PCMH in a College Setting: A Brown Primary Care Transformation Initiative

VICTORIA ADEWALE, MD, MSc; JOANNA BROWN, MD, MPH; RENEE SHIELD, PhD; ROBERTA GOLDMAN, PhD; ARTHUR A. FRAZZANO, MD, MMS, FAAFP; UNAB KHAN, MD; EDWARD WHEELER, Jr., MD; MONICA L. KUNKEL, MSN, RN-C; JEFFREY BORKAN, MD, PhD

ABSTRACT

While the PCMH is the primary care model of choice for many healthcare systems, it is a relatively new area for college communities. The college health setting provides an important and challenging primary care platform because of developmental milestones that young adults face at this time of their lives. The Brown Primary Care Transformation Initiative (BPCTI) facilitated PCMH practice transformation efforts within a university center from 2013–2015. A mixed methods evaluative approach was used for baseline and follow-up periods as part of a broader transformation initiative that included interviews, surveys, focus groups, and observations. The college health practice was engaged in a number of other transformation activities concurrently. Results suggest that these multiple efforts, of which BPCTI's facilitation was one, together had a positive effect in this college health setting. This intervention provides a unique window into strengths and challenges for a college health practice as it seeks to transform its provision of primary care.

KEYWORDS: PCMH, college, practice transformation, primary care

INTRODUCTION

College and its myriad academic and social opportunities can have both positive and negative effects on health-related behaviors, and many students lack a general awareness about how to navigate the health care system. Seeking care for illness when away from home for the first time, dealing with intricacies of health insurance, and sharing in medical decision-making are novel experiences for them.[1] The Patient-Centered Medical Home model has represented a promising development in college health service systems – one that can assist students' independence in managing their health care.

While no literature could be found describing a PCMH effort within a college health service as described in this paper, a number of practices of this type have sought and achieved PCMH accreditation. For instance, University of California Davis and University of South Carolina health services note on their websites that they are certified as PCMHs via the AAAHC (Accreditation Association for Ambulatory Health Care).[2,3]

The work of the Brown Primary Care Transformation Initiative (BPCTI) with this college health site began in 2013. This college health center had already implemented a number of innovations aligned with the PCMH model prior to the collaboration with the BPCTI, such as same day scheduling, expanded evening and weekend hours, medication reconciliation at every visit, enhanced modes of communication (e.g., secure messaging, texting), and a variety of quality improvement programs. The center's work with BPCTI built upon these existing innovations and processes.

METHODS

Project Overview

The BPCTI, a 5-year Health Resources and Services Administration grant-funded program, was developed to promote and evaluate change, using the PCMH model, in eight RI primary care teaching practices, one of which was this college health service. The BPCTI approach involved pairing practices with staff from our team to provide PCMH coaching. This practice selected nine champions representing key roles to lead the transformation effort. A mixed-methods approach to data collection was used, with quantitative and qualitative data obtained from patients, staff and providers. Baseline data was compiled into a PCMH needs assessment provided to the practice. BPCTI facilitators met with practice champions to review this report, identify strengths and opportunities and guide changes, and then met regularly throughout the project.

The school health services director changed after our baseline data collection, while the BPCTI team worked with the practice. Several initiatives were launched at this time, including staff and provider programs to increase satisfaction, efforts to improve marketing and outreach to new freshmen, and outreach to students that had not utilized health services.

Data Collection Summary

The project obtained baseline data, and follow-up data approximately 1.5 years afterwards. Baseline quantitative measures included a practice demographic questionnaire, and provider and patient surveys. Baseline qualitative methods included

staff, provider, and patient interviews, pathways (described below), and observations. Patients were recruited from waiting rooms; staff and providers were recruited through phone, e-mail, and in-person verbal requests. Follow-up data collection included the same provider and patient surveys from the baseline data collection period, and champion interviews and/or focus groups.

Quantitative Measures

Three quantitative tools were used included the Maslach Burnout Inventory (MBI), for staff, a HRSA Patient Satisfaction survey, for patients, and the Insignia Health Patient Activation Measure (PAM), for patients.[4,5] Patients and staff gave informed consent prior to completing surveys. Survey tools and descriptions can be found in **Appendix A**. Baseline response rate was 64%, while follow-up response rate was 17%. These were convenience samples and were not paired from baseline to follow-up.

Qualitative Methods

Qualitative methods for patients, clinic staff and providers included individual, semi-structured interviews; patient and staff pathways; and observations. Qualitative measures were designed to assess quality of services within a PCMH framework, burden on clinicians and other staff, work flow, satisfaction with work, ability to work with and communicate with team members, and feelings of support and investment in order to identify areas for improvement. Written consent was obtained prior to each interview or pathway.

Qualitative in-depth, semi-structured interviews of approximately 30 minutes duration were conducted with the PCMH champions, patients and staff. Sample size for clinical staff interviewed, including champions, was 30 at baseline and 9 at follow-up. Patients were purposively sampled from waiting rooms to include approximately equal numbers of young adult women and men. Patients were interviewed at baseline only (n=14). **Table 1.**

The interview questions were drawn from PCMH literature and findings from a PCMH Evaluation Think Tank hosted by our team at Brown University.[6] For practice employees, interviews focused on initial plans for becoming a PCMH, attitudes and knowledge regarding PCMH transformation, job roles, work flow, communication, vision for practice and perceived barriers and facilitators to change. Patient interviews addressed patients' perspectives on the nature and process of care they received. See **Appendices** for interview guides.

Table 1. Total Surveys and Qualitative Units at Baseline and Follow-Up

Data Type	Baseline n	Follow Up n
Patient Surveys	111	115
Patient Interviews	14	0
Staff and Provider Surveys*	41	11
Staff and Provider Interviews	30	9
Pathways	12	0

*At baseline there are 9 (22.0%) providers and 32 (78.0%) nurse/staff. For the follow-up, there are 4 (36.4%) providers and 7 (63.6%) nurse/staff. These are not statistically different by time point (p=0.33).

Pathways and Observations

A pathway involves accompanying a person in a particular role during their work or activity to better understand their point of view, experience, workflows, and activities. For staff pathways, researchers accompanied staff for 1–2 hours to observe the individual's work. In patient pathways, researchers followed patients from check-in to check-out, including the time in the consultation room with the provider, other than stepping out for private exams. In addition, researchers conducted observations in the waiting rooms, pharmacy, laboratory, front desk, and nursing station.

Quantitative data analysis

Basic descriptive statistics (means and standard errors or percentages) were generated for patient and provider data. Data were analyzed for changes between baseline and follow-up assessments using generalized linear mixed models. Potential correlations in data collected within the practice were adjusted for within the analytic framework. All analyses were conducted using SPSS Statistics for Windows v23 (IBM Corp.).

Qualitative data analysis

Analysis of the qualitative data included a form of immersion/crystallization and aligned using the following protocol: 1) listening to the interview recordings, reading the summary notes and taking further analytic notes to extract data relevant to understanding the practice culture and factors that might impact the transformation process; 2) team group discussion of the data to arrive at interpretation of the findings; 3) creation of reports for each practice and presentation of findings for publication.[7]

RESULTS

Quantitative Results

The demographics of the patient participants are described in **Table 2**. Patient characteristics were compared across the two assessment periods (baseline and follow-up), and no statistically significant differences were found among the two patient populations (results were not paired). For the patient surveys (Satisfaction and PAM), a total of 111 surveys were collected and analyzed at baseline and 115 surveys, at follow up.

Patient Satisfaction Survey

Results of the patient satisfaction survey are shown in **Table 3**. Overall, students rated the site highly, with the overall

Table 2. Patient Demographics

Characteristic	Baseline (n=111)	Follow-up (n=115)	Assessment p-value*
Age, years (mean, sd)	21.6 (3.5) Median: 21	21.6 (4.1) Median: 20	0.971
Gender, % Female	72.7%	67.5%	0.397
Race/Ethnicity (%)			0.633
Asian	14.8%	16.8%	
Black	7.4%	9.7%	
Hispanic	18.5%	17.7%	
White	53.7%	53.1%	
Other	5.6%	2.7%	

* Baseline and follow up samples in Table 2 were not statistically different.

Table 3. Patient Satisfaction Survey

Domain	Baseline Average n=111 Mean (SD)	1.5 Year Average n=115 Mean (SD)	Assessment p-value
Ease of getting care	4.26 (.64)	4.33 (.57)	0.33
Waiting time	3.97 (.78)	4.10 (.68)	0.18
Provider	4.41 (.69)	4.48 (.69)	0.40
Nurse and medical assistants	4.57 (.65)	4.61 (.61)	0.63
Staff-all others	4.55 (.61)	4.59 (.60)	0.62
Payment	3.85 (.92)	3.79 (1.0)	0.67
Facility	4.43(.59)	4.55 (.52)	0.12
Overall satisfaction score	29.0 (4.9)	30.3 (3.5)	0.03

satisfaction score increasing slightly from baseline(p=.028) (29.0) to follow-up (30.3) (p=0.028). These scores represent a total of per-category scores. The average per category was 4.14 at baseline and 4.30 at follow-up, indicating a positive rating for most items surveyed. The lowest scored categories at baseline were waiting time (3.97) and payment (3.85) while the highest were satisfaction with nursing/medical assistants (4.57) and other staff (4.55). At follow-up, several questions on this survey increased significantly or increased with trend toward significance: "prompt return on calls"(p=0.089); "[waiting time] in exam rooms"(p=0.081) and "neat and clean building" (p=0.020).

A majority of students indicated in their survey responses that they considered the health service their regular source of care and this proportion increased from 79% at baseline to 85% of students surveyed at follow-up.

Table 4. Patient Activation

	Baseline	Follow-Up	Assessment p-value*
Average Activation Score mean (SD)	62.28 (13.91) Range: 36–100	59.19 (13.84) Range: 35–100	0.094
Activation Level (%) (Stratified data)			0.268
Level 1: score ≤ 45.2	11.9%	18.5%	
Level 2: score of 47.4 to 52.9	19.3%	22.7%	
Level 3: score of 56.4 to 66.0	30.3%	31.1%	
Level 4: score ≥ 68.5	38.5%	27.7%	

*Baseline and follow up scores were not statistically different

Patient Activation Measure

Results of the patient activation survey are shown in **Table 4**. At baseline, patients scored an average activation level of 3 on the scale of 1 to 4. At follow-up, scores decreased slightly, not a significant difference.

Provider and Staff Burnout

At baseline and follow-up on the Maslach Burnout tool, providers and staff reported being less emotionally exhausted and more personally accomplished and connected to their patients than the national average. Still, within the study population, there were no significant changes from baseline to follow-up in aggregate. Separating out providers (MDs, NPs and PAs) vs. staff (nurses and medical assistants and other staff), revealed significant differences between providers (more emotional exhaustion and depersonalization) and staff (less emotional exhaustion and depersonalization) over time (p=.002 and .005, respectively). **Table 5.**

Table 5. Provider and Staff Burnout

MBI Scale	Baseline (n=41)	Follow-Up (n=11)	National Average	Assessment p-value
Emotional Exhaustion	17.88 (13.67)	19.82 (15.47)	22.19	0.685
Depersonalization	3.46 (3.99)	4.00 (5.14)	7.12	0.711
Personal Accomplishment	40.48 (6.71)	41.18 (3.95)	36.53	0.661

MBI by Clinical Role and Assessment							
MBI Scale	Baseline		Follow-Up		p-values		
	Provider (n=9)	Staff (n=32)	Provider (n=4)	Staff (n=7)	Role	Astm	Role by Astm
Emotional Exhaustion	29.89 (14.18)	14.50 (11.64)	29.25 (13.48)	14.43 (14.66)	0.002	0.939	0.951
Depersonalization	4.88 (4.26)	3.06 (3.89)	8.25 (6.65)	1.57 (1.72)	0.005	0.525	0.103
Personal Accomplishment	38.44 (6.06)	41.06 (6.87)	41.25 (1.50)	41.14 (4.98)	0.588	0.535	0.557

QUALITATIVE RESULTS

Patients

Baseline qualitative interviews, general observations and pathways indicated that patients felt providers and staff were dedicated to the students of the university. Patients appreciated the ease of scheduling; however, because of long wait times, appointments sometimes interfered with classes. Interviewees viewed positively the collaborations of the college health service with various other departments and services such as Psychological Services, academic deans, athletics and EMS. The health service also was noted for involving parents, primary care doctors, and other members of their patient population's health care team into the care model. Patients, during pathways, praised their doctors and other clinical staff, such as the nurse, MA, pharmacist, and counselors. Most patients stated their care was inclusive, culturally appropriate, and that providers were open-minded.

Some challenges noted included poor signage and a confusing structural layout of the building as well as technology issues with EHR lags and interference with workflow. Another point of concern brought up in patient interviews was charges associated with visits. Patients reported feeling surprised by charges, and confused about insurance coverage and the health service fee, which most students are required to pay at the start of each semester.

Providers and Staff

In baseline interviews, providers and staff expressed that the practice was patient-oriented and providers were dedicated. Some staff viewed the practice as having good teamwork, while others viewed teamwork as a challenge. Most staff reported that the physical space constrained collaboration and operations. Change was viewed as an already-embedded value, though not all staff members found it easy or rewarding.

Follow-up interviews included discussions of how the school health services director had changed since baseline interviews, initiating efforts that occurred simultaneously with the PCMH facilitation. Some providers and staff felt overwhelmed with the number of projects undertaken.

DISCUSSION

This study represents a unique window into PCMH facilitation and data collection efforts in a college health setting. The transition in health care between adolescence and adulthood is a pivotal time, with national efforts focusing on improving such transitions. College health services stand at the crux of such transitions for many youth; efforts to enhance such clinics as medical homes could aid in transitions.[8] Results show strengths of this health services and suggest that the multiple interventions undertaken during the study period, including BPCTI's facilitation, may have had a positive impact. Patient satisfaction increased. Patients expressed appreciation for individualized and familiar clinical encounters, for their providers and care teams.

Burnout scores were better than the national averages, while, at the same time, providers appeared more burnt out than other clinical staff. Perhaps much of the work needed to make PCMH changes is falling disproportionately on providers; perhaps expectations are different among different roles; or perhaps engagement in change differs. More research is needed.

A substantial minority did not consider the college health service their usual source of care. This presents a significant challenge to PCMH adoption. The fact that the university is run through academic sessions, combined with individuals' primary identification with their PCP of origin, may have resulted in students' unwillingness to adopt the college health center as medical home. Students' perceived lack of knowledge of the basics of health insurance and fees and their lack of awareness of services at the clinic may have presented barriers to their accepting responsibility for their care. Education of students about PCMH may be warranted.

Limitations

This study had several limitations. One related to data collection. Patients were kept in the waiting room for only a limited length of time, and this was the primary location where students were asked to fill out surveys. Though they were encouraged to take surveys into exam rooms (where there might have been an additional wait), many declined to participate.

The samples of patients for surveys and interviews were convenience samples, which affects the generalizability of the study. Furthermore, these PCMH measures, methods and tools were designed for outpatient primary care practices that do not specifically serve a college student population, so the tools may not have suited these patients as well as they could have.

And, as noted above, this real-world study represented a PCMH intervention concurrent with other internally-driven practice transformation efforts. As such, it is difficult to tease out the effects of our team's facilitation.

CONCLUSION

Applying PCMH in a college setting is an ambitious endeavor, as the age and transitional nature of the student/patient population pose unique challenges to the traditional construct and goals of a PCMH. Nevertheless, our team sought to tackle this challenge at a local college and was part of a group of interventions that contributed to important changes in patient satisfaction, as well as provider communication and teamwork. This intervention and study offer a unique view of patient, provider and staff experiences during practice transformation. Further exploration is warranted regarding the unique challenges posed by applying PCMH within the college setting.

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Authors

Victoria Adewale, MD, MSc, Resident Physician, Thomas Jefferson University Hospital, Philadelphia, PA.

Joanna Brown, MD, MPH, Clinical Associate Professor of Family Medicine, Alpert Medical School of Brown University, Providence, RI.

Renee Shield, PhD, Professor of Health Services, Policy & Practice (Clinical), Alpert Medical School of Brown University, Providence, RI.

Roberta Goldman, PhD, Clinical Professor of Family Medicine, Alpert Medical School of Brown University, Providence, RI.

Arthur A. Frazzano, MD, MMS, FAAFP, Clinical Associate Professor Emeritus of Family Medicine, Alpert Medical School of Brown University, Providence, RI.

Unab Khan, MD, Associate Professor and Chair, Department of Family Medicine, The Aga Khan University, Pakistan.

Edward Wheeler, Jr., MD, Former Director of Brown University Health Services.

Monica L. Kunkel, MSN, RN-C, Associate Director of Nursing, Columbia Health, NYC, NY.

Jeffrey Borkan, MD, PhD, Chair & Professor, Department of Family Medicine, Alpert Medical School of Brown University, Providence, RI.

Correspondence

Victoria Adewale, MD, MSc
Thomas Jefferson University Hospital
833 Chestnut Street
Philadelphia, PA 19123
703-629-4177
Fax 215-503-5666
Victoria.adewale@jefferson.edu