Final Scholarly Project: Examining the Need for Change by Describing the Attitudes and Perceptions of Team Communications Related to Patient Care and Safety Among Ambulatory Clinic Healthcare Staff

Peter J. Seivers MSN, APRN, FNP-C, NREMT

Department of Nursing, Otterbein University

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DNP Final Scholarly Project Team:

Dr. Chai Sribanditmongkol, Ph.D., RN, IBCLC, CNS, Project Team Leader/Advisor

Dr. Joy Shoemaker, DNP, APRN, FNP-BC, CNE, Project Team Member

Dr. Regina Prusinski, DNP, APRN, FNP-BC, CPNP-AC, Project Team Member

Abstract

Medical errors account up to 250,000 patient deaths annually. Research suggests medical errors are attributable to poor healthcare team communications. The Institute of Medicine posits that communication and teamwork are essential components to safe and successful health care environments. According to the Joint Commission poor communication is considered the root cause of nearly 80% of all serious medical errors. Consequently, the Department of Defense and Agency for Healthcare Research and Research created a team-based training program, known as *TeamSTEPPS®,* which has shown to improve team communication, performance, effectiveness, patient safety, satisfaction, and health outcomes in healthcare settings. Despite evidence supporting *TeamSTEPPS®*, one family practice clinic was not practicing standardized team communications and at an increased risk for potential miscommunications, medical errors, and adverse patient health outcomes. Consideration of perceptions and attitudes of staff before implementing system process changes like *TeamSTEPPS®* is important to ensure program success. Thus, the project's purpose was to assess and describe the staff attitudes, perceptions, and intent to make change, regarding team communication as it relates to clinic patient care and safety. The descriptive scholarly project focused on staff questionnaire responses about perceived team communications and intent to change communication processes in a clinic setting. A systematic data review indicated 86% of respondents agreed the clinic was at risk for committing medical errors, 71% strongly agreed a standardized communication method would benefit the clinic, and 64% of respondents remained neutral regarding to the staff receiving TeamSTEPPS®. Thus, more research is warranted before effective implementation and sustainment can occur at the clinical project site.

***Keywords*:** Medical Errors, Patient Safety, *TeamSTEPPS®*, Outpatient Care Setting, Ambulatory Care, Attitudes and Perceptions, Teamwork, Evidence-based Practice Communication Strategies

Introduction

Healthcare facilities like hospitals, medical centers, and outpatient clinics are continuously at increased risk for failures in communication, which may lead to increased medical errors, and adverse patient health outcomes. According to some research, medical care in the United States during the 21st century is functioning approximately 17 years behind current research (Morris, Wooding, & Grant, 2011) with medical errors causing up to 250,000 patient deaths annually (Anderson & Abrahamson, 2017). In 2016, medical errors were the third-leading cause of death, surpassed only by cardiovascular disease and cancer (Daniel & Makary, 2016). No one, especially those living in the 21st century should have to worry about their medical care killing them, but there is cause for concern.

In 2000, the Institute of Medicine's Report, "*To Err Is Human*" (IOM TEIH) posited that communication and teamwork are essential components to safe and successful health care environments, emphasizing their importance to overall patient safety (Shen, et al., 2020; Bodenheimer & Laing, 2007). According to the Joint Commission (JC) poor communication among medical teams is considered the root cause of nearly 80% of all serious medical errors (The Joint Commission, 2012; The Joint Commission, 2015; Bendapudi, et al., 2006; Ronald & Sirota, 2000; Leasure, et al., 2013). Additionally, the JC contends that approximately 85% of recognized errors were directly attributed to failure to communicate effectively, while the rest were administrative errors. As a result of these report findings and the high stakes involved with poor communications and adverse health outcomes, in 2005 the Department of Defense partnered with the Agency for Healthcare Research and Research and created a team-based training strategy to reduce poor communication, while improving team performance, effectiveness, and patient safety (Manser, 2009; Leasure, et al., 2013; Bendapudi, et al., 2006).

The publicly available, evidenced-based practice program, known as *Team Strategies and Tools to Enhance Performance and Patient Safety* (*TeamSTEPPS*®), consists of a set of innovative, communication tools and strategies, which have been shown to improve communication, patient, and staff satisfaction, as well as enhance patient safety and health outcomes in various healthcare settings. *TeamSTEPPS*® was developed based on five key principles to include: team structure, communication, leadership, situation monitoring, and mutual support. The implementation of *TeamSTEPPS*® in the health care settings involves the optimization of team support, communication, and performance across all health care team roles and disciplines. One indicator of successful provider education that has been shown to directly correlate with a reduction of medical errors is through the successful participation in *TeamSTEPPS*® training and subsequent implementation of systematic, standardized, closed-loop communications among team members. While most of these findings were demonstrated in the inpatient and critical care settings, in 2016, an extension to the *TeamSTEPPS*® program for *Office-Based Care* (Dodge, et al., 2012; Dodge, et al., 2020) was developed to address an unmet need for resources targeting outpatient, ambulatory, and primary care environments. While most of the research has been conducted in the inpatient setting, there is growing research looking specifically at medical errors in the outpatient setting. Despite the common perception that outpatient care is safe and void of medical errors, there is a substantial number of errors that occur in the outpatient setting. Avery et al., (2018) report errors cause harm for up to three percent of all outpatient clinic encounters globally. In reports after the original *IOM's TEIH* there were still 12 million diagnostic errors from the outpatient setting as well as 700,0000 patients treated for an adverse event from medications (Budnitz et al., 2006; Singh et al., 2014). Studies also examined the types of medical errors that occur in the outpatient setting. The two errors seen most in the outpatient setting are

related to medication and diagnosis (Avery et al., 2018). Because most healthcare facilities are continuously at an increased risk for failures in communication, increased medical errors, and adverse patient health outcomes, outpatient care settings have a considerable opportunity to decrease medical errors and provide safe patient care, by incorporating strategies to improve communications like *TeamSTEPPS*®. To achieve organizational consensus and buy-in for effective change, it is also important to take into account the attitudes and perceptions of staff surrounding communication issues that may impair patient care and adversely affect health outcomes as well as their openness to change current communication processes.

Problem Statement

The importance of highly tested, evidenced-based strategies which focus specifically on increasing teamwork through bolstering team communication is a critical need, as evidenced by the high percentage of errors caused by poor communication. The lack of teamwork and communication accounts for up to 70% of adverse patient events (Costar & Hall, 2020; Welsch et al., 2018). A significant impact on decreasing the number of medical errors may be seen through the improvement of teamwork and communication. Research suggests that teamwork and communication are influenced by the team's familiarity with one another, as well as the level of expertise and experience found within the team (Marlow et al., 2018). Since teamwork and communication are influenced by the team's familiarity with one another as well as the expertise and experience of the team members' healthcare organization should focus on areas where teams are unfamiliar, and members' expertise and experience are limited. Healthcare organizations may also consider implementing specific interventions to bolster team communication even in the absence of additional risk factors related to teams' communication due to what we know about communications' effect on medical errors. One potential, evidenced-based, strategy that has been

highly utilized across numerous healthcare and federal government enterprises is the program known as *TeamSTEPPS®.*

Possible Solution with *TeamSTEPPS® Use*

TeamSTEPPS® training provides specific strategies to improve information exchanges and communications during transitions of care to include transfer of responsibility from one team of outpatient caregivers to another, or from a family medicine clinic to a specialty care clinic or hospital. Team Strategies and Tools to Enhance Performance and Patient Safety (*TeamSTEPPS®*) is "an evidence-based teamwork system to improve communication and teamwork skills among healthcare professionals" (Agency for Healthcare Research and Quality [AHRQ], 2019). *TeamSTEPPS®* is based on over two decades of research and was created through a collaboration between the Department of Defense and the Agency for Healthcare Research and Quality (AHRQ) in response to the IOM's TEIH report and the JC sentinel events data. *TeamSTEPPS®* was created in 2005 looking at five main competencies: team structure, communication, leadership, situation monitoring, and mutual support, each with strategies to improve communication, patient, and staff satisfaction, as well as enhance patient safety and health outcomes in various healthcare settings (Dodge et al., 2018). The AHRQ created an extension program 10 years after the initial *TeamSTEPPS®* program was developed, which targeted specifically to the Outpatient setting, known as *TeamSTEPPS® for Office-Based Care* (Parker et al., 2018). Thus, specific strategies derived from *TeamSTEPPS®* training may help to improve information exchanges and overall communications during critical transitions of care for healthcare providers caring for patients at busy outpatient clinic settings.

Despite surmounting evidence supporting TeamSTEPPS® and the creation of *TeamSTEPPS® for Office-Based Care*, staff at one large family practice clinic in the U.S.

Midwest was observed over a period of three months of not practicing any form of systematic, standardized closed-loop communications. Thus, there the clinic may have been at an increased risk for failures in team communication, leading to increased medical errors, and adverse patient health outcomes. Observations at the clinical project site included a lack of standard, systematic, and/or evidenced-based processes in place to bolster communication among the administrative support staff, clinical support staff, the manager, and providers. There were no daily briefings, staff huddles, or debriefings occurring within the office setting. There were also no observable closed-loop communications. Staff communication was observed to occur reactively within the office; however, little proactive communication was found. Communication was observed to occur only between providers, and their immediate clinical support staff as the patient's case dictates. However, there was no regular communication observed, occurring between providers, providers and administrative support staff, providers and the manager, or providers and clinical support staff apart from their assigned medical assistant or nurse. Additionally, there was a reported decreased familiarity among members of the healthcare team, due to the continued expansion of patient care services, and the clinic team which may also impair communications among the healthcare staff. A healthcare team's decreased familiarity has been suggested as a risk factor for decreased communication, which could lead to greater medical error (Marlow et al., 2018). Lastly, at this clinic site, there was a high variability of expertise and experience of the providers being added to the office, that may also provide another risk factor for decreased teamwork and communication (Marlow et al., 2018). Consequently, the observed factors may have increased the healthcare team's risk for failures in communication, which could have resulted in the increased risk for medical errors, and adverse patient health outcomes. To aid the project team in finding and evaluating evidence in a systematic and unbiased approach, the

development of a PICO(T) question resulted in key search terms, which were used to examine the research literature.

Literature Review

PICO(T) Question

The Final Scholarly Project (FSP) proposal used the PICO(T) question framework. Moran et al., (2020) report "…the PICO approach is an effective method to use to develop a good clinical question" (p. 283). The PICO(T) format provides a framework for examining and answering a specific question related to the previously described problem (Melnyk & Fineout-Overholt, 2015). The PICO(T) format was used to develop the clinical question as well as provide strategic keys search terms to obtain the best evidence in the project. The four components include "population of interest [P], intervention of interest [I], comparison of interest [C], and outcome of interest [O]" (Melnyk & Fineout-Overholt, 2015, p. 29). Melnyk and Fineout-Overholt (2019) suggest the PICO(T) question "…yield[s] the most relevant and best evidence from a search of the existing literature" (p.17). A well-formatted PICO(T) question is a systematic approach to helps examine and appraise all the pertinent literature through the formation and use of strategic keywords taken directly from the PICO(T) question. The PICO(T) question developed for this scholarly project was: *In (P) In healthcare team members who work in a family practice clinic setting, how does the introduction of a (I) systematic, team-based communication program like TeamSTEPPS®, compared to (C) the current practice using no standard communication process, impact the healthcare team's overall (O) attitudes, perceptions, and intent to change communications, related to patient safety and risk of medical errors?*

Literature Search Strategies

The literature search for the project was conducted using keywords from the written PICO(T) question above. The key search terms derived from the PICO(T) question included: Medical Errors, Patient Safety, *TeamSTEPPS*®, Outpatient Care Setting, Ambulatory Care, Attitudes and Perceptions, Teamwork, Evidence-based Practice Communication Strategies. Databases which were utilized during this search included the Otterbein University Onesearch, ProQuest, ERIC, Healthsource: Nursing/Academic Edition, MEDLINE, MEDLINE with Full Text, APA PsycINFO, the Cochrane Library, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). Initial results yielded in 60 articles. Due to the workable number of usable and relevant articles, the additional Boolean criteria were added to include peer-reviewed research article results. Following the review of each article's abstract and full text, five articles were found to be relevant and helpful in providing evidence in support of this DNP Final Scholarly Project (FSP). A concise synthesis of the literature can be found in Appendix A and a Literature Review Summary Table can be seen in Appendix B.

Summarizing the Evidence Findings from the Literature

A summary of the evidence derived from the literature review is provided as a visual reference tool in table format as shown in Appendix B. In summary, there were five different articles, which comprised of one integrative review and four mixed-method quasi-experimental studies. Four of the five articles which examined the effects of *TeamSTEPPS*® were very consistent in their findings, while one differed. Four of the articles showed a combined increase related to communication frequency, staff perception of teamwork, staff perception of mutual support, staff perception of communication, staff perception of leadership, patient perception of teamwork, patient satisfaction, teamwork climate, staff morale, collaboration, and decreased

medical errors. Despite the lack of positive results in the fifth study they still found a positive perception of *TeamSTEPPS*® during their interviews, specifically regarding communication. The studies found suggest *TeamSTEPPS*® is a feasible, acceptable, successful, and effective means of improving team communication across multiple healthcare settings. This author agrees with Parker et al., (2018) when they report "currently published literature provides a solid foundation on which to base a program specifically targeting the outpatient clinical setting with the use of *TeamSTEPPS*® for *Office-based Care*" (p. 29-30). Despite the fact there is a low volume of research looking at the effects of *TeamSTEPPS*® in the outpatient setting, there is surmounting evidence that suggests that much of the research that exists is consistent and is enough to support *TeamSTEPPS*® as an effective intervention to increase and enhance staff communication; thereby, decreasing the risk of medical errors.

Project Implementation and Measures

Purpose and Aim

Despite the reports by the JC and IOM and the surmounting evidence from the literature that supports the use of *TeamSTEPPS*® program, currently, healthcare staff members at one large family practice clinic were observed over three months to not be practicing any standardized form of team communication. Thus, the clinic may have been at an increased risk for failures in communications, leading to increased medical errors, and adverse patient health outcomes. Since most healthcare facilities are continuously at increased risk for failures in communication, increased medical errors, and adverse patient health outcomes, outpatient care settings have a considerable opportunity to decrease medical errors and provide safe patient care, by incorporating strategies to improve communications like TeamSTEPPS®. It is also important to take into account the perceptions and attitudes of staff surrounding communication issues that

may impair patient care and adversely affect health outcomes as well as their openness to change current communication processes. Because of these risks and the critical need for teams to effectively communicate, the purpose of this project was to assess and describe the staff attitudes, perceptions, and intent to make change, regarding team communication as it relates to patient care and safety in an ambulatory clinic setting. The project's specific aim was to conduct a systematic record review of questionnaire responses and evaluate the healthcare staff attitudes, perceptions, and interest to change by receiving team-focused and evidenced-based practice strategies training like *TeamSTEPPS*® to improve their teamwork, communication, and ability to reduce medical errors in their large, outpatient clinic setting. The scholarly project did not involve a non-implementation approach, focusing on staff questionnaire responses about perceived teamwork, communication, and intent to change communication processes in an outpatient clinic setting in the U.S. Midwest. The Institute for Healthcare Improvement's Model for Improvement guided this project through completion.

Project Objectives

The following objectives were develop to help achieve the primary aim of this project: 1) To review and appraise evidence from the literature evaluating the EBP, team-based, communications strategies like *TeamSTEPPS*® and team communication assessment tools and intent to change; 2) To provide a questionnaire to clinic staff to assess attitudes, perceptions, and intent to make changes, regarding team communications related to patient care and safety; 3) To conduct a systematic review of clinic staff questionnaire responses regarding attitudes, perceptions, and intent to make changes to communication processes relating to patient care and safety; and lastly, 4) To provide a scholarly presentation with project findings, as well as recommendations using evidence from the research and EBP literature on *TeamSTEPPS*®

training to outpatient clinic leadership, providers, and support staff, all of whom will play a part in deciding, planning, and mitigating future implementation of *TeamSTEPPS®.* The systematic record review consisted of attitude and perception assessment questionnaire response data directly focused on the TeamSTEPPS® construct of "communications." All data was stored and maintained within the staff development quality department. The project did not require contact with patients or their electronic medical record, and data will not include any personal identifiers. Descriptive statistics was used to analyze response data and describe the findings of this project.

Project Design, Setting, and Population of Interest

The DNP scholarly project involved a descriptive design approach, whereby no intervention or treatment condition was introduced to the group of participants at the project site. The clinical project site was a large and busy ambulatory, primary care clinic which has a focus in family practice medicine, serving a patient panel of over 7,100 beneficiaries. The population of interest for the quality improvement project consisted of five healthcare providers, two board-certified family physicians, three certified nurse practitioners, and administrative and support staff personnel.

Project Team

The project team for the proposed DNP scholarly project comprised of the following members: a Doctor of Nursing Practice Student, who is a Board-Certified Family Nurse Practitioner, and served as an Associate Investigator; a PhD-prepared Faculty Advising Principal Investigator (PI) who has diverse and extensive experience as a former Vice Chair of an IRB for a large regional military medical center, and has served as a PI or AI on numerous Clinical Research, Evidence-based Practice, and Quality Improvement Projects for both PhD and DNP

graduate students and healthcare professionals. The last two faculty project team members are both DNP-prepared, Board-Certified Family Nurse Practitioners.

Protection of Human Subjects

Prior to initiating the DNP Final Scholarly Project (FSP), a scholarly written project proposal was submitted as part of the project team's application to the Otterbein University Institutional Review Board (IRB). Following the IRB review, a determination letter was obtained by the university's IRB, attached to the FSP for record-keeping by the project team, and then enclosed within the project final report (as Appendix C). No names or unique patient/staff identifiers or personal health information (PHI) were collected or stored. All collected data was fully de-identified prior to storage into a password-protected, secure spreadsheet. Only de-identified aggregate data will be shared outside of the project site with the university's Department of Nursing during dissemination of the Final Report Presentation (in partial fulfillment of the requirements of the degree: Doctor of Nursing Practice at Otterbein University).

Project Timeline

A review and appraisal of evidence from the literature was conducted in summer of 2022, which helped the project team evaluate current research on EBP, team-based, communications strategies like TeamSTEPPS® as well as available and reliable assessment tools to measure specific team attitudes, perceptions, and intent to change communication related to patient safety. Following the university IRB review and determination, in April 2023 the project team offered an opportunity for clinic staff to partake in a questionnaire, which assessed attitudes, perceptions, and intent to make changes, regarding team communications related to patient care and safety. The questionnaire was offered to staff daily on a volunteer basis in between patient care visits. A

resident Family Nurse Practitioner collected the completed questionnaire responses (Appendices E and F), which did not contain any private information, unique personal identifiers, or demographic information. All physical questionnaire response data were securely stored in a locked office and electronically, de-identified data was stored on a secure, pass-word encrypted spreadsheet to which only the project team had access. Following data collection, the project team conducted a systematic review of clinic staff questionnaire responses regarding attitudes, perceptions, and intent to make changes to communication processes relating to patient care and safety. After analyzing the questionnaire response data, the results and a discussion of the project findings was incorporated into a Final Scholarly Project Report Poster presentation to be given in open forum to the Nursing Department faculty and students in Mid-April 2023, as required by the Nursing Department at Otterbein University in partial fulfillment of the requirements for the Doctor of Nursing Practice degree for the student investigator AI of the Project Team.

Finally, in between April and July of 2023, the project team's student AI disseminated the project findings, as well as recommendations using evidence from the research and EBP literature on *TeamSTEPPS*® training to outpatient clinic leadership, providers, and support staff, all of whom will play a part in deciding, planning, and mitigating future implementation of *TeamSTEPPS*®. Once the final written report is approved by the Project Team Leader/PI/ Advisor, the final report will be submitted to Otterbein University Digital Commons for published archiving no later than May 2023.

Project Budget

Budget considerations for the project were minimal. Since the project used a descriptive design approach, the only burden to clinic staff participants was the time spent attending the completing the 16-item, 5-point Likert scored, (totaling about 4-10 minutes). For the project's

graduate student AI, 1-2 hours per month was invested with university resources such as Microsoft Office, Research Librarian, Writing Center, and Literature Databases. The project team AI's time was the only significant cost associated with developing and executing the DNP project with regards to all aspects of preparation, presentation, and evaluation, accounting for up to 10-15 hours per week for a four-to-six-month timeframe. Potential miscellaneous costs included administrative consumable products such as paper and poster materials not covered by the clinical project site or, such as estimated $200 for printed FSP Final Report presentation items.

Quality Improvement Framework

Institute for Healthcare Improvement (IHI MFI) Model for Improvement

The model this quality improvement project used to frame the DNP scholarly project was the *Institute for Healthcare Model for Improvement (IHI MFI),* which is based on five central principles of quality improvement (Langley et al., 2009). The *IHI MFI* framework is comprised of five principles, correlating with three guiding questions, and the widely studied, continuous 4-cycle *Plan-Do-Study-ACT (PDSA)* Quality Improvement Model—all of which will assist the Project Team with this project's completion of its objectives. The three guiding questions are there to provide direction and a framework for your improvement project in identifying the change intervention. The *PDSA* cycles are there to provide some forward momentum in executing objectives, tasks, and implementing the desired change intervention.

One needs to know what the issue(s) is they are seeking to improve if they are to see any intentional improvement happen. The first central principle is: "Knowing why you need to improve" (Langley et al., 2009, p.16). This provides the aim of the improvement project.. The first central principle correlates with the first question of the *IHI MFI* framework, which is:

"What are we trying to accomplish?" (Langley et al., 2009, p.24). Since most healthcare facilities are continuously at increased risk for failures in communication, increased medical errors, and adverse patient health outcomes, outpatient care settings have a considerable opportunity to decrease medical errors and provide safe patient care, by incorporating strategies to improve communications like *TeamSTEPPS*®. It was also important to take into account the perceptions and attitudes of staff surrounding communication issues that may impair patient care and adversely affect health outcomes as well as their openness to change current communication processes. Because of these risks and the critical need for teams to effectively communicate, the purpose of the project, which was to assess and describe the staff attitudes, perceptions, and intent to make change, regarding team communication as it relates to patient care and safety in an ambulatory clinic setting aligned nicely with the *IHI MFI* first central principle.

Outcome measurement and continuous feedback are fundamental aspects of quality improvement. Knowing how to measure the impact of quality improvement project innovation and how to use these data to improve care is an effective way to impact organizational system-based processes, clinical practice, and patient heal the outcomes. The second principle is: "Having a way to get feedback to let you know if the improvement is happening" (Langley et al., 2009, p.16), which correlates to the second question of the *IHI MFI* framework, which is: "How will we know that a change is an improvement?" (Langley et al., 2009, p.24). All change does not simply equal improvement (Langley et al., 2009). There must be a planned way to determine if the change is an actual improvement or simply just change. The previously mentioned project objectives were integral steps in the project team's plan to achieve its specific aim, which is to conduct a systematic record review of questionnaire responses and evaluate the healthcare staff attitudes, perceptions, and interest to change by receiving team-focused and evidenced-based

practice strategies training like *TeamSTEPPS*® to improve their teamwork, communication, and ability to reduce medical errors in their large, outpatient clinic setting. This plan aligned well with the *IHI MFI* second central principle and will help the project team execute the objectives in an ordered sequence and utilize a set of highly reliable *TeamSTEPPS*® questionnaire questions to assess for attitudes, perceptions, and intent to make changes within this clinic's communication processes.

The effective implementation of innovations, new or updated clinical guidelines, and best practices requires and relies upon the development of a systematic approach with good preparation and detailed planning. The third principle is: "Developing a change that you think will result in improvement" (Langley et al., 2009, p.17) which correlates to the third guiding question "What change can we make that will result in improvement?" (Langley et al., 2009, p.24). This is where the *IHI MFI* framework meets evidence-based practice. Given the long line of improvement seen in the industry field with the *IHI MFI* model, the answer does not have to be known for the *IHI MFI* framework to work. However, due to the medical setting of this project, the answer needed to be evidence-based to help convince leaders and clinicians to incorporate and measure changes in their clinical practice. Thus, prior to forcing the team implementation of a new strategic program to the clinic staff, the project team reviewed and appraised evidence from the literature evaluating the EBP, team-based, communications strategies like *TeamSTEPPS*® and team communication assessment tools and intent to change. As previously mentioned, before implementing a program that could fail in getting buy-in and support, it was also important to take into account the perceptions and attitudes of staff surrounding communication issues that may impair patient care and adversely affect health outcomes as well as their openness to change current communication processes. Thus, one of the

project's objectives involved providing a questionnaire to clinic staff to assess attitudes, perceptions, and intent to make changes, regarding team communications related to patient care and safety.

The project team wanted to assess attitudes, perception, and intent to make changes before the facility decides to move forward and attempt to roll a program like TeamSTEPPS® out to the entire organization. The fourth principle is: "testing a change before any attempts to implement" (Langley et al., 2009, p.18) and is where the *PDSA* cycles come into play. Melnyk and Fineout-Overholt (2019) suggest verifying practice change with the combination of *PDSA* cycles and external evidence increases the effectiveness of the outcome for sustained change. To ensure the best success and sustainment of the planned innovation, project teams should consider the end-users, and stakeholders who the change will affect, the verification of the participants' intent and need for practice change with the combination of *PDSA* enabled us to make not only evidence-based changes but also changes that will incorporate staff attitudes and intent to make improvements in the outpatient clinic organizational setting. The use of questionnaires allowed the organization to make as many pre-inquiry-like assessments and small changes as possible to the interventions before rolling it out to the rest of the organization creating a more sustainable improvement. The project clinic site has multiple locations throughout the central Ohio. This principle allowed for small changes to be rolled out to a single pilot office where, through multiple *PDSA* cycles, the best-personalized interventions possible for the medical group can be created before moving on to the fifth and final principle. Following collection of the questionnaire responses, the project team conducted a systematic review of clinic staff response data regarding attitudes, perceptions, and intent to make changes to communication processes relating to patient care and safety. Those response data was used in providing a scholarly

presentation with project findings, as well as recommendations using evidence from the research and EBP literature on *TeamSTEPPS*® training to outpatient clinic leadership, providers, and support staff, all of whom will play a part in deciding, planning, and mitigating future implementation of *TeamSTEPPS*®. All these efforts are anticipated to help increase leadership's awareness of their clinical team's readiness to make improvements in teamwork, communications, patient care and safety through use of evidenced-based practice change.

Due to the time constraints of the project team student AI's graduate educational program, there was not adequate time to implement any change by way of initiating the *TeamSTEPPS*® training program to the clinic site. Therefore, although the fifth and final principle of the *IHI MFI* is "implementing a change" (Langley et al., 2009, p.20), the intent of the project was to describe attitudes, perceptions, and the clinical team's intent to make future changes concerning team building and effective communications. A scholarly presentation with project findings, as well as recommendations using evidence from the research and EBP literature on *TeamSTEPPS*® training was provided to the outpatient clinic leadership, providers, and support staff. This informational presentation to the key stakeholders will serve as a launch point for those executive healthcare leaders in deciding, planning, and mitigating the future implementation of a program like *TeamSTEPPS*®. The final scholarly project consists of a non-implementation approach and descriptive design, thus, for the purposes of the project, the implementation of any training program to solve the current problem will not occur and would exceed the expectations of this project team's involvement. Thus, only principles 1 through 4 of the *IHI MFI* were executed for the purposes of the project. However, the 4 *PDSA* cycle steps, which are embedded in the *IHI MFI* framework (shown in Appendix D), will continue to guide the project's execution of its objectives in achieving the specific aim of the project.

Plan-Do-Study-ACT (PDSA) Quality Improvement Model

The *PDSA* cycles help to implement what one identifies as the correct evidence-based intervention to assist with the problem identified. The parts of the *PDSA* cycles are as follows: *Plan, Do, Study, and Act*. Each of these cycles, in conjunction with each other, can assist the project team with assessing a situation and making small changes to the intervention to determine how the organization can individualize the intervention to make it more sustainable for them. It is recommended that organizations implement the identified intervention through the *PDSA* cycle on a small scale first, which can reduce the initial risk associated with the intervention, and then through subsequent *PDSA* cycles implement in larger areas of the organization (Langley et al., 2009). The project objectives have been mapped out in alignment with each corresponding *PDSA* cycle step and referred to in Appendix D. A brief description of each the *PDSA* Model cycles is provided below:

***Plan*.** During this initial phase, key components include identifying the problem and deriving potential solutions (Connelly, 2021; Polit & Beck, 2021; Moen & Norman, 2010). The "Plan" part of the cycle includes planning on how to initiate the intervention identified in the third guiding question, as well as how to collect data to determine the success of the intervention.

Do. The second portion of this cycle requires implementation of the proposed plan, or the 'Do' phase (Moen & Norman, 2010). This stage is best implemented on a small scale to implement small local change which also provides the project investigators with the freedom to lean and adapt while minimizing use of organization resources (Connelly, 2021; Taylor et al., 2014). The "Do" part of the cycle is initiating what you previously planned, observing how things go, and recording those findings. The findings from the "Do" cycle are then scrutinized under the next cycle, the "Study" phase.

Study. The third phase of the PDSA cycle is the 'Study' portion that emphasizes evaluation of results (Moen & Norman, 2010). Results of the *TeamSTEPPS*® Teamwork Attitudes and Perceptions Questionnaire and *TeamSTEPPS® Perceived Needs and Intent to Change Questionnaire* was be collected and analyzed.

Act. After evaluating the results, the final 'Act' phase of the cycle will focus on lessons learned, identifying adjustments as necessary to optimize a new cycle if needed, or sustain effective cycles already in place (Connelly, 2021; Taylor et al., 2014). The final phase is the "Act" phase which is implementing the updated plan from the data that was recorded, findings scrutinized, and the intervention updated. This *PDSA* cycle can continue until the intervention obtains maximal impact for the organization, and then the intervention will be disseminated to the entirety of the organization. The project objectives and methods are framed using the quality improvement *PDSA* Model of the *IHI MFI* framework, and have been established to achieve the project's overall aim as shown in Appendix D.

Analysis and Outcome Evaluation

TeamSTEPPS® Teamwork Attitudes and Perceptions Questionnaire (T-AQ & T-TPQ)

A short, two-part, Questionnaire, based on the construct "Communication*" using the TeamSTEPPS® Teamwork Attitudes (T-TAQ)and Perceptions Questionnaire (T-TPQ) form* (Appendix E), will be offered to all members of the family medicine clinic staff. The questionnaire consisted of two sections, which are considered highly reliable—part one will assess staff attitudes (*T-TAQ*) by way of 6 team-based communication questions with a Cronbach's Alpha of .74 (TeamSTEPPS® Teamwork Attitudes Questionnaire Manual, 2017; Sexton, et al., 2006), and part two will examine perceptions (*T-TPQ*), regarding team communications as related to patient safety, using 7 team-communication related questions with

a Cronbach's Alpha of .88 (*TeamSTEPPS® Teamwork Perceptions Questionnaire (T-TPQ*) Manual, 2017; Castner, 2012). The two-part questionnaire consists of a total of 13 declarative statements as shown in Appendix E. Participant responses will be rated on a 5-point Likert scale of 1 to 5 (1 being "strongly disagree" and 5 being "strongly agree").

TeamSTEPPS® Perceived Needs and Intent to Change Questionnaire

Lastly, the project team provided each staff participant with the *TeamSTEPPS® Perceived Needs and Intent to Change Questionnaire* (Appendix F). This questionnaire consisted of a total of 3 declarative statements as shown in Appendix E. Participant responses will be rated on a 5-point Likert scale of 1 to 5 (1 being "strongly disagree" and 5 being "strongly agree"). Responses obtained from this questionnaire helped the project team gage the healthcare clinic staff's intention to make changes to their communication processes in their clinical setting.

Data Collection Procedure

Following the university IRB review and determination, in April 2023 the project team and facility's quality improvement department offered an opportunity for clinic staff to partake in a questionnaire, which assess attitudes, perceptions, and intent to make changes, regarding team communications related to patient care and safety. The questionnaire was offered to staff daily on a volunteer basis in between patient care visits. A Resident Family Nurse Practitioner collected the completed questionnaire responses (Appendices E and F), which did contain any private information, unique personal identifiers, or demographic information. All physical questionnaire response data was securely stored in a locked office and electronically, de-identified data and stored on a secure, pass-word encrypted spreadsheet to which only the project team had access. Following data collection, the project team conducted a systematic

review of clinic staff questionnaire responses regarding attitudes, perceptions, and intent to make changes to communication processes relating to patient care and safety.

Data Analysis Plan

The data collected from the clinic staff responses to the Questionnaires (Appendix E and Appendix F) was uploaded into an excel spreadsheet for analysis. Descriptive statistics were used to analyze and summarize quantitative data. The use of descriptive statistics allowed the project team to examine and provide basic summary information about staff attitudes and perceptions regarding team communications relating to patient safety as well as their intent to make future changes to communications in the clinic. This information aided the project team as well as the project site's family medicine clinic's providers and quality improvement leadership to gage the team's attitudes, perceptions, and intent to participate in making changes regarding communication process related to patient safety and healthcare practices. All project findings, identified barriers, and recommendations for future *TeamSTEPPS*® implementation, sustainment, and continued monitoring, were presented, using SWOT analysis briefing and discussion format techniques, to all key stakeholders and leaders as well as the university's Nursing Department faculty and students during the project team FSP Final Report dissemination.

Results

The project team sought out to assess and describe the staff attitudes, perceptions, and intent to make changes, regarding team communication as it relates to patient care and safety in an ambulatory clinic setting. Three 5-point Likert scaled questionnaires were administered to healthcare staff at a large and busy ambulatory, primary care. The project team conducted a systematic record review of questionnaire responses and evaluated the healthcare staff attitudes,

perceptions, and interest to change by receiving team-focused and evidenced-based practice strategies training like *TeamSTEPPS®* to improve their teamwork, communication, and ability to reduce medical errors in their large, outpatient clinic setting. A total of 14 surveys out of 16 staff were collected and analyzed with a response rate of 87.5%. Results from a retrospective analysis of the *T-TAQ, T-TPQ,* and *TeamSTEPPS® Perceived Needs and Intent to Change* questionnaire response data are shown in Figures 1 through 3.

Figure 1.

TeamSTEPPS® Teamwork Attitudes (T-TAQ) Data

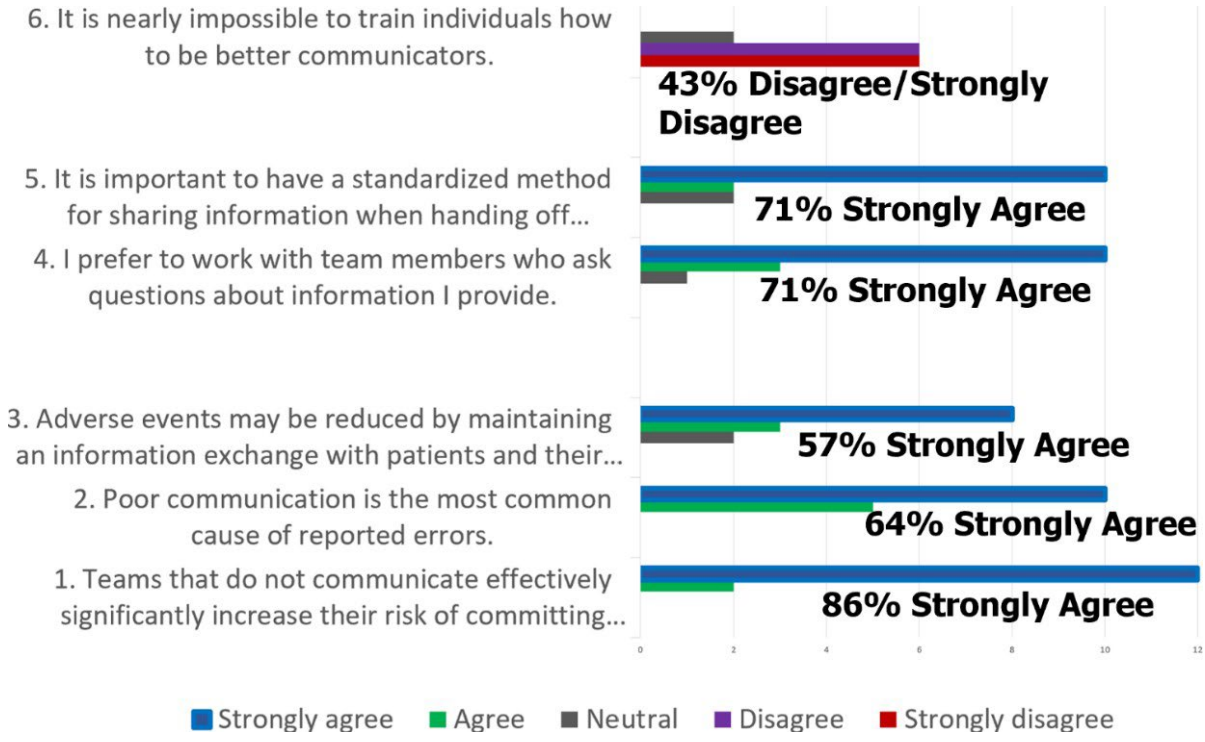


Figure 2.

TeamSTEPPS® Teamwork Perceptions (T-TPQ) Data

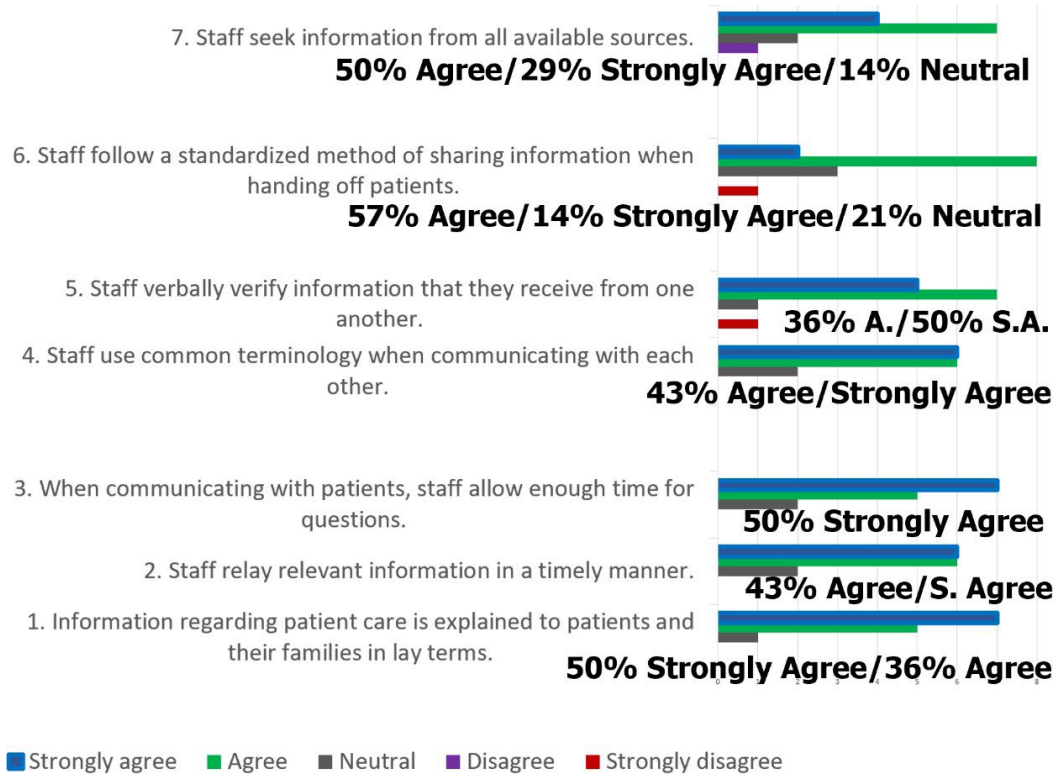
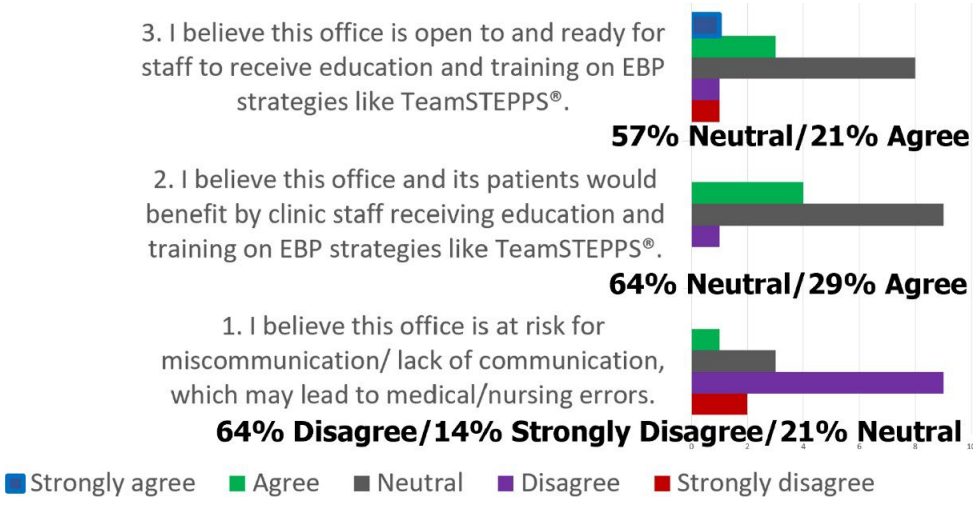


Figure 3.

TeamSTEPPS® Perceived Needs and Intent to Change Data



Discussion

The questionnaire response findings in the project indicate that 86% of those current healthcare team members who responded to the questionnaire believe that when there are not effective communications being practiced, there is an increased risk for committing medical errors. Additionally, 71% of respondents strongly agreed that having a standardized method of communication and sharing information when handing off or transferring aspects of patient care are important to their jobs at the clinic. Fifty-seven percent of *T-TAQ* responses to question 3 suggest that clinic staff believe that errors and adverse events may be reduced by practicing open-exchange communications involving the patients. Fifty-seven percent of those of who responded to the *T-TPQ* question number 6 agree and 14% of them strongly agree that staff at their clinic should follow a standard method for sharing information and handing off patient care. Also, 50% clinic staff questionnaire participants strongly agree that patients should be afforded adequate time to ask questions and communicated with providers. These findings demonstrate that the clinic staff members who participated in this project believed and understood the importance of effective team communications with each other and with their patients in limiting risk for error and enhancing patient safety and care experiences of clinic beneficiaries. Although these findings are compelling and support effective communication in limiting risk for medical errors, 64% of the clinic staff who responded disagree that the clinic office is at risk for miscommunication, lacking communication, and risk for medical/nursing errors. Although 29% agree that the clinic is ready for staff to receive education and training on EBP strategies like TeamSTEPPS, surprisingly 57% to 64% of those staff respondents remain neutral with regards to the clinic staff receiving TeamSTEPPS training, which may indicate to key stakeholders and

leadership that the clinic needs more information and time before implementing a program like this one would be effective and sustainable at this time.

Although the questionnaire response findings were derived from a small convenience sample size, questionnaire response findings from the *T-TAQ* and *T-TPQ* demonstrate evidence of common staff attitudes and perceptions in support of outpatient clinic use of a standardized method of communication and information sharing information when caring for patients and handing off or referring patient care from their clinic to other specialty healthcare facilities. Findings from the *TeamSTEPPS® Perceived Needs and Intent to Change* questionnaire response data suggest that some staff agree that the clinic is ready to receive *TeamSTEPPS®* training. However, because more than half of the clinic respondents remain neutral with regards to the staff receiving *TeamSTEPPS®* training, more information, needs assessments surveys, and research is warranted before effective *TeamSTEPPS®* implementation and sustainment can occur at the clinical project site.

Conclusion and Recommendations

Since poor communication is known to be a major contributing factor of medical errors, teamwork and effective communication are critical elements relevant to the delivery of safe, quality healthcare. Because most healthcare facilities are continuously at increased risk for failures in communication, increased medical errors, and adverse patient health outcomes, outpatient care settings have a considerable opportunity to decrease medical errors and provide safe patient care, by incorporating strategies to improve communications like *TeamSTEPPS®*. However, to achieve organizational consensus and buy-in for effective change, it is also important to take into account the perceptions and attitudes of staff surrounding communication issues that may impair patient care and adversely affect health outcomes as well as their

openness to change current communication processes. The project team undertook an integral first step in assessing and describing an ambulatory healthcare staff attitudes, perceptions, and intent to make change, regarding team communication as it relates to patient care and safety in an ambulatory clinic setting. The project team's efforts and prospective findings are anticipated to help increase healthcare leadership's awareness of their clinical team's readiness to make improvements in teamwork, communications, patient care and safety through use of evidenced-based practice change and highly effective team-based training programs like *TeamSTEPPS®*. The DNP Final Scholarly Project, which utilized best practices from the literature and a systematic approach can serve as a beginning point for future projects which seek to ensure safe, quality, and evidence-based practice care through the bolstering of teamwork and effective team-based communications among healthcare professionals in other similar outpatient clinic settings.

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Appendix A

Levels of Evidence Synthesis Table

X (copy symbol as needed)	LaMothe et al., 2021	Dodge et al., 2018	Dodge et al., 2020	Wolk et al., 2019	Parker et al., 2018
Level I: Systematic review and meta-analysis					
Level II: Randomized controlled trial					
Level III: Controlled trial without randomization					
Level IV: Case-control or cohort study					
Level V: Systematic review of qualitative or descriptive studies					
Level VI: Qualitative or descriptive study, CPG, Lit Review, QI or EBP project	X	X	X	X	X
Level VII: Expert opinion					

Appendix B

Literature Review Summary Table

Author	Year	Evidence Rating	Population/Setting	Intervention	Measurement Tools	Limitations/Barriers	Results
LaMothe et al.	2020	Level 6	5 Rural Primary Care Centers 2 Centers Withdrew	*TeamSTEPPS*®	Collaboration and Satisfaction About Care Decisions Scale (CSACD) Safety Organizing Scale (SOS) Exit Interviews	Small sample size. Staff turnover during study	Collaborative assessment, cooperation, planning, communication, shared decision making, satisfaction and coordination all increased per CSACD scores Perception of safety culture increased per SOS scores Interviews were categorized as facilitators or barriers.
Dodge et al.	2018	Level 6	20 different organizations 69 centers across 14 organizations implemented TeamSTEPPS® 67 centers across 13 organizations completed 1 year follow up after implementation	*TeamSTEPPS*®	Communication Behaviors Assessment (CBA) Teamwork Perceptions Questionnaire (T-TPQ) Patient's Insights and Views of Teamwork Survey (PIVOT)	Using multiple Evaluation tools Limited sample size due to the paired data analysis Use of a non-validated communication assessment tool	31 health centers from 9 organizations had paired 6-month CBAs showing increase in briefs, huddles, debriefs, and increase use of standardized language 39 health centers from 8 organizations had paired 1 year CBA's showing increase in briefs, huddles, debriefs, pausing to identify the patient and procedure, and using standardized language and handoffs amount staff 37 health centers from 11 organizations have paired 6-month T-

							TPQ's showed improvement in 31 out of 35 statements-none were worse 51 health centers from 11 organizations had paired 1 year T-TPQ's21 of the 35 items showed improvement -1 item ("Leader inform staff of situations affecting patient care") was worse. 36 health centers form 6 organizations did PIVOT survey 1 year post implementation. 15 out of the 16 statements showed improvement. Patient Satisfaction improved significantly The percentage of patients who would recommend the health center significantly improved. 15 interviews with team members across 4 organizations showed improved communication. Challenges identified were being overwhelmed with the implementation and training process, resistance to change from some staff members, staff turnovers, persistence to sustain the change.

Appendix B (Cont.)

Literature Review Summary Table

Author	Year	Evidence Rating	Population/Setting	Intervention	Measurement Tools	Limitations/Barriers	Results
Dodge et al	2020	Level 6	12 of the original 20 organizations implemented the intervention to conduct a full 2-year evaluation. Two of the organizations withdrew a total of 4 health care centers. Of the 10 remaining organizations only 6 completed the 2-year follow up assessments	*TeamSTEPPS®*	Communication Behaviors Assessment (CBA) Teamwork Perceptions Questionnaire (T-TPQ) Patient's Insights and Views of Teamwork Survey (PIVOT)	Using multiple Evaluation tools Limited sample size due to the paired data analysis Use of a non-validated communication assessment tool	Findings: 23 health centers from 5 organizations had paired baseline and 2 yr. CBA's showing an increase in briefs, huddles, and debriefs along with use of standardized language and handoffs. 19 health centers from 5 organizations had paired baseline and 2-year T-TPQ 17 of the 35 statements had improved. Team Structure and Situation Monitoring domains each showed improvements in 5 of the 7 domains. 22 health centers from 4 organizations PIVOT surveys after 2 years of intervention implementation all 16 statements showed improvement Patient Satisfaction improved Pt's recommendation of the healthcare center increased Bottom line: TeamSTEPPS® showed increase in Staff communication and improved patient experience

Appendix B (Cont.)

Literature Review Summary Table

Author	Year	Evidence Rating	Population/Setting	Intervention	Measurement Tools	Limitations/Barriers	Results
Wolk et al	2019	Level 6	27 individuals across 6 school-based mental health teams	*TeamSTEPPS*®	T-TPQ T-TAQ Evidence-based Practice attitude scale Maslach burnout inventory human services survey Qualitative interviews Qualitative field notes	Challenges faced not all participants thought of teamwork as important as well as *TeamSTEPPS*® not being worded for the school setting Barriers: Not having enough resources Unable to get necessary information when needed Staff resistant to change Lack of interest to improve team Responsible for Multiple locations Staff turnover Contracted staff	MBI emotional exhaustion increased, and personal accomplishment decreased T-TAQ and T-TPQ along with the MBI depersonalization score did not differ significantly from baseline to 5 months from post intervention The control teams reported more favorable perceptions of teamwork than the intervention Having a strong leader is important to the team's success No significant improvements in team skills and behaviors or burnout

Appendix B (Cont.)

Literature Review Summary Table

						Limited training lack of accountability Small sample size	
Author	**Year**	**Evidence Rating**	**Population/Setting**	**Intervention**	**Measurement Tools**	**Limitations**	**Results**
Parker et al	2019	Level 6	19 studies: Per AACN evidence hierarchy 15-level C 4-Level D	*TeamSTEPPS*®	T-TPQ T-TAQ Teamwork Evaluation of Non-technical Skills (TENTS) Quality of Work life survey (QWL) Attitudes, Motivation, Utility & Self-Efficacy (AMUSE)	Setting analyzed Small sample sizes Inconsistent evaluation methods Inability to control confounding factors Reporting Bias	Increase in staff morale 75% decrease in root cause analysis meetings Reduction of lab error rates Increase patient satisfaction Increase in attitudes related to the following: communication, leadership, teamwork skills, and mutual support Increase in communication Increase in patient safety

Appendix C

Otterbein University IRB Determination Letter

INSTITUTIONAL REVIEW BOARD

☒ Original Review
☐ Continuing Review
☐ Amendment

Dear Dr. Sribanditmongkol,

With regard to the employment of human subjects in the proposed research:

HS # 22/23-84
Sribanditmongkol & Seivers: Examining the Need for Change by Describing …

THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

☒ Approved
☐ Approved with Stipulations*
☐ Limited/Exempt/Expedited Review
☐ Disapproved
☐ Waiver of Written Consent Granted
☐ Deferred

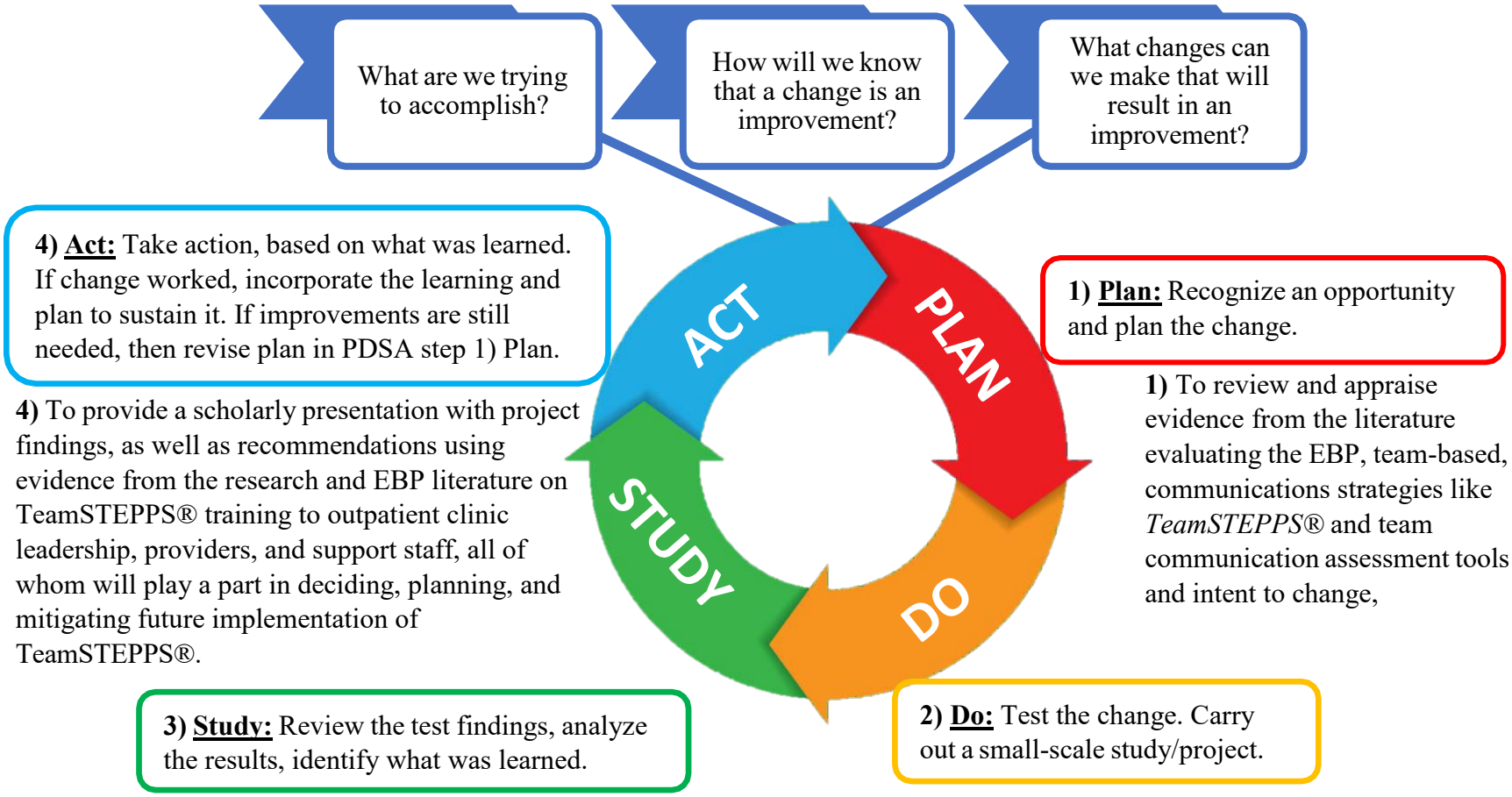
*Once stipulations stated by the IRB have been met by the investigator, then the protocol is APPROVED.

1. As Principal Investigator, you are responsible for ensuring all individuals assisting in the conduct of the study are informed of their obligations for following the IRB-approved protocol.
2. It is the responsibility of the Principal Investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the Principal Investigator leave the university, signed consent forms are to be transferred to the IRB for the required retention period.
3. If this was a limited, exempt, or expedited review, there is no need for continuing review unless the investigator makes changes to the proposed research.
4. If this application was approved via full IRB committee review, the approval period is one (1) year, after which time continuing review will be required.
5. You are reminded you must promptly report any problems to the IRB and no procedural changes may be made without prior review and approval. You are also reminded the identity of the research participants must be kept confidential.

Signed: Noam Shpancer Date: 4-10-2023
IRB Chairperson

Appendix D

IHI Model for Improvement Framework (IHI MFI) and Project Objectives



Appendix E

Part 1: *TeamSTEPPS*® Teamwork Attitudes Questionnaire (*T-TAQ*)

Communications Section

The purpose of this survey is to measure your impressions of one component of teamwork (e.g., communication) as it relates to patient care and safety.

Instructions: Please respond to the questions below by placing a check mark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

Communication	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. Teams that do not communicate effectively significantly increase their risk of committing errors.					
2. Poor communication is the most common cause of reported errors.					
3. Adverse events may be reduced by maintaining an information exchange with patients and their families.					
4. I prefer to work with team members who ask questions about information I provide.					
5. It is important to have a standardized method for sharing					

information when handing off patients.					
6. It is nearly impossible to train individuals how to be better communicators.					

****

Part 2: *TeamSTEPPS*® Teamwork Perceptions Questionnaire (*T-TPQ*)

Communications Section

The purpose of this survey is to measure your impressions of one component of teamwork (e.g., communication) as it relates to patient care and safety.

Instructions: Please respond to the questions below by placing a check mark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

Communication	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. Information regarding patient care is explained to patients and their families in lay terms.					
2. Staff relay relevant information in a timely manner.					
3. When communicating with patients, staff allow enough time for questions.					
4. Staff use common terminology when					

communicating with each other.					
5. Staff verbally verify information that they receive from one another.					
6. Staff follow a standardized method of sharing information when handing off patients.					
7. Staff seek information from all available sources.					

Please provide any additional comments in the space below.

Thank you for your participation!

Appendix F

TeamSTEPPS® Perceived Needs and Intent to Change Communications Questionnaire

The purpose of this survey is to measure your impressions of one component of teamwork (e.g., communication) as it relates to patient care and safety.

Instructions: Please respond to the questions below by placing a check mark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

Communication	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I believe this office is at risk for miscommunication/ lack of communication, which may lead to medical/nursing errors.					
2. I believe this office and its patients would benefit by clinic staff receiving education and training on EBP strategies like *TeamSTEPPS*®.					
3. I believe this office is open to and ready for staff to receive education and training on EBP strategies like *TeamSTEPPS*®.					

Please provide any additional comments in the space below.

Thank you for your participation!