% of patients completed all 20 items and 90-94% responded to 18 or more items. PACIC subscale scores were calculated in the same manner. As there were two separate samples of patients, pre- and post-intervention, analyses was conducted at the practice level. All subscale and summary scores of patients within a particular practice were averaged to create practice mean scores pre- and post-intervention. Practice-level mean scores were compared pre- to post- intervention using paired t-tests. Although multilevel regression-based methods might be preferred to account for clustering of patients within practices, our sample size of 16 practices would not provide sufficient power to detect real effects. We considered p-values <0.05 to be significant. All data analysis was conducted in Stata version 12.1.

RESULTS

Across the 16 practices, 975 patient surveys were returned pre-intervention and 954 post-intervention. Figure 1 displays the flow chart for the final sample. Within this sample, 380 surveys pre-intervention and 138 post-intervention were excluded because respondents were either accompanying another person (n=51) or did not report a chronic disease (n=467). The

final sample included data from a total of 595 patient surveys pre-intervention (range: 17-52 per practice) and 816 surveys post-intervention (range: 17-62 per practice).

Patient characteristics in the pre- and post-intervention groups are reported in Table 1. Within the pre-intervention group, approximately two-thirds of patients were female with a mean age of 55. More than half of patients were Hispanic (55%) and the majority had not graduated from college (77%). Approximately one-third (37%) of patients reported poor to fair health. Pre- and post-intervention patients were similar in age, gender, race and self-reported health status. The post-intervention patient group had significantly higher levels of education than the pre-intervention group.

The mean practice PACIC summary and subscale scores in the pre- and post-intervention groups are displayed in Table 2. At baseline, the practice mean PACIC summary score was 3.35 (SD 0.29), indicating that patients on average reported that their care was consistent with the CCM “some of the time.” Among the subscales, scores were highest for Delivery System/Decision Support (mean=3.82, SD=0.34) and lowest for Coordination (mean=2.83 SD=0.37). Compared to the pre-intervention scores, post-intervention practice mean PACIC scores decreased for summary scores and all 5 subscales. A statistically significant decline was seen in the PACIC summary scores from 3.35 (SD 0.29) to 3.12 (SD 0.32) ($p = 0.03$). The subscales for Patient Activation, Delivery System/Decision Support, and Problem-Solving also decreased significantly ($p < 0.05$).

The change in PACIC summary scores for individual practices is shown in Figure 1. PACIC summary scores declined in 12 of 16 practices. CCM strategies chosen by each practice are shown in Table 3. All participating practices were engaged at an organizational level as part of the trial, so this component was not included in the table. Of the 5 other components of the

CCM, Self-Management Support followed by Delivery System Design were the most common strategies chosen by practices. Only 1 practice incorporated Community Linkages. Most practices engaged in a multi-component intervention, with 12 of the 16 practices choosing 3 or more components of the CCM.

DISCUSSION

There is growing evidence that PF is an effective strategy to assist practices undergoing quality improvement and practice change.^{6,9,23} Despite the emphasis on patient-centered care in practice redesign, patient perspective of quality of care has been a relatively understudied outcome in studies of PF interventions. Our findings indicate that a practice facilitation intervention to improve diabetes care by implementing the CCM was associated with an unfavorable impact on patient perception of chronic care experience. A significant decrease in practice-level PACIC summary scores suggests that following the intervention, patients in the practices felt that their care was less - not more – likely to be organized, incorporate their preferences, or empower them to manage their illnesses. This is in contrast to prior findings of improvement in the delivery of care consistent with the CCM from the perspective of the health care team.¹⁶

A decline in patient experience of chronic illness care in this trial suggests that practice transformation may, at least initially, detract from the interactions and relationships that matter most to patients.²⁴ This trade-off between integration of components of practice redesign and providing patient-centered care has been cited in previous studies of practice transformation.^{24,25} It is possible that an emphasis on improving the processes of disease management and the technical aspects of care may focus attention away from attributes of patient-centered care. For example, 9 of the 16 practices focused on optimizing their electronic medical records, potentially

compromising the doctor-patient relationship and communication. Fundamental CCM components, including changes in provider roles, and care that is team-based, proactive and planned, may be unwelcome to patients who are accustomed to a particular structure of care.

The PF intervention itself focused on improving intermediate clinical outcomes of diabetes by strengthening the relationships within the practice team and by building internal capacity for practice change. There was not a direct focus on improving patient-centered care or patient experience. Though the CCM was a framework for improvement, facilitators guided practices through a tailored implementation of the CCM. Practices that chose to focus on “back office” elements, such as improving EMR function or disease registries, may not have been able to influence patient experience. Furthermore, none of the practices fully integrated the CCM into care. It may take full integration of patient-centered models to demonstrate measurable results in patient experience. In prior studies, the presence of multiple CCM elements in practices was associated with higher quality of care and patient satisfaction.^{3,26} The practices in the present trial used their baseline patient survey results to guide their selection of CCM strategies. Based on these surveys and other clinical data, all 16 practices adopted strategies for improving patient self-management support. Thus, despite the lack of a specific focus on improving patient-centered care, these practices did focus on strategies that would be expected to improve patient experience but failed to do so.

Issues with the measure itself could explain the negative findings. The baseline PACIC score of 3.35 is higher than reported in some studies.^{15,20} This could create a ceiling effect, but that would explain only a lack of improvement in scores, rather than the drop seen in this study. In addition, though the PACIC survey is considered to be the most acceptable measure of patient experience of chronic care and is applied worldwide,²⁷ there is less support for the interpretation

of the subscales.²⁸ Several validation studies advocate for the use of the overall score and individual items but do not confirm the validity of the 5-factor structure of the subscales.^{22,28-34}

This study highlights important issues in understanding the patient perspective of care. Patient experience of care can conflict with other quality outcomes, including those commonly assessed by healthcare teams. This mismatch suggests that teams and evaluators may need to focus more on changing care in a way that is meaningful to patients. It also raises the possibility that patient experience is influenced by factors outside of the care experience, including prior expectations and preferences, that may be difficult to positively change. The CCM is based on the concept that empowered patients engaged in their own care is essential to improving health. It will be crucial to understand the patient experience and how it can be influenced.

There are several limitations to this study. First, without a control group it is possible that the decrease in patient experience scores could be attributed to other changes occurring during this period, rather than due to the study intervention. However, the intervention was demonstrated to be associated with improved delivery of chronic illness care from the perspective of the health care team.¹⁶ Second, the study surveyed two different samples of patients from the study practices pre- and post-intervention. Although the two groups could have had *a priori* differences in their views of the health care system, comparison showed only minor differences between the patient characteristics of the two groups. Third, it is possible that an immediate positive effect of the intervention could have occurred but not be captured by the post-intervention surveys collected 12 months after the facilitation was completed. Finally, since this study took place in small, independent primary care practices, the intervention might be more successful in larger settings with more resources. However, nearly half of U.S. primary care

practices have only one to two physicians.³⁵ This study may address how models translate to such settings.

CONCLUSIONS

This study found that in real-world primary care settings, patient experience of care declined during a practice facilitation intervention aimed at improving chronic illness care. With the current emphasis on redesigning the health system to provide more patient-centered care, these findings underscore the possibility that practice change efforts may have unintended effects on aspects of care that patients value. With increasing use of patient experience as a measure of quality of care and growing evidence linking it to important health outcomes, more attention should be directed to enhancing the patient experience when designing and implementing practice changes.

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Table 1. Characteristics of study patients and practices

Patient Characteristics	Pre-Intervention (N=595)	Post-Intervention (N=816)	p-value*
Age in years, mean (SD)	54.9 (14.3)	53.9 (15.3)	0.23
Female (%)	64.6	64.2	0.89
Race/Ethnicity (%)			0.56
White non-Hispanic	37.5	36	
Hispanic	54.5	55.7	
Black	4.6	3.7	
Other	3.4	4.6	
Education (%)			0.01
Less than high school graduate	21	16.1	
High School graduate	27.8	26.5	
Some College	28.6	27.1	
College graduate or higher	22.7	30.2	
Health status poor or fair, (%)†	36.7	29.8	0.07
Practice characteristics	(N=16)		
Number of providers (MD, NP, PA), mean (SD)	1.5 (0.8)		
Number of non-provider staff, mean (SD)	6.1 (5.5)		
Office visits per day per FTE, mean (SD)	24.5 (5.0)		
Medicaid patients (%), mean (SD)	32.5 (25.0)		
Medicare patients (%), mean (SD)	14.4 (21.1)		
Practices with electronic health records (%)	50.0		

*Chi-square or t-test

†Measured by first item of the Medical Outcomes Study Short-Form (SF) 36

Table 2. Practice-level changes in patient experience with chronic care

Variable	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	Mean Difference (95% CI)	p-value†
Overall PACIC score*	3.35 (0.29)	3.12 (0.32)	-0.23 (-0.44, -0.03)	0.03
Patient Activation	3.49 (0.40)	3.27 (0.40)	-0.24 (-0.42, -0.03)	0.02
Delivery System/ Decision Support	3.82 (0.34)	3.55 (0.30)	-0.26 (-0.45, -0.07)	0.01
Goal-setting	3.23 (0.36)	3.00 (0.36)	-0.22 (-0.44, -0.01)	0.05
Problem-solving	3.67 (0.29)	3.40 (0.36)	-0.27 (-0.46, -0.08)	0.01
Coordination	2.83 (0.37)	2.64 (0.34)	-0.19 (-0.47, -0.08)	0.15

*PACIC, Patient Assessment of Chronic Illness Care

†Paired t-test

Table 3. Chronic Care Model (CCM) components chosen by study practices

CCM Component	Number of Practices
Self-management support	16
Decision support	10
Delivery system design	15
Clinical information systems	9
Community linkages	1

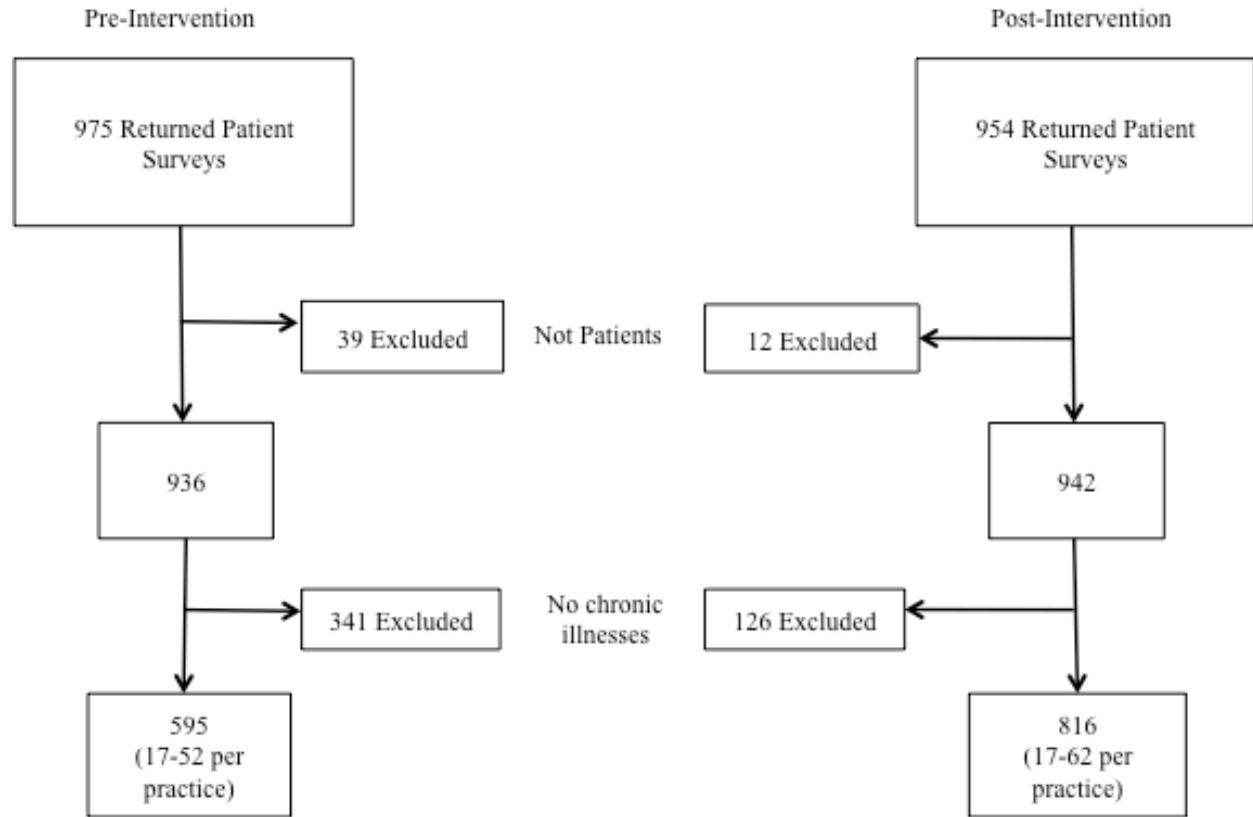
Figure 1. Flow diagram of patient surveys collected from 16 practices pre-intervention and post-intervention

Figure 2. Change in Patient Assessment of Chronic Illness Care (PACIC) score by practice

