

Delivering Team Training to Medical Home Staff to Impact Perceptions of Collaboration

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ABSTRACT

Purpose of the Study: The purpose of this study was to explore whether an evidence-based educational and experiential intervention to develop team skills in medical homes would positively affect team members' perceptions of interprofessional collaboration.

Primary Practice Settings: The study population consisted of primary care medical home practices associated with the health plan sponsor of this research. All practices were located within the greater Houston region of Texas and had more than 500 patients.

Methodology and Sample: A cluster design experimental study was conducted between August 2013 and June 2014. Fifty medical home practices, 25 intervention and 25 attention control, were recruited as study sites.

Results: Results indicate that individual team members in the medical homes receiving the intervention were significantly more likely than the individual team members in the attention control groups to report higher levels of positive perception of team collaboration after the 12-week intervention.

Implications for Case Management Practice: This research indicates that educating teams about interprofessional collaboration tools and supporting technique use may be an effective strategy to assist medical homes in developing collaborative environments. Case management experience in collaboration supports the role facilitating team training. Transforming culture from hierarchical to team-based care supports the case management approach of collaborative practice. In addition, role satisfaction attained through the respect and communication of team-based care delivery may influence retention within the case management profession. As case managers in primary care settings assume roles of embedded care coordinators, program leaders, and transition facilitators, an understanding of collaboration techniques is needed to support the entire care team to achieve desired outcomes.

Key words: *collaboration, interprofessional, teamwork*

The health care delivery landscape is changing. The Patient Protection and Affordable Care Act (2010), a need for improved patient safety, and a desire to increase primary care access capacity through staff retention, drives the need for research. Legislation expanding insurance coverage and an increase in prevalence of chronic conditions has brought about emphasis on coordination for effective patient-centered care, teamwork, and communication to support safe care delivery (Weaver, Dy, & Rosen, 2013). Issues of access, safety, and quality continue to plague the U.S. health system years after the call to action by the *To Err Is Human* report (Institute of Medicine, 1999). Attempts to initiate changes in teamwork through legislation and accrediting entities focus have resulted in process modifications but not in an overall culture transformation. There-

fore, patients remain at risk for unsafe and inefficient care (Mitchell et al., 2012). Medical homes in the primary care delivery model are purposed to provide holistic care, improve service continuity, and be accountable to patient-centered care, which requires effective collaboration. Utilizing mutual respect, clear communication, and professional accountability, team members can facilitate meeting the need,

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identified by Xyrichis and Lowton (2008), for interprofessional collaboration (IPC) using team member skills, experiences, and education to drive improved outcomes and efficiencies. Given that team-based care is said to be integral to successful medical home practice and sustained transformation, it is important for all roles within the medical home to develop skills and attitudes that promote teamwork behaviors (McAllister, Cooley, Van Cleave, Boudreau, & Kuhlthau, 2013). Case managers have experience in collaboration, which makes them ideal candidates to facilitate team training and support of medical home practice staff in acquiring and applying collaborative skills.

PURPOSE

The Patient Protection Affordable Care Act designates medical homes as a preferential delivery model for primary care with the goal of overcoming barriers to access and quality care (2010). Research on the impact of IPC education and experience on medical home team members' perceptions of IPC has the potential to enhance an understanding of the performance areas of care coordination, partnership, shared-decision making, and cooperation. These elements have an association with increased patient access, safety, role satisfaction, and workforce retention in health care environments. Interprofessional collaboration brings together open and respectful working relationships across roles. These relationships support mutual support and feedback that build a cooperative work environment conducive to patient-centered growth and professional satisfaction. Operationally in medical home practices, this coordination is foundational to process efficiencies and quality through role and task coordination supporting mutual goals.

AIM

This article describes the comparison of medical home team members' perceptions of IPC subsequent to a 12-week intervention. Participants were 50 practice sites, 25 receiving a case manager-led intervention

designed to enhance IPC and 25 receiving health worker-led educational sessions unrelated to IPC, on the topic of nutrition and activity. The latter served as the attention control. The hypothesis was that staff at the medical homes receiving team training would score higher on positive interprofessional perceptions than those receiving the attention control education and experience.

Past research has demonstrated the ability of IPC to encourage satisfaction and workforce retention (Burzotta & Nobel, 2011) and to increase appreciation for the work of other professionals (Fothergill, Northway, Allen, & Sinfield, 2011). This is an important issue for medical home staffing as well as the case management profession. The majority of IPC study sites have been hospital based with participants most often being students. Primary care research on IPC has focused on the role of physicians, as seen in the work by Laird et al. (2011) and Goldman, Lawrie, Meuser, and Reeves (2010), and on collaboration between nurses and physicians as demonstrated in the study by Carney, West, Neily, Mills, and Bagian (2010), which looked at differences in perceptions of those roles on team relationships. In a qualitative research study, Soklaridis, Oandasana, and Kimpton (2007) found that a barrier to team collaboration was the limited formalized education on collaboration for physicians and even fewer training opportunities for the other roles within an office practice (2007). Robichaud et al. (2012) found that improvement projects gave an opportunity to develop teamwork skills to foster IPC in health care settings.

Missing in the literature review is an experimental study of the effect of IPC training in medical homes in the United States. Inclusion of all roles with patient contact within the medical home environment is also not seen in the existing review of IPC research studies.

Theory

The foundational theory for this study is John Kotter's change theory. Kotter (1996) recognizes that every role contributes to safe and effective organizational culture. Kotter puts forth that trust and clear communication between members are foundational for a team that promotes safe health care practices. The Agency for Healthcare Research and Quality (2013) used Kotter's theory as the basis for the development of the training *TeamSTEPPS for Primary Care Version*, employed as the intervention curriculum in this research. Kotter's theory involves an eight-stage change process that was applied to the research study. Step 1 includes creating an urgency to move from the present state. The intervention curriculum initiated this precept through a video depiction of poor

teamwork and the potential results it can bring. The case manager, facilitating the intervention, played an additional role in using motivational interviewing to strengthen the staff member's motivation to change through guiding participants to see the possibilities of transformation. Step 2 involves team building, necessary to move to steps 3 and 4, which are creating and communicating the vision. The intervention curriculum provided learning of communication and team skills to move through steps 5 and 6, removing obstacles and creating short-term wins. The last two steps of Kotter's process, building on the change and anchoring the change, were included in the intervention during the experiential part of the research, where participants could practice new communication techniques to inform, resolve conflict, and effectively promote respectful feedback and awareness of roles and professional accountabilities.

METHODS

A cluster design experimental study was conducted between August 2013 and June 2014. Twenty-five medical home locations received a *TeamSTEPPS for Primary Care* education and application intervention and 25 received the attention control of *Energize Our Families* curriculum, developed by the U.S. Department of Health and Human Services (2008). The *TeamSTEPPS for Primary Care* curriculum covers content areas of leadership, communication, and mutual support through multiple learning methods, including initiating topics with video depictions that support insight of team participants in the value of every role on the team. The *Energize Our Families* curriculum also uses multiple learning vehicles such as role play, demonstration, and power points.

Intervention

Sessions were held for 1 hr each week at each medical practice location. The case manager initially met with the practice physician to give an overview of the education and project experience and gain signed consents from all participants. Case managers who were registered nurses from the sponsoring health plan served in the role of facilitators for the intervention curriculum and skill use. The case manager facilitated the training by following the structured curriculum, which included facilitator scripts including topical information, insertion of video vignettes, and interactive participation activities for team members. Discussion topics were a part of sessions, which the case manager facilitated and encouraged through the use of motivational interviewing. A meal was provided during the meeting times as the intervention took place during the normal lunch period of the

participants. After the 6 weeks of curriculum training, the case manager explained to the team roles to be held in addressing a quality improvement project and how the team would spend the next 6 weeks addressing an issue of their choice, while using skills from their recent training. The case manager functioned in a coaching role during these six sessions to guide the project lead and support team members on skill use.

Certified community health workers from the sponsoring health plan delivered the attention control curriculum and contact to encourage the use of nutrition and activity tools. The same number of hours and type of delivery were used to ensure the result was due to the curriculum content and not the attention of the facilitator. Data collection for the study included initial consents prior to study initiation and survey tools at the completion of the 12-week study.

Setting

The setting for this research was primary care medical home practices contracted with one Texas health plan. These primary care practices were located in urban areas, with the predominant patient base served being covered by Medicaid and Children's Health Insurance Program insurance. Each primary care practice was different in team composition. The roles of physician, front office staff, and medical assistant were consistent across all practice sites. Additional roles occurring in at least one medical home practice included office manager, registered nurse, licensed vocational nurse, licensed clinical social worker, advanced practice nurse, and physician assistant.

Population and Sample

The population consisted of 254 medical home sites, with each site having at least 500 members associated with the sponsoring health plan located in Houston, TX. Randomization through the use of a random table of numbers identified the sites for the intervention and attention control arms of the study. Eligibility criteria for the study included individuals working in the practices with full-time status, a role including patient interaction, as well as the ability to speak, understand, and write in the English language to enable attendance in the training, comprehension of the training, and completion of the measurement tool. The medical home participants completed consents at the beginning of the study. At the close of the 12-week intervention, they completed the Assessment of Interprofessional Team Collaboration Scale (AITCS; Orchard, King, Khalili, & Bezzina, 2012).

Informed by a similar study conducted by Solberg, Kottke, and Brekke (1998), the required sample

size was determined to be 50 medical homes. Their randomized control trial with a sample size of 44 yielded a 0.9 effect size when evaluating results of introduction of quality improvement into primary care settings. As in the Solberg study, this research is a managed care-initiated study involving a training and implementation experience. The Solberg study used a design with randomization of primary care practices, an approach that this study partly replicates. Compared with the Solberg study, in designing this study, the intervention dose was increased by providing more training contact frequency and more training hours, including an attention control group, and distributing a pocket guide as a continued reference/reminder for intervention team members after completion of the training. The design feature of an attention control arm increased overall study validity from the Solberg et al. study use of regular care. Therefore, it was determined that to achieve an effect size of 0.80 with power of 0.80 would require 50 medical homes, 25 in each arm of the study. To evaluate the study design for this research, a pilot study was completed from August 2013 through November 2013, using five medical home practices in the treatment arm and five in the attention control arm of the study. The pilot results established the feasibility of the intervention from an operational perspective and confirmed that the outcome measurement tool was appropriate. In addition, the results revealed a difference in the perceptions of IPC in participants who received the educational and experiential interventions on IPC compared to participants who received the nutrition and activity intervention ($p = .0045$).

Instrument

The AITCS, with 37 items and three subscales of partnership/shared decision-making, cooperation, and coordination, uses a 5-point Likert scale to measure the level of collaboration in teams. The tool was developed to promote awareness among health care team members that although they may initially respond they are collaborative, often their practice is hierarchical in structure with little voice or respect shown across all roles. The tool results and subscales deliver data, indicating perceptions of collaboration in specific areas that can inform practices in direction for improvement. Initial testing of the tool revealed an overall tool Chronbach alpha value of 0.98 demonstrating internal consistency. A professional review (24 experts) established content validity and a confirmatory factor analysis total variance of 61.02% supported construct validity (Orchard et al., 2012). The tool takes approximately 15 min for completion.

Human Subjects Protection

Appropriate institutional review boards approved this study. Consents of participants were stored in a secure setting, as were completed survey tools because the small sample size at each location was an identified risk to confidentiality. The AITCS survey entry used a de-identified alpha identifier for medical home sites. Data storage, maintained on a secure server, was password protected for respect of participant privacy.

FINDINGS

Statistical Design

Descriptive statistics were used to examine the demographic variables to assess the comparability of the experimental and attention control medical home practices. Demographic comparison between the intervention and attention control sites indicated similarity between intervention and control practices for the elements of gender, time with current team, role, and education (see Table 1). The majority of participants

TABLE 1
Comparability Between Intervention and Attention Control Participants for Elements of Gender, Education, Years in Profession, and Time in Current Role

	Control	Intervention	Total
Gender			
Male	21	17	38
Female	136	154	290
Total	157	171	328
Education			
Certificate	12	26	38
Diploma	8	6	14
High school	73	80	153
Bachelors	20	18	38
Masters	19	16	35
Doctorate	25	25	50
Total	157	171	328
Years in profession			
0–3	53	52	105
4–10	58	69	127
11–20	46	50	96
Total	157	171	328
Years on present team			
0–3	95	114	209
4–10	48	46	94
11–20	14	10	24
Total	157	171	328

were female with a mode age of 26 years and range of 18–63 years. Individuals with three or less years in their roles represented more than a third of participants, whereas half of the participants had been functioning in their present teams for 3 or less years (mode = 1 year). The team member role appearing most frequently in the data was the medical assistant at 47% of participants (46% intervention, 47% control).

The Statistical Package for Social Sciences (SPSS Version 17.0; SPSS, Inc., Chicago, Illinois) was used for statistical analysis of the data. There were few missing data points as the participants received instruction to complete all 37 items of the survey tool. The unit of randomization and measure was the medical home. During the recruitment phase of the research, there were 32 sites agreeing to participate on the basis of the randomization of the population initiated at the start of the study. The remaining 18 practices were drawn from the initial population, however did not follow the initial pattern of randomization as many practices did not agree to participate because of their busy schedules. This left the study sample containing 32 practices drawn from randomized assignment and 18 drawn from a convenience sample, based on the practice willingness to commit to the 12-week study. There was no attrition of medical homes. Three hundred twenty-eight participants completed the tool as compared to 363 originally enrolled in the study for a 90% participant completion rate. Statistical significance was set at an alpha level of 0.05. The nonparametric procedure for testing the differences in medians of the experimental versus control groups was the Mann–Whitney *U* Test. A nonparametric measure was used because the Kolmogorov–Smirnov statistic of normality revealed a significance value of 0.000, indicating that the data were not of normal distribution. Using the Mann–Whitney *U* Test to compare the medians of the experimental and control practices, a significant difference in the perceptions of IPC among the intervention practices (*Mdn* = 178, *n* = 171) and the attention control practices (*Mdn* = 162, *n* = 157), *U* = 6,559, *z* = -8.10, *p* = .000, was revealed (see Table 2).

Study analysis included instrument reliability and validity across the three tool subscales of partnership/shared decision-making, cooperation, and

TABLE 2

Comparison of Total Tool Means, Standard Deviations, and Median in Study Arms

Study Arms	Mean	<i>N</i>	<i>SD</i>	Median
Intervention	176.52	171	18.903	178.00
Control	154.02	157	28.838	162.00
Total	165.75	328	26.632	170.00

TABLE 3

Assessment of Interprofessional Team Collaboration Scale Subscales, Item Numbers, and Chronbach's Alpha Reliability for Tools Completed by Participants

Subscale	Items	Alpha
Coordination	7	.917
Cooperation	11	.948
Partnership	19	.971
Total tool	37	.982

coordination (see Table 3). Chronbach's alpha for the overall tool showed good internal consistency matching the .98 value obtained during tool development (Orchard et al., 2012). Chronbach's alpha values for the subscales of Partnership, Cooperation, and Coordination displayed reliability across the three domains. The effect size measured using Cohen's *d* was 0.923, which indicates that 92% of the variance is explained by being in an intervention practice as opposed to an attention-control practices.

As a validation measure to the study, the practices that were obtained using a random sampling technique (*n* = 32) were evaluated using the nonparametric measure of the Mann–Whitney *U* Test to discern any differences in the total tool results between the entire sample results and the medical home practices selected into the study through random sample. The *p* value for those 32 medical homes was *p* = .003 with the *z* score being -2.93, indicating a higher total tool score measure in the intervention practices than the control practices.

In the experiential component of the intervention arm, the practices were charged with conducting a team-selected quality improvement project in which team roles were assigned. A nonphysician team member was required to be the project lead. Topics of the quality interventions ranged from initiating use of huddles to providing a practice security plan. The role type most often selected to be the leader of the study was medical assistant (the predominant participant role in the study). Nurses led the quality improvement studies across 20% (5) of the intervention practices; however, it is important to note that nurses comprised only 10% of intervention participants (see Table 4). Participants enthusiastically embraced the opportunity to integrate their newly acquired skills in an application relevant to their individual practice sites (see Table 5).

Summary

The analysis suggests, from the statistical significance between tool scores of the intervention and control practices shown using the Mann–Whitney *U* Test,

TABLE 4
Selected Quality Improvement Projects and Role of Chosen Leader

Team-Selected Quality Project Topic and Number of Sites Selecting the Topic for Improvement	Selected Role of Chosen Leader for Quality Improvement Project
Huddle use (8)	Nurse (2), Medical assistant (5), office manager (1)
Debrief use (5)	Medical assistant (4), social worker (1)
SBAR use (2)	Nurse (2)
Briefing checklist (3)	Nurse(1), medical assistant (2)
Staffing notice (2)	Office manager (1), medical assistant (1)
Feedback (2)	Front office (1), medical assistant (1)
Staff safety (2)	Medical assistant (2)
Patient flow (1)	Medical assistant (1)

that the use of case managers to deliver education on tools and need for medical home collaboration along with an opportunity to practice team skills was effective in impacting positive perceptions of IPC. The evaluation of demographics of the intervention and attention control participant practices as being similar strengthens this assumption.

DISCUSSION

There are limitations to generalizability of the conclusions of this study because the sample was limited to 50 practices within one Texas geographic region. The results did indicate that the intervention is worth the effort of expanding, using the existing research methodology, to other populations. The medical

TABLE 5
Definitions

	Statistic Definition Review
SPSS	An analytics application for calculating statistics from data sets. The abbreviation stands for Statistical Package for the Social Sciences.
Mann–Whitney <i>U</i> Test	A statistical test used on nonnormal data to prove or disprove the null hypothesis
Kolmogorov–Smirnov	A statistical test that identifies if data are in normal distribution
Chronbach alpha	A statistic that reveals internal consistency, most often used to determine the reliability of a test
Standard deviation	Measures the amount of variation from the average
Median	The centermost point or middle value in a set of numbers
Mean	The average
Mode	The most frequently appearing number(s)

Note. From *SPSS Survival Manual* by J. Pallant, 2007, New York, NY: McGraw Hill.

The analysis suggests... that the use of case managers to deliver education on tools and need for medical home collaboration along with an opportunity to practice team skills was effective in impacting positive perceptions of IPC.

homes that received the intervention serve more than 250,000 patients who can now benefit from the training provided through this research. It will be helpful to return to this study population to evaluate the economic impact of the intervention on efficiencies, worksite retention, and avoided adverse safety occurrences over time.

Education addressing teamwork competencies may need to be conducted on at least an annual basis because 60% of participants had been on the team for 3 years or less when the study was conducted. The *TeamSTEPPS for Primary Care* curriculum includes opportunities for role play and critiquing video scenarios relative to current practice experience. Specific skills presented in the training include the use of huddles, debrief, feedback, use of briefing checklists, and back-up behaviors. These tools could be helpful in periodic reinforcement sessions as well as in initial training for new staff.

Noting that more than one third (35%) of participants had been in their present team of less than 3 years, the findings suggest that there would be value in repeated presentations. Just as the case manager's experience with patients/clients, engagement and confidence of staff members in using collaborative skills may take practice and encouragement. Routine education would enhance a sustained culture change of respecting and valuing each role and obtain the most gains in the areas of efficiency, worksite retention, and patient safety due to training in mutual trust, clear communication, and shared decision making.

Experience in collaboration across roles, held by the case manager, resulted in their effectiveness in facilitating training and skill implementation. Case managers reported that their ability to use motivational interviewing to stimulate discussion during the training was helpful. The respectful communication style of motivational interviewing underscored the topic of mutual respect among team members essential to collaboration. This was specifically seen in the *TeamSTEPPS for Primary Care* skill training and experience reflection of feedback, debrief, and mutual support where all roles in the team were encouraged to share their experiences and opinions

This research indicates that having health plan case managers educate teams about IPC tools and the use of supporting techniques may be an effective strategy to assist medical homes in developing collaborative environments. Transforming culture from hierarchical to team-based care supports the case management approach of collaborative practice.

Medical home practice staff in this study receiving team training scored higher on positive interprofessional perceptions than those receiving the attention control education and experience.

of how mutual trust might improve the specific team's collaboration using these skills.

This research indicates that having health plan case managers educate teams about IPC tools and the use of supporting techniques may be an effective strategy to assist medical homes in developing collaborative environments. Transforming culture from hierarchical to team-based care supports the case management approach of collaborative practice. Giving all roles within the medical home team a respected voice in contributing to process decisions and communication about patients is encouraging to the professional and supports issues of patient safety. In addition, the role satisfaction attained through the respect and communication of team-based care may influence retention.

CONCLUSION

Medical home practice staff in this study receiving team training scored higher on positive interprofessional perceptions than those receiving the attention control education and experience. These findings suggest that IPC in medical homes, gained through an educational and experiential intervention, may facilitate an inclusive culture of practice, improved team member satisfaction, and workforce retention leading improved patient access to needed care. The results of this research are promising for developing effective interprofessional teams and indicate directions for further research across medical home settings. Nurse case managers have an interest in IPC within primary care settings and a responsibility to implement collaborative improvements as the role of care coordinator expands within medical home settings (Institute of Medicine, 2011). As case managers in primary care settings assume roles of embedded care coordinators, program leaders, and transition facilitators, an understanding of collaboration techniques is needed to support the entire care team to achieve

desired outcomes of efficiency, safety, and workforce retention. The overarching goal is to support and develop the IPC attributes of mutual respect, shared-decisions making, clear communication, and professional accountability through transferring the tools and skills into the daily practice environment, using the synergy of the team to deliver quality, patient-centered care.

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