Implementing a Team-based Workflow at a Community Clinic

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Touro University, Nevada

DNPV-761: In partial fulfillment of the requirements for the Doctor of Nursing Practice

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May 25, 2022

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Population increase in urban communities has led to patients using community clinics as first care points for both urgent and routine care visits (Lee et al.,2017). Community clinics are experiencing more complex patients that need longer visit durations to address multiple health issues (Olmos-Ochoa et al., 2019). Because these clinics are the main hubs for managing chronic diseases, increased demand for services has resulted in an overwhelmed primary care system (Lewis et al., 2019). The project site is an urban community clinic that has experienced a substantial increase in the number and acuity of patients being seen daily. However, the current workflow at the project site is not effective in handling the increased patient demands.

Clinic staff, including the providers, are facing an increased workload with no additional time to complete tasks before closing time. The providers and clinic staff have reported staying after the clinic closes to complete tasks. Working long hours in a disorganized clinic has created job dissatisfaction; an aspect that increases staff burnout (Robinson et al., 2020). In primary care, providers are experiencing burnout at a rate of 25%-60%, one of the top reasons is longer working hours (Rabatin et al., 2016). According to the Agency for Healthcare Research and Quality (AHRQ), primary care providers are spending 13% of their day in care coordination activities that can be performed by someone else, while 42% of providers report lack of enough time to spend with their patients (AHRQ, 2013).

The uncertainty of undefined roles has created job dissatisfaction among the clinic staff at this community clinic. According to anecdotal reports from current staff, reasons for former staff members leaving the clinic included poor job satisfaction due to long working hours. Staff turnover in organizations negatively impacts clinical operations and loss of revenue (Brandt,

2016). Loss of expertise when experienced staff leaves also affects patient outcomes because of the quality of care provided (Brandt et al., 2016).

When the workflow of an outpatient community clinic cannot handle the increasing patient volume, wait times for services become longer causing delays in care (Lewis, 2019). To tackle the demanding workload of a community clinic, clearly defined roles are critical to facilitate better time management (Olmos-Ochao et al., 2019). Clear role definition is a teamwork strategy recommended by the AHRQ to foster better work environments by assigning responsibility and promoting accountability (AHRQ,2013).

An evidence-based system of workflow improvement is needed at this community clinic to decrease staff overtime and increase job satisfaction (AHRQ, 2013). Efficient use of each team member by delegation of essential duties will contribute to better time management (Lee et al., 2017) According to the Joint Commission (TJC), working efficiently in an organization improves staff job satisfaction which increases the patient satisfaction scores (Rehder et al., 2020). Furthermore, reliable workflow where expectations are known influences staff perceptions on their significance within an organization (Rehder et al., 2020). Staff members who feel like their work is important are more likely to stay with the organization (Rehder et al., 2020).

Background

Organizational workflow is a determinant of the effectiveness of patient care outcomes and staff job satisfaction (AHRQ, 2013). In our constantly evolving health care system, clinics must continuously evaluate their current systems to determine efficacy (Lee et al, 2017). An example of systems that should be evaluated are clear role definitions to facilitate teamwork (Lee et al., 2017). Effective teams improve work relationships which increase job satisfaction,

employees are less likely to leave jobs where they're satisfied (Kim et al., 2019). Teams that have clearly defined roles eliminate duplicate activities by multiple staff members and improve time management (Kim et al., 2019). For this project site, staff roles will be defined and assigned according to licensure and skill to prevent duplication of activities. When staff focuses on their duties, the sense of autonomy empowers them to be more productive (Rehder et al., 2020).

Community care clinics are ranked as one of the places with the highest provider turnover due to job dissatisfaction (Rabatin et al., 2016). One of the causes of job dissatisfaction is increasing workload that necessitates working over the preferred hours (Rabatin et al., 2016). Additionally, clinic staff who encounter patient who are frustrated from long wait times have reported the work environment as stressful and are more likely to resign (Robinson et al., 2020). Implementing an effective workflow by clarifying staff roles will improve staff productivity and increase job satisfaction (Rabatin et al., 2016).

Using a task reassignment table, a delineation of daily tasks will be displayed at the beginning of each shift. The clinic staff will have an outline of their daily tasks with clarification provided during a 5-minute morning huddle before patient intake. Working in a cohesive team environment where everyone knows their duties fosters effective workflow dynamics (AHRQ, 2013). A teamwork approach where morning huddles map out the day improves time management and decreases frustration caused by unclear roles (AHRQ, 2013).

Problem Statement

The current workflow at this community clinic consists of undefined roles that overlap between front desk, nursing staff and providers. For example, if a nurse is not available to assign a treatment room for a waiting patient, a provider walking by can make the room assignment. The patient checkout process is also unclear, if the front desk staff away from the desk, the nurse

or medication assistant can check out the patient. The cluttered workflow causes confusion among staff which leads to poor time management, an aspect directly linked to job satisfaction (AHRQ, 2013).

The best practice will be to have each team member assigned to specific roles according to their job description and level of licensure. Clearly defined roles foster team orientation which leads to an effective organizational workflow (AHRQ, 2013). The Joint Commission and AHRQ support the assertion that organization workflow directly impacts job satisfaction (Rehder et al.,2020; AHRQ, 2013).

Project Question

In a primary care clinic, will implementing a patient-centered team-based approach as compared to the current workflow reduce patient wait times to 20 minutes in 4 weeks ?

Search methods

The academic search engines used to retrieve literature relevant to this project were, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, and PubMed. The literature selected was critically appraised using the equator checklists for pertinent evidence-based data from peer reviewed, full-text articles.

Keywords that were used in selecting appropriate literature were, *team-based care, team communication, outpatient teams, and primary care teams*. The keywords were used in various combinations to retrieve relevant data. Additionally, the PICOT question was used to narrow down project-related studies. When narrowed down to studies published after January 1, 2015, the search yielded 323 studies from all 3 databases combined. Further analysis removed duplicate and irrelevant studies leaving a total of 17 that will be used in this project. The main interventions will use the guidelines for creating a team-based primary care from the Agency for Quality and Healthcare Research (Schottenfeld et al., 2016).

Inclusion and exclusion criteria

The articles that mentioned strategies that enhanced knowledge of integration of team-based care in primary settings were targeted. Additionally, the articles with studies done in outpatient settings like primary care or specialty clinics were selected. The articles that were included had clearly outlined steps in successful implementation of their programs. Articles from peer-reviewed journals that were in English and published less than 5 years ago were selected. One article published in 2015 was selected due to its relevance to the proposed project.

The articles that were excluded were those not done in outpatient settings. The articles with unsuccessful project interventions, and those with interventions that could not be measured, were also excluded. Articles with interventions that were hard to interpret were also excluded.

Review of study methods

The common aspect that emerged on all the articles that were analyzed for this project was absence of extreme bias in their reports. A total of 17 articles were reviewed and all 17 utilized appropriate methodology for the proposed project.

Quality improvement tools that facilitated interdisciplinary team approaches were implemented in 9 of the articles. Additionally, eight of the articles reviewed were qualitative analyses with observation and derived data.

Review of literature

The AHRQ guidelines titled *creating patient-centered team-based primary care* (CPTP) will be used in this project (Schottenfeld et al., 2016). The CPTP guidelines used a conceptual framework to define, clarify, implement, and measure team-based care in primary clinics (Schottenfeld et al., 2016). The literature material reviewed in these articles demonstrated that implementation of team-based care in outpatient clinical settings improved care coordination, efficiency, effectiveness, and satisfaction for both patients and clinical team (Schottenfeld et al., 2016).

The drive to meet high performance metrics in primary clinics has necessitated transition to team-based care (Schottenfeld et al., 2016). One of the articles found that high performing primary clinics in the San Francisco area were using the team-based approach in their patient care (Coleman et al., 2016).

Themes

Team-based care is a strategy that must be implemented systematically for it to be effective. The recurring themes in the team-based approach in primary care analysis were (1) coherence, (2) role definition, (3) engagement and (4) ongoing training (Schottenfeld et al.,

2016). These themes are part of the CPTP guidelines recommend by AHRQ for primary care practices and will be used in this project (Schottenfeld et al., 2016).

Coherence

Establishing a team that trusts, respects, and communicates well with each other is the foundation of coherence (Schottenfeld et al., 2016). According to the CPTP guidelines, members of the team must view each other as a whole and value each skill and personality trait (Schottenfeld et al., 2016). Communication should be respectful with "warm handoffs" at each phase of care. For example, a nurse finishing her vital signs can introduce the oncoming provider to the patient to begin establishing a positive rapport (Schottenfeld et al., 2016).

A qualitative fieldwork study done in California revealed the clinic's staff coherence by allowing medication assistants (MA) to receive and triage patient phone calls for providers (Lyson et al., 2019). The previous practice of "maternal medicine" allowed patients to call providers directly, this would often result in providers spending hours on the phone performing informal consults (Lyson et al., 2019). This delegation of labor by providers to the MAs was preceded by establishing a foundation of trust and clear communication (Lyson et al., 2019).

Olmos-Ochoa et al., (2018) conducted a study in the VA that concluded that a change in culture was needed to develop a team with a coherent and trusting relationship. The VA clinic had maintained a bureaucratic culture where providers were viewed as the only leaders who could effect changes in the clinic, this led to poor employee morale and lack of teamwork among staff (Olmos-Ochoa et al.,2018). Evaluating staff skills and acknowledging each other's competencies fostered a more team-based approach in providing patient care (Olmos-Ochoa et al., 2018).

Define roles

Clearly defined roles are the cornerstone of professionalism and can facilitate team building in the outpatient setting (Harrod et al., 2016). As a care coordination team strategy, role definition ensures that responsibilities are assigned appropriately, and staff maintains accountability for their specific tasks (Olmos-Ochoa et al., 2019). According to the CPTP guidelines provided by the AHRQ, high functioning teams have a consistent team composition created through written responsibilities and job training (Schottenfeld et al., 2016). The AHRQ also recommends that team members should be trained for their roles and those of other team members to foster flexibility and continuity of care if one team member is missing (Schottenfeld et al., 2016). To further identify each member and role, the clinic can consider visual cues like color coordinated uniforms or unique badges for each discipline (Schottenfeld et al., 2016).

In a qualitative study done by Szafran et al., (2018), team interviews revealed that a barrier for interprofessional teamwork was undefined roles. The clinic's team lacked congruence in duties due to poorly understood roles leading to inconsistent patient flow patterns (Szafrain et al., 2018). Because family physicians perceived themselves as the only leaders in the clinic setting, opportunities for proper delegation and task shifting were missed (Szafarin et al., 2018). Implementing a team-based approach through defining each team member's tasks and responsibility ensured that staff worked at their level of competence and were able to help each other with task completion (Szafarin et al., 2018).

As an element of effective communication, clearly defined roles enhance teamwork through knowledge sharing and mutual respect (Kim et al., 2019). Clinics where roles were understood had a more effective workflow because daily tasks were established ahead of time (Kim et al., 2019).

Engagement of the team

An essential component of implementing a team-based approach is ensuring that the clinic team understands the basics and are willing participants (Kim et al., 2019). The CPTP guidelines state that clinics should develop a practice philosophy to guide their decision-making for implementation of patient care processes (Schottenfeld et al., 2016). One strategy for creating and communicating a practice philosophy is by having periodic team meetings with the clinic staff to evaluate current practice and suggest changes (Kim et al., 2019). In their discussion regarding meetings, Kim et al., (2019) emphasized the importance of having a formally assigned team leader to facilitate discussions and obtain buy-in from the clinic staff.

Buy-in can be obtained through information sessions outlining what team-based care entails, its benefits to the patients and staff and steps to integrate it into daily clinic operations (Schottenfeld et al., 2016). Obtaining feedback from staff is also a required intervention in team-based primary care. The articles that were reviewed started with collecting pre-implementation data to obtain baseline measures that were used to evaluate effectiveness (Mitchel et al., 2019). The articles used the AHRQ tools which included checklists, staff interviews and clinic records to evaluate clinic operations (Schottenfeld et al., 2016).

Another study revealed that clinics with team structures that encouraged frequent interaction and collaboration among its team members had higher staff engagement levels (Lyson et al., 2019). The clinics that had newly transitioned into team-based primary care also reported increased staff satisfaction due to a more consistent and comprehensive patient care delivery that improved their time management (Lyson et al, 2019).

Training

Primary care clinics are encouraged to start the process of team- based care during the hiring process by selecting staff candidates that fit the team approach culture (Schottenfeld et al., 2016). Additionally, the team-based philosophy and key elements should be incorporated into job descriptions and human resources policies, this creates clear expectations for all team members (Schottenfeld et al., 2016). For staff that is already part of the team, education sessions and training should be offered periodically to reinforce understanding and add new knowledge as research evolves (Peikes et al., 2014). In a study conducted by Olmos-Ochoa et al., (2019), there was a notable difference in productivity between staff that had undergone teamwork training and those that had not. Consequently, staff that had teamwork training took on more responsibilities than their counterparts, this unequal division of work diminished the clinic's teamwork efforts (Olmos-Ochoa et al., 2019).

The CTPT guidelines emphasize the importance of creating and maintaining a sustainable model for training old and new staff into the team-based approach (Schottenfeld et al., 2016). Team meetings, minute to minute interactions, and staff huddles should be conducted to reinforce the practice until it is part of the clinic's culture (Ghorob & Bodenheimer,2015).

As an ongoing intervention, the clinic team should be prepared to initiate the team-based approach with their patients by informing the patients the new practice (Schottenfeld et al., 2016). Introducing patients to this approach can be done through videos in the waiting rooms, pamphlets describing the new clinic model, having providers talk to patients during their encounters and posters in patient rooms (Schottenfeld et al., 2016). Additionally, the clinic's website can add this information on their page for new patients and the public (Schottenfeld et al., 2016).

Gaps

Although there have been lot of studies done on team based primary care, most of the work has been focused on inpatient settings (Lewis et al., 2019). Outpatient settings experience similar workflow issues, however, strategies implemented in the inpatient settings do not always translate into the outpatient areas (Lewis et al., 2019). More studies targeting outpatient primary clinics are needed to improve operations and keep up with the current healthcare trends.

Project Rationale

The aim of this project is to decrease patient wait times at the primary clinic through implementation of team-based approach using CPTP guidelines provided by the AHRQ (Schottenfeld et al., 2016). The current wait time at the project site averages 90 minutes between check-in and provider interaction, this causes significant disruption in the clinic's workflow by having providers scramble to catch up with patient care. Team-based primary care will improve efficiency in the clinic by increasing staff productivity and therefore decreasing patient wait times (Robinson et al., 2019).

Project Objectives

In 4 weeks, this project aims to fulfill the following objectives.

1.Implement team-based primary care at this community clinic with the CPTP guidelines.

2.Adminster an education session to the clinic team for training on the CPTP guidelines for team-based approach.

3.Decrease patient wait times to 20 minutes within a 4-week implementation timeframe.

Theoretical framework

For this project, Lewin's change theory will be used to implement team-based approach in the primary care clinic. This theory offers practical steps in starting and maintaining the process of change. The process starts with recognition of the need for change, then moves towards the desired change and finally strategies to maintain the new change (Hussain et al., 2018). Developed by psychologist Kurt Lewin, the theory offers a 3-step approach in implementing change: unfreezing, changing, and refreezing (Hussain et al., 2018). According to the CPTP guidelines, development and maintenance of the team-based approach will require organizational culture change (Schottenfeld et al., 2016), Lewin's change model offers the appropriate strategies for this cultural shift.

Historical Development of Lewin's Change Theory

Lewin's change theory was developed by social psychologist Kurt Lewin in the 1940's with the notion of initiating change in organizations through predictable steps (Hussain et al., 2018). Lewin's change theory focuses on 3 core stages denoting the step-by-step phases of change, employees are directed through these 3 phases of unfreezing, changing, and re-freezing (Hussain et al., 2018). Originally created for behavioral change in child development, Lewin's change theory identified all change as a process of moving from one stage to the next (Burnes, 2020). Since shifting the clinic's practice to a team-based approach will require changing the current practice, Lewin's change model was selected as appropriate.

Application to the Project

In this project, the Lewin's change theory will be used to guide the clinic in changing from the current practice to the team-based approach. The 3-step approach will be used to

implement the CPTP guidelines and track the progress of the project in the sequence of unfreezing, changing, and refreezing (Burnes, 2020).

Unfreezing

According to Lewin's change model, unfreezing is the first step in implementing change at any level within an organization (Burnes, 2020). Unfreezing consists of identifying the problem and determining that change is needed, leadership must "unfreeze" the current process and obtain buy-in from the clinic staff in preparation for the next stage (Schottenfeld et al). Obtaining buy-in from staff and providers can help mitigate barriers that may be present during the changing phase of the process (Hussain et al., 2018).

According to the CPTP guidelines, unfreezing can be equated to team members acknowledging the need for better processes to improve care (Schottenfeld et al., 2016). Team dynamics are an important aspect of creating a coherent and collaborative practice (Robinson et al., 2019). Lewin's change model will be used to design training strategies, guide strategic team composition and role definition. Creating a care team will include the key clinic staff which consist of physician/nurse practitioner, nurse, medical assistant, and front desk clerk.

According to the CPTP guidelines, staff readiness and knowledge on the team-based approach must be assessed before implementing new tasks (Schottenfeld et al., 2016). Knowledge assessment will be done using questionnaires and informal interviews that will be used as baseline data to track progress (Hussain et al.,2018). As part of the unfreezing process, education sessions with the staff will be used to highlight the current wait times. The CPTP guidelines will also be introduced, and feedback will be solicited from the staff during these sessions (Hussain et al., 2018).

Changing

Once the team is no longer “frozen”, the stage of implementing change through introduction of the CPTP guidelines can commence. Hussain et al., (2018), emphasizes that the role of employee engagement and participation is critical in successful transition to the “changing” phase of the process. In this phase, new guidelines will be introduced and put into practice while also soliciting staff feedback on effectiveness (Schottenfeld et al., 2016).

During this phase, staff and provider team engagement in knowledge sharing will facilitate successful transition (Hussain et al., 2018). Actively involving the team in the process will be done through:

- Holding short huddles before the clinic opens to clarify the daily tasks.
- Providing visual cues in the clinic like signs in the hallways and workspaces to remind staff of the team initiative.
- Using “warm handoffs” to transfer care from one team member to the next, for example, the nurse will introduce the provider before leaving the room (Schottenfeld et al., 2016).

Refreezing

The final stage of refreezing is geared towards sustaining the change within the organization (Hussain et al., 2018). According to the AHRQ, the CPTP guidelines call for training, incorporation into policy and employee orientation to maintain the team-based structural change (Schottenfeld et al., 2016).

The refreezing phase recommends tying tasks and duties according to the organizations’ priorities and goals (Burnes, 2020). In this project, a major goal of the clinic is to decrease patient wait times without compromising the quality of care. To evaluate wait times, the records for patient check-in and check-out will be collected during the problem identification phase. This

data will be re-evaluated after implementation of the CPTP guidelines and at weekly intervals. At the end of the project, the data gathered will be presented to the stakeholders to show the effectiveness of teamwork for the clinic and the need to sustain or "re-freeze" the team-based approach.

Ensuring that roles and job descriptions include the aspect of teamwork will also facilitate integration of new employees and retraining current staff (Schottenfeld et al., 2016). The stakeholders at the clinic will work with human resources to incorporate this aspect of teamwork into staff job descriptions and for future training.

Population of Interest

The main population that will be included will be the clinic staff which consists of one physician, one nurse practitioner, two nurses, two medical assistants, and two front desk staff.

Those that will be excluded from the project will be the office manager and human resources because they're not part of the patient care team.

The indirect population of interest will be the patients who present to the clinic during the 5-week timeframe of the project. On average, the clinic sees 40 patients a day, 25 of these patients are typically seen by the nurse practitioner while 15 are seen by the physician.

Setting

The project setting is a community clinic located in an urban area of southern California. This privately owned primary care clinic has seven patient care rooms that serve as consultation and minor procedure areas. The clinic provides primary care to patients with chronic diseases and minor same-day urgent care needs like the flu. The clinic also provides immunizations for the adult population.

The time allotted for each patient with their provider is 15 minutes for scheduled visits and 30 minutes for same-day visits.

This community clinic utilizes electronic medical records EMR. During this project, the EMR will be accessed to determine the time that patient-provider interaction begins. No other information will be gathered from the EMR. The rest of the data will be gathered from the check-in and check-out sheets that are still in paper form.

Stakeholders

McGrath& Whitty define a stakeholder as any individual or group that maintains interest in an organization and can be affected by achievements in the organization's objectives (2019). In this case, the key stakeholders will be the clinic staff which includes the providers, nurses, medical assistants, and front office desk clerks. The front office staff will be responsible for accurate check-in and check-out times in the intake forms. The medical assistants will be responsible for initial assessment of the patient through documenting vital signs and reason for visit. If there are any procedures like lab draws or medication administration, the nurses will be responsible for that. The providers will be responsible for ensuring prompt start of provider-patient encounter.

Permission was granted to conduct the project at this clinic site by the nurse practitioner who oversees quality improvement measures at the clinic. Due to the nature of the project, no patient contact will be necessary by the DNP student, therefore, no affiliation agreement was needed.

Interventions

At the beginning of the project, the clinic staff will be introduced to the concept teamwork using the CPTP guidelines, this will be done during a 10–15-minute huddle before the clinic opens. The clinic team that will be involved in the project will be the nurses, medical assistants, nurse practitioner, physician, and office manager. Providers and staff that come in late will be updated by the DNP student. For daily reinforcement, the CPTP guidelines will be posted at the workstations in easy view of the staff.

Team progress will be monitored weekly and necessary changes will be made with input from the stakeholders. Due to the time constraints of the project, stakeholder collaboration will be crucial to its success. The DNP student will be responsible for generating the steps for implementation, analyzing data, and tracking progress. The DNP student will also provide staff with feedback and progress at the end of each week.

The first week of the project will be used as the pre-implementation period during which the CPTP guidelines will be introduced. Three CPTP components that will be addressed:

- Staff readiness and knowledge
- Organizational culture change
- Ways to maintain and sustain the team approach

(Schottenfeld et al.,2016).

A portion of the Team Strategies and Tools to Enhance Performance and Patients Safety (TeamSTEPPS) tools will be used to implement the CPTP guidelines. The TeamSTEPPS protocol (Appendix A) was established by the Department of Defense in collaboration with the Agency for Healthcare Quality and Research (AHRQ). This

protocol offers clear instructions on how to enhance communication in teams using five core constructs (Appendix A) to achieve desired results (AHRQ, 2020).

TeamStepps core constructs

1.Team structure: As part of assessing the CPTP component of staff readiness and knowledge, the clinic's team and their roles will be clarified.

2. Communication: Staff readiness and knowledge will be continued through information sharing during education sessions and huddles.

3.Leadership: The office manager in collaboration with the nurse practitioner will be leading the project by ensuring tasks are understood, and information shared appropriately. The DNP student will be available to answer questions regarding the guidelines. This step is part of the CPTP component of maintaining and sustaining the team approach.

4.Situation monitoring: Actively monitoring the project progress to make sure changes are implemented, questions clarified.

5. Mutual support: The clinic staff will learn about other's roles and responsibility to support each other if needed. The staff will also provide and receive feedback from leadership and each other. Mutual support will provide another avenue to engage in the CPTP component of maintaining and sustaining the team approach.

During the second and third week of the project, the team concepts will be implemented into the clinic's daily practices. At the beginning of the shift, a team leader will be picked by the office manager to define the team structure of the day. Morning huddles, no more than 5 minutes, will be used to assign tasks of the day by the team leader. Specific task assignment will facilitate rapid patient cycling and avoid delays caused by lack of clarity on who should carry out

certain tasks like specimen collection. The team leader will ensure that the clinic's patient flow continues as indicated in the flowchart (Appendix B). The patient flowchart, developed by the DNP student according to the AHRQ guidelines, will be used to guide the patient flow at the clinic.

The team leader will also ensure sequenced attendance of patients by providers by communicating the next patient to prevent skipping patients who have been waiting longer. Currently, there's no algorithm to which patient the provider sees next, which causes delay and longer wait times The patients whose encounter with the provider is complete can wait in the lobby area for checkout as soon as the provider exits the patient room. This will facilitate timely cleaning of the rooms and rooming the next patient for rapid patient cycling.

The cohesive workflow will speed up patient throughput during appointments, thereby decreasing wait times. A study by Liu et al., reported a 16-minute decrease in patient wait times with teamwork system when compared to nurse-led triage system (2018). This workflow will be practiced daily at the clinic, which will lead to organizational culture change, a component of the CPTP. The last week of the project will be used to generate results and evaluate the success of the project.

Tools

The TeamSTEPPS tools for implementation of the CPTP guidelines will be used to assess clinic staff perceptions and attitudes regarding the change in practice. These tools (Appendix C) will be used to evaluate the clinic's available resources and obtain feedback of staff's clarity of roles and responsibilities (AHRQ, 2020). Because the tools are in the

government's public domain, they may be used without special permissions within the US, however, citation of source is recommended for appropriate credit (Ahrq.gov).

Currently, staff members have poorly defined roles within the clinic which overlap and cause delays. For example, a desk clerk taking a patient into the exam room interferes with patients who are waiting to check-in for their appointment. A briefing checklist which is part of the TeamSTEPPS protocol, will be utilized to clarify and assign roles for the team (Appendix D).

TeamSTEPPS questionnaires

The TeamSTEPPS questionnaires about staff attitudes and perceptions (Appendix C) will be utilized during week 1 and week 4 to assess any changes in readiness and knowledge. Reliability and validity for these TeamSTEPPS questionnaires were analyzed by Baker et al (2010) before use by the AHRQ. The Pearson correlation coefficient was used to analyze the validity while Cronbach's alpha was used to determine the reliability of the five constructs examined in the questionnaires (Baker et al.,2010). The five constructs included in the questionnaires had 6 survey items each. The value for Cronbach's alpha ranged between 0.70 to 0.83 while the correlation coefficients were between 0.36 to 0.63, both analyses showed evidence of validity and reliability of the questionnaires (Baker et al., 2010).

Office Ally reports

The clinic uses an EMR system known as office Ally, this system will be used to generate reports for patient wait times by evaluating the check-in and check-out time. An excel spread sheet (see Appendix E) will be used to audit the generated reports before analyzing the results.

Chi-square Test

This statistical test will be used to analyze the results by comparing the pre-implementation wait times and the wait times at the end of the project. This test will be used to test the hypothesis of whether teamwork decreased patient wait times at this community clinic.

Study of Interventions and Data Collection

EMR Chart Review

The office Ally system records the check-in and check-out times for each patient, these can be generated as a report for any duration of time. Retrospective patients wait-times from February 1- March 1 will be collected before the beginning of the project from the clinic's EMR system. Another wait time report will be generated from March 2- April 2 as part of the post-implementation data at the end of the project.

Each day during the 4-week project period, 10 patients' check-in, and check-out times will be selected for input into the Microsoft excel spreadsheet. A selection of every other patient will be used to yield data that spreads out throughout the day. To maintain confidentiality, only patient initials will be used in the spreadsheet, no other identifiers will be used. No items containing patient data will be removed from the clinic, any printed material that contains patient data will be discarded in the clinic's confidential waste bin. The project data will be stored in a password protected laptop that belongs to the DNP student, the data will also be backed-up in the DNP student's password protected cloud account.

At the end of week 1 of the project, patient wait time reports will be generated, and then weekly to monitor progress of the project. A total of 4 weekly reports containing 200 patient charts overall will be generated and will be compared with the retrospective reports that were

generated pre-implementation. The number of patient charts that will be reviewed post-implementation will be equal to those reviewed during the pre-implementation period.

Pre/Post Education Questionnaires

Additionally, staff attitudes and perceptions will be evaluated by having the staff fill out a questionnaire four weeks prior to the start of the project and at the end of the project. The questionnaire is a good indicator for teamwork because it measures how individuals approach team-related issues (AHRQ.gov). The questionnaire, which contains 30 statements, will be answered using the 5-point Likert scale. The scale starts on the left with 5-strongly agree describing presence of teamwork, 4-agree, 3-neither 2-disagree and on the far right, 1-strongly disagree indicating no teamwork. A total of eight staff members will be surveyed, their responses will be entered in the Microsoft excel spreadsheet to be used for analysis using the t-test. The results of the questionnaires will be used to determine the success of teamwork implementation. The questionnaire will be administered by the DNP student after a brief education session on how to use it and what is expected. The clinic staff will use assigned numbers instead of names to maintain staff confidentiality, these numbers will be given by the DNP student and known by the DNP student only. The staff will submit the completed questionnaires in a confidential sealed box which will be provided by the DNP student. The papers will be color coded to differentiate the pre and post implementation questionnaires.

Ethics and Human Subjects Protection

The required checklist for the institutional review board (IRB) was completed and sent to the DNP student's school board for evaluation of the proposed method. The project is considered a quality improvement (QI) project at the DNP student's school and therefore does require an

IRB review. The project site does not require an IRB review, the project plan for implementation will be submitted to the site's leadership team a week before the start of the project.

The anticipated benefits to the staff will be a better work environment and job satisfaction from improved workflow. Aspects of the patient experience, specifically the patient satisfaction scores may improve due to decreased wait times (Harrod et al., 2016). The clinic may also benefit from the project by revealing additional areas that need improvement and the ability to see more patients which will generate more revenue. There is no perceived negative impact to the patients or the participating staff.

The clinic staff will participate in the project as part of their daily tasks. A week before the start of the project, staff will be notified through posters which will be placed in the breakroom and by the time clock at the staff entrance. There will be no monetary compensation for the participants, snacks will be provided by the DNP student for any education session lasting longer than 15 minutes.

Measures and Plans for Analysis

Patient Wait Times

The patient check-in and check-out times will be reviewed for analysis of the total patient wait time at the clinic. The SPSS software will be used to perform the Chi-square statistical test to compare pre-implementation and post-implementation wait times. The Chi-square test will also be used to analyze the results obtained from the questionnaires and determine whether there is a correlation between teamwork and patient wait times.

The Chi-square test assumes that all observations are independent, both variables are categorical, at least 80% of cells should have an expected value of 5 or greater and that cells in the contingency table are mutually exclusive (Pallant, 2013).

Questionnaires

The T-test will be used to compare the results for the pre and post implementation questionnaires to determine if there was a statistically significant difference in the staff's perception of teamwork. The assumptions that must be met when using the t-test include normality of the data distribution, random sampling, independence of both surveys and homogeneity of variances (Pallant, 2013).

Analysis

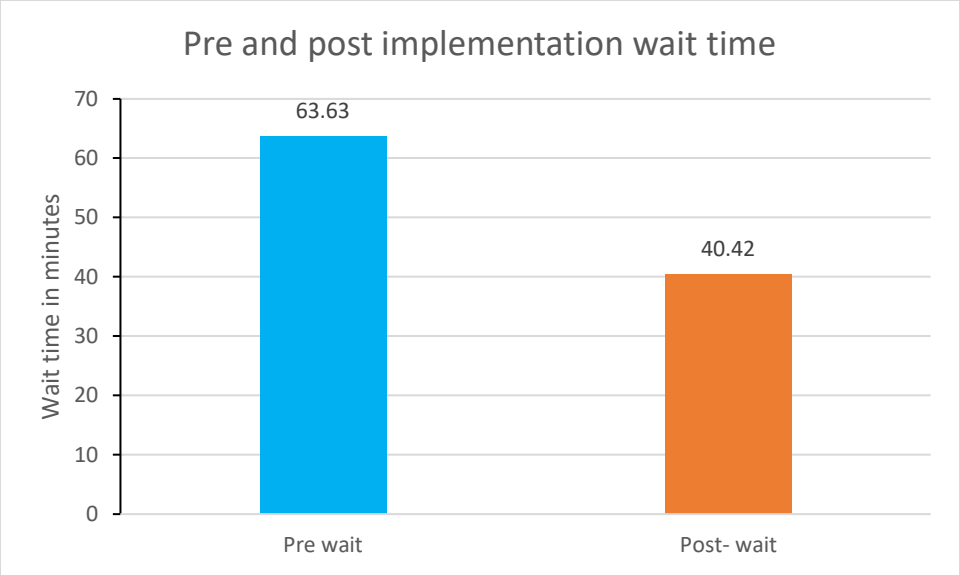
The original sample size for this project was 200, however, due to time constraints, the final sample size was 100. The data from the Office Ally patient report was entered into a Microsoft excel database and later transferred into the SPSS spreadsheet for analysis.
The pre-implementation data was analyzed and compared to the data retrieved at the end of the project implementation to determine differences after team-based approach implementation. For this QI project, the plan was to use statistical analysis chi-square to measure the change that occurred with time, however, after consultation with the project mentor, the DNP student decided to use the T-test for both analyses. This was because time is a continuous variable and chi square is preferred for static variables (Pallant, 2013).

Results

The Pre-implementation data review revealed that the average patient wait time to see a provider after checking in was 63 minutes. Post-implementation, the average wait time was decreased to 40 minutes, Figure 1 below reflects a reduction in the average wait time by 23 minutes.

Figure 1

Results from Pre implementation and Post implantation wait times



Additionally, an independent t test was performed using the SPSS software to determine whether implementation of team-based primary care impacted the patient wait times in a statistically significant way. As shown in table 1 below, the p value was p=<.001, this means that the difference in the wait times pre-implementation and post-implementation were statistically significant. With a mean difference of 17.9 between the pre and post implementation wait times, the conclusion is that the project improved the clinic's patient wait times.

Table 1

Results from the Independent T test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
						Significance			
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference
VAR00001	Equal variances assumed	1.124	.292	5.878	98	<.001	<.001	17.94000	3.05202
	Equal variances not assumed			5.878	97.554	<.001	<.001	17.94000	3.05202

Staff questionnaire results

One of the project's objectives was to train the clinic team on the CPTP guidelines for team-based approach by providing education sessions. Questionnaires addressing teamwork were obtained from the staff 1 week before implementation of the project to determine their perception of teamwork. The staff was then educated on teamwork steps and the CPTP guidelines for the project. At the end of the education sessions on week 4 of the project, staff was given the same questionnaires. The figure 2 and figure 3 below display the staff responses pre- education and post-education respectively.

Figure 2

Pre-education questionnaire results

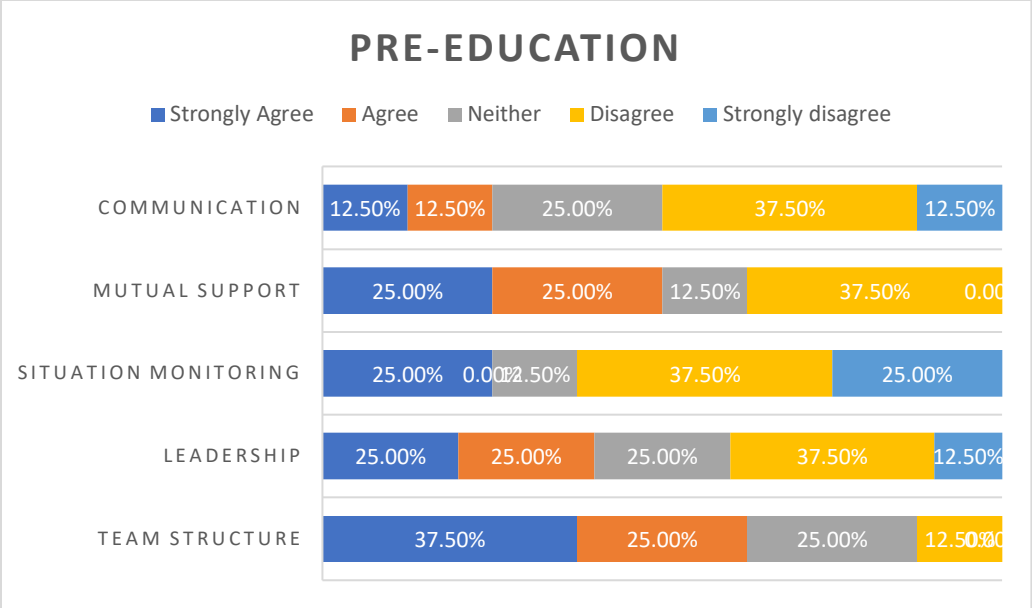
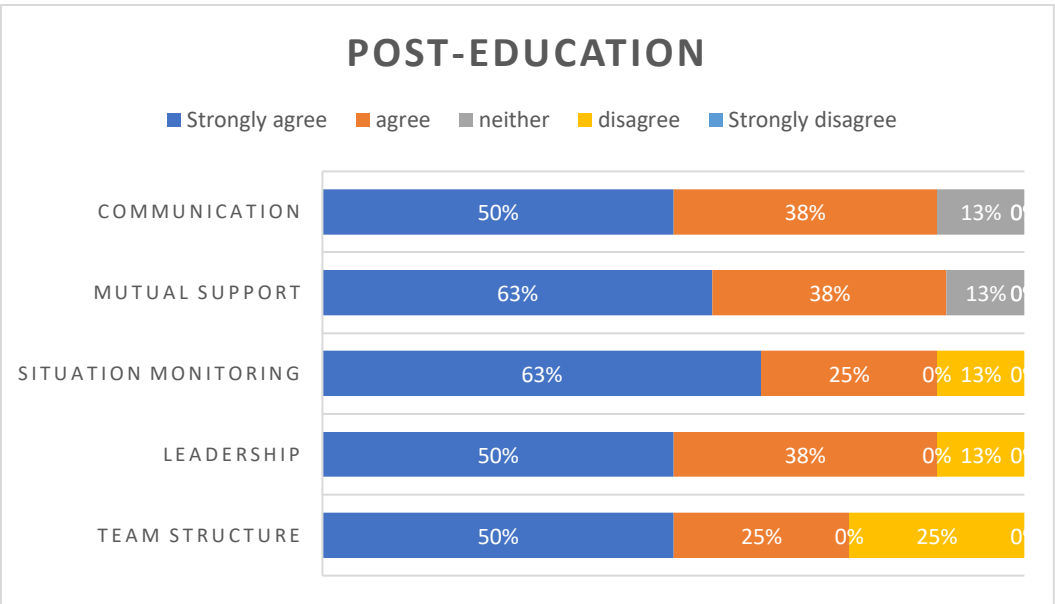


Figure 3

Post education questionnaire results



The questionnaires aim was to determine the level of team awareness among the staff. To test this, the staff was asked to answer a series of questions that were categorized within the 5 constructs of teamwork. The constructs that were examined included communication, mutual

support, situation monitoring, leadership, and team structure. A higher score in any construct meant that the staff had an awareness of teamwork while a lower score meant that the staff did not perceive any teamwork in the clinic. During the education session, staff was discouraged from choosing a neutral response for better measurement of the results.

Pre-education, 58% of the staff answered in the affirmative indicating the perception of teamwork at the clinic while 42% felt that there was lack of teamwork. Post-education and implementation of the team-based protocol, 88% of the staff strongly agreed or agreed to the construct questions indicating that teamwork was occurring at the clinic.

Discussion of the findings

The purpose of this quality improvement project was to establish whether implementing a patient-centered team-based approach, as compared to the current workflow, would reduce patient wait time to 20 minutes in 4 weeks. At the end of 4 weeks, the wait time was decreased from 63 minutes to 41 minutes. The reduction in wait time was consistent with previous studies that had a similar goal of shorter wait times through implementation of teamwork. According to Schottenfeld et al (2016), effective teamwork decreased length of stay during appointments through better work processes.

At the beginning of this project, clinic staff roles were undefined, this created ambiguity in assignment that resulted in delayed care delivery. Implementing team-based primary care clarified roles by assigning daily tasks to improve workflow which resulted in shorter patient wait times. In a fieldwork study done by Lee et al., (2017), implementation of team-based care in the clinics facilitated interdependence and shared responsibility which decreased patient wait times. Another study in the emergency department compared the patient wait times in interprofessional team-based care versus regular nurse-led triage, interprofessional teamwork led

to the shortest patient to provider wait time (Liu et al., 2018). The results of this project support the hypothesis that team-based primary care leads to decreased patient wait times.

Significance

In this project, the staff's perception of teamwork improved after implementation, Lee et al., found that teamwork improved staff satisfaction (2017). Due to evidence of a strong and inverse relationship between staff teamwork and staff satisfaction in primary care, the project lays the groundwork for ways to increase nursing satisfaction which may translate to nursing staff retention.

Although the project did not measure the impact of teamwork implementation for nurses, the improved attitudes from the questionnaire results can be used to create systems to address challenges in nursing staff like nurse burnout, medical errors, and job satisfaction.

Implications

The goal of the decreasing the time to 20 minutes was not met, it is likely that other factors not addressed in the project will be needed to achieve that goal. For example, Robinson et al (2020) was able to decrease patient wait times at a primary clinic by facilitating engagement of all staff and conducting the project over a year's time span. Researchers at a student-run clinic were able to decrease patient wait times by implementing teamwork and adding a QI committee to oversee the process (Lee et al., 2017).

The project fulfilled the objectives of implementing team-based primary care at this community clinic using the CPTP guidelines and training the clinic team on these guidelines. At the beginning of the project, the staff's perception was lack of teamwork at the clinic. Through training during education sessions, staff showed successful interprofessional collaboration through teamwork. This shows a strong inference that teamwork improves patient wait times and

strengthens staff relationships through work collaboration. Future research should investigate in detail ways in which nursing leadership can support staff in creating effective patient care teams.

Limitations of the project

A major limitation of this project was the short implementation time of 4 weeks which prevents generalizability. Quality improvement studies that explore team-based care benefit from prolonged observational periods to generate detailed insights that can be generalized for other settings (Lyson et al., 2019). Although the interventions were implemented within a short period, the improved wait times suggest that the clinic could have benefited from a longer duration of the project.

The small volume of patients that were measured limited the amount of data that was collected. Consequently, the results of this project can be labeled as preliminary to support further development of interventions to support teamwork.

During the staff education sessions, there were unanticipated call offs which also prevented all intended staff from receiving training.

Areas for further dissemination

At the end of the project, the findings were presented to the clinic's stakeholders with the intention of adding the team-based care protocol into their policy and procedure manual. The QI project and results will be shared with the clinic's second location. The project abstract will be submitted to the California association of nurse practitioners for the 45th annual educational conference, the next conference will be held in 2023.

Project Sustainability

The project's goal of decreased wait times aligns with the clinic's mission of making positive efforts in the community using data driven models to make long-lasting difference. As a

clinic that has been in the community for over 30 years, it's stability within the community ensures continuity of sustained efforts to maintain teamwork. Teamwork improved staff perception and patient wait times without the need for additional financial resources, this promotes sustainability.

Training was provided to the key staff in charge of precepting new employees, this will ensure that the knowledge is passed on to new staff. Regular staff meetings will also be conducted for the next year to ensure that the new team-based model is ingrained as the clinic's culture.

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Appendix A

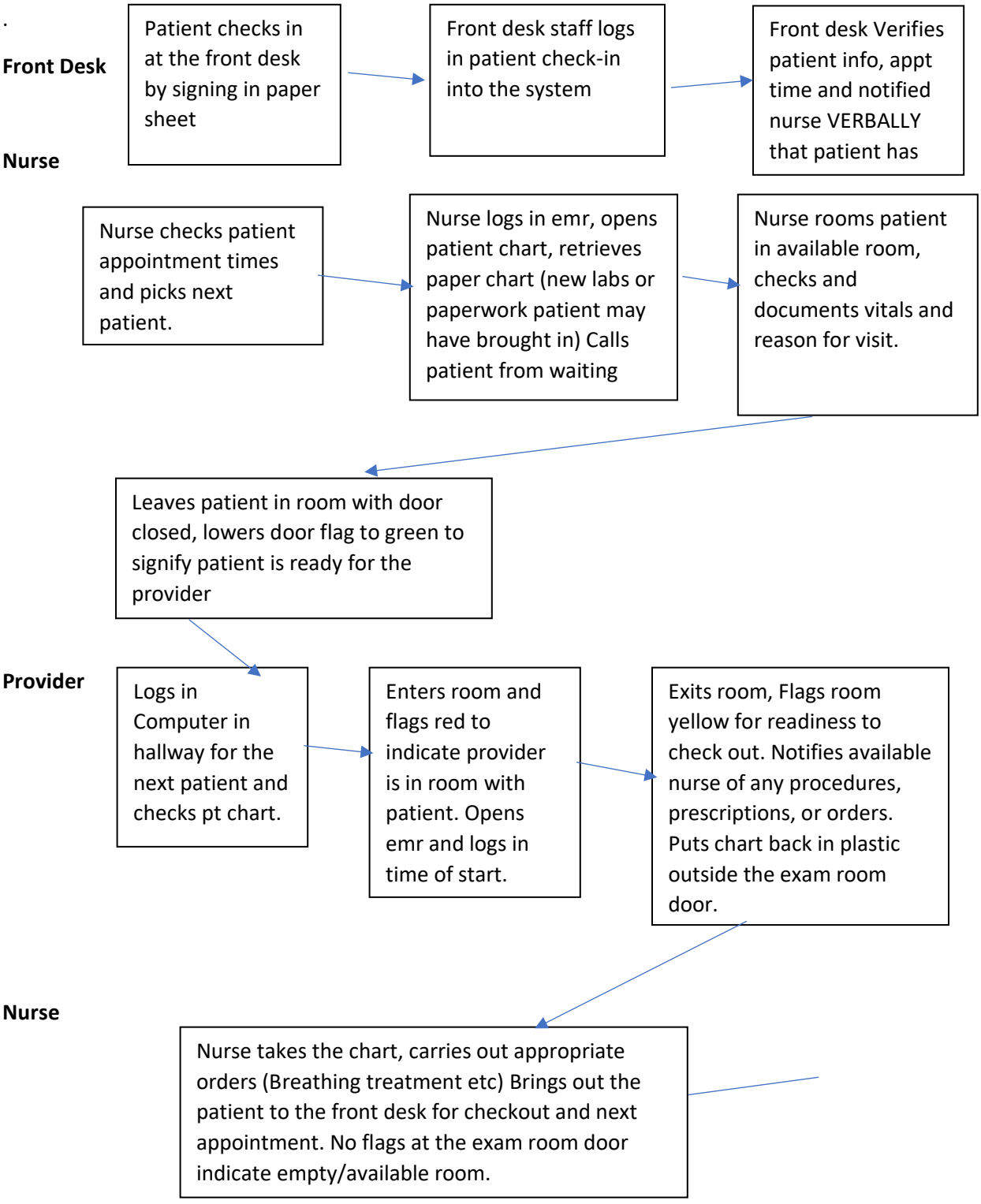
TeamSTEPPS Construct and Protocol

(https://www.ahrq.gov/teamstepps/instructor/essentials/pocketguide.html)

The link to the full protocol can be accessed through
https://www.ahrq.gov/teamstepps/instructor/essentials/pocketguide.html

Appendix B

Flowchart of the clinic's process



Appendix C

Attitudes and Perceptions questionnaires

Please select only one response for each question.

Team Structure	**Strongly Agree 5**	**Agree 4**	**Neutral 3**	**Disagree 2**	**Strongly Disagree 1**
1. It is important to ask patients and their families for feedback regarding patient care.					
2. Patients are a critical component of the care team.					
3. This office's management influences the success of direct care teams.					
4. A team's mission is of greater value than the goals of individual team members.					
5. Effective team members can anticipate the needs of other team members.					
6. High-performing teams in health care share common characteristics with high-performing teams in other industries.					

Leadership	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
7. It is important for leaders to share information with team members.					
8. Leaders should create informal opportunities for team members to share information.					
9. Effective leaders view honest mistakes as meaningful learning opportunities.					
10. It is a leader's responsibility to model appropriate team behavior.					
11. It is important for leaders to take time to discuss with their team members plans for each patient.					
12. Team leaders should ensure that team members help each other out when needed.					

Situation Monitoring	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
13. Individuals can be taught how to scan the environment for important situational cues.					
14. Monitoring patients provides an important contribution to effective team performance.					
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16. It is important to monitor the emotional and physical status of other team members.					

17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18. Team members who monitor their emotional and physical status on the job are more effective.					
Mutual Support	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
19. To be effective, team members should understand the work of their fellow team members.					
20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21. Providing assistance to team members is a sign that an individual does not have enough work to do.					
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24. Personal conflicts between team members do not affect patient safety.					
Communication	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
25.Teams that do not communicate effectively significantly increase their risk of committing errors.					
26. Poor communication is the most common cause of reported errors.					
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28. I prefer to work with team members who ask questions about information I provide.					
29. It is important to have a standardized method for sharing information about patients with other providers.					
30. It is nearly impossible to train individuals how to be better communicators.					

Appendix D

Brief Checklist

Brief Checklist

During the brief, the team should address the following questions:

___ Who is on the team?

___ Do all members understand and agree upon goals?

___ Are roles and responsibilities understood?

___ What is our plan of care?

___ What is staff and provider's availability throughout the shift?

___ How is workload shared among team members?

___ What resources are available?

https://www.ahrq.gov/teamstepps/instructor/essentials/pocketguide.html#brief

Appendix E

Excel Spreadsheet