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Evaluating A Rapid Response Team Performance To Implement Best Practice in Rapid Response Team Protocol

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ABSTRACT

EVALUATING A RAPID RESPONSE TEAM PERFORMANCE TO IMPLEMENT BEST PRACTICE IN RAPID RESPONSE TEAM PROTOCOL

by

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ABSTRACT OF GRADUATE STUDENT PROJECT

Scholarly Project

Andrews University

School of Nursing, College of Health & Human Services

Title: EVALUATING A RAPID RESPONSE TEAM PERFORMANCE TO IMPLEMENT BEST PRACTICE IN RAPID RESPONSE TEAM PROTOCOL

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Background

Rapid Response Teams (RRT) provide clinical resources to improve patient safety outcomes at healthcare institutions. This team promptly responds to deteriorating patient conditions to prevent further deterioration and reduce mortality rates. Rapid response teams do not always perform optimally. Reasons for this performance failure include breakdowns in communication, team dynamics, or other variables that can often be adjusted when the team members understand the role these variables play in undermining the performance of the RRT. An understanding of the perceptions of the RRT members regarding their roles and potential areas of improvement did provide valuable data that was utilized to improve the efficiency and effectiveness of the RRT.

Purpose

The purpose of this project was to create an evidence-based protocol for best practices in RRT responses by evaluating the perceptions of the rapid response team members regarding RRT performance at a medical center in Michigan. Current RRT practices were compared to the evidence-based standards of care that influenced recommendations for improvement based on the gaps identified.

Method

This project utilized a qualitative approach with the use of semi-structured guided interviews held via Zoom to gather data related to the experiences of RRT members, to gain an in-depth understanding on the issues concerning the performances of the RRT. Seventeen participants who met the research criteria were selected. Participants who consented to be interviewed were scheduled in chronological order in which they gave consent. Participants were recruited via hospital unit huddles and one on one encounters, based on the project inclusion criteria, and were then scheduled for individual interviews that were audio-recorded, transcribed, and analyzed for thematic contents. This project was guided by Kurt Lewin's Change Theory, which is a change model geared at preparing team members to become change agents. Applying this model will ensure that team members will be equipped to implement the quality improvement changes in the rapid response system. Associates will be provided with the necessary strategies to unlearn the ineffective old ways of clinical practices and embrace the new evidenced based practice guidelines.

Results

Data analysis revealed major themes that have been affecting the performances of the RRT. They were ineffective team dynamics, activation barriers, inadequate competency training/skills validation, staffing challenges, and failure to debrief after RRT encounters. Other issues emerged during this study that were important issues affecting the performances of the RRT. They were delayed response time of RT, attitudes of providers, and unavailability of attending physicians.

Conclusion

Ineffective team dynamics, poorly defined roles, crowd control issues, and inadequate education and training were the most critical factors interfering with the efficiency of the RRT. A change in policy that has the potential to optimize the performance of the RRT was developed in accordance with the best practice guidelines.

The rapid response team is an important player in early recognition of declining patient conditions outside of intensive care areas. There is documented evidence of what excellent rapid response teams need to maintain their efficient performance. Teams may not always function at the optimum levels they desire. The qualitative interview results derived from experienced rapid response team members was compared with evidence-based standards of practice. Improvements and recommendations were developed and shared with the management team at the project site.

Keywords: rapid response team, perceptions of rapid response team members, RRT performance.

Andrews University

School of Nursing, College of Health & Human Services

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A Scholarly Project

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Nursing Practice

by

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APPROVAL BY THE COMMITTEE

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DEDICATION

This project is dedicated to my extremely supportive and committed husband, Frank, who has encouraged and motivated me every step of the way during this DNP program. To our three children Jonathan, Jenisca and Jeremy for your immense love, encouragement, and understanding during my academic journey. To my parents, siblings, extended family members, friends, and nursing colleagues, thank you for believing in me and cheering me on to completion.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AACN - American Association of Critical care Nurses

ACLS – Advanced Cardiac Life Support

BCLS – Basic Cardiac Life Support

CCU – Critical care Unit

CDC – Centers for Disease Control and Prevention

COVID-19 – Coronavirus Disease 2019

CPR – Cardiopulmonary Resuscitation

DNP – Doctor of Nursing Practice

EWS - Early Warning System

HIPAA – Health Insurance Portability and Accountability Act

ICSI – Institute for Clinical Systems Improvement

ICU – Intensive Care Unit

IRB – Institutional Review Board

NTI - National Training Institute

PCU – Progressive Care Unit

RRS - Rapid Response System

RRT – Rapid Response Team

RN – Registered Nurse

RT – Respiratory Therapist

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First and foremost, all praise, glory, and honor to my Almighty God, who has empowered me with the knowledge, wisdom, understanding, and perseverance to finish this project. I will lift mine eyes unto the hills, From whence cometh my help. My help cometh from the LORD, which made heaven and earth (King James Version, 2022, Psalm 121: 1-2).

I am grateful to my chair, Dr. Carol Rossman, for your unwavering support, leadership, and guidance during the last four years. You urged me on, offered advice, and believed in me even when I did not believe in myself. My sincere gratitude to my mentor Maureen Bishop who has over 45 years of nursing experience, for your commitment to nursing education, your guidance, and support. To Dr. Jean Cadet for the expert knowledge you shared with me while working on my methodology and data analysis, I am forever grateful. My heartfelt thanks also go out to my sister-in-law, Dr. Kimberly Thomas-Francois, for your expert knowledge in qualitative research that you shared. Thank you for your commitment.

CHAPTER 1

INTRODUCTION

Patient safety is one of the paramount goals of any healthcare institution. The implementation of a Rapid Response Team (RRT) is an integral part of the national patient safety goals of the Joint Commission (Colman, et al., 2019). All healthcare facilities are required to build a rapid response system within their organization to ensure that the necessary resources are available when a patient's condition changes for the worse. Regulation agencies like Medicare and Medicaid are required to review hospital events resulting from delays or failure to rescue deteriorating patients for reimbursement purposes.

An RRT is a group of providers who are called to the bedside of hospitalized patients exhibiting impending clinical deterioration that warrants immediate medical attention, to prevent the worsening of patients' condition and to facilitate transfer to a higher level of care (Angel, 2016). With prompt interventions, while following best practice guidelines, an RRT can prevent further deterioration by limiting unnecessary (potentially invasive) interventions, preventing unplanned transfers to intensive care units (ICU), and the necessity for cardiopulmonary resuscitation (Allen, et al., 2017). According to UpToDate, RRT staffing may follow different models based on hospitals' needs.

Table 1

Rapid Response Team Staffing

	Physician	Non-physician-led	Primary team-led
Team members	Intensivist (leader) Critical care nurse Floor nurse Anesthesia Respiratory care Physician for chest compressions Physician for procedures	Physician assistant (leader) Critical care nurse Respiratory care Intensivist (as needed) Hospitalist (as needed)	Patient's primary resident (leader) Patient's primary nurse Senior nurse Respiratory care (as needed) Respiratory care (as needed)

(UpToDate, 2021)

The RRT consists of trained healthcare providers including a physician, a middle provider, a respiratory therapist, a critical care registered nurse, and a nurse supervisor (Mitchell et al., 2019). A unit staff member, usually a registered nurse, although not considered an RRT member, is usually the one that activates an RRT and plays a role during RRT encounters. In addition to the skill set of RRT members, effective communication, clearly defined roles, effective team dynamics, constructive feedback, and ongoing education are critical to improving the overall performance of an RRT. An RRT that follows the best-practice guidelines of the Institute for Clinical Systems Improvement (ICSI), can have a positive impact on patient care by reducing the number of cardiac arrests, morbidity, and mortality by its level of efficiency (Granitto, 2020). With early detection of a clinical problem and a prompt response, while following evidence-based guidelines, patients receive immediate care, which reduces adverse events thereby promoting better health outcomes.

Cardiac arrests, intensive care unit (ICU) admissions, or death following the clinical deterioration of patients on non-critical care units of acute care institutions are devastating to patients, families, and health care providers. Poor patient outcomes result in frustration, pain, suffering, and increased healthcare costs due to longer hospital stays and costs associated with specialty services needed to care for patients transferred to higher levels of care. An optimum functioning RRT can improve those poor outcomes, which will benefit both the consumers of healthcare services and healthcare institutions (Smith, & McSweeney, 2017). Timely response or delay in response time, the efficiency or inefficiency of the team, effective or ineffective team dynamics, and following or failure to follow hospital policies can affect patients' outcomes. It is essential to identify factors that potentially lead to inefficiencies of RRTs to be able to develop strategies to improve the quality of care for patients (Moreira, et al., 2018).

The site of this project was a member hospital of a not-for-profit community health system comprising three hospitals with a total of 234 beds, an outpatient surgery center, physicians' practices, and a cancer center, which are all located in the Midwestern United States. The study was done on the rapid response team in the largest of the three hospitals within this health system. The RRT at this institution responds to both rapid response activations and cardiac arrest calls (code blues). The purpose of this study is to influence quality improvement in RRT performance by acquiring a better understanding of the RRT members' perceptions of the team's performance. The individual team members were asked to evaluate identified strengths and areas for improvement in RRT performance. An assessment of the current RRT policy at this Midwest hospital, and an evaluation of the perceptions of team members did influence a new evidence-based

protocol with recommendations to create quality improvement initiatives for better patient outcomes.

Background Information

According to the current RRT policy accessed from the hospital's intranet at this institution, the RRT consists of a doctor, a critical care charge nurse, a respiratory therapist, and a house supervisor. An intensivist or an emergency room registered nurse may be consulted based on the acuity of the patient involved or bed availability.

Team members are expected to respond within five minutes upon activation of an RRT. Since they are assigned to other patients and may have other commitments, there are multiple challenges associated with responses. Multiple caregivers automatically respond, if needed, to lend a helping hand. These individuals are the nursing support staff, a phlebotomist, and the clinical resource (charge) nurse of the unit where the RRT is activated. While those added resources can in ways enhance performances, their presence at the bedside of patients can also create a crowd of people, thereby imposing on the efficiency of the RRT.

In 2021, there were 265 rapid response calls and 30 code blues in a 196-bed-unit community hospital here in the Midwest. These rapid response calls and cardiac arrests resulted in 45 ICU admissions, 11 progressive care unit (PCU) admissions, and 15 deaths. Although there are factors that are beyond the control of an RRT, like the age of the patient, preexisting medical conditions, and code status of patients, there are also aspects of team performance that may contribute to the outcomes of patients, which necessitate an investigation. These factors are (but are not limited to), failure to follow best practice guidelines, limited resources, the experience of RRT members, and ineffective team

dynamics. In addition, the critical care registered nurse and an emergency room registered nurse at this institution may also be assigned to patients and/or charge duties on their respective units at the time of RRT activations, which is a challenge for them to respond to RRT activations promptly (Avis, et al., 2016).

The number of deteriorating patients requiring ICU admissions, or who have died following RRT encounters is concerning to patients, families, and the healthcare institution involved. Early recognition and response to clinical deterioration in adult inpatients admitted to noncritical care units have become an accepted accreditation benchmark for quality and safety standards in acute care hospitals worldwide (Allen, et al., 2017). Hospitals are now held liable for negative patient outcomes relating to delayed responses and failure to follow hospital protocols for patients who are clinically declining (McColl, 2016). Therefore, an understanding of team members' perception of the effectiveness of the RRT at this hospital has provided data that led the project author to uncover gaps that interfered with the proper functioning of the RRT. Recommendations were then made to the stakeholders of the institution based on the factors identified, to improve the performance of the RRT.

An estimated 290 000 in-hospital cardiac arrests occur each year in the United States (Andersen, et al., 2019). Rapid response calls and cardiac arrests may be due to an acute onset of illness, chronic diseases, or breaches in care in patients on the non-critical care units. A considerable number of rapid response calls and cardiac arrests occur among inpatients at this community hospital in the Midwest. Efforts to prevent in-hospital cardiac arrests therefore require both a system for identifying deteriorating patients and an appropriate interventional response (Andersen, et al., 2019).

An understanding of the perceptions of the RRT team members at this institution can guide policy changes to improve evidence-based practice, which can reduce the incidence of cardiac arrests and hospital mortality (Tirkkonen et al., 2017). Cultural, organizational, and professional factors, as well as systems-based processes require consideration if rapid response systems are to achieve their intended outcomes in dynamic healthcare settings (Rihari-Thomas, et al., 2017).

An RRT team is set up to begin prompt evaluation, diagnose and initiate treatment on a patient who is clinically worsening, intending to stop the deterioration (Hall et al., 2020). In a study conducted among 167 Texas hospitals by Douglas, (2016), 138 said they had a functioning RRT. However, only 2 showed that they were following 100% of the RRT recommended best practices, while 10 showed they were following at least 90% of RRT recommended best practices. Further, 99 of these hospitals were following at least 50% of the best practices (Douglas, 2016). This study indicates a significant gap in practice between recommended RRT best practices and the practices carried out in these hospitals.

There are several gaps in current RRT processes (Douglas, 2016). These include the absence of structured education and assessment of the RRT team and the lack of debriefing after each RRT and code blue encounter, which can create key learning opportunities. This makes it evident that the RRT is not only a responding unit to patients with deteriorating conditions, but is also a system where teaching, learning, and growth are expected.

Using a multidisciplinary approach in the selection of members who meet the criteria to be part of the RRT can influence team effectiveness (Jackson 2017). Although

there are variations in the composition of RRTs across institutions, most RRTs include an ICU nurse, a respiratory therapist, a pharmacist, a physician, and a nursing supervisor (Jackson 2017). In addition to team structure, a collaborative approach to team effectiveness, and how to overcome barriers are crucial factors that can positively affect the performance of the RRT. Guidelines on proper functioning of RRTs can enhance effective team performance. Five established guidelines are organization structure, team structure, expertise, communication, and teamwork (Jackson 2017). In addition, the critical care nurse on the RRT is not only involved in resuscitation procedures during an RRT activation but is also involved with staff and patient education on how to recognize early signs of deterioration and how to intervene promptly. Rounding on patients within twenty-four hours of discharge from the critical care unit makes a difference in reducing rapid response calls (Jackson, 2017).

The use of the RRT is intended to reduce the number and frequency of avoidable conditions including cardiopulmonary resuscitation (CPR). A study conducted by Jun et al. (2021), noted a reduction in the incidence of CPR with a part-time functioning RRT. There is need for continuous improvement in the performance of RRT teams to ensure that evidence-based practice is occurring at the bedside. Improvement can be attained now that data from the RRT teams' interviews on areas of strengths and weaknesses was analyzed. An important aspect of an effective functioning RRT is to provide nurses with the confidence, authority, and resources needed to enable them to appropriately activate RRTs (Granitto, 2020).

The need for clinical experts is critical when responding to inpatients who are deteriorating clinically. The effectiveness of an RRT can be enhanced when critical care

experts lead RRTs and when rapid response teams operate on an around-the-clock schedule (Jung et al. 2016). In Jung et al., (2016)'s comparative retrospective study carried out in the four hospitals of Montpellier regional healthcare center in France, an RRT was implemented in one of the four hospitals, while the other three hospitals were control hospitals with no rapid response teams (Jung et al. 2016). This study was done to assess the effectiveness of implementing an RRT that functions under the leadership of an intensivist. An RRT was implemented that operated twenty-four hours per day and was led by an intensivist. Criteria were set to guide clinicians to identify when to activate the RRT. The results of this study showed that the implementation of an intensivist-led rapid response team caused a decrease in unexpected mortality rates (Jung et al. 2016). In the three control hospitals, there was no significant change in the unexpected mortality rates. Patients in critical care units are at higher risk for cardiac arrests due to the extent of their illnesses. Cardiac arrests occurring in non-critical care units are unforeseen and need to be prevented. An effective emergency system must be implemented to prevent unplanned adverse events. A well-functioning rapid response team can reduce the incidence of cardiac arrest outside the critical care units and the critical care length of stay Angel (2016). Inconsistency of rapid response team members could limit team skills and performances. Therefore, when formulating a rapid response team, the necessary experts should be utilized to reduce in-hospital cardiac arrests and decrease ICU stays.

Problem Statement

There was a need for rapid response team members at a community hospital system in the Midwest to improve their level of performance during rapid response encounters. Although all RRTs maintain protocols and work together in some fashion,

RRTs do not always perform optimally because of communication barriers, lack of training or experience, lack of clearly defined roles, and staffing issues where team members leave current assignments to attend to the RRT calls, or lack of delegation. To identify areas for improvement, team members expressed concerns during interviews based on their experiences prior to, during, and post RRT encounters. Evaluating team members' perceptions of how the current protocols are implemented and comparing this to the best practice guidelines in the literature, as well as considering gaps in the literature, a new/modified protocol could bring this team closer to the outcome they seek, which is to improve patient care and decrease mortality.

Purpose and Objectives

The purpose of this project is to recommend improvements in RRT performance through a new recommended evidence-based protocol. To identify areas of concern, RRT members were interviewed about their experiences with RRT performance at one community hospital in Midwest Michigan. The intent was to provide valid information in identifying strengths, gaps, and areas for improvement in the RRT performances when compared to current best practices for RRT in the literature.

PICOT Question

Will a recommended RRT protocol better meet evidenced-based practice standards by examination of RRT members' evaluation of team performance to identify strengths and areas of concern as compared to the current RRT protocols at the conclusion of this project?

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL AND CONCEPTUAL FRAMEWORK

In this project, a theory is used to frame a proposition to interpret and analyze the qualitative data collected. This chapter discusses the theoretical framework of a change theory, defines key terms, and presents a literature review and synthesis of evidence for a better understanding of concepts to build new knowledge.

Theoretical Framework

Change is the replacement of something with a better newer product/service. Change is an integral part of organizational growth and quality improvement processes. Organizations must employ innovative strategies to improve the goods and services provided, which can have a direct impact on the satisfaction scores of both consumers and employees (Katsamba, 2023).

Change does affect the performance of team members, which in turn influences the productivity and profitability of the organization (Alase, 2017). Considering this, many organizations including healthcare institutions have adopted change models, to ensure the successful implementation of innovative ideas despite the resistance usually posed by team members to change. Team members involved in the change processes within any organization exhibit various behavioral patterns including acceptance, resistance, and changes in beliefs, which are all part of the change process (Ilyas, 2018). However, team members will be less likely to resist change when leaders apply effective

change strategies, and the onus is on management to ensure that this happens. The following change theory will provide some guidance to this scholarly project as it relates to the evaluation of RRT team members on the performances of the RRT at a community hospital in the Midwest.

Kurt Lewin's Change Theory

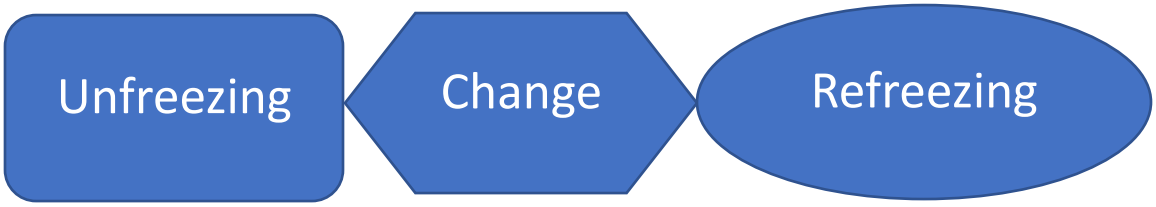
Lewin's Change Model (Kristiansen, & Bloch-Poulsen, 2017) was used to guide this project. Although this change theory was originally developed to resolve social conflicts, over time it has been effective in creating successful organizational changes, which is the overarching goal of quality improvements in this project (Burnes, 2020). Change is not an easy transition. It requires an understanding of the change process, the reason for the change, and the motivation to move towards change.

For change to be successful, team members must be ready to unlearn all previous perceptions, ways of thinking, and behaviors to be able to embrace a new set of actions that are backed up by evidence-based research (Quyen Wong, 2019). After determining the perceptions of team members on the performances of the RRT, this change model will guide the process of change through policy modification. The process of change entails creating a perception that the change is needed, then moving towards the desired behavior and solidifying the new behavior as the norm (Burnes, 2020). Lewin described change as a dynamic force within an organization that moves in opposite directions pushing employees toward change. An assessment of the RRT structure, processes, and group dynamics, while determining influential driving and restraining forces are key strategies to make change happen.

There are three stages of change identified in this theory (Burnes, 2020). They are unfreezing, changing, and refreezing. As the terms suggest, implementing changes in the rapid response system at a community hospital in the Midwest requires prior learning experiences on previous ineffective practices to be unlearned and relearning evidence-based practice guidelines. This is demonstrated using the analogy of changing the shape of a block of ice. The shape of a block of ice can only be changed when melted, the water is then placed in another receptacle with a different shape and is then placed in an environment to refreeze.

Figure 1

Kurt Lewin's Change Theory



The first stage in the model is unfreezing. Unfreezing is the act of destabilizing old behaviors. This destabilization is necessary to allow for old behaviors to be unlearned or discarded (Butts & Rich, 2015). The unfreezing stage entails establishing why change is necessary and communicating the reasons to team members and stakeholders, ensuring that all team members who would be affected by the change fully understand and have a working knowledge of how the change will happen. At the unfreezing stage in the change process, the quality improvement officer will create awareness within the organization about the factors contributing to the current performances of the RRT at a community

hospital in the Midwest, by assessing the effectiveness of the current rapid response system protocol and presenting evidence-based information on the need for change. Effective communication is key in this stage to inform and reiterate the reasons and benefits of the change, including the most important, patient safety goals. To get participants to be on board with the change initiative, leaders must ensure that they educate participants and address their doubts and concerns about the imminent change.

The next stage in Lewin's theory of change is the changing stage. The transition from the freezing stage to the changing stage takes time, to allow for team members involved to embrace the new protocols while actively participating in the change process. This stage also requires effective communication, where leaders communicate clearly, openly, and honestly addressing issues as they arise and providing clear directions (Katsamba, 2023). The change process likewise entails encouraging those who are not yet in line with the change process and reinforcing new protocols.

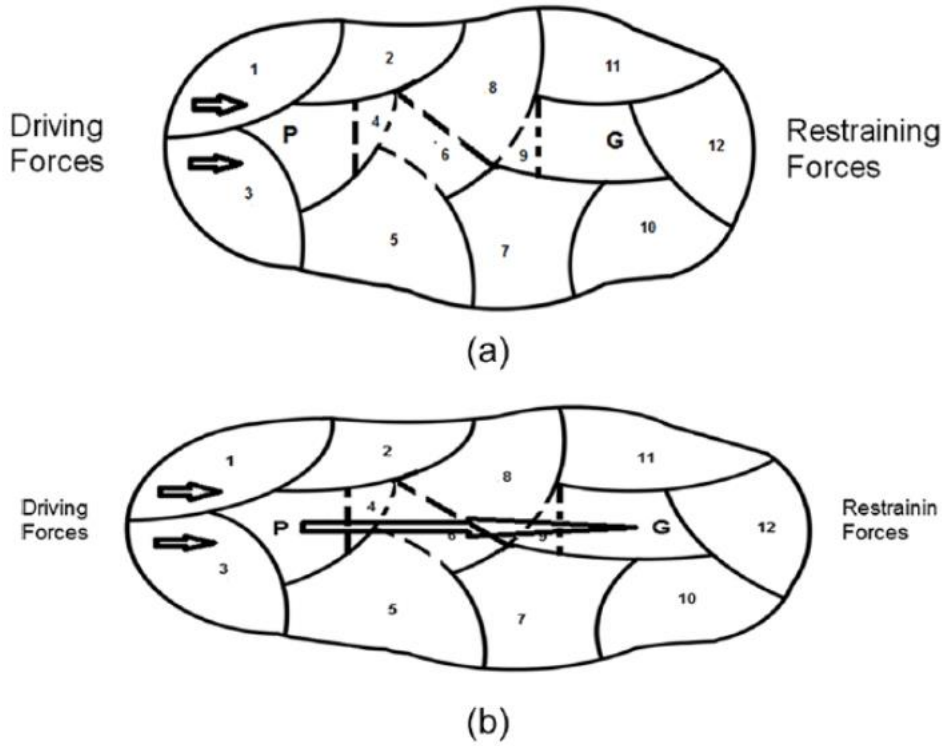
The third stage of Lewin's change model is refreezing. It is when new behaviors become permanent, which will take time and effort. At this stage, team members have embraced the new behavior and are willing and ready to participate in the new processes. This entails reinforcement, building the confidence of team members, offering support to stabilize new behaviors, and rewarding team members to sustain the new behavior. In addition, creating a feedback system, identifying barriers, and keeping all team members informed are strategies for sustaining the change. It is also important that team leaders be aware of environmental, personality, and team dynamics factors that can contribute to regression, making every effort to prevent such a course.

Application of the Change Theory to Project

The above-mentioned strategies are referred to as the driving forces in the change process, which is necessary for the successful implementation of the changes required for improvements in the RRT. Burnes (2020) referred to the restraining forces of rumors, negative perceptions of other associates, and uncertainties, which team members may face or can be exposed to during the change stage. The driving and the restraining forces are in balance just before the unfreezing stage, but to bring about change the balance needs to be offset (Burnes, 2020). Considering this, team leaders must be preemptive to dispel rumors, listen to the concerns of team members, answer questions honestly, and provide ample support. When the driving forces push against and overcome the restraining forces, success is inevitable. The opposite will yield failure in implementing the change. The following is an illustration of the above concept.

Figure 2

Driving and Restraining Forces



(a) Driving and restraining forces. (b) Moving toward the goal

P = person, G = goal (Burnes, 2020).

Definitions of Terms

The following definitions will enhance the understanding of these key terms: Rapid Response Team, Perceptions, Rapid Response Activation, Efficiency, Quality Improvement, Patient morbidity, Patient mortality, Hospital mortality, Patient safety, Cardiopulmonary Arrest, Intensive Care Admissions, Non-critical Care Units

Rapid Response Team (RRT) is an emergency response system designed to respond to hospital patients outside of the critical care unit who are experiencing clinical changes and/or deteriorating conditions (Angel, 2016 p.1). In this project, the RRT at a

community hospital in the Midwest will be evaluated to identify factors that can influence its performance.

Perceptions are the ability to become aware of or understand a concept through one's senses.

Rapid Response Activation is stimulation that alerts the RRT to bring critical interventions to the bedside, including a team of multidisciplinary critical care providers and resources (Avis, Grant, Reilly, & Foy, 2016).

Efficiency is the ability to perform a task utilizing the necessary knowledge and skills to yield the best possible results.

Quality Improvement is the practice of continuously evaluating and improving the quality of health care that is delivered to patients (Berman, et al., 2018). In this project, an evaluation of an RRT will generate factors contributing to the deficiencies in the performance of that team and will guide practice change to improve performances.

Patient Morbidity refers to the number of diseases to which a patient succumbs.

Patient Mortality refers to the rate of patient deaths.

Hospital Mortality is the number of deaths that occur in a hospital over one year. In this project, an evaluation of RRT performance by RRT members will determine the team's efficiency concerning hospital mortality.

Patient Safety is the prevention of unintended harm during healthcare encounters.

Cardiopulmonary Arrest is a clinical syndrome that involves the sudden loss of detectable pulse, or cessation of spontaneous breathing. In this project, an evaluation of the RRT can determine if team efficiency affects incidences of cardiac arrest.

Intensive Care Admissions are the number of patients admitted to the intensive care unit (ICU) following rapid response activation. ICU admissions are outcomes of RRT encounters.

Non-Critical Care Units are hospital units outside of the critical care units. The RRT responds to activations from the noncritical care units of this hospital.

Literature Review

This literature review provided a guide on how RRT should be functioning based on the best evidence-based information. Well-structured RRTs that follow evidence-based practice guidelines will yield optimum performances and improved efficiency, which will result in the best possible patient outcomes. On the other hand, deficiencies in rapid response systems can negatively affect the safety of patients to the extent of cardiac arrest and/or death. The following review of literature explores the best practice guidelines for the effective functioning of RRTs. The search engines used to conduct this literature review include the Cumulative Index for Nursing and Allied Health Literature (CINAHL), UpToDate, and Google Scholar. Keywords included rapid response team, rapid response activation, emergency response team, cardiac arrest, nurses' perception, and patient safety goals. A review of the references from selected peer-reviewed articles was done.

Roles of an RRT

The main goal of an RRT implementation is to prevent avoidable adverse patient events, which is a patient safety issue. Keeping patients safe includes early detection of respiratory and cardiac distress that can potentially lead to intubations and cardiac arrest. Early detection prompts caregivers to immediately activate the RRT within their

organization. Rapid Response Teams can be used to prevent intubations and cardiac arrests (Avis, et al., 2016). Studies have shown a significant increase in RRT activations and an accompanying decrease in cardiac arrests (Avis et al.; Angel, 2016). The increased RRT activations implied that deteriorating patients' conditions were identified more frequently, and prompt interventions prevented cardiac arrests (Walco, et al., 2021). There was also a decrease in the number of intubations, which implied that early interventions prevented respiratory distress from progressing to respiratory failure. Barriers to RRT activations were also noted that will be discussed later in this paper.

A nurse-led RRT backed up by an intensivist-led RRT has been shown to significantly decrease hospital-wide cardiac arrests in an urban hospital setting (Mankidy et al., 2020). This conclusion was drawn after a retrospective study comparing cardiac arrest rates during a nurse-led RRT, with cardiac arrest rates when an intensivist-led team was added two years later to co-managed care. The addition of an intensivist to the nurse led RRT provided additional resources for early advanced treatments.

RRT Operation and Activation Criteria

The use of RRTs is intended to reduce the number and frequency of avoidable adverse events including cardiopulmonary resuscitation (CPR). It has been found that there were increases in incidences of avoidable CPR under a part-time operated rapid response system (RRS) (Jun et al., 2021). This RRS operated between the hours of 7 am to 10 pm Mondays through Fridays, and 7 am to 12 noon on Saturdays. This retrospective investigation was done on adult patients who experienced cardiac arrests requiring CPR, on the general and intermediate units. This highlighted the need for continuous improvement in RRT teams, which can be developed once the data from the RRT teams'

perception of the performance of the RRT is implemented. RRTs are expected to reduce or stop the deterioration of patients. However, as Granitto, (2020) noted, an important aspect of an effective functioning RRT is to provide nurses with the confidence, authority, and resources needed to enable them to activate RRTs (Granitto, 2020). To prevent avoidable cardiac arrests, a full-time operated RRS should be instituted. RRTs are summoned to the bedsides of patients who are clinically declining. Therefore, RRT should be available around the clock to prevent adverse events (Jung et al., 2016).

An early warning system (EWS) is another strategy used for early recognition of clinical deterioration of hospital patients on non-critical care units. EWS is a scoring tool used by healthcare teams of hospitals to promptly recognize when a patient's condition is deteriorating (Fu et al., 2020). Improving RRT activation criteria has been shown to improve patient outcomes. Reardon et al, (2021) emphasized the importance of optimizing RRT activation criteria for prompt response to improve patients' outcomes.

Clinical guidelines were examined related to the development and validation of EWS (Fu et al., 2020). It was concluded that a predictive model standardized checklist does exist, but only a few of the publications reported their compliance with it. If there is an existing standardized model, then why is it not widely utilized by many acute care hospitals? This gap requires more research to identify the barriers to compliance in the use of early warning system models.

There is a standardized predictive model that has been underutilized by healthcare institutions (Fu et al., 2020). The standardization of validation methods of EWS can improve RRT activations (Fang et al., 2020). Validation methods are heterogenous, confusing, and difficult to interpret at times (Fang et al., 2020). Differences identified in

areas of the validation of the dataset used include time EWS was used, outcomes of interest, and managing missing values. Evaluating team members' perceptions of the RRT's performance did prompt a need to assess the EWS scoring system at a community hospital in Midwest Michigan.

The effectiveness of an RRT is dependent on early recognition and prompt activation. To activate an RRT, which is most often done by nurses, one must possess the skill set and confidence to detect and respond quickly when a patient is deteriorating. Nurses need to be empowered with the knowledge and skills necessary to assess patients at risk and to have a clear understanding of when it is appropriate to activate an RRT (Granitto, 2020).

One barrier to efficient function of the RRT was noted to be delayed activation of the team due to lack of unit nurses' knowledge and confidence (Williams, et al., 2019). Some nurses felt unprepared to detect critical changes in patients. Others may have had prior negative experiences with responders and may have hesitated to activate an RRT, while novice nurses may not have had the clinical experience and lacked understanding of acute changes in patients (Tilley, & Spencer, 2020). The suggested strategies to overcome those barriers were effective communication between RRT members and the bedside nurses, continuing education, and training for RRT members, and providing a safe place for nurses to build their knowledge and skills (Granitto, 2020).

These strategies may equip and empower nurses to appropriately activate an RRT without hesitancy, which will prevent adverse patient events.

RRT Structure and Processes

Gaps in the current RRT structure and processes have been identified. These include the absence of structured continuing education, RRT skills validation, evaluation of RRT competency, and the lack of debriefing after each RRT and code blue encounters, which when incorporated, would provide learning opportunities for team members and other staff (Douglas, 2016). The RRT is not only responsible for responding to deteriorating patients, but is a system where teaching, learning, and growth are expected. Using a multidisciplinary approach in the formulation of a rapid response team will yield team effectiveness.

A multidisciplinary approach in the selection of RRT members will yield better performances (Jackson, 2017). This entails including other disciplines in the selection process in selecting associates who meet the criteria to be part of the RRT. Although there are variations in the composition of the RRTs across institutions, the importance of a collaborative approach for team effectiveness and how to overcome barriers that can affect the performance of the RRT should be considered. Guidelines on the effective performance of RRTs have highlighted five key areas: organization structure, team structure, expertise, communication, and teamwork. The critical care nurse on the RRT is not only involved in resuscitation procedures during RRT activations but is also involved with staff and patient education on how to recognize early signs of deterioration and how to intervene promptly. Rounding on patients within twenty-four hours of discharge from the critical care unit makes a difference in reducing rapid response calls.

The need for clinical experts is critical when responding to inpatients who are deteriorating clinically. The effectiveness of an RRT can be enhanced if critical care

experts lead RRTs, and if RRTs operate on an around-the-clock schedule (Jung et al., 2016). A comparative retrospective study was carried out in the four hospitals of Montpellier Regional Healthcare center in France. An RRT was implemented in one of the four hospitals, while the other three hospitals were control hospitals with no rapid response teams. The researchers implemented an RRT that operated twenty-four hours per day and was led by an intensivist. Criteria were set to guide clinicians to identify when to activate the RRT. The results of this study showed that the implementation of an intensivist-led rapid response team contributed to a decrease in unexpected mortality rates. In the three control hospitals, there was no significant change in the unexpected mortality rates. This adds clarity to the understanding of the effective functioning of RRTs.

Patients in critical care units are at higher risk for cardiac arrests due to the extent of their illnesses. Cardiac arrests occurring in non-critical care units are unforeseen and need to be prevented. An effective emergency system must be implemented to prevent unplanned adverse events. Angel (2016) examined the impact of a well-functioning rapid response team on the incidence of cardiac arrest outside the critical care units and critical care length of stay and noted how inconsistency of rapid response team members could limit team skills and that a highly functioning team yields better results. This information can be used in formulating RRTs that are composed of the necessary experts to reduce in-hospital cardiac arrests and decrease ICU stays.

Nurses' Perceptions of RRT performances

Nurses' perceptions can add valuable information to improve the performance of the RRT since they are key players in RRT encounters. Nurses were satisfied with the

structure (referring to human resources, material resources, equipment, guidelines, routines, value systems, expectations), and outcomes (referring to the results of RRT interventions), but not the RRT process, which are standards and protocols (Stahl de Queiroz et al., 2019). The RRT process seems to be a challenge for many nurses according to their perceptions (Stahl de Queiroz et al., 2019). Following RRT protocols adds to its efficiency and results in better patient outcomes. The opposite may cause communication barriers, which can negatively affect patients' safety.

Barriers to RRT Activation

Nurses can face barriers that cause delays in RRT activation. These include a lack of clinical judgment, a lack of clinical relationships and teamwork, and organizational cultural factors (Clayton, 2019). Novice nurses and those with limited experience need to be supported through education and training to know when and how to appropriately activate an RRT. They may not have the critical thinking skills to make prudent clinical decisions, hence preventing them from recognizing physiological changes that warrant RRT activation. Educational support to assist those nurses to translate clinical knowledge into practice will result in prompt assessment and RRT activations (Avis, et al., 2016). Nurses' skills are expected to grow with experience and educational training. Nurses sometimes experience intimidation from other nurses and/or RRT members (Clayton, 2019). This creates feelings of insecurity and distrust that impede effective communication about a patient's condition, causing possible delays in RRT activations, which can result in worsening the patient's condition (Tilley & Spencer, 2020). Strategies such as collaborative teamwork and simulation exercises may serve to decrease the above-mentioned barriers.

Other barriers have also been identified that can prevent or delay RRT activations. These include the increased workload of critical care nurses and nurses on noncritical care units, lack of supportive unit culture, lack of regular RRT education, negative past encounters with the RRT, and being unsure about when to activate the RRT (Tilley & Spencer, 2020). It is recommended that consistent education programs, a teamwork approach, and cultivating a supportive culture as strategies to curb those RRT barriers (Tilley & Spencer, 2020). RRT activations are nurse-driven initiatives. This is because nurses are at the frontline of patient care. Therefore, nurses should feel confident, supported, and must be trained to appropriately activate an RRT.

Several factors affect the performance of an RRT. These factors are limitations in institutional policies, sociocultural obstacles, delays in RRT activations, and team-building blockades (Moreira, et al., 2018). The sociocultural barriers refer to the cultural beliefs about how the RRT should function, and the hierarchy of the institution regarding justifying why the RRT was activated, which can produce fear within team members (Tilley & Spencer, 2020). The delays in RRT activations result in an increase in the length of hospital stay, hospital mortality rates, risk of ICU admission, and increased cardiac arrest (Moreira, et al., 2018). A lack of team-building programs can also affect RRT performances. During team-building exercises, team members can develop the necessary skills to work together as a team.

The structure of an RRT can also affect its performance (Avis, et al., (2016). For example, an ICU nurse who is assigned to patient care or charge duties on his/her unit, who is also assigned to respond to RRT activations can be burdened by additional duties. This nurse is required to leave the critical care unit, to respond to an RRT activation,

creating a short-staffed situation while away from the unit for a significant amount of time. Redesigning RRTs to include designated RRT nurses who are not assigned to other duties to assist unit nurses with early recognition of deteriorating conditions will improve patient outcomes. Hesitation in RRT activation also affects team's performance and may include fractured relationships between nurses and doctors, the tension between ICU nurses and non-ICU nurses, and increased in the workload of responders can all negatively affect team dynamics and the efficiency of the team during RRT encounters (Clayton, 2019; Granitto, 2020)

Strategies and Recommendations for RRT Implementation

An RRT team is set up to begin prompt evaluation and treatment of a patient who is deteriorating, intending to stop the deterioration. The effectiveness of RRTs is reliant on whether recommended practice guidelines are followed. In a study conducted among 167 Texas hospitals, 138 reported that they had a functioning RRT (Douglas, 2016). However, only two showed that they were following 100% of the RRT recommended best practice guidelines, while 10 showed they were following at least 90% of RRT recommended best practices. Further, 99 of these hospitals were following at least 50% of the best practices. The best practice guidelines were found to be formal education and training of RRT members, staff, patients, and family members, development of algorithms, activation methods, feedback processes, debriefing, and continuous quality improvement initiatives to maintain effectiveness. This study indicates a significant gap in practice between recommended RRT best practices and the practices carried out in those hospitals.

RRTs that are streamlined by designating a group of ICU nurses to function solely as RRT nurses are highly recommended (Avis, et al., 2016). This will eliminate the issue of ICU nurses with patient assignments or charge roles being taken off their respective units to respond to RRT activations, resulting in unsafe staffing situations. It is recommended that RRT nurses should perform routine rounding on patients in non-critical care units, providing additional resources to assist with the early detection of deteriorating conditions and early activation (Burrell et al., 2020).

When RRTs are structured with designated ICU nurses, they can be utilized as RRT educators offering educational opportunities during and after RRT encounters, in educating new nurses, residents, and staff (Avis, et al., 2016). These ICU nurses can also be involved in quality improvement initiatives by collecting data to improve RRT performances. Due to the COVID-19 pandemic that resulted in critical staffing situations, the above recommendations may be difficult to implement at this time but should be considered as conditions improve.

Improvement in the following three areas will yield better RRT performances. 1. An existing RRT redesigned to incorporate regular RRT meetings, 2. provide role badges to be worn during RRT encounters, and 3. change the reporting process on patients remaining in their unit post-RRT activation (Chalwin et al., 2020). Regular meetings outside of RRT encounters can provide opportunities to reinforce protocols, address areas that need improvement, and keep RRT members abreast with the latest evidence-based information that can improve communication and performance. RRT can become chaotic at times, especially when team members do not know the roles of other team members. It is recommended to use role badges during RRT encounters so that each team member can

easily identify the distinct roles, which will create better team dynamics (Chalwin et al., 2020). When a patient is to remain on the non-critical unit after an RRT activation, the plan of care needs to be communicated to the primary caregiver. This is to ensure that the clinical concerns are resolved, and the caregivers are comfortable to resume care. Proper bedside reporting procedures are necessary to prevent RRT reactivation (Chalwin et al., 2020).

It is important to understand and explore whether RRTs within healthcare institutions are providing support to bedside clinicians, influencing changes in clinicians' behavior, and whether RRTs are contributing to the improvement of their safety culture (Bunch, et al., 2019). Furthermore, there is a need to assess RRT performances concerning context, mechanism, and outcome factors to improve early RRT activation and effective interventions (Bunch, et al., 2019). The context refers to the clinical environment before an RRT activation, which includes the resources and prior events leading up to activation. The clinical environment with limited resources negatively affects the identification of clinical problems and patient outcomes. The mechanism is the clinical trigger (respiratory or cardiac causes), and the outcome, which is the clinical status of the patient following RRT events (Bunch, et al., 2019). Those outcomes include resolved clinical problems, transfer to a higher level of care, and cardiac arrest that results in either survival or death (Al-Omari et al., 2019).

Best Practice Concepts for RRT Performance

After reviewing current evidence-based practice guidelines, the following variables will improve the performances of an RRT at a community hospital in Midwest Michigan. The literature review supported establishing or reviewing the RRT structure,

evaluating the skill level of RRT responders, reviewing RRT activation criteria, providing ongoing education programs throughout the healthcare institution, and developing ways to evaluate performances and develop feedback tools. There is evidence that effective functioning RRTs yield better patient outcomes. The outcomes identified are decreases in the incidence of cardiac arrests, mortality, ICU admissions, and hospital stay (Al-Omari et al., 2019). The multidisciplinary approach, team structure, team dynamics, and team consistency in the selection of team members are vital for team effectiveness. The idea of an intensivist / ICU nurse led RRT would need more research and discussion. This is because there is not enough supporting evidence that shows a reduction in cardiac arrests, ICU admissions, and death in an intensivist/ ICU nurse led RRT.

Gaps in the Literature

The literature review has shown standards of practice for rapid response protocol. However, some gaps in this literature were identified. The studies reviewed seldom addressed the response time of RRT, comorbidities of patients, time RRT was activated, the clinical environment of the unit where the RRT was activated with regards to patients' acuity, and whether outcomes were affected by the decisions of team leaders. These factors do affect team performance and patient outcomes and should be further evaluated to cover all aspects of RRT performance.

CHAPTER 3

METHODOLOGY

This chapter describes the approach used to evaluate the performance of the RRT. It includes the design for the project, project setting, population and sample, procedure, inclusion and exclusion criteria, and data collection.

Project Design

This project utilized a qualitative approach to identify factors interfering with the performances of the RRT at a community hospital, by assessing team members' perceptions of its implementation. This qualitative approach provided descriptions, explanations, thoughts, and feelings, about the processes, structure, and functioning of the RRT based on lived experiences of team members. A semi-structured guided interview, which included open-ended questions that allowed the project manager to ask follow-up questions and clarify concepts based on participants' responses was conducted to gather data. A semi-structured interview is a method used in qualitative research where an interviewer asked a set of questions allowing new concepts to emerge based on interviewees' responses (Lune, & Berg, 2017). Data was analyzed for trends and mined for information about the expressed strengths and areas of concern for this team's performance. This information was then paired with current evidence-based practice recommendations to create a new recommended protocol aimed at improving the current RRT protocol at this agency.

Approval was obtained from the institutional review boards (IRB) at both the hospital where this project took place and Andrews University before proceeding with research procedures and data collection. Ethical considerations included following the Health Insurance Portability and Accountability Act (HIPAA) regulations when conducting interviews. The project manager ensured that ethical principles of respect for persons, beneficence, and justice were maintained during research procedures (Lune, & Berg, 2017). Informed consent was obtained from participants in this study for participation and interview recording. In addition, to maintain confidentiality, the names of participants were not used. Participants were coded to avoid the identification of team members. Participants were given the freedom of choice to participate and could have withdrawn from the study at any time.

Potential limitations to this project include bias on the part of the project manager. This is because the manager has had some experiences with the RRT and is aware of some of its challenges. To guard against this potential limitation, the project manager sought to minimize perceptions from previous encounters with the RRT and approach this project as a neutral person. Responses from participants were also coded to reduce bias in the interpretation of the responses. Other limitations include Covid –19 restrictions, which limited the way interviews were conducted. Individualized interviews were conducted via zoom instead of in person. Each interview lasted 25 - 30 minutes.

Project Setting

This project took place at a 234-bed community hospital in the Midwestern United States.

Population and Sample

The study population for this project were RRT members, those who activate and respond to the RRT, and the RRT coordinator within this single agency site. Team members who activate the RRT are not considered RRT members, but usually remain at the bedside to assist RRT members. Considering this, these RNs are key players in the bedside dynamics of RRT encounters. Their perceptions of their experiences contributed to this project. All participants of this project were associates who currently work at the community hospital where this project was done.

Seventeen participants were interviewed for this study. They included five ICU charge nurses, four other RNs from the non-critical care units of the hospital, three physicians, three RTs, one house supervisor, and one RRT coordinator. The five ICU nurses that were selected for this project were responders only. ICU charge nurses are assigned to respond to RRT activations as part of their additional responsibilities. Other ICU nurses who are not assigned to charge roles do not respond to RRT activations, and so were not included in this project. The four RNs from the non-critical care units included one RN from each of the following units: orthopedic/neurology, post-surgical, cardiac/progressive, and medical oncology. Nurses from labor & delivery did not meet the project criteria and were excluded from this study. RNs working in the post-anesthesia care, emergency room, pediatric, and critical care units were not included in this study. This is because those specialized areas do have emergency response systems specific to their patient population. The three physicians included were an intensivist, one hospitalist/attending physician and one senior resident. Different physicians assume those roles on any given day and on different shifts. There was only one RRT coordinator at the

community hospital where this project was done. She was included as one of the participants because she oversees the functioning of the RRT and was considered an important contributor to the data collected.

Participants were recruited via emails on a first-to-respond, first-to-be-accepted basis. Awareness and promotion of this project was done via unit huddles and staff meetings. Individuals who expressed interest in participating in the project, provided their emails and contact information. Emails were then sent out to registered nurses from the participating units, intensivists, residents, respiratory therapists, house supervisors, and the code coordinator at the hospital. The emails included an invitation to participate in this project, the purpose of the project, and the end goal of making recommendations based on the gaps identified through interviews to improve the performance of the RRT. Follow-up emails were sent upon receipt of responses from participants who were willing to participate in this project. Invitations to participate in this project and signed consent forms were sent out via email first, then demographic surveys were sent out via emails after participants gave consent, to assess if criteria were met. The consent and demographic survey forms required electronic signatures. However, some participants were having challenges with electronic signatures, and provided paper signatures. Once consents were obtained, and participants met the research criteria, one-on-one interviews were scheduled via zoom.

Participants were each asked the same interview questions with follow-up questions for further clarification based on their previous responses. The questions used were formulated based on the literature reviewed, relating to best practice guidelines for RRTs performances. Participants were interviewed until data saturation was achieved,

which was expected to be about 18 to 20 interviews. Data saturation refers to a point where a researcher has collected all relevant information for a study, with no additional new data (Mwita, 2022). Seventeen participants participated in this project.

Inclusion and Exclusion Criteria

The inclusion criteria for this project consisted of participants that were English-speaking, 18 years old and above who currently work at the community hospital where this project was done. This project included only the members who have had experiences with the RRT for at least six months. This period was intended to reduce bias. Participants had at least six months of experience with the RRT to be able to make a reasonable assessment of the teams' performances. All participants gave written consent to participate in this project and to record zoom interviews, provided email addresses for communication during this project, and completed the demographic survey. Participants with less than six months of experience with the RRT were excluded from this study. Participants from the labor and delivery unit did not meet inclusion criteria and were excluded from this study.

Procedure

Administrative approval to conduct this clinical project was secured. IRB approvals from the hospital agency and Andrews University were also obtained before proceeding with the project. Then invitations for participation in this project were sent out to prospective participants via email. The first to respond were selected to be part of this study only if they met the inclusion criteria. Prospective participants who were not qualified to participate, were made aware, then more participants were added until the targeted population size. Once selected, all project procedures were explained to

participants, and they were asked to sign an informed consent electronically or manually for an interview and recording of interviews.

Selection of Instruments

The instruments used for data collection were demographic questionnaires for participants, and a standard semi-structured interview guide of ten questions to determine RRT members' perception of the performances of the RRT. Interviews were recorded, then transcribed, followed by data analysis using NVivo software.

Intervention and Data Collection

After obtaining informed consent, demographic information was first collected, then scheduled one on one semi-structured interviews were conducted via zoom. Qualitative data was collected and was recorded on zoom and other recording software. Recorded interviews were transcribed, uploaded in NVivo version 12, and were then analyzed to determine team members' perceptions about the performances of the RRT. The intervention in this project was the use of this data analysis for a recommended change in a protocol that follows the best practice guidelines for this RRT for future use.

Data Analysis/Evaluation

The transcripts were uploaded into NVivo version 12 and coded. Themes were identified, categorized, and organized to determine the participants' perceptions of the performance of the RRT.

Inductive/Deductive Analysis

The project manager used an inductive/deductive approach with the goal of identifying problems perceived by the participants relating to the performances of the

RRT, then made recommendations for RRT policy changes/modifications based on the participants' responses and in relation to the evidenced-based practice guidelines.

Reliability & Validity

The accuracy of this project was tested to determine its reliability and validity (Patterson, & Dawson, 2017). To evaluate if the project findings are an accurate representation of the participants and that the perceptions of participants were assessed as expected, the project manager used processes of clarification, peer debriefing, and member checking to ensure reliability and validity. In clarification, the project manager asked the same questions in different ways to the participants to verify consistency. In peer debriefing, a researcher who was not a participant in this study was invited to participate in a discussion about the project findings. In member checks, the transcribed documents of participants were sent to each participant via email, and each was asked to determine if their responses were accurate representations of their perceptions. All participants verified that the recordings of their perceptions were accurate.

Implementation

After IRB approvals from both the project site and Andrew's University were granted, recruitment of participants began. IRB Approval from a community hospital was granted May 20, 2022, and Andrews was granted July 7, 2022. Recruitment of participants began August 1, 2022, by attending unit huddles, obtaining email addresses of potential participants, sending out emails, and sending out reminder emails. The project manager visited the project site twice weekly from August 1, 2022, to November 28, 2022, to meet potential participants to prompt and offer encouragement.

Participants first read and signed the consent, and then received and completed the demographic surveys where inclusion was determined. Participants who met the criteria were then scheduled for zoom interviews. Participants also gave consent to record interviews before the project manager recorded interviews. Interviews were then recorded, transcribed, and was uploaded in NVivo software for data analysis.

Project Timeline

The timeline for this project was set at eleven months (See timeline in Appendix D). This timing gave the project manager enough time to conduct interviews, transcribe and analyze findings to establish trends to determine the factors that were influencing the performances of the RRT at this institution.

Outcomes

Recommendations for an improved RRT performance protocol by identification of strengths, gaps, and areas of concern in the current RRT's performance and comparison to published best practice guidelines suggested in the literature were created and given to the hospital for their future use.

Best Practice Concepts for RRT

Effective functioning RRTs yield better patient outcomes. The outcomes identified a decrease in the incidence of cardiac arrests, a decrease in mortality, and a decrease in ICU admissions and hospital stay. The multidisciplinary approach, team structure, team dynamics, and team consistency in the selection of team members are vital for team effectiveness. The idea of an intensivist/ ICU nurse led RRT would need more research and discussion. This is because there is not enough supporting evidence

that shows a reduction in cardiac arrests, ICU admissions, and death in an intensivist/ ICU nurse led RRT.

Interventions

Individual zoom interviews of RRT members were conducted to assess the performance of the RRT. The RRT members' evaluation of team performance provided data that was used in conjunction with evidence-based guidelines to make recommendations for improvement based on identified gaps.

CHAPTER 4

RESULTS

This section includes demographic findings and results of the personal interviews of team member reflections on their lived experience with RRT activations. This project has provided an in-depth description and understanding of the lived experiences of the RRT members on the performance of the RRT. “Evaluating a Rapid Response Team to Implement Best Practice in Rapid Response Team Protocol.” This qualitative inquiry has answered the PICOT question “Will a recommended RRT protocol better meet evidenced-based practice standards by examination of RRT members’ perception of team performance to identify areas of concern as compared to the current RRT protocols at the conclusion of this project?”

Demographic Findings

One of the research criteria was to include participants with more than six months of experience with the RRT, but all participants who chose to participate had more than 12 months of experience. Seventeen (17) participants participated in this project. They were doctors, RNs, respiratory therapists, a house supervisor, and the code coordinator who are also RNs.

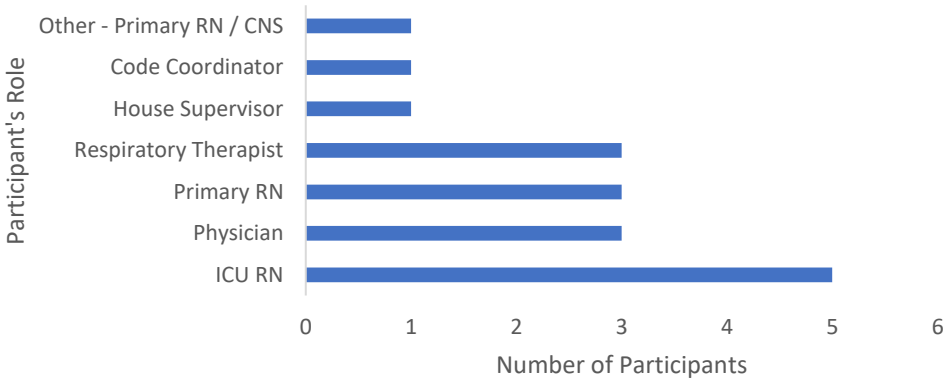
RRT Roles/Unit Represented

The Seventeen (17) participants represented patient care areas and other RRT roles, all of whom are actively involved with the RRT. Five participants were CCU

charge nurses who respond to rapid response calls. 4 were nurses from the non-critical care units which included, 1 RN from orthopedic neurology unit, 1 RN from the postoperative care unit, one RN from cardiac progressive unit, and 1 RN from medical oncology unit, who also functions as a CNS. The other participants were 3 respiratory therapists, a house supervisor, and the code coordinator. The three doctors included one intensivist who is an attending physician of the CCU, a hospitalist who is an attending physician on the general medical floors, and a third-year resident who functions as the team leader during rapid response calls.

Figure 3

Participants' Roles



Gender and Age Distribution

Of the 17 project participants, 10 were females and 7 were males. Two participants were between ages 20 – 30, five participants were between ages 31 – 40, four participants were between ages 41 – 50 and 6 participants were between ages 51 – 65.

Figure 4

Participants' Gender

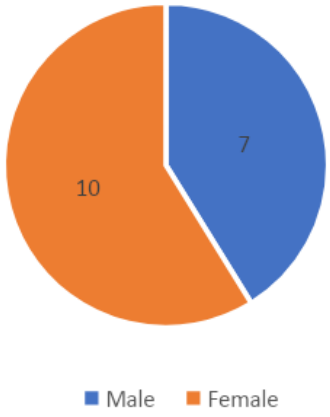


Figure 5

Participants' Age Grouping

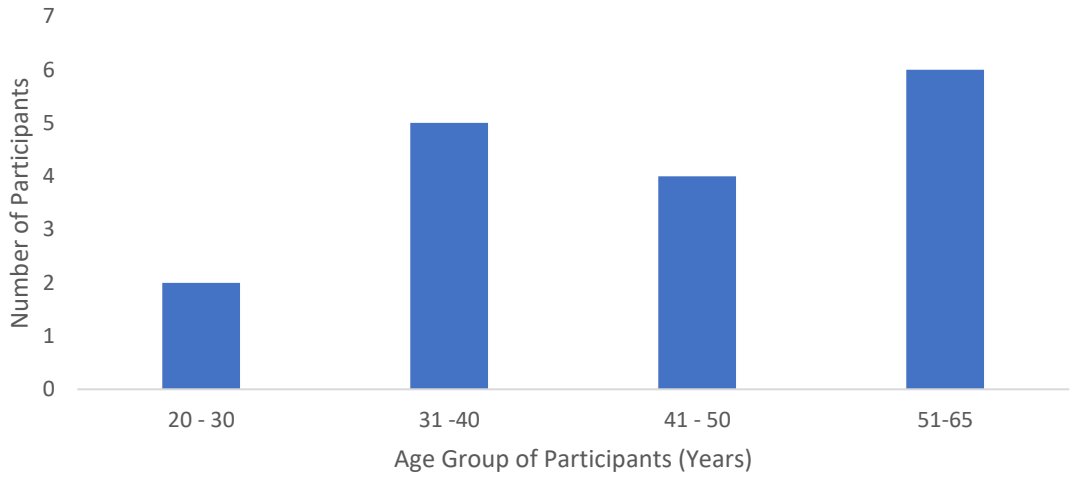
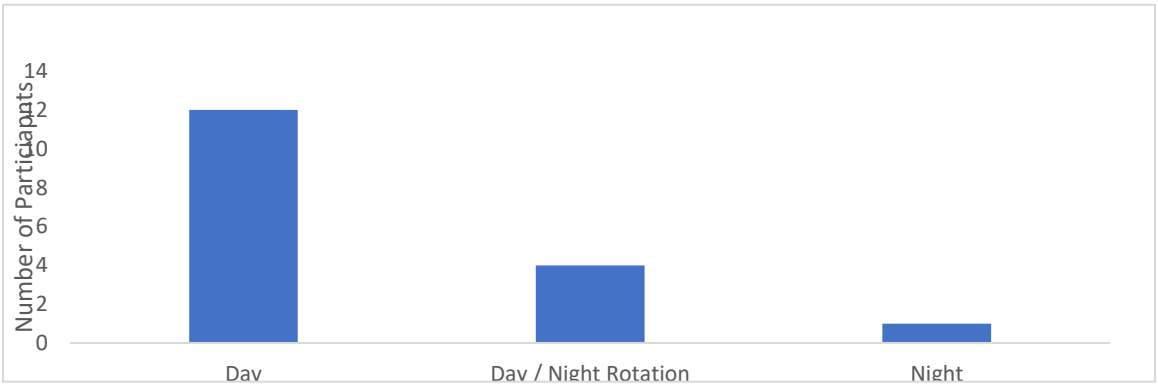


Figure 6

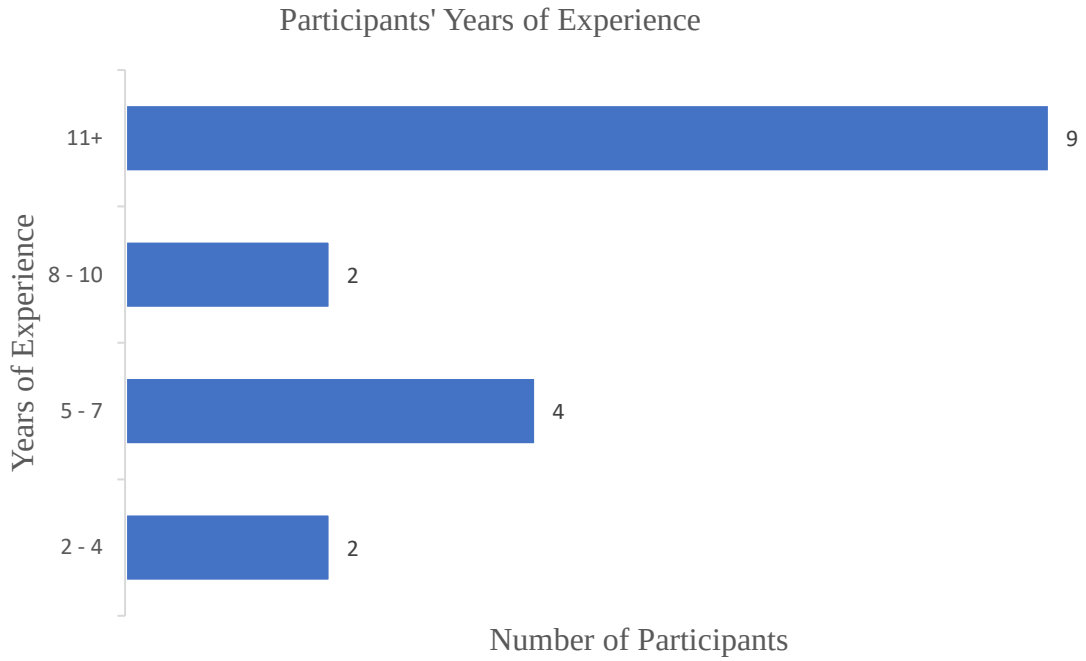
Shifts Worked by Participants



Of the 17 participants, 12 work the day shift, one works night, and four were day/night rotators. The project manager would have preferred an even balance between participants that worked days and participants that worked nights. However, based on the project procedure, the first to respond to an invitation to participate in this study were the first selected to be part of this study if inclusion criteria were met.

Figure 7

Participants' Years of Experience



Participants' years of experiences ranged from 2 years to 11 and greater, the most being 38 years.

Factors Interfering with RRT Performance

RRTs strive to follow protocols and try to work together to rescue patients from deteriorating conditions for the best possible outcomes. Improvement in the quality of performance which can yield better patient outcomes is dependent on whether protocols are followed. On the other hand, RRTs do not always perform optimally because of factors that interfere with the team's performance. Data analysis showed that there were positive factors that enhanced the performance of the RRT and there were negative factors that interfered with the team's performance. The following are descriptions of those factors identified in this study.

Table 2

Summary of Positive and Negative Factors of the RRT at Project Site

Positive Factors	Negative Factors
Early Recognition and Activation	Ineffective Collaboration
Timely Response	Hesitation and Reluctance
	Limited Nursing Knowledge and
Adequate Education and Training	Experience
Teamwork Approach	Ineffective Team Dynamics
Knowledge of Roles and Activation Criteria	Hesitation and Reluctance
Good Overall Performance	Negative Attitudes of Physicians
	Inadequate Education and Training
	Debriefing Failures
	Disjointed Structure and Processes
	Staffing Issues

Positive Factors

An evaluation provides opportunities to assess goals, measure outcomes and to ensure effectiveness of performance. Evaluation processes create opportunities for quality improvement. All evaluations should include both positive and negative features to determine if changes and modifications are needed. Positive factors serve to encourage team members on what is being done well. When discussing the strengths of the RRT, participants were happy to report the positive factors that have been enhancing the team's

performance. These include early activation, timely response, prompt assessment, supportive team members, and good teamwork. They were able to perform reasonably well when influenced by those positive dynamics.

Early Recognition and Activation

Early recognition of clinical deterioration and identification of the need for RRT will give rise to early activations, prompt responses, and appropriate interventions. This is dependent on the detection of early warning systems and the competency of the nurses activating the RRT. Primary nurses are usually the first to determine when there is an acute change in their patients' condition that warrants RRT interventions. Nursing support staff may also identify when a patient is in crisis. Primary nurses will sometimes consult with the charge nurse or the clinical nurse supervisor (CNS) of that unit, to assist with quick assessments of patients' condition and critical thinking help before a rapid response call is activated. When a rapid response call is activated, the RRT is expected to promptly respond at the bedside of that patient, ready to intervene. In discussing strengths of the RRT, participants expressed that nurses are getting better at identifying when a rapid response is needed and activating it when that need is determined. According to participants, nurses on the medical surgical units are much more supported clinically now than they were compared to some years ago, hence the words earlier and quicker being used by participants to describe activations. So according to participants, early recognition and activation has improved over time. Participants expressed it this way:

"I think rapids are getting called earlier, which is good."

"I think that on the floor they are a lot quicker to call a rapid."

Timely Response

Emergency situations require prompt response to prevent adverse outcomes. Response time of an RRT is critical when addressing emergency situations on noncritical care units. RRT members should maintain response time in keeping with the policy of the institution. According to RRT members, the rapid response team does respond within the recommended time of five minutes of activation. Participants said that once an overhead announcement of a rapid response activation is heard, team members and other associates usually will cease all current activity, and rush to the room of the patient that needs help. Some participants expressed that the RRT was experiencing response delays in the past, but now responses are prompt. Other participants expressed that there is seldom a delay. The few instances where there were delays attributed to unavoidable circumstances like another emergent situation in another department of that hospital. Two participants expressed it this way:

"I believe the response is quick and faster."

"The other good thing is everyone responds very promptly."

Adequate Education and Training

Education and training are essential to ensure that RRT members are equipped with the necessary knowledge and skills to effectively carry out their responsibilities. Lack of or inadequate training leads to inefficiency which results in poor patient outcomes. RRT members must receive the necessary education and training to prepare them to respond to rapid response calls and to function in their roles. Education and training can be in the form of formal classes, online tutorials, and simulation exercises.

Some participants described the type of training they receive had prepared them for rapid response. All participants were BCLS certified while all participants except one

were certified in ACLS. BCLS is a basic cardiac life support training, whereas ACLS is an advanced cardiac life support training that RRT members attend every two years. One of the three doctors said that the residents receive monthly training in the form of simulation laboratory exercises that prepares them to be team leaders during rapid response calls. These monthly trainings were described hands on training comprising of assessments, interventions, team dynamics approaches, and delegation of roles. The other two doctors are attending physicians who are BCLS and ACLS trained. One primary RN said that the nurses on her unit receive additional training in the form of online tutorials which are available anytime, and mock codes in the form of simulation exercises done every two to three months. Participants also expressed that their many years of experience had prepared them to respond to rapid response calls.

Three participants said:

"We have sim labs every month."

"We have mock codes all the time, and online one on one tutorials."

"I'm ACLS qualified for 13 years."

Teamwork Approach

A teamwork approach is critical when responding to emergency situations involving patients. The quality of patient care depends on effective interprofessional teamwork to plan and deliver patient-centered care. Each team member is a valuable contributor in one way or another to the success of the team. When team members collaborate well and support each other during RRT interventions, it yields better team performance, which increases patients' survival rates. Participants expressed that team members were supportive of each other, especially to newer staff members who do not

have as much clinical experience as other experienced team members. RRT members described that they each have their roles and rely on each of those roles within the team to solve the clinical issues by working together. They make themselves available to be at the bedside of a patient to support the primary nurse. The results showed that RRT members do work together to achieve the goals of the RRT. Participants put it this way:

"We do work together well when we have a rapid or a code."

"I think our response team works well together"

Knowledge of Roles and Activation Criteria

It is important that RRT members have a working knowledge of their roles, are familiar with the activation criteria, and are aware of the process involved to appropriately activate and respond to rapid response calls. All participants expressed that they know their roles with the RRT and respond appropriately. All participants except one, said that they know what the activation criteria are and how to activate the team. The primary RNs in this study explained their roles in activating the RRT as reporting to team leaders about the patients' clinical changes and participating in rapid response interventions. The critical care RNs described their roles of responding to rapid response calls, assisting with critical thinking, and participating in critical care interventions. The RTs described their roles as being responsible for maintaining patent airways and assisting with intubations. According to the house supervisor in this study, they are responsible for supervising the RRT process, collaborating with other departments to obtain resources needed for rapids, and facilitating patients' transfer when needed. The doctors in this study said that they are responsible for taking charge of the rapid response, making medical decisions, and giving orders. The code coordinator described that her

role is to provide education and training for new nurses, residents, and RTs. Also, she responds to some rapids as an observer to evaluate team performance.

"Everyone seems to fall into their roles."

"They're pretty good about following the activation criteria."

Good Overall Performance

It is important to assess the performances of systems and processes within an organization not only to determine areas that need improvement, but also those areas of strengths. Team members are motivated to improve performance when they are aware that their team is doing well. Participants were given the opportunity during interviews to share their general perceptions of the RRT and to identify its strengths. Some RRT members thought that the team was doing very well while others thought they were doing fairly well. The areas of good performance as identified by team members were the assessment and stabilization of patients during response interventions. After the team gathers pertinent information from the primary nurse, reviews patient records, and conducts physical assessments, interventions are ordered to stabilize patients. One participant used a numeric scale of 1 to 10 to evaluate team performance, while another used a percentage value to describe how the team is doing. One rated 8/10, while the other rated 90%. According to another participant, the team is doing a good job since most patients remain on their units and are not transferred to the ICU. The following quotes are expressed by participants:

"I think we are really good at assessing the situation."

"On a scale of 1 to 10 with 1 being the worst and 10 the best, I will say we're about an 8. We're not perfect, but usually RRTs are run very well."

"I'd say we do a really good job with RRTs; I think 90% of time."

Negative Factors

It is important to identify factors that interfere with the team's performance to be able to develop quality improvement strategies to improve clinical practice. Undesirable factors are elements that hinder efficiency and success of the RRT. The negative factors doubled the positive factors. The research participants identified RRT activation challenges, barriers to responding, and challenges during RRT encounters as the main challenges of the team's performance. The RRT members' experiences are reported by means of descriptions of syntheses for each factor, which are then followed by examples of extracts from the interviews. Participants stated that ineffective collaboration, hesitancy and limited nursing knowledge and experience are the most common activation factors. On the other hand, ineffective collaboration, ineffective team dynamics, inadequate education and training are the challenges of the response phase of the RRT.

Ineffective Collaboration

Collaboration is the working together to achieve common objectives. In this project, collaboration refers to the working together of all members of the RRT to promote effective communication, cohesion, and collaborative practice to improve patient outcomes (Clayton, 2019). It is crucial that RRT members collaborate their efforts to rescue deteriorating patients to prevent worsening of patients' condition and death. All in-patients are under the care of an attending physician at the project site. Non-urgent matters are managed by the attending physicians. A non-urgent condition can progress to an emergency if not addressed in a timely manner. A rapid response is activated for emergent patient situations for quick interventions. When discussing RRT activation, participants expressed that some attending physicians do not act on the concerns that

nurses have had reported about patients. On many occasions, some attending physician will advise the primary nurse to continue to monitor that patient, or to wait for the day shift physician. Some participants have shared that nurses have reached out to the attending physicians several times about patients' conditions when clinical problems are evolving, but orders for interventions were delayed or were not given. This causes activation delays which put patients at risk for adverse events. The following quotes expressed ineffective collaboration when seeking medical assistance for patients with clinical changes.

"They've been talking to the doctor, but they haven't always been receiving interventions. Oftentimes, it's just 'keep monitoring'."

"I see like a problem is coming but the doctors don't listen to you."

"We've called the doctors, but they are just telling us wait until day shift."

Hesitation and Reluctance

Other significant findings that affect the performance of the RRT were hesitancy and reluctance. Hesitancy is the failure to act immediately, while reluctance is the unwillingness to act which could be due to uncertainty. In addition, novice physicians and nurses may lack the experiences that build self-confidence and critical thinking skills. When discussing activation concerns, participants expressed that both nurses and doctors have failed to act quickly when patients' clinical condition changed due to hesitancy and/or reluctance. They said that hesitation and reluctance are because of nurses' inexperience and feelings of bothering the doctors. Participants also said that some providers seemed not be too concerned about the clinical issue and so may act slowly

causing delays. These cause delays and affect the performance of the RRT. Two participants expressed it the following way:

> "And it seems like many doctors are too hesitant or too reluctant, they drag their feet too much at nights."

> "I do sometimes think that nurses are hesitant to call a rapid."

Limited Nursing Knowledge and Experience

Nurses are the primary RRT activators. They spend the most time in direct patient care when compared with other caregivers. Therefore, most times they are the first to identify clinical changes in patients. Nurses who are new to the profession, however, may be limited in clinical knowledge and experience which can cause delays in activating RRT calls. Early recognition of deteriorating patient's condition and prompt RRT activation is dependent on the experience of the primary nurses. Supporting those with limited clinical experience in clinical assessment is essential to improve patient outcomes.

When discussing the knowledge and skills of RRT members, participants thought limited nursing knowledge and experience play a role in delays in RRT activation. Some participants described that newer nurses lack confidence, are unsure about what their next intervention should be when a patient is experiencing clinical changes. Other participants expressed that the limited knowledge and experience lead to limited critical thinking skills that resulted in delays. Two nurses described it this way:

> "I think some challenges is in nurses' level of knowledge."

> "The inexperienced nurses are not sure of what to do."

> "They don't have the confidence that if something were to happen that they would have the knowledge to do it."

Negative Attitudes of Physicians

Attitudes are feelings, opinions and behaviors about something or someone. It can be due to personal factors, or situational. In this case, the negative attitudes of physicians were affecting the RRT's performance. Negative feelings and behaviors of team members towards other team members affects RRT's process and performance. To resolve a clinical issue involving a patient, the nurses reported that they usually call the attending physician assigned to the patient first. If there is no resolution, and the patient's condition is deteriorating, then a RRT is activated which causes frustrations and delays.

Some participants said that some attending physicians do not want nurses to activate a rapid response on patients under their care. Some of the reasons shared were that some doctors feel that when a rapid response is called on their patients, it is an indictment on their individual performance. This means that those physicians perceived that they are not doing a good enough job, hence their patients' decline. Other participants expressed that some residents have negative attitudes toward the nurses who activated the RRT, when in their opinion the rapid response call was inappropriate. Two nurses expressed it this way:

> "So, we have physicians that don't want you to call rapid response, they feel like they're not doing their job."

> "Some residents get this attitude, where like, this is dumb, they might not say it outright, but it makes the nurses kind of feel like maybe I shouldn't have called this rapid."

Ineffective Team Dynamics

Effective team dynamics is a critical aspect of team performance. It is the way team members interact with, communicates and work together to achieve their goal. The two areas of team dynamics identified in this study were poorly defined roles and

overcrowded patient rooms during RRT encounters. These areas were perceived to have interfered with the communication process during rapid responses, creating unhealthy dynamics that affected team's performance.

According to participants, team members know their roles, but it was often difficult for them to identify the roles of other team members. Participants said that it was easy to identify the RT by their uniform and by seeing them manage the airway of that patient if having a respiratory issue but was a challenge to identify other team members. For example, of the several residents who responded to rapids, team members reported that they do not know who the lead resident/team leader was. Considering this, the primary nurses reported that they were asked to give a report on that patient experiencing clinical decline three to five times to residents responding to that rapid response at different times within minutes apart. Also, the CCU nurses expressed that they cannot identify the primary nurse and other responders.

Sixteen of the seventeen participants expressed their concerns regarding their experiences during rapid response encounters, using words like chaos and confusion to describe their frustrations when responding to rapid response calls. Participants said one of the reasons for this was that there were too many people in the rooms of the patients experiencing a decline in condition. That many people contributed to the noise level which impedes communication. Participants also shared that the many people in the room were observers verses responders.

Another interesting finding regarding roles was that there were role badges stored in the emergency carts on all inpatient units, to assist with role delegation, but were seldom used by RRT members. These role badges were meant to be worn during RRT

encounters for easy identification of team members for effective communication and smooth flow. Participants expressed that they are so focused on resuscitating that patient, that team members seldom remember to assign those role badges. When asked about whose responsibility it is to assign the role badges, some said they thought it is the house supervisor, while other said the CCU charge nurse. There were discrepancies about whose responsibility it is to assign role badges. Participants expressed it this way:

> "It is not always clear who is giving the orders. Sometimes orders come from all three of those residents and it can get pretty chaotic."

> "I walked in there's a lot of people, nobody is running the rapid, you don't know who's running the rapid so that's why I say it's chaotic, there's no clear roles that are being followed. We don't know who's running what."

> "There's a lot of people that show up and a lot of people talking."

Inadequate Education and Training

BLCS as previously described is basic cardiac life support, which are some basic interventions like chest compressions and rescue breathing for patients experiencing cardiac or respiratory emergencies. ACLS is advanced cardiac life support, which is an advanced level of support, including advanced airway and arrhythmia management. Although there were training opportunities like BCLS and ACLS every two years for RRT members, RRT members reported that they were not adequately trained to prepare them for RRT activations and responses. All nurses at the project site are required to be BLS certified, while only nurses from certain units like cardiac progressive and CCU, are required to be ACLS certified. According to team members, ACLS training is no longer a required certification for all nurses. Only nurses in specialized areas are required to receive and maintain ACLS certification. Most participants said that their competence is because of their years of experience and not from continuing education.

One nurse reported that there are mock codes and online tutorials that her unit participates in that were helpful in preparing them to activate rapids. One physician reported that he attended monthly simulation exercises. Most participants said that they have not had their skills validated for rapid response. Participants put it that way:

> "So, there is nothing to validate our skills for rapid response, but just assuming that our experience is helping."
>
> "I can't remember being involved in a rapid training.
>
> "Short of just the ACLS check off and BCLS check off to make sure that we are doing everything right, there are no other skill training."

Debriefing Failures

Debriefing is a post-RRT discussion aimed at evaluating RRT performances during encounters to identify areas of strengths and failures. This important conversation should occur immediately after RRT encounters and involves the RRT members who participated in that encounter. Debriefing is geared towards affirming strengths, allowing participants to vent their thoughts and feelings, and identifying areas for improvement.

In our discussion about post RRT encounters, most participants said that following rapid response calls, debriefing is seldom done or not done at all. Some of the reasons identified by participants were time constraints and that debriefing is not a regular practice at that project site. According to participants, all RRT responders except the house supervisor who oversees the clinical operations of that institution, are assigned to units, and would have left their assignment to respond. So as soon as that patient is stabilized, RRT members do not wait around for debriefing, but hurry back to resume their responsibility on the various inpatient units. Others said that there is no debriefing,

so they return to their unit after rapid response encounters. The following participants' responses expressed their perception on debriefing:

> "After the patient is taken care of, there is no debriefing."
>
> "Once we transfer patients after rapid response, there is nothing like coming to regroup and talk about what happened or what could have been done better."
>
> "What I see is lacking here is the debrief afterwards to make sure that everyone feels that their concerns were heard."

Disjo*inted Structure and Processes*

Organizational structure and RRT structure influence the performance of the RRT. The structure is the system in place that outlines how activities are guided and the necessary personnel responsible for those activities to achieve organizational goals. A clear structure helps team members understand their role and the roles of other team members as they work together towards their goals. In our discussion regarding RRT challenges, participants expressed that one of the reasons for the confusion experienced at RRT encounters is that participants do not know the roles of other team members. This makes it difficult to coordinate care without a clearly outlined structure. Other participant said that there are algorithms that physicians should follow when rescuing patients. However, those algorithms are not always followed: different physicians managed similar health conditions differently. There are structures in place, but they are not always followed. Two participants expressed it this way:

> "I think it can sometimes become overwhelming in the sense that there's not a structure."
>
> "I guess the biggest challenge that I see when I respond is that there's not a good organizational structure during the codes."

Staffing Issues

Adequate staffing is an important aspect of patient safety and its relation to RRT's performance. Staffing shortages, high turnover rates, and the heavy workload of RRT members affect team performances. According to participants, nurses on the medical surgical units were assigned to five to six patients on day shifts, and many are assigned to more patients at nights. Participants also reported shortage of RTs as well. They are assigned by units, covering two or more units at times. RRT members reported that most times they are assigned to other patients/units and have other responsibilities when a rapid response is activated, which makes it challenging to respond. Although there are staffing shortages among all disciplines, the results revealed that nursing and respiratory therapy shortages are the two most affected. Here are how two participants expressed this:

> "As nurses, we're at a shortage, and by us having five and six patients, it's hard."
>
> "Well, I mean, we do the best we can. We've got four therapists in the hospital, one of which is usually tied up in CCU."

Emerging Themes

Location of RT Department

The common themes that emerged were examined. However, participants reported other concerns that were not frequently expressed, but do have an impact on the RRT performance. Three participants raised concerns that the location of the respiratory department has been a barrier and does not support prompt RT responses when rapid responses are activated. The hospital is made up of several sections, and the respiratory department is located on a different section further away from the inpatient care units. When a rapid is called, most times the respiratory therapist is coming from across the

hospital and takes more than three to five minutes to get there. Three to five minutes is the standard of practice time of response. These dynamics cause a delay in respiratory therapist response time. Two significant responses follow:

> “Well, the first issue is that the respiratory department is on the other side of the hospital. So, when a rapid or a code blue is called, we're usually the last people to get there, just because we're nowhere near the patient towers."
>
> “Instead of going back to their break room, which is across the hospital, so that they don't have to come this far when a rapid is called.”

Communication Barriers

Another significant finding that emerged from this project is that nurses expressed that sometimes they are unable to reach attending physicians, and so will activate the RRT to summon a physician’s attention when concerns arise regarding patients’ clinical condition. Although all inpatients are under the care of a physician(s), and there are several ways to reach a physician, yet nurses encounter challenges related to getting a physician at the bedside of a patient before conditions worsens. Nurses can use either a secured chat system, make telephone calls, can use a paging system, or can use a vocera system to contact physicians. A vocera system is a communication system used by clinical and non-clinical associates to call each other while on duty to coordinate patient care. Two participants said:

> “They're just not getting an answer after a few tries of trying to get the doctor to come to see the patient, they call a rapid to get an actual physician in the room.”
>
> “Sometimes, they can't get a hold of the physicians.”

Conclusion

This qualitative study has shown that there are several factors influencing the performance of the RRT both positively and negatively. Early recognition and activation, timely response of RRT, a teamwork approach to resolve clinical issues, quick assessment and stabilization attempts, and the support for newer team members as revealed by this project are the desirable qualities of the RRT that can enhance effective team performance. The negative factors on the other hand were challenges experienced prior to activations, during response, and intervention phases of rapid response encounters. These factors were ineffective collaboration, hesitation, and reluctance to activate RRT, limited nursing knowledge and experience, negative attitudes of physicians, ineffective team dynamics, inadequate education and training, debriefing failures, disjointed structure and processes, and staffing shortages.

The community hospital in midwestern Michigan and other healthcare institutions should consider those negative factors affecting the performance of the RRT and seek to develop strategies to overcome barriers for improvement in RRT performance, which will bring the team closer to the evidence-based standards of practice. In addition, evidence-based literature clearly recommends that ongoing educational programs, evaluation of the skills level of RRT responders, the development of ways to evaluate performances, formulating strategies to improve collaboration, and developing feedback tools should be crucial to improving RRT performance (Douglas, 2016). Kurt Lewin's change theory will be instrumental in bringing about those necessary changes for better patient outcomes.

CHAPTER 5

DISCUSSION

This chapter discusses study findings, outlines the recommendations for change in RRT protocol, and examines the significance and implications of this project on nursing practice, nursing research, and nursing education. This chapter also discussed strengths and limitations of the project, plans for disseminating project findings, and Doctor of Nursing Practice (DNP) Essentials used in this project.

Discussion of Study Findings

The goal of this project was to create a new recommended evidence-based protocol for RRT performance, to improve clinical practice at a community hospital in Midwest Michigan, whose RRT has been affected by multiple undesirable factors. The 17 RRT members who took part in this study were doctors, nurses, and respiratory therapists in various roles. The labor & delivery unit was exempted from this study. Prospective participants from this unit expressed that they do not have experiences with the RRT because their uses a specialized emergency response system to meet the needs of this patient population. The years of clinical experiences of participants ranged from 3 to 38 years, with some of them working at the same institution for a significant length of time. Fifty-three percent of participants had 11 or more years of clinical experience. Considering this, these participants provided valuable insights on both the positive and

negative factors influencing the performances of the RRT. For the sake of this study, recommendations were based on improving the negative factors identified.

RRT members worked the day shift, night shift or rotated between day and night. There are challenges specific to a particular shift based on the availability of resources. Considering this, the project author wanted to capture the experiences of participants who worked both day shift and night shifts. However, 12 of the 17 participants worked day shift, 1 worked night shift and 4 worked rotating from day to night shifts. This was because of the research criteria was first to respond to invitation emails were the first that were accepted to participate in this study. Since more day shift participants responded first, they were accepted. In addition, it is important to note that the night shift had more staffing challenges than day shift. The night shift participants expressed limited resources especially staffing challenges which accounts for some of the RRT activation delays as described above. Studies have shown that when the differences of day shift and night shifts in hospitals were examined, there were less nursing and axillary staff, newer staff, less supervision, and less available services on the night shift (Weaver, et al., 2020).

On the issue of ineffective collaboration, it appeared to have been more of a challenge during the night shifts at that institution when compared to the day shift. To work effectively together, each team member needs to know the role and competence of the other team members (Ulrich, 2021). A knowledge of team members role will enhance team dynamics. RRT activation is affected by the collaboration between attending physicians and RRT members (Wei Ling Chua, 2017). Participants that worked the night shift have reported that at nights, when a patient's condition worsens, they are often told by the physicians on call to wait for the day shift providers to address that clinical

problem. This can be due to a staffing shortage, where the physicians on call are responsible for covering the entire hospital during night shifts. As mentioned above, there are less staff and less supervision during nights shift. Delays in addressing clinical problems lead to adverse events causing increase in morbidity and mortality.

Ineffective collaboration can also be a result of organizational culture, where nurses felt that they are not listened to by physicians. Participants expressed that some doctors do not listen, or their concerns are not taken seriously. This requires more discussion and research to identify reason for this claim. Clayton, (2020), discussed the importance of multidisciplinary approaches to enhance communication and collaboration. In addition, she encouraged debriefing exercises after RRT/codes where team members are given the opportunity to express their feelings and concerns related to the RRT encounter.

Hesitancy and reluctance to activate the RRT were other factors negatively affecting the performance of the RRT. This ties in with the limited nursing knowledge and experience factor. Participants reported that both nurses and doctors have failed to act promptly when patients were experiencing clinical decline. Hesitancy and reluctancy can be because of lack of confidence, limited knowledge and skills, poor clinical judgement, and organizational cultural factors (Clayton, 2019). The reluctance of nurses to activate the RRT could be attributed to their competency and skill set, which are developed through education, training, and experience (Clayton, 2020). As mentioned above, there has been quick turn over of nurses at the project site. Many nurses are new to the profession and may lack the skill set needed to appropriately assess and make quick clinical decisions regarding patients' condition.

Doctors like residents, can be new to the profession as well and may lack experience. However, the hesitancy and reluctance experienced by research participants are related to staffing concerns on night shifts. This could be due to limited medical staff, not taking the nurses seriously, or maybe the feeling that they can manage their patients outside of the RRT interventions. The attitudes of physicians do play a role in hesitancy and reluctance, since some physicians do not want the bedside nurses to activate a rapid response on their patient as reported in this study. According to participants, some physicians felt that activating a rapid response on their patient is perceived as incompetence. This is a false perception since emergency situations are not planned events, they can happen at any time and should not be seen as a lack of competency.

One of the most common themes in this research is the challenges associated with team dynamics. Studies have shown that effective team dynamics are foundational for successful implementation of evidence-based practice that can improve team performance and yield better patient outcomes (Clayton, 2019). Lack of clearly defined roles seemed to be associated with failure to utilize role badges and crowded rooms. Per RRT protocol, one resident should lead the team and is also responsible for delegating roles. The literature supported clearly defined roles as a strategy to effective team dynamics, yielding better team's performance (Chalwin et al., (2020).

The project site is a teaching hospital. Therefore, nursing students, new nurses, medical students, residents, student nurse technicians, in addition to the RRT responders do show up at the bedside when RRTs are activated. It is important for the students to observe and learn about RRT processes. However, too many people at the bedside during RRT encounters affected the communication process. Communication barriers allow for

mistakes to occur while rescuing patients (Ekwantoro et al., 2020). Assigning a gate keeper can help alleviate this challenge. The literature has limited information regarding crowd control. Therefore, further discussion and research are encouraged on the issue of crowd control.

Interesting research revealed that the doctors receive adequate education and training that prepared them to respond to RRT. On the other hand, nurses except one, and RTs reported that they receive BCLS and ACLS training every two years but thought that this was not adequate since they are RRT responders. BCLS and ACLS are important certifications that can enhance the knowledge base of RRT members. However, according to the evidenced based literature, continuing education and skills validation should be part of RRT processes to improve performance. This means that structured education should occur on a regular basis, more often than every two years. With inadequate structured continuing education, RRT skills validation, and continual evaluation of RRT competency, activation and response challenges are eminent and was seen in this study (Douglas, 2016). Newer team members and those with limited experience need to be supported through continuing education and training to increase their knowledge, skills, and confidence to appropriately activate and/or respond to RRT. The simulation exercises that were available to doctors can be made available to the other RRT members. Simulation exercises provide opportunities for team members to develop good assessment and clinical judgment skills, which can improve the quality of patient care (Clayton, 2019). This can bridge the gap between adequate and inadequate education and training.

The research revealed that debriefing was not a regular practice at the project site. Debriefing is an important arm of the RRT, that provides learning opportunities for RRT members and other staff to express their thoughts and feeling post RRT events. It is used in clinical environments to identify educational needs, support team members, and improve processes (Gabriel, et, al., 2022). This post RRT discussion is also well supported by Gabriel et al., (2022), who said that debriefing yields positive team dynamics and effective collaboration. To address this challenge, the team leader needs to ensure that debriefing occurs after all RRT encounters. Further discussions are necessary to identify how RRT members are processing their feelings regarding emergent events, and what forum is used to vent concerns they may have.

According to the current RRT protocol, there is a structure in place for how the rapid response team should function. The responders are aware of their roles and who should respond. However, I think that the structure is affected by the overcrowded rooms and lack of role delegation. The solution here will be to have clearly defined roles and crowd control.

Staffing shortage is a chronic problem affecting healthcare institutions nationally. Nurse/patient, and RT/patient ratio are increasing every day, which puts patient at risk. Patients can experience delay in care, missed care and adverse outcomes because of poor staffing (Blouin, & Podjasek, 2019). The literature supports safe staffing, which has been proven to improve patient outcomes and save lives. An increased workload of critical care nurses and nurses on noncritical care units are identified in the literature review in chapter 2 as barriers to RRT activation and response (Tilley & Spencer, 2020). Although

this has been a big challenge, and is not a new problem, RRT members need to develop strategies to ensure coverage for their patients while away during RRT encounters.

All participants identified the need to change the negative dynamics and made suggestions on performance improvement. The positive factors identified were within the best practice guidelines and will continue to enrich the team's performance. The unfavorable factors discovered have negatively affected the functioning of the RRT by causing delays in activations, ineffective team dynamics, and communication barriers. These factors are interrelated. This study revealed several factors that were negatively affecting the performance of the RRT. However, the most critical factors that are hindering the efficiency of RRT performance were considered for recommendation. These factors were hesitancy to activate RRT, limited nursing knowledge and experience, ineffective collaboration between nurses and doctors, debriefing failures, ineffective team dynamics which includes poorly defined roles, crowd control issues, and communication barriers. Factors like staffing shortages and disjointed RRT locations are challenges that need to be addressed with further discussions later. The change theory described in chapter two, will guide the implementation of practice changes to bring the RRT closer to the evidence-based standards of practice.

Recommendations for RRT Policy Modification

The following recommendations resulted from this study:

1. Lead Physician role must be preassigned before shift change.
2. Lead physician must disclose his/her charge role on arrival at the bedside.
3. Lead physician assigns other roles, and delegates roles/role badges.
4. Each unit pre assigns responders during huddles, including a gatekeeper.

5. A maximum of 6 to 8 people is allowed in a patient's room.
6. Patient's primary RN to give report on patient condition to lead physician.
7. Monthly RRT team simulation training exercise for nurses, doctors, and RT.
8. ACLs training for all RNs every 2 years.
9. Yearly skills validation for RRT members.
10. Debriefing to follow all RRT encounters, form to be completed immediately after encounters.
11. Monthly meetings with RRT members.
12. Quarterly evaluation of RRT performance quality including strengths and areas for improvement to measure change over time.

These recommendations were used to formulate recommendations for modification to the RRT policy at the project site (See Appendix E).

Bridging the Gap between Existing Knowledge and Research

The results of this study have provided new insight into existing knowledge about best practice guidelines for RRT performance. Recommendations from this project can be used to improve the current state of RRTs not just at the project site, but nationwide by providing new data to bridge existing gaps in the literature (Moran, et al., 2017). The literature reviewed highlighted the importance of effective team dynamics. Crowd control management, which is a critical part of effective team dynamics, has been shown to significantly reduce communication barriers as was verified in this study. Yet, there is limited information in the literature regarding crowd control management techniques. This study would benefit future managers and researchers, motivated by the information generated through this project, to dig deeper into ways to further improve team dynamics

through better crowd control. This project helps bridge the gap between evidence-based data and clinical practice. The conclusions drawn will guide the translation of this new clinical knowledge regarding RRT performance into improve standards of practice. In addition, no research has been conducted on the RRT at this institution before, and so this project would provide data to management at the project site that did not exist before.

Impact on Nursing Practice

Evidence-based scholarly projects advance professional practice and improve the quality of nursing care (Chism, 2019). Project data can inform policies and procedures that involve nursing practice and RRT actions. This project provided recommendations for an evidence-based protocol that has the potential to improve the performance of the RRT, which can result in the improvement of patient care. The perceptions of the RRT members were evaluated, factors interfering with RRT performance were identified and were compared to the best practice guidelines. The new protocol reflected evidence-based guidelines which, when translated into practice, can improve the quality of patient care. The change theory of Kurt Lewin will be instrumental in implementing those practice changes. It entails unlearning previous ways of RRT performance and applying evidence-based guidelines for better performance.

Impact on Nursing Research

Nursing research is one of the most effective ways to solve clinical problems. This project provides additional evidence-based data that will impact future studies in the field of nursing. This project manager identified a clinical problem and utilized evidence-based processes to investigate the phenomenon. Factors that were contributing to the performance of the RRT were addressed. The factors identified in this study and the

recommendations formulated based on the current literature have the capacity to change nursing practice and influence further discussion and inquiry about the emerging themes identified. Further studies are warranted to verify the findings and modify the recommendations as additional data indicates.

Impact on Nursing Education

The dissemination of the results of this project will advance nursing knowledge (Chism, 2019). Reporting project findings and making them available to other hospitals with similar RRT challenges, can draw professional attention and stimulate discussions leading to further inquiry and advances in nursing knowledge. In addition, since inadequate education was one of the factors identified as affecting the performance of the RRT, hospital nurse educators can use this information and include it in their education programs to improve nursing knowledge on that subject.

Project Strengths

A significant strength of this project was the use of semi-structured interview questions to assess the perceptions of RRT members. This allowed the project manager to ask follow-up questions seeking clarification and further explanations to better understand the subject, which resulted in more information about the phenomenon. Participants' perceptions were based on lived experiences they had with the RRT and provided valuable information concerning RRT performance.

Another strength is that the project manager was familiar with the project site and the terminologies associated with the phenomenon. This prior knowledge allowed the project manager to guide interviews to gain a deeper understanding of the perceptions of RRT performance. These participants had many years of experience and were able to

share those lived experiences during interviews which provided useful data regarding the challenges RRT faces and suggest solutions. For example, to address roles delegation, this study generated the idea that the lead resident physician in charge of the rapid response calls should be preassigned at the beginning of every shift. This will eliminate the confusion and delays at the bedside when a rapid response is activated.

Project Limitations

The project manager worked with and had formerly interacted with many of the project participants during employment at the project site. This familiarity may have contributed to a lack of total transparency during the interview process. Participants knowing that they are interacting with a peer may withhold certain views of the subject fearing the possibility that their viewpoints may become public information. Subjectivity and bias could have also limited this study. Data analysis of the qualitative design could have been biased as it could have been influenced by the project manager's perspective.

It can be a challenge to know the validity and reliability. Participants had an opportunity to review their individual transcripts to determine validity and verify or edit the information. Yet, there is still a chance that participants' responses may not be accurately interpreted by the project manager or conveyed differently than subjects intended.

This project was partly conducted during the Covid 19 pandemic, where social distancing was still in effect. Considering this, all interviews were conducted via a zoom platform which may have limited assessment of some facial expressions and body languages, which could have been helpful in assessing more of the nonverbal cues expressed by participants about their perception of the phenomenon.

Dissemination Plan

The dissemination of research findings is to ensure that the benefits of the study are shared and applied. The results of this project and recommendations for policy change were presented via a PowerPoint presentation to the stakeholders at the project site. These included senior nursing management and physician leaders. The presentation lasted for 30 minutes with time allotted for questions and feedback. These leaders were instructed to share those results with nurse managers, house supervisors, clinical nurse supervisors, respiratory therapists, nurses, doctors, and support staff.

Other healthcare institutions with similar RRT challenges would benefit from those recommendations to improve their RRT performance which can yield better patient care. Publication of the results could reach healthcare institutions nationally. As a member of the American Association of Critical Care Nurses (AACN), the project manager plans to publish a manuscript for this organization regarding RRT protocols and hopes to make presentations on the critical care platforms like the Midwestern Critical Care symposium and the National Training Institute (NTI).

DNP Essentials

DNP Essentials I, II, III, IV, V, VI and VIII guided this project.

Essential I: Scientific Underpinnings for Practice

This essential equipped the project manager to integrate scientific knowledge and theoretical framework with evidenced-based knowledge to develop policy recommendations for improvement in clinical practice. Scientific theories and evidence-based practice guidelines guided my critical thinking and analysis to influence policy changes.

Essential II: Organizational and Systems Leadership

Organizational and Systems Leadership for Quality Improvement and Systems Thinking allowed the project manager to utilize leadership skills in a complex healthcare institution to identify problems with the RRT, initiate an investigation to assess the team's performance and to then make recommendations for improvement. This required a knowledge of the project site's organizational structure, the critical importance of quality improvement and its impact on patient care, and system thinking approaches to formulate an evidence-based protocol.

Essential III: Clinical Scholarship and Analytical Methods

The DNP prepared practitioner is responsible for translating research to advance clinical practice especially now in this digital age. To do this, one must find the evidence, sort the literature for relevance, accuracy, and reliability, to then implement the best evidence-based information to clinical practice. Clinical Scholarship and Analytical Methods for Evidence-Based Practice has allowed for conducting a literature review to gather evidence-based information regarding the best practice guidelines in RRT performance to be able to make recommendations for practice change.

Essential IV: Information Systems/Technology

DNP graduates are required to use information technology to support patients through health education and to use mobile devices to improve the quality of care for patients. This requires keeping abreast with changes involving the information systems, gaining new competencies, and managing patient health information wisely. Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care essential was fulfilled using emails, text messages, phone

calls, zoom interviews, otter and NVivo for data collection and analysis geared at improving the performances of the RRT for better patient outcomes. Emails, text messages, and telephone calls were used to recruit participants for this study. Data was collected via Zoom interviews which were recorded and transcribed using otter. NVivo was used for data analysis. Data was securely stored on computer; participants' privacy and confidentiality were maintained.

Essential V: Healthcare Policy for Advocacy in Health Care

Nurses at all levels are trained to be strong patients' advocates. At the doctoral level it is even more critical, as DNPs are in provider roles making decisions that will affect patients, employers, health systems, states, and the nation. The goals of Healthcare Policy for advocacy in healthcare were met in this project as the project manager advocated for quality improvement through policy development and leadership.

The purpose of this project was to develop a new evidence based RRT protocol to improve the performances of the RRT at a hospital in the Midwest United States. Therefore, knowledge acquired on policy analysis to evaluate the RRT and to develop a new protocol based on the best practice guidelines was utilized. Data analysis, the development of a new policy, and the presentation of project findings to stakeholders are the activities that guided this essential.

Essential VI: Interprofessional Collaboration

DNP graduates are equipped based on their level of knowledge and experiences to form interprofessional relationships to collaborate with other disciplines to improve patient outcomes. Interprofessional Collaboration for Improving Patient and Population Health Outcomes knowledge informed collaboration with doctors, nurse managers, nurse

supervisors, nurses, respiratory therapists, and the code coordinator at the project site to gain a deeper understanding of the performances of the RRT. This project also included collaboration with APRNs involved with policy changes, stakeholders, and other doctors and nurses during the evaluation phase of this project.

Essential VIII: Advanced Nursing Practice

Learning in a DNP program involved the ability to conduct comprehensive needs assessment utilizing clinical judgment, system thinking, and guided delivery of evidence-based care (AACN, 2006). This wealth of knowledge, clinical experience and leadership skills prepare DNP students to take on their upcoming roles as primary care providers. In this advanced practice positions, providers are expected to apply evidence-based advanced knowledge to clinical practice to make positive impacts on the health of individuals in the community to be served. This project manager has accepted a job as a FNP in a cardiovascular specialty unit in Midwest United States at the completion of this DNP program.

Project Evaluation

A research evaluation entails an assessment of research objectives and data analysis results to determine its relevance, significance, and the ability to achieve the objectives outlined in the study. This project results were presented to the stakeholders at the project site on Thursday January 26, 2023. The presentation lasted for 35 minutes with time allotted for questions and comments at the end. After the presentation, stakeholders were given an evaluation form consisting of three questions to assess the project findings and recommendations. Stakeholders expressed satisfaction with the results of the project and expressed their willingness to consider implementation of the

recommended policy changes to improve RRT performance. For evaluation form, see Appendix G.

Spiritual Component

Evaluating the RRT for best practice in RRT protocol involves a search for evidence-based information, an investigation of current practices, and the development of strategies to address challenges identified. The constant search for improvement in processes and procedures to improve the performance of emergency response systems mirrors the Christian life in our quest to improve our standards of Christian living, hence becoming more like Christ. We are to seek to improve our spirituality through daily surrender to the will of God. To develop the character of Christ, we must persistently search the scripture, evaluate our lives, and allow the spirit of God to restore the image of God in us. “By beholding him, we become changed” (King James Version, 2022, 1 Corinthians 3:18.

APPENDIX A

PARTICIPANT INTERVIEW

What are the perceptions of RRT members on the structure, processes, and performances of the RRT at your place of employment?

Interview Questions

1. What are your general perceptions of the performances of the RRT at your institution?
2. What do you think is the key role of the RRT?
3. Tell me about how RRT activation criteria are followed at this hospital.
4. Tell me about the competency training you received about responding to RRT activation.
5. Tell me about your level of skills and confidence to appropriately activate/respond to the RRT.
6. What happens after an RRT encounter?
7. What are your thoughts about implementing RRT continuing education, skills validation, and debriefing? Do believe team-building exercises for RRT members would be helpful?
8. What do you think are the strengths of the RRT?
9. What are the challenges/barriers you encounter at the bedside during activations?
10. Do you believe any improvements/changes are needed? What would these be?

APPENDIX B

INFORMED CONSENT

Permission to Take Part in a Research Project

Title: EVALUATING RAPID RESPONSE TEAM PERFORMANCE TO IMPLEMENT BEST PRACTICE IN RAPID RESPONSE TEAM PROTOCOL

Investigator: Pansy Samuel, BSN, CCRN-CSC

"You" refers to you, the Participant.

RRT refers to Rapid Response Team

What are the purposes, procedure(s), and duration of this study?

I am inviting you to take part in a research study. The purpose of this project is to recommend improvements in Rapid Response Team performance with a new recommended protocol. To identify areas of concern, RRT members will be interviewed about their experiences with RRT performance. To understand areas for improvement, team members will be interviewed to gather data on their experiences in RRT calls. This study will evaluate team members' perceptions of how the current protocols are implemented and compare this to the best practices. This study could help create a new protocol that could bring the team closer to the outcomes they seek, improve patient care, and decrease mortality.

We expect that your interview will last 30 to 60 minutes. The one-on-one zoom interview will be recorded for accurate transcription purposes. As soon as the transcription has been completed, the demographic data and recordings will be destroyed permanently. Interview questions will be related to your perceptions on the RRT performances based on your experiences with the RRT at your place of employment.

What are some general things to know about research studies?

- Someone will explain this research study to you.
- You volunteer to be in a research study.
- Whether or not you take part is up to you.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Whom do I call if I have questions or problems?

If you have questions, concerns, complaints, or think the research has hurt you, email the researcher at Pansys@andrews.edu or report a complaint Anonymously through the compliance hotline with NAVEXglobal, the toll-free number is 800-325-6115. This research has been reviewed and approved by the Spectrum Health Lakeland Institutional Review Board. You may talk to them at (269) 983-8419 or jann.totzke@spectrumhealth.org for any of the following:

- Your questions, concerns, or complaints are not being answered by the investigator or research team.

- You cannot reach the investigator or research team.
- You want to talk to someone besides the investigator or research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

What are the reasons you might choose to volunteer for this study?

This study could help create a new protocol for the Rapid Response Team which could bring the team closer to the outcomes they seek, and to improve patient care, and decrease mortality.

What are the reasons you might choose not to volunteer for this study?

The interview could take 30-60 minutes.

Do you have to take part in this study?

Participation in research is completely voluntary. You can decide to participate or not participate.

How many people will be studied?

We expect about 18 to 20 people to participate in this research study.

What happens if I say yes, I want to be in this research?

You will receive a demographic survey and you will be contacted by the researcher to schedule a one-on-one zoom interview. During the one-on-one interview, you will be asked a series of questions regarding your perception of the Rapid Response Team structure, process, and performance based on your experiences. The zoom interview will be recorded for accurate transcription purposes. As soon as the transcription has been completed, the recordings will be destroyed permanently. This interview should take 30 to 60 minutes.

What happens if I say no, I do not want to be in this project?

You may decide not to take part in the research, and it will not be held against you. A refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled.

What happens if I say yes, but I change my mind later?

You can agree to take part in the research now and stop at any time it will not be held against you. You may discontinue your participation in this study at any time without any penalty. You may also choose to discontinue this study even after you have given informed consent. Discontinuing participation will not result in any penalty or loss of benefits to which you are otherwise entitled.

What are the possible risks and discomforts I may have if I take part in this study?

In this study, we will collect sensitive information about your experiences. This information is necessary to conduct the research. We will keep this information confidential. Be assured that your identity and all responses will be protected. No personal or identifiable information will be made public to anyone. As soon as the transcription has been completed, the recordings will be destroyed permanently.

Will being in this study help me in any way?

The researcher cannot promise any individual benefits to you or others for your participation in this research. However, benefits for the Rapid Response Team could be the creation of a new protocol, which could bring the team closer to the outcomes they seek, and to improve patient care, and decrease mortality.

How will the information identifying me be kept confidential?

The transcripts will be uploaded into NVivo version 12. Codes will be identified and organized into themes to determine the participants' perceptions of the performance of the RRT. All identifiers are removed from your information.

Signature Block for Capable Adult: Long Form

Your signature below documents your permission to take part in this project. You will receive a signed copy of this complete form via email.

Signature of participant	Date
Printed name of participant	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	

APPENDIX C

DEMOGRAPHIC SURVEY

1) Gender

   Male

   Female

   Other

2) Age group

   20-30

   31-40

   41-50

   51-65

   65+

3) Years of experience

   0 -1

   2 - 4

   5 - 7

   8 - 10

   11 +

4) Experience with the RRT

   1 – 3 months

4 – 6 months

7 – 9 months

10 – 12 months

> 12 months

5) What is your role

Primary RN

ICU RN

RT

Physician

House supervisor

Code coordinator

Other

6) Unit Assigned

Ortho/ Neuro

Post-surgical

Cardiac/Progressive Care

Medical Oncology

Labor & Delivery

Other

If other, please specify

7) Total patients assigned to you during your RRT experience

1 – 4

5 – 8

9 – 12

13 and greater

Not applicable

8) Have you ever activated/respond to an RRT?

Yes

No

9) Shift worked

Day shift

Night

Day/ Night Rotation

APPENDIX D

PROJECT TIMELINE

Date	Event
March 31	• Defense of project proposal
May 20, 2022	• Receive IRB approval from the project site
July 7, 2022	• Receive IRB approval from Andrews University
August 1, 2022 – November 10, 2022	• Recruit project participants
August 1, 2022 – November 10, 2022	• Email consent forms to project • Email demographic forms to project participants • Finalize project participants
August 1, 2022 – November 10, 2022	• Arrange and conduct semi-structured interviews with project participants
August 30, 2022 – November 30, 2022	• Transcribed participants' data via NVivo • Begin data analysis and evaluation
December 1, 2022 – December 19, 2022	• Complete data analysis

	• Document findings
December 19, 2022	• Present the first draft of the project to the project chair
January 26, 2023	• Project findings presentation to project site stakeholders
January 31, 2023	• Defend project

APPENDIX E

IRB APPROVAL

Andrews University
Office of Research & Creative Scholarship

July 7, 2022

Pansy Samuel
Tel. 646-775-7792
Email: pansys@andrews.edu

RE: APPLICATION FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS
IRB Protocol #:22-096 **Application Type:** Original **Dept.:** Nursing
Review Category: Exempt **Action Taken:** Approved **Advisor:** Carol Rossman
Title: Evaluating rapid response team performance to implement best practice in rapid response team protocol.

Your IRB application for approval of research involving human subjects entitled: *"Evaluating rapid response team performance to implement best practice in rapid response team protocol"* IRB protocol # 22-096 has been evaluated and determined Exempt from IRB review under regulation CFR 46.104 (2)(i): Research that include survey procedures and in which information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subject. You may now proceed with your research.

Please note that any future changes made to the study design and/or informed consent form require prior approval from the IRB before such changes can be implemented. Incase you need to make changes please use the attached report form.

While there appears to be no more than minimum risks with your study, should an incidence occur that results in a research-related adverse reaction and or physical injury, this must be reported immediately in writing to the IRB. Any research-related physical injury must also be reported immediately to the University Physician, Dr. Katherine, by calling (269) 473-2222.

We ask that you reference the protocol number in any future correspondence regarding this study for easy retrieval of information.

Best wishes in your research.

Sincerely,

Mordekai Ongo, PhD.
Research Integrity and Compliance Officer

Institutional Review Board – 8488 E Campus Circle Dr Room 234 - Berrien Springs, MI 49104-0355
Tel: (269) 471-6361 E-mail: irb@andrews.edu

APPENDIX F

RECOMMENDATION FOR MODIFICATION TO RRT POLICY

Subject: Modification of current RRT protocol to meet evidence-based guidelines

Submitted by: Pansy Samuel BSN, CCRN-CSC

Purpose:

To improve the performance of the RRT

Scope

Corewell Health South

1. **Policy**

It's Corewell Health South's policy to provide evidence based RRT care by improving team dynamics during RRT encounters.

2. **Procedure**

Adequate Education and Training

- Monthly RRT team simulation training exercise for RRT responders
- ACLs training for all RNs every 2 years.
- Yearly skills validation for RRT Responders.

Effective Team Dynamics

- Lead physician role must be preassigned before shift change.
- Lead physician must disclose his/her charge role on arrival at the bedside
- Lead physician assigns other roles, and delegates roles/role badges.

- Role badges should be worn during all RRT encounters
- Each unit pre assigns responders during huddles, including a gatekeeper.
- A maximum of 6 to 8 people is allowed in patient room
- Patient's primary RN to give report on patient condition to lead physician.

Debriefing

- Debriefing to follow all RRT encounters
- Debriefings to be led by team leader
- Debriefing forms to be completed immediately after encounters.
- Debriefing forms to be submitted to RRT coordinator within 24 hours

RRT Evaluation

- Quarterly evaluation of RRT performance quality
- Monthly RRT meetings with RRT members

APPENDIX G

EVALUATION OF STAKEHOLDER'S PERCEPTION OF PROJECT RESULTS

Please respond to the questions below as it relates to the presentation of the project findings on the Rapid Response Team Performance to Implement Best Practice in Rapid response Team Protocol

1. How would you rate the relevance of this study to the improvement of the RRT at your facility?

   (A) Not relevant (B) Minimally relevant (C) Neutral (D) Relevant (5) Very relevant

2. How beneficial are the recommendations to the improvement of the RRT at your facility?

   (A) Not beneficial (B) Somewhat beneficial (C) Neutral (D) Beneficial (E) Very beneficial

3. How likely are you to consider implementing the recommended RRT policy modifications?

   (A) Not willing (B) Somewhat willing (C) Neutral (D) Willing (E) Very willing

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