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THE EFFECT OF INCREASED CODE BLUE TRAINING ON TIMELINESS OF CODE RESPONSE AND COMPETENCY IN RESUSCITATION PROCEDURES AT AN INPATIENT CORRECTIONAL MEDICAL FACILITY

SHARON COFFEY

by

CHARLENE M. MARTIN, MBA, MSN, RN

A DNP PROJECT

Submitted in partial fulfillment of the requirements for the

Degree of Doctor of Nursing Practice

to

The School of Graduate Studies

of

The University of Alabama in Huntsville

HUNTSVILLE, ALABAMA

2019

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Charlene M. Martin 10/27/2019

Student Signature Date

DNP PROJECT APPROVAL FORM

Submitted by Charlene M. Martin in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

Sharon S Caffey, DNP, FNP-C Committee Chair (Date) 10/29/2019

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ABSTRACT

The School of Graduate Studies

The University of Alabama in Huntsville

Degree: Doctor of Nursing Practice College: Nursing

Name of Candidate: Charlene M. Martin

Title: The Effect of Increased Code Blue Training on Timeliness of Code Response and Competency in Resuscitation Procedures At An Inpatient Correctional Medical Facility

Background: Every year in the United States, approximately 395,000 cases of cardiac arrest occur outside of a hospital setting, in which less than 6 percent survive. Cardiac arrest is a complex and lethal condition that poses a substantial public health burden with high nationwide mortality rates and the potential for profound and irreversible neurologic injury and functional disability. In the hospital setting, efficient and effective administration of cardiovascular-saving resuscitation such as Cardiopulmonary Resuscitation (CPR) or Advanced Cardiovascular Life Support (ACLS) is vital to positive outcomes for the patient. In the hospital setting, efficient and effective administration of cardiovascular-saving resuscitation such as Cardiopulmonary Resuscitation (CPR) or Advanced Cardiovascular Life Support (ACLS) is vital to positive outcomes for the patient.

Aim: The purpose of this project was to determine if nursing staff at a 130- bed correctional hospital facility would benefit from increased training of resuscitation techniques compared to current practice, and result in a more effective and efficient resuscitation response after a six week training period.

Methodology: The design for this project was pre-test/ post-test design conducted in a 130- bed state medical prison, which is part of a state Department of Corrections facility. The nursing staff, which consisted of Registered Nurses (RN), Licensed Practical Nurses (LPN) and Certified Nursing Assistants (CNA) were the subjects of this project and were given pre and post engagement assessments regarding their skillset and perceptions of code blue events. Mock Code Blues were conducted and evaluated pre training and post training.

ACKNOWLEDGMENTS

I would like to thank my family (Aunt Charlene, Kim, Courtney, Quentin, Taylor, Norm and Max) along with my friends who have been so supportive during my journey as a doctoral student. Thank you to Dr. Sharon Coffey who never stopped believing in me. I would also like to thank my Lord and Savior Jesus Christ who has been my guiding light through this incredible odyssey.

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SECTION I

DNP PROJECT

Identification of Problem

Every year in the United States, approximately 395,000 cases of cardiac arrest occur outside of a hospital setting, in which less than 6 percent survive. Approximately 200,000 cardiac arrests occur each year in hospitals, and 24 percent of those patients survive. Estimates suggest that cardiac arrest is the third leading cause of death in the United States. behind cancer and heart disease ("Heart Disease and Stroke Statistics", 2019). Cardiac arrest events can occur in both outpatient and inpatient surroundings. Outpatient expanses consist of areas outside of the hospital or those settings within the boundaries of a hospital that do not require an overnight stay. Inpatient settings require an overnight stay to perform observation, testing or perform procedures within the confines of a hospital. Since hospital units vary according to their setting, the focus will be on those patients that are being housed in an inpatient setting.

The prevalence of cardiac events in an inpatient hospital setting is surprising. In the United States, greater than 500,000 cardiac arrests occur yearly (Sprehe, March, Wilson, & Park, 2016). While the statistics regarding overall cardiac arrest are staggering, there is an even more compelling component of inpatient cardiac arrest that is an important factor. Approximately 200,000 adult and 6,000 juvenile cases of in-hospital cardiac arrest are reported each year, representing a major patient safety and public health concern in the United States. (Graham et al., 2015a), Although survival rates following in-hospital cardiac arrests have improved over the past decade, approximately half of all adult patients achieve return of spontaneous circulation, and less than one-quarter survive to hospital discharge (Graham et al., 2015a). Cardiac arrest is a complex and lethal condition that poses a substantial public health burden with high nationwide

mortality rates and the potential for profound and irreversible neurologic injury and functional disability. Cardiac arrest has a considerable economic impact; measured in terms of productive years of life lost due to premature death or avoidable neurologic disability, it constitutes a societal burden equal to or greater than that of other leading causes of death in the nation (Graham et al., 2015a).

The impact of cardiac arrest is far reaching in terms of the potential for negative outcomes to the patient however, there are several procedures that can be performed on a person exhibiting the loss of cardiac function. One of the most important procedures utilized in both the clinical and non- clinical setting is cardiopulmonary resuscitation also known as CPR. Cardiopulmonary resuscitation (CPR) is a procedure to support and maintain breathing and circulation for a person who has stopped breathing and/or whose heart has stopped (CPR Facts and Stats, 2019). In 2015, sudden cardiac arrest mortality in the United States was 366,807. CPR, especially if administered immediately after cardiac arrest, can double or triple a person's chance of survival ("Heart Disease and Stroke Statistics",2019). In addition to CPR, Advanced Cardiac Life Support (ACLS) is utilized to further enhance the cardiac and respiratory support efforts of those individuals who have a loss of cardiac and/or respiratory function. ACLS is series of emergency medical procedures in which basic life support efforts of cardiopulmonary resuscitation are augmented by the establishment of an IV fluid line, possible defibrillation, drug administration, control of cardiac arrhythmias, endotracheal intubation, and use of ventilation equipment (Advanced Cardiac Life Support, 2019) . While CPR is noted as the initial response to a cardiac arrest event, ACLS moves forward by providing a secondary more advanced layer of cardiac and respiratory support for the victim.

While there are two complimentary standard methods of cardiac resuscitation, CPR and ACLS, there does not appear to be a specific way to approach a cardiac event upon its inception. When a cardiac arrest occurs, there is a standardized approach to the response to a resuscitation event based on ACLS medical procedures however the initial response to an event varies according to the hospital system. Many hospitals identify certain code words to signify that a potential resuscitation event is occurring. One of the more popular designations for cardiac arrests events is the phrase Code Blue. Some hospitals announce emergencies (Codes) over a public address system, while others just alert the necessary personnel via a pager system. Also, the use of the term "Code" to signify that an emergency is occurring is not limited to medical practice. Other institutions, such as office buildings, schools, or government facilities may use Code designations to alert personnel that an emergency is occurring (Stöppler MC, n.d). The use of a standardized approach to emergency medical situations specifically cardiac resuscitation events acts as a homogeneous method of alerting most hospital personnel to these types of events. Since there is no standard approach to notification of cardiac events but there is a standardized method to resuscitation methods notably BLS and ACLS, statistical information has determined that there are higher rates of survival that are contributed to the use of CPR and ACLS for all populations post cardiac arrest (Klocko DJ, 2009).

It should be noted that both CPR and ACLS contribute to the survival rate of individuals post cardiac arrest. Data from a number of emergency medical services systems suggest that advances in resuscitation care during the past decade have led to higher rates of survival (Girotra et al., 2012). While survival rates have increased overall post cardiac arrest event, the increased emphasis on the treatment of certain cardiac conditions has led to a decrease in the number of inpatient cardiac arrests, therefore it is difficult to determine the exact amount of survival rates of

individuals that were directly due to the addition of CPR and ACLS post cardiac arrest (Girotra et al., 2012). In the hospital setting, efficient and effective administration of cardiovascular-saving resuscitation such as Cardiopulmonary Resuscitation (CPR) or Advanced Cardiovascular Life Support (ACLS) is vital to positive outcomes for the patient. Although initiation of cardiopulmonary resuscitation within a minute of cardiac or respiratory arrest is the standard of care, in the non-intensive care in-patient cases surveyed, typically more than a minute elapsed, and frequently 3 or more minutes, before resuscitation was started (Graham et al., 2015a). Delayed CPR is commonly due to the intense situations often found with cardiac arrest that require rapid leveraging of psychomotor skills and critical thinking from the staff (Attin, Winslow, & Smith, 2014). In an attempt to ensure that the nursing staff at hospitals are following the guidelines covered by the American Heart Association's CPR and ACLS guidelines, frequent training is necessary for continued and consistent patient resuscitation success.

There are multiple factors involved with training large numbers of individuals in such complex techniques such as BLS or ACLS. The standardized training associated with cardiac arrest/resuscitation techniques is provided by the American Heart Association which is the authority on BLS and ACLS protocols guidelines and methods associated with cardiac resuscitation. The techniques that they utilize during resuscitation attempts is evidenced based and has been shown to be effective in successful patient revitalization during sudden cardiac arrest (Craig-Brangan & Day, 2019). They also provide advanced life support programs however, the 2-year time interval between refresher CPR and advanced life support courses is arguably too long for those who do not use the skills routinely (Jankouskas, 2001). Two other factors that will contribute to the success of nurses within the hospital setting are the integration

of nursing education sessions with-high fidelity simulation and required demonstration of BLS, ACLS and Automatic External Defibrillator (AED) skills on a frequent basis (Borak et al., 2014)

While the case for resuscitation event team training is well documented, there is limited data on nurses' perceptions of the usefulness of training when preparing for medical emergency situations (Wehbe-Janek et al., 2012). As nursing staff begin to determine the necessity for increased training opportunities, discussions regarding the ability of the management team to balance the need for increased training with the cost of providing the training will begin to evolve. Will nurses feel that more frequent and additional training in specific subject matter increase their knowledge base? Is the training focused on specific subject matter, or is it too broad to be effective for the nursing staff? Can an evaluation of the training be used to increase monies for additional training experiences and equipment? It will be the responsibility of the staff development coordinator and nursing management to validate that their training programs do indeed produce organizational benefits, and to do this they must find the right tools to measure return on investment (Tanner, 2002)

Clinical Question and Project Purpose

The purpose of this project was to determine if nursing staff at a 130- bed correctional hospital facility would benefit from increased training of resuscitation techniques compared to current practice, and result in a more effective and efficient resuscitation response after a six week training period. The intent of this project was to increase the knowledge base of nursing staff regarding cardiopulmonary resuscitation techniques and to improve the overall response capabilities in an effort to increase the survival of a patient if a cardiac event occurred during hospitalization at a correctional institution. Increased knowledge of CPR techniques and more

frequent mock code training sessions translate to an increased comfort level and better performance by staff during resuscitation attempts (Montgomery, Kardong-Edgren, Oermann, & Odom-Maryon, 2012). The ability of staff to provide efficient and effective cardiac resuscitation to the prison population is important from both a clinical and legal standpoint. The failure to provide prisoners with access to needed health care may end up being a tragedy to that incarcerated individual. The United States Supreme Court ruled in Estelle v Gamble that ignoring a prisoner's serious medical needs can amount to cruel and unusual punishment ("Correctional Nurse Legal Briefs", 2018). The prison hospital environment that houses the offenders does not have a large number of resuscitation events. This fact, coupled with the limited resources for training due to diminishing budgets, emphasizes the need for increased training for cardiac events at the inpatient prison facility in order to ensure staff proficiency and comfort in performing cardiopulmonary lifesaving response.

Review of the Evidence

Resuscitation of patients from cardiovascular events or other life- threatening situations is vital to the well-being of individuals in the hospital setting. The ability of the nurse educator to train and assess nursing staff on resuscitation techniques is at the forefront of skills necessary to maintain a safe nursing practice. The need for evaluation of nursing skills from a competency standpoint has been an important aspect of nursing education programs in the hospital setting. Nursing competency assessment is an ongoing process. It reflects skills and abilities needed to carry out a job (Adams DA, Dobbs J, Greene M, MacGillis PA, & Stockhausen PA, 2002).

A review of significant research articles spanning 19 years (2000-2019) was examined to determine current research regarding the importance of adequate and frequent training for mock

code situations and to emphasize the importance of a review of actual "Code Blue" situations to improve current protocols. OVID, PUBMED and CINAHL were utilized as the primary search engines with the key words and phrases containing *Code Blue,Patient Resuscitation, Cardiac Arrest, Staff Development, Nurse Training, Basic Life Support and Advanced Cardiac Life Support*. It is significant to note that BLS and ACLS training is considered essential for direct caregivers in the hospital setting (Adams D.A. et al., 2002). The importance of a minimum annual participation by staff in some type of training activity geared toward resuscitation techniques cannot be underrated. Training methods for the staff should include both written and performance-based examinations and should be tailored to the type of population that is encountered on a particular unit such as pediatrics or labor and delivery or adult populations. It is noted that the competency of performance of most staff drops significantly after training and continues to decrease as the timespan between training and the use of the techniques increases. The introduction of BLS and ACLS training on a frequent basis serves to assist facility management in the development of specific protocols based upon items that were evaluated during the code.

As with any skill, BLS and ACLS skills require practice to ensure competence. When the quality of education is increased and training is more frequent, it is hypothesized that CPR skills become natural and instinctive and resuscitation efforts are more effective, especially for frontline patient-care providers (Castro, Cruz, & Briones, 2014). Nurses were evaluated via self-survey pre and post training and it was revealed that increased communication and assurance with role designation were two of the many benefits associated with frequent resuscitation training (Jnah et al., 2016). While frequency of training is important, it must also be noted that

the development of the tools that evaluate the training are also equally important to the success of a Code Blue resuscitation training program.

Testing must be developed to evaluate the knowledge base of the nursing staff based upon American Heart Association standards (Gloe, 1997). In the American Heart Association (AHA) BLS/ACLS training, …staff must pass a written exam with a level of competency at 90% or higher or be reeducated and retake the examination. Additionally, scenarios are utilized along with simulation equipment. Any testing developed must be based upon decision making and "hands-on" skills associated with established BLS/ACLS procedures. The ability to evaluate the skill level of nursing staff pre and post resuscitation event is critical to the success of resuscitative programs at any hospital (Hill CR, Dickter L, & Van Daalen EM, 2010) The support of nursing management and the nursing staff are the other elements that will assure the ongoing success of a Code Blue resuscitation training program.

To improve efficiency and provide clear training, the first step of the educational process involves defining code team membership, station assignments, and clear delineation of code team roles and responsibilities (Dorney, 2011). An acronym ABCDEFG was developed to identify the roles associated with the cardiopulmonary resuscitation event. The acronym is A – Airway management, B – Take a break, C – Cardiac compressions, D –Defibrillation Medication nurse, E – Event recorder/cart nurse, F – Field Code Leader and G – Get other healthcare professionals involved (Dorney, 2011). The use of the acronym ABCDEFG assists the team leader in identifying and appropriately assigning key roles that are utilized during both mock and actual code events. The use of a code station or designated mock code area which emphasized the use of the ABCDEFG acronym during the resuscitation event serves as a vehicle to evaluate staff during the code event. Staff were evaluated using a true/false written test based

upon the different roles and responsibilities occurring during a code. If the staff member did not score above 90% then remediation was performed which included review of the roles associated with the event as well as basic BLS/ACLS protocol (Dorney, 2011).

As nurses continue to learn resuscitation skills, it is important to note the role of simulation as a learning tool in the clinical setting. In one study, staff stated that an increase in training of resuscitation skills to nursing staff was equivalent to a greater comfort level when performing both resuscitation drills and actual events (Baker & Tyler, 2011). This perception was acknowledged by an evaluation of the comfort levels of the staff utilizing a Likert based tool in pre and post resuscitation training. Nurses overwhelmingly expressed more confidence in their ability to "save a life" based upon the inclusion and frequency of resuscitation training in their clinical areas (Montgomery, Kardong-Edgren, Oermann, & Odom-Maryon, 2012). While nurses are more confident with the inclusion and frequency of resuscitation training, the trainers must articulate clear learning objectives during pre and post drill experiences to avoid a distortion of information being given to the nursing staff (Granneman & Conn, 1996). The "what are we trying to accomplish" of the learning experience must be expressed to the nursing staff in simple terminology and evaluated immediately to ensure that staff have learned the objectives set at the onset and completion of the drill. Two types of educational methods have been developed to evaluate the effectiveness of the mock code and the subsequent learning objectives associated with the resuscitation training (Granneman & Conn, 1996). The presentation of traditional versus competency based mock code programs were evaluated to determine which of the two methodologies helped nursing personnel to retain more information. A more traditional learning format utilizes lectures and discussion which is a more passive learning environment. The competency based approach is based on knowledge, skills and abilities and required the learner

to be more engaged in the learning process (Carcich & Rafti, 2007) . Regardless of the training method used, nursing personnel expressed a greater level of comfort with their Code Blue skills after mock code programs were taught in the institution.

Frequent mock code evaluations are essential for optimal performance by the nursing staff in a hospital setting (Colquitt, Walker, & Haney, 2019). Code Blue situations are never taken lightly nor should they be handled in a helter-skelter manner as inefficient response and CPR action will increase the potential for poor patient outcomes including death. The knowledge base that is gained by the nurse after frequent exposure to cardiac resuscitation drills should help the nurse during the decision- making process. It is important to note that the literature overwhelmingly supports the ongoing evaluation of actual resuscitation events as well as recurrent mock code training sessions (Crowe et al., 2015). During the review of the literature, it was noted that the nurses were involved in pre and post mock code discussions (von Arx & Pretzlaff, 2010). There was little evidence of educational programs from the American Heart Association other than the Basic Life Support and Advanced Life Support in which examinations are only required every two years to show competency to perform BLS and ACLS. Two years between training and competency validation on CPR has been determined to be a long timeframe for clinicians to be tested for such a vital area of patient care. This author feels that there should be more emphasis on frequent training for mock codes (Chu & Robilotto, 2018).

Conceptual/Theoretical Framework

There were no specific theories that addressed quality in healthcare until 1966 when Donabedian developed a method for the evaluation of quality within healthcare. According to

Donabedian (1988), "practitioners are obligated to provide the most effective care most efficiently" (p. 90). Using Donabedian's theory, quality in healthcare is evaluated through the utilization of data collection in an effort to determine the effectiveness of a process. Specific quality indicators are used as a benchmark to govern the validity of the data through the use and subsequent evaluation of specific, concrete outcomes. There are certain quality outcomes that are not concrete in nature such as staff satisfaction and understanding of certain concepts that Donabedian (2005) saw as equally valid in the evaluation of quality healthcare practices. An evaluation of the nursing staff's ability to perform resuscitation techniques competently and with an optimal comfort level are one type of measurement of the quality healthcare practices within an organization. The utilization of the Donabedian's theory as a valid appraisal of a healthcare process at an inpatient hospital setting is appropriate for determining the quality of certain healthcare practices within the correctional setting.

Upon further understanding of the Donabedian theory, it is noted that there are three major tenets that are the structure of the theory. The first tenet deals with the structure of a healthcare system which Donabedian (1988) states "denotes attributes of the setting in which care occurs"(p. 1744). A review of the inpatient correctional hospital setting would define structure in terms of the effective and efficient performance of cardiac resuscitation and would involve the training of personnel coupled with the effectiveness of the equipment used to provide the service being evaluated. Several questions must be asked in determining the value of the structure provided in the correctional healthcare venue and its effectiveness in meeting the goals as aligned with the Donabedian theory. Numerous questions will need to be answered to determine if the system is meeting the goals of quality healthcare within a correctional setting. How effective is the training program provided by the facility? Does it measure competencies of

the staff? Are there opportunities to retrain built into the learning module for Basic Life Support and other facility specific procedures? Are the training materials and equipment used to provide cardiac resuscitation the most up to date to insure an optimal learning experience?

The second tenet of the theory as it relates to Code Blue responses is to review the quality of the care that is rendered by the professional during the course of the delivery of specific care. Donabedian (1988) states that this is "what is actually done in giving and delivering care" (p. 1745). This tenet relates to how well the resuscitation attempts are rendered by the staff during both mock and actual codes. This determination of effectiveness is measured through specific standards outlined by the facility's standard operating procedures and resuscitation attempts as outlined through the American Heart Association in their Basic Life Support class.

The final aspect of the theory looks at the effects of care on the health stats of patients and populations (p. 1745). This aspect of the theory looks at improvements in the healthcare process and how that changes patient healthcare. The primary question should focus on the determination of lives saved by more effective and efficient ways of initiating and delivering Code Blue response and CPR to the patient population. The Donabedian theory can be used to evaluate any study involving the effectiveness and quality of a healthcare system to include the evaluation of a hospital's cardiac resuscitation or Basic Life Support system.

DONABEDIAN MODEL

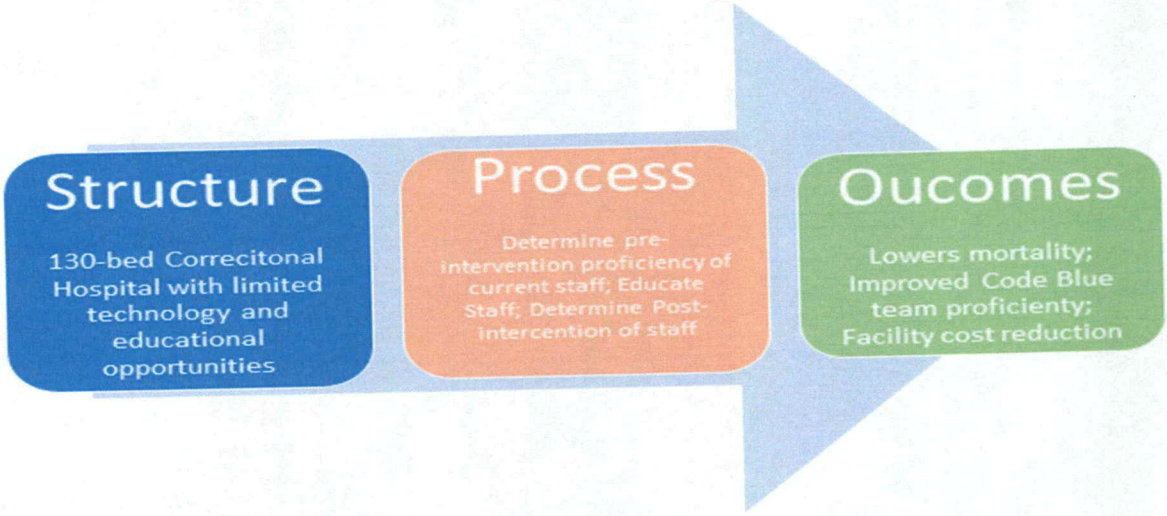


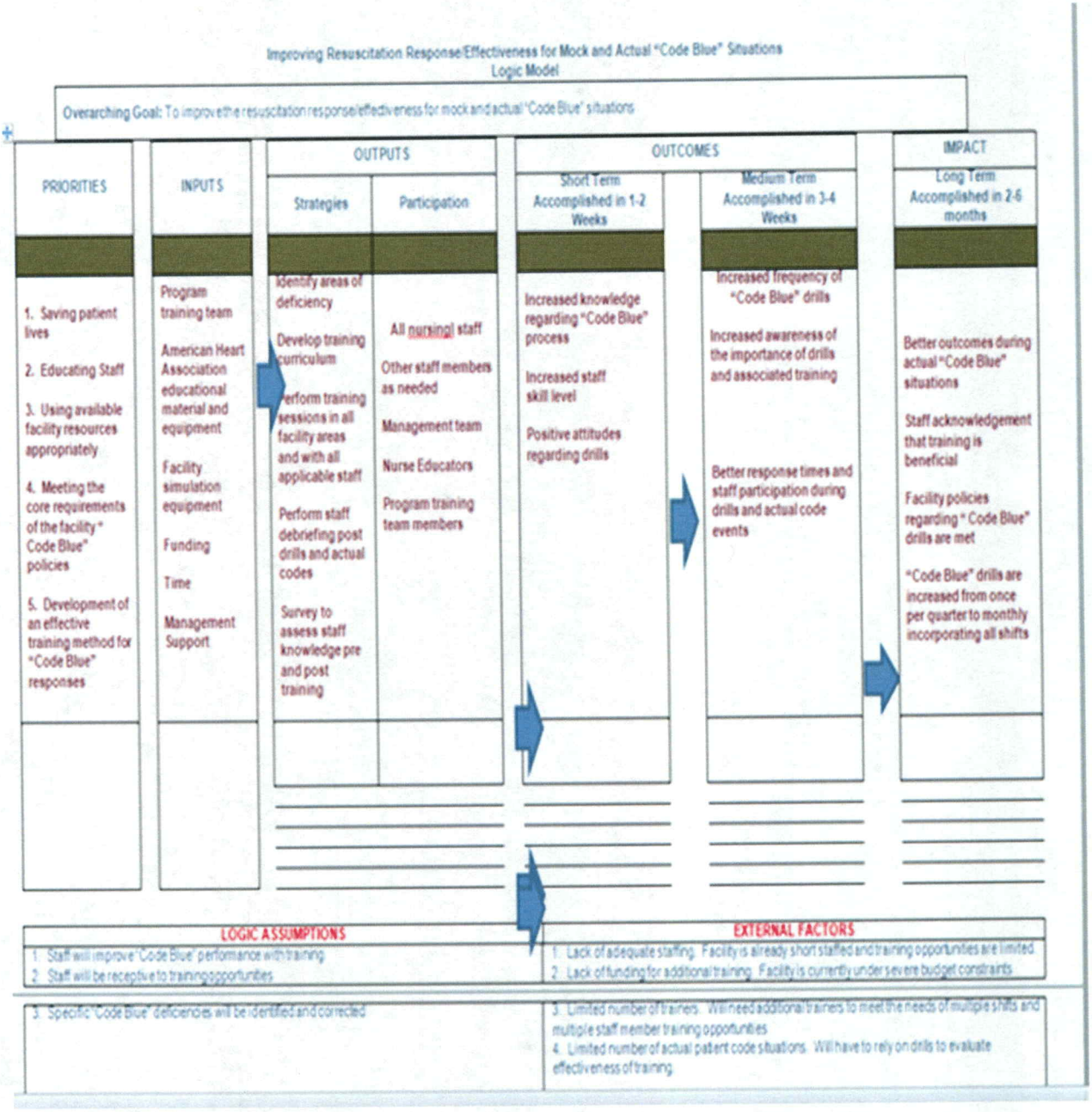
Figure 1 - Donabedian Model

In order to effectively capture the changes to an existing process, the addition of a logic model is needed to provide a framework for determining the relationship between various components of the process. A logic model is a systematic and visual way to present and share an understanding of the relationships among the resources necessary to operate a program, the activities needed to run a program, and the changes or outcomes to be achieved through the program. It is useful in clearly outlining the necessary components of a program, including the relationships among the program goals, objectives, activities, and measurable outcomes (Lane AJ & Martin MT, 2005). The introduction of facility specific training modules in lieu of the existing training program will require the framework of a logic-based model to determine components associated with changing the Code Blue process at the facility.

Logic Model

Logic Model

Figure 2 - Logic Model



(Adapted from: Logic Model—Minnesota Dept. of Health, 2018.)

Sample Setting

The project design selected for this quality improvement project was pre-test /posttest design. Institutional Review Board (IRB) approval was granted by Augusta University and the University of Alabama in Huntsville (Appendix A). The pilot study was conducted at Augusta State Medical Prison, which is a facility of the Georgia Department of Corrections. There was no required IRB approval associated with the Georgia Department of Corrections however permission was granted via the legal department to allow a study in a Georgia prison with additional written permission granted by the Warden of Augusta State Medical Prison (Appendix B). With full approval, this project was performed at the prison hospital, utilizing the nursing staff that are responsible for Code Blue response.

The setting for the quality improvement project focused on four medical surgical floors and two crisis stabilization floors of a 130- bed state prison hospital known as Augusta State Medical Prison. The nursing staff, which consisted of Registered Nurses (RN), Licensed Practical Nurses (LPN) and Certified Nursing Assistants (CNA) participated in the project and served as the target population. Meetings were held with the Hospital Administrator, Director of Nursing and the facility Warden to determine how to implement the project with the least disruption to operations at the facility. A specific night shift group (A-leg) with a potential target nursing population of 20 nursing staff was chosen for this in the project. This group of approximately 20 nursing staff took part in an initial survey, training sessions, testing and post surveys within a span of 6 weeks. The target population of nursing staff on A-leg was diminished to 11 participants due to recent retirements and resignations. A consent form

(Appendix C) was presented to and reviewed with each member of the shift by the principal investigator. One RN on the shift refused to participate in the study.

The project would serve to enhance the educational opportunities available at the facility. There is only one nurse educator tasked to provide all of the training opportunities for a staff of 150 nurses, including the 20 nurses that worked on the A-leg night shift. There were no additional training opportunities available for nursing staff at this facility regarding Code Blue events except for the mandatory quarterly emergency response training which utilizes BLS techniques. The only other opportunity for the staff to participate in any BLS training was during the bi-yearly BLS certification training. Basic Life Support level of training is the only required training provided to the nurses within this correctional hospital. Advanced Cardiac Life Support (ACLS) certification is not currently required for the nursing staff.

Instruments

There were five instruments developed for the needs of this organization and utilized to assess the effectiveness of the project. The pre and post engagement assessment forms (Appendix D) consisted of the same questions utilizing a Likert-style scale with a nominal level of measurement using 1= Yes and 2 = No. The questions in the pre and post engagement assessment forms consisted of questions regarding the skillset of the participant, communications, engagement and teamwork between the staff during the event. In addition to the questions directly involving the perception of participants during a code event, there were open ended questions regarding the credentials of the staff, length of time being credentialed and length of employment at the facility. Mock code evaluation forms (Appendix E) were completed pre and post education to compare the findings and to determine if there were improvements in

staff performance during code events. A 10- question quiz (Appendix F) was administered to the participants to assess their knowledge post BLS refresher training.

Procedure

The project's goal was to determine, utilizing pre-test/ post-test design, whether staff perception of their performance improved after Code Blue refresher training was implemented at the facility. The project was implemented on July 22, 2019 and continued through August 30, 2019. The mock code training sessions included all nursing staff on a one of the two 12- hour night shifts (7P-7A). For this project, only a particular shift of nurses on the night shift would be utilized because performance of mock code blue studies during night shift would prove less intrusive for the staff and patients at the prison hospital. Training sessions were scheduled for nights on the same shift for a period of six weeks for nursing staff to include Registered Nurses, Licensed Practical Nurses and Certified Nursing Assistants. A preliminary assessment was performed which captured the perceptions of nurses regarding their mock Code Blue experiences at the study setting. An initial unannounced mock code was performed to determine current nursing performance perceptions and to evaluate the effectiveness of the resuscitation attempt. The mock Code Blue sessions were located in an empty patient room on the nursing unit. Wilson (2010) stated that mock code training was viewed as very helpful by the staff when held on their unit because it assisted them in learning their unique roles in a Code Blue situation in an environment that was familiar to them. Security staff was notified in advance regarding the mock code blue event to ensure that proper announcement of a Code Blue situation was noted over the prison hospital security system. All medical team members in the facility to include medical doctors, physician assistants, nurse practitioners, respiratory therapists, and nursing were

expected to participate in the Code Blue activity as this was the normal expectation during a real Code Blue event. A simple BLS manikin was used in conjunction with an automatic external defibrillator (AED) to simulate patient care during the code activity. A preselected mock Code Blue scenario, which included patient deterioration into a cardiac arrest, was developed prior to the mock Code Blue session. The Code Blue sessions lasted approximately 10 minutes with a 10 to 15-minute debriefing to highlight both the positive and negative aspects observed during the mock Code Blue. Staff interaction was encouraged during the scenario and the debriefing sessions post mock Code Blue focused on communication, performance, safety and staff confidence.

Refresher training was held during the following training sessions which began one week after the initial mock Code Blue and continued for an additional five weeks. These refresher training reviews involved the use of educational materials utilized by the American Heart Association (AHA) certified trainers for BLS training across the US and at Augusta State Medical Prison. This is the same training that is utilized to certify healthcare staff according to national AHA standards. Staff was also involved in a review of Augusta State Medical Prison facility- based resuscitation training to include documentation, policies and procedures (Appendix G) that are specific to resuscitation attempts held in the prison environment. A written test (Appendix F) was administered the week before the final mock Code Blue to determine the knowledge retention of the staff regarding BLS and facility specific procedures. The staff was also allowed to ask questions regarding any material that had been covered during the prior weeks of refresher training.

A repeat of the initial mock Code Blue on week six, the final week of the pilot project was performed, to evaluate the effectiveness of the training sessions. A post mock Code Blue evaluation (Appendix E) was performed in addition to a post training staff survey. These evaluation tools would serve to capture the perception of the staff post training regarding their perception of their ability to effectively and efficiently perform a mock Code Blue.

Results

The staff that participated in the project consisted of a total of ten people. This group was significantly lower than anticipated due to recent retirements and terminations on the unit that was utilized for the study. There were a series of questions regarding their title, total length of time in the profession and the total length of time at the facility. The participants were all females. There was no query regarding the ages of the praticipants. A total of seven Registered Nurses, two Licensed Practical Nurses and one Certified Nursing Assistant participated in the project. All of the participants had greater than 10 years of experience in nursing with varied experience levels at the facility. Six of the Registered Nurses had been at the facility greater than ten years with the remaining Registered Nurse having between six and ten years at the facility. One Licensed Practical Nurse had been at the facility between six and ten years while the other Licensed Practical Nurse had worked at the facility less than five years. The Certified Nursing Assistant had been at the facility between six and ten years.

Post Intervention Learning Chart

Descriptive statistics were conducted to illustrate the change in learning from baseline to post-intervention across 14 questions measuring staff's perception and knowledge of BLS techniques and Facility Standard Operating Procedures during Code Blue resuscitation events (Appendix D).

Table 1

Comparison of Pre-Assessment and Post Assessment Favorable Responses

Question Number	Pre-Assessment Favorable Response Percentage	Post-Assessment Favorable Response Percentage	Percentage Difference Between Pre and Post Assessment Responses
1	80	100	+20
2	40	90	+50
3	60	90	+30
4	70	80	+10
5	80	80	0
6	70	80	+10
7	70	90	+20
8	80	90	+10
9	50	50	0
10	70	90	+20
11	70	70	0
12	50	80	+30
13	100	100	0
14	50	90	+40

Note: Percentage values between 0 and 100

The Code Blue pre and post surveys conducted by the participating staff consisted of 14 Yes/No questions determining staff perception regarding items associated with resuscitation attempts. The Mann-Whitney U Test was performed and is noted as a two tailed hypothesis with the following information:

H0 - There is no difference between the ranks of the pre and post assessment tools data.

H1 - There is a difference between the ranks of the pre and post assessment tools data.

The significance level for the test was noted at .05. The U value for pre and post test data was calculated to be 35 and the critical value of U calculated at $p<.05$ is 55 therefore the results of the Mann-Whitney U test indicates that the data is significant at $p<.05$. The null hypothesis is rejected and therefore it is a difference between the data in the pre and post studies which indicates that the treatment information in the surveys could not be obtained by chance.

In addition to the validity of the data, there were definite increases in pre and post training knowledge and confidence ranging from 10 to 40%. Positive staff perception regarding items such as staff roles, the effectiveness of chest compressions, using ancillary equipment and the effectiveness of codes on the unit were noted as having the greatest increase by the staff. . The staff survey also showed an increase in items such as better knowledge, increased comfort level and better efficiency during resuscitation attempts. The evaluation of chest compressions by nursing during cardiac attempts, making a mistake during the code, anxiety regarding participation in mock codes and team debriefing remained unchanged by staff. A skills evaluation in question 15 regarding bag/mask ventilation, chest compression, medication preparation, communication and documentation initially determined that staff continued to have issues with several items. Staff expressed a lack of confidence in communication and event documentation, medication preparation, and the use of the prison intercom system. Post training concerns were still noted regarding medication preparation and the use of the prison intercom.

An evaluation of both the pre and post testing mock Code Blue events revealed marked differences in the initiation of the mock Code Blue. Nursing staff were quicker in their response

and their initial evaluation of the patient during the post training mock Code Blue. During the initial code, no backboard was placed under the patient. Hand placement and adequate rate and depth of cardiac compression were incorrect along with the incorrect compression to breath ratio. Post training mock Code Blue noted correct placement of all equipment along with the correct compression to breath ratio. AED placement and use were noted as correct in both pre and post training. The team leader, while effective in getting personnel to perform their roles in the initial mock Code Blue, was much more effective in directing individuals to keep up the rhythm and depth associated with proper and effective BLS attempts. It is noted that the post training team was a more effective group of healthcare professionals who performed BLS on the patient.

Application to Practice/Implementation to Practice

There are multiple applications of this project to improve the nursing practice of Code Blue at Augusta State Medical Prison. Participants in the study determined that the refresher BLS course was helpful and useful to their practice with a high-risk population. The positive outcomes associated with this study are an increase in the knowledge based related to BLS skills which resulted in a greater sense of satisfaction among the staff with their ability to perform Codes Blue resuscitation skills. There was also an increase in the staff's ability to know and follow the facility policies and protocols associated with Code Blue events.

In addition to an overall increase in staff satisfaction associated with Code Blue activities at the facility, nursing management at the site have decided to increase the number of mock codes from quarterly to a more frequent cycle of training and mock Code Blue events. There will also be an evaluation of new nursing employees regarding their BLS techniques and skillset even though BLS certification is required for employment at the facility. In addition to the

review of American Heart Association BLS techniques, facility policies and protocols associated with Code Blue activity will be reviewed to assure readiness in the event of a resuscitation event and support the increase in number of mock codes and additional evaluation of staff's BLS competency at the time of hire.

Mock Code Blues drills will continue to include all shifts and weekends with each shift having a mock code approximately every two months. During the course of the project, it was noted that updated simulators were recommended to provide a more realistic experience for the participants. The increase in the number of mock Code Blue events including all shifts and times coupled with the availability of realistic simulators will aid the staff in feeling more confident in their ability to perform BLS functions and techniques at an optimum level during a resuscitation event.

Project Strengths and Limitations

During the initiation and subsequent completion of the project it should be noted that there was support from the Georgia Department of Corrections and Augusta University management especially the facility warden. There was full access to the facility to include the ability to move about unencumbered within the confines of the prison hospital. All equipment associated with mock codes was provided to include use of the code carts, defibrillators, AEDs and the simulation mannequin. There was enthusiasm expressed by the nursing staff during the training sessions and they actively participated in the drills and any hands- on activities.

There were a few limitations associated with the project. There was limited staffing with an anticipated number of staff at 20 however staffing was decreased to only 10 participants due to recent retirements and resignations. The researcher did not have the ability to perform the

study utilizing day shift staff which would have increased the number of participants. There were instructional constraints since all education had to be taught on each individual hospital unit versus a classroom setting therefore instructions were started and stopped based on the needs of the patients on the unit. The training occurred late in the evening after the last medication administration, which usually concluded around 2100- hours.

Conclusions

Research examining the deterioration of CPR knowledge and skills indicates that skills deteriorate faster than knowledge (Curran, Fleet, & Greene, 2012). The ultimate purpose for this project was to increase staff engagement in the mock Code Blue process by providing increased and in-depth educational opportunities related to resuscitation attempts. Literature supports that delays in initiation of CPR and inconsistent BLS skills lead to negative patient outcomes and a lack of staff confidence in the delivery of those skills (Abella BS et al., 2005). It should be noted that a review of the literature on simulation training revealed that there is a correlation between the frequency of mock codes and nurse's comfort levels during an actual resuscitation attempt (Delac, Blazier, Daniel, & N.-Wilfong, 2013). Mock code training should provide the staff with an increased comfort level and confidence in their ability to provide effective and efficient BLS delivery to their patient population. The project was successfully conducted over a six week period and plans are to implement not only the increase in frequency of mock Code Blues but to engage staff in other educational endeavors associated with mock Code Blues at the facility. These educational endeavors include AED and defibrillator training, facility specific SOP training and review of the Code Carts.

The role of the DNP leader is important as the champion of evidenced based practice and the application of that knowledge to the nursing staff to insure better patient outcomes. Bemker & Schreiner, (2016) state , " Within the context of these guidelines, the hallmark of a DNP-prepared nurse centers on the ability to take empirical evidence and provide reasonable critique and translation of this evidence to determine reliance and applicability to the practice change" (p, 142). In moving the staff forward toward the changes with the mock code process, it is important to note that this process will not take place overnight. The facility management will have to assist with facilitating and guiding the nursing staff to the changes that will help them improve the quality of care for their patient population.

SECTION II

DNP PROJECT PRODUCT

Professional Journal Selection

Scope of Journal

The Journal of Correctional Health Care is the official journal of the National Commission on Correctional Health Care (NCCHC) which is one of the governing bodies of healthcare in the correctional setting. This publication is a national peer-reviewed scientific journal to address correctional healthcare topics. This is a quarterly publication and serves to keep correctional healthcare professionals abreast of trends occurring in the field. This publication covers topics such as clinical healthcare, health services, staffing, ethical issues, continuous quality improvement and medical/legal issues.

Aims of Journal

The Journal of Correctional Health Care is the primary source for research and development in the clinical care of offenders in an effort to ensure that quality healthcare is being provided to the offender population. The publication covers items such as clinical care for chronic and infectious diseases, mental health, and substance abuse, healthcare management in the prison/jail setting, quality improvement, best practices, case studies, literature reviews and letters and includes position statements from the National Commission on Correctional Health Care (NCCHC).

THE EFFECT OF INCREASED CODE BLUE TRAINING ON TIMELINESS OF CODE RESPONSE AND COMPETENCY IN RESUSCITATION PROCEDURES AT AN INPATIENT CORRECTIONAL MEDICAL FACILITY

Charlene M. Martin & Sharon S. Coffey

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Abstract

The ability of inpatient nursing staff to effectively perform cardiac resuscitation is paramount to positive patient outcomes in the event of a cardiac arrest. The frequency of facility training in resuscitation techniques serves to enhance the confidence of the nursing staff if a cardiac arrest occurs. The project, conducted within an inpatient correctional setting, noted a correlation between frequency of mock code training and staff confidence in their ability to perform effective resuscitation. Based on the results of this project, it is recommended that BLS refresher training is offered multiple times during the year for staff to maintain optimal efficiency during a resuscitation event.

Keywords
Resuscitation event, staff confidence, training, BLS, patient care, and mock code

Introduction

Every year in the United States, approximately 200,000 cardiac arrests occur each year in hospitals to include inpatient correctional hospitals. Estimates suggest that cardiac arrest is the third leading cause of death in the United States. Behind cancer and heart disease ("Heart Disease and Stroke Statistics", 2019). While the statistics regarding overall cardiac arrest are staggering, there is a more compelling component of inpatient cardiac arrest that is an important factor. Although survival rates following in-hospital cardiac arrests have improved over the past decade, approximately half of all adult patients to include hospitalized inmates achieve return of spontaneous circulation, and less than one-quarter survive to hospital discharge (Graham et al., 2015a). Cardiac arrest is a complex and lethal condition that poses a substantial public health burden with high nationwide mortality rates and the potential for profound and irreversible neurologic injury and functional disability for the inmate population. The impact of cardiac arrest is far reaching in terms of the potential for negative outcomes to the hospitalized inmate however there are several procedures that can be performed on a person exhibiting the loss of cardiac function. One of the most important procedures utilized in both the clinical and non- clinical setting is cardiopulmonary resuscitation also known as CPR. Cardiopulmonary resuscitation

(CPR) is a procedure to support and maintain breathing and circulation for a person who has stopped breathing and/or whose heart has stopped (CPR Facts and Stats, 2019). In addition to CPR, Advanced Cardiac Life Support (ACLS) is utilized to further enhance the cardiac and respiratory support efforts of those individuals who have a loss of cardiac and/or respiratory function. ACLS is series of emergency medical procedures in which basic life support efforts of cardiopulmonary resuscitation are augmented by the establishment of an IV fluid line, possible defibrillation, drug administration, control of cardiac arrhythmias, endotracheal intubation, and use of ventilation equipment (Advanced Cardiac Life Support, 2019) . While CPR is noted as the initial response to a cardiac arrest event, ACLS moves forward by providing a more advanced layer of cardiac and respiratory support for the victim.

In the inpatient correctional hospital setting, efficient and effective administration of cardiovascular-saving resuscitation such as Cardiopulmonary Resuscitation (CPR) or Advanced Cardiovascular Life Support (ACLS) is vital to positive outcomes for the inmate. Initiation of cardiopulmonary resuscitation within a minute of cardiac arrest is the standard of care, typically more than a minute elapsed, and frequently 3 or more minutes, before resuscitation was started (Graham et al., 2015a). Delayed CPR is commonly due to the intense situations often found with cardiac arrest that require rapid leveraging of psychomotor skills and critical thinking from the staff (Attin, Winslow, & Smith, 2014). In an attempt to ensure that nursing staff in correctional settings are following the guidelines covered by the American Heart Association's CPR and ACLS guidelines, frequent training of correctional healthcare staff is necessary for continued and consistent inmate resuscitation success.

The standardized training associated with cardiac arrest/resuscitation techniques is provided by the American Heart Association which is the authority on BLS and ACLS protocols, guidelines and methods associated with cardiac resuscitation. The techniques that they utilize during resuscitation attempts is evidenced based and has been shown to be effective in successful patient revitalization during sudden cardiac arrest (Craig-Brangan & Day, 2019). They also provide ACLS however, the 2-year time interval between refresher CPR and ACLS courses is too long for those who do not use the skills routinely (Jankouskas, 2001). Two other factors that will contribute to the success of nurses within the correctional hospital setting are the integration of nursing education sessions with-high fidelity simulation and required demonstration of BLS, ACLS and Automatic External Defibrillator (AED) skills on a frequent basis (Borak et al., 2014)

The purpose of this project was to determine if nursing staff at a 130- bed correctional hospital facility would benefit from increased training of resuscitation techniques compared to current practice, and would that training result in a more effective and efficient resuscitation response after a six week training period. The intent of the project was to increase the knowledge base of nursing staff regarding cardiopulmonary resuscitation techniques and to improve the overall response capabilities in an effort to increase the survival of a patient if a cardiac event occurred during hospitalization at a correctional institution. The ability of staff to provide efficient and effective cardiac resuscitation to the prison population is important from both a clinical and legal standpoint. The United States Supreme Court ruled in Estelle v Gamble that ignoring a prisoner's serious medical needs can amount to cruel and unusual punishment ("Correctional Nurse Legal Briefs", 2018). The prison hospital environment that houses the inmates does not have a large number of resuscitation events. This fact, coupled with the limited resources for training due to diminishing budgets, emphasizes the need for increased training for

cardiac events at the inpatient prison facility in order to ensure staff proficiency while performing cardiopulmonary lifesaving response.

Method

The project was conducted at a facility of the Georgia Department of Corrections. This facility is a 1200 man maximum security state prison with a 130 bed full service hospital. The prison incarcerates men aged 18 and above. Inmates are housed during hospitalization from various state operated correctional facilities. Institutional Review Board (IRB) approval was granted by Augusta University and the University of Alabama in Huntsville. There was no required IRB approval associated with the Georgia Department of Corrections however permission was granted via the legal department to allow a project in a Georgia prison with additional written permission granted by the Warden of the facility. There were no inmates utilized during this project. Recruitment of staff to participate in this project took place during July 2019 with a written informed consent form obtained from the nursing staff. There was no identifiable information collected. With full approval, the pilot study was performed at the prison hospital utilizing the nursing staff that are responsible for Code Blue response.

The setting for the quality improvement project focused on a specific night shift nursing group (A-leg) with a potential target population of 20 nursing staff. This group of nursing staff would take part in all aspects of the project during the six week period. The target population of nursing staff on A-leg was diminished to 11 participants due to recent retirements and resignations. A consent form was presented to and reviewed with each member of the shift by the principal investigator. One RN on the shift refused to participate in the study.

The project would serve to enhance the educational opportunities available at the facility. There were no additional training opportunities available for nursing staff at this facility regarding Code Blue events except for the mandatory quarterly emergency response training which utilizes BLS techniques. The only other opportunity for the staff to participate in any BLS training was during the bi-yearly BLS certification training. Basic Life Support is a requirement for nursing staff at this facility while Advanced Cardiac Life Support certification is not currently required for the nursing staff.

There were five instruments developed and utilized to assess the effectiveness of the project. The pre and post engagement assessment forms consisted of the same questions utilizing a Likert-style scale with a nominal level of measurement using 1= Yes and 2 = No. The questions in the pre and post engagement assessment forms consisted of questions regarding the skillset of the participant, communications, engagement and teamwork between the staff during the event. In addition to the questions directly involving the perception of participants during a code event, there were open ended questions regarding the credentials of the staff, length of time being credentialed and length of employment at the facility. Mock code evaluation forms were completed pre and post education to compare if there were improvements in staff performance during code events. A 10- question quiz was administered to the participants to assess their knowledge post BLS refresher training.

Training sessions were scheduled for nights on the same shift for a period of six weeks for all nursing staff on that shift. A preliminary assessment was performed which captured the perceptions of nurses regarding their facility mock Code Blue experiences. An initial unannounced mock code was performed to determine current nursing performance perceptions

and to evaluate the effectiveness of the resuscitation attempt. The mock Code Blue sessions were located in an empty patient room on the nursing unit. Wilson (2010) stated that mock code training was viewed as very helpful by the staff when held on their unit because it assisted them in learning their unique roles in a Code Blue situation in an environment that was familiar to them. Security staff was notified in advance regarding the mock code blue event to ensure that proper announcement of a Code Blue situation was noted over the prison hospital security system. All medical team members in the facility were expected to participate in the Code Blue activity. A simple BLS manikin was used in conjunction with an automatic external defibrillator (AED) to simulate patient care during the code activity. A mock Code Blue scenario was developed prior to the Code Blue session. The Code Blue sessions lasted approximately 10 minutes with a 10 to 15-minute debriefing to highlight the positive and negative aspects observed during the mock Code Blue. Staff interaction was encouraged during the scenario and the debriefing sessions focused on communication, performance, safety and staff confidence.

Refresher training continued for an additional five weeks. The reviews involved the use of educational materials utilized by the American Heart Association (AHA) certified trainers . Staff reviewed facility policies to include documentation, policies and procedures that are specific to resuscitation attempts held in the prison environment. A written test was administered the week before the final mock Code Blue to determine the knowledge retention of the staff regarding BLS and facility specific procedures.

A repeat of the initial mock Code Blue on week six was performed to evaluate the effectiveness of the training sessions. A post mock Code Blue evaluation was performed in addition to a post training staff survey. These evaluation tools would serve to capture the

perception of the staff post training regarding their perception of their ability to effectively and efficiently perform a mock Code Blue.

Results

The staff that participated in the project consisted of ten people. This group was significantly lower than anticipated due to recent retirements and terminations. There were a series of questions regarding their title, length of time in the profession, length of time at the facility however there was no query regarding their gender or age. The participants were all females because the only male choose not to participate in the study. A total of seven Registered Nurses, two Licensed Practical Nurses and one Certified Nursing Assistant participated in the project. All of the participants had greater than 10 years of experience in nursing with varied experience levels at the facility. Six of the Registered Nurses had been at the facility greater than ten years with the remaining Registered Nurse having between six and ten years at the facility. One Licensed Practical Nurse had been at the facility between six and ten years while the other Licensed Practical Nurse had worked at the facility less than five years. The Certified Nursing Assistant had been at the facility between six and ten years.

Data analysis took place in September of 2019. Descriptive statistics were conducted to illustrate the change in learning from baseline to post-intervention during Code Blue resuscitation events.

Table 1

Question Number	Pre-Assessment Favorable Response Percentage	Post-Assessment Favorable Response Percentage	Percentage Difference Between Pre and Post Assessment Responses
1	80	100	+20
2	40	90	+50
3	60	90	+30
4	70	80	+10
5	80	80	0
6	70	80	+10
7	70	90	+20
8	80	90	+10
9	50	50	0
10	70	90	+20
11	70	70	0
12	50	80	+30
13	100	100	0
14	50	90	+40

Note: Percentage range from 0 to 100

The Code Blue pre and post surveys conducted by the participating staff consisted of 14 Yes/No questions. The Mann-Whitney U Test was performed and is noted as a two tailed hypothesis with the following information:

H0 - There is no difference between the ranks of the pre and post assessment tools data.

H1 - There is a difference between the ranks of the pre and post assessment tools data.

The significance level for the test was noted at .05. The U value for pre and post test data was calculated to be 35 and the critical value of U calculated at $p<.05$ is 55 therefore the results of the Mann-Whitney U test indicates that the data is significant at $p<.05$. The null hypothesis is rejected and therefore it is a difference between the data in the pre and post studies which indicates that the treatment information in the surveys could not be obtained by chance

In addition to the validity of the data, there were definite increases in pre and post training knowledge and confidence ranging from 10 to 40%. Positive staff perception regarding items such as staff roles, the effectiveness of chest compressions, using ancillary equipment and the effectiveness of codes on the unit were noted as having the greatest increase by the staff. Staff expressed a lack of confidence in communication and event documentation, medication preparation, and the use of the prison intercom system even after training was conducted.

Discussion

There are multiple applications of this project to improve the nursing practice of Code Blue at this facility. Participants in the study determined that the refresher BLS course was helpful and useful to their practice with a high-risk population. The positive outcomes associated with this study are an increase in the knowledge related to BLS skills which resulted in a greater sense of satisfaction among the staff to perform Codes Blue resuscitation skills. There was also an increase in the staff's ability to know and follow the facility policies and protocols associated with Code Blue events.

In addition to an overall increase in staff satisfaction associated with Code Blue activities at the facility, nursing management at the site have decided to increase the number of mock codes from quarterly to a more frequent cycle of training Code Blue events. There will also be an evaluation of new nursing employees regarding their BLS techniques and skillset even though BLS certification is required for employment at the facility. In addition to the review of American Heart Association BLS techniques, facility policies and protocols associated with

Code Blue activity will be reviewed on a frequent basis to assure readiness in the event of a resuscitation event.

Mock Code Blues will include all shifts and weekends with each shift having a code approximately every two months. During the course of the project, it was noted that updated simulators are recommended to provide a more realistic experience for the participants. The increase in the number of mock Code Blue events including all shifts and times coupled with the availability of realistic simulators will aid the staff in feeling more confident in their ability to perform BLS functions and techniques at an optimum level during a resuscitation event.

Limitations

There were a few limitations associated with the project. There was limited staffing with an anticipated number of staff at 20 however staffing was decreased to only 10 participants due to recent retirements and resignations. The researcher did not have the ability to perform the study utilizing day shift staff which would have increased the number of participants. There were instructional constraints since all education had to be taught on each individual hospital unit versus a classroom setting therefore instructions were started and stopped based on the needs of the patients on the unit. The training also had to occur late in the evening after the last medication administration, which usually concluded around 2100.

Conclusions

Research examining the deterioration of CPR knowledge and skills indicates that skills deteriorate faster than knowledge (Curran, Fleet, & Greene, 2012). The ultimate purpose for this project was to increase staff engagement in the mock Code Blue process by providing

increased and in-depth educational opportunities related to resuscitation attempts. Literature supports that delays in initiation of CPR and inconsistent BLS skills lead to negative patient outcomes and a lack of staff confidence in the delivery of those skills (Abella BS et al., 2005). It should be noted that a review of the literature on simulation training revealed that there is a correlation between the frequency of mock codes and nurse's comfort levels during an actual resuscitation attempt (Delac, Blazier, Daniel, & N.-Wilfong, 2013). Mock code training should provide the staff with an increased comfort level and confidence in their ability to provide effective and efficient BLS delivery to their patient population. The project was successfully conducted over a six week period and plans are to implement not only the increase in frequency of mock Code Blues but to engage staff in other educational endeavors associated with mock Code Blues at the facility. These educational endeavors include AED and defibrillator training, facility specific SOP training and review of the Code Carts.

Declaration of Conflicting Interests

The authors have no potential conflicts of interest with respect to the research, authorship and/or publication of this article. No research funding was provided to the authors.

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Appendix A

THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

_X Expedited (see pg 2)
_ Exempted (see pg 3)
_ Full Review
_ Extension of Approval

Date: 18 July 2019

PI: Charlene Martin
PI Department: College of Nursing
The University of Alabama in Huntsville

Dear Charlene,

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal titled: *The Effect of Increased Code Blue Training on Timeliness of Code Response and Competency in Resuscitation Procedures at an Inpatient Medical Correctional Facility: A Pilot Study* and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with these institutions Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date.

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair.

If you have any questions regarding the IRB's decision, please contact me.

Sincerely,

Ann L. Bianchi

Ann L. Bianchi
IRB Chair
Associate Professor, College of Nursing

Institutional Review Board Office
Augusta University
1120 15th St., CJ-2103
Augusta GA 30912-7621
Email: IRB@augusta.edu
Phone: 706-721-3110
http://www.augusta.edu/research/irboffice/

DATE: May 15, 2019

TO: Charlene Martin, MBA, MSN
FROM: Augusta University (AU) Committee B

PROJECT TITLE: [1369277-3] The Effect of Increased Code Blue Training on Timeliness of Code Response and Competency in Resuscitation Procedures at an Inpatient Medical Correctional Facility: A Pilot Study

SUBMISSION TYPE: Response/Follow-Up

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: May 13, 2019

REVIEW CATEGORY: Exemption category # 3

3- Research involving benign behavioral interventions in conjunction with the collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording if the subject prospectively agrees to the intervention and information collection and at least one of the following criteria is met:

a) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;

b) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or

c) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

i. For the purpose of this provision, benign behavioral interventions are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the investigator has no reason to think the subjects will find the interventions offensive or embarrassing. Provided all such criteria are met, examples of such benign behavioral interventions would include having the subjects play an online game, having them solve puzzles under various noise conditions, or having

them decide how to allocate a nominal amount of received cash between themselves and someone else.

ii. If the research involves deceiving the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject authorizes the deception through a prospective agreement to participate in research in circumstances in which the subject is informed that he or she will be unaware of or misled regarding the nature or purposes of the research.

Thank you for your submission of Response/Follow-Up materials for this New Project. The Augusta University (AU) Committee B has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations, 45 CFR 46 (DHHS) 2018 Requirements.

Research determined to be exempt does not require continuing review or protocol amendments (revisions and personnel changes). However, it must be noted that if the scope of the exempt protocol changes, the protocol must be re-submitted to the IRB for review.

The approval includes the following documents:

- Augusta - Core Data Form - Augusta - Core Data Form (UPDATED: 05/9/2019)
- Letter - Letter of Authorization for MOU Charlene Martin 4-2-9 (1).pdf (UPDATED: 04/30/2019)
- Other - Stipulation Response Letter Template 4-29-19-2.docx (UPDATED: 05/9/2019)
- Other - 2018 Exemption Determination Request (UPDATED: 05/13/2019)
- Protocol - 45CFR46.104 Protocol template 01.22.19_minor edits-3.docx (UPDATED: 05/9/2019)
- Other - Stipulation Response Letter Template 2-15-19.docs (UPDATED: 02/18/2019)
- Advertisement - Ad_template_08.31.18_SBR (1)-1.doc (UPDATED: 12/26/2018)
- Conflict of Interest - Other - Conflict of Interest - AU document.pdf (UPDATED: 01/23/2019)
- Consent Waiver - 2018 (New Regulations)_ Waiver of consent and Waiver of documentation of consent 01.18.19(1) (1).docx (UPDATED: 01/28/2019)
- Data Collection - DATA COLLECTION FORMS Word Documents 1-4-19.docx (UPDATED: 01/5/2019)
- Letter - Augusta University Consent Letter (1).docx (UPDATED: 01/27/2019)
- Other - Non-Affiliated Site Characteristics 1-4-19.docx (UPDATED: 01/22/2019)
- Other - Researcher Attestation Form 1-4-19.pdf (UPDATED: 01/22/2019)
- Other - Supplemental Forms #3 1-4-19.docx (UPDATED: 01/5/2019)
- Other - Supplemental Forms #2 1-4-19.docx (UPDATED: 01/5/2019)
- Other - Supplemental Forms #1 - 1-4-19.docx (UPDATED: 01/5/2019)
- Other - Agreement with Georgia Department of Corrections 12-26-18 Version 3.docx (UPDATED: 12/26/2018)

All Principal Investigators must comply with the following:

- If the project is funded by a non-Augusta University source, the Division of Sponsored Program Administration (DSPA) must also be notified of the change of scope and re-submission.
- Conduct the research in accordance with the protocol, applicable laws and regulations, and principles and research ethics as set forth in the Belmont Report.
- If applicable, conduct the informed consent process without coercion or undue influence, and provide the potential participant sufficient opportunity to consider whether or not to participate.

- Use only the most Augusta University IRB current approved consent form
- Provide non-English speaking subjects with a certified translation of the approved consent form in the subject's first language. The translation must be approved by the IRB unless other arrangements have been made and approved by the IRB.
- Obtain approval from the IRB for use of recruitment materials and other materials provided to subjects.

- Report all reportable events to the IRB within 5 days, per IRB Policy: "Reportable Events."
- Ensure all applicable ancillary approvals are obtained prior to initiating the study. This includes:
  - Medical Center approval if Medical Center resources are used
  - Biosafety Approval, if applicable
  - Radiation Safety Approval, if applicable
  - Chemical Safety Approval, if applicable

For information regarding records retentions, please visit:

- Augusta University IRB Policy: Records Retention located on the IRB Website: http://www.augusta.edu/research/irboffice/irb/gru-irb-policies.php.
- VA Studies- refer to the VHA RCS 10-1, Section IV, Office of Research and Development, Chapter 8 Research Investigator Files: https://www.va.gov/vhapublications/RCS10/rcs10-1.pdf

If you have any questions, please contact the IRB office at 706-721-3110 or irb@augusta.edu.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Augusta University's records. If the reader of this message is not the intended recipient you are hereby notified that any dissemination, distribution or copying of this information is STRICTLY PROHIBITED.

APPENDIX B

GEORGIA DEPARTMENT OF CORRECTIONS
EXECUTIVE SUMMARY

NAME OF CONSULTANT/CONTRACTOR:	**University of Alabama**
ORIGINATING UNIT:	**Office of Health Services**
CONTACT PERSON:	**Valerie Johnson**
TELEPHONE:	478-992-5892
TODAY'S DATE:	10/23/18

Purchase Order Number		Effective Date	10/23/18
Account Number		Termination Date	October 22, 2019
Fund Code		Original Effective Date	
Department Number		Original Agreement Amount	
Fund Source		All Previous Amendments	
Program Number		Amount of this Amendment	
Subclass		**Total Contract Amount**	**$0.00**
Project Number		Amendment Number	
		Renewal Number	

SCOPE OF SERVICES: To provide a Nursing Administration Experience for the students enrolled in the University of Alabama in Huntsville.

Please check appropriate box:

☐ **PERSONAL SERVICES AGREEMENT**	☐ **WORK DETAIL AGREEMENT**
☐ **PROFESSIONAL SERVICES AGREEMENT**	☐ **DESIGN PROFESSIONAL AGREEMENT**
☐ **INDEPENDENT CONTRACTOR AGREEMENT**	☐ **LIMITED SERVICE AGREEMENT**
☐ **GED – INDEPENDENT CONTRACTOR AGREEMENT**	☐ **LEASE**
☐ **GED – INTERGOVERNMENTAL AGREEMENT**	☐ **NON-PROFIT ENTITY AGREEMENT**
☐ **INTERGOVERNMENTAL EVENT AGREEMENT**	☐ **AMENDMENT**
☐ **INTERGOVERNMENTAL AGREEMENT**	☐ **CONSTRUCTION CONTRACT**
x☐ **OTHER** **Nursing Administration Experience.**	

I certify that competitive bidding is not required for the following reason:
The information in this box is True and Correct: _____
Signature of Contact Person

CENTRAL OFFICE USE ONLY

DIRECTOR APPROVAL	J. Randall Sears	**Date:** 11/7/18
PURCHASING DIVISION APPROVAL	[illegible]	**Date:** 10/26/18
BUDGET OFFICE APPROVAL	Kristen Kenney	**Date:** 10/29/18
CONTRACT ADMINISTRATION APPROVAL	[illegible]	**Date:** 11-1-18
LEGAL SECTION APPROVAL	[illegible]	**Date:** 11/1/18

LGL01

Legal Services
FY19 Executive Summary

Appendix C

Consent Form to Participate in Research at Augusta State Medical Prison

I have been asked to participate in a research study conducted by Charlene M. Martin, MBA, MSN, RN of the University of Alabama in Huntsville.

INTRODUCTION: Below are a description of the research procedures and an explanation of my rights as a research participant. In accordance with the policies of The University of Alabama in Huntsville and Augusta State Medical Prison, I have been asked to read this information carefully. If I agree to participate, I will sign in the space provided to indicate that I have read and understood the information furnished on this consent form. I am entitled to and will receive a signed copy of this form.

PURPOSE: .The purpose of this pilot study is to determine if an increase in the frequency and intensity of Code Blue (cardiopulmonary resuscitation) training for medical staff, compared to existing annual training will result in an improvement in the timeliness of Code Blue response as well as improvement of client outcomes in an inpatient medical correctional facility.

DURATION AND LOCATION OF STUDY: If I agree to participate in this study, my participation will last for approximately six weeks and will take place at Augusta State Medical Prison.

PROCEDURES: During this study, I will be asked to participate in mock Code Blue exercises, participate in classroom training to include a refresher course of the American Heart Association Basic Life Support guidelines and Georgia Department of Corrections Emergency Response Standard Operating Procedures regarding Code Blue events

POTENTIAL RISKS AND DISCOMFORTS: There are no known or anticipated risks associated with participation in this study.

BENEFITS: A benefit to me of participating in this study is an increased understanding of how research is conducted and to improve my responsiveness and competency during a Code Blue event at Augusta State Medical Prison.

CONFIDENTIALITY: I understand the data collected in this study will be kept confidential unless disclosure is required by law.

COMPENSATION FOR PARTICIPATION: I will receive no reimbursement for my participation in this study.

RIGHT TO REFUSE OR WITHDRAW: I understand that my participation is voluntary. I may refuse to participate or discontinue my participation at any time. I also understand that the researcher has the right to withdraw me from participation in the study at any time.

OFFER TO ANSWER QUESTIONS: If I have any questions about this study, I may call the researcher, Charlene Martin at 706-840-1602 or email at cmm0037@uah.edu.

****I CERTIFY THAT I AM AT LEAST 18 YEARS OLD AND I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT**.

PARTICIPANTS' SIGNATURE DATE

PERSON OBTAINING CONSENT:

I have allowed the individual names above the time to read this consent form and have answered any questions that have been asked. I will provide the participant with a copy of this consent form.

Appendix D

AUGUSTA STATE MEDICAL PRISON

Code Blue - Initial Survey

Date: _____

_____

Please circle 1 = Yes and 2 = No for each question.

1. Do you understand why a Code Blue is called at ASMP?

1 = Yes 2 = No

2. I have a clear understanding of my role during a code blue

1 = Yes 2 = No

3. I feel comfortable announcing my role and communicating with the resuscitation team during a crisis

1 = Yes 2 = No

4. The effectiveness of chest compressions is clearly being assessed in most cardiac arrest situations

1= Yes 2 = No

5. I believe one nursing role during code blues should be assessing the effectiveness of chest compressions during cardiac arrest

1 = Yes 2 = No

6. I fee l comfortable acting as the events recorder during a Code Blue

1= Yes 2 = No

7. I feel comfortable working with ancillary equipment such as the 02 tanks while taking part in a code blue

1 = Yes 2 = No

9. During a code blue I am most concerned about making a mistake

1 = Yes 2 = No

10. The use of patient simulators could play an important role in my critical incident training

1 = Yes 2 = No

11. I feel anxious about participation in mock code blue scenarios

1 = Yes 2 = No

12. I would feel comfortable participating in a code blue scenario with my colleagues observing me

1 = Yes 2 = No

13. I believe that team debriefing after code blues is important

1 = Yes 2 = No

14. I believe that code blues on this unit are effectively run

1 = Yes 2 = No

15. Which skills would you most benefit to review to help you become better during mock codes or actual codes?

_ Bag/mask ventilation 1 = Yes 2 = No

_ Chest compressions Yes 2 = No

_ Medication preparations 1 = Yes 2 = No

Communication 1 = Yes 2 = No

Documentation 1 = Yes 2 = No

16. During a resuscitation or mock code:

_ I am comfortable with my role on the team. 1 = Yes 2 = No

I am comfortable and confident with documentation. I = Yes 2 = No

_ I am able to effectively provide chest compression 1 = Yes 2 = No

_ I am able to effectively maintain an airway. 1 = Yes 2 = No

_ I am comfortable with the process of calling a code over the intercom/phone system.
1 = Yes 2 = No

_ I am comfortable with calling "911" 1 = Yes 2 = No

DEMOGRAPHICS

4. What is your title?

_____RN
_____LPN
_____C.N.A

5. How long have you had a license/certification?

_____0-5 years
_____6-10 years
_____Greater than 10 years

6. How long have you been employed at ASMP?

_____0-5 years
_____6-10 years
_____ Greater than 10 years

AUGUSTA STATE MEDICAL PRISON

Code Blue - Post Survey

Date: _____

Please circle 1 = Yes and 2 = No for each question.

I. Do you understand why a Code Blue is called at ASMP?

I = Yes 2 = No

2. I have a clear understanding of my role during a code blue

I = Yes 2 = No

3. I feel comfortable announcing my role and communicating with the resuscitation team during a crisis

I = Yes 2 = No

4. The effectiveness of chest compressions is clearly being assessed in most cardiac arrest situations

= Yes 2 = No

5. I believe one nursing role during a code blue should be assessing the effectiveness of chest compressions during cardiac arrest

1 = Yes 2 = No

6. I feel comfortable acting as the events recorder during a Code Blue

= Yes 2 = No

7. I feel comfortable working with ancillary equipment such as the 02 tanks while taking part in a code blue

1 = Yes 2 = No

8. I feel comfortable asking for help during a code blue

1 = Yes 2 = No

9. During a code blue I am most concerned about making a mistake

1 = Yes 2 = No

10. The use of patient simulators could play an important role in my critical incident training

1 = Yes 2 = No

11. I feel anxious about participation in mock code blue scenarios

1 = Yes 2 = No

12. I would feel comfortable participating in a code blue scenario with my colleagues observing me

1 = Yes 2 = No

13. I believe that team debriefing after code blues is important

1 = Yes 2 = No

14. I believe that code blues on this unit are effectively run

1 = Yes 2 = No

15. Which skills would you most benefit to review to help you become better during mock codes or actual codes?

_ Bag/mask ventilation 1 = Yes 2 = No

_ Chest compressions Yes 2 = No

_ Medication preparations 1 = Yes 2 = No

Communication 1 = Yes 2 = No

Documentation 1 = Yes 2 = No

16. During a resuscitation or mock code:

_ I am comfortable with my role on the team. 1 = Yes 2 = No

I am comfortable and confident with documentation. I = Yes 2 = No

_ I am able to effectively provide chest compression 1 = Yes 2 = No

_ I am able to effectively maintain an airway. 1 = Yes 2 = No

_ I am comfortable with the process of calling a code over the intercom/phone system.
1 = Yes 2 = No

_ I am comfortable with calling "911" 1 = Yes 2 = No

DEMOGRAPHICS

4. What is your title?

_____RN
_____LPN
_____C.N.A

5. How long have you had a license/certification?

_____0-5 years
_____6-10 years
_____Greater than 10 years

6. How long have you been employed at ASMP?

_____0-5 years
_____6-10 years
_____Greater than 10 years

APPENDIX E

MOCK CODE ASSESSMENT FORM -Augusta State Medical Prison

Unit:	**Date/Time:**
Manager:	**Instructor:**
Scenario	

Event	Time	Performed Correctly Y	N	N/A	Comments
Assessment and Activation					
Scenario Start		Y	N	N/A	
Assess Patient for Responsiveness		Y	N	N/A	
Performs Respiratory Assessment		Y	N	N/A	
Call for Help					
Check for Circulation		Y	N	N/A	
Calls Code Blue or Directs Another to Activate Facility Code Blue		Y	N	N/A	
Calls x 3 via Campus Wide Paging System or Via Radio if Phones are Inactivated		Y	N	N/A	
Crash Cart Brought to the Scene		Y	N	N/A	
CPR Skills					
Patient Placed in Supine Position		Y	N	N/A	
Backboard placed Under patient		Y	N	N/A	
CPR Initiated		Y	N	N/A	
Proper Hand Placement		Y	N	N/A	
Adequate Rate of Compressions 100-120		Y	N	N/A	
30:2 Compression to Breath Ratio		Y	N	N/A	
Proper Depth of Compressions		Y	N	N/A	
2 Man CPR - Change Over after 2 min or 5 Cycles of 30:2		Y	N	N/A	
Ventilation					
Positions Mask Properly on Face		Y	N	N/A	
Effectively Ventilates with a BVM device		Y	N	N/A	
Two breaths after Every 30		Y	N	N/A	

Compressions			
Defibrillation			
Correct Pad Placement		Y N N/A	
Clears before Analyze and Shock		Y N N/A	
Resumes CPR after Shock Delivery		Y N N/A	
Team Leader			
Assigns Team Roles		Y N N/A	
Paperwork Completed		Y N N/A	
Report Given		Y N N/A	
		Y N N/A	

Comments

APPENDIX F

BLS Practice Test

1. The compression to ventilation ratio for one rescuer giving CPR to individuals of ANY age is:
   A. 30:1
   B. 30:2
   C. 15:1
   D. 15:2
2. How often should rescuers switch roles when performing two-rescuer CPR?
   A. After every cycle of CPR
   B. After every two cycles of CPR
   C. After every five cycles of CPR
   D. After every 10 cycles of CPR
3. The proper steps for operating an AED are:
   A. Power on the AED, attach electrode pads, shock the individual, and analyze the rhythm
   B. Power on the AED, attach electrode pads, analyze the rhythm, clear the individual, and deliver the shock
   C. Attach electrode pads, check pulse, shock individual, and analyze rhythm
   D. Check pulse, attach electrode pads, analyze rhythm, shock patient
4. Where should you attempt to perform a pulse check in a child sho is anywhere from one year to puberty?

A. Brachial artery

B. Ulnar artery

C. Temporal artery

D. Carotid or femoral artery

5. The initial Basic Life Support (BLS) steps for adults are:

A. Assess the individual, give two rescue breaths, defibrillate, and start CPR

B. Assess the individual, activate EMS and get AED, check pulse, and start CPR

C. Check pulse, give rescue breaths, assess the individual and defibrillate

D. Assess the individual, start CPR, give two rescue breaths, and defibrillate

6. The critical characteristics of high-quality CPR include which of the following?

A. Starting chest compressions within 10 seconds of recognition of cardiac arrest

B. Pushing hard and fast

C. Minimizing interruptions

D. All of the above

7. The five steps in the Adult Chain of Survival include all of the following EXCEPT:

A. Early CPR

B. Rapid defibrillation

C. Advanced airway placement

D. Integrated post-cardiac arrest care

8. The 2015 AHA guidelines for COR recommended BLS sequence of steps are:

A. Chest compression, Airway, Breathing

B. Airway, Breathing, Check pulse

C. Attach electrode pads, check pulse, shock individual, and analyze rhythm

D. Airway, Breathing, Check compressions

E. None of the above

9. Which of the following are signs of airway obstruction?

   A. Poor air exchange

   B. High-pitched noise while inhaling

   C. Inability to speak

   D. All of the above

10. In an adult with an advanced airway in place during two-rescuer CPR, how often should the breaths be administered?

   A. Every 2 to 3 seconds (20-30 breaths per minute)

   B. Every 4 to 5 seconds (12 to 15 breaths per minute)

   C. Every 6 to 8 seconds (8 to 10 breaths per minute)

   D. Every 10 to 12 seconds (5 to 6 breaths per minute)

APPENDIX G

GEORGIA DEPARTMENT OF CORRECTIONS Standard Operating Procedures		
Functional Area: Health Services - Physical Health	**Reference Number:** VH31-0001	**Revises Previous Effective Date:**
Subject: Urgent/Emergent Care Services		9/01/01
Authority: Wetherington/Oxford	**Effective Date:** 7/15/02	Page 1 of 9

I. **POLICY:**

Emergency services will be made available twenty-four hours a day, seven days a week at all facilities to provide acute care for medical, dental or mental health conditions which cannot be deferred until the next scheduled sick call or clinic.

II. **APPLICABILITY:**

This policy is applicable to all State, Private, and County Prisons, Boot Camps, Detention, Diversion and Transitional Centers.

III. **RELATED DIRECTIVES:**

A. NCCHC 1997 Adult Standard: P-41.

B. NCCHC 1999 Juvenile Standard: Y-42.

C. ACA 1990 Standards: 3-4209, 3-4335, 3-4343, 3-4344, 3-4347, 3-4350, 3-4351, 3-4356, 3-4360.

D. GDC R & R: 125-4-4.01.

E. GDC SOPs:

1. IIA10-0001 [Death of an Inmate]
2. VG01-0005 [MH/MR Referral and Triage]
3. VH05-0002 [Continuing Education for Qualified Health Services Personnel]
4. VH05-0003 [Health Related Training for Correctional Officers]

5. VH15-0004 [Hospital and Specialized Ambulatory Care]

6. VH25-0002 [Orientation of Inmates/Probationers for Access to Health Services]

7. VH31-0004 [Disaster Plan]

8. VH31-0007 [Automated External Defibrillation]

9. VH47-0005 [Inmate/Probationer Death and Mortality Reviews]

IV. DEFINITIONS:

A. ACLS: Advanced Cardiac Life Support.

B. BLS: Basic Life Support (i.e., Cardiopulmonary Resuscitation).

C. CPR: Cardiopulmonary Resuscitation.

D. AED: Automated External Defibrillator

E. Urgent/Emergent Health Care: Care for an acute illness or unexpected health need that cannot be deferred until the next scheduled sick call or clinic.

F. Local Emergency Medical Services (EMS): Community emergency response services such as 911 or private ambulance services.

G. Major Facilities: Augusta State Medical Prison, Arrendale, Autry, Baldwin, Bostick, Burruss, Calhoun, Central, Coastal, Coffee CF, Dodge, Dooly, D. Ray James CF, GDCP, GSP, Hancock, Hays, Johnson, Lee, Macon, Men's, Metro, Phillips, Pulaski, Rivers, Rogers, Rutledge, Scott, Smith, Telfair, Valdosta, Walker, Ware, Washington, Wheeler CF, and Wilcox.

H. Mock Code: A simulated cardiac arrest or other life threatening medical emergency.

I. Responsible Health Authority: An individual, who may or may not be a physician, designated to ensure the provision of appropriate health care for inmate/probationers. When this authority is not a

physician, medical judgments rest with a nurse practitioner, physician's assistant, or physician.

J. A physician may be a M.D. or D.O. if licensed to practice in the State of Georgia.

V. ATTACHMENTS:

None

VI. PROCEDURE:

A. Local Operating Procedures (LOP) For Medical Emergency Response.

1. The responsible health authority in each facility will develop Local Operating Procedures (LOP) for management of all unscheduled medical visits and emergencies. The LOP will address the following areas:

a. Initial response of correctional personnel to an urgent/emergent medical situation including the use of first aid and CPR and AED, when indicated, and the immediate notification of health care personnel.

b. The availability of on-call providers when health care personnel (including dental) are not present in the facility, including the development of an on-call schedule with names, addresses and telephone numbers of providers to be notified in case of an emergency, in accordance with VH4-0004.

c. Location and use of emergency equipment and the crash cart.

d. The use and location of ACLS protocols for facilities with ACLS capability.

e. Emergency evacuation of an inmate/probationer, correctional employee, or visitor from within the facility when required.

f. Use of an emergency vehicle (including 911 or other local EMS utilized by the facility).

g. Use of one or more designated hospital emergency departments or other appropriate facilities, including the telephone number of a Poison Control Center.

h. Procedure for downloading EKG data from the AED.

i. Use of ASMP for inmate/probationers with urgent conditions who could be safely transported and managed at this facility after stabilization.

j. Procedures to be followed in the event of an inmate/probationer death, please refer to VH47-0005 [Inmate/Probationer Death and Mortality reviews] and IIA10-0001 [Death of an Inmate]

2. The responsible health authority will be involved in and is responsible for the medical aspects of the facility's disaster plan and associated disaster drills, as well as all medical emergency drills, in accordance with VH31-0004 [Disaster Plan] and IIB01-0012 [Operations Emergency Plan].

B. Training for Medical Emergencies.

1. Health Care Personnel

a. All health care personnel will receive training regarding emergency response during orientation to the facility. Training will include all aspects of the facility's emergency procedure. A current syllabus of each facility's training program will be available at all times.

b. All health care providers will be certified in an American Heart Association Basic Life Support (BLS) course for Health Care Providers course including the use of an AED. They will be re-certified annually. Evidence of re-certification will be maintained in the employee's personnel file.

c. The Medical Director or designee, at all major facilities will be certified in an American Heart Association Advanced Cardiac Life Support (ACLS). Other licensed health care providers are encouraged to receive similar training.

2. Correctional Officers.

a. All correctional officers will receive training in first aid, and standard precautions. Officers will be trained in BLS and the use of an AED as a part of Basic Correctional Officer Training (BCOT). Correctional officers will be re-trained every year in BLS and the use of an AED. First aid will be reviewed annually.

b. Correctional officers will receive training regarding the local operating procedure for emergency and disaster response during orientation to the facility. This training will include notification of health care personnel and the facility chain of command in the event of an emergency, accessing local emergency services, and other associated duties such as accurate documentation of emergency events and response.

c. Correctional officers will receive training during orientation regarding the location and contents of first aid kits and procedures for re-supplying kits following use.

d. The Medical Director or responsible health authority will advise the Warden/Superintendent of changes regarding emergency response procedures as indicated.

C. Emergency response drills.

1. On a quarterly basis, each facility will conduct an unannounced emergency drill with complete documentation including a critique. These drills are for the purpose of evaluating the timeliness of response, appropriateness of care, proper use of equipment and efficiency of the response by the correctional and health care personnel. The

facility's annual disaster drill will not be a substitute for the emergency medical drill for that quarter, unless there is a mock medical component included in the facility drill. During the course of the year, all shifts will be involved in a "Mock Code" or emergency drill. Each drill will vary in the type of medical emergency presented. One of the four drills should be a cardiac arrest. The following types of drills are recommended: cardiac arrest, hanging, uncontrolled bleeding, and unconsciousness.

2. Drills will be coordinated with the Warden/Superintendent or designee but will be unannounced to most correctional and health care personnel.

3. Immediately following each emergency drill, the participating staff will be verbally debriefed regarding the strengths and weaknesses of the response and measures for improving the quality of the emergency response. Health care personnel will be encouraged to identify opportunities for improvement as well as to identify their own training needs. The debriefing will include a brief in-service regarding major physiologic principles in order to improve knowledge regarding the specific medical emergency.

4. The emergency scenario and response of each drill will be documented. The assessment will include the response of correctional staff, facility health care personnel and local emergency services if used. Training needs will be identified and a plan for implementation of training developed. Results of emergency drills will be included in Quality Improvement meetings and shared with the Warden/Superintendent and local emergency services as appropriate.

5. Actual emergencies may be substituted for a planned drill if the emergency involved the implementation of ACLS protocols. Actual emergencies may be substituted for planned drills once in a twelve (12) month period.

D. Emergency Equipment.

Emergency equipment and supplies will be maintained in accordance with SOP VH 31-0006.

E. Health Care Personnel Response to Urgent/Emergent Situations

1. Medical emergencies occurring in the medical unit

a. When a medical emergency occurs in the medical unit, health care personnel will provide immediate BLS measures (e.g., CPR, AED) at all facilities. At major facilities, if ACLS certified clinicians are present, they will implement ACLS protocols, as clinically indicated. Resuscitation efforts will be documented on the GDC Resuscitation Record (P-31-0001-02). The responsible health authority and local EMS will be notified as appropriate.

b. If at all possible, the precise timing of vital signs, medications and treatments administered during the emergency will be recorded by a member of the health care team and entered on the GDC Resuscitation record.

c. If this is not possible, documentation will be completed as soon as possible, after the emergency has been resolved. This form will be placed in the progress note section of the health record.

d. If a medical emergency results in transport of the patient to a local hospital, the health record is not to accompany the patient. A consultation sheet will be completed with pertinent medical history and sent with the patient to the emergency room.

e. Medical emergencies occurring in the medical section will be recorded on the Urgent/Emergent Log (P-03-0005-09). The time of notification and time of arrival at the patient should be documented in the appropriate columns.

f. The most clinically appropriate method of transporting an inmate/probationer to the local hospital, i.e. EMS or state van will be determined by a Nurse Practitioner, Physician Assistant or Physician. A verbal or telephone order documenting the mode of transportation will be obtained and co-signed within five working days.

g. Any patient requiring resuscitation (e.g. CPR or assisted ventilation) will be transported to a local hospital via EMS for stabilization.

h. **If the AED is utilized, the Office of health Services will be notified by the next working day.** The ECG information should be downloaded to disk and printed. The file on the disk is to be attached to e-mail to the Office of Health Services. Copies of the GDC Resuscitation Record, Urgent/Emergent Log entry, incident reports and other supporting documentation will be faxed as directed to the Office of Health Services. The AED data is to be faxed to the local emergency room at their request.

i. All resuscitation attempts will be reported to the Office of Health Services the next working day. Copies of the GDC Resuscitation Record, Urgent/Emergent Log entry, incident reports and other supporting documentation will be faxed as directed to the Office of Health Services.

2. Medical emergencies occurring outside of the medical unit. Also see SOP VH 31-0005.

a. When a medical emergency occurs outside of the medical unit, the correctional officer will immediately notify health care personnel.

b. The first responder will provide immediate first aid measures. Health care personnel will respond to the emergency immediately with the emergency response bag, portable oxygen and an AED.

c. The goal is to reach the patient within four to six minutes. Delays in response or access to the patient should be documented on the rear of the Urgent/Emergent Log.

d. If available, the implementation of Advanced Cardiac Life Support procedures should take place as soon as possible, prior to the arrival of EMS.

e. If at all possible, the precise timing of vital signs, and treatments administered during the emergency will be recorded on the GDC Resuscitation Record, (P-31-0001-02). If this is not possible, documentation will be completed as soon as possible after the emergency has been resolved.

f. All resuscitation attempts will be reported to the Office of Health Services the next working day. Copies of the GDC Resuscitation Record, Urgent/Emergent Log entry, incident reports and other supporting documentation will be faxed as directed to the Office of Health Services

F. Mental health emergencies will be managed in accordance with VG01-0005 [MH/MR Referral and Triage].

G. Documentation of Urgent/Emergent Events

1. The use of the Urgent/Emergent Encounter Log (P-03-0005-09) is mandatory. See SOP VH03-0005.

2. Emergencies that occur in the medical section or infirmary will be recorded on the Urgent/Emergent Care Log.

3. The Director of Nursing or designee will review the Urgent/Emergent Care Log the next working day to determine what follow-up care is appropriate for patients evaluated in the previous twenty-four hours. The log should be dated and initialed by the reviewer.

4. The Urgent/Emergent Care Log is to be reviewed on a weekly basis by the responsible heath authority or

designee to determine the nature and numbers of urgent/emergent events and the quality of the response by the various staff involved. Opportunities for improvement will be identified and appropriate training will be provided to the staff involved.

H. Follow-up After Urgent/Emergent Events

The nursing staff or on-call duty officer will advise the responsible health authority or designee regarding the transport of an inmate/probationer to any local hospital for an urgent/emergent event. When the inmate/probationer returns to the facility following transportation for an urgent/emergent event, a nurse practitioner, physician's assistant, or physician will evaluate them the next working day for follow-up care. The follow-up encounter will be documented on a progress note in the health record.

Georgia Department of Corrections Resuscitation Record

Name:_____ **EF#:**_____ **DOB:**___/___/___ **Race:**____ **Sex:**____

Facility:_____ **Location found:**_____ **Date:**___/___/___

Time Found:___:___ **Found by:**_____ **Time EMS Notified:**___:___ **Time EMS Arrived:**___:___

Time EMS Departed:___:___

Condition when found:

☐ Conscious ☐ Unconscious Respirations:____ Pulse:____ Blood Pressure:____/____

☐ Blood Glucose (**Venous Sample**)____mg/dl

Airway:

☐ Oral ☐ Nasal ☐ Suctioned ☐ Intubated:___:___(Time), ___(Number of attempts)

☐ Mouth-to-mouth ☐ Emesis ☐ Breath sounds present bilaterally post-intubation

☐ Bag-valve-mask ☐ Foreign body present ☐ Time Breath sounds checked:___:___

☐ Oxygen administered Liters per minute:____ SpO2:_____

Respirations:

☐ Normal ☐ Shallow

☐ Labored ☐ Absent

☐ B.V.M.

Color:

☐ Pale/Ashen

☐ Cyanotic

☐ Flushed

Type of Arrest:

☐ Cardiac ☐ Other:_____

☐ Respiratory

☐ Unknown

Chest Compressions:

Time begun:___:___ Complications noted: ☐ Yes ☐ No

Time Stopped:___:___

List:_____

Defibrillation/Cardioversion: ☐ **AED** ☐ **Manual** **Defibrillation: D** **Number of shocks delivered:**____ **Cardioversion: C**

Time	Joules	D or C	Rhythm Pre	Rhythm Post	Conversion: Yes/No

Drug Therapy:

Page 1 of 4

Time	Route	Epinephrine	Atropine	Lidocaine	Bretylium	Sodium Bicarbonate	Dopamine	Dose	Rhythm

Other Medications:

Time	Route	Medication:	Dose	Rhythm

Intravenous Fluids and Infusions:

Time	Solution	Medications	Amount (cc)

I.V. Sites:

#1: Time:____:____ Size:_____ Number of attempts:_____
Location:_____

#2: Time:____:____ Size:_____ Number of attempts:_____
Location:_____

#3: Time:____:____ Size:_____ Number of attempts:_____
Location:_____

Vital Signs:

Time	Blood Pressure	Pulse	Respirations	SpO2

Progress Notes:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Disposition:

☐ Resuscitated ☐ Pronounced ☐ Transported to hospital: _____

Condition at time of transport:

☐ Conscious ☐ Unconscious ☐ CPR in Progress

Advanced Clinical Provider:_____**(MD NP PA)**

Recording Nurse:_____**(LPN RN)**

Personnel Present During Resuscitation:_____

_____

EKG Documentation:

Place EKG Rhythm Strip Here

Place EKG Rhythm Strip Here

Place EKG Rhythm Strip Here

Place EKG Rhythm Strip Here

Place EKG Rhythm Strip Here

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