Evaluation of PCMH Model Adoption on Teamwork and Impact on Patient Access and Safety

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Abstract

Purpose: Each of the participating patient-centered medical home (PCMH) received coaching and participated in learning collaborative for improving teamwork. The objective of the study was to assess the impact of trainings on patient-centered teamwork. **Methods:** The Teamwork Perception Questionnaire (TPQ) was administered once in spring 2014 and then in fall 2015. The TPQ consists of 35 questions across 5 domains: mutual support, situation monitoring, communication, team structure, and leadership. Based on our objective we compared the frequencies of strongly agree/agree by domain. The difference was tested using chi-square test. We compared the scores on each domain (strongly agree/agree = 1; maximum score = 7) via Wilcoxon rank sum test. **Results:** The response rate for this survey was n = 29 (80.6%) in spring 2014, and n = 31 (86.1%) in fall 2015. We found that the practice members significantly (*P* < .05) strongly agreed/agreed more in fall 2015 than spring 2014 for characteristics—"staff relay relevant information in a timely manner" (64.5% vs 83.9%) and "staff follow a standardized method of sharing information when handing off patients" (67.7% vs 90.3%) under communication domain and for characteristic—"staff within my practice share information that enables timely decision making" (74.2% vs 90.3%). However, there was no statistical significant difference observed in the scores for the overall TPQ at the 2 time points. **Conclusion:** Despite the statistical insignificance, the observations in PCMHs across the spectrum of practices participating in the Maryland Multi-Payer Program demonstrated enhanced teamwork specifically in communication and in leadership. This we believe will continue to result in enhanced patient access to care and safety.

Keywords

teamwork, patient-centered medical home (PCMH), patient care team, patient access to care and safety, primary health care, quality of health care

Introduction

Patient-centered medical homes (PCMHs) are the building blocks for integrated health care delivery and population health. The principles of a PCMH model include team functioning and care management, which can lead to enhanced access to care, comprehensive chronic disease management, longitudinal, and patient follow-up. Some of the essential elements of PCMH teamwork are leadership, role definition, and training of all team members, shared goals, good communication, and measurable outcomes.

The prototypical primary care practice has evolved into a pyramidal micro—health system that focuses on optimizing work conditions for physicians and practitioners to deliver care under fee-for-service arrangements.³ This has been the result of decades of erosion into the role and reimbursement for primary care. Fee-for-service payments are

the driver for the "hamster wheel effect" where large volumes of patients, long hours of work, and low reimbursements have become the norm.³ The evolution of PCHMs has provided an avenue and a structure for physician practices to start offering patient centered care, and organizing primary care office staff into care delivery teams.^{4,5} Evidence shows that among Medicare beneficiaries, the

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reduction in health care utilization and cost of care was associated with adoption of PCMH model. ^{6,7} Additionally, in a study where we assessed the quality of care improvement among 52 practices that adopted the PCMH model, we noted an improvement in chronic disease domain, the preventive care domain, and mental health care domain regardless of patient case mix severity. ⁸ Although most PCMH care delivery teams are lead by physicians and some by nurse practitioners, there is an evolving trend to delegate leadership and care coordination to the designated members of staff. ^{9,10} In addition, optimization of health information technology (HIT) has provided communication channels and ease of communication within teams in the health care system. ¹¹

The Maryland Multi-Payer Program (MMPP) for PCMH was established by the Maryland Health Care Commission (MHCC), pursuant to Maryland Legislative Resolution HB929/SB855 enacted in April 2010.¹² The MMPP was supported by the Maryland Learning Collaborative (MLC), to provide educational and logistic support for transforming primary care practices to PCMH, quality improvement, for implementation of the advanced primary care model and innovative payment models. To date, there are 52 practices participating in the MMPP, from March 2011 until December 2015, representing a mix of rural, semirural, urban, and suburban practices. There were 32 parent organizations for the 52 practices, each transformed to a PCMH recognized by the National Council of Quality Assurance (NCQA). The MLC provided technical assistance and collaborative learning to 339 practitioners, including 266 physicians, 49 nurse practitioners, and 22 physician assistants in teamwork, evidence-based medicine adoption, dissemination of patient centered outcomes research, quality improvement, and coordinates HIT supports through the regional extension center.¹⁴

The current study assesses the impact of trainings and refresher courses conducted by the MLC by comparing the patient-centered teamwork among the participating primary practices using the Teamwork Perception Questionnaire (TPQ).¹⁵

Methods

The MMPP PCMH program has continued to engage 52 practices in advanced primary care models of care for five years. Each practice received financial incentives for care management and became eligible for shared savings based on quality and utilization. Practice supports included collaborative learning, practice coaching and quality improvement. Each of the participating practices in the MMPP received coaching and participated in learning collaborative for improving teamwork; each was also working with an embedded care manager. In 28 of 29 practices, the primary care teams were mainly led by physicians. In June 2014,

following the transformation of all practices into NCQA recognized PCMH, the coaching support ceased. However, collaborative learning and quality improvement continued to support practices in staying transformed.

Institutional review board exemptions were obtained from the University of Maryland School of Medicine. The data source for this study are the responses of the participating practice personnel to the TPQ administered at 2 different time points. One of these was administered during spring 2014 while the other was administered during fall 2015. In spring 2014, the responses were collected through the Survey Monkey tool. These were e-mailed to 36 practices followed by reminder e-mails, phone calls, and mailed notes asking all participants to complete the surveys. In fall 2015, the TPQ was administered during the MLC meeting to representatives of the 31 participating practices. In total, 29 responses were obtained during spring 2014 while 31 practices responded to the TPQ administered in fall 2015. The responses obtained were unique to each practice. The surveys were mainly answered by case managers (RN) at the practice (\sim 72%) during both spring 2014 and fall 2015.

The T-TPQ is a construct-valid instrument for measuring perceptions of teamwork. This instrument has favorable implications regarding medical teamwork and patient safety. 16 The TPQ consists of 35 questions that use a 5-point Likert-type scale questions. There are 7 questions in each of the following domains: mutual support, situation monitoring, communication, team structure, and leadership. Response choices consisted of strongly agree to strongly disagree. Considering our study objective, we first identified the proportions of strongly agree/agree to individual questions under each domain for the 2 time points and compared the frequencies of strongly agree/agree responses versus the others for each question. The difference in the frequencies was tested using Pearson's chi-square test. We also compared the performance of these practices in the overall domains at these 2 time points. For this, we first combined the responses for all the 7 questions in each domain and created a score. Each strongly agree/agree response was coded as "1" while others were "0." Therefore, the highest possible score for each domain was "7" while the lowest was "0." We tested and compared the scores for each of the domains at the 2 time points. As the scores for each domain were not normally distributed, we used the Wilcoxon rank test to get the 2-sided P value. We used SAS 9.4 software for analysis.

Results

In spring 2014, we received responses from n = 29 (29/36 = 80%) practices while in fall 2015 we received responses from n = 31 practices (31/36 = 91%). Overall the majority of the questions on the TPQ had a higher response rate for either strongly agree or agree in year 2 (fall 2015) than year

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1 (spring 2014) (Table 1). There was no statistically significant difference in the proportion of strongly agree/agree for the questions under the mutual support domain during the 2 time points. However, the practice members significantly strongly agreed/agreed more in year 2 for qualities—"staff monitor each other's performance," "staff continuously scan the environment for important information" under situation monitoring domain; for characteristics—"staff relay relevant information in a timely manner" and "staff follow a standardized method of sharing information when handing off patients" under communication domain; for characteristics—"my supervisor/manager models appropriate team behavior" and "my supervisor/manager ensures that staff are aware of any situations or changes that may affect patient care," and for characteristic—"staff within my practice share information that enables timely decision making by the direct patient care team."

There were a total of 8 questions where there were statistically significant differences identified between the first and second observations. These questions were distributed in the Situation Monitoring, Communication, Leadership and Team Structure domains. However, when the scores for the overall domains namely mutual support, situation monitoring, communication, leadership, and team structure were compared between the 2 assessment years (Table 2), there was no statistical significant difference observed. However, the mean scores overall were higher in year 2 than in year 1.

Discussion

PCMH transformation created new workflows, teamwork, leadership, and communication using coaching and collaborative learning in each of the participating practices. Practice coaching promoted team functioning utilizing learning collaboratives and peer coaching. This was evidenced by the continued improvement in teamwork demonstrated by practices teams in this study. Practices were empowered to continue participating in collaborative learning even after practice coaching supports were reduced in June 2014. Teams that were formed within the PCMHs became entrenched in practice workflows and continued to function without coaching supports based on our observations at 2 different time points in the program.

Teamwork is critical to patient centered care delivery to enhance access, care coordination, patient satisfaction, enhanced quality, and ultimately lead to cost reduction. 16-18 Active participation in learning collaborative, evidence-based training, HIT supports, and quality improvement may be sufficient to maintain transformation and teamwork in high functioning practices. 19-21 Teamwork measured objectively using the TPQ has provided critical evidence that team functioning continues to improve in PCMHs participating in collaborative learning in our program despite the reduction in coaching practice supports.

Some of the known issues that we believe are addressed through good teamwork (measured via TPQ) in a PCMH are better access to care leading to patient satisfaction, reduction of medical errors thus improving patient safety, and reducing physician burnout through efficient communication. We have provided the rationale for this assessment below.

Enhanced access to care: Teamwork is associated with enhanced access to care and has been consistently shown to be important in patient satisfaction. 18 Good teamwork in a PCMH is critical to sustaining patient-physician/practice relationships and ensuring continuity and reduced unnecessary utilization. ^{22,23} The persistence of and the improvement in team functioning at the PCMH despite reduced practice supports is encouraging and, supports the continued efforts at practice transformation.²⁴ Teamwork is critical to deflecting nonphysician work to other members of the team and allowing greater availability in the physicians' schedule.²³ In addition, use of practitioners and nurses in PCMH teams allows for greater patient access to meet their health care needs. 25 Improvement of patient safety: Teamwork continues to improve significantly in communication within teams, specifically, "staff follow a standardized method of sharing information when handing off patients," "staff relay relevant information in a timely manner." In addition, the domain of situational monitoring, "staff correct each other's mistakes to ensure that procedures are followed properly" and in the leadership domain, "my supervisor ensures that staff are aware of any situations or changes that may affect patient care" demonstrated improvements. These specific improvements suggest that patient safety continued to improve with coordinated teamwork in the PCMH teams via better communication and reduced medical error. 26,27 Reduction of physician burnout: PCMH has been considered as one of the innovations projected to reduce physician burnout. Although the TPQ does not specifically capture physician burnout, the responses in several domains suggest that teamwork may mitigate the "hamster effect" of fee for service and promote teamwork and a proactive approach to patient care in the PCMH.²⁸

Recently, "Project ACHIEVE" laid out a model framework for system redesign to characterize the activities necessary to achieve care coordination and for continuous care delivery. This project takes advantage of teamwork within practices and communication and relationships of practices with other sectors of the health care system to support continuous and comprehensive care delivery. In addition, the integrated and seamless care delivery between all sectors of the health care system that optimizes teamwork is the goal of future patient-centered care delivery. Practice reorganization into care teams allows the relationship building to occur between different members of the team and the health care system. Described in this article are the observations of care teams and their evolution in the PCMH as a sustained

Table 1. Comparison of Strongly Agree/Agree Responses Among Teamwork Perception Questionnaire Survey Questions.

	Year I; n (%)	Year 2; n (%)	P ^a
Mutual support			
Staff assist fellow staff during high workload.	24 (77.4)	25 (80.7)	.11
Staff request assistance from fellow staff when they feel overwhelmed.	26 (83.9)	26 (83.9)	.17
Staff caution each other about potentially dangerous situations.	25 (80.7)	26 (83.9)	.24
Feedback between staff is delivered in a way that promotes positive interactions and future change.	22 (80.0)	22 (80.0)	.08
Staff advocate for patients even when their opinion conflicts with that of a senior member of the practice.	21 (67.7)	23 (74.2)	.07
When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard.	22 (80.0)	25 (81.0)	.32
Staff resolve their conflicts, even when the conflicts have become personal.	12 (38.7)	24 (77.4)	.20
Situation monitoring	(****)	()	
Staff effectively anticipate each other's needs.	18 (58.1)	22 (71.0)	.11
Staff monitor each other's performance.	15 (48.4)	17 (54.8)	.01
Staff exchange relevant information as it becomes available.	23 (74.2)	26 (83.9)	.09
Staff continuously scan the environment for important information	16 (51.6)	17 (54.8)	.004
Staff share information regarding potential complications (e.g., patient changes,	25 (81.0)	24 (77.4)	.11
appointment availability).			
Staff meets to reevaluate patient care goals when aspects of the situation have changed.	19 (61.3)	20 (64.5)	.25
Staff correct each other's mistakes to ensure that procedures are followed properly.	20 (64.5)	20 (64.5)	.02
Communication			
Information regarding patient care is explained to patients and their families in lay terms.	23 (74.2)	29 (93.6)	.06
Staff relay relevant information in a timely manner.	20 (64.5)	26 (83.9)	.04
When communicating with patients, staff allow enough time for questions.	23 (74.2)	27 (87.1)	.27
Staff use common terminology when communicating with each other.	27 (87.1)	31 (100.0)	_
Staff verbally verify information that they receive from one another.	23 (74.2)	23 (74.2)	.15
Staff follow a standardized method of sharing information when handing off patients.	21 (67.7)	28 (90.3)	.03
Staff seek information from all available sources.	21 (67.7)	27 (87.1)	.58
Leadership comments	(****)	(3.7.7)	
My supervisor/manager considers staff input when making decisions about patient care.	24 (77.4)	24 (77.4)	.30
My supervisor/manager provides opportunities to discuss the practice's performance after an event.	21 (67.7)	25 (80.7)	.07
My supervisor/manager takes time to meet with staff to develop a plan for patient care	17 (54.8)	25 (80.7)	.07
My supervisor/manager ensures that adequate resources (eg, staff, supplies, equipment, and information) are available.	23 (74.2)	27 (87.1)	.04
My supervisor/manager resolves conflicts successfully.	22 (71.0)	20 (64.5)	.22
My supervisor/manager models appropriate team behavior	23 (74.2)	24 (77.4)	.05
My supervisor/manager ensures that staff are aware of any situations or changes that may affect patient care	23 (74.2)	26 (83.9)	.01
Team structure			
The skills of staff overlap sufficiently so that work can be shared when necessary.	21 (67.7)	31 (100)	
Staff are held accountable for their actions.	24 (77.4)	26 (83.9)	.062
Staff within my practice share information that enables timely decision making by the	23 (74.2)	28 (90.3)	.062
direct patient care team.	, ,		
My unit makes efficient use of resources (eg, staff, supplies, equipment, information).	25 (80.7)	28 (90.3)	.09
Staff understand their roles and responsibilities.	25 (80.7)	23 (74.2)	.63
My practice has clearly articulated goals.	22 (71)	24 (77.4)	.15
My practice operates at a high level of efficiency.	19 (61.3)	22 (71)	.06

^a Boldfaced *P* values indicate statistical significance ($P \le .05$).

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Table 2. Difference in Mean Scores Between the Years by Overall Domains.

Domain	Mean Score Year I	Mean Score Year 2	P ^a
Mutual support	5.39	5.52	.24
Situation monitoring	4.62	4.71	.65
Communication	5.81	6.16	.27
Leadership	5.23	5.52	.38
Team structure	5.12	5.87	.08

^a P values are generated through the Wilcoxon rank sum test.

strategy. Entrenched care teams can be leveraged to establish sustainable relationships between practices and the health system to provide seamless patient-centered care.

Conclusion

Observations in PCMHs across the spectrum of practices participating in the MMPP, demonstrated enhanced teamwork specifically in communications, and in leadership. In the future, there is a need for greater integration of patient centered medical homes into the health care system as a sustainable strategy to enhance patient access to care and safety and reduce physician burnout.

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Declaration of Conflicting Interests

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References

- Agency for Healthcare Research and Quality. Patient centered medical homes—resource center. https://pcmh.ahrq.gov/ page/defining-pcmh. Accessed March 2016.
- Grumbach K, Bodenheimer T. Can healthcare terms improve primary care practice? *JAMA*. 2004;291:1246-1251.
- 3. Bitton A, Schwartz GR, Stewart EE, et al. Off the hamster wheel? Qualitative evaluation of a payment-linked patient-centered medical home (PCMH) pilot. *Milbank Q.* 2012;90:484-515.
- Berenson RA, Rich EC. US approaches to physician payment: the deconstruction of primary care. *J Gen Intern Med*. 2010;25:613-618.
- Solimeo SL, Ono SS, Lampman MA, Paez MB, Stewart GL.
 The empowerment paradox as a central challenge to patient centered medical home implementation in the veteran's health administration. *J Interprof Care*. 2015;29:26-33.
- 6. Jackson GL, Powers BJ, Chatterjee R, et al. Improving patient care. The patient-centered medical home. Asystematic review. *Ann Intern Med.* 2013;158:169-178.
- Hasselt MV, McCall N, Keyes V, Wensky SG, Smith KW. Total cost of care lower among Medicare fee-for-service beneficiaries receiving care from patient-centered medical homes. *Health Serv Res.* 2015;50:253-272.
- 8. Nancarrow SA, Booth A, Ariss S, Smith T, Enderby P, Roots A. Ten principles of good interdisciplinary team work. *Hum Resour Health*. 2013;11:19.
- O'Malley AS, Gourevitch R, Draper K, Bond A, Tirodkar MA. Overcoming challenges to teamwork in patient-centered medical homes: a qualitative study. *J Gen Intern Med*. 2015;30:183-192.
- Khanna N, Shaya FT, Chirikov VV, Sharp D, Steffen B. Impact of case mix severity on quality improvement in a patient-centered medical home (PCMH) in the Maryland Multi-Payor Program. J Am Board Fam Med. 2016;29:116-125.
- Watts B, Lawrence RH, Drawz P, Carter C, Shumaker AH, Kern EF. Development and implementation of team-based panel management tools: filling the gap between patient and population information systems. *Popul Health Manag.* 2016;19:232-239.
- Khanna N, Shaya F, Chirikov V, Steffen B, Sharp D. Dissemination and adoption of the advanced primary care model in the Maryland multi-payer patient centered medical home program. *J Health Care Poor Underserved*. 2014;25(1 suppl):122-138.
- Khanna N. Community tailored partnerships that work: implementing new models of primary care in the state of Maryland. Md Med. 2014;14:15-17.

- 14. Agency for Healthcare Research and Quality. TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ). http://www. ahrq.gov/sites/default/files/wysiwyg/professionals/education/ curriculum-tools/teamstepps/instructor/reference/teampercept.pdf. Accessed February 1, 2016.
- Keebler J, Dietz A, Lazzara E, et al. Validation of a teamwork perceptions measure to increase patient safety. *BMJ Qual Saf.* 2014;23:718-726.
- O'Donnell AJ, Bogner HR, Cronholm PF, et al. Stakeholder perspectives on changes in hypertension care under the patientcentered medical home. *Prev Chronic Dis*. 2016;13:E28.
- True G, Stewart GL, Lampman M, Pelak M, Solimeo SL. Teamwork and delegation in medical homes: primary care staff perspectives in the Veterans Health Administration. J Gen Intern Med. 2014;29(suppl 2):S632-S639.
- Rodriguez HP, Knox M, Hurley V, Rittenhouse DR, Shortell SM. The use of enhanced appointment access strategies by medical strategies. *Med Care*. 2016;54:632-638.
- Helfrich CD, Dolan ED, Simonetti J, et al. Elements of teambased care in a patient-centered medical home are associated with lower burnout among VA primary care employees. J Gen Intern Med. 2014;29(suppl 2):S659-S666.
- 20. Forman J, Harrod M, Robinson C, et al. First things first: foundational requirements for a medical home in an academic medical center. *J Gen Intern Med.* 2014;29(suppl 2):S640-S648.
- Leasure EL, Jones RR, Meade LB, et al. There is no "i" in teamwork in the patient-centered medical home: defining teamwork competencies for academic practice. *Acad Med*. 2013;88:585-592.
- Watts B, Lawrence RH, Singh S, Wagner C, Augustine S, Singh MK. Implementation of quality improvement skills by primary care teams: case study of a large academic practice. J Prim Care Community Health. 2014;5:101-106.
- Hoff T, Scott S. The strategic nature of individual change behavior: how physicians and their staff implement medical home care [published online April 5, 2016]. *Health Care Manage Rev.* doi:10.1097/HMR.0000000000000109.
- 24. Scammon DL, Tabler J, Brunisholz K, et al. Organizational culture associated with provider satisfaction. *J Am Board Fam Med*. 2014;27:219-228.
- 25. Körner M, Lippenberger C, Becker S, et al. Knowledge integration, teamwork and performance in health care. *J Health Organ Manag.* 2016;30:227-243.
- Locatelli SM, LaVela SL. Professional quality of life of Veterans Affairs staff and providers in a patient-centered care environment. *Health Care Manag (Frederick)*. 2015;34:246-254.
- Solimeo SL, Ono SS, Stewart KR, Lampman M, Rosenthal G, Stewart G. Gatekeepers as care providers: the care work of patient centered medical home clerical staff [published online February 8, 2016]. *Med Anthropol Q.* doi:10.1111/maq.12281.
- 28. Helfrich CD, Dolan ED, Simonetti J, et al. Elements of teambased care in a patient-centered medical home are associated with lower burnout among VA primary care employees. *J Gen Intern Med*. 2014;29(suppl 2):S659-S666.
- Li J, Brock J, Jack B, et al; Project ACHIEVE Team. Project ACHIEVE—using implementation research to guide the evaluation of transitional care effectiveness. *BMC Health* Serv Res. 2016;16:70.

 O'Malley AS, Draper K, Gourevitch R, Cross DA, Scholle SH. Electronic health records and support for primary care teamwork. J Am Med Inform Assoc. 2015;22:426-434.

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