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Implementation of TeamSTEPPS

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A Scholarly Project

Submitted to the

Faculty of Liberty University

The requirements for the degree

Of Doctor of Nursing Practice

by

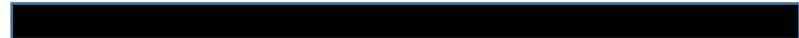
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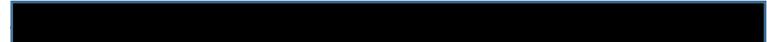
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IMPLEMENTATION OF TEAMSTEPPS

A Scholarly Project

Presented to the

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In partial Fulfillment of the requirements of the Degree of

Doctor of Nursing Practice

By

Trynequa Shaquan Jones

May, 2016

Abstract

This scholarly project focused on implementing Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) in an emergency room (ER). The aim of TeamSTEPPS is to improve patient outcomes by educating healthcare professionals on communication and teamwork skills. TeamSTEPPS teaches healthcare professionals leadership skills, shared mental models, mutual trust, and closed loop communication. The purpose of the scholarly project was to improve teamwork and communication. The study method was descriptive analysis of 51 pre and posttest questionnaires, specifically looking for increased knowledge of TeamSTEPPS tools. The participants included: ER physicians, ER nurses, ER certified nursing assistants/health unit coordinators, a pharmacy technician, public safety officers, and patient revenue management organization (PRMO). Further research is needed to evaluate how to significantly increase staff knowledge on TeamSTEPPS tools in a class setting.

Key words: teamwork affects patient care, implementing TeamSTEPPS improve patient care and teamwork in the emergency room.

IMPLEMENTATION OF TEAMSTEPPS

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Implementation of TeamSTEPPS

This scholarly project focused on implementing Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) in an emergency room (ER). TeamSTEPPS is evidence-based, provides organizations with ready-to-use training materials to integrate teamwork tools into all areas of the health care system (Agency for Healthcare Research and Quality, 2015). The aim of TeamSTEPPS is to optimize patient outcomes by improving communication and teamwork skills among health care professionals (TeamSTEPPS, 2015). TeamSTEPPS teaches leadership skills, mutual performance, adaptability, shared mental models, mutual trust, and how to use closed loop communication (Robertson, Kaplan, Atallah, Higgins, Lewitt, & Ander, 2010). An effective team must develop mutual trust, listen attentively, and value the unique viewpoints of others on the team (Zaccagnini, & White, 2014). Having an effective team improves patient care, safety, and outcomes. Effective communication is essential to having a successful team and providing high-quality patient care (Kilner & Sheppard, 2010).

Background

The challenge for the nursing team when patients present to ER, is that information is not well communicated. Many patients will provide incomplete communication regarding their symptoms as they forget or get distracted by the questions being asked. Actual clinical practice consequently involves many instances where critical information must be correctly communicated. When health care professionals are not communicating effectively, patient safety is jeopardized due to: lack of accurate information, misunderstanding of information, vague orders over the telephone, and unnoticed changes in patient status (O'Daniel & Rosentein, 2008). Lack of or incomplete communication increases risks of medical errors, which can cause severe

injury or patient death. In hospitals, failure to communicate are common causes of medical errors. The Joint Commission (TJC) has reported that lack of communication is the leading cause of medication errors, delay in treatment, and wrong site surgeries (O'Daniel & Rosentein, 2008).

According to O'Daniel & Rosentein (2008), ER staff has to collaborate assuming complementary roles and work cooperatively with each other. Each staff member shares responsibility for problem-solving and making decisions to formulate and carry out plan of patient care. This collaboration includes physicians, nurses, and support staff which leads to improved decision making due to all staff members having the same patient information. In order to have an effective team, members have to trust and respect each other. All team members have to work for the good of a common goal, have a common aim, and work together to achieve that aim. The goal and aim should be to improve patient outcomes. Communication is easier with a cohesive ER team (O'Daniel & Rosentein, 2008). Effective communication leads to positive outcomes: improved information flow, effective interventions, improved safety, enhanced employee morale, and increased patient satisfaction. Effective communication improves effective teamwork, promotes continuity, and has clarity amongst patient care team members (O'Daniel & Rosentein, 2008).

Problem Statement

According to Dieffield, Diers, O'Brien- Pallas, Asbitt, Roche, King, & Asbitt (2011), lack of teamwork and communication among health care workers creates an unbalanced work environment. Lack of communication has the potential to increase harm to patients as essential patient information is not communicated appropriately to team members (Dieffield et al, 2011). Lack of teamwork increases potential harm to patients because staff members are not working

together and are not clear on roles and responsibilities (Dieffield et al. 2011). Dieffield et al. (2011), suggest that an unbalanced work environment is directly linked to harmful patient outcomes including falls and medication inaccuracies. Furthermore, it is proposed that combinations of optimal work environments for nurses and good work relationship between physician and nurses will improve patient outcomes (Aiken, Cimiotti, Sloane, Smith, Flynn, & Neff, 2011).

Purpose of the Project

The purpose of the scholarly project was to improve teamwork and communication among the staff in ER. Implementing TeamSTEPPS has been demonstrated to increase team awareness, clarify team roles, resolve conflicts, improve information sharing, and eliminate barriers to quality and safety (Agency for Healthcare Research and Quality, 2015). The Joint Commission conducted a study to determine core causes for all reported sentinel events between 1995 and 2005. Sixty-eight percent (68 %) of adverse patient outcomes are caused by poor communication (Mckinley, 2014). According to this study it is imperative that healthcare workers communicate effectively to improve patient outcomes.

Clinical Question

Teamwork in the ER is essential to appropriately take care of patients. Improving teamwork is associated with improving job satisfaction (Kalisch, Lee, & Rochman, 2010). The question posed is: Does implementation of TeamSTEPPS in the emergency room increase staff knowledge of teamwork and communication?

Review of the Literature

When completing the literature review several key words were used; teamwork affects patient care, implementing TeamSTEPPS improve patient care, and teamwork in the emergency room. The words teamwork affects patient care yielded 2,834 results. The words implementing TeamSTEPPS improve patient care yielded 58 results. The words teamwork in the ER yielded 2,549 results. The following databases were used: ProQuest Nursing Allied Health Source and Cumulative Index to Nursing and Allied Health Literature (CINAHL). When completing the literature review the date range was 2008 through 2015.

Good teamwork and communication in the ER improves staff roles which are directly linked with improving patient safety, reduction in clinical errors, and reduction in wait times (Kilner & Sheppard, 2010). Improving communication and teamwork among emergency room staff has a direct link to improved patient safety. Having effective teamwork leads to improved team behaviors, improved staff attitudes, reduction of errors, and improved communication (Jones, Podila, & Powers, 2013). Lack of communication among team members can lead to poor patient outcomes (Bristowe, Siassakos, Hambly, Angouri, Yelland, Draycott, Fox, 2012). Improving communication skills within a department is key to having a culture of safety (Pearce, 2015). Staff that respectfully communicate with each other establishes a partnership of mutual understanding, and shared knowledge (Klipfel, Carolan, Brytoski, Mitchell, Getlman, & Jacobson, 2014, Westli, Johsen, Eid, Rasten, & Brattebo, 2010).

Poor teamwork among health care professionals contributes to preventable medical errors (Peckler, Prewett, Campbell, & Brannick, 2012 & Deering, Rosen, Ludi, Munroe, Pocrnich, Laky, & Napolitano, 2011). Approximately 70 to 80% of errors in the ER occur as a result of poor teamwork and communication (Courtenay, Nancarrow, & Dawson, 2013). A highly

functioning team makes fewer errors and improves the patient safety culture (Vertino, 2014). Effective teamwork enables collective learning which is essential to safety culture (Jones, Skinner, High, & Reiter-Palmon, 2013). Effective teamwork and communication are critical in the ER due to multiple staff needing to share information in regard to patient care (Parush, Kramer, Foster-Hunt, McMullan, Momtahan, 2014). Effective teamwork in the ER improves care and patients' outcomes (Leonard & Frankel, 2011).

Teaching team members the concept of situation monitoring enhances team members' ability to recognize a patient declining or a team member in need of help (Clapper & Kong, 2012). Development and implementation of teamwork skills are recommended to handle future changes in healthcare (Frykman, Hasson, Athlin, & Schwarz, 2014). Good teamwork in the ER is associated with increase positive job environment, autonomy, and control over practice (Ajeigbe, McNeese-Smith, Leach, Phillips, 2013). Teamwork is a promising approach to improve patient care in the ER (Mazzocato, Forsberg, & Schwarz, 2011). Teamwork is crucial in improving patient flow in the emergency department and improving the quality of patient care (Athlin, Schwarz, & Farrohjnia, 2013). The Institute of Medicine suggested care in ER is delivered by teams, yet training is focused on individual responsibilities which leaves staff inadequately prepared to work as a team (Carbo, Tess, Roy, & Weingart, 2011). Teamwork in an ER leads to increased staff satisfaction (Castner, Foltz-Ramos, Schwartz, & Ceravolo, 2012). According to the literature, teamwork and communication are important concepts for the ER staff to develop.

Conceptual Framework

The Iowa Evidence-Based model served as the conceptual framework during the implementation of TeamSTEPPS in the ER. The Iowa Model consist of five-steps: identify a nursing problem and conduct a search of literature, determine if the issue is a priority for the organization, form a team who will develop, implement and evaluate the project, assemble relevant literature, and start to critique the literature. Iowa Evidence-Based model served as a guide to use research findings to improve patient care (Iowa Model, 2015). Each step of the Iowa Evidence-Based model was used to guide successful implementation of TeamSTEPPS.

Identify

Senior leadership made the decision to implement TeamSTEPPS due to significant errors that had occurred. Senior leadership wants all employees across the health system to use TeamSTEPPS tools. The implementation of TeamSTEPPS was found to be beneficial to improve teamwork and communication strategies to reduce errors.

The question

Does the implementation of TeamSTEPPS in an emergency room increase staff knowledge of teamwork and communication?

Topic a priority

This is a priority for the organization due to results from the work culture and safety attitude questionnaire demonstrate an opportunity for improvement. Also this topic is a priority due to implementation of TeamSTEPPS improving communication and teamwork. Improved teamwork and communication improves patient care.

Form a team

The ER change team formed consisted of two physicians, unit manager, two team leads, and project leader. The unit manager, two team leads, and one physician had previously participated in TeamSTEPPS training. The project leader and one physician had become TeamSTEPPS master-trainers. The project leader taught eight TeamSTEPPS classes with one of the other team members who took turns teaching. The ER change team was responsible for teaching ER staff TeamSTEPPS tools and strategies.

Body of evidence

In synthesizing the evidence, it became clear that improving staff knowledge of teamwork and communication in the ER by implementing TeamSTEPPS was essential. Evidence suggests effective teamwork leads to improved team behaviors, improved staff attitudes, reduction of errors, and improved communication (Jones, Podila, & Powers, 2013). Improving communication and teamwork among emergency room staff has a direct link too improved patient safety. Having effective teamwork leads to improved team behaviors, improved staff attitudes, reduction of errors, and improved communication (Jones, Podila, & Powers, 2013).

Sufficient evidence

Athlin, Schwarz, & Farrohknia (2013), conducted a study to examine ways to improve care patients receive. This study concluded having a multi-disciplinary team will improve the quality of care patients receive. Parush, Kramer, Foster-Hunt, McMullan, & Momtahan (2014), conducted a study to examine similarities and differences in teamwork in different healthcare organizations. This study focused on how effective teamwork is critical in the healthcare environment. Study also focused on how communication is crucial in effective patient care.

Leonard & Frankel (2011), focused on the importance of structured and assertive communication, situational awareness, and having a culture of safety. Mazzocato, Forsberg, & Schwarz (2011), conducted a study examining how teamwork can improve patient care processes. This study also examined how staff will need to implement behavior change to have effective teamwork. Frykman, Hasson, Athlin, & Schwarz (2014), conducted a study examining teamwork as a key component to improve patient care. Study also examined teamwork training and behavior change interventions. In conducting research, it became evident that effective communication and teamwork are essential to improving patient outcomes.

Practice change

The practice change included educating and implementing Situation Background Assessment Recommendation (SBAR), I am Concerned, I am Uncomfortable, This is a Safety Issue (CUS) combined with the Two-Challenge rule, Brief, Huddle, and Debrief. Data consisted of pre and post staff knowledge of SBAR, CUS, Two-Challenge rule, Brief, Huddle, and Debrief, teamwork, and communication. Staff was prepared to implement TeamSTEPPS, due to each staff member attending a training session. Adoption was promoted at the training sessions and leading up to TeamSTEPPS launch date February 29, 2016.

Adoption in practice

Change is appropriate for adoption into practice in the ER due to previous evidence suggesting a lack of teamwork and communication increases opportunities for patient errors. In order to provide safe patient, care it has been recognized for healthcare providers to provide a team-based approach to care for all patients. TeamSTEPPS, an evidence-based system, focuses on teaching staff tools to improve teamwork and communication with an ultimate goal of

improving patient outcomes. TeamSTEPPS tools CUS and Two-Challenge rule, give staff members assertive words to use to speak-up when they have a patient concern. TeamSTEPPS tools promotes teamwork and communication, improves patient safety, and changes the culture of the department.

Theoretical Framework

Jean Watson's Theory of Human Caring theoretical framework was used during the implementation of TeamSTEPPS in the ER. Jean Watson's Theory of Human Caring model consists of the following core principles: practice loving-kindness, authentic presence, spiritual practice toward wholeness, and caring-healing environment. Practice loving-kindness includes, caring for self, demonstrating acts of kindness, treating others with love and kindness, and treating others with respect. Authentic presence listens to others, utilizes eye contact and touch, supports and encourages others. Spiritual practices toward wholeness demonstrate genuine interest in others, practice gratitude, and practices discernment. Caring-healing environment, practice a non-judgmental attitude and encourages direct, constructive, respectful communication (Watson, 2008).

Jean Watson's Human Caring goes hand in hand with implementing TeamSTEPPS because the focus is on 'Team'. An ER 'Team' with effective communication and teamwork will be able to deliver safe and effective patient care (Plonien & Williams, 2015). "Care is crucial for human development, and is first and foremost aimed at physical needs. Care ethics stem from the idea that care is basic to human existence. Caring weaves people into a network of relationships" (Lachman, 2012, p. 114). The ER 'Team' will be able to optimize the use of information, people, and resources to achieve the best clinical outcomes for patients. The ER 'Team' will have an increased awareness and clarity of team roles and responsibilities. They will know how to

resolve conflicts and improve information sharing. They will be able to eliminate any barriers to quality and safety (Agency for Healthcare Research and Quality, 2015). Teamwork is suggested as an essential factor in creating the value of care, improving health practices, patient outcomes, and patient well-being (Frykman, Hasson, Athlin, & Schwarz, 2014).

Methodology

This project was an Evidence-Based Project using a quasi-experimental approach for data collection and analysis. The TeamSTEPPS education sessions were interactive, allowing the staff to ask questions and answer questions throughout the education sessions. ER staff were asked questioned about: barriers to team performance, why errors occur, and communication challenges. The following were the top responses: lack of information sharing, ineffective communication, distractions, lack of role clarity, poor handoffs, interruptions, language barriers, and workload. The sessions focused on the importance of shifting from an individual focus to a team system approach. According to TeamSTEPPS research, a team system approach encourages dual focus, informed decision making, clear understanding of teamwork, mutual support, and team improvement. Each session focused on effective standards of communication: complete, clear, brief, timely and how to give constructive and timely feedback. The participants were taught the importance of promoting and modeling teamwork. The participants were taught the importance of situation monitoring, task assistance, and mutual support, which leads to effective support of fellow team members. Each session also focused on how to assertively advocate for their patients (Agency for Healthcare and Quality, 2015).

TeamSTEPPS is a national recognized program and any organization has ready access and permission to use. TeamSTEPPS consists of a three-phased process with a primary focus on

creating and sustaining a culture of safety. The first phase is a pre-training assessment for site readiness. The second phase includes planning, training, and implementation. The third phase is sustaining the implementation of TeamSTEPPS (Agency for Healthcare Research and Quality, 2015). TeamSTEPPS focus is to improve healthcare organizations which is accomplished by the organization following each step to ensure the successful implementation.

The aim of the first phase was the assessment for site readiness which was completed by senior leadership of the hospital organization. The focus of this phase is to: identify opportunities for improvement; determine readiness of the institution including leadership support; identify barriers to implement change; and determine if resources are in place for successful support for implementation of TeamSTEPPS. During this phase, a team training analysis was completed to identify team opportunities. Identified opportunities included improving teamwork and communication. Senior leadership developed goals to reduce or eliminate risk to safe patient care. After the opportunities were identified an action plan was developed by senior leadership. (Agency for Healthcare Research and Quality, 2015).

During the first phase, the ER change team was established and responsible for teaching the emergency room staff the tools needed to implement TeamSTEPPS. The change team members were determined and committed to changing the culture of the ER. The team consisted of: two physicians, unit manager, two team leaders, and the project leader. During this phase the ER change team decided to teach ER staff SBAR, Brief, Huddle, Debrief, and CUS combined with Two-Challenge rule. SBAR is a technique for the communication of information that requires immediate attention or action in regards to a patient's condition. Brief is the staff sharing the plan, Huddle is monitoring or modifying the plan, and Debrief includes reviewing the team's performance. Brief, Huddle, Debrief is designed to improve team performance. CUS is

the staff using an assertive statement. CUS is used when a staff member would like to stop the procedure because they are concerned for patient safety. The Two-Challenge rule empowers staff to assertively voice a concern two times and the team member being challenged must acknowledge the concern is heard (Agency for Healthcare Research and Quality, 2015).

During the planning, training, and implementation phase for the ER, tools and strategies were used to address opportunities for improvements that were identified in phase one. During phase two the team determine how the components of TeamSTEPPS were to be incorporated into practice which included: SBAR was to used giving report, communicating to another staff member in regards to patient condition, when writing a Safety Report System (SRS), CUS combined with Two-Challenge rule was to be used if patient safety was at risk, and Brief Huddle Debrief was to be used with a cardiopulmonary resuscitation, stroke patients, or any unstable patients

In conjunction with nursing leadership a plan was developed to determine effectiveness of interventions. The ER was prepared to successfully implement tools and transfer training to ensure knowledge learned is applied in the work environment. This implementation included the entire emergency room team except one physician and three certified nursing assistants due to conflict with class times and their personal schedules they self-excluded themselves (Agency for Healthcare Research and Quality, 2015).

Measurable Outcomes

One objective of this project was to have the staff attend a three-hour TeamSTEPPS education session. Each class provide the same information, and provided the same handouts. Allowing all participants access to the same education and information. Teaching TeamSTEPPS

to ER staff was taught by the project leader and change team. TeamSTEPPS consist of four primary teamwork skills: leadership, communication, situation monitoring, and mutual support (Maguire, Bremner, & Yanosky, 2014). The ER staff were taught communication skills: which is effective exchange of information. The staff were taught leadership skills such as: how to direct, coordinate, assign tasks, motivate team members, and facilitate optimal performance. Staff were taught situation monitoring skills: strategies to monitor team members' performance, maintain a shared mental model, and develop a common understanding of team environment. They were taught mutual support skills: how to anticipate other team members' need, shift workload to achieve balance during periods of high workload (Agency for Healthcare Research and Quality, 2015). The second objective was for staff to gain an increased knowledge of TeamSTEPPS tools. The final objective was to have staff implement TeamSTEPPS tools in their daily practice with a target date of February 29, 2016. As part of reinforcement, TeamSTEPPS information was posted in the breakroom as a reminder of tools they learned in each session. Staff report they have used SBAR to give report, communicate with other healthcare workers, and write SRS's. Staff also report, they have used CUS combined with the Two-Challenge rule when they felt patient safety was at risk. The ultimate goal of TeamSTEPPS was to improve communication, teamwork, and clarify team roles.

Promoting Action on Research Implementation in Health Service (PARiHS), was the framework for guiding dissemination and implementation of TeamSTEPPS. PARiHS has three elements: evidence, context, and facilitation which will be considered simultaneously. Content analysis is conducted by a detailed review of literature. "Evidence consists of research, clinical experience, and patient experience; context consist of leadership culture, and evaluation; and

high facilitation includes a match between the purpose and role of facilitation with the skills and attributes of the facilitator” (Brownson, Colditz, & Proctor, 2012, p. 331).

Target Sample

The staff included in the teaching sessions of TeamSTEPPS included: ER physicians, ER registered nurses, ER certified nursing assistance/health unit coordinators, public safety officers, a pharmacy technician, and the patient revenue management organization (PRMO). There were 82 staff members who attended TeamSTEPPS education session. For this project, 51 staff members (n=51) agreed to participate taking the pretest and posttest questionnaire which included: seventeen nurses, ten physicians, nine PRMO, one pharmacy technician, eight certified nursing assistance/health unit coordinator, and six public safety officers.

Setting

The setting was the ER at a community hospital of a University Health System in an urban area. The organizational strategic plan is dedicated to advancing the health and well-being of patients served and to provide patient-centered care (Duke University Hospital, 2015). The organization is dedicated to patients and employees (Duke University Hospital, 2015). This project supported the organization’s strategic plan as implementing TeamSTEPPS will improve communication and teamwork among emergency room staff and ultimately improve patient-centered care.

Tools

The pre and posttest TeamSTEPPS questionnaire was developed by the project leader based on the TeamSTEPPS power point, used to teach the sessions. The questionnaire was developed using Likert scale to measure knowledge about communication and teamwork. The

questions were reviewed by Liberty University faculty and IRB, and edited to improve question clarity. The staff completed a test and retest of the TeamSTEPPS questionnaire to measure their knowledge of TeamSTEPPS based upon the education session, immediately prior to and after each session. The TeamSTEPPS questionnaire contained questions that focused on staff knowledge of: teamwork, communication, SBAR, CUS, Two-Challenge rule, Brief, Huddle, and Debrief. The participants submitted the pre and posttest questionnaire in sealed envelopes to make sure questionnaires remained anonymous.

Data Collection

At the beginning of each TeamSTEPPS class, the project leader read the consent form to the class, then asked if they would participate in the quality improvement study answering the questionnaire served as implied consent. The pre and posttest questionnaire contained questions that addressed staff knowledge of communication, teamwork. Demographic questions included in the pre and posttest questionnaire addressed level of practice, education level, years of overall experience, years of emergency room experience and years working at current hospital. During data collection, no staff names were included or protected health information (PHI). Inclusion criteria included all ER staff. Descriptive statistics were used during the analysis of the pretest and posttest questionnaire data. Excel Chi-Square was used to analyze the pretest and posttest data. The pretest and posttest questionnaire answers were coded correct or incorrect. The data were stored on a password-protected shared drive that only the project leader knows and will be kept secure for five years.

Evaluation

Chi-square was used to compare correct and incorrect answers on pre and posttest questionnaire data. The level of significance was set at $p < .05$ by the project leader. According to the Chi-square data analysis staff had increased knowledge of TeamSTEPPS tools on nine of the twelve questions. Staff had significant increased knowledge of the Two-Challenge Rule, CUS, SBAR, Brief Huddle Debrief, and why errors occur in hospital.

Results of Excel Chi-Square and Descriptive Statistics

Table 1

Which of the following are considered barriers to communication?

Test	Correct	Incorrect
Pre	19	32
Post	16	35

Note $\chi^2 = 0.39$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant in increased knowledge of barriers to communication.

Table 2

Why do errors occur within hospitals?

Test	Correct	Incorrect
Pre	15	36
Post	24	27

Note $\chi^2 = 0.06$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increased knowledge of errors that occur in hospitals.

Table 3

Effective communication skills are vital for:

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	21	30
Post	24	27

Note $\chi^2 = 0.54$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increase of knowledge of communication skills.

Table 4

What are the 4 standards of effective communication?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	45	6
Post	46	5

Note $\chi^2 = 0.74$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increase in knowledge of the four standards of effective communication.

Table 5

What does the acronym SBAR mean?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	39	11
Post	49	2

Note $\chi^2 = 0.00$, $df = 1$, $p < .05$

Chi-square results demonstrate statistical difference in correct posttests answers. These results suggest participants had an increased knowledge of SBAR.

Table 6

Which of the following is the correct definition of Brief, Huddle, and Debrief?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	27	24
Post	38	13

Note $\chi^2 = 0.02$, $df = 1$, $p < .05$

Chi-square results demonstrate statistical difference in correct posttest answers. These results suggest participants had an increased knowledge of Brief, Huddle, Debrief.

Table 7

Which of the following is the correct definition of situation monitoring?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	31	20
Post	32	19

Note $\chi^2 = 0.83$, $df = 1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increase in knowledge of the definition of situation monitoring.

Table 8

What is the definition of Shared Mental Model?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	14	36
Post	11	39

Note $\chi^2=0.78$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increase in knowledge of Shared Mental Model.

Table 9

Mutual Support involves members who

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	47	4
Post	43	8

Note $\chi^2= 0.21$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increase in knowledge of Mutual Support.

Table 10

Which of the following is the correct definition of task assistance?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	47	4
Post	45	6

Note $\chi^2 = 0.50$, $df=1$, $p < .05$

Chi-square results demonstrate no statistical difference in correct posttest answers. These results suggest participants did not have a significant increased knowledge of task assistance.

Table 11

Which of the following is the correct explanation of the Two-Challenge Rule?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	27	24
Post	45	6

Note $\chi^2 = 0.00$, $df=1$, $p < .05$

Chi-square results demonstrate statistical difference in correct posttest answers. These results suggest participants had an increased knowledge of Two-Challenge Rule.

Table 12

Which of the following is the correct explanation of CUS?

<u>Test</u>	<u>Correct</u>	<u>Incorrect</u>
Pre	28	23
Post	42	9

Note $\chi^2 = 0.00$ $df= 1$, $p < .05$

Chi-square results demonstrate statistical difference in correct posttest answers. These results suggest participants had an increased knowledge of CUS.

The conclusions are the data from this project revealed that the use of the TeamSTEPPS tools (SBAR, Brief, Huddle, Debrief, and CUS combined with the Two-Challenge rule) demonstrated an improvement in staff knowledge. TeamSTEPPS curricular content (barriers to communication, errors, communication skills, four standards of communication, situation monitoring, shared mental model, mutual support, and task assistance) did reveal improvement, but was not reflected as statistically significant. This in part can be attributed to the small sample size. However, there is clinical relevance due to increased knowledge of communication and teamwork which is directly linked to improved patient outcomes. Due to an increase in staff knowledge of nine of the twelve questions, project leader concluded that implementing TeamSTEPPS in the emergency room has increased staff knowledge of teamwork and communication.

Significance and Implications

The development and implementation of TeamSTEPPS was recommended to address future challenges of healthcare. Teamwork is a core component in increasing value of care and improving safe patient care. The implementation of TeamSTEPPS requires behavior change interventions, changes to work environment, and management support (Frykman, Hasson, Athlin, Schwarz, 2014). Successful implementation of TeamSTEPPS has been demonstrated to improve patient safety, decrease medical errors, and improve teamwork, decision making, and communication (Coburn & Gage-Croll, 2011). Research supports that there is a direct link between a good work environment and improved patient outcomes. Previous research suggested

that improving communication and teamwork has a positive impact on patient outcomes and can change the culture of a department (Agency for Healthcare Research and Quality, 2015).

TeamSTEPPS was implemented in the ER on February 29, 2016. The ER staff use SBAR when calling report to inpatient nurses, when communicating patient information to another healthcare worker, and when writing up a situation in the Safety Report System. Emergency Room staff were taught to use Brief, Huddle, Debrief in the following situations: cardiopulmonary resuscitation (CPR), strokes, and unstable patient situations. I am Concerned, I am Uncomfortable, This is a Safety Issue (CUS) combined with Two-Challenge rule anytime they felt patient safety was at risk. Several staff have reported using CUS combined with Two-Challenge rule when they had a patient safety concern. The staff reported they felt as if they had a voice and their concerns were understood by other members of the team.

In conclusion, this evidence-based TeamSTEPPS implementation project demonstrated statistical increase of knowledge of SBAR, CUS combined with Two-Challenge rule. Based on this project it is recommended further research be evaluated on how to increase staff knowledge of TeamSTEPPS curricular as a whole. Next steps: educate and increase awareness of TeamSTEPPS across the Health System to improve patient outcomes. Future dissemination plans include presenting at TeamSTEPPS National Conference in 2017. Also includes proposing implementing TeamSTEPPS in nursing programs to teach nursing students effective teamwork and communication skills.

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Appendices

Appendix A Citi Training Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- Name: Trynequa Jones [REDACTED]
- Email: [REDACTED]
- Institution Affiliation: Liberty University [REDACTED]
- Institution Unit: Nursing
- Phone: [REDACTED]

- Curriculum Group: Human subject - Basic
- Course Learner Group: Nursing
- Stage: Stage 1 - Basic Course
- Description: This course is appropriate for students doing class projects that qualify as "No More Than Minimal Risk" human subjects research.

- Report ID: [REDACTED]
- Completion Date: 09/28/2014
- Expiration Date: 09/27/2017
- Minimum Passing: 80
- Reported Score*: 90

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Data Management (RCR-SBE) (ID: 1523)	09/28/14	5/5 (100%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	09/28/14	3/3 (100%)
Liberty University (ID: 15111)	09/28/14	No Quiz
Belmont Report and CITI Course Introduction (ID: 1127)	09/28/14	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	09/28/14	4/5 (80%)
Defining Research with Human Subjects - SBE (ID: 491)	09/28/14	4/5 (80%)
The Federal Regulations - SBE (ID: 502)	09/28/14	5/5 (100%)
Assessing Risk - SBE (ID: 503)	09/28/14	5/5 (100%)
Informed Consent - SBE (ID: 504)	09/28/14	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	09/28/14	5/5 (100%)
Records-Based Research (ID: 5)	09/28/14	2/2 (100%)
Research With Protected Populations - Vulnerable Subjects: An Overview (ID: 7)	09/28/14	4/4 (100%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	09/28/14	4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	09/28/14	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	09/28/14	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	09/28/14	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	09/28/14	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	09/28/14	1/5 (20%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing Institution identified above or have been a paid Independent Learner.

CITI Program

Email: [REDACTED]
Phone: [REDACTED]
Web: [REDACTED]

Appendix B Pre and Post Questionnaire

TeamSTEPPS Pre- Test

1. Please indicate your level of practice by placing an “x” by the appropriate level:
 Nurse
 Physician
 Case Manager
 Pharmacy Technician
 PRMO
2. Please indicate your level of education by placing an “x” by the appropriate level:
 Some College
 Associate degree
 Undergraduate degree
 Graduate degree
3. Years of overall experience at the designated level _____
4. Years of emergency room experience at the designated level _____
5. Years working at Duke Raleigh Hospital Emergency Room _____
6. Which of the following are considered barriers to communication?
 - A. Having a consistent team
 - B. Lack of information sharing
 - C. Appropriate information sharing
 - D. Lack of fatigue
7. Why do errors occur within hospitals?
 - A. Appropriate handoffs
 - B. Following protocols
 - C. Poor handoffs
 - D. Effective communication
8. Effective communication skills are vital for:
 - A. Patient safety
 - B. Improved communication
 - C. Improved work ethic
 - D. Patient relationships

9. What are the 4 standards of effective communication?
 - A. Incomplete, clear, debrief, untimely
 - B. Complete, unclear, brief, timely
 - C. Complete, clear, huddle, untimely
 - D. Complete, clear, brief, timely

10. What does the acronym SBAR mean?
 - A. Situation, Background, Accusation, Remediation
 - B. Solution, Background, Alteration, Reduction
 - C. Solution, Background, Assessment, Reduction
 - D. Situation, Background, Assessment, Recommendation

11. Which of the following is the correct definition of Brief, Huddle, and Debrief?
 - A. Brief- process improvement, Huddle-planning, Debrief- problem solving
 - B. Brief-problem solving, Huddle-process improvement, Debrief- planning
 - C. Brief-planning, Huddle-problem solving, Debrief- process improvement
 - D. Brief-planning, Huddle-process improvement, Debrief-problem solving

12. Which of the following is the correct definition of situation monitoring?
 - A. Effective support for fellow team members
 - B. Effective support for patients
 - C. Effective support for family members
 - D. Effective support for leadership

13. What is the definition of A Shared Mental Model?
 - A. The perception of knowing what each person in the department is doing
 - B. The perception that everyone is only responsible for themselves
 - C. The perception of, understanding of, of knowledge about a situation or process that is shared among the team members through communication
 - D. The understanding of, clarification of, or knowledge about a situation or process that is shared among the team members through communication

14. Mutual Support involves members who?
 - A. Talking about each other, hinder feedback, exert assertive and advocacy behaviors when patient safety is threatened
 - B. Assist staff members you like, provide and receive feedback, ignore issues related to patient safety
 - C. Assist each other, provide and receive feedback, exert assertive and advocacy behaviors when patient safety is threatened
 - D. Assist each other, provide and deceive feedback, exert assertive and advocacy behaviors when patient safety is threatened

15. Which of the following is the correct definition of task assistance?
- A. Team members who foster a climate where assistance is only given when asked
 - B. Team members who foster a climate where assistance is given only to selective co-workers
 - C. Team members who foster a climate where assistance is sought and offered
 - D. Team members who foster a climate where minimal assistance is given
16. Which of the following is the correct explanation of the Two-Challenge Rule?
- A. Passively voice your concern to two staff members
 - B. Assertively voice your concern at least two times
 - C. Passively voice your concerns at least two times
 - D. Assertively voice your concern to two staff members
17. Which of the following is the correct explanation of CUS?
- A. I am concerned, I am uncomfortable, This is a safety issue
 - B. I need clarity, I am uncomfortable, This is safety issue
 - C. I need clarity, I feel uncomfortable, This is a satisfaction issue
 - D. I am concerned, I am uncomfortable, This is a satisfaction issue

Appendix C Permission to Use Iowa Model

You have permission, as requested today, to review/use *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care* (Buckwalter et al., In review). Click the link below to open the model.

Copyright of *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care* will be retained by The University of Iowa Hospitals and Clinics.

Permission is not granted for placing the Iowa Model on the internet.

[The Iowa Model - Revised](#)

In written material, please add the following statement:

- *Used/Reprinted with permission from the University of Iowa Hospitals and Clinics. Copyright 2015. For permission to use or reproduce the model, please contact the University of Iowa Hospitals and Clinics at [REDACTED]*

If you have questions, please contact Kimberly Jordan at [REDACTED] or [REDACTED]
[REDACTED]

Appendix D IRB Approval Letter

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

January 14, 2016

Trynequa Jones MSN, RN
 IRB Exemption: [REDACTED]: Implementation of TeamSTEPPS

Dear Trynequa,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46.101(b):

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
 - (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
 - (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at [REDACTED].

Sincerely,

[REDACTED]
 G. Michele Baker, MA, CIP
 Administrative Chair of Institutional Research
 The Graduate School

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 UNIVERSITY
Liberty University / Training Champions for Christ since 1971