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Adoption Of Teamstepps® To Promote Collaboration And Problem-Solving: A Pilot Training Program For Clinical Nursing Leaders

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ADOPTION OF TEAMSTEPPS®
TO PROMOTE COLLABORATION AND PROBLEM-SOLVING:
A PILOT TRAINING PROGRAM FOR CLINICAL NURSING LEADERS

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This DNP Project is accepted in partial fulfillment of the requirements for the degree Doctor of

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Abstract

Quality improvement, a concept implemented by Florence Nightingale in the 19th century, is now deeply embedded in United States healthcare policy from licensure to payment models (Nightingale, 1863). The culture of safety and the emphasis on process improvement is engrained in high reliability organizations, fostering an environment of collective mindfulness and collective enactment to prevent error. To achieve high quality, healthcare organizations must bridge the core competencies of communication, collaboration, and problem solving taught in pre-licensure and translate them in inter-professional practice using evidence-based approaches. Nurses and nursing leaders must be equipped with the right problem-solving tools to drive efficiency, quality improvement, conflict resolution, and collaboration needed to support a high performing organization. TeamSTEPPS® developed by the Department of Defense and the Agency for Healthcare Research and Quality, is an evidence-based curriculum, aimed at fostering teamwork and collaboration (King et al., 2008).

This quality improvement initiative adopted TeamSTEPPS® and implemented a virtual, self-guided pilot training program focused on 4 modules (TRICARE Management Activity, 2008). The pilot training program was implemented across 3 inpatient units and specifically targeted clinical nursing leaders in an academic medical center. The Kirkpatrick's model was used to evaluate knowledge-skills-attitudes gained by participants of the training program (Kirkpatrick, 1967). Each participant completed a pretest prior to completing the virtual training and an immediate and 4-to-5-week posttest. The results of the 4 multiple choice questions and 15 to 17 4-point Likert scale questions were analyzed through descriptive statistics. Of the 10 participants who completed the pretest, 4 completed the immediate posttest (40% response rate) and 5 completed the 4-to-5-week posttest (50% response rate). The findings did not demonstrate

significant improvement in knowledge gained and behavior applied from the pilot training program. Results indicated future considerations to augment the curriculum to address conflict engagement. Results indicated slight improvement in learning and behavior tied to standardized methods in sharing information. The COVID-10 pandemic and a shift in organization priorities and strategy resulted in limitations around participation. As the organization and health care community ascends from the pandemic and other organizational priorities, nursing leaders will be reenergized and engaged. Future scalability includes consideration to add a simulation lab to the curriculum design and implement the training program across all adult inpatient units in the organization, promoting participation and common language across all clinical nursing leaders.

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Chapter 1

Introduction, Significance and Problem Statement

Introduction

Florence Nightingale, an English nurse, implemented the concept of quality improvement (QI) in the 19th century by exploring the association between poor sanitation and hygiene to high mortality rates during the Crimean War (Nightingale, 1863). For decades, federal policies and programs, non-profit organizations, and patient advocacy organizations have framed QI in the United States (US). The creation of Medicare and Medicaid programs in 1954 led to the Conditions of Participation and ultimately The Joint Commission (Marjoua & Bozic, 2012). The Donabedian framework in 1966 outlined a triad of structure, process, and outcome to assess quality in healthcare (Ayanian & Markel, 2006). In 1999, Institute of Medicine (IOM) released a report called *To Err is Human: Building a Safer Health System* that emphasized the importance of patient safety and implored for systemic and structural change to prevent errors and deaths (Institute of Medicine, 2001). The passage of the Affordable Care Act took another step toward healthcare reformation by implementing a value-based care model, linking quality to payment (Centers for Medicare and Medicaid Services (CMS), 2020). The culmination of policies and programs have created a current health care environment focused on improving health care quality.

QI is embedded and multifaceted within a healthcare organization's framework. A culture of safety and emphasis on process improvement are engrained in a high performing healthcare organization's mission, vision and values (Chassin & Loeb, 2013). The Institute for Healthcare Improvement developed guidance for Chief Quality Officers to support a quality

infrastructure within organizations and create a culture that empowers individuals to participate in improvement science (McGrath et al., 2018). High reliability organizations (HRO) strive for ongoing improvement efforts to mitigate a high-risk environment in order to produce safe patient outcomes (Chassin & Loeb, 2013). High reliability emphasizes the importance of collective mindfulness and collective enactment to ensure individuals within an organization are continuously evaluating the environment and the functioning of systems to prevent errors and blind spots (Chassin & Loeb, 2013). A high reliability environment requires inter-professional teamwork and collaboration to promote a culture of safety and innovation in a complex health care system (Chassin & Loeb, 2013). The Magnet Recognition Program®, created by the American Nurses Association (ANA), focuses on four key areas: management, philosophy, and practice; integration of recognized QI standards; support for professional practice and continued competence; and understanding and respecting cultural and ethnic diversity of patients, significant others, and healthcare providers (Cimiotti et al., 2005). The focus on integrating QI standards into health care signifies the importance of integrating safety and quality initiatives within the nursing profession.

The nursing profession has incorporated quality improvement content and competency in education and practice environments. The Quality and Safety Education for Nurses (QSEN) and American Association of Colleges of Nursing (AACN) have outlined key quality and safety education requirements for nurses at the undergraduate, masters, and doctoral level (Oliver et al., 2017). QSEN, founded in 2005, developed a curriculum to ensure pre-licensure nurses have the knowledge and skills to improve quality and safety in health care organizations (QSEN, 2020). Teamwork is a core element in this curriculum that encourages nurses to foster open communication, mutual respect, and decision making within nursing and inter-professional teams

(QSEN, 2020). Professional nurses should have the knowledge to describe one's strengths and limitations, recognize contributions of other individuals, describe the impact of one's communication style on others, analyze the differences in communication style preferences, identify system barriers and facilitators of team functioning, and describe the impact of team functioning on safety and quality of care (QSEN, 2020). This core competency transects with the quality improvement competency in recognizing nurses as part of a higher system of care and the ability to use tools to streamline processes and improve outcomes (QSEN, 2020).

The focus on patient safety propelled the Department of Defense (DoD) to collaborate with the Agency for Healthcare Research and Quality (AHRQ) in 2003 (King et al., 2008). The DoD funded a 3-year research program that brought 30 experts together to create a didactic curriculum called TeamSTEPPS® (King et al., 2008). The TeamSTEPPS® tool consists of 4 set of competencies aimed at fostering teamwork and collaboration (Lee et al., 2017). Evidence based teamwork training like TeamSTEPPS® may serve as a tool to bridge nursing competency from pre-licensure to practice.

Problem Statement

The complexity of the health care system in the US, financial constraints, regulatory requirements, unforeseen pandemics, and an increase in acuity and chronic disease, impact the nursing workplace and profession. The nursing workforce must be equipped with the right tools to drive evidence-based, concise, and mindful decision-making to drive outcomes, efficiency, and error-free patient care.

High performing healthcare organizations strive to foster a culture of collaboration and teamwork that promotes collective mindfulness. A mindful individual is one that shifts his or her way of thinking to act upon variables in the workplace to prevent hazards or errors from

occurring (Weick et al., 1999). High quality of care relies on individuals shifting the way of thinking from automation mode or "things have always been this way" to an action-oriented or proactive approach in real-time problem solving (Weick et al., 1999). Weaknesses in a system occur from non-decisions and a lack of responsibility for coordinating action (Dixon-Woods & Pronovost, 2016).   As systems become more integrated and complex, health care organizations must develop a cohesive structure that supports "professional groupings who can work together to agree on solutions" (Dixon-Woods & Pronovost, 2016).

As one of the largest health care professions, nurses and nursing leaders must be equipped with the right problem-solving tools to drive efficiency, quality improvement, conflict resolution, and collaboration needed to support a high performing organization (AACN, 2019). These skills are taught in pre-professional programs, yet in practice, there is evidence that nurses and nursing leaders do not optimally leverage them. To meet the demands of quality, there is an impetus by healthcare organizations to bridge the core competencies of collaboration and problem solving taught in pre-licensure and reiterate the content in practice. As the academic medical center strives to drive operational efficiency, there is an untapped opportunity to equip clinical nursing leaders with communication and problem-solving skills to allow for participation in driving patient access and throughput. The medical center identifies the vital role these clinical nursing leaders play in driving patient flow and patient placement into the inpatient setting.

Significance

The high stress level of the workplace and poor performance contribute to adverse events and prolonged length of stay (Carayon & Gurses, 2008). Poor communication has been shown to contribute to 60% of adverse events (Schmidt et al., 2019). Medical errors, including facility

acquired conditions, cost the US nearly $19.5 billion in 2008 (Andel et al., 2012). There was an additional $1.4 billion in additional costs related to increased mortality rates and $1.1 billion lost in productivity from missed work days (Andel et al., 2012). Poor communication and lack of coordination can cost a hospital $1.7 million and the US nearly $11 billion annually (Bresnick, 2014). The Centers for Disease Control and Prevention (CDC) report unintentional injuries being the 5th leading cause of death in the US (Andel et al., 2012).

The hospital-acquired condition (HAC) reduction program by CMS focuses on key safety and adverse event measures such as pressure injury rate, in-hospital falls with hip fracture rate, postoperative sepsis rate, pulmonary embolism and deep vein thrombosis rate, and postoperative wound dehiscence rate (CMS, 2020). A payment to each Medicare funded hospital is reduced by a certain percentage depending on poor performance and leads to financial loss (CMS, 2020). Avoiding costs and penalties can increase profitability and ensure a return on investment. Proactive efforts to reduce waste by 10% can increase operating margins by 2.5% (Jimmerson et al., 2005). Nurses can play a pivotal role in initiating improvement efforts and cultivating an environment to improve these outcomes. Nursing has the power to directly impact these measures on the front-line.

According to the AACN, the US is comprised of 3.8 million registered nurses (RNs) and 58% of whom work in a general or surgical hospital setting (AACN, 2019). As one of the nation's largest health care professions, the federal government projects 200,000 new nursing positions each year from 2016 to 2026 (AACN, 2019). The US has more than three times the RNs than Physicians and the demand for nurses is only projected to rise (AACN, 2019). As demand increases, it is equally important to address and mitigate the ongoing nursing shortage and turnover. Nearly one million RNs are projected to retire in 2030 (AACN, 2019). The

ongoing stress in the workplace and job satisfaction lead many to leave the profession. The American Organization of Nursing Leadership (AONL) shows the average rate of RN turnover in a hospital in 2002 was 21% (AACN, 2019). The financial burden of replacing one nurse due to this turnover is $50,000 (AACN, 2019). Strategies to promote engagement and collaboration are essential in adding value to the profession. When equipped with adequate knowledge and skills, this large workforce has the potential and capacity to participate in leading patient outcomes, innovation and change, and workplace efficiency.

Chapter 2

Review of the Literature

Search Strategy

The search was conducted using PubMed, Ovid, and Google Scholar. Search terms included: Nursing, collaboration, TeamSTEPPS®, problem solving, situational monitoring, mirroring, communication, leadership, healthcare systems, training, strategies, engagement, competency, skills, lean management, financial impact, kaizen. The articles in this review were published in English during the years from 1989 to 2020. The article search removed duplicate and redundant articles that covered similar specialty areas. 701 articles were screened out via title and abstract review and 45 articles were assessed via full text review. The literature review consists of 19 articles that bridge the gaps in research from the search. See Appendix A for the PRISMA flow diagram.

The literature search provides an expansive review on competencies and quality improvement methods that encompass problem solving tools. The application of TeamSTEPPS® and communication tools in training sessions are assessed further. The review includes the nurse's integral role in leveraging these tools to drive efficiency, patient quality, problem

solving, and effective communication. Successively, gaps in the literature and ability to enhance upon the current literature are discussed.

Literature Findings

Lean Management Tools

Lean management supports continuous improvement, zero-error work, reducing inefficiency and waste, and promoting employee engagement. Kaizen, or change to become good, is a model of change that drives efficiency, reduction in waste, and an ongoing process improvement mentality (Tetteh, 2011). The five steps of kaizen include "teamwork, personal discipline, improved morale, quality circles, and suggestions for improvement" (Tetteh, 2011). As a value-based health care system that strives for high quality and low cost, kaizen equips nursing leaders with the tools needed for continuous improvement (Tetteh, 2011).

The lean approach allows an individual to drive decision making. This engagement drives efficiency at an organizational level. Health care professionals often perceive efficient processes by their direct impact on the workplace or workflow. The complexity of the health care system can make it difficult to determine the cause-and-effect relationship in processes (Simons et al., 2016). Lean promotes shared decision making and collaboration to reduce uncertainty and ambiguity. A study conducted in a Dutch radiotherapy clinic interviewed 11 professionals and showed that processes were perceived to be more predictable and the vision amongst the team had improved with lean implementation (Simons et al., 2016).

Lean management tools can be used to drive decision making and improve patient quality and safety (Maijala et al., 2018). A systematic review looked at 12 studies aimed at determining what leadership characteristics are associated with successful lean implementation (Maijala et al., 2018). Visible leadership in lean management garners skills to handle conflict, problem solving, understanding resistance to change, and empowering staff (Maijala et al., 2018).

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Management must go to the Gemba or the front-line to observe the processes and speak with front-line workers (Maijala et al., 2018).

Nursing leaders must go to the Gemba to observe and assess the environment prior to implementing change. The ability to engage with staff and receive feedback and suggestions will prevent false assumptions (Thull-Freedman et al., 2020). In congruence with high reliable organizations, a strong team of nurses can ensure follow through and successful implementation, even in times of pandemic response (Thull-Freedman et al., 2020). A Gemba board or visualization tool can be used to engage stakeholders and facilitate evidence-based practice changes (Bourgault et al., 2018). A study interviewed 22 RNs, with 6 in structured leadership roles, to assess current process of practice change, evidence-based practice, roles, facilitators, and barriers (Bourgault et al., 2018). The Gemba board was perceived to promote transparency in outcomes data, engage staff by facilitating communication, solicitate new ideas, and disseminate practice changes (Bourgault et al., 2018). The ability to foster and advocate for practice changes to improve outcomes is a form of collective mindfulness.

The 5 Whys tool can be used when assessing the root cause of a problem or exploring cause and effect relationships (Kohfeldt and Langhout, 2011). The Maplewood Participatory Action Research (MPAR) facilitated an afterschool program that focused on the problem identification process in research (Kohfeldt and Langhout, 2011). The use of the 5 Why method resulted in identifying a root cause to determine a problem definition for research. The use of this tool allows for engagement and critical questioning, free of blame and reliance on emotions or opinions. This problem-solving approach requires thinking through a problem to reach the true cause that needs to be resolved.

Other tools like the A3 are used in the lean management approach. An A3 problem solving report outlines an issue through a systematic approach to ensure the root cause of the problem has been identified (Jimmerson et al., 2005). Value stream mapping shows the people, materials, and information required in a process to deliver an outcome for service (Jimmerson et al., 2005). The value stream mapping provides a broad overview of the process and allows individuals to determine value added steps and eliminate the non-value-added steps (Jimmerson et al., 2005). Intermountain Health Care, a community medical center, developed a 7-week training course with a 2-hour sessions per week focused on value stream mapping and A3 problem solving (Jimmerson et al., 2005). The initial pilot program initially consisted of 90 participants and fostered real life improvement projects (Jimmerson et al., 2005). The medical center ultimately enrolled 300 participants by the first year (Jimmerson et al., 2005). The Chest Pain Center at Porter Adventist Hospital in Colorado understood the value of allowing staff to lead problem solving (Kowalski et al., 2006). The pilot program aimed at reducing waste and redundancy resulted in a 20% increase in nurse job satisfaction (Kowalski et al., 2006). The organization used a 2-day lean workshop to teach informal and formal nursing leaders the essentials and applicability of lean management (Kowalski et al., 2006).

Communication Tools

Effective communication prevents errors and promotes patient safety. In healthcare, the communication standard is identification, situation, background, assessment, and recommendation (SBAR or ISBAR) (Schmidt et al., 2019). The SBAR communication tool is used to provide clinical handoff and ensure the transferability of complete and accurate information (Schmidt et al., 2019). The tool has been used as a checklist by nurses to ensure efficient communication and better prepare them for a conversation with other disciplines such

as physicians (Schmidt et al., 2019). Biel Hospital Centre, focused on handoffs in the ICU, created a digital pocket card as a tool for handoff (Schmidt et al., 2019). A pediatric ward in Australia, consisting of 30 nurses, led a quality improvement initiative to improve handoff using the SBAR tool (Mannix et al., 2017). The analysis found that staff was neither using ISBAR routinely or conducting bedside handoffs, thus limiting the capacity for parents to be involved, and not performing safety checks (Mannix et al., 2017).   A training session consisting of coaching, a professional video, and resource availability were all interventions to improve handoff compliance (Mannix et al., 2017).

Cohen Children's Medical Center, a level-1 pediatric trauma center in New York City, looked at verbalized versus closed-loop orders to assess communication efficiency (El-Shafy et al., 2018). A closed loop order consisted of audible communication that was directed to a team member, check-backed by the team member, and acknowledged by a team member (El-Shafy et al., 2018). The time required for task completion was a mean of 1.53 minutes compared to 4.63 minutes in a non-closed loop communication (El-Shafy et al., 2018). The time to task completion of laboratory tests, intravenous line placement, and medication orders was quicker in closed-loop communication (El-Shafy et al., 2018). This study showed the efficiency and error prevention capabilities closed-loop communication can have in health care, specifically in traumatic or urgent events (El-Shafy et al., 2018).

A blindfolded training exercise for urgent events such as resuscitation was used to assess closed-loop communication (Ahmed et al., 2018). By removing visual stimuli in this exercise, there should be an increase in the stimulation of additional sensory recognition areas to allow the use of critical thinking skills and conceptual framework to manage the situation (Ahmed et al., 2018). All residents agreed on the transferability of this exercise to the front-line, with 81.5% of

residents stating the exercise was more difficult than an actual code event, and 88.9% stating the exercise improved their closed loop communication (Ahmed et al., 2019).

Competency and Training

The IOM advocates for the importance of a successful work environment in driving patient quality. The complexity of healthcare, increase in acuity levels, and financial constraints heighten the need for nursing leadership on the front-line. Heller and others acknowledged a chasm between the demand for nursing leadership and education preparation (Heller et al., 2004). The following essential skills were identified as core competencies: interpersonal skills such as conflict resolution and team skills, communication skills, organizational navigation, time management, crisis management, and an adoption of an appropriate management skill (Heller et al., 2004).

A competency is comprised of a set of attitudes, behaviors, knowledge, and practical skills that allow an individual to perform successfully in the workplace (Lorber & Skela-Savic, 2011). In 4 Slovenian hospitals, 509 employees were sent a questionnaire survey, consisting of competencies, to assess the perception of leadership style in leaders versus employees (Lorber & Skela-Savic, 2011). Most of the leaders did not have management knowledge prior to getting into leadership roles. The study showed that leaders perceived to have better managerial competencies than their employees. Someone's leadership style has a large impact on managerial characteristics such as honesty, a top characteristic of a good leader (Lorber & Skela-Savic, 2011). The study also found leaders who imposed their opinion on to employees, did not listen well and failed to adjust communication depending on the person they were communicating with (Lorber & Skela-Savic, 2011).

The quality of teamwork can influence patient care, outcomes, and safety (Lee et al., 2017). An orthopedic surgical unit trained 104 staff and assessed the sustainability of team behavior 7 months after a TeamSTEPPS® training implementation (Lee et al., 2017). The study found that leadership behavior and communication behavior improved significantly (Lee et al., 2017). Reinforcing the training led to improvement in surgical staff leadership behavior, nursing staff leadership behavior and communication behavior, and no impact in anesthesia team behavior (Lee et al., 2017). A five-hour emotional intelligence (EI) training workshop, a 30 minute one on one feedback session, and individual follow-up reminders were implemented improve staff EI (Kozlowski et al., 2018). The intervention resulted in higher EI scores 3 months after training, indicating that ongoing training may serve to be beneficial for sustainability efforts (Kozlowski et al., 2018).

A nurse-physician training group was implemented to address the use of communication tools (Liaw et al., 2020). The study was conducted on 120 medical and nursing students to evaluate the impact of virtual reality versus in-personal simulation trainings (Liaw et al., 2020). The findings showed no statistical difference in the communication preferences between virtual and simulation groups. The scores on the Attitudes Toward Interprofessional Health Care Team (ATHCT) and Interprofessional Socialization and Valuing Scale (ISVS) questionnaires increased after training for both groups (Liaw et al., 2020).

The use of simulation training can be seen in interprofessional educational interventions (King et al., 2016). A study in 3 Canadian institutions conducted a simulation for a group of nursing, physiotherapy, and respiratory therapy students in

2013 and 2014 (King et al., 2016). The group of students had significant improvement

in conflict management in 2013 and team functioning in 2014 (King et al., 2016). The

most surprising finding was that communication was the smallest improvement post

intervention. This was influenced by the student's perception of having high

communication skills prior to completing the training (King et al., 2016). Future

implementation may use objective measures for communication to prevent perception

bias (King et al., 2016).

TeamSTEPPS® Curriculum

These communication tools mentioned above are incorporated within the TeamSTEPPS®

curriculum. TeamSTEPPS® aims to integrate teamwork into practice and promote

interdisciplinary collaboration (King et al., 2008). Team knowledge, skills, and attitudes (KSAs)

are competencies that each health care discipline must aim to achieve on a daily basis (King et

al., 2008). With consistent overlap in QSEN nursing competencies, the KSAs focus on the

ability to direct and coordinate team activities, ability to anticipate the needs of the team

members, adaptability, shared mental models, mutual trust, and closed-loop communication

(King et al., 2008). TeamSTEPPS® has a curriculum focused on four competencies:

communication, leadership, situational awareness, and mutual support (Lee et al., 2017). The

tool developed by the AHRQ and DoD has been implemented across health care and academic

systems and incorporates a culmination of elements aimed at problem-solving and collaboration.

TeamSTEPPS® was used in an academic setting to address faculty teamwork and more

specifically, the perception of teamwork (Cooke & Valentine, 2020). The organization used a 6-

hour session with a refresher session held 8 months after the initial training (Cooke & Valentine,

2020). A 35-element survey was provided to 46 individuals who participated in the training

session to assess their perception of teamwork (Cooke & Valentine, 2020). The intervention in

an academic setting showed improvement in group functioning, leadership, and situational

monitoring (Cooke & Valentine, 2020). An oncology service line tailored the TeamSTEPPS® to

address the perception of teamwork and communication. The 2-hour didactic training session,

with 7 master trainers and 95 RNs, 14 physicians, and 35 clinical nurse assistances, resulted in

81% of staff reporting improved teamwork and 85% of staff reporting improved communication

(Gaston et al., 2016). Huddles, debriefs, and I Need Clarity tools were the most commonly used

after the training was completed (Gaston et al., 2016). The use of master trainers incorporated a

coaching method that promoted continuity of implementation (Gaston et al., 2016). The tools

have the ability to impact the staff's perception of teamwork in many settings.

The use of the TeamSTEPPS® tool can impact patient care and efficiency. A level-1

trauma center, with nearly 2,200 trauma resuscitation activations, used TeamSTEPPS® to

implement a strategy in the resuscitation settings (Peters et al., 2018). The 8-hour trauma crash

course was provided to 82 RNs and showed a statistically significant level of self-confidence in

key skills (Peters et al., 2018). This center used an innovative approach in tailoring

TeamSTEPPS® to meet the needs of the emergency department specialty (Peters et al., 2018).

TeamSTEPPS® was implemented in an interprofessional simulation for senior

baccalaureate nursing students and medical students (Reed et al., 2017). The training consisted

of an online 45-minute module and a simulation session with a specific scenario (Reed et al.,

2017). The results showed an improvement in knowledge, self-efficacy, and team performance

in post-intervention (Reed et al., 2017). Simulation was used to create a patient care

environment and allowed students to reinforce the training that was provided to them. There is

potential to use this strategy in the health care environment to assess the impact on the safety and quality of patient care.

Strengths and Limitations of Evidence

There is extensive literature focused on the implementation of problem-solving tools to drive quality improvement. The literature supports the benefits of using lean management strategies to critically think and drive decision-making. The literature supports the use of communication techniques to prevent errors and promote efficiency. TeamSTEPPS® training addresses 5 core competencies that incorporate problem solving and communication skills to improve collaboration and teamwork. The literature is strong in integrating this training and sustaining ongoing training in academic and practice systems. Much of the literature is focused on assessing the impact of the training tool on collaboration and teamwork.

A lack of measures assessing financial outcomes of the training or improvements is a limitation in the literature. There is potential to use the tool with simulation or case-based training to address problem-solving scenarios in the health care environment and assess the impact on efficiency and patient outcomes. The majority of the studies are descriptive in various specialty areas. The literature in using QI tools in health care and academic settings is contiguous with the ongoing imploration of the quality environment in hospital systems.

Summary of Literature Findings

Quality improvement methods and tools have proven to be effective in driving efficiency, effective communication, reducing error, reducing waste, promoting engagement and collaboration, and enhancing the ability to problem solve and make effective decisions. Extensive literature exists for each of these individual elements and has been integrated in health care organizations and academic programs. The TeamSTEPPS® tools have been tailored

by organizations to address specific needs and assess specific outcomes around collaboration, communication and teamwork. The tools can further be used to address problem-solving and assess the impact on efficiency and patient outcomes.

Project Model

This DNP project used Lewin's change model to map the phases of the project (Hussain et al., 2018). The supporting theoretical framework, Donabedian Model for Quality Care describes the measurement of quality improvement (McDonald et al., 2007).

Lewin's change model consists of three stages: unfreezing, movement, and freezing (Hussain et al., 2018). In the unfreezing phase, an organization must determine what change is needed and ensure support from leadership (Hussain et al., 2018). In the change phase, leadership must be transparent and promote employee involvement (Hussain et al., 2018). In this phase, knowledge sharing is important in allowing exchange of information, ideas, and suggestions between all levels of management (Hussain et al., 2018). The last phase of the model is unfreezing which consists of implementation through activity planning, commitment planning, and change management structures (Hussain et al., 2018). Lewin's change model demands transformational leadership in all phases involving change (Hussain et al., 2018). Appendix B shows the phases in Lewin's change model.

Supporting Theoretical Framework

The Donabedian model for quality of care focuses on structure, process, and outcome (McDonald et al., 2007). The physical and organizational aspects of a health care setting are known as the structure (McDonald et al., 2007). Process focuses on the delivery of patient care which relies on structure to provide the resources (McDonald et al., 2007). Processes such as diagnostic testing and services aim to improve health and survival, leading to the last phase of

outcomes (McDonald et al., 2007). Outcome measures are analogous with the results of the project and describe the impact on a patient (McDonald et al., 2007). Outcome measures indicate whether the quality improvement initiative achieved the aims of the project. Appendix C shows the Donabedian model for quality of care.

Environmental Assessment – SWOT Analysis

The DNP project was implemented in an academic medical center and teaching hospital located in Boston, Massachusetts. The internal and external assessment of strengths, weaknesses, opportunities, and threats provides an opportunity to mitigate potential risks and gauge relevance on a macro level.

Strengths: The adult and pediatric academic medical center and research center was founded over 200 years ago by Patriots Samuel Adams and Paul Revere (Tufts Medical Center, 2012). The hospital was the first permanent medical facility in New England and the 3rd in the US, with a historic mission in serving the poor through charity care (Tufts Medical Center, 2012). The 439-bed organization is a not-for-profit located in the heart of Chinatown in Boston, Massachusetts (Tufts Medical Center, 2012). Hospital capacity consists of high acuity patients requiring comprehensive care. The safety net hospital's mission now focuses on providing high quality care, research, and teaching. The hospital is affiliated with Tufts University and is one of the top 10% of independent hospitals that receive federal research funds (Tufts Medical Center, 2012). The recent recruitment of a new chief executive officer (CEO) in 2020 resulted in an ambitious strategic plan to promote growth and quality improvement initiatives. The focus on growth, in conjunction with ambitious efforts to integrate across the system, have provided financial solvency for the health system. The organization has been able to maintain financial stability throughout the COVID-19 pandemic.

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Weaknesses: The location, old structure, and longstanding history of the hospital yields many areas for improvement and growth. The organization is not Magnet® accredited and is currently on the pathway to achieve accreditation. The initiation of the Magnet® journey has sparked conversations and engaged nurses to promote shared governance and collaboration. Although the leadership culture is largely driven by physicians, the pathway to Magnet® will aim to create an equitable relationship with nursing at the table. The nursing workforce is unionized in the hospital and contract negotiations have led to strikes in the past. Negotiations in 2021 concluded with an amicable resolution. The hospital works under multiple electronic and paper health records resulting in inefficiency and a lack of cohesive data collection and extraction. The hospital has confirmed the implementation of EPIC with a go-live date set for spring 2022. The old building structure often leads to frequent floods and increased maintenance needs impact bed capacity. Each area for improvement has been identified within the strategic plan and appropriate resources have been allocated for future solutions. The support of external forces has solidified access to these resources and the potential to unlock growth.

Opportunities: The robust initiative to integrate within the Tufts Medicine health system will increase collaboration and buying power for sustainability and viability in a competitive region. The health system strives to provide equitable academic medicine and community care. The new leadership within Tufts Medicine supports the organization's goal to increase bed capacity, elective surgery revenue, and recruit talent. The CEO has strong experience in quality, with a keen interest in Lean management and the HRO framework. The integration of a training program, modeled after the TeamSTEPPS®, will be in alignment and complimentary with the organizations focus on high quality, high efficiency, and increased patient access. The chief

nursing officer (CNO) shows strong support in addressing the need for clinical nursing leader training to promote efficiency to patient access and collaboration.

Threats: The partnership with Tufts Medicine health system attenuates the ongoing external threats in the competitive and saturated Boston healthcare market. Historically, the frequency of mergers in the region resulted in a weaker market share for the organization. The goal of increasing elective surgeries and expanding services requires hiring new talent and gaining a referral base. Harvard affiliated hospitals often retain talent resulting in a tenuous recruitment process for the organization. The market is also saturated with specialties and the assessment of need shows a lack of profitability in the desire to expand on specific saturated specialties. The competitive market in Boston leads to poor nursing retention, as other centers are able to increase nursing pay and offer additional benefits. As the areas for improvement, identified above, translate into achievement, the organization hopes to improve retention and create an environment that supports innovation and growth.

The DNP project was integrated within the CNO's strategic plan for the organization. A successful project outcome has the potential to expand across the entire Tufts Medicine health system. With the capacity constraint and a focus on providing high quality and high efficiency, the organization continues to focus on hospital length of stay, efficient patient access, and a reduction in harm.

Overall Goal of the Project

The DNP project was a pilot training program, modeled after the TeamSTEPPS® curriculum, to provide the necessary tools needed to improve decision-making and collaboration for clinical nursing leaders. The goals of this pilot training program were to: increase efficiency

in patient throughput, improve communication and problem-solving skills in clinical nursing leaders, and increase clinical nursing leader engagement in interprofessional collaboration.

Clinical nursing leaders in the organization play a pivotal role in decision making, patient bed placement, addressing the needs of the nursing staff and unit, communicating unit standards, and encouraging collaboration. Clinical nursing leaders may include charge nurses, supervisors, nursing directors, and/or advanced providers who manage bed flow. The organization lacks formalized training for clinical nurses who transition to this leadership role. The clinical nursing leaders in the organization did not receive additional professional training that could serve as a crosswalk between the aforementioned QSEN and AACN core competencies.

Aims

1. Develop a pilot training program that provides clinical nursing leaders with the tools necessary to improve decision making and collaboration.

2. Implement and evaluate the pilot training program and its impact.

3. Make recommendations for scaling and sustainability of this program for hospitals within the Tufts Medicine health system.

Chapter 3

Methods

This quality improvement project developed a pilot training program, modeled after the TeamSTEPPS® curriculum, to provide clinical nursing leaders with the necessary tools needed to improve decision-making and collaboration. The goals of this pilot training program were to increase efficiency in patient throughput, improve interdisciplinary communication, and improve problem-solving skills. The pilot training program was directly tied to the hospital's strategic plan in becoming an HRO. The goals of the pilot training program were fundamental within the

quality framework of the hospital. The pilot training program was tailored to meet the identified gaps and needs of the organization and focused on knowledge and skills gained by clinical nursing leaders. The project methods are described in the following 3 aims.

Aim 1: Develop a pilot training program that provides clinical nursing leaders with the tools necessary to improve decision making and collaboration.

Assessment

The development of the pilot training program began with conducting an environmental assessment to identify current issues and trends within the organization. Although the need for the program was identified by senior leadership, the barriers, needs, and gaps needed to be validated. The environmental assessment and needs of the organization were confirmed by using a Lean method, going to the Gemba, and participating in clinical nursing leader rounds, events, and meetings. The center for patient placement team, a part of the admitting department, was approached concurrently to gain an understanding of the patient access process and bi-directional communication that occurs on a daily basis with the team and clinical nursing leaders. This team consists of nursing and administrative staff who are responsible for placing incoming patients into hospital beds. It was equally important to engage off-shift clinical nursing leaders who are unable to participate in the daily meetings. The monthly nursing night shift quality improvement meeting was a platform to engage these individuals, identify areas for improvement, and create ongoing fidelity as the project progresses.

Once the barriers and gaps in the process and KSAs were validated by the front-line clinical nursing leaders, key objectives were created for the pilot training program. The objectives reflected the goals of the pilot training program, which focused on improving communication, problem-solving, and collaboration skills and knowledge. Each objective will

have a specific outcome measure to evaluate the KSAs. TeamSTEPPS® and Lean management were some of the frameworks adapted within this pilot training program. Clinical scenarios around patient access and patient throughput were embedded in the pilot training program.

<u>Pilot training program</u>

The lesson plan of the pilot training program followed the format below.

- o Introduction

- o **Module 1**: Communication

    - Objective 1: Define effective communication.

    - Objective 2: Describe how communication impacts processes and outcomes.

    - Objective 3: Identify common challenges in communicating effectively.

    - Objective 4: Identify and apply strategies and tools to strengthen a team's communication.

        - SBAR

        - Closed-loop Communication

        - Mirroring and Matching

- o **Module 2**: Situation Monitoring

    - Objective 1: Define situation monitoring and identify undermining conditions.

    - Objective 2: Discuss how situation monitoring affects team processes and outcomes.

    - Objective 3: Define a shared mental model and how it is cultivated within a team.

    - Objective 4: Discuss how change and inattentional blindness affects decision making and situation awareness.

- Objective 5: Discuss strategies and tools to strengthen situation monitoring, situation awareness, and shared mental model.
  - STEP
  - Briefing
  - Huddle
- **Module 3**: Teamwork and Collaboration
  - Objective 1: Define a team and effective characteristics of teamwork.
  - Objective 2: Define leadership's role in promoting teamwork and how it affects team processes and outcomes.
  - Objective 3: Discuss characteristics of effective leaders and human-centered leadership in healthcare.
  - Objective 4: Describe how mutual support affects team processes and outcomes.
  - Objective 5: Describe effective facilitation of conflict resolution.
  - Objective 6: Describe types of feedback and characteristics of effective feedback.
  - Objective 7: Discuss strategies and tools that can foster teamwork and mutual support.
    - Briefs and Huddles (explained in Module 2)
    - Debrief
    - CUS Technique
    - DESC Script
- **Module 4**: Problem-solving

- Objective 1: Describe the 6 Step Problem Solving Model.

- Objective 2: Discuss the use of Five-Why Analysis in Problem Solving.

- Objective 3: Discuss strategies and tools for problem-solving.

  - 5 Whys

  - Hoshin Kanri Catchball

  - Huddles (Module 2)

A meeting with the executive nursing leadership team was integral for implementation. A comprehensive summary of the pilot training program was provided for feedback and to ensure ongoing buy-in. This provided the opportunity to discuss the timeline of the implementation, address the benefits and costs of the program, clarify questions and concerns, and expand on next action steps. Evaluation tools and outcome measures will be finalized at this time. The feedback from this meeting was used to fine tune the pilot training program and solidify the timeline for implementation.

Aim 2: Implement and evaluate the pilot training program and its impact.

Prior to the implementation, a finalized pilot training program and timeline was sent to nursing leadership for approval. The pilot training program received funding through the Robin & David Jaye Center for Nursing Excellence Grant. As a requirement of the grant, the project was submitted to the Tufts Institutional Review Board (IRB) exemption. Each nursing director provided a letter of support for recruitment and shared an information sheet with staff, listing specific elements outlined by the Tufts IRB. Completion of surveys indicated voluntary participation and the information sheet communicated the right to withdraw at any time. The pilot training program was implemented on the Pediatric Intensive Critical Unit (PICU), Center for Patient Placement, and the Adult Cardiomyopathy Stepdown Unit. Each participant was

provided 4 hours of paid education time and an incentive gift card for completing all required surveys.

The pilot training program was a self-guided, virtual course in Articulate 360®. Participants were encouraged to complete Module 1 and 2 on Day 1 and Module 3 and 4 on Day 2. The anticipated completion time of the pilot training program was 4 hours. The window of the training program was anticipated for 4 weeks, and extended to 8 weeks due to the COVID-19 omicron variant impact in Fiscal Year 2022. The goal of the pilot training program was to have 15-20 participants. Participants registered and gained access to the pilot training program with a de-identified code through SurveyMonkey®, ensuring confidentiality of data.

Methods and statistics

The evaluation of the pilot training program KSAs occurred through a series of three surveys in SurveyMonkey®. The first was a pretest that participants completed prior to receiving access to the pilot training program. Access to the pretest was provided to all prospective participants. The second was an immediate posttest that participants filled out after completing the pilot training program in Articulate 360®. Access to the immediate posttest was provided in the conclusion section of the training program. The third was the 4-to-5-week posttest. Each test was structured to include 4 multiple-choice questions and 15 to 17 4-point Likert scale questions. The three tests were adapted from the evidence based TeamSTEPPS® T-TAQ and T-TPQ measurement tools, which used a 5-point Likert Scale to identify the level of agreement (TRICARE Management Activity, 2008).

The organization's statistician team assisted in developing the evaluation tool and used descriptive, nonparametric, statistics for analysis. A 4-point Likert scale was used to eliminate the neutral option and garner specific responses. The 4 points included agree, strongly agree,

disagree, and strongly disagree. Depending on the directionality of the question, each point was allocated a number from 1 through 4. The number 4 indicated correctly "strongly" agreeing or disagreeing. The number 1 indicated incorrectly "strongly" agreeing or disagreeing. Interval data will be used for analysis, including mean, median, and standard deviation. Anything ≥ 3 indicates targeted mean and median. The analysis was synthesized by Level 1 to 3 of the Kirkpatrick Model (Kirkpatrick, 1967). The 4 multiple choice questions were assessed by the scores for each test. Each question addressed the modules in the training program.

Outcome measures

The impact of the project was evaluated through a multilevel approach that uses the Kirkpatrick Model (Kirkpatrick, 1967). Level 1 measures the reaction and perception participants have of the pilot training program. Level 1 results will be used to identify further areas for modification and improvement to the pilot training program. Level 2 will measure the KSAs that participants learned directly from the pilot training program. The TeamSTEPPS® measurement tools will evaluate whether participants feel different, know something new, and do something new or different, as a result of the pilot training program. Level 3 measures behavior, practice implementation, and whether the strategies and tools learned in the curriculum were applied to the 3 inpatient units. The three tests measured knowledge acquisition and application of the 4 modules in the training program. Level 4 consists of high-level, long-term outcome measures that will impact the organization. These outcome measures include length of stay, staff over reduction, lower wait times in the ED, lower diversion hours, and lower ICU days. Level 4 will not be measured during this evaluation, as these require more time for measurement.

Aim 3: Make recommendations for scaling and sustainability of this program for hospitals within the Tufts Medicine health system.

This training program has potential for scalability across the organization and at the system level. The following recommendations will be presented to senor nursing leadership. The initial recommendation is to implement a phase II of implementation that expands recruitment to all adult, non-critical care units within Tufts Medical Center and includes nursing directors into the definition of "clinical nursing leaders". The goals of phase II implementation include improving participation rates and engagement. The recommendation will include implementation of a simulation lab to reinforce learnings for all participants. The simulation lab will reinforce KSAs and create an environment for observing behavior and application. A recommendation to identify a unit champion to promote the training program will assist in sustainability and engagement throughout phase II of implementation. After going to the Gemba, the teams have consistently asked physicians to be involved in the curriculum. Interdisciplinary conflict amongst physicians and nursing leaders is common and a high priority to address, as both play a pivotal role in driving quality and patient access. The initial recommendation is to connect with physician leadership to gauge physician interest and identify key stakeholders who can assist in promoting participation. With a larger catchment area and a fully integrated EHR, considerations to track long-term measures and impact will be broached as well.

Recommendations for further scalability across all floor nurses, other disciplines, and the health system will be dependent on the results of phase II implementation. Considerations to plug the curriculum into an onboarding education program for future clinical nursing leaders and logistics around implementation will be assessed at that time.

Implications

Navigating through the front-line trenches, where the environment is often stressful, emotionally driven, and filled with new obstacles, can be challenging for clinical nursing leaders.

A standardized pilot training program provides a cohesive approach in tackling these tough situations. The pilot training program aspired to equip these professionals with the necessary KSAs and tools to strengthen their leadership competencies. The KSAs in the pilot training program bolster the ability to drive quality, safety, efficiency, and patient access. Future benefits of building a standardized infrastructure to introduce common KSAs for all clinical nursing leaders has the potential to prevent variation in processes and decision making across a diverse workforce. When all clinical nursing leaders are equipped with the pilot training program's KSAs, standardization and mindful thinking will be transferred to practice.

Budget

Direct costs related to the development of the curriculum and surveys included purchasing the Articulate 360® software and subscription to SurveyMonkey®. Participants were incentivized to complete all three tests by receiving a gift card upon completion. The statistician team was provided through the organization at no cost. All costs were covered under the Evidence Based Practice grant received through the organization. The 4 hours of education time funding was provided through the department.

Return on Investment (ROI)

The return-on-investment analysis identifies the benefits versus cost of the program and portrays the impact of the project on business profitability. This is a critical component of the project as it has potential to catapult to a larger learner base. The return-on-investment assessed the pilot training program logistics such as timing and feasibility within the structured shifts and financial costs. The costs of the pilot training program included personnel salary, an outcomes analyst, and incentive gift cards for participants. The indirect benefits from the program included, but were not limited to, increase in patient satisfaction scores, staff turnover reduction,

better and faster decision making, and lower diversion hours. The direct benefits of the program included reduced length of stay and lower ICU days. These elements are meant to identify the organizational and financial impact of the project.

IRB

The implementation of a pilot training program was a quality improvement project intended to make an impact on a process. Therefore, IRB approval was not required for this DNP project.

Project Timeline

The monthly nursing night shift quality improvement meetings began Q4 2020 to Q1 FY 2021. The return-on-investment analysis, the construct and development of the pilot training program, and development of the pretest and posttest questions occurred during Q4 2020 and Q1-Q2 2021. The pilot training program and pretest and posttest questions continued to be fine-tuned throughout Q1-Q2 2021. The final product was presented to executive nursing leadership during Q2 2021. Preparation for implementation and securing the logistics of the pilot training program happened late Q3 2021. The implementation date was projected at the end of Q3 2021, and began at the beginning of Q1 2022. The evaluation of the pilot training program occurred during Q1 2022.

Leadership Immersion

Leadership immersion consisted of preparing and executing implementation for the pilot training program. One consistent and vital step throughout the process was partnering with nursing directors to recruit participants in the three units. The pilot training program was also reviewed and vetted by senior nursing leadership.   Recruitment occurred through email, information sheets, and council meetings. The grant from Tufts Medical Center required IRB

exemption. Finalizing the requirements for the grant and IRB submission led to a delay in anticipated project start time. Ongoing literature review searches were conducted to find additional opportunities to augment the curriculum. The research team, comprised of a statistician and internal consultant, provided resources and expertise to ensure the success of the program. This team, in conjunction with an internal mentor, reviewed and finalized the training program and the three SurveyMonkey® tests.

Chapter 4

Results

The pretest was completed by 10 participants through SurveyMonkey®. Of the 10 participants who completed the pretest, 4 completed the immediate posttest (40% response rate). Of the 10 participants who completed the pretest, 5 completed the 4-to-5-week posttest (50% response rate). The results were synthesized in the following components: 4 multiple choice questions and the 4-point Likert Scale questions.

<u>4 multiple choice questions</u>

The average pretest score for the 5 participants was 80% and ranged from 50-100%. The average immediate posttest score for the 4 participants was 94% and ranged from 75% to 100%. All 5 participants scored 100% in the 4-to-5-week posttest. Participant scores improved from pretest to immediate posttest and from pretest to 4-to-5-week posttest. There was no trend identified in the questions participants answered incorrectly.

<u>4-point Likert scale questions</u>

The median for the pretest, immediate posttest, and posttest was 3.0. There was slight improvement in the mean from pretest (3.09) to immediate posttest (3.12), which levels off at the 4-to-5-week posttest (3.08). There is a reduction in standard deviation over time, from pretest (0.60), immediate posttest (0.56), and 4-to-5-week posttest (0.52), indicating less variance in the participant's answers.

When assessing Level 1, perception of the training program, the participants showed mean of 3.25 (St. Deviation 0.46) in the immediate posttest (N=4) and a mean of 3.20 (St. Deviation 0.42) in the 4-to-5-week posttest (N=5), indicating little difference in the perception of the training program over time. All participants either agreed (immediate posttest 75%, 4-to-5-week posttest 80%) or strongly agreed (immediate posttest 25%, 4-to-5-week posttest 20%) with the curriculum better preparing them to be leaders and utilizing KSAs in real-life situations.

Level 2 assessed learning and showed a mean of 2.88 (St. Deviation 0.67) in the pretest, a mean of 2.85 (St. Deviation 0.67) in the immediate posttest, and a mean of 2.88 (St. Deviation 0.73) in the 4-to-5-week posttest. This indicated no change in knowledge and a wider variance due to one question regarding conflict engagement. The desired answer to the question "I prefer to avoid conflict with my team members" was either disagree or strongly disagree. For this one question, the participants had a mean of 2.2 in the pretest, 2.3 in the immediate posttest, and 2.0 in the 4-to-5-week posttest. About 80% of the participants (4) agreed in the pretest, 75% of the participants (3) agreed in the immediate posttest, and 60% of the participants (3) agreed and 20% (1) strongly agreed in the 4-to-5-week posttest.

Level 1 Questions						
		I prefer to avoid conflict with my team members.	Individuals can be taught how to scan the environment for important situational cues.	My decisions are based off assumptions and expectations from past experiences.	Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.	When a problem occurs, the first step is to pick solutions that can improve outcomes.
Pretest	Mean	2.2	3.2	3	3.6	2.4
Pretest	Median	2	3	3	4	2
Immediate Posttest	Mean	2.3	3.3	2.5	3.5	2.8
Immediate Posttest	Median	2	3	2.5	3.5	3
4-to-5 Week Posttest	Mean	2	3.2	2.8	3.6	2.8
4-to-5 Week Posttest	Median	2	3	3	4	3

Level 3 assessed behavior and application of learnings from the training program and showed a mean of 3.20 (St. Deviation 0.53) in the pretest, a mean of 3.25 (St. Deviation 0.44) in the immediate posttest, and a mean of 3.16 (St. Deviation 0.37) in the 4-to-5-week posttest. The mean remained unchanged but there was less variance in the answers over time. The one question that had a mean (2.8) below 3 addressed standardized methods of information sharing.   "In the pretest, 20% of participants (1) were unaware of the standardized methods for sharing information and 80% of participants (4) agreed to awareness. In the immediate posttest, 75% of participants (3) agreed and 25% of participants strongly agreed (1) to having knowledge of standardized methods for sharing information. In the 4-to-5-week posttest, 80% of participants (4) agreed and 20% of participants (1) strongly agreed to the application of the standardized methods for sharing information. The mean improved from 2.8 in the pretest to 3.2 in the 4-to-5-week posttest.

Chapter 5

Discussion and Conclusion

The findings of the analysis did not show significant impact or improvement in knowledge gained and behavior applied from the pilot training program. The level 1 analysis indicates one question consistently being answered incorrectly regarding conflict engagement. This suggests future considerations to modify or augment the curriculum to directly acknowledge conflict engagement. Findings for a level 3 question about standardized methods in sharing information indicated improvement in behavior and application, as the mean of 2.8 in the pretest improved to a mean of 3.2 in the 4-to-5-week posttest.

The initial goal for participation was 15 to 20 individuals across three units. The Pediatric Intensive Care Unit was one of these units and was impacted by Tufts Medicine's decision to shut down inpatient pediatric services at Tufts Medical Center. This was announced during the start of the training program's implementation phase and impacted participation. The expected participants from the PICU were directly affected from this announcement, as this meant closure of the unit and needing to find a new job by July 1, 2022. As aforementioned in the SWOT analysis, the organization has long faced inpatient adult capacity constraints and spatial constraints for a growing workforce. Shutting down inpatient pediatric services, which have long faced low census, will allow expansion of adult inpatient services. The omicron variant in the COVID-19 pandemic occurred during the implementation phase as well. This resulted in vast staffing challenges for nursing leaders, heightened inpatient capacity for the organization, and ongoing burn-out for nurses on the front-lines. Recruitment and 100% participation rates

became a limitation to the implementation of this pilot training program. The implementation of an integrated EHR may have been another limitation for successful implementation of the training program. Although the go-live date for EHR implementation was spring of 2022, changes to the training timeline and resources during the time of project implementation resulted in competing priorities, constrained resources, and less staff engagement.

The excitement for the training program was visible at the time of recruitment and the program aligns with the hospital's strategic goal of promoting high reliability and high quality care. With the training program and survey questions built, there is potential to modify the curriculum to include expanded content for conflict engagement KSAs and to include a simulation lab for reinforcement and application of learnings and tools from the training program. The next steps require development of a structure for the simulation lab and associated curriculum in compliance with national simulation best practices and standards. A more expanded definition of nursing leaders argues for including nursing directors in future training offerings for sustainability and engagement. As the organization and health care community ascends from the pandemic and other organizational priorities such as a fully integrated EHR system, clinical nursing leaders will be better aligned, focused, and engaged to become high performing leaders who can drive efficiency and patient access.

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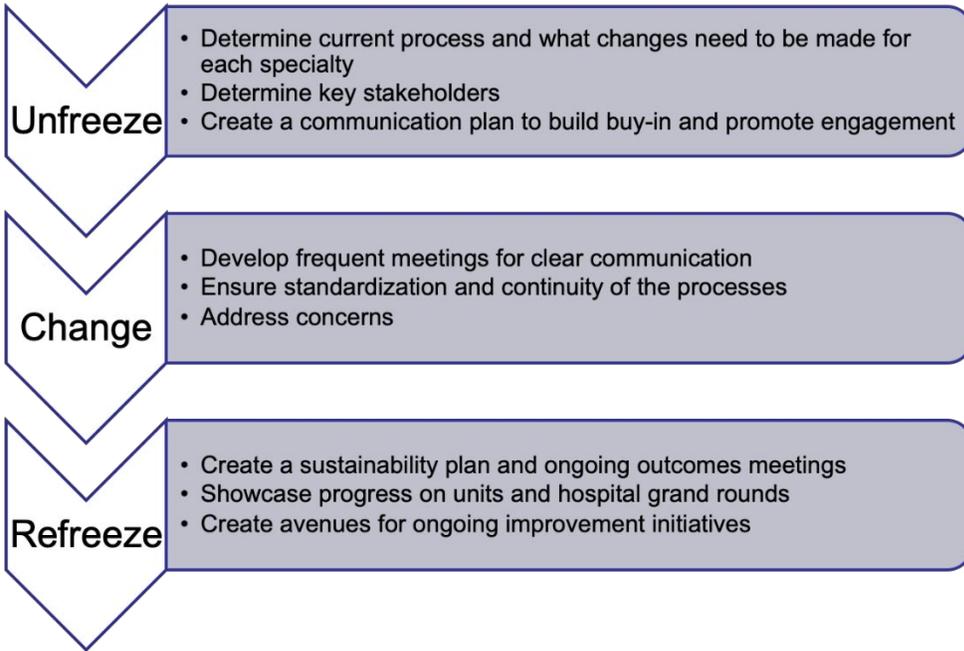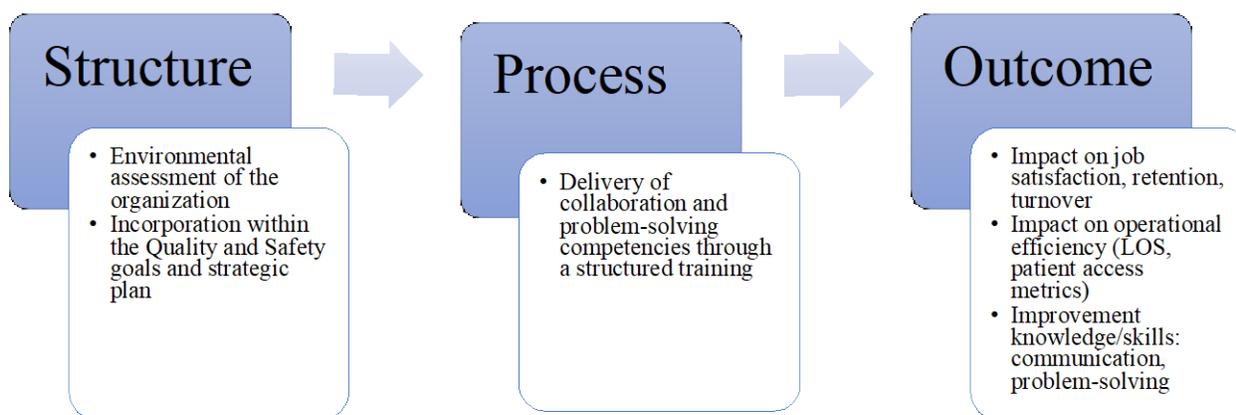
Appendices

Appendix A: Adapted Prisma Diagram
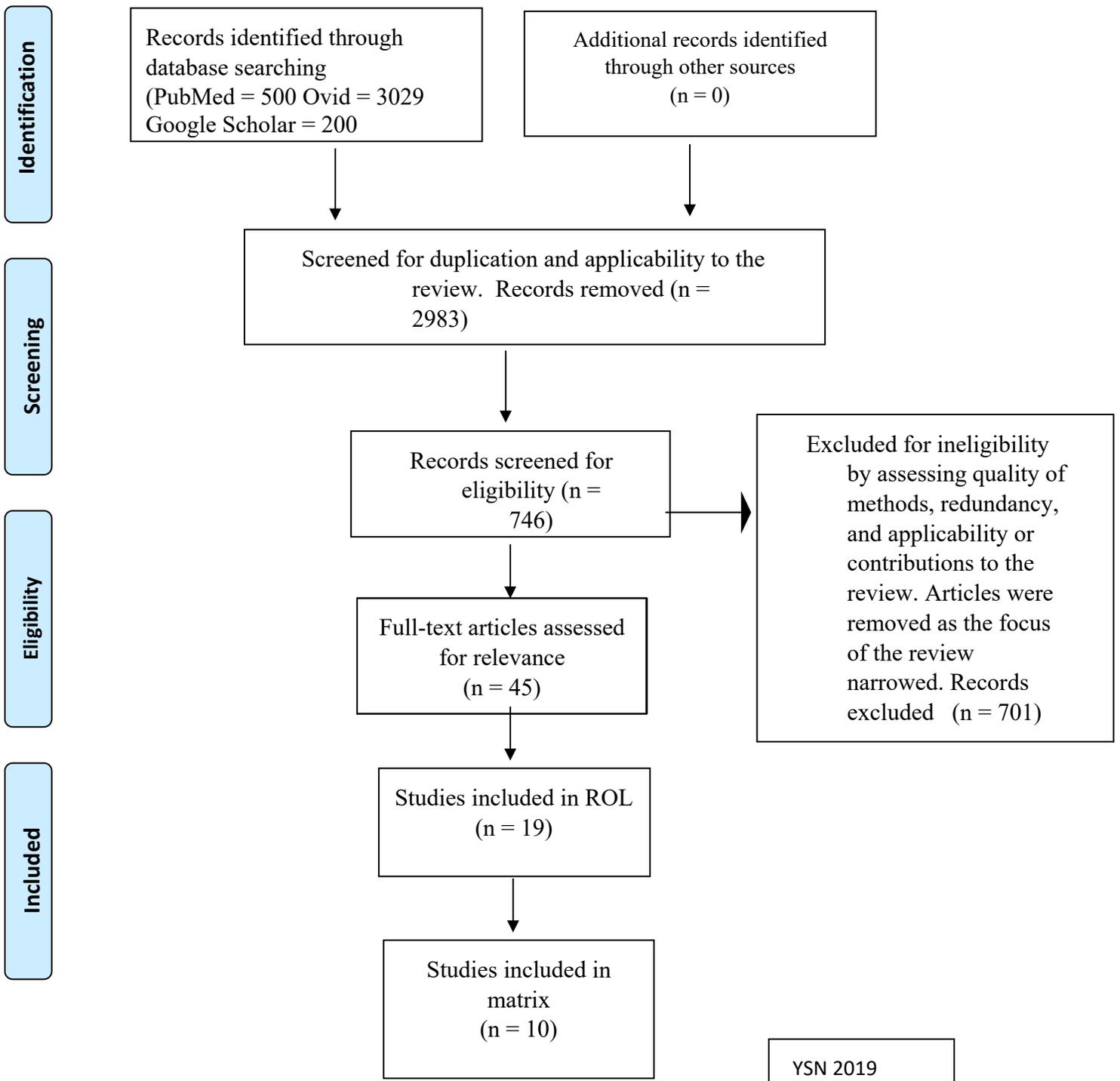
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Appendix B: Adapted Lewin's Change Model

Unfreeze
- Determine current process and what changes need to be made for each specialty
- Determine key stakeholders
- Create a communication plan to build buy-in and promote engagement

Change
- Develop frequent meetings for clear communication
- Ensure standardization and continuity of the processes
- Address concerns

Refreeze
- Create a sustainability plan and ongoing outcomes meetings
- Showcase progress on units and hospital grand rounds
- Create avenues for ongoing improvement initiatives

Adapted from (Lewin, K. (1951). Field Theory in Social Science. New York: Harper.)

Appendix C: Adapted Donabedian Theoretic Framework

Structure

- Environmental assessment of the organization
- Incorporation within the Quality and Safety goals and strategic plan

Process

- Delivery of collaboration and problem-solving competencies through a structured training

Outcome

- Impact on job satisfaction, retention, turnover
- Impact on operational efficiency (LOS, patient access metrics)
- Improvement knowledge/skills: communication, problem-solving

Adapted from (Donabedian A. (2005). Evaluating the quality of medical care. 1966. The Milbank quarterly, 83(4), 691–729. https://doi.org/10.1111/j.1468-0009.2005.00397.x)

Appendix D: 4 Core Modules

CLINICAL NURSING LEADER'S PILOT TRAINING PROGRAM