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Barriers to Timely Activation of Rapid Response Teams

LaJuanah Jean Herdrich
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

LaJuanah Herdrich

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

Review Committee
Dr. Barbara Niedz, Committee Chairperson, Nursing Faculty
Dr. Robert McWhirt, Committee Member, Nursing Faculty
Dr. Margaret Harvey, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2019

Abstract

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MSN, Jacksonville University, 2016

BSN, Allen College, 2011

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Timely activation of the rapid response team (RRT) depends on the nurse's willingness and ability to make a rapid decision. The practice-focused questions for this DNP project sought to identify barriers that contribute to delays in activating the RRT when needed in medical-surgical patients. The self-efficacy theory was the guiding theory and was used to examine self-confidence and performance along with Donabedian's health care model. Qualitative data were obtained through focus groups and identified 2 prominent thematic barriers among nurses with less than 3 years' experience: a lack of self-confidence and the of lack of knowledge and experience. Results of a chart review included 34 charts to determine if the RRT were called appropriately and were inconclusive. Finally, an 11-item survey with 9 demographic questions showed a statistically significant difference on the summed survey score between nurses with less than 3 years of experience and more tenured nurses, indicating a lack of perceived support, self-confidence, and knowledge among the nurses with less than 3 years of experience (Pearson chi square = 7.403 with 2 *df* and $p = .025$). Results were presented to leaders at the site and the recommendations resulting from these observations include the use of high-fidelity simulation education. Nurse educators and senior leadership from the medical surgical units agreed to accept the recommendations and proceed with developing an educational solution to address the barriers. Building knowledge, skills and self-confidence in nurses reduces the barriers to effective use of the RRT, and results in better outcomes for hospitalized medical-surgical patients, a positive social change.

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Dedication

This Doctor of Nursing Project is dedicated to my husband Sean, who has never given up on me. You have taught me how to believe in myself, my dreams, and to never let go of what I set out to achieve. You have given me strength, courage, and inspiration to change the lives of others and educate the future generation of nurses. To my daughter Kristina, for your love and support. You have walked alongside me being my biggest cheerleader even when I doubted myself. To my mom Judy, who always said I could do this and my dad Norman who often offered to help with my homework (now this would have been dangerous considering his suggested topic consisted of Mr. Ed). To you Tony and Lana for the love and prayers, your faith has kept me strong. To all of you, your unconditional love, faith, support, and constant prayers meant a lot to me.

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Section 1: Nature of the Project

Introduction

Rapid Response team (RRT) utilization decreases morbidity and mortality when activated upon early recognition of patient deterioration (Institute for Healthcare Improvement (IHI), 2017; Jung et al., 2016). Timely activation of the RRT depends on the nurse's willingness and ability to make a rapid decision based on their knowledge and skill to prevent complications and deaths (Hogan et al., 2017). Recognition of clinical changes and early activation of the RRT may prevent adverse outcomes including cardiac arrest, pulmonary arrest, or even death (Mathukia et al., 2017). As healthcare professionals, the expectation is to provide high quality safe patient care (American Nurses Association (ANA), 2010). Increased unplanned transfers to the intensive care unit (ICU) has been identified and posed a question if the increase of ICU transfers is in conjunction with the underutilization of the RRT at the project site.

Quality and safety improvement initiatives aid to identify inefficiencies, ineffective care, and preventable errors (Agency for Healthcare Research and Quality (AHRQ), 2006). Quality improvement initiatives help to improve healthcare by establishing change that aids in patient safety and is associated with high levels of cognitive reasoning, discretionary decision making, problem-solving, and experiential knowledge (AHRQ, 2006). Gaining understanding of the perceived barriers to utilizing the RRT offers insight and a better understanding of increased unplanned ICU transfers. Identifying reasoning for the underutilization of the RRT in conjunction with the increase

number of ICU transfers aid to prevent delays in care and decrease morbidity and mortality rates leading to social change and building trust in healthcare communities.

Problem Statement

Utilization of the RRT varies between nurse, unit, and role of the healthcare professional (Hogan et al., 2017). Senior leadership, clinical nurse specialists, and clinical development coordinators at an Iowa based 366-bed hospital have communicated some intuition as to the nature of the problem. Failure to rescue, deferred activation, lack of nurse confidence, delay in clinical reasoning of assessment findings, alarm fatigue, and unit microculture in how leaders portray the use of RRTs to their associates, were among the identified barriers. RRT utilization plays a significant role in patient safety and outcomes (The Joint Commission (TJC), 2007). RRTs were not a new concept at the study site hospital, though underutilization was a concern of senior leadership who indicated a decline in rapid response calls from acute care nursing units and an increase of unplanned ICU transfers.

In 2004, the Institute of Medicine (IOM) launched the 100,000 Lives Campaign as a national initiative to improve patient safety in hospitals and save lives (Berwick, Calkins, McCannon, & Hackbarth, 2006). In 2006, the IOM announced that 122,300 lives were saved since the implementation of the campaign and the initiation of RRTs (IHI, 2017). The Joint Commission (TJC) in 2008 reinforced the need for live saving measures as identified in National Patient Safety Goal 16, which fostered the advancement of recognition and response to patient condition changes (Revere &

Eldridge, 2008). RRT utilization plays a significant role in patient safety and outcomes (TJC, 2007).

Evidence-based practices set guidelines in providing care, and it is the responsibility of the nursing professional to maintain these standards (ANA, 2010). Identification of the barriers to activating the RRT holds significance for acute care nursing units and can positively impact patients by decreasing cardiac arrest and pulmonary distress or arrest. The identification of barriers can also help to identify clinical signs of deterioration early which lead to a decrease in unplanned ICU transfers, and decreased morbidity and mortality in the hospital setting (Leach & Mayo, 2013).

Purpose

A gap in practice is a problem when nurses are not confident in activating the RRT. This gap is heightened when barriers to activating the RRT inhibit teamwork and communication leading to a failure to validate the decline in a patient that leads to cardiac or pulmonary arrest (Astroth, Woith, Stapleton, Degitz, & Jenkins, 2013). The purpose of this DNP evidence-based quality improvement project was to improve healthcare outcomes, improve organizational processes, reduce anxiety, develop nurse confidence, and build nurses' professional practice while boosting autonomy in activating the RRT (Jung et al., 2016).

The guiding practice-focused questions for this doctoral project helped to examine concerns voiced by leadership team members at the project site as to why underutilization of RRT occurs and if this is correlated to the increase of unplanned ICU transfers. The practice-focused questions for this DNP project were: What barriers contribute to a delay

in activation of the RRT in medical-surgical patients? Will secondary analyses of RRT records and focus group discussion with medical-surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfers?

This DNP project emphasized clarity of unplanned ICU transfers in conjunction with the decrease in RRT utilization. Evaluation of current practices of assessment, documentation, communication, generational differences, and how to interpret organizational goals offered insight in identification of barriers to activating the RRT. The IOM national initiative to improve patient safety and save lives in hospitals has demonstrated effectiveness since the initiation of RRT (IHI, 2017). This DNP project possessed potential to address this gap in practice by promoting social change and fostering a supportive culture to enhance patient safety.

Nature of the Doctoral Project

Initially, I identified some barriers to rapid response utilization through informal questioning of various leaders at the project site. To evaluate the barriers of RRT utilization, three focus groups of nurses who work on medical surgical nursing units were interviewed to better understand the barriers that interfere with prompt activation of the RRT. Each group consisted of nurses from each medical surgical unit and represented various shifts. Each group consisted of at least four nurses; the nurses were randomly selected, regardless of whether they had ever initiated a rapid response. Qualitative methods were used to code their confidential responses. A member of the RRT utilization committee conducted the focus groups and provided the deidentified data to me for secondary analyses. From the transcribed audiotapes, I developed codes, categories, and

themes, identifying commonalities from the nurses. This helped me to determine the perceived barriers to activating the RRT.

In effort to gather additional information, quantitative and qualitative techniques were used to review deidentified RRT activation and code blue summaries that were obtained from the code blue and the rapid response committees. Request for and evaluation of these data are useful in identifying the clinical rational for RRT utilization, trends in activation, and the outcomes postactivation as well as the need for ICU transfer. The Walden University manual for quality improvement evaluation projects, was used as a guide to develop this DNP project (Walden University, 2017). A complete content analysis of deidentified transcribed data to evaluate clinical data, categories, and themes also emerged from the review of these data.

Significance

The stakeholders in a hospital environment in which RRT activation occurs include: the patient, registered nurse, critical care registered nurse, flight nurse, emergency room registered nurse, house supervisor, hospitalist, and respiratory therapist (Chen, Rinaldo, Hillman, Arthas, & Finer, 2010). Though family members can activate an RRT at the project site, they will not be included in the DNP project population. The pediatric unit, family birth center, inpatient rehabilitation, and inpatient behavioral health units were excluded from this project.

Patients enter hospitals at a very vulnerable time, expecting the best and safest care possible. The public relies on the nurse's knowledge to protect them from harm that leads to sentinel events (ANA, 2010). RRTs are critical in providing safety and life-

saving care to our patients (IHI, 2008). Nurses commit to providing safe, compassionate, and ethical care through collaboration with other healthcare professionals and are held accountable for their actions (ANA, 2015). Evidence-based practices and patient safety are the responsibility of nursing professionals and expectations to meet these standards are held high throughout the community (Stoddart, 2012). A multidisciplinary team approach in healthcare leads to reduced hospital costs, decreased morbidity and mortality, and increased nursing performance that in turn points to improved patient quality and safety (Epstein, 2014).

The Joint Commission (2015) indicated that the leading cause of sentinel events include inadequate assessments, communication failure, and other forms of human failure. An estimated 1.5 lives are saved per week with the use of RRTs in a hospital setting demonstrating a significant reduction in cardiopulmonary arrest and decreased mortality rates (Jung et al., 2016). RRTs aid in the reduction of cardiac arrest outside the ICU by 40% with early recognition of deterioration (Butner, 2011).

Identification of barriers in utilizing the RRT can aid in process changes that focus on early recognition and management of patient deterioration and alerts nurses to activate the RRT (Mullany, Ziegenfuss, Goleby, & Wards, 2016). RRTs use teamwork, communication, assessment skills, and critical thinking as an intradisciplinary team to provide critical care at the bedside of the deteriorating patient allowing for immediate intervention and reduction of cardiac and pulmonary arrest outside the ICU (Butner, 2011). Benson et al. (2008) indicated that non-ICU cardiopulmonary arrest significantly

decreased (p = 0.0065) with 84% of patients surviving to discharge and 80% of patients being stabilized and did not require ICU transfer with RRT intervention.

This project is aligned with the national patient safety goals (NPSGs) to meet the needs of the Iowa hospital chosen as the DNP project site. The 2017 hospital NPSGs outline the need to improve staff communication and identify patient safety risks (Fenner, 2017). Contributions from this doctoral project have the potential to promote a process improvement change to all units within the chosen hospital and two other affiliated hospitals of the overall organization. Increased activation of RRTs can decrease unplanned ICU transfers from medical-surgical units, decrease in-hospital morbidity and mortality rates, boost nurse self-confidence, and improve teamwork and communication, which leads to a safer patient environment (Jung et al., 2016).

Nurse advocacy through collaboration, communication, actions, and teamwork support desired outcomes leading to social change within the organization (Tomajan, 2012). Halverson et al. (2011) also specified that to establish effective teamwork an individual must build both individual and team technical skills, coordination, situation recognition, leadership, and communication. Early identification of patient decline, the knowledge of when to activate the RRT, and the nurse's ability to gain confidence in activating the RRT through standardization improves patient outcomes (Connell et al., 2016), thereby demonstrating positive social change .

Summary

Timely activation of the RRT leads to a decrease in morbidity and mortality in hospitalized patients (Jung et al., 2016). The National Institute of Health and Clinical

Excellence (NICE) established guidelines to monitor clinical data of patients at risk for deterioration using a physiological track and trigger system in hospital settings (NICE, 2007). The nurse's attentiveness and ability to make a rapid decision based on their assessment findings could prevent complications and even death (Hogan et al., 2017). Examination of concepts, models, and theories guided this DNP project and assisted with development of process improvement and educational guidelines to direct change.

Section 2: Background and Context

Introduction

Underutilization of RRTs has become a concern at the Iowa hospital chosen for this DNP project. Failure to rescue, delay in activation, lack of nurse confidence, delay in clinical reasoning of assessment findings, alarm fatigue, and negative attitudes towards the use of RRTs can lead to sentinel events (Davies, DeVita, & Perez, 2014; Leach & Mayo, 2013). Informal questioning of senior leadership at the project site suggests that these barriers may be operative at the site and may be confirmed in this doctoral project. Identification and early intervention of abnormal assessment findings that are insufficiently treated can lead to life-threatening adverse events (Davies et al., 2014). Timely activation, early intervention, and stabilization depends on the nurse's readiness and proficiency to make an instantaneous decision based on their knowledge and skill to prevent complications and death (Connell et al., 2016). RRTs help to decrease life threatening complications such as cardiopulmonary arrest and can decrease in-hospital morbidity and mortality rates, and saves lives (Hogan et al., 2017).

As healthcare professionals, the expectation is to provide high quality safe patient care forming trust in the communities we serve (ANA, 2010). Identification of barriers to activating the RRT through review of de-identified data could lead to quality improvement process changes. Education can be established to address these barriers using an intradisciplinary team approach that can help reduce anxiety, develop nurse confidence, boost autonomy, and build nurses' professional competency and skill leading to a decrease in unplanned ICU transfers (Jung et al., 2016).

Practice Focused Question

The purpose of this DNP project was to explore the causes of failed RRTs (those that were called too late or not at all), and unplanned ICU transfers from medical-surgical patient beds in the project site hospital. Anecdotally, senior leaders at the practice site are concerned that RRTs are called too late, long after the initial signs of patient deterioration have started to emerge. Although this gap in practice surfaces in the medical surgical nurses, it is unclear as to the exact reasons for the lapse. The practice-focused questions of this DNP project were: What barriers contribute to a delay in activation of the RRT in medical-surgical patients? Will secondary analyses of RRT records and focus group discussion with medical-surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfer? Utilization of RRTs are relevant to providing safe patient care as they require quick actions and critical thinking of front-line nurses and is the purpose of this doctoral project.

Patient safety is a primary focus for nursing and within the healthcare system as a team (Levine & Johnson, 2014). Nurses with high self-efficacy have higher levels of self-confidence, grasp difficult challenges, encounter less stress and anxiety, have high coping capabilities, and are more likely to seek support from team members (Bandura, 1997). The self-efficacy theory will be the guiding theory along with Donabedian's health care model for this DNP project. Donabedian's model and the self-efficacy theory was used to frame the project. Once the barriers were clearly recognized, the need for standardized education was identified with an aim to boost confidence levels of nurses, increase the use of the RRT, and decrease unplanned transfers to the ICU. Additional

recommendations emerged to clarify the role that trust plays in nursing judgments, strategies to develop trust and confidence as an interdisciplinary team and decrease life-threatening outcomes or even death in patients (Upenieks & Abelew, 2006).

Concepts, Models, and Theories

It is important to assess the nurse's perception and confidence level in utilizing RRTs to gain understanding of the barriers that lead to underutilization. An individual's behavior and environment, as well as personal and cognitive responsiveness influence self-efficacy according to Bandura's self-efficacy theory (Nursing Theories, 2012). Bandura (1997) identified that individuals must realize their own ambitions for actions to be effective in making decisions. Understanding the organization goals and the need to identify deterioration of medical-surgical patients quickly, as soon as signs emerge, can lead to a decrease in unplanned ICU transfers. Nurses with high self-efficacy aim to have a stronger incentive and belief in their own personal capabilities, have high aspirations, visualize successful outcomes, set goals and plan courses of action, regulate emotions, are less stressed, are relaxed allowing them to calm themselves, and will seek support from others (Bandura, 1997).

Rapid Response Teams

An RRT is an interdisciplinary team of healthcare professionals that provide critical care expertise to the deteriorating patient at the bedside (IHI, 2008). The goal of an RRT is to respond to patients within the hospital setting who display acute, transient, or continuous clinical changes in their condition (AHRQ, 2012). RRTs have also been referred to as medical emergency teams (MET), critical care outreach, and team help

(AHRQ, 2012). While RRTs are needed to prevent further deterioration of patients, the question arises rather or not early recognition and activation of the RRT compared to the delayed activation of the RRT or no activation of RRT affect the number of days spent in ICU in the DNP project hospital of study. RRTs are much like code blue teams in that they are staffed with critical care nurses, paramedics, physicians, staff nurses, and respiratory therapist (Berwick et al., 2006). The aim of the RRT is to assist in identifying clinical reasoning of deterioration, provide early intervention and stabilization, prevent respiratory and cardiac arrest, prevent adverse and fatal events, and decrease mortality rates outside the ICU (Davies et al., 2014; Jones, DeVita, & Bellomo, 2011).

Activation of the RRT is dependent on the nurse's ability to make a rapid decision based on clinical identifiers and the ability to critically think and connect these identifiers to patient's who exhibit deterioration in the hospital setting (AHRQ, 2012). At least two-thirds of in-hospital cardiac arrests are preceded by abnormal vital signs within the previous 24 hours and approximately one-quarter of all RRT calls occurred within 48-hours of admission to the hospital (Mora et al., 2016). Key clinical signs in patient deterioration that warrant the nurse to call an RRT include significant changes in vital signs, respiratory distress, compromised airway, seizures, cardiac monitoring shifts, Glasgow Coma Score (GCS) decreased by two points, decreased level of consciousness, and if the nurse, family, or other healthcare professional becomes concerned with the patient's condition (Buist et. al., 1999; Chen et al., 2010).

Surveillance of patient deterioration requires the nurse to observe assessment changes as well as recognize and interpret clinical implications of change that leads to

activation of RRT (Giuliano, 2017). Serious complications such as cardiopulmonary arrest, unplanned transfers to the ICU, and even death can occur when acute deterioration signals are not identified or treated within a timely manner (Benin, Borgstrom, Jenq, Roumanis & Horwitz, 2012). RRTs are crucial in the hospital setting as they lead to decreased rates of cardiac arrest, lower mortality rates, decrease unplanned and readmission rates to the ICU, and decrease hospital length of stay (Davies et al., 2014; Winterbottom, Castex, & Campbell, 2013). Furthermore, RRTs can improve the use of nursing and other multidisciplinary team member resources through advanced planning, identification of supplementary care resources, aid to change the culture and use of RRT, enhanced patient safety, and improved communication throughout transitions of care (Winterbottom et al., 2013).

Impact on Morbidity, Mortality and Complications

Before RRTs, nurses struggled to find assistance to support the deteriorating patient, and valuable time was spent waiting for physicians to communicate orders that lead to a delay in care (Leach & Mayo, 2013). The Joint Commission identified the need to foster the advancement and recognition of deteriorating patient conditions in one of six national patient safety goals in hospitals (IHI, 2017; Revere & Eldridge, 2008). Patient safety remains priority to healthcare organizations with implementation and revised strategies for prevention of serious adverse events including cardiopulmonary arrest (Jones et al., 2011).

Improving utilization of RRTs can minimize cardiopulmonary arrest and devastating life-altering consequences (Jung et al., 2016). In a retrospective comparison

study, the authors aimed to determine whether the implementation of an intensivist-led RRT decreased the incidence of cardiac arrest and mortality from July 2010 to December 2013 (Jung et al., 2016). Three-cohort study groupings included the pre-RRT period, the implementation period, and the RRT activation period at four different hospitals with one initiating the RRT and the others using no RRT (Jung et al., 2016). Initiation of RRTs demonstrated a significant decrease in mortality rates from 21.9 to 17.4 per 1000 hospital discharges ($p = 0.002$) (Jung et al., 2016). Unexpected mortality rates pre-RRT in the implementation hospital significantly decreased from 21.9% (396/18,072; $p = 0.002$) to 17.4% (332/19,073; $p = 0.002$) at the post-RRT implementation hospital that is comparable in size of the DNP project site of study (Jung et al., 2016). Hospitals that did not initiate RRTs demonstrated an increase in mortality of 22.1% (288/13,019; $p = 0.40$) pre-activation period and 23.8% (298/12,534; $p = 0.40$) post-activation at RRT hospital (Jung et al., 2016).

In a meta-analysis of 29 publications, Maharaj, Raffaele, and Wendon (2015), indicated that RRT utilization had made a statistically significant decrease in hospital mortality in adults (RR 0.87, 95% Cl, 0.81-0.95; $p < 0.001$). A statistically significant decrease in cardiopulmonary arrests were also see in adults (RR 0.65, 0.61-0.70; $p < 0.001$) but could not be directly correlated with the utilization of the RRT solely (Maharaj et al., 2015). There was no statistical significance association between RRT and unplanned ICU transfers (RR 0.90, 95% Cl, 0.70-1.16, $p = 0.43$) (Majaraj et al., 2015). Maharaj et al. (2015) also concluded that majority of RRT did not require the presence of

a physician or intensivist and had no significance in the reduction of mortality ($p = 0.992$).

In an international prospective study by Bannard-Smith et al. (2016), it was identified that 59% (709/1188) of clinical indicators that prompted the activation of the RRT were resolved within 24-hours of activation and only 15% (175/1188) of these patients required reactivation of the RRT most often stemming from the same criteria of the initial deterioration incident. Highest incidence of RRT activation included altered level of consciousness in 8 to 15% of activated calls, furthermore, 9 to 14% of RRTs were activated for an increased respiratory rate (Bannard-Smith et al., 2016). Peak activation time of RRTs were between 0700 and 1700 with a peak call time of 0800 hours with the lowest peak activation times of midnight and 0600 (Bannard-Smith et al., 2016). Of the rapid response activated calls, 24% (284/1188) of these patients were transferred to the ICU and 3% (40/1188) to the operating room (Bannard-Smith et al., 2016). The mortality rate 24-hours after the RRTs were called was 11% (97/904) with 42% having a do not resuscitate (DNR) order (Bannard-Smith et al., 2016).

In a single-center cohort study conducted by Barwise et al. (2016) the authors examined the association between delayed RRT activation (greater than one hour of qualified first recorded abnormal vital sign) and mortality and the relationship between time of RRT activation and morbidity. A retrospective study of RRT activations at the Mayo Clinic, Rochester, MN from January 1 to December 31, 2012 was completed. Of the 1725 qualified RRT activations, 43% (748/1725) qualified within the first one-hour window of onset with 57% (977/1725) encountering a delayed response or outside the

one-hour window (Barwise et al., 2016). Qualified RRT activation criteria included: staff concern or worried about the patient, acute and persistent oxygen desaturation of less than 90%, acute and persistent heart rate of less than 40 or greater than 130 beats per minute, acute or persistent change in systolic blood pressure less than 90 mm Hg, acute or persistent respiratory rate of less than 10 or greater than 28 breaths per minute, or change in consciousness, and symptoms suggestive of a stroke (Barwise et al., 2016). Tachycardia and/or bradycardia (217/748) was the most common cause of RRT activation in the qualified group as compared to respiratory distress or an oxygen saturation less than 90% (43%) in the delayed activation group (Barwise et al., 2016). Chest pain was also found to be a statistically significant cause of RRT activation in that 6% (61/977) in the early activation group compared to 10% (75/748) in the delayed group (Barwise et al., 2016).

The 30-day mortality rate was statistically significantly different with an odds ratio of 1.41 (1.07-1.88; $p = 0.02$) accounting for 13% (98/748) in the nondelayed group verses 20% (196/977) in the delayed group (Barwise et al., 2016). In-hospital mortality was statistically significantly different with an odds ratio of 1.6 (1.15-2.23, $p = 0.005$) in that the in-hospital mortality of non-delayed RRT was 8% (63/748) compared to 15% (149/977) in the delayed group (Barwise et al., 2016). Mortality rate of patients transferred to the ICU status post an RRT with non-delayed RRT was 4% (17/748) compared to the delayed RRT call of 9% (60/977) (OR 1.75; 1.01-3.19; $p = 0.04$) (Barwise et al., 2016).

Failure to Rescue

Many contributing factors can lead to healthcare professionals failing to recognize patient deterioration including breakdown of communication, failure to recognize early warning signs, incomplete or incorrect interpretation of assessment findings, and inadequate treatments are amongst the leading causes of failure to rescue thus leading to higher mortality rates (Bacon, 2017). Bacon (2017) explained that outlying factors such as staffing difficulties, lack of nurse surveillance, and lack of system resources contribute to adverse events caused by FTR. Perceptions of what classifies FTR between a medical perspective and nurses' perceptions differ significantly and nurses feel emotionally ill-prepared when FTR occurs (Bacon, 2017).

Ludikhuize, Smorenburg, Rooij, and de Jonge (2012) identified that 81% of 204 patients with 2988 vital sign measurements taken 48 hours prior to the event in those who demonstrated a severe adverse event endured one of the following happenings: cardiopulmonary arrest (27/204), unplanned transfer to the ICU (98/204), emergency surgery (29/204), or unexpected death (50/204) at least once 48-hours prior to deterioration in a medical-surgical unit using the modified early warning score (MEWS) in a retrospective observational study in 2007. Retrospective vital sign data was gathered and measured using MEWS criteria score of 3 or more (heart rate < 40 or > 130bpm, systolic blood pressure < 70 or > 200, respiratory rate < 9 or > 30 per minute, temperature < 35.1 or > 37.5˚c, level of consciousness, nurse concerned of patient's condition, urine output below 75ml previous four hours, oxygen saturation < 90 with oxygen therapy) (Ludikhuize et al., 2012). Retrospectively, 988 measurements (37%) scored three or

greater on MEWS with a mean time of 13-hours prior to the event with the first positive MEWS value of 25.3 hours (IQR 10.1-38.0) (Ludikhuize et al., 2012).

In a prospective observational study of two geographically dispersed hospitals within the same system, Watkins, Whisman, and Booker (2015) aimed to evaluate FTR and patient deterioration using continuous vital sign monitoring. Continuous monitoring on two medical-surgical units included pulse oximetry, heart rate, systolic and diastolic blood pressure, and respiratory rate in a central location (Watkins et al., 2015). A Likert scale was used to assess registered nurses experience using monitors with three questions specifically addressing patient safety. Ninety-two percent of nurses agreed that alarms were appropriate, with an average of eight to ten alarm alerts sounding per patient per day (Watkins et al., 2015). Nurses unanimously agreed that alarm alerts increased patient safety and enhanced their ability to make judgements of patient deterioration preventing FTR (Watkins et al., 2015). Watkins et al. (2015) concluded that continuous noninvasive vitals sign monitoring combined with meaningful alarm notification significantly enhanced nursing decisions and response to early signs of deterioration enhancing patient safety and decreasing FTR.

A qualitative descriptive phenomenological design evaluating new graduate nurses' preparation for recognition and prevention of failure to rescue offers insight into reasonings to why this may occur (Herron, 2017). Fourteen new graduate nurses were interviewed with five main themes surfacing: lack of clinical learning in school related to large clinical group sizes, little experience with emergent situations, poor clinical reasoning, low confidence level as a new graduate and feeling of being overwhelmed

with tasks, and anxiety communicating with providers and knowing who to call and when. This qualitative study offers insight to the potential barriers that may surface with focused group interviews for this DNP project.

Barriers to the use of Rapid Response Team

In a study, with a hospital size comparable to the DNP project site, Jenkins, Astroth, and Woith (2015) surveyed 50 nurses using a Likert scale to assess perceived facilitators and barriers in activating the RRT. Response frequencies identified that 48 (96%) of nurses believed that an RRT brings help quickly and decreases code blues (90%). Nurses with fewer years of experience were neutral in that 23 (46%) strongly agreed that they were more likely to call an RRT whereas 12 (25%) strongly agreed that nurses with more experience were more likely not to call an RRT (Jenkins et al., 2015). Furthermore, 38 (76%) nurses strongly agreed that they would be supported by the RRT and 31 nurses (62%) indicated that the ICU nurses would feel justified in calling the RRT (Jenkins et al., 2015). Additionally, 31 (62%) of nurses disagreed that they receive regular RRT continuing education and 25 (50%) of nurses indicated that they received inadequate continuing education (Jenkins et al., 2015).

Jackson, Penprase, and Grobbel (2016) surveyed 163 registered nurses using a 17-item Likert scale to assess beliefs and attitudes of the barriers to utilizing an RRT on three different inpatient unit types (medical/surgical-telemetry, peripartum, and psychiatric). Majority of nurses (97.6%; 158/163) agreed that RRTs provided necessary interventions to declining patients and comparatively 88.9% (144/163) strongly disagreed that RRT calls were required related to inadequate care of the primary nurse (Jacksonet

al., 2016). When asked if reluctant to activate the RRT because they would be criticized, 86.4% (139/161) disagreed (55.3%; 89/161) or strongly disagreed (31.1%; 50/161) (Jackson et al., 2016). Nurses disagreed (60.1%; 97/163) or strongly disagreed (30.7%; 50/163) when questioned if RRTs are overused in the management of hospital patients (Jackson et al, 2016).

The need for critical thinking is a must when determining if there is a need for an RRT to be activated as overuse can lead to frustration amongst team members (Braaten, 2015). Braaten (2015) pointed out that lack of physician support can lead to a questioning attitude when trying to decide whether or not the nurse should activate the RRT. Braaten correlated a delay in activation of the RRT due to poor assessment skills or competent assessment skills. Determining justification of the need to call a rapid response was related to a lack of information, type of clinical deterioration, onset of deterioration of change which contributed to the timing of RRT activation (Braaten, 2015). Subtle changes and unit social rules guide reasoning's of delay in RRT utilization while abrupt clinical changes and straight forward reasoning leads to rapid and immediate RRT activation (Braaten, 2015).

Jenkins et al. (2015) used an exploratory design to evaluate perceptions of facilitators and barriers to RRT activation and found that 48 out of 50 registered nursed believed that RRT brought more help quickly and facilitated transfer of a seriously ill patient to a higher level of care with 45 out of 50 nurses feeling that RRT decreased code blues. Furthermore, 92% (46/50) of nurses felt that unit leaders and fellow nurses supported nurses calling RRT but only 76% felt that members of the RRT would support

the nurse's decision to active the RRT (Jenkins et al., 2015). Consequently, 62% (31/50) of nurses felt they receive continuing education for RRT activation with 50% (25/25) feeling that they receive inadequate continuing education on RRT (Jenkins et al, 2015). Eighty-two percent (41/50) strongly agreed or agreed they knew what to do during a rapid response call with 76% (37/50) understanding the hospital RRT policy (Jenkins et al., 2015). Furthermore, 38 out of 50 nurses knew that RRTs follow protocols to manage failing patients (Jenkins et al., 2015).

Using an anonymous multicenter survey Radeschi et al. (2015) gained insight to perceived unfavorable effects or the barriers to activating the RRT. Nurses agreed (38%) or strongly agreed (24%) that they called the covering physician before calling a medical emergency team (MET) (M = 3.44, SD = 1.33) and were less reluctant to calling a MET code when patients met requirements for activation but appeared stable (26 strongly disagree; 39 disagree; M = 2.33; SD = 1.15) (Radeschi et al., 2015). Nurses often felt that MET calls were required because the management of patients at risk was too complex for their unit (36 agree; 22 strongly agree; M = 3.48; SD = 1.23) (Radeshi et al., 2015).

Teamwork and Communication

Since 2007, improving communication has been part of TJCs NPSGs and remains a priority in 2018 (TJC, 2017). Goal two, described the need to improve the effectiveness of communication by developing procedures for managing critical results and evaluating the timeliness of these reporting actions (TJC, 2017). Barriers in communication contributed to almost 70% of adverse events in 2005, in which 92% of these events were related to verbal communication (Leonard Graham, & Bonacum, 2004). Effective

teamwork and communication lead to maximized patient safety, decreased length of hospital stays, and improved outcomes (Leonard et al., 2004). Diverse knowledge, skill, and attitudes promotes vigilant coordinated efforts leading to higher levels of patient safety, decreasing mortality (Leonard et al., 2004). Effective communication leads to higher levels of judgment that promotes team collaboration, enhancing patient outcomes (Leonard et al., 2004). Situation, background, assessment, and recommendation (SBAR) a communication tool helps to bridge gaps in communication styles between physicians, nurses, and other healthcare professionals (Leonard et al., 2004). The SBAR tool allows for critical information to be transmitted and permits critical thinking and situational awareness that aids in patient safety (Leonard et al, 2004). Clear concise communication reduces adverse events, improves clinical outcomes, and promotes teamwork (Leonard et al., 2004).

Lack of communication and teamwork within a multidisciplinary team leads to increased anxiety and stress which can contribute to poor patient outcomes (Martland, Chamberlain, Hutton, & Smigielski, 2016). Poor communication and collaboration between healthcare professionals increases stress and anxiety and leads to poorer outcomes for the patient (Martland et al., 2016). Lack of well-organized communication, teamwork, and coping strategies can lead to lack of complex decision making, progressing patient deterioration, adverse events, and failure to rescue (Martland et al., 2016). Using a qualitative grounded theory, Martland et al. (2016) gained knowledge of themes from 43 participants (28 nurses, 15 doctors) that specifically identified barriers to effective communication and use of RRTs. The five main themes identified included:

psychological vital signs and patient plan, decreased resources, workload, communication inability, and lack of confidence in colleagues (Martland et al., 2016). Differences in reporting priorities, language, and clinical terminology used between physicians and nurses were barriers identified in communication and led to differing levels of comprehension (Martland et al., 2016). Years of experience also played part in communication differences in that more experienced nursed sought communication with other experienced nurses as they demonstrated understanding of priorities, terminology, and increased interest (Martland et al., 2016). Less experienced nurses contributed decreased communication to working off-shifts, failed communication, and understanding (Martland et al., 2016). Structured communication in clinical decision-making, development of a collaborative patient care plan, and identified parameters improved teamwork, decreased stress and anxiety, and fostered higher levels of patient safety (Martland et al., 2016).

Recommendations as a result of the DNP project include standardized education as this impacts teamwork and communication and can improve patient safety, improve care efficacy, improve team communication and functioning, provides clarity in team leadership and role functions, and allows for reciprocated multidisciplinary team support (Roberts et al., 2014). Effective communication leads to higher levels of judgment that promotes team collaboration, enhancing patient outcomes (Hirokawa et al., 2012).

Models and Theories

Nursing theories help clarify underlying assumptions, define the purpose of practice, and systematically guides outcomes in nursing practice (McEwen & Wills,

2014). Theories also foster the use of evidence-based practice, communication, and enhance intradisciplinary teamwork (Ryan, 2007). Donabedian's quality improvement model uses a triad approach of structure, process, and outcome to evaluate the needs for high quality care and supports the need for alertness towards good patient outcomes and safety leading to a demand for RRT utilization (Ayanian, & Markel, 2016). Self-efficacy helps to build one's personal capabilities, set high aspirations, visualize outcomes, set goals and plan appropriate course of action (Bandura, 1997). Donabedian believed that quality of care comes from advocacy, prioritization, management, and support to provide effective and efficient healthcare services (Berwick & Fox, 2016). Donabedian identified that the way in which the organization improves or impedes a process is related to the relationship between the hospital structure and patient care outcomes (Elkins, 2014).

The initial steps of this DNP project were to evaluate the current structure of the RRT at the Iowa based hospital serving as the DNP project site (Upenieks & Abelew, 2006). Evaluation of current policy and procedure guidelines for activating the RRT in the organization were assessed along with acute care medical-surgical standards (Upenieks & Abelew, 2006). Determination of the contributing factors to delayed or absent RRT activation revealed root causes of the issues surrounding the practice gap in medical surgical nurses at the DNP site. Focus groups were held to gain insight of the barriers in to activating the RRT and the nurse's feelings or hesitations of doing so. Surveys were used to gather quantitative data to measure demographics and perceived barriers that might indicate future opportunities of change. Educational solutions including the use of high-fidelity simulation will be established given the results from

data collection and will focus on the barriers identified through evaluation process changes.

The self-efficacy theory helped to guide this framework as it examines self-confidence and performance that leads to willingness to learn, mastering skills and techniques improving overall patient outcomes (Zimmerman, 2000). Simulation can improve self-efficacy by enhancing the nurses' perceived ability and comfort in calling the RRT (Seagull & Rooney 2014). Building confidence in skill, communication, and teamwork in a controlled simulation environment will boost confidence in the nurse that leads to improved patient outcomes and the nurse's ability to complete needed protocols to assist in patient stabilization (Seagull & Rooney, 2014).

Definition of Terms

Attitude: A way of thinking or feeling about a situation that reflects in one's self-confidence (Merriam-Webster, 2018).

Clinical deterioration: Evolving or acute change in a hospitalized patient condition that warrants immediate intervention (Venes, 2017).

Clinical reasoning: Thought process used to gather and analyze patient information, evaluate significance of the data, and act on condition to provide safe patient care (Alfaro-Levere, 2017).

Healthcare knowledge: Familiarity of mechanisms and pathogenesis of disease processes, interpretation of laboratory results and assessment findings, and readiness to respond to health change (Venes, 2017).

Level of confidence: Assurance of one's judgment and skill to make decisions (Merriam-Webster, 2018).

Microculture: Knowledge, beliefs, values, and behaviors shared by members of an organization that can significantly influence acceptance and change (Wreme, & Sorrenti,1997).

Quality improvement initiative: A systematic analysis and measurement of process in relationship to outcomes using an organizational approach involving management, teamwork, defined processes, systems thinking, and change to create a safe patient environment. (CMS, 2018)

Rapid response team: A team of trained healthcare professionals that collaborate and communicates with other healthcare professionals in response to patients who exhibit sudden deterioration in their condition (Wingand, 2016).

Self-efficacy: An individual's belief in personal capabilities (Bandura, 1997).

Relevance to Nursing Practice

RRTs were first introduced in the 1990s in Australia as a process to improve outcomes of deteriorating patients and were led by physicians specifically trained to deliver rapid medical treatment at the bedside to reduce the incidence of cardiac arrests, unplanned transfers to the ICU, and deaths (Hillman et al., 2005). The American Hospital Association in 1999, outline that there were approximately 33.6 million hospital admissions in the United States in 1997 with at least 44,000 to 98,000 deaths related to preventable medical errors and was the eighth leading cause of death and costing up to $29 billion dollars per year (Thomas et al., 2007).

Of the 340,000 hospital admissions in 2012, it is estimated that 64,000 to 112,200 patients were seriously harmed by medical errors in Iowa hospitals compared to 34.8 million hospital admission in the United States, an estimated 6,600,000 to 11,484,000 patients were seriously harmed (Lind, 2016). Individual error is not the sole cause of these medical errors, but the healthcare system and their processes play a part as well (IOM, 1999). In 2004 the IHI launched the 100,000 Lives Campaign to improve patient safety in hospitals (Berwick et al., 2006). The Joint Commission introduced NPSG 16 in 2008, fostering the improvement of recognition and response to patient condition changes leading to the development of hospitals RRTs (TJC, 2015).

The Joint Commission (2015) indicated that the leading cause of sentinel events included poor assessments, communication breakdown, and human failure (TJC, 2015). Through informal questioning at the project site for this doctoral project, insight into the to the nature of the problem included failure to rescue, delay in activation, lack of nurse confidence, delay in clinical reasoning of assessment findings, and micro-culture, were among the identified barriers. It is relevant in nursing practice to detect early deterioration of patients and activate the RRT to help decrease morbidity, mortality, unplanned transfers to the ICU, and death (Jung et al., 2016). The purpose of this project was to confirm these anecdotal findings through secondary analyses of RRT documentation, as well as focus group discussions with staff nurses in order to recommend appropriate educational strategies and curricula.

In a clinical peer review by Thielen (2014), seven key elements contribute to opportunities to improve patient care, decreased morbidity and mortality while

establishing safe patient care. These seven key elements include: fluid balance, aspiration, obstructive sleep apnea, sepsis, vital signs monitoring and management, over sedation, and end-of-life considerations (Thielen, 2014). These key elements are relevant to nursing practice in that lack of communication in critical findings and poor assessment skills account for 8.5% of inpatient deaths (Thielen, 2014). One year after implementation of RRTs cardiac arrest rates decreased from 0.52 in 2004 to 0.31 in 2012 (Thielen, 2014).

Positive Effects of Rapid Response Teams and Nursing Practice

In response to the IHI campaign to save 100,000 lives through improved practice in hospitals, RRTs were initiated to help decrease morbidity and mortality rates within the nation's hospitals (Berwick et al., 2006). RRTs are needed to provide support to nurses when rapid assessment findings and treatment is vital to prevent further deterioration or death (Benin et al., 2012). In 2008, The Joint Commission adopted RRTs into its accreditation standards emphasizing the relationship between rapid assessment needs and patient safety and quality (TJC, 2015). Both positive and negative implications have come about from the use of RRT from all levels of healthcare professionals (Berwick et al., 2006). Having a sense of security in knowing there is a team available immediately to assist with a deteriorating patient, provides opportunity for education for novice nurses and nurses with experience (Braaten, 2015). RRTs can aid nurses who lack confidence in their nursing assessment skills, act as a liaison to identify the need to redistribute workload for nurses with high-risk patients that leads to a decrease of neglect of other non-high acuity patients (Braaten, 2015; Benin et al., 2012). RRT protocols can

provide formalized and standardized processes of escalation, coordinate care, and distinguishes the need of unit transfers as well as play a part in nurse retention rates as they feel supported in their decisions (Benin et al., 2012).

Recommendations to Improve Practice

Justification of the need to call a rapid response may be related to a lack of information or type of clinical deterioration; in addition, the speed of patient decline can influence the timing of activation of the RRT (Braaten, 2015). Organizational and unit culture, team attributes, expertise, RRT knowledge, communication, and teamwork are amongst the identified barriers to activating the RRT (Leach & Mayo, 2013). Specified criteria or patient deterioration triggers need to be clearly defined to allow healthcare professionals to make decisions jointly which decreases frustration within the team (Jung et al., 2016).

Barriers of RRT utilization and negative implications must be addressed to gain compliance, improve teamwork and communication, and promote patient quality and safety. Increased conflict such as demoralization, and the feeling of being reprimanded between nurses and physicians is felt to be a contributing factor in calling the RRT (Leach & Mayo, 2013). Increased conflict arises when negative attitudes from primary care physicians lack support in the use of RRT as the physician feels lack of control or failure in the care of their patient rather than fostering the view as a second set of experienced eyes and hands (Benin, 2013).

The necessity to address negative implications and barriers of utilizing RRTs need to be addressed to decrease adverse events and death in the hospital setting. Through

investigation and questioning of staff nurses, it has become evident that education focusing on teamwork, communication, assessment skills, and critical thinking as an intradisciplinary team may help address identified barriers established through focused group discussions (Genardi, Cronin, & Thomas., 2008).

Role of the DNP Student

As a Clinical Nurse Educator, identifying, investigating, and providing education to healthcare professionals in the Iowa three-hospital organization helps to maintain patient safety. This DNP project used a series of focused groups to evaluate barriers in activating the RRT, data was gathered to establish if there was a correlation between the underutilization of the RRT through codes, categories and themes of identified barriers and establish if the decrease in RRT utilization was correlated with the increase in unplanned transfers to the ICU through chart reviews. Completion of the project requires intradisciplinary teamwork and engagement from senior leaders, managers, and staff members. In addition, in order to follow-up through with the DNP project's recommendations, there must be continuity after the DNP project is concluded.

The DNP project topic was identified through questioning of senior leadership, clinical nurse specialist, and nurse managers. Patient safety has become a professional and personal interest as it can impact patient satisfaction, morbidity and mortality, healthcare professional moral, and professional achievement (Jenkins et al, 2015). Understanding the nurses' perspectives to identify barriers of utilization of the RRT offered understanding to the underutilization concerns that senior leadership members have voiced. This insight has provided keen direction for the content of the education that

emerged as a strategy. I anticipate that the education resulting from this DNP project will likely increase reasoning of barriers surfaced from focused groups.

Qualitative focused group questioning of registered nurses (RN) from acute care nursing units were used to gain insight of the barriers they perceive when calling an RRT. Open-ended questions were used to establish dialogue and feelings that portray the barriers to activating the RRT (Appendix A). Three focused groups were held consisting of four to seven registered nurses who work each shift (0630-1900, 1830-0700). Sessions were 20 minutes in length and audio recorded. Audio recordings were sent by email to be professionally transcribed to identify commonalities and themes of barriers to activating the RRT.

This QI initiative aimed to establish process improvements and educational guidelines to direct change and increase responsiveness to the use of RRTs, build nurse confidence, improve teamwork and communication, and provide high levels of patient care leading to improved patient safety.

Section 3: Collection and Analysis of Evidence

Introduction

In this quality improvement project, I addressed concerns voiced by senior leadership of worries in the decrease in RRT utilization and increased number of unplanned ICU transfers, and barriers to the use of the RRT system in this multispecialty Iowa hospital. RRT utilization plays a significant role in patient safety and outcomes (TJC, 2007). Activation of the RRT varies depending on the nurse's perception and preparedness to make a rapid decision based on their knowledge and skill level (Upenieks & Abelew, 2006). The purpose of this DNP project was to perform secondary analyses using documented history of RRTs at the project site, as well as conduct focus groups with medical-surgical nursing staff to determine barriers to effective use of the RRT solution. Characteristics of the perceived team relationship between the RRT and acute care nurse, confidence levels of initiating the RRT, were evaluated in a qualitative approach for this DNP project.

Practice-Focused Questions

This DNP project was conducted in an Iowa based multi-specialty hospital in which senior leadership identified concerns for underutilization of the RRT on medical-surgical units. Suggested barriers identified by these leaders included failure to rescue, delay in activation, lack of nurse confidence, delay in clinical reasoning of assessment findings, and micro-culture in how leaders portray the use of RRTs to their associates. A gap in practice is, unquestionably, a problem when nurses are not confident in activating the RRT and fail to validate the need to initiate an RRT (Astroth et al., 2013). A

contributing factor in RRT underutilization and activation is the lack of a nurturing relationship between the RRT and nursing staff (Leach and Mayo, 2013). This gap is intensified when nurses lack confidence in their own nursing judgment and are unable to work together as a team and communicate poorly (Astroth et al., 2013). Increased education, not only of when to activate the RRT, but enhancing professional communication skills amongst team members is essential (Jenkins et al., 2015).

RRTs play a significant role in delivering life-saving care to patients and collaborating with staff nurses at the bedside to determine the need for further interventions (IHI, 2008; Thomas et al., 2007). The practice-focused questions of this DNP project were: What barriers contribute to a delay in activation of the RRT in medical-surgical patients? Will secondary analyses of RRT records and focus group discussion with medical-surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfers?

Sources of Evidence

A qualitative descriptive project design was used to collect data from acute care nurses to determine the nurse's knowledge, attitude, and perceptions of RRT utilization, confidence level in activating the RRT, and perceived barriers in activating the RRT. Additionally, I gathered deidentified nurse documentation data from the RRT committee to assess reasoning for activating the RRT, unit of occurrence, date and time of occurrence, vital sign assessment completion according to facility policy, last full set of vital signs (temperature, heart rate, respiratory rate, and blood pressure) prior to RRT activation, if vital signs were abnormal 24 hours prior to the RRT being called, DNR

status, number of hours spent in the ICU after an RRT call, and disposition after RRT call and at hospital discharge. Donabedian's health care model helped frame the project, particularly the role of the acute care nurse and the RRT in the acute care setting (structure), the current process of activation and the barriers identified by both senior leadership and acute care nurses (processes), and mortality as well as the number of days that patients spent in the ICU (outcomes) at the chosen Iowa hospital (Gardner, Gardner & O'Connell, 2012).

Published Outcomes and Research

A review of the literature was initiated to gain understanding of the topic, obtain history of the current problem in nursing practice, review current practices and use of RRTs, and provide context and gain understanding of the doctoral project practice-focus questions: What barriers contribute to a delay in activation of the RRT in medical-surgical patients? Will secondary analyses of RRT records and focus group discussion with medical-surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfers?

The literature review included peer-reviewed and scholarly journal articles, government website content, and historical data from books. Articles were obtained using databases through Walden University Library which included ProQuest, CINAHL & Medline Simultaneous Search, Ovid Nursing Journals, PubMed, and Google Scholar. Key search words and phrases included but not limited to: *rapid response team, medical emergency team, barriers to utilization of rapid response teams, nurse confidence, teamwork, efficacy, Donabedian,* and *nurse communication*. Pediatrics, mother/baby

units, inpatient rehabilitation, and inpatient behavioral health studies along with non-English studies were excluded. Years of terms were initially narrowed to capture current data over the past ten years (2007-2017) and widened to gather historical data of safety events, Donabedian's model and self-efficacy theory, and previous RRT utilization success and barriers.

Evidence Generated for the Doctoral Project

Participants

Acute-care registered nurses from an Iowa based not-for-profit comprehensive hospital were the participants of study for this doctoral project. Criteria for participant selection consisted of registered nurses from acute care in-patient units. Nurses who attended an educational inservice program were invited to participate in a twenty-minute focus group discussion. In addition, attendees at the inservice were also invited to complete a brief survey consisting of 11 Likert style and a few demographic questions. Participation in both the focus group and the survey were voluntary. There were no consequences to job role as a result of participation or nonparticipation. This selection of nurses was relevant to this study as the desire to increase knowledge, communication, and teamwork focused on the RN in the acute care setting.

Procedures

This project was conducted in a 366-bed, multi-specialty hospital that provides acute, sub-acute, and outpatient health services. This facility employs approximately 100 primary care and specialty providers and approximately 60 acute care medical-surgical unit registered nurses. This hospital is part on an integrated healthcare system with

services that include pediatric and adult cardiology, orthopedics, family medicine, internal medicine, nephrology, neurology and neurosurgery, otolaryngology, urology maternity and neonatal intensive care, cancer treatment, general and bariatric surgical services, inpatient and outpatient behavioral health, rehabilitation services, pain management, podiatry, gastroenterology, and pediatrics.

Focus Group Discussion

Three face-to-face focused groups were conducted to include registered nurses from each shift (0630-1900 and 1830-0700) of the inpatient medical-surgical units. An audio recording informed consent (Appendix C) was approved by the practicum site (Appendix D). A member of the RRT utilization committee conducted the focus groups and provided the deidentified data to me for secondary analyses. The goal of the focused group sessions was to gain approximately 20 registered nurse perspectives of RRT utilization and barriers perceived in activating the RRT using a standard set of seven open-ended questions (Appendix A). Determination of the contributing factors to delayed or absent RRT activation were used to reveal root causes of the issues surrounding the practice gap in medical surgical nurses at the DNP site.

Rapid Response Data Collection

RRT data summaries using NICE guidelines to monitor clinical data of patients at risk for deterioration were provided in a Microsoft Excel spreadsheet by the RRT committee at the project site (NICE, 2007). Analyses of this de-identified data collection were completed by this student solely. Extraction of data between the dates of June 2017 and June 2018 included date and time of hospital admission, RRT date and time called,

day week RRT occurred, unit RRT called from, disposition of patient after RRT, DNR status, number of hours in ICU after RRT call, hospital discharge disposition, date and time of vital signs prior to RRT, assessment of vitals sign completion as recommended per facility policy to address (complete, partial, or not applicable) and if vital signs were abnormal 24-hours prior to the RRT call, and reasoning's for RRT activation being extracted. Inclusion criteria included acute care medical-surgical inpatient units within the chosen DNP project site. Family birth center, inpatient rehabilitation, physician clinics, surgery, pediatrics, and behavioral health units were excluded. Patients were at least eighteen years of age. The RRT QI team members also evaluated vital sign history prior to the RRT to determine whether the RRT was appropriately called or might have been called sooner. A Microsoft Excel sheet was used to assemble these data.

Nurse Survey

Printed surveys, an instruction sign (Appendix E) and collection box were distributed at an inservice for acute care nurses. Surveys included a two-part questionnaire (Appendix B). Part one used 11 Likert style questions to gain understanding of registered nurse attitudes, confidence levels, comfort levels of activating the RRT (see Appendix B). Part two of the survey was used to obtain demographics assessing number of years as a registered nurse, education level, age, gender, years working on unit, RRT activation, and familiarity of RRT criteria. These surveys were tallied to gain quantitative data regarding barriers associated with activating the RRT and nurse demographics. Surveys were returned in a sealed envelope by the clinical nurse specialist and participants remained anonymous.

Protections

In compliance with the human subject's protection policy established by Walden University, no data collection occurred until approval was obtained from the project site and the Institutional Review Board (IRB). Ethics approval in compliance with the IRB from Walden University was obtained and approval number 05-22-18-0744462 assigned Approval from the DNP project site administrator and IRB was also obtained. No human subjects were used for the DNP project and deidentified data were obtained from the RRT and code blue committees. Registered nurses remained anonymous during all processes throughout the data collection process.

Deidentified data was obtained from the RRT and code blue committees at the DNP project site. Voluntary participation from medical surgical units was requested. A sign-up sheet for time slots to participate in face-to-face group discussion was posted. Limitations included four to seven nurses per time slot with one session occurring at a set time during in-service sessions. Nurses signed a consent to allow voice recording of discussion sessions that will remain anonymous in publication (Appendix D). Nurse surveys were distributed at a mandatory skills inservice by the clinical nurse specialist (who was part of the QI team) to gain basic understanding of RRT utilization and will again remain anonymous in nature (Appendix B).

Analysis and Synthesis

Data collection was manually entered into a Microsoft Excel spreadsheet and then transferred to the IBM statistical package for social sciences (SPSS) 24 database. Inferential and descriptive statistics (mean, frequency distribution, percentage, &

correlation) were used to draw conclusions from RRT chart reviews and nurse surveys (Polit, 2010). The statistical significance level was set at $p < 0.05$. A Chi-square method was used to correlate the relationship between nurse survey data (Polit, 2010). Qualitative data was used to summarize findings of the focus group sessions. Focused group sessions were audio recorded and transcribed by a consultant. Transcribed data was coded using and inductive approach. An in-vivo coding approach was used to identify themes and relational coding from word repetition (Figure 1).

Summary

Early recognition and response to patient condition changes that lead to the activation of the RRT fosters an environment of patient safety as established in NPSG 16 in 2008 (TJC, 2015). Barriers to appropriate RRT utilization must be addressed to gain compliance, improve teamwork and communication, and promote patient quality and safety (Benin, 2013). Surveillance of patient deterioration requires the nurse to observe assessment changes as well as recognize and interpret clinical implications of change that leads to activation of RRTs (Giuliano, 2017). When acute deterioration signals are not recognized or treated within a timely manner, serious complication such as cardiopulmonary arrest, unplanned admissions to the ICU, and even death can occur (Benin, et al., 2012; Jones, et al., 2011).

This DNP project aimed to address these barriers at the project site using a mixed method approach. Analysis of data from both open-ended questioning and survey questioning helped gain an intimate understanding of nursing perspectives, unit culture, perceived barriers of utilizing or activating the RRT, and situations through face to face

engagement. Qualitative data was used to gain understanding of attitudes towards RRT utilization while quantitative data will describe their confidence levels.

Section 4: Findings and Recommendations

Introduction

This DNP quality improvement (QI) project was developed after informal questioning of senior leadership, clinical nurse specialist, and clinical development coordinators at an Iowa based 366 bed hospital who voiced concerns regarding the underutilization of the RRT in medical-surgical care units and an increase in unplanned ICU transfers at the project site. A decision was made to launch a quality and safety improvement initiative to aid in identifying the barriers that may lead to ineffective care and preventing errors related to RRT underutilization (AHRQ, 2006) When nurses are not confident in activating the RRT, this exemplifies an important deficit and a gap in practice.

A review of the literature was initiated to gain understanding of the topic, obtain history of the current problem in nursing practice, and review of current practices and use of RRTs. A mixed method project design was used to collect data from acute care nurses to determine their knowledge, attitude, and perceptions of RRT utilization, confidence level in activating the RRT, and perceived barriers in activating the RRT. Focused group questioning of registered nurses from acute care nursing units was used to gain insight of the barriers they perceive when deciding whether or not to call an RRT. Qualitative methods were used to code their confidential responses. The purpose of this evidence-based quality improvement project was to improve healthcare outcomes, improve organizational processes, reduce anxiety, develop nurse confidence, and build nurses' professional practice while boosting autonomy in activating the RRT (Jung et al., 2016).

Findings and Implications

It is important to identify both the general problems related to underutilization of the RRT as well as the specific issues suspected at the project site. When nurses are not confident in making a rapid decision to activate the RRT, this signifies a heightened awareness and raises concerns of what barriers to activating the RRT exist. This DNP project explored the perceptions that registered nurses hold about activating the RRT through focused group interviews, chart review data collection, and a survey.

Focus Group Discussion

There were three focus group discussions that were conducted to include representation from each shift (day/evening and evening/night) of the four acute medical surgical units comprised of 86 beds. There were 16 nurses who participated, representing approximately 27% (n = 60) of the total number of scheduled nurses who work the cardiac renal, medical oncology, post-operative surgical, or orthopedic neurology units. Of the 16 nurses who participated in the focus group discussion, half of these nurses had less than three years of experience. Majority of these nurses (11/16) had worked at the project site for less than two years and thus were new to the setting and were the prominent voice of discussions. This is significant in that nurses with less than three years of experience seek out support from others to formulate critical thinking skills, assessment correlation, and application to the current situation with other similar experiences (Benner, 1984).

In the focus group discussion, we tracked the number of responses to perceived barriers for RRT activation reasons, and they were summarized. In vivo coding was used

to surface the common codes from the typed transcript of the focus group discussion. Then categories, and themes were identified to summarize the qualitative data (see Figure 1).

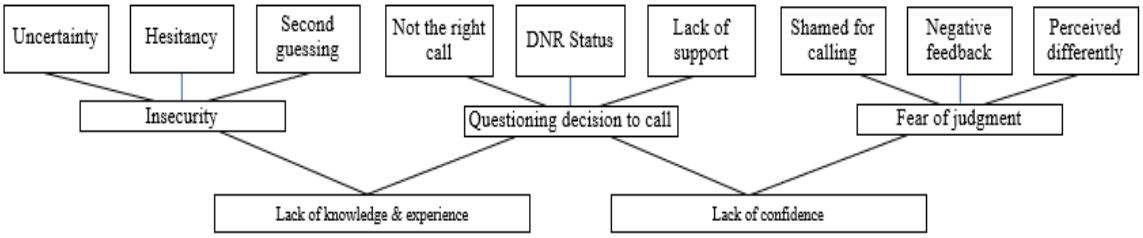

Figure 1. Qualitative data from the focus groups were organized into codes, categories and themes.

Nurse focus group discussions identified nine key codes. From these codes three categories emerged to identify feelings of insecurity of activating the RRT, a questioning attitude of making the right decision to call, and fear of judgment when calling the RRT for a patient that has had a change in health status. Two major themes evolved from these codes and categories that suggest a lack of knowledge and experience when making a judgment call and lack of confidence when making the decision to activate the RRT (Figure 1).

Additionally, nurses voiced concern of the appropriateness of calling an RRT when a patient is deemed to have a DNR status. Novice and tenured nurses during focused discussion felt that it was appropriate to activate the RRT for those with a DNR status yet felt they would be shamed or perceived differently for calling by the RRT. Nelson et al. (2015) indicated that RRTs can aid in delivering high-quality palliative care during a rapid response event. RRTs can assist medical-surgical nurses with facilitating

communication to patients, families, and clinicians about various approaches of palliative care including treatment options, current health status, and prognosis (Nelson et al., 2015). Furthermore, the RRT can assist nurses and patients with relief from distress symptoms, support families and staff, and establish goals and plans for continuity of care (Nelson et al., 2015).

Chart Review Data Collection

Data collection from inpatient acute care medical-surgical charts were completed manually by the RRT QI team and documented in a Microsoft Excel data spreadsheet. These data were provided to me in a de-identified way for secondary analyses. That is, there were no medical record numbers, patient names or other protected health information that would identify the patient. The International Business Machine (IBM) Statistical Package for the Social Sciences (SPSS) version 25 was used to obtain statistical analysis of data.

Initially 76 patients' charts were identified that had an RRT called at the practicum site between the dates of June 2017 and June 2018. Only 42 of these charts were accessible because of a new electronic health record (EHR) conversion. A total of 34 charts had the completed RRT data flowsheet in the EHR accessible resulting in a dataset of 34 RRT data collection tools completed with the accompanying medical record.

The primary reasons for activating the RRT included acute mental status change/level of consciousness and peripheral capillary oxygen saturation (SpO2) less than 90% mm/Hg (23.5%, 8/34). Additionally, condition H (help), that is the patient or

family is concerned about the current condition accounted for 17.6% of the active RRT responses, with other indications for activating the RRT included (a) staff being concerned or worried, (b) heart rate greater than 120 beats per minute, (c) acute significant bleed, or (d) seizures (Table 1).

Table 1

Indications for Activation of RRT (n=34)

	Frequency	Percentage
Condition Help	6	17.6
Staff concerned/worried about patient condition	2	5.9
Oxygen saturation <90%	8	23.5
Respiratory rate <8/minute or Respiratory distress	0	0
Respiratory rate >24/minute	1	2.9
Chest pain	0	0
Heart rate <50/minute	1	2.9
Heart rate >120/minute	2	5.9
Systolic blood pressure < 90mmHg	0	0
Acute significant bleed	2	2.9
Seizures	2	2.9
Acute allergic reaction	0	0
Acute mental status change or altered level of consciousness	8	23.5
Failure to respond to treatment	0	0
No RRT data reason documented	2	5.9

The identified standard of practice at the practicum site for the medical-surgical unit vital sign assessments were to be completed during designated times (0600-0800, 1400-1600, 2200-000) and as warranted by the patient's condition. For data collection and per unit standard practice a complete set of vital signs (VS) included temperature, respiratory rate, heart rate and blood pressure. The average distance between RRT activation and last set of complete vital signs was two hours and 55 minutes. That is,

17.6% of nurses activated the RRT upon abnormal VS findings with a median time of one hour and 11 minutes. The maximum time between last set of complete VS and RRT activation was 18 hours 03 minutes. Vital sign compliance 24-hours leading up to rapid response activation indicated a compliance of 55.6% to 73.5% that is, patients had a complete set of vitals obtained per facility policy (see Table 2).

Rapid response activation occurred most frequently on Saturdays and were initiated on the medical-oncology and surgical unit, and cardiac-dialysis unit (Table 2). Patient disposition after the RRT call concluded in that 55.9% remained in their room while 44.1% transferred to the ICU (Table 2). There were 159 RRT calls for the organization during the data collection dates, 76 of these calls initiated from the medical surgical units. There was no significant correlation between the increased number of ICU transfers and RRT calls, that is of the 102 unplanned ICU transfers only 15 of these generated from the medical-surgical units after an RRT activation. Final discharge disposition status-post RRT indicated that 50% of patients were discharged to home (17/34), 14.7% (5/34) transferred to higher level of care outside the organization, 26.5% (9/34) expired, and 8.8% (3/34) were either discharged to long-term care or a lower level of care outside the organization (Table 2).

Although these findings are interesting and due to the implementation of a new EHR during the data collection period, the chart review was very small, and therefore inconclusive. Clinical development coordinators and clinical nurse specialist at the project site decided to gain a better understanding of nurse perspectives, particularly

regarding key limitations or barriers through a survey completed by nurses working on the medical surgical units of study for this QI project.

Table 2

RRT Chart Review Findings

	Frequency	Percentage
Day of week RRT occurred		
Monday	5	14.7
Tuesday	3	8.8
Wednesday	5	14.7
Thursday	6	17.6
Friday	4	11.8
Saturday	8	23.5
Sunday	3	8.8
Unit RRT called from		
Cardiac/Renal unit	11	32.4
Medical/Oncology unit	12	35.3
Post-operative surgical care unit	3	8.8
Orthopedic/Neurology unit	8	23.5
Disposition after RRT		
Room	19	55.9
ICU	15	44.1
Disposition at discharge		
Home	17	50.0
Transfer to higher level of care	5	14.7
Expired	9	26.5
Other	3	8.8
Last documented physician order of Resuscitation status at time of RRT		
Full Code		
DNR	17	50.0
Not indicated	11	32.4
	6	17.6
Complete set of vital signs between the hours of (according to facility protocol)		
0600-0800 hours		
Yes		
No	25	73.5
Partial	2	5.9
Patient not located on unit during this time	0	0
1400-1600 hours	7	20.6
Yes		
No	23	67.6
Partial	2	5.9
Patient not located on unit during this time	6	17.6
2200-0000 hours	3	8.8
Yes		
No	19	55.6
Partial	5	14.7
Patient not located on unit during this time	6	17.6
	4	11.8

Nurse Survey

Nurse surveys were distributed at a mandatory educational inservice by the clinical nurse specialist (who was part of the QI team) with 42 returned surveys of the approximate 60 medical surgical registered nurses. There were two charts that were rejected because they were completed by a licensed practical nurse and seven surveys were not completed entirely. This resulted in 40 usable surveys for a 67% response rate, though some demographic data were missing. The International Business Machine (IBM) Statistical Package for the Social Sciences (SPSS) version 25 was used to analyze the data.

Face and content validity of the 11-item tool was established by the RRT team which served as an expert panel. Cronbach's Alpha for the 40 responses was .65 indicating an acceptable level of internal consistency reliability for the tool. Demographic analysis was obtained to gain understanding of the medical surgical nurse population, education level, familiarity with the RRT and if the nurse had ever activated the RRT (Table 3). This survey was composed of 11 Likert scale style questions to gain understanding of nurse knowledge, attitude, and perception of utilizing the RRT.

Table 3

Rapid Response Team Nurse Survey Part 2: Demographics

	Demographic	Frequency (*n*=40)	Percent	Valid Percent
1.	Number of years a s a registered nurse			
	<1-year	8	19.0	22.9
	1-2 years	4	9.5	11.4
	3-5 years	8	19.0	22.9
	6-10 years	4	9.5	11.4
	10-20 years	3	7.1	8.6
	20 years or >	8	19.0	22.9
2.	Education			
	Diploma	2	4.8	5.7
	Associates degree	20	47.6	57.1
	Bachelor's degree	11	26.2	31.4
	Master's degree	2	4.8	5.7
3.	Age			
	18-24 years	5	11.9	14.3
	25-34 years	10	23.8	28.6
	35-44 years	9	21.4	25.7
	45-54 years	5	11.9	14.3
	55 years and older	6	14.3	17.1
4.	Gender			
	Male	2	4.8	5.6
	Female	34	81.0	94.4
5.	Years working at WFH			
	0-1 year	9	21.4	25.0
	1-2 years	7	16.7	19.4
	3-5 years	4	9.5	11.1
	6-10 years	4	9.5	11.1
	11-20 years	4	9.5	11.1
	>20 years	8	19.0	22.2
6.	Years working on Medical/Surgical unit			
	0-1 year	8	19.0	22.2
	1-2 years	7	16.7	19.4
	3-5 years	7	16.7	19.4
	6-10 years	4	9.5	11.1
	11-20 years	4	9.5	11.1
	>20 years	6	14.3	16.7
7.	Are you familiar with the criteria established by WFH to call the RRT?			
	Yes	33	78.6	91.7
	No	3	7.1	8.3
8.	Have you ever called for an RRT?			
	Yes	28	66.7	80.0
	No	7	16.7	20.0
	If yes, have you called an RRT more than once?			
	Yes	21	50.0	63.6
	No	12	28.6	36.4
	Unit working			
	2 General	9	21.4	26.5
	3 General	14	33.3	41.2
	3 East	5	11.9	14.7
	4 General	6	14.3	17.6

Missing data from seven surveys accounts for differences in this table.

Reverse scoring was completed to allow the correct answer to emerge and reflect consistent scoring. After two items (questions 5 and 7, see Appendix B) were reverse

scored, the scores on the 11 items were summed resulting in a potential range of scores between 11 and 55. Low scores indicate that nurses felt that they have the ability to determine when the patient's condition meets RRT criteria, feel supported in activating the RRT by their manager and organization, physician, and other staff members, that they do not fear retaliation, and acknowledge that they do receive annual RRT education. The mean summed score for this dataset was 16.18 (Table 4), which indicates overall positive findings.

Table 4

Measures of Central Tendency of the Summed Score of RRT Nurse Survey

	Mean	Median	Mode	Range	Std. Deviation	Variance
Summed Score of Survey Responses	16.18	15.50	12.00	15.00	4.15	17.23

Because the distribution of the scores indicated a lack of normality with a fair amount of skewness and kurtosis, non-parametric tests were used to make comparisons using the demographics. When the scores on the summed survey were compared on the basis of the demographics there were no statistically significant differences between groups except for age. That is, when the dataset was truncated into three groups based on years as an RN (0 to 2 years, 3 to 10 years, and 11 to 20+ years), and summed scores were truncated into two groups using the cutpoint of 15, a Pearson Chi square test showed significance at $p = .025$ level. There were only 2 of 12 novice nurses who scored less than 15, indicating a fair amount of confidence in their decision-making skills regarding the RRT, whereas 8 of 11 more tenured nurses scored less than 15 on the survey (Pearson Chi Square = 7.403 with 2 df and $p = .025$).

These data support the identified themes from novice nurse interviews in which a common theme emerged, identifying the fear of being judged or shamed for calling an RRT when others might think it was not warranted, and the perception of being seen differently when making the call to activate the RRT. That is, if nurses do not feel that they have the ability to determine if the patient meets RRT criteria they question if they have made the right call. Nurses with less experience express fear of being judged, shamed for calling, and perception of being seen differently when making the call to activate the RRT.

Unanticipated Limitations and Outcomes

Conversion of the EHR limited the quantity of chart reviews at the practicum site. Projected chart reviews included 76 charts from the acute medical-surgical units between the dates of June 2017 to June 2018. With the conversion of the EHR, 42 charts were eligible for review after extending the review ending date to August 2018 with only 34 charts having the completed RRT data flowsheet accessible or documented.

Individuals, Communities, and Institutions

Findings suggest that nurses with less than years' experience do not feel confident in activating the RRT, fear retaliation from physicians and/or RRT members, often question their decision to call the RRT, and lack knowledge, experience, and confidence in activating the RRT. Data collection has been presented to clinical development coordinators, clinical nurse specialist, and senior leadership at the practicum site with recommendations to provide education regarding the impact of the RRT. Implementation of standardized education using high-fidelity simulation can be used to facilitate

improved patient safety, improved care efficacy, improve team communication and functioning, provide clarity in team leadership and role functions, and reciprocated multidisciplinary team support (Roberts et al., 2014). Lewis, Strachan, and Smith (2012) further suggest that high-fidelity simulation improves team work during crisis situations, improves critical thinking and clinical reasoning in complex situations, and aids to develop self-efficacy and confidence in decision making. Though the annual education will be open to all RNs, the nurses with less than five years' experience will be particularly targeted for the simulation training.

Organizational and unit culture, team attributes, expertise, RRT knowledge, communication, and teamwork can impact patient satisfaction, morbidity and mortality, healthcare professional moral, and professional achievement (Astroth et al., 2013). Increased responsiveness to the use of RRT reflects in nurse confidence, improved teamwork and communication, and promotes high levels of patient care leading to improved patient safety, decreased unplanned ICU transfers, and decreased morbidity and mortality rates (Astroth, 2013). Commitment from senior leadership, RRT and code blue committees to promote education to acute care units including medical-surgical services and ICU validates that the practicum site is committed to improving quality care in the organization.

Early identification of patient decline, the knowledge to activate the RRT, and the nurse's ability to gain confidence in activating the RRT regardless of advanced directive status will improve patient outcomes and satisfaction, thereby demonstrating positive social change (Connell et al., 2016). High-fidelity simulation allows nurses to work in a

controlled environment without fear of compromising patient safety, identify strengths and weaknesses as a team, and debrief about the situation real-time which may lead to high levels of self-confidence. Further education demonstrates nurse confidence in activating the RRT promotes positive social change and fosters a supportive culture to enhance patient safety.

Recommendations

The aim of this DNP project was to address the following practice focused question:

1. What barriers contribute to a delay in activation of the RRT in medical-surgical patients?
2. Will secondary analyses of RRT records and focus group discussion with medical-surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfer?

Data collection from patient chart reviews were inconclusive as to whether there was a correlation between the decrease of RRT utilization on the medical surgical units and the increased unplanned transfer to the ICU as suggested by senior leadership, clinical nurse specialist, and clinical development coordinators. Nurse surveys and focused discussion groups aided in identifying that nurses with less than three years of experience do not feel confident in activating the RRT. These less tenured nurses expressed feelings of uncertainty, hesitancy, shamed for calling, negative feedback, and being perceived differently when utilizing the RRT.

The proposed recommendation from the leadership is the use of bedside high-fidelity simulation to allow both nurses and RRT members to gain understanding of each other's role. Case scenarios should include both acute decline in medical-surgical patients and of patients with an DNR status to gain clarity of the role RRTs can play in aiding support to nurses, patients, and families during rapid response events. High-fidelity simulation can be used to address this gap-in-practice by bringing awareness of the benefits the RRT, build nurse confidence and self-efficacy, increase knowledge, and build relationships between team members.

Strengths and Limitations

Strengths

The continuous support from clinical nurse specialist at the practicum site allowed for an increased rate of participation of both nurse surveys and focused interviews from various shifts. Collaboration through a multidisciplinary team aided in the identification and need for high-fidelity simulation for this quality improvement initiative. Standardized education through high-fidelity bedside simulation promotes social change by creating an environment that establishes clear communication, leadership, and safe practices for patient care. The goal is to allow interaction between primary care nurses and the RRT in a given scenario that will facilitate teamwork, communication, and allow nurses to gain knowledge that will build confidence levels in activating the RRT.

Limitations

This DNP project encountered limitations due to the transition of EHR systems leading to a smaller sample size of the RRT charts that expected. It is unknown if the

outcome of the sample would have been different due to documentation related to learning a new EHR versus a well understood medical record.

Summary

The practice focused questions for the is DNP project aimed to first identify what barriers contribute to a delay in activation of the RRT in medical-surgical patients and if secondary analyses of RRT records and focus group discussion would reveal barriers to timely RRT activation and unplanned ICU transfers. The data collection revealed that 97.6% of nurses strongly agreed that RRT improves patient outcomes and nurses strongly (83.3%) agree that they can determine if the patient's condition meets RRT. Nurse focus interviews and survey identified that there is a perceived lack of support among nurses with less than three years of experience when calling an RRT for patient deterioration or sudden changes. These nurses voiced concerns of fear judgment, question their decision to call the RRT and feel insecure and second guess their assessment and skill. High-fidelity simulation can aid nurses to demonstrate confidence in activating the RRT, promote social change, and foster a supportive culture to enhance patient safety.

Section 5: Dissemination Plan

It is recommended that implementation of high-fidelity simulation drills be initiated at the practicum site to educate both medical-surgical nurses and the RRT about the benefits the team can have on patient safety and outcomes at the bedside. Gouda and Alqahtani (2018) suggest that the RRT can support the patient and family by providing immediate bedside care to alleviate acute symptoms, prevent unnecessary ICU transfers, and aid in care measures that support the team as a whole. Furthermore, high-fidelity bedside simulation can aid in gaining knowledge and experience, increase attitudes and perceptions of RRT activation, and boost confidence levels.

Education Plan

The DNP project aims to provide recommendations and an educational timeline (Figure 2) for high-fidelity simulation to medical-surgical nurses and the RRT to increase knowledge, boost self-confidence, improve teamwork, and establish clear goals as an organization of how to effectively provide immediate care for patients who are deteriorating. Education planning and implementation will be completed in four stages:

Stage 1. Identification of the purpose and competency statement for high-fidelity simulation.

Stage 2. Develop case scenario for high-fidelity bedside simulation.

Stage 3. Conduct simulation using the organizations sim center and high-fidelity manikin.

Stage 4. Debrief and review stimulation, objectives, and goals for future changes and educational needs.

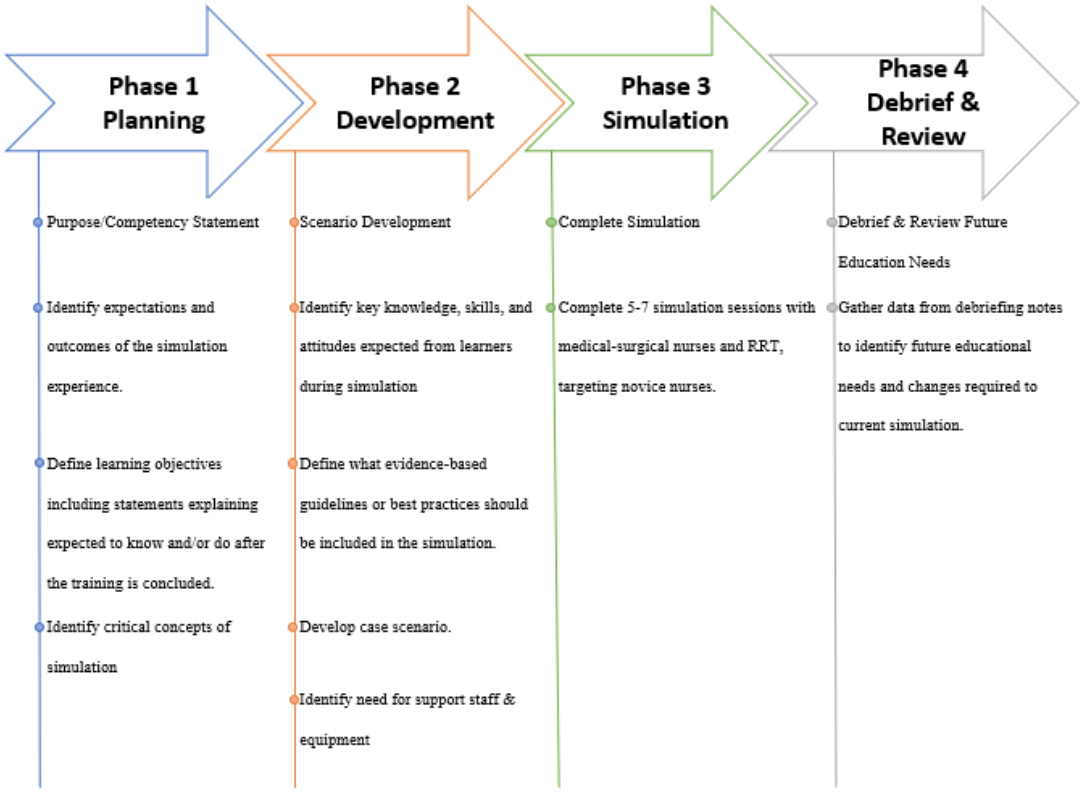

Figure 2. RRT Educational Timeline

Simulation Setting

The practicum site offers a real time setting for high-fidelity simulation in their organization. The aim of this DNP project is to allow medical-surgical nurses and the RRT to participate in simulation using standard bedside and emergency equipment to aid in comfort measures in pre-built scenario. This simulation will allow the team to work collaboratively allow for real-life conversations and conflicts to arise. Participant feedback will be given through a debrief session immediately following simulation.

Analysis of Self

This DNP project experience has allowed me gain understanding of the practicum site organizational goals and importance of their patient safety program. As a nurse educator, my view is that education in support of patient safety builds confidence in nurses and helps them to gain knowledge. As an organization, this is a win-win situation. Throughout this project I have explored new opportunities as part of the nurse practice council and have participated in evidence-based practices changes throughout the organization. I have also learned to step out of my comfort zone and develop a stronger sense for advanced levels of leadership regionally and at the corporate level.

As Practitioner

The project has aided in gaining understanding and value for nursing research. As a nurse educator it has enlightened me to actively listen to concerns voiced by nurses as they are the frontline and very knowledgeable about what patients' needs are. Despite the projected barriers, communication and teamwork are greatly valued amongst most team members as they feel supported by their healthcare team. Core courses established at Walden University aided in my learning process and offer great support to me as I lead a healthcare team, become a change agent, and translated evidence into practice.

As Scholar

This DNP project has better prepared me as a nurse leader, educator, and facilitator in healthcare. The confidence I have gained through this experience has led me to take part in positive social change by becoming an active member within the Iowa Nurses Association and National Honor Society. Completing this DNP project

demonstrates my commitment to nursing practice and educating current and future generations of nurses. Academically, this DNP will lead to opportunities to teach in higher educational settings as well as continuing in the clinical setting.

As Project Manager

I am excited to develop a simulation that will assist in change for both the medical-surgical nurse and the RRT. The DNP essentials identify the need for projects to enhance knowledge to improve nursing practice, enhance leadership skills, and strengthen patient outcomes (AACN, 2006). As the project manager, learning principles that can be incorporated into both the healthcare and academic setting aids nurses to gain understanding of effective teamwork and communication when utilizing the RRT.

Future of Project Completion

Findings of this DNP project will assist develop education and standards of care for healthcare workers in the hospital and academic setting. Initiatives will include education through high-fidelity simulation for medical-surgical nurses to support and enhance their knowledge and skill when calling an RRT on a patient with a DNR status. Furthermore, it is recommended that is case scenario replace or be added as an addition to the current simulation training in clinical orientation.

Summary

In the end the projected outcomes of this DNP project were different than those anticipated by this student. The practice-focused questions for the DNP project included: What barriers contribute to a delay in activation of the RRT in medical-surgical patients? Will secondary analyses of RRT records and focus group discussion with medical-

surgical staff nurses reveal barriers to timely RRT calls and unplanned ICU transfers? Though nurses felt that their coworkers, managers, and physicians supported them when calling an RRT, concerns were voiced that they had lack of support from the RRT. No significant identifiers were identified upon chart review that would signify a delay in activating of the RRT. Nurses must feel empowered in their role when calling the RRT and therefore it is recommended to initiate high-fidelity simulation education to meet this need. RRTs can improve use of nursing and other multidisciplinary team member resources through advanced planning, identification of supplementary care resources, aids to change the culture and use of RRT, enhanced patient safety, and improved communication throughout transitions of care.

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Appendix A: Rapid Response Team Open-ended Questions

1. What impact does calling a RRT have on patient safety?

2. What gets in the way of calling an RRT?

3. What concerns, or worries do you have about calling the RRT?

4. Describe your feelings when determining the need to call the RRT.

5. When calling a RRT describe your thoughts and feelings that help you decide to call the RRT.

6. Do you fear retaliation of other co-workers when calling an RRT? Why or why not?

7. What examples do you have about retaliation (real or rumor)? That is, how does this emerge in your day to day work life?

Appendix B: Rapid Response Team Survey

Circle the rating that most closely matches your response.

1. I have the ability to determine if the patient's condition meets RRT criteria.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
2. The physician will support me if I call the RRT for their patient.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
3. My direct manager will support my decision in calling the RRT.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
4. My co-workers "will have my back" if I call a RRT.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
5. I often question my decision after calling for the RRT.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
6. The organization will support my decision to call the RRT.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
7. I am afraid to call an RRT because some physicians get angry and may retaliate.	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
8. I receive annual RRT education	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
9. I am confident that I receive effective closed-loop communication during patient hand-offs	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
10. I think that my unit works well as a team to provide safe patient care	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree
11. I believe RRT utilization improves patient outcomes	Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Disagree

Part 2: Survey Demographics

1. Number of years as a Registered Nurse
    a. < 1 year
    b. 1-2 years
    c. 3-5 years
    d. 6-10 years
    e. 10-20 years
    f. 20 years or >
2. Education
    a. Diploma
    b. Associates degree
    c. Bachelor's degree
    d. Master's degree
    e. DNP/PhD
3. Age
    a. 18-24 years
    b. 25-34 years
    c. 35-44 years
    d. 45-54 years
    e. 55 years and older
4. Gender
    a. Male
    b. Female
5. Years working at WFH
    a. 0-1 year
    b. 1-2 years
    c. 3-5 years
    d. 6-10 years
    e. 11-20 years
    f. > 20 years
6. Years working on Medical/Surgical unit
    a. 0-1 year
    b. 1-2 years
    c. 3-5 years
    d. 6-10 years
    e. 11-20 years
    f. > 20 years
7. Are you familiar with the criteria established by WFH to call the RRT?
    a. Yes
    b. No
8. Have you ever called for a RRT?
    a. Yes
    b. No

    If yes, have you called a RRT more than once?
    a. Yes
    b. No

Appendix C: Audio Recording Informed Consent

Purpose of this study

The purpose of this Doctor of Nursing Practice (DNP) quality improvement project is to perform secondary analyses using documented history of RRTs at the project site, as well as conducting focus groups with medical-surgical nursing staff to determine barriers to effective use of the RRT solution. Characteristics of the perceived team relationship between the RRT and acute care nurse, confidence levels of initiating the RRT, will be evaluated in the qualitative approach to the DNP project.

What will happen if I participate in this study?

Participation of this study includes:

- Completing a paper survey: This survey should not take longer than 5 minutes to complete and will be located on the medical-surgical acute care units. Please place your survey in the envelope provide. All surveys are anonymous.
- Voluntarily attend a focus group lasting approximately 20 minutes. This focus group will involve five to seven associates from various medical-surgical acute care units. Each session will be audio taped and professional transcribed to a word document to allow the development of themes from data. I you do not want to be audio recorded, you cannot participate in the focus group portion of this study but may contribute by completing the paper survey.

Statement of Consent

I have read this consent form and have had an opportunity to ask questions and have no remaining questions. I give consent to be audio recorded and understand my information will remain anonymous.

Signature

_____ _____

Printed Name Date

_____

Signature

Appendix D: Survey Instruction Sign