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Infusion of TeamSTEPPS

Kendra Bonin

Submitted as Partial Fulfillment for the Doctor of Nursing Practice Degree

Regis University

July 18, 2016

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Executive Summary: Infusion TeamSTEPPS

Problem. Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) is an evidence-based approach to team training. Infusion of TeamSTEPPS maintains the integrity of the program and gains additional buy-in from team members by involving them in the infusion process. The PICO was stated as: P- Military surgical multidisciplinary group, including surgeons, nurses, operating room technicians and central material services staff; I-Infuse the TeamSTEPPS components into a surgical multidisciplinary group; C-Post invention evaluation concerning team satisfaction; and O-Increase of team satisfaction, operating room efficiencies and decreases preventable medical error. Roger's Theory Diffusion of Innovation and Ray's Theory of Bureaucratic Caring provided the theoretical framework for the project. **Purpose.** The project focused on the missing components of TeamSTEPPS, the transference, and sustainment of TeamSTEPPS behaviors to the work environment. **Goals.** The goals were to gather clinical data related to team efficiency, team satisfaction, and patient safety reporting. **Objectives.** Infusing daily missing components of TeamSTEPPS will increase team outcomes. **Plan.** Gap analysis revealed the components of TeamSTEPPS to be infused. Anonymous surveys were completed by voluntary participants after training. Posters, reminders, and learning moments or informal meetings were incorporated during the four months of the project. **Outcomes and Results.** Team satisfaction scores resulted in statistical significance. The operating room efficiencies revealed a significant change in one of the three efficiencies outcome. Patient safety reporting did increase for both preventable errors and actual errors after the intervention.

Acknowledgements

To My Dad, My Husband and Family.

The NICU:

To those who thought they had no voice, someone heard.

To those who thought they suffered alone, you did not.

To anyone who thinks they did this journey alone, you did not.

To those who came before, to those who stand now and those still to be encouraged

Someone gives you a voice...

Table of Contents

I. Preliminary Pages

A. Copyright Page Executive Summary	i
B. Executive Summary	ii
C. Acknowledgements	iii
D. Table of Contents	iv
E. List of Figures	vii
F. List of Appendices	viii

II. Problem Recognition and Definition

A. Problem Statement and PICO	1
B. Project Significance	2
i. Scope	3
ii. Rationale	4
C. Theoretical Foundation for the Project and Change	5
D. Literature Selection and Scope of Evidence	9

III. Review of Evidence

A. Background of the Problem	10
B. Systematic Review of the Literature	11
i. TeamSTEPPS	11
ii. Team Dynamics	12
iii. Military Nursing	12

iv.	Bureaucratic Caring Theory	13
v.	Innovation of Diffusion Theory	14
 III. Project Plan and Evaluation		
A.	Market and Risk Analyses	15
B.	Strengths, Weaknesses, Opportunities, and Threats	15
C.	Driving and Restraining Forces	17
i.	Driving Forces	17
ii.	Restraining Forces	18
D.	Need, Resources, and Sustainability	19
E.	Feasibility/ Risk and Unintended Consequences	19
i.	Feasibility and Risk	19
ii.	Unintended Consequences	20
F.	Stakeholders and Team Members	20
G.	Cost Benefits Analysis	21
i.	Cost	21
ii.	Benefit	22
H.	Mission and Vision Statement	23
I.	Goals and Project Processes	23
J.	Logic Model	24
K.	Population and Sampling	25
i.	Population	25

ii. Sampling	26
iii. Protection of Human Subject Review	27
III. Methodology and Evaluation Plan	
A. Methodology	28
B. Data Collection Tools	29
i. Team Satisfaction	30
ii. Operating Room Efficiencies	31
iii. Preventable Medical Errors	31
IV. Project Finding and Results	
A. Key Element and Instrumentation	32
i. Team Satisfaction Findings	33
ii. Operating Room Efficiency Findings	34
iii. Preventable Medical Errors Findings	35
B. Discussion of the Findings	35
C. Limitations	38
V. Recommendations	40
A. Training	40
B. Future Plans	40
VI. Conclusion	42
VII. References	44
VII. Appendices	50

Lists of Figures

I.	Eight Steps to Change	6
II.	Literature Review	9
III.	Population Sample	26
IV.	Surgical Efficient Statistical Data	35

List of Appendices

A. Sample of the Systematic Review Evidence	50
B. SWOT Analysis.....	73
C. Stakeholders and Project Team Members	74
D. European Regional Medical Command Approval Letter	75
E. Project Budget and Resources	76
F. Mission/ Vision and Logo	77
G. Logic Model	78
H. IRB Regis University Approval Letter	79
I. Project Lead CITI Certificate	80
J. Project Outline and Timeline.....	81
K. Permission Letter for the use of LRMC 2013-2014 Study	82
L. Gap Analysis Survey Questionnaire	83
M. Brief Checklist Poster	84
N. Post Intervention Questionnaire on Team Satisfaction	85

Problem Recognition and Definition

Statement of Purpose

TeamSTEPPS is a framework that empowers individuals. The Department of Defense (DoD) has been actively involved with TeamSTEPPS since 2003. The assertion is supported by TeamSTEPPS implementation and analysis performed at the North Shore-LIJ Health System over a period of approximately three years (Thomas & Galla, 2013). Incorporating the DoD's journey towards a High-Reliability Organizations (HRO) and Landstuhl Regional Medical Center (LRMC) looked at established practices already in place. One is Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS). TeamSTEPPS is an evidence-based method to enhance team communication and patient's outcomes. However, few long-term studies are looking at the overall usages of each TeamSTEPPS tool and strategies, such as what is working and what needs to be infused back into the organization's culture. Team organizational skills are necessary for today's military healthcare system and its culture. "It has been mention that total national costs (lost income to include, lost household production, disability, and health care costs) of preventable medical errors resulted in an estimated \$17-29 billion lost, or 7,000 deaths annually" (Kohn, Corrigan, & Donaldson, 2000, p. 2). Infusion of TeamSTEPPS will maintain the cultural awareness of the expected norms of all team members, to combat preventable medical errors.

Problem Statement and PICO

The project problem statement was: Will infusing components of TeamSTEPPS cultural change result in an increase of team efficiencies, team satisfaction, and a decrease in preventable

medical error for the surgical multidisciplinary group? Using the Population, Intervention, Comparative, and Outcome (PICO) model helps define the elements affected by the intervention and outcomes (Terry, 2015). The PICO for this project was:

Population (P): The surgical multidisciplinary group, surgeons, nurses, operating room technicians and central material services (CMS) staff in a military setting.

Intervention (I): Infuse the TeamSTEPPS components into a surgical multidisciplinary group

Comparative (C): Initial data from Surgical TeamSTEPPS Simulation Training completed in 2013.

Outcome (O): Increase of team satisfaction, team efficiencies, and decrease preventable medical error as reported in the patient safety reporting system.

Project Significance

The implementation of TeamSTEPPS is one component of a changing practice. The long-term effectiveness of TeamSTEPPS has not thoroughly been explored before. LRMC initially used TeamSTEPPS to improve interdisciplinary communication started in the surgical departments in 2013. The study revealed LRMC had a turnover rate of forty-two percent, and the conclusion was TeamSTEPPS was effective within the operating room. However, was there a cultural change and is it still present today? Moreover, was there a cultural shift, what tools and strategies were being used, and what was not? Lastly, does an organization shut down an entire department to train the staff on all components of TeamSTEPPS or can one infuse missing components within the established working platform? Based on the 2013 study and infusing

TeamSTEPPS's components, have the operating room efficiencies, team satisfaction, and patient safety reports improved?

Changing culture must include changes in how health care providers receive training early in their career. Most current initial training programs do not create values and norms in healthcare providers that are conducive to a functional team. Because these values and norms are instilled so early in professional development, TeamSTEPPS training alone may not be enough to overcome undesirable organizational cultural traits. Robust study of the long-term efficacy of the TeamSTEPPS program is essential to analyze application faults and strengths. Without knowledge of these faults and strengths, effectiveness and culture cannot be changed. Studies in diverse patient populations demonstrate the relationship between teamwork have improved the clinical process, reduced medical errors, improved team performance, increase adherence to guideline and lastly seen a decrease in length of stays and decrease in mortality.

The Institute of Medicine (IOM) Report, *To Err, is Human: Building a Safety Health System* revealed gaps in health care such as consistency, communication, and teamwork (Koln, 2000). *Human Error* by James Reason (1990) also looked at the two aspects of human error, such as control process underlying routine of human nature versus the safe operation of high-risk procedures and technology. Both Reason's report and the IOM report looked at everyday working conditions for all health care workers and similar foundations related to errors emerged.

Scope. The project looked at an increase of team satisfaction measured after the intervention for staff work experience. The importance rested in increased utilization rates in the surgical department to affect the hospital financially. Lastly, included was a look for a decrease

preventable medical error measured by the Patient Safety Reporting System. The scope of the project was overreaching to include work environment, resource management, and the medical personnel look at zero harm. The team-driven approach to training was based on a gap analysis to infuse components of TeamSTEPPS tools and strategies into the culture.

Rationale. Training new employees cost money; utilization rates and lawsuits cost the organizations money. Organizations are operating in increasingly complex, dynamic, and even ambiguous environments. The organization's use of teams employs a highly proactive strategy to business. However, within a complex environment, being proactive is not enough. Organizations must also promote resilience to adapt to a broad range of situations and maintain an impressive safety record. "To adjust to a fast-changing environment, units develop a fast more flexible cycle of informational and knowledge transfer that fosters collaboration and participation based on trust and mutual respect across hierarchical boundaries" (DiSchiena, Letens, Van Aken, & Farris, 2013, p. 144).

Surgical team assessment training can be successfully implemented in an austere and hostile environment such as military deployments. The military medical team needs to take this type of training method and move it in a non-combat locale and improve team functioning based on the surgical team assessment (Kellicut, Kuncir, Williamson, Masella, & Nielsen, 2013). Amidst a changing healthcare landscape, this puts additional burdens on nurses, physicians, and other healthcare staff for the quality and safe patient care. The bedrock is teamwork. Training healthcare staff in teamwork basics establishes a healthier workplace and creates the conditions

for safer patient care provision and reduction of personnel turnover, overhead, and lawsuits (Kellicut et al., 2013).

Theoretical Foundation for the Project and Change

Three essential characteristics began to evolve from the literature review: transformation leadership or change leadership, innovations of diffusion, and maintaining a focus of caring. Therefore, Kotter's methodology of change leadership, Roger's Innovation of Diffusion theory, and Ray's Bureaucratic Caring theory are the selected theoretical foundations for this project.

We live in a world where *business as usual* is change. New initiatives, project-based working, technology improvements, and staying ahead of the competition come together to drive ongoing changes to the way health care teams work. There are many theories about how to do change. Many originate with leadership and change management expert John Kotter. A professor at Harvard Business School and world-renowned change expert, Kotter introduced his eight-step change process in his 1995 book, *Leading Change*. Kotter studied at Massachusetts Institute of Technology (MIT) earning a Bachelor of Science in electrical engineering and computer science. He furthered his education with a Master of Science and a doctorate in 1972. His primary focus was educating and motivating people on change. Kotter was the youngest person to receive tenure and a full professorship at Harvard Business School by 1980 (Kotter, 2015).

The Kotter's Change Management Theory outlines the eight steps organized into three phases necessary for organizational change to occur. Creating the sense of vision and strategy is the first phase. The phase provides a group with a sense of urgency and creating the change agent. Second, is the engaging and enabling the organizations as a whole, empowering people to

action and creating short-term wins for success. The last step involves implementing and sustaining the change, anchoring the new approaches into the culture and practice (Kotter, 1996).

TeamSTEPPS utilizes the eight steps to apply and maintain TeamSTEPPS tools within an organization.

Step 1: Create a Sense of Urgency. Help others see the need for change and the importance of acting immediately.

Step 2: Pull Together the Guiding Team. Make sure there is a powerful group guiding the change one with leadership skills, credibility, communications ability, authority, analytical skills, and a sense of urgency.

Step 3: Develop the Change Vision and Strategy. Clarify how the future will be different from the past and how you can make that future a reality.

Step 4: Communicate for Understanding and Buy-in. Make sure as many others as possible understand and accept the vision and the strategy.

Step 5: Empower Others to Act. Remove as many barriers as possible so that those who want to make the vision a reality can do so.

Step 6: Produce Short-Term Wins. Create some visible, unambiguous successes as soon as possible.

Step 7: Don't Let Up. Press harder and faster after the first successes. Be relentless with instituting change after change until the vision becomes a reality.

Step 8: Create a New Culture. Hold onto the new ways of behaving and make sure they succeed until they become a part of the very culture of the group.

Figure 1. Eight Steps to Change (Kotter, 2015)

The Innovation of Diffusion by Rogers believes diffusion is the process by which an innovation is communicated through channels, and over time the participants adapt to the new social system. The program provides individuals the ability to build on each principle and become more efficient within the team. Rogers was a pioneer in the field of communication. Rogers grew up on a family farm in Carroll County, Iowa. After graduating with a degree in agriculture from Iowa State University and serving for two years in the Korean War, Rogers returned to Iowa State where he earned doctoral degrees in sociology and statistics in 1957. Rogers then embarked on a career as university professor, author, researcher, and health education. He is best known for developing a communication theory called Diffusion of Innovations. The theory offers an explanation of how new ideas are incorporated into a culture. The book he wrote on the topic in 1962 is in its fifth edition and still widely used by educators and researchers (Holt, 2004).

The theory accepts diffusion is the process by which an innovation is communicated through channels and over time, and the participants adapt to the new social system. The article and study by May et al. (2009) provided insight into normalization process theory (NPT). Both Rogers' and Kotter's theories are very similar; it is about creating a climate of change through

innovation, engaging and enabling, communicating, implementing, and sustaining the culture over time.

Ray's theory focuses on caring in organizations as cultures. The theory suggests that caring in nursing is contextual and is influenced by the organizational structure. The roles and positions people hold. Staff nurses value is caring in terms related to the patient's care, while administrators value caring for system related terms. The theory implies there are dialectical relationships between the human and the structural dimension of the bureaucracy or the organization culture (Turkel, 2007).

Ray started out as diploma nurse from St. Joseph Hospital. Her career took her from the bedside in obstetrics, emergency department, intensive care and flight nursing. She served as a United States Air Force Reserve Nurse Corp for thirty years. Most notable during this time was a TriService Military Nursing Research Program; this is her research between economics and the nurse-patient relationship (Turkel, 2007). The introduction of the Theory of Bureaucratic Caring on the corporate background will necessitate a system shift from a narrow to a broad focus where management and caring views can exist side by side and realistically represent the transformation of health care organizations to benefit humankind. The twenty-first century is developing; nursing in multifaceted organizations has to advance as well. Bureaucratic Caring theory encourages nurses to envision how a new model may assist us in comprehending nursing practice in a contemporary health-care setting by illustrating the importance of spiritual and ethical caring about organizational cultures (Ray & Marian, 2012). Political, economic, legal, and technological issues are some of the multifaceted environments a hospital will need to

understand. The theory correlates to the core values of the Patient Caring Touch System (PCTS) used in military nursing.

Literature Selection and Scope of Evidence

The literature review was based on key terms: TeamSTEPPS, Patient Safety, Military, / Deployment Teams, Surgical Teams, Transformation Leadership Change, Innovation of Diffusion, and Bureaucratic Caring Theory. Inclusion and exclusion criteria further delineated the articles. Specifically looking for TeamSTEPPS within a military setting, Kotter's change theory, and leadership transformation in the military system were key elements for inclusion in the project. Exclusion criteria included hospitals greater than 150 beds, non-governmental hospital and articles referencing crew resource management.

The literature review started with thirty-four articles and based on criteria was trimmed to twenty-one. Those twenty-one articles focus on TeamSTEPPS, surgical team dynamics, diffusion of innovations/ change agent, leadership transformation, and military nursing leadership. See Appendix A for an the systematic review of the literature table.

Search Engines Used	Regis Library EBSCO, DynaMed, and CINAHL
Search Terms	TeamSTEPPS, Patient Safety, Military/ Deployment teams, Surgical Teams, Transformation Leadership Change/ Innovation of Diffusion Theories and Bureaucratic Systems Theory
Number Articles Reviewed	34
Inclusion Criteria	Military studies on TeamSTEPPS, Kotter Change Theory related to TeamSTEPPS and Innovations concerns Military leadership and transformation leadership

Exclusion Criteria	Large hospital (over 150 beds) Crew resource management references
Number of Articles Included in Project	22 articles found to be relevant to the project out of the 34 reviewed.
Levels of Evidence (Melnik & Fineout-Overholt, 2012)	Number of Articles
Level I	3
Level II	6
Level III	8
Level IV	3
Level V	4
Level VI	5
Level VII	5

Figure 2. Literature Review

Review of Evidence

Background of the Problem

There is evidence that successful team training, effective teamwork improves patient outcomes and team related dimensions of safety culture. However, team training alone may not produce the desired results. A meta-analysis found that team training accounted for less than 20% variance in team performance. The primary determinant of team performance is what an organization does after training to sustain or routinize team behaviors. There are no rigorous

evaluations of the impact of team training on all four components of safety culture (Skinner, 2013).

TeamSTEPPS applies to the healthcare setting where teamwork and communication are critical to success. The development of TeamSTEPPS by the DoD and the Agency for Healthcare Research and Quality (AHRQ) is to integrate teamwork into medical practice. In November of 2006, AHRQ, in collaboration with the DoD, released *Team Strategies and Tools to Enhance Performance and Patient Safety* (King et al., 2008) The partnership saw the need to integrate teamwork into practice. It is designed to improve the quality, safety, and the efficiency of health care. The result comes from a direct outcome of the 1999 IOM report, *To Err, is Human*, TeamSTEPPS introduces tools and strategies to improve team performance in health care. Today, TeamSTEPPS is a mandated training in the DoD military treatment facilities.

Systematic Review of the Literature

TeamSTEPPS. TeamSTEPPS literature review revealed several issues. Evidence suggests bundled team training interventions and implementation strategies that embed effective teamwork as a foundation for other improvement efforts may offer the greatest impact on patient outcomes, team outcomes, and medical error rates. The leading conclusion in the articles that success or failure relies on the clinical leaders to retain lessons learned and adopting the new behavior as the norm when returning to military treatment facilities (Kellicut, Kuncir, Williamson, Masella, & Nielsen, 2013). Clapper and Ng (2013) observed that re-dosing was necessary to promote retention of TeamSTEPPS concepts. Organizations must implement a quarterly (or semi-annually at the most conservative) TeamSTEPPS refresher requirement that is

performed in a classroom environment and closely mirrors the initial training. Repetition and display of resources applied to TeamSTEPPS should encourage retention and interest. Changing culture must include changes in how health care providers receive training early in their career. Most current continuing education programs do not create values and norms in healthcare that are conducive to a functional team (Holt, 2004).

Team dynamics. Surgical team dynamics is a fundamental element in understanding the types of personality one is dealing with the team structure, dynamics, and cohesiveness. The leadership and supervisory competencies of the circulating registered nurses (RNs) establish the first work environment. Both influenced the degree of observed cooperation and support, which had an effect on the interactions and relationships among other members of the surgical team. As the surgery unfolds, the surgeon's behaviors and interpersonal relations modify this environment and ultimately influence the degree of teamwork, team satisfaction, and team performance. One study concluded communication, leadership, situational awareness, preparation and managing of tasks, and creating the environment as patient focused are activities described by surgical team members as influencing their performance and patient outcomes (Rydenfalt, Johansson, Larsson, Akerman, & Odenrick, 2011).

Military nursing. Military nursing must transform to support the complex healthcare missions of the 21st century. The military nurses need to incorporate lessons learned from both the garrison (home station) daily healthcare missions and the healthcare support in multiple combat theaters of operation. The first female Surgeon General, LTG Patricia Horoho, Army Nurse, has led the way with the help of her team. The military nurse needs TeamSTEPPS

components to help with team dynamics be the change agent for the novice nurse and be on the cutting edge of the complex industry of health care. The key theoretical models became evident during the literature review. The models are bureaucratic caring theory and innovation of diffusion. The Patient Caring Touch System (PCTS) was a priority of LTG Horoho.

“The uncertainty along with seven years of war requires us to resculpt the art of nursing and make us a more significant force capable of providing diverse and persistent nursing capabilities for an uncertain and unpredictable world” (Horoho, 2011, p. 4). The system encompasses all nursing care delivery environments: reducing variance, analyzing care improvements, sharing best practices across the military health care, and establishing baseline standards for army nurse. PCTS embeds TeamSTEPPS within the program as best practice.

Bureaucratic Caring Theory. Health care organizations are hierarchical and show system management methods that show some degree of command, authority, and control for efficient functioning. Hospitals tend to be bureaucratic; that is, they are not only places for the care of the sick, but they also are integrated technical-politico-economic and legal organizations. Revolutionized health care environments have raised questions associated with patient care. Questions arise as to how are political, economic, legal, and technological caring decisions made? How is spiritual caring fostered? How can ethical caring be the grounds on which moral decisions are made? What new design in policies enhances the human perspective in corporate policy, and how will these principles and policies guide actions?

Nurses are involved every day in this fight. One component of TeamSTEPPS is mutual support, which is about trust. Losing confidence in an organization would have an adverse

impact on everyone, particularly patient care. Practice changes include an opening dialog to occur between leadership, increased staff visibility, and the presence of leaders as well (Ray & Marian, 2012). Military, medical, business and other highly complex higher learning organization do not help in training leaders. Many individuals must compete for slots in certain school to a certain degree or level of learning. Once in school, you must conform, or you are out. “There is a danger of excessive, unquestioning conformity and promotes the role” (De Villiers, 2014, p. 2513).

Innovation of Diffusion Theory. The process of innovation of diffusion is the point where the population has achieved the saturation point (critical mass). TeamSTEPPS is based on four principles: communication, leadership, situation monitoring, and mutual support. Each principle is defined with a list of skills or behaviors and the type of tool or strategies that can be applied toward those behaviors. The program provides individuals the ability to build on each principle and become more efficient within the team. The program does not stop at the use of the tools but helps develop a new culture of the organization. The organization learns to support and incorporate TeamSTEPPS into its everyday practice. Teams make fewer mistakes than individuals, particularly when each member knows their roles and responsibilities and share the same mental model or goal (King et al., 2008). Teamwork does not mean the same individuals will work together permanently, but because of the diffusion of the program, each member takes with them the knowledge, skills, and attitudes to each new assignment.

Project Plan and Evaluation

Market and Risk Analysis

The goal of any new training program is to change the culture. Innovations of diffusions look at such a relationship. Addressing the fragmentation issue that emerges from the evolutionary framework of management, innovation takes into account the dynamic and multilevel nature of making a change. The new standard is the integration of generation, diffusion, adoption, and adaptation phases of the innovation management process at the organizational, inter-organizational, and macro level.

Organizations are operating in increasingly complex, dynamic, and even ambiguous environments. Organization's use of teams employs a highly proactive strategy to business. Organizations must promote resilience to adapt to a broad range of situations and do so while maintaining an impressive safety record. "To adapt to a fast-changing environment, units develop a fast more flexible cycle of informational and knowledge transfer that fosters collaboration and participation based on trust and mutual respect across hierarchical boundaries" (DiSchiena, Letens, Van Aken, & Farris, 2013, p. 144). The study revealed transformational leadership is at the core of what constitute adaptive leadership.

Strength, Weakness, Opportunities and Threats (SWOT).

SWOT is a tool identifying the strengths, weaknesses, opportunities, and threats of an organization. Specifically, SWOT is a basic, straightforward model that assesses what an organization can and cannot do as well as its potential opportunities and threats. Fortenberry (2010) describes that the method of SWOT analysis is to take the information from the

environmental analysis and separate it into internal (strengths and weaknesses) and external issues (opportunities and threats). The SWOT analysis determines what may assist the organization in accomplishing its objectives and define barriers. The military health care system recently has come under review relating to the patient's experience. Healthcare has changed, and it is a very competitive business. It was thought that all military families must receive care in the military healthcare system; this is not true. Tricare is allowing non-active duty personnel to go to the civilian healthcare system. Military healthcare is in survival mode and must change to recapture and redefine the patient experience.

TeamSTEPPS enhances the power of the organizations as it allows for common language and allows individuals to strengthen each other as a team. The strengths are a common language, and the military follows orders and has a constant influx of people. The strengths of the organization are the opportunities such as completing the paradigm shift from *me* to *we*, allowing team members to be empowered to speak up and advocate for the patient and the organization. Thus, a new vision and mission can be infused using the components of TeamSTEPPS with their statements.

Weakness and threats are diverse within the military system. One weakness is a lack of buy-in from individuals, lack of time, and the inability to hold an individual accountable. The political climate is both threat and weakness, including funding for military health care through direct appropriation within a fiscally constrained environment. The first mission of military health care is to meet the military's medical readiness needs at a moment notices, leaving many family members and retirees not a priority.

The change of command every two years is the foremost threats to the system. The lack of consistent leadership is difficult to maintain one shared mental model. The other threat is the competing program in the military. Again, the military is good at taking orders and executing orders, but many compete and staff members lose interests in totally buying into a project. See Appendix B for the SWOT Table.

Driving/ Restraining Forces

Driving forces. On May 28, 2014, the Secretary of Defense (SECDEF) ordered a review of the Military Health System (MHS). The review focused on health care access, patient safety and quality of care. The MHS is a comprehensive, global and integrated system of health support that includes combat medical services, peacetime health care delivery, public health, medical education and training, and medical research and development. With an annual budget of approximately \$50 billion, the MHS is staffed with over 150,000 military and civilian personnel, working in 56 hospitals, over 300 clinics, a fully accredited university, and a broad array of other research and educational institutions. (Military Health System, 2014) The MHS review revealed strengths and weakness found in all areas to include TeamSTEPPS.

The review revealed key organizational drivers of TeamSTEPPS success include supportive and involved learning environment, leadership engagement at all levels, rewards and accountability systems, frontline champions, peer support, impact measurement, on-site coaching, and training and alignment with strategic goals. During town hall sessions, MTFs report a heightened focus on training with difficulty in the sustainment of the tools on the units, sustainment of trainer, and lack of leadership engagement. (Military Health System, 2014) The

2015 Operational Order (OPORD) directed all MTF to prove all employees are trained in TeamSTEPPS; for those not trained it would cost them money.

Looking at the training related to Patient Safety/ Cultural of Safety, TeamSTEPPS fits the ORO 2.0 High-Reliability Assessment and resources found at the Joint Commission Center for Transforming Healthcare. The mission is to transform health care into a high-reliability industry by developing effective solutions to health care's most critical safety and quality problems continues the quest for achieving the gold standard in health care (The Joint Commission: Hospital, 2016). Along with participating hospitals and organizations, the military also believes high reliability in health care means consistent excellence in quality and safety for every patient, every time.

The population that LRMC cares for are part of the TRICARE Overseas Program (TOP), which is DoD's health care program that provides health care and support services to approximately 458,000 beneficiaries outside of the 50 States and the District of Columbia. Adding to the uniqueness at LRMC is recognizing the cultural differences in accessing care in host nation countries. The TOP contract requires the contractor to make its best effort to ensure that the TRICARE standards for access, beneficiary travel time, local community standards, appointment wait time, and office wait time for various categories of services are obtained.

Restraining forces. Change is complicated. Military leadership changes every two years on all levels. Many times, there are no overlaps or proper handoffs between leaders or ongoing projects not completed. Something new comes along, and it is the new must have now program

rather than looking to see if there is something similar already in place. The one mission of the military is to defend freedoms and maintain combat readiness.

The Army's other restraining force is the beneficiaries eligible in Europe. The retirees and their family members constitute the largest percentage of the eligible population (56%) in the United States; active duty personnel and their families make up the largest percentage (66%) of the eligible population abroad. Mirroring trends in the civilian population, the MHS is confronted with an aging beneficiary population, with roughly 22% of beneficiaries over age sixty-five and an additional 22% between the ages of forty-five and sixty-four in Fiscal Year 2013. There is a roughly even distribution of beneficiaries by sex: 4.88 million males and 4.70 million females. (Military Health System, 2014)

Need, Resources, and Sustainability

Overall commitment from Department of Health Affairs (DHA), DoD, and all MTF's is that TeamSTEPPS is the preferred Team training program. Command/Leadership on all levels must be in the same mental model for the process of individuals becoming a team to be fully integrated into the healthcare organizations using the same language. People should be held accountable for maintaining the program.

Feasibility/ Risks/ Unintended Consequences

Feasibility/ risk factors. TeamSTEPPS is mandated training for all MTF personnel: military, civilian, contractor, and local nationals personnel as written by The Surgeon General. The MTF Command is responsible for the training of all individuals under their command. The

risk is a violation of a direct order, being in danger of not carrying out an OPORD by a higher authority.

Unintended consequences. An unintended consequence is that professional stove piping will breakdown and the units will act as one team. Transparency of events and increase reporting will happen. The high-reliability organizations understand the need to move beyond concerns, but the aggressive approach of discipline, influence beyond the chain of command, and need to communicate both positive and adverse events will result in open, honest transparency for military medicine.

Stakeholders and Team Members

Who is involved and what are the vulnerabilities of the stakeholder and the participants? The key stakeholder of many organizations is leadership from vertical and horizontal members. The Logic model allows the ability to pondering other consideration when implementing a change in practice. The military has many more stakeholders. The stakeholders are the directly impacted by the project. The Commander of the Hospital and the Deputies bring in years of expertise and support to the project. The Command Team provides insight and support for many projects to improve the quality and safety of patient care. The individuals involved in the project were the surgeons (providers), nurses, operating room technicians (OR Techs), and central material service staff (CMS).

Project team members were individuals who directly support, mentor, and coach the project lead. Mentor of the project was COL PrueOwens, Army Nurse Deputy Commander of Nursing. COL PrueOwens has the military background to help maneuver through the military

system and her insights through the project. Dr. (LTC) Hopkinson is a nurse scientist who helps individual develop projects and provides mutual support to individual during a stressful time. Amy Holstein, the research administrator for the European Regional Medical Command (ERMC), was the link between local commands and region command. She also maintains contact with the project leads for the internal approval process. The project has received the internal approval from the region; it was stated the project does not meet the military definition of Institutional Review Board (IRB) but will maintain the project as a practice improvement in sustainability. Lastly, Dr. Barbara Berg (Capstone Chair) and Kendra A. Bonin (Project Lead) are core team members. See Appendix C for all project team members and Appendix D for ERMC approval letter.

Cost Benefits Analysis

Cost. Training is a major expense for all organizations. LRMC recently went through ten-session four-hour training for TeamSTEPPS. The four hours is the initial training required for all hospital newcomers before working on the unit. Health care compliance agencies are requesting evidence of TeamSTEPPS training. Recently an operational order required the Commander to review training records for TeamSTEPPS; it was discovered that three hundred individuals did not complete TeamSTEPPS training. The training cost approximately \$4000.00. The total number trained was one hundred and forty-nine people requiring two or three master trainers for each session. The cost did not include time lost from work or revenue lost by services. Only half of the individuals participated in the mandated training. The other cost

involved for the LRMC is that for anyone not trained in TeamSTEPPS, the hospital will lose one hundred dollars per person from their budget allocation.

The cost of this project is minimal to the organization. The surgical multidisciplinary groups do meet in the morning before all surgery. Each discipline meets monthly as a group but not as a whole to look at organizational concerns. It was believed there was a component of TeamSTEPPS that could be infused into the system so that it becomes a multidisciplinary process improvement rather than individual disciplines trying to fix parts of the process.

Benefit. One benefit of having the unit training is cost. Training effectively by knowing the required intervention to infuse the necessary missing components would reduce the training times. One point in the literature review highlighted that “Often missing is the requirement for departmental and unit level leaders to buy into the TeamSTEPPS plan. The staff may not be assigned to participate in training promptly or may not get assigned at all, leading to sporadic or prolonged implementation.” (Clapper & Ng, 2013, p. 288). Support and buy-in from the unit were critical for training to become part of the culture, taking the training on the unit within staff meetings and briefings, and bringing everyone together from leadership and personnel. The unit could also document required training in a timely fashion.

Additionally, there are increased patient safety awareness, increased team satisfaction, and pro-actively addressing the day’s concerns with possible actionable items and alternatives. Defining the week ahead’s concerns and noting those concerns for upcoming staff meetings or debriefs is one benefit. Although there is no monetary gain to be seen right away, there are

more long-term benefits in efficiencies, staff satisfaction, decrease medical claims and patient satisfaction. See Appendix E for the project budget.

Mission and Vision Statement

A mission statement is learning tool but also a reminder of the vision. The mission statement will help guide leaders and employees to follow an operational guide. The mission statement for this project was: Infusion of TeamSTEPPS components will maintain the cultural awareness of all team members including the patients, engraining *we* back into the organizational culture. The longer-term vision statement for practice is infusing team innovation requires an organizational shift from *me* to *we* within the culture of health care. The key values of a driven leadership are closely related to those in TeamSTEPPS: excellence, innovation, joy, teamwork, respect, integrity, and social profit. Included also are the four pillars of TeamSTEPPS: leadership, communication, situational monitoring, and mutual support. The element of vision and mission statement together unifies the organization as one and helps the external customer as well. See Appendix F for the Mission, Vision, and Logo.

Goals and Project Processes

One of the goals of the project was to determine if TeamSTEPPS components have influenced the culture of the multidisciplinary surgical team by decreasing preventable medical errors and related cost. The program provides individuals the ability to utilize their experience within the work environment and become an efficient team. The program is designed to develop a new culture within the organization that is the standard practice. The organization learns to support and incorporate TeamSTEPPS into its everyday practice. The project had three

objectives to look at the sustained components and demonstrate if the infused components have diffused and incorporated into the surgical department's norm.

The three objectives of the project are to 1) compare post intervention satisfaction rate; 2) increase team efficiencies; and 3) decrease reportable preventable medical errors. The initial comparative data is from *Using TeamSTEPPS to Improve Interdisciplinary Communication & Teamwork in the Operating Room Study* (Landstuhl Regional Medical Center Division of Surgery, Perioperative Nursing Services and Quality Management Division., 2014). The initial and current projects both looked at the operating room utilization rates, turnover times, and some cases. The post-intervention survey used a portion of TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) to determine team satisfaction rates. Lastly, there was also an accounting of patient safety reports.

The Patient Safety Reporting System (PSR) is a comprehensive, centralized program with the goal of establishing a culture of patient security and quality within the MHS. The reports are based on the departments who reported the event, period, and actual versus potential or preventable events. TeamSTEPPS looks at the organization, the team, and the person's ability to feel empowered to speak up as a pro-active patient advocate rather than reactive after the event.

Logic Model

The Logic model is "is a picture of how your organization does its work" (W.K. Kellogg Foundation, 2004, p. iii). The Logic model adds to the presentation of the project showing relationships among resources within the confines of the organization. The model helps one define, plan, implement, evaluate, and report finding. The Logic model can be simple or

complex. The example used for the project is the basic Logic model development. There were inputs, outputs, and outcomes both short and long term. The model maintains a focus on a timeline, outlining key events, key individuals, and progress toward the goal.

The Logic model allows for other considerations when implementing a change in practice. Defining the why, how, who and outcomes of the project has been outlined within the PICO. The Logic model can include other inputs, resources and potential consequences not foreseen or described in the PICO. For example, the who could include The President of the United States Chief Commander to all military services. However, at the local level of LRMC, the primary stakeholders are the Commander, his four Deputies, and the surgical department. The resources, activities, short and long term outcomes and lastly the impact of the project. See Appendix G for the Logic Model.

Population and Sampling

The population. The population involved in the project included a multidisciplinary group from the surgery department. Surgeons (providers), nurses, OR techs and CMS staff were included in the surgical multidisciplinary group. The numbers of individual flexed during the project was dictated by the military deployments and duty location requirements. Presently, there were two hundred individuals. The breakdown by disciplines in the project included surgeons, nurses, OR techs, and CMS. The educational levels ranged from advanced practice accredited surgeons to technical school and on the job training staff. All educational requirements for the positions were determined by the positions and job description as submitted by the military.

Profession (Military Rank)	Number of Employees
Surgeons (Major to Colonels)	93
Nurses (Lieutenants to LT Colonels)	33
Operating Room Technicians (Private First Class to Sergeants)	35
Central Material Services Personal (Private First Class to Sergeant)	20

Figure 3. Surgical Multidisciplinary Team

The Department of Surgery workforce is comprised of 80% military services members and 20% civilian members. At any time, a military service member can be deployed, leaving departments severely understaffed with little to no coverage in those areas. The dynamics of the military soldier is twofold: not only are their medical personnel working in a complex situation, but they are military leaders under a military leadership structure and must maintain military readiness mission 24/7. The deployed soldiers leave many departments dependent on remaining staff to keep the military health care mission.

The sampling. This quantitative descriptive study used a convenience sample. Although this is a military facility, this is not an operational ordered project. All participation was voluntary, and no identifying information was collected. All individuals were over eighteen years of age. The individuals were be advised of the project by email, one on one meetings, and staff meetings before the gap analysis study. The entire department was encouraged to participate in the project.

Protection of Human Subjects

The subjects of this project were all over eighteen. All subjects could opt out at any time during the project. No individually identifying information was collected during the project. The project is an educational learning practice. The individual project lead required to take a course and pass the Collaborative Institutional Training Initiative (CITI) program course. The course is composed of a customized set of mandatory and supplemental modules, selected from the CITI Program. The courses reviewed the history, the welfare, and rights of the human subject, informed consent if required, whether human subjects are placed in unreasonable physical, mental, or emotion risk due to the research, and the importance of the research versus the risks to the subject. See Appendix I for CITI Training certificate.

The Regis University IRB reviewed the proposal for the protection of the organization and proper documentation requirement for the members. The IRB is an entity established by an agency to review research involving human subjects. The board is protecting participants to guarantee that they will be treated within ethical guidelines. The IRB is concerned with the ethical principles to make sure no group is mistreated, risks are reviewed, and persons exercises the power to make a choice without force, fraud, deceit, or any coercion (Terry, 2015). The National Research Act Public Law 99-158, the most recent extension of that law The Health Research Extension Act of 1985, and the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research provide guidelines for research with human subjects to ensure their protection in the design and conduct of research. These federal regulations require that any institution requesting and receiving funds for research involving

human subjects from a federal department or agency must assure that such research is reviewed and approved by the institution's IRB. The IRB verified the project lead's qualifications to conduct research involving human subject. The project lead understood the requirements related to formal IRB process, documentations and moral and ethical concerns related to human subject's projects. The Regis University IRB reviewed the project and documentation and based on information granted an exempt status. The project did not meet the definition of research for the Department of the Army and did not require military IRB approval. See Appendix D for European Regional Medical Command Approval Letter and Appendix H for the IRB Approval Letter.

Methodology and Evaluation Plan

Methodology

The project incorporated Zaccagnini and White's (2014) template for the DNP scholarly project. The template helped define the process for the project. The templates addressed practice concern, proposed evidence-based intervention to address the problem and evaluation of the intervention. (Zaccagnini & White, 2014) The framework also helped develop the project timeline for completion. See Appendix J for the Project Outline and Timeline.

The project began with an informational meeting with the surgical department at a staff meeting and morning brief. The members received an informational paper explaining the project and encouraged participation in the infusion TeamSTEPPS, gap analysis, and post intervention team satisfaction survey. The information sheet also explained that the survey would be voluntary and no personal information would be recorded. The participant could opt out of the

project at any time during the intervention phase. The participant would first complete a gap analysis to determine which tools and strategies from TeamSTEPPS needed to be infused back into the culture. The gap analysis was conducted using a survey listing the tools within TeamSTEPPS and usage to the tool. This portion of the process took two weeks to complete.

The TeamSTEPPS trainer within the operating room then conducted daily briefs and debriefs using the tools based on the gap analysis survey identifying components infused into the department's daily practice. The operating room already conducted daily briefs, so this was not an added brief. The best solution for information sharing was to have all members of the operating team attend the morning brief for the training. Additional learning tools were added to the department such as posters and learning moments. The infusion process took place over a sixteen- week period.

Lastly, the participants completed a post survey concerning team satisfaction. The post team satisfaction survey was available for one week after the infusion process intervention. The project and all surveys were voluntary, and the project lead maintained the anonymity of anyone who participated.

Data collection tools. Data collection tools required a gap analysis, informational sheet, and survey. A website with these documents was available to any participant for two weeks. Based on the outcome of the gap analysis, the information to be infused was determined. After the completion of the infusion intervention, a post team satisfaction survey determined team satisfaction. Utilization rates from the original study *Using TeamSTEPPS Improve Interdisciplinary Communication & Teamwork in the Operating Room* (Landstuhl Regional

Medical Center Division of Surgery, Perioperative Nursing Services and Quality Management Division, 2014) were compared with data gathered after this current infusion of TeamSTEPPS. The last outcome was to look at the patient safety reports from the patient safety office. See Appendix K, Permission to use Original Study by the Author.

The data gathered from the gap analysis determined what specific tools to be re-infused into the operating room. The project used the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) for analysis of team satisfaction. The T-TPQ survey can be done as a stand-alone measure of a team satisfaction, used to assess core components of teamwork to determine training needs, or used to show the effectiveness of TeamSTEPPS training. The project used the T-TPQ survey to demonstrate the effectiveness of TeamSTEPPS training is increasing team satisfaction. T-TPQ tool was measured and tested in a similar survey for reliability and validity. The Hospital Survey on Patient Safety (HSOPS) used twelve elements related to patient safety. The similarity between T-TPQ and HSOPS looked at teamwork within units and teamwork between units. The two surveys were tested together at several hospitals and the final constructs, and their associated scale reliability had a revealed coefficients ranging from 0.57 to 0.79 using the Cronbach's Alpha Reliability Coefficients (King et al., 2008). The T-TPQ is an individual survey; however, a measure of a person's perception of collective teamwork is needed to capture this unique dimension. (King et al., 2008).

Team satisfaction. The infusion process was the intervention, emphasizing the missing elements of TeamSTEPPS to the surgical multidisciplinary group. Allowing for a tailored training within the surgical department, TeamSTEPPS was normalized within the operating room

culture. Intervention designs scaled-up a to be more efficient if they are conceptualized as provisional plans for action as opposed to detailed plans to be strictly followed. The military supports an all or nothing mentality. “Allowing a setting that is positive will influence self-organization in the initiative and improve the likelihood of intervention success” (Clapper & Ng, 2013, p. 288). The size of the sample for this project was based on the number of people in the department; one hundred participants will give the project a 95% confidence level with a 10% confidence interval.

Operating room efficiencies. The surgical multidisciplinary group began looking at procedure-associated defects during the Surgical TeamSTEPPS Simulation Training in 2013. The associated procedural defects were: surgeon unavailable; site verification marking; consent issue, health, and physical documentation; no intravenous access (IV); incomplete paperwork; missing laboratory results; communication concerns; and tracking of brief and debrief compliance. The associated procedural defects were viewed as utilization rates, operating room turnovers, and number of cases per day in the surgical line database. The results have been compiled quarterly since 2013; however, no formal reporting has occurred since the beginning of the original study. Comparative information using the initial data points and the project end date data looked at any increased efficiencies.

Decrease in preventable medical errors. The PSR is the MTF database to report potential events, near misses, as well as actual events. The dilemma with the PSR system is reporting bias varies over time. Variation is amongst hospital, clinical areas, by event type and perceived harm. “PSR suffers an unknown degree of underreporting, given that reporting is voluntary and

spontaneous, and the systematic surveillance system is not feasible” (Pronovost et al., 2008, p. 3). The focal point of the PSR is the submission of events. Evaluating the effectiveness of an intervention is inversely related to the intervention’s strength. (Pronovost et al., 2008) The reporting of near misses will help determine if the infusion of TeamSTEPPS is working. One study showed a “45% decrease in preventable error rates ($p>0.01$) alongside a national patient safety program” (Baines et al., 2014, p. 10). The project objective three is to see a decrease in preventable medical errors by seeing an increase in near-miss reporting.

Project Finding and Results

Key Element and Instrumentation

The project was quantitative descriptive study using a convenience sampling conducted between October of 2015 and December of 2015. The primary group of participants were certified registered nurse anesthetists, operating room nurses, and central supply technicians. The multidisciplinary surgical teams who participated were orthopedics and neurosurgery; general surgery and other the surgical specialties did not participate. Twenty-five responses were the finally tallied at the end of interventions.

The gap analysis revealed TeamSTEPPS strategies and tools being utilized by those who responded to the survey. See Appendix L for the Gap Analyses Survey. The gap analysis revealed three tools were not fully engrained into the organizational culture. One tool missing was the brief, a short planning session before the start of surgery. It gives the team an opportunity to discuss roles, responsibilities, expectations, and anticipates outcomes and contingencies. The key individual usually missing was the surgeon. The debrief, the session after the surgery, involves

the team to reinforce positive behaviors as well as to look at process improvement. The brief and debrief used together reinforce closed loop communication and team effectiveness. The brief and debrief are key elements increasing the team communications and satisfaction.

The Concern, Uncomfortable, and Safety (CUS) is used to empower individual to speak up to express an issue. The CUS technique provides a way to advocate for the patient and team. The CUS signals danger, warning, or caution to the team. All team members shared the same mental model. Team members will understand the use of the tool to define the issue and magnitude of a concern. It is a mutual support strategy used in TeamSTEPPS to embrace the importance of everyone on the team. Mutual support in health care has a significant importance as it involves skills that have the potential to improve the quality of patient care. The CUS tool provides a timely, respectful, directed, and considerate information to an individual or team. (Agency for Healthcare Research and Quality & Department of Defense, 2015)

The Infusion TeamSTEPPS process used several tools to incorporate the missing components as defined by the gap analysis. One method was in-service training during the morning briefs and debriefs. Briefs and debriefs were already allotted into the surgical schedules; therefore, there was no need to schedule downtime for training. Posters and checklist were incorporated into the daily routine as visual reminders. The checklist listed outlined each team member's responsibilities. See Appendix M for a Checklist Poster.

Objective one: Team satisfaction finding. The independent t-test was chosen for the team satisfaction related to the use of convenience sampling of individuals based on the post team satisfaction survey. Levene's test determine whether the variability from groups are

significantly different. The operating room team and military movements meant there are no guarantees the same people were present for the post-test satisfaction survey after the training. The team satisfaction survey used was modified TeamSTEPPS Teamwork Perception Questionnaire (t_TQP) which has been used by numerous military treatment facilities with DoD. The T-TQP can be amended; however, it is highly recommended the survey should be utilized as a whole. The results based on a sample of twenty-five ($N=25$), $t=-2.881$, $P<0.05$ and $M=1.0$ and $SD=0.000$. This result showed a significant difference in team satisfaction. See Appendix N for the Post-Intervention Survey.

Objective two: Operating room efficiencies findings. Objective two outcomes determined if there was a change in the operating room efficiencies. The project looked at the operating room utilization rates, turnover times, and cases per month. The independent t -test was utilized to determine if there were any difference between the 2013 operation room efficiencies and 2015 operation room efficiencies with the use of TeamSTEPPS Infusion. For utilization rate, the t -test for independent samples revealed ($t=-3.503$, $p=0.011$). For turnover rate, The t -test for independent samples revealed ($t=1.293$, $p=0.214$). Lastly, looking at the operating room cases between the 2013 and 2015 provided operation room efficiencies with the use of Infusion TeamSTEPPS. The t -test for independent samples revealed ($t=-0.301$, $p=0.765$). These findings are summarized in Figure 3.

Efficiencies Data Between 2013 and 2015	t-Value	p-value	Did it improve
Utilization Rate	-3.503	0.011	Yes
Turnover Rate	1.2936	0.214	No
Cases Per Month	-0.301	0.769	No

Figure 3: Surgical Statistical Analysis Results.

Objective three: Reporting of preventable medical errors. The definitive information gathered was looking at the number patient safety reports between 2013 and the 2015 Infusion TeamSTEPPS. The initial reporting value of patient safety reports in 2013 were four. The four related to miscommunication within the operating room between staff members and issues related to missing instrumentation prior or during surgery causing delay. However, in 2015, the number of patient safety reports within the four-month period increased to seven. One report was an actual event requiring a cause evaluation rather than a near miss. The remaining six near miss reports related to surgical instrumentations not cleaned properly, expired supplies being on the field, and lastly time out not been adequately completed.

Discussion of the Findings

Team training can result in a transformational change when the work environment supports the cultural change. The project investigated if the infusion of TeamSTEPPS tools back into the culture would increase team satisfaction, operational efficiencies, and increase near miss reporting. Results of the project did see an increase in team satisfaction. The team was able to come together and, based on the gap analysis, decide the tools to be infused. The gap analysis

allowed individuals to determine as a team what was important. The individual shifted the focus from themselves to a focus on team empowerment and patient focus. The three missing TeamSTEPPS components were decided to be briefs, debriefs, and CUS. These three TeamSTEPPS tools are used in communication, situational awareness, and mutual respect.

The statistical data used the modified TeamSTEPPS T-TPQ survey to determine if team satisfaction has changed or is changing within the LRMC. The data would allow leadership a viewpoint of LRMC Infusion TeamSTEPPS project to the entire military TeamSTEPPS program. One of the outcomes was to determine if behavior changed with the use of TeamSTEPPS, which starts with a shared mental model of utilization and sustainment of TeamSTEPPS. The skills utilized in teamwork-based patient safety programs are just like technical skills and knowledge in that if they are not used and refreshed, they decay over time (Kotter, 2015). A single didactic exposure is not enough to sustain long-term change. Organizations must identify which teamwork skills are decaying most rapidly through data collection and analysis to determine the skills to infuse. Direct observational studies, error and near miss reporting systems, sentinel event root cause analysis, and quality data can be mined to highlight which skills need focus and attention through refresher training. Infusion of TeamSTEPPS had shown to make a change when the team was asked to be involved in their re-training.

Objective two looked at the utilization effects related to the infusion of TeamSTEPPS components. The interventions did appear to make a difference in the operating room utilization

score during the four-month period. The infusion of TeamSTEPPS components did not seem to make a difference in operating room turnover rates or in the operating cases during four months. One can assume related to the increase in Patient Safety Reports that there is an association with the reporting. The infusion of TeamSTEPPS allowed for individuals to speak up if there was near miss to be reported. This assumption based on the increase of patient safety reports is that greater numbers of individuals did speak up by reporting incidents within the PSR system. Although there is no significant statistical data to be reported at this time, it is valuable information to determine if additional testing could be conducted to suggest the infusion of TeamSTEPPS statistically changed reporting behaviors of operating team. Infusion of TeamSTEPPS into the surgical team did approach a cultural solution with an open forum as the accepted norm.

The combination of team satisfaction, operating room efficiencies, and patient safety reports could be interpreted through the organization view on patient care, the economics of health, and failure modes analysis. Ray's theory looked at how nurses must juggle the care of the patient with the economic aspects of organizations. Infusion of TeamSTEPPS provides tools and strategies to be used to support the nurses and team providing the patient's experience. Infusion of TeamSTEPPS also provides the same tool to help the team communicate, share and advocate for each other, and maintain the same shared mental model of the organization.

Roger and Kotter' view of the organizational adoption of a process or change requires the population has achieved the saturation point. The new is now the accepted norm. Teamwork does not mean the same individuals will work together permanently, but because of the diffusion

of the program, each member takes with them the knowledge, skills, and attitudes to each new assignment. One of the weaknesses of the military is the many individuals will change location and position; however, TeamSTEPPS will be the culture.

Limitations

The list of limitations of the project includes the number of objectives, surgical services, data collection, sample size, and the novice project lead. First, the project looked at many objectives rather than concentrate on a focused aim. The focus should have included one or two surgical specialties rather than the entire surgical department. The operative room is very dynamic. The combinations of too many objectives and the number of surgical specialties was overwhelming when training and gathering information. Many professional service specialties met within their team rather than a multidisciplinary operating team.

An additional limitation to the study included sample size, the type of data collected between 2013 to 2015, and the individual reporting or not reporting events in the PSR system. The sample size was small compared to the number of people working within the surgical department at the MTF. The sample was convenience sample from within the surgery department, and participation was voluntary. Based on the population of the study the target sample size should be sixty-three. The sample size of sixty-three would have provided a confidence interval of ten. The return of sample size of twenty-five provides the project with a confidence interval of fifteen. The implication of a larger sample size is that one can be confident the project's results reflected the population.

Data collection used the military database referred to as S3. Data collection was completed through the military database by pulling raw data based on the 2013 thru 2015 calendar year. The data collected was numeric in nature and did not take into the account the type of surgeries performed and new surgical techniques such as robotic surgery. The introduction of new surgical tools and changes in the types of surgical cases based on the LRMC's patient population could have influenced the data related to operating room efficiencies.

The honesty of individuals feeling empowered to speak up in a military system is another limitation. TeamSTEPPS provided communication tools and strategies to increase the person's ability to speak before a concern rather than after the event. The PSR system did capture after event reporting to include the ability of speak during the procedure or a good catch and correction. However, what is not captured is who caught it, the rank, and years of experience. The reporting system did not capture the confidence level of the reporter, just the facts concerning the event.

The last limitation to the study was the inexperience of this student newly appointed to her position trying to implement change within an organization with or without the support of leadership. Although all of the Command leadership team was informed of the project, not all of the department chiefs encouraged their staff to participate. The project lead was able to overcome a few leadership issues; however, based on the initial response from professional discipline, another approach will be taken in the future. The gap analysis and training were informal, and this may have led to a false presentation of the importance of TeamSTEPPS to the

organization. The military system is very structured, and a structured focus could have maintained a better perception of the project.

Recommendations

Training

Training in the future should include a formal briefing during the entire multidisciplinary surgical department staff meeting. The inclusion of the whole department would allow for an informed department awareness to the project and incorporate a buy-in from everyone. The military system relies on orders and taskers (memos) to complete projects, and this needs to be integrated into the next infusion process. Leaders are the key to promoting a culture of safety and openness among the individuals and department to innovative strategies for improvement. (Freshman, Rubino, & Chassiakos, 2010)

Future Plans

A robust study related to the long-term efficacy of the TeamSTEPPS program is essential to analyze application faults and strengths. The project did show an increase in operating room utilizations rate and an increase in patient safety reporting. It can only be assumed that the association between Infusion of TeamSTEPPS tools and strategies made a difference to individual's behavior. Articles reviewed have shown a strong correlation between TeamSTEPPS implantation plans to the patient safety quality elements, but it is the sustainment of TeamSTEPPS that requires study to determine if a practice change has occurred within the organizational culture. The effects of nursing administration and leadership who demonstrated

strong leadership skills cannot be understated in the diffusion process of cultural change (Plonien & Williams, 2015).

The next evolution of the infusion of TeamSTEPPS needs to look at the three components and assessments to achieve a better analysis of the project. The process requires a formal gap analysis and evaluation of the individual's and the unit's willingness to participate. Working intensely with multidisciplinary TeamSTEPPS trainers within the departments on ongoing training based using the gap analysis is needed. The trainers are change agents to help maintain all of the tools and strategies that are promoted throughout the organization. The trainers have an everyday look at the department and feel that can contribute to guide, maintain, and refresh individuals on a daily sustainment plan. The complete buy-in by the individuals' professional team can be integrated by the multidisciplinary TeamSTEPPS trainers to promote, reinforce, reward, and recognize the benefits.

The availability of one stop shopping to maintain TeamSTEPPS resources is needed to commit to the use of TeamSTEPPS. The resources need to include more than posters, but also training videos, continuing education, and ongoing lessons of learning moment with the daily briefs and debriefs. Simulation practice with videotaping is another form of feedback to the team. A dedicated area can act as the catalyst to promote quarterly coaching reviews by the department and bring recognition to the multidisciplinary team.

One person or one department cannot run the TeamSTEPPS program; it requires an organizational and leadership buy-in and focus. Leadership from the top down, bottom up, and horizontal must support the infusion process. Leadership is the glue that connects the strategic

oversight of the organization to the everyday multidisciplinary team. Opening the lines of communication and situational awareness to the entire team will make infusion a success.

Conclusion

Healthcare is one of the most complex systems to work in as an individual, as patients, and as an advisor. Patient safety has been a key element within the health care system since Florence Nightingale began a systematic look at death rates in military camps. Keeping patients safe is a challenging issue because errors and mistakes can and do happen. The error occurs “...when a planned sequence of mental and physical activities fails to achieve the intended outcome and when this failure cannot be attributed to some chance intervention or occurrence. According to the Institute of Medicine, medical errors resulted in as many as 98,000 preventable deaths per year, twice the rate of traffic fatalities; and the estimated cost in the United States could be almost 29 billion dollars” (H. King, personal communication, June 10, 2014)

One needs to ensure operational systems and methods are taken to reduce the likelihood that errors occur. However, who is responsible for making these proper measures? Is it society, patients themselves, physicians, nurses, nursing professors, administrators, researchers, physicians, or professional associations taking that responsibility? All of these entities are responsible for making sure the patient has the safest possible outcome. The nationwide and worldwide issues will never be completely resolved because the error is always prone to happen. Nurses need to make sure they are taking all appropriate actions to limit the amount of mistakes that will put patients at risk. One of the many tenets of high-reliability organizations looks at

improving relations within healthcare. The work of this project improved the work environment.

Infusing TeamSTEPPS into organizations maintains TeamSTEPPS as the cultural norm.

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Appendix A

Systematic Review Evidence Table

[Adapted with permission from Thompson, C. (2011). Evidence table format for a systematic review. In J. Houser & K. S. Oman (Eds.), *Evidence-based practice: An implementation guide for healthcare organizations* (p. 155). Sudbury, MA: Jones and Bartlett.]

Article/Journal	Evaluation of TeamSTEPPS initiative on staff attitudes toward teamwork/ The Journal of nursing administration.	Merging health care systems write a single prescription for core competency/ Association for quality & Participation.	Assessment of team training in the management of acute adverse events occurring during cardiopulmonary bypass procedure: a pilot study based on an animal simulation.	On the front lines of patient safety: implementation and evaluation of team training in Iraq/ The Joint Commission Journal on Quality and Patient Safety.	Building a culture of safety through team training and engagement/ Quality and Safety in Health Care Doi: 10.1136/bmjqs-2012-001011	Developing effective physician leaders: Changing cultures and transforming organizations . / Hospital Topics: Research and Perspectives on Healthcare, VOL 83(2) Springs 2005
Author/Year	Vertigo, Kathleen 2014, Vol 44(2).	Heberling, M Quinn, M Tucker, Edger 1999	Fouilloux, V Gsell, T Legal, S Kreitmann, B Berdah,S 2014, Vol 29 pg 44-52	Deering, Shad Rosen, Michael Ludi, Vivian Munroe, Michelle Pocrnich, Amber Laky, Christine Napolitano, Peter August 2011	Thomas, Lily. Galla Catherine 2013	McAlearney, Ann Schech Fisher, David Heiser, Karen Robbins, Darryl Kelleher, Kelly
Database/ Keywords		Patient safety Quality of care team	Sage Education Surgical complications training	TeamSTEPPS Sustainment	BJM Teamwork TeamSTEPPS Patient safety culture	Hospital Topics Kotter's transformation change model Leadership Organizational change Physician executive
Research Design	Quasi-experimental design with repeated measure taken pretest, posttest and 2 months after completion of intervention.	Observational and pre and post survey on change of behavior	Observational design using four teams within the same adverse condition and event. Debrief with technical and non-technical individuals.	Pre and Post implementation periods collecting incident report and coding of reports to the core cause of failure. Retrospective study on trends seen during a 13-month deploy	Integrative and systematic review of pre and post implemented	Topic changes within the medical directorship. Organizational change by physicians is making their change with the use of MLP. This was a Medical Leadership Program (MLP)

Level of Evidence	*III	III	I	IV	I	I
Study Aim/Purpose	Would teamwork and having a trainer on the unit help sustain teamwork effectiveness, efficient and decrease missed nursing care.	How to blend two organizations into one. The challenge was to mold two cultures of different medical centers into on high performing health care system without impacting patient outcomes.	High risk events low volume are considered a concern. Low volume/ high risk events can be devastating unless practice. Simulation offers such a value add training	Before deployment as a unit, members do not know each. In a stressful situation, how does a group of people gel as one unit using a common format and understanding? The US military requires rapid movement of critically injured patients for definitive care. How does one relate information to each team efficiently and concisely?	Review the TeamSTEPPS process for short term and long term process improvement in patient safety. TeamSTEPPS provides a process to optimize clinical interventions. Proactive in approach to health care. Includes clinical and non-clinical departments.	Similar to TeamSTEPPS fundamental principles of team structure, leadership, situation monitoring, mutual support and communication only it was taught to and by a physician. Compare medical training-admin-development transformation the two together. Training provides CME's
Population/ Sample size Criteria/Power	N=242 nursing staff over three hospitals RN, NA, LPN made up the nursing staff.	Two medical centers in two towns, two community-based outpatient clinics, and 11 outreach clinic with a total of 1,728 people. The tool used was developed by Kansas Divisions of Continuing Education. There is no power or statics analysis.	The N=4 people on a team. Looking at four different simulation events. Due to the small sample, the data was linear. Either yes or no.	Population size was a review of n= 153 within a 13-month window.	15 hospital Skilled nursing homes medical research and medical school N-32,150 staff	First cohort+ 28 Physician (pediatric, primary care and surgical specialists) The program included 20 sessions, four speakers, four community-based experts and 4 hours per week of time from Vice President for education and medical director to make sure providers attended the sessions.
Methods/Study Appraisal Synthesis Methods	Data analysis was pretest, posttest and delayed posttest measurements using the MISSCARE survey, teamwork satisfaction, and	The organization and team members were trained in change management. Which is precursor to TeamSTEPPS> how to change a		Chi-square tests were conducted on the pre and post-implementation data. An alpha level of 0.05 was adopted for all	Pre and post Hospital Survey on Patient Safety. Pg 431. Improvement between 2007-2009 2009-2010	Pre and post survey. Pre-survey to provider to determine what change was required At the initial training,

	<p>teamwork knowledge questionnaire. There were significant indicators for overall teamwork satisfaction and abilities. P=.089, (95%) Missed Nursing Care changed as well. P=.056, (95%)</p>	<p>culture.</p>		<p>significance testing. Communication, mutual support, and situation monitoring were the targeted key areas. The rate of medication and transfusion errors decreased 7.1 events/1000 patients to 1.2. Needle stick injuries and exposure decreased as well</p>	<p>Total improvement between 2007-2010 (increase within 12 dimensions was between 7.7% to 15.8%</p>	<p>after the training to determine if the session met expectations. One year out- was provider still using the lessons taught at the initial training as part of the normal day. Two-year out of training- did the training impact how providers cultural changed. Results after completion of total of 52 providers</p>
<p>Study tool/instrument validity/reliability</p>	<p>Bonferroni multiple comparisons showed there was a significant difference between pretest and delayed posttest.</p>	<p>Reliable data on the effect of change implementation. Lacks validation and long-term sustainability.</p>	<p>Reliable data. However, the study was small in nature and not truly scientific. However, lead to insight on what was learned during team evaluation and debriefing.</p>	<p>Pearson is chi-square test Looked bed days to level the data field. Use an alpha level of 0.05</p>	<p>Pre and post analysis Redosing within the organization</p>	<p>Post survey results- on a 1-5 scale. Mean results were between 4 and 4.3 and the effective working in teams, better able to lead teams, assume or expanded leadership roles.</p>
<p>Primary Outcome Measures/ Results</p>	<p>The overall outcomes showed a significant change in staff ability to work as a team and increase nursing care hours. Nursing reported a higher rate of satisfaction at the job.</p>	<p>The participants were to demonstrate core competencies in leadership, to include interpersonal effectiveness, customer service, thinking skills, flexibility, organizational starship, person mastery and technical expertise.</p>	<p>Although the study was successful. It also concluded hands-on simulation training versus computer generated video games was better. The people inactions were real as well as the patient reacting to the interventions.</p>	<p>The results were positive. Decrease in medication errors and blood transfusion errors. Staff injuries were also reduced. Allow for all members to understand a common language when transferring a patient between teams.</p>	<p>Organizational teamwork was effective per pre and post analyses.</p>	<p>Better at conflict resolution. Moreover, managing people. See page 3 for qualitative results of MLP evaluation</p>
<p>Conclusions/ Implications</p>	<p>Teamwork did increase. The</p>		<p>More study needs to be completed on</p>	<p>TeamSTEPPS help reduced</p>	<p>Team training works but</p>	<p>The result providers</p>

	<p>study also showed a sustainment piece of at least two months after training. Teamwork on acute care units is an essential part of patient safety and quality care. Having trainer on the floor to enhance the acceptance among nursing staff helped with maintaining TeamSTEPPS.</p>		<p>a larger scale. Although the team did learn during debriefing what could be done with what they had. Training and team learning was important and needs to be addressed during high risk low volume procedures.</p>	<p>medical errors, transfusion error and level of frustration during the high-stress moment. Reduce staff injuries as well. During extremely austere conditions within a combat zone teamwork training decrease medical errors.</p>	<p>requires the entire organizations to contribute for the long term. This is not a check in the box fix.</p>	<p>were able to understand awareness and importance of leadership skill, working with difference in provider's skills and training. Many understand medical skills; it was the organization understands of working together.</p>
Strengths/ Limitations		<p>The initial core competencies are similar to TeamSTEPPS. Limited to the present – no retrospective analysis completed to see if the change is truly the culture of today.</p>	<p>Small Number Small sample points Not understand the total set-up of simulation training the lab to improve performance in a real condition. Financial support of training Strength: team training and integrating team principles did reduce adverse events or reduce the severity of the outcome.</p>	<p>Limitation – reporting of all patient safety incidents. The collection of data improved quality or quantity of handoffs between teams. Coding of incident coding process Reporting rates Strengths: all team members were trained in TeamSTEPPS not just clinical staff.</p>	<p>Strengths: Improves team effectiveness and team training outcomes. Patient outcomes Organizational outcomes. Limitations: no direct correlation between team training and clinical outcomes.</p>	<p>Physician with physician leadership development the session and subject matters. Limitations: one dedicated one part of a multifunctional team within a hospital</p>
Funding Source	None	none	none	none	none	none
Comments	<p>Again nursing only, no long term sustainment review after two months. However, showed promising statically analysis rather than discussion points.</p>	<p>Interesting look development of combing two organizations into one. Reducing the change factor fear with employees.</p>	<p>Not needed for this type of study.</p>	<p>Differently, an article to keep in mind for literature review</p>	<p>Key elements to success: Physician participation is critical Leadership must be on board for an extended period of time of time All members of the facility must be held accountable to TeamSTEPPS integration not just implementation but a cultural</p>	<p>Administrati on physician was able to improve physician leadership skills by increasing understanding of strategic goals and direction for organizations Components of the program helped individual to practice the new skill, allow for</p>

					transformation	leadership to monitor change in practice and perspective. Organizational culture has been modified for the betterment of hospital and team.
Article/Journal	A theory-driven, longitudinal evaluation of the impact of team training on safety culture in 24 hospitals.	Staff nurse perceptions of nurse management leadership styles and outcomes/ Journal of Nursing Management.	Comparison of Two TeamSTEPPS training methods on nurse failure to rescue performance/ 2014	For the good or the bad? Interactive effects of transformational leadership with moral and authoritarian leadership behavior/ Journal of Business Ethics.	Stepping Up Teamwork via TeamSTEPPS	Operation Debrief A sharp improvement in performance feedbacks in the operating room. Annual of Surgery
Author/Year	Jones, K., Skinner, A., High, R. & Reiter-Palmon, R., 2013	Casida, J. and Parker. 2011	Harvey, E., Echols, S., Clark, R. & Lee, E., 2014	Schuh, S., and Zhang, Xin-an/ 2012	Plonien, Cynthia & Williams, Marcie/ 2015	Ahmed, Maria Arora, Sonal Russ, Stephanie Darzi, Ara Vincent, Charles Sevdalis, Nick/2013
Database/ Keywords	EBSCO/ teamwork, collective learning Safety, quality care.	EBSCO/ acute care hospital, leadership outcomes, leadership styles and nurse managers.	CINAHL/ simulation, nursing, team, TeamSTEPPS	EBSCO/ Authentic transformational leadership/ authoritarian leadership/ moral leadership and pseudo-transformation leadership.	EBSCO/ teamwork, collective learning Safety, quality care.	EBSCO Debriefing, education
Research Design	Two quasi-experimental designs. Cross-sectional comparison of hospital on patient safety culture. The intervention group was 24 hospitals and the static group was of 13 hospitals.	Correlational design	Quasi-experimental study	Two hypotheses were tested with pre and post survey. Hypothesis 1: The more a leader engages in transformational behaviors the stronger the positive association between being moral and	Review of case studies and two other hospital TeamSTEPPS rollout and sustainment for the perioperative and operative room.	Prospective Pre and Post cross-sectional study

				followers' in role and extra role performance Hypothesis 2: The more a leader engages in transformational behavior with an authoritarian edge, the more negative the response will be from the followers.		
Level of Evidence	I	VI	III	IIIA	IV	III
Study Aim/Purpose	The purpose is to look at the sustainment of team training on hospital and individuals.	The aim of the study was determine any correlation of leadership style of the nurse manager to outcomes.	This study looked the rate of nurse to determine the patients' change in condition was too late or a failure to rescue event occur. The study looked at the use of simulation training versus case studies reviews.	The study is to look at the follower's interactions and reaction to a transformational leader. One transformational leader with moral and ethical views vs transformational leader with authoritarian under tones. Would it make a difference in the performance of the follower and the perception of the transformational leader?	The purpose is to look at the sustainment of team training using TeamSTEPPS in operating room	To determine the current status of feedback tool versus the use of a evidence based intervention termed "SHARP" The lack of debriefing culture in surgery is few.
Population/ Sample size Criteria/Power	N= 3476 respondents to 4601 surveys sent out. There were statistically difference between the intervention hospital and the static hospital even over a period of time.	Staff nursing (n=278) from four hospital in the Northeastern United States. Nurse manager (n=37). Data was analyzed using descriptive and inferential statistical methods. Was there any discussion on power?	Sample size was 39 nurses in an 825 bed academic medical centers. The teams were random select by a draw as to who would receive simulation training or case reviews.	N= 228 people. The 228 representing 114 subordinate-supervisor units. SD= 3.31. Hypothesis 1: the relations between leaders' moral behaviors and subordinates' in-role and extra-role efforts who experienced their leaders as highly transformational results: Beta=0.45,	4863 operating room cases reviewed	N=100 Surgeons ranging from residents, attending. The sample size is fine, limited professions-only surgeon involved in Debriefing.

				<p>$t=3.26, p<0.01/$ $Beta= 0.36,$ $t=2.10, p<0.01$ respectively. Hypothesis 2: the relations between leaders' authoritarian behaviors and subordinates' in-role and extra-role efforts who experienced their leaders as highly transformational results: $Beta= -0.24, t=$ $-3.18, p< 0.01/$ $beta= -0.24, t= -$ $2.60, p<0.05$ respectively</p>		
Methods/Study Appraisal Synthesis Methods	<p>Surveys were scanned into a database and imported into SAS V.9.2 for analysis. This included the 24 hospital with interventions and the 13 hospital with no interventions. 10 items were pulled for comparative data analysis for the respondent reacting positively at reassessment and baseline.</p>	<p>Multifactor leadership questionnaire form 5x-short was used with reliability. The data was analyzed using descriptive and inferential statistical methods.</p>	<p>This was quasi-experiment, two group comparison one using simulation training to enhance the didactic training versus the case study review after didactic training. 28 item multiple choices and true-false questionnaire was used to determine pre/post leaning measurement.</p>	<p>The pre and post surveys given to the follows were measured on 1-7 scale. The control in this survey was the leadership and followers' age and gender. It was determined that demographic characteristics could related to leadership behaviors and follower's perception.</p>	<p>Case study reviewed. Analysis using TeamSTEPPS questionnaire and Safety Attitude Questionnaire post implementation.</p>	<p>Pre and post study on the use of the tool and satisfaction rating of the individual using the tools. The study quantitatively assessed the data using OSAD tool.</p>
Study tool/instrument validity/reliability	<p>The intervention hospital had significant higher positive scores for working together than the static group.</p>	<p>Transformational leaders have strong correlations to leader's extra effort, leadership satisfaction and effectiveness. Transactional leaders had weak correlations to extra effort, leadership satisfaction and effectiveness. Staff nurse perception of the nurse manager's leadership: Transformational</p>	<p>Those nursing who received the simulation training after didactic were able to recognize the need for assistance and used teamwork more effectively during an event.</p> <p>The case study nurses recognized the change in the patient's condition but were not able to verbalize what was needed as effectively as the</p>	<p>The study used a series for confirmatory factor analysis. Measuring five factors.</p>		<p>OSAD tool was used to determine statistical analysis. The instrument did validity the study.</p>

		<p>leadership MLQ>2.6 out of 4 with a mean of 2.64 and SD=0.84. Transactional leadership MLQ=2.1, with a mean of 2.94 and SD= 0.48.</p>	simulation group.			
Primary Outcome Measures/ Results	<p>The intervention hospital had significant higher positive scores for working together than the static group.</p>	<p>Transformational leaders have strong correlations to leader's extra effort, leadership satisfaction and effectiveness. Transactional leaders had weak correlations to extra effort, leadership satisfaction and effectiveness. Staff nurse perception of the nurse manager's leadership: Transformational leadership MLQ>2.6 out of 4 with a mean of 2.64 and SD=0.84. Transactional leadership MLQ=2.1, with a mean of 2.94 and SD= 0.48.</p>	<p>Major outcomes between the groups: Knowledge score improved in the simulation training group Confidence score were the same for both simulation and case review groups. Teamwork Skill was significant improvement in simulation group.</p>	<p>Results using the mean, standard deviation of 3.31. Finding suggested transformation leadership behavior can intensify the positive effect of the followers in and extra role efforts.</p>	<p>The results showed a statistical improvement in perceptions of management and working conditions. Compliance rate at the six months was 95% with 70% of individual surgeons achieving 100% compliance.</p>	<p>The result was excellent. Strong correlation and use of p= 0.566</p>
Conclusions/ Implications	<p>Team training resulted in transformation of the safety culture within the organizations. Training all hospital employees in team work supported the transfer of the new learned behavior. Of the 59% of the respondents for the intervention group who received team training, the pre-assessment of team behavior was 2.8% after the intervention it was 31%.</p>	<p>Nurse managers who exhibited transformational leadership characteristic have better outcomes from staff members than traditional nurse managers. This also translated in staff nurse satisfaction, retentions and staff nurse felt autonomous.</p>	<p>The sample size was small and limited the true potential of what simulation training to enhance teamwork and put into didactic learning.</p>	<p>The conclusion of the study indicated focusing on transformational leadership while disregarding morals and authoritarian aspect may limit promoting effective leadership which will result in a negative outcome on the survey. Overall, transformational leadership training that includes moral</p>	<p>Team training resulted in the transformation of the safety culture within the organizations. Training all hospital employees in teamwork supported the transfer of the new learned behavior.</p>	<p>The study proved the use of SHARP tool work in this particularly location and profession.</p>

	Team training can and does result in a transformational change if sustained in the organizations.			conduct and ethical role modeling proved to have more effective followers.		
Strengths/ Limitations	The strengths supported the ability to draw the conclusion that team building program do and can effect change on the culture of the organization. The limitations related to the interpretation of the results as many questions can be related to perception of team.	The methodology of using secondary data may have limited the study validity and generalized the results. However, leadership based on the data it should those leaders who were taught transformational leadership concept had a more effective and satisfied nursing staff. The study encouraged hospital leadership to encourage transformational leadership concepts.	Comparison of Two TeamSTEPPS training methods on nurse failure to rescue performance/ 2014	People were more willing to work for a leader with moral transformation style rather than one with authoritarian styles. However the team realized leadership selections, training and compensation also play a role in the transformational leader.	The strengths supported the ability to draw the conclusion that team building program does and can effect change in the culture of the organization.	S: The study used another form of debriefing tool. The debriefing tool was evidence based. L: Only one profession was assessed with this tool. Single hospital was used and the sample size was only 100.
Funding Source	AHRQ and the University of Nebraska Medical Center Institutional Review Board.	none	Reason Acceleration Program at the Carilion Clinic.	none	No funding source noted	None
Comments	The models used for training included, role-modeling of tea behavior by mid level leadership and senior leaders. Team Behavior were included in position description and required interview questions.	This study references many of Bass's theories on transformational leadership.	This study reference many of the AHRQ papers on TeamSTEPPS to include Quality indicators (2010), TeamSTEPPS rapid response system module(2009) and TeamSTEPPS strategies and tools to enhance performance and patient safety guide to action (2008)	This study references many of Bass's theories on transformational leadership. It was unique this study was completed in China were ones assume an authoritarian leadership.	Relating changed behavior to the implementation of TeamSTEPPS.	The study proved the SHARP tool a better debriefing tool for surgeon rather than TeamSTEPPS tools. Great article to use as it showed the use of two different debriefing tools.
Article/Journal	Introducing standardized "read back" to improve patient safety in surgery: a prospective survey in 92 providers at	Standardizing for reliability: the contribution of tools and checklists. Nursing Standard	Operating room team member's views of workload, case difficulty, and non-routine events.	Cause Analysis and nursing management responsibilities in wrong-site surgery. Dimensions of	Surgical team assessment training; improving surgical team during deployment	Teamwork climate and patient safety attitudes associate among nurses and

	a public safety-net hospital BMC Surgery		Journal for Healthcare Quality	Critical Care Nursing	The American Journal of Surgery	comparison with physicians in Taiwan. Journal of nursing care quality
Author/Year	Prabhakar, hair Cooper, Jeffery Sabel, Allison Mehler, Philip Stahel, Philip/ 2012	Russell, Beaumont/ 2012	Minnick, A Donaghey, Beth Slagle, Jason Weinger, Matthew/ 2011	Dattilo, Elaine Constantino, Rose/ 2006	Kellicut, D Kuncir, E Williamson, H Masella, P Nielsen, P/ 2014	Li, Ai-tzu/ 2013
Database/ Keywords	EBSCO Surgery Teamwork tools	Dynamed Human factors Patient safety Standardization High reliability	Dynamed Team Interdisciplinary Failure in the OR	Dynamic Never events Patient safety Root cause Pro risk assessment	Athens TeamSTEPPS Surgical teams Surgical failures	Athens TeamSTEPPS Teamwork interdisciplinary
Research Design	Prospective study	Double blind peer review and observation	Qualitative descriptive study.	Review, case studies, and literature review	Qualitative designs with simulation training.	Qualitative designs using standardized TeamSTEPPS attitudes questionnaire. Safety attitudes questionnaire
Level of Evidence	III	II	III	V	II	II
Study Aim/Purpose	To determine the current status of feedback tool versus the use of an evidence based intervention termed "SHARP" The lack of debriefing culture in surgery is few.	Communication breakdowns represent a problematic concern throughout the patient stay. Can a standard communication tool work in the surgical area as it has shown to work in aviation.	Aim was to show a reduction in surgical death rates by applying standardized checklist and routine communication requirements.	The main purpose of the study was to describe Operating room providers (RNs, anesthesia and surgeons) beliefs on what creates a perfect storm. Describe how OR providers define "workload" and "case difficulty" versus OR utilization cost. Can a generalized intervention work in unusually cases.	What can be gained by doing a Root Analysis related to wrong site surgery? The time out check has failed at stopping wrong site surgery. Look at what nursing management has to offer to help with wrong site surgery.	Providers who demonstrate consistent use of principles which enhance communication and teamwork increase the likelihood of improved clinical outcomes. Two, 4 member surgeon/nurse team travel to 8 Army surgical resuscitation medical facilities in Iraq to implement and re-enforce TeamSTEPPS training in

						trauma situations.
Population/ Sample size Criteria/Power	N=92 Surgeons, pre-operative nurses, surgical scrub technicians were surveyed. Single hospital was used at a level one trauma center. Based on 12 item questionnaire. Sample is fine,	The study was over a periods of 4 years within varies hospital. The study did not reveal the number of participated from each hospital. The study did provide a number of observations over a period of 4 years. It was double blind peer review. This could still lead to false positive.	N= 57 participates Majority RN's, anesthesia and lastly 9 surgeons. Sample size to the total Operating teams was half. Although there was not statistics data link to the study. The study did define the perfect storm in the OR and what could go wrong.	No population or sample size was mention. It was a case review of previous sent in Joint Commission root causes analyses. Case series Expert opinion No control studies.	N= 220 providers (surgeon, nurse, medics in pre-hospital settings and technician) 8 Army Combat Support Hospital 98% of participants felt TeamSTEPPS provided standardization for all medical teams throughout the patient's movement from battle field to medical center. Simulation fed back after report, video comments on events and pre and post questionnaires based on the inventions of TeamSTEPPS training.	N= 407 nursing N=76 physicians The structural equation modeling was developed to demonstrate the association between teamwork climate and safety attitudes. The study was looking for a P value of less than 0.05 was determined to be statistically significant. Large sample size, Qualitative study using two types of questionnaire for comparison. Two differently medical trained professions being surveyed.
Methods/Study Appraisal Synthesis Methods	Pre and post survey. Quantitative study. Statistically significant difference in health care provider's willingness to attend the short training model. Residents were less likely to endorse the importance of read back. The nursing staff and general surgical staff did see the significant	Observation scoring of the use of checklist and standard tools of communication. The team break down each check list into smaller task until it became rooted into the culture.	Single focus group and mixed focus group review case review for unique themes and common themes. Study also want to define for leadership "workload" vs "Case Difficulty".	Case study reviews of RCA turn into the Joint Commission and follow up on the action items by the organization to see if improvement had been achieved.	Immediate feedback after simulation training before and after didactic training using simulation as well. Anonymous surveys completed by providers following the training. Statistical analysis using Student T test and chi-square test. The	The study was applying SEM to delineate the relationship between teamwork climate and patient safety attitude. Since the two difference questionnaires were used but had overlapping ideas the designer were able to

	in read back .p =0.01.				appropriate and a P value led than 0.05 was considered significant. The result was P< 0.05	link or correlate between the two surveys as being confirmatory with model.
Study tool/instrument validity/reliability	12 – Item questionnaire was sent to 180 providers, The study did stratified by staff role. Data analysis was performed using the SAS enterprise guide 4.2 The data is reliability.	Observational and peer reviews were the tools used to validate change. The data show reviewed a reduction in death rate after the implementation of check list and standardization. No data was collected on near misses or patient satisfaction or team satisfaction.	Risk review by the organizations operating room team members.	Case study reviews. It was an interesting article as it compiled varies trend found through the RCA process by many organizations.	The result have been verified and tested within 8 different military treatment facilities. It is know that communication and patient flow on the battle field is imperative and must be trained. Simulation training has proved to be a worthwhile effort for team to be situational aware of their surrounds and have a standardized form of communicate.	Several tools were used, the two questionnaire format, two medical providers. And literature review to include the socialization process of Taiwan nursing into the field of medicine. The type the two survey together and highlighted similar questions to a same score. The method could and has been replicated.
Primary Outcome Measures/ Results	The result did show a strong response to read back by the staff who would use it the most.	The study showed successful implementation of initiatives. The study did demonstrate a reduction in death rate in the Operating rooms.	Primary Results: No one could define a true operating room workload or case difficulty in a way leadership and financial would find expectable. The team was able to determine themes related to possible non-routine events or adverse events and possible general solutions.	The outcome of the case review had an interesting point, “healthcare providers cannot operating in patient safe environments without the support of hospital administrators.	Primary results were positive. The initial implementation combine with simulation training made varies educational learning techniques available.	The statistical analysis was broken down by TeamSTEPPS components and then by profession. Each having a significant P value being reported.
Conclusions/ Implications	Standardized read backs as an effective tool for reducing error or preventing adverse events based on scripted quotes and phrases does and will help with	Standardization can have an impact on patient’s survival rates in surgery. The study did not mention the number of staff member’s	Conclusion when looking at root cause finding in the operating rooms, one needs to seek out non-routine events and performance shaping factors	Conclusion was all health care providers direct or indirectly involved in wrong site surgery must be held accountable for	Implication is the Tri service to teach TeamSTEPPS prior to deployment for all service members. Implication	The study confirmed that teamwork climate was associated with patient safety attitude

	communication needs.	involved in the transformation or the breakdown by profession. It only mentions this study was completed in the operating rooms among several hospitals.	that influences provider's work. Fatigue, noise, lighting, missing equipment, different staff members and not have met the patient.	patient safety and change in the culture.	again is sustainability. Can this change in culture return to the provider's home hospital based.	among nurses. Nurses did have a lower score in the perception of teamwork climate then did the physician.
Strengths/ Limitations	S: it used crew management communication techniques and scripts to help with OR. L: again only one hospital was involved.	S: The hospital and team realized success is truly measured by the cultural changes within the clinical environment. Rather than observation study and peer reviews.	S: The study looked at intrinsic and extrinsic factors when review case studies. The case study were reviewed by a profession and then as a team to determine common themes and possible solutions. L: Leadership was not as to attend the team focus group when reviewing cases.	S: It was review of RCA and compiled a list of common analysis. L: It did not show if improvements happen or not. Also it is limited to only report RCA to the Joint Commission.	S: pre and post survey were anonymous. Pre and post after action review completed as part of the simulation training. L: Mandated training for the military serving in deployment areas. Military are great at taking orders and order does not follow oneself when the individual is transferred back states side.	S: The looked at two differently medical training professional who take care of patients. Does difference is training effect inter disciplinary teamwork perception and safety. L: design was a cross-sectional survey and only showed association but not causality.
Funding Source	None	None	Supported by a grant by health Services Research and Development and Veterans healthcare Administration.	None	none	none
Comments	It was one study that used the aviation crew management results for compassion.	The study was over a periods of 4 years within varies hospital. It used some tools within TeamSTEPPS such as briefing, debriefing and SBAR. Long term study to show cultural change.	The study was unique in defining the "perfect storm". This is the beginning to determine interventions and seek out additional departments that might not otherwise thought to be involved. The study did not attempt to implement change but to see if the organization would be able to determine general	Nice article concerning RCA's and probable causes related to wrong site surgery. Nothing definite as for implementation or changes in team structure or teamwork	The article and study proves within a military system, didactic training combine with simulation training helps the unit functional clearer, define roles and responsibilities and TeamSTEPPS has the tools that can be work.	The study begs to ask the question why does nursing believe teamwork is not important then physician. Who is dependent and independent on each other?

			safety changes.		However, the military are getting started- have then finish the task and bought the culture change to the USA.	
Article/Journal	Social structures in the operating theatre: how contradicting rationalities and trust affect work Journal of Advanced Nursing	Teamwork building healthier workplaces and providing safety patient care Critical care nursing quarterly	Interprofessional education in team communication: working together to improve patient safety. Quality and safety in health care	Constructing rapid transformation; sustaining high performance and a new view of organization change. International journal of training and development.	Health Care Leaders as agents of change. The Physician Executive	Patient Safety Improvement through in situ simulation interdisciplinary team training. Urologic nursing
Author/Year	Ryndenfalt,C Johansson,G Larsson, A Akerman,K Odenrick,P/ 2011	Clark, P./2009	Brock,D Abu-Rish E Chiu,C Hammer,D Wilson,S Vorcick,L Blondon,K Schaar,D Liner,D Zieler,B/2013	Wolf, J/2011	Bujak, J/2005	Klipfel,J Carolan,B Brytowski,N Mitchell,C Gettman, M Jocabson,T/ 2014
Database/ Keywords	Athens Interprofessional cooperation Team communication Social structure Team dynamics	Athens TeamSTEPPS Team dynamic Change theory	Athens TeamSTEPPS Communication Failure in surgery Team building	Athens Change agents Transformation Failures	Athens Change agents Transformation	Athens Team training TeamSTEPPS interdisciplinary
Research Design	Activity theory through interviews.	Literature review of team building theories and plans.	Pre and post assessment after one TeamSTEPPS didactic session and three 1 hour simulation training. Qualitative study of before and after change in behavior.	Literature review on theoretical foundation of transformation. Looking at relational discourse and its influence on the language of change itself.	Article based on personal experience and subject matter experts.	Pre and post use of TeamSTEPPS training in simulation training and translation into everyday practice.
Level of Evidence	III	II	III	II	I	III
Study Aim/Purpose	To investigate professional orientation and specialization as factors that influence cooperation between profession in a surgical unit To elaborate on how the social and organization	The study looked at the changing landscape of health care. Specially nursing roles and how they must adapted to a more austere working condition and higher acuity	The aim was to following training would interprofessional student report: Improved attitudes, motivation and self-efficacy to working within interprofessional healthcare teams. Having observed	The aim was to look at two discussion of dual transformational and transactional dimensions that effect organizational change. Figure 2 points out the order of	How an executive look at change does and what can they do to lead change. This is one person opinion on how healthcare must change to keep up	Discuss the importance of interdisciplinary teamwork in the clinical setting Describe the impact in situ training for emergency

	<p>stuffer of the surgical activity context can affect professional task orientation</p> <p>To investigate the value of visualization of authentic exiting Environments and s tool when reflecting on work.</p>	<p>patient. What type of team building program work for all it is TeamSTEPPS or Emergency team coordinator course?</p>	<p>and practiced key team communication skills</p> <p>Increased understand on interprofessional team skills.</p>	<p>change Pg. 23.</p>	<p>with today's patient and technology.</p>	<p>situation may have on RN and urology resident's perception so team performance.</p>
<p>Population/ Sample size Criteria/Power</p>	<p>N= 280 Surgeons, nurses, OR techs</p>	<p>Using the PAR subset of action research in which researcher work actively with participates or stake holds to plan and implement workplace change. Although there was not sample given or name hospital it reveal change cannot happen by education but must be sought out by all staff members from housekeeper to CEO's and all in between.</p>	<p>N= 306 4, 3, 2, year physician assistance students. Looking re p=0.05 for a significant differences. Using the ANOVA to explore variances.</p>	<p>41 interviews in 12 different hospitals. Using the conventions of grounded theory, the article looked at 9 hospital 'sustaining" vs. 3 non-sustaining.</p>	<p>Literature review on transformation al change and how it can effect individuals and industry. No sample size or population given</p>	<p>Hand on observational skills and pre and post interviews after simulation training. N=23 staff members 18 RN's 5 urology residents.</p>
<p>Methods/Study Appraisal Synthesis Methods</p>	<p>The study was based on the use of interviews, virtual models and activity theory. The study compile summary of opinion regarding disturbance from colleagues during work and related this in interpretive remarks to activity.</p>	<p>Literature review of TeamSTEPPS implementation and other teambuilding programs. The study looked at the pros and con of those team building programs. The study did look at staff and patient satisfaction scores.</p>	<p>Pre and post testing using questionnaires and observational skills during simulation training. The data was assembled and means looked at for varies questions type and if the question translated in actual action. The study has statistical analysis. Analysis of variances, and all tests applied a p+0.05 level of significate.</p>	<p>During the literature review the article points the phases of transformation, Unfreeze, transition, refreeze or freeze, rebalance, refreeze. How organizations can propose to address continuous change in the freeze and refreeze phases or transition and not lose ground.</p>	<p>Review of the literature as to how health must maintain a health approach to change. Limited resources and higher demand for health care is strain on many hospital and clinic. How can one maintain and be cost effective and still provide safe quality care in a changing field.</p>	<p>The researcher used the Mayo High Performance Teamwork Scale. Simulation training was also based on the Plan, do, Study and act on the situation. Qualitative study.</p>
<p>Study tool/instrument validity/ reliability</p>	<p>Semi-structured interviews. Virtual modeling and observant of actual</p>	<p>Although the paper did not have defined instrument of</p>	<p>The study is repeatable and have there was large population</p>	<p>The article looks it the nature of change, social</p>	<p>The article looked at who should be involved in</p>	<p>Although there were no static data provide.</p>

	surgeries by a 3 rd part review activity analysis. The information is reliability and could be repeated at any other surgical hospital	validity it did provide background into team concepts and change to an organization. The paper also reviewed additional teambuilding program and related the pros and cons and ultimate who must make and start the change from bottom up to top down.	across varying level of expertise.	construction and the role of relational discourse.	transformation . CEO or the floor staff or is it all together. How does one translate change as a good rather than a scare tactic that this is not good enough? Reliability of the study is low, but interesting appear to how one must handle individuals and the organization as whole through change.	The results were based on positive scoring on pre and post teamwork scale.
Primary Outcome Measures/ Results	Finding Poor team functionality and communication failure in the operating there can to some degree explained by difference in activity orientation between professions, Insufficient support from social and organization structure. Insufficient support resulted in communication threshold that inhibited the sharing of information.	Change is happening with in the healthcare and additional burden have been put upon nursing, physician and other healthcare staff for safe/quality care of our patients. Teamwork training programs in a department or unit setting will proved staff with empowerment and control that can loser cost associate with low retention and high turnover rate which reducing the number of errors.	149 student completed the pre and post assessment. Significant differences were for attitudes toward team communication, motivation, utility of training and self-efficacy. Significant attitudinal shift for TeamSTEPPS skills included team structure, mutual support and communication. Advocating patients and communicate in interprofessional team. Effective team communication is importance in patient safety.	The results of the interviews between the hospital were: Those who were in the non-sustaining hospital saw the potential in being Agile/consistency Informative/inquiry Collective individualism The organization was able to make mistake, report them and review and make changes as a whole vs blame an individual for stepping out of the norm,	The article points out that leaders must create an environment and world of change. They too must see transformation for the best to stay complete and communication this to the staff in a positive. The journey and destination are the same and helps when all are on one team.	The outcomes measure the individual response to the training. The results were positive from both nursing and providers.
Conclusions/ Implications	The article concluded communication threshold and other threats to communication must be taken much more seriously as they	Teamwork training programs in a department or unit setting will provide staff with empowerment and control that	TeamSTEPPS format and training can have an impact on interprofessional working relations. The relationship translates into better and more	The model of transformation change calls for an awareness of change process as it owns. T Rapid transformation suggest that	Health care must stay competitive in today market. Many types of team building programs are out there and have been	87% of the participants concurred that simulation training help with working as a team. The

	introduce latent threats to patient safety. Trust between professional is mainly based on commitment and a belief in the competence of the colleagues. Specialization could improve efficiency but it might introduce monotonous, undermining motivation the personal drive to develop their competence. Interdependence between ward and anesthesia and surgeon introduce delay and error into the practice.	can lose cost associate with low retention and high turnover rate which reducing the number of errors.	cohesive patient care.	standing still equates to falling behind, how must view change as a happening rather than a hindrance. It will take a whole organization to understand and transform to change. Training and development is one focus but it must be the ongoing culture of the organization for all levels in all dimensions.	tried but if the leaders and the organization cannot transform and transcend to the next level, healthcare will fall short of being safe.	educational strategy of situation training was effective in building interdisciplinary teamwork and nursing confidences. Implication is this type of training must be maintain on all levels of hospital not just in surgery.
Strengths/ Limitations	S; The number of people and type of professional used in the study. The look into what makes a team work or not work, Understanding how policy may not always work when dealing with people's perception of trust and team work. L: It did not mention how leadership values and perception plays into the surgical dynamic.	S: Teambuilding programs have many different names but must be used and implemented and believed in to make change with in the organizations. L: No define numbers or organization review to determine which and what programs work the best. They are these program sustainable in the fast changing health care.	S: The team used respectively new individual to the medical field. This is a positive as it will help change culture and future of interprofessional relationship, L: Only one professional group was selected for this study. Although this could be the strength. Start small rather than on a large scale approach to change,	S; the study review the types of change transformation theory that many electronic industry have been aware off. Hospital and medicine must be able to learn from other organization what has kept them sharp and competitive in the market. Those tools and ideas can be transferred to medicine.	None	S: effective in building teamwork. Added levels of confidence in managing emergency situations on the surgical unit. L: The study point out it is not the cure all to stopping adverse event. The fair and just culture must be visible with an engaged leadership.
Funding Source	Gorhon Foundation	none	none	none	none	none
Comments	This is one of the first article that looks at the structural dynamics with in a surgical team. The surgical team perception on the importance of TRUST and what	The use of multi- team building programs. Particularly on nursing profession and how they must adapt and approach	The study was compressive. It specifically looked at TeamSTEPPS and how it can change individual's behavior as well as a professional group.	The study proves to enlighten as it look at the heart of change. How can medicine transform itself to stay	The article was gave a leaders and physician perspective on change and how it can happen and must. It had value as	The study repeated the need that simulation training is an effective way to help with team building.

	is means to each of the team members. Policies cannot always change human perception but if we understand the dynamics of the team it can be used to help each other and the patient,	change. Review of additional team building programs will help determine the best approaches base on the team and hospital's goals.		competitive in a rapidly changing marketing?	it was another way for the DNP candidate to view practice change within a group of people. "Surfers don't do all the work just to get to shore" And interest quote to remember.	This type of training provides a safe place to talk about concerns and alternative when the patient condition changes.
Article/Journal	Train the trainer intervention to increase nursing teamwork and decrease missed nursing care in acute care patient units Nursing research	Surgical Technology and operating-room safety failures: a systematic review of quantitative studies BMJ Quality & Safety	Patient safety in the operating room: an intervention study on latent risk factors. Biomed Central Surgery	What is the future of training in surgery? Needs assessment of national stakeholders. Surgery	TeamSTEPPS and patient safety American Society for Healthcare Risk Management.	Assessing the performance of surgical teams. Health Care Management Review
Author/Year	Kalisch,B Xie,B Ronis,D/ 2013	Weerakkody, R Cheshire, N Riga, C Lear, R Hamady, M Moorthy, K Darzi, A Vincent, C Bicknell, C/ 2013	Beuzekom, M Boer, F Akerboom,S Hudson, P/ 2012	Kim, S Dunn, B Paige, J Eggerstedt, J Nicholas, C Vassillious, M Spight, D Pliego, J Rush, R/ 2014	Sheppard, F Williams, M Klein, V/ 2013	Leach, Linda Searle Myrtle, Robert Weaver, Fred Dasu, Sriram/ 2009
Database/ Keywords	Athens TeamSTEPPS Teamwork Increase in quality of care failure	Failure in the operating room, teamwork Surgical errors	Teamwork Failures Patient safety Latent risk factors	Surgeons Operating room Failure rates Needs assessment Training needs	Airline safety Patient safety TeamSTEPPS Failures/crew resource management	Stages of surgery Surgical teams Surgical team Teamwork Team performance
Research Design	Quasiexperimental design with repeated measures taken at pretest, posttest and two months after completer of the interventions.	Systematic review	Retro review of results based on pre and post testing after the learned behavior. The study maintains a control group as well. The team involved was surgeons, anesthetist, operating and recovery nurses.	Gap analysis Based on telephonic interviews and six questions. Iterative analysis and qualitative study design were completed. Target: surgeons	Longitude studies within the Health Care system. The process began by assesses the needs and readiness of the locations. Planning, training and implementations and lastly the sustainment of TeamSTEPPS with the health	Qualitative study Direct observation Interviews Literature reviews

Level of Evidence	III	I	I	III	II	III
Study Aim/Purpose	The study was to test the impact of train the trainer intervention on the level of satisfaction with nursing teamwork and the amount of missed nursing care	The aim was to determine if surgical technology has led to significant improvement in patient outcomes. To include checklists, surgical equipment, and communication with the team.	Question: based on training a patient safety intervention would improve incident reporting to help aggregate latent risk factors to assist in determining pro-risk assessment rather than a reactive case review. The study also concentrated on the systemic rather than individual issues. Assessing the OR's resistance to error a comprehensive survey was measures to determine the presence of systemic failure that lies dormant in the working environment.	Determination of what it surgeon for development and remediation training. A better understanding of what the new generation of surgeon's preference are and how to better relate to patient center communication.	The Risk and Patient Safety department recognized the need to improve the communication and decrease the barriers of hierarchy that impeded communication between staff members.	The study designed was to concern three factors: Identify the personnel who have a major impact on the functioning of the surgical team. Discover the conditions that influence the surgical team in performing surgery 3. Explore the factors that contribute to high-performance surgical teams.
Population/ Sample size Criteria/Power	N= 242 RNs, LPN, and CNA on the acute care wards in three different hospital. Looking for a P< 0.05 for a significant change.	28 quantitative error studies were selected from 124 which related to the surgical error.	N= 327 The population included surgeons, anesthesia, OR and PACU nurses and department of surgery leadership. Statistical analysis used control charting, Chi-square analyses to determine if gender was a factor in reporting.	N=22 and six pilot interviews. The small group only.	11 hospitals with the systems. Starting with the perinatal organizations and leadership. Two years.	10 high complex surgical procedures to include a total of 26 team members at one university medical center. Surgeon Anesthesiologist Register Nurses with Operating experienced nothing new to the hospital surgical services.
Methods/Study Appraisal Synthesis Methods	Four measures were used to test the efficacy of the inventions. Nursing teamwork Survey, MISSCARE	Quantitative studies of research studies. Large review, low risk of false positives	Leiden Operating Theatre Safety (LOTS) project used Leiden Operating theater and intensive care safety scale. Low	Interview questions and data aggregation. Data included notable quotes by the surgeons	Didactic Master Training required simulations and observational	A qualitative study by direct observation and interviews. Role

	<p>survey and question about knowledge of and satisfaction with teamwork. The model used the Bonferroni correction for multiple comparison. Long term study for sustainability and repeatable</p>		<p>risk of false positive.</p>	<p>to be revealing. Such as team Training – you have to participate you cannot be instructed. Non-randomized study, no control only one study group.</p>	<p>training to beginning initial staff training. The staff of trained. First pre-assessment of the units, using the TENTS tools by Hohenhaus-Powell and Haskins. Post assessment by the team. Observation tracer is conduct for adherence to the training by the staff. Low risk of false positive. Articles review completed and then pre and post implementation reviews.</p>	<p>behaviors and activities seen and observed. Questions were fix: Factors that made a surgery go well Key people involved Activates and degree of interdependent coordination ebbed through the procedure Resolution of the surgical problem based on interdependent behaviors. Few teams were described as designated team. Surgical case review showed many of the team did not have designated people, and all had worked separately with many team members or not at all. Non-randomized study, no control group and a small number of individual in the study.</p>
<p>Study tool/instrument validity/reliability</p>	<p>The results were repeatable. The study looked at a long term sustainment after training.</p>	<p>Reliability of the study is based on self-reporting. The study was designed to look at technology in the operating</p>	<p>The use of control group helps in the determination of the inventions. Using several types of analysis revealed the same</p>		<p>No Control group. The group size was not defined nor was the population per</p>	<p>No control group Small sample size Organization was an academic</p>

	The results were positive using the statistical analysis.	room which was not defined, and therefore one could not conclude if what was the actual key factor in the data aggregation which created failure of success.	conclusion. The pre and post questions remained the same through the 1.5 years of the program.		say; it was understood included all team members associated with perinatal care. No data collection as to the reduction of risk reviews or reported incidents. The staff did a report and increase in staff satisfaction after the implementation of TeamSTEPPS	hospital already used to working as an instructional institution. However, the study did ask great questions such as what works well and when it did not what happen and how to do the organizations recovered. Social-technical view of influences on surgical team performance and surgical outcomes. Pg 39.
Primary Outcome Measures/ Results	Teamwork increased (p=.001) and missed care decreased (p=0.03). Nursing staff reported a higher level of satisfaction with the team members and an increase of team knowledge after the invention.	The study wanted to show the use of technology as help with operating room efficiencies. However, the results revealed that the technology helped it still take communication skills among the members.	The article attempts to link the underlying problems and accurately identified and allows for remedial actions that can impact whole classes of issues simultaneously. Results after the interventions compared to the control determined significantly fewer problems. Contributions of technical factors to incident causation decreased considerably in the intervention group after the intervention.	The small group did reveal the need for the surgeon requesting additional training outside of the surgical skill. Skills include effect communication within the team and patient/family members. Understanding the use of multifunctional decisional making versus individuals. The need to have skill remediates competencies as core measures.	The measure of the success of based on the pre and post questionnaire on the staff usage and knowledge of team concepts. Observational tracers validated the use of the tools by the staff. However, no reported evidence of the reduction is harm events or legal actions. Results: staff felt more satisfied at work and better prepared.	What makes surgery go well: physician was a key element to this question. One physician goal was to create an environment where everyone feels competent. Individual skills are recognized, and each team member is valued. Scheduling of surgery based on time of day for more complex, earlier and during lunch when there is a turnover, limit the number of procedure

						and types of surgical procedure. Allow for teaching moments rather than scolding moments. During unexpected challenges, the team had already talked about “what if” and had what if plans already in place. The team is familiar with the procedure. Having novice work right seat left the seat with an experienced team member.
Conclusions/ Implications	C: Tran the trainer programs on multi floors and hospital work. Trainer on the floor helps maintain and sustain the train to the organization for a cultural change. The impact was safe care for the patient and happier staff members. I: The training was only complete by one profession and did not include other team members,	Conclusion: Although the use of technology can help in surgical cases, the checklist is only a tool to help and still requires teamwork between members to ensure safe and proper care.	Implications to the study designs were the changed in staff’s perceptions. Conclusion: the study revealed amend the relevant risk factors as material and staffing resources concurred with a decrease in “perceived” and reported incident rates. Since the interventions did not hire more people, it gave individuals tools and strategies to empower themselves.	The article did point out key barriers and challenges that will affect training both formally and informally- budgets and time. Qualitative research involving interviews instead of applying a mixed method such as additional of written questionnaires.	The leadership concluded TeamSTEPPS is an effective tool and helped with communication on all levels within the organizations. The article stated there was little trend shows a decreased inpatient errors and adverse outcomes.	Many of the surgical team where AD HOC and included numerous individuals leaving the surgical theater. With multiple hand-offs between people. This adds to demands of the surgical team and the dynamics to which one has to adapt.
Strengths/ Limitations	S: The study linked TeamSTEPPS to a nursing outcome to see improvement and track satisfaction. L: In only involved one profession in health care.	S: The study showed the importance of teamwork. The limitations are the review retrospective and limited to self-reported failures within the operating room.	L: study groups were small groups within limited disciplines and settings. Although this is the design of the PICO, put forth. S: The use of control charts to determine	L: Number of surgeons’ interview and no defining the type of surgeons. S: It is one of the first articles to ask what they want rather than being told.	A study related to the implementation of TeamSTEPPS and sustainment during the first year maybe two. However, it	S: Physicians used both informal and formal communication with the OR arena. Team members were able to

	Team is about everyone involved in care of a patient and the ability to work together.		variances within the processes and improvement over time based on defined markers on the pre and post questionnaires.		did not have a long-term consideration or how training occurs with newcomers. Limitations-again did TeamSTEPPS impact the culture of the healthcare center to where it is the accepted norm versus learning behavior.	act independently based on their specific specialty for the safety of the patient and team. L: the small organization was used. The study was completed at a teaching hospital where individuals are allowed to be open and act independently based on specialties.
Funding Source	None	Imperial College Healthcare Trust and the NIHR	none	American College of Surgeons-Accredited Educational Institutes.	none	none
Comments	The study did prove a long term look at how to change a culture. It also mention the impact of TeamSTEPPS trainer have on sustainment of the program,	Topic although not accurate to TeamSTEPPS nor was it mention- showed the importance on communication despite alternative checklists or gap measure.	The study did not take into account the operating technologist or CMS group. The article helped in the determination of types of pre and posted implementation and design of interventions. The use of control charting helped leveled the demographics of individuals and took a look at the system.	Of the six questions asked during the interview process, several related to TeamSTEPPS values. Communication with the team and a system-wide perspective of patient care. Defining "team". Multimodal education approaches for efficient, relevant and timely. Use of roles during procedural decision-making skills.	Healthcare claims that crew resource management is not effective. The relation is patient versus an airline. However, in reality, both deal with people and how people are treated during the time they have not controlled over the situation.	Great article and study on how a surgical team works and looking at the team dynamics. Starting point to show what works and different seen in another hospital surgical team outlook.

* Leveling Table p.10 from Melnyk, B. M., & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing and healthcare*. Philadelphia: Lippincott, Williams and Wilkins.

Appendix B

SWOT Table

<p>Strengths: Increase in team satisfaction Decrease in actual events Common language to use TeamSTEPPS is easy to teach and can be implemented throughout the organization</p>	<p>Weakness: Lack of buy-in by individuals Inability to hold individuals accountable for the change of culture Lack of time All or none approach related to the tools and strategies in TeamSTEPPS</p>
<p>Opportunities: Cultural diffusion Complete the Paradigm change from <i>Me</i> to <i>We</i>. Measure of success based on reporting metric- increase transparency Continuous improvement through the entire organizations Open lines of teamwork with all internal and external healthcare system Infuse components of TeamSTEPPS to department needs and requirements.</p>	<p>Threats: Competing programs with the military Turnover rates related to the army change in the station every two years. Change in Command every two and their Command philosophy Lack of support by the individual Mid-level support Budgets Political Climate Change</p>

Appendix C

Stakeholders and Project Members

Stake Holders	Project Members
Commander and Deputies of Landstuhl Regional Medical Center (LRMC)	Mentor: COL K. PrueOwens Army Nurse (AN) Deputy Commander of Nursing
Providers	LTC S. Hopkinson, Ph.D. Clinical Research, Investigation Nurse.
Nurses	Amy Holstein, European Regional Medical Command (ERMC) Research Administrator
Operating Room Technicians (OR Techs)	Capstone Chair: Barbara W. Berg, DNP, RN, CNS, PNP, CNE
Central Material Service staff (CMS)	Project Lead: Kendra A Bonin, MSN RN

Appendix D

European Regional Medical Command Approval Letter



DEPARTMENT OF THE ARMY
LANDSTUHL REGIONAL MEDICAL CENTER
Unit 33100
APO AE 09180-3100

MCEU-LST

22 June 2015

SUBJECT: Performance Improvement project entitled, "Infusion of TeamSTEPPS" (CY15-22)

1. Your project, "Infusion of TeamSTEPPS" was reviewed by the Europe Regional Medical Command Human Protections Administrator on 30 June 2015.
2. The project states that it will evaluate and identify the TeamSTEPPS tools and strategies that have become part of the culture within the Surgical Services at LRMC. The project will conduct a needs assessment to determine which TeamSTEPPS tools and strategies are needed to be incorporated back into the surgical services. This project fulfills requirements for completion of the Doctor of Nursing Practice degree at Regis University, Denver, CO. The information obtained through this survey will allow for a better understanding of team satisfaction and potentially decrease preventable medical errors. Results of these surveys are not intended to be generalized to patient populations outside of ERM, but rather will be used for the purpose of informing institutional policies and practices at ERM.
3. The activity, as described, does not meet the definition of research as defined in 32 CFR 219.102(d). Submission of an IRB application is not required.
4. This protocol may be initiated, provided all materials, personnel and procedures remain unchanged. Any changes must be reviewed and approved prior to implementation.
5. This protocol has been given the local reference number of CY15-22; please refer to this number in all future correspondence.
6. Point of contact for this recommendation is Amy Holstein, RN, MPH, CCRP, CIP at 314.590.4771 or amy.holstein@amedd.army.mil.

Amy Holstein
RN, MPH, CCRP, CIP
ERM Human Protections Administrator

Appendix E

Project Budget and Resources

Items	Costs (approximately)	Comments
Printing Poster	Free	WISE allow for three paper poster a month-free of charge
Training Cost	None	Part of the TeamSTEPPS safety huddle
Facility Cost	None	Briefs and staff meetings
Supplies Paper Ink Toner	\$200.00	Personal

Appendix F

Mission/ Vision and Logo

Mission:

Engraining the team back into the organizational culture.

Vision:

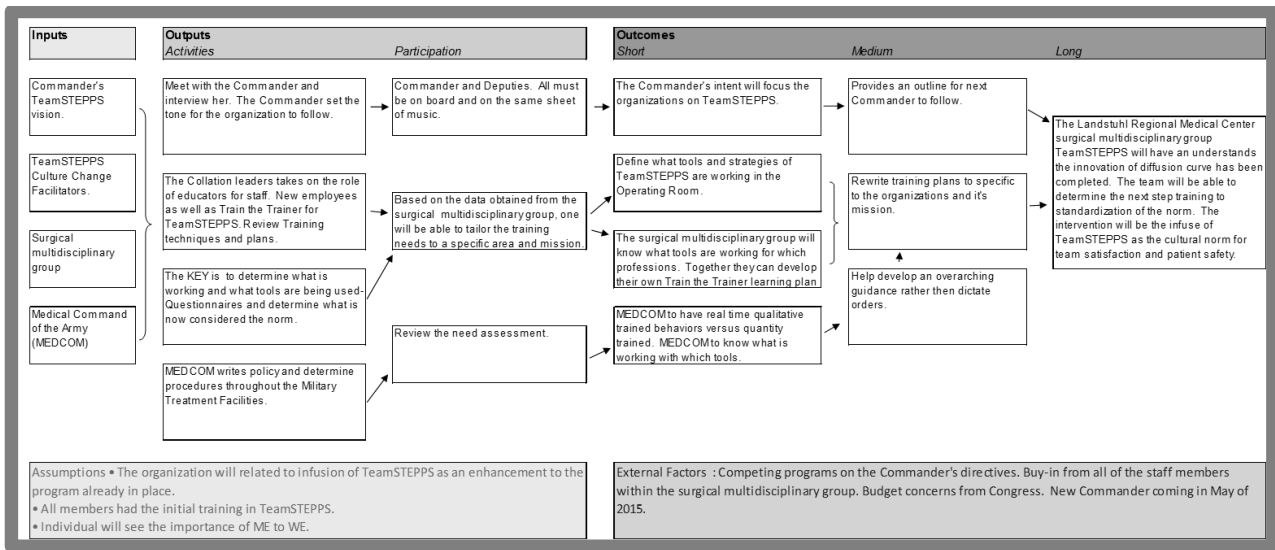
Infusion of TeamSTEPPS components will maintain the cultural awareness of all team members including the patients within the complex health care system.

Re-Infusing of TeamSTEPPS will promote the retention of TeamSTEPPS concepts as the new normal.



Appendix G

Logic Model



Appendix H

IRB Approval Letter from Regis University

REGIS UNIVERSITY
OFFICE OF ACADEMIC GRANTS

IRB – REGIS UNIVERSITY

September 1, 2015

Kendra Bonin
CMR 402 Box 1000
APO AE 09180

RE: IRB # 15-232


Dear Ms. Bonin:

Your application to the Regis IRB for your project, “Infusion of TeamSTEPPS”, was approved as an exempt study on August 28, 2015. This study was approved per exempt study category of research 45CFR46.101.b(#1, #2 and #4).

The designation of “exempt” means no further IRB review of this project, as it is currently designed, is needed.


If changes are made in the research plan that significantly alter the involvement of human subjects from that which was approved in the named application, the new research plan must be resubmitted to the Regis IRB for approval.

Sincerely,


Patsy McGuire Cullen, PhD, CPNP-PC
Chair, Institutional Review Board
Professor & Director
Doctor of Nursing Practice & Nurse Practitioner Programs
Loretto Heights School of Nursing
Regis University

cc: Dr. Barbara Berg

3333 Regis Boulevard, H-4, Denver, CO 80221-1099
REGIS.EDU | O 303-458-4206 | F 303-964-5528 | E oag@regis.edu



Appendix I

Project Lead CITI Certificate

Project Lead: CITI 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:** Kendra Borin (ID: 4636935)
- **Email:** rcdean@regis.edu
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Unit:** Nursing
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Report ID:** 15134266
- **Completion Date:** 01/28/2015
- **Expiration Date:** 01/27/2018
- **Minimum Passing:** 80
- **Reported Score*:** 86

REQUIRED AND ELECTIVE MODULES ONLY DATE COMPLETED

Belmont Report and CITI Course Introduction 01/28/15

History and Ethical Principles - SBE 01/28/15

The Federal Regulations - SBE 01/28/15

Assessing Risk - SBE 01/28/15

Informed Consent - SBE 01/28/15

Privacy and Confidentiality - SBE 01/28/15

Regis University 01/28/15

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: citisupport@miami.edu

Phone: 305-243-7970

Web: <https://www.citiprogram.org>

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

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

- **Name:** Kendra Borin (ID: 4636935)
- **Email:** rcdean@regis.edu
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Unit:** Nursing
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Report ID:** 15134266
- **Report Date:** 01/28/2015
- **Current Score**:** 86

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES MOST RECENT

History and Ethical Principles - SBE 01/28/15

Belmont Report and CITI Course Introduction 01/28/15

The Federal Regulations - SBE 01/28/15

Assessing Risk - SBE 01/28/15

Informed Consent - SBE 01/28/15

Privacy and Confidentiality - SBE 01/28/15

Regis University 01/28/15

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

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Appendix J

Project Outline and Timeline

Process	Start Date
Problem Recognition 1. Identify a Need 2. Summation of a Problem Statement 3. Basic Literature Review	May 2014
Needs Assessment 1. Identify population 2. Identify key leaders, team members, and mentors 3. Organizational assessment 4. Define outcomes of study 5. Business analysis 6. Scope of the Project	July-August of 2015
Project Statements 1. Objectives 2. Define a process 3. Mission statement	May 2015
Theoretical Underpinnings 1. Define theories appropriate to project 2. Chose theories for project	May 2014 to May 2015
Work Planning 1. Project proposal 2. Timelines defined 3. Budget analysis	January 2015-December 2015
Planning for Evaluation 1. Evaluation plan 2. Logic model	August 2014-August 2015
Implementation 1. IRB Approval Process 2. SWOT Analysis 3. Project Closure	May 2015-August 2015
Data Analysis	August 2015-May 2016
Reporting Results	January 2016-May 2016

Appendix K

Permission to use Original Study by Author



REPLY TO
ATTENTION OF

MCEU-LST-COD

4 June 2015

MEMORANDUM FOR Regis University

SUBJECT: Permission for Use of Paper

1. I give Ms. Kendra Bonin permission to use my Best Practice Submission, *Using TeamSTEPPS® To Improve Interdisciplinary Communication & Teamwork in the Operating Room*, as a reference for her Doctor of Nursing Practice (DNP) project.

2. Point of contact is the undersigned at DSN 590-7955 or daniel.t.coulter.mil@mail.mil.

A handwritten signature in black ink, appearing to read "D. Coulter".

DANIEL T. COULTER
MAJ, MS
Chief, Clinical Operations

Appendix M

Brief Checklist Poster

Brief Checklist

Team Introductions

- **Surgeon**
- Procedures and plan for the day
- Instruments/Supplies not normally used
- Expected specimens/Implant verification
- Critical Moments of the case (no counting, lunch breaks, ect.)
- Potential complications/Blood loss
- Special requests (Xray, Reqs, ect.)
- Postop plan (PACU, ICU, ect.)
- Fire Risk
- Critical Moments
- Concerns

Anesthesia

- Antibiotics/Allergies
- Anesthesia plan/Regional anesthesia
- Blood availability
- Planned relief/staff changes/handoffs
- Fire Risk
- Concerns

Nurse/Technician

- Equipment/Instrument/Supply/Implants
- Contact precautions
- Correct bed/Positioning
- Planned relief/staff changes/handoffs
- Fire Risk
- Concerns

Appendix N

Post Intervention Questionnaire on Team Satisfaction

Do you believe team satisfaction has increase with the Infusion TeamSTepps in the Operation Room

Yes

No

Other (please specify)

Has your practice changed because of Infusion of TeamSTEPPS training?