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Investigation of the Effects of a Rapid Response Team on Nurse Satisfaction, Collaboration, and Communication

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Investigation of the Effects of a Rapid Response Team
On Nurse Satisfaction, Collaboration, and Communication

By Jacob William Ainsworth
October 2006

INVESTIGATION OF THE EFFECTS OF A RAPID RESPONSE TEAM
ON NURSE SATISFACTION, COLLABORATION, AND COMMUNICATION

By

Jacob William Ainsworth

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ABSTRACT

INVESTIGATION OF THE EFFECTS OF A RAPID RESPONSE TEAM ON NURSE SATISFACTION, COLLABORATION, AND COMMUNICATION

By

Jacob William Ainsworth

The positive effects of Rapid Response Teams (RRTs) on clinical outcomes are well known; however little is known about the effects of the RRT on the registered nurses (RNs) who utilize it. The purpose of this study was to a) examine the overall perceptions of nurses on satisfaction, collaboration, and communication and b) explore the differences in perceptions of satisfaction, collaboration, and communication between RNs who have utilized the RRT versus those who have not using a descriptive design. Data were collected by questionnaires from a sample of 340 RNs who worked at a midwestern institution. The results indicated a significant difference in perceived satisfaction. Although the majority of RNs in the study reported high levels of satisfaction, nurses who did not use the RRT were significantly more satisfied than nurses who frequently used the RRT. These findings suggest that other variables may contribute to overall work satisfaction.

DEDICATION

To my mom, thank you for all of your love and support. Thank you for always being there to encourage me when I need it and to push me to always do more.

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CHAPTER 1

INTRODUCTION

Problem

“Some is not a number. Soon is not a time.” This is the slogan of the Institute for Healthcare Improvement’s (IHI) 100,000 Lives Campaign, which began in January of 2005. This campaign is designed to learn from the “unintended harm and unnecessary deaths” that have come about due to our flawed healthcare system (Anonymous, 2005). According to a report by the Institute of Medicine, as many as 98,000 people die each year in United States hospitals due to medical injuries (Kohn, Corrigan, & Donaldson, 1999). In an effort to address the significant morbidity and mortality associated with avoidable errors, the IHI campaign developed six initiatives, which, when implemented by hospitals, are designed to save 100,000 lives by June of 2006. One of the initiatives includes the development and implementation of Rapid Response Teams (RRT). Since the development of the 100,000 Lives Campaign, 2,500 United States hospitals have joined the program, and 60% of these have chosen to implement a RRT (Larson, 2005).

Rapid Response Teams

The concept of the RRT is based on a model that has been in use for many years. Dr. Kenneth Hillman, a professor of Intensive Care in Sydney, Australia, first started the team. He began this procedure of an emergency response team in England. Impressed with the impact of the RRT, Hillman took this concept back to Australia for further development. He began reporting on the outcomes of the RRT in the mid-1990s. As

physicians and organizations in the United States became aware of these outcomes, the RRTs began to emerge in America. One such team was started by Dr. Michael DeVita, acknowledged recently as the leading expert on RRTs, at University of Pittsburgh Medical Center Presbyterian.

There are many factors that have prompted the need to implement RRTs with a variety of structures. The failure in planning, communicating, and recognizing deteriorating patient conditions has led to failure to rescue (Simmonds, 2005). Healthcare has responded to this by implementing the RRT to bring critical care expertise to the patient to work in synergy with the floor nurse's evaluation of the patient. The RRT typically consists of an intensive care unit (ICU) qualified Registered Nurse (RN), a Registered Respiratory Therapist (RT), and an ICU Physician or Intensivist. Although the RRT's structure has varied from hospital to hospital depending on the size of the institution, the concept remains the same – at least two experienced critical care clinicians to rapidly assess the patient and implement interventions to prevent further deterioration (Larson, 2005).

The process for the RRT is common among institutions. The RRT receives a call from the bedside nurse in a variety of patient situations. Because the concept is to intervene before the patient goes into cardiopulmonary arrest, the bedside nurse monitors the patient for any change in his or her condition that might be a warning sign of impending deterioration. This can include hypotension, tachycardia, changes in mental status, and low oxygen saturation. Also, the nurse is encouraged to call just simply based on “gut instinct,” the feeling that something just is not right.

Because this is a team that can be rapidly deployed to a patient's bedside at the first sign of patient compromise, early intervention can be provided to prevent further

deterioration. Studies have shown that patients present with signs and symptoms of deterioration, such as respiratory complications, as long as six to eight hours prior to cardiopulmonary arrest (Schein, Hazday, & Pena, 1990). The RRT can intervene in a “pre-code” circumstance and ideally prevent further patient deterioration, cardiopulmonary arrest or unplanned admission to the ICU.

Registered Nurse Satisfaction

Nurse satisfaction is a dynamic process that is affected by many factors. RNs who are satisfied with their role provide better patient care and their patients have better outcomes (Sengin, 2003). In addition, RN satisfaction has been linked to retention, stress, burnout, quality of care, and patient satisfaction (Sengin, 2003). While all nurses bring a variety of needs, values, and perceptions to their job that can also influence job satisfaction, Sengin (2003) advocated for the identification and understanding of work-related variables that can influence nurse satisfaction. Aiken (1995) states that while most nurses love their work, many hate their jobs. Nurses experience four times greater than average job dissatisfaction than most average American workers. In fact, one in five bedside RNs report that they intend to leave their current job within a year (Aiken, Clarke, & Sloane, 2001). Many nurses have already left bedside nursing because of poor work conditions, which include unreasonable patient loads and mandated overtime (Aiken et al., 2002). In order for the RN work force to be retained and new RNs to be recruited, job satisfaction must be increased (Fletcher, 2001).

In the face of a growing nursing shortage, many hospitals are considering factors that affect job satisfaction. In establishing a culture that will not only drive the quality of the RN’s work lives, the institution will also affect the quality of patient care. Certain values have been found consistently in institutions that have low turnover rates and high

RN satisfaction. These include autonomy, clinical competence, support for education, nurse-manager support, positive nurse-physician relationships, cultural values, adequate staffing, and control over nursing practice (Kramer, Schmalenberg, & Maguire, 2004). Strategies to incorporate these values into the culture of the institution have lead organizations to pursue Magnet Status Recognition. This is a credentialing process awarded to healthcare institutions that demonstrate high employee and patient satisfaction, autonomy in clinical decision making, and positive patient outcomes (Gasda, 2003). The presence of interdisciplinary collaboration and effective communication (Aiken et al., 2002), especially with physicians, has been identified as integral to nurse satisfaction and quality patient care (Coeling & Cukr, 2000). Through effective communication and collaboration, the team can ensure that proper goals are set with the patient and that the patient is achieving the goals. By achieving these goals, a hospital can expect to have improved positive patient outcomes. Also, hospitals that have nurses who experience a collaborative relationship with physicians have lower nurse turnover and higher job satisfaction (Aiken, Sloane, & Sochalski, 1998).

The risk of errors is increased when there is not effective communication. In fact, communication failure is the root cause of 65% of the sentinel events that were reported to the Joint Commission Accreditation of Healthcare Organization (JCAHO) in 2004 (JCAHO, 2005). However, effective communication can lead to better interdisciplinary teamwork.

It has been thought that nurses and physicians are trained to communicate differently. In fact, nurses regard their skill in communication and emotional care as one of their core competencies (Krogstad, Hofoss, & Hjortdahl, 2004). Nurses are the first-line observers of patient conditions and have transformed their “subservient status in the

late 1960s by influencing decision-making by observations, experience, and information, but in a way not to challenge doctors' positions" (Krogstad et al., 2004, p. 491). This being said, it is important for nurses and physicians to identify their differences in communication styles. By doing this, they can work together to form more effective communication patterns. This may decrease frustrations, misinterpretations, and incorrect assumptions, thereby leading to increased satisfaction. Also, this can help to end the errors that occur due to miscommunication and the feelings of frustrations that RNs and physicians may feel.

Purpose of the Study

While there have been many factors studied that influence nurse satisfaction, including work hours and nurse-patient ratios, the effect that the RRT has on satisfaction is unclear. The RRT has the potential to impact the nurse's work environment positively, which has been linked to satisfaction. More specifically, the RRT could improve collaboration of care team members. Also, nurses experience satisfaction when they see positive outcomes with their patients, especially those who are in critical condition.

The purpose of this study was to a) examine the overall perceptions of nurses on satisfaction, collaboration, and communication and b) explore the differences in perceptions of satisfaction, collaboration, and communication between RNs who have utilized the RRT versus those who have not.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Literature Review

Introduction and Review Format

Current literature provides little direct information regarding the effects of the RRT on nurse satisfaction, collaboration, and communication. However, there have been several related studies that can be considered to support the relevance of and need for this study. Studies have been completed that address the role of the RRT on patient outcomes. Research has also been conducted on the impact of teamwork and collaboration on nurse satisfaction.

The literature review is presented in two sections followed by a summary. Literature focusing on the effect of the RRT on patient outcomes is presented first. These studies focus on outcome variables including frequency of unexpected cardiopulmonary arrest, mortality of cardiopulmonary arrest, unplanned admissions to the ICU, and overall hospital mortality rate. Next, studies that examine the impact of the nurse's work environment on satisfaction, collaboration, and communication will be presented.

Rapid Response Team

Since its conceptualization and implementation, there have been many published reports that show the efficacy of the use of the RRT. Because this team intervenes in pre-code situations, many measures have been used to evaluate its effectiveness. Examples of these include unplanned admissions to the ICU, the number of cardiopulmonary arrests

outside of the ICU, the number of patient deaths per discharges, and overall hospital mortality per admission. Simmonds (2005) states that the RRT can reduce the number of unplanned ICU admissions by 25%, decrease the number of cardiopulmonary arrests outside of the ICU by 50%, and decrease overall hospital mortality by as much as 26%.

One such study was performed by DeVita et al. (2004) to evaluate the incidence and outcomes of cardiopulmonary arrests since the implementation of their RRT, which consisted of eight members, including a physician, nurses, and respiratory therapists. The incidences of cardiopulmonary arrests and emergencies with fatal outcomes were compared both before and after the implementation of the RRT. They performed a retrospective analysis of 3269 RRT responses and 1220 cardiopulmonary arrests over 6.8 years. Using a χ^2 test for binomial proportion, it was found that there was a 17% decrease in cardiopulmonary arrests, from 6.5 to 5.4 per 1000 admissions ($p=0.016$). However, the number of fatal arrests did not change; 33% of patients died on a given calendar day. Lastly, prior to the implementation, only 55.2% of patients survived cardiopulmonary arrest. This essentially remained unchanged post-implementation, with only 58.9% of patients surviving a cardiopulmonary arrest.

Foraida, DeVita, Braithwaite, Stuart, Brooks, and Simmonds (2003) conducted another study to evaluate the effectiveness of their RRT. Prior to the implementation of the RRT, paging STAT was the traditional way to notify a physician of a patient's deterioration. This study focused on the number of STAT pages to physicians and the number of fatal cardiopulmonary arrests over a three-year period. There was a reduction in STAT pages by 5.7 percent and a reduction in fatal cardiopulmonary arrests from 4.3 to 2.2 per 1000 admissions (Foraida et al.). Also, it was found that STAT paging could

have a response time of up to four minutes, while a call to the RRT had an average response time of 90 seconds (Foraida et al.).

Buist et al. (2002) studied the effects of their RRT on the incidence of and mortality from unexpected cardiopulmonary arrests. Prior to implementation, the hospital used a traditional method of notifying a physician of a patient's deterioration. This included paging the intern on call and moving up the medical chain of command. In 1997 the RRT was implemented, using established criteria to notify the RRT of a patient's condition. They compared a one-year pre-implementation timeframe with a one-year post-implementation. Prior to implementation of the RRT, there were 73 unexpected cardiopulmonary arrests called, compared to 47 after the RRT was implemented ($p < 0.001$). In addition, in the pre-implementation timeframe, 56 of the 73 (77%) patients died, while the proportion of deaths decreased to 26 of the 47 (55%) after the RRT was implemented ($p < 0.001$) (Buist et al.).

Conversely, there have been studies that have shown no changes in indicators after the implementation of the RRT. Hillman et al. (2005) studied the effects of the implementation of their RRT on the occurrence of cardiopulmonary arrests, admissions to the ICU, and deaths. The study examined 23 Australian hospitals, 11 of which did not utilize an RRT and 12 of which did. This comparative study found that the introduction of the RRT had no effect on cardiopulmonary arrests (1.64 versus 1.31, $p = 0.736$), unplanned ICU admissions (4.68 versus 4.19, $p = 0.599$), and unexpected deaths (1.18 versus 1.06, $p = 0.752$). While the authors of this study consider it to be one of the "largest and most robust randomized controlled trials to evaluate the effects of a dedicated [RRT]" ($p = 0.599$), they did offer possibilities as to the outcomes of the study. First, they thought that although the study included 23 hospitals, the study might have been

underpowered. Next, they were concerned that the calling criteria for the RRT might not have been sensitive enough to capture all of the patients who could have benefited from the RRT. And lastly, the authors were concerned that they might have focused on the wrong outcomes variables, suggesting further research into patient satisfaction, end of life care, and staff satisfaction (Hillman et al., 2005).

Registered Nurse Satisfaction

There has been an extensive amount of literature published on nurse satisfaction and influential factors. This includes factors from length of shift to nurse-patient ratios, as well as mandated overtime to flexibility in scheduling. Also included in these studies are the nurses' work environment and the impact this has on nurse satisfaction. According to a literature review by Sengin (2003), the work environment is comprised of concepts such as professional autonomy, professional practice, communication, and collaboration. These factors have been shown to influence satisfaction the greatest.

Studies by Firth-Cozens (1998) found that improved teamwork can impact quality of care, staff motivation, and patient outcomes. Rafferty, Ball, and Aiken (2001) relate that whenever a mistake occurs in healthcare, a breakdown in communication is often the reason. Further, tensions between physicians and nurses have evolved into barriers to collaboration. Rafferty et al. performed a study utilizing a survey that was developed from elements of the Nursing Workload Index, the Maslach Burnout Inventory, job characteristics, staffing ratios, and demographic information of the respondents. The survey was distributed to 10,022 nurses in England to examine the effects of teamwork and autonomy on patient and nurse outcomes. They found that nurses with “higher levels of teamwork were...significantly more likely to be satisfied with their jobs and planned to stay in them, and were likely to have lower burnout scores ($p < 0.001$)” (p. 36).

A study by Erasmus (1998) also focused on the effects of the workplace on nurses' job satisfaction. The study utilized a questionnaire developed for this survey which used a 5-point Likert scale. It was sent to 1,200 nurses, 211 of which responded. In the section of job satisfaction, "respondents were requested to indicate to what extent various statements contributed to their job satisfaction" (p. 52). The one item that contributed the most to job satisfaction was "I like working as part of a team" (92%).

Krogstad et al. (2004) wanted to explore the perceptions of inter-professional collaboration. They performed a study of 15 Norwegian hospitals in which doctors and nurses evaluated collaboration using standard questions and scales from previous job satisfaction questionnaires. It was found that doctors were more satisfied than nurses with the rated perception of collaboration ($p < 0.0001$). Interestingly, they also found that there is a significant perception by the physicians and nurses of inter-professional communication between the physician and nurse regarding the patient's plan of care ($p < 0.001$).

Another study by Rosenstein (2002) surveyed 1,200 nurses, physicians, and executives in 84 hospitals to examine the impact that nurse-physician relationships have on nurses' satisfaction, morale, and retention. The survey instrument was constructed for this study since the review of literature did not yield an acceptable tool. The study found that overall nurse-physician relationships averaged 6.89, in which 10 represented the most positive on a Likert Scale ($SD = 1.79$). However, physicians did tend to rate this slightly higher than the nurses. Next, the study looked at physicians valuing of nurse input and collaboration. This variable had a mean score of 6.15, in which 10 represented the highest value and respect ($SD = 2.22$). Again, nurses and executives rated this area lower.

Baggs and Ryan (1990) explored the relationship of nurse-physician collaboration and its effects on job satisfaction in a small convenience sample of ICU nurses. Using the Collaboration and Satisfaction About Care Decisions Questionnaire, they found a positive correlation between nurse job satisfaction and satisfaction with collaborative decision-making. The mean score for collaboration was 34.4, slightly higher than mid-point of 31.4 (Baggs & Ryan).

Lastly, a study by Coeling and Cukr (2002) suggests that the communication style of the RN and physician can have a huge impact on nurse satisfaction. Using Norton's Theory of Communicator Styles, the authors found that the attentive style of communication had a higher level of satisfaction ($p < .000$) than the other two styles, dominant and contentious.

Summary

Although current research does not directly investigate the effect that an RRT can have on nurse satisfaction, there have been many studies that have looked at the positive effects of the RRT. The effects are best captured in the clinical outcomes of patients, which are often the easiest to measure. There have also been multiple studies that have examined the many dynamic factors that influence satisfaction. These factors have ranged from salary to work environment, and from nurse to patient ratios to length of shift. Further, nurse satisfaction has been shown to be dependent on teamwork, communication, and collaboration. Anecdotal evidence suggests that although there are not any numbers to express it, there has been an increase in mutual respect and cooperation among the members of the healthcare team when there is an RRT in place (Walker, 2005). However, there has not been any study in the literature that has examined the direct impact of the RRT on nurse satisfaction.

Donabedian Theory

In 1966, Donabedian introduced a method for the evaluation of the quality of healthcare. Donabedian (1988) believes that “practitioners are ...obligated to provide the most effective care most efficiently” (p. 90). In order to do so, there must be a way to evaluate the quality of that care. First, quality must be defined. Then there should be a structured method to assess the quality, typically in the form of outcomes. This leads to Donabedian’s three approaches to assessing quality: structure, process, and outcome (Donabedian, 1987).

Defining Quality

While there have been many studies that have attempted to conceptualize and operationalize quality of healthcare, this phenomenon has been a difficult term to define. However, Donabedian (1987) has suggested that it can be defined as the technical performance of the professional practitioner to social standards of practice. However, he extends the definition to also include the interpersonal management of the relationships between the patient and professional (Donabedian). Privacy, confidentiality, concern and empathy are included in the achievement of successful relationships.

Donabedian was also concerned with what to assess when evaluating quality of healthcare. Most studies have focused on outcomes of medical care as indicators for quality of healthcare. There are strengths to using these, such as concrete outcomes and unquestionable validity (Donabedian, 2005). However, there are drawbacks from using these types of indicators. Outcomes, such as patient satisfaction, patient understanding, and interpersonal relationships are more difficult to define in concrete terms. These are often overlooked and the validity is often questioned (Donabedian). Finally, outcomes that look only at success versus failure may not capture the true quality of care.

Donabedian gives the example of the prolongation of life and whether this is an indicator of good medical care under certain circumstances.

How to assess, or the data collection to measure quality, was also explored by Donabedian. The most common method has been through review of the medical record. This is done either by sampling or in a retrospective analysis, such as with an interdisciplinary sentinel event review. Although this is an easier method to utilize, Donabedian (2005) warns of the limitations of this method. First, the medical record can be “sketchy” (p.695). One must be concerned with the completeness of the medical record and take the information at face value. Donabedian states that he “has questioned not only the statements of the physician about the patient and his management, but also the validity of reports of diagnostic services” (p. 696). Therefore, Donabedian feels that an indirect method of obtaining information, such as observation, as well as the medical record review is a better method to evaluate the quality of health care.

Approach to Assessment

Donabedian (1988) has suggested a three-part approach to evaluating the quality of healthcare. First, Donabedian (1998) states that structure “denotes attributes of the setting in which care occurs” (p. 1745). This involves not only the facility but also the availability of equipment and qualified human resources. Also, structure involves the organizational structure, such as medical staff, management organization, and peer review. Secondly, process is “what is actually done in giving and delivering care” (p.1745). It includes the patient’s activities in seeking care and the methods of delivering care. It also includes the professional’s activities in diagnosing and implementing treatment. Lastly, outcome is “the effects of care on the health status of patients and

populations” (p.1745). This includes improvements in the patient’s knowledge of health and changes in patient behaviors.

These categories, structure, process, and outcome, are presented as well as the importance of a good working knowledge of the relationships of the categories (Donabedian, 1988). Donabedian states “this three-part approach to quality assessment is possible only because good structure increases the likelihood of good process, and good process increases the likelihood of a good outcome” (p. 1745). These items cannot be assessed alone; rather there must be a preexisting knowledge of the effects of one category on the other. In fact, Donabedian (1988) goes on to say that it is best to include in any health care assessment all three categories. This allows for the support of the weaknesses of some by the strengths of others.

In keeping with Donabedian, assessment of the impact of the RRT on nurse satisfaction, collaboration, and communication should also focus on three areas: structure, process, and outcomes. First, the structure of the RRT is the clinical decision making capacity of the bedside RN. This is based on the RN’s years of experience and clinical expertise. Next, the process is the means by which the RRT is initiated and the interaction between the bedside RN and the RRT. This initiation process is prompted by recognition of a change in the patient’s condition or predefined parameters such as marked hypotension, bradycardia, or change in mental status and clinical decisions made by the bedside RN to address the change. The RRT can be notified by the bedside RN via a formal process of a code being called on the overhead speaker system, or via an informal process of simply calling the RN who is carrying a portable phone that is designated for the RRT. Lastly, the effects or outcomes are represented by the effect on nurse satisfaction and the perception of collaboration and communication between the

RRT and bedside RN. Understanding the relationships of these three categories may assess the quality of the RRT.

Donabedian (1998) states that to understand one area of assessment, the relationships of all areas should be explored. This includes the relationship of the structure and process to outcome. Also, according to Donabedian (1987) the relationship of process, including that of interpersonal processes to outcomes, should also be examined. The proposed relationships of the variables of interest are presented in Figure 1.

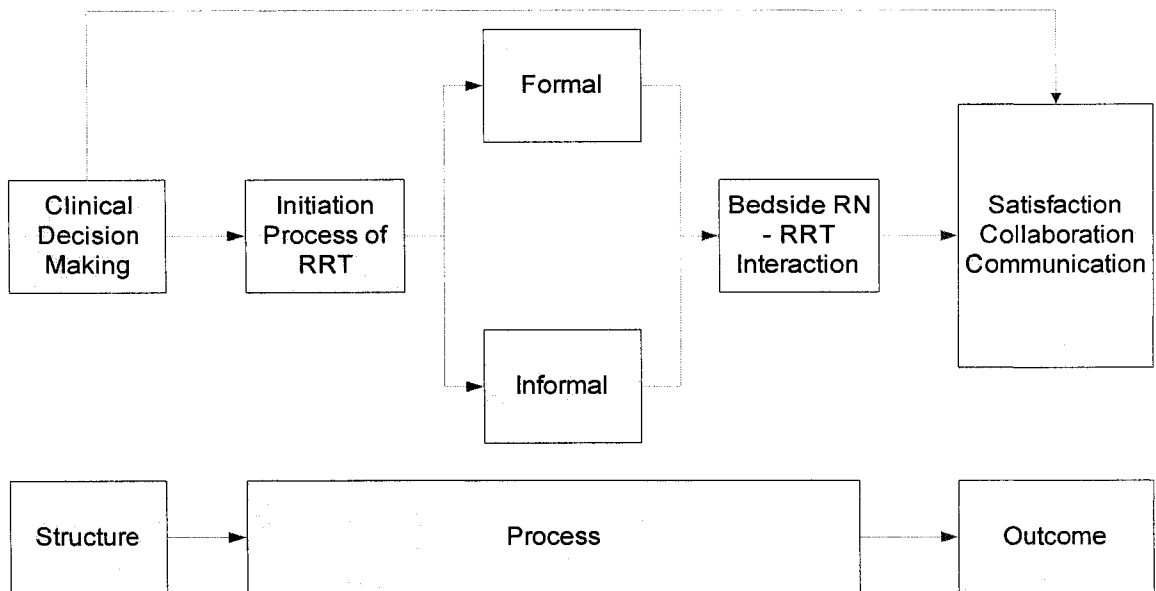


Figure 1 Conceptual Model for Study

Hypotheses and Research Questions

Given the theoretical framework previously provided, the following research questions were developed. What are the perceptions of nurse satisfaction, collaboration, and communication among hospital staff nurses? What are the differences in perceptions

of nurse satisfaction, collaboration, and communication between nurses who use the RRT and those who do not? What is the prevalence of use of the RRT? Hypotheses developed for this study are as follows: 1) There is a significant difference in perceptions of satisfaction among nurses who use the RRT than those nurses who do not use the RRT; 2) There is a significant difference in the perceptions of collaboration and communication among nurses who use the RRT than those nurses who do not use the RRT.

Definition of Terms

The dependent variables for this study are satisfaction, collaboration, and communication. Satisfaction is often comprised of thoughts toward the job itself and the context in which the job is performed. It is defined as “an overall measure of the degree to which the employee is satisfied and happy with the job” (Hackman & Oldham, 1975, p. 162). Job satisfaction was operationalized by data from the Nursing Job Satisfaction Scale (Hinshaw & Atwood, 1985). Nurse-physician collaboration is defined as “open discussion between nurses and physicians and shared responsibility for problem solving and decision-making” (Baggs & Ryan, 1990). Nurse-physician collaboration was operationalized with the Collaboration and Satisfaction About Care Decisions Questionnaire (CSACD). Communication is defined by Peplau (1991) as “spoken language, rational nonrational expressions of wishes, needs, and desires, and body language” (p. 289). Communication was operationalized with Question five on the Use of the Rapid Response Team questionnaire, as well as Question two on the CSACD. Also, for this study, the independent variable of the RRT is defined as an RN and RT with the availability of a Critical Care Physician who responds to a “Priority One Alert” based on predefined patient parameters.

CHAPTER 3

METHODS

Design

This research was conducted using a nonexperimental cross-sectional comparison design to examine nurse satisfaction, collaboration, and communication among registered nurses. In addition, this study compared two groups, those RNs who have used the RRT and those RNs who have not. Since the introduction of the independent variable, the RRT, had already occurred, an ex post facto design was used. This design helped to “understand the relationship among the phenomena as they naturally occur” (Polit & Beck, 2004, p. 188). Although this design cannot determine cause-and-effect relationships, it can explore important relationships between variables.

Sample

The setting for this study was a midwestern mid-size urban community hospital with an existing RRT that was implemented in February of 2005. The RRT averages about 200 calls per month. A convenience sample was obtained for this study and included all RNs who worked for this facility, excluding those who work in Adult Critical Care, Emergency, Surgery, Ambulatory, or Outpatient Services. The sample only included those RNs who were involved in direct patient care (N=340). A modified Dillman approach was used to maximize the sample size (Salant & Dillman, 1994). The desired sample size was 68 RNs, which reflects a potential response rate of 20%. Of the

340 RNs invited to participate in the study, 146 RNs responded, resulting in a final response rate of 42.9%.

There was no exclusion based on employment status, length of time as an employee, length of time as an RN, nor length of shift. Because of the need to control for various roles and levels of education, Licensed Practical Nurses and Advanced Practice Nurses working in Clinical Nurse Specialist (CNS) and Nurse Practitioner (NP) roles were excluded from the study.

Sample Characteristics

The RNs in this study varied in age from 23 years old to 66 years old, with the mean age of 40.04 (SD=11.44). The respondents were predominately female (93.8%), with only nine male RNs participating in the study. Of the 146 respondents, 78 held a bachelor of science in nursing degree (53.4%), 48 held an associate degree (32.9%), and 17 held a diploma degree (11.6%). Although the remaining three respondents held masters degrees (2.1%), none were practicing in a CNS or NP role. The mean length of time as a RN was 14.45 years (SD=11.41). There were only 25% of the respondents with less than four years experience. Also, 75% of the nurses perceived their level of expertise as a RN at 85 or greater on a 100 millimeter visual analogue scale (M =71; SD =22.47). Only 18.6% rated this at 50 or less. The majority of the nurses practiced on obstetrics/gynecological, intermediate care, or medical-surgical units (Table 1).

Table 1

Practice Areas

Nursing Unit	Frequency	Percent
Obstetrics/Gynecological	35	23.97%
Intermediate	33	22.60%
Medical/Surgical	32	21.92%
Float	19	13.01%
Endoscopy	9	6.16%
Medical Psychiatric	6	4.11%
Newborn Intensive Care (Level II)	5	3.42%
Dialysis	4	2.74%
Pediatrics	3	2.05%

Instruments

There were four instruments used in the study: a demographic questionnaire, a use of the RRT questionnaire, the Collaboration and Satisfaction About Care Decisions Questionnaire (CSACD), and the Nurse Job Satisfaction Scale (NJSS). The CSACD and NJSS are published instruments and available for use in the public domain.

Preceding the instruments was a cover letter (Appendix A) that described the study to the RNs. It also served as the method for informed consent. Following the cover letter was the demographic questionnaire (Appendix B) that was developed for this study. This instrument focused on information about the RN. It included personal and work-

related questions such as characteristic variables of age, nursing degree obtained, length of time in nursing, and length of time in current position.

The use of the RRT questionnaire (Appendix C) investigated how the RN had utilized the RRT, if at all. Created for use with the study, it assessed how the RRT was notified of the change in the patient's condition. Also, three visual analogue scales (VAS) were used to look at overall perceptions of satisfaction, collaboration, and communication with the RRT. The VAS, 100 mm in length, derives of a score of 0 to 100 through measurement of the participant's mark on the line (Polit & Beck, 2004). The three VAS were used to further operationalize the concepts of the perceptions of satisfaction, collaboration, and communication.

The CSACD (Baggs, 1994) was used to operationalize the variable of nurse-physician collaboration (Appendix D). The CSACD was designed to measure perceptions of nurse and physician collaboration and satisfaction with the process of how patient care decisions are made. However, for this study, the term of physician on the original tool was replaced with RRT. This was done to assist in capturing the collaboration between the RRT and the bedside RN.

The CSACD is comprised of eight items scored on a 7-point Likert scale. Six of the items measure critical elements of collaboration: planning together, open communication, shared responsibility, cooperation, coordination, and consideration of both nursing and medical concerns (Baggs, 1994). The scale for these items range from 1 (*strongly disagree*) to 7 (*strongly agree*). The seventh item serves as an overall measure of collaboration where the participants were asked to rate how much collaboration takes place between nurses and the RRT. Responses on this item ranged from 1 (*no collaboration*) to 7 (*complete collaboration*). The last item on the instrument addresses

satisfaction with the decision-making process. Responses on this item ranged from 1 (*not satisfied*) to 7 (*very satisfied*). A mean score of all items can be computed. Total possible scores for the CASCD range from 8 to 56, with the higher scores indicative of more positive perceptions by the bedside nurse on collaboration with the RRT. Baggs reports a Cronbach's alpha of 0.96. For this study, the Cronbach's alpha was 0.99.

The next instrument in the study was the Nurse Job Satisfaction Scale (NJSS). This scale, found in Appendix E, is a multidimensional measure of job satisfaction. Based on earlier work by Brayfield and Rothe (1951), Hinshaw and Atwood (1985) adapted the scale to measure the professional and occupational aspects of one's job. It is comprised of 23 items asking participants to rank their level of agreement or disagreement on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Several items on the scale (questions 2, 5, 6, 8, 9, 10, 12, 16, 19, and 20) were negatively worded therefore reverse scoring was required. Hinshaw and Atwood (1985) report an alpha coefficient of 0.78 in previous studies. For this study, the alpha coefficient was 0.92.

A summary of the instruments used in this study is presented in Table 2. In addition, the variables of interest and conceptual definitions are delineated.

Table 2

Variable Definitions

Variables	Conceptual	Operational
Satisfaction	“An overall measure of the degree to which the employee is satisfied and happy with the job” (Hackman & Oldham, 1975, p. 162)	NJSS
Communication	“Spoken language, rational nonrational expressions of wishes, needs, and desires, and body language” (Peplau, 1991, p. 289)	Question 5- Use of the Rapid Response Team questionnaire Question 2 - CSACD
Collaboration	“Open discussion between nurses and physicians and shared responsibility for problem solving and decision-making” (Baggs et al., 1992)	CSACD
RRT	Registered nurse and respiratory therapist with a Critical Care Physician available who responds to a “Priority One Alert” based on predefined patient parameters	

Note. NJSS = Nurse Job Satisfaction Scale; CSACD = Collaboration and Satisfaction About Care Decisions

Procedure

After approval from the Grand Valley State University Institutional Review Board (Appendix F), as well as the data collection site, the instruments planned for use in this study were pilot-tested. Participants for this pilot included Advanced Practice Nurses and Nurse Educators at the hospital who were not involved in direct patient care (N=10).

They were asked to complete the questionnaires and provide any feedback on readability,

ease of use, and time to complete (Appendix G). Information obtained from this pilot was used to determine if any modifications of the questionnaires were needed. Based on the responses to the questionnaires, there were no changes made to the tools other than editorial. Also, the results obtained from the pilot were not included in the findings from the primary study.

Once the pilot was completed, the primary study was implemented. The Principal Investigator (PI) had nursing services at the study site obtain address labels of the potential participants from the Human Resources Department. The nursing services' personnel supervised hospital volunteers who affixed preprinted address labels of eligible RNs on the questionnaire packets and mailed the packets to the potential participants' homes. This process kept the PI blind to potential participants. The return address on the packet was that of the thesis committee chair so that any undeliverable mail was returned to the chairperson. This ensured anonymity of the nonparticipants and also allowed an accurate calculation of the response rate for the study. Only one questionnaire packet was returned as nondeliverable.

Questionnaire packets included the cover letter introducing the study to eligible RN participants, the demographic questionnaire, the use of the RRT questionnaire, the CSACD, and the NJSS. Also included was a prepaid self-addressed stamped envelope. The cover letter was used to explain the purpose of the study, length of time to complete the study, benefits to participation, and whom to contact with questions about the study.

The questionnaires took about twenty-five minutes to complete. After completion, participants were instructed to seal the questionnaires in the self-addressed stamped envelope and place in the mailbox for return to the PI. Also included in the packet was

the PI's email address. The participants could email the PI with their name and address if they had any questions about the study or if they wanted to request a copy of the results.

To maximize returns, a modified Dillman procedure was utilized (Salant & Dillman, 1994). A postcard mailing (Appendix H) was sent two weeks from the mailing of the original questionnaire packets to the eligible RN participants. The same procedure for addressing and mailing the questionnaire packets was used for the reminder postcards. Data collection ended four weeks from the date of the original mailing of the questionnaire packets. All data were kept in a secured area for the study period with only the PI having access to the responses.

Human Subjects Considerations

There were minimal threats to the subjects in this study. The subjects were not at risk of job jeopardy for completion or non-completion of the questionnaires. Also, there was no risk to the RRT program as a variable of interest or from the results of the study. There were no punitive repercussions for not completing the data collection instruments, nor were there any incentives for the participants. Participation was voluntary. There were no names on the questionnaires and the results were anonymous. Participants were instructed not to include any identifying information on the questionnaires. The results were only reported as an aggregate. Consent to participate was implied with the completion and return of the questionnaire packet.

Threats to Validity

There were two threats to the internal validity of this design: history and selection. History refers to the "occurrence of external events that take place concurrently with the independent variable that can affect the dependent variables" (Polit & Beck, 2004, p. 213). There is much in the media and literature today about the use of RRTs as well as

nurse satisfaction. This information may have biased the person being surveyed.

Selection, according to Polit and Beck occurs when subjects are not assigned to random groups. For this study, there was not any randomization of the study groups. The sample was a convenience sample and selection of subjects was all RNs who work at an acute care facility, excluding those who work in Adult Critical Care, Emergency, Surgery, Ambulatory, or Outpatient Services. Further, since the completion of the survey was voluntary, only those who returned responses were included in the study. This could possibly have skewed the results.

There were two threats to the external validity of this study. First was the expectancy effect, or behaving in a certain way due to being in the study (Polit & Beck, 2004). The subjects knew that they were being surveyed and may have answered in a way that was expected. Also, the RN may have responded in a way that was reflective of his or her current feelings. For example, the RN may have had a difficult shift and responded to the questionnaire based on that, rather than if he or she had responded following a good shift or a day he or she had not worked. Another threat to external validity is the novelty effect. According to Polit and Beck, when the independent variable is new, subjects may behave in a way due to the enthusiasm or skepticism of the new program. The RRT was still a new concept, both nationwide and at the data collection site. This could have skewed results due to the RNs still having mixed feelings about the RRT program.

CHAPTER 4

RESULTS

While there have been many factors studied that influence nurse satisfaction, including work hours and nurse-patient ratios, the effect that the RRT has on satisfaction is unclear. The RRT has the potential to impact the nurse's work environment positively, which has been linked to satisfaction. More specifically, the RRT could improve communication and collaboration of care team members. Also, nurses experience satisfaction when they see positive outcomes with their patients, especially those who are in critical condition.

The purpose of this study was to examine the overall perceptions of nurses (n=146) on satisfaction, collaboration, and communication, and to explore the effects on the perceptions of satisfaction, collaboration, and communication of those RNs who have utilized the RRT versus those who have not. The Statistical Package for the Social Sciences (SPSS) version 12 was used for data analysis. A significance level of ≤ 0.05 was established for all statistical procedures.

Research Question One

Nurse Satisfaction

The level of the perception of satisfaction by the RNs was examined through the NJSS. The total possible scores ranged from 23 to 115, with higher scores indicating higher perceptions of satisfaction. Overall, 75% of the respondents reported scores of 90 or greater. The mean satisfaction score was 81.31 (SD=13.28).

Examination of the individual questions (Table 3) revealed that disappointment in accepting the job (NJSS-Question 19) was most strongly disagreed with by the respondents. In fact, 95.1% of the respondents either strongly disagreed or disagreed with this question. This was followed by NJSS-Question 12: "I definitely dislike my work" in which 93.8% of the respondents either strongly disagreed or disagreed. In contrast, the question concerning conditions for improvement within the job (NJSS-Question 20) received the highest item mean agreement score (Mean=1.74, SD =.87), with 87% of the respondents either strongly agreed or agreed with this question.

Nurse Collaboration

The RNs' perception of collaboration was examined through the CSACD. The total possible scores ranged from 8 to 56, with higher scores indicating higher perceptions of collaboration. The average score was 46.4 (SD=7.25), with the majority of the respondents (76.1%) scoring 51 or higher on this scale.

Further examination of the individual questions showed that more than one-quarter (26%) respondents were in total agreement with the way decisions were made about patient care. Similarly, 24% of the nurses were in total agreement that in making decisions about patient care, both the nurse and RRT concerns are considered. However, only 20.5% of the nurses perceived that decision-making responsibilities for patient care were shared between themselves and the RRT with this question receiving the lowest item mean (Mean = 5.58; SD =1.23).

Table 3

Rank Order of NJSS Individual Questions by Item Means

NJSS Item	Item Mean
19. I am disappointed that I ever took this job.	4.52
12. I definitely dislike my work.	4.45
2. I consider my job rather unpleasant.	4.28
9. Most of the time I have to force myself to go to work.	4.02
23. I am able to keep my patients comfortable.	4.02
18. I find real enjoyment in my work.	3.98
22. I feel satisfied with the technical care I give.	3.94
11. I am satisfied with my job for the time being.	3.93
15. Most days I am enthusiastic about my work.	3.90
7. I feel fairly well satisfied with my present job.	3.88
14. Most of the time I am satisfied with the patient care I give.	3.81
13. I feel I am happier than most other people.	3.63
1. Most days I have time to provide hygiene measure for my patients.	3.62
17. I like my job better than the average worker does.	3.57
3. Usually I have enough time to do a good job of patient care.	3.51
10. Under the circumstances it is difficult to provide high quality care.	3.36

Table 3 (continued)

Rank Order of NJSS Individual Questions by Item Means and Percent of Disagreement

NJSS Item	Item Mean
8. I am not satisfied with the level of individualized care I am giving now.	3.31
5. Many days I would have to stay overtime to get all my paperwork done.	3.31
16. It is hard for me to give patient care that meets my standards.	3.10
21. I feel that I have time to do both my charting and my patient care.	3.05
6. Many days I feel pressured because I don't have time to do all I want to do.	2.75
4. I enjoy my work more than my leisure time.	2.01
20. There are some conditions concerning my job that could be improved.	1.74

Note. NJSS = Nurse Job Satisfaction Scale

Nurse Communication

Perceptions of satisfaction with nurse communication were scored with the communication VAS on the use of the RRT questionnaire and question two (Open communication between you and the RRT takes place as decisions are made for patients) of the CSACD. The overall response rate on these items of those who had not used the RRT was low since only the nurses who actually used the RRT completed them consistently (n =145),

While the mean score for the communication VAS was 64.8 (SD=39.6), 70% of the respondents scored this item at 93 and above. Question two of the CSACD also scored high with 60.3% of the respondents scoring this item at either a 6 or 7 (strongly agrees).

Variable Summary

Descriptive statistics for the question one variables are summarized in Table 4, including the actual range, mean, and standard deviation. In general, variable means were above the midpoint for both the perceptions of satisfaction, collaboration, and communication.

Table 4

Descriptive Statistics for Satisfaction and Collaboration

Instrument	Actual Range	Mean	Median	SD
NJSS	36 to 106	81.31	84.00	13.28
CSACD	19 to 56	46.40	48.00	7.25

Note. SD = Standard Deviation

Research Question Two

Prevalence and Use of the RRT

Since its implementation at the data collection site, the RRT has been used frequently by the respondents. In fact, only 38 of the respondents (26%) had not used the RRT at all. Of those who had, 9 of respondents (8.4%) used the RRT once in the last month and 2 (1.8%) used it up to five times in the last month. In the last three months, 22 of the respondents (20.57%) used it once and 1 (0.93%) used it up to 20 times. In the last year, the RRT has been utilized by 20 of the respondents (18.7%) once and up to 25 times

by 1 of the respondents (0.93%). The remaining 53 (49.07%) respondents used the RRT between 2 and 5 times.

The RRT can be notified either by an overhead page or by a call to the RRT RN. Of the respondents who used the RRT, 23 (21.3%) had paged the RRT overhead, 78 (72.2%) had called directly to the RRT RN, and 7 (6.5%) initiated the RRT using both methods.

Table 5 shows the descriptive statistics for the VAS for the perceptions of satisfaction, collaboration, and communication with the RRT. Overall, the nurses indicated positive perceptions of satisfaction, collaboration, and communication related to their use of the RRT.

Table 5

Descriptive Statistics for VAS

VAS	Mean	Median	SD
Perception of Satisfaction	92.05	95.00	10.04
Perception of Collaboration	86.37	90.00	12.80
Perception of Communication	68.78	85.00	39.60

Note. SD = Standard Deviation

Research Question Three

Nurse Satisfaction and Use of the RRT

In order to examine differences in nurse satisfaction and use of the RRT, the sample was divided into two groups: those who had used the RRT and those who had not. Group assignment was based on their response to the first question on the use of the RRT

questionnaire. Upon initial examination, 108 respondents had utilized the RRT, while 38 had not. Due to this uneven distribution of the sample, it was decided that those who had used the RRT only once in the last year would also be included in those who had not used the RRT. This group of 14 respondents was derived from those who had answered 0 to the frequency of contacting the RRT in the last month and last three months, but had answered once to the past year on the use of the RRT questionnaire. As a result, the sample was more evenly divided into two groups: 95 nurses who had used to the RRT and 51 nurses who had not used the RRT.

Once the two groups had been established, the mean scores for nurse satisfaction was compared using a *t*-test for independent groups. The results indicated that there was a statistically significant higher perception of nurse satisfaction ($t(135) = -4.00, p \leq .005$) among nurses who did not use the RRT ($M=87.37; SD=12.98$) than those who did ($M=78.25; SD=12.41$). Therefore the hypothesis that there would be a significant difference in the perceptions of satisfaction between the two groups of nurses was supported.

Perceptions of Collaboration and Communication and Use of the RRT

Although the sample size was not large enough to test statistically for group differences among the nurses' perception of collaboration, there was a higher mean collaboration score among those that had used the RRT ($M=47.23, SD=6.66$) than those who had not ($M=43.50, SD=8.56$). Similarly, the variable of communication was not able to be tested due to a low number of completed questionnaires of respondents who had not used the RRT. As a result, the hypothesis that there would be a significant difference in the perceptions of collaboration and communication among nurses who use the RRT than those nurses who do not use that RRT was not statistically tested.

Further Analyses

Due to a significantly higher amount of perceived satisfaction among nurses who did not use the RRT than those who did, further analyses were conducted using selected demographic and work-related variables.

Level of Nurse Education and Satisfaction

In order to compare nurse satisfaction by level of education, the entire sample was divided into two groups: RNs with an associate degree or diploma preparation in nursing and RNs with a baccalaureate or master of science degree in nursing. However, no significant differences in nurse satisfaction by levels of education preparation were found (Table 6).

Table 6

Perceptions of Satisfaction by Level of Education

Education Level	n	Mean	SD
Associate Degree or Diploma	59	81.88	13.15
BSN or MSN	78	80.78	13.44

Note. BSN = Bachelor of Science in Nursing; MSN = Master of Science in Nursing;
SD = Standard Deviation

Practice Area and Nurse Satisfaction

A one-way analysis of variance procedure was performed to determine if there were significant differences in the perceptions of satisfaction by areas of practice. Nurses

who identified practicing on the Pediatric, Endoscopy, Newborn Intensive Care, and Dialysis units were combined to form a specialty units group. This was done to ensure a large enough group size.

Initial analysis indicated that group differences in the perceptions of satisfaction were present between the practice areas ($F(4,504.68)=2.52, p=0.045$). Further analysis was conducted using a post hoc Sheffé to identify specific group differences. Results revealed that the nurses practicing in intermediate care perceived less satisfaction than nurses who practiced in the specialty areas ($p=.004$) and the obstetric/gynecologic units ($p=.001$). Also, nurses practicing on the medical/surgical units had lower perceptions of satisfaction than the nurses on the specialty units ($p=.032$). (Table 7)

Table 7

Mean Satisfaction Scores by Unit

Nursing Unit	n	Mean	SD
Specialty	18	90.39	8.73
Obstetrics/Gynecological	34	86.88	12.62
Medical/Surgical	35	78.71	13.35
Float	18	78.50	9.31
Intermediate	32	74.72	13.41

Note. SD = Standard Deviation

Level of Expertise and Nurse Satisfaction

Finally, the relationship between level of perceived expertise as a RN and nurse satisfaction was explored. However, no correlation between these two variables was noted.

Anecdotal Comments

A review of the data also showed that 17 respondents provided written comments. Comments most frequently appearing included the following:

“The RRT is the best thing ever!”

“The RRT is great!”

“The RRT is the best gift ever given to the RNs.”

Also, there were comments written by the respondents that gave indications as to why they did not use the RRT. Comments included the following:

“Not needed.”

“We use different processes in our unit.”

“The occasion has not arisen in my unit.”

Lastly, there were comments regarding the clinical decision making as well as the collaboration with the RRT. Comments included the following:

“Discussions about (patient care) are primarily made by the RRT which is fine with me.”

“RRT talked with doctors instead of with me.”

“RRT assumed care.”

Review of the comments also revealed that there was no trend of comments among RNs that frequently used the RRT versus those who did not. The only tendency that was seen was it was primarily the newborn intensive care unit and

obstetrical/gynecological units that stated that they did not use the RRT due to different processes.

CHAPTER 5

DISCUSSION

Discussion of the Findings

The purpose of this study was to examine the overall perceptions of nurses on satisfaction, collaboration, and communication, and to explore the effects on the perceptions of satisfaction, collaboration, and communication of those RNs who have utilized the RRT versus those who have not. The study utilized data collected for this study by mailed questionnaires.

Nurse Satisfaction

Overall perceptions of nurse satisfaction were the first area of interest in this study. The data revealed that the overall scores for nurse satisfaction were high, with a mean score of 81.31 out of 115 on the NJSS. Based on this, the RNs at this institution seem to have high perceptions of satisfaction with their job. Examination of the individual questions on the NJSS suggests that the nurses are satisfied with the work that they do. Eight of the top ten questions deal with their work practice, while the other two deal with the actual aspect of patient care. This suggests that the nurses are either satisfied with the work of being a nurse or with the work environment in which they practice.

Further examination of the questions reveal that although they did have high levels of satisfaction, the nurses did feel strongly about leisure time and time away from

the hospital being valuable. Also, they felt strongly that there are working conditions that can be improved.

Investigations of overall satisfaction of the RNs by unit reveal further interesting points. First, RNs who work in specialty units, such as Endoscopy and Hemodialysis, had the highest levels of satisfaction. This may be due to the smaller size of the units or the work environment in general. Although there is a narrower focus of clinical expertise in these units, the differences in the complexity of care may also be an issue. Further, the difference in the workload of the RNs versus those on the other units may be a factor. The teamwork of these small nursing units may also play a role in their increased satisfaction. Lastly, differences in length of shifts and unit operations may also play a role in the differences in satisfaction among the units.

Nurse Satisfaction and the RRT

A difference in nurse satisfaction with the use of the RRT was seen with the statistical analysis of the data obtained from the NJSS. However, the data did not support that the RRT had a positive impact as expected. Although a difference was predicted, the hypothesis did not state a direction. Therefore the results were surprising given the anecdotal evidence from comments written by the nurses which suggested that there would be higher levels of satisfaction among nurses who used the RRT. In the further analysis, it was noted that the levels of satisfaction of the RNs differed between nursing units on which they practiced. The RNs who tended to use the RRT the most practiced on the intermediate units and the medical/surgical units and had lower levels of satisfaction than RNs on other units. It may be that these units have different care delivery processes in place that affect nurse satisfaction other than the RRT.

Further, it is interesting that the level of education did not have any effect on the level of satisfaction, as well as level of expertise, especially since these two conditions have been related to the clinical decision making processes of the RN (Sengin, 2003). Investigations as to the frequency of use of the RRT compared to these two items would be a recommendation for further study.

Relationship of Findings to Conceptual Framework

The model proposed to examine the effect of the RRT on satisfaction, collaboration and communication was framed with the Donabedian theory. Based on this, there is the structure, or the way that the capacity of the RN to make clinical decisions; the process, or the way that the RN notifies the RRT and the interaction of the RRT and bedside RN; and the outcomes of satisfaction, collaboration, and communication. Donabedian states that these three parts do not happen independent of one another, rather, the structure can affect the outcomes just as much as the process can. Therefore, clinical decision making affects the outcomes as equally as the notification and interaction of the RRT and the bedside RN.

The clinical decision making capacity of a nurse allows for the autonomy of the RN. According to Sengin (2003), it can have a major impact on job satisfaction. An environment that fosters this type of practice will have a better influence on job satisfaction. Also, the actual structure of the team has the possibility to impact the outcomes. The models for the team range from an ICU RN to an ICU Nurse Practitioner. The different models allow for differences in levels of education as well as assessment, collaboration, and communication skills. This too could have an effect on the outcomes and was not captured with this model.

The process was another area of focus in this study. The process of how the bedside RN notifies the RRT can have an impact on the outcomes. Also, the process of the interaction of the bedside RN and RRT can impact the outcomes. Although the statistical analysis did show that the use of the RRT would impact satisfaction, this was opposite from what was expected. Due to the majority of the RNs using the informal method of notifying the RRT, no analysis could be performed to determine if one method had higher incidences of satisfaction than the other.

Although this framework was effective in guiding this investigation, it is clear that there are other factors that affect the outcomes of satisfaction, collaboration, and communication. The literature also suggests that other attributes of the work environment might impact satisfaction. For example, daily workload is a major indicator of job dissatisfaction (Sengin, 2003). In addition, nurse-to-patient ratios can impact job satisfaction, as well as the RNs' assessment of their daily workload. These variables, though not delineated in the theoretical framework used for this study, do have an influence and may need to be controlled for in future studies.

Relationship of Findings to Previous Research

Prior to this study, there has not been any published literature that studied the effects of the RRT on perceptions of satisfaction, collaboration, or communication. Due to the results showing high levels of satisfaction and collaboration, this investigation did support other studies (Baggs & Ryan, 1990; Sengin 2003). These previous studies show that there was a relationship between satisfaction, collaboration, and teamwork. Also, the RRT has the potential to assist in achieving Magnet Status recognition. The RRT may help to improve physician to RN collaboration as well as empower the bedside RN to feel

more autonomous. These factors are exemplified in institutions that have reached Magnet Status (Kramer et al., 2004).

Next, there was a vast amount of information about the positive effects of the RRT on clinical outcomes (Buist et al., 2002; Devita et al., 2004; Foraida et al., 2003). These studies found significant decreases in cardiopulmonary arrests, as well as survival from cardiopulmonary arrests. However, the results of this research contrasted what was previously known about the effect of the RRT in regards to clinical outcomes when examining nurse outcomes. While differences in satisfaction among nurses were noted, the RRT did not have the positive impact.

Strengths, Limitations, and Recommendations

The researcher identified three strengths to this study. First, this study investigated an issue that was timely and significant to nursing practice. RNs are imperative to the delivery of health care and issues that impact job satisfaction are of the utmost importance when facing a nursing shortage. Also, RNs are essential to improving patient outcomes. Working with the bedside RN, the RRT has shown itself to do so.

The next strength of the study was the response rate of the respondents. Originally, it was desired to have a response rate of 68; however the actual response rate was more than double that at 146 RNs. The larger sample size increases the ability to generalize the findings beyond the study sample.

Lastly, this study is one of the first at the data collection site to evaluate the frequency and use of the RRT. While the prevalence of how often the RRT is being notified is known, there is little knowledge of how many times a nurse may call the RRT. Also, this study looked at the method the RN used for notifying the RRT. The majority

of the nurses notified the RRT via direct telephone, which may help others to use this method when implementing their teams.

When evaluating this study, two limitations were identified. First, this study was the first to examine the effects of the RRT on outcomes other than clinical outcomes. The descriptive exploratory design of this study provided a basis for future research that might be able to better to explore the relationships of the RRT and nurse outcomes. Descriptive studies provide information regarding the variables rather than identifying causal relationships (Polit & Beck, 2004). In addition, descriptive studies do not provide a mechanism to control extraneous variables.

Next, the revised version of the CSACD questionnaire limited the responses obtained. It was originally anticipated that respondents would reply to that tool even if they had not used the RRT. However, if the respondents had not used the RRT, the CSACD was not completed. Therefore, it was not possible to investigate statistically any differences in the perceptions of collaboration between those RNs who had used the RRT versus those who had not.

Further studies should be performed to continue to investigate the effects of the RRT on RNs. This may be best performed by using a pre/post intervention where the RRT is the intervention planned for implementation. This will help to better control for extraneous variables that may confound the results. This study was one of the first to explore nurse satisfaction in an environment with a RRT in place. It is also recommended that future studies should be performed to investigate the effects of the RRT on patient and family satisfaction.

Implications of the Study

This study begins to fill a gap in the existing literature regarding the impact of RRTs. It is known that RRTs have positively affected clinical outcomes. The other effects of the RRT are still unknown and should be investigated. The identification of factors concerning RRT and bedside RN interactions that positively affect satisfaction, collaboration and communication will provide guidance in the creation of strategies to recruit and retain RNs.

Significance to Nursing Administration

Several implications for nursing administration emerge from this study. First, nurse administrators need to be aware of the work-related attributes that affect job satisfaction. Impacting job satisfaction can have a major effect on retention and recruitment. By being aware of these factors, nurse administrators can work to ensure that the RNs are practicing in an environment that allows them to maximize their care and satisfaction.

Next, nurse administrators need to continue to support the development of RRTs for their institutions. The positive impact on clinical outcomes of patients is reason enough for the development; however the anecdotal evidence of the impact on nurse satisfaction may provide rationale for the development. With the variety of structures that are possible, nurse administrators need to keep in mind that a highly skilled RN with advanced assessment knowledge will provide better clinical outcomes (Devita et al., 2004). Although this person may incur higher expenses for the institution, the savings in both tangible and intangible outcomes are invaluable.

Significance to Nursing Practice

The use of an RRT is a fairly new concept. There are many ways that an RRT can impact nursing practice. Factors such as effective satisfaction, communication, and collaboration can produce a healthy work environment. As the nursing shortage continues, it is important that RNs feel that they can practice in a setting that upholds the professionalism of their practice.

Next, as investigated in this study, the RRT has the potential to impact nursing satisfaction. Based on work by Sengin (2003), when the nurse feels autonomous and collaborative, there is an increase in satisfaction. The RRT allows the bedside RN to do this.

Lastly, a model that uses a nurse practitioner as the lead RN in the RRT has the potential to significantly impact nursing practice. The Advanced Practice Nurse (APN) brings a higher level of assessment skills as well as prescriptive authority. Also, the APN is an expert in coaching nursing staff as well as patients and families (Hamric, Spross, & Hanson, 2005). By utilizing these communication and collaboration skills of the APN, institutions have the opportunity to improve both clinical and nursing outcomes.

Significance to Nursing Education

RRTs can have an effect on nursing education. First, nursing educators should facilitate the development of communication and collaboration skills. This is a major function of the RN and should be incorporated throughout their nursing education. According to Krogstad et al. (2004), nurses regard their skill in communication and emotional care as one of their core competencies. Nurse educators need to continue to foster this in new nurses.

Next, nursing education should also focus on teaching nurses about the criteria through which patient deterioration may be first noted. This will help them to better identify when the RRT might be needed. Nurses are the first-line observers of patient conditions and need to continue to use education, experience and observations to manage patient care (Krogstad et al., 2004).

Significance to Nursing Research

This study was one of the first to assess the effects of the RRT on outcomes other than clinical outcomes. This study provides a basis for future research to further assess how the RRT will impact other aspects of nursing care, including job satisfaction, communication, and collaboration. This investigation can also be used as preliminary work for an experimental design study to investigate the effects of the RRT. Also, the effects of the RRT on patient satisfaction should also be investigated.

Summary

Satisfaction, collaboration, and communication of RNs are dynamic issues that are influenced by many factors. In light of the nursing shortage, it is imperative to be aware of the factors that can have an effect on nursing satisfaction, collaboration, and communication. The RRT has the potential to impact these variables. With the recommendations of the IHI's 100,000 Lives Campaign, many hospitals are now implementing RRTs. The clinical outcomes of the RRT are well documented however further investigations need to continue to study the effects of the RRT on nursing outcomes. Future investigations should focus on the effects on the RRT on the RNs who use it. RNs are a vital part of the healthcare delivery system that make a difference in the clinical, quality, and economic outcomes of an institution. Further studies similar to this one could allow institutions to see the dramatic impact that an RRT can have.

APPENDICES

Appendix A

Cover Letter

Cover Letter

June 15, 2006

Dear Registered Nurse:

In the face of a growing nursing shortage, many are investigating factors that affect the nursing work environment. Among these factors that have the potential to impact the work environment is the use of a Rapid Response Team. As a RN at your institution, you have been selected to participate in a study involving your perceptions of the work environment and use of the Rapid Response Team.

Please take approximately 25 minutes to complete the attached questionnaires. When you are finished, place the questionnaires in the self-addressed stamped envelope, seal it, and place it in the mail. It is important to the research process that the entire set of questionnaires be completed and returned. However if you prefer not to answer a question, feel free to leave it blank. You may stop completing the forms at any time.

Participation is voluntary. There are no foreseeable risks to you. All responses will remain confidential and anonymous, so please do not put your name on any of the papers. No attempt has been made to name or code the questionnaires to identify any of the participants. Your understanding of this study and willingness to participate is implied upon your completion and return of the questionnaire. Your name will not appear on any of the results of the study. Although there are no direct benefits from participating, the results, reported as an aggregate, may improve the professional practice environment.

You may receive a summary of the results of the study by emailing me with your name and address to the email address below. If you have any questions, please email me. If you have questions regarding your rights as a participant, you may also contact Dr. Paul Reitemeier, Chair of the Human Research Review Committee at Grand Valley State University, at (616) 331-3197 hrrc@gvsu.edu. To participate, all questionnaires need to be returned no later than July 14, 2006. I truly appreciate your time and participation in this study.

Sincerely,
Jacob Ainsworth, RN, BSN

ainswojw@student.gvsu.edu

Appendix B
Demographic Questionnaire

Appendix C

Use of the Rapid Response Team Questionnaire

Use of the Rapid Response Team Questionnaire

1. Have you utilized the Rapid Response Team for one of your patients?

Yes No

2. If not, why not?

(If you answered "No" to question #1, you may go on the to next page)

3. Approximately how often in the past month?

Past 3 months? Past Year?

4. How did you notify the Rapid Response Team of the change in your patient's condition? Overhead Page Call to RRT directly

5. Please draw an "X" that represents your overall perception of **collaboration** among you and the RRT.

0 100
|-----|
Low Collaboration High Collaboration

6. Please draw an "X" that represents your overall perception of **communication** among you and the RRT.

0 100
|-----|
Low Communication High Communication

7. Please draw an "X" that represents overall how **satisfied** you are with the RRT.

0 100
|-----|
Low Satisfaction High Satisfaction

Appendix D

Collaboration and Satisfaction About Care Decisions Questionnaire

Appendix E

Nurse Job Satisfaction Scale

Nurse Job Satisfaction Scale

Directions: For each item below, circle the most appropriate response. Please do not add your name to this page.

Key: SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, SD=Strongly Disagree

- | | | | | | |
|---|----|---|---|---|----|
| 1. Most days I have time to provide hygiene measure for my patients. | SA | A | U | D | SD |
| 2. I consider my job rather unpleasant. | SA | A | U | D | SD |
| 3. Usually I have enough time to do a good job of patient care. | SA | A | U | D | SD |
| 4. I enjoy my work more than my leisure time. | SA | A | U | D | SD |
| 5. Many days I would have to stay overtime to get all my paperwork done. | SA | A | U | D | SD |
| 6. Many days I feel pressured because I don't have time to do all I want to do. | SA | A | U | D | SD |
| 7. I feel fairly well satisfied with my present job. | SA | A | U | D | SD |
| 8. I am not satisfied with the level of individualized care I am giving now. | SA | A | U | D | SD |
| 9. Most of the time I have to force myself to go to work. | SA | A | U | D | SD |
| 10. Under the circumstances it is difficult to provide high quality care. | SA | A | U | D | SD |
| 11. I am satisfied with my job for the time being. | SA | A | U | D | SD |
| 12. I definitely dislike my work. | SA | A | U | D | SD |
| 13. I feel I am happier than most other people. | SA | A | U | D | SD |
| 14. Most of the time I am satisfied with the patient care I give. | SA | A | U | D | SD |
| 15. Most days I am enthusiastic about my work. | SA | A | U | D | SD |
| 16. It is hard for me to give patient care that meets my standards. | SA | A | U | D | SD |
| 17. I like my job better than the average worker does. | SA | A | U | D | SD |
| 18. I find real enjoyment in my work. | SA | A | U | D | SD |
| 19. I am disappointed that I ever took this job. | SA | A | U | D | SD |
| 20. There are some conditions concerning my job that could be improved. | SA | A | U | D | SD |
| 21. I feel that I have time to do both my charting and my patient care. | SA | A | U | D | SD |
| 22. I feel satisfied with the technical care I give. | SA | A | U | D | SD |
| 23. I am able to keep my patients comfortable. | SA | A | U | D | SD |

Thank you for your time with this study! Please place it in the self-addressed sealed envelope and place it in the mail.

Nurse Job Satisfaction Scale

Directions: For each item below, circle the most appropriate response. Please do not add your name to this page.

Key: SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, SD=Strongly Disagree

- | | | | | | |
|---|----|---|---|---|----|
| 1. Most days I have time to provide hygiene measure for my patients. | SA | A | U | D | SD |
| 2. I consider my job rather unpleasant. | SA | A | U | D | SD |
| 3. Usually I have enough time to do a good job of patient care. | SA | A | U | D | SD |
| 4. I enjoy my work more than my leisure time. | SA | A | U | D | SD |
| 5. Many days I would have to stay overtime to get all my paperwork done. | SA | A | U | D | SD |
| 6. Many days I feel pressured because I don't have time to do all I want to do. | SA | A | U | D | SD |
| 7. I feel fairly well satisfied with my present job. | SA | A | U | D | SD |
| 8. I am not satisfied with the level of individualized care I am giving now. | SA | A | U | D | SD |
| 9. Most of the time I have to force myself to go to work. | SA | A | U | D | SD |
| 10. Under the circumstances it is difficult to provide high quality care. | SA | A | U | D | SD |
| 11. I am satisfied with my job for the time being. | SA | A | U | D | SD |
| 12. I definitely dislike my work. | SA | A | U | D | SD |
| 13. I feel I am happier than most other people. | SA | A | U | D | SD |
| 14. Most of the time I am satisfied with the patient care I give. | SA | A | U | D | SD |
| 15. Most days I am enthusiastic about my work. | SA | A | U | D | SD |
| 16. It is hard for me to give patient care that meets my standards. | SA | A | U | D | SD |
| 17. I like my job better than the average worker does. | SA | A | U | D | SD |
| 18. I find real enjoyment in my work. | SA | A | U | D | SD |
| 19. I am disappointed that I ever took this job. | SA | A | U | D | SD |
| 20. There are some conditions concerning my job that could be improved. | SA | A | U | D | SD |
| 21. I feel that I have time to do both my charting and my patient care. | SA | A | U | D | SD |
| 22. I feel satisfied with the technical care I give. | SA | A | U | D | SD |
| 23. I am able to keep my patients comfortable. | SA | A | U | D | SD |

Thank you for your time with this study! Please place it in the self-addressed sealed envelope and place it in the mail.

Appendix F

Grand Valley State University Approval Letter



June 19, 2006

Proposal No.: 06-272-H

Category: Expedited

Review Date: 6/5/2006

Approval Date: 6/15/2006

Expiration Date: 6/4/2006

Dear Mr. Ainsworth,

Grand Valley State University, Human Research Review Committee (HRRC), has completed its review of this proposal. The HRRC serves as the Institutional Review Board (IRB) for Grand Valley State University. The rights and welfare of the human subjects appear to be adequately protected and the methods used to obtain informed consent are appropriate. Your project has been **APPROVED as expedited**. Please include your proposal number in all future correspondence. The first principal investigator will be sent all correspondence from the University unless otherwise requested.

Revisions: The HRRC must review and approve any change in protocol procedures involving human subjects, prior to the initiation of the change. To revise an approved protocol including a protocol that was initially exempt from the federal regulations, send a written request along with both the original and revised protocols including the subject consent form, to the Chair of the HRRC. When requesting approval of revisions both the project's HRRC number and title must be referenced.


Problems/Changes: The HRRC must be informed promptly if any of the following arises during the course of your project. 1) Problems (unexpected side effects, complaints, etc.) involving the subjects. 2) Changes in the research environment or new information that indicates greater risk to the subjects than existed when the protocol was previously reviewed and approved. 3) Changes in personnel listed on the initial protocol, e.g. principal investigator, co-investigator(s) or secondary personnel.

Renewals: The HRRC approval is valid until the expiration date listed above. Any project that continues beyond the expiration date must be renewed with a continuing review form that can be found at http://www.gvsu.edu/forms/research_dev/FORMS. A maximum of 4 renewals are possible. If you need to continue a proposal beyond that time, you are required to submit a new protocol application for a complete review.

Closed: When your project is completed or if you do not anticipate the study to extend past the one year approval, please complete and submit a closed protocol form. You can find this document at http://www.gvsu.edu/forms/research_dev/FORMS.

If I can be of further assistance, please contact me at 616-331-3417 or via e-mail: reitemep@gvsu.edu. You can also contact the Graduate Assistant in Faculty Research and Development Office at 616-331-3197.

Sincerely,


Paul J. Reitemeier, Ph.D.
Human Research Review Committee Chair
301C DeVos Center
Grand Rapids, MI 49504

Human Research Review Committee

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Office: (616) 331-3197 • Direct: (616) 331-3417 • Fax: (616) 331-7317

Appendix G

Pilot Study Questions

Pilot Study Questions

1. Did you find the tools easy to read?
2. Did you find the questions easy to understand?
3. What changes, if any would you suggest to the tool.
4. How long did it take you to complete the questionnaires?

Appendix H

Reminder Card

Reminder Card

Dear Registered Nurse:

Have you completed the questionnaire that was recently sent to you regarding your perceptions of the work environment and use of the Rapid Response Team? If so, then thank you for your time! If not, please take the time to do so now. Your input is valued!

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