Emergency Department MCI Protocol

Joshua R Khoshsefat

Touro University

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Abstract

With an increase of bioterrorism and mass casualty incidents (MCIs), emergency department personnel are not adequately equipped and supported to respond to such incidents. This project aims to increase leadership support to frontline staff by implementing Prosci's Change Management Process to equip management with the necessary skills to support their staff through a new protocol implementation for MCIs. This project included an implementation of an MCI protocol into the Emergency Department (ED) in which ED personnel participated in a mock code to demonstrate the new protocol in case of an MCI. The ED staff participated in a quality improvement questionnaire that determined that leadership support was increased during this project timeline.

Keywords: mass casualty incidents, emergency department protocols, MCI's,

Emergency Department MCI Protocol

As more conflict and tensions rise in the world, the susceptibility and increasing risk of bioterrorism on the United States soil inevitably will rise. Healthcare providers in the front line, such as those in the Emergency Department (ED), need to be adequately and proficiently trained to respond at a moment's notice. A healthcare provider (tech, nurse, or doctor) should be able to respond quickly and appropriately no matter where one is located in the United States (U.S.), regardless of the state or facility. However, across the nation, frontline staff may be inadequately prepared in the case of a mass casualty incident (MCI). According to one study, "nurses represent the largest segment of the U.S. healthcare workforce, and accordingly, the effectiveness of the healthcare system's response to a public health emergency or disaster is largely dependent on the surge capacity of the nurse workforce" (Veneema, Tener, Griffin, MacIntyre, Simons, Couig, Pat, & Larson, 2016, p. 188). Since nurses are at the forefront of most EDs, it is imperative that this group of healthcare workers lead the way to quality improvement, not only for the profession but for the patients as well.

To become a nurse, one must go through rigorous course work, and additional training is required after a nurse enters the work force. In the state of California, a nurse must do the minimum of 30 continuing education hours every two years to be able to renew their nursing license. As a new graduate nurse, most hospitals also require a three to six-month training program in the desired specialty the nurse is hired for. This intense training prepares the nurse to succeed in the selected specialty area. Currently, there are no state requirements for nurses to be trained for an MCI, making it more imperative that hospitals develop their own standards. As in any healthcare system, preparation is key for success, not only for the nurse but for the patients the nurse will care for. Being prepared to handle an MCI event is no small task, and nursing staff

are not always adequately prepared to handle that type of situation on such a large scale. As an advanced practice nurse, developing a standardized procedure in the case of an MCI and implementing it into the standard practice of the ED, could greatly increase the staff preparedness as well as improve the care of the patients being treated.

Problem Statement

> The Agency for Healthcare Research and Quality (AHRQ) defined an MCI as:
>
> an act of bioterrorism or other public health or medical emergency involving thousands, or even tens of thousands, of victims that could compromise, at least in the short term, the ability of local or regional health systems to delivery services consistent with established standards of care (AHRQ, 2013, p.5).

Such as the case when Ebola was brought to the U.S., ED personnel were not equipped to handle patients with the virus. Many news articles were released about a nurse from Texas who was exposed to the virus because the hospital did not have appropriate protocols in place to protect the medical staff from being exposed. Fortunately, this was a small-scale incident, however, if this were to occur on a much larger scale, many more patients would be in the need for care as well as medical staff now being exposed due to inadequate protection.

The challenge that nurses in the ED face when it comes to responding to these sorts of incidents is that “under normal circumstances, the health care system, especially emergency care, is already strained by routine daily volumes” (Wilkinson & Matzo, 2015, p. 68). ED nurses are currently required to care for an assigned patient load, and must now focus on a massive influx of patients who may be critically injured, exposed to some sort of bioterrorism weapon, or have now become contagious to others. “While some disaster preparedness programs have been developed, often formal systems are not in place to provide pre- and post-licensure nurses with

consistent, comprehensive, and updated education and training in emergency preparedness and disaster response" (Veneema et al., 2016, p. 188). In addition, other challenges that emergency personal may face in the wake of an MCI is the involvement of children which can be relatively higher than that of adults. According to one study done by Lyle, Thompson & Graham, (2009) pediatric victims are in a disproportionate number when compared to adults and since the physiology of children differs from adults the protocols developed for adults may not work well for children. Caring for children in the event of an MCI can add additional stress to an already bogged down ED staff.

It is critical for emergency personal to be adequately prepared in the event of an MCI. Will standardizing protocols and procedures during the time of high stress in the ED help prepare nursing staff to overcome perceived barriers during an MCI? Can patient care be greatly improved if ED nurses were given thorough and proper training on how to protect themselves and their patients in an MCI? By developing a standardized procedure and implementing it with a group of ED nurses, it can not only aid the nursing staff in being better prepared to handle a massive influx of patients, but also aid them in providing better care to the community.

Purpose Statement

The purpose of creating and implementing a standardized protocol for the ED is to explore ways to improve disaster preparedness in the event of an MCI. As an advanced practice nurse, using current research to develop evidence-based practice for patient care is one of the essentials of the DNP (AACN, 2006). "With an increased focus on containing costs while promoting patient safety and achieving high-quality outcomes, have intensified the demand for evidence-based health care" (Chism, 2016, p.122). To be able to contribute to the nursing

profession and fellow colleagues, creating standardized procedures in the event of an MCI will show quality and leadership in the field of medicine.

Working in the ED requires constant communication and collaboration with colleagues. In the ED environment, having to work so closely together, you must development a sense of comradery. Another purpose of developing a protocol in the event of an MCI is to aid fellow team members in achieving success. The team is only as strong as its weakest link and if all team members were adequately prepared, this allows for better outcomes for staff and patients alike. As a leader in the field, aiding fellow nurses in the time of a stressful event can greatly increase job satisfaction, decrease barriers across disciplines, and allow for continued growth and success. To achieve the purposes stated, gathering staff responses through a questionnaire before and after training of the new protocol will allow for thorough evaluation of the success or failure of the stated protocol by determining the amount of support given by the leadership team.

Project Objectives

Creating and implementing a standardized protocol, and training staff on the new protocol aims to increase ED staff preparedness for an MCI. The objectives of this project are:

1. Develop a standardized protocol and training for staff on MCI.
2. Evaluate overall learning of participants following pretest and posttest.
3. Improve the formal leadership's support of frontline staff.

Project Question

The project question is: Will implementing an evidence-based standardized protocol increase staff perception of preparedness and improve the formal leadership's support of frontline staff in the event of an MCI?

Literature Review

In the event of a mass casualty incident (MCI), many key factors must be reviewed to have the best possible patient outcomes. The need for standardizing a protocol and implementing this in the emergency department (ED) is a critical step in helping to resolve many problems when it comes to responding to an MCI. Preparation of the staff before an event happening can greatly increase patient outcomes by giving the staff the knowledge they need in the event of an MCI. Involving the leadership team of management and charge nurses is also critical to help the staff feel supported in being prepared for an MCI.

After conducting an exhaustive search regarding MCI's, current literature shows that most emergency personnel do not feel prepared if an MCI were to occur. Research also shows a positive correlation between disaster planning and drills to help increase staff knowledge and preparation for MCI's. In further research, hospital-wide preparedness is critical to maintaining a flow in the event of an MCI. Whether it is during pre-hospital care, triage, or care of the patient while in the hospital, standardizing the response to an MCI is greatly supported by research.

Through multiple searches on the internet and library databases such as CINAHL, ProQuest, and PubMed, ProQuest produced the most amount of research related to my topic. Many search terms were also used to conduct this research. The initial search term was mass casualty incidents which resulted in over 2,000 articles. The search was then narrowed down by dates from the last 20 years, then 10 years, then five years so the research was as relevant to

today as possible. Other search terms were then used such as emergency preparedness, policies in health care, emergency preparedness policies, policies for MCI, staff preparedness for MCI, and barriers to emergency preparedness. The articles that will be further reviewed will discuss perceived barriers for staff, how to prepare staff for an MCI and the role of the nurse leader in preparing for an MCI.

In the field of nursing, assessing the problem is the first step. In emergency preparedness, it is critical to find the barriers present as to why the staff does not feel they are prepared in the event of an MCI. In one research study in which a 23-question survey was conducted using a 5-point Likert scale was given to physicians, nurses, and administrators at multiple level I and II trauma centers. With a hundred and seventy-seven responses received, 49% of the respondents stated the lack of specialized equipment was a barrier and 60% of the respondents stated lack of familiarity with the current equipment was also a barrier (Rivera and Char, 2004). Forty-five to forty seven percent of the respondents stated the lack of involvement of other departments also greatly inhibits their ability to respond to an MCI (Rivera and Char, 2004). Another identified barrier of 61% of the respondents was the lack of identified time for instruction and participation in MCI drills (Rivera & Char, 2004). In another study conducted, a descriptive survey was given to emergency department nurses to obtain their current knowledge on disaster procedures and management (Haney 1996). Of the 783 nurses who were sent the survey, 526 completed surveys were used for the study. In one part of the study, nurses that had been a part of disaster planning and drills scored higher than those nurses that did not, which indicates a barrier to preparedness (Haney, 1996). Another barrier this study highlighted was the lack of knowledge of priority setting with only 16.9% of the respondents answering correctly to which disaster victims should receive priority transport (Haney, 1996). With many barriers presented, the need to address these

barriers is significant and greatly needed for emergency staff to feel prepared in the event of an MCI.

There is a great amount of research that supports the need for disaster planning and drills to assist emergency personnel to feel prepared in the event of an MCI. In one article, the fear of being contaminated is a great predictor of the willingness of health care providers to report to work during an MCI. "Many nurses are unprepared to respond due to lack of knowledge or skills" (Wilkinson, 2015, p. 69). If the staff was adequately prepared and given the proper training before an MCI occurring, the percentage of staff willing to report to work during an MCI event would greatly increase. In another study, Herring (2011) noted that during simulation, under and over-triage was a significant problem in the event of an MCI and that through planned drills and flexibility, triage errors can be fixed. In this study's analysis, additional research is suggested to explore MCI appropriate cutoff points between immediate and delayed treatment (Herring, 2011). This can be greatly helpful during simulation and drills by teaching a standardized way of triage which can allow for better outcomes of patients. Through extensive research, triage during an MCI is critical. In one post-MCI study done by Adini et al., (2014), medical records of patients that were in an MCI bus accident were extensively reviewed by four trauma surgeons. Based on the 51 victims, 20 of them pronounced dead at the scene, and 31 were in need of medical attention. Of the 31, 22% were inappropriately triaged resulting in the incorrect utilization of resources. Adini et al., (2014), suggests "Policy makers should consider a review of current evacuation plans in MCIs occurring in remote areas, examining the possibility of evacuating only immediate and unstable casualties to the closest primary care facility" (p.91).

In a more recent study by Ogedegbe, Nyirenda, Delmoro, Yamin, & Feldman (2012), respondents stated in favor of feeling adequately prepared. This study was a 10-item

questionnaire that was distributed at a 775-bed community hospital of which 41% of those sent the survey, responded. 94% of the respondents said they were very confident the hospital would provide protective gear and protect their safety during a disaster. The authors of the study state their study is one of few that report a majority of staff stating they have the knowledge necessary to respond to an MCI. They contribute this to the fact that the staff at this particular hospital are exposed to multiple drills and disaster preparedness training post 9/11. In slight contrast to the need for simulation drills and preparedness, another article discusses the need for hospital personal to be aware of limitations to be fully prepared for an MCI. "It is beyond our imaginative capacity to predict all the possible human actions, reactions, and interactions that may occur as a crisis unfolds. While we can model different emergency situations and contingency responses, we must also recognize our limitations" (Gerwin, 2011, p. 135). Although this article doesn't suggest the lack of need for disaster preparation and drills, it is suggesting that even with all of the preparation available, that no one is capable of predicting people's behaviors during an MCI and therefore it is difficult to prepare for every possible scenario. Furthermore, this study suggests a higher demand be placed on the government to assist local and national authorities in the event of an MCI (Gerwin, 2011). In another study done by Culley (2007), a Delphi approach was used to obtain expert opinions to validate a mass casualty model. Data from round two of the Delphi process in this study "indicated the greatest support for change in the following areas: ensuring that teams are well prepared, healthy, skilled in the use of existing protocols, willing to work and very adaptable; including disaster planning and exercises/drills as an integral part of preparedness and response…" (pg.93). This study was very complex with 16 different experts weighing their opinions in which most agreed that emergency preparedness prior to an MCI event and having a model in place for patient care during an MCI would greatly improve

healthcare outcomes. Most of the research found on MCIs indicates the need for preparation before an MCI as this will allow for emergency personnel to be adequately prepared and knowledgeable in all areas necessary.

As nurse leaders emerge in the healthcare field, the need for standardizing policies will rest on their shoulders. In one study conducted by Veenema et al., (2016) a workshop was created by fourteen experts who developed a vision for the future of nursing. This workshop addressed current barriers and opportunities to advance emergency preparedness in nursing. "Globally... many are facing the challenge of identifying appropriate disaster nursing competencies and implementing effective education and training programs to prepare their nursing workforce" (Veenema et al., 2016, p. 188). In summary, this study concluded that hospital organizations need to support their nursing staff during disasters as well as adopting a framework that addresses standards of care during disasters and "establish a collective effort among nurse leaders to advance the practice of disaster nursing and public health emergency preparedness and response" (Veenema et al., 2016, p. 192). In another study by Helpurn (2012), multiple recommendations are given on how to prepare a hospital's organizational structure to allow for optimal patient flow during an MCI. This study takes into consideration what should be incorporated before an ED being built. With nursing leadership input, using the suggestions in this study can aid staff in being prepared for an MCI before the emergency department is ever built. This can include what materials should be used to build doors and walls and how the ambulance bay should be structured. This can also include how the emergency department is designed for entrances and exits during an MCI. This allows for ED flexibility with patient care areas that can be rapidly changed to accommodate large numbers of casualties (Helpurn, 2012).

Through multiple research articles and studies, the need for standardized protocols is greatly supported to provide the best possible care for patients during an MCI. Adequate training and preparing staff before an MCI is critical not only for patients involved but the safety of emergency personnel as well. Vigorous and multiple training are necessary for staff to feel prepared in all aspects of an MCI and it is now in the hands of nursing leaders to accomplish this difficult task at hand.

Theoretical Framework

Nurses entering the workforce, will generally follow a career path that will usually go along in some linear fashion when gaining knowledge. Upon completion of nursing school a student nurse will develop a sense of what field of nursing to enter upon graduation. Regardless of the field, the newly graduated nurse is still considered a "new grad" nurse. According to Benner, a nurse will advance in one's career and will transition through different stages of clinical competencies (NSW Health, 2011, p. 1). Patricia Benner's, Novice to Expert Theory, goes through five stages. Dr. Benner first introduced the Novice to Expert theory as a framework to consider for nurses to increase their knowledge and skills (Altman, 2007). Dr. Benner also wanted to explain the "required understanding of the differences between the experienced nurse and the novice." (Benner, 1982, pg. 402) In order to do this, she applied the Dreyfus Model of Skill Acquisition to the nursing profession which yielded the Novice to Expert Theory as a ground-breaking theory that would change the way teaching was done in nursing (Altman, 2007). The Dreyfus Model incorporated different characteristics which were made up of five different layers of expertise. Through observation, the Dreyfus Model described learning as situational based and usually which comes from experience. According to Benner, the parallels

of this model to nursing and the different layers from the Dreyfus Model can be applied to nursing.

Stages of Theory Novice Nurse

According to Benner's Theory, there are five levels of nursing experience. The first level is the novice nurse. The novice nurse is the beginner nurse that enters the clinical setting and has not gained any experience in most nursing situations. They must be supervised with "continual verbal and physical cues." (NSW Health, 2011, p. 1) With continued supervision over a prolonged period, they are taught general rules on how to perform tasks (Benner, 1982). Dr. Benner points out that these tasks have objective attributes such as obtaining a patient's weight, recording input and output, and vital signs. "Novice practitioners are also taught rules to guide action in respect to different attributes" (Benner, 1982, pg. 403). The novice nurse follows context-free rules regarding the patient status such as, if xy happens, you must do z. Dr. Benner also points out that the novice nurse, because of the lack of situational experience, does not prioritize which tasks should be done first and does not know when there can be an exception to the rule (Benner, 1982, p. 403). The novice nurse described by Dr. Benner would generally be the nursing student in a first clinical year with a "limited ability to predict what might happen in a particular patient situation" (Benner et al., 1997, p. 16DDD). According to Benner (1984, 2001) the novice nurse progresses and gains hands-on experience and then can transition into the next level of the theory.

Advanced Beginner Level

The second level of Dr. Benner's Theory is the advanced beginner. The novice nurse gains foundation and starts to experience different nursing situations, and will start to build a knowledge base. A nurse in this stage will have a general understanding of all basic skill sets

required for the job. The nurse will also have some past experiences which can be used to help in new situations that may arise in practice (Benner et al., 1997). According to Benner (1982) the nurse begins to formulate on principles that are based on experience to guide the nurse's actions. Although the advanced beginner can now apply their limited knowledge to real-life situations, they cannot differentiate the level of importance between varying tasks, therefore, treating all "attributes and aspects as equally important" (Benner, 1982, p. 404). The advanced beginner is typically the "new grad" nurse in which they have some knowledge and basic know-how (Field, 2004). According to Benner (1982), the advanced beginner nurse cannot be left completely unattended, so the critical patient needs are met by a more experienced nurse since the advanced beginner nurse is still unable to differentiate importance in most clinical situations.

Competent Level

The third level of the theory is the competent nurse. The competent nurse has a more structural foundation gained from two to three years of past experiences in the same field, that can be applied to practice. The nurse can gain a perspective from planning actions based on a conscious, abstract, and analytical thinking. This will help the nurse achieve greater efficiency and organization (Benner et al., 1997) In the competency stage, Dr. Benner notes that the competent nurse "begins to see his or her actions in terms of long-range goals or plans… and the goal or plan dictates which attribute and aspects of the current and contemplated future situation are to be considered most important and which can be ignored" (Benner, 1982, pg. 404). The competent nurse is now more confident in their abilities as a nurse and tends to no longer need any supporting cues (NSW Health, 2011, p. 1).

Proficient Level

The fourth level of the Novice to Expert Theory is the proficient nurse. “Proficient nurses understand a situation as a whole because they perceive its meaning in terms of long-term goals” (NSW Health, 2011, p.1). In this stage, the proficient nurse no longer sees bits and pieces of the puzzle, but the larger picture. “The holistic understanding of the proficient nurse improves his or her decision making. Decision making is now less labored since the nurse has the perspective about [what is important and what is not] (Benner, 1982, p. 405). A nurse can recognize changes in patterns and behaviors that aren’t typical in a given situation and can predict further outcomes based on those changes. According to Benner (1982), the proficient nurse can hone in on a specific problem and only needs to consider a few options as to what the plan will consist of during treatment of the patient (p. 405). Intuition is part of the nurse's practice as a proficient nurse which can be applied to past experiences and knowledge in all situations.

Expert Level

The fifth and final stage of Dr. Benner’s theory is the expert nurse. The expert nurse is the highest functioning nurse and “they no longer rely solely on rules to guide their actions under certain situations” (Gardner, 2011, p. 339). The nurse can differentiate between the most relevant and irrelevant problems and fully use intuition in most situations. “His/her performance becomes fluid and flexible and highly proficient” (NSW Health, 2011, p. 1). Dr. Benner notes it can often be difficult to explain how a nurse comes to the fifth and final stage of expert “because the expert operates from a deep understanding of the situation” (Benner, 1982, p. 405). Usually, when the expert nurse is asked why they made a certain clinical decision, they answer, “Because it felt right.” Dr. Benner (1982) explains that although the expert nurse cannot give a step by step of

their decision-making process, the expert nurse can describe what they "intended to accomplish and what the outcomes were" (p. 406).

Dr. Benner's Theory also describes what must happen for the nurse to go through each of the fore-mentioned stages of her theory. The expert nurse responds to the big picture (Gardner, 2011).

Relevance of Theory

Dr. Benner's Novice to Expert Theory has been a foundation for current practice and has allowed the nursing profession to understand the different stages nurses must go through in clinical practice. According to Welch, "Benner has asserted that there is valuable nursing knowledge embedded within nursing practice that accrues over time and through experience (2016, p.8). This theory describes the learning process for those in the nursing field, allowing educational and teaching methods to be based on the five stages of Patricia Benner's Novice to Expert Theory. The relevance to nursing today is critical for those teaching and guiding nurses so there is an understanding which stage of learning the nurse is currently in. For example, a preceptor in an emergency department must be able to recognize which stage a "student" is in to be able to determine what situations and knowledge should be disseminated during the orientation process. If the preceptor recognizes that the student is as an advanced beginner, then a plan may be developed to include more clinical experiences, compared to a precept which is a proficient nurse, who may have already experienced most situations in the ED. An additional application of Dr. Benner's Theory to current practice is the understanding of the expert nurse. This is important in developing the preceptor role (Dracup & Bryan-Brown, 2004). An example is of an instructor of an advanced beginner precept. This instructor can formulate guidelines for actions in terms of attributes and specific aspects of clinical situations and events (Benner, 1982).

In addition, leadership plays an important role in the assigning staff as a preceptor. Leadership is responsible and accountable for the selection of nurses that have reached the expert stage or nearing that competency level. Assigning a nurse at a lower level competency, such as, an advanced beginner nurse or even a competent nurse may set up a new nurse for failure from the beginning. This holds true as the advanced beginner or competent nurse is still developing knowledge and situational foundation for practice (Field, 2004).

Application of Theory to Project

Patricia Benner's, Novice to Expert Theory applies to my project mainly because the change being implemented directly correlates to the staff and the involvement in MCI's. As nurses progress through their career and go through multiple situations and experiences, the way they learn new information evolves and changes. The utilization of this theory will help me begin to understand each stage the staff in the ED is in to aid my teaching of the protocol. According to Dr. Benner's Theory, (1982) "most in-service education is aimed at the competent level [nurse]" (p 405). Having the knowledge that I should direct the teaching towards the competent nursing level is crucial to my project.

While interviewing staff before implementation of the protocol, I can gain insight on those who have had experience in these types of situations and enlist them to my aid. I will also be able to determine those who have had no clinical experience with MCI's and how easily they will be able to interpret the new protocols in place. This will allow me to figure out which staff members I may need to spend more time with during the teaching and implementation phase to make sure they are fully absorbing the knowledge I seek to disseminate. Benner's Novice to Expert Theory will also allow me to evaluate the implementation of the protocol by understanding which nurses feel comfortable with the new protocols and which nurses are not.

For example, the theory explains "proficient [nurses] are best taught by use of case studies where their ability to grasp the situation is solicited and taxed (Benner, 1982, p. 405). The theory will allow me to be able to recognize that the nurses in the lower stages may not feel as confident as those who have reached the higher stages in the theory. According to Altmann, (2007) that "both experience and mastery are necessary for a skill to be transformed to a higher-level skill. Dr. Benner believes that nurses develop and accrue, global sets and paradigms about patients" (p. 115). By providing experience to the staff with the teaching and implementation of a protocol, it will allow them the skill set to be mastered and be able to apply the knowledge in a real-life situation.

Benner's Novice to Expert Theory "has been extensively used in the development of beginning level through advanced level clinical competencies for newly graduated and specialist nurses" (Daly & Jackson, 1999, p. 344). The Novice to Expert Theory has been used throughout the nursing profession for many years and applying it in the setting of education and implementing new knowledge on staff is exactly how it should be utilized.

Project Plan

To determine if an intervention should become standard practice through evidence based research, a project design should be implemented (Moran, Burson & Conrad, 2017). The overall purpose of this project plan is to improve the formal leadership's support of frontline staff in the event of an MCI following the development and implementation of an evidence based protocol in the ED. Since this project is focused on gaining the formal leadership's support of a MCI protocol and developing and implementing a protocol that will be used in the ED, the most appropriate design for this project is change management. Change management can come in many different ways and can either lead to positive or negative outcomes. For change to occur

and for that change to be successful, the leadership team should follow certain guidelines for implementing change into their department. Prosci's Change Management Process is a methodology that was "developed based on research with over 3,400 participants over the last twenty years" (Prosci Firm, 2017). Prosci's Change Management Process has three simple phases that can help a leadership team be successful in implementing change. Prosci (2017) explains that change management must consist of both the individuals and the organizations perspective on change. While the organization can change, the change is only as good as each individual that changes within the organization. The goal for the leadership team is to understand how each individual can make a successful change and put that into action (Prosci Firm, 2017). The three phases that Prosci's Change Management Process include, preparing for change, managing change, and reinforcing change.

Preparing for Change

In the first phase of Prosci's Change Management, the main question is how much preparation is needed to implement successful change? This phase requires the leadership team to assess how critical the change that is needed and why, how much resistance from their employees they may receive, and how much support the employees will need to successfully implement the change (Prosci Firm, 2017). "The starting point for successful change and transition is explaining the need for change and why it will help, not hinder, the organization" (Yousey, 2011, p. 4). Employees will be less resistance to change when they understand the why behind the change.

Managing Change

In the second phase, developing a step by step plan that will assist in integrating the change project. The plan should consist of:

1. A communication plan that articulates the key messages of the required change.
2. A sponsor roadmap that shows the employees when and how the leadership team will be available.
3. A training program that will provide the knowledge and ability for the employees to work in a new way
4. A resistance management plan that can address any type of resistance that may occur

By following these key concepts, the leadership team can effectively implement change in their department and allow for employees and management embrace the new culture.

Reinforcing Change

The third and final stage is for the leadership team to ensure the change is being sustained (Prosci Firm, 2017). This requires the project team to develop measurements that will be able to track if the project change is being utilized by the employees. It also includes a corrective action plan if the changes aren't being implemented as they should be. This phase also includes recognition of employees who are embracing the change. "Employees need to experience success in the new operating approach over time in order to believe that it works and embrace the change as permanent" (Yousey, 2011, p. 1).

A pre- and post-questionnaire that will consist of the Quality Improvement Implementation questionnaire developed by Dr. Shortell et al., (1995) will be utilized to collect demographic information and to evaluate the ED frontline staff preparedness and the frontline leadership's engagement present before and after the implementation of the MCI protocol. Permission from the Dr. Shortell was obtained (see Appendix E). Data for this project will be collected provided through survey monkey to provide anonymity for those participating. Each participant will be given a random code to enter at the beginning of the questionnaire so the pre-

and post-test can be matched to the same participant. Once results are obtained from both questionnaires, a Wilcoxon signed rank test will be ran to analyze the data and determine if there was a change in the participant's knowledge and attitudes after the training of the MCI protocol.

Population of Interest and Stakeholders

The population of interest for this project is the formal leadership team and the ED frontline staff employed at an ED in a large 200 bed urban hospital with a 40 bed Emergency Department in Northern California. The formal leadership team will consist of all nursing supervisors, the ED nurse manager, the ED director, and the ED Nurse Educators. A description of the ED frontline staff will include age, sex, and job experience. The population will demonstrate a wide variety of generations and diverse backgrounds. According to a study conducted by Rivera and Char (2004), the staff that are most effected by MCI's are the nurses and providers that work in the ED. The knowledge and attitudes of the ED staff are the driving force behind this project and according to the study conducted, are the ones who report not being adequately prepared or knowledgeable in the event an MCI were to occur. Inclusion criteria for this project include all ED technicians, nurses, and providers who are currently working in the ED and the formal leadership team. The questionnaires will include questions regarding prior trauma experience, numbers of years in the field as well as education level so that these variables can be accounted for in the final data analysis. This project will not have any exclusion criteria, as the project intends to implement the MCI protocol in the entire ED and train all ED staff members.

Stakeholders for this project are the hospital administrators. The hospital administrators are the key stakeholders as they will be able to justify reasons why they should require more funds to aid in the implementation of a standardized MCI protocol for their facility if the study

shows to be successful. This could further allow for recognition and designation of the hospital at the local and federal levels. Rapport will be established with all stake holders by being present on site as needed to answer any questions as well as schedule any necessary informational meetings with the Hospital Administration. Other stakeholders include other hospitals and ED's that don not currently have an MCI protocol in place.

Setting

The setting in which the DNP project is to take place in an ED in a large 200 bed urban hospital with a 40 bed Emergency Department in Northern California. It is important for all ED's to have an MCI protocol in place because in the event of an MCI, emergency personal are the first responders and need to have a formal process in place to ensure proper care and resources are in place in the event of an MCI. Verbal permission and written consent to implement the project has been obtained by the ED Director and the hospital administration.

Recruitment Process

The DNP project requires active participation from both formal leadership and the ED frontline staff as leadership engagement and staff participation is needed. A one on one meeting with formal leadership occurred to present the individual development planning template and an overview of the process of this project in developing and implementing an MCI protocol in the ED.

An incentive to participate was offered to ED frontline staff. Participants were able to use their participation in the MCI training as part of professional development. The participants were assured of their safety, confidentiality, and privacy of their individual results of the pre- and post-questionnaires. The recruitment process included an informational meeting regarding the project and its description in full. Once a majority of employees were informed of the project, flyers

were posted in the ED's breakroom, locker room, charge nurse desk and the management office on how to participate in the project. The flyer had a random code for the participant to take and be entered in the questionnaire to match their pre- and post-questionnaire results. Once enough participants completed the pre-questionnaire, the protocol was implemented by the DNP student. This required the assistance of the ED management team and the nursing educators to assist in providing the tools needed for the training (i.e., computers, training room, projecter, etc.).

Tools/Instruments

The tool that was used for this project was the Quality Improvement Implementation Questionnaire developed by Shortell et al., (1995) which uses a 5 point Likert scale (Appendix F). The Likert Scale was created in 1932 by Rensis Likert and is commonly used in medical education and assessing if a medical intervention was successful (Sullivan and Artino, 2013). He created the Likert Scale to be able to analyze the participants attitudes towards a subject on an ordinal scale instead of the researcher having to judge the participants individually (Balasubramanian, 2012). For this project, the areas of focus included the formal leadership's support of the ED frontline after implementation of an MCI protocol. Currently, the Likert Scale is the most used tool in measuring attitudes and perceptions due to the fact of the scales practicability, adaptability and good reliability (Hodge, 2003). Another article suggests that a higher number of items in each section being studied allows for the Likert Scale to be more reliable in which the lower number of items can tend to skew the scale's results (Munshi, 2014). The Quality Improvement Implementation questionnaire was designed to incorporate the Malcolm Baldrige National Quality Award Criteria and incorporates six scales to provide "good coverage of many of the various aspects of QI implementation" (School of Public Health, UCB, 1992, p. 14). The six scales consist of:

1. Leadership
2. Quality Management
3. Information and Analysis
4. Quality Results
5. Employee Quality Training
6. Employee Quality Planning improvement

The Cronbach alpha reliabilities of the scales were: leadership (a= .93); information and analysis (a= .86); human resources utilization-empowerment (a= .80); human resources utilization-education and training (a= .79); strategic quality planning (a= .8) and quality management (a= .85). Given the high average correlation among the six scales (r= .76) an overall quality improvement implementation measure was computed based on averaging across the six scales (Shortell et al., 1995)

By asking the questions in the scales listed above, it allowed the DNP student to determine if the project outcomes were met by determining if the ED frontline staff were more prepared and the engagement of the leadership team increased after the protocol implementation into the ED.

The presentation materials included the protocol that will be a part of the teaching as well as a power point slide that addressed each area of the protocol.

Data Collection Procedures

The data for the questionnaires was collected from survey monkey and distributed into an excel sheet and a code book was developed. Once the code book was developed and all results from the questionnaire were entered, the coded responses were run through a statistical analysis software. To provide for participant anonymity and confidentiality, each participant entered the

code they took from the flyer and entered it into the questionnaire. By providing a random code and allowing the participants to take the code without the researcher present allowed for confidentiality (Virginia Tech IRB, 2012). The DNP student was not able to associate the code entered to the participant at any point during the study to maintain unbiased results. Access to the questionnaire results remained solely with the DNP student to maintain participant confidentiality. During the training, participants were asked to sign in using their code obtained from the flyer and were not required to give any personal information. At the end of the training aspect of the protocol, participants were instructed to dispose of the code they took from the flyer after the post-questionnaire was completed. The same data collection procedure for the post-questionnaires responses was done, a code book was developed and entered into a statistical analysis software. Once all data was collected and deemed reliable, a Wilcoxon Signed Rank Test was performed to compare the pre-and post-questionnaire results to determine if the intervention met the objectives of this project. The Wilcoxon Signed Rank Test "is designed for use with repeated measures when your participants are measured on two occasions or under two different conditions" (Pallant, 2016). The project meets this testing criteria by measuring the participants prior to and after the teaching of the MCI protocol.

Project Timeline

Design and planning for the project started at the beginning of the DNP program and has taken place over the course of the last five months. Verbal and written approval to implement the project has been obtained. The project timeline started when the DNP student mets formally with the leadership team in the ED to discuss the Prosci Change Management Process. This took place over three 4 hour sessions to teach the Prosci Change Management Process. The first step of the Prosci Management Process is preparing for change (Prosci Firm, 2017). The assessment of the

ED staff by the leadership team took one, four-hour meeting with the leadership team to determine the resistance that may be received from staff as well as how much support will be needed for the staff during and after implementation of the protocol. This timeframe will also include the informational meetings with the ED staff to describe the project in full detail. Once the staff were aware of the project, flyers with individual codes were posted throughout the department for recruitment purposes. The project team left flyers up for two weeks to obtain enough participants for the sample size of 33 which was determined by how many pre-questionnaires have been completed through the survey monkey created. Once enough participants were recruited, the training of the protocol through a short informational PowerPoint and a mock code training took place. Dependent on how many participants commit to the project and what shifts they currently work, three training sessions took place to accommodate as many participants as possible. Each training session required at least one MD, two RN's, and two ED technicians. Each training session took approximately four hours, half an hour for power-point presentation, and approximately three and half hours for mock-code of the MCI protocol and a half an hour for debriefing post mock code training. The participants ran through the mock codes twice. During and after training sessions were completed, the leadership and project team were available for any questions, comments, and concerns regarding the protocol and the implementation (the second phase of Prosci's change management). The participants were instructed on how to reach any and all team leaders to discuss the project over a two-week period. The participants were then asked to complete the post-questionnaire with the code they received from the flyer two weeks after training. The goal was to obtain at least an 85% response rate over a two-week period. Once that was met, data collection from the pre- and post-

questionnaires was collected. Once the analysis was complete, data evaluation was done and presented to the leadership team.

Ethics/Human Subjects Protection

The project intervention plan will be submitted to the hospital's and University's Institutional Review Board (IRB). Per IRB guidelines, the project meets exempt status because the activity involves no more than a minimal risk to the ED staff because they are voluntarily participating in the training of the MCI protocol (HHS, 2016) and a waiver of consent for the ED staff participation will be collected (Appendix C). The DNP student has requested the university's IRB approval dissemination of the project findings. Privacy for participants will be sustained as no identifying criteria will be collected. Each participant will have a unique code for data collection purposes only. By providing a random code and allowing the participant to take the code without the researcher present will allow for confidentiality (Virginia Tech IRB, 2012). All data collected will be stored in an encrypted file, and only the project team will have access to the data. The participants will be notified that they have the right to stop participation in the project at any time. Benefits to the staff for participation in the training will include enhancing their clinical knowledge of MCIs. Minimal risk to participants is noted since it is a voluntary learning activity and may include but not limited to personal injury while participating in mock-code and due to the group nature of the training sessions, confidentiality may be compromised if staff know each other. Compensation will include a bottled water and snack during training sessions for participants.

Plan for Analysis and Evaluation

Upon completion of the DNP project, the results from the pre- and post-questionnaires were logged into a data code book. The demographic, education, job title, and past job

experience (i.e. trauma center and past participation in mock codes) were re-coded into numerical values as these are closed-ended questions and can easily be converted (Pallant, 2016). The codebook was completed in an excel spreadsheet which was uploaded into SPSS statistical software 25th edition for analysis. Once all data was uploaded into the software, the variables of the questionnaire were entered. Once all variables were defined, data entry occurred. Editing of data then took place to account for missing data or incorrect data entry. Verifying any errors in the data collected is critical to obtaining correct results as "sampling errors may greatly influence validation data, cause incorrect judgments, influence trending, add variation, and otherwise significantly affect data accuracy and precision" (Smith, 2011, p. 81). This included verifying minimum and maximum variables, as well as checking for valid and missing cases. Once all errors were fixed, descriptive statistic preliminary analysis was conducted. Due to the initial small sample size, a non-parametric analysis was conducted. Since the same group of participants were being analyzed on two separate occasions (pre-and post- training sessions), a Wilcoxon Signed Rank Test was performed and is the non-parametric alternative to the repeated measures t-test (Pallant, 2016). Assumptions with non-parametric testing are the participants all have an equal chance of participation, and each participant will only be observed and coded once. With this test, the Z-value and the associated significance levels are the results of interest. In conclusion, the results of statistically significant value and the significant level value indicated a result of equal to or less than .05. The effect size will take the computed z-value and divide it by the square root of N (total number of participants with all valid data), using Cohen's criteria of .1 = small effect, .3 = medium effect, .5 = large effect (Pallant, 2016).

Significance and Implications for Nursing

This project can have great significance for nursing in the ED. The success of this project is evident in its stated objectives and nursing leadership would be able to enhance the support system of staff when implementing change. In addition, the implementation of a standardized protocol for MCIs in the ED would allow for better preparation of ED staff in the event an MCI were to occur. As stated by Veneema et al., (2016), responses to public health emergencies and large-scale disasters are dependent on the effectiveness and capacity of the nursing staff. When staff is adequately trained, had prior participation in disaster drills, and felt supported by the formal leadership team, they feel better prepared to handle incidents on a larger scale (Haney, 1996). According to Wilkinson (2015), increasing the staff's knowledge and skills will also increase the staff's willingness to report to work in the event of an MCI. With the current literature supporting this project, the outcomes from this project can prove to enhance emergency prepared nursing on a large scale. Improving leadership's involvement and support of staff in the event of an MCI can also have significant implications as it will allow for a smooth transition of care in a time of chaos.

The results of this DNP project can also have a great significance when using Prosci's Change Management. With the success of increasing support for staff, the leadership team can use Prosci's Change Management process for further project implementations.

Utilizing Benner's Novice to Expert Theory will be useful in creating the training sessions for the staff at the competent level (Benner, 1982). Benner's Theory will also assist in the analysis of the results by accounting for variables such as those participants who have had more experience in a trauma center as well as previous participation in mock-drill/training. Research conducted by Ogedegbe, Nyirenda, Delmoro, Yamin, & Feldman, (2012) states that the

more a provider takes place in mock drills and training, the more they feel prepared and supported. The participants in this DNP project who have more experience and exposure may skew results by not showing an increase in support of leadership and preparation as they already have experience.

Analysis

This project was aimed at increasing the leadership team's support of the frontline staff through implementation of a protocol that addressed MCI's in the ED. The project team used Prosci's Change Management Process to guide the leadership team through the protocol implementation. The protocol was developed with assistance from content experts and three mock codes were scheduled with the frontline staff. A total of 33 participants completed the pre-questionnaire which was a prerequisite for participation in the mock codes. The participants were equally divided into three different sessions of the mock codes by their job title. Each session had two MDs except for one session had one, one ED tech except for one session had two, and eight nurses. After the mock code was finished, each participant was asked to fill out the questionnaire again based on how they felt about the support of the leadership team during the implementation of the MCI protocol into the ED. Of the 33 participants that completed the questionnaire and participated in the mock codes, 31 total responses were used. Two of the participants did not complete the post-questionnaire by the deadline given by the project team. The participants were asked to use the number listed on the tear off portion of the flyer to allow for the questionnaire data to be compared. Once the post-questionnaires were completed by a majority of the participants, data extraction began. The data was exported from the survey monkey website into an excel spreadsheet. The excel spreadsheets were then compared to make sure all pre- and post-questionnaire demographics matched based on the number each participant entered as their

identifying code. The spreadsheets were then reviewed extensively to ensure no missing data or outliers were present.

Data from the excel spreadsheets was uploaded into SPSS 25 statistical software for data analysis. Descriptive statistics were conducted to assess the participants demographic information. See Appendix A, tables 1-5 for demographic information. Normality was assessed and based on Kolmogorov-Smirnov, std. deviation value of more than 0.05 indicates normality. This is presented in Appendix A, table 6. Once normality was assessed and confirmed, a Wilcoxon signed rank test was performed to compare the participant's responses to the questionnaire prior to and after the mock codes with leadership involvement. The two outputs of this test that the project team is interested in are the Z value and the associated significance levels, presented as Asymp. Sig (2-tailed). "If the significance level is equal to or less than .05 (e.g. .04, .01, .001), you can conclude that the difference between the two scores is statistically significant (Pallant, 2016)." The Z value is used to determine the effect size (also known as the strength of association) by dividing the z-score by the square root of N. This calculation uses the Cohen criteria of .1 = small effect, .3 = medium effect, .5 = large effect (Pallant, 2016). The larger the effect size, the better strength of association.

The questionnaire the project team used was made up of six subscales which all assessed a different aspect of quality improvement. The six subscales were measured pre- (before protocol implementation) and post- (after mock code and leadership involvement) to determine if there was a significant change in scores (see Appendix A, table 7 and 8). The scores for all six subscales were then added up and compared (see Appendix A, table 8). A Wilcoxon Signed Rank Test revealed a statistically significant improvement of quality after the implementation of the protocol. The leadership subscale measured the extent to which the senior management's

personal leadership and involvement are evaluated. This subscale had a sig value of .002 with a z-score of -3.172. Based on Cohen's criteria, r=.401, giving it a large effect size. The human resource utilization subscale measures how much training and education the employees are given for quality improvement efforts. This subscale had a sig value of .003 with a z-score of -2.994, r=.38 giving it a medium effect size. The information and analysis describes the scope, management, and use of data and how it drives quality excellence and improves operational and competitive performance. This subscale had a sig value of .022 with a z-score of -2.293, r=.29 giving it a small effect size. The strategic quality planning subscale describes the extent to which the employees are involved in the quality planning efforts and this had a sig value of .000, z-score of -3.655, r=.464, giving it a medium effect size. The quality management subscale describes the work unit and its overall contribution to quality and operational performance requirement. This subscale had a sig value of .002, z-score of -3.135, r=.398 giving it a medium effect size. The quality results subscale describes how much the hospital has shown improvement in quality, performance and supplier quality. This subscale had a sig value of .272 with a z-score of -1.099, r=.14 giving it a small effect size. The quality results subscale is the only scale which showed to have no significant change in scores. When all subscales were added together, a Wilcoxon Signed Rank Test revealed a sig value of .000, a z-score of -3.652, r= .464 giving it a medium effect size. With a statistical significant improvement of all subscales, a conclusion can be made that with the Prosci's Change Management system in place during implementation of new protocols, staff can feel better supported, and in turn can be more prepared.

When all subscales were added together and compared based on the participants job descriptions, it showed a positive correlation with their responses from before to after implementation. The greatest increase of improvement shown was for staff RN II who have 6+

months experience. The smallest increase was of Staff RN IIIs (see Appendix B, figure 1). When experience in a trauma center was compared, the participants who had no prior trauma experience answered more positively after project implementation (see Appendix B, figure 3).

Discussion and Significance

The impact of change management is of great importance. In all hospital settings, change can be a difficult process and how change is managed can be the difference between success and failure. The healthcare industry is forever changing and hospital staff, whether it is ancillary staff, technicians, nurses, or doctors must be able to adapt to these changes. However, "most people prefer predictability and stability in their personal and professional lives (Tamilarasu, 2012, p. 28)." This is where those in leadership roles comes in to help their team adapt to whatever changes are presented. The DNP project team used Prosci's Change Management Process for the leadership team to help their ED staff adapt to a new protocol implementation in the ED. The importance of adding and changing policies and protocols is critical for departments to stay up to date with the current research. The literature review section outlined the importance of ED and frontline staff being prepared in the case of an MCI. A protocol was developed and implemented into the ED and the findings presented indicate that with a change management methodology in place, staff can embrace change and feel supported by the leadership team. All groups of participants showed a positive increase of quality and support of the leadership team. Most significantly, the staff RN IIs showed the most positive increase in their responses. The project team used Patricia's Benner's Novice to Expert theory to develop the protocol and mock code teaching portion and literature supports that changes should be geared towards those at the competent level (Benner, 1982). This may account for the most positive increase in the staff RN II responses. The smallest increase of positive responses was of the RN IIIs. This can possibly be

the result of their previous experience and if they have gone through these types of changes before. This is also supported by the differences of positive responses of those with different educational levels (see Appendix B, figure 2). The participants with the largest increase were those with the least amount of education level, which is then followed by the highest educational level. Those that graduated college and those with some graduate level education had similar levels of increased positive responses. These results may indicate the participants that are most responsive to change are those who have the least amount of education. With more experience and education, healthcare providers can become complacent and more resistant to change. Fragar and Depczynski (2011) claim it can be worse for the older generations because they have been through multiple changes and when their expertise and knowledge of change management is not sought after or valued, it can be difficult to get them on board (p. 6). Nurses often feel like change is forced on them (Bowers, 2011, p. 19), so through this project, the leadership team was able to use the staff's input prior to implementation of the protocol. The significance of this project showed that with specific process in place, staff can feel more supported by the leadership team.

Limitations

The limitations to this project include small sample size, time constraints, and participant demographics. Recruitment of the participants was limited to one hospital therefore not allowing for multiple participants from multiple facilities. Limitation to time was also a factor. Since there was time a limit during the recruitment process. This could have contributed to how many participants would have signed up. Timing after the implementation of the protocol was limited to two weeks and if a longer time schedule was allowed for leadership, participants may have felt more supported. Scheduling of the mock codes for the project also limited the participant size as

those who participated had to make sure they were able to be off of work during their assigned mock code date. Another limitation was this project was held in a single department, the Emergency Department. In order for the project results to be disseminated throughout other departments, Prosci's Change Management process should be used in other departments to determine if change management is as feasible as it was in the ED. Subject limitations may include previous experience in other areas of healthcare and if the participants worked in different departments or had taken part in other disaster like drills. Other limitations may include environment of the mock codes and staff involvement in the codes. If the staff did not feel comfortable participating in the codes or felt that other staff were not participating, this may affect their participation in the project and change their perceptions of leadership.

Dissemination

Through a collaborative effort with my project mentor and the leadership team in the ED, the results of this project will be presented to the hospital administration for further dissemination. A meeting with key stake holders will be held and a request will be made to present the project to other departments through the hospital's newsletter. A manuscript of the project will be created to highlight the project's plan, objectives, results and discussion. The DNP student will also request to present the project results during the monthly quality meeting to the management teams in all departments throughout the hospital. A poster presentation will be created to be displayed in the ED to reach the participants of the project. This will also allow other department staff to view the project in full.

The results of this project support the need for a change management process to be in place when new policies and protocols are developed and implemented. Prosci's Change Management Process proved to be successful by increasing the staff participant perceptions of

the quality of leadership skills during the project timeline. Through the hospital newsletter, the targeted population of the hospital staff will be reached. The leadership teams in other departments can use the results of this project to sustain the project of implementing a change management process to increase their leadership skills during change in their departments.

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Appendix A

Table 1

Descriptive Statistics: Current job description in the ED

Which of the following best describes your current job description in the ED?					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	2 (Staff RN II)	11	35.5	35.5	35.5
	3 (Staff RN III)	5	16.1	16.1	51.6
	4 (Staff RN IV)	6	19.4	19.4	71.0
	5 (ED Tech)	4	12.9	12.9	83.9
	6 (Provider)	5	16.1	16.1	100.0
	Total	31	100.0	100.0	

This table depicts the population sample of the participants of this study.

Table 2

Descriptive statistics: Highest level of education

What is the highest level of education you have completed?					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	2 (2 years college)	2	6.5	6.5	6.5
	3 (3 years college)	2	6.5	6.5	12.9
	5 (graduated college)	15	48.4	48.4	61.3
	6 (some graduate school)	5	16.1	16.1	77.4
	7 (completed grad school)	7	22.6	22.6	100.0
	Total	31	100.0	100.0	

Note: Table 2 depicts the highest level of education the participants completed.

Table 3

Descriptive Statistics: Years of Experience

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
About how long have you been in your current position?	31	0	30	9.26	7.958
Valid N (listwise)	31				

Note: This table depicts the years of experience of the participants.

Table 4:

Descriptive Statistics: Trauma experience

Have you worked in a Trauma Center either now or in the past?					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	1 (yes)	25	80.6	80.6	80.6
	2 (no)	6	19.4	19.4	100.0
	Total	31	100.0	100.0	

Note: This table depicts if the participants have Trauma ED experience

Table 5:

Descriptive Statistics: How much trauma experience

If yes to Question 4, how long?					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	1 (0-6 months)	7	22.6	22.6	22.6
	3 (1-5 years)	5	16.1	16.1	38.7
	4 (5+ years)	19	61.3	61.3	100.0
	Total	31	100.0	100.0	

Note: This table asks how many years of trauma experience. If a participant stated no, a 1 value was given.

Table 6:

Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
total leadership	.130	31	.196	.960	31	.286
total info and analysis	.130	31	.197	.939	31	.078
total strategic quality planning	.137	31	.146	.938	31	.071
total human resource utlization	.085	31	.200*	.979	31	.771
total quality management	.165	31	.031	.801	31	.000
total quality results	.133	31	.175	.941	31	.091
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Table 7 & 8:

Wilcoxon Signed Rank Test

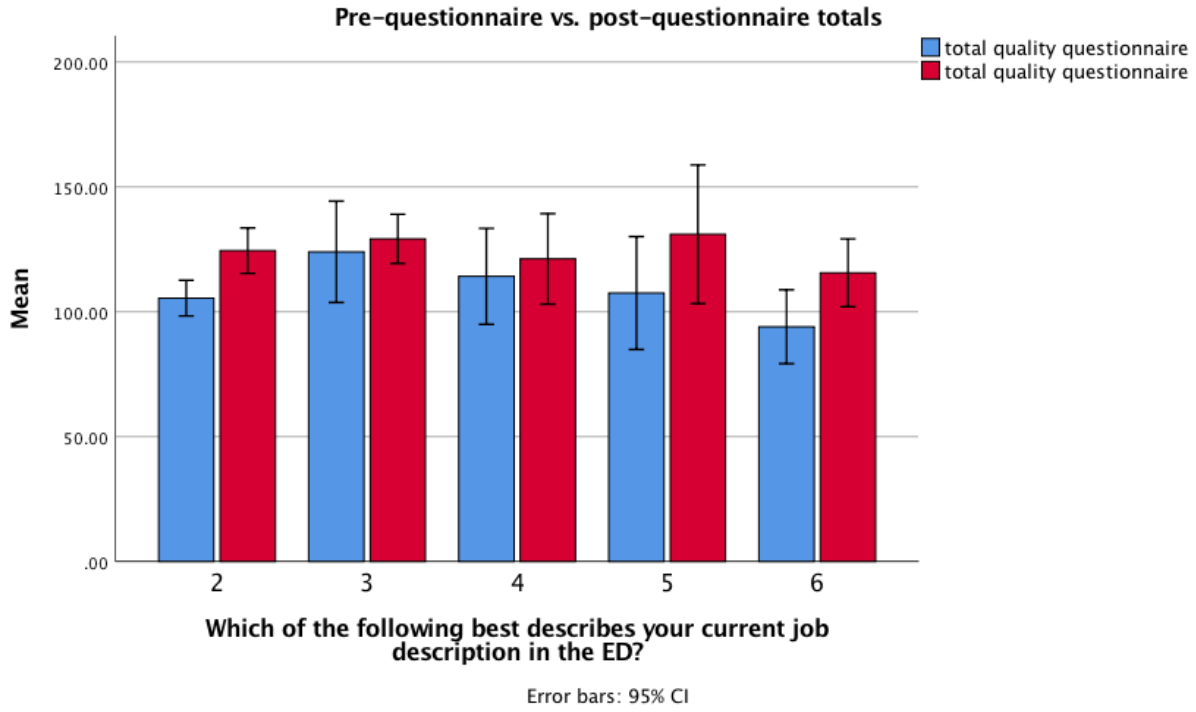
Test Statistics[a]				
	Leadership	Human Resource Utilization	Information and Analysis	Strategic Quality Planning
Z	-3.172[b]	-2.944[b]	-2.293[b]	-3.655[b]
Asymp. Sig. (2-tailed)	.002	.003	.022	.000
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				

Test Statistics[a]			
	Quality Management	*Quality Results*	*Quality Questionnaire*
Z	*-3.135[b]*	*-1.099[b]*	*-3.652[b]*
Asymp. Sig. (2-tailed)	*.002*	*.272*	*.000*
a. Wilcoxon Signed Ranks Test			
b. Based on negative ranks.			

Appendix B

Figure 1

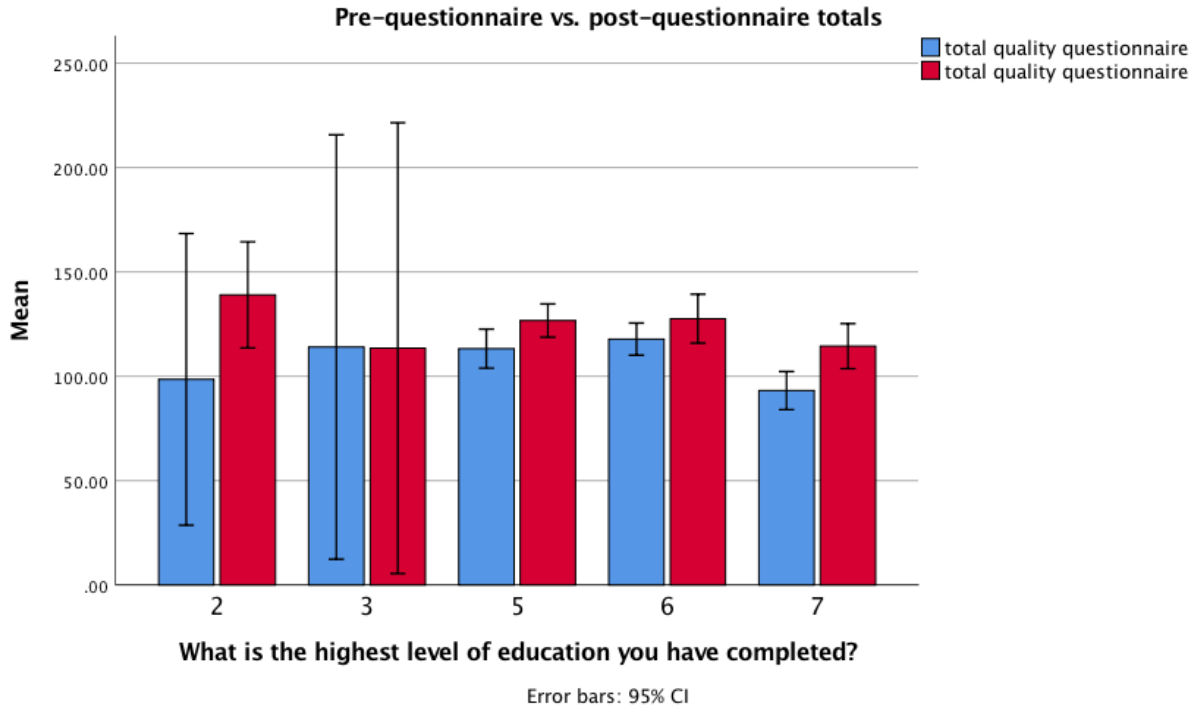
Job description



Note: This figure depicts the participants responses based on their job descriptions. The blue bar is pre-protocol code answers and the red bar is post- protocol implementation. Job descriptions are as follows. 2=staff RN II (6+months of experience), 3=staff RN III, 4=Staff RN IV, 5=ED tech, 6=provider.

Figure 2

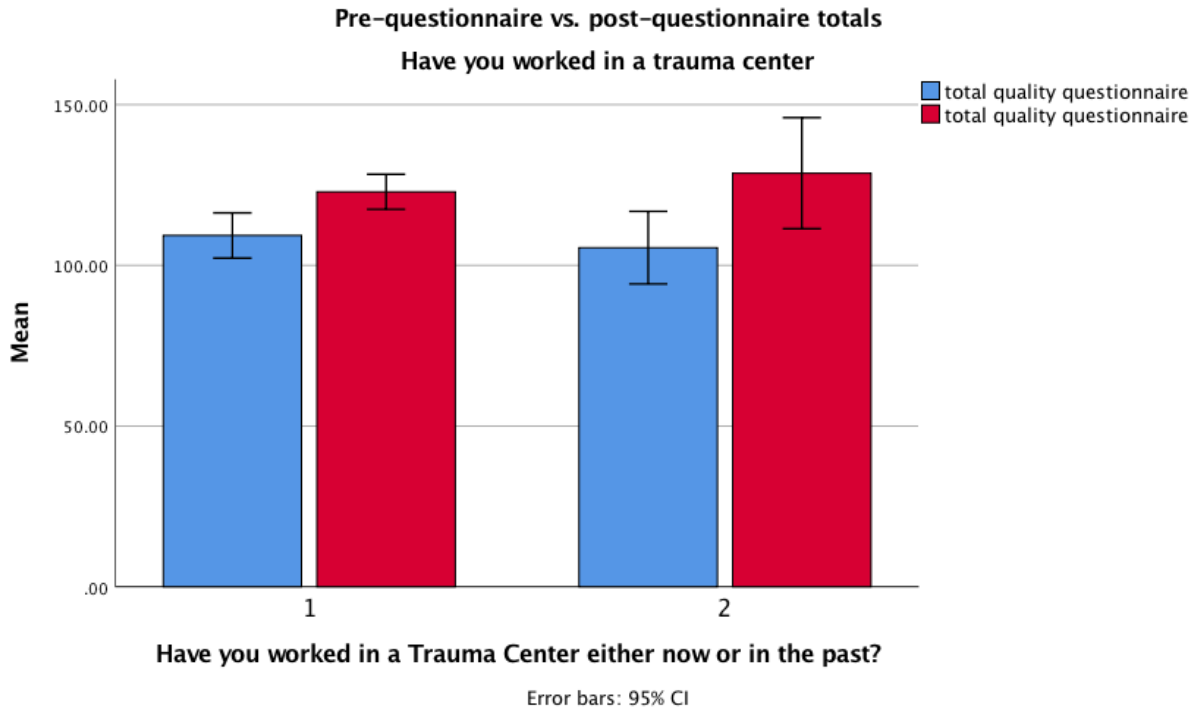
Education level



Note: This figure depicts the participants responses based on highest level of education. The blue bar is pre-protocol code answers and the red bar is post- protocol implementation answer. Education levels are: 2= 1 years of college, 3= 2 years of college, 5=graduated college, 6=some graduate school, 7=completed graduate school. Not shown are 1=graduated high school, and 4=3 years of college.

Figure 3

Trauma center experience



Note: This figure depicts participant responses based on their experience in a trauma center. The blue bar is pre-protocol code answers and the red bar is post- protocol implementation. Job descriptions are as follows. 1=yes, 2=no.

Appendix C

Consent for Participation in implementation of MCI protocol and mock code

I volunteer to participate in a research project conducted by Joshua Khoshsefat from Touro University. I understand that the project is designed to gather information regarding the leadership team support of its staff during the implementation of an MCI protocol in the ED and a mock code of the protocol will be conducted.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, no one on my campus will be told.
2. I understand that most participants will find the project interesting, but, if I feel uncomfortable in any way during the mock code, I have the right to stop participation right there.
3. Participation involves filling out a questionnaire prior to mock code implementation, participation in a mock code of the new protocol, and filling out a questionnaire after the completion of the mock code. The mock code will be approximately 4 hours and I have the option to participate in a repeat drill.
4. I understand that the researcher will not identify me by name in any reports using information obtained from the questionnaires, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
5. I understand that this research study has been reviewed and approved by the Institutional Review Board (IRB) for Studies Involving Human Subjects. For research problems or questions regarding subjects, the Institutional Review Board may be contacted through Dr. Judith Pinkston-Carrion at Touro University.

6. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

7. I have been given a copy of this consent form.

_____ My Signature

_____ The number on the flyer

For further information, please contact:

Joshua Khoshsefat, RN, FNP

July 1, 2017 Date

_____ Signature of the Investigator

Appendix D

MCI Quality Improvement Project

Would you like to enhance your MCI preparedness through a quality improvement project?

Participation is voluntary and will include participation in a mock MCI drill and participation in a pre- and post-questionnaire.

Mock Codes to be held 3/14/17, 3/16/17, and 3/18/17 from 8am-12pm. Please arrive at 7:45 to check in:

If you'd like to participate, please tear off your individualized code on the right side of this flyer, and fill out the pre-mock drill questionnaire.

Please contact Joshua Khoshsefat (916) 752-1535 with any questions.

https://www.surveymonkey.com/r/qualityimprovementprojectJK 01

https://www.surveymonkey.com/r/qualityimprovementprojectJK 02

https://www.surveymonkey.com/r/qualityimprovementprojectJK 03

https://www.surveymonkey.com/r/qualityimprovementprojectJK 04

https://www.surveymonkey.com/r/qualityimprovementprojectJK 05

https://www.surveymonkey.com/r/qualityimprovementprojectJK 06

https://www.surveymonkey.com/r/qualityimprovementprojectJK 07

https://www.surveymonkey.com/r/qualityimprovementprojectJK 08

https://www.surveymonkey.com/r/qualityimprovementprojectJK 09

https://www.surveymonkey.com/r/qualityimprovementprojectJK 10

https://www.surveymonkey.com/r/qualityimprovementprojectJK 11

https://www.surveymonkey.com/r/qualityimprovementprojectJK 12

https://www.surveymonkey.com/r/qualityimprovementprojectJK 13

https://www.surveymonkey.com/r/qualityimprovementprojectJK 14

Appendix E

Touro University Nevada

Joshua Khoshsefat
<dnp17c.joshua.khoshsefat@nv.touro.edu>

Permission to use QI implementation tool

3 messages

Joshua Khoshsefat <dnp17c.joshua.khoshsefat@nv.touro.edu> To: shortell@berkeley.edu Cc: khoshsefat <jkhoshsefat@yahoo.com>

To Dr. Shortell,

Tue, Apr 4, 2017 at 9:50 AM

My name is Joshua Khoshsefat, and I am currently attending Touro University Nevada to obtain my DNP degree. As a part of my Capstone Project, I am requesting your permission to use the QI implementation tool to distribute to the participants in my project to determine if implementation of an EBP protocol was successful.

Please let me know if there any questions or concerns. Thank you Joshua

Stephen SHORTELL <shortell@berkeley.edu> To: Joshua Khoshsefat <dnp17c.joshua.khoshsefat@nv.touro.edu> Cc: khoshsefat <jkhoshsefat@yahoo.com>

Hi Joshua

Tue, Apr 4, 2017 at 3:40 PM

You have my permission to use as long as it is appropriately cited of course in you capstone project.

Best

Steve

[Quoted text hidden] -- Stephen M. Shortell, PhD, MBA, MPH Blue Cross of California Distinguished Professor of Health Policy and Management Director, Center for Healthcare Organizational and Innovation Research (CHOIR) Dean Emeritus, School of Public Health Professor of Organization Behavior, Haas School of Business UC-Berkeley

"Healthy Lives In A Safer World"

Joshua Khoshsefat <dnp17c.joshua.khoshsefat@nv.touro.edu> To: Stephen SHORTELL <shortell@berkeley.edu> Cc: khoshsefat <jkhoshsefat@yahoo.com>

Hello!

Thank you!! Will do!

Joshua [Quoted text hidden]

Tue, Apr 4, 2017 at 7:15 PM

Appendix F

INSTRUCTIONS

In this section you are asked to assess your hospital's efforts to improve the quality of care and services it provides. Please read each statement carefully. Indicate the extent to which you agree or disagree that the statement characterizes your hospital by circling the appropriate response (1 = Strongly Disagree, 5 = Strongly Agree). In answering the questions, you should think about what the hospital is **actually like now**, not how you think it might be in the future or how you might wish it to be.

RESPONSE CATEGORIES

In circling a response, please keep in mind the following general guidelines regarding the choices of response categories. You should circle **Strongly Agree** when, for example, the statement represents a completely accurate description of your hospital. You should circle **Strongly Disagree** when the description is completely inaccurate.

The response **Neither Agree Nor Disagree** should be circled when, based upon your experience, you believe the statement is neither a particularly accurate nor a particularly inaccurate description of your hospital. This situation may arise because there is wide variation in the activities the statement describes. For example, you might circle neither agree nor disagree when the statement is true of some departments but not of others. If you do not have enough information to answer a question, please circle "**Don't Know**."

GLOSSARY/SPECIAL INSTRUCTIONS

Hospital: In responding to questions that ask you to make a global judgment about the "hospital," please respond based upon your knowledge and experience of the department or area in which you are currently employed, the other departments or areas you come in contact within the course of doing your job, and the information you have on the hospital as a whole.

Quality of Care and Services: Throughout the survey you are asked to make judgments about the "quality of care and services provided." In these questions, "quality of care and services" refers to how well the hospital performs the many activities and functions involved in patient care.

The term "quality of care and services" is not limited to the technical quality of care provided to patients; "quality of care and services" is a broader, more general category that includes not only the technical quality of care, but also includes how well patient service needs are met.

Senior Management: In general, the senior management have the overall responsibility for department operation and administration. Director, senior or other management, chair or vice chairs of nursing, and medical director are some of the titles held by people who occupy senior executive positions. In some hospitals, these employees have the title of associate administrator.

Middle Managers: Middle managers include department heads and first line supervisors that are not a part of the senior executive staff.

LEADERSHIP

21. The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement.

22. The CEO/Administrator is a primary driving force behind quality improvement efforts.

23. The senior executives allocate adequate organizational resources (e.g., finances, people, time, and equipment) to improving quality.

24. The senior executives consistently participate in activities to improve the quality of care and services.

25. The senior executives have articulated a clear vision for improving the quality of care and services.

26. The senior executives have demonstrated an ability to manage changes (e.g., organizational, technological) needed to improve the quality of care and services.

27. The senior executives act on suggestions to improve the quality care and services.

28. The physician leadership is personally involved in quality improvement efforts.

29. The senior executives have a thorough understanding of how to improve the quality of care and services.

30. The senior executives generate confidence that efforts to improve quality will succeed.

31. Senior executives seek information on needs and suggestions for quality improvement directly from external customers (e.g., patients, families, and payers).

INFORMATION AND ANALYSIS

32. The hospital **collects** a wide range of data and information about the quality of care and services.

33. The hospital **uses** a wide range of data and information about the quality of care and services to make improvements.

32. The hospital continually tries to improve how it uses data and information on the quality of care and services.

33. The hospital continually tries to improve the accuracy and relevance of its data on the quality of care and services provided.

36. The hospital continually tries to improve the timeliness of its data on the quality of care and services provided.

37. Hospital employees are actively involved in determining what data are collected for the purpose of improving the quality of care and services.

38. The hospital compares its data to data on the quality of care and services at other hospitals.

STRATEGIC QUALITY PLANNING

39. Hospital employees are given adequate time to plan for and test improvements.

40. Each department and work group within this hospital maintains specific goals to improve quality.

41. The hospital's quality improvement goals are known throughout the organization.

42. Hospital employees are involved in developing plans for improving quality.

43. Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality improvement.

44. External customers are playing a key role in setting priorities for quality improvement.

45. Non-managerial employees are playing a key role in setting priorities for quality improvement.

HUMAN RESOURCE UTILIZATION

46. Hospital employees are given education and training in how to identify and act on quality improvement opportunities.

47. Hospital employees are given education and training in statistical and other quantitative methods that support quality improvement.

48. Hospital employees are given the needed education and training to improve job skills and performance.

46. Hospital employees are rewarded and recognized (e.g., financially and/or otherwise) for improving quality.

47. Inter-departmental cooperation to improve the quality of services is supported and encouraged.

51. Hospital employees have the authority to correct problems in their area when quality standards are not being met.

52. Hospital employees are supported when they take necessary risks to improve quality.

53. The hospital has an effective system for employees to make suggestions to management on how to improve quality.

QUALITY MANAGEMENT

54. The hospital regularly checks equipment and supplies to make sure they meet quality requirements.

55. The quality assurance staff effectively coordinate their efforts with others to improve the quality of care and services the hospital provides.

56. Data from suppliers are used when developing the hospital's plan to improve quality.

57. The hospital has effective policies to support improving the quality of care and services.

58. The hospital works closely with suppliers to improve the quality of their products and services.

59. The hospital tries to design quality into new services as they are being developed.

60. The services which the hospital provides are thoroughly tested for quality before they are implemented.

61. The hospital views quality assurance as a continuing search for ways to improve.

62. The hospital encourages employees to keep records of quality measurements.

QUALITY RESULTS

63. The hospital has done a good job documenting that changes made in providing services have produced the intended results.

63. The hospital has done a good job of simplifying how care and services are provided.

64. Over the past few years, the hospital has shown steady, measurable improvements in the quality of care provided to medical, surgical and obstetric patients.

66. Over the past few years, the hospital has shown steady, measurable improvements in the quality of services provided by clinical support departments such as laboratory, pharmacy, and radiology.

67. Over the past few years, the hospital has shown steady, measurable improvements in the quality of services provided by support areas such as accounting, billing, human resources, and marketing.

68. Over the past few years, the hospital has shown steady, measurable improvements in patient satisfaction results.

69. Over the past few years, the hospital has shown steady, measurable cost reduction while maintaining or improving quality.

□