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Rapid Response Team Education in Improving Bedside Nurses` Knowledge and Skills

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Running Head: RAPID RESPONSE TEAM EDUCATION

Capstone Project

Final Written Report

Rapid Response Team Education in Improving Bedside Nurses` Knowledge and Skills

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Executive Summary

Rapid response system (RRS) is considered a powerful tool in patient safety (Simmes, et al., 2013). It is a process where critical care expertise is brought to the patient`s bedside. It is an initiative designed to prevent patient deaths and to improve patient outcomes (Institute of Healthcare Improvement, 2011). The practice issue is, at the medical-surgical floors at a large medical center in one hospitals of Northeastern New York, there is a failure to rescue on their medical-surgical patients secondary to issues concerning delays in activating the rapid response team and delays in recognizing patients` signs and symptoms of deterioration by the medical-surgical nurses.

The purpose of this project is to determine if rapid response team (RRT) education will improve bedside nurses` knowledge and skills in activating the team as evidenced by an increase of RRT activation and to determine if RRT education will enhance bedside nurses` clinical decision making in activating the team. The main goal of this project is to provide an effective and timely response to patients` deterioration on the floors. The project` objectives are identified as increasing number of RRT activation by 50%, decreasing munber of patients transferring to the intensive care unit (ICU) by 10%, recognizing patients` conditions early, providing immediate patient intervention(s), and enhancing bedside nurses` clinical decision in activating the team.

This project was implemented through provision of a sixty-minute RRT education to the medical-surgical floor nurses covering RRT education obtained from IHI website, pre and post-tests surveys and statistical analysis. Survey showed mixed results – on analytical statistical analysis, RRT education showed negative correlation and no significance on the nurses` confidence level in activating the team. Meanwhile, pre and post-test results showed that RRT education increased the nurses` confidence level in activating the team.

Problem Recognition and Definition

Statement of Purpose

In the United States, 98,000 hospitalized patients die annually due to cardiac arrest (Brown, Anderson, & Hill, 2012). According to Morse, Warshawsky, Moore and Pecora (2007), changes in patients` condition usually exist as early as forty eight hours before a "code blue". Experts reported that 68% of hospital cardiac and/or respiratory arrests are avoidable, and in 48% of those cases, patients were already showing signs of deterioration but went unreported by healthcare providers (Orfanos, 2004).

Studies in the United States, Canada, Australia and the United Kingdom suggested that adverse events occur in 10% of hospitalized patients with reported mortality rates ranging from 5-8% (Aneman & Parr, 2006). It is estimated that 50% of these adverse events are preventable (Baker, Norton, Flintoft, Blais, & Cox, 2004). When these adverse events are prevented and identified early, more lives could be saved. The Institute of Healthcare Improvement (IHI) recognizes the need for having a safety measure to assist healthcare professionals at bedside in the prevention and identification of patient deterioration.

Rapid response team (RRT) is an evidence-based practice (EBP) that most hospitals in the country are utilizing. Despite of its known value in preventing patients deterioration and improving outcomes, there is still mixed information on its effectiveness in decreasing patient transfers to the ICU and decreasing number of hospital codes. Rapid response systems (RRS) are considered a powerful tool in patient safety (Simmes, et al., 2013). The Rapid Response Team (RRT) is one of the six initiatives that the Institute of Healthcare Improvement (IHI) "100,000 Lives Campaign" identified in 2004 (Grissinger, 2010). The concept of implementing the rapid response system, also known as Rapid Response Team (RRT) or Medical Emergency Team (MET), is simply to bring critical care expertise at the patient`s bedside (or when needed) (Institute of Healthcare Improvement, 2011). The initiative was designed to prevent patient

deaths and to improve patient outcomes. The goals of the team are to recognize early signs of deterioration and to prevent avoidable code events (Arashin, 2010). In an Australian study, it was mentioned that the rapid response systems are established to decrease patient in-hospital mortality, principally through the prevention of cardiac arrest (Le Guen, Tobin, & Reid, 2015). According to Lee, Bishop and Hillman (1995), RRTs were developed "to promote rapid assessment and treatment of patients whose clinical condition was deteriorating but were not in shock or cardiac arrest" (p. 183), and the team helps detects any significant clinical deterioration at the earliest opportunity, therefore, quickly addressing the issue (s) and preventing further deterioration.

Delays in activating Rapid Response Team (RRT) calls are common and associated with high mortality, while early intevention during the course of clinical deterioration can improve patient outcomes (Bonniati, et al., 2013). Early RRT calls are associated with decreased mortality while late calls are associated with increased patient morbidity and mortality (Jones, 2013). Early requests for assistance allow identification of patients at risk of deterioration and can target interventions to improve patient care (Stelfox, Bagshaw, & Gao, 2012). Recognition of altered physiological observations to complex process involves knowledge and experience (Guinane, Bucknall, Currey, & Jones, 2013).

Issues of delayed response and failure to notify the RRT are related to inability to recognize patients` deterioration and can be associated to environmental factors. According to Roberts and colleagues (2014), recognition and addressing barriers can improve rapid response` system safety culture, and can have a positive impact on cardiac and/or respiratory arrests and mortality outside the intensive care unit (ICU). These barriers are related to perceptions that one has necessary skills and abilities to perform or face issues, challenges related to navigation of the intra-professional and inter-professional hierarchies that lead to delays in activating the team when patient condition deteriorates, and reluctance among sub-specialty attending physicians to

transfer patients to the ICU or a higher level of care for fear of inappropriate treatment (Roberts, et al., 2014). Other possible system failures identified are mutiple factors including delays in diagnosis and misdiagnosis (on physician`s side), inadequate interpretation of clinical symptoms, incomplete treatment, inexperienced staff, and patient management in appropriate clinical areas (Orfanos, 2004).

Considering that early interventions could save lives, issues concerning delays in calling the rapid response team exist. It is believed that recognition of physiological observations and response to complex process involves knowledge and experience and early intervention and escalation of care are important (Guinane, Bucknall, Currey and Jones, 2014); and earlier intervention improves patient`s survival (Pusateri, Prior, & Kiely, 2011). According to Steen (2010), an effective education, appropriate knowledge and skills are required to aid in identification of the deteriorating patient and helps provide prompt, timely and appropriate intervention to prevent further deterioration and possibly death. Additionally, a well-planned education program aimed at making nursing staff thoroughly familiar with the purpose and process of the rapid response team, the development of clear-cut calling criteria, and the involvement of key stakeholders, including nurses, in the design and implementation of the rapid response team can alleviate issues concerning delays of activating the rapid response team (Jenkins & Lindsey, 2010).

Staff that do not work in critical care areas may not have the exact knowledge, skills and experience in treating critically ill patients, however, they are instrumental in implementing timely and appropriate intervention to prevent deterioration and reduce mortality and morbidity (Steen, 2010) because timely deployment most often depends on staff nurses (Wynn, Engelke, & Swanson, 2009). The rationale for many of these strategies on implementing timely and appropriate intervention according to Steen (2010), is to prevent patient from deteriorating through providing an education, informing staff, and providing them with the necessary skills.

Bedside nurses, by virtue of their close proximity to their patients and their knowledge to their patients, can help identify subtle changes in patients condition, therefore, activating the rapid response team for additional help (Wynn, Engelke, & Swanson, 2009). The nurse who is caring for the patient must take the initiative to activate the rapid response team as soon as clinical deterioration becomes evident (Lindsey & Jenkins, 2013).

Problem Statement

What prompted the study is the author`s observation throughout the hospital that there were delays in activating the team, delays in recognition of patients` signs and symtoms of deterioration, gaps in understanding how the team works and delays in identifying who, how, and when to call for help. For rapid response systems to be effective, it is critical that non-ICU staff nurses are both confident in their ability to initiate a rapid response team call and be comfortable with their roles during the call (Pusateri, Prior, & Kiely, 2011).

PICO

This project study utilizes the acronym "PICO", rather than stating a formal research hypothesis. The acronym stands for: Population or Disease (P), Intervention or Issue of Interest (I), Comparison group or Current Practice (C), and Outcome (O), and is usually framed as a question (Melnyck and Fineout-Overholt, 2011, p. 31). For this project, the PICO model stated as:

- P – Medical-Surgical nurses at a large medical center
- I – Provide RRT education focusing on what, who, how, and when to call RRT
- C – Medical – Surgical nurses only received RRT education during new hire orientation for a brief period of time (**current practice**)
- O – Increased activation and knowledge of RRT

Building on the existing evidence, the project`s purpose is to determine if rapid response team (RRT) education will improve bedside nurses` knowledge and skills in activating the team, as evidenced by an increase in RRT activation and to enhance nurses` clinical decision making and knowledge in activating RRT. The PICO related question of this study is stated as:
For medical-surgical nurses in two medical units at a large medical center, will providing RRT education as compared to current practice of short education orientation result in increased activation and knowledge of RRT?

The secondary questions this project study seeks to address are:

1. Will knowledge of how, who, why and when to call the rapid response team increase rapid response team activation?
2. What are the nurses` determinants in activating the rapid response team?
3. Will previous rapid response team experience(s) impact the nurses` decisions to activate the team?
4. Will other members of the team influence the nurses` decision to activate the rapid response team?
5. How will the leadership/administrative support impacts and/or influences the rapid response team activation?

The objectives of this project study are to increase the number of appropriate activation of the rapid response team by 50%, to decrease the number of patients transferring to the intensive care units (ICUs) by 10%, to recognitize of patients` symptoms early, to provide immediate patient interventions, and to improve nurses` critical thinking skills as evidenced by activating the team.

Project Significance

Patients` safety is of utmost priority of hospitals. Despite of several strategies that are implemented to keep hospital patients` safe, there are multitude of events and factors that prevent

from these strategies to be properly implemented - and when they are implemented, they are often delayed. According to Sebat, and colleagues (2007), recognition and treatment are often delayed due to insufficient knowledge of healthcare providers, and the inability of front - line personnel to initiate treatment. It is estimated that delays in treating preventable conditions, such as respiratory illnesses or infection related conditions are costing the United States economy $24.3 billion annually (Moore & Moore, 2012). With preventable conditions, such as sepsis – where among surgical patients, continues to be common and a serious issue among healthcare institutions. Sepsis remains the leading cause of patient`s death in non-cardiac ICUs, and carries a mortality rate of 25% - 30% (Society of Critical Care Medicine, 2015). According to Wynn and colleagues (2009), undetected patients` deterioration has mortality rate as high as 80%. On a descriptive study done by Franklin and Matthew on code blue situations with more than one hundred fifty cases, both found that only seven patients (4.6%) returned to baseline functioning post–hospital discharge (Wynn, Engelke, & Swanson, 2009).

Theoretical Framework

The project`s theoretical frameworks are The Synery Model by the American Association of Critical-Care Nurses (AACN), the Theory of Prevention by Neuman, and the Theory of Empowerment by Rosabeth Moss Kanter.

According to the American Association of Critical-Care Nurses` (AACN) Synergy Model, the needs or characteristics of patients and families influence and drive the characteristics or competencies of a nurse (American Association of Critical Care Nurses, 2014). Patient characteristics are paired with appropriate nursing competencies to promote optimal patient outcomes by working synergistically toward mutual goals (Arashin, 2012). The AACN`s Synergy Model has eight patient characteristics (resiliency, vulnerability, stability, complexity, resource availability, participation in care, participation in decision-making and predictability) to meet patients` needs based on their conditions and complexities and eight nursing characteristics

(clinical judgment, advocacy and moral agency, caring practices, collaboration, systems thinking, response to diversity, facilitator of learning and clinical inquiry) to integrate nurses` skills and expertise to guide their practice for promoting best patient outcomes (American Association of Critical Care Nurses, 2014). Synergy occurs when the needs and characteristics of a patient, clinical unit or system are matched with a nurse's competencies (American Association of Critical Care Nurses, 2014). The synergy model ensures that patient`s needs are identified, the right resources are utilized, and the best outcomes for the patient are realized (Arashin, 2012).

Patients who are needing the rapid response team are usually having very complex diagnoses and treatments (for example - developing sepsis that is masking by other symptoms, such as fever and confusion). Patients are very vulnerable to sudden changes and deteriorations on their health conditions (for example - sudden hypotension requiring vasopressors (Levophed, Vasopressin, and Dopamine) or dyspnea requiring intubation). Good assessment skills and clinical judgment by the team will come hand in hand in detecting and responding to those changes on patient`s condition described. The ability of the rapid response team to grasp "hidden" changes or "sublteties" of patient`s presentation is necessary for the patient to receive appropriate care. One of the goals of the rapid response team is to restore balance and/or homeostasis by administering the right intervention that the patient will favorably respond, therefore, preventing further energy consumption and providing instability and preventing patient`s death (Arashin, 2012).

Identifying patients` symptoms early can save lives. Rapid response team revolves around prevention, understanding the complexity of patient`s condition, and empowering floor nurses to be fully engaged in patient care to provide best patient care and patient outcomes. An early detection and intervention of patients` symptoms provide an opportunity of improved patient outcomes (Chen, Bellomo, & Flabouris, 2009). According to Kirk (2006), rapid response team provides early assistance to nurses during difficult situations, and provides early clinical

interventions to mitigate negative patient outcomes and save lives (P. 293). The assistance provided by the team is not only for patients, but rather, to patients` family members as well. Neuman`s theory of prevention as intervention discussed about patients` internal environment – meaning, including family members as part of patients` healing. As part of prevention-as-intervention, rapid response team nurses are encouraging families to call and to voice concerns about any changes to their loved-ones` condition (s). Including patients` families as part of the care can enhance patients` participation of their medical treatment, and can empower families as part of the team. Theory of prevention is a way of helping each other live by working holistically and is used to retain, attain, and maintain system balance (Neuman, 2011). Theory of prevention as intervention is consistent with providing care before it happens. According to Neuman (1995), prevention as intervention is a process where the nurse acts to accomplish the goal of stabilizing the client`s system. This process is provided once the problem is identified or suspected. Neuman`s theory described a central structure surrounding the system (patient) as protection from any stressors – it can be internal (patient`s illness), or can be external environment (lack of communication between healthcare providers). The theory has three levels of prevention as intervention – primary, secondary and tertiary. The theory is applicable to the RRT model when the team provides health teachings to patients regarding their illnesses or the team provides education to floor nurses. These health teachings are not limited to suctioning and/or dressing changes, it could be encouraging floor nurses to activate the RRT if floor nurses are noticing anything unusual about their patient`s condition (primary prevention). If patients are already developing symptoms, such as dyspnea or hypotension and those symptoms are being identified (or suspected) by floor nurses, floor nurses are encouraged to call for help (activates RRT) to prevent patients from deteriorating and to provide appropriate medical treatment. If needed, patients can be transferred to the higher level of care and/or the ICU (secondary prevention).

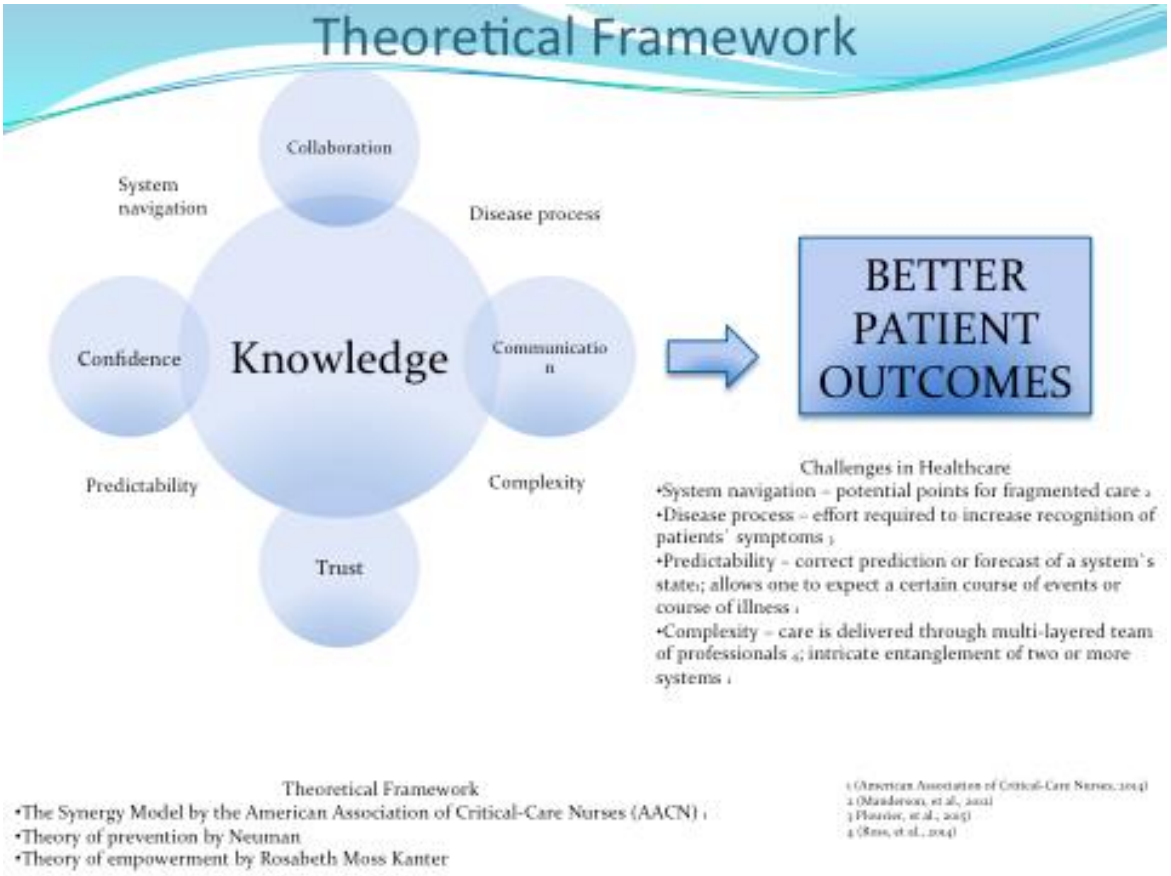
Tertiary level of prevention as intervention is described as treatment provided by the team to reconstitute the system (patient) to prevent from further deterioration.

The caring practice is a unique characteristic of the RRT. The team is able to provide guidance to patient`s family or families in times of difficulty (patient`s deteriorating condition). The team can act as facilitator between physicians and family members to get more information about their loved one`s condition, or the team can simply provide assistance to family members if they need information from other members of the multi-disciplinary team. It could be contacting the hospital`s social worker or chaplain regarding outside resources available if their loved ones are going to be sent to a long-term care facility. The team can also facilitate faster treatment and can collaborate with appropriate members of the healthcare team to make sure that patient`s needs are met.

The main aim behind the introduction of rapid response team is to empower nurses so that they feel supported in their work (American Nurse, 2006). However, there are nurses who felt unsupported and are intimated in activating the RRT. Rosabeth Moss Kanter`s Theory of Empowerment discussed about giving employees having enough access to available resources to achieve its goals (Laschinger, Gilbert, Smith, & Leslie, 2010). Theory of empowerment proposes structure to empower employees to accomplish goals in meaningful ways (Klushka, Spence Laschinger, & Kerr, 2004). For the RRT service, this is preventing patients in becoming worse and treating patients appropriately in timely manner. In Kanter`s theory, it was made very clear that these aspects are necessary for the employees to be empowered on their job. Empowerment that includes access to information, access to support, access to resources, an opportunity to learn and grow, and have power - it may be formal or informal. This sense of empowerment will also improve the retention of experienced nurses in the hospitals (American Nurse, 2006). In the case of the rapid response team service, nurses on the floors are given enough freedom to communicate his/her observations to the team. Freedom to communicate that is not limited to

either accessing the team through telephone calls or through the hospital paging system. Nurses are also supported by the team when the calls are placed - false alarm or not, and are provided with timely feedback to provide better care and interventions to his/her patients. The rapid response team is well aware that floor nurses` information on their patients, timely communication and comfort level of calling and activating the team for help are keys to successful rapid response team implementation. The success of the team is achievable through collaboration, communication and partnership. Empowering floor nurses to speak up for their patients and for themselves is vital to the rapid response`s success.

Theoretical Model



For the project`s theoretical model as shown above, it is reflected that RRT knowledge provides floor nurses` confidence to be able to trust, collaborate and communicate to the medical

service and to the rest of the multi-disciplinary team. Knowledge that serves as a good foundation for floor nurses to be able to identify and recognize different patients` symptoms of deterioration that will warrant to activate the RRT – but before the whole process will be fully realized towards providing better patient outcomes, floor nurses will need to navigate different challenges of healthcare. These healthcare challenges are recognized as system navigation secondary to our system`s fragmented care (Manderson, et al., 2012), challenges in recognizing patient`s symptoms due to their disease processes (Plouvier, et al., 2015), predictability on patient`s condition that allows healthcare providers, such as bedside nurses, to expect a certain course of events or course of patient`s illness (American Association of Critical Care Nurses, 2014), complexity of care secondary to multi-layered care provided by multi-layered team of professionals (Ross, et al., 2014), and intricate entanglement of two or more systems (American Association of Critical Care Nurses, 2014).

Literature Selection

For this project`s search strategies, the author utilized different search engines such as Ovid, CINAHL, PubMed, Wiley, Medline and also used different websites such as the American Association of Critical Care Nurses (AACN), the Institute for Healthcare Improvement (IHI), and the Agency for Healthcare Research and Quality (AHRQ). To search more evidence, the author used key words such as “Rapid Response Team” (RRT), “Medical Emergency Team” (MET), “outreach team”, “critical care”, “patient deterioration prevention”, “sepsis”, “rapid assessment team”, “immediate response”, “responding patients` deterioration in the hospital”, “hospital outcomes”, “failure to rescue”, “length of stay”, and “hospital admission”. On initial search for evidence, there were 1000 + articles obtained. The articles were narrowed down to sixty-four articles based on Seven Tiered Levels of Evidence by Melnyck and Fineout-Overholt (Houser & Oman, 2011). The results are as follows: Level I (Systematic review or meta-analysis of relevant randomized controlled trials (RCT) ten, Level II (One well-designed RCT) two,

Level III (Quasi-experimental studies) zero, Level IV (Non-experimental studies) twenty-five, Level V (Systematic reviews of descriptive or qualitative study) twelve, Level VI (Single descriptive or qualitative study), and Level VII (Expert opinion, regulatory opinions and/or reports of expert committees) three. The author also used the criteria for retaining articles that include validity, appropriateness, source of evidence, quality (research design), quantity (number of research questions addressed, sample size, consistency), and years of study and publication year of the article (Houser & Oman, 2011). The author of this study only reviewed articles that are published in English language.

Review of Evidence

Background of the Problem

Failures in planning and communication, and failure to recognize when patient's condition is deteriorating, can lead to failure to rescue – a failure to recognize in changes in patient's condition until major complications, including death occurs (Guinane, Bucknall, Currey and Jones, 2013) and become a key contributor to in-hospital mortality – but if identified in a timely fashion, unnecessary deaths can often be prevented (Institute for Healthcare Improvement, 2015). The RRT service was started and implemented through the 100,000 Lives Campaign to help improve patients outcomes (Institute for Healthcare Improvement, 2014). The Agency for Healthcare Research and Quality (2013) also recognized that rapid response team is helpful in preventing mortality and improving patients outcomes because of the following reasons: it can assist in early recognition of a worrisome or acute clinical change and quick assessment patients` condition; it can proactively assist staff in de-escalating patients who may exhibit potentially violent behaviors, educate patients and their families and staff; it can initiate appropriate interventions and consultation of providers for continuing plan of care; it can assist in transferring patients to higher level of care, as appropriate; and it can follow-up patients on the floor.

Systematic Review of Literature

In responding to any patients` condition, an immediate response is needed. Any delays in recognition and treatment of these symptoms are associated to increasing patient mortality, whereas, an increase in patient`s hospital length of stay (LOS) implies morbidity (Guinane, Bucknall, Currey and Jones, 2014). It has been reported that delayed MET calls are common and associated with mortality (Bonniati, et al, 2013). An early intervention during the course of clinical deterioration can improve patient outcome (Bonniati, et al, 2013), and an early intervention and escalation of care are important (Guinane, Bucknall, Currey and Jones, 2014). These factors are great way in reaffirming that hospital RRTs are needed. Recognition of patient`s altered physiological observations and response to complex processes involve knowledge and experience (Guinane, Bucknall, Currey and Jones, 2014). Recognition and addressing barriers that will assist bedside nurses in recognizing their patients` condition will improve rapid response system safety culture and will enhance the impact on cardiac and/or respiratory arrests and mortality outside ICU (Roberts, et al, 2014).

According to Roberts and colleagues (2014), these barriers are mostly related to self-efficacy, intra and inter-professional hierarchies in the hospital system, and expectations and/or clinical outcomes or care. Self-efficacy is a belief that one can execute given levels of performance (Smith College, 2015). A belief that someone has the capabilities to execute and organize the course of action required. At the bedside, self-efficacy is considered a srong determinant whether a nurse will escalate patient care (Roberts, et al., 2014). Intra and inter-professional hierarchies can be challenging to navigate and can lead to delays of care due to complexities of the healthcare system and its processes (Roberts, et al., 2014). For expectations and clinical outcomes of care, these could potentially lead to reluctance among sub-specialty attending physicians to transfer patients to the ICU for fear of inappropriate management (Roberts, et al., 2014).

In patients with conditions, such as chronic illnesses, the need for constant suctioning on non-invasive ventilated patients and to those patients with central lines, they are associated with clinical deterioration and are of greater risk for ICU admission (Stelfox, Bagshaw, and Gao, 2014). The possibility of identifying these types patients who are at risk of deterioration and to target medical interventions early will improve patient care (Stelfox, Bagshaw, and Gao, 2014). According to Jones (2013), late RRT calls are associated with increase patient mortality by 19.6%. The earlier the RRT calls are made, the earlier patients are getting their medical interventions, therefore, decreasing their mortality rate.

Project Plan and Evaluation

Market and Risk Analyses

The target market of this project is focused on patients and their families, healthcare providers and the community. The goal of rapid response team (RRT) activation in acute care facilities is to decrease patient mortality from preventable complications (Braaten, 2015). According to the Society Critical Care Medicine (2015), the five primary ICU diagnoses are respiratory insufficiency/failure, postoperative management, ischemic heart disorder, sepsis, and heart failure. Most of these patients with such diagnoses are older population – 60 + years old, and are under Medicare. According to the American Association of Retired Persons (AARP) (2009), the mean charge for in-patient hospital stay is $10,373. For an additional 48 - 72 hours of patient`s hospital stay, it is associated with 42% increase in costs ($4,356.66), and for a hospital stay that is more than 72 hours, it is associated with 61% increase in costs ($6,327.53) (American Association of Retired Persons, 2009). With these types of conditions becoming very common to these age groups, hospitals are also bombarded with older patients due to increasing number of baby boomers admitted to different medical facilities. According to the Acute Care Hospital Inpatient Prospective Payment System (IPPS) by the Center for Medicare and Medicaid Services (2013), when patients suffer additional hospital stay due to medical-related complications

hospitals are incurring all hospital bills. According to CMMS (2013), “under the Hospital VBP (Value-Based Purchasing) Program, a portion of operating IPPS payments to acute inpatient hospitals eligible for the program are reduced to fund value-based incentive payments to those eligible hospitals, based on their overall performance on a set of quality measures”. The measure set includes measures of clinical process of care and patient experience of care and reduced payments for those hospitals with excess readmissions under the Hospital Readmissions Reduction Program (Centers for Medicare and Medicaid Services, 2013).

It is important for these patients to have prompt access to urgent cares and/or acute care facilities on their complex issues (Dean, 2014). It is very costly for these patients to go to the ICUs due to advances of healthcare technology, staffing ratios and staff training (Society of Critical Care Medicine, 2015). In educating, empowering, and supporting patients of their symptoms early, can lead to significant and sustained reductions in financial and potential therapeutic benefits (Murie, Allen, Simmonds, & de Wet, 2012).

A study done by Thomas, et al (2007) in a Magnet hospital in Chicago, it was reported that the potential annual savings is approximated to $171,480.00 for having the RRT in the hospital. For this facility where the RRT education was implemented, it is approximated that having the RRT in 2015, the hospital is expected to save $504,000 per year on code situations and $720,000 on ICU admissions. These related savings are computed based on the minimum number of RRT calls per day per month, cost per codes, cost per ICU admissions and minimum number of days patients are staying the ICU versus staying in regular floors (Appendix 5 - Market/Risk Analysis).

Patients` families view the role of health care providers (HCPs) as “fixers” – where providers have the ability to "fix" patients (Leske, McAndrew, & Brasel, 2013). Family members have an important role in supporting and protecting the patient. When a patient is being assessed and treated with multiple providers in coordinated manner, the family will be assured that the

medical team is doing its job, therefore, the medical team is positively viewed as professionals and working as a team (Leske, McAndrew, & Brasel, 2013). For patients` families where their loved ones are saved, treated and received immediate medical interventions, they will trust their healthcare providers and will share their positive hospital experience to the community. As healthcare providers, nurses are actively involved in prevention and early detection of patients` condition and its complications. Nurses' roles could vary in different forms – it could be in healthcare industry, community education, health systems` management, patient care, and improving quality of lives to individuals (Aalaa, et al., 2012). With the rapid response system, when medical-surgical nurses are being able to determine on what, when, and how to call for help, it will demonstrate that they have the knowledge, experience, and skills to assess their patients. When nurses demonstrate that they are capable of assessing their patients, it is the validation that nurses are capable of caring and taking care of their patients (American Association of Critical Care Nurses, 2014).

Cost-Benefit Analysis

For this study, the RRT education was provided free of charge to the medical-surgical nurses on the floor. For the purpose of estimating the costs of this study related to nursing expenditures, the number of nurses participated in this study, the amount of time spent in providing the RRT education, and in writing and printing the education materials, the author estimated $14,074 were spent for study completion (Appendix 5 – Cost and Benefit Analyses)

The financial impact of effective utilization of the rapid response team in the hospital might not be seen immediately but will become apparent in time. This is because the benefits are immeasurable to patients and the team`s contribution to overall decline to hospital morbidity and mortality (Thomas, et., al, 2007). According to Thomas and colleagues (2007), the financial benefit of the rapid response system quantifies costs savings with the general assumption that improving quality increases the number of patients who can receive care, reduces length of stay

(LOS) in the hospital, and increases flow of patients through patient care system with no change in total costs.

SWOT Analysis

The project`s strengths are identified as leadership support, existence of the rapid response system in the hospital, available hospital resources that include physicians and advanced practice nurses (APNs), and strong organizational structure of the facility. The project`s weaknesses are identified as multiple layers of referral, unfamiliarity of the rapid response team, high number of foreign international nurses and new graduate nurses working on the medical-surgical floors, and not fully integrated electronic record system. These weaknesses mentioned above are favorable in causing delays in providing quality patient care. According to Terkelsen and colleagues (2011), delays between contact with the health care system and initiation of therapy (system delay) are associated with mortality. This project has opportunities in saving more patients` lives, in providing better patient care, in expediting patient transfer to higher level of care and/or in the intensive care unit (ICU), in enhancing better communication between providers, in increasing nurses` confidence level and improving morale, in enhancing trust among providers, patients, and their families, in improving relationship among nurses and physicians, and in decreasing nurses` turnover rate. For its long-term opportunities, this project can facilitate referrals from other hospital facilities within the neighboring communities, can increase hospital census and can increase hospital revenue. In addition, when patients and families` trust on their healthcare providers, they will help in facilitating a positive "words of mouth" to the community, and this can eventually lead to increasing referrals from other agencies, hospital admissions and revenues. The threats of the project are identified as staff resistance to change, lack of leadership support, limited resources, and team members` lack of trust due to previous rapid response team experience.

Driving and Restraining Forces

The primary driving force of this project is the failure to rescue on the side of the nurse. Failure to rescue is a failure to recognize in changes in patient's condition until major complications occur, including death (Thomas, et al., 2007). Hammer, Jones and Brown (2012), described failure to rescue as a death following a complication, which could indicate poor quality of care. The secondary driving forces of this project include multiple complaints from physicians, intensive care unit (ICU) nurses, and patient`s family; untimely patient referral that led to delayed medical interventions; patients sent to the ICU; unfamiliarity of the rapid response team that led to delayed activation of the team; and support and endorsement from prominent and reputable organizations such as the American Medical Association (AMA), American Nursing Association (ANA), Center for Medicaid and Medicare Services, The Joint Commission, Agency for Healthcare Research and Quality (AHRQ) and the Association of Medical Colleges (AMC) (Watcher & Pronovost, 2006) (Stollford, 2008). The restraining forces of this project include buy-in difficulty from nurses regarding the rapid response team and stereotype attitude from other physicians. This stereotype attitude came from the "belief" that physicians are better than nurses in assessing and dealing with patients. Benin, Borgstrom, and Jeng (2012), reflected that other nurses felt the tension derived from a perception by physicians that a call placed to the team implied a failure on the part of the physician.

Feasibility of the Project

This project is needed for providing patient safety, improving patient outcomes, and preventing patient deaths. According to Hammer, Jones, and Brown (2012), death following certain complications of care can be prevented through early detection and intervention associated with adequate surveillance. Conditions such as respiratory insufficiency and/or failure, postoperative management, ischemic heart disorder, sepsis, and heart failure (Society of Critical Care Medicine, 2015), are often associated with poor prognosis for most hospitalized

patients and have a mortality rate as high as 80% (Winters, Weaver, & Dy, 2008), and are commonly associated with ICU admissions (Society of Critical Care Medicine, 2015). These types of patients are placed in most medical - surgical units, and often they will manifests symptoms that may be unrecognizable and will potentially progress to cardio-pulmonary arrest, if not attended immediately by healthcare providers.

Stakeholders and the Project Team

The resources of this project include the following: the author of this project as lead investigator; Dr Mary Jo Coast, PhD, RN, as Capstone Chair; Suzanne Ashworth, CNS, CCNS, CCRN and Bernadette House, as capstone mentors; Lynne Longtin, DNP, RN, Critical Care Director; nursing managers from the ICU, RRT and medical – surgical floors; ICU and RRT nursing colleagues; and the nurses on the medical – surgical floors who participated in this study. These individuals worked together with the author in collaborating and brainstorming with ideas regarding their RRT expertise and experiences, in discussing issues that are and will be affecting the project, in identifying available resources in the hospital and the community, and in communicating the progress of the project as it was implemented to the floors.

The project`s sustainability is the desire of the study participants` to have this kind of project to continue in the hospital. During the project implementation at the facility, one participant commented, “RRT education was great and helpful”, while the other participant commented, “RRT topic was not adequately presented during nursing orientation, so as to understand the depth and breadth of this process or criterion”. These comments from the study participants implied the need and the importance of the RRT education to their profession and to their workplace.

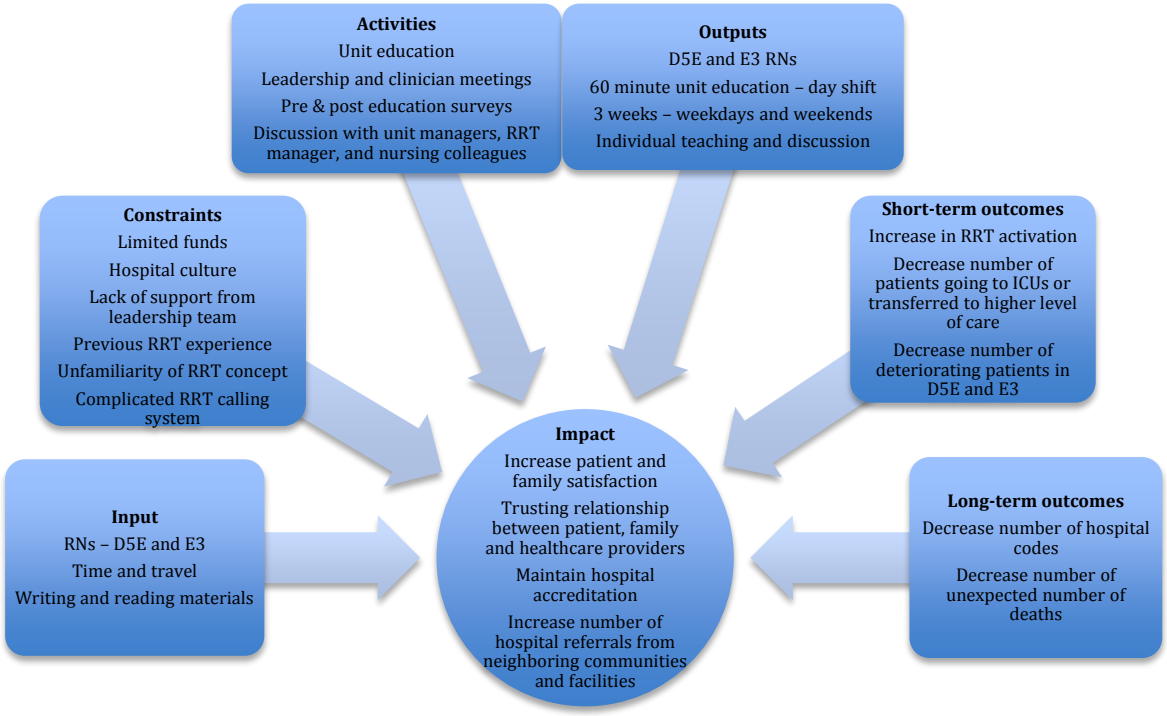
The main stakeholders of this project include, but not limited to, patients and their families, healthcare providers, and the community. Patients who are and have received patient care in the hospital. Patients` loved ones and their families who provide emotional support and

assistance when their family members are in the hospital. The healthcare providers who are delivering different patient care to their patients and their families – where in return, need better collaboration and communication among themselves in order to provide best, safe, quality and effective patient care and/or interventions. The community, different insurance companies, and private institutions that serve as third-party payers for the medical services rendered in the hospital.

Vision, Mission and Goals

The project`s vision is to provide an effective and timely response to patients` deterioration. This is to prevent patients from deteriorating and to provide appropriate medical interventions. These interventions that may mean a simple doctor`s referral and mainly assisting bedside nurses in monitoring patient`s vital signs and/or just inserting a peripheral intravenous access. The project`s mission is to promote rapid response team activation by nurses at the bedside through collaboration, education, teamwork, and effective communication among healthcare providers by maintaining trust, respect, and valuing each other`s contribution to patient care. With RRT service, every call is considered appropriate. A call can be as simple as activating the team because a bedside nurse is noticing that his/her patient is “not OK” or simply just having “a gut feeling that something is not right with the patient”. When bedside nurses communicate their patient`s symptoms with the team, education and collaboration already occur. Calling for help even a bedside nurse is unsure of what is going on with his/her patient, it will help enhance bedside nurse`s morale that it is OK to call for help without being judged as “inappropriate call” by other members of the healthcare team, but rather, to facilitate that every member is valuable part of the healthcare team.

Logic Model



The main purpose of this project is the provision of RRT education in the medical-surgical floors at a large medical center in an urban setting. Before the start of this project, the author has identified issues such as, delays in recognition of patients deteriorating conditions on the floors, patients were transferred to higher level of care, and/or the intensive care units (ICU) with worsening conditions, and rapid response team (RRT) education was not well-explained during new hire nursing orientation. As reflected on the logic model above, nurses on D5E and E3 were provided with RRT education. The model reflects contraints of the project, activities that were provided, and the short-term and long-term outcomes. The model also shows the project`s impact once the project is fully implemented to the hospital`s culture.

Population and Sampling Parameters

The target population from which this sample was drawn is registered nurses who cared for patients who may at some time needed rescue or used of RRT in an urban hospital setting. This project included a convenience sample of twenty-five nurses who are working in the

medical -surgical units at a large medical center. In order to achieve the effect size of .80 and a level significance alpha of .05, twenty-five subjects were required. During the project implementation, the author was able to recruit twenty-eight samples for pre-survey and twenty-one participants for post-survey. The project`s inclusion criteria are all registered nurses that work at a large medical center in any area that has the need to activate the RRT. There are no exclusion criteria.

This project involved the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior. The information obtained were not recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) no disclosure of the human subjects` responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects` financial standing, employability, or reputation.

This project is designed to determine if RRT education will improve bedside nurses` knowledge and skills in activating the team. The project education sessions took place in meeting rooms, break rooms, and sometimes at the nurses` station in the hospital setting. To accommodate those participants who were needed to be at the bedside due to patient care, RRT education was provided on nursing units` hallways. There are no known risks associated with either the education or survey completion. This study is designed to protect and ensure participant confidentiality. Survey participants were informed and their unit managers have agreed that their job or performance evaluation is not associated or dependent in any way upon participation of this project study.

Project Setting

The setting of the project was in a large hospital located in Northeastern New York. The facility is the only academic sciences center and a Level I Trauma center in the area. The hospital comprises a 700+ bed facility. The hospital offers the widest range of medical and surgical

services in the region. Since it is an academic medical center, the hospital has a widely diverse group of employees, including nurses of varying expertise and experience. Such diversity of experience and background requires adjustment to culture as well as professional knowledge, and can potentially lead to system confusion and unfamiliarity with hospital resources. As a result, these contributing factors, failure to activate the rapid response team or failure to recognize symptoms can place patients in danger. Studies have shown, delays in RRT activation are due to registered nurses` lack of knowledge and understanding of the RRT, the established criteria for calling the team, and the subsequent interactions and communication between the RRT and the unit nursing staff (Brown, Anderson, & Hill, 2012).

The rapid response team project study was undertaken at the hospital`s medical-surgical floors. These medical-surgical floors have mixture of experienced and inexperienced nurses. As of today, they have hired thirty new graduate nurses. These nurses are either working on the floors on their own, some are still on orientation and some are working with their mentors.

Protection of Human Rights

Application to Institutional Review Boards (IRB) at both facilities, Regis University and the medical center was obtained. The project was both approved by the IRBs at Regis University on 27th May 2015 as an exempt study (Approval No. IRB#: 15-163) (Appendix 10), and at the medical facility on 14th May 2015 as an expedited review (Approval Protocol No. 4146) (Appendix 11).

The author of the study collaborated with different hospital leaderships, such as, the hospital`s Chief Nursing Officer (CNO), Critical Care Director, and unit nursing managers in obtaining support and approval to have the study implemented on the nursing units. The author also collaborated with RRT nurses in identifying the nursing units that are appropriate for the study to be implemented.

Project Methodology and Implementation

The project is a quantitative study, with a quasi-experimental pre-test and post-test evaluation design. This project is an evidence-based practice (EBP) project in which quality improvement plan, program evaluation, educational, or standard of care intervention was completed. The project was internal to an agency and the agency was informed of issues regarding health care quality, cost, and patient satisfaction. The results of the project were not meant to generate new knowledge or be generalizable across settings but rather, sought to address a specific population, at a specific time, in a specific agency. The project is translated and applied the science of nursing to the greater health care field.

The project`s measurement tool (Appendix 6) was adapted from a previous RRT study in 2012 by Brown, Anderson, and Hill (2012). The instrument was pilot-tested for ease of use, order of questions, time needed for survey completion, clarity of directions, and content was validated by review of literatures by the authors (Brown, Anderson, & Hill, 2012). Consent to use the measurement tool was obtained from one of the authors (Appendix 16). The instrument is designed to measure registered nurses` knowledge, skills, and attitudes about the team. A pre-test was given to those who agreed to participate in the study prior to providing the education. A post-test was administered immediately after the RRT education to assess retention. A Likert Scale was utilized for scoring. The scale range is between one to five, one (1) not confident, two (2) less confident, three (3) confident, four (4) always confident, and five (5) extremely confident.

The RRT education that was provided to medical-surgical nurses was adapted from the Institute of Healthcare Improvement (IHI) website (Appendix 7). The education covered the RRT`s composition, role, purpose, reason to call, when to call, how to call and the SBAR (Situation, Background, Assessment, Recommendation) communication that should be used during calls (Appendix 6). The project`s outcome measures are to increase the number of

RRT activation, to decrease the number of unplanned ICU admissions, and to decrease the number of identified deteriorating patients on the medical-surgical floors at the hospital.

The subjects were recruited using in-person informational meetings on the nursing units and written letters were distributed to subjects prior to providing the RRT education. The subjects were provided with information about the study: purpose, contact information, description of education and explanation of voluntariness and ability to withdraw. Subjects` participation was considered as consent after informational meeting and receipt of the participant information letter. To prevent potential subjects from feeling coerced to participate, the author explained that their participation has nothing to do with their job performance evaluation, and that they can withdraw anytime for any reason. Letters were handed to potential subjects during initial presentation to staff. After the short introduction, potential subjects were given time and were encouraged to ask questions prior to the start of the RRT education. Subjects were informed that their unit managers agreed to the pre and post survey completion and the RRT education to be presented. In order to protect the subjects, to keep and to maintain their confidentiality, they were informed that their participation in the study is not recorded nor their attendance were taken, that their participation in the study will not affect their yearly performance evaluation or job security, that they were not asked to write any of their personal identification on pre and post tests tools, and that there were no known risks associated with RRT education or survey completion. Subjects were assured that neither their unit managers nor administrative personnel will not be present or attend any education sessions, that their unit managers have been informed and have agreed that their job or performance evaluation is not associated or dependent in any way upon participation in the project study. The RRT project education sessions took place in meeting rooms and at the nurses` stations in the respective medical-surgical floors at medical center.

The subjects were asked to seal and place their completed pre and post survey tools in a marked envelope (pre-survey and post-survey) after completion. Completed survey tools were only accepted when they are placed in an envelope and are sealed by the subjects. Completed pre and post surveys were placed in two separate envelopes. The surveys were placed in a locked cabinet and were only opened by the author during data coding and analysis. Survey results were not shared to any personnel who were not directly associated with the development and implementation of the project. After the study was completed, survey results were shredded and disposed of in a protected hospital bin.

The study was planned and implemented as follows:

1. Attained Institutional Review Board (IRB) approvals from Regis University and the medical center. 2. Met with hospital nursing leadership, unit nursing managers, and nursing educators of the proposed site. 3. Project study was introduced and explained and dates and times were planned for the RRT education. 4. Met with prospective subjects to explain project/education study, and letter of participation were distributed prior to the RRT education; 5. Pre - education survey questionnaire was administered to medical-surgical nurses at proposed and planned scheduled dates/times; 6. RRT education was provided to medical – surgical nurses at the medical center. 7. Post - education survey questionnaire was administered immediately after the education to the medical-surgical nurses. 8. Data were collected and analyzed. 9. Results were interpreted. 9. Study results were presented to Regis University College of Nursing.

Study Statistics

The statistical analysis that was used in the study was the Spearman`s rho (rs) correlation coefficient. Spearman`s rho is a statistical correlation that describes the association between two variables (University of Pennsylvania, 2013). Spearman's rho measures the strength and direction of the relationship between two variables (Social Science Statistics, 2015).

Data Collection and Treatment Procedure

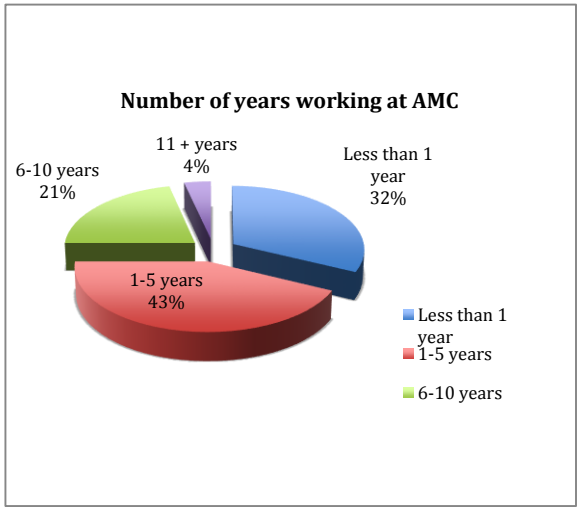
Study consent was distributed, explained and obtained from subjects. Pre-survey questionnaires were distributed to the subjects after the purpose of the study was explained and study consent was obtained. Completed pre-survey questionnaires were placed individually in a marked pre-survey envelope and were sealed immediately by the participants. After all the participants completed the pre-survey questionnaire, RRT education was administered. Immediately after the RRT education, post-survey questionnaires were distributed to the participants for completion. Completed post-survey questionnaires were placed individually in a marked post-survey envelope and were sealed immediately by the participants. All the completed questionnaires were kept in a locked and coded hospital drawer by the author. The questionnaires were only opened during the time when data coding and analysis were started by the author.

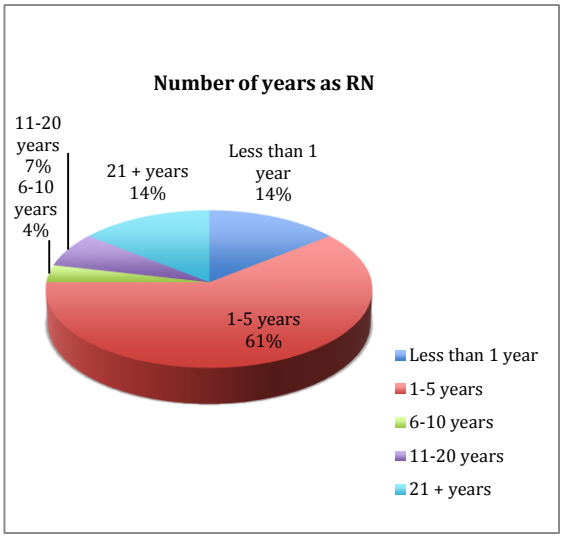
Project Findings and Results

Demographics

There were twenty-eight medical-surgical nurses at the medical center who participated in the study. The number of years these nurses work at the facility vary from less than one year to eleven years and above. For nurses with less than one year at the facility were nine (32%), one to five years were twelve (43%), six to ten years were six (21%), and eleven years and above was one (4%). The number of years these nurses work as a professional registered nurse vary from less than one year to twenty-one years and above. For nurses who are working as a registered nurse with less than one year in the profession were four (14%), one to five years were seventeen (61%), six to ten years was one (4%), eleven to twenty years were two (7%), and twenty years and above were four (14%).

Demographics

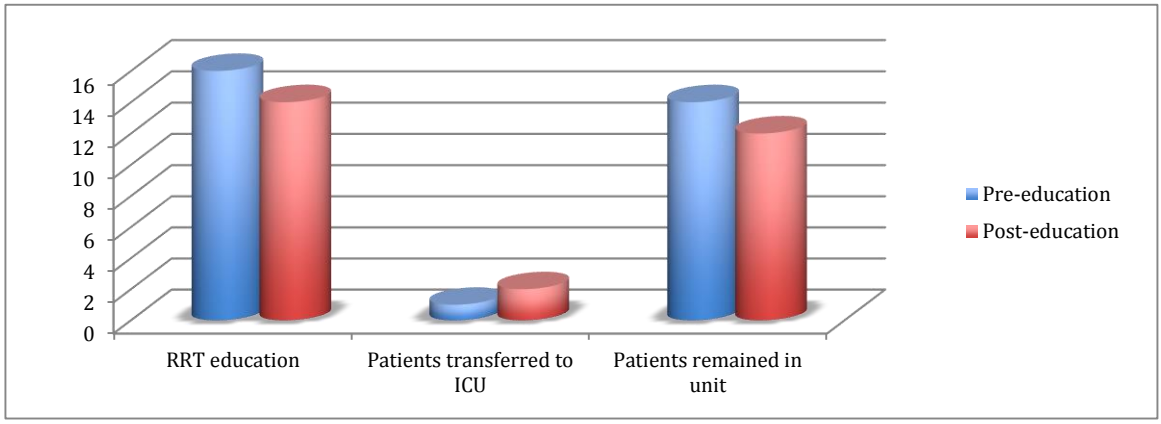


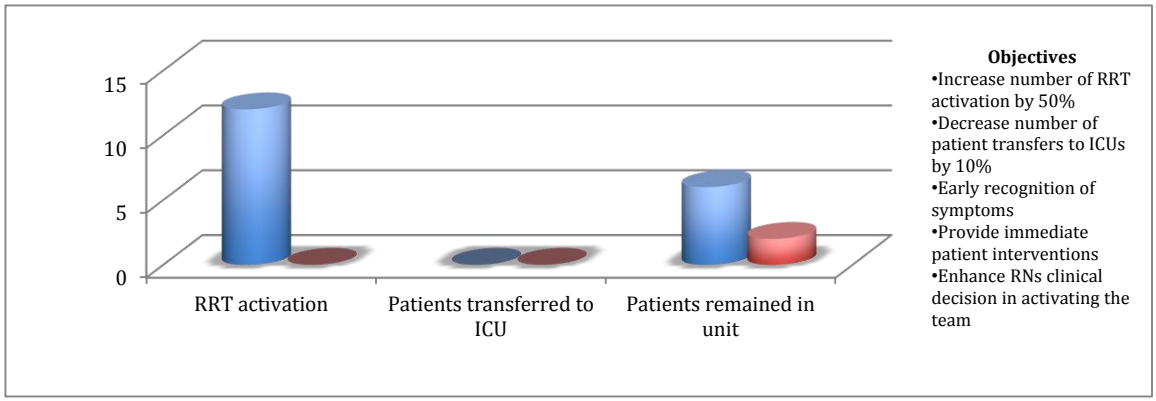


Outcome Objectives

The project`s objectives are outlined as follows: 1. To increase the number of RRT activation by 50%. 2. To decrease the number of patient transfers to the intensive care units by 10%. 3. To recognize patient`s symptoms of deterioration early. 4. To provide immediate patient interventions. 5. To enhance registered nurses` clinical decision in activating the rapid response team.

Outcomes Results





The graphs shown above are the results and comparison when the RRT education was implemented at the medical-surgical floors at the medical center. For the first objective, to increase the number of RRT activation by 50%, the results did not show an increase of RRT activation after the education. For the second objective, to decrease the number of patient transfers to the intensive care units by 10%, it has reflected on one graph that before the RRT education, one patient from the medical-surgical floor was trasferred to the ICU and after the RRT education, there were two patients that were transferred to the ICU. On the other hand, the other medical-surgical unit did not have an associated RRT transfer to the ICUs before and after the RRT education. For remaining three objectives, to recognize patient`s symptoms of deterioration early, to provide immediate patient interventions, and to enhance registered nurses` clinical decision in activating the rapid response team, these objectives are reflected on the number of patients remained in the medical-surgical units after the RRT education. As shown above, for patients with RRT calls, these patients did not stay in their units but rather, were transferred elsewhere in the hospital except the ICUs. The results above were discussed with the respective unit nursing managers. It was determined that during the time when the RRT education was implemented by the author, these units did not not enough sick patients that warranted RRT calls.

Study Results

Questions		Correlations
Q1 Have you ever called the rapid response team (RRT)?	Correlation coefficient Sig (2-tailed) N	.415 .062 21
Q2 Physician`s positive response	Correlation coefficient Sig (2-tailed) N	-.113 .625 21
Q3 My knowledge of RRT criteria	Correlation coefficient Sig (2-tailed) N	-.269 .238 21
Q4 My knowledge of the process for calling the RRT	Correlation coefficient Sig (2-tailed) N	-.122 .598 21
Q5 My ability to determine if the patient`s condition meets the RRT criteria	Correlation coefficient Sig (2-tailed) N	-.010 .966 21
Q6 The way a nurse is treated by the RRT	Correlation coefficient Sig (2-tailed) N	-.006 .980 21
Q7 The hospital`s commitment to the RRT service	Correlation coefficient Sig (2-tailed) N	-.336 .137 21
Q8 The knowledge of how to contact the RRT	Correlation coefficient Sig (2-tailed) N	.165 .475 21
Q9 Physician`s negative response	Correlation coefficient Sig (2-tailed) N	-.032 .890 21
Q10 My understanding of the RRT criteria	Correlation coefficient Sig (2-tailed) N	.468 .032 21
Q11 My ability of the need for calling the RRT Q11 My ability of t for calling the RRTability of the need for calling the RRTRT	Correlation coefficient Sig (2-tailed) N	-.032 .890 21

In running the data collected, the author of this study used the SPSS software. SPSS software is a predictive analytics software that can assists the researcher in making smarter decisions, solving problems, and improving outcomes on topics that are being studied (IBM, 2015).

The data were set up for analysis using a coding system with aggregate data. An excel spreadsheet was used for an easy access and coding for the author. All the information from the measurement tool (Appendix 6) were placed in columns. Each individual column represents the participants` demographic information in Part I and survey questions from the questionnaire in Part II. To separate pre and post survey participants, each participant on the pre survey were assigned with a code starting at 100 and each participant for the post survey were assigned with a code starting at 200. The nominal data were coded as Yes – 1 and No – 2. The ordinal data using

the Likert Scale in the measurement tool were coded as Not confident – 1 Less confident – 2 Confident – 3 Always confident – 4 Extremely confident – 5.

For the demographics portion of the data, study participants were asked on the number of years they are working at the facility, the number of years they are working as a nurse, the nursing unit that they were hired, their level of education, any professional certifications they hold - if any, and other professional degree(s) they have aside from nursing. All demographical data gathered were transcribed and coded as it they were exactly written by the participants.

To make the data more comprehensible, the author utilized descriptive statistics to describe and summarize data (Polit, 2010). In using descriptive statistics on the project, it allowed the author to describe, compare, and characterize a relationship (Polit, 2010). The author of this project described data results in a narrative form and used tables for comparison.

The data coding process was done manually. The author started opening pre-survey questionnaires and manually entered all the participants` responses to excel spreadsheet with corresponding codes as described above. After all pre-survey responses was entered and tabulated, the author followed opening post-survey envelopes and manually entered post-survey responses to excel spreadsheet.

In order for this project to achieve the effect size of .80 and a level significance alpha of .05, it was calculated that this project requires a study sample of twenty-five participants. While this number is calculated as the minimum requirement to conduct the study, the author was planning of recruiting more participants to increase the sample size to one hundred in order to increase confidence in the subsequent analysis and protect for loss of participants. However, during the project implementation, the author only recruited twenty-eight participants for pre-survey and twenty-one participants for post-survey. The author`s limitations of having one hundred participants during the study are related to issues such as participants were leaving during the rapid response team education implementation for patient care issues, others were

unavailable for the education and uninterested of participating in the study.

For this rapid response team study, the author has twenty-eight participants on the pre-survey and twenty-one on the post survey. Both pre and post survey questionnaires in the study are the same and have the same questions - from questions one to eleven.

In the study, Spearman rho (rs) correlation coefficient was used to determine the relationship between the RRT education provided by the author and the nurses` confidence level in activating the RRT. A spearman rho correlation coefficient is a statistical measure of the strength of a monotonic relationship between paired data (McDonald, 2014). The correlations on this study were based on the series of questions identified on the study measurement tool.

Most of the study`s statistical results according to Spearman rho correlation coefficient and significance level alpha ($p < .05$), yielded no correlation and no significance on the nurses` confidence level in calling and activating the RRT. These are shown on the way nurses responded to questions pertaining to physician`s positive response ($rs = -.113$ $p = .625$); knowledge of the RRT criteria ($rs = -.269$ $p = .238$); knowledge of the process for calling the team ($rs = -.122$ $p = .598$); ability to determine if the patient`s condition meets the RRT criteria ($rs = -.010$ $p = .966$); way a nurse is treated by RRT ($rs = -.006$ $p = .980$); hospital`s commitment to the team ($rs = -.336$ $p = .137$); and physician`s negative response ($rs = -.032$ $p = .890$). On the other hand, this study only showed correlation and significance on questions pertaining to, if an RN had ever called the team ($rs = .415$ $p = .062$), and nurses` understanding of the RRT criteria ($rs = .468$ $p = .032$). On the knowledge of how to contact the team, this study showed that there is a very weak correlation but showed no significance on the nurses` confidence level ($rs = .165$ $p = .475$). However, with the study participants` test scores, from pre and post-survey scores and considering that the author lost seven study participants on the post-survey, leading to a smaller sample ($n = 21$), the results of the post survey tell a very different story. For the following questions related to physician`s positive response, knowledge of the

RRT criteria, knowledge for calling the RRT, ability to determine if the patient`s condition warrants the RRT criteria, a way a nurse is treated by the RRT, hospital`s commitment to the RRT service, and ability of the need for calling the RRT, most nurses who participated in this study responded that their confidence level improved after the RRT education. Despite of the smaller sample on the post-survey (n=21) vs pre-survey (n=28), participants` survey results showed their confidence level increased after the RRT education. These are evidenced on the participants` post-survey scores moving up, from not confident (1) to extremely confident (5) (Appendix 17 - Survey Results). The missing study participants (n=7) were attributed that some nurses left early during the RRT education, some did not answer the question, and/or maybe some just did not find the question relevant, therefore, leaving the question blank.

The project`s study related questions include the following: Will knowing the information on how, who, why and when to call RRT increase RRT activation? What are nurses` determinants in activating the RRT? Will nurses` previous RRT experience(s) impact the decision in activating the team? Will other members of the team influence the nurses` decision in activating the RRT? How will leadership and/or administrative support impacts and/or influences nurses` RRT activation?

To answer the project`s study related questions, will knowing the information on how, who, why and when to call RRT increase RRT activation? This study showed that nurses are more willing to activate the team when they are knowledgeable and/or have more information about team and RRT criteria. This result is supported in a study done by Radeschi, and colleagues (2015), that nurses` are favorably more willing to call the RRT if they had taken an educational program - and that educational program is associated with nurses` acceptance of the RRT service. This is true because their knowledge of the RRT process will assist nurses in navigating, determining, and understanding why the team is available in the hospital, how the team works and how the team will affect and is affecting patients` outcomes.

What are nurses` determinants in activating the RRT? This study suggested that more nurses are willing to activate the RRT if a physician has a positive response when bedside nurses are calling the team for help. Physician`s negative response in this study did not affect nurses, in any way, in calling the team for help. The nurses` willingness to call the RRT despite of the physician`s negative attitude towards activating the team is supported in a study done by Shapiro, et al (2010). According to Shapiro, et al (2010) study, acute care nurses did not hesitate to call the team and had no fear of repercussions even if the call was ultimately deemed unnecessary. The nurses` response in calling the team despite of negative and/or lack of support from the physicians, signifies that bedside nurses are becoming more vigilant and aware of their responsibilities to their patients, their rights to always ask questions - valid or not, to ask for help if patients` safety is at risk, and understanding that working at the bedside, patients` safety is always the top priority.

Will previous nurses` RRT experience(s) impact the decision in activating the team? This study did not suggest that nurses` previous experience affect their confidence level in calling the team for help. This result is contradicted to a study done by Roberts and colleagues (2014), when nurses have positive previous RRT experiences, it was reported that they were more likely to activate the RRT quickly. In fact, the nurses participated in this survey have responded that they have called the team (yes, n=26 vs no, n=2).

Will other members of the team influence the nurses` decision in activating the RRT? Most nurses participated in this survey responded that they are aware of their ability on the need to call for help, that they know their ability to determine if their patients` condition warrants to call the RRT, and that their colleagues did not affect nor influence their RRT activation. This behavior that is shown by nurses who participated in this study is called self - efficacy. Self - efficacy is the perception that one has the necessary skills and abilities to perform a behavior, even in the face of specific barriers or obstacles (Roberts, et al., 2014). Roberts and colleagues

(2014), found in their study that self-efficacy in recognizing clinical deterioration and activating the RRT were strong determinants of whether care was escalated in a timely fashion for patients whose condition was deteriorating.

How will leadership and/or administrative support impacts and/or influences the nurses` RRT activation? This study suggested that nurses are more confident in calling the team when their leaders are committed and are showing support when they call the RRT. This result is supported in a study done by Astrotch and colleagues (2013), that some nurses sought advice from their nursing leaders when they are unsure about whether or not to activate the RRT, and that participants were not averse to activating the RRT, noting that no one had ever discouraged them from calling.

Limitations, Recommendations, and Implications for Change

Limitations

There are few limitations of this project study: First, the study was conducted at a single academic medical center in Northeastern New York, therefore, the results of this study may not be reproducible in other facilities that are utilizing the rapid response team service. Secondly, the number of participants in this study were very small (pre-survey n = 28, post-survey n =21) and the project study were only implemented in two medical-surgical units at one facility, therefore, it does not represent the whole number of medical-surgical nurses working in the hospital. Lastly, the project study implementation was short and was completed in a four-week period, therefore, the time constraint did not represent the number of new registered nurses that were newly hired, and did not give enough time for new nurses to experience and activate the rapid response team themselves.

Recommendations

Based on the smaller sample (pre-survey n=28, post-survey=21) of the study, its time constraint when the study was implemented and the conflicting results between the survey`s

statistical analysis and the pre-post test scores, the author has recommended that more study pertaining to the RRT service should be done; more time should be spent in doing this type of study; increase the sample size of this type of study to see more significance and difference to the results; more RRT education should be added to hospitals with RRT service to increase nurses` knowledge and confidence in calling the team; an education such as the RRT, should be offered as an education day for nurses to be able to concentrate, practice and focus on the topic and to prevent distraction from constant interruptions; hospitals utilizing the RRT should offer RRT education to all nurses – new and experienced; monthly RRT education classes should be available for nurses to choose and attend in order to accommodate their personal and work schedules; RRT education should be part of nurses` yearly education requirement; continuous leadership support is important and necessary for RRT service to be successful in the hospital; and an RRT education needs to be incorporated in nursing curriculum, to facilitate nurses in becoming familiar and comfortable with the RRT service.

Implications for Change

The study`s implication for change involves with rigorous RRT education to all nurses – new and experienced, focusing on what, when, why and who about the team, to understand and explore barriers why nurses are not calling for help and to start looking for ways in improving and enhancing the relationship between bedside nurses and RRT nurses. A good foundation to calling for help, such as activating the RRT service, is the key to preventing patients` harm. Knowledge is powerful – to nurses, patients, and to the community.

Acknowledgments

The author of this study would like to extend her gratitude to the following people and resources: Dr. Mary Jo Coast, PhD, RN, who is not only the author`s Capstone Chair, but also a great supporter of this project from the very beginning. Dr. Coast was there the whole the time when the author needed advice and guidance on this project. The author is very grateful, blessed and thankful to Dr. Mary Coast for sharing her expertise, for providing constant support and encouragement, and for believing and trusting the author`s capability to finish the project. Dr. Cheryl Kruschke, EdD, RN, who assisted and provided the free service on the statistical analysis of this project. Suzanne Ashworth, CNS, RN, from Orlando Regional Medical Center (ORMC), who provided guidance and assisted the author in brainstorming during the project`s beginning phase. Nicole Hawkins, MSN, RN, from Orlando Regional Medical Center (ORMC), who provided support and allowed the author to shadow the rapid response team at Orlando Regional Medical Center. ORMC RRT nurses, who provided support and allowed the author to participate in the RRT calls. Dr. Harriet Miller, PhD, RN, from Arnold Palmer Hospital (APH). To all Albany Medical Center (AMC) nursing leaders, who allowed the author to carry and implement the project study that was started at Orlando Regional Medical Center. To RRT nurses at AMC, who were welcoming about the project and provided the author with the information on the nursing units that needed the RRT education. The author is very thankful and delighted to the medical-surgical nurses at the facility who participated in the RRT project study.

Most importantly, the author would like to thank all her family and friends who supported her journey from start to finish.

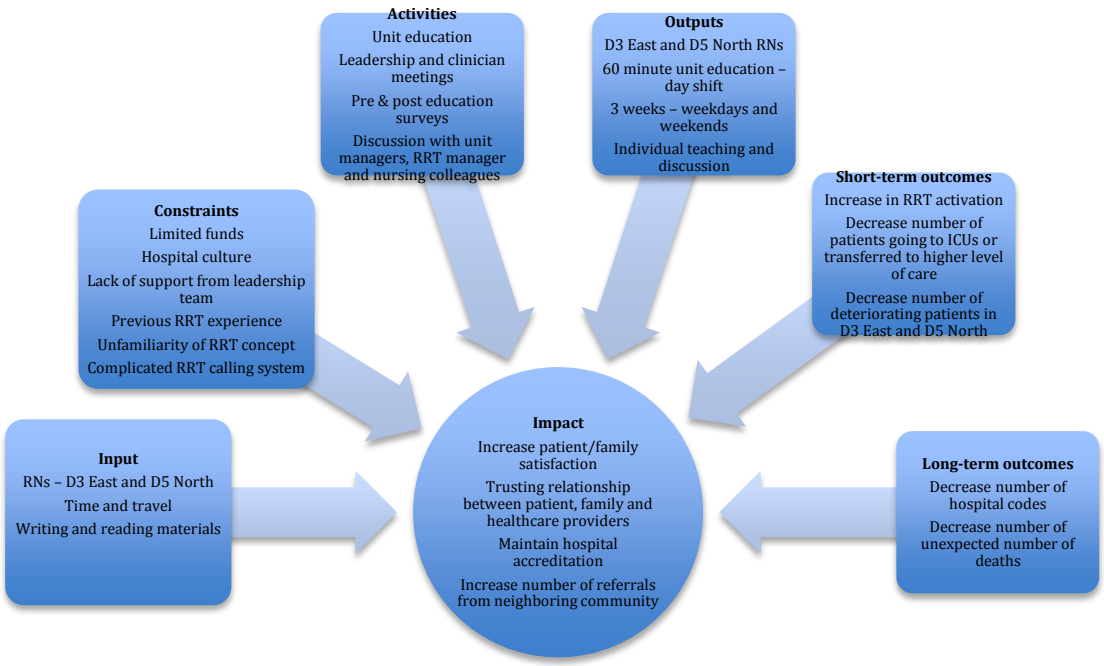
Appendices

Appendix 1 – Systematic Review of Literature

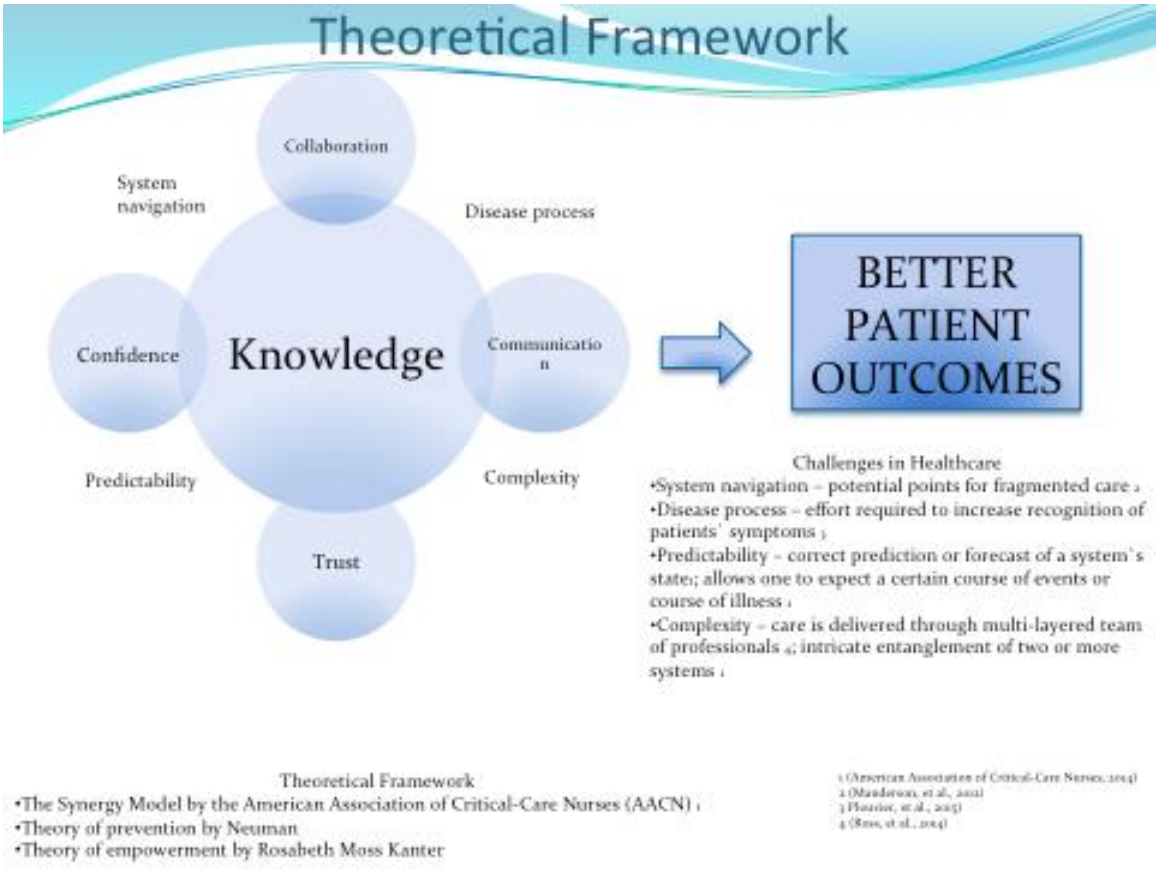
Author/Year	Boniatti, et al (2013)	Guinane, Bucknall, Currey and Jones (2014)	Roberts, et al (2014)
Title	Delayed MET calls and Associated outcomes	Missed MET activations: Tracking decisions and outcomes in practice	Barriers of calling for urgent assistance despite a comprehensive pediatric rapid response system
Level of Evidence	VI	IV	V
Study design	Prospective observational study	Retrospective observational study design (audit chart)– Melbourne Hospital	Qualitative – open-ended, semi-structured interviews
Purpose	Determine whether there was an association between delayed MET calls & mortality after MET review	Determine incidence, mgt, and outcomes of patients meeting MET call criteria and compare baseline characteristics of outcomes of patients who met MET call criteria with patients who did not	Identify barriers to calling for urgent assistance that exist despite recent implementation of a comprehensive RRS in a children's hospital
Population/sample size	1481 calls were made for 1148 pts representing 40 calls/1000 admission	Pts hospitalized (adult, pediatric and neonatal) > 24 hrs in gen wards (med and surg) and DCd in the 7-day study period. 568 sample; hospitalized pts between Oct 10-16 2009	27 RNs 30 MDs
Methods	All pts were reviewed by the MET from July 2008 – December 2009	Chart audit	Open-ended, semi-structured interviews – May to Oct 2011
Primary outcomes/results	Delayed MET calls remained significantly associated with higher mortality; Mortality at 30 days after MET é among pts with delayed MET activation than pts receiving timely activation	Hospital LOS doubled against patients did not met criteria (8.6 days vs 4.3 days); Med pts likely met MET criteria than surgical patients	- self-efficacy considered strong determinants whether care is escalated - intra and interprofessional hierarchies challenging to navigate & led delays in care - expectations/clinical outcomes & ICU transfers strongly shape escalation of care
Conclusions/implications	Delayed MET calls are common & associated with é mortality; result reaffirms need RRT needs; early intervention during the course of clinical deterioration can improve patient outcome	Recognition of altered physiological observations & response to complex process involves knowledge & experience; increased LOS implies morbidity; early intervention and escalation are important	Recognition and addressing barriers improve RRS safety culture & enhance impact on cardiac &/or respiratory arrests & mortality outside ICU
Strengths/limitations	Largest study to date; single-center study & may present unique org characteristics; short follow-up time & longer observation may show different result; didn't evaluate impact of co-morbidities/diagnosis on delay; observational study – delayed calls & mortality cant be used to infer casuality.	First study to review incidence & outcomes of pts meeting MET criteria for entire hosp LOS in private population; private setting may have restricted the ability to generalize findings; done in large metropolitan private hospital, therefore results and study methodology may be relevant to other similar institutions. Documentation bias is potential limitation (data obtained relied on accurate measurement & documentation); data collection occurred in Oct, thus seasonal & institutional variations cannot be accounted	Single hospital study (lack of generalizability); polarized opinions for those who participated; RRT composition; RRT responders and families were not interviewed on the study
Funding source/comments	None indicated: Study done in Brazil	Samples are mixture of adult, pediatric and neonatal population	Health Research Formula Fund Grant – Pennsylvania Dept of Public Health Commonwealth Universal Research Enhancement and the CHOP Nursing Research and Evidence-Based Practice Award;

Author/Year	Jones (2013)	Hammer, Jones, and Brown (2012)	Stelfox, Bagshaw, and Gao (2014)
Title	The timing of rapid-response team activations: A multi-center international study	Rapid Response Teams and Failure to Rescue	Characteristics and outcomes for hospitalized patients with recurrent clinical deterioration and repeat MET activation
Level of Evidence	IV	V	IV
Study design	Post-hoc analysis of previously published study	Descriptive study design	Retrospective cohort study (multi-center study)
Purpose	To study timing of RRT in relation to time of day and day of week, frequency & outcomes in relation to days after hospital admission	To answer questions regarding degree of RRT penetration overtime, RRT characteristics & process among targeted hospitals, & annual hospital & regional failure to rescue (FTR) rates	To describe occurrence of recurrent deterioration & rpt MET activation & assess effect on processes & outcomes of care
Population/sample size	Seven hospitals	Acute care hospitals in North Texas (n=39)	Four hospitals in Alberta, Canada (2 tertiary academic & 2 community hospitals);
Methods	Ethics approval obtained, informed consent waived, 1 month prospective data collection in 2009 (age, sex, admitting unit, admission source, limitations of med treatment, admission/discharge dates), timing of RRT calls & differences in characteristics & outcomes of calls were assessed	Prospective & retrospective components used; prospective data used to evaluate characteristics; secondary analysis of hospital discharge abstract data used to evaluate hosp & regional FTR rates; 2008 quantitative survey data comment fields provided for qualitative data analysis; human subjects approval obtained from IRB	January 2007-December 2009; 3200 pts; Pts not admitted to ICU within 2 hrs of MET call; pts experienced sudden clinical deterioration triggering MET activation & managed on hosp ward & left under care of admitting MD with goals of care designations allowed for ICU-level of care
Primary outcomes/results	Patients with RRT call made early on admission less likely to be categorized as limitations of med therapy, shorter hospital LOS, likely to be discharged home and less likely to die than pts with RRT made after 7 days of admission	All hospitals had RRT in-place, mostly implemented in 2006(IHI recommendation); majority of RRTs are composed with RNs &RT; RRT guidelines in-place in all hospitals; “staff worried” frequent trigger in RRT calls (97%); RN(87%), MD (82%), unlicensed personnel (62%) & family members (59%) activated RRT; calls activated by pager(56%); respondent rated effectiveness as excellent-nursing care support (100%), saving pt lives (97%), patient complications(92%); 2008 FTR rates ê than 2003 (154 vs 137)	Pts MET calls median is 5 days in between second call; clinical deterioration & rpt MET activation had index of MET activation later in hosp stay than pts with single activation; activations related to respiratory reason & patients airway (suctioned) most likely to be intubated & to have central lines; recurrent clinical deterioration & rpt MET call likely admitted to ICU(43%);LOS for pts with repeated MET call & LOS following MET call for pts discharged alive significantly longer; hospital mortality (34%) with clinical deterioration & rpt MET call compared to pts with single-activation (23%);pts with single co-morbidity has risk of repeated MET call than pts chronic illnesses(75%);pts received airway suctioning, non-invasive mechanical ventilation or central line have risk of repeat MET call; ICU occupancy associated with likelihood of recurrent pts deterioration &repeat MET call
Conclusions/implications	Early RRT calls are associated with ê mortality. Late calls associated with é in-patients mortality (19.6%)	FTR indicator of RRT efficacy is warranted; larger sample size needed to explore and identify relationships among hosp characteristics & pt safety measure; comparing FTR rates with objective outcomes (mortality & LOS) help evaluate RRT effectiveness; assessing RNs perceptions of RRT effectiveness & processes may answer questions related to RRT utilization	Clinical deterioration in hospitalized pts common & associated with é risk of ICU admission, LOS, & hosp mortality; chronic illnesses, suctioning, non-invasive ventilation & central line associated with clinical deterioration; study suggested possibility to identify pts at risk of deterioration & target interventions to improve patient care
Strengths/limitations	First international study to analyze timing of RRT activations; simple & standardized data collection tools, prospective data collection & prospective analysis plan; didn’t collect data about times of hosp admission.; did not analyze interventions during RRT call; not able to comment on factors contributing mortality	Smaller sample size; effectiveness of RRT rated by administrative nurses & not by bedside RNs; limited generalizability (1 geographical location in 1 state); FTR rates variation based on coding practices among participating hospitals	Single publicly funded health region; residual confounding an inherent risk for observational studies; additional data (further info on illness severity) could help characterize pts at risk of MET calls; unable to exclude small but clinically important differences in pt char/processes that might help identify pts at risk of deterioration & repeat MET call
Funding source/comments	None indicated	None indicated	None indicated

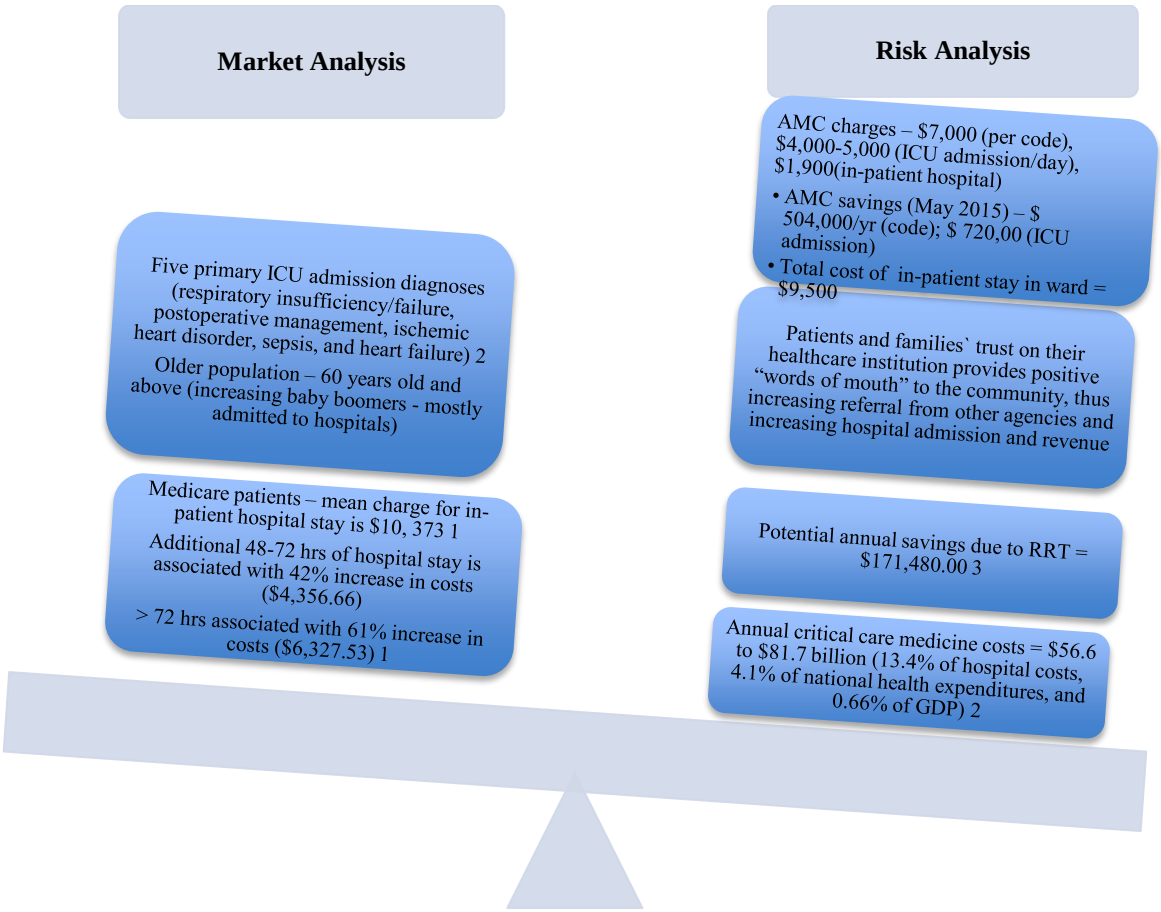
Appendix 2 – Logic Model



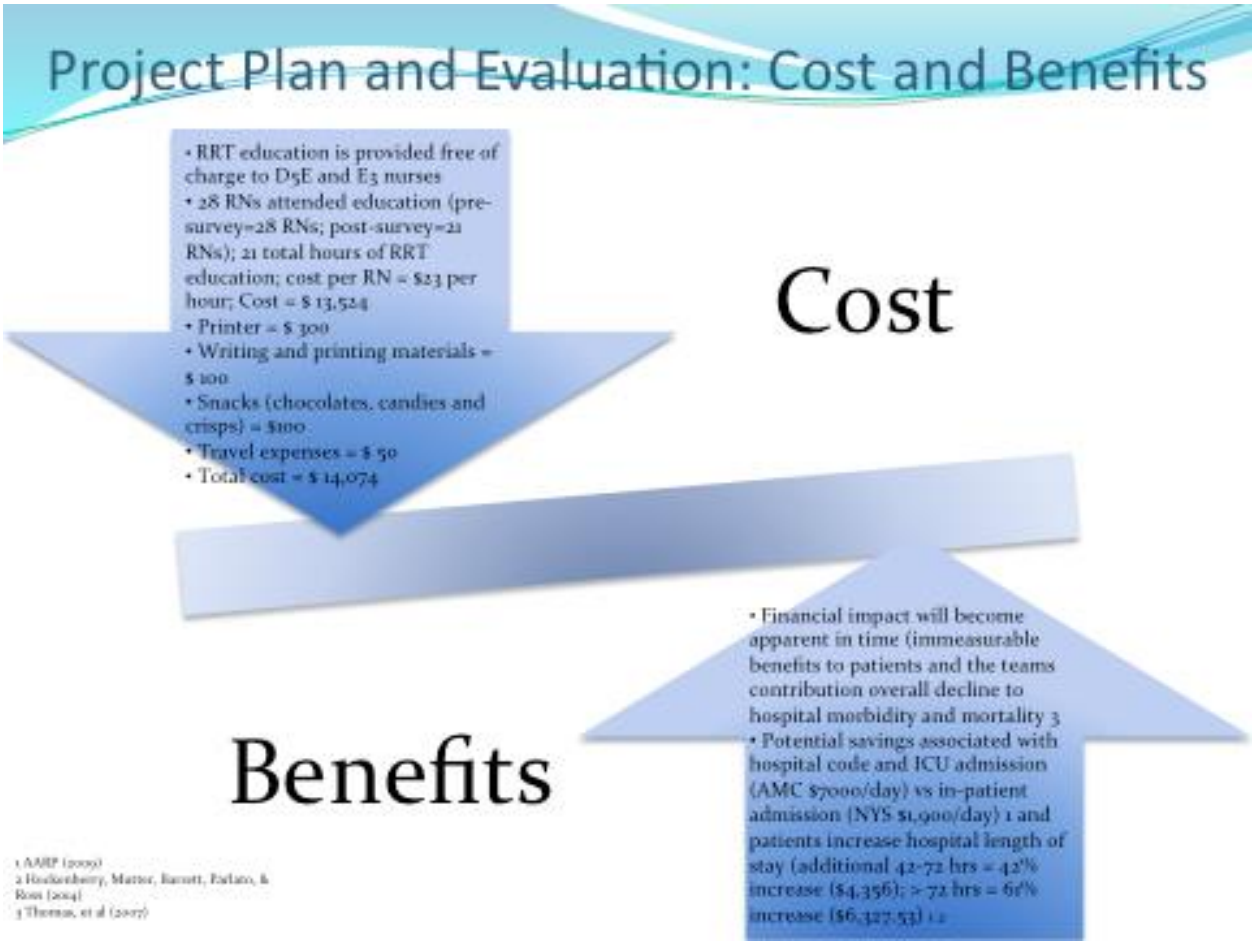
Appendix 3 – Conceptual Diagram



Appendix 4 - Market and Risk Analyses



Appendix 5 - Cost and Benefit Analyses



Appendix 6 - Measurement Tool

Rapid Response Team Education in Improving Bedside Nurses Knowledge and Skills
Survey Questionnaire

There are two parts to this survey. Part 1 asks for your background information. Part 2 asks how you rate each factor by your level of confidence when you activate the rapid response team (RRT).

Part 1

Please complete the following items.

1. How many years have you worked at this facility? _____
2. How long have you worked in nursing? _____
3. Choose the nursing unit you are hired to work on:
   - Medical Floor ☐
   - Surgical Floor ☐
4. What is your current level of nursing education?
   - LPN ☐
   - ADN ☐
   - BSN ☐
   - MS/MSN ☐
   - Other ☐
5. Identify any professional certifications you hold at this time _____ (BLS/ACLS, PALS and basic dysrythmia – type courses are not considered professional certifications)
6. Do you hold degrees in any other field besides nursing? Yes ☐No ☐If so, what field is it? _____
7. Have you ever called the RRT? Yes ☐No ☐

Part 2

The following items are associated with a nurse summoning the RRT. Read each item and rate each one that most closely matches how confident are you in summoning the team.

1 – Not confident 2 – Less confident 3 – Confident 4 – Always Confident 5 – Extremely Confident

____1. Physician`s positive response
____2. My knowledge of RRT criteria
____3. My knowledge of the process for calling the RRT
____4. My ability to determine if the patient`s condition meets the RRT criteria
____5. The way a nurse is treated by the RRT
____6. The hospital`s commitment to the RRT service
____7. The knowledge of how to contact the RRT
____8. Physician`s negative response
____9. My understanding of the RRT criteria
____10. My ability of the need for calling the RRT

Do you have any additional comments related to the RRT or this project?

_____
_____
_____

(Brown, Anderson, & Hill, 2012)

Brown, S., Anderson, M. A., & Hill, P. (2012 March/April). Rapid Response Team in a Rural Hospital. Clinical Nurse Specialist, 95-102.

Approval to use RRT instrument from Dr. Pamela Hill, PhD, RN, FAAN, one of the authors from previous RRT article.

Appendix 7 – Rapid Response Team Education

Rapid Response Team (RRT) Education – Institute for Healthcare Improvement

RRT Members

- ICU RN
- Respiratory therapist
- *Resident / MD –it varies with organization

RRT Members Are Skilled In:

- Advanced Cardiac Life Support (ACLS)
- Critical care experience
- Experts in rapid assessment & intervention

Why Use RRT?

- RRT has shown to decrease
- Number of codes
- ICU admission from floor
- Patient deaths

When To Activate RRT?

- Staff uncomfortable with patient situation
- Respiratory distress – RR <8 - >30, O2 sat < 90% despite increasing O2 requirements
- Acute change in HR <45 - >130, SBP <90 - >180, DBP >110

Or

- Vital signs change - 20% from baseline
- Acute change in LOC: GCS decrease of 2 or more from previous assessment (consider recent narcotic/sedative administration, hypoglycemia/hyperglycemia)
- Significant bleeding
- Seizures (new, repeated or prolonged)
- Failure to respond to treatment
- Agitation/delirium
- Uncontrollable pain
- Acute decrease cap refill >2 sec with visual evidence of decreased tissue perfusion

How To Activate RRT?

- Dial 0 to tell operator to activate the RRT & give patient location
- Tell RRT what is happening & how they can assist
- RRT will assist with assessment & management of pt & pt`s nurse will be responsible for calling MD, meds., & intervention unless they require specialized skills
- Initial RRT interventions may include
- Rapid physical assessment
- O2 saturation
- ECG monitoring
- VS monitoring
- Begin SBAR for MD communication
  - RRT can use critical care standing orders if indicated

How To document and Methods To Document RRT Calls

- SBAR completed & MD notified, if appropriate
- RRT interventions documented on RRT forms
- An RN`s note & appropriate patient care flow sheets will document patient status leading to activation of RRT. Followed by “See RRT notes for interventions”.
- The RRT nurse will complete the RRT progress note/standing order sheet

SBAR Communication

(Situation, Background, Assessment, Recommendation)

Purpose of SBAR: provides clear, concise, pertinent information to MD

Situation:

- Reason for initiation of RRT:
- Acute change in:
    - Respiratory status ☐
    - Vital signs (VS) ☐
    - Cardiac status ☐
    - Mental status ☐
    - Other ☐

Background:

- Admitting diagnosis
- Past medical history
- Allergies
- Surgery(s)/procedure(s)

Assessment:

- VS, O2 sat, FIO2, abnormal lab results, ECG, recent CXR, pertinent physical exam

Recommendations/Response:

- Recommendations – to suggest to MD &/or orders from MD
- Response – patient condition in response to interventions (Institute for Healthcare Improvement, 2014).

Reference

Institute for Healthcare Improvement. (2014, January 1). Measures: Deploy Rapid Response Teams. Retrieved October 19, 2014, from Institute for Healthcare Improvement: http://www.ihi.org/resources/Pages/Measures/MeasuresRapidResponseTeams.aspx

Appendix 8 – Timeframe

- Summer 2013 to 2014
  - Searched appropriate EBP project
- Fall 2014
  - Paper refinement
  - Paper submission to Institutional Review Board (Regis University and Albany Medical Center) for review and approval of project
  - Project approval - late May 2015
- Late Spring to Summer 2015
  - RRT education administration/implementation to medical-surgical floor nurses (May - June 2015)
  - RRT education data collection
- Summer 2015
  - RRT education results interpretation
  - Capstone Project paper writing and results interpretation in collaboration with Drs. Coast and Kruschke
- Summer to Fall 2015
  - Results interpretation, paper writing, and presentation of RRT project to Regis University College of Nursing

Appendix 9 – Budget and Resources

- Leadership support
- Costs
  - $ 100.00 – travel expenses (gas), snacks
  - $ 100.00 – writing materials (printing, paper, envelopes)
- Nursing workload
  - RN salary ($23/hr) x number of nurses (28)
  - Total cost = $ 624.00

Appendix 10 - IRB Approval – Regis University

REGIS UNIVERSITY

OFFICE OF ACADEMIC GRANTS

IRB – REGIS UNIVERSITY

June 1, 2015

Ms. Cherry Maglangit
2306 Forrest Pointe Drive
East Greenbush, NY 12061

RE: IRB #: 15-163

Dear Ms. Maglangit:

Your application to the Regis IRB for your project, "Rapid Response Team Education in Improving Bedside Nurses' Knowledge and Skill", was approved as an exempt study on May 27, 2015. This study was approved per exempt study category of research 45CFR46.101.b(#2).

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

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

Sincerely,

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

cc: Dr. Mary Jo Coast

5333 Regis Boulevard, H-4, Denver, CO 80221-1099
REGIS.EDU | O 303-458-4206 | F 303-964-5538 | E cagi@regis.edu

Appendix 11 – IRB Approval (Albany Medical Center)

ALBANY MEDICAL CENTER
COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS
INSTITUTIONAL REVIEW BOARD (IRB)
47 New Scotland Avenue, MC-1, R102 / Albany, NY 12208
Office: (518) 262-5182 or 5181
irboard@mail.amc.edu

Certificate of Approval

Date: 14-May-2015

IRB Meeting Date: 16-Jun-2015

Submission Type: Initial Application

Review Type: Expedited

Review Decision: Approved

Date of Approval: 14-May-2015

Expiration Date of Protocol Approval: 14-May-2016

Principal Investigator: Lynne Longtin, DNP, RN

Title of Research Protocol: Rapid Response Team Education in Improving Bedside Nurses' Knowledge and Skills (Expedited Review Category 7 with Information Sheet and waiver of signed documentation of Informed Consent; program evaluation and questionnaire) (4146)

Approval Includes:
Protocol v 11-May-2015
Study Information Letter v 11-May-2015
Surveys

AMC IRB has approved the following study team members:
Cherry Lynn Maglangit, Co-Investigator

AMC IRB has approved the following locations to be used in the research:
Albany Medical Center Hospital 43 New Scotland Ave, Albany NY 12208 (Main)

If the PI has an obligation to use another IRB for any site listed above and has not submitted a written statement from the other IRB acknowledging AMC's IRB review of this research, please contact AMC's Office of Research Affairs.

Sincerely yours,

COMMITTEE ON RESEARCH INVOLVING HUMAN SUBJECTS

Dan R. Thompson, M.D, M.A., IRB Chair

Appendix 12 – CITI Training Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 06/07/2014

LEARNER	Cherry Lynn Maglangit (ID: 4196245)
DEPARTMENT	Regis University
EMAIL	magla927@regis.edu
INSTITUTION	Regis University
EXPIRATION DATE	06/06/2017

SOCIAL BEHAVIORAL RESEARCH INVESTIGATORS AND KEY PERSONNEL

COURSE/STAGE:	Basic Course/1
PASSED ON:	06/07/2014
REFERENCE ID:	13169253

REQUIRED MODULES	DATE COMPLETED
Introduction	06/07/14
History and Ethical Principles - SBE	06/05/14
The Regulations - SBE	06/05/14
Assessing Risk - SBE	06/05/14
Informed Consent - SBE	06/05/14
Privacy and Confidentiality - SBE	06/07/14
Regis University	06/07/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Progam course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

Appendix 13 – Letter of Intent to Agency

Cherry Lynn Maglangit
Clinical Assistant Nurse Manager
D3N-Medical-Surgical Intensive Care Unit
Albany Medical Center
Cell phone 407-403-1166
maglanc@mail.amc.edu

Ms. Jennifer Cassin
Interim Chief Nursing Officer
Albany Medical Center
43 New Scotland Avenue
Albany, NY 12208

Dear Ms. Cassin,

I am writing to inform you that I am interested of doing a project study as my Capstone project on the medical-surgical floors at Albany Medical Center entitled "Rapid Response Team Education in Improving Bedside Nurses Knowledge and Skills" which seeks to determine if rapid response team (RRT) education will improve bedside nurses` knowledge and skills in activating the team.

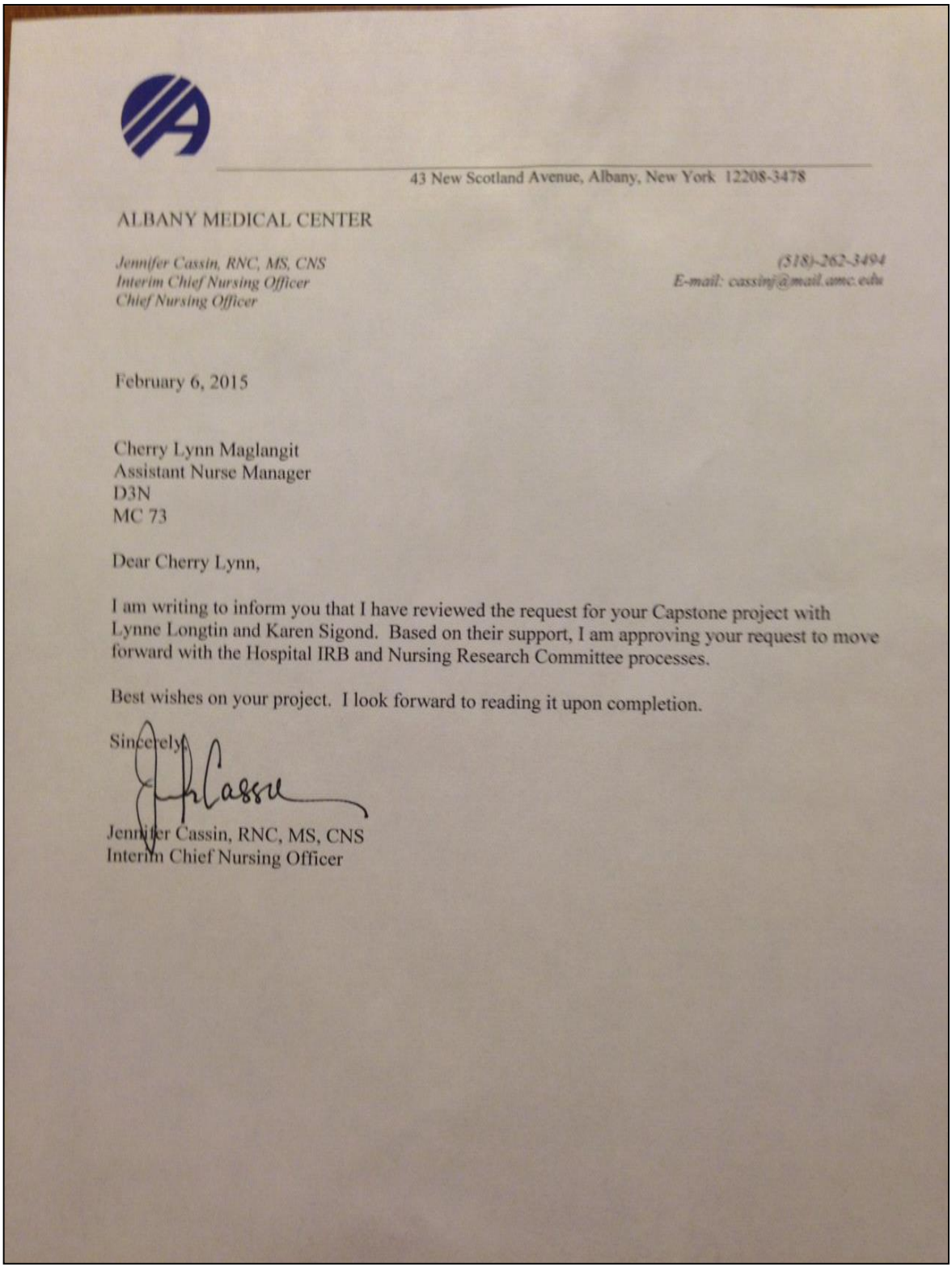
I am currently enrolled at Regis University for the Doctor of Nursing Program. I became interested of the subject matter when I personally witnessed patients deteriorated on the floor because of delays in calling for help. Being an ICU nurse and previously worked as a rapid response team nurse myself, I have seen benefits when frontline providers, such as bedside nurses, have knowledge and skills in activating the team. Early activation of the team can provide early patient intervention, expedite transfers to appropriate level of care, and prevent deterioration of patient`s condition, therefore, providing best and quality patient care.

I have researched the issue and determined that an RRT education will strongly benefit patients and nurses working at the medical-surgical floors. If you have any further enquiries, please contact me at the information stated above.

Sincerely,

Cherry Lynn Maglangit, RN, MSN, CCRN (Signed)

Appendix 14 - Agency Letter of Support



43 New Scotland Avenue, Albany, New York 12208-3478

ALBANY MEDICAL CENTER

Jennifer Cassin, RNC, MS, CNS
Interim Chief Nursing Officer
Chief Nursing Officer

(518)-262-3494
E-mail: cassinj@mail.amc.edu

February 6, 2015

Cherry Lynn Maglangit
Assistant Nurse Manager
D3N
MC 73

Dear Cherry Lynn,

I am writing to inform you that I have reviewed the request for your Capstone project with Lynne Longtin and Karen Sigond. Based on their support, I am approving your request to move forward with the Hospital IRB and Nursing Research Committee processes.

Best wishes on your project. I look forward to reading it upon completion.

Sincerely,

Jennifer Cassin, RNC, MS, CNS
Interim Chief Nursing Officer

Appendix 15 - Study Letter to Potential Participants

Albany Medical Center

Letter of Study Information to Potential Participants

January 19, 2015

Dear Colleagues,

My name is Cherry Lynn Maglangit. I am a candidate for a Doctor of Nursing Practice at Regis University. My contact information is: 2306 Forrest Pointe Drive, East Greenbush, New York, 12061. My telephone number is 407-403-1166. I am conducting a research project entitled, "Rapid Response Team Education in Improving Bedside Nurses Knowledge and Skills" which seeks to determine if rapid response team (RRT) education will improve bedside nurses` knowledge and skills in activating the team as my Capstone project. The purpose of the study is to evaluate and determine the impact of education in terms of improving bedside nurses` knowledge and skills in activating the rapid response team.

I am requesting your participation, which involves attending the rapid response team education that I will be providing in your unit. You will be asked to complete pre and post survey questionnaires containing information on your rapid response experience, your number of years working as an RN, and your knowledge of RRT. You will then be asked to participate in an educational session containing rapid response information. The rapid response team education, and pre and post survey questionnaires` completion are expected to last within thirty minutes to one hour.

I am asking you to participate in this study because you are a registered nurse working on the medical-surgical floors at Albany Medical Center. Neither participating nor choosing not to participate will not affect your access to any goods or services, nor affect your employment status or performance evaluations. Managers or administrative personnel will not attend any education sessions, and no attendance record will be kept. There will be no cost incurred for you in participating in this study. I will not be collecting any data that can link you to the answers you provide. All responses will be kept anonymous and confidential. The results of this research project will only be presented as a summary of all results and you will never be directly identified in any way. If you are uncomfortable answering any question, you may choose not to answer that question or to stop your participation and have any notes, recordings, or hard copy answers destroyed at any time. There are no direct benefits to participating in the study.

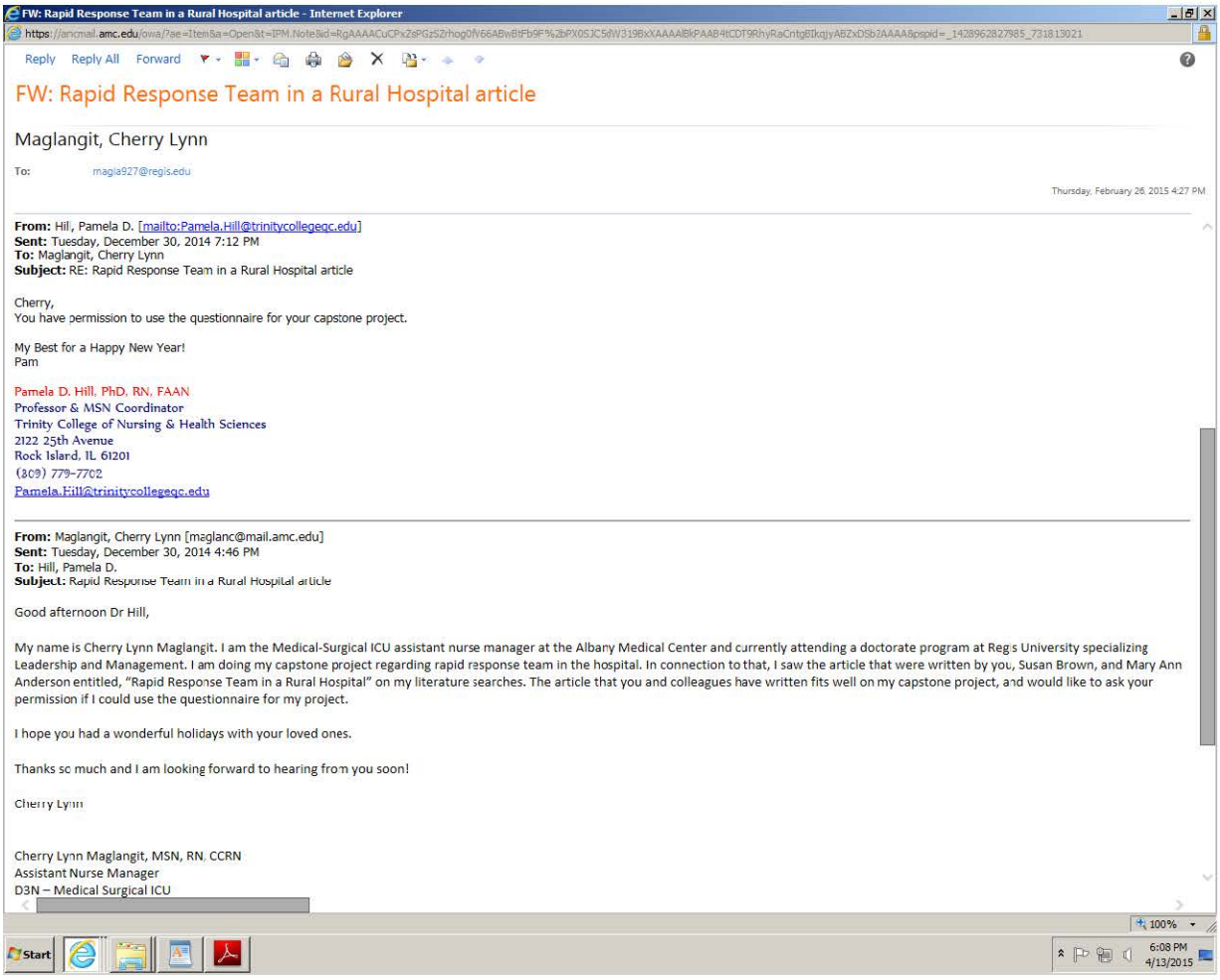
Your participation in this research project is voluntary. By participating, you will help both me with my project and the hospital in determining how the team is being utilized. To further protect the confidentiality of your responses, I will not be collecting a signed consent form but will instead consider your participation in the study as consent permitting me to collect the data you provide.

If you have any questions concerning this research project, please call me at 407-403-1166 or email me at magla927@regis.edu. Should you have questions or concerns about participation in this study, you may contact me using the information in the first paragraph. My faculty Advisor is Dr. Mary Jo Coast; email: mcoast@regis.edu; phone: 303-458-4235; 1.800.388.2366 extension 4235. You may also contact the Chair of the Regis University Institutional Board for human subjects participation by telephone at 303-346-4206; by mail at Regis University, Office of Academic Grants, 447 Main, Mail Code H-4, 3333 Regis Blvd., Denver, CO, 80221; or by e-mail at irb@regis.edu. You may also contact Albany Medical Center Office of Research Affairs at 518-262-5182 or email to IRBOARD@mail.amc.edu. with questions or concerns, or if you feel that participation in this study has resulted in some harm.

Thank you very much for your time in considering my project participation and hearing about this study.

Sincerely,
Cherry Lynn Maglangit, MSN, RN, CCRN
Doctor of Nursing Practice Student
Regis University

Appendix 16 – Approval to Use Measurement Tool



FW: Rapid Response Team in a Rural Hospital article - Internet Explorer

https://amcmail.amc.edu/owa/?ae=Item&a=Open&t=IPM.Note&id=RgAAAACuCPxZsPGzSZrhog0fY66ABwBtFb9F%2bPX0SJC5dW319BxXAAAAIBkPAAB4tCDT9RhyRaCntgBIkqjyABZxDSbJAAAA&pspid=_1428962827985_731813021

Reply Reply All Forward

FW: Rapid Response Team in a Rural Hospital article

Maglangit, Cherry Lynn

To: magla927@regis.edu

Thursday, February 26, 2015 4:27 PM

From: Hill, Pamela D. [mailto:Pamela.Hill@trinitycollegeqc.edu]
Sent: Tuesday, December 30, 2014 7:12 PM
To: Maglangit, Cherry Lynn
Subject: RE: Rapid Response Team in a Rural Hospital article

Cherry,
You have permission to use the questionnaire for your capstone project.

My Best for a Happy New Year!
Pam

Pamela D. Hill, PhD, RN, FAAN
Professor & MSN Coordinator
Trinity College of Nursing & Health Sciences
2122 25th Avenue
Rock Island, IL 61201
(309) 779-7702
Pamela.Hill@trinitycollegeqc.edu

From: Maglangit, Cherry Lynn [maglanc@mail.amc.edu]
Sent: Tuesday, December 30, 2014 4:46 PM
To: Hill, Pamela D.
Subject: Rapid Response Team in a Rural Hospital article

Good afternoon Dr Hill,

My name is Cherry Lynn Maglangit. I am the Medical-Surgical ICU assistant nurse manager at the Albany Medical Center and currently attending a doctorate program at Regis University specializing Leadership and Management. I am doing my capstone project regarding rapid response team in the hospital. In connection to that, I saw the article that were written by you, Susan Brown, and Mary Ann Anderson entitled, "Rapid Response Team in a Rural Hospital" on my literature searches. The article that you and colleagues have written fits well on my capstone project, and would like to ask your permission if I could use the questionnaire for my project.

I hope you had a wonderful holidays with your loved ones.

Thanks so much and I am looking forward to hearing from you soon!

Cherry Lynn

Cherry Lynn Maglangit, MSN, RN, CCRN
Assistant Nurse Manager
D3N – Medical Surgical ICU

100%

Start

6:08 PM
4/13/2015

Appendix 17 – Survey Results

Q1001 - Have you ever called the RRT?	Frequency	Percent	Valid percent	Cumulative percent
Valid 1	26	92.9	92.9	92.9
2	2	7.1	7.1	100.0
Total	28	100.0	100.0	
Q2001				
Valid 0	4	14.3	19.0	19.0
1	16	57.1	76.2	95.2
2	1	3.6	4.8	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1002 - Physician`s positive response	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	1	3.6	3.6	3.6
1	2	7.1	7.1	10.7
2	3	10.7	10.7	21.4
3	17	60.7	60.7	82.1
4	4	14.3	14.3	96.4
5	1	3.6	3.6	100.0
Total	28	100.0	100.0	
Q2002				
Valid 0	2	7.1	9.5	9.5
2	2	7.1	9.5	19.0
3	11	39.3	52.4	71.4
4	3	10.7	14.3	85.7
5	3	10.7	14.3	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1004 – My knowledge of the process for calling the RRT	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	1	3.6	3.6	3.6
2	2	7.1	7.1	10.7
3	9	32.1	32.1	42.9
4	10	35.7	35.7	78.6
5	6	21.4	21.4	100.00
Total	28	100.00	100.00	
Q2004				
Valid 0	1	3.6	4.8	4.8
3	6	21.4	28.6	33.3
4	6	21.4	28.6	61.9
5	8	28.6	38.1	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1005 – My ability to determine if the patient's condition meets the RRT criteria	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	2	7.1	7.1	7.1
2	2	7.1	7.1	14.3
3	12	42.9	42.9	57.1
4	8	28.6	28.6	85.7
5	4	14.3	14.3	100.0
Total	28	100.0	100.0	
Q2005				
Valid 0	1	3.6	4.8	4.8
2	1	3.6	4.8	9.5
3	7	25.0	33.3	42.9
4	5	17.9	23.8	66.7
5	7	25.0	33.3	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1006 – The way a nurse is treated by the RRT	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	2	7.1	7.1	7.1
2	5	17.9	17.9	25.0
3	7	25.0	25.0	50.0
4	8	28.6	28.6	78.6
5	6	21.4	21.4	100.0
Total	28	100.0	100.0	
Q2006				
Valid 0	2	7.1	9.5	9.5
2	1	3.6	4.8	14.3
3	8	28.6	38.1	52.4
4	3	10.7	14.3	66.7
5	7	25.0	33.3	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1007 – The hospital's commitment to the RRT criteria	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	2	7.1	7.1	7.1
2	1	3.6	3.6	10.7
3	13	46.4	46.4	57.1
4	7	25.0	25.0	82.1
5	5	17.9	17.9	100.0
Total	28	100.0	100.0	
Q2007				
Valid 0	1	3.6	4.8	4.8
3	8	28.6	38.1	42.9
4	4	14.3	19.0	61.9
5	8	28.6	38.1	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1008 – The knowledge of how to contact the RRT	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	1	3.6	3.6	3.6
3	11	39.3	39.3	42.9
4	5	17.9	17.9	60.7
5	11	39.3	39.3	100.0
Total	28	100.0	100.0	
Q2008				
Valid 0	1	3.6	4.8	4.8
3	3	10.7	14.3	19.0
4	8	28.6	38.1	57.1
5	9	32.1	42.9	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1009 – Physician`s negative response	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	2	7.1	7.1	7.1
1	4	14.3	14.3	21.4
2	8	28.6	28.6	50.0
3	12	42.9	42.9	92.9
4	2	7.1	7.1	100.0
Total	28	100.0	100.0	
Q2009				
Valid 0	2	7.1	9.5	9.5
1	1	3.6	4.8	14.3
2	5	17.9	23.8	38.1
3	9	32.1	42.9	81.0
4	2	7.1	9.5	90.5
5	2	7.1	9.5	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

Q1010 – My understanding of the RRT criteria	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	1	3.6	3.6	3.6
2	2	7.1	7.1	10.7
3	13	46.4	46.4	57.1
4	9	32.1	32.1	89.3
5	3	10.7	10.7	100.0
Total	28	100.0	100.0	
Q2010				
Valid 0	1	3.6	4.8	4.8
3	5	17.9	23.8	28.6
4	8	28.6	38.1	66.7
5	7	25.0	33.3	100.0
Total	21	75.0	100.00	
Missing system	7	25.0		
Total	28	100.0		

Q1011 – My ability of the need for calling the RRT	Frequency	Percent	Valid percent	Cumulative percent
Valid 0	1	3.6	3.6	3.6
2	1	3.6	3.6	7.1
3	8	28.6	28.6	35.7
4	12	42.9	42.9	78.6
5	6	21.4	21.4	100.0
Total	28	100.0	100.0	
Q2011				
Valid 0	1	5.6	4.6	4.8
3	5	17.9	23.8	28.6
4	7	25.0	33.3	61.9
5	8	28.6	38.1	100.0
Total	21	75.0	100.0	
Missing system	7	25.0		
Total	28	100.0		

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