Practice Transformation: Using Team-Based Care Training to Improve Diabetes Outcomes

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Abstract

Background: One of the key factors of the patient-centered medical home (PCMH) transformation require shifting mental models at the individual level and culture change at the practice level on how clinicians and support staff work together. This culture shift requires a reeducation on the roles and communication strategies within the medical practice. The objective of this project was to implement a team-based care training program based on the AHRQ TeamSTEPPS framework in 6 primary care practices affiliated with a Primary Care Practice Based Research Network to increase communication and performance of the care teams. Methods: Clinicians and staff from these sites received external facilitation by a certified TeamSTEPPS master trainer, who is a physician specializing in diabetes care, over a 1-year period. An analysis of their established diabetes patients' hemoglobin A1c and low-density lipoprotein cholesterol before the training program and posttraining was performed using the paired t test and verified using the Wilcoxon sign rank test. Results: There was a statistically significant decrease in the mean hemoglobin A1c levels from 7.48% to 7.32% (P < .001) and low-density lipoprotein cholesterol from 92.34 to 88.34 mg/dL (P = .002) for all the practices combined but only 3 practices saw significant improvement individually. Conclusions: Even though the practices participating in this training are PCMHs and are part of a larger primary care network, they have achieved different levels of success, partly due to leadership and buy-in by staff. Practice leaders and team members need to fully embrace team care concepts and continuously monitor teamwork experiences to support effective team-based care.

Keywords

practice transformation, patient-centered medical homes, team-based care, TeamSTEPPS, quality improvement

Introduction

The patient-centered medical home (PCMH) is a model of primary care transformation that has been promoted for decades and has become a dominant model of primary care redesign. The PCMH model strives to improve patient and staff experiences, outcomes, safety, and system efficiency through team-based care and care coordination. Although the concept of the PCMH is widespread, the framework used to transform practices and the specific interventions made within each framework have widely varied, as have their impacts on health care cost, quality, and utilization.

Team-based care is a key component of the PCMH model. One of the key factors of the PCMH transformation process, especially implementing team-based care, require shifting mental models at the individual level and culture change at the practice level. The current paradigm largely views team-based care as physicians delegating tasks to their support staff (medical assistants, nurses, physician extenders) to make the physician more efficient. Adjustments in work culture and mental models necessary for PCMH practice transformation include shifting practice perspectives toward proactive, population-oriented care, creating a culture of self-examination, and developing new roles within the practice through distribution of responsibilities.

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A team-based approach uses all of the medical practice’s human resources to determine who are the best people to help manage or monitor the different parts of the patient’s care based on those individuals qualifications and training. It also challenges team members to perform at the highest level of their license or certification. Clinical education training in effective team-based care such as the Agency for Healthcare Research and Quality (AHRQ) TeamSTEPPS training, is designed to directly improve patient safety and clinical processes that enhance the delivery of care and ultimately, patient outcomes.8

The purpose of this project was to implement a team-based care training program based on the AHRQ TeamSTEPPS framework in 6 primary care practices affiliated with a Primary Care Practice Based Research Network (PBRN) to increase communication and performance of the care team at each practice. Since the quality improvement initiative that each practice adopted was focused on improving diabetes care, the theory is that improved team-based care will directly impact quality of care for patients diagnosed with diabetes.

**Methods**

In 2016, 6 primary care practices from our regional PBRN participated in a 12-month team-based care training program. These practices were part of a large primary care network of over 30 practices and ranged from an office with one physician to a medium sized practice with 9 clinicians. See Table 1 for characteristics of the 6 participating practices, including number of providers, geographic location, and percent of population enrolled in Medicaid. All 6 practices have been designated as level III PCMHs through the National Committee for Quality Assurance (NCQA) for at least 3 years. Clinicians and staff from these sites received external facilitation by a certified TeamSTEPPS master trainer, who is a physician specializing in diabetes care, on the tenets of team-based care using the AHRQ Primary Care Version of TeamSTEPPS framework (https://www.ahrq.gov/teamstepps/officebasedcare/index.html). Each of the 2-hour training sessions focused on 1 of the 4 core competency areas of TeamSTEPPS (team leadership, mutual performance monitoring, mutual support, and communication) and on the basic concepts of team-based care in a PCMH model (uniform mission and shared goals, clear expectations of team roles, enhanced communication, system improvement and advanced training). These trainings were conducted during routine office hours and all employees/clinicians were asked to attend. In addition, each practice was to implement a quality improvement initiative focused on diabetes care using a team-based approach and report their progress during the quarterly training sessions. As part of the team-based approach, monthly meetings were recommended to include the entire staff. Before the meeting, input from the staff and leadership was asked in order to develop the meeting’s agenda. Team members were assigned subjects on the agenda and would lead the discussion on those topics, so the meeting would not be a “top-down” meeting. All team members were encouraged to participate in the meeting and were given equal voices to express their views. They provided feedback on new initiatives and any challenges to provide the quality of care that was set as the practices’ goal. All participants were given ample time to discuss and analyze the recommendations and think through the logistics and workflow.

All the clinicians and staff at the participating practices were asked to complete the AHRQ Medical Office Survey on Patient Safety Culture prior to the training program, at the midway point of the training program and at completion of training to measure perceived changes in team-based care behavior.9 The survey contains over 50 questions that address medical office personnel’s attitudes and beliefs as well as patient care practices. The results of these surveys at each interval were also used as a teaching tool during the training sessions. A chi-square analysis was performed for each item between the first measurement and the third measurement for all of the practices combined as well as for each individual practice.

To evaluate the impact of the team-based training and quality improvement initiatives on the quality of care provided, an analysis was performed on established diabetes patients from these practices to see if there were any significant improvement in diabetes control. Criteria for patient selection included (a) patients 18 years or older who have a diabetes diagnosis; (b) those who have been an established patient for at least 1 year prior to the start of the team-based

### Table 1. Primary Care Practice Characteristics.

| Practice Site | No. of Physicians | Physician Extenders | Staff | Location Type | % Medicaid |
|---------------|-------------------|---------------------|-------|---------------|------------|
| A             | 3                 | 3                   | 19    | Suburban      | 11         |
| B             | 4                 | 5                   | 25    | Urban         | 38         |
| C             | 2                 | 2                   | 10    | Suburban      | 7          |
| D             | 4                 | 5                   | 23    | Urban         | 24         |
| E             | 3                 | 2                   | 12    | Suburban      | 34         |
| F             | 1                 | 1                   | 7     | Suburban      | 39         |
care training program, and (c) had at least 1 visit within 6 months prior to the study and at least 1 visit postimplementation that included hemoglobin A1c and low-density lipoprotein (LDL) cholesterol values. If the patient had multiple visits during this time frame, we compared the “before” lab values that were closest to the implementation start date with the lab values within 3 months following the completion of the training program. The changes from the “before” to “after” lab values for hemoglobin A1c and LDL cholesterol were analyzed using the paired \( t \) test and verified using the Wilcoxon sign rank test using SAS version 9.4. The level of significance was set at 5%.

### Results

Overall, there were 90 employees who participated in the medical office survey across the 6 primary care practices (26 clinicians, 61 office staff, 3 unspecified) resulting in a response rate of 70%. For all practices combined, there was not a significant improvement in the Patient Safety Culture scores over time; however, several of the practices individually had improved scores and some of the questionnaire items saw improvement over time (previously published).  

With regard to diabetes patient outcomes, there was a total of 1050 patients who met the criteria for the analysis across the 6 primary care centers with all of them having “before” and “after” hemoglobin A1c results but only 834 had LDL cholesterol results for the designated timeframes. The median age of these patients was 63 years and 61% were female. The analysis showed that there was a statistically significant decrease in the mean hemoglobin A1c levels from 7.48% to 7.32% \((P < .001)\) and LDL cholesterol from 92.34 to 88.34 mg/dL \((P = .002)\) for all the practices combined. Additionally, 3 of the primary care centers individually saw improved hemoglobin A1c lab values for their patients (practice sites A, D, and E) while 2 practices (A and E) also experienced significantly lower LDL cholesterol values (see Table 2). Practice A, a suburban practice with 6 clinicians, had the largest change in the mean hemoglobin A1c values from 7.91% to 7.51% \((P = .026)\) as well as LDL cholesterol from 99.94 to 87.29 mg/dL \((P = .042)\).

### Discussion

Successful implementation of PCMH concepts, especially team-based care, is thought to be a key component of quality primary health care. Even though all the practices participating in this training are recognized as level 3 PCMHs by NCQA and are part of a larger primary care network, they all have operationalized this model differently and
achieved different levels of success. Some of the participating practices saw an improvement in team-based culture such as shared patient management goals and improved communication which may lead to better patient outcomes; however, 2 of the practices had leadership turnover that affected morale and operations. These 2 practices did not see an improvement in patient outcomes (practices B and F), which suggests that consistent and supportive leadership is one of the key factors for success in practice transformation. A third practice who did not see significantly improved hemoglobin A1c or LDL cholesterol values was a smaller practice (practice C) with relatively healthier patients with the lowest preimplementation mean hemoglobin A1c and second lowest mean LDL cholesterol. Even though the practices overall did not see an improvement Patient Safety Culture scores, the feedback from the employees about the training and the resulting changes in practice management was very positive. The team-based care training led to more involvement of the medical assistants in managing the patients’ care, including following up with patients to ensure that they are getting their labs done at routine intervals and are having their annual screenings.

Since this project was focused on implementing a team-based care training for quality improvement and was not designed as a research study, there are some limitations in the interpretation of the diabetes patient outcomes. Since there was no comparable control group of primary care practices, the improved patient outcomes may be due to other factors or changes in practice behavior or operations unrelated to the team-based care training. In addition, each practice was able to choose the quality improvement project that they wanted to implement to improve diabetes care based on their team’s input. One of the projects introduced as a quality initiative was the development of standing orders. Members of the team, who included medical assistants, front office staff, mid-level providers, and physicians, reviewed the goals required to meet quality measures and close care gaps. These were mainly based on US Preventive Services Task Force recommendations and included immunization administration, collection of urine for micro albumin, and periodic testing for lipids and hemoglobin A1c. Decisions were made as a group on what the standing orders would be and how to best implement them. The involvement of the team in developing the criteria and implementation of the standing orders helped to achieve the sense of collaboration and cooperation among the group. Since the project had multiple components, it is hard to attribute what component may have led to practice improvements in diabetes care.

Past studies have shown mixed results in practice transformation and improving team functioning, depending on the type of initiative, how it is implemented, and buy-in by the staff, especially physician leadership. Hall et al found that the culture and values of each practice, even those under the same health care system, defined how well they implemented the core concepts of a medical home. Consistent, long-term leadership facilitation is also a key component in improving and maintaining team functioning. The personal and professional responses by staff and clinicians to role redefinition can also affect practice transformation; sometimes leading to changes in personnel at a practice. The more successful practices have strong physician facilitation, clearly defined roles and practice guidelines for all levels of staff and strong communication structures (such as team huddles, frequent team meetings) in place.

Even though there may be significant variation on how practices are managed and how practice transformation is implemented, there are some basic strategies or elements to improve team-based care. Fiscella et al identified 6 core elements from team science that affect team-based care effectiveness: (a) practice conditions that support or hinder effective teamwork; (b) team cognition, including shared understanding of team goals, roles, and how members will work together as a team; (c) leadership and coaching, including mutual feedback among members that promotes teamwork and moves the team closer to achieving its goals; (d) cooperation supported by an emotionally safe climate that supports expression and resolution of conflict and builds team trust and cohesion; (e) coordination, including adoption of processes that optimize efficient performance of interdependent activities among team members; and (f) communication, particularly regular, recursive team cycles involving planning, action, and debriefing. The TeamSTEPPS curriculum addressed these core elements; however, in order to have long-term improvements in primary care team functioning, practice leaders and team members need to fully embrace these core elements and continuously monitor teamwork experiences to support effective team-based care.

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