

**Transforming Primary Care in the New Orleans Safety Net:
The Patient Experience**

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ABSTRACT

BACKGROUND. The patient-centered medical home (PCMH) is a key service delivery innovation in health reform. However, there are growing questions about whether the changes in clinics promoted by the PCMH model lead to improvements in the patient experience.

OBJECTIVE. To test the hypothesis that PCMH improvements in safety net primary care clinics are associated with a more positive patient experience.

RESEARCH DESIGN. Multi-level cross-sectional analysis of patients nested within the primary care clinics that serve them.

SUBJECTS. Primary care clinic leaders and patients throughout the City of New Orleans healthcare safety net.

MEASURES. Dependent variables included patient ratings of accessibility, coordination and confidence in the quality/safety of care. The key independent variable was a score measuring PCMH structural and process improvements at the clinic level.

RESULTS. Approximately two-thirds of patients in New Orleans gave positive ratings to their clinics on access and quality/safety, but only one-third did for care coordination. In all but the largest clinics, patient experiences of care coordination were positively associated with the clinic's use of PCMH structural and process changes. Results for patient ratings of access and quality/safety were mixed.

CONCLUSIONS. Among primary care clinics in the New Orleans safety net, use of more PCMH improvements at the clinic level led to more positive patient rating of care coordination, but not of accessibility or confidence in quality/safety. Ongoing efforts to pilot, demonstrate, implement and evaluate the PCMH should consider how the impact of medical practice transformation could vary across different aspects of the patient experience.

INTRODUCTION

The patient-centered medical home (PCMH) is a widely endorsed model of healthcare delivery promoted under federal health reform. It is a comprehensive approach built upon core tenets of primary care: providing first-contact care that is continuous, comprehensive and coordinated across providers. The seven core principles of the PCMH model are: 1) each patient has a personal physician; 2) personal physicians direct teams within clinics that take responsibility for patients; 3) are responsible for all the patient's health care needs; 4) care is coordinated and integrated; 5) quality and safety are of extreme importance; 6) patients have enhanced access to care; and 7) improved primary care should be supported by payment reforms. The PCMH combines these elements with recent practice innovations, such as the use of electronic information systems, population-based management of chronic illness, cost containment incentives and quality improvement.

The medical home's objectives for improving access, quality, coordination and patient-centeredness hold special promise for safety-net healthcare systems—systems serving patients regardless of the ability to pay, with a substantial share of the uninsured and Medicaid populations. Safety net systems face unique challenges with achieving patient trust, cultural competence, and providing ample access and coordination of care for these populations, given their disproportionate rates of chronic disease. Quality of care is generally poorer for minority and economically disadvantaged groups. Structural and process improvements suggested by the PCMH model could also help safety-net systems cope with the chronic scarcity of resources, fragmentation, and overuse of costly acute hospital care..

The PCMH has a growing body of evidence to commend its merits. Published research has, however, mainly focused on the medical home's potential to lower costs and improve clinical outcomes—the primary concerns of providers and payers. Yet the concept of a “patient-centered” medical home points to the patient as a key stakeholder. Here, the PCMH model

theoretically holds promise. The PCMH attempts to engage patients in “a partnership between physicians, patients and patient’s families.” This could improve patient trust and help overcome communication and cultural barriers, which are particularly pronounced in safety-net care. The PCMH model also addresses obstacles to primary care access and continuity, for example, by increasing hours of operation and providing patients with a single physician who coordinates care. Some trial suggest medical homes can improve outcomes for chronic disease, and increase continuity of care and access without increasing costs.

It remains an open question, however, whether the structural and process changes called for by the PCMH actually produce measureable improvements in patient experience. The literature is, so far limited and with mixed results, in part due to differences in research designs, study populations and measures. In a non-randomized demonstration, the Group Health Cooperative studied a range of patient experience outcomes. They found that six of seven outcomes improved for patients in the PCMH intervention group, compared to the control group receiving usual care. However, Jaen et al. and Nutting et al. collected patient ratings of primary care clinics, including patient empowerment and satisfaction, noting that patients had a mixture of positive and negative reactions to PCMH reforms. Other studies report little or no association between PCMH improvements and the patient experience. Thus, Martsof et al. found no evidence of an association between PCMH process improvements at the clinic level and patient experiences of interpersonal exchange, treatment goal setting and out-of-office contact. In a study of 21 clinics, Solberg et al. observed little impact of PCMH improvements on patients’ experiences with timeliness, trust and provider communication, although in a separate study this team found small improvements in patient satisfaction.

The present study adds to this small, but growing, body of research by examining the effects of PCMH improvements on the patient experience throughout a community’s system of

safety net primary care. Our hypothesis was that greater use of PCMH structural and process improvements within primary care clinics would be associated with more positive patient ratings of the accessibility, coordination and confidence in the quality and safety of care. We linked data from representative surveys of patients throughout the City of New Orleans with data on PCMH improvements in the community-based clinics serving them. Post-Katrina New Orleans provided a unique opportunity for this research. Following the 2005 hurricane, the city embarked on a system-wide effort to rebuild the healthcare safety net using the model of the medical home. By 2009, the year our data were collected, most of the city's primary care clinics had made changes consistent with the PCMH model, and a majority had achieved formal recognition from the National Committee on Quality Assurance (NCQA) as patient-centered medical homes.

METHODS

We performed multi-level cross-sectional analyses of patients nested within the primary care clinics that served them. This required us to combine data from two surveys conducted at the same time, in 2009, and in the same place, under sponsorship by The Commonwealth Fund. Clinic-level data were obtained through survey interviews with leaders in all 26 safety net clinics in Orleans Parish, an area coterminous with the City of New Orleans. Patient-level data were obtained through in-person interviews with a representative sample of 1,573 patients served by the 26 clinics.

Data Collection Procedures

Data on all 26 safety-net clinics in Orleans Parish were collected as part of a larger, prospective study of practice innovations throughout the Greater New Orleans Area. Data collection involved one-hour computer-assisted telephone interviews (CATI) with leaders from each primary care clinic during March 2009. To improve accuracy, we performed additional

validation interviews by telephone with the same respondents from all 26 clinics. Information gathered from clinic leaders was further supplemented with administrative data on clinic resources, operating budgets, staffing patterns and patient volume. Administrative data were collected retrospectively for a six-month time period including March 2009.

Data on patients were gathered through in-person survey interviews with a representative sample of 1,573 patients seen within all 26 clinics, between February and April 2009. Patients were randomly selected from the intake rosters of each clinic using interval sampling, taking every *n*th patient, with sampling fractions varying by clinic size to achieve adequate representation of patients in small clinics. Based on all patients seen in the 26 clinics during the three-month observation period, the survey response rate was 78 percent. All patients aged 18 or older, and adults accompanying a child patient under the age of 18, were eligible for the study.

The patient survey was administered in person by professional survey interviewers using Computer Assisted Personal Interviewing (CAPI) technology. The patient survey was split into two parts, with the first conducted before the patient's medical appointment and the second afterwards. An incentive of \$10 in cash was offered. Interviews, lasting an average of 20 minutes, were conducted in private places within each clinic and did not interfere with receipt of medical services. While the majority of those interviewed were established patients, 364 (23 percent) were interviewed at their first clinic visit. Given their lack of experience, first-time patients were not asked questions about care coordination. These patients were more likely to be a male and to be uninsured compared to established patients, but were not different in health status, education level or main language spoken at home. All study procedures were approved and monitored by the UCSF Committee on Human Research.

Measures

Dependent variables included three indices reflecting patient experiences with the accessibility, coordination and confidence in the quality/safety of care. These three outcome

measures were drawn from a wide range of items included in the patient survey, many drawn from prior studies of patient experience and satisfaction, including those reviewed above (see: 36). To develop the three indices, we inspected the distributions of all raw items in the survey for range, skewness and central tendency (e.g., medians). From this, we found that items pertaining to the more concrete aspects of the patient experience—actual behaviors and events—elicited a wider range of response, and therefore better differentiated patient experiences, compared to items asking for more subjective attitudes towards the clinic. We surmised that, because many safety net patients were being seen for free, patient’s subjective view could be colored by their lack of healthcare alternatives, thereby biasing their responses in the positive direction. For this reason, we relied on a subset of patient survey items focusing on concrete experiences, behaviors and events when constructing the three indices of patient experience.

We measured *accessibility of care* using three patient survey items involving: ease of getting medical advice from the clinic via telephone during open hours, on evenings/weekends/holidays, and receiving care on a same/next day appointment when ill. We captured the patient experience of *coordination of care* using two items: having a regular doctor, and having the clinic coordinate care with other healthcare providers. We measured patient *confidence in the quality and safety* using three items: getting high quality and safe medical care when very ill, having one’s health needs met by the clinic, and trusting in the treatment received. All items were asked on four-point Likert scales (e.g., “very confident,” “somewhat confident,” “not very confident,” “not at all confident”). To build the indices, each item was dichotomized at the midpoint and then the number of positive endorsements was summed across the items. Each distribution was then dichotomized at the 2+ cut point to reflect a “positive” patient rating versus “not positive.”

Key independent variables were drawn from the clinic survey and measured at the clinic level. Of primary interest was the clinic's *PCMH Score* based on a 27-item index capturing the extent to which the clinic had adopted PCMH structural and process improvements. This index was adapted from survey instruments used in the National Study of Small and Medium-Sized Physician Practices and the NCQA Physician Practice Connection-PCMH Instrument. The 27 items capture covered a range of PCMH improvements, including enhanced access (e.g. after hours, phone access), care coordination (e.g. use of patient registries, care managers) and quality/safety improvements (e.g. Plan-Do-Study-Act cycles and performance feedback to clinicians). The distribution of 27 items was normalized to a range from one to 100. We then divided that range into three categories: "low" (0-33), "medium" (34-63) and "high" (64-100).

Clinic size was used to stratify some analyses, based on the semi-annual unduplicated count of patients within each clinic. This variable was trichotomized with "small" clinics having 1,000 or fewer patients, "mid-sized" clinics having 1,001-2,000 patients, and "large" clinics having more than 2,000 patients. Variables from both the clinic and patient surveys were also used to measure patient demographics and are listed in Table 1.

Analysis

Outcomes variables, including the three indices capturing patient experiences, were measured at the patient level. Independent variables, including patient demographics, clinic size and PCMH score, were measured at the clinic level. The central hypothesis was that a higher PCMH score at the clinic level would be associated with more positive ratings of care experiences at the patient level.

We began by making bivariate comparisons of the three patient experience indices (including accessibility, coordination and confidence in quality/safety) and patient demographics, clinic size and clinic PCMH score. Significance tests included chi-square tests of independence to compare categorical measures. We investigated the relationships between clinic PCMH score

(high, medium or low) and patient experience using the Gamma statistic, which was designed for comparisons of ordinal variables such as these. A zero Gamma reflects no correlation, 1 is a perfect positive correlation, and -1 is a perfect negative correlation.

Bivariate analyses suggested the need to control on clinic size and adjust for clinic case mix variation using patient demographics, as well as the clustering of patients within clinics. Multivariate models were fit across three strata: patients served by small, mid-sized and large clinics. Confounding by case mix was addressed by controlling on patient age, gender and insurance status in multivariate logistic regression models. To address the non-independence of observations due to the clustering of patients within clinics, we used Generalized Estimating Equations (GEE). GEE is statistically similar to Hierarchical Linear Modeling (HLM), which is often used in health services studies like this, where patients are nested within larger aggregates of providers, clinics or hospitals. However, GEE is preferable because it provides greater flexibility in the handling of missing data than HLM. We specified a series of logistic GEE models predicting the likelihood of a positive patient rating on access, coordination and confidence, modeling each of the three outcomes separately at the patient level. All analyses were implemented using GEE procedures in PASW Statistics 18.0. Patient data were also weighted using post-stratification to adjust for minor variations in sampling fractions and response rates.

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RESULTS

Forty-nine percent of patients in this study were uninsured and 73 percent were less than college-educated (see Table 1). Patient demographics varied across small (<1,000 patients), mid-sized (1,001-2,000 patients) and large clinics (>2,000 patients). As Table 1 shows, small clinics treated a higher proportion of patients who were older, female, had no health insurance and

spoke predominantly English at home ($p < .05$). Mid-sized clinics had a higher proportion of patients with at least some insurance ($p < .001$).

Across the entire patient sample, 63 percent gave positive ratings to their clinic on access and confidence in quality/safety, whereas only 33 percent reported a positive experience with care coordination (data not shown in tables). Clinics with a high PCMH score were more likely to have positive ratings on some, but not all indicators of patient experience (see Table 2). We observed a strong, positive association between PCMH score and a positive patient rating on the coordination of care. However, patient ratings of accessibility were inversely associated with PCMH score. Patient ratings also varied by clinic size (see Table 3). There were positive associations between the PCMH scores of clinics and patient ratings on coordination in small- and medium-sized clinics, and no associations among large clinics. The relationship between PCMH status and patient ratings on accessibility and confidence in quality/safety was generally negative except in large clinics.

Table 4 shows the results of logistic GEE modeling of the probabilities of a positive rating for each of the three patient experience outcomes, as a function of clinic PCMH category and case-mix controls. We fit models separately for each of the patient experience indices and stratified by clinic size. The partial odds ratios shown in Table 4 represent the ratio of the odds of a positive patient rating in clinics with high or medium, versus low, PCMH scores, after adjusting for case mix variation. Patients attending clinics with high PCMH scores were more likely to give a positive rating on the coordination of care. The clinic's PCMH score was not, however, a statistically significant predictor of positive patient ratings on access or confidence in quality/safety.

Notably, in small clinics, patient ratings of accessibility were inversely associated with the clinic's PCMH score. In mid-sized and larger clinics, there was a statistically significant

inverse association between ratings of confidence and PCMH level. Only patient ratings of care coordination were consistently and positively related to PCMH level. The failure to observe significant associations in the large clinic stratum could be due to the restricted range of the comparison: this stratum had no clinics with low PCMH score.

DISCUSSION

This study adds to a small but growing body of evidence on how medical home practice changes impact the experience of patients in care. Some prior studies have found little or no impacts on the patient experience. In contrast, we observed a positive association between the patient experience of coordination of care and use of PCMH clinic processes within New Orleans safety-net clinics. Patients in clinics with high PCMH scores were 2.6 times more likely to report a positive experience with care coordination, compared to those in clinics with a low PCMH score. This is an important finding because, within safety-net settings, demands for care coordination are considerable, due to a disproportionate burden of chronic disease in these patient populations and typically, fragmentation in wider healthcare delivery systems. Moreover, in this sample of safety-net patients, on the whole, only one-third of patients reported a high level of satisfaction with the coordination of their care, indicating that there is much room for improvement in this area.

Patient ratings of accessibility and confidence in the quality/safety of care were not positively associated with clinics' use of patient-centered medical home processes in this study. We even found an inverse relationship between PCMH score and patient ratings of accessibility within small clinics, and with patient confidence in larger clinics. Thus, there is not a simple, unidirectional relationship between the clinic's adoption of PCMH processes and all different aspects of patient experience. This may reflect inherent trade-offs in primary care practice transformation: While it may be possible for clinics to improve access *or* quality *or* care

coordination, it may be difficult to do all three at the same time. This may also reflect particular “niche strategies” adopted by different kinds of clinics in the healthcare safety net. Among small clinics in New Orleans, for example, those with low PCMH scores had the most positive patient reports of access to care. Most small clinics in this study were attached to larger healthcare networks or teaching hospitals; they functioned as “outreach clinics” that fed patients into these larger systems. To the extent that these outreach clinics focused on engaging patients and making room for “all comers,” one would expect to see less time and resources available to implementing other kinds of improvements (e.g., registries, EMRs) that might have resulted in higher PCMH scores. Given the resource constraints of the safety net, clinic leaders may appropriately make tradeoffs in where they focus their practice improvement efforts. Some may sacrifice improvements in the continuity and quality of care in order to reach a larger pool of patients in need.

We also observed inverse relationships between PCMH improvements at the clinic level and patient experiences of confidence in the quality and safety of care. This may reflect the fact that many of the quality improvements encouraged by the PCMH model focus on clinical process improvements largely invisible to the patient. PCMH improvements in quality and safety tend to focus on the use of evidence-based clinical guidelines, clinician reminders, quality feedback to clinicians, and the use of Plan-Do-Study-Act (PDSA) cycles to carry out continuous improvement in clinical routines. While they may actually improve quality, they largely unfold “behind the scenes,” beyond the immediate view of the patient.

Our mixed findings across different dimensions of the patient experience underscore the fact that the PCMH is a complex, multi-dimensional model—one that cannot necessarily be expected to have a simple relationship to the patient’s experience of care. PCMH improvements encompass a broad range of clinical process changes that, taken together, can establish a new

way of delivering primary care. But under real-world constraints, these changes are neither simple to implement or to evaluate. A spate of national PCMH demonstrations focuses on different aspects of the medical home, and real-world experiments are beginning to unfold under diverse conditions in preparation for implementing health reform. Such variation in the goals and contexts of change are likely to lead to equally varied effects on the patient experience and other outcomes.

A notable limitation is that findings from this study are confined to a single cross-sectional snapshot of a particular city and setting. The external pressures for change, and the timing and resource capacity for changing healthcare in post-Katrina New Orleans were unique, thereby limiting generalizability. Results are best taken as an early view into what could occur with respects to changing the patient experience under health reform when communities make coordinated efforts to transform primary care. While capturing the universe of primary care clinics in the Orleans parish, the sample of clinics was also limited in size; our stratified analyses should be interpreted with particular caution due to sparse Ns and limited range of the large-clinic stratum. Another limitation involves our reliance on clinic leader surveys. Here, there was potential for systematic error when practice leaders report data on their own organizations. To compensate, we validated clinic data, and worded questions in ways that increased accuracy and reduced incentives to upwardly bias reports of innovation adoption. Patient experiences may have also been prone to measurement error. Preliminary analyses showed that items reflecting subjective experiences tended to be highly skewed; we chose to rely on items measuring more concrete experiences with care for this reason.

On the whole, the New Orleans experience underscores the potential for community-based medical home demonstrations to improve the patient experience of care coordination. This is a particularly important dimension of care for safety-net populations, where care management

demands are often substantial. At the same time, we observed no associations between PCMH improvements at the clinic level and positive patient experiences of accessibility and confidence in quality/safety, and in some cases, we observed inverse relationships. This underscores how much is yet to be done to understand how real-world implementation of the PCMH model can optimize the patient experience, particularly under the constraints currently imposed on primary care providers in the healthcare safety net.

REFERENCES

TABLE 1. Patient Demographics in New Orleans Primary Care Clinics

Patient Characteristic	N of Patients (unweighted)	Weighted %	N of Patients (unweighted)	Weighted %
<u>Age</u>		<u>Over 50</u>		<u>50 or younger</u>
Small Clinic	205	30.1% ***	473	69.9% ***
Mid-sized Clinic	86	23.2%	300	76.8%
Large Clinic	228	40.1%	281	59.9%
All Clinic Sizes	519	32.6%	1,054	67.4%
<u>Gender</u>		<u>Male</u>		<u>Female</u>
Small Clinic	247	36.1% **	431	63.9% **
Mid-sized Clinic	102	24.7%	284	75.3%
Large Clinic	166	32.5%	343	67.5%
All Clinic Sizes	515	31.7%	1,058	68.3%
<u>Insurance</u>		<u>At least some insurance</u>		<u>No insurance</u>
Small Clinic	245	39.5% ***	428	60.5% ***
Mid-sized Clinic	258	65.7%	127	34.3%
Large Clinic	219	51.3%	289	48.7%
All Clinic Sizes	722	51.1%	844	48.9%
<u>Health Status</u>		<u>Fair or better health</u>		<u>Poor health</u>
Small Clinic	655	96.7% ^{ns}	23	3.3% ^{ns}
Mid-sized Clinic	372	96.5%	14	3.5%
Large Clinic	497	98.3%	12	1.7%
All Clinic Sizes	1,524	97.3%	49	2.7%
<u>Education</u>		<u>At least some college</u>		<u>No college</u>
Small Clinic	159	25.3% ^{ns}	519	74.7% ^{ns}
Mid-sized Clinic	114	30.2%	272	69.8%
Large Clinic	126	26.8%	383	73.2%
All Clinic Sizes	399	27.2%	1,174	72.8%
<u>Language</u>		<u>English at home</u>		<u>Other language at home</u>
Small Clinic	629	92.9% *	46	7.1% *
Mid-sized Clinic	354	92.6%	27	7.4%
Large Clinic	428	89.1%	65	10.9%
All Clinic Sizes	1,411	91.2%	138	8.8%

Data weighted for non-response and sampling fractions.

*p<.05, **p<.01, ***p<.001, ^{ns} not significant

TABLE 2. Bivariate Associations Between Patient Experience Ratings and Clinic PCMH Score

	Patient Experience Ratings		
	Accessibility	Coordination	Confidence in Quality/Safety
	% Positive Rating	% Positive Rating	% Positive Rating
<u>PCMH Score</u>			
Low	74	24	79
Medium	65	29	62
High	59	37	69
p value	.005	.006	<.001

Data were weighted for non-response and sampling fractions. P values based Chi-square likelihood ratio.

TABLE 3. Bivariate Associations Between Patient Experience Ratings and PCMH Clinic Score

Positive Patient Rating (Vs. Not Positive)	N of Patients (unweighted)	Association with PCMH Clinic Score (Gamma Coefficient)
<u>Accessibility</u>		
Small Clinics	411	-.284**
Mid-sized Clinics	277	-.203
Large Clinics	377	.140
All Clinics	1,065	-.181***
<u>Coordination</u>		
Small Clinics	395	.391***
Mid-sized Clinics	302	.249*
Large Clinics	373	.007
All Clinics	1,070	.185**
<u>Confidence in Quality/Safety</u>		
Small Clinics	549	-.166*
Mid-sized Clinics	378	-.234*
Large Clinics	498	.219**
All Clinics	1,425	-.005

*p<.05, **p<.01, ***p<.001 Data weighted for non-response and sampling fractions.

TABLE 4. Logistic GEE Models Predicting Positive Patient Experience Ratings as a Function of PCMH Clinic Score, Case-Mix Adjusted

Clinic PCMH Score	Positive Patient Rating of Accessibility (AOR)	Positive Patient Rating of Care Coordination (AOR)	Positive Patient Rating of Confidence in Quality/Safety (AOR)
All Clinics (N=26 Clinics, n=1,573 patients)			
High PCMH Score (v. Low)	0.470	2.581**	0.619
Medium PCMH Score (versus Low)	0.543	1.642	0.409
Small Clinics (N=14 clinics; n=678 patients)			
High PCMH Score (v. Low)	0.156**	10.697***	0.906
Medium PCMH Score (v. Low)	0.290*	0.969	0.614
Mid-Sized Clinics (N=7 clinics; n=386 patients)			
High PCMH Score (v. Low)	0.298	2.570**	0.076***
Medium PCMH Score (v. Low)	1.423	2.537***	0.061***
Large Clinics (N= 5 clinics; n=509 patients)			
High PCMH Score (v. Medium)	0.739	0.723	.552**

*p<.05, **p<.01, ***p<.001

Data are weighted for non-response and sampling fractions. Results are adjusted for case mix.