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Abstract (Implementation Lessons)

The use of high-functioning clinical teams in healthcare, particularly in the primary care setting, has been shown to be associated with many improvements in outcomes for patients and providers (Ladden et al., 2013; Reckrey, et al., 2015; Misra-Hebert et al., 2015; Goldberg et al., 2013). A student from a doctor of nursing practice program was the principle investigator (PI) who designed and implemented a practice improvement project with the providers, receptionist, and nurse volunteer at an urban community clinic serving low-income patients. The practice improvement project to change practice within the clinic to include the use of an altered team structure by adding a documentation scribe. The overall project outcomes were that the addition of a scribe did not impact patient wait times, but did lead to shorter appointment lengths. There were four different providers involved in this project, who all expressed that the addition of a scribe was valuable to practice; providers were able to devote more uninterrupted face-to-face time to patients during appointments, and the inclusion of a scribe reduced the time required to complete chart notes following patient appointments, as was previously required for providers in the clinic. A nurse volunteer worked as the scribe during this practice change project, which did not have an associated monetary cost, as a benefit for the clinic.

Background

Utilization of high-functioning teams in clinical settings demonstrates improved outcomes for patients and team members. High-functioning teams are characterized by members who share goals and knowledge, and who demonstrate mutual respect and high-quality communication that is timely, frequent, and accurate with a problem-solving focus (Cromp, Coleman, Liss, Ross, & Trehearne, 2015). A team-based approach to primary care practice is
widely accepted and consistent with the World Health Organization’s *Principles of Primary Health Care*: reducing exclusion and social disparities in health; organizing health services around people’s needs and expectations; integrating health into all sectors; pursuing collaborative models of policy dialog; and increasing stakeholder participation (World Health Organization, 2017). Additionally, team care is inclusive of the Institute of Medicine’s *Six Aims for Improvement*, which postulates that care be safe, effective, patient-centered, timely, efficient, and equitable (Institute of Medicine, 2017). As such, Hupke (as cited in Gauthier, 2014) defines team-based care as the provision of comprehensive health care services to individuals, families, and communities by at least two health professionals who work collaboratively along with patients, families, caregivers, and community service providers on shared goals within and across settings. Teamwork is intended to improve communication and partnerships between health care providers and patients, to promote quality and safety, and to enhance patient satisfaction (Wen & Schulman, 2014).

At the time of project design in the urban primary care community clinic in which this project occurred, patients were being served by a provider with ancillary and volunteer support staff performing traditional primary care roles. The office receptionist checked patients in and out, and collected payments for services rendered. Based on staff availability, the medical assistant (MA) and/or registered nurse (RN) volunteers called patients back into exam rooms after obtaining height, weight, and vital sign assessments, as well as interviewing the patient and charting their reasons for being seen in the clinic. The provider, a physician or nurse practitioner who is usually a volunteer at the urban clinic, would then go in to interview and examine the patient, develop a plan of care, and write orders and complete the chart note, which occurred either during, or following, each appointment.
Organizational Context

The organization involved in the practice change was an independently owned and operated, 501(c)(3) non-profit primary care clinic serving a primarily low-income patient population. Most of the patients cared for in this clinic had complex medical and social needs. The clinic stated the mission of providing physical, mental, and spiritual care to underserved individuals and families in the community. The clinic’s staff worked according to a traditional primary care structure: a provider worked with a MA, RN volunteers, and front office staff to provide primary health care services. Other key stakeholders included the administrative director, patient resource manager, diabetic educator, clinical psychologist, numerous volunteers, medical students from various disciplines and backgrounds, and the front desk receptionist.

The primary decision-makers in the organization were the clinic’s administrator and the medical director (MD), a physician who provided patient care on most clinic days (Tuesdays through Fridays weekly, from 0800-1630). At times when other volunteer providers were scheduled to see patients (typically, at least one additional volunteer provider had appointment scheduled daily), the MD would complete other community service and outreach activities. The MD completed clinic director responsibilities after clinic hours, which was also when he would spend time completing chart notes if needed. The clinic’s total population served was approximately 7,000 patients of various socioeconomic backgrounds. In the current model at the time of project design, the providers had sole responsibility for interviewing and examining patients, ordering treatments, and documenting patient encounters. Due to the complex issues that needed to be addressed during clinic visits, appointments would often extend beyond their scheduled time allotment. This had created long wait times for patients, and additional stress for the front office staff. Many of the clinic’s clientele had limited financial means and resided
locally, in an underserved section of a larger metropolitan area. Patients without insurance coverage paid sliding scale fees based on income level. The clinic’s resource manager assisted patients to access community resources and health care programs, to help individuals with limited financial resources access services such as laboratory work, dental care, and low-cost prescriptions.

**Personal Context**

The key protagonists involved in the practice change included a nurse volunteer with primary care experience who worked in the scribe role, the physicians or nurse practitioner who provided patient care services (four were involved in the project in total), and the receptionist. A major motivating factor to choosing this practice improvement project was that the proposed practice change did not require additional resources or incur cost, which was a significant benefit for the clinic, due to limited financial resources. The change to utilize an existing nurse volunteer in a scribe role was intended to shorten appointment lengths and patient wait times. The addition of a scribe intended for documentation to be completed while patients were seen, with the expectation that more individuals would be seen during clinic time, and provider time required to complete documentation after clinic hours would be decreased. As the clinic functions as a non-profit organization, an accurate cost-benefit analysis for the project could not be calculated. However, any additional insurance reimbursement or sliding scale fees for patient appointments, testing, and procedures obtained through seeing additional clients each clinic day would help offset staff and organizational costs. Utilizing a volunteer in the scribe role allowed the provider to devote more one-on-one time with each patient, while shortening appointments, so eventually, more patients would be able to be seen during clinic hours.
The motivation behind the change came from the PI’s practice improvement project proposal, as the PI was familiar with the clinic previously though working as a nurse volunteer. One drawback was that the nurse volunteer who was designated to work as the project’s scribe did not have specialized training as a medical scribe. However, this individual did have a background in primary care practice, and the MD, as well as each volunteer provider, met with the scribe prior to seeing patients together to review documentation formatting, the scribe’s roles and responsibilities, and use of the clinic’s electronic health record. The clinic’s MD was responsible for determining that the best format for team care within the organization would be through the addition of a documentation scribe, to expedite appointments with the complex patient population in the small clinic setting. The personal and professional backgrounds of the key protagonists and additional stakeholders facilitated the entire project, though flexibility working with the PI and making working changes overall practice change implementation plan. All key protagonists were committed to providing excellent, high-quality care to their patient population. In addition, the MD expressed feelings that the clinic’s faith-based foundation would provide additional patience, understanding, and belief that the change project would benefit patients and clinic staff by improving the efficiency of care provided to patients and families.

**Problem**

There are many potential barriers to successfully implementing practice change. Soones et al. (2015) state the importance of team stability and well-defined roles in clinic teams. In terms of implementing a team-based care structure, lack of understanding roles can be a source of confusion and dissatisfaction among primary care providers and staff, and can impede optimal team functioning (Edwards et al., 2015). Discrepancies among staff members related to task
allocation and the need to rely on other team members for task completion may then occur (Edwards et al., 2015). In the project to be completed in the urban primary care community clinic, it was important to clearly define staff roles and responsibilities, as well as allow for thorough staff training in preparation for the change. For improvements in processes and outcomes to occur, staff had to fully understand their individual roles and how to effectively communicate among the team. Other barriers may include a lack of intentional focus on team building, and clinician and staff resistance to change (Cromp et al., 2015; Ghorob & Bodenheimer, 2015). Lack of support from clinical leadership and inadequate support for patient behavioral needs had the potential to impede implementation (Helfrich et al., 2016). These all may have been encountered at one time or another during the change process in the primary care community clinic. Intervening before any of these issues negatively impacted key protagonists was vital.

For buy-in to occur, stakeholders must have been invested in the change itself. Staff must have felt supported for the change to be successful and improve outcome measures. Team building had to frequently occur through regular team huddles prior to patient appointments at the beginning of clinic days. Obtaining feedback from key protagonists during staff meetings was vital throughout the change process, as well as following the implementation of team-based care for continual improvement to the project, which was necessary to achieve a sustainable practice change. To meet these needs, the change theory used to guide the practice improvement project was Lewin’s Change Theory. This theory is based on behavior as a dynamic balance of forces. Due to the struggle of driving versus restraining forces, Lewin’s theory can help mobilize participants into the direction of the planned change (Kritsonis, 2005). Lewin’s Change Theory was developed with the exploration of the psychological dynamics of groups, with an
interest toward social and practical applications (Fairbrother, Jones, & Rivas, 2010). Lewin’s focus during theory development was to investigate how to get groups of people to act in ways to benefit oneself as well as the larger social body (Fairbrother et al., 2010). According to Mitchell (2013), the most important elements of planned change are leadership, effective communication, and teamwork. These were all necessary for the change process, guided by Lewin’s Theory. Change agents must proceed through each of the stages before change becomes part of the system (Mitchell, 2013). Using Lewin’s theory to guide change assisted stakeholders in letting go of previous routines and behaviors, becoming motivated and supported in making the change, and moving forward following team implementation for outcomes to improve.

The development and implementation of provider-based teams addressed issues in primary care practice related to access, continuity of care, consistent quality, patient-centeredness, and staff burnout (Ladden et al., 2013). According to Reckrey et al. (2015), having an administrative assistant work with individual providers rather than performing designated tasks for an entire practice improved efficiency, facilitated serving more patients, improved telephone care, improved job satisfaction, and reduced provider burden. Allowing team members to perform at their full scope of practice improved staff efficiency, decreased patient wait times, and increased patient-centered time spent with the provider, which have all been associated with increased patient satisfaction (Misra-Hebert et al., 2015). Goldberg et al. (2013) found team-based care to be the most critical element of primary care practice transformation in their 2-year long qualitative study. This study also suggested that team-based care models can help practices meet the needs of complex, high-risk patients, while engaging staff in meaningful work, and improving patient, provider, and employee satisfaction levels (Goldberg et al., 2013).
In the urban primary care community clinic, implementation and use of provider-based care teams occurred, with measurable outcomes assessed during the change such as patient wait times, appointment length, and provider satisfaction with use of a scribe to provide team-based patient care. A nurse volunteer worked as a scribe, comprising a team with a primary care provider to see patients during one clinic day per week during the project timeframe. Regular meetings occurred in the form of team huddles each day the provider teams were used, which included all clinical staff. Patient wait times and patient appointment lengths were assessed at regular intervals throughout the change process to determine the impact of team care implementation and use.

The aim of the practice change was to include provider-based care teams into the clinic's workflow structure and culture of providing patient care through organizing, implementing, and sustaining the team format to allow the clinic’s staff to work together in this manner. This aim was to be achieved using a formal practice change implementation plan, stakeholder contribution to the change process, and on-going feedback from clinic staff via on-site discussions. The goal of the practice change was to improve appointment efficiency, to be measured through decreased patient wait times and appointment lengths. These aims and goals included increased patient access to physicians to improve the continuity of care, improved patient-provider relationships, and improved communication between patients and staff, and among staff members, to achieve more during less time being spent in each appointment.

Process outcomes were measured to determine the ultimate impact of the practice change. The outcomes assessed during the implementation of care teams were patient wait times, and the amount of time spent in patient appointments; patient wait times and appointment length were assessed prior to, and after the implementation of care teams, as well as provider satisfaction.
with the addition of a scribe. Data collection of wait times and appointment lengths were done through simple observational timing assessments, while provider feedback was obtained through on-site interviews.

Solution

The overarching theory for the practice change was Bandura’s Social Learning Theory. This theory of observational learning includes a sequence of steps: attention to modeled activities and behavior, retention of observed behaviors and activities, reproduction of appropriate actions, and motivation to imitate a behavior (Moore, 1999). According to Helfrich et al. (2016), team-based care requires the presence of a visible, engaged leader to provide support and motivation for team members during the change process, and to model the intended behavior for staff to reproduce and subsequently, retain. Because team work involves social relationships among team members, Bandura’s Theory was appropriate for implementation of the proposed project. Important theory factors included behavior modeling; observing among individuals that it is possible to perform a desired behavior to obtain expected results (Grol, Bosch, Hulscher, Eccles, & Wensing, 2007). The basic assumption of Bandura’s Theory is that there is a continuous interaction between a professional, his or her performance, and the social environment, which functions to reinforce each element during performance change (Grol et al., 2007).

The individuals involved in the change must have possessed self-efficacy and belief in one’s own capabilities, and perceived an incentive to perform a behavior (Kritsonis, 2005). Three methods to increase self-efficacy included providing clear instructions, providing opportunities for skill development, and modeling the desired behavior (Kritsonis, 2005). Providing positive feedback to stakeholders during the change process also encouraged self-efficacy. The Social Learning Theory proposes that behavior change is affected by
environmental influences, personal factors, and attributes of the behavior itself (Kritsonis, 2005). By working together in a team format, staff members were able to function as behavioral influences for one another in enacting the proposed practice change, which helped to support and build self-efficacy in one another.

The implementation model used to guide the practice change was the Academic Center for Evidence-Based Practice (ACE) Star Model of Knowledge Transformation (Anne Arundel Medical Center [AAMC], 2016). The ACE Star Model, developed by Stevens, is a framework for the systematic integration of evidence into practice, and is composed of five stages: knowledge discovery, evidence summary, translation into practice recommendations, integration into practice, and evaluation (AAMC, 2016). This model allowed evidence-based research findings to be made known, allowed movement through the model’s stages, and used additional knowledge to operationalize evidence into practice change (AAMC, 2016). The ACE Star Model involves key stakeholders, who play an important role in using the model to transfer knowledge into healthcare practice to obtain quality improvement, and was used within the organization to guide practice change (Schaffer, Sandau, & Diedrick, 2013).

Data collection tools included a simple observational timing assessment which was originally intended to be done by the front desk receptionist, by documenting the patient’s check-in and check-out times on the procedural charge slip the patient is given upon appointment check-in, per the clinic’s usual procedure. The plan was for the nurse volunteer working as the MD’s scribe to document the time the appointment begins on the patient’s electronic medical record. The PI was to obtain this data weekly, to calculate wait times and appointment lengths. The goal of observing appointment length was to give insight on the efficiency of care provided throughout the change process. This assessment was performed pre- and post-change to assess
differences following team implementation. This count was also used to provide feedback to key protagonists on progress obtained from implementing the change.

The proposed practice improvement project was monitored during initiation and implementation, and results were shared with stakeholders following implementation. This was done to assess staff difficulties with the practice change process, and to obtain feedback on successes and barriers during project launch, and while staff were adjusting to and participating in the practice change. Conversely, the PI maintained a consistent presence to provide feedback and support to key protagonists involved with the practice change. Pre-implementation assessment of the project's baseline data was done. Data monitoring occurred weekly during implementation, through use of the proposed data collection tools. Data findings were summarized post-implementation, and compared to pre-implementation data to assess the impact of the change. Maintaining an open relationship with all stakeholders was imperative to the project's success and long-term sustainability. This was accomplished by the PI being present weekly throughout the project's seven-week implementation period, and checking in with all stakeholders during the seven weekly visits.

The practice change was initially proposed to occur in steps, as outlined in the following:

- Provide the clinic’s administrator, medical director, and involved staff (MA and volunteer staff) with an executive summary on the practice change for site approval and feedback, and make any necessary changes to the project’s proposal to fit with the clinic’s organizational structure and function;
- obtain institutional review board approval for project;
- announce the upcoming change project to the staff with the date of project implementation;
provide staff with handouts outlining the change project;

- change agent to be present on pre-determined day of team implementation to assess challenges and barriers, obtain feedback, and provide support to clinic staff as needed;
- change agent to check in with staff to elicit feedback on a designated day each week during eight week change project, to be done during AM team huddles;
- complete patient wait time and appointment length observational assessments during project implementation;
- PI presence will withdraw at eight-week mark;
- complete analysis of outcomes following the completion of data collection;
- disseminate results and recommendations to staff in an executive summary of change project and outcomes (to be completed following project data collection and analysis).

The practice change needed to become engrained into the organizational culture to ensure team sustainability to benefit stakeholders and patients would be achieved. By assessing barriers and challenges to the practice change as they arose, and addressing these to find solutions that fit within the clinic’s structure, a successful practice change was implemented, and evidence indicated the change will be sustained. According to the clinic’s MD, the change would be sustained through the addition of a scribe within the clinic’s staff and practice model. By disseminating outcomes from the practice change, including the amount of time recovered through utilization of a team format, the stakeholders were able to realize the benefits of the practice change, and were motivated to sustain team-based care provision.

Results

Unforeseen challenges arose during project planning, which required changes to the original implementation plan to occur. In the busy clinic setting, front desk receptionists were
unable to obtain the times needed for data collection, requiring the PI to be present on all days of team use in order to complete time keeping. Additionally, there was no one available to function in the scribe role during the 8th week of data collection, reducing the data collection period to seven weeks.

The amount of time that patients were required to wait to see the provider after they are called back into an exam room was not positively impacted by this project’s use of provider-scribe teams. Patient wait-times were only shorter during one of the seven weeks of data collection. On average, patients waited 9.9 minutes longer when provider-scribe teams were used (see chart below). This discrepancy could have been due to various reasons, such as different providers comprising weekly teams due to provider availability, and the fact that pre-intervention data included walk-in appointments, which the clinic was no longer taking at the time of implementation. Patients who were able to be seen during walk-in appointment openings would not have to endure wait-times if availability existed in the clinic’s schedule.

![Wait Times Chart]

However, appointment lengths were decreased during all seven weeks of data collection through use of provider-scribe teams. On average, appointments lasted 36.3 minutes less when provider-scribe teams were used (see chart below). More importantly, each provider involved in the change project expressed the value of having a support person complete appointment
documentation. According to feedback obtained during an interview with one of the volunteer providers involved with data collection, having the ability to devote undivided attention to the patient and going into the exam room without the distraction of a computer was a major benefit of the project. Another provider indicated that accurate documentation during the appointment saved time and was an important outcome.

Unresolved Questions and Lessons for the Field

Overall, the project to implement provider-scribe teams with the goal of increasing provider efficiency was used successfully in this clinic. Although patient wait times were not decreased on average during the seven-week trial period using teams, the overwhelming majority of patients (all but 1 individual) were understanding of the purpose behind team use and agreeable to allowing the scribe to join exam room appointments. Providers expressed positive feedback regarding the project experience, including perceived benefits of more uninterrupted time spent interacting with patients during appointments, and a reduction of after-hours work required to complete chart notes.

Key protagonists did not display resistance to the project, but time constraints and work-load barriers required changes to be made to the original implementation plan. For example, due to limited staff availability, the clinic’s decision-makers elected for teams to be incorporated only one clinic day per week, rather than for the entire study period. Additionally, the study period
was only able to be completed for seven weeks, rather than the eight weeks that was initially intended. As another change to the initial plan, the PI was required to be present during all days of implementation to collect time data, as the office’s receptionist was unable to obtain this information consistently. The clinic’s use of volunteer services and focus on holistic care enabled successful implementation of the innovation.

Many lessons were learned through completion of this project, which can be applied to other individuals and organizations involved with implementing practice improvement changes. The project required a scribe to work with multiple providers, due to the clinic’s volunteer staffing. This may have created inconsistencies in the monitored wait times and appointment lengths. For future projects, it would be advisable to use one specific provider on a clinical team throughout the entire project for an accurate assessment of outcomes. Including use of a standardized template in an institution’s electronic health record, as well as a trained scribe versus a volunteer nurse as occurred with this project, may help facilitate improved scribe efficiency. A template was created at the conclusion of the project in anticipation of adding a scribe to the clinic’s staff following project completion. Another lesson was the importance of having a relationship with the facility and staff where a proposed practice improvement will occur, in addition to the need for an organization’s readiness and investment in the practice change.

In any busy clinical setting, asking staff to take on additional roles and responsibilities is a challenge. Many potential project barriers can be alleviated though having a close working relationship with the institution, as well as an understanding of the importance of making the change. It is important for a project’s PI to have a comprehensive implementation plan, and not to assume that stakeholders can complete all requested tasks when designing a practice change.
Having a thorough plan for the change process should include a back-up plan in case staff have difficulty completing their planned roles. This can aid in trouble-shooting and problem-solving when challenges arise, and ensure a successful change project occurs.
References


